

CITY OF CHANDLER
CHANGE ORDER NO. 1
DATE 3/23/22

Change Order not valid until signed by both the City and the Contractor. Contractor's signature indicates agreement herewith, including any adjustments in the Contract Price or Contract Time.

Project Name: **Chandler Heights Road Utility Relocations – GMP 2**
Project No.: **WW2111.401**
User Dept.: **PW&U** NTP Date: **3/28/2022**

TO: Achen-Gardner Construction, LLC 550 S. 79th St. Chandler, AZ 85226
(CONTRACTOR) (Address)

Contractor must make the following changes to this contract: (Detail scope change (Exh. A) / Technical Specifications (Exh. B), if needed)

The following contract Change Order represents the GMP for the Phase II of the Chandler Heights Road Utility Relocations as presented in Exhibit A for the proposed work along Lake Drive from Chaparral Way to Alma School Road. The contract time will also be extended an additional 50 calendar days to allow the contractor to perform this portion of the work.

OWNER NAME & DATE APPROVAL: Kim Moon 03/22/2022

Changes result in the following revised contract amount and time:

Original contract amount:	\$1,371,579.28
Current contract amount, prior to this Change Order: (incl. previous Change Orders)	\$1,371,579.28
Net change resulting from this Change Order: (if over \$50,000 from contract amount previously approved by Council, Council approval is required)	\$3,396,940.40
Revised contract amount, including this Change Order:	\$4,768,519.68
Last contract amount approved by Council:	\$1,371,579.28
Change Order % of last contract amount approved by Council: (if over 10% of previous contract amount approved by Council, Council approval is required)	247%

Contract time or completion date prior to this Change Order: (incl. previous Change Orders)

90 or _____
Days Date

Net change resulting from this Change Order:

50
Days

Revised contract time OR completion date:

140 or _____
Days Date

SIGNATURE PAGE TO FOLLOW

<u>Achen-Gardner Construction, LLC</u> CONTRACTOR	 _____ Signature <u>knunez@achen.com</u> _____ Signer Email Address	3/29/2022 _____ Date
_____ MAYOR	_____ Date	Approved by Council on: _____ Date
Recommended By:		
Approved as to Form (initials): _____	_____ Kimberly Moon Acting CIP City Engineer	_____ Date
City Attorney by: _____		
Attest: City Clerk: _____	_____ Date	

Exhibit A



**GMP PROPOSAL FOR CITY OF CHANDLER - CHANDLER HEIGHTS ROAD UTILITY
RELOCATIONS. LAKE DRIVE: CHAPARRAL WAY TO ALMA SCHOOL RD CMAR PROJECT**

March 18, 2022

City of Chandler
Mr. Paul Ahlas
215 E. Buffalo Street
Chandler, Arizona 85224

City of Chandler Project No.: WW2111.401
Achen-Gardner Construction, LLC Project No.: 3938102

Dear Mr. Ahlas:

Attached please find Achen-Gardner Construction, LLC's ("Achen-Gardner") GMP Proposal ("Proposal") including Schedule of Values (SOV) for installation of 2", 8", & 16" water lines and 10" sewer.

This GMP Proposal total for the Direct Cost and markups is \$2,953,861.22 (excluding Owner Allowance (Item 10700) or \$443,079.18). Achen-Gardner does not guarantee the Owner Allowance amount.

Should you have any questions and/or comments, please feel free to contact me at (480) 403-9399 or e-mail dbroderick@achen.com.

Sincerely,
ACHEN-GARDNER CONSTRUCTION, LLC



Dan Broderick, Sr. Project Manager

Attachments

INDEX OF EXHIBITS

MARCH 18, 2022

**CITY OF CHANDLER – CHANDLER HEIGHTS ROAD UTILITY RELOCATIONS
GMP PROPOSAL FOR LAKE DRIVE: CHAPARRAL WAY TO ALMA SCHOOL RD
PROJECT NO: WW2111.401**

Exhibit D1:	Scope of Work
Exhibit D2:	Cost Model Form
Exhibit D3:	Schedule of Values
Exhibit D4:	List of GMP Documents
Exhibit D5	Clarifications and Assumptions
Exhibit D6:	Subcontractor and Supplier Solicitation Documentation, Award Recommendations and Quotes
Exhibit D7:	Baseline Project Schedule

EXHIBIT D1: SCOPE OF WORK

MARCH 18, 2022

**CITY OF CHANDLER – CHANDLER HEIGHTS ROAD UTILITY RELOCATIONS
GMP PROPOSAL FOR LAKE DRIVE: CHAPARRAL WAY TO ALMA SCHOOL RD
PROJECT NO: WW2111.401**

The overall project scope includes the relocation of existing City- owned wastewater, reclaimed water and potable water pipes to clear an alignment for a proposed SRP undergrounding of a 230-Kilowatt transmission system. These relocations will occur on Chaparral Way (Dobson Road to Lake Drive) - Package no. 1, on Lake Drive (Chaparral to Alma School) - Package no. 2, on Alma School Road (Lake Drive to Chandler Heights Road) and Chandler Heights (Alma School Road to the Union Pacific Railroad) - Package 3, then work on Chandler Heights east of the Union Pacific Railroad - Package 4.

The Package 2 GMP project scope on Lake Drive includes the installations of approximately: 250 LF of 8" waterline with valves and fittings, 30 LF of 16" waterline with valves and fittings, one 2" service, 30 LF of 3" reclaimed water and 1130 LF of 10" sewer with ten new Polymer manholes. The replacement of existing concrete and asphalt surfaces due to the construction are included.

EXHIBIT D2: COST MODEL FORM

MARCH 18, 2022

**CITY OF CHANDLER – CHANDLER HEIGHTS ROAD UTILITY RELOCATIONS
GMP PROPOSAL FOR LAKE DRIVE: CHAPARRAL WAY TO ALMA SCHOOL RD
PROJECT NO: WW2111.401**

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EXHIBIT D2			
CM@RISK GMP SUMMARY			
			Date: 18-Mar-22
Project Name:	Chandler Heights Road Utility Relocations		
Project Location:	Lake - Chaparral to Alma		
City of Chandler Project No.:	WW2111.401		
			Amount
A. Cost of Work			
A1 Cost of Work (self-performed, subcontractors, suppliers no mark-up)			\$2,361,622.79
A2 Cost of Work (subcontractors, suppliers, materialmen)			
		TOTAL COST OF WORK:	\$2,361,622.79
B. General Conditions			
			\$156,321.70
		SUBTOTAL 1 (Cost of Work) (A + B):	\$2,517,944.49
C. CM@Risk's Fee			
			\$226,615.00
		SUBTOTAL 2 (A + B + C):	\$2,744,559.49
D. Bonds and Insurance (on Subtotal 1)			
D1 Bonds (Payment and Performance)			\$20,143.56
D2 Insurance			\$49,099.92
		TOTAL BONDS & INSURANCE:	\$69,243.48
		SUBTOTAL 3 (SUBTOTAL 2 + BONDS & INS):	\$2,813,802.97
E. Sales Tax			
E1 Sales Tax			\$142,659.81
E2 Tax Exempt Material Adjustment			-\$2,601.56
		TOTAL SALES TAX:	\$140,058.25

EXHIBIT D2: COST MODEL FORM

MARCH 18, 2022

**CITY OF CHANDLER – CHANDLER HEIGHTS ROAD UTILITY RELOCATIONS
GMP PROPOSAL FOR LAKE DRIVE: CHAPARRAL WAY TO ALMA SCHOOL RD
PROJECT NO: WW2111.401**

Page 2 of 2

F. Approved Allowances						
F1 Allowances with F2						\$0.00
F2 Owner Allowance						\$443,079.18
				TOTAL ALLOWANCES:		\$443,079.18
G. Contingencies						
G1	Construction Contingency					\$0.00
G2						\$0.00
				TOTAL CONTINGENCIES:		\$0.00
				TOTAL GMP PROPOSAL:		\$3,396,940.40
<u>Establishment of Values:</u>						
a. Cost of Work (A) and Allowances (F) to be submitted with GMP Proposal.						
b. General Conditions Cost (B) to be established in Baseline Cost Model.						
c. CM@Risk Fee as set forth in Section 3.7.3 of this Contract						

EXHIBIT D3: SCHEDULE OF VALUES

MARCH 18, 2022

**CITY OF CHANDLER – CHANDLER HEIGHTS ROAD UTILITY RELOCATIONS
GMP PROPOSAL FOR LAKE DRIVE: CHAPARRAL WAY TO ALMA SCHOOL RD
PROJECT NO: WW2111.401**

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CITY OF CHANDLER CHANDLER HEIGHTS ROAD UTILITY RELOCATIONS CMAR PROJECT					3-18-22
PROJECT NO.: WW2111.401					
90% GMP FOR LAKE DR: CHAPARRAL TO ALMA SCHOOL					
ACHEN-GARDNER CONSTRUCTION PROJECT NO. 3938102					
EXHIBIT D3 - SCHEDULE OF VALUES 90% GMP					
ACHEN-GARDNER CONSTRUCTION, LLC					
550 S. 79th STREET					
CHANDLER, AZ 85226					
					DESIGN DOCUMENT STAGE: 90% WILSON
PAY ITEM	DESCRIPTION	UM	QUANTITY	UNIT PRICE	TOTAL
1	MOBILIZATION/DEMOBILIZATION	LS	1	\$41,563.96	\$ 41,563.96
2	SURVEY	LS	1	\$3,660.00	\$ 3,660.00
3	INSTALL 8" DIP CL 350 WATERLINE & FITTINGS	LF	250	\$1,025.79	\$ 256,447.50
4	INSTALL 24" STEEL CASING	LF	120	\$764.94	\$ 91,792.80
5	INSTALL 8" GATE VALVE	EA	6	\$3,288.53	\$ 19,731.18
6	INSTALL 16" DIP CL 350 WATERLINE & FITTINGS	LF	30	\$881.48	\$ 26,444.40
7	INSTALL 16" GATE VALVE	EA	2	\$8,237.88	\$ 16,475.76
8	INSTALL 1" COMBO AIR VAC VALVE	EA	3	\$9,191.08	\$ 27,573.24
9	INSTALL 2" WATER SERVICE	EA	1	\$8,893.51	\$ 8,893.51
10	INSTALL 3" RECLAIMED WATERLINE	LF	30	\$133.30	\$ 3,999.00
11	ABANDON EXISTING 8" WATERLINE GROUT FILL	LF	299	\$61.26	\$ 18,316.74
12	ABANDON EXISTING 12" WATERLINE GROUT FILL	LF	70	\$62.67	\$ 4,386.90
13	REMOVE 10" SEWER LINE	LF	70	\$446.35	\$ 31,244.50
14	REMOVE EXISTING MANHOLE	EA	4	\$11,621.45	\$ 46,485.80
15	INSTALL 10" VCP SEWER LINE	LF	1130	\$652.58	\$ 737,415.40
16	INSTALL 60" POLYMER MANHOLE	EA	10	\$38,558.08	\$ 385,580.80
17	ABANDON EXISTING 10" SEWER LINE/GROUT FILL	LF	1085	\$41.65	\$ 45,190.25
18	CONCRETE ENCASEMENT MAG 404	LF	70	\$206.21	\$ 14,434.70
20	ASPHALT REMOVAL & REPLACEMENT	SY	2600	\$85.57	\$ 222,482.00
21	SIDEWALK REMOVAL & REPLACEMENT	SF	1700	\$13.28	\$ 22,576.00
22	SIDEWALK RAMP REMOVAL & REPLACEMENT	SF	300	\$22.77	\$ 6,831.00
23	CURB & GUTTER REMOVAL & REPLACEMENT	LF	747	\$29.34	\$ 21,916.98
24	VALLEY GUTTER REMOVAL & REPLACEMENT	SF	720	\$28.46	\$ 20,491.20
25	TRAFFIC CONTROL	LS	1	\$10,640.00	\$ 10,640.00
26	PROJECT DUST CONTROL	LS	1	\$15,082.77	\$ 15,082.77
27	SWPPP	LS	1	\$12,562.50	\$ 12,562.50
28	SEWER BYPASS	LS	1	\$249,403.90	\$ 249,403.90
	SUBTOTAL - DIRECT COST OF THE WORK (A1)				\$ 2,361,622.79



37	GENERAL CONDITIONS EXHIBIT D2, (B)	MO	2.0	\$ 78,160.85	\$ 156,321.70
RUNNING TOTAL NO. 1 - DIRECT COST OF THE WORK INCLUDING GCs					\$ 2,517,944.49
10100	OVERHEAD AND FEE (7.5% OH, 1.5% FEE) EXHIBIT D2, (C)		9.00%		\$ 226,615.00
SUBTOTAL - OVERHEAD AND FEE					\$ 226,615.00
RUNNING TOTAL NO. 2 - DIRECT COST OF THE WORK + OH & FEE					\$ 2,744,559.49
10200	INSURANCE (INCL. BUILDERS RISK & POLLUTION LIABILITY) EX D2, (D2)		1.95%	(Calc on RT #1)	\$ 49,099.92
10300	BONDS (PAYMENT & PERFORMANCE) EX D2, (D1)		0.80%	(Calc on RT #1)	\$ 20,143.56
SUBTOTAL - INSURANCE AND BONDS					\$ 69,243.48
RUNNING TOTAL NO. 3 - DIRECT COST OF THE WORK + OH & FEE + INS & BOND					\$ 2,813,802.97
10400	SALES TAXES (5.07% or 7.8% of 65% of Running Total No. 3 EX, D2(E1)		5.070%		\$ 142,659.81
10450	ESTIMATED TAX EXEMPT MATERIAL ADJ. (ALLOWANCE) EX, D2 (E2)		5.070%	\$ 86,654.00	\$ (2,601.56)
SUBTOTAL - SALES TAXES					\$ 140,058.25
RUNNING TOTAL NO. 4 - DIRECT COST OF THE WORK, + OH & FEE + INS & BOND + SALES TAXES)					\$ 2,953,861.22
29-35	ALLOWANCES EXHIBIT D2, (F1) Included in (F2)	AL	0.0	\$ -	\$ -
10700	OWNER'S ALLOWANCE(AMOUNT INCL. MARK-UPS (F2)		15.0%		\$ 443,079.18
SUBTOTAL - ALLOWANCES AND CONTINGENCY (INCL MUs)					\$ 443,079.18
TOTAL GMP PROPOSAL					\$ 3,396,940.40

CITY OF CHANDLER CHANDLER HEIGHTS ROAD UTILITY RELOCATONS CMAR PROJECT					3-18-22
PROJECT NO.: WW2111.401					
90% GMP FOR LAKE DR: CHAPARRAL TO ALMA SCHOOL					
ACHEN-GARDNER CONSTRUCTION PROJECT NO. 3938102					
ITEM 27 - GENERAL CONDITIONS DETAIL					
ACHEN-GARDNER CONSTRUCTION, LLC					DESIGN DOCUMENT STAGE: 90% WILSON
550 S. 79th STREET					
CHANDLER, AZ 85226					
PAY ITEM	DESCRIPTION	QUANTITY	UM	UNIT PRICE	TOTAL
37.1	PROJECT SUPERINTENDENT	352.00	HR	109.41	38,511.40
37.2	SPECIALTY SUPERINTENDENT	352.00	HR	104.01	36,612.00
37.3	PROJECT MANAGER	176.00	HR	109.41	19,255.70
37.4	PROJECT ENGINEER	352.00	HR	93.81	33,020.58
37.5	ICE AND WATER	2.00	MO	220.00	440.00
37.6	BUY CONSTRUCTION WATER	2.00	MO	2,150.00	4,300.00
37.7	TEMPORARY FACILITIES	2.00	MO	12,091.01	24,182.02
	GENERAL CONDITIONS (DIRECT COSTS)				156,321.70
37	MONTHLY GENERAL CONDITIONS		2	MO	78,160.85
NOTE	See Main Schedule of Values Pay Item 37 for GCs				

CITY OF CHANDLER CHANDLER HEIGHTS ROAD UTILITY RELOCATONS CMAR PROJECT					3/18/22
PROJECT NO.: WW2111.401					
90% GMP FOR LAKE DR: CHAPARRAL TO ALMA SCHOOL					
ACHEN-GARDNER CONSTRUCTION PROJECT NO. 3938102					
ACHEN-GARDNER CONSTRUCTION, LLC					
550 S. 79th STREET					
CHANDLER, AZ 85226					
					DESIGN DOCUMENT STAGE: 90% WILSON
PAY ITEM	DESCRIPTION	UM	QUANTITY	UNIT PRICE	TOTAL
29	OFF-DUTY OFFICER (ALLOWANCE)	LS	1.0	\$ 29,920.00	\$ 29,920.00
30	LANDSCAPING RESTORATION (ALLOWANCE)	LS	1.0	\$ 20,000.00	\$ 20,000.00
31	HOA WALL REPAIR (ALLOWANCE)	LS	1.0	\$ 30,000.00	\$ 30,000.00
32	3" IRRIGATION BYPASS (ALLOWANCE)	LS	1.0	\$ 10,000.00	\$ 10,000.00
33	MATERIAL TESTING (ALLOWANCE)	LS	1.0	\$ 15,000.00	\$ 15,000.00
34	SWEEPING (ALLOWANCE)	LS	1.0	\$ 13,000.00	\$ 13,000.00
35	PLANT OPENING FEES (ALLOWANCE)	LS	1.0	\$ 12,000.00	\$ 12,000.00
	SUBTOTAL - DIRECT COST OF THE ALLOWANCES				129,920.00
10100	OVERHEAD AND FEE (7.5% OH, 1.5% FEE)		9.00%		\$ 11,692.80
	SUBTOTAL - OVERHEAD AND FEE ©				\$ 11,692.80
	RUNNING TOTAL NO. 1 - DIRECT COST + OH & FEE				\$ 141,612.80
10200	INSURANCE (INCL. BUILDERS RISK & POLLUTION LIABILITY)		1.95%	(Calc on RT #1)	\$ 2,533.44
10300	BONDS (PAYMENT & PERFORMANCE)		0.80%	(Calc on RT #1)	\$ 1,039.36
	SUBTOTAL - INSURANCE AND BONDS				\$ 3,572.80
	RUNNING TOTAL NO. 2 - DIRECT COST + OH & FEE + INS & BOND				\$ 145,185.60
10400	SALES TAXES (5.07% or 7.8% of 65% of Running Total No. 3		5.070%		\$ 7,360.91
10450	ESTIMATED TAX EXEMPT MATERIAL ADJUSTMENT (ALLOWANCE)				
	SUBTOTAL - SALES TAXES				\$ 7,360.91
	TOTAL ALLOWANCES (SEE MAIN SCHEDULE OF VALUES PAY ITEM 28)				\$ 152,546.51
NOTE	ALLOWANCES ARE ESTIMATES F1 Allowance to be included in F2 Owner Allowance				

EXHIBIT D4: LIST OF GMP DOCUMENTS

MARCH 18, 2022

**CITY OF CHANDLER – CHANDLER HEIGHTS ROAD UTILITY RELOCATIONS
GMP PROPOSAL FOR LAKE DRIVE: CHAPARRAL WAY TO ALMA SCHOOL RD
PROJECT NO: WW2111.401**

- Wilson Engineers City of Chandler - Chandler Heights Road Utility Relocations, Lake Drive: Chaparral Way to Alma School Road 90% plan set (pages 1 to 14), Project No. WW2111.401 dated January 2022 with comments dated February 8th, 2022.
- Wilson Engineers Technical Specifications Submittal for City of Chandler – Chandler Heights Road Utility Relocations, Lake Drive: Chaparral Way to Alma School Road, City Project No. WW2111.401, dated February 2022 (Agency Review set, pages 1 to 99).
- Executed (12-16-21) Pre-construction Services Contract with Achen-Gardner Construction, LLC and the City of Chandler for the Chandler Heights Road Utility Relocations CMAR Project; City of Chandler Project No. WW2111.251.
- Project WW2111.401 GMP 1 -Package 1 (Chaparral Way – Dobson Road to Lake Dr.) proposal dated 1-26-22 and contract documents scheduled for council approval on 2-24-22.

EXHIBIT D5: CLARIFICATIONS AND ASSUMPTIONS

MARCH 18, 2022

**CITY OF CHANDLER – CHANDLER HEIGHTS ROAD UTILITY RELOCATIONS
GMP PROPOSAL FOR LAKE DRIVE: CHAPARRAL WAY TO ALMA SCHOOL RD
PROJECT NO: WW2111.401**

NOTE: This GMP is based on the following clarifications and assumptions.

1. *Fee Exclusions:* GMP excludes all costs associated with City permit and plan review fees, Quality Assurance (QA) (i.e., City inspection and testing) costs, impact fees, and utility company fees, water meters/meter installations except for construction water, and/or any other fees not specifically identified herein.
2. *Unit Price Contract Administration:* This GMP will be administered as a Measured Quantity/Unit Price, Guaranteed Not-to-Exceed Contract. The Schedules of Values (Re: Exhibit D3) is defined by the individual work/pay items plus fee structure, and markups (re: Exhibit D3, Items 10100 through 10450). Final contract price/payout will be based on field measured, final completed quantities at the approved unit prices, approved allowance and/or contingency utilization, and approved change orders. It is understood that these City approved prices including mark-ups are the “Cost of the Work”. The mark-up structure on the Schedule of Values (Exhibit D3) will apply to Change Orders and/or Extra Work, allowances, and contingencies. The mark-ups for MAG section 109.5 do not apply for this contract. Pay Item under-runs and/or unused items shall fall to Owner’s Allowance for the duration of the project. Quantity over-runs shall be paid at the unit price established in the Schedule of Values for the pay item and shall be paid from Owner’s Allowance or Change Orders.
3. *Aerial Construction Photography:* Achen-Gardner shall provide a pre-construction video/photographs and progress photographs/videos periodically. Aerial videos shall only be provided if FAA and local approval is provided to fly a drone camera. Drone videos if allowed, shall be standard drone footage.
4. *Mobilization/Demobilization* – includes the following monthly items as defined in the Specifications: the field office fencing, work area fencing for three work sites, field offices, temporary utilities, material testing, and toilets for the two-month project duration. Therefore, the Mobilization/Demobilization Pay Item shall be invoiced monthly based on the two (2) month project duration.
5. *Utility Relocations / Unknown Buried Conflicts:* This GMP excludes all costs associated with removing, replacing and/or relocating any existing buried or overhead dry utilities and/or unknown buried conflicts.
6. *Final, For-construction Plans and Technical Provisions:* Funds required for revisions made between the 90% and final design documents shall come from Owners Allowance.

FEE SCHEDULE ITEM CLARIFICATIONS

ITEM NO.	DESCRIPTION	CLARIFICATION / ASSUMPTION
DIRECT COSTS		
1	Mobilization	• Mobilization & Demobilization • Pre-Construction Video & Progress Photos • Project Clean-Up • Known utility potholing • Small Tools & Consumables • Dust Permit • Project Sign • Quality Control based on MAG testing requirements for frequency and type. • Nighttime/weekend plant opening fees. • Measured and paid on lump sum basis.
2	Survey	• Survey, Staking, Registered Land Surveyor Certified As-Builts • Construction Redlines • GIS point collection and submission per City's GIS Mapping specifications • Registered Land Surveyor Certification of as-builts • Measured and paid on lump sum basis
3-9,12	Potable Water	• Includes all installation work associated; dig/lay/bedding/shading/backfill per MAG specs and as noted on drawings, spoil/debris haul off, slurry backfill to full depth in asphalt per detail 101 on page M-1, connections to existing waterlines/service connections (tees), installation of valves, and testing (bac tee & chlorination) • Includes 2", 8", and 16" waterline as noted on the plans. • Includes 24" steel casings where laterals are noted on plans; all lateral crossings to be placed under SRP duct banks. Each casing installation is based on all 35' at one time. • Work excludes cathodic protection for all DIP related components. • Work includes grout fill of 174 LF of 8" and 70 LF of 12" abandoned waterlines per the plans. • Material pricing good for 30 days. • Measured and paid for as noted on Exhibit D3 unit rates summary.
10	Reclaimed Water	• Includes all installation work associated; dig/lay/bedding/shading/backfill per MAG specs and as noted on drawings, spoil/debris haul off, slurry backfill to full depth in asphalt per detail 101page M-1, connections to existing reclaimed waterlines/service connections (tees), installation of valves, and pressure testing as required. • Includes 3"" reclaimed waterline as noted on the plans. • Material pricing good for 30 days. • Measured and paid for as noted on Exhibit D3 unit rates summary.
13-18	Sewer	• Includes all installation work associated; dig/lay/bedding/shading/backfill, spoil/debris haul off, slurry backfill to full depth in asphalt per detail 101 on page M-1, manhole connections, manhole installation/rehab as noted on plans, applicable sewer encasements, testing, and CCTV. • Includes 10" sewer as noted on the plans. • Includes new polymer manholes 60" diameter as noted on the plans. • Includes removal of existing manholes and existing 10" sewer line as noted on the plans. • Includes grouting 1085 LF of 10" abandoned sewer line. • Includes MAG 404 encasement as noted on the plans. • Material pricing good for 30 days. • Measured and paid for as noted on Exhibit D3 unit rates summary.

ITEM NO.	DESCRIPTION	CLARIFICATION / ASSUMPTION
20	Asphalt Removal & Replacement	- Includes all work associated with the construction including saw cutting, spoil/debris haul off, subgrade preparation, and installation of ABC, AC and tack coat.. - Slurry seal is excluded. - Asphalt thickness to be replaced on Lake Drive at 3" Asphalt Concrete on 6" ABC and on Alma School Road at 5" Asphaltic Concrete on 12" of ABC as noted on the plans. - Includes thermoplastic striping. - Material pricing good for 30 days. - Measured and paid for by the Square Yard.
21-24	Concrete	- Includes all work associated; concrete removal, saw cutting, haul off, disposal, subgrade preparation, and replacement of concrete with like kind to match existing color and textured surfaces. Curb & Gutter replacements per mag 220, Sidewalk replacements per MAG 230 and valley gutter/apron replacements per MAG 240. - Material pricing good for 30 days. - Measured and paid for as noted on Exhibit D3 unit rates summary.
25	Traffic Control	- Traffic Control assumed to have hard closure all directions on Lake Dr from approximately station 100+80 to approximately station 117+00 (west asphalt edge of Alma School Road). Excludes any use of jersey barriers. - Message Boards - Variable Message Boards will set up 2 weeks prior to construction and then removed after 2 weeks after the start of construction. Includes 4 variable message boards. - Traffic Control Plans - Includes preparation, submission, and updates of Traffic Control Plans (TCP). - Setup & Takedown - Includes installation, maintenance, and removal of barricades and signage in accordance with approved TCP. - Includes daily maintenance of barricades in accordance with approved TCP. - Barricades and no plating. - Measured and paid on lump sum basis.
26	Dust Control	- Includes one month of 2000 gallon water truck and teamster for dust control. - Measured and paid on lump sum basis.
27	SWPPP – Design, Implementation, & Maintenance	- Includes SWPPP plan, implementation of plan, inspections, and removal at the completion of the project. - Track Out Pad - Measured and paid on lump sum basis.
28	Bypass Pumping	- Includes installation with 5week operation of bypass for 10" sewer line. The suction manhole is located at approximately 101+00 and the discharge manhole is located at approximately 117+00 (west edge of Alma School Road). Lateral flows are picked up at MH #4 (from the south), MH #7 (from the north), and MH #10 (from the north and south). Assumes that lateral bypass line will need to be buried at 2 locations Wildflower and Apartment lateral at MH #10 to connect to main bypass line. No asphalt replacement included in this item. - Measured and paid on lump sum basis.
37	General Conditions	- Includes cost of Project Management – Project Supt., Specialty Supt. Project Manager, Project Engineer and vehicles. - Ice/drinking water and construction water. - Temporary Facilities (2.0 months) – trailer, fencing, electrical service, yard rental, toilets, and trailer furnishings. - Assumption is that GMP 1 timeframe for 2 months (April/May) gives GMP 2 a sequenced start directly after GMP 1 for 2.0 months (June/July) with no gap. Should a nonconsecutive work time gap exist the additional time would be funded out of Owner Contingency. - Measured and paid on a monthly basis.

ITEM NO.	DESCRIPTION	CLARIFICATION / ASSUMPTION
ALLOWANCES		
29	Off Duty Police Officer w/ vehicle (Allowance)	- Chandler Off-Duty Police Office and Vehicle. - Hourly rate may be adjusted to match actual costs incurred (<i>City rates could be subject to change during the duration of the project</i>). - Measured and paid on an hourly basis out of owner contingency F2.
30	Landscape Restoration (Allowance)	- Includes all work associated including granite removal, spoil/debris haul off, subgrade preparation, replacement of decomposed granite and restoration of existing irrigation system. - Measured and paid for on a cost-plus markups basis unless unit prices can be utilized where applicable out of owner contingency F2.
31	HOA Wall Repair (Allowance)	- Includes all HOA repair work associated with the construction of north tie in on 8" waterline at station 14+80. - Measured and paid for on a cost-plus markups basis unless unit prices can be utilized where applicable out of owner contingency F2.
32	3" Irrigation Bypass (Allowance)	- Includes all work associated with bypassing the 3" reclaimed waterline. - Measured and paid for on a cost-plus markups basis unless unit prices can be utilized where applicable out of owner contingency F2.
33	Material Testing (Allowance)	- Includes all work associated with Quality Control based on MAG testing requirements for frequency and type. - Measured and paid for on a cost-plus markups basis unless unit prices can be utilized where applicable out of owner contingency F2.
34	Sweeping (Allowance)	- Includes all work associated with sweeping for dust control to and from the site. - Measured and paid for on a cost-plus markups basis unless unit prices can be utilized where applicable out of owner contingency F2.
35	Plant Opening (Allowance)	- Includes all work associated with additional plant opening fees. - Measured and paid for on a cost-plus markups basis unless unit prices can be utilized where applicable out of owner contingency F2.
10700	Owner's Allowance	- For City requested upgrades and changes per Construction Contract Article 15.4.2 Owner's Contingency. - Includes \$140,000 for the preconstruction services for GMP 3 (Package 3) and GMP 4 (Package 4). - Measured and paid for on a cost-plus markups basis unless unit prices can be utilized where applicable.
CMAR FEE		
10100	CMAR Construction Fee	Measured and paid on calculation of 9.0% of subtotal direct costs, contingencies, allowances, and job overhead.
BONDS AND INSURANCE		
10200	Insurance	Measured and paid on calculation of 1.95% of subtotal for direct costs.
10300	Performance and Payment Bonds	Measured and paid on calculation of .8% of subtotal for direct costs.

SALES TAX		
10400	Gross Receipts Tax	- Calculated based on 65% of 7.8% City of Chandler Sales Tax rate. - Calculation may be adjusted to match actual sales tax incurred (<i>City rates could be subject to change during the duration of the project</i>). - Measured and paid on calculation of 5.07% of subtotal direct costs, contingencies, allowances, job overhead, CMAR fee, bonds and insurance.

10450	Tax Exempt Material Adjustment	• Tax Exempt material adjustment for water line materials per Title 42 of the Arizona Revised Statutes (also reference AZDOR code 535 Pipes or Valves, 4" diameter or large used to transport oil, natural/artificial gas, water, coal slurry). • Measured and paid on lump sum basis.
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*** Allowance options with values are referenced above; allowance items can be reallocated to the base bid as requested.*

EXHIBIT D6: SUBCONTRACTOR AND SUPPLIER SOLICITATION DOCUMENTATION,
AWARD RECOMMENDATIONS, AND QUOTES

MARCH 18, 2022

CITY OF CHANDLER – CHANDLER HEIGHTS ROAD UTILITY RELOCATIONS
GMP PROPOSAL FOR LAKE DRIVE: CHAPARRAL WAY TO ALMA SCHOOL RD
PROJECT NO: WW2111.401

See following subcontractor and supplier award recommendations spreadsheet with quotes.

- 1) This Proposal is based on recommended awarded subcontractor and supplier resource values and related proposals/quote clarifications, inclusions, exclusions, escalation clauses, and qualifications. **These proposals/quotes follow this summary sheet.**
- 2) This summary reflects competitive bids with a specific scope/Schedule of Values provided to all subcontractors and suppliers at the time of solicitation. Actual quantities and extended totals reflected in the SOV may be different based on final quantity and cost adjustments due to ongoing revisions.

SUBCONTRACTOR SOLICITATION SUMMARY AND RECOMMENDATIONS									
				3/18/2022					
SCOPE OF WORK/MATERIAL	SUBCONTRACTOR/SUPPLIER			BID/NO BID	BID AMOUNT	RECOMMENDATIONS			
AGGREGATES	Buesing Corp			B	\$ 337,138.00				
AGGREGATES	Cemex Inc			B	\$ 309,592.00	Lowest Qualified Bidder			
AGGREGATES	Vulcan Materials			B	\$ 569,926.00				
ASPHALT	Fisher Sand and Gravel			B	\$ 72,735.00				
ASPHALT	Vulcan Materials			B	\$ 54,375.00	Lowest Qualified Bidder			
BYPASS	Capital Pump & Equipment			B	\$ 216,005.07	Lowest Qualified Bidder			
BYPASS	Rain For Rent			B	\$ 249,938.00				
CASING	Trinity Products			B	\$ 21,822.00	Selection Continuation Pck 1			
GROUT	Action Pumping			B	\$ 7,695.00	Lowest Qualified Bidder			
GROUT	Cell-Crete Corporation			B	\$ 27,030.00				
GROUT	Pacific International Grout Company			N					
PIPEPK	Core&Main			B	\$ 92,686.00	Selection Continuation Pck 1			
POLYMH	Armorock			B	\$ 143,581.00	Lowest Qualified Bidder			
POLYMH	Olson Precast			B	\$ 122,089.00	Not approved supplier			
QC	Alta Arizona (Survey, Engineering, Geotec)			N					
QC	Ninyo & Moore			N					
QC	Quality Testing LLC.			B	\$ 14,957.00	Lowest Qualified Bidder			
REDIMIX	Arizona Materials LLC			B	\$ 158,770.00	Lowest Qualified Bidder			
REDIMIX	Calportland			B	\$ 164,135.00				
REDIMIX	Desert Redi Mix			B	\$ 144,808.00	NO PRICE/DELIVERY GUARANTEE			
SURVEY	Atwell, LLC			N					
SURVEY	Benchmark Surveying & Consulting			N					
SURVEY	Survey Innovations Group Inc.			B	\$ 3,660.00	Lowest Qualified Bidder			

Quote Analysis Report

Achen-Gardner Construction, LLC 71

Mark McLafferty

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39381002-1

CHANDLER HEIGHTS LAKE DR PACKAGE 2 FINAL

3/18/2022 12:52 PM

AGGREGATES AGGREGATES

Vendor Code							CEMEXINC	BUESINGCORP	VULCANMATERI
Vendor Name							Cemex Inc	Buesing Corp	Vulcan Materials
Vendor Phone							7606377179	6022333339	6025288961
Bid	Activity	Resource	Desc	Quan	Unit	Plug Price	Unit Price	Unit Price	Unit Price
		2AG57ROCK	57 ROCK	1.50	TN	25.0000	25.0000 P	0.0000	25.0000
		2AGABC	ABC MAG	19,949.00	TN	15.0000	15.5000	16.9000	28.5500
		2AGBEDSAND	BEDDING SAND	15.00	TN	23.0000	23.0000 P	0.0000	23.0000 P
Quoted Amount							309,210	337,138	569,581
Plugged Amount							383	0	345
Bond							0	0	0
Mobilization							0	0	0
% Adjustment							0	0	0
\$ Adjustment							0	0	0
Total Adjustment							0	0	0
Totals							299,618	309,592	337,138
Diff From Plug							9,975	37,521	569,926
Total Minority							0	0	270,309
							0	0	0

A 'P' beside a price indicates a plug price.
Green background indicates that the vendor is selected.

GENERAL INFORMATION

Account:	ACHEN-GARDNER CONSTRUCTION LLC	Project:	D - CHANDLER HTS RD CMAR P2
Account number:	3033003	Project Address:	4500 South Alma School Road Chandler, Arizona 85248
Contact:	Mark McLafferty		
E-mail:	mmclafferty@achen.com		
Phone:	480-940-1300	Doc. Expiration Date:	3/18/2022
		Price Valid from:	2/16/2022
Customer Service:	602-416-2658	Price Valid to:	3/31/2022
Sales Office Address:	5555 E. Van Buren Street, Suite 155, Phoenix, AZ 85008		

MATERIAL PRICING:

Material Number	Description	Plant	Quantity	UoM	Delivered Price	Truck Type	Notes
1307799	SPEC BASE COARSE	2108-8985-Agg Trading - Sacaton (SO-3233)	30,000.00	TON	\$15.25	16 WHEELER	DELIVERED IN SUPERS

ADDITIONAL CLAUSES

Category	Item	Value	UoM	Comments
Pricing Escalation	ADD \$0.50/TON 7/1/22 - 9/30/22			
	The prices are subject to an escalation of	x.xx	USD/ton	Effective , and each months thereafter
Surcharges and Fees				
	Variable Fuel surcharge	xx.xx	USD/Load	
	Environmental compliance fee	\$5.00	USD/Load	Charged on all loads
	Full freight recovery	xx.xx	USD/ton	Based on full freight for a load of 22 Tons
	Plant Opening fee for non business hours on weekdays, weekends	\$1,000.00	USD per Each	Subject to notification
	Saturday haul premium	Bid upon request	USD/ton	Aggregates account manager for pricing
	Standby charge	xx.xx	USD/min	Subject to notification
	Re-handling fee	\$40.00	USD/Load	Unsuitable material dumped at landfill, to be reloaded

Pricing Conditions

All Sales are subject to CEMEX Standard terms and conditions. Pricing quoted is per short ton and does not include sales tax. Applicable Sales Tax will apply unless Sales Tax exemption certificate is on file at CEMEX prior to pick up or delivery.

Delivered Pricing: Pricing is based on delivery during regular aggregate plant hours.

FOB Pricing: Material prices are FOB CEMEX facility at the designated location loaded onto buyer's trucks. Ownership of materials transfers from CEMEX to customer at gate.

Payment terms

Payment Terms are standard as follows: Net 10th Prox. (10th of the month following delivery or pick up)

Delayed portion of payment will attract a Finance charge of the lessor of 1.5% per month, 18% per annum or maximum permitted under applicable laws

Material Availability

All Materials are subject to availability by plant inventory, production schedules, shipping schedules, plant failure and / or equipment breakdown. CEMEX is not liable for lack of material, equipment, drivers, disruptions in transportation, and any other shortage.

Delivery Availability

All shipments are subject to truck availability.

Product Performance

All material is per engineer approval and is considered acceptable when tested and sampled per acceptable sampling standards at our plant.

Respectfully,

CEMEX Con Mat South, LLC

Donald Peters

Phone: 0

Email: donald.peters@cemex.com

Accepted by:

ACHEN-GARDNER CONSTRUCTION LLC

Standard Terms and Condition

1. Terms and Conditions. These Standard Terms and Conditions of CEMEX Con Mat South, LLC and its affiliates ("Seller"), Buyer's Credit Application, and Seller's Quotation, if any, (collectively, "Agreement") govern any and all purchases made by Buyer from Seller and are incorporated herein by reference. This Agreement, and any other documents prepared by Seller for Buyer in connection with Buyer's purchase of materials contain the entire understanding between the parties concerning the subject matter hereof, and there are no other agreements or understandings except as set forth herein. Any different or additional terms or conditions contained in any writing or instrument of Buyer, whether by purchase order or otherwise, are hereby objected to by Seller and shall have no effect on, and not become part of, this Agreement.
2. Technical Assistance. In no event shall Seller bear any responsibility for claims arising from technical advice or assistance provided to Buyer. Advice by Seller is for Buyer's guidance only and Buyer agrees to rely solely on its own architects, engineers or other technical experts.
3. Prices and Price Increases. Prices for the materials are (i) subject to material availability at the time of delivery; (ii) shall remain firm until the date set forth on the Seller's Quotation, if any, or if no such date is given, for a period of thirty (30) days after the date the order was accepted by Seller, the price was quoted by Seller or such shorter period as set forth in the Seller's quote; thereafter prices are subject to change by Seller; and (iii) do not include Saturday, Sunday holiday, off-hour or overtime shipments, all of which are subject to additional charges. Prices are applicable only to the job quoted or orders accepted by Seller and are available only to the specific Buyer referred to therein, are for a standard mix design, if applicable, and are only for the quantities requested by Buyer at the time the prices were quoted. Seller reserves the right to (i) increase prices on any quote or accepted orders without notice to reflect any raw material cost increases or surcharges incurred by Seller and (ii) defer or cancel any quote or accepted orders in the event Seller becomes delayed or prevented from performing due to shortages or allocation of raw materials. In the event of a delay or cancellation resulting from shortages or allocations of raw materials, Seller shall not be liable to Buyer for any damages incurred by Buyer as a result of any such delay or cancellation.
4. Surcharges and Fees. Prices quoted may not include additional charges Buyer may be responsible for. Such additional charges include, but are not limited to, charges for additives, accelerators, winterizers/summerset, water (hot or chilled), ice and stand-by, waiting time and delivery charges due to loads in amounts less than a full truckload. Such prices shall be charged at the rate of Seller's then-current price list for additional charges, which is incorporated into these Terms and Conditions by reference as if fully set forth herein and which is available to Buyer upon request. Buyer acknowledges that surcharges and fees are to recoup Seller's costs and achieve a return on investment.
5. Tests. Seller reserves the right to levy an additional charge on Buyer for any nonstandard tests that Buyer may require to be performed on the materials sold to Buyer. Failure of Buyer to witness any tests shall be deemed a waiver by Buyer of its right to do so and of any right to require repetition of such tests, and Buyer shall be deemed to have accepted any such test results as sufficient to meet its specifications.
6. Payment and Interest. Buyer shall make all payments due hereunder in accordance with the terms of this Agreement and as stated on Seller's invoices or other notices of terms, without any right of setoff or retention and without regard to any agreement Buyer may have with other parties. If Buyer fails to pay in full the invoice amount when due, Buyer agrees to pay interest on the unpaid balance from the date when due until paid in full at the rate selected by Seller, not to exceed the lesser of 18% per annum or the highest lawful rate, specifically including post judgment. Buyer agrees to pay any and all costs and expenses incurred by Seller in collecting from Buyer any past due amounts, including but not limited to reasonable attorney fees, court costs and collection agency fees. Seller may suspend pending deliveries during any period when Buyer has overdue balances or evidence of a changed financial condition.
7. Liens. Buyer agrees to timely provide in writing to Seller information regarding bonding companies, general contractors or owners for the purpose of filing preliminary notices and claims on payment bonds or mechanic's and material supplier's liens.
8. Delivery. Seller's responsibility for delivery shall cease FOB shipping point or, if Seller agrees to deliver FOB delivery site, at the curbside or frontage of the address for delivery. Where delivery of products is to an unattended site, Seller will not be liable for any loss or damage to products, property or for unsigned delivery tickets. In absence of a specific delivery date on the Quotation, Seller will commence delivery of the materials on a date and at a rate mutually agreed upon by both Seller and Buyer.
9. Default. If Buyer is in default under this Agreement or any of its contracts or obligations with Seller, Seller may at its option and without notice: (i) declare the entire unpaid balance owed by Buyer due and payable; (ii) postpone further deliveries until such default is remedied; (iii) terminate any and all obligations under any contract; and (iv) refuse further performance without any liability to Buyer.
10. Limited Warranty and Liability Disclaimer. Seller warrants that the materials sold under this Agreement meet solely the description and specifications for the same set forth in the applicable Quotation, if any, and shall be free from defects in material and workmanship for a period of one (1) year from the date of delivery thereof. No other express warranties are made with respect to said materials. Acceptance by Buyer of the materials shall constitute confirmation by Buyer that the materials meet the description and specifications, if any, set forth in such applicable Quotation. The foregoing warranty is subject to standard manufacturing and color variations, efflorescence, tolerances and classifications or naturally occurring substances. Seller is not responsible for installation or defective conditions caused by installation. Buyer's exclusive remedy for breach of this warranty shall be to require Seller, at Seller's option, to refund the purchase price for the materials failing to comply, to repair or to provide Buyer with conforming replacements for any nonconforming materials. Seller shall not be responsible for any removal or installation costs. THE FOREGOING WARRANTY IS IN LIEU OF AND EXCLUDES ALL OTHER WRITTEN OR ORAL WARRANTIES OR CONTRACTUAL AGREEMENTS, WHETHER EXPRESS OR IMPLIED BY LAW OR OTHERWISE, INCLUDING THE IMPLIED WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY OR HABITABILITY. Buyer agrees that in specific consideration for receiving this warranty, it will indemnify and hold harmless Seller from any and all damages in connection with any statutory, contractual or warranty breach, negligence, strict liability, or other tortious conduct by Seller. This Agreement may not be modified or amended except by a writing signed by both parties.
11. Delays. If Seller is unable to complete delivery of any part of an order, Buyer shall accept such part of the order as Seller is able to deliver and Buyer shall pay for the part delivered pro rata at the same rate as the whole of the order agreed to be sold and on the same terms of payment. In the event Seller shall be delayed in or prevented from the performance of any act required under this Agreement, or it shall become commercially unreasonable to perform by reason of governmental allocations, priorities, restrictions or regulations now or hereafter in effect, storm, flood, fire, earthquake or other Acts of God, war, terrorism, riot, insurrection or other civil disturbance, strikes, lockouts, shortages of materials, labor, raw materials, fuel, power or production facilities, breakdown of equipment, transportation shortages, changes in market conditions or other contingencies beyond Seller's reasonable control whether of a similar or dissimilar nature to the foregoing, Seller shall not be liable to Buyer for any damages incurred by Buyer as a result of any such delay or failure.
12. Claims. Buyer agrees that all claims against Seller are waived unless presented to Seller in writing within one week from the date of delivery of the materials. Seller shall have thirty days from receipt to inspect and correct a defect if such claim is allowed. Buyer further agrees that in the event that Buyer disagrees with Seller's decision about whether to allow the claim that the Buyer's remedy is to formally adjudicate the claim, but the Buyer further agrees that Seller's invoices for all materials supplied shall be paid in the interim. No claim shall be allowed after the materials purchased hereunder are incorporated, modified or processed by Buyer in any manner. SELLER'S LIABILITY ON ANY CLAIM FOR LOSS OR DAMAGE SHALL NOT EXCEED THE PRICE OF THE MATERIALS ACTUALLY RECEIVED FROM BUYER BY SELLER WITH REGARD TO WHICH SUCH CLAIM FOR LOSS OR DAMAGE IS MADE.
13. Waiver. Seller may, at its option, permit Buyer to remedy any default under this Agreement without waiving the default so remedied or any other default by Buyer. Buyer waives notice of default of this Agreement and waives presentment, demand, protest, and notice of dishonor as to any instrument issued or delivered to Seller.
14. Venue. This Agreement will be governed by the applicable state and federal laws without giving effect to conflict of laws principles. The Buyer agrees that any legal actions and proceedings brought for the breach or the enforcement of this Agreement will lie in the state and county in this state of delivery. Buyer consents and submits to the jurisdiction and venue of any state, county or federal court located within that county. As a material inducement to Seller to enter into this Agreement, Buyer waives the right to trial by jury in any proceeding arising out of or related to this Agreement.
15. Notice. Any notice sent to Seller shall be in writing and sent by Certified Mail, postage prepaid, to the 10100 Katy Freeway, Suite 300, Houston, TX 77043, Attn: CEMEX Customer Care.
16. Severability. If any term, provision, covenant or condition of this Agreement is held by a court of competent jurisdiction to be invalid, void, or unenforceable, the remainder of the provisions shall remain in full force and effect and shall in no way be affected, impaired or invalidated. The parties agree that each term and provision of this Agreement shall be construed according to its fair meaning and not strictly for or against any Party.
17. Offset and/or Setoff. Seller may exercise the right of set-off under this Agreement as to any sums owed by Buyer and/or its affiliates under any other contract or agreement with Seller and/or its affiliates.
18. Remedies Cumulative. The duties and obligations imposed by this Agreement and the rights and remedies available under this Agreement are to be in addition to, and not a limitation of rights and remedies at law or in equity.
19. Miscellaneous. Time is of the essence. Buyer consents to Seller sending information to Buyer regarding Seller's products and prices at any time by fax to any fax number provided by Buyer, other electronic means or otherwise. A facsimile copy or electronic transmission will be treated as an original. Buyer shall not assign the Agreement or any interest herein without the prior written consent of Seller, and any attempted assignment, whether by operation of law or otherwise, shall be void without such prior written consent.
20. Authorization for Credit Review. Buyer consents to Seller's use of a non-business consumer credit report on the Buyer in order to further evaluate the credit worthiness of the Buyer in connection with the extension of business credit as contemplated hereby. Buyer authorizes Seller to utilize a consumer credit report from time to time in connection with the extension or continuation of business credit. Buyer hereby knowingly consents to the use of such credit report consistent with the Federal Fair Credit Reporting Act as contained in 15 USC @ 1681 et seq.
21. Representations. Buyer represents to Seller that it is solvent and that any financial information provided reflects the present financial condition of the Buyer. If Buyer is not a corporation or limited liability entity, Buyer acknowledges that Seller is relying on the credit worthiness and financial ability of the owner(s) of Buyer. Each owner shall be joint and severally liable for all indebtedness of Buyer to Seller under the Agreement. Buyer warrants that all information supplied to Seller is accurate and complete. Each representation and the information contained in a Credit Application, if any, is material and given to induce Seller to provide credit. Buyer will notify Seller by certified mail, within forty-eight (48) hours after any material change in Buyer's financial or ownership status.



Our Commitment to Sustainable Construction



CEMEX has an ambitious strategy to address climate change by delivering sustainable construction materials. Our ambition reflects a commitment to a more sustainable future. That's why we're leading the way in developing solutions that contribute to resilient infrastructure, while promoting economic growth with respect for the environment.



Learn more at cemexusa.com/sustainability



We're proud to offer our range of sustainable low carbon ready-mix concrete for builders who want to address climate change. Vertua® Classic can help you achieve CO₂ emissions reductions by 20% or more when compared to 100% portland-cement-based concrete.

Learn more:
cemexusa.com/vertua



Portland Limestone Cement

Build sustainably without compromising strength, durability or other benefits. CEMEX Type IL is a popular Portland Limestone Cement suited for projects such as concrete, precast, block, pavers and many others. Learn more:

cemexusa.com/TypeIL.



CEMEX has been producing high-quality, reliable and innovative admixtures for the construction industry for more than 20 years. CEMEX Admixtures are customized to fit your exact specifications and can help your concrete perform in a wide variety of conditions. Learn more:

cemexusa.com/admixtures.



**BUESING CORP.**Highway / Heavy Construction
AZ Lic. # A-ROC200645*"Simply the Best"*

Date: 2/16/2022

To: Achen Gardner Construction

Attn: Mark McLafferty

Phone: -

Fax:

Bid Date: February 16, 2021

Project No:

Project: Chandler Heights Utility Package #2

Location: Alma School Road & Lake Drive

City: Chandler, Az

We are pleased to submit the following cost estimate:

Pricing Good Through 09/30/2022 (See Standard Provisions)

QUANTITY	UNIT	DESCRIPTION	PRICE / UNIT	TOTAL
24,645	TON	NON LIMED MAG ABC DELIVERED IN BELLY DUMPS	\$ 15.45	\$ 380,765.25
24,645	TON	NON LIMED MAG ABC DELIVERED IN SUPERS	\$ 16.90	\$ 416,500.50
			\$	\$

Standard Provisions***SUFFICIENT QUANTITIES PER DELIVERY TO INSURE 4 HOUR MINIMUM PER TRUCK****Prices do not include weekend, holiday, off hour, or overtime shipments. Additional charges may apply if any of these conditions occur. Unless otherwise stated, dirt haul prices exclude permits, loading, dust control & sweeping.**ALL PRICES ASSUME THAT BUESING CORP'S STANDARD INSURANCE IS ACCEPTABLE**Payment due on or before the 25th day of the month for work completed or materials delivered in the month prior. No retention withheld.*

**ALL PRICING WILL BE HONORED THROUGH THE DATE SPECIFIED ABOVE
 PROVIDED THAT WE RECEIVE A P.O., P.A., OR LETTER OF INTENT WITHIN 30 DAYS. If
 JOB AWARD IS LONGER THAN 30 DAYS PLEASE NOTIFY US WITHIN THE 30 DAYS,
 AND WE WILL NEGOTIATE WITH MATERIAL SUPPLIERS TO ALLOW THE PRICE TO BE HONORED**

Special Provisions**AGGREGATE PRICING INCLUDES AN ALLOWANCE OF 5 MINUTES PER LOAD FOR BELLY DUMPS OR 7 MINUTES PER LOAD FOR SUPERS TO GET FROM THE PROJECT ENTRANCE TO THE DUMPSITE, UNLOAD & GET BACK TO THE PROJECT ENTRANCE.****BUESING WILL MAKE EVERY REASONABLE EFFORT TO HONOR THIS QUOTE & MEET CUSTOMER PRODUCTION EXPECTATIONS. HOWEVER, MATERIAL & TRUCK AVAILABILITY ARE BEYOND OUR CONTROL. ACCEPTANCE OF THIS QUOTE SHALL NOT SERVE AS A GUARANTEE THAT MATERIALS AND/OR TRUCKS WILL BE AVAILABLE WHEN REQUESTED.****If These Terms And Conditions Are Acceptable Please Sign This Form And Fax It Back To The Number Below****ACCEPTANCE OF PROPOSAL***The above prices, specifications and conditions are satisfactory and are hereby accepted. You are authorized to do the work as specified, provided there is an understanding between parties that the prime and / or subcontractor must receive an official award. If an official award, contract or subcontract is not consummated this proposal shall become null and void.*

Company Name: Achen Gardner Construction

Authorized Person's Signature: _____

Date: _____

*Thank you*and GOOD LUCK !!!

Respectfully Submitted: Cecil Wallace

3045 S 7th Street
(602) 845-3133Phoenix, Arizona 85040
Cell: (602) 799-5702

Quotation

Attn: Mark McLafferty

Quote Name: CHANDLER HEIGHTS UTILITY / ALMA SCHOC
Quote #: 513348

ACHEN-GARDNER CONSTRUCTION LLC
550 SOUTH 79TH STREET
CHANDLER, AZ 85226
Acct#: 213235

ALMA SCHOOL RD & LAKE DR /CHANDLER
AZ049141
CHANDLER, AZ 85248

Date:	Wednesday, February 16, 2022	Sales Rep :	Brian Kochert
Quote Created:	Wednesday, February 16, 2022		2526 E University Drive
Effective From:	Wednesday, February 16, 2022		PHOENIX, AZ 85034
Quote Expiration:	Friday, March 18, 2022	Phone:	480-536-0576
Price Expiration:	Sunday, July 31, 2022	Fax :	
		Email:	kochertb@vmcmail.com

Special Instructions:

There is a minimum for short loads.

This Hot-Mix Asphalt quote is based on a published average selling price from Poten & Partners for liquid binder of \$515/per ton. Any increase in price of \$25.00 or greater will be billed to the customer at \$1.50 per ton for every \$25.00 increase.

In the above example, if the published rack rate for liquid binder hits \$540/ton during the lifecycle of the project, an increase of \$1.50/ton will be added to each invoice for that month. If the rack rate climbs to \$565/ton, a second \$1.50 Binder Surcharge will go into effect. If pricing drops back down to the initial published rate, we'll adjust the price back to the original quoted per ton price.

Material quoted based on no specs reviewed. If any changes or different material is required, material is subject to price adjustment

Prices quoted are for delivery during normal business hours - Monday thru Friday 6AM to 5PM. Plant Premium for Monday - Friday night production (per 8 hour shifts) will be charged \$2,000.00 per shift. Plant Premium for Friday night into Saturday morning production (per 8 hour shifts) will be charged \$2,000.00 per shift. Plant Premium for Saturday production (per 8 hour shifts) will be charged \$1,000.00 per shift. Plant Premium for Sunday production (per 8 hour shifts) will be charged \$2,000.00 per shift. Any overtime will be charged at \$350.00 per hour. Truck stand by will be charged on site after the first 20 minutes at the rate of \$93 per hour or \$1.55 per minute. All night work will be subject to an 8 hour minimum hourly haul charge. All weekend work will be subject to a 4 hour minimum hourly haul charge.

All FOB asphalt will be \$79.00 per ton.

SAND & GRAVEL

Plant	Product Name	Product #	Qty	U/M	Delivered Price Per Unit
WEST BROADWAY SAND & GRAVEL	MAG SPEC ABC	16272	24,645	Tons	\$28.55
		Truck Type STD FRT RATE			
WEST BROADWAY SAND & GRAVEL	MAG SPEC ABC	16272	24,645	Tons	\$28.25
		Truck Type BOTTOM DUMP			
VAL VISTA SAND & GRAVEL	#57 ROCK	25112	2	Tons	\$26.50
		Truck Type STD FRT RATE			

ASPHALT

Plant	Product Name	Product #	Qty	U/M	Delivered Price Per Unit
SAN TAN HMA	3/4" EVAC PG70-10	231512T	750	Tons	\$72.10

Other Charges

Environmental Fee -Agg & Asphalt at \$4.00 / Load

Prices quoted above do not include any state or local sales and use tax, if any applies for this project.

Prices quoted are for shipments during normal daytime working hours unless other shipping hours are mutually agreed upon in writing by both parties.

Prices are FOB your jobsite as stated above. Terms are Net 15 prox. Please note standard terms and conditions apply. (Subject to credit approval)

This quote is limited to acceptance within 30 days from the date of this quotation after which time quotation is subject to review/revision. Please contact Sales prior to placing the order.

Accepted by: _____

Date: _____

Sales Representative: _____

Date: _____

We appreciate the opportunity to provide you this quote and trust that Vulcan will have the pleasure of serving your needs for this and future projects.

GENERAL TERMS AND CONDITIONS

PRICES AND TERMS

Prices are based on the terms and conditions set forth on page 1 of this Quotation, of which these General Terms and Conditions form a part, the terms and conditions stated in Customer's Application for Business Credit, and, if applicable, any terms and conditions relating to the delivery or shipment of materials by truck, barge, vessel, rail or other means which are provided by Vulcan to Customer in addition to this Quotation (each, a "Vulcan Sales Document", and collectively, the "Vulcan Sales Documents"). Prices are available only to the customer specifically named therein, and are only for the quantities mentioned in such Quotation or Sales Order plus or minus 10% of such quantities. A charge of 1.5% per month, (18% annum), will accrue on a daily basis from the date of invoice and will continue to accrue on a daily basis on any unpaid balance, both before and after judgment, until the date the balance is paid in full, or at the maximum amount permitted by law in which the sale occurred, whichever is less. **However, the assessment of a finance charge on invoices paid in full by the payment due date will be waived.** Quotation is offered for furnishing the total aggregate requirements for the project only. Customer's contract with Vulcan regarding the sale by Vulcan to Customer of the materials listed in this Quotation is subject to the terms and conditions set forth in the Vulcan Sales Documents. Prices reflect Customer's acceptance of materials at the quoted plant based upon gradation analysis performed and reported by Vulcan's certified plant quality control personnel. Any penalties that result from in place sampling shall be the full responsibility of Customer.

THE TERMS AND CONDITIONS OF THE VULCAN SALES DOCUMENTS GOVERN THE RIGHTS AND OBLIGATIONS OF THE PARTIES

If Customer has issued a purchase order for the materials quoted by Vulcan in this Quotation, this Quotation is not an acceptance of said purchase order, or any of its terms or conditions, which are hereby rejected. Any sale by Vulcan to Customer of the materials listed in this Quotation shall be subject to the terms and conditions set forth in the Vulcan Sales Documents, and Customer's receipt or acceptance of said materials shall constitute acceptance of the offer that this Quotation constitutes. Any terms or conditions of a subsequent purchase order issued by Customer that are inconsistent with the terms and conditions of the Vulcan Sales Documents shall be null and void.

SHIPMENT AND DELIVERY

Unless a "delivered" price is quoted by Vulcan in the Vulcan Sales Documents, all prices are F.O.B. point of shipment from the locations designated. All taxes applicable to the sale or delivery of materials that are not paid directly by Customer will be added to the sales price, invoiced to and paid by Customer, unless Customer provides Vulcan with satisfactory evidence of exemption from same. Shipment will be in accordance with Customer's reasonable instructions or, if none, then by whatever means Vulcan shall deem practicable. The quantities of material delivered to Customer shall be conclusively presumed to be the quantities shown on the tickets produced from a certified weigh scale at Vulcan's quarry or sales yard.

CREDIT AND DEFAULT

Vulcan shall have no obligation to ship or deliver except upon its determination prior to each shipment or delivery that Customer is worthy of the credit to be extended and is not in default upon any obligation to Vulcan. Upon default, Customer agrees to pay all of Vulcan's collection expenses, including attorneys' fees.

INSURANCE

A Memorandum of Insurance containing current information regarding Vulcan's insurance program is available at <https://marshdigital.marsh.com/marshconnect/viewMOI.action?clientId=632529479>.

EXCULPATORY PROVISIONS

Vulcan shall have no liability for delay or failure to make shipments, or delivery, as a result of strikes, labor problems, severe weather conditions, casualty, mechanical breakdown or other conditions beyond Vulcan's reasonable control. In no event shall Vulcan be liable for any incidental or consequential damages. Vulcan's liability and Customer's exclusive remedy for any cause of action arising out of the provision of material quoted herein shall be the replacement of, or payment of the purchase price for, the materials which are the subject of this Quotation.

CHANGE OF TERMS

Vulcan may change the price and/or quantity upon 30 days' notice to Customer. Vulcan shall also have right to change, modify or amend any other terms and conditions upon written notice of such change to customer. The effect of the change shall be as stated in the written notice and accepted by Customer upon placing of orders with seller following receipt of such notice.

APPLICABLE LAW

All orders are subject to acceptance by Vulcan at the headquarters of its Mountain West Division in Phoenix, Arizona, and the laws of the state in which the materials was shipped from shall apply to the sale of all materials subject hereto. In the event material is imported into the U.S., the law in the state in which the material was sold to the customer will prevail. All disputes regarding finance charges shall be governed by Alabama law.

LIMITED WARRANTY AND WARRANTY DISCLAIMER

Vulcan warrants for a period of one (1) year from date of delivery only that the material sold hereunder substantially complies with Vulcan's specifications for said material or the specifications set forth in Vulcan's quotation. **VULCAN HEREBY EXCLUDES ALL WARRANTIES OF MERCHANTABILITY AND FITNESS FOR ANY PURPOSE, AND ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, OF THE MATERIAL SOLD HEREUNDER, OTHER THAN THE EXPRESS WARRANTY STATED ABOVE.** In addition, except to the extent otherwise set forth in the specifications described above, Vulcan makes no warranty whatsoever with respect to specific gravity, absorption, whether the material is innocuous, non-deleterious, or non-reactive, or whether the material is in conformance with any plans, other specifications, regulations, ordinances, statutes, or other standards applicable to Customer's job or to said material as used by Customer. **VULCAN SHALL IN NO EVENT BE RESPONSIBLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGE CAUSED BY NON-COMPLIANCE OF THE MATERIAL WITH SPECIFICATIONS, OR FOR ANY DEFECTS IN THE MATERIAL SOLD HEREUNDER.**

ASPHALT ASPHALT

Vendor Code							VULCANMATERI	FISHERSANDAN
Vendor Name							Vulcan Material	Fisher Sand and
Vendor Phone							6025288961	4807301033
Bid	Activity	Resource	Desc	Quan	Unit	Plug Price	Unit Price	Unit Price
		2AC12EVAC	REPLACE ASPHALT	750.00	TN	0.0000	72.5000	96.5000
Quoted Amount							54,375	72,375
Plugged Amount							0	0
Bond							0	0
Mobilization							0	0
% Adjustment							0	0
\$ Adjustment							0	0
Total Adjustment							0	0
Totals					0		54,375	72,375
Diff From Plug							54,375	72,375
Total Minority							0	0

A 'P' beside a price indicates a plug price.
Green background indicates that the vendor is selected.

Quotation

Attn: Mark McLafferty

Quote Name: CHANDLER HEIGHTS UTILITY / ALMA SCHOC
Quote #: 513348

ACHEN-GARDNER CONSTRUCTION LLC
550 SOUTH 79TH STREET
CHANDLER, AZ 85226
Acct#: 213235

ALMA SCHOOL RD & LAKE DR /CHANDLER
AZ049141
CHANDLER, AZ 85248

Date:	Wednesday, February 16, 2022	Sales Rep :	Brian Kochert
Quote Created:	Wednesday, February 16, 2022		2526 E University Drive
Effective From:	Wednesday, February 16, 2022		PHOENIX, AZ 85034
Quote Expiration:	Friday, March 18, 2022	Phone:	480-536-0576
Price Expiration:	Sunday, July 31, 2022	Fax :	
		Email:	kochertb@vmcmail.com

Special Instructions:

There is a minimum for short loads.

This Hot-Mix Asphalt quote is based on a published average selling price from Poten & Partners for liquid binder of \$515/per ton. Any increase in price of \$25.00 or greater will be billed to the customer at \$1.50 per ton for every \$25.00 increase.

In the above example, if the published rack rate for liquid binder hits \$540/ton during the lifecycle of the project, an increase of \$1.50/ton will be added to each invoice for that month. If the rack rate climbs to \$565/ton, a second \$1.50 Binder Surcharge will go into effect. If pricing drops back down to the initial published rate, we'll adjust the price back to the original quoted per ton price.

Material quoted based on no specs reviewed. If any changes or different material is required, material is subject to price adjustment

Prices quoted are for delivery during normal business hours - Monday thru Friday 6AM to 5PM. Plant Premium for Monday - Friday night production (per 8 hour shifts) will be charged \$2,000.00 per shift. Plant Premium for Friday night into Saturday morning production (per 8 hour shifts) will be charged \$2,000.00 per shift. Plant Premium for Saturday production (per 8 hour shifts) will be charged \$1,000.00 per shift. Plant Premium for Sunday production (per 8 hour shifts) will be charged \$2,000.00 per shift. Any overtime will be charged at \$350.00 per hour. Truck stand by will be charged on site after the first 20 minutes at the rate of \$93 per hour or \$1.55 per minute. All night work will be subject to an 8 hour minimum hourly haul charge. All weekend work will be subject to a 4 hour minimum hourly haul charge.

All FOB asphalt will be \$79.00 per ton.

SAND & GRAVEL

Plant	Product Name	Product #	Qty	U/M	Delivered Price Per Unit
WEST BROADWAY SAND & GRAVEL	MAG SPEC ABC	16272	24,645	Tons	\$28.55
		Truck Type STD FRT RATE			
WEST BROADWAY SAND & GRAVEL	MAG SPEC ABC	16272	24,645	Tons	\$28.25
		Truck Type BOTTOM DUMP			
VAL VISTA SAND & GRAVEL	#57 ROCK	25112	2	Tons	\$26.50
		Truck Type STD FRT RATE			

ASPHALT

Plant	Product Name	Product #	Qty	U/M	Delivered Price Per Unit
SAN TAN HMA	3/4" EVAC PG70-10	231512T	750	Tons	\$72.10

Other Charges

Environmental Fee -Agg & Asphalt at \$4.00 / Load

Prices quoted above do not include any state or local sales and use tax, if any applies for this project.

Prices quoted are for shipments during normal daytime working hours unless other shipping hours are mutually agreed upon in writing by both parties.

Prices are FOB your jobsite as stated above. Terms are Net 15 prox. Please note standard terms and conditions apply. (Subject to credit approval)

This quote is limited to acceptance within 30 days from the date of this quotation after which time quotation is subject to review/revision. Please contact Sales prior to placing the order.

Accepted by: _____

Date: _____

Sales Representative: _____

Date: _____

We appreciate the opportunity to provide you this quote and trust that Vulcan will have the pleasure of serving your needs for this and future projects.

GENERAL TERMS AND CONDITIONS

PRICES AND TERMS

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Mark McLafferty

From: John Fontana <jfontana@fisherind.com>
Sent: Tuesday, February 15, 2022 11:40 AM
To: Mark McLafferty
Cc: John Fontana
Subject: Achen Gardner

Mark,
This price will expire on 7-31-22.

Chander Heights Rd. Utility Relocations Package 2.
Alma School Rd. & Lake Drive
Chandler.
750 tons
 $\frac{3}{4}$ " or $\frac{1}{2}$ " EVAC asphalt with 76-22PMTR oil \$96.50 per ton.

All quotes are valid for 30 days, unless secured with a Written Purchase Order.

Thank you,
John Fontana
Southwest Asphalt.

Disclaimer

The information contained in this communication from the sender is confidential. It is intended solely for use by the recipient and others authorized to receive it. If you are not the recipient, you are hereby notified that any disclosure, copying, distribution or taking action in relation of the contents of this information is strictly prohibited and may be unlawful.

BYPASS**BYPASS**

Vendor Code							CAPITALPUMPE	RAINFORRENT
Vendor Name							Capital Pump &	Rain For Rent
Vendor Phone							4806265257	4808959225
Bid	Activity	Resource	Desc	Quan	Unit	Plug Price	Unit Price	Unit Price
281	2051090	4BYPASSPUMP	BYPASS PUMPING	1.00	LS	0.0000	216,005.0700	243,938.7200
Quoted Amount							216,005	243,939
Plugged Amount							0	0
Bond							0	0
Mobilization							0	0
% Adjustment							0	0
\$ Adjustment							0	0
Total Adjustment							0	0
Totals					0		216,005	243,939
Diff From Plug							216,005	243,939
Total Minority							0	0

A 'P' beside a price indicates a plug price.

Green background indicates that the vendor is selected.



Capital Pump & Equipment

9229 S Hardy Drive Tempe, AZ 85284
Phone: 480-626-5257 Email: Sales@cpepumps.com

Quote #: CP22-275

Job Name: 10" Sewer Bypass

Customer: Achen Gardner
550 S 79th Street
Chandler AZ

Location: Lake Dr & Wildflower
Chandler, AZ

Contact: Mark McLafferty
Phone: 602-877-9392
Email: MMcLaffertyt@achen.com

Rental Equipment					RATES		
Qty	Unit	Rental Period	Description	Day	Week	4 Week	6 Week Total
10	ea.	Week	4" Silenced Pumps		\$ 884.00	\$ 2,652.00	\$ 44,200.00
5	ea.	Week	10' x 12' x 12" Spill Berms		\$ 50.00	\$ 150.00	\$ 1,250.00
5	ea.	Week	6" to 10" Multi size Plug		\$ 66.00	\$ 198.00	\$ 1,650.00
10	ea.	Week	6" X 13' Suction Stingers		\$ 75.00	\$ 225.00	\$ 3,750.00
1500	ft	Week	8" DR17 HDPE Pipe		\$ 0.25	\$ 0.75	\$ 1,875.00
600	ft	Week	6" DR17 HDPE Pipe		\$ 0.24	\$ 0.72	\$ 720.00
1	ea.	Week	Misc. Elbows Pipe & Fittings		\$ 500.00	\$ 1,500.00	\$ 2,500.00
			24/7 Pump Watch				
42		Day	2 person days 24/7 @ \$130.00 per Hr.	\$ 3,120.00			\$ 131,040.00
42		Day	Est. Fuel Burn 40 Gal Per day@\$5.75Gal	\$ 230.00			\$ 9,660.00
1		Sale	PE Stamped Bypass Plan	\$950.00			\$ 950.00

QUANTITIES ARE ESTIMATES

6 Week Rental Total \$ 197,595.00

QUANTITIES USED WILL BE BILLED

**** This bypass is designed to pump 450gpm @ 20' TDH with
100% Pump redundancy ****

Delivery \$ 375.00

Pick-up \$ 375.00

Estimated Install Labor \$ 8,900.00

5 Plug Install Labor \$ 1,500.00

Estimated Removal Labor \$ 6,250.00

**** Certified confined space crew ****

Estimated Sale Tax \$ 1,010.07

ESTIMATE TOTAL - \$216,005.07

Prepared by: Jerry Sheatz

Accepted by:

Date: Wednesday, February 16, 2022

Date:

Subject to Terms and Conditions on Page 2

Estimate valid for 30 days from issuance date



9229 S Hardy Drive Tempe, AZ 85284
Phone: 480-626-5257 Email: Sales@cpepumps.com

Terms, Conditions & Specifications

1. Customer agrees to abide by the terms and conditions on the purchase or rental contract.
2. Quantities are estimates and system is designed with information supplied by the customer. Any additional requirements will incur additional charges.
3. Customer responsible for all permits, traffic control, road crossings, etc.
4. Customer responsible for all FUEL & PM SERVICE during pump rentals.
5. Pump rate is based on **8 hour day, 48 hour week, 192 hour 4 week.** **N/A**
6. Overtime Charges, if applicable, are Computed: $(\text{Monthly Rate} / 192) \times .5 = \text{O/T Charge Per Hour}$ **N/A**
7. Labor rate is for normal working hours. Weekend or nighttime will incur additional charges.
8. Rental begins when equipment leaves CPE branch. Pumping systems are on rent during installation.
9. If Water Bridges are rented, they are placed under customer's direction. Customer accepts sole responsibility for placement, ongoing maintenance, and suitability for use in each specific traffic location.

JOB SPECIFIC TERMS, CONDITIONS & SPECIFICATIONS



Rain For Rent
26001 S Arizona Ave
Chandler, AZ, 85248
480-895-9225
rainforrent.com
JWILSON@rainforrent.com

Achen-Gardner Construction, LLC
Account: 120490
550 S 79TH ST
CHANDLER, AZ, 85226
Mark McLafferty
480-940-1300
mmclafferty@achen.com

Dear Mark McLafferty,

Thank you for your inquiry. As requested, please find attached our proposal 1092-IND-2008807 for Lake Rd Bypass (4-5 stations). We value this opportunity to provide a solution for your liquid handling need and we are committed to partnering with you to ensure your project's safe execution and completion.

To convert this proposal into a confirmed order WITHOUT ANY CHANGES, please click the "Start Signing" button to begin the electronic signature process.

If you would like to CHANGE anything in this proposal or discuss anything further, please call Jon Wilson at 480-895-9225.

Thank you, and I look forward to working with you.

Regards,

Jon Wilson
JWILSON@rainforrent.com
Mobile: 602-725-7839
Branch: 480-895-9225
26001 S Arizona Ave
Chandler, AZ, 85248



Proposal #	1092-IND-2008807	Project Name	Lake Rd Bypass (4-5 stations)
Date Prepared	2/15/2022	Est. Delivery Date	5/2/2022
Prevailing Wage	No	Est. Completion Date	5/31/2022

Project Location
Alma School/Lake St. west Chandler, AZ, 85226
Project Summary
Project requires multiple pump stations with redundancy, 24/7 pump watch (2 men)

STATEMENT OF WORK

RFR Responsibilities & Scope of Work

Rain for Rent (RFR) will provide the following:
Delivery, installation, 24/7 operation, removal, pickup of all quoted materials/equipment.

Reference Materials

Project is quoted based on applicable/customer provided reference materials noted below:
Plans, Job Walks, Customer Meetings, and email/phone communications.

Operating Parameters

System is designed to convey up to 500GPM sewage. Lateral flows shall be managed according to details listed below.
4 separate pump stations shall be operated by RFR.

Customer Responsibilities

It is the customer's responsibility to inform RFR about prevailing wage at time of proposal. If RFR is informed after the quote is issued that certified payroll is required, quote will be subject to additional charges.

Jobsite:

Customer is responsible for:

1. Informing RFR of any jobsite or general requirement(s) to perform work on location.
2. Securing permits, fees, bonding, right of ways, vehicular/pedestrian traffic control, and security.
3. Providing safe, secure access and egress to an adequate staging area throughout the job which could include brush clearing, grading, and removal or replacement of any landscape or hardscape in the temporary right of way for the equipment.
4. Any damage to the environment including trees, vegetation, stream banks, or any other part of the site caused by the installation, removal, construction, pulling or dragging of equipment, or operation of the equipment that would require site restoration or environmental countermeasures.
5. Any excavation, saw cutting, trench plating for the purpose of road crossings, installing sewer diversion lines, backfilling, restoration, modification, or alteration of any permanent structure or site element including changes to pump pad preparation, suction, or discharge chambers during duration of job (including installation and removal).

System:

1. RFR will provide dedicated equipment with operator and fuel to perform all needed unloading, testing, operations, maintenance, relocating, cleaning, and reloading of provided equipment/system.
2. If installation provided by RFR and Customer is operating system, this Transfer of Operation form will need to be reviewed and signed by both parties upon completion of setup. (sample form only): <https://rainforrentcorp.box.com/v/systemtransferoperation>
3. Customer will provide fueling.
4. Customer will provide preventative maintenance as recommended by manufacturer or per the Rental Agreement. <https://rainforrentcorp.box.com/v/pumpmaintenance>
5. Customer will supply all needed water for the commissioning, startup, and system testing. Project specific criteria for hydrotesting can be provided at an additional charge.



6. By accepting this quotation, the customer has acknowledged that the equipment proposed herein is suitable for its intended application and accepts all liabilities associated with its use. Customer is responsible for compliance with appropriate liquid/material quality standards, regulations, and testing protocols to meet all federal, state, local and job location specific requirements. Customer is responsible for all waste materials associated with this equipment/system.

Customer is responsible for:

1. Any work in confined spaces.
2. Equipment, operator and fuel to excavate sump/installing temporary structure as needed to permit lateral pump stations to convey sewage away from suction structure. Sumps/temporary structures needed on Wildflower Rd and in front of school.
3. Protecting system from damage including any freeze protection necessary to safeguard equipment from damage. Should equipment become frozen and damaged, customer is responsible for repair of equipment. RFR can provide necessary freeze protection at an additional charge per executed change order. Equipment stays on rent until it can be returned.
4. Using equipment in a safe and proper manner in accordance with manufacturers' recommendations, regulatory standards, and industry best practices. Improper usage may cause equipment/system failure, damage, possible incidents, injuries, and spills.
5. Customer is responsible for identifying at-risk service laterals to evaluate and mitigate the potential for sewage backups. Customer must communicate the risk of flooding and other potential issues to affected property owners. This may require customer to install additional sewer plugs or backflow preventers.
6. Customer will provide sewer plugs and any associated installation, monitoring, and removal of sewer plugs.
7. Customer is required to periodically start diesel back-up pumps and ensure batteries are fully charged, ready for operation.
8. Customer to identify high points for air vents.
9. Customer is responsible for any residual fluids in system once project is concluded to remove and properly dispose of.

Upon Pickup:

Contact the RFR office at 480.895.9225 to schedule pickup when equipment/system is cleaned and ready to be released.

Flushing and cleaning of equipment must be performed to RFR's standards prior to being called off rent. RFR personnel will perform a visual inspection. It is recommended to have a customer representative on-site during inspection. Equipment found not to be in "delivered condition" will not be picked up.

Project Scheduling & Billing

This quote is valid for 30 days. For the quoted items, RFR requires a signed quote and Purchase Order prior to scheduling equipment and crew, subject to availability ARO. Scheduling shall not be sooner than 1 week before start of work.

Customer acknowledges that availability of equipment/system and/or media will be confirmed at time of order. Additional freight charges may apply subject to mutually agreed upon change order.

Billing

Delivery and first week's labor will be billed at the end of the first week of installation, supported by signed daily work tickets. Any additional labor will be billed weekly supported by signed day tickets.

Inbound freight shall be invoiced at cost plus 15%.

Safety

Each employee is expected to adhere to the RFR Environmental, Health and Safety programs, which will protect the environment, the health and safety of the customer, employees, and others. RFR asks for your full cooperation to succeed in this expected outcome.



Rain For Rent
Sales Rep: Jon Wilson

Achen-Gardner Construction, LLC
Account: 120490
Proposal: 1092-IND-2008807

Achen-Gardner requests sewer bypass system to support work on Lake Drive utility relocation project.

1 week equipment rental = \$7,488.48

1 week, 2-man 24/7 pump operation = \$15,288.00.

Details in Statement of Work



Rain For Rent
Sales Rep: Jon Wilson

Achen-Gardner Construction, LLC
Account: 120490
Proposal: 1092-IND-2008807

PROJECT COSTS		
Estimated Rental Total		\$7,488.48
Estimated Environmental Recovery Fees		\$243.38
Total Estimated Recurring Charges		\$7,731.86
MOBILIZATION & DE-MOB COSTS		
Estimated Delivery		\$746.46
Estimated Installation		\$7,554.88
Estimated Removal		\$5,048.92
Estimated Pickup		\$746.46
Estimated Services		\$31,536.10
GRAND TOTAL		\$53,364.68

-Estimated costs do not include taxes

-Recurring rental project costs will be on a cycle/week/day basis+ tax

Customer Name

Customer Signature

Date

Proposal Acknowledgement

By signing this proposal, customer represents that he/she has read and agreed to both the Statement of Work and Quote Agreement sections, and is also agreeing to the grand total amount listed above, plus any recommended optional items if accepted and initialed. If customer requires a Purchase Order number to process and submit payment, it must be supplied to Rain for Rent at the time of acceptance of this proposal.

PO Number:

Rental Protection Plan

I have received and reviewed the Rental Protection Plan Agreement incorporated as the last page of this estimate. By initialing this paragraph, I understand that I am agreeing to enter into and be bound by the terms of the Rental Protection Plan Program Agreement and that I am authorized to enter into this Agreement on behalf of Customer. FOR ALL RENTALS OF EQUIPMENT, EXCEPT THOSE SPECIFICALLY EXCLUDED, YOU MAY EITHER SHOW PROOF OF PROPERTY INSURANCE IN ACCORDANCE WITH INSURANCE REQUIREMENTS AND RENTAL AGREEMENT OR PURCHASE THE RENTAL PROTECTION. THE PURCHASE OF THE RENTAL PROTECTION PLAN FOR RENTALS OF EQUIPMENT IS NOT MANDATORY AND MAY BE DECLINED IF YOU HAVE PROOF OF ALL RISK PROPERTY INSURANCE AS REQUIRED BY CONTRACT.

RPP	\$1,048.38	
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Created Date: 2/10/2022



Quote Agreement

If Customer has entered into a Master Service Agreement with Rain for Rent and there is a conflict between these terms and conditions of this Quotation Agreement and the Customer's Master Service Agreement, then the terms and conditions in the Customer's Master Service Agreement signed by Rain for Rent will prevail. Availability of products and services is subject to change without notice. Payment terms are net 30 days from invoice date. Interest at the rate of 18% per year shall be charged on any past due invoice. A Fuel Surcharge will be calculated and invoiced based on the diesel fuel price as published by the Department of Energy on <https://www.eia.gov/petroleum/gasdiesel>. An Environmental Recovery Fee shall apply to all rental charges invoiced for the duration of the rental pursuant to this quote/Estimate to help offset direct and indirect costs associated with regulatory compliance, obtaining permits, and obtaining licenses. California Air Quality Fee will be added to the cost of diesel pumps used in California only. This is a State mandated fee. Customer is prohibited from deducting retention from Rain for Rent invoices and charging Rain for Rent liquidated damages. Customer is responsible for flushing and cleaning tanks, roll off boxes, pipelines, pumps, filters and other Rain for Rent equipment prior to return unless specifically agreed to by both parties in writing. The Terms and Conditions of the Rain For Rent Rental and Hazardous Material and/or Non-Hazardous Waste Agreement, Credit Application/Master Rental & Sales Agreement, Invoice and this Quotation (also known as the Rain for Rent Rental/Sale Estimate as may be referenced in any Master Service Agreement, Blanket Purchase Order, or any other contractual document executed between the parties) contain the complete and final agreement between Rain for Rent and Customer and no other agreement in any way modifying or adding to any of said Terms and Conditions will be binding upon Rain for Rent unless made in writing and signed by a Rain for Rent Corporate Officer or Rain for Rent authorized representative. The Customer cannot alter the equipment without Rain for Rent's prior written approval. Customer is responsible for equipment, repairs, maintenance and damage, excluding normal wear and tear or damage caused by Rain for Rent. All returned equipment is subject to inspection by Rain for Rent personnel. Damages and accrued rent will be invoiced to Customer while equipment is out of service for repairs. The Customer is responsible for damage caused by reactive, corrosive or abrasive material; including, but not limited to sand, sodium hydroxide, chlorine, and acids. Customer must notify Rain for Rent immediately of any spill so that any necessary repairs to the system can be made and to minimize service interruption. The Customer assumes all risks of loss due to operation and use of the equipment. Customer will provide "all risk" property insurance for rented equipment. Customer shall pay Rain for Rent additional expenses caused by unforeseen or changing conditions, including, but not limited to, soil, underground conditions, rock formations, environmental conditions, weather events, regulations or restrictions, hard pan, boulders, cesspools, gas lines, waterlines, drain pipes, underground electrical conduits or other above ground or underground obstructions. All equipment rented or used products sold are provided "AS IS, WHERE IS" in their present condition. Rain for Rent makes no warranties, expressed or implied of any kind whatsoever with respect to the equipment or products. Sold equipment is not to be rented. Customer agrees that customer is renting equipment or purchasing used products based on their judgment and evaluation, without reliance upon any statements of representations by Rain for Rent, and that Rain for Rent is not responsible for any defects in their operation or for any repairs, parts or services, unless otherwise noted. All new products sold are provided without warranty beyond the terms of such warranty offered by the manufacturer, if any. Customer must comply with all original manufacturer's terms and conditions for any warranty claims that may arise. Neither Rain for Rent nor the manufacturer warranties the product if it has failed due to corrosion, misuse or damage; (2) it has been altered, repaired or modified in any way that would adversely affect its operation; or (3) it was installed or operated other than in accordance with manufacturer's operating instructions. Products supplied by Rain for Rent are warranted to be free from any defect in workmanship and material under conditions of normal use and service. Rain for Rent's obligation under this warranty is limited to replacing or repairing at the designated manufacturer's or Rain for Rent facility any part or parts returned to it with transportation charges prepaid, which Rain for Rent determines in its sole discretion to be defective. This Quotation excludes any additional costs to Rain for Rent associated with Owner Controlled Insurance (OCIP) or WRAP insurance programs that will be added to Rain for Rent's prices. De-watering, Roll-off, Vacuum boxes and similar equipment are not liquid tight. Rentee accepts full responsibility for all losses, damages and costs caused by or arising out of spills, leakage or discharge from this equipment. Rain for Rent will not be held liable for any structural or soils subsidence. This Quotation is valid for 30 days and is subject to credit approval. Rain for Rent will take every effort to protect our customers and employees. Due to the current pandemic, all quoted equipment and services are subject to delay, change, or unilateral cancellation by Rain for Rent. Please be assured every effort will be made to execute the quote as written. The customer is responsible to inform Rain for Rent of any jobsite hazards, precautions, or entry requirements relating to the Corona Virus prior to Rain for Rent personnel going onsite to perform work or deliver equipment. This includes informing Rain for Rent if anyone at the jobsite has tested positive and provide a list of actions taken to protect Rain for Rent personnel.

Rental Protection Plan Program Agreement

If you elect to maintain All Risk Property Insurance coverage, and the certificate of insurance You provide to Rain for Rent to evidence Your insurance coverage expires or is cancelled for any reason, You agree Rain for Rent may charge RPP for Your rentals until such time as You provide an acceptable and valid certificate of insurance to Rain for Rent. This Rental Protection Plan Program Agreement (this "RPP Agreement") is entered into between the undersigned Rentor and Rentee in relation to the Master Rental and Sales Agreement (MRSA) between Rentor and Rentee. If Rentee has checked or initiated, as applicable, the Rental Protection Plan Program (the "RPP Program") box on the quote, then Rentee has opted-in to the RPP Program and this RPP Agreement shall supplement the MRSA whether or not executed by Rentee. Rentee understands and agrees that the RPP Program is not insurance and that the RPP Program provides only limited coverage, as described below. 1. Cost; Deductible; Maximum Coverage; Rentee shall pay a fee equal to 14 percent (14%) of the rental charge for each covered item, which fee shall be listed on each invoice during which period Rentee has opted to participate in the RPP Program. In the event of a Covered Occurrence, as defined below, Rentee shall further be responsible for the lesser of \$500 or 10 percent (10%) of the total loss, as a deductible. The maximum coverage available under the RPP Program is \$150,000 per Covered Occurrence, whether or not there is more than one piece of equipment involved in the occurrence. 2. Coverage; The RPP Program provides coverage only for losses involving Covered Equipment, as defined below, in the following instances: fire that was not caused by Rentee's gross negligence or willful misconduct; theft for which a police report was filed, and that occurred despite Rentee's reasonable precautions to protect and secure the covered equipment; and vandalism for which a police report was filed (individually, "Covered Occurrence," and collectively, "Covered Occurrence"). The RPP Program provides coverage only for the following types of equipment: pumps, electric submersible pumps, tanks, generators, light towers, filtration, boxes, heaters, spillguards, safety products, sprinklers, hoses, pipe, valves and fittings ("Covered Equipment"). Coverage does not extend to any equipment not owned by Rentor such as re-rented equipment. 3. Exclusions; The RPP program does not cover any equipment or event of loss that is not specifically described in Section 2. Without limiting the foregoing, the RPP Program does not provide coverage for the following: misuse of equipment; willful abuse of equipment; failure to maintain equipment; failure to secure items from theft (including but not limited to failing to store items in a fenced, locked area or failing to maintain personnel on site); damage or theft while in transit to or from a jobsite; corrosion from any source; any damage caused by named storm events; any instance that occurs while the account is not in good standing, such as a default as defined in the MRSA or upon written notice of non-payment; and any occurrence not reported to Rentor within 24 hours after the occurrence. The RPP program does not provide coverage for: electronic equipment (controls, instrumentation, and wiring), flow meters, water meters, wheel wash systems & accessories, Freezesentry items, or tires. 4. Claims; All claims must be submitted within 24 hours of the Covered Occurrence. Rentor's mechanic will inspect the equipment following any claim. The mechanic's findings as to the cause of the damage and cost of repair will be final. In the event of a theft or vandalism, Rentee must also provide supporting evidence that the site was secured at the time of loss.

CASING STEEL CASING

Vendor Code							TRIINITY	
Vendor Name							Trinity Product	
Vendor Phone							6368879683	
Bid	Activity	Resource	Desc	Quan	Unit	Plug Price	Unit Price	
		2CAS24	24" STEEL CASING	120.00	LF	0.0000	181.8500	
Quoted Amount							21,822	
Plugged Amount							0	
Bond							0	
Mobilization							0	
% Adjustment							0	
\$ Adjustment							0	
Total Adjustment							0	
Totals						0	21,822	
Diff From Plug							21,822	
Total Minority							0	

A 'P' beside a price indicates a plug price.
Green background indicates that the vendor is selected.

For more information please visit our website @ www.trinityproducts.com

TERMS & CONDITIONS OF THE SALE OF GOODS

- 1. Buyer shall indemnify, defend and hold Seller harmless from and against any and all claims whatsoever, demands, liabilities, causes of action, losses, damages, costs and expenses, including, without limitation, attorneys' fees and claims for breach of contract, bodily injury (including death) or property damage, arising out of or relating to Seller furnishing goods hereunder in accordance with shop drawings that were approved, approved as noted, or with respect to which no exceptions were taken, or in accordance with plans, specifications or other design documents furnished by Buyer to Seller. A shop drawing shall be deemed approved for all purposes and deemed consistent with plans, specifications and other design documents unless Buyer notifies Seller in writing of a specific objection having merit within 14 days of receipt of the shop drawing**
2. All materials and their attachments remain the property of Trinity Products, Inc. until all payments have been made in full.
3. Trinity Products LLC's sales price is exclusive of any applicable sales tax, use tax, and any other transaction taxes that may be imposed by any governmental entity or agent thereof whether state, county, municipal, city or otherwise ("Governmental Entity"). The Customer shall be exclusively responsible for the complete payment of any sales, use or other transaction taxes and shall pay all invoiced sales, use or other transaction taxes upon its receipt of materials from Trinity Products, LLC unless it provides Trinity Products, LLC with a valid sales tax exemption certificate. In the event that any Governmental Entity at any time deems the Customer's sales tax exemption certificate to be invalid or inapplicable or otherwise determines that the transaction is subject to a sales tax, use tax, or other transaction taxes the Customer shall immediately upon demand provide Trinity Products, LLC and/or any of its successors and/or affiliates with monetary funds to cover all applicable sales tax, use tax, and any other transaction taxes that may have been assessed, including any applicable interest and penalties as well as any costs whatsoever incurred by Trinity Products, LLC, including, but not limited to, any attorney's fees and accountant's fees.
4. Seller accepts Buyer's order only upon the terms and conditions on the face side hereof and as set forth herein (collectively the "TERMS"), The TERMS form the entire agreement between the parties. All other terms, proposals, negotiations, representations, recommendations, statements or agreements, whether made or issued contemporaneously or previously, are excluded from and are not a part of this agreement, and have no binding or enforceable effect. This agreement shall be binding on the parties and their respective successors and assigns. An e-mail or facsimile transmission by Seller to Buyer at Buyer's last known e-mail address or to Buyer's last known facsimile number shall be deemed delivered to Buyer upon Seller's transmission thereof, regardless of whether Buyer later claims non-receipt.
5. Buyer's failure to object to any terms as proposed by Seller within ten (10) days after receipt of this Agreement shall be deemed to be Buyer's acceptance of those terms. In order for any change or amendment to this order to be binding upon Seller it must be accepted in writing by Seller.
6. Unless Seller and Buyer otherwise agree in writing, Buyer shall pay Seller's invoice within thirty (30) days of the invoice date. Interest shall accrue on each late payment at the lesser of: (a) the highest rate permitted by law, and (b) one and one-half percent per month compounded monthly. Should Seller choose to hire an attorney to collect monies claimed due hereunder from Buyer to Seller, Buyer shall pay to Seller, in addition to all other sums due to Seller, the reasonable attorneys' fees, expert fees, costs and other expenses Seller incurs to pursue collection from the Buyer.
7. Should Seller learn of any information that causes Seller concern about Buyer's ability to perform any of its obligations owing to Seller under this sale, Seller has the right to request Buyer to provide Seller adequate assurance of due performance on such terms as are deemed reasonable by Seller when acting in good faith, including the right to await full or partial payment from Buyer as demanded by Seller. In such an instance, Seller may suspend its performance pending Buyer's receipt of adequate assurance of due performance in a manner found acceptable by Seller.
8. Acceptance of contracts is at all times subject to the Seller's credit approval and the Seller reserves the right to require full or partial payment in advance if, in the Seller's opinion, the financial condition of the Buyer does not justify shipment of material. If at any time, in the Seller's judgment, reasonable doubt exists as to the Buyer's financial responsibility, or if Buyer is past due in payment of any amount owing to Seller under this or any other contract, Seller reserves the right, without liability and without prejudice to any other remedies to suspend performance, decline to ship, or stop any material in transit, until Seller receives payment of all amounts owing to Seller whether or not due, or adequate assurance of such payment.
9. Although title to the materials does not transfer from the Buyer to the Seller until the materials have been received at the subject construction site, and payments have been made by the Buyer to the Seller, all prices are F.O.B. Seller's warehouse in Missouri. Buyer shall arrange for all insurance. Risk of loss to each item sold hereunder passes to Buyer immediately before that item is shipped from Seller's warehouse. Title, ownership, and risk of loss of products and materials provided by Trinity Products, LLC to the Customer is transferred from Trinity Products, LLC to the Customer (1) at the site of the construction project after fabrication is complete and where the materials supplied by Trinity Products, LLC will actually be used and/or installed upon final written acceptance by the Customer if payment in full has been made by the Customer to Trinity Products, LLC, or (2) five (5) days after the aforementioned materials are delivered to the project site where they will be used and/or installed and payment in full has been made by the Customer to Trinity Products, LLC, whichever occurs first. Actual and constructive possession is not transferred at any other time with the SOLE EXCEPTION of the event of "Customer pickup" at any of the business locations of Trinity Products, LLC and/or its affiliate locations in the State of Missouri, in which case title, ownership, and risk of loss are transferred from Trinity Products, LLC to the Customer in the State of Missouri once payment in full has been made by the Customer to Trinity Products, LLC and the Customer will be invoiced and will pay all applicable Missouri sales/use taxes (including local tax). The Customer shall at all times remain exclusively responsible for payment to Trinity Products, LLC of any and all sales tax, use tax and any other transaction taxes that may be determined to be applicable by any Governmental Entity that emanate from this transaction(s) and shall also be responsible for any other costs incurred by Trinity Products, LLC as set forth in term #3 above.

10. It is agreed that no retainage is allowed on this sale for labor or materials and invoices will be paid in full within the thirty day period specified. Any legal fees or other collection costs shall be borne by Buyer.

11. Seller shall not be responsible for any inability to perform under the TERMS or for any loss or damage due to delays or disruptions resulting directly or indirectly from, or contributed to by, any act of God, action or omission of Buyer, act of civil or military authorities, fire, strike or other labor dispute, accident, flood, war, riot, terrorism, transportation delay, inability to obtain material or fuel supplies, or any other circumstances beyond Seller's reasonable control, whether similar or dissimilar to any of the foregoing.

12. Even if Seller has shop drawings prepared or Seller performs, or directs the performance, of other services in connection with this sale, this sale and the interpretation of the TERMS are nevertheless governed by Missouri law, including Article 2 of Missouri's Uniform Commercial Code.

13. Except for items sold "AS IS", Buyer shall inspect the goods sold hereunder upon their delivery and shall, to preserve a claim against Seller, notify Seller in writing within five (5) days thereafter of any defect or deficiency believed to be Seller's responsibility. Should any such item contain a defect, deficiency or non-conformity for which Seller is responsible, Seller shall repair or replace the item, at Seller's option, or Seller shall instruct Buyer in writing to return that item with shipping instructions in which case Seller's sole responsibility will be to return to Buyer the price paid therefor plus the cost for the return shipping if paid by the Buyer. Buyer's failure to furnish Seller timely notice of a defect, deficiency or non-conformity shall constitute unequivocal acceptance of the item(s). Except for the express warranties forming a part of the TERMS, **Seller disclaims all express and implied warranties, including implied warranties of merchantability and fitness for a particular purpose. Seller's liability to Buyer, whether in contract, warranty, tort or otherwise, is limited to that permitted under the "terms", and shall in no event exceed the purchase price hereunder. Notwithstanding anything seemingly to the contrary, Seller shall not be liable to Buyer for any special, incidental, indirect, liquidated or consequential damages, including without limitation damages for loss of use, lost time, delay, disruption, interference, loss of productivity, inconvenience, lost income, or lost profits.** Seller shall have no obligation to repair, replace, or accept the return of any item sold "AS IS". If Buyer inspects any of the goods prior to the delivery contemplated hereunder, the five (5) day notice period for those goods shall run from that pre-delivery inspection date.

14. Seller warrants that the material sold hereunder will conform to the description stated herein (subject to tolerances and variations consistent with current trade practices and practical testing and inspection methods); that Seller will convey good title thereto (except for any liens or encumbrances that may be caused by Buyer); and that Seller will repair or replace any defective or nonconforming material or repay the purchase price, as Seller may elect, if notified thereof in writing within one (1) year from the date of delivery. This is Seller's sole warranty with respect to the material. Seller makes no other warranty of any kind whatever express or implied and all implied warranties of merchantability and fitness for a particular purpose which exceed the aforesaid obligation are hereby disclaimed by Seller and excluded from this transaction.

15. Should Buyer wish to cancel this order, Buyer may do so only if Seller agrees in writing and material falls under standard material. In the event of any such cancellation of standard material, the purchase price shall become the sum of: (a) all costs and expenses, direct and indirect, incurred by Seller in producing the order up to the date Seller agreed in writing to the cancellation, plus (b) Seller's reasonable cancellation costs, which shall include a restocking charge of thirty-five percent (35) percent of the items not delivered to Buyer or returned by Buyer, plus (c) a reasonable markup for Seller's home office overhead and profit. Non-standard material is non-returnable and order may not be canceled. Materials deemed non-standard are available from Seller upon request.

16. Any offer made by Seller as part of this Part of this Agreement may be revoked by Seller prior to the acceptance of this Agreement in its entirety by Buyer. In any event, this offer shall only remain valid for thirty (30) days.

17. Buyer acknowledges that the "terms" form the contract and are deemed made in Missouri, and that Buyer, in relation to this sale, is deemed to be transacting business in Missouri. Any legal action concerning a claim or dispute involving Buyer and Seller, whether in contract, tort or otherwise, shall be brought in a state or federal court for the county or district in which Seller's office is located, and Buyer consents to the jurisdiction of that court in Missouri. notwithstanding the foregoing, any claim or dispute arising out of or relating to this contract, or to the goods or services supplied by Seller to Buyer, or to monies claimed due from Buyer to Seller, whether in contract, in tort, or otherwise, shall be decided by binding arbitration before a single arbitrator. If Buyer's address on this order is located in the United States, the arbitration shall be conducted under the construction industry arbitration rules of the American Arbitration Association. If Buyer's address on this order is located outside the United States, the arbitration shall be conducted under the international arbitration rules of the International Centre for dispute resolution. The arbitration award shall be enforceable in the state or federal court mentioned above. The arbitration locale shall be St. Louis, Missouri. Nothing herein shall be construed as preventing Seller from enforcing any claim or right to a mechanic's lien or any claim or right against a bond regardless of where such a claim must be filed or enforced.

18. Pricing is based on a continuous manufacturing schedule. Should this process be interrupted through no fault of the Seller. Seller shall be entitled to additional compensation. Any cost associated with such delays shall be identified by Seller and agreed to by Buyer prior to continuation with manufacturing.

19. Buyer will proceed with changes in the work herein specified only upon receipt of a written order from Buyer specifying the requested change and containing an agreed price and schedule adjustment.

20. Buyer's exclusive remedy against Seller for any damages suffered by Buyer in connection with the material and arising out of this transaction shall be for breach of contract, and Sellers' liability in this regard shall be limited to repair or replacement of defective or nonconforming material or repayment of the purchase price paid therefore by Buyer, as Seller may in its sole discretion elect. Because the sales price herein makes no provision for such risk, Seller shall in no event be liable to Buyer for any special or consequential damages including, but not limited to, erection costs, lost profits, good will, loss of time, unabsorbed overhead, inconvenience or commercial loss. Any action for breach of this contract must be commenced within one (1) year after the cause of action shall occur, and no such action may be maintained which is not commenced within such period.

21. If any provision of this Purchase Order, or portion of any provision, is declared or found to be unenforceable, the balance of this Purchase Order or such provision shall be interpreted and enforced to the greatest extent possible as if the unenforceable provision or portion had never been a part hereof. In particular, if any interest rate provided for herein is higher than that permitted by applicable law, it shall automatically be amended to the highest legal rate.

GROUT GROUT

Vendor Code							PACIFICINTER	ACTIONPUMP	CELLCRETECOR
Vendor Name							Pacific Internati	Action Pumping	Cell-Crete Corp
Vendor Phone							6192868193	4804307106	6269409251
Bid	Activity	Resource	Desc	Quan	Unit	Plug Price	Unit Price	Unit Price	Unit Price
65	2051110	4GROUT	ABANDON EXISTING 8" WATE	299.00	LF	0.0000	0.0000	5.5600	19.5300
93	2051110	4GROUT	ABANDON EXISTING 10" SEW	1,085.00	LF	0.0000	0.0000	5.5600	19.5300
Quoted Amount							0	7,695	27,030
Plugged Amount							0	0	0
Bond							0	0	0
Mobilization							0	0	0
% Adjustment							0	0	0
\$ Adjustment							0	0	0
Total Adjustment							0	0	0
Totals						0	0	7,695	27,030
Diff From Plug							0	7,695	27,030
Total Minority							0	0	0

A 'P' beside a price indicates a plug price.
Green background indicates that the vendor is selected.

Mark McLafferty

From: Scott Neely <scott@actionpumpaz.com>
Sent: Tuesday, February 15, 2022 2:07 PM
To: Mark McLafferty
Subject: Re: CHANDLER HEIGHTS RD UTILITY RELOCATIONS (CMAR) PACKAGE 2

Received, thank you. Each of the 2 mobilization will be 3500.00 plus tax, you will need to provide the sand slurry mix. Mix should be ordered as 2 sacks of Portland, 4 sacks of fly ash per yard. And please view my neely for Arizona Governor website www.neelyforgovernor.com

On Mon, Feb 14, 2022, 7:39 AM Mark McLafferty <MMcLafferty@achen.com> wrote:

Location of project is Alma School Rd/Lake Dr in Chandler. This is the second of three packages to be completed in 2022. There are 3 lengths of 10" sewer that are ~ 380' (1085' total). Can be pumped from both ends under 200'. There are 3 lengths of 8" waterline that are ~60' each (174' total). Figure 1 mob for water and 1 mob for sewer. I need pricing for this package by 2/17/22.

Please let me know if you have any questions or need anything else. Thanks.

Mark

SOUND-CRETE CONTRACTORS, INC.

ARIZONA REGIONAL OFFICE

2615 S 40th Street
Phoenix, AZ 85034
602-438-4510- Office
602-438-9726 – Fax

February 16, 2022

Bid Number: 220116-1-AV01

Attn: Estimating Dept.

**Project: CHANDLER HEIGHTS RD UTILITY RELOCATIONS (CMAR) PACKAGE 2
Chandler, AZ.**

Re: Low Density Cellular Concrete Abandonment (Alternative)

Scope: Provide labor, equipment and materials for annular grouting with 30 PCF 80 psi min Cellular Concrete to pipeline described below. General Contractor to provide traffic control, water, and setup area (24'X80' or 12'X120'). Price includes all applicable taxes. **Price good through the end of 2022.**

Pipe Abandonment

Description	Quantity	Units	Unit Price	Total
Low Density Cellular Concrete 30 PCF 80 PSI min, 8" & 10" Pipe Abandonment	24	CY	\$ 66.00	\$ 1,584.00
Work-Day (Labor and Equip)	2	Each	\$ 5,500.00	\$ 11,000.00
Mobilization	2	Each	\$ 6,000.00	\$ 12,000.00
			TOTAL	\$ 24,584.00

General Conditions:

1. Price includes Material, 2 mobilizations and 2 workdays, all items shown on tables shall be awarded collectively in order to hold pricing. Add \$5500 for additional workday, \$6000 for full mobilization (equipment off-site) and \$5000 for partial mobilization (equipment on-site).
2. Contractor to provide lines free of standing water and blow air prior to our arrival to ensure the lines are free of blockages. If foreign liquids or hydrocarbons are encountered in the line it will result in a yield loss of our material; contractor will be responsible for all overages as a result of yield loss caused by foreign liquids or hydrocarbons in the line.
3. Bulkheads are excluded, will be installed by contractor shall be watertight and able to withstand the pumping pressure applied by the grouting process.
4. Cell-Crete accepts no responsibility for the placing of concrete product into lines, vessels or any areas not properly insulated. Materials when used for pipe fills must be contained during the placement process.
5. Contractor to install concrete bulkheads with 3" threaded inlet pipes at or above street level at each inlet location with valves on the inlet side. No hard 90's only sweeps are to be used in the injection ports. We must pressurize to move material down the line. 2" or larger vent pipe or catch basin at end of run with threaded cap.
6. Bid Cell-Crete works a typical 7-3:30, 40 hour work week unless specifically contracted otherwise. All prices based upon normal working hours excluding weekend and night work.
7. GC to provide 24 hour advanced notice of any unavailable work onsite for non-concurrent working days. If no notice is given and Cell Crete Corporation shows up to the site, and no work is available a \$2,800 show up fee will be charged (4hour charge @ \$700/hour).

Page 1 of 2

SPECIALTY CONCRETE CONTRACTORS

CORPORATE OFFICE 135 E. Railroad Avenue · Monrovia, CA 91016-4652 (626) 357-3500 (800) 660-8062 · FAX (626)357-2537
NORTHERN CALIFORNIA 995 Zephyr Avenue · Hayward, CA 94544 · (510) 471-7257 (800) 696-0433 · FAX (510) 471-6426
SAN DIEGO 530 Oppen Street, Suite A · Escondido, CA 92029 · (760) 291-1240 (877) 291-1240 · FAX (760) 291-1242
ARIZONA 2615 S 40th Street · Phoenix, AZ 85034 · (602) 438-4510 · FAX (602) 438-9726
NEVADA 3475 John Peter Lee Avenue · North Las Vegas, NV 89032 · (702) 366-1954 · FAX (702) 366-9474

CALIFORNIA
#243404

ARIZONA
#104888

NEVADA
#10689

UTAH
#4835096-5501

IDAHO
#15868-a-(9)

ALASKA
#29473

SOUND-CRETE CONTRACTORS, INC.

ARIZONA REGIONAL OFFICE

2615 S 40th Street
Phoenix, AZ 85034
602-438-4510- Office
602-438-9726 – Fax

8. Contractor to provide a minimum of 2 weeks' notice for each mobilization.
9. Bid subject to approval by the Project Engineer
10. Bid bond amount is excluded from base bid added cost of bond is 1%.
11. Contractor agrees this is a per unit contract, not a lump sum contract. Excludes Bonds and Textura fees or other fee based platforms, the costs associated with this will be passed on as an added cost to the GC in addition to contract amount.
12. Cement prices good for 120 days from the date of the bid opening. Annual increases equal to the increase in Cement price from the supplier and/or increased labor costs to be expected if the job runs longer than 1 year.
13. Contractor to provide washout and washout disposal adjacent to our batch plant. **Add \$500/day if Cell-Crete provides washouts.**
14. Production rate is based on consistent supply of bulk cement. Freight delays due to site logistics and unforeseen conditions /traffic delays will impact production rate. Contractor to provide traffic controls that includes all lane closure permits and flagmen for such closures.
15. Maximum retention shall be 5%. Payable within 120 days of completion of scope. Payment terms are net 30 unless otherwise specified.
16. Bid does not include local hire labor or DBE requirements if any are required. Our crews are usually 3-5 people, and we cannot obtain useful labor from the hall for short duration jobs. If a local hire is required, please include the direct cost to our contract.
17. Cell-Crete cannot be responsible for liquidated damages without an agreed upon schedule, or negotiated LD costs. Contractor to create a schedule that is acceptable by Cell-Crete.
18. Contractor to provide a continuous water supply with an appropriate 2" water connection with minimum of 70-psi pressure and a minimum of 200 gallons/minute. Delays caused by the lack of continuous water or other delays will be charged at a rate of \$700 per hour and \$1,000 per hour for over time.
19. Quantity to be determined by readings from Cell-Crete's mixing equipment. If alternate method of measurement requested, it is to be agreed upon prior to the first day of placement and to be verified accurate and acceptable to Cell-Crete Corporation. Cell-Crete requires opportunity to attend all measurements that determine our material quantity including surveyor-shooting grade before placement of initial lift of material.
20. Cell-Crete will present a "Daily Report" for each working day to your onsite superintendent to verify quantities
21. installed. Your onsite superintendent is authorized to sign the "Daily Report" on Contractor's behalf unless Cell-Crete is notified in writing.
22. Contractor to provide safe access and a set up area of a minimum of 24'x80' adjacent to fill with good access for up to 6 trucks at one time.
23. Contractor to provide OSHA requirements i.e. Safety rails, lighting, protection of openings, access ladders-etc. Cell-Crete to provide safety equipment for standards for our crews and equipment. Excludes third party testing, de-watering, bulkheads and formwork, feed and vent pipes, cleaning, shoring, excavation, traffic control, gas testing, backfill and access. Snow plow access/clearing roads responsibility of contractor.
24. Contractor to provide traffic controls that includes all lane closure permits and flagmen for such closures.
25. There shall be no clauses requiring Cell-Crete Corp. to assume liability for any act of others.
26. Purchase orders, contracts and change orders must be executed before the start of associated work.
27. This quotation shall be attached and all terms herein are to be part of the final contract. Additional terms will not be part of this Contract unless agreed to by Cell-Crete Corporation in writing. If there are any contradictions /
28. conflicts between this quotation's terms and the final contract's terms, this quotation's terms shall be deemed controlling and the contradictions / conflicts in the final contract's terms shall be disregarded.
29. 2 hour safety training is included in bid. If more than 2 hour training is needed due to site specific compliance please add cost at \$700/hour.
30. Warranty period included in bid shall not exceed 1 year from date of LCC scope completion.
31. Standard insurance included in bid is \$2 million general liability and \$1 million workers comp.

Page 2 of 3

SPECIALTY CONCRETE CONTRACTORS

CORPORATE OFFICE 135 E. Railroad Avenue • Monrovia, CA 91016-4652 (626) 357-3500 (800) 660-8062 • FAX (626)357-2537
NORTHERN CALIFORNIA 995 Zephyr Avenue • Hayward, CA 94544 • (510) 471-7257 (800) 696-0433 • FAX (510) 471-6426
SAN DIEGO 530 Oppen Street, Suite A • Escondido, CA 92029 • (760) 291-1240 (877) 291-1240 • FAX (760) 291-1242
ARIZONA 2615 S 40th Street • Phoenix, AZ 85034 • (602) 438-4510 • FAX (602) 438-9726
NEVADA 3475 John Peter Lee Avenue • North Las Vegas, NV 89032 • (702) 366-1954 • FAX (702) 366-9474

SOUND-CRETE CONTRACTORS, INC.

ARIZONA REGIONAL OFFICE

**2615 S 40th Street
Phoenix, AZ 85034
602-438-4510- Office
602-438-9726 – Fax**

Estimated by:

**Vishvesh Mehta
(626) 483-8898
vmehta@cell-crete.com**

Page 3 of 3

SPECIALTY CONCRETE CONTRACTORS

**CORPORATE OFFICE 135 E. Railroad Avenue · Monrovia, CA 91016-4652 (626) 357-3500 (800) 660-8062 · FAX (626)357-2537
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NEVADA 3475 John Peter Lee Avenue · North Las Vegas, NV 89032 · (702) 366-1954 · FAX (702) 366-9474**

**CALIFORNIA
#243404**

**ARIZONA
#104888**

**NEVADA
#10689**

**UTAH
#4835096-5501**

**IDAHO
#15868-a-(9)**

**ALASKA
#29473**

PIPEPK PIPE PACAKGE

Vendor Code							COREMAIN
Vendor Name							Core&Main
Vendor Phone							4809267003
Bid	Activity	Resource	Desc	Quan	Unit	Plug Price	Unit Price
		2CAV1	1" COMBO AIR VAC	3.00	EA	0.0000	1,155.0000
		2DIP16	16" DIP WATERLINE	30.00	LF	0.0000	315.5600
		2DIP8	8" DIP WATERLINE	250.00	LF	0.0000	88.8900
		2GV16	16" GATE VALVE	2.00	EA	0.0000	6,514.0000
		2GV8	8" GATE VALVE	6.00	EA	0.0000	1,598.0100
		2PVC3IN	3" PVC MATERIALS	30.00	LF	4.5000	0.0000
		2VCP10	10" VCP	1,130.00	LF	28.0000	27.3500
		2WSM	2" WATER SERVICE MATERIA	1.00	LS	0.0000	4,010.1800
Quoted Amount							92,686
Plugged Amount							0
Bond							0
Mobilization							0
% Adjustment							0
\$ Adjustment							0
Total Adjustment							0
Totals						31,775	92,686
Diff From Plug							60,911
Total Minority							0

A 'P' beside a price indicates a plug price.
Green background indicates that the vendor is selected.



Bid Proposal for Chandler Heights Relocates Package 2

CUSTOMER	ACHEN GARDNER CONSTRUCTION LLC 550 S 79TH STREET CHANDLER, AZ 85226	Job Chandler Heights Relocates Package 2 Chandler, AZ Bid Date: 02/16/2022 Bid #: 2201262
	Sales Representative Justin Paule (M) 480-688-0977 (T) 480-688-0977 Justin.Paule@coreandmain.com	Core & Main 1410 W Harvard Ave Gilbert, AZ 85233 (T) 480-926-7003
CONTACT		
NOTES		



Bid Proposal for Chandler Heights Relocates Package 2

ACHEN GARDNER CONSTRUCTION LLC
Job Location: Chandler, AZ

Bid Date: 02/16/2022

Core & Main 2201262

Core & Main

1410 W Harvard Ave

Gilbert, AZ 85233

Phone: 480-926-7003

Fax: 480-926-7050

Seq#	Qty	Description	Units	Price	Ext Price
		DUE TO CURRENT SUPPLY CHAIN DISRUPTIONS, MATERIALS ARE SUBJECT TO PRICING AT TIME OF SHIPMENT. MATERIAL AVAILABILITY AND TIMELINESS OF SHIPMENTS CANNOT BE GUARANTEED. THIS TERM SUPERSEDES ALL OTHER CONTRACTUAL PROVISIONS.			
10		8" DIP WATERLINE			
20	336	8 TJ PR350 DI PIPE	FT	29.66	9,965.76
30	13	8 TJ FIELD LOK 350 GASKET SBR	EA	123.52	1,605.76
50	3	8 SURE STOP LOCKING GASKET EPDM HEAT RATED	EA	160.15	480.45
80	2	8 MJXFLG ADPT C153 IMP	EA	145.12	290.24
90	12	8 MJ 90 C153 IMP	EA	174.14	2,089.68
100	30	8 TUFGRIP DI TLD-8 L/ACC (I)	EA	49.82	1,494.60
110	30	8 MJ REGULAR ACC SET L/GLAND	EA	25.80	774.00
120	3	8 MJ L/P SLV C153 IMP	EA	175.81	527.43
130	1	16X8 MJ TEE C153 IMP	EA	780.28	780.28
140	2	8 MJ CAP C153 IMP	EA	80.37	160.74
150	2	16 TUFGRIP DI TLD-16 L/ACC (I)	EA	136.87	273.74
160	2	16 MJ REGULAR ACC SET L/GLAND	EA	56.19	112.38
170	2	16X8 FLG TEE C110 IMP	EA	1,563.35	3,126.70
190	340	20"X340' POLYWRAP BLK F/6"-8" BS (W/20'PERF)	FT	0.59	200.60
200	2	T-10-2 UPC 10 MIL TAPE 2"X100'	EA	8.00	16.00
210	500	WIRE 14/1 X 500 UF BLUE SOLID FEED 500' ROLL	FT	0.13	65.00
220	1	3X1000' DET TAPE WATER BLUE	RL	52.03	52.03
		SUBTOTAL			22,015.39
240		8" GATE VALVE			
250	6	8 F6100 MJ RW GV OL ON L/ACC CLOW GATE VALVE EPOXY COATED W/STAINLESS STEEL BOLTS & NUTS	EA	1,118.23	6,709.38
260	12	8 TUFGRIP DI TLD-8 L/ACC (I)	EA	49.82	597.84
270	12	8 MJ REGULAR ACC SET L/GLAND	EA	25.80	309.60
280	12	36 564-A BOTTOM ONLY IMP	EA	66.88	802.56
290	6	24 562-A BOTTOM ONLY IMP	EA	47.75	286.50
300	6	16 562-A TOP ONLY IMP	EA	47.03	282.18
310	6	SWSERVICE NPR600-WA 562A POLYM	EA	42.31	253.86
320	6	DC457 DEBRIS CAP-BLUE	EA	57.69	346.14
		SUBTOTAL			9,588.06
350		16" DIP WATERLINE			



Bid Proposal for Chandler Heights Relocates Package 2

Bid #: 2201262

Seq#	Qty	Description	Units	Price	Ext Price
360	36	16 TJ CL50 PR350 DI PIPE	FT	73.55	2,647.80
370	10	16 TUFGRIP DI TLD-16 L/ACC (I)	EA	136.87	1,368.70
380	10	16 MJ REGULAR ACC SET L/GLAND	EA	56.19	561.90
390	6	16 MJ L/P SLV C153 IMP	EA	540.84	3,245.04
400	2	16 MJXFLG ADPT C153 IMP	EA	583.81	1,167.62
410	6	16 MAG HDG BOLT&NUT KIT L/GSKT A307A HOT DIP GALV	EA	57.81	346.86
420	6	16X1/8 FF CLOTH IN RUBBER GSKT	EA	21.48	128.88
SUBTOTAL					9,466.80
440		16" GATE VALVE			
450	2	16 F6106 MJXFLG RW GV OL L/ACC ON CLOW GATE VALVE EPOXY COATED W/STAINLESS STEEL BOLTS & NUTS	EA	6,000.00	12,000.00
460	2	16 TUFGRIP DI TLD-16 L/ACC (I)	EA	136.87	273.74
470	2	16 MJ REGULAR ACC SET L/GLAND	EA	56.19	112.38
480	2	16 MAG HDG BOLT&NUT KIT L/GSKT A307A HOT DIP GALV	EA	57.81	115.62
490	2	16X1/8 FF CLOTH IN RUBBER GSKT	EA	21.48	42.96
500	2	36 564-A BOTTOM ONLY IMP	EA	66.88	133.76
510	2	24 562-A BOTTOM ONLY IMP	EA	47.75	95.50
520	2	16 562-A TOP ONLY IMP	EA	47.03	94.06
530	2	SWSERVICE NPR600-WA 562A POLYM	EA	42.31	84.62
540	2	DC457 DEBRIS CAP-BLUE	EA	57.69	115.38
SUBTOTAL					13,068.02
560		1" COMBO AIR VAC VALVE			
570		PER DTL 106 / COC DTL C-319			
580	3	BR2B0899IP100 SAD 8X1IP 8.99-9.67 DBL STRAP BRNZ SAD	EA	167.27	501.81
590	3	B25025N 1 BALL CORP MIPXCF AWWA IP X COP FLARE NO LEAD	EA	75.32	225.96
600	120	1 HARD K COPPER TUBE 20'	FT	8.17	980.40
610	12	1 WROT COPPER 90 BEND CXC	EA	2.73	32.76
620	3	P25172N 1 BALL CURB PJCTSXFP PACK JT CTS X FIP NO LEAD	EA	115.43	346.29
630	3	1X6 BRASS NIPPLE NO LEAD (I)	EA	11.73	35.19
640	3	1 BRASS 90 NO LEAD (I)	EA	7.48	22.44
650	3	1" ARI D040 AIR RELEASE VALVE	EA	257.56	772.68
660	3	#4 CONC MB EXT/STACK BOX PHOE- NIX	EA	66.73	200.19
670	3	#4 CONC METER BOX BODY PHOENIX	EA	66.73	200.19
680	3	#4 MAG POLY LID W/AMR WATER A6001852-H9	EA	109.62	328.86
SUBTOTAL					3,646.77
700		16X2 WATER SERVICE			
710	1	BR2B1732IP200 SAD 16X2IP 17.32-19.19 DBL STRAP BRNZ SAD	EA	721.24	721.24
720	1	B20046N 2 BALL CORP MIPXFIP NO LEAD	EA	280.86	280.86
730	2	2 WROT COPPER MALE ADAPTER	EA	12.71	25.42
740	1	2 WROT COPPER 45 BEND CXC	EA	10.67	10.67
750	120	2 HARD K COPPER TUBE 20'	FT	20.07	2,408.40
760	5	2 WROT COPPER CXC COUPLING	EA	5.78	28.90
770	1	2 WROT COPPER 90 BEND CXC	EA	11.51	11.51
780	1	B24286N 2 ANG BMV FIPXFLG W/LW NO LEAD	EA	346.83	346.83
790	1	#4 CONC METER BOX BODY PHOENIX	EA	66.73	66.73
800	1	#4 MAG POLY LID W/AMR WATER A6001852-H9	EA	109.62	109.62
SUBTOTAL					4,010.18



Bid Proposal for Chandler Heights Relocates Package 2

Bid #: 2201262

Seq#	Qty	Description	Units	Price	Ext Price
820		10" VCP SEWER			
830	1168	10 CLAY PIPE BEXPE	FT	23.83	27,833.44
840	4	GALLON CLAY PIPE LUBE	EA	25.00	100.00
850	2	FREIGHT	EA	600.00	1,200.00
860	23	0410720 10 MISSION ADJ CPLG SHEAR RING	EA	65.09	1,497.07
870	5	0408781 8 CLAYXCLAY CPLG MISSION STANDARD SHEAR RING	EA	50.45	252.25
				SUBTOTAL	30,882.76
				Sub Total	92,677.98
				Tax	0.00
				Total	92,677.98

UNLESS OTHERWISE SPECIFIED HEREIN, PRICES QUOTED ARE VALID IF ACCEPTED BY CUSTOMER AND PRODUCTS ARE RELEASED BY CUSTOMER FOR MANUFACTURE WITHIN THIRTY (30) CALENDAR DAYS FROM THE DATE OF THIS QUOTATION. CORE & MAIN LP RESERVES THE RIGHT TO INCREASE PRICES TO ADDRESS FACTORS, INCLUDING BUT NOT LIMITED TO, GOVERNMENT REGULATIONS, TARIFFS, TRANSPORTATION, FUEL AND RAW MATERIAL COSTS. DELIVERY WILL COMMENCE BASED UPON MANUFACTURER LEAD TIMES. ANY MATERIAL DELIVERIES DELAYED BEYOND MANUFACTURER LEAD TIMES MAY BE SUBJECT TO PRICE INCREASES AND/OR APPLICABLE STORAGE FEES. THIS BID PROPOSAL IS CONTINGENT UPON BUYER'S ACCEPTANCE OF SELLER'S TERMS AND CONDITIONS OF SALE, AS MODIFIED FROM TIME TO TIME, WHICH CAN BE FOUND AT: <https://coreandmain.com/TandC/>

POLYMH POLYMER MANHOLE

Vendor Code							OLSONPRECAST	ARMOROCK
Vendor Name							Olson Precast	Armorock
Vendor Phone							6022696219	7028249702
Bid	Activity	Resource	Desc	Quan	Unit	Plug Price	Unit Price	Unit Price
		2POLYMH	5' POLYMER MANHOLE	10.00	EA	0.0000	12,208.9800	14,358.1000
Quoted Amount							122,090	143,581
Plugged Amount							0	0
Bond							0	0
Mobilization							0	0
% Adjustment							0	0
\$ Adjustment							0	0
Total Adjustment							0	0
Totals						0	122,090	143,581
Diff From Plug							122,090	143,581
Total Minority							0	0

A 'P' beside a price indicates a plug price.

Green background indicates that the vendor is selected.



14555 Spring Canyon Road
Boulder City, NV 89006

207 Heritage Court
Sulphur Springs, TX 75482

702-824-9702
www.armorock.com

Quote Date: 2/2/2022

To:

Ref: Chandler Heights Chapparral Way to Alma School RD
Chandler, AZ

Q U O T A T I O N

Notes:

1. Quote is subject to our standard terms, conditions, and shipping policies.
2. Payment is due at Net 30. Late Payment service charge for over 30 days will be charged at 18% APR
3. Quote is valid for 60 days from issue date to receipt of PO after 60 days quote is subject to change based off market value of materials.
4. All applicable taxes are to be paid by purchaser
5. If owner requires items to be grouted in field contractor is responsible for materials and labor costs incurred.
6. All loads will be billed at \$1500 for each truck. Total of four(4) needed for job. Customer will only be billed for trucks used. Additional trucks will be billed at market rate.
7. Freight requested under 3 days notice may be subject to increased freight rates
8. Products will be billed at unit pricing per quotation
9. Rush orders will be priced accordingly.
10. Contractor shall be responsible for joint sealing and performance.
11. Miscellaneous items such as grout, epoxy, and hardware are not included with the structures unless a specific line item is shown on this quote. Additional charges will apply for any extra items that are not shown on this quote.
12. Final lead time is determined at date of approved submittal.

From:



14555 Spring Canyon Road
Boulder City, NV 89006

207 Heritage Court
Sulphur Springs, TX 75482

702-824-9702
www.armorock.com

For:

Ref: Chandler Heights Chapparal Way to Alma School RD
Chandler, AZ

Quote Date: 2/2/2022

Structure		Description		Height	Weight	Price
MH 01		60"-30" Polymer Manhole		14.27'	6,684	\$10,674
1	30" CITY OF CHANDLER SEWER A-1700 R&C	1	PR30X1FL	30 IN X 1 IN FLAT PRO-RING		
1	PR30X6FL	30 IN X 6 IN FLAT PRO-RING	1	50530-C	60 IN X 3 FT ECC POLYMER CONE 30 IN	
1	50524-S	60 IN X 2 FT POLYMER MH SECTION	1	50572-S	60 IN X 6 FT POLYMER MH SECTION	
1	50512-SNB	60 IN X 1 FT POLYMER MH SECTION NO BELL	6	JM1.25	1.25 IN X 14 FT JOINT MASTIC ROLL	
1	PEPOXY	EPOXY KIT FOR CIP BASE				
MH 02		60"-30" Polymer Manhole		13.98'	6,543	\$10,518
1	30" CITY OF CHANDLER SEWER A-1700 R&C	1	PR30X4FL	30 IN X 4 IN FLAT PRO-RING		
1	50530-C	60 IN X 3 FT ECC POLYMER CONE 30 IN	1	50524-S	60 IN X 2 FT POLYMER MH SECTION	
1	50572-S	60 IN X 6 FT POLYMER MH SECTION	1	50512-SNB	60 IN X 1 FT POLYMER MH SECTION NO BELL	
6	JM1.25	1.25 IN X 14 FT JOINT MASTIC ROLL	1	PEPOXY	EPOXY KIT FOR CIP BASE	
MH 03		60"-30" Polymer Manhole		14.18'	6,684	\$10,674
1	30" CITY OF CHANDLER SEWER A-1700 R&C	1	PR30X1FL	30 IN X 1 IN FLAT PRO-RING		
1	PR30X6FL	30 IN X 6 IN FLAT PRO-RING	1	50530-C	60 IN X 3 FT ECC POLYMER CONE 30 IN	
1	50524-S	60 IN X 2 FT POLYMER MH SECTION	1	50572-S	60 IN X 6 FT POLYMER MH SECTION	
1	50512-SNB	60 IN X 1 FT POLYMER MH SECTION NO BELL	6	JM1.25	1.25 IN X 14 FT JOINT MASTIC ROLL	
1	PEPOXY	EPOXY KIT FOR CIP BASE				
MH 04		60"-30" Polymer Manhole		14.25'	6,684	\$10,674
1	30" CITY OF CHANDLER SEWER A-1700 R&C	1	PR30X1FL	30 IN X 1 IN FLAT PRO-RING		
1	PR30X6FL	30 IN X 6 IN FLAT PRO-RING	1	50530-C	60 IN X 3 FT ECC POLYMER CONE 30 IN	
1	50524-S	60 IN X 2 FT POLYMER MH SECTION	1	50572-S	60 IN X 6 FT POLYMER MH SECTION	
1	50512-SNB	60 IN X 1 FT POLYMER MH SECTION NO BELL	6	JM1.25	1.25 IN X 14 FT JOINT MASTIC ROLL	
1	PEPOXY	EPOXY KIT FOR CIP BASE				
MH 05		60"-30" Polymer Manhole		14.84'	6,875	\$10,919
1	30" CITY OF CHANDLER SEWER A-1700 R&C	1	PR30X1FL	30 IN X 1 IN FLAT PRO-RING		
1	PR30X2FL	30 IN X 2 IN FLAT PRO-RING	1	50530-C	60 IN X 3 FT ECC POLYMER CONE 30 IN	
1	50536-S	60 IN X 3 FT POLYMER MH SECTION	1	50572-S	60 IN X 6 FT POLYMER MH SECTION	
1	50512-SNB	60 IN X 1 FT POLYMER MH SECTION NO BELL	6	JM1.25	1.25 IN X 14 FT JOINT MASTIC ROLL	
1	PEPOXY	EPOXY KIT FOR CIP BASE				
MH 06		60"-30" Polymer Manhole		15.94'	7,302	\$11,208
1	30" CITY OF CHANDLER SEWER A-1700 R&C	1	PR30X4FL	30 IN X 4 IN FLAT PRO-RING		
1	50530-C	60 IN X 3 FT ECC POLYMER CONE 30 IN	1	50548-S	60 IN X 4 FT POLYMER MH SECTION	
1	50572-S	60 IN X 6 FT POLYMER MH SECTION	1	50512-SNB	60 IN X 1 FT POLYMER MH SECTION NO BELL	
6	JM1.25	1.25 IN X 14 FT JOINT MASTIC ROLL	1	PEPOXY	EPOXY KIT FOR CIP BASE	
MH 07		60"-30" Polymer Manhole		16.18'	7,443	\$11,364
1	30" CITY OF CHANDLER SEWER A-1700 R&C	1	PR30X1FL	30 IN X 1 IN FLAT PRO-RING		
1	PR30X6FL	30 IN X 6 IN FLAT PRO-RING	1	50530-C	60 IN X 3 FT ECC POLYMER CONE 30 IN	
1	50548-S	60 IN X 4 FT POLYMER MH SECTION	1	50572-S	60 IN X 6 FT POLYMER MH SECTION	
1	50512-SNB	60 IN X 1 FT POLYMER MH SECTION NO BELL	6	JM1.25	1.25 IN X 14 FT JOINT MASTIC ROLL	
1	PEPOXY	EPOXY KIT FOR CIP BASE				



14555 Spring Canyon Road
Boulder City, NV 89006
207 Heritage Court
Sulphur Springs, TX 75482
702-824-9702
www.armorock.com

For:

Ref: Chandler Heights Chapparral Way to Alma School RD
Chandler, AZ

Quote Date: 2/2/2022

Structure	Description	Height	Weight	Price
MH 08	60"-30" Polymer Manhole	17.24'	7,822	\$12,027
1	30" CITY OF CHANDLER SEWER A-1700 R&C	1	PR30X1FL	30 IN X 1 IN FLAT PRO-RING
1	PR30X6FL	1	50530-C	60 IN X 3 FT ECC POLYMER CONE 30 IN
1	50560-S	1	50572-S	60 IN X 6 FT POLYMER MH SECTION
1	50512-SNB	6	JM1.25	1.25 IN X 14 FT JOINT MASTIC ROLL
1	PEPOXY			EPOXY KIT FOR CIP BASE
MH 09	60"-30" Polymer Manhole	17.51'	8,011	\$12,254
1	30" CITY OF CHANDLER SEWER A-1700 R&C	1	PR30X1FL	30 IN X 1 IN FLAT PRO-RING
1	PR30X4FL	1	PR30X6FL	30 IN X 6 IN FLAT PRO-RING
1	50530-C	1	50560-S	60 IN X 5 FT POLYMER MH SECTION
1	50572-S	1	50512-SNB	60 IN X 1 FT POLYMER MH SECTION NO BELL
6	JM1.25	1	PEPOXY	EPOXY KIT FOR CIP BASE
MH 10	60"-30" Polymer Manhole	19.32'	9,078	\$13,826
1	30" CITY OF CHANDLER SEWER A-1700 R&C	1	PR30X2FL	30 IN X 2 IN FLAT PRO-RING
1	PR30X6FL	1	50530-C	60 IN X 3 FT ECC POLYMER CONE 30 IN
1	50512-S	2	50572-S	60 IN X 6 FT POLYMER MH SECTION
1	50512-SNB	8	JM1.25	1.25 IN X 14 FT JOINT MASTIC ROLL
1	PEPOXY			EPOXY KIT FOR CIP BASE
Spreader Bar		0.00'	0	\$1,943
1	SPREADER BAR AND RIGGING FOR LIFTING			
Sub-Total				\$116,081
Freight/Delivery				\$6,000
Total Price for	Chandler Heights Chapparral Way to Alma School RD			\$122,081
Manhole Bases (Preach)				\$21,500
				\$143,581



Contractor: Achen Gardner	Attention: Mark Mclafferty
Job Name: Chandler Heights Rd Utility Relocation	
Address: Lake Dr.– Chaparral Way to Alma School	Date: 2-14-22

Bid Item	Description	Quantity	Per Each
	Cast in Place 5'ID SS MH Bases	10	\$1,500.00
	Apply Epoxy Coating To Bases	10	\$550.00
	Insecta Coating Of MH's	10	\$100.0
	Based On 2 Manholes Per Trip		
	QUOTE EXPIRES: 7/1/22		

EXCLUDES: Excavation, Backfilling, Shoring, Barricades, Final Adjustments, Concrete Collar Around Frame & Cover, Drop Connections, Pouring of Drop Encasements, Cutting Holes In Side Of Shaft To Accept High Pipes, Breaking Out Pipes, Setting Of Pipes & Or Stub Outs, Pipe Supports, Compaction Testing, Concrete Testing, 3rd Party Inspection, Dewatering, Weekend, Night Work, Davis Bacon Wages, Taxes, Bonds & Permit. **Concrete Pump, Setting Of Polymer MH's & Vacuum Testing.**

REDIMIX REDI MIX

Vendor Code							DESERETREDIM	ARIZONAMATER	CALPORTLAND
Vendor Name							Desert Redi Mix	Arizona Materia	Calportland
Vendor Phone							4804282280	6022787777	6028176945
Bid	Activity	Resource	Desc	Quan	Unit	Plug Price	Unit Price	Unit Price	Unit Price
		2CRMAG1/2SK	1/2 SACK CLSM	1,190.00	CY	60.0000	96.2500	108.0000	111.5000
		2CRMAGB	MAG B CONCRETE	110.00	CY	0.0000	131.2500	131.0000	141.0000
		2CRMAGC	MAG C CONCRETE	10.00	CY	78.0000	127.2500	128.0000	138.0000
		2CRMAGGROUT	GROUT	41.00	CY	160.0000	160.0000 P	160.0000 P	160.0000 P
		2CRSL2-4	SHORT LOAD CHARGE 2<4 C	8.00	EA	200.0000	200.0000 P	200.0000	200.0000
		2CRTHCLSM	SRP THERMAL CLSM	40.00	CY	150.0000	160.0000	160.0000	160.0000
Quoted Amount							136,648	152,210	157,575
Plugged Amount							8,160	6,560	6,560
Bond							0	0	0
Mobilization							0	0	0
% Adjustment							0	0	0
\$ Adjustment							0	0	0
Total Adjustment							0	0	0
Totals						86,340	144,808	158,770	164,135
Diff From Plug							58,468	72,430	77,795
Total Minority							0	0	0

A 'P' beside a price indicates a plug price.

Green background indicates that the vendor is selected.



PROJECT QUOTATION

Customer: Achen Gardner Construction, LLC
Mark McLafferty -
602-877-9329
mmclafferty@achen.com

Project Chandler Heights Rd Utility Relocations
Location Alma School & Lake Dr , Chandler , AZ

Quote # 3416 (21)
Quote Date 02/15/2022

CONCRETE

Est Quantity 9,036.00 CYDS

Qty	Description	Mix ID	Price
8891	1/2 Sack ABC Slurry (COP)65.68	PHCLSM	\$105.00/CYD
135	MAG-B 2500 PSI 1" Rock	12504	\$127.00/CYD
10	2000 PSI MAG C	12004	\$124.00/CYD
	Chilled Water		\$1.00/Per Yard
	Environmental		\$25.00/Each
	Fuel Surcharges		\$15.00/Each
	Hot Water		\$1.00/Per Yard
	SHORTLOAD CHARGES		\$200.00/Each

Concrete Terms & Conditions

Arizona Materials accepts no responsibility for any damage to curb and beyond curb line. It will be Buyers responsibility to contact Arizona Materials Quality Control Department with any concrete issue/concerns within 48 hours after placement. Buyer is responsible to provide safe access to point of delivery. All materials are produced in conformance with ACI / ASTM standards. Mixes quoted below, unless otherwise stated, conform to no specific water cement ratio, minimum sack content, shrinkage, temperature requirement, or the plans and specifications of this project.

All colored concrete loads have a 3 yard minimum.

Arizona Materials cannot guarantee compressive strengths of 5000 PSI or below for loads less than 3 yards.

5000 PSI or above must be 5 yards or more to guarantee compressive strength.

Payment is due and payable on or before the 15th day of the month following to receive 2% discount. Account must be current in full to be eligible to apply discount. A service charge not to exceed the maximum allowed by law applies on unpaid invoice amounts beginning the 1st day of the month following due date and daily thereafter until paid in full. Should litigation be commenced to enforce payment, the prevailing party is entitled to reimbursement of reasonable attorney fees and court costs.

Buyer has 30 days to validate quote with P.O. , signing issued quote, or written verification.

Prepared & Submitted By:	ACCEPTANCE (void if not accepted before 03/17/2022)
Charity Medlock 6026200364 CMEDLOCK@AZMATL.COM Prepared On 02/15/2022	All prices expire on quoted expiration date: 09/30/2022 Signature: _____ Date: _____ Print Name/ Title: _____



Corporate Offices:
3636 S. 43rd Avenue
Phoenix, AZ 85009
Phone: 602-278-7777
Fax: 602-442-6905
www.arizonamaterials.net

Terms and Conditions of Sale

Additives

Hot / Chilled Water - \$1.00 per cubic yard
Nitrogen Cooling - \$9.50 per cubic yard
Non-Chloride Accelerator - \$1.50 per unit
Recover - \$2.00 per 1/2 Hour

Fiber

Micro Fiber - \$7.50 per pound
Macro Fiber (Structural) - Priced as Quoted

Color

Standard Liquid Color - See mix detail for per yard pricing
Color Washout - \$25.00 per load

Delivery

Fuel Surcharge - \$15.00 per load
Wash Out System Buckets - \$25.00 per load (requested at time of order)
Standby Charges - \$1.50 per minute beyond 6 minutes per cubic yard
Short Load Charges - 6 yards or less \$200.00 per load
Environmental Fee - \$25.00 per load

Weekend Delivery - \$50.00 per load
Plant Opening Charge - \$500.00/hr, 4 hour minimum
Sunday / Holiday Opening - \$750.00/hr, 4 hour minimum

All order backs/split loads under 11 yds on one order are subject to Short Load Charges.

Concrete Pricing subject to change in the event of cement / fly ash allocations and/or unanticipated cement / fly ash price increases.

All materials are produced in conformance with ACI / ASTM Standards.

Contractor is responsible to provide safe access to the point of delivery.

Arizona Materials accepts no responsibility for damages to any curb and beyond the curb line.

It is Contractors responsibility to contact Arizona Materials Quality Control Department with any concrete issues/concerns no later than 48 Hours after placement.



Price Expiration:

04/01/2022

See acceptance clause below

Customer Name ACHEN GARDNER CONSTRUCTION LLC Attention _____
 Project Name CHANDLER HEIGHTS RD UTILITY RELOCATIONS (CMAR) PACKAGE 2 City CHANDLER
 Project Address ALMA SCHOOL RD & LAKE DR C/St _____
 Office Phone _____ Fax _____ Email _____

Date 02/15/2022 Sales MARK REINER Cell # (480) 620-4673 Email mreiner@calportland.com Quote # 125782
 Customer # 1016934 Job Start 02/15/2022 Job End 04/01/2022

Volume	Product Number	Description	Unit Price	UOM	Comments
8891.00	PHCLSM	0.5 SK ABC SLURRY (PHCLSM 1/2)	\$97.00	CY	
10.00	P2025C01	2000PSI #57 MAG C	\$124.00	CY	
135.00	P2525B01	MAG B 2500PSI #57 ASH	\$127.00	CY	
9036	Total Volume		\$20.00	LOAD	Environmental Fee – Effective 04/01/22 Environmental Fee Increase to \$25.00 per load.
			\$25.00	LOAD	Fuel Surcharge

Fly ash and lightweight mixes subject to daily availability / All aggregates meet ASTM C 33.

Comments : **PRICE INCREASE 4-1-22 \$10.00 CYD EXPIRING 10-1-22**

Subject to availability. CalPortland warrants that the concrete as delivered to this project will meet or exceed the design strength specified on the delivery ticket when evaluated in accordance with applicable ACI and ASTM standards. CalPortland does not provide Contractor Quality Control. CalPortland guarantees ticketed mix designs of less than 5,000psi for load of three yards or more. Mix strength for loads less than three yards is not guaranteed. Ticketed mix designs of 5,000psi or greater require a four-yard minimum. Three-yard minimum for all colored concrete. Concrete is a natural product. Seller cannot be responsible for variations in color, surface discoloration, popouts or variations in the finished product caused by finishing techniques or job site conditions. Due to potential reactive aggregates in Arizona, CalPortland recommends the use of a Class F Fly Ash to mitigate Alkali Silica Reactivity (ASR). Purchaser shall assume the liability for the use of a cement-only mix.

CalPortland reserves the right to postpone or cancel any quotes, current jobs or accepted deliveries if unable to perform due to raw material shortages, allocations or government regulations. Prices subject to change due to drastic cost changes of the major components of concrete or surcharges. Concrete is batched and delivered at current ambient temperatures. Buyer is responsible for temperature controlled concrete (Ice/Tempered Water). Prices for temperature controlled concrete are available upon request.

Contractor is responsible for providing safe access to the point of delivery. CalPortland accepts no responsibility for damages to the premises beyond the curb line.

Customer shall provide and assume responsibility for an area or container for clean out of the concrete truck chutes. Additional color added by Buyer on-site subject to wash out fees.

All products quoted per Buyers request. Additional products or services ordered are subject to applicable charges.

Standard Operating hours: Loads batched outside Standard Operating Hours subject to applicable charges.
 Summer: 3:00AM – 2:00PM
 Winter: 5:00AM – 3:00PM
 Saturday: 5:00AM – 12:00PM
 Standing Time: \$2.00 per minute beyond 5 minutes per CY.
 Minimum Load Charges: One Minimum Load Charge waived on orders of 1 full load or more.
 Under 6 CY = \$200.00
 Excessive Trucking Fee: Split Loads or multiple Order Backs subject to Excessive Trucking Fees.
 Fuel Surcharge: Variable Fuel Surcharge based on U.S. Energy Information Administration On-Highway Diesel Fuel Price Index and is adjusted weekly.
<https://www.eia.gov/petroleum/gasdiesel/>

Terms: All pricing is net 30 days with a valid credit application on file. All applicable sales taxes will be added to price.

Financing: All invoices are due and payable within 30 days of the original billing date. A Finance Charge of 1.5% per month on a pro-rated portion thereof (12% Annual Percentage Rate) will be charged upon all balances not paid within 30 days or first appearance on a Statement.

We impose a surcharge of 2.25% on the transaction amount on all credit card products, which is not greater than our cost of processing. We do not surcharge debit cards.

General Terms & Conditions of Sale: CalPortland Co. Terms and Conditions are applicable and included as page two of this quote. If you did not receive a copy, please contact CalPortland Sales Department at (602) 817-6950.

Acceptance: For this job quotation to be effective, written acceptance must be received no later than 30 days after quote date.

Buyer Acceptance: _____

Name / Title: _____

Date: _____



Ready Mix Terms and Conditions

Customer #	1016934	Customer Name	ACHEN GARDNER CONSTRUCTION LLC
Quote #	125782	Project Title	CHANDLER HEIGHTS RD UTILITY RELOCATIONS (CMAR) PACKAGE 2

Tempered Water:	Heated Water \$2.00 per cubic yard.
Ice:	\$0.50 per pound (Requires 3 – 5 business days notice).
Non-Chloride Accelerator:	\$0.09 per ounce.
Recover Set Delay Admixture:	\$0.20 per ounce.
Micro Fiber:	\$6.50 per pound.
Macro Fiber:	(Structural) Priced individually
	Please see manufacturer recommendation / specifications for suggested dosage rate.
Standard Liquid Color:	See mix detail for per yard pricing. Actual color of concrete may vary due to differences in cement, aggregates, job site conditions and finishing methods. Three-yard minimum load required.
Color Washouts:	\$25.00 per load
Standby Charges:	\$2.00 per minute beyond 5 minutes per cubic yard.
Minimum Load:	Under 6 CY = \$200.00
Excessive Trucking:	One Excessive Trucking Fee of \$200 will be assessed for each additional load required due to load sizes or multiple Order Backs.
Saturday Service:	\$5.00 per cubic yard Saturday operating hours 5:00am – 12:00pm Loads delivered outside of operating hours subject to additional charges
Split Load Charges:	\$250.00 per load.
Cancellation Charges:	\$10.00 per cubic yard - All orders greater than 80 cubic yards cancelled within 24 hours of scheduled delivery \$10.00 per cubic yard (with a minimum of \$250.00) - All orders with scheduled delivery between the hours of 6:00pm – 4:00am cancelled within 24 hours of scheduled delivery

Special Provisions:





DESERT READY MIX

READY MIX CONCRETE SALES AND SERVICE

4011 PRESIDIO STREET

MESA, AZ 85215

OFFICE: 480-428-2280 FAX: 480-985-4248

Begin Date: February 15, 2022

Quote # : 15186

Expiration Date: **December 31, 2022**

MAP/GRID 184-20

Customer: **ACHEN GARDNER CONSTRUCTION, LLC**

Customer Code: ACHE001

Address:

CHANDLER, AZ 85226

Contact: MARK MCLAFFERTY (ESTIMATOR)

Phone: 480-940-1300

Fax:

Project: **CHANDLER HEIGHTS-RD UTILITY RELOC (CMAR)**

Job Address: ALMA SCHOOL ROAD & LAKE DRIVE

Terms Description: **2% 10TH NET 30**

****Won't guarantee price or availability*** Can't Use for GMP**

"This quote does not guarantee product or service availability"

Item Code	Item Description	Est. Qty	Price
S500501	PHCLSM.5 (1/2 SACK SLURRY COP)	8891 Yards	\$93.00
SRP104	1/2 SACK MAG CLSM (SRP MIX)	Per Yard	\$93.00
A202001	MAG C 2000 PSI	10 Yards	\$124.00
A202501	MAG B 2500 PSI	135 Yards	\$128.00
TC	TEMPERATURE CONTROL	Per Yard	\$1.00

Additional Fees

Fee ID *	UOM	Price
E01	Per Yard	\$3.25

Minimum Load Fee

Less than or equal to	UOM	Price
2 Yards	Load	\$0.00
3.5 Yards	Load	\$0.00
5.5 Yards	Load	\$0.00

- Normal operating hours are Mon-Fri, Sat, Sun or Holidays are subject to surcharges.
- Color added at no expressed guarantee.
- Drivers do not except cash or make change.
- Desert Ready Mix reserves the right to increase prices due to RAW Material cost increases such as Cement, Fly Ash, Aggregates or unexpected Fuel increases.
- All specialized aggregates are based on availability.
- Deliveries less than 6 Cubic yards are subject to our minimum load charges.
- This quote does not guarantee product or service availability

Quoted By:

BRUCE A. TABET

SURVEY **SURVEY**

Vendor Code							ATWELLLLC	BENCHMARKSUR	SURVEYINNOVA
Vendor Name							Atwell, LLC	Benchmark Surv	Survey Innovatio
Vendor Phone							4805862104	4803136788	4809220780
Bid	Activity	Resource	Desc	Quan	Unit	Plug Price	Unit Price	Unit Price	Unit Price
20	3021490	4SURVEY	SURVEY	1.00	LS	10,000.0000	0.0000	0.0000	3,660.0000
Quoted Amount							0	0	3,660
Plugged Amount							0	0	0
Bond							0	0	0
Mobilization							0	0	0
% Adjustment							0	0	0
\$ Adjustment							0	0	0
Total Adjustment							0	0	0
Totals						10,000	0	0	3,660
Diff From Plug							-10,000	-10,000	-6,340
Total Minority							0	0	0

A 'P' beside a price indicates a plug price.
Green background indicates that the vendor is selected.



February 17th, 2022

Mark McLafferty
Achen-Gardner Construction
550 South 79th Street
Chandler, AZ 85226
480-403-9426

SUBJECT: Chandler Heights Rd Utility Relocations – Package 2

Dear Mark:

Rick Engineering Company is pleased to submit this proposal to provide professional survey services on the above referenced project. We look forward to working with you on this project.

SCOPE OF WORK:

Control

- Verify existing horizontal and vertical control and establish new control for site staking.

Subtotal: \$510.00

Domestic/Fireline Water Services

- Provide one stake at requested offset on 50-foot intervals for line only.
- Provide two stakes at requested offset including grades to adjacent top of curb elevation for fire hydrants, water meter vaults and back flow preventers.

Subtotal: \$510.00

Sanitary Sewer

- Provide one stake at requested offset on 25-foot intervals for line including grade to invert.
- Provide one offset stake at requested offset for cleanout locations.
- Provide two offset stakes per manhole at requested offset with grades to rim and invert elevation.

Subtotal: \$1,020.00

Asbuilts

- Collect field data for use in preparing final asbuilts.
 1. Water
 - Provide centerline stations on fire hydrants, valves, fittings, meters and taps.
 - Contractor to notify surveyor if vertical dip locations are required to be located.
 2. Sewer
 - Provide centerline stations for manholes, cleanouts and fittings.
 - Provide rim and invert elevations for manholes

Note: The contractor will note any changes made during the construction phase and provide dimensions to the surveyor before completion of final asbuilts are submitted. Should the following be required by the governing municipality, the contractor shall notify the project surveyor before back-filling water, fire line, sewer, storm drain facilities or other underground pipelines and utilities in order that the surveyor may verify the asbuilt location and elevation of said utilities.

Subtotal: \$850.00

Calculations, Coordination and Project Management

- Onsite preconstruction meetings to coordinate field staking for synergistic operation with construction subcontractors (not to exceed one meeting). Additional meetings will be conducted on a time and materials basis per Fee Schedule.
- Point staking calculation for items contained in this proposal.
- Drafting services to complete contract asbuilts per governing agency.
- Correspondence to client and subcontractors (i.e. cutsheets, staking progress memorandums, etc).

Subtotal: \$770.00

FEE:

Rick Engineering will provide the above services for a TOTAL FEE of \$3,660.00. The attached Provisions of Agreement between Achen-Gardner Construction (CLIENT) and RICK are incorporated hereunto and made a part of this proposal. Any printing is extra and not a part of this agreement.

EXCLUSIONS:

The following items are specifically excluded from the Scope of Work and budget and, if required, will either be prepared by others or will be covered by separate agreement between Rick Engineering Company and CLIENT.

- a) Boundary Discrepancies
- b) Soils Reports
- c) Staking for Finish Landscaping or Hardscape
- d) Any items not listed in the "Scope of Work"

If the above meets with your approval, please execute where indicated below, and return to our office for our files. If there are any questions or concerns, please feel free to contact our office.

Sincerely,
RICK ENGINEERING COMPANY



Randall R. Hager, RLS
Associate – Construction Survey Manager

ACCEPTED THIS _____ DAY OF _____, 2022

BY: _____
CLIENT

Invoices for this project to be mailed to:

Company: _____

Address: _____

City/State/Zip: _____

Telephone: _____ Email: _____

Contact person: _____

Please complete, sign and return a copy to RICK ENGINEERING COMPANY

STANDARD PROVISIONS: ARIZONA 2022

The Client and Consultant agree that the following provisions shall be a part of their Agreement:

1. This Agreement shall be binding upon the heirs, partners, successors, executors, administrators and assigns of the Client and Consultant.
2. In the event of any increase of costs due to the granting of wage increases and/or other employee benefits to field or office employees due to the terms of any labor agreement, rise in the cost of living, or increase in any applicable prevailing wage during the lifetime of this Agreement, such increase shall be applied to all remaining compensation. For services provided on a time and materials or hourly rate basis, increases in the applicable rates will be reflected in the billing statement or invoice for the month following the increase.
3. Should litigation at law or equity arising out of this Agreement, including but not limited to an action for declaratory relief, be brought to enforce or interpret any term or provision of this Agreement, or to collect any portion of the amount payable under this Agreement or litigation commenced either directly or by way of a cross-complaint whether arising out of contract or tort, including a cross-complaint for indemnity, for failure or alleged failure to perform or for errors, omissions, or negligence, the prevailing party shall be entitled, in addition to any other award, to all litigation and collection expenses, any and all costs of defense, including attorney's fees, expert witness fees, witness fees and court costs and any and all other expenses incurred.
4. Neither the Client nor Consultant shall assign his interest in this Agreement without the written consent of the other.
5. This Agreement shall be governed by and construed in accordance with the laws of the State of Arizona. This Agreement contains the entire agreement between Client and Consultant relating to the project and the provision of services by Consultant to the project. Any agreements, promises, negotiations or representations not expressly set forth herein, are of no force or effect. Subsequent modifications to this Agreement shall be in writing and signed by both Client and Consultant.
6. Conditions or representations, alterations, detractions from or to the terms hereof, including delineations hereon, shall not be valid unless they are in writing and signed by both Client and Consultant.
7. Client agrees that the Consultant is not responsible for damages arising directly or indirectly from any delays for causes beyond the Consultant's control. For purposes of this Agreement, such causes include, but are not limited to, strikes or other labor disputes; severe weather disruptions or other natural disasters; fires, riots, war or other emergencies or acts of God; failure of any government agency to act in timely manner; failure of performance by the Client or the Client's contractors or consultants; issuance of regulations, orders or other governmental actions that limit, restrict or delay the ability of Consultant or Consultant's workforce to perform; or discovery of any hazardous substances or differing site conditions. In addition, if the delays resulting from any such causes increase the cost or time required by the Consultant to perform its services in an orderly and efficient manner, the Consultant shall be entitled to an equitable adjustment in schedule and/or compensation.
8. In the event litigation is instituted under the terms and conditions of this Agreement, such litigation is to be brought and tried in the appropriate court in the state and county in which the project is located and the parties waive the right to have brought, tried in, or removed to any other county or judicial jurisdiction.
9. Client acknowledges that Consultant is not responsible for the performance of work by third parties, including, but not limited to, the construction contractor(s), subcontractors, governmental agencies, construction managers, architects, or other consultants.
10. Consultant shall only act as an advisor in all governmental relations. Consultant shall not be liable for damages resulting from the actions or inactions of governmental agencies including, but not limited to, permit processing, environmental impact reports, dedications, general plans and amendments thereto, zoning matters, annexations or consolidations, use or conditional use permits, project or plan approvals and building permits.
11. Consultant makes no warranty, either express or implied, as to the findings, recommendations, plans, specifications, or professional advice. Consultant shall perform in accordance with generally accepted engineering and/or surveying practices or standards in effect at the time of performance in the locale where the services are rendered.
12. Consultant makes no representation, guarantee, warranty, express or implied concerning estimated cost figures made in connection with maps, plans, specifications, or drawings, other than that all such figures are estimates only. Consultant shall not be responsible for fluctuations in cost factors.
13. Consultant makes no representations concerning estimates of areas. Estimates of areas are estimates only and are not to be considered precise unless Consultant specifically agrees to provide the precise determination of such areas.
14. Client and Consultant agree to cooperate in any and every way or manner on project.
15. Consultant makes no representation, either express or implied, concerning soils or geological surveys or subsurface soil tests or general soils testing and reporting.
16. Upon written request, each of the parties hereto shall execute and deliver, or cause to be executed and delivered, such additional instruments and documents which may be necessary and proper to carry out the terms of this Agreement.
17. The terms and provisions of this Agreement shall not be construed to alter, waive, or affect any lien or stop notice rights which the Consultant may have for the performance of services under this Agreement.

18. One or more waivers of any term, condition or covenant by a party shall not be construed as a waiver of subsequent breach of the same or any other term, condition, or covenant.

19. In the event Client fails to pay Consultant promptly or within sixty (60) days after invoices are rendered, then Client agrees that Consultant shall have the right to consider said default a total breach of this Agreement and, upon written notice, the duties, obligations and responsibilities of the Consultant under this Agreement are terminated. In such event, Client shall then promptly pay the Consultant for all the fees, charges, and services performed to date by Consultant.

20. In the event any term, condition, covenant or provision of this Agreement shall be held to be invalid, void or unenforceable, the remaining terms, conditions, covenants and provisions of this Agreement shall be valid and binding on the parties hereto.

21. The Client agrees it will require that the Contractor hold harmless, indemnify and defend the Client, the Architect, the Consultant and its subconsultants, and each of their officers, directors, principals, employees and agents, from any and all liability claims, losses or damages arising or alleged to arise from the performance of the work described herein, but not including the sole negligence or willful misconduct of the Client, the Architect or the Consultant or their respective subconsultants, officers directors, principals, employees and agents.

22. The Client shall indemnify and hold Consultant harmless with regard to all liability or claims of any kind, including all investigation and defense costs, connected directly or indirectly with this project, which liabilities or claims do not result from the sole negligence or willful misconduct of the Consultant.

23. Consultant has a right to complete all services agreed to be rendered pursuant to this Agreement. In the event this Agreement is terminated before the completion of all services, unless Consultant is responsible for such early termination, Client agrees to release Consultant from all liability for services performed.

24. In the event work prepared or partially prepared by the Consultant be suspended, abandoned, or terminated, the Client shall pay the Consultant for all work, fees, deposits, charges and services provided, not to exceed any maximum amount specified herein. Client acknowledges if project work is suspended and restarts, there may be additional charges due to suspension which shall be paid by Client as extra work.

25. Client agrees that if Client requests services not specified pursuant to the scope of services described within this Agreement, Client agrees to pay all such additional services as extra work if authorized in writing.

26. Consultant shall be entitled to immediately, and without notice, suspend the performance of any and all of its obligations pursuant to this Agreement if Client files a voluntary petition seeking relief under the United States Bankruptcy Code or if there is an involuntary bankruptcy petition filed against Client in the United States Bankruptcy Court, and that petition is not dismissed fifteen (15) days after its filing. Any suspension of services made pursuant to the provisions of this Paragraph shall continue until such time as this Agreement has been fully and properly assumed or adequate assurance provided in accordance with the applicable provisions of the United States Bankruptcy Court and in compliance with the final order or judgments issued by the Bankruptcy Court.

27. If payment for Consultant's services is to be made on behalf of Client by a third party, Client agrees that Consultant shall not be required to indemnify the third party, in the form of an endorsement or otherwise, as a condition of receiving payment for services.

28. Client agrees to purchase and maintain, during construction, builder's liability special peril or other similar insurance which will name Consultant as an additional insured. Client also agrees to require the contractor or contractors to purchase and maintain liability insurance, including broad form general liability coverage, comprehensive bodily injury, broad form property damage, independent contractors insurance, completed operations and contractual liability coverage, and the exclusions for explosion, collapse or underground coverage shall be deleted; automobile including bodily injury, property damage, owned, non-owned and hired vehicles; and worker's compensation insurance including employers liability coverage, all of which shall name the Client and Consultant as additional insureds. Certificates of such insurance shall be provided to Consultant and the certificate(s) shall include provisions that the above policies are primary and non-contributory with Consultant's insurance and that coverage will not be canceled unless at least thirty days prior written notice has been given to Consultant.

29. In the event that the plans, specifications, and/or field work covered by this Agreement are those required by various governmental agencies and one or more such governmental agency changes its policies, ordinances, procedures or requirements after the date of this Agreement, any additional office or field work required, shall be paid by Client as extra work.

30. Services provided within the Agreement are for the exclusive use of the Client. Nothing contained in this Agreement shall be construed to be for the benefit of any person not a party to this Agreement and no third-party beneficiary rights are created.

31. All original papers, drawings, notes, documents and other work product of Consultant, and copies thereof, produced as a result of the Agreement represent professional services, shall remain the property of the Consultant, and Consultant shall retain all copyright and other ownership interests. Client shall have a nonexclusive license to use Consultant's work product and any items in which Consultant maintains ownership and/or copyright interest so long as all fees to be paid under this Agreement have been paid. Any nonexclusive license Client obtains under this Agreement terminates upon the termination of this Agreement. Consultants work product may be used by Consultant without consent of the Client.

32. In the event that any changes are made in the plans and/or specifications by the Client or persons other than the Consultant, and such changes are not consented to in writing by Consultant, Client acknowledges that the changes and their effects are not the responsibility of Consultant and

Client agrees to release Consultant from all liability arising from the use of such changes and agrees to defend, indemnify and hold Consultant, its officers, directors, principals, agents and employees harmless from and against all claims, demands, damages or costs arising from the changes.

33. Client agrees not to use or permit any other person to use plans, drawings or other work product prepared by Consultant, which plans, drawings or other work product are not signed and stamped or sealed by Consultant and/or are not final. Client agrees to be liable and responsible for any use of non-final plans, drawings or work product or plans, drawings or work product not signed, and stamped or sealed by Consultant and waives liability against Consultant for their use. Client further agrees that final plans, drawings, and other work products are for the exclusive use of Client and may be used by Client only for the project described in this Agreement.

34. In the event that any staking is destroyed, damaged, or disturbed by an act of God or parties other than Consultant, the cost of re-staking shall be paid for by the Client as extra work. If the scope of services provided for pursuant to this Agreement does not include construction staking by Consultant, Client acknowledges that changes, clarifications, adjustments, and modifications may be necessary because of changed field or other conditions. Client will indemnify and defend Consultant for construction staking by others and from claims arising from changes, clarifications, adjustments and modifications which may be necessary to reflect changed field or other conditions, except claims caused by the sole negligence or willful misconduct of Consultant.

35. Questions concerning location or changes in construction stakes or questions concerning information on plans and specifications must be called to the attention of the Consultant upon discovery and before corrective remedy.

36. The Consultant shall be notified 24 hours in advance, so that he may check forms, for grade and alignment only, prior to the pouring of concrete for cast-in-place concrete structures, thrust blocks, electrical boxes, bridge abutments or piers, or any similar structures staked by Consultant. Consultant can assure compliance to proper grade and alignment only when it has been advised to check in advance.

37.(a) If the scope of services to be provided by Consultant pursuant to the terms of this Agreement include the preparation of engineering drawings but exclude construction staking services, Client acknowledges that such services normally include coordinating civil engineering services and the preparation of as-built drawings pursuant to Uniform Building Code Chapter 70 and/or other statutes, ordinances or laws, and Client will be required to retain such services from another consultant or pay Consultant pursuant to this Agreement for such services as extra work.

(b) If the scope of services to be provided by Consultant pursuant to the terms of the Agreement, include construction staking services, but exclude the preparation of the engineering drawings to be used for construction and construction staking, Client acknowledges the coordination of civil engineering services and the preparation of as-built drawings as required by statute, ordinance or law may require the retention by Client of another consultant or the original consultant responsible for the design, or pay Consultant pursuant to this Agreement for such services as extra work. Client acknowledges that if Consultant is retained to prepare as-built drawings of plans prepared by others, Client will indemnify, defend and hold Consultant harmless from any and all liability in connection with the plans and specifications prepared by others, and the performance of work by Consultant on this project as set forth in Paragraph 44.

38. In the event Client discovers or becomes aware of apparent errors or omissions, field conditions or discrepancies during the construction phase of the project, which apparent errors or omissions, field conditions or discrepancies are resolvable by Consultant, Client agrees to notify Consultant and engage Consultant to resolve the problem before construction activities commence or further construction activity proceeds. Further, Client agrees to have a provision in its construction contracts for the project which require the contractor to notify Client of any such apparent errors or omissions, field conditions or discrepancies so that Client may, in turn, notify Consultant pursuant to the provisions of this Paragraph.

39. Client shall pay the costs of checking and inspection fees, zoning and annexation application fees, assessment fees, soils engineering fees, soil testing fees, aerial topography fees, and other fees and deposits, permits, bond premiums, title company charges, blueprints and reproductions, and all other charges not specifically covered by the terms of this Agreement.

40. All fees and other charges will be billed monthly as the work progresses and the net amount shall be due at the time of billing.

41. A late payment CHARGE will be computed by the Consultant at the periodic rate of 1.5% per month, not to exceed the maximum legal rate, which will be applied to any unpaid balance commencing thirty (30) days after the date of the original billing.

42. Client agrees that the balance as stated on the billings from Consultant to Client are correct, conclusive and binding on the Client unless Client within forty-five (45) days from the date of receipt of such billing, notifies Consultant in writing of the particular items that are alleged to be incorrect.

43. In consideration of the Consultant's fee for services, the Client agrees that the Consultant will perform no onsite construction review, construction management, supervision of construction of engineering structures or other construction supervision for this project unless specifically contracted for; that such services will be provided by others; and that the Client shall defend, indemnify and hold the Consultant, its officers, directors, principals, agents and employees harmless from any and all liability, real or alleged, arising or resulting from the performance of construction review, construction management, supervision of construction of engineering structures or supervision by others. Further, Client acknowledges that Consultant will be unable to correct errors or omissions in the plans which customarily become apparent and resolvable during construction review.

44. Client agrees that, in accordance with generally accepted construction practices, the construction contractor will be required to assume sole and complete responsibility for job site conditions during the course of construction of the project, including safety of all persons and property; that this requirement shall be made to apply continuously and not be limited to normal working hours. The Client further agrees to defend,

indemnify, and hold the Consultant harmless from any and all liability in connection with the performance of work on this project, excepting liability arising from the sole negligence or willful misconduct of the Consultant.

45. Client agrees to limit the liability of Consultant, its principals and employees to the Client, all contractors and subcontractors on the project, due to professional negligent acts, errors or omissions of the Consultant, breach of contract or any other cause of action however pled to the sum of \$50,000 or the Consultant's fee, whichever is greater; except that if the contract amount, including any addenda or other contracts pertaining to or covering services related to the project, exceeds \$150,000, the liability of Consultant shall not exceed \$150,000. Client further agrees to notify any contractor and subcontractor who may perform work in connection with any design, report or study prepared by Consultant of such limitation of liability, and to require as a condition precedent to their performing their work, a like indemnity of liability on their part as against the Consultant.

46. The Client hereby agrees to bring no claim for negligence, breach of contract, indemnity or otherwise against the Consultant, its principals, employees and agents if such claim, in any way, would involve the Consultant's services for the investigation, detection, abatement, replacement, use or specification, or removal of products, materials or processes containing asbestos, asbestos cement pipe, and/or hazardous materials (as defined by state, federal and/or local laws or ordinances). Client further agrees to defend, indemnify and hold harmless Consultant, its officers, directors, principals, employees and agents from any asbestos, asbestos cement pipe, and/or hazardous waste material related claims that may be brought by third parties as a result of the services provided by the Consultant pursuant to this Agreement except claims caused by the sole negligence or willful misconduct of the Consultant.

47. Client acknowledges that Consultant's scope of services for this project does not include any services related, in any way, to asbestos and/or hazardous waste. Should Consultant or any other party encounter such materials on the job site, or should it in any way become known that such materials are present or may be present on the job site or any adjacent or nearby areas which may affect Consultant's services, Consultant may, at its option, terminate work on the project until such time as Client retains a specialist contractor to abate and/or remove the asbestos and/or hazardous waste materials and warrant that the job site is free from any hazard which may result from the existence of such materials.

48. Digital data files shall be provided to Client only if such delivery has been specified in the scope of services set forth in this Agreement. If the scope of services does not specify that digital data files shall be delivered, all costs associated with delivery of digital data files shall be paid by Client. Client agrees that all digital data files delivered by Consultant are to be used exclusively to fulfill the scope of this Agreement. Client agrees to hold Consultant harmless for any use by client of this data outside or beyond the scope of this Agreement.

49. Consultant makes the following representations as to the compatibility of digital data files:

- (a) All data files are to be used with compatible hardware and software versions as used by Consultant at the time file copies were created.
- (b) Consultant makes no representation as to the compatibility of any data files other than for the hardware and software versions used by Consultant to create the data files.
- (c) Client agrees to hold Consultant harmless for any use of data files on any hardware or software versions other than those which were used by Consultant to create them.
- (d) If Client requires or requests any special or specific file structure, format or software that is different from those used by Consultant at the time Consultant is performing the services set forth in this Agreement, unless otherwise specified in this Agreement, all costs associated with creating the file structure or format, and/or acquiring necessary software and/or hardware, shall be the responsibility of Client.

50. After the time final data files have been delivered per terms of this Agreement, Consultant will not be held responsible for maintaining copies of any digital data related to this Agreement.

51. Client agrees that if formats for deliverables of digital files are not specified in this Agreement, they will be delivered using the standards and versions of Consultant at the time of creation.

52. Client agrees not to use any digital files (drawing or data file), in whole or in part, for any purpose or project other than the project which is the subject of this Agreement. Client waives any and all claims against Consultant resulting in any way from any changes not authorized and/or authored by Consultant and/or reuse of the drawings or data for any other project without the express written consent by Consultant. The transfer of drawings or data in electronic media or format shall not be deemed a sale, and Consultant makes no warranties, either express or implied, of merchantability or fitness for a particular purpose.

53. Because data stored on electronic media can deteriorate undetected or be modified without the Consultant's knowledge, the Client agrees that it will accept responsibility for the completeness, correctness, or readability of the electronic media after an acceptance period of 30 days after delivery of the electronic files, and that upon the expiration of this acceptance period, client will indemnify and save harmless the Consultant for any and all claims, losses, costs, damages, awards or judgments arising from use of the electronic media files or output generated from them. The Consultant agrees that it is responsible for the accuracy of the sealed drawings that accompany the submittal, and that such accuracy is defined as the care and skill ordinarily used by members of the Consultants profession practicing under similar conditions at the same time and in the same locality. Consultant makes no warranties, express or implied, under this Agreement or otherwise, in connection with the Consultant's services.

54. Prior to the commencement of any legal action, in an effort to resolve any conflicts that arise during the design or construction of the project which is the subject of this Agreement, or following completion of the project, Client and Consultant agree that all disputes between them arising out of or relating to this Agreement, the services performed pursuant to this Agreement, or relating in any way to the project, shall be submitted to nonbinding mediation unless the parties mutually agree otherwise. Each party shall be represented at the mediation by a person or persons with

the authority to bind the party to any agreement, obligation or resolution resulting from the mediation. Each of the parties agrees to include a similar mediation provision in all agreements with any other contractors and consultants retained for the project and to require such contractors and consultants to include a similar provision in all agreements with subcontractors, sub-consultants, suppliers or fabricators, thereby providing mediation as the primary method for dispute resolution between the parties to those agreements.

HOURLY RATES-PHOENIX OFFICE

January 1, 2022-February 28, 2023

Principal Consultant (Special Projects)	\$ 300.00	Survey Manager.....	\$ 155.00
Principal.....	230.00	Assistant Survey Manager.....	140.00
Associate Principal	210.00	One-person Survey Party.....	130.00
Senior Project Manager	205.00	Two-person Survey Party	170.00
Associate/Manager	195.00	Three-person Survey Party	210.00
Principal Project Engineer/Manager	165.00	Principal Survey Analyst.....	130.00
Associate Project Engineer/Manager	150.00	Associate Survey Analyst.....	120.00
Assistant Project Engineer/Manager.....	140.00	Assistant Survey Analyst.....	110.00
Principal Engineering Designer.....	130.00		
Associate Engineering Designer.....	120.00	3-D Laser Scanning (One-Person Crew)	\$ 190.00
Assistant Engineering Designer.....	110.00	3-D Laser Scanning (Two-Person Crew).....	230.00
Principal Engineering Drafter.....	100.00	Principal 3-D Laser Scanning Project Manager	165.00
Associate Engineering Drafter.....	90.00	Associate 3-D Laser Scanning Project Manager	150.00
Assistant Engineering Drafter.....	80.00	Assistant 3-D Laser Scanning Project Manager	135.00
		Principal 3-D Laser Scanning Specialist	125.00
Public Works Manager	\$ 230.00	Associate 3-D Laser Scanning Specialist	115.00
Public Works Senior Project Manager.....	205.00	Assistant 3-D Laser Scanning Specialist.....	105.00
Traffic Engineer/Transportation Planner.....	170.00	Principal 3-D Laser Scanning Technician	95.00
Principal Transportation/Traffic Designer.....	135.00	Associate 3-D Laser Scanning Technician	85.00
Associate Transportation/Traffic Designer.....	125.00	Assistant 3-D Laser Scanning Technician	75.00
Assistant Transportation/Traffic Designer.....	115.00	Drone (One-Person Crew).....	195.00
		Principal Drone Project Manager	155.00
Principal Project Planner	\$ 155.00	Assistant Drone Project Manager	140.00
Senior Associate Planner	135.00	Principal Drone Specialist.....	130.00
Senior Planner.....	125.00	Associate Drone Specialist.....	115.00
Associate Planner.....	115.00	Assistant Drone Specialist.....	110.00
Assistant Planner.....	105.00		
		Expert Witness.....	\$ 425.00
Principal Water Resources Designer	\$ 125.00	Court Appearance per half day or part.....	1,840.00
Associate Water Resources Designer	115.00		
Assistant Water Resources Designer	105.00	Entitlements Coordinator.....	\$ 110.00
		Associate Project Administrator	60.00
Principal Landscape Architect.....	\$ 215.00	Assistant Project Administrator.....	55.00
Principal Project Landscape Architect.....	155.00	Administrative Assistant.....	50.00
Associate Landscape Architect/Manager.....	140.00		
Assistant Landscape Architect/Manager.....	125.00		
Principal Landscape/Urban Designer	115.00		
Associate Landscape/Urban Designer	105.00		
Assistant Landscape/Urban Designer	95.00		

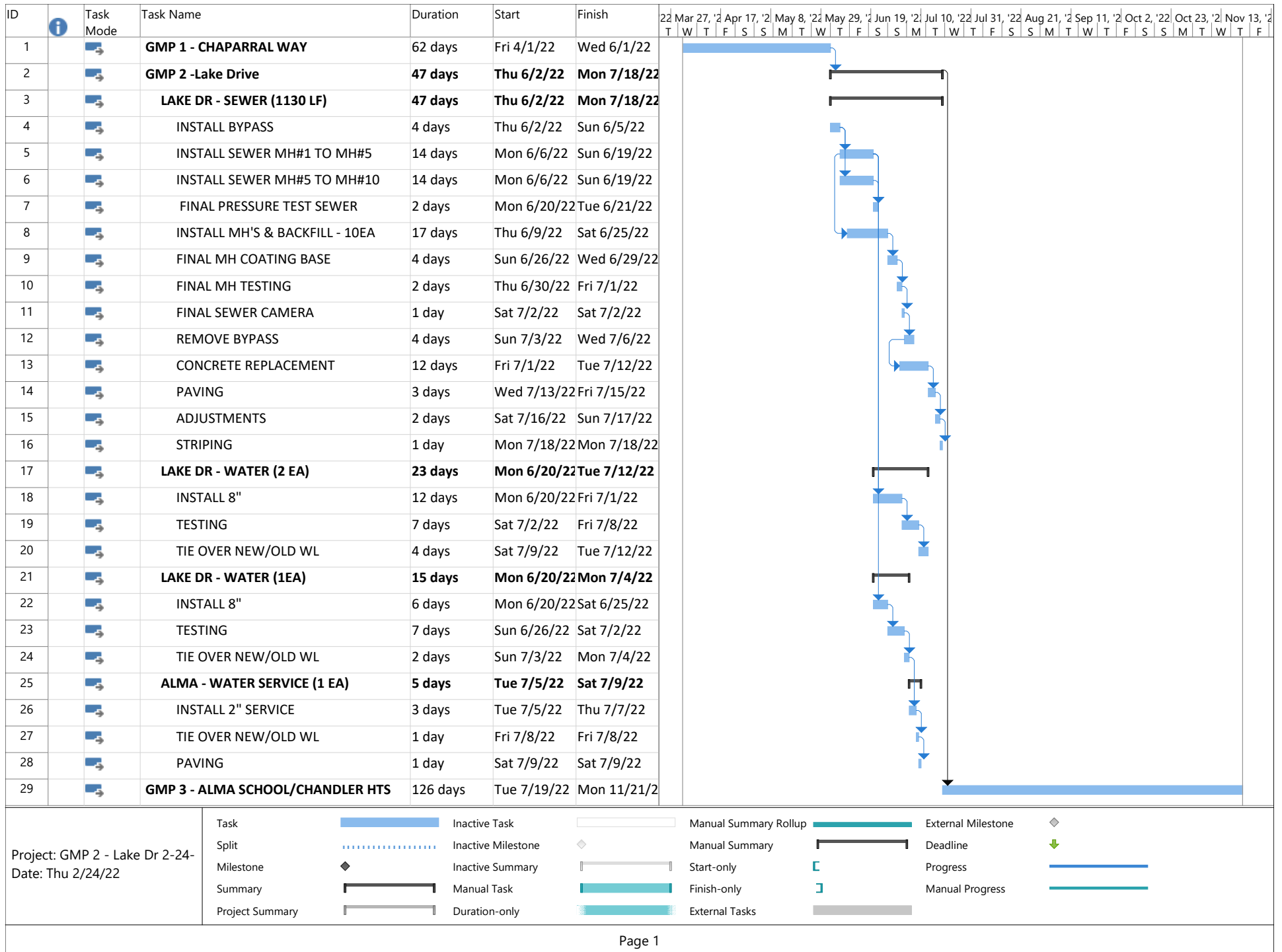
Phoenix

EXHIBIT D7: BASELINE PROJECT SCHEDULE

MARCH 18, 2022

**CITY OF CHANDLER – CHANDLER HEIGHTS ROAD UTILITY RELOCATIONS
GMP PROPOSAL FOR LAKE DRIVE: CHAPARRAL WAY TO ALMA SCHOOL RD
PROJECT NO: WW2111.401**

See Following Baseline Project Schedule





CITY OF CHANDLER

PUBLIC WORKS AND UTILITIES DEPARTMENT

CHANDLER HEIGHTS ROAD UTILITY RELOCATIONS LAKE DRIVE: CHAPARRAL WAY TO ALMA SCHOOL RD

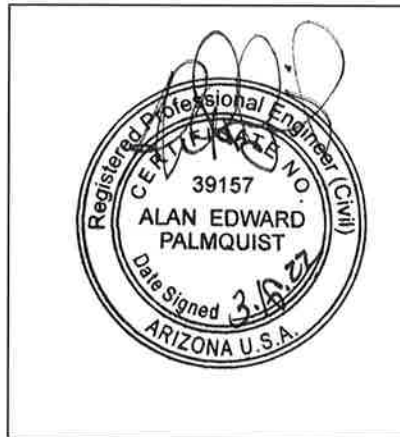
PROJECT NO. WW2111.401

FOR CONSTRUCTION

TECHNICAL SPECIFICATIONS

MARCH 2022

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TECHNICAL SPECIFICATIONS
FOR
CITY OF CHANDLER
CHANDLER HEIGHTS ROAD UTILITY RELOCATIONS
LAKE DRIVE: CHAPARRAL WAY TO ALMA SCHOOL RD



DIVISION 1 GENERAL REQUIREMENTS

01010	SUMMARY OF WORK
01050	FIELD ENGINEERING/SURVEYING
01090	REFERENCE STANDARDS/ABBREVIATIONS
01143	COORDINATION WITH OWNER'S OPERATIONS
01300	SUBMITTALS
01710	CLEANING

DIVISION 2 SITE WORK

02100	SITE PREPARATION
02145	DIVERSION OF SEWAGE FLOW AND DEWATERING

DIVISION 11 EQUIPMENT

11295	HYDRAULIC VALVES
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DIVISION 15 MECHANICAL

15050	PIPING SYSTEMS
15051	BURIED PIPING INSTALLATION
15061	DUCTILE IRON PIPE
15064	COPPER PIPE
15067	VCP PIPE
15120	PIPING SPECIALTIES AND ACCESSORIES

++ END OF TABLE OF CONTENTS ++

SECTION 01010

SUMMARY OF WORK

PART 1 - GENERAL

1.1 SUMMARY

- A. The work covered under this Contract will be performed within the City of Chandler in the following general locations:
1. Lake Drive: Chaparral Way to Alma School Road

1.2 DESCRIPTION OF OWNER'S PROJECT

- A. The overall scope project will consist of the following installation:
1. Relocation of approximately 250 linear feet of 8-inch potable water line.
 2. Relocation of approximately 100 linear feet of 6-inch potable water line.
 3. Installation of approximately 100 linear feet of 2-inch potable water line.
 4. Installation of approximately 1,500 linear feet of 10-inch VCP sanitary sewer.
 5. Abandoning of approximately 1,400 linear feet of 10-inch sanitary sewer by filling with grout.
 6. Addition of six (6) new sanitary sewer manhole.
 7. Removal and replacement of four (4) existing sanitary sewer manhole.
 8. Complete all testing and disinfection on new and relocated waterlines prior to connecting to existing water distribution system. Contractor to coordinate and plan construction activities with existing operational needs of the City.
 9. Complete all testing on new sewer lines and manholes prior to connecting to existing sewer system. Contractor to coordinate and plan construction activities with existing operational needs of the City.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

++ END OF SECTION ++

SECTION 01050

FIELD ENGINEERING/SURVEYING

PART 1 - GENERAL

1.1 SUMMARY

- A. The CONTRACTOR shall hire a surveyor licensed in the State of Arizona to perform all surveying responsibilities. It is also the CONTRACTOR'S responsibility to notify the ENGINEER, in writing, of any discrepancy found between the topographic survey provided and the baseline conditions provided in the Contract Documents within 14 days of the Notice to Proceed. The CONTRACTOR further takes the responsibility to correct any discrepancies not reported to the ENGINEER within the specified construction schedule as part of the finished grading required as part of this Project at no cost to the OWNER.
- B. The CONTRACTOR shall provide competent, qualified personnel and materials required to perform all construction layout staking and re-staking (as necessary) of the Work and will protect and preserve the established reference points and will make no change or relocations without the prior written approval of the OWNER.
- C. The CONTRACTOR will report to the OWNER whenever any reference point is lost or destroyed or requires relocation because of necessary changes in grades or locations. The CONTRACTOR will replace and accurately relocate all reference points so lost, destroyed, or moved at no additional cost to the OWNER.
- D. Field surveying shall include GIS location and data of all new construction and abandoned utilities as required by the City of Chandler. The CONTRACTOR shall provide the GIS location and data at each application of payment to verify content. If data is missing or does not meet City of Chandler requirements, portions of the new construction shall be exposed to obtain the data at no additional cost to the OWNER. The City of Chandler requirements are identified below:
 - 1. Contractor shall provide survey grade GPS / GIS data, meeting the following requirements for all facilities to be owned and/or operated by the City of Chandler.
 - a. ESRI File Geodatabase format:
 - 1) All GPS point data, along with corresponding GIS Attribute data, must be submitted in ESRI File Geodatabase format.
 - 2) The City of Chandler will provide a copy of the File Geodatabase in ESRI ArcGIS format, upon submitting a data request form attached

herewith. Please submit the data request form to
Kristy.Noelson@Chandleraz.gov

- b. Data dictionary and Attribute data:
 - 1) Attribute data should be provided for each of the GPS'd Utility Feature listed in section 'd' below. All Attribute data should conform to the ESRI File Geodatabase format, provided by the City. A copy of the data dictionary will be made available to the CONTRACTOR.
- c. Coordinate System:
 - 1) Horizontal Datum: Arizona State Plane Coordinates, Central Zone NAD83 (HARN) Vertical Datum: NAVD88
- d. Point Data for GPS:
 - 1) Water System Features:
 - a) Water main location (top of pipe), size and material (one (1) coordinate provided every 100 feet minimum) and at fittings.
 - b) Water fitting location (top of feature), size, material and type including: Bend (22.5, 45, or 90), Tee, Tapping Sleeve, Cross, Coupling, End Cap, Line Stop, Reducer, Saddle, Other.
 - c) Water valve location (center of valve box cover), size and type.
 - d) Fire hydrant location (top of hydrant), manufacturer and year.
 - e) Water service line location (at connection to main, any bends, and termination at meter box or meter vault or at the edge of easement or ROW), size and material.
 - f) Water blow-off and air release valve location (center of cover), size, type and manufacturer.
 - g) Water manhole or vault location (center of cover), size and type.
 - 2) Waste Water System features:
 - a) Sewer manhole and cleanout location (center of cover), size, material, and cover type.
 - b) Sewer gravity main location (invert of pipe), size, material and flow direction (from) at all manholes, cleanouts and structures.
 - c) Sewer service line location, size and material (at connection to main, and termination at cleanout, or stub out at edge of the easement or ROW).
 - d) Sewer force main location (top of pipe), size, and material (one (1) coordinate provided every 100 feet minimum) and at fittings.
 - e) Sewer force main (and gravity) fitting location (top of feature), size, material and type including: Bend (22.5, 45, or 90), Tee, Tapping Sleeve, Cross, Coupling, End Cap, Linestop, Reducer, Saddle, Wye, Other
 - f) Sewer force main valve location (center of valve box cover), size and type.

- g) Sewer force main air release valve location (center of cover), size, type and manufacturer.
 - h) Sewer force main manhole or vault location (center of cover), size and material.
 - i) Sewer structure (center of structure), type (diversion, junction box)
 - 3) Standard GPS Metadata on all points collected: Date, Time, Height, Horiz_Precision, Vert_Precision, Northing, Easting, Surveyor, Datafile, and Comments
- 2. Refer to the included information, following this specification, from the City of Chandler. Contractor shall meet all requirements.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

++ END OF SECTION ++

DATA DICTIONARY
FOR
WATER, SEWER, RECLAIM & STORM

DATA DICTIONARY:

WATER

Water Fitting				
Field Name	Alias Name	Type	Length	Domain
OBJECTID	OBJECTID	OID	4	
SHAPE	SHAPE	Geometry	0	
FEATUREOWNER	FEATUREOWNER	String	20	WS_FEATUREOWNER
LIFECYCLESTATUS	LIFECYCLESTATUS	String	20	WS_LIFECYCLESTATUS
SPATIALSOURCE	SPATIALSOURCE	String	20	WS_SPATIALSOURCE_STD
MATERIAL	MATERIAL	String	20	
DIAMETER1	DIAMETER1	String	8	RWS_FITTING_DIAMETER
DIAMETER2	DIAMETER2	String	8	
ROTATION	ROTATION	Double	8	
GPSOID	GPSOID	Integer	4	
GPS_DATE	GPS_DATE	Date	8	
GPS_TIME	GPS_TIME	String	10	
GPS_HEIGHT	GPS_HEIGHT	Double	8	
HORZ_PREC	HORZ_PREC	Double	8	
VERT_PREC	VERT_PREC	Double	8	
NORTHING	NORTHING	Double	8	
EASTING	EASTING	Double	8	
GPS_COMMENT	GPS_COMMENT	String	30	
TYPE	TYPE	String	30	WS_FITTING_TYPE
BEND	BEND	String	20	WS_FITTING_BEND

Water Hydrant				
Field Name	Alias Name	Type	Length	Domain
OBJECTID	OBJECTID	OID	4	
SHAPE	SHAPE	Geometry	0	
FEATUREOWNER	Feature Owner	String	25	WS_FEATUREOWNER
LIFECYCLESTATUS	Lifecycle Status	String	25	WS_LIFECYCLESTATUS
SPATIALSOURCE	Spatial Source	String	25	WS_SPATIALSOURCE_STD
BARRELDIAMETER	Barrel Diameter	Double	8	
LARGENOZZLEDIAMETER	Large Nozzle Diameter	Double	8	
SMALLNOZZLEDIAMETER	Small Nozzle Diameter	Double	8	
OUTLETCONFIGURATION	Outlet Configuration	Double	8	
SEATDIAMETER	Seat Diameter	Double	8	
MANUFACTURER	Manufacturer	String	25	WS_HYD_MANUFACTURER
YEARMANUFACTURED	Manufacture Year	String	25	
HASLOCK	Has Lock ?	String	25	GIS_BOOLEAN_YES_NO
COLOR	Color	String	25	
ROTATION	Symbol Rotation	Double	8	
GPSOID	GPS ObjectID	Integer	4	
GPS_DATE	GPS_DATE	Date	8	
GPS_TIME	GPS_TIME	String	25	
GPS_HEIGHT	GPS_HEIGHT	Double	8	
HORZ_PREC	HORZ_PREC	String	25	
VERT_PREC	VERT_PREC	String	25	
NORTHING	NORTHING	String	25	
EASTING	EASTING	String	25	
DATAFILE	DATAFILE	String	25	
GPS_COMMENT	GPS_COMMENT	String	50	

WATER VALVE				
Field Name	Alias Name	Type	Length	Domain
OBJECTID	OBJECTID	OID	4	
SHAPE	SHAPE	Geometry	0	
FEATUREOWNER	FEATURE OWNER	String	20	RWS_SYSVAL_FUNCTION
LIFECYCLESTATUS	LIFECYCLE STATUS	String	20	WS_SYSVAL_LIFECYCLESTATUS
SPATIALSOURCE	SPATIAL SOURCE	String	20	WS_SYSVAL_SPATIALSOURCE
TYPE	TYPE	String	25	RWS_SYSVAL_TYPE
VALVETYPE	VALVE TYPE	String	10	RWS_SYSVAL_VALVETYPE
GROUNDTYPE	GROUNDTYPE	String	25	WS_SYSVAL_GROUNDTYPE
DIAMETER	Diameter	String	8	WS_SYSVAL_DIAM
GPSOID	GPS OBJECTID	Integer	4	
GPS_DATE	GPS DATE	Date	8	
GPS_TIME	GPS TIME	String	10	
GPS_HEIGHT	GPS HEIGHT	Double	8	
HORZ_PREC	HORZ PREC	Double	8	
VERT_PREC	VERT PREC	Double	8	
NORTHING	NORTHING	Double	8	
EASTING	EASTING	Double	8	
DATAFILE	DATAFILE	String	20	
GPS_COMMENT	GPS COMMENT	String	30	
WO_CAT_CODE	WO CAT CODE	String	10	
WO_CAT	WO CAT	String	25	

WATER MANHOLE				
Field Name	Alias Name	Type	Length	Domain
OBJECTID	OBJECTID	OID	4	
SHAPE	SHAPE	Geometry	0	
FEATUREOWNER	FEATUREOWNER	String	20	WS_FEATUREOWNER
LIFECYCLESTATUS	LIFECYCLESTATUS	String	20	WS_LIFECYCLESTATUS
SPATIALSOURCE	SPATIALSOURCE	String	20	WS_SPATIALSOURCE_STD
ACCESSDIAMETER	ACCESSDIAMETER	String	8	
ACCESSTYPE	ACCESSTYPE	String	20	
GROUNDTYPE	GROUNDTYPE	String	20	WS_SYSVAL_GROUNDTYPE
COVERMATERIAL	COVERMATERIAL	String	10	
COVERTYPE	COVERTYPE	String	8	
GPSOID	GPSOID	Integer	4	
GPS_DATE	GPS_DATE	Date	8	
GPS_TIME	GPS_TIME	String	10	
GPS_HEIGHT	GPS_HEIGHT	Double	8	
HORZ_PREC	HORZ_PREC	Double	8	
VERT_PREC	VERT_PREC	Double	8	
NORTHING	NORTHING	Double	8	
EASTING	EASTING	Double	8	
DATAFILE	DATAFILE	String	20	
GPS_COMMENT	GPS_COMMENT	String	30	

WATER MISC PNT		This feature is used for any miscellaneous information		
Field Name	Alias Name	Type	Length	Domain
OBJECTID	OBJECTID	OID	4	
SHAPE	SHAPE	Geometry	0	
GPSOID	GPSOID	Integer	4	
GPS_DATE	GPS_DATE	Date	8	
GPS_TIME	GPS_TIME	String	10	
GPS_HEIGHT	GPS_HEIGHT	Double	8	
HORZ_PREC	HORZ_PREC	Double	8	
VERT_PREC	VERT_PREC	Double	8	
NORTHING	NORTHING	Double	8	
EASTING	EASTING	Double	8	
DATAFILE	DATAFILE	String	20	
GPS_COMMENT	GPS_COMMENT	String	50	
NOTES	NOTES	String	150	
SIZE	SIZE	Double	8	

Water Domains:

Domain name	WS_LIFECYCLESTATUS
ABANDONED	ABANDONED
ACTIVE	ACTIVE
FUTURE	FUTURE
INACTIVE	INACTIVE
REMOVED	REMOVED
UNKNOWN	UNKNOWN
Domain name	WS_SYSVAL_SPATIALSOURCE
APPROVED PLANS	APPROVED PLANS
ASBUILT	ASBUILT
DESIGN	DESIGN
GPS	GPS
HYDRMAINT	HYDRMAINT
ORTHOPHOTO	ORTHOPHOTO
TM7	TM7
UNKNOWN	UNKNOWN
Domain name	WS_HYD_MANUFACTURER
AMERICANDARLING	AMERICANDARLING
AVK	AVK
CLOW	CLOW
DRESSER	DRESSER
GREENBERG	GREENBERG
KENNEDY	KENNEDY
MUELLER	MUELLER
PACIFIC	PACIFIC
UNKNOWN	UNKNOWN
WATEROUS	WATEROUS

Domain name	WS_FEATUREOWNER
COC	Chandler
COG	Gilbert
COM	Mesa
COP	Phoenix
COT	Tempe
COUNTY	Maricopa County
GOULD	Gould
GRIC	GRIC
INTEL	Intel
MICROCHIP	Microchip
MOTOROLA	Motorola
PRIVATE	Private
SRP	SRP
SRVWUA	SRVWUA
UNKNOWN	UNKNOWN

Domain name	WS_SYSVAL_LIFECYCLESTATUS
FUTURE	FUTURE
UNKNOWN	UNKNOWN
INACTIVE	INACTIVE
ACTIVE	ACTIVE
REMOVED	REMOVED
ABANDONED	ABANDONED

Domain name	WS_FITTING_BEND
HORIZONTAL	HORIZONTAL
VERTICAL	VERTICAL
Domain name	WS_SYSVAL_DIAM
2	2
3	3
4	4
6	6
8	8
10	10
12	12
16	16
20	20
24	24
30	30
36	36
42	42
48	48
54	54

Domain name	WS_FITTING_TYPE
11B	11B
22B	22B
45B	45B
90B	90B
COUPLING	COUPLING
CROSS	CROSS
ENDCAP	ENDCAP
LINESTOP	LINESTOP
OTHER	OTHER
REDUCER	REDUCER
SADDLE	SADDLE
TAPPING SLEEVE	TAPPING SLEEVE
TEE	TEE
UNKNOWN	UNKNOWN
WYE	WYE
Domain name	WS_SYSVAL_GROUNDTYPE
CONCRETE	CONCRETE
ASPHALT	ASPHALT
LANDSCAPE	LANDSCAPE
UNKNOWN	UNKNOWN
Domain name	WS_SPATIALSOURCE_STD
ASBUILT	ASBUILT
DESIGN	DESIGN
FIELD	FIELD
GPS	GPS
ORTHOPHOTO	ORTHOPHOTO
UNKNOWN	UNKNOWN

DATA DICTIONARY:

SEWER

SEWER CLEANOUT				
Field Name	Alias Name	Type	Length	Domain
OBJECTID	OBJECTID	OID	4	
SHAPE	SHAPE	Geometry	0	
FEATUREOWNER	FEATUREOWNER	String	20	WW_FEATUREOWNER
LIFECYCLESTATUS	LIFECYCLESTATUS	String	20	WW_LIFECYCLESTATUS
SPATIALSOURCE	SPATIALSOURCE	String	20	WW_SPATIALSOURCE
RIM_ELEV	RIM_ELEV	Double	8	
INV_ELEV	INV_ELEV	Double	8	
GPSOID	GPSOID	Integer	4	
GPS_DATE	GPS_DATE	Date	8	
GPS_TIME	GPS_TIME	String	10	
GPS_HEIGHT	GPS_HEIGHT	Double	8	
HORZ_PREC	HORZ_PREC	Double	8	
VERT_PREC	VERT_PREC	Double	8	
NORTHING	NORTHING	Double	8	
EASTING	EASTING	Double	8	
DATAFILE	DATAFILE	String	20	
GPS_COMMENT	GPS_COMMENT	String	30	

SEWER CONTROL VALVE				
Field Name	Alias Name	Type	Length	Domain
OBJECTID	OBJECTID	OID	4	
SHAPE	SHAPE	Geometry	0	
TYPE	TYPE	String	25	
FEATUREOWNER	FEATUREOWNER	String	20	WW_FEATUREOWNER
LIFECYCLESTATUS	LIFECYCLESTATUS	String	20	WW_LIFECYCLESTATUS
SPATIALSOURCE	SPATIALSOURCE	String	20	WW_SPATIALSOURCE
DIAMETER	DIAMETER	String	8	
GPSOID	GPSOID	Integer	4	
GPS_DATE	GPS_DATE	Date	8	
GPS_TIME	GPS_TIME	String	10	
GPS_HEIGHT	GPS_HEIGHT	Double	8	
HORZ_PREC	HORZ_PREC	Double	8	
VERT_PREC	VERT_PREC	Double	8	
NORTHING	NORTHING	Double	8	
EASTING	EASTING	Double	8	
DATAFILE	DATAFILE	String	20	
GPS_COMMENT	GPS_COMMENT	String	30	

SEWER_FITTING				
Field Name	Alias Name	Type	Length	Domain
OBJECTID	OBJECTID	OID	4	
SHAPE	SHAPE	Geometry	0	
FEATUREOWNER	FEATUREOWNER	String	20	WW_FEATUREOWNER
LIFECYCLESTATUS	LIFECYCLESTATUS	String	20	WW_LIFECYCLESTATUS
SPATIALSOURCE	SPATIALSOURCE	String	20	WW_SPATIALSOURCE
MATERIAL	MATERIAL TYPE	String	20	
TYPE	TYPE	String	30	
BEND	BEND	String	20	
GPSOID	GPSOID	Integer	4	
GPS_DATE	GPS_DATE	Date	8	
GPS_TIME	GPS_TIME	String	10	
GPS_HEIGHT	GPS_HEIGHT	Double	8	
HORZ_PREC	HORZ_PREC	Double	8	
VERT_PREC	VERT_PREC	Double	8	
NORTHING	NORTHING	Double	8	
EASTING	EASTING	Double	8	
DATAFILE	DATAFILE	String	20	
GPS_COMMENT	GPS_COMMENT	String	30	
SIZE_	SIZE OF FITTING	String	20	

SEWER_MANHOLE				
Field Name	Alias Name	Type	Length	Domain
OBJECTID	OBJECTID	OID	4	
SHAPE	SHAPE	Geometry	0	
FEATUREOWNER	FEATUREOWNER	String	25	WW_FEATUREOWNER
LIFECYCLESTATUS	LIFECYCLESTATUS	String	25	WW_LIFECYCLESTATUS
SPATIALSOURCE	SPATIALSOURCE	String	20	WW_SPATIALSOURCE
LID	LID TYPE	String	20	
TYPE	TYPE	String	20	WW_MH_TYPE
COVER_MATERIAL	COVER_MATERIAL	String	25	WW_MH_COVER_MATERIAL
COVER_HOLE	COVER_HOLE	String	25	WW_MH_COVER_HOLE
COVER_SIZE	COVER_SIZE	String	20	WW_MH_COVER_SIZE
RIM_ELEV	RIM_ELEV	Double	8	
INV_ELEV	INV_ELEV	Double	8	
GPSOID	GPSOID	Integer	4	
GPS_DATE	GPS_DATE	Date	8	
GPS_TIME	GPS_TIME	String	10	
GPS_HEIGHT	GPS_HEIGHT	Double	8	
HORZ_PREC	HORZ_PREC	Double	8	
VERT_PREC	VERT_PREC	Double	8	
NORTHING	NORTHING	Double	8	
EASTING	EASTING	Double	8	
DATAFILE	DATAFILE	String	20	
GPS_COMMENT	GPS_COMMENT	String	30	
LINER	LINER	String	50	WW_MH_LINER
WALL_MATERIAL	WALL_MATERIAL	String	50	WW_MH_WALL_MATERIAL

SEWER_MISC		For any Miscellaneous features		
Field Name	Alias Name	Type	Length	Domain
OBJECTID	OBJECTID	OID	4	
SHAPE	SHAPE	Geometry	0	
SPATIALSOURCE	SPATIALSOURCE	String	20	
MATERIAL	MATERIAL	String	20	
TYPE	TYPE	String	30	
BEND	BEND	String	20	
NOTES	NOTES	String	255	
GPSOID	GPSOID	Integer	4	
GPS_DATE	GPS_DATE	Date	8	
GPS_TIME	GPS_TIME	String	10	
GPS_HEIGHT	GPS_HEIGHT	Double	8	
HORZ_PREC	HORZ_PREC	Double	8	
VERT_PREC	VERT_PREC	Double	8	
NORTHING	NORTHING	Double	8	
EASTING	EASTING	Double	8	
DATAFILE	DATAFILE	String	20	
GPS_COMMENT	GPS_COMMENT	String	30	
SIZE_	SIZE_	String	20	

Sewer Domains:

Domain name	WW_FEATUREOWNER
COC	COC
PRIVATE	PRIVATE
TOG	TOG
UNKNOWN	UNKNOWN
Domain name	WW_SPATIALSOURCE
GPS	GPS
ASBUILT	ASBUILT
UNKNOWN	UNKNOWN
Domain name	WW_MH_COVER_HOLE
UNKNOWN	UNKNOWN
SEALED	SEALED
Domain name	WW_MH_LINER
CAST-IN-PLACE	CAST-IN-PLACE
CEMENTITIOUS	CEMENTITIOUS
COMPOSITE	COMPOSITE
CURED-IN-PLACE	CURED-IN-PLACE
EPOXY	EPOXY
FR PLASTIC INSERT	FR PLASTIC INSERT
FR POLYMER INSERT	FR POLYMER INSERT
INSERT	INSERT
UNKNOWN	UNKNOWN
Domain name	WW_LIFECYCLESTATUS
ABANDONED	ABANDONED
ACTIVE	ACTIVE
INACTIVE	INACTIVE
PULLED	PULLED
UNKNOWN	UNKNOWN

Domain name	WW_MH_COVER_MATERIAL
ALUMINUM	ALUMINUM
CASTIRON	CASTIRON
HDPE COMPOSITE - CAP	HDPE COMPOSITE - CAP
HDPE COMPOSITE - EJ	HDPE COMPOSITE - EJ
HDPE COMPOSITE - HD20	HDPE COMPOSITE - HD20
STEEL	STEEL
UNKNOWN	UNKNOWN
Domain name	WW_MH_COVER_SIZE
0	Unknown
4	4
6	6
8	8
22	22
24	24
26	26
28	28
30	30
32	32
38	38
48	48
60	60
Domain name	WW_MH_WALL_MATERIAL
NONE	NONE
COMPOSITE	COMPOSITE
UNKNOWN	UNKNOWN
CONCRETE	CONCRETE
POURED	POURED
TLOCK	TLOCK
PRECAST	PRECAST
BRICK	BRICK

Domain name	WW_MH_TYPE
0	UNKNOWN
1	SANITARY SEWER
2	ARV

DATA DICTIONARY: RECLAIM

RECLAIM_FITTING				
Field Name	Alias Name	Type	Length	Domain
OBJECTID	OBJECTID	OID	4	
SHAPE	SHAPE	Geometry	0	
FEATUREOWNER	FEATUREOWNER	String	20	RWS_FEATUREOWNER
LIFECYCLESTATUS	LIFECYCLESTATUS	String	20	RWS_LIFECYCLESTATUS
SPATIALSOURCE	SPATIALSOURCE	String	20	RWS_SPATIALSOURCE
MATERIAL	MATERIAL	String	20	RWS_MAIN_OR_SERVICE_MATERIAL
DIAMETER1	DIAMETER1	String	8	RWS_FITTING_DIAMETER
DIAMETER2	DIAMETER2	String	8	RWS_FITTING_DIAMETER
TYPE	TYPE	String	30	RWS_FITTING_TYPE
BEND	BEND	String	20	RWS_FITTING_BEND
GPSOID	GPSOID	Integer	4	
GPS_DATE	GPS_DATE	Date	8	
GPS_TIME	GPS_TIME	String	10	
GPS_HEIGHT	GPS_HEIGHT	Double	8	
HORZ_PREC	HORZ_PREC	Double	8	
VERT_PREC	VERT_PREC	Double	8	
NORTHING	NORTHING	Double	8	
EASTING	EASTING	Double	8	
GPS_COMMENT	GPS_COMMENT	String	30	

RECLAIM_MISC_STRUCT				
Field Name	Alias Name	Type	Length	Domain
OBJECTID	OBJECTID	OID	4	
SHAPE	SHAPE	Geometry	0	
TYPE	SUBTYPE	String	20	
GPSOID	GPSOID	Integer	4	
GPS_DATE	GPS_DATE	Date	8	
GPS_TIME	GPS_TIME	String	10	
GPS_HEIGHT	GPS_HEIGHT	Double	8	
HORZ_PREC	HORZ_PREC	Double	8	
VERT_PREC	VERT_PREC	Double	8	
NORTHING	NORTHING	Double	8	
EASTING	EASTING	Double	8	
GPS_COMMENT	GPS_COMMENT	String	50	
NOTES	Notes	String	150	

RECLAIM_MANHOLE				
Field Name	Alias Name	Type	Length	Domain
OBJECTID	OBJECTID	OID	4	
SHAPE	SHAPE	Geometry	0	
FEATUREOWNER	FEATUREOWNER	String	20	RWS_FEATUREOWNER
LIFECYCLESTATUS	LIFECYCLESTATUS	String	20	RWS_LIFECYCLESTATUS
SPATIALSOURCE	SPATIALSOURCE	String	20	RWS_SPATIALSOURCE
ACCESSDIAMETER	ACCESSDIAMETER	String	8	RWS_GROUNDTYPE
GROUNDTYPE	GROUNDTYPE	String	20	
COVERMATERIAL	COVERMATERIAL	String	10	
COVERTYPE	COVERTYPE	String	8	
GPSOID	GPSOID	Integer	4	
GPS_DATE	GPS_DATE	Date	8	
GPS_TIME	GPS_TIME	String	10	
GPS_HEIGHT	GPS_HEIGHT	Double	8	
HORZ_PREC	HORZ_PREC	Double	8	
VERT_PREC	VERT_PREC	Double	8	
NORTHING	NORTHING	Double	8	
EASTING	EASTING	Double	8	
GPS_COMMENT	GPS_COMMENT	String	30	

RECLAIM SYSTEM VALVE				
Field Name	Alias Name	Type	Length	Domain
OBJECTID	OBJECTID	OID	4	
SHAPE	SHAPE	Geometry	0	
FEATUREOWNER	FEATURE OWNER	String	20	RWS_FEATUREOWNER
LIFECYCLESTATUS	LIFECYCLE STATUS	String	20	RWS_LIFECYCLESTATUS
SPATIALSOURCE	SPATIAL SOURCE	String	20	RWS_SPATIALSOURCE
TYPE	TYPE	String	25	RWS_SYSVAL_TYPE
VALVETYPE	VALVE TYPE	String	10	RWS_SYSVAL_VALVETYPE
FUNCTION	FUNCTION	String	25	RWS_SYSVAL_FUNCTION
GROUNDTYPE	GROUNDTYPE	String	25	RWS_SYSVAL_GROUNDTYPE
GPSOID	GPS OBJECTID	Integer	4	
GPS_DATE	GPS DATE	Date	8	
GPS_TIME	GPS TIME	String	10	
GPS_HEIGHT	GPS HEIGHT	Double	8	
HORZ_PREC	HORZ PREC	Double	8	
VERT_PREC	VERT PREC	Double	8	
NORTHING	NORTHING	Double	8	
EASTING	EASTING	Double	8	
GPS_COMMENT	GPS COMMENT	String	30	
WO_ZONE	WO ZONE	Double	8	
DIAMETER	DIAMETER	Double	8	RWS_SYSVAL_DIAM
WO_CAT_CODE	WO_CAT_CODE	String	10	

Reclaim Domains:

Domain name	RWS_SYSVAL_VALVETYPE
BALL	BALL
BUTTERFLY	BUTTERFLY
GATE	GATE
INSERTA	INSERTA
UNKNOWN	UNKNOWN
Domain name	RWS_SYSVAL_FUNCTION
ARV	ARV
INLINE	INLINE
PUMPOUT	PUMPOUT
PUMPSTATION	PUMPSTATION
SERVICE	SERVICE
STUBOUT	STUBOUT
UNKNOWN	UNKNOWN
VAULT	VAULT
Domain name	RWS_SYSVAL_TYPE
ARV	ARV
BLOWOFF	BLOWOFF
STANDARD	STANDARD
Domain name	RWS_FEATUREOWNER
COC	CHANDLER
COM	MESA
INTEL	INTEL
OCA	OCA
OMG	OMG
PRIVATE	PRIVATE
SRP	SRP
TOG	GILBERT
UNKNOWN	UNKNOWN

Domain name	RWS_FITTING_BEND
HORIZONTAL	HORIZONTAL
VERTICAL	VERTICAL
Domain name	RWS_MAIN_OR_SERVICE_MATERIAL
AC	AC
CC	CC
CI	CI
CU	COPPER
DI	DI
PVC	PVC
UNKNOWN	UNKNOWN
Domain name	RWS_FITTING_TYPE
11B	11B
22B	22B
45B	45B
90B	90B
COUPLING	COUPLING
CROSS	CROSS
ENDCAP	ENDCAP
LINESTOP	LINESTOP
MECHANICAL JOINT	MECHANICAL JOINT
OTHER	OTHER
RECHARGE WELL	RECHARGE WELL
REDUCER	REDUCER
SADDLE	SADDLE
TAPPING SLEEVE	TAPPING SLEEVE
TEE	TEE
UNKNOWN	UNKNOWN
WYE	WYE

Domain name	RWS_SPATIALSOURCE
ASBUILT	ASBUILT
FIELD	FIELD
GPS	GPS
ORTHOPHOTO	ORTHOPHOTO
UNKNOWN	UNKNOWN
Domain name	RWS_LIFECYCLESTATUS
ABANDONED	ABANDONED
ACTIVE	ACTIVE
INACTIVE	INACTIVE
REMOVED	REMOVED
UNKNOWN	UNKNOWN
Domain name	RWS_SYSVAL_DIAM
1.5	1.5
2	2
3	3
4	4
6	6
8	8
10	10
12	12
16	16
20	20
24	24
30	30
36	36
42	42
48	48
9999	UNKNOWN

Domain name	RWS_GROUNDTYPE
ASPHALT	ASPHALT
CONCRETE	CONCRETE
DIRT	DIRT
UNKNOWN	UNKNOWN

Domain name	RWS_SYSVAL_GROUNDTYPE
ASPHALT	ASPHALT
CONCRETE	CONCRETE
LANDSCAPE	LANDSCAPE
UNKNOWN	UNKNOWN

Domain name	RWS_FITTING_DIAMETER
0.63	0.63
0.75	0.75
1	1
1.25	1.25
1.5	1.5
2	2
2.5	2.5
3	3
4	4
6	6
8	8
10	10
12	12
15	15
16	16
18	18
20	20
24	24
30	30
36	36
42	42
48	48

SECTION 01090

REFERENCE STANDARDS/ABBREVIATIONS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section lists many of the construction industry organizations, professional and technical associations, societies and institutes, and government agencies issuing, promoting, or enforcing standards to which references may be made in the Contract Document, along with the abbreviations commonly used for those references. Also included are certain general requirements for the use of industry standards specified and for application of the standards in quality control.

1.2 USE OF REFERENCE STANDARDS

- A. Work specified by reference to the published standard or specification of a government agency, technical association, trade association, professional society or institute, testing agency, or other organization shall conform to, or surpass the minimum standards of quality for materials and workmanship established by the designated standard or specification.
- B. Where so specified, products or workmanship shall also conform to the additional prescriptive or performance requirements included within the Contract Documents to establish a higher or more stringent standard of quality than that required by the referenced standard.
- C. Where the specific date or issue of the standard is not included with the reference to the standard, the edition, including all amendments published and available on the first published date of the Invitation to Bid, shall apply.
- D. Where two or more standards are specified to establish quality, the product, and workmanship shall conform to or surpass the requirements of both.
- E. In case of conflict between referenced standards, the more stringent shall apply.
- F. Where both a standard and a brand name are specified for a product in the Contract Document, the proprietary product named shall conform to or surpass the requirements of the specified reference standard. The listing of a trade name in a Contract Document shall not be construed a warranting that such product conforms to the respective reference standard.
- G. Copies of Standards:
 - 1. Copies of applicable referenced standards have not been bound in this Contract Document.

2. Where copies of standards are needed by the CONTRACTOR for superintendence and quality control of the Work, obtain a copy or copies directly from the publication source and maintain in an orderly manner at the job site, available to the CONTRACTOR'S personnel, subcontractors, OWNER, and ENGINEER.
3. Submittals: Submit for approval the requests to use products conforming to printed standards or publications with a different publication date from that effective under the Contract. Clearly indicate the changes in product or workmanship quality involved in the proposed change, if any, and reasons for the request.

1.3 ABBREVIATIONS

- A. Abbreviations for trade organizations and government agencies. The following is a list of construction industry organizations and government agencies to which references may be made in the Contract Document, with abbreviations used.

AA	Aluminum Association
AAMA	American Architectural Manufacturers Association
AAMA	Architectural Aluminum Manufacturers' Association
AASHTO	American Association of State Highway and Transportation Officials
ABPA	Acoustical and Board Products Association
ACI	American Concrete Institute
ADA	Americans With Disabilities Act
ADEQ	Arizona Department of Environmental Quality
ADHS	Arizona Department of Health Services
AFBMA	Anti-Friction Bearing Manufacturers' Association
AGA	American Gas Association
AGC	Associated General Contractors
AGMA	American Gear Manufacturers' Association
AHC	Architectural Hardware Consultant
AI	Asphalt Institute
AIA	American Institute of Architects
AIA	American Insurance Association
AIEE	American Institute of Electrical Engineers
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
ALS	American Lumber Standards
AMCA	Air Moving and Conditioning Association
AMG	Arizona Masonry Guild
ANSI	American National Standards Institute
APA	American Plywood Association
API	American Petroleum Institute
AREA	American Railway Engineering Association
ARI	Air Conditioning and Refrigeration Institute

ARMA	Asphalt Roofing Manufacturers Association
ASAE	American Society of Agricultural Engineers
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc.
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWI	Architectural Woodwork Institute
AWPA	American Wood Preservers' Association
AWPB	American Wood Preservers Bureau
AWPI	American Wood Preservers' Institute
AWS	American Welding Society
AWSC	American Welding Society Code
AWI	Architectural Woodwork Institute
AWWA	American Water Works Association
BHMA	Builders Hardware Manufacturers' Association
BIA	Brick Institute of America
CBMA	Certified Ballast Manufacturers' Association
CDA	Copper Development Association
CGA	Compressed Gas Association
CISPI	Cast Iron Soil Pipe Institute
CLFMI	Chain Link Fence Manufacturer's Institute
CMAA	Crane Manufacturers' Association of America
CRA	California Redwood Association
CRSI	Concrete Reinforcing Steel Institute
CS	Commercial Standards
CSI	Construction Specifications Institute
CTI	Cooling Tower Institute
FGMA	Flat Glass Manufacturer's Association
FIA	Factory Insurance Association
FM	Factory Mutual
FS	Federal Specification
FTI	Facing Tile Institute
GA	Gypsum Association
HI	Hydraulic Institute
HMI	Hoist Manufacturers' Institute
ICBO	International Conference of Building Officials
ICEA	Insulated Cable Engineers' Association
IEEE	Institute of Electrical and Electronics Engineers, Inc.
IES	Illuminating Engineering Society

ISA	Instrument Society of America
JIC	Joint Industry Conferences of Hydraulic Manufacturers
LIA	Lead Industries Association
MAG	Maricopa Association of Governments
MIA	Marble Institute of America
MIA	Masonry Institute of America
MLMA	Metal Lath Manufacturers Association
MS	Military Specifications
MMA	Monorail Manufacturers' Association
NAAMM	National Association of Architectural Metal Manufacturers
NBFU	National Board of Fire Underwriters
NBHA	National Builders' Hardware Association
NBS	National Bureau of Standards
NCMA	National Concrete Masonry Association
NEC	National Electrical Code
NEMA	National Electrical Manufacturers' Association
NESC	National Electric Safety Code
NFPA	National Fire Protection Association
NFPA	National Forest Products Association
NGA	National Glass Association
NHLA	National Hardwood Lumber Association
NKCA	National Kitchen Cabinet Association
NLMA	National Lumber Manufacturers' Association
NMWIA	National Mineral Wool Insulation Association
NSF	National Sanitation Foundation
NTMA	National Terrazzo and Mosaic Association
NWMA	National Woodwork Manufacturers' Association
OEI	Overhead Electrical Crane Institute
OSHA	Occupational Safety and Health Administration (both Federal and State)
PCA	Portland Cement Association
PCI	Pre-cast Concrete Institute
PDI	Plumbing Drainage Institute
PEI	Porcelain Enamel Institute
PS	Product Standards Section - U.S. Department of Commerce
RLM	RLM Standards Institute, Inc.
RMA	Rubber Manufacturers' Association
SAE	Society of Automotive Engineers

SDI	Steel Deck Institute
SDI	Steel Door Institute
SIGMA	Sealed Insulating Glass Manufacturing Association
SJI	Steel Joist Institute
SMACNA	Sheet Metal and Air Conditioning Contractors National Association
SSPC	Steel Structures Painting Council
SWI	Steel Window Institute
TEMA	Tubular Exchanger Manufacturers' Association
TCA	Tile Council of America
TIMA	Thermal Insulation Manufacturers Association
TPI	Truss Plate Institute
UBC	Uniform Building Code
UFC	Uniform Fire Code
UL	Underwriters' Laboratories, Inc.
USDA	United States Department of Agriculture
USPS	United States Postal Service
VI	Vermiculite Institute
WCLA	West Coast Lumberman's Association
WCLB	West Coast Lumber Bureau
WCLIB	West Coast Lumber Inspection Bureau
WIA	Woodwork Institute of Arizona
WPOA	Western Plumbing Officials Association
WWPA	Western Wood Products Association

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

++ END OF SECTION ++

SECTION 01143

COORDINATION WITH OWNER'S OPERATIONS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. The intent of this Section is to provide CONTRACTOR a sequence to perform the Work in such a manner that continuous, uninterrupted access to the businesses and property owners is maintained operational throughout the construction period.
- B. Except for the construction hours specified in this Section, CONTRACTOR'S means and methods shall be implemented such that the traffic lanes shall remain in continuous satisfactory operation during the entire construction period. Work shall be so scheduled and conducted by CONTRACTOR such that it shall not impede any hindrances to the public and businesses. In performing the Work shown and specified, CONTRACTOR shall plan and schedule the Work to meet both the constraints outlined in this Section and the latest City of Chandler Traffic Barricade Design Technical Design Manual.
- C. Work not specifically covered in Section 01010, Summary of Work, or in the following paragraphs may, in general, subject to the operating requirements outlined in this Section.

1.2 OVERTIME

- A. All overtime work by CONTRACTOR necessary to conform to the requirements of this Section shall be performed by CONTRACTOR at no additional cost to the OWNER and shall be performed in accordance with the General Conditions. CONTRACTOR shall make no claims for extra compensation as a result thereof.
- B. PRODUCTS (NOT USED)

PART 2 - EXECUTION

2.1 COORDINATION DESCRIPTION

- A. All traffic control plans shall be in accordance with the latest City of Chandler Traffic Barricade Design Technical Manual and shall be approved by the City Traffic Inspector prior to any construction.
- B. Potable Piping Tie-In:
 - 1. The CONTRACTOR shall prepare a plan with scheduling, means and methods, disinfection, and the proposed connections at each tie-in. The tie-in

plans shall be approved by the OWNER 30 days prior to starting the first water lateral tie-in.

2. Prior to any tie-in, CONTRACTOR shall coordinate with OWNER or ENGINEER to schedule valve closure.
 3. Work may occur at night or during the weekend to ensure minimal disruption to businesses.
- C. Sewer Piping Tie-In:
1. CONTRACTOR shall coordinate all sewer bypass pumping operations with the City of Chandler per Section 02145, Diversion of Sewage Flow and Dewatering. The CONTRACTOR shall notify the OWNER 72 hours prior to bypassing the pipeline.

++ END OF SECTION ++

SECTION 01300

SUBMITTALS

PART 1 - GENERAL

1.1 SUMMARY

- A. The CONTRACTOR shall include a completed transmittal form for all submittals. Transmittal forms will be furnished to CONTRACTOR by CONSTRUCTION MANAGER. Submittals shall be sent to the CONSTRUCTION MANAGER.

1.2 SECTION INCLUDES

- A. Shop Drawings.
- B. Testing results.
- C. Construction photographs.
- D. Record Drawings.

1.3 SHOP DRAWINGS

- A. The CONTRACTOR shall submit Shop Drawings for the equipment and materials specified herein to CONSTRUCTION MANAGER.
- B. CONSTRUCTION MANAGER shall return electronic Shop Drawings to CONTRACTOR within three (3) weeks of receipt by CONSTRUCTION MANAGER per General Conditions Section 4.7.3.10.
- C. The CONTRACTOR may request submittals be reviewed up to two times for each equipment or construction material item, regardless of manufacturer or supplier, by the CONSTRUCTION MANAGER.
- D. Each Shop Drawing submittal shall include an electronic copy of the relevant Specification Section. Each and every paragraph of the Specification Section shall be clearly marked to indicate whether the requirements for equipment and/or services in the Specification Section are met. If clarifications are needed to any of the paragraphs in the Specification Section, they shall be addressed next to the paragraph or in an attached letter as such and explained further with any additional information necessary. If any exceptions and/or deviations are proposed to any of the Specifications, they shall be clearly noted as such in the submittal, and an explanation of any deviation and/or exception shall be provided. The

CONTRACTOR shall furnish equipment and/or services as specified if an exception and/or deviation is rejected.

- E. The CONTRACTOR will be held responsible for any delay in progress of the Work due to resubmittal of Shop Drawings. Time for completion of the Contract will not be extended due to CONTRACTOR's failure to promptly submit complete and acceptable Shop Drawings, product data and samples.
- F. Do not execute Work required by Shop Drawings until accepted Shop Drawings are received from CONSTRUCTION MANAGER.
- G. Before submitting Shop Drawings for review, CONTRACTOR shall check Shop Drawings for accuracy, ascertain that all Work contiguous with and having bearing on other Work shown on Shop Drawings is accurately drawn, and that Work shown is in conformity with Contract requirements. The CONTRACTOR is responsible for all submittals from subcontractors and suppliers.
- H. All such Drawings and details, when submitted, must bear the stamp of approval of CONTRACTOR, bearing checked data, as evidence that such Drawings and details have been checked by the CONTRACTOR. Said "stamp" shall clearly state that the CONTRACTOR has checked the Drawings by providing signature certification. Any Drawings submitted without such executed stamp of approval, or whenever it is evident (despite the stamp) that the Drawings have not been checked, they will be returned to the CONTRACTOR for resubmission and will not be considered. In such event, it will be deemed that CONTRACTOR has not complied with this provision and the CONTRACTOR shall bear risk of all delays to the same extent as if no Drawings or details had been submitted.
- I. The CONTRACTOR shall prepare composite Drawings and installation layouts, when required to solve tight field conditions. Such Drawings shall consist of dimensioned plans and elevations, and must give complete information particularly as to size and location of sleeves, inserts, attachments, openings, conduits, ducts, boxes, structural interferences, etc. These composite drawings and installation layouts shall be coordinated in the field by the CONTRACTOR and his subcontractors for proper relationship to the Work of other trades, based on field conditions, and shall be checked and approved by them before submission to the CONSTRUCTION MANAGER for his final review. The CONTRACTOR shall have competent technical personnel readily available for such coordinating and checking, as well as for supervision of field installation of Work as per the Drawings and installation layouts, which have been previously determined by him to be correct and carry the CONSTRUCTION MANAGER's review stamp.
- J. Submission of Shop Drawings (in either original submission or when resubmitted with corrections) constitute evidence that the CONTRACTOR has checked all information thereon, and that he accepts and is willing to perform the Work as shown in a workmanlike manner and in accordance with best standard practice.

- K. Cost of any changes in construction due to improper checking and coordination by the CONTRACTOR shall be paid for by the CONTRACTOR, and the CONTRACTOR shall be responsible for all additional costs, including coordination.
- L. Each Drawing or page must include all information as required by General Condition Section 4.7.3.4.
- M. The CONSTRUCTION MANAGER shall provide the CONTRACTOR with a form to accompany the Shop Drawings.
- N. If Shop Drawings show variations from Contract Documents because of standard shop practice or other reasons, make specific mention of such variations in the transmittal form.
- O. Shop Drawings review will be general. It shall not relieve the CONTRACTOR of responsibility for accuracy of such Shop Drawings, nor proper fitting, construction of Work, furnishing of materials, or Work required by Contract Documents and not indicated on Shop Drawings. Shop Drawings review shall not be construed as approving departures from Contract Documents.
- P. Review of Shop Drawings and schedules shall not relieve the CONTRACTOR from responsibility for any violation indicated on such Drawings or schedules of local, County, State, or Federal laws, rules, ordinances, or rules and regulations of commissions, boards or other authorities or utilities having jurisdiction.
- Q. When product data, consisting of manufacturer's printed literature, is required to be submitted to CONSTRUCTION MANAGER, it shall be submitted in original form. Any fading type of reproduction will not be accepted.

1.4 CONSTRUCTION PHOTOGRAPHS

- A. Per City of Chandler Contract Requirements.

1.5 TESTING RESULTS

- A. CONTRACTOR shall furnish to CONSTRUCTION MANAGER copies of all testing results for all tests as required in the General Condition Section 4.7.

1.6 RECORD DRAWINGS

- A. CONTRACTOR shall update Record Drawings as required by General Conditions Section 4.8.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

++ END OF SECTION ++

SECTION 01710

CLEANING

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section outlines requirements for cleaning of the Project Work. This Section is complementary to the General Conditions and nothing herein shall be considered to waive any requirements of the General Conditions.

1.2 REQUIREMENTS OF REGULATORY AGENCIES

- A. Safety and Insurance Standards: Maintain Project in accordance with the following safety and insurance standards:
 - 1. State Industrial Commission of Arizona (OSHA).
- B. Fire Protection: Store volatile waste in covered metal containers and remove from premises daily.
- C. Pollution Control: Conduct cleanup and disposal operations to comply with local ordinances and anti-pollution laws. Burning or burying of rubbish and waste material on the Project site is not permitted. Disposal of volatile fluid waste (such as mineral spirits, oil, or paint thinner) in storm or sanitary sewer systems or into streams or waterways is not permitted.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 DURING CONSTRUCTION

- A. During the construction period, the material to be used in the Work shall be kept in an orderly manner, neatly stacked or piled.
- B. Clean up frequently (at least weekly) all refuse, rubbish, scrap materials, and debris caused by operations, to the end that at all times the site of the Work shall present a neat, orderly, and workmanlike appearance. Sprinkle dusty debris with water.
- C. Provide for the disposal of all waste products, trash, debris, etc., and make necessary arrangement for legal disposal of same off the site. Never throw

rubbish from windows or other parts of building. Lower waste materials in a controlled manner with as few handling as possible.

- D. Remove all surplus material, false-work, temporary structures, including foundations thereof, plant of any description and debris of every nature resulting from operations and put the site in a neat, orderly condition.
- E. Remove carpentry nails, pieces of rebar, pieces of cut metal, metal strapping, and pieces of wood. Wire (bare or insulated), shall also be recovered from the ground at the end of each day.
- F. General contractor shall provide trash gondolas or containers for use by all trades.

3.2 FINAL CLEANING

- A. Use experienced workmen or professional cleaners for final cleaning. Provide adequate ventilation during use of volatile or noxious substances.
- B. All existing improvements, inside or outside the property that are disturbed, damaged, or destroyed by the Work under the Contract, shall be restored to the condition in which they originally were, or to the satisfaction of the OWNER.
- C. CONTRACTOR shall clean all sidewalks by power washing to remove tire trend marks.

++ END OF SECTION ++

SECTION 02100
SITE PREPARATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Prepare the construction site for new construction.

1.2 SECTION INCLUDES

- A. Protection of certain existing trees and vegetation.
- B. Clearing and grubbing.
- C. Removing below grade improvements (including stumps).
- D. Installing and maintaining barricades and warning signs.
- E. All other miscellaneous items of Work required to complete the site preparation.

1.3 PROJECT CONDITIONS

- A. Traffic: Conduct site-clearing operations to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities. Do not close or obstruct streets, walks, or other occupied or used facilities without permission from authorities having jurisdiction.
- B. Protection of Existing Improvements: Provide protection as necessary to prevent damage to existing improvements indicated to remain in place.
 - 1. Protect improvements on adjoining properties and OWNER'S property.
 - 2. Restore damaged improvements to their original or better condition, as acceptable to OWNER.
- C. Protection of Existing Trees and Vegetation:
 - 1. Existing vegetation in the field not scheduled for removal shall be undisturbed by the CONTRACTOR. The CONTRACTOR shall NOT remove from the site any plants unless specifically approved by the CONSTRUCTION MANAGER.
 - 2. Protect existing trees and vegetation indicated to remain against unnecessary cutting, breaking or skinning of roots, skinning or bruising of bark, smothering of trees by stockpiling construction materials or excavated materials within drip line, excess foot or vehicular traffic or parking of vehicles within the drip line. Prior to initiating site clearing activities, the

CONTRACTOR shall mark the limits of the disturbance areas either by placing lime, flags, or survey stakes at the limits shown on the Plans.

3. Do not destroy vegetation which may be naturally located in the periphery of proposed disturbed areas (within a zone $\pm$ 5 feet from the limits of construction). The CONSTRUCTION MANAGER shall be notified if existing plants are located within the fringes of the construction limits. The CONSTRUCTION MANAGER shall issue instructions at that time.
 4. Adjustments may be made in the limits of construction to protect the affected plants based on a field review of the staked limits. The adjusted construction limits shall be considered the permanent construction limits for the duration of the Project. If the CONSTRUCTION MANAGER recommends that construction limits be adjusted to preserve existing plants, the CONTRACTOR, at his own option, may elect to clear the subject vegetation and revegetate with like-kind size and species as required herein and by Landscape Drawings at no additional cost to the OWNER. The CONTRACTOR shall be entirely responsible for removal, storage, and replanting of such vegetation in accordance with City's Landscape Design of Right-of-Way, medians, and retention basin Technical Design Manual no. 8.
 5. During the course of the Work the CONTRACTOR shall:
 - a. Water trees, shrubs, and other vegetation to remain within limits of Contract Work as required to maintain their health during the course of construction operations at no additional cost to the OWNER.
 - b. Provide protection for roots over 1-1/2-inches in diameter that are cut during construction operations. Temporarily cover exposed roots with wet burlap to prevent the roots from drying out; cover with earth as soon as possible.
 - c. Repair or replace trees and vegetation indicated to remain that are damaged by construction operations in a manner acceptable to the CONSTRUCTION MANAGER.
 - d. Trees to be protected in place shall not be pruned unless limbs are damaged, or at the direction of the CONSTRUCTION MANAGER. Employ a licensed arborist to repair damaged trees and shrubs. Replace trees that cannot be repaired and restored to full growth status, as determined by the arborist.
 - e. Trees may be pruned for routing maintenance during construction with CONSTRUCTION MANAGER'S approval at no additional cost to the OWNER.
- D. Provide a temporary construction fence/barrier to protect trees and vegetation at the limits reviewed and approved by the CONSTRUCTION MANAGER. The barrier shall be installed and remain in place for the duration of the Project or as directed by the CONSTRUCTION MANAGER.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Fencing: Any fencing removed as obstructions shall be restored to match existing with property OWNER's approval/acceptance.
- B. Barricades, warning signs, and related equipment shall be placed as required.
- C. Tree Protection Fence/Barrier: Shall be a commercially available product acceptable to the CONSTRUCTION MANAGER for its intended purpose. The barrier shall be similar to a nylon woven material or woven wire fence such as TENAX Nordic Snow Fence, or approved equal, with approved stakes approximately 36-inches in height. Submit material sample and Shop Drawings for barrier installation to the CONSTRUCTION MANAGER for approval prior to use.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Site Clearing
 - 1. General: Remove trees, shrubs, grass and other vegetation, improvements or obstructions, as required, to permit installation of new construction. Remove similar items elsewhere on site or premises as specifically indicated. Removal includes digging out and off-site disposal of stumps and roots.
 - a. Cut minor roots and branches of trees indicated to remain in a clean and careful manner where such roots and branches obstruct installation of new construction.
 - 2. Clearing and Grubbing: Within the limits of Work, clear site of trees, shrubs and other material, except for those indicated to be left standing.
 - a. Completely remove stumps, roots, and other debris protruding through the ground surface. Stump removal and backfilling of holes is required for trees indicated on the Plans to be removed.
 - b. Use only hand methods for grubbing inside drip line of trees indicated to remain.
 - c. Fill depressions caused by clearing and grubbing operations with satisfactory soil material, unless further excavation or earthwork is indicated.
 - d. Place fill material in horizontal layers not exceeding 6-inches loose depth, and thoroughly compact each layer to a density equal to adjacent original ground.
 - 3. Disposal of Waste Material:
 - a. Burning on OWNER'S Property: Burning is not permitted on OWNER'S property.
 - b. Removal from OWNER'S Property: Remove waste materials from OWNER'S property at no additional cost to the Project.

4. All miscellaneous items not specifically mentioned or designated on the Drawings as removal items, but required for the completion of the Work, shall be removed. All such items removed shall be hauled from the site.
- B. Barricades and Warning Signs:
1. Construction sites shall be properly barricaded with appropriate warning signs affixed to prevent unauthorized access to the construction site.

++ END OF SECTION ++

SECTION 02145

DIVERSION OF SEWAGE FLOW AND DEWATERING

PART 1 - GENERAL

1.1 DESCRIPTION

A. Scope:

1. This Section provides minimum requirements for temporary bypass pump station and dewatering of sewers as required to completing work and prior to acceptance.

B. Requirements:

1. CONTRACTOR shall provide all labor, materials, equipment, and supervision to temporarily bypass pump sewage flow around the CONTRACTOR'S Work and to dewater the pipeline for removal. The bypass strategy shall maintain flow to prevent wastewater backup into the City's sewage collection system or discharge to the environment.
2. The actual design of the bypass arrangement shall be prepared by the CONTRACTOR, and shall be submitted to the OWNER and CONSTRUCTION MANAGER for review. Means and methods of accomplishing the bypassing shall be the responsibility of the CONTRACTOR.
3. The CONTRACTOR shall have the entire bypassing system in place and tested before bypassing any sewage.
4. The CONTRACTOR shall notify the OWNER 72 hours prior to bypassing the pipeline. The wastewater levels shall be continuously monitored by the CONTRACTOR.
5. CONTRACTOR is responsible for immediate and proper cleanup should any spill occur, regardless of amount.
6. CONTRACTOR shall connect bypass piping to the existing collection system and utilize temporary pumps and control equipment.
7. CONTRACTOR shall utilize a pumping system with 100% back-up capability. In the event a pump shall fail, an alternate equally sized pump shall be ready to be utilized immediately. This requires the alternate pump(s) to be connected to the forcemain system.
8. CONTRACTOR shall have enough pipe material and fittings on site to provide redundancy to the forcemain system for use should the primary forcemain fail during operation. Forcemain shall be fusible HDPE. The forcemain shall be sized with a velocity of less than 5 feet per second.
9. CONTRACTOR shall coordinate operation of temporary bypass pump station with authorized City of Chandler personnel. CONTRACTOR shall not operate any equipment in or about temporary bypass pump station

without prior written consent from OWNER and copied to CONSTRUCTION MANAGER.

10. Bypass pump operation shall include a lighting system at the bypass pump operation and the forcemain discharge. The lighting system shall be gas operated.
11. CONTRACTOR shall provide qualified personnel, at a minimum two (2), on-site 24 hours per day to maintain the bypass pumps and pipeline.
12. CONTRACTOR shall continuously monitor hydrogen sulfide concentrations at the suction side of the bypass pump operation and the forcemain discharge. CONTRACTOR shall provide temporary covering at each location to minimize hydrogen sulfide releases. This may include providing and installing a temporary odor control system as determined by the OWNER.
13. CONTRACTOR shall provide, install, and maintain safety signs as determined by the OWNER. CONTRACTOR shall plan for at least 20 signs measuring 14-inches by 10-inches. Signs shall be installed prior to testing the bypass pumping system.

C. Experience:

1. CONTRACTOR shall utilize staff and/or a subcontractor that has been directly responsible for the bypass pumping of sewage flows during the completion of a similar pipeline project.

1.2 SUBMITTALS

A. Provide a detailed plan for the bypass pump operation. The plan shall include the following items:

1. Detailed layout of the temporary pumping system. Include layouts of the pump station and forcemain. The layout shall include all redundant pumps and forcemains.
2. Pump suction piping size and layout.
3. Pump equipment data sheets. Data sheets shall include a system head curve along with a pump curve to verify its operating point. The system head curve calculations shall be developed by the CONTRACTOR and be included within the submittal for review.
4. Forcemain diameter and material data sheets.
5. Forcemain sizing calculations.
6. Detailed list of personnel to be utilized for the bypass pump operation. The list shall also include the local supplier of the by-pass pumps and forcemains.
7. Detailed list of additional parts and equipment to be placed at the site should the system not operate as intended.
8. Additional temporary measures that are planned to be supplied to ensure safe and reliable bypass pump operation.
9. Detailed list of items and methods utilized to repair or replace items damaged or modified due to the by-pass pump operation.

- B. The plan shall include a detailed daily schedule and a list of daily activities that will be completed before, during, and after the bypass operation. Include all personnel that are planned to work on the pipeline and the bypass pump operation.
- C. Provide an emergency contact list for all of the personnel to be at the site. Include all of the OWNER's and CONSTRUCTION MANAGER's personnel. Once the emergency contact list is finalized, three (3) copies shall be printed, laminated, and placed at locations along the bypass pump operation as determined by the OWNER.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. CONTRACTOR shall provide temporary piping, fittings, conduits, and all other equipment to bypass sewer flow around the CONTRACTOR'S Work as required. CONTRACTOR shall furnish all necessary labor supervision to set up and operate the pumping system. Equipment shall be equipped with sound attenuation devices to keep noise level within limits specified in the City of Chandler Codes or stated in the Contract Documents. Bypass shall be of adequate capacity and size to handle the required flows.
- B. Bypass piping shall be polyethylene pipe with Standard PE Code Designation PE3408 as defined in AWWA C906, have a minimum Cell Classification of PE 334434C as defined in ASTM D3350, and designed using Hydrostatic Design Basis of 1,600 psi as specified in ASTM D2837. The physical properties of the polyethylene pipe shall have minimum test values as specified in ASTM D3350. Properties shall be substantiated with test data.
- C. The polyethylene shall be designed by CONTRACTOR in accordance with the procedures of AWWA Design Manual M55, applicable MAG standards and these Specifications. All material properties used in design calculations shall be long-term (time-corrected) values. CONTRACTOR shall be familiarized with site conditions when preparing the pipe design.
- D. CONTRACTOR shall calculate the required minimum wall thickness using the following parameters:
 - 1. Modulus of Soil Reaction: $E's = 500$ psi (fully deteriorated).
 - 2. Unit Weight of Soil: $w = 140$ pcf.
 - 3. Vacuum Pressure: $PV = 14.7$ psi.
 - 4. Ground Water Depth Above Invert: $h = 4$ feet.
 - 5. Live Loads: AASHTO H-20.
 - 6. Safety Factor: $N = 2.0$.
 - 7. Internal Operating Temperature (Design): $T_n = 24^{\circ} C$ to $33^{\circ} C$.
 - 8. Minimum Depth of Cover: $d = 2$ feet.

9. Maximum Depth of Cover: $d = 10$ feet.
 10. Poisson's Ratio for Long Term Loading: $m = 0.45$.
 11. Bedding Constant: $K = 0.1$.
 12. Time Lag Factor: $TL = 1.5$.
 13. Long Term Apparent Modulus of Elasticity: $E = 23,000$ psi.
 14. Working Pressure: $P = 110$ psi.
 15. Test Pressure: $P = 150$ psi.
 16. Ovality Compensation Factor: $f_0 = 0.5$.
 17. Recurrent Surge Velocity: $DVRS = 2.9$ ft./sec.
 18. Occasional Surge Velocity: $DVOS = 6.2$ ft./sec.
 19. Bulk Modulus of Water: $K = 300,000$ psi.
 20. Effective Modulus of Pipe Material: $E_d = 150,000$ psi.
 21. Design Factor for use in AWWA M55 eq 4-1: $DF = 0.5$.
 22. Allowable Deflection: As described in AWWA M55, Table 5-11.
- E. CONTRACTOR shall maintain on-site sufficient equipment and materials to ensure continuous and successful operation of the bypass and dewatering systems. The CONTRACTOR shall maintain on-site a sufficient number of valves, tees, elbows, connections, tools, sewer plugs, piping, and other parts or system hardware to ensure immediate repair or modification of any part of the system as necessary.
- F. All equipment shall be placed on a new plastic tarp, adequately sized, and bermed to protect against gasoline, oil, and hydraulic fluid spills.

PART 3 - EXECUTION

3.1 PROTECTION

- A. In areas where flows are bypassed, all bypass flow shall be discharged to a downstream sanitary sewer manhole following a bypass plan approved by the OWNER and CONSTRUCTION MANAGER. No bypassing to ground surface receiving waters, canals, storm drains, or bypassing which results in groundwater contamination or potential health hazards shall be permitted in accordance with the General Conditions.

3.2 DAMAGES

- A. The CONTRACTOR shall repair, without cost to OWNER, any damage that may result from his negligence, inadequate or improper mechanical or electrical failures.

++ END OF SECTION ++

SECTION 11295

HYDRAULIC VALVES

PART 1 - GENERAL

1.1 SUMMARY

- A. Furnish and install all valves and valve accessories for water as indicated on the Plans and as specified herein, including all appurtenances required for a complete and operational installation.

1.2 RELATED SECTIONS

- A. Section 01300, Submittals.

1.3 REFERENCES

- A. ANSI/AWWA C500 - Gate Valves.
- B. ANSI/AWWA C509 - Resilient-Seated Gate Valves.
- C. ANSI B16.1.
- D. ANSI B46.1.
- E. ASTM A126.
- F. ASTM A269.
- G. ASTM A48.
- H. ASTM A536.
- I. ASTM A582.
- J. ASTM B271.
- K. ASTM D429.
- L. ASTM D1784.
- M. ASTM D2000.
- N. ASTM F439.
- O. All other applicable ASTM and ANSI Standards.

1.4 SUBMITTALS

- A. Each Shop Drawing submittal shall include a copy of the relevant Specification Section. Each and every paragraph of the Specification Section shall be clearly marked to indicate whether the requirements for equipment and/or services in the Specification Section are met. If clarifications are needed to any of the paragraphs in the Specification Section, they shall be addressed next to the paragraph or in an attached letter as such and explained further with any additional information necessary. If any exceptions and/or deviations are proposed to any of the Specifications, they shall be clearly noted as such in the submittal, and an explanation of any deviation and/or exception shall be provided. The CONTRACTOR shall furnish equipment and/or services as specified if an exception and/or deviation is rejected.

PART 2 - PRODUCTS

2.1 GENERAL

- A. All buried valves shall be provided with a valve box and cover.

2.2 VALVES

- A. Gate Valves, Insertion Valves, Combination Air Release Valves:
 - 1. All Water Valves shall be in accordance with City of Chandler Supplement to MAG Standard Specification Sections 610 and 630 and as listed in the latest City of Chandler Approved Product List.
 - 2. All buried valve box installation shall be per City of Chandler Standard Detail C-307.

2.3 SHOP PAINTING

- A. The manufacturer shall paint all valves, floor boxes, and valve boxes as follows:
 - 1. Clean and remove oil, grease, dirt, loose mill scale, and other foreign substances from un-galvanized ferrous-metal surfaces.
 - 2. Solvent scrub with stiff bristle brush followed by brush-off abrasive blast cleaning to a minimum surface profile depth of 1.5 mils.
 - 3. Valves, floor boxes, and valve boxes to be installed in exterior or buried conditions shall have prime coat Series 69-1255 (beige) H.B. Epoxoline II; one coat, 3-5 mils dry film thickness (DFT).
 - 4. Valves and floor boxes to be installed in interior exposure conditions shall have prime coat Series 135 Chembuild; one coat, 3-5 mils DFT.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Valves of the various types and pattern shall be installed at the respective locations as shown on the Drawings and specified herein. All appurtenances required for operation and control of the valves shall be included. Joints and connections shall be made in accordance with applicable requirements for pipeline or pipe joints. Valve stems shall be plumb and vertical unless otherwise specifically shown. Each valve shall be adjusted for smooth and easy operation and shall be watertight when placed in operation under maximum working pressure.

++ END OF SECTION ++

SECTION 15050

PIPING SYSTEMS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Scope: This Section specifies systems of process piping and general requirements for piping systems. Detailed Specifications for the components listed on the Piping System Specification Sheets are found in other Sections of Division 15, Mechanical. This Section shall be used in conjunction with those Sections.
- B. Related Sections:
 - 1. Section 15051, Buried Piping Installation.

1.2 QUALITY ASSURANCE

- A. This Section contains references to the following documents. They are a part of this Section as specified and modified. In case of conflict between the requirements of this Section and those of the listed documents, the requirements of this Section shall prevail.
- B. Unless otherwise specified, references to documents shall mean the documents in effect at the time of Advertisement for Bids or Invitation to Bid (or on the effective date of the Agreement if there were no Bids). If referenced documents have been discontinued by the issuing organization, references to those documents shall mean the replacement documents issued or otherwise identified by that organization or, if there are no replacement documents, the last version of the document before it was discontinued. Where document dates are given in the following listing, references to those documents shall mean the specific document version associated with that date, whether or not the document has been superseded by a version with a later date, discontinued, or replaced.
 - 1. AASHTO M36/M36M - Metallic (Zinc or Aluminum) Coated Corrugated Steel Culverts and Underdrains.
 - 2. ANSI A13.1 - Scheme for the Identification of Piping Systems.
 - 3. ANSI B1.20.1 - Pipe Threads, General Purpose (Inch).
 - 4. ANSI B16.1 - Cast Iron Pipe Flanges and Flanged Fittings Class 25, 125, 250, and 800.
 - 5. ANSI B16.3 - Malleable Iron Threaded Fittings Class 150 and 300.
 - 6. ANSI B16.5 - Pipe Flanges and Flanged Fittings.
 - 7. ANSI B16. - Factory Made Wrought Steel Buttwelding Fittings.
 - 8. ANSI B16.11 - Forged Steel Fittings, Socket Welding and Threaded.
 - 9. ANSI B16.12 - Cast Iron Threaded Drainage Fittings.
 - 10. ANSI B16.22 - Wrought Copper and Copper Alloy Solder Joint Pressure Fittings.

11. ANSI B16.26 - Cast Copper Alloy Fittings for Flared Copper Tubes.
12. ANSI B31.1 - Power Piping.
13. ANSI B31.3 - Chemical Plant and Petroleum Refinery Piping.
14. ASME Section IX - Boiler and Pressure Vessel Code; Welding and Brazing Qualifications.
15. ASTM A47 - Malleable Iron Castings.
16. ASTM A74 - Cast Iron Soil Pipe and Fittings.
17. ASTM A105/A105M - Forgings, Carbon Steel, for Piping Components.
18. ASTM A106 - Seamless Carbon Steel Pipe for High Temperature Service.
19. ASTM A126 - Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings.
20. ASTM A197 - Cupola Malleable Iron.
21. ASTM A234/A234M - Pipe Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and Elevated Temperatures.
22. ASTM A312/A312M - Seamless and Welded Austenitic Stainless Steel Pipe.
23. ASTM A403/A403M - Wrought Austenitic Stainless Steel Piping Fittings.
24. ASTM A536 - Ductile Iron Castings.
25. ASTM A570/A570M - Hot Rolled Carbon Steel Sheet and Strip, Structural Quality.
26. ASTM B88 - Seamless Copper Water Tube.
27. ASTM C76 - Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe.
28. ASTM C443-REV A - Standard Specification for Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets.
29. ASTM C564 - Rubber Gaskets for Cast Iron Soil Pipe and Fittings.
30. ASTM D1248 - Polyethylene Plastics Molding and Extrusion Materials.
31. ASTM D1784 - Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds.
32. ASTM D1785 - Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120.
33. ASTM D2241 - Poly (Vinyl Chloride) (PVC) Plastic Pipe (SDR-PR).
34. ASTM D2513 - Thermoplastic Gas Pressure Pipe, Tubing, and Fittings.
35. ASTM D2665 - Poly (Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings.
36. ASTM D2996 - Filament Wound Reinforced Thermosetting Resin Pipe.
37. ASTM D3034 - Standard Specification for Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings.
38. ASTM D3261 - Butt Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing.
39. ASTM D4174 - Cleaning, Flushing, and Purification of Petroleum Fluid Hydraulic Systems.
40. ASTM D4101 - Propylene Plastic Injection and Extrusion Materials.
41. ASTM F441 - Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe, Schedules 40 and 80.
42. AWWA C105 - Polyethylene Encasement for Ductile-Iron Piping for Water and Other Liquids.

43. AWWA C110 - Ductile Iron and Gray Iron Fittings, 3" Through 48", for Water and Other Liquids.
 44. AWWA C111 - Rubber Gasket Joints for Ductile Iron and Gray Iron Pressure Pipe and Fittings.
 45. AWWA C115 - Flanged Ductile Iron and Gray Iron Pipe with Threaded Flanges.
 46. AWWA C151 - Ductile Iron Pipe, Centrifugally Cast in Metal Molds or Sand-Lined Molds, for Water or Other Liquids.
 47. AWWA C200 - Steel Water Pipe 6" and Larger.
 48. AWWA C205 - Cement Mortar Protective Lining and Coating for Steel Water Pipe - 4" and Larger - Shop Applied.
 49. AWWA C206 - Field Welding of Steel Water Pipe.
 50. AWWA C207 - Steel Pipe Flanges for Waterworks Services - Sizes 4" Through 144".
 51. AWWA C208 - Dimensions for Fabricated Steel Water Pipe Fittings.
 52. AWWA C209 - Cold Applied Tape Coating for Special Sections, Connections, and Fittings for Steel Water Pipelines.
 53. AWWA C210 - Liquid Epoxy Coating Systems for the Interior and Exterior of Steel Water Pipe.
 54. AWWA C214 - Tape Coating Systems for the Exterior of Steel Water Pipelines.
 55. AWWA 301 - Pre-stressed Concrete Pressure Pipe, Steel Cylinder Type, for Water and Other Liquids.
 56. AWWA C303 - Reinforced Concrete Pressure Pipe, Steel Cylinder Type, Pre-tensioned, for Water and Other Liquids.
 57. AWWA C600 - Installation of Ductile Iron Water Mains and Their Appurtenances.
 58. AWWA C651 - Disinfecting Water Mains.
 59. AWWA C900 - Polyvinyl Chloride (PVC) Pressure Pipe, 4" Through 12", for Water.
 60. AWWA M11 - Steel Pipe - A Guide for Design and Installation.
 61. CISPI 301 - Specification Data for Hubless Cast Iron Sanitary System with No-Hub Pipe and Fittings.
 62. FEDSPEC L-C-530B(1) - Coating, Pipe, Thermoplastic Resin, or Thermosetting Epoxy.
 63. MIL-H-13528B - Hydrochloric Acid, Inhibited, Rust Removing.
 64. MIL-STD-810C - Environmental Test Methods.
 65. SAE J1227 - Assessing Cleanliness of Hydraulic Fluid Power Components and Systems.
 66. UPC - Uniform Plumbing Code.
- C. Fittings and Coupling Compatibility:
1. To assure uniformity and compatibility of piping components, fittings and couplings for grooved end piping systems shall be furnished by the same manufacturers.

- D. All Pipes, fittings, valves, fire hydrants, and other appurtenances shall conform to current AAWA, ASTM, and NSF standards.
- E. All material that comes in contact with water shall conform to ANSI/NSF Standard 61.

PART 2 - PRODUCTS

2.1 PIPING MATERIALS

- A. Unless otherwise specified, piping materials including pipe, gaskets, fittings, connection and joint assemblies, linings, and coatings shall be selected from those listed on the Piping System Specification Sheets.
- B. Piping materials shall conform to detailed specifications for each type of pipe and piping appurtenance specified in other Sections of Division 15, Mechanical.
- C. All piping shall be compatible with the fluid to which it is exposed.
- D. All piping and valves to be used for the air release valve connections shall be copper or brass material.
- E. All piping which comes in contact with potable water shall have ASNI/NSF 61 certification.

2.2 VALVES

- A. Valves of the same size and service shall be provided by a single valve manufacturer. Packing shall be non-asbestos material. Actual length of valves shall be within 1/16-inch ($\pm$) of the manufacturer's specified length. Flanges shall meet the requirement of ANSI B16.5. Push-on and mechanical joints shall meet the requirements of AWWA C111.
- B. All Valves shall be manufactured as listed in the latest City of Chandler Approved Product List. No other manufacturer shall be acceptable.

2.3 SUBMITTALS

- A. All additional submittal information shall be included with this submittal information as noted in the Division 15, Mechanical, Pipe Material Specifications.
- B. Each Shop Drawing submittal shall include a copy of the relevant Specification Section. Each and every paragraph of the Specification Section shall be clearly marked to indicate whether the requirements for equipment and/or services in the Specification Section are met. If clarifications are needed to any of the paragraphs in the Specification Section, they shall be addressed next to the paragraph or in an attached letter as such and explained further with any additional information

necessary. If any exceptions and/or deviations are proposed to any of the Specifications, they shall be clearly noted as such in the submittal, and an explanation of any deviation and/or exception shall be provided. The CONTRACTOR shall furnish equipment and/or services as specified if an exception and/or deviation is rejected.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Location:

1. Piping shall be provided as specified, except for adjustments, to avoid architectural and structural features.

B. Piping Sizes:

1. Where the size of piping is not specified, the CONTRACTOR shall provide piping of the sizes required by UPC. Unless specified otherwise, small piping (less than 1-inch in diameter) required for services not described by UPC shall be 1/2-inch.

3.2 TESTING

A. General:

1. Upon completion of piping, but prior to application of insulation on exposed piping, the CONTRACTOR shall test the piping systems in accordance with the appropriate MAG and City of Chandler Specifications. Pressures, media, and test durations shall be as specified in the PIPESPEC. Equipment which may be damaged by the specified test conditions shall be isolated. Testing shall be performed using calibrated test gages and calibrated volumetric measuring equipment to determine leakage rates. Each test gage shall be selected so that the specified test pressure falls within the upper half of the gage's range. Unless otherwise specified, the CONTRACTOR shall notify the CONSTRUCTION MANAGER 24 hours prior to each test.
2. Unless otherwise specified, testing, as specified herein, shall include existing piping systems that connect with new pipe systems. Existing pipe shall be tested to the nearest existing valve. Any piping that fails the test shall be repaired. Repair of existing piping will be considered and paid for as extra Work.
3. All blow off assemblies shall be removed after successful testing of the new pipes as specified in the Drawings.

B. Liquid Systems:

1. Pressure and leakage testing for water systems shall be in accordance with MAG Section 610. Unless otherwise specified, leakage from other buried liquid piping systems shall be less than 0.02 gallons per hour per inch diameter per 100 feet of buried piping.

2. Potable Water Systems Additional Requirements:
 - a. The CONTRACTOR shall provide all vents, piping, plugs, bulkheads, valves, bracing, blocking, pump, including measuring device and all other equipment necessary for making the tests, except pressure gages.
 - b. The pipe shall be tested between each valve or between a valve and the closed end of the pipe.
 - c. Pipe test section shall be limited to 1/2 linear mile, or less, unless otherwise approved in writing by the Engineer. Testing cannot be done against an existing valve. The new pipeline must be separated from any potable system in such a way to prevent any potential for cross-contamination between the existing potable water system and the new pipeline.
 - d. The test shall be made after the backfilling is completed or compacted, regardless of the compaction method.
 - e. All connections, blow-offs, hydrants and valves shall be tested with the main, where practical.
 - f. The test section shall be slowly filled with potable water and all air shall be vented from the line. The rate of filling shall be as approved by the ENGINEER, with at least 24-hour notice required before filling is scheduled.

C. Drains:

1. Drain systems, other than pumped drain systems, shall be tested in accordance with UPC.

3.3 CLEANING AND FLUSHING

A. General:

1. Piping systems shall be cleaned following completion of testing and prior to connection to operating, control, regulating, or instrumentation equipment.
2. The CONTRACTOR may, at his option, clean and test sections of buried piping systems. Use of this procedure, however, will not waive the requirement for a full pressure test of the completed system.
3. Unless specified otherwise, piping 24-inches in diameter and smaller shall first be cleaned by pulling a tightly fitting cleaning ball or swab through the system.
4. Piping larger than 24-inches in diameter may be cleaned manually or with a cleaning ball or swab.

B. Liquid Systems:

1. After completion of cleaning, liquid systems, unless otherwise specified, shall be flushed with clean water.

C. Water Systems:

1. For non-potable water systems, final flushing and microbiological testing, as specified in MAG Section 611.15, is not required.

3.4 PIPING SPECIFICATION SHEETS (PIPESPEC)

- A. Piping and valves for groupings of similar plant processes or types of service lines are specified on individual piping specification sheets (PIPESPECS). Piping services are grouped according to the chemical and physical properties of the fluid conveyed and/or by the temperature or pressure requirements. Piping services specified in the PIPESPECS and on the Drawings are alphabetically arranged by designated service symbols.

TABLE A - PIPING SERVICES			
Symbol	Service	Fluid Category	Pipe Marker Background Color
W	Potable Water	Liquid	Blue
SS	Sanitary Sewer	Liquid	Green

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PIPING SYMBOL/SERVICE

SS / SANITARY SEWER

Refer to section 15067, Vitrified Clay Pipe.

PIPING SYMBOL/SERVICE

POT / POTABLE WATER

Medium:

Water.

Pressure:

As shown on buried and exposed piping schedules. All requirements of COC.

Duration:

2 hours.

Gasket Requirements:

Flange:

Red Rubber Gasket Material (SBR) conforming to ASTM D1330.

Push-on/Mech. Cpl:

Nitrile, Neoprene, or EPDM. Areas within 35 foot SRP easement shall be fitted with Fluoroelastomer Fluorel Viton suitable for water service of up to 212°F.

Buried and Encased Pipes:

(See Drawings for pipe sizes and materials.)

2" and Smaller

Copper Tube; ASTM B88, Type K, drawn. Ref. Spec. Section 15064, Copper Pipe.

Copper Conn; Solder type with threaded adapters.

Copper Ftgs; Wrought copper or bronze, ANSI B16.22.

Copper Interior Lining; None.

Copper Exterior Coating; None.

4" and Larger

Ductile Iron; AWWA C151
with cement mortar lining. Ref.
Spec. Section 15061

Ductile Iron Conn; Restrained
push-on rubber gasket
joint. Flanged adapters
for valves and ends.

Ductile Iron Ftgs; Ductile iron
per Spec. Section
15061.

Ductile Iron Exterior Coating;
Bituminous Coated,
Polyethylene Wrap

Remarks:

1. Potable water lines shall be disinfected in accordance with AWWA C651-92.
2. All piping, fittings, valves, and any other material that comes in contact with drinking water shall comply with NSF Standards 60 and 61.

PIPING SCHEDULE TABLES

1. Potable water lines shall be disinfected in accordance with AWWA C651-92.
2. All piping, fittings, valves, and any other material that comes in contact with drinking water shall comply with NSF Standards 60 and 61.

BURIED PIPE

SERVICE DESCRIPTION	PIPE SYMBOL	PIPE MATERIAL	SPECIFICATION	CLASS/ TYPE	INTERIOR LINING	EXTERIOR COATING	JOINT TYPE	TEST PRESSURE
POTABLE WATER 4-INCHES AND LARGER	W	DIP	15061	350	CM	BC/PE	MJ	PER 15051
POTABLE WATER 3-INCHES AND SMALLER	W	COP	15064	K	NONE	P	BZ	PER 15051
SANITARY SEWER	SS	VCP	15067	Extra Strength	N/A	N/A	CJ	PER 15051

++ END OF SECTION ++

SECTION 15051

BURIED PIPING INSTALLATION

PART 1 - GENERAL

1.1 DESCRIPTION

A. Scope:

1. CONTRACTOR shall provide all labor, materials, equipment, and incidentals as shown, specified, and required to install and test all buried piping, fittings, and specials. The Work includes, but is not limited to, the following:
 - a. All types and sizes of buried piping, except those specified under other Sections.
 - b. Supports, restraints, and thrust blocks.
 - c. Pipe encasements.
 - d. Work on or affecting existing piping.
 - e. Testing.
 - f. Cleaning.
 - g. Installation of all jointing and gasketing materials, specials, flexible couplings, mechanical couplings, harnessed and flanged adapters, sleeves, tie rods, and all other Work required to completing the buried piping installation.
 - h. Incorporation of valves, meters and special items shown or specified into the piping systems as required and as specified in the appropriate Division 15, Mechanical Sections.
 - i. Unless otherwise specifically shown, specified, or included under other Sections, all buried piping work required begins at the outside face of structures or structure foundations and extending away from structure.

B. Coordination:

1. Review installation procedures under other Sections and coordinate with the Work that is related to this Section.
2. Section 15051, Buried Pipe Installation, specifies the installation of all buried piping materials specified in Sections of Division 15, Mechanical. Coordinate with these Sections.

C. Related Work Specified Elsewhere:

1. Section 11295, Hydraulic Valves.
2. Section 15050, Piping Systems.
3. Section 15061, Ductile Iron Pipe.
4. Section 15064, Copper Pipe.
5. Section 15067, VCP Pipe.
6. Section 15020, Piping Specialties and Accessories.

1.2 QUALITY ASSURANCE

- A. CONTRACTOR shall conform to all applicable requirements of Parts 600 and 700 of the Uniform Standard Specifications for Public Work Construction by the Maricopa Association of Governments (MAG). If there is a conflict between MAG Standard Specifications and these Specifications, the provisions of these Specifications shall govern.
- B. Requirements of Regulatory Agencies:
 - 1. Comply with requirements of UL, FM, and other jurisdictional authorities, where applicable.
 - 2. Refer to the General and Supplementary Conditions regarding permit requirements for this Work.
- C. Reference Standards: Comply with applicable provisions and recommendations of the following, except as otherwise shown or specified.
 - 1. ASTM D2321 - Practice for Underground Installation of Flexible Thermoplastic Pipe.
 - 2. ASTM D2774 - Practice for Underground Installation of Thermoplastic Pressure Piping.
 - 3. AWWA C105 - Polyethylene Encasement for Ductile Iron Piping for Water and Other Liquids.
 - 4. AWWA C111 - Rubber Gasket Joints for Ductile Iron Pressure Pipe and Fittings.
 - 5. AWWA C200 - Steel Water Pipe.
 - 6. AWWA C205 - Cement Mortar Protective Lining and Coating for Steel Water Pipe.
 - 7. AWWA C206 - Field Welding of Steel Water Pipe.
 - 8. AWWA C207 - Steel Pipe Flanges for Waterworks Service.
 - 9. AWWA C208 - Dimensions for Fabricated Steel Water Pipe Fittings.
 - 10. AWWA C600 - Installation of Ductile Iron Water Mains and Their Appurtenances.
 - 11. AWWA C606 - Grooved and Shouldered Joints.
 - 12. AWWA C651 - Disinfecting Water Mains.
 - 13. AWWA M11 - Steel Pipe - A Guide for Design and Installation.
 - 14. AWWA M23 - PVC - Design and Installation.
 - 15. AWWA M41 - Ductile Iron Pipe and Fittings.
 - 16. ASCE MOP No. 37 - Design and Construction of Sanitary and Storm Sewers
 - 17. Concrete Pipe Handbook - American Concrete Pipe Association.

1.3 SUBMITTALS

- A. Shall be in accordance with Section 15050, Piping Systems, submittal information.
- B. Each Shop Drawing submittal shall include a copy of the relevant Specification Section. Each and every paragraph of the Specification Section shall be clearly marked to indicate whether the requirements for equipment and/or services in the

Specification Section are met. If clarifications are needed to any of the paragraphs in the Specification Section, they shall be addressed next to the paragraph or in an attached letter as such and explained further with any additional information necessary. If any exceptions and/or deviations are proposed to any of the Specifications, they shall be clearly noted as such in the submittal, and an explanation of any deviation and/or exception shall be provided. The CONTRACTOR shall furnish equipment and/or services as specified if an exception and/or deviation is rejected.

1.4 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to the site to ensure uninterrupted progress of the Work.
- B. Handle all pipe, fittings, specials, and accessories carefully with approved handling devices. Do not drop or roll material off trucks. Do not otherwise drop, roll, or skid piping.
- C. Store pipes and fittings on heavy wood blocking or platforms so they are not in contact with the ground.
- D. Unload pipe, fittings, and specials opposite to or as close to the place where they are to be installed as is practical to avoid unnecessary handling. Keep pipe interiors completely free from dirt and foreign matter.
- E. Inspect delivered pipe for cracked, gouged, chipped, dented, or other damaged material and immediately remove defective pipe from site.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Required pipe materials are listed in the Piping Schedule. Refer to applicable Sections for Material Specifications.
- B. General:
 - 1. Marking Piping:
 - a. Clearly mark each piece of pipe or fitting with a designation conforming to those shown on the laying schedule and/or Shop Drawings.
 - b. Cast or paint material, type, and pressure designation on each piece of pipe or fitting 4-inches in diameter and larger.
 - c. Pipe and fittings smaller than 4-inches in diameter shall be clearly marked by manufacturer as to material, type, and rating.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General:

1. Installation of all pipe, fittings, valves, specials, and appurtenances shall be subject to the review and/or approval of the CONSTRUCTION MANAGER.
2. Install piping as shown, specified, and as recommended by the manufacturer and in conformance with referenced standards, and approved Shop Drawings.
3. Request instructions from CONSTRUCTION MANAGER before proceeding if there is a conflict between the manufacturer's recommendations and the Contract Documents.
4. All piping shall be inspected by the CONSTRUCTION MANAGER prior to installation. CONSTRUCTION MANAGER'S inspection will not relieve CONTRACTOR or manufacturer from responsibility for damaged products.
5. All piping shall be carefully examined for cracks, damage, or other defects before installation. Any piping that is defective, including but not limited to, cracked, damaged, in poor condition, or with damaged linings or improper markings shall be rejected unless the product can be repaired in a manner acceptable to the manufacturer and CONSTRUCTION MANAGER. Any piping found to be broken or defective after it has been installed shall be removed, replaced, or repaired at the CONTRACTOR'S expense.
6. Minimum earth cover over the piping shall be as shown on the Drawings, specified or directed by the CONSTRUCTION MANAGER, but in no case shall the earth cover be less than 4 feet for all piping larger than 6-inches in diameter.
7. Present all conflicts between piping systems and equipment, structures or facilities to CONSTRUCTION MANAGER for determination of corrective measures before proceeding.
8. Take field measurements, where required, prior to installation to ensure proper fitting of Work. The CONTRACTOR shall uncover the existing pipelines sufficiently in advance of the proposed Work in order that the type and location of the existing pipes and joints and other information required to fabricate the proposed piping can be determined. It shall be the responsibility of the CONTRACTOR to obtain whatever information is required to complete the connections of the proposed pipelines to the existing pipelines. Refer to Paragraph 3.3 of this Section, as applicable.
9. Interior of all piping and mating surfaces shall be inspected and all dirt, gravel, sand, debris or other foreign material shall be completely removed from the interior and mating surfaces before installation. Measures shall be taken to maintain the interior of all piping clean until acceptance of the completed Work. Care shall be taken to prevent foreign matter from entering joint space. Bell and spigot mating surfaces shall be wiped clean immediately before piping is laid. For ductile iron pipe, the bell and spigot mating surfaces shall be thoroughly cleaned with a wire brush.

10. Install piping accurately to line and grade shown, specified or directed, unless otherwise approved by the CONSTRUCTION MANAGER. Accurate means of determining and checking the alignment and grade shall be used, which shall be subject to the approval of the CONSTRUCTION MANAGER. Any modifications to the Contract Documents to suit the pipe manufacturer's standard shall be approved by the CONSTRUCTION MANAGER. Remove and relay piping that is incorrectly installed, at CONTRACTOR'S expense.
11. Do not lay piping in water, unless otherwise specified in these Specifications or approved by the CONSTRUCTION MANAGER. Ensure that the water level in the trench is at least 6-inches below the bottom of piping. Maintain a dry trench until jointing and backfilling are complete, unless otherwise specified in these Specifications or approved by the CONSTRUCTION MANAGER.
12. Where unforeseen conditions will not permit the installation of piping as shown or specified, no piping shall be installed without approval of the CONSTRUCTION MANAGER. Do not modify structures or facilities without approval of the CONSTRUCTION MANAGER.
13. Start laying piping at lowest point and proceed toward the higher elevations, unless otherwise approved by the CONSTRUCTION MANAGER. Slope piping uniformly between elevations shown on the Drawings or as otherwise directed by the CONSTRUCTION MANAGER.
14. Place bell and spigot piping so that the bells face the direction of laying, unless otherwise approved by the CONSTRUCTION MANAGER.
15. Piping shall be installed so that the barrel of the piping, and not the joints, receives the bearing pressure from the trench bottom or other bedding condition.
16. No piping shall be brought into position until the preceding length, valve, fitting, or special has been bedded and secured in place.
17. Whenever pipe laying is not actively in progress, the open ends of the piping shall be closed by a temporary plug or cap to prevent soil, water, and other foreign matter from entering the piping.
18. Field cutting of metallic piping, where required for inserting valves, fitting, specials, and closures, shall be made with a machine specially designed for cutting piping and in accordance with the manufacturer's instructions. Cuts shall be carefully done, without damage to piping, so as to leave a smooth end at right angles to the axis of the piping. Cut end shall be tapered and sharp edges filed off smooth. Flame cutting shall not be permitted. Piping damaged by the CONTRACTOR by improper or careless methods of cutting shall be replaced or repaired at his expense.
19. Blocking under piping shall not be permitted, unless specifically approved by CONSTRUCTION MANAGER for special conditions.
20. Protective linings and coatings shall be touched up prior to installation, where required.
21. Except where bends, wyes or similar fittings are used, changes in alignment and grade of the piping shall be made by deflecting joints or with beveled pipe.

Permissible joint deflection shall not exceed 75% of the amount allowed by the manufacturer.

22. All joints shall be made in the presence of the CONSTRUCTION MANAGER, or his duly authorized representative, except as otherwise approved.
23. Special care shall be taken to ensure that each section of piping abuts against the next in such a manner that there will be not shoulder or unevenness of any kind along the piping invert.
24. Piping shall be rotated as required to place outlets in proper position.
25. Blind flanges and cleanouts shall be provided at locations shown on the Drawings, specified, or required. Cleanouts on buried piping shall include all pipes, fittings, and appurtenances required to bring cleanout to finished grade and terminate in a flange and blind flange or suitably capped piping as shown. Cleanout piping shall be same as that specified for the main run.
26. All gravity lines shall pitch uniformly at the grade shown or as specified or approved.
27. Short pipe stubs, maximum 4 feet in length, shall be used at all manholes and other wall faces, except as otherwise specified.
28. Field painting shall be accomplished after joints are made.
29. All piping shall be plugged watertight with a suitable cap or plug securely fastened to the end of the piping at all contact interfaces.
30. CONTRACTOR shall notify CONSTRUCTION MANAGER in advance of backfilling operations.
31. On steep slopes, take measures acceptable to CONSTRUCTION MANAGER to prevent movement of the pipe during installation.
32. Thrust Restraint: During the installation of the pipe, thrust blocks, tied joints, or proprietary restrained joint systems shall be provided wherever required for thrust restraint. Thrust restraint shall conform to the applicable requirements of Paragraph 3.2 of this Section.
33. Exercise care to avoid flotation when installing pipe in cast-in-place concrete.

B. Manufacturer's Installation Specialist:

1. Provide the services of a competent installation specialist of the pipe manufacturer when pipe laying begins if the CONTRACTOR is not experienced in laying and jointing a particular type of pipe.
2. Retain installation specialist at the site for a minimum of two days or until competency of the pipe laying crew has been satisfactorily demonstrated.

C. Separation of Sewers and Potable Water Pipe Lines:

1. Conform to the requirements of all applicable requirements of the Uniform Standard Specifications for Public Work Construction by the Maricopa Association of Governments (MAG).

D. Plugs:

1. Temporarily plug installed pipe at the end of each day's Work or other interruption to the installation of any pipe line. Plugging shall prevent the entry of animals, liquids, or persons into the pipe or the entrance or insertion of deleterious materials.

2. Install standard plugs into all bells at dead ends, tees or crosses. Cap all spigot ends.
 3. Fully secure and block all plugs and caps installed for pressure testing to withstand the specified test pressure.
 4. Where plugging is required for phasing of the Work or for subsequent connection of piping, install watertight, permanent type plugs.
- E. Bedding Pipe: Bed pipe as specified below and in accordance with the details shown.
1. Trench excavation and backfill and bedding materials shall conform to the Contract Documents.
 2. Excavate trenches below the pipe bottom by an amount specified. Remove all loose and unsuitable material from the trench bottom.
 3. Carefully and thoroughly compact all pipe bedding with hand held pneumatic compactors.
 4. Do not lay pipe until the CONSTRUCTION MANAGER approves the bedding condition. If a conflict exists, obtain clarification from CONSTRUCTION MANAGER before proceeding.
 5. No pipe shall be brought into position until the preceding length has been bedded and secured in its final position.
- F. Laying Pipe:
1. Conform to manufacturer's instructions and requirements of the standards listed below, where applicable:
 - a. Ductile Iron Pipe: AWWA C600, AWWA C105.
 - b. ASCE Manual of Practice No. 37.
- G. Polyethylene Encasement:
1. Provide polyethylene encasement for ductile iron piping to prevent contact between the pipe and surrounding bedding material and backfill.
 2. Polyethylene may be supplied in tubes or in sheet material.
 3. Polyethylene encasement materials and installation shall be in accordance with the requirements of MAG Section 610.6.
- H. Jointing Pipe:
1. Ductile Iron Mechanical Joint Pipe:
 - a. Wipe clean the socket, plain end and adjacent areas immediately before making joint. Make certain that cut ends are tapered and sharp edges are filed off smooth.
 - b. Lubricate the plain ends and gasket with soapy water or an approved pipe lubricant, in accordance with AWWA C111, just prior to slipping the gasket onto the plain end of the joint assembly.
 - c. Place the gland on the plain end with the lip extension toward the plain end, followed by the gasket with the narrow edge of the gasket toward the plain end.
 - d. Insert the pipe into the socket and press the gasket firmly and evenly into the gasket recess. Keep the joint straight during assembly.

- e. Push gland toward socket and center it around pipe with the gland lip against the gasket.
- f. Insert bolts and hand tighten nuts.
- g. Make deflection after joint assembly, if required, but prior to tightening bolts. Alternately tighten bolts 180 degrees apart to seat the gasket evenly. The bolt torque shall be as follows:

Pipe Size (inches)	Bolt Size (inches)	Range of Torque (ft-lbs)
3	5/8	45-60
4-24	3/4	75-90
30-36	1	100-120
42-48	1-1/4	120-150

- h. All bolts and nuts shall be heavily coated with two 10 mil minimum coats of coal-tar epoxy coating as manufactured by Koppers, Tnemec, or equal.
 - i. Restrained mechanical joints shall be in accordance with Section 15061, Ductile Iron Pipe.
2. Ductile Iron Push-On Joint Pipe:
- a. Prior to assembling the joints, the last 8-inches of the exterior surface of the spigot and the interior surface of the bell shall be thoroughly cleaned with a wire brush, except where joints are lined or coated with a special protective lining or coating.
 - b. Rubber gaskets shall be wiped clean and flexed until resilient. Refer to manufacturer's instructions for procedures to ensure gasket resiliency when assembling joints in cold weather.
 - c. Insert gasket into joint recess and smooth out the entire circumference of the gasket to remove bulges and to prevent interference with the proper entry of the spigot of the entering pipe.
 - d. Immediately prior to joint assembly, apply a thin film of approved lubricant to the surface of the gasket which will come in contact with the entering spigot end of pipe. CONTRACTOR may, at his option, apply a thin film of lubricant to the outside of the spigot of the entering pipe.
 - e. For assembly, center spigot in the pipe bell and push pipe forward until it just makes contact with the rubber gasket. After gasket is compressed and before pipe is pushed or pulled all the way home, carefully check the gasket for proper position around the full circumference of the joint. Final assembly shall be made by forcing the spigot end of the entering pipe past the rubber gasket until it makes contact with the base of the bell. When more than a reasonable amount of force is required to assemble the joint, the spigot end of the pipe shall be removed to verify the proper positioning of the rubber gasket. Gaskets which have been scoured, or otherwise damaged, shall not be used.
 - f. Maintain an adequate supply of gaskets and joint lubricant at the site at all times when pipe jointing operations are in progress.
3. Proprietary Joints:

- a. Pipe which utilizes proprietary joints such as Fastite, by American Cast Iron Pipe Company, Tyton by U.S. Pipe Incorporated, restrained joints described under Paragraph 3.2 of this Section, or other such joints shall be installed in strict accordance with the manufacturer's instructions.
- 4. Mechanical Coupling Joints:
 - a. Prior to the installation and assembly of mechanical couplings, the joint ends shall be cleaned thoroughly with a wire brush to remove foreign matter. Following this cleaning, lubricant shall be applied to the rubber gasket or inside of the coupling housing and to the joint ends. After lubrication, the gasket shall be installed around the joint end of the previously installed piece and the joint end of the subsequent piece shall be mated to the installed piece. The gasket shall be positioned and the coupling housing placed around the gasket and over the grooved or shouldered joint ends. The bolts shall be inserted and the nuts screwed up tightly by hand. The bolts shall then be tightened uniformly in order to produce an equal pressure on all parts of the housing. When the housing clamps meet metal to metal, the joint is complete and further tightening is not required.
- I. Backfilling:
 - 1. Place backfill as construction progresses. Backfill by hand and use power tampers until pipe is covered by at least 1 foot of fill.
- J. Connections to Valves:
 - 1. Install valves as shown.
 - 2. Provide suitable adapters when valves and piping have different joint types.
 - 3. Provide thrust restraint at all valves at pipeline terminations.
- K. Transitions from One Type of Pipe to Another:
 - 1. Provide all necessary adapters, specials and connection pieces required when connecting different types and sizes of pipe or connecting pipe made by different manufacturers.
- L. Closures:
 - 1. Provide all closure pieces shown or required to complete the Work.

3.2 THRUST RESTRAINT

- A. Provide thrust restraint on all pressure piping systems and where otherwise shown and specified. Pipe joints shall be restrained as specified in Paragraph 3.2.C of this Section.
- B. Thrust restraint shall be accomplished by means of restrained pipe joints. Concrete thrust blocks shall be used only when specifically shown on the Drawings or as directed by the CONSTRUCTION MANAGER. Thrust restraints shall be designed for the axial thrust exerted by the test pressure given in the Buried Piping Schedule.

C. Restrained Pipe Joints:

1. Pipe joints shall be restrained by means suitable to the type of pipe being installed.
 - a. Ductile iron push-on joints and mechanical joints shall be restrained utilizing a proprietary restrained joint system such as American Fast-Grip and American Flex-Ring Joint, MEGALUG Ductile Iron Pipe Restraints as manufactured by EBAA Iron Inc., TR Flex Gripper Ring and TR Flex Joints, and tie rods, or other system approved by CONSTRUCTION MANAGER.
 - b. Pipe thrust restraint shall be in accordance with the Schedule of Restrained Pipe Lengths and as noted on the Project Drawings.
2. Schedule of Restrained Pipe Lengths: Restrained pipe lengths shall conform to the requirements of AWWA M41 for ductile iron pipe. Restrained pipe lengths shall be as shown on the Construction Plans. For pipe not specifically illustrated on the Plans, CONTRACTOR shall submit a lay schedule identifying restrained lengths complying with AWWA M41.

D. Concrete Thrust Blocks:

1. Thrust blocks shall be constructed of Class "B" concrete, conforming to the requirements of MAG.
2. Blocks shall be placed against undisturbed soil as shown on Drawings or as directed by the CONSTRUCTION MANAGER. Concrete shall be placed so that pipe joints and fitting joints will be accessible for repair.
3. Size of the concrete thrust blocks shall be per MAG details or as directed by the CONSTRUCTION MANAGER.
4. Concrete thrust blocks shall not be used for pipe restraint except where specifically shown on the Drawings, or as approved by the CONSTRUCTION MANAGER.

3.3 WORK AFFECTING EXISTING PIPING

A. Location of Existing Piping:

1. Locations of existing piping shown should be considered approximate.
2. CONTRACTOR shall determine the true locations of existing piping to which Work is to be performed, and locations of other facilities which could be disturbed during earthwork operations, or which may be affected by CONTRACTOR'S Work already installed.

B. Taking Existing Pipelines Out of Service:

1. Do not take pipelines out of services, unless specifically provided for under this Project or approved by CONSTRUCTION MANAGER.
2. Notify CONSTRUCTION MANAGER at least 48 hours prior to taking pipeline out of service.

C. Work on Existing Pipelines:

1. Cut or tap pipes as shown or required with machines specifically designed for this Work.

2. Install temporary plugs to prevent entry of mud, dirt, water, and debris.
3. Provide all necessary adapters, fittings, pipe, and appurtenances required to complete the Work.
4. Existing pipelines that are cut and abandoned shall be adequately capped or filled with grout.

3.4 TESTING OF PIPING

A. General:

1. All testing shall conform to the MAG Standard Specifications 611. In case of contradiction with these Specifications the CONTRACTOR shall notify the CONSTRUCTION MANAGER before proceeding with the testing.
2. Test all piping except as otherwise authorized by CONSTRUCTION MANAGER.
3. Notify CONSTRUCTION MANAGER 72 hours in advance of testing.
4. Provide all testing apparatus, including pumps, hoses, gauges, and fittings.
5. Unless otherwise noted, pipelines shall hold specified test pressure for two hours.
6. Repair and retest pipelines that fail to hold specified test pressure or which exceed the allowable leakage rate.
7. Unless otherwise specified, test pressures required are at the lowest elevation of the pipeline section being tested.
8. Conduct all tests in the presence of CONSTRUCTION MANAGER.
9. Advise local authorities having jurisdiction if their presence is required during testing.
10. All testing shall conform to the MAG Standard Specifications. In case of contradiction with these Specifications the CONTRACTOR shall notify the CONSTRUCTION MANAGER before proceeding with the testing.

B. Schedule of Pipeline Tests:

1. Test piping at the test pressures listed in the Buried Piping Schedule and respective pipe material specification.
2. All piping shall be water tested after installation, except as otherwise specified or directed by CONSTRUCTION MANAGER.
3. For piping not included in the Schedule, the CONSTRUCTION MANAGER will notify CONTRACTOR in writing of the test pressure to be used.

C. Pressure Test Procedure:

1. Per MAG Standard Specification 611, all restrained pipelines shall be backfilled and compacted to 100% before testing, unless otherwise required or approved by CONSTRUCTION MANAGER.
2. Allow concrete for thrust blocks to reach design strength before testing.
3. Fill section to be tested slowly with water and expel all air. Install corporation cocks, if necessary, to remove all air.
4. Test only one section of pipe at a time.
5. Apply specified test pressure for two hours and observe pressure gage. Check carefully for leaks while test pressure is being maintained.

D. Leakage Testing:

1. Conduct leakage test for all liquid piping after satisfactory completion of pressure test.
2. Allow all pipes to stand full of water at least 24 hours prior to starting leakage test.
3. Maintain test pressure constantly for the minimum test period and accurately measure the amount of water which must be added to maintain the test pressure.
4. Allowable Leakage in piping system shall be per MAG Standard Specification 611.2.2
5. Leakage Test Procedure:
 - a. Examine exposed pipe, joints, fittings, and valves. Repair visible leakage or replace the defective pipe, fitting, or valve.
 - b. Refill the line under test to reach the required test pressure.
 - c. Provide a test container filled with a known quantity of water at the start of the test. Attach the test pump suction to the test container.
 - d. Pump water from the test container into the line with the test pump to hold the specified test pressure for the test period. Water remaining in the container shall be measured and the amount used during the test shall be recorded on the test report.
 - e. Perform all repair, replacement, and retesting required because of failure to meet testing requirements.
 - f. Leakage shall be less than rate specified above.

3.5 DISPOSAL OF WATER

- A. CONTRACTOR shall provide suitable means for disposal of test and flushing water so that no damage results to facilities or waterways.
- B. Means of disposal of test and flushing water shall be subject to the approval of CONSTRUCTION MANAGER, local governing authorities, and regulatory agencies.
- C. CONTRACTOR shall be responsible for any damage caused by his water disposal operations.

3.6 CLEANING

- A. Cleaning:
 1. Thoroughly clean all piping and flush prior to placing in service in a manner approved by CONSTRUCTION MANAGER.
 2. Piping 24-inches in diameter and larger shall be inspected from inside and all debris, dirt and foreign matter removed.
 3. If piping that requires disinfection has not been kept clean during storage or installation, CONTRACTOR shall swab each section individually before installation with a 5% hypochlorite solution, to ensure clean piping.

3.7 PIPING SCHEDULE

A. The following abbreviations are used in the Buried Piping Schedule:

1. Service Abbreviations:
 - a. Potable Water: W.
 - b. Reclaimed Water: RW.
2. Material Abbreviations:
 - a. Asbestos Concrete Pipe: ACP
 - b. Chlorinated Polyvinyl Chloride: CPVC
 - c. Copper Pipe: COP
 - d. Ductile Iron Pipe: DIP
 - e. Glass-Lined Ductile Iron Pipe: GDIP
 - f. Galvanized Steel: GST
 - g. Polyethylene: PE
 - h. Polyvinyl Chloride: PVC
 - i. Stainless Steel Pipe: SST
 - j. Vitrified Clay Pipe: VCP
3. Lining/Coating Abbreviations:
 - a. Bituminous Coated: BC
 - b. Cement Mortar Lined: CML
 - c. Galvanized: GALV
 - d. Glass Lined: GL
 - e. Polyethylene Wrap: PE
 - f. Protecto 401 Ceramic Epoxy: CE
 - g. T-Lock: TL
 - h. Painting: P (Painted per Section 09900)
4. Joint Abbreviations:
 - a. Bell and Spigot: BS
 - b. Butt Wrapped: BW
 - c. Flanged: FL
 - d. Mechanical Joint: MJ
 - e. Soldered: SD
 - f. Solvent Welded: SW
 - g. Welded: W

BURIED PIPING SCHEDULE

Service	Material	Interior Lining	Exterior Coating	Pressure Class	Joint	Test Pressure (psig)
Potable Water (Up to 12-inch Diameter)	DIP	CML	BC,PE	350	MJ/BS	200
Potable Water (Larger than 12-inch Diameter)	DIP	CML	BC,PE	250	MJ/BS	188
Potable Water (Less than 2-inch Diameter)	COP	N/A	PE	350	SD	200
Sanitary Sewer	ASTM C700 VCP	N/A	N/A	Extra Strength	BS	3.5

++ END OF SECTION ++

SECTION 15061
DUCTILE IRON PIPE

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Scope:
 - 1. CONTRACTOR shall provide all labor, materials, equipment, and incidentals as shown, specified, and required to furnish and install ductile iron pipe and fittings.
 - 2. The extent of ductile iron pipe to be furnished is shown on the Drawings and in the schedules included in Section 15051, Buried Piping Installation.
- B. Definition: Where cast iron pipe is specified, the term and symbol shall mean ductile iron pipe.
- C. Related Work Specified Elsewhere:
 - 1. Section 11295, Hydraulic Valves.
 - 2. Section 15050, Piping Systems.
 - 3. Section 15051, Buried Piping Installation.

1.2 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Manufacturer shall have a minimum of five years of experience in the production of ductile iron pipe and fittings and shall show evidence of satisfactory service in at least five installations.
- B. Unless otherwise specified, references to documents shall mean the documents in effect at the time of Advertisement for Bids or Invitation to Bid (or on the effective date of the Agreement if there were no Bids). If referenced documents have been discontinued by the issuing organization, references to those documents shall mean the replacement documents issued or otherwise identified by that organization or, if there are no replacement documents, the last version of the document before it was discontinued. Where document dates are given in the following listing, references to those documents shall mean the specific document version associated with that date, whether or not the document has been superseded by a version with a later date, discontinued, or replaced.
 - 1. ANSI B16.1 - Cast Iron Pipe Flanges and Flanged Fittings Class 25, 125, 250, and 800.
 - 2. ANSI B16.5 - Pipe Flanges and Flanged Fittings.
 - 3. ASTM C150 - Portland Cement.
 - 4. AWWA C104 (ANSI A21.4) - Cement Mortar Lining for Ductile Iron and Gray Iron Pipe and Fittings for Water.

5. AWWA C105 (ANSI A21.5) - Polyethylene Encasement for Ductile Iron Piping for Water and Other Liquids.
6. AWWA C110 (ANSI A21.10) - Ductile Iron and Gray Iron Fittings, 3" Through 48", for Water and Other Liquids.
7. AWWA C111 (ANSI A21.11) - Rubber Gasket Joints for Ductile Iron and Gray Iron Pressure Pipe and Fittings.
8. AWWA C115 (ANSI A21.15) - Flanged Ductile Iron and Gray Iron Pipe with Threaded Flanges.
9. AWWA C150 (ANSI A21.50) - Thickness Design of Ductile Iron Pipe.
10. AWWA C151 (ANSI A21.51) - Ductile Iron Pipe, Centrifugally Cast, in Metal Molds or Sand-Lined Molds, for Water or Other Liquids.
11. AWWA C153 (ANSI A21.53) - Ductile Iron Compact Fittings, 3" Through 12" for Water and Other Liquids.
12. AWWA C600 - Installation of Ductile Iron Water Mains and Their Appurtenances.
13. AWWA C606 - Grooved and Shouldered Type Joints.
14. MAG - Uniform Standard Specifications and Details for Public Work Construction.
15. City of Chandler Unified Standard Specifications.

1.3 SUBMITTALS

- A. Shall be in accordance with Section 15050, Piping Systems, submittal information.
- B. Each Shop Drawing submittal shall include a copy of the relevant Specification Section. Each and every paragraph of the Specification Section shall be clearly marked to indicate whether the requirements for equipment and/or services in the Specification Section are met. If clarifications are needed to any of the paragraphs in the Specification Section, they shall be addressed next to the paragraph or in an attached letter as such and explained further with any additional information necessary. If any exceptions and/or deviations are proposed to any of the Specifications, they shall be clearly noted as such in the submittal, and an explanation of any deviation and/or exception shall be provided. The CONTRACTOR shall furnish equipment and/or services as specified if an exception and/or deviation is rejected.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Pipe design, materials, and manufacturer shall comply with the following documents:

ITEM	DOCUMENT
Thickness Design	AWWA C150
Manufacturing Requirements: Water or Other Liquid	AWWA C151
Gravity Service Pipe	ASTM A716
Joints: Rubber Gasket Threaded Flange	AWWA C111 AWWA C115
Fittings: Water or Other Liquid	AWWA C110/AWWA C153
Cement Mortar Lining	AWWA C104
Polyethylene Encasement	AWWA C105

2.2 PIPE

- A. Unless otherwise specified, ductile iron pipe shall be Pressure Class 350 for below ground installations and Special Thickness Class 53 for above ground.
- B. For grooved end pipe or flanged end, wall thickness shall be minimum Class 53, except where the specified pressure requires heavier pipe.
- C. All ductile iron pipes shall conform to the requirements of MAG Standard Specification Section 750 "Iron Water Pipe and Fittings."
- D. All ductile iron pipes shall be manufacturers as listed within the City of Chandler Approved Product List.

2.3 GASKETS

- A. Unless otherwise specified, gasket stock shall be a synthetic rubber compound in which the elastomer is nitrile or neoprene.
- B. The compound shall contain not less than 50% by volume nitrile or neoprene and shall be free from factice, reclaimed rubber, and other deleterious substances.
- C. Gaskets shall comply with AWWA C111 for push-on and mechanical joints, and with AWWA C606 for grooved end joints.
- D. For high temperature gaskets refer to section 15050, Piping Systems.

2.4 FITTINGS

- A. Parent pipe and branch outlets shall be centrifugally cast ductile iron pipe designed in accordance with ANSI/AWWA C150/A21.50 and manufactured in accordance with ANSI/AWWA C151/A21.51. Minimum class shall be Thickness Class 53.

- B. Ends shall be flanged, restrained mechanical joint, or restrained push-on to suit the condition specified, except for transmission mains where indicated otherwise on the Drawings.
- C. The AWWA C153 compact ductile iron fittings in sizes 3-inches through 12-inches are an acceptable substitute for standard fittings, unless otherwise specified.
- D. Long radius elbows shall be provided where specified.
- E. Welded-on outlets shall be limited to branch outlets having a nominal diameter less than 70% of the nominal diameter of the main line pipe (maximum size of 30-inches). Welded-on outlets may be provided for tees, tangential outlets, or lateral outlets fabricated at a specific angle to the main line pipe as shown on the Drawings. Welded-on outlets shall be fabricated by the pipe manufacturer at the same facility where the pipe is produced. The pipe cement mortar lining shall only be applied or repaired after the outlet has been welded on at the manufacturing facilities where the pipe is produced. The pipe manufacturer shall have a minimum of five years experience in the fabrication and testing of outlets of similar size and configuration as shown on the Drawings or specified herein.
- F. Weldment for welded-on outlets shall be based on the method described in Section VII of the ASME Unified Pressure Vessel Code. Reinforcing welds shall be placed using Ni-Rod FC 55 cored wire or Ni-Rod 55 electrodes manufactured by INCO Alloys (or an electrode with equivalent performance properties). Carbon steel electrodes are not acceptable.
- G. All ductile iron pipe fittings shall be as manufactured by the same manufacturer as the ductile iron pipe.

2.5 JOINTS

- A. Push-On Joints:
 - 1. Push-on joints shall be the rubber ring compression type suitable for buried service. Unrestrained push-on joints shall be Fastite Joint as manufactured by American Cast Iron Pipe Company, the Tyton Joint as manufactured by U.S. Pipe, or equal. This joint is not permitted on fittings or specials, unless otherwise specified. Push-on joints shall have an allowable deflection of up to 5 degrees at specified pressures. Joint assembly and field cuts shall be made in strict conformance with AWWA C600 and pipe manufacturer's recommendations.
- B. Flange Assemblies:
 - 1. Unless otherwise specified, flanges shall be ductile iron and shall be threaded-on flanges conforming to ANSI/AWWA A21.15/C115 or cast-on flanges conforming ANSI/AWWA A21.10/C110.
 - 2. Flanges shall be adequate for 250 psi working pressure.
 - 3. Bolt circle and bolt holes shall match those of ANSI B16.1, Class 125 flanges and ANSI B16.5, Class 150 flanges.

4. Where specified, flanges shall be threaded-on or cast-on flanges conforming to ANSI B16.1, Class 250.
 5. Unless otherwise specified, bolts and nuts for flange assemblies shall conform with the requirements of Section 15120, Piping Specialties and Accessories. Gaskets shall be as specified with the requirements of Section 15120, Piping Specialties and Accessories.
- C. Mechanical Joints:
1. Where specified, restrained mechanical joints shall be the positive restraint type. Mechanical joints with retainer glands are not acceptable.
 2. Locked mechanical hydrant tees, bends, and adapters are an acceptable substitute for anchoring fire hydrants and valves to the pipe main.
- D. Restrained Joints:
1. Unless otherwise specified, restrained joints shall be flanged or grooved end for exposed service and push-on or grooved end for buried service. Restrained pipe shall be applied the entire length of pipe as shown on the Construction Drawings.
 2. Restrained joints for pipe and fittings shall be as listed within City of Chandler Approved Product List.
 3. Restrained joints shall be capable of being deflected after full assembly.
 4. Joint assembly shall be in strict conformance with AWWA C600 and manufacturer's recommendations.
 5. No field cuts of restrained pipe are permitted without prior approval of the Construction Manager.
- E. Bolts and Nuts:
1. Corrosion-resistant bolts and nuts for use with ductile iron joints shall be high-strength, low-alloy steel as specified in ANSI/AWWA C111/A21.11.
 2. Below grade installations require type 316 stainless steel.

2.6 PIPE COATING

- A. Unless otherwise specified, pipe and fittings shall be coated with asphaltic material as specified in AWWA C151.
- B. Polyethylene Encasement:
1. All buried ductile iron pipe and fittings shall be wrapped with polyethylene film in tube form as specified in AWWA C105 and MAG Section 610.

2.7 PIPE LINING

- A. Cement mortar lining.
- B. Unless otherwise specified, interior surfaces of pipe and fittings shall be cement mortar lined in accordance with AWWA C104.

- C. Cement shall be ASTM C150, Type II or V, low alkali, containing less than 0.60% alkalies.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General:
 - 1. Piping runs specified on the Drawings shall be followed as closely as possible. Proposed deviations shall be submitted in accordance with Section 01300, Submittals.
 - 2. Pipe shall be installed in accordance with AWWA C600 and MAG Section 610.
- B. Insulating Sections:
 - 1. Where a metallic non-ferrous pipe or appurtenance is connected to ferrous pipe or appurtenance, an insulating section shall be provide.
- C. Anchorage:
 - 1. Anchorage shall be provided as specified. Calculations and Drawings for proposed alternative anchorage shall be submitted in accordance with Section 01300, Submittals.

3.2 ACCEPTANCE TESTING

- A. Hydrostatic pressure tests shall be conducted in accordance with Section 4 of AWWA C600, except that test pressures and allowable leakage shall be as listed in Section 15050, Piping Systems.
- B. The CONTRACTOR shall conduct the tests in the presence of the CONSTRUCTION MANAGER and/or OWNER.
- C. All welded-on outlets shall be rated for a working pressure of 250 psi and must have a minimum safety factor of 2.0 based on proof of design hydrostatic test results.
- D. Prior to the application of any coating or lining in the outlet area all weldments for branch outlets to be supplied on this project shall be subject to an air pressure test of at least 15 psi. Air leakage is not acceptable. Any leakage shall be detected by applying an appropriate soapy water solution to the entire exterior surface of the weldment and adjoining pipe edges or by immersing the entire area in a vessel of water and visually inspecting the weld surface for the presence of air bubbles. Any weldment that shows signs of visible leakage shall be repaired and retested in accordance with the manufacturer's written procedures.

3.3 POLYETHYLENE TUBE

- A. Polyethylene encasement shall be used on all buried ductile iron pipe, unless otherwise specified. Installation of polyethylene shall be as specified in MAG Section 610 and these Specifications. Pipe, fittings, valves, and couplings shall be wrapped. Fittings that require concrete backing shall be wrapped prior to placing the concrete.
- B. The polyethylene tube seams and overlaps shall be wrapped and held in place by means of a 2-inch wide plastic backed adhesive tape. The tape shall be Polyken No. 900 (polyethylene), Scotchwrap No. 50 (polyvinyl), or equal. The tape shall be such that the adhesive shall bond securely to both metal surfaces and polyethylene film. Bedding and initial backfill for polyethylene wrapped pipe shall be a well-graded granular material which will not cut or damage the polyethylene tube during placement and backfilling. Sharp angular material over 0.5-inches shall not be used with polyethylene encasement.

++ END OF SECTION ++

SECTION 15064

COPPER PIPE

PART 1 - GENERAL

1.1 DESCRIPTION

A. Scope:

1. CONTRACTOR shall provide all labor, materials, equipment and incidentals, as shown, specified, and required to furnish and install copper pipe and fittings.
2. The extent of copper pipe is shown and specified in the schedules included in Sections 15051, Buried Piping Installation.
3. All jointing materials, end caps, and other appurtenances and accessories shall be provided.
4. It is the intent of the Contract Documents to provide complete and workable piping systems. Any supplementary fittings and appurtenances required for proper completion of the Work shall be considered as having been included under this Section.

B. Related Sections:

1. Section 15051, Buried Piping Installation.

1.2 QUALITY ASSURANCE

A. Manufacturer's Qualifications:

1. Manufacturer shall have a minimum of five years of experience in the production of copper pipe and fittings, and shall show evidence of satisfactory service in at least five installations.
2. Each type of pipe and fitting shall be obtained from no more than one manufacturer.

B. Requirements of Regulatory Agencies: Comply with the applicable provisions of the following regulatory agencies, where applicable:

1. Underwriters' Laboratories, Inc.
2. National Fire Protection Association.
3. ASME, Boiler and Pressure Vessel Code.
4. State and Local Building Codes and Ordinances.
5. Uniform Plumbing Code.

C. Reference Standards: Comply with applicable provisions and recommendations of the following, except as otherwise shown or specified.

1. ANSI B16.22, Wrought Copper and Copper Alloy Solder Joint Pressure Fittings.
2. ANSI B16.26, Cast Copper Alloy Fittings for Flared Copper Tubes.

3. ASTM B32, Specification for Solder Metal.
 4. ASTM B42, Specification for Standard Size Seamless Copper Pipe.
 5. ASTM B68, Specification for Bright Annealed Seamless Copper Tube.
 6. ASTM B75, Specification for Seamless Copper Tube.
 7. ASTM B88, Specification for Seamless Copper Water Tube.
 8. ASTM B280, Specification for Seamless Copper Tube for Air-Conditioning and Refrigeration Field Service.
 9. ASTM B302, Specification for Threadless Copper Pipe.
 10. ASTM B306, Specification for Copper Drainage Tube (DWV).
- D. Inspection: The quality of all materials provided and adequacy of installation shall be subject to the review and approval of the CONSTRUCTION MANAGER.

1.3 SUBMITTALS

- A. Shop Drawings: Submit for approval the following:
1. Detailed drawings and data on pipe fittings and appurtenances. Submit these with Shop Drawings required under Section 15051, Buried Piping Installation.
- B. Certificates: Where specified or otherwise required by the CONSTRUCTION MANAGER, submit test certificates. Submit Certificates of Compliance with referenced standards.
- C. Each Shop Drawing submittal shall include a hard copy of the relevant Specification Section. Each and every paragraph of the Specification Section shall be clearly marked to indicate whether the requirements for equipment and/or services in the Specification Section are met. If clarifications are needed to any of the paragraphs in the Specification Section, they shall be addressed next to the paragraph or in an attached letter as such and explained further with any additional information necessary. If any exceptions and/or deviations are proposed to any of the Specifications, they shall be clearly noted as such in the submittal, and an explanation of any deviation and/or exception shall be provided. The CONTRACTOR shall furnish equipment and/or services as specified if an exception and/or deviation is rejected.

1.4 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Refer to Section 15051, Buried Piping Installation.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Threadless Copper Pipe: Pipe shall be assembled with brazing-joint pipe fittings. Material shall conform to ASTM B302.
- B. Couplings and Fittings for Copper Tubing:
 - 1. Unless otherwise specified, couplings for copper tubing 2-inch and smaller nominal diameter shall be compression type, bronze or brass, capable of holding the full bursting strength of the tubing and shall meet the requirements of ANSI B16.26.
 - 2. Product and Manufacturer: Provide fittings and couplings for copper tubing by one of the following:
 - a. Swagelok.
 - b. Gyrolok.
 - c. Or equal.
- C. No galvanized pipe or fittings shall be used for this installation.

2.2 JOINTING

- A. Reclaimed water piping shall be assembled with soldered type joints. Fittings shall conform to ANSI B 16.22, Wrought Copper and Copper Alloy Solder Joint Pressure Fittings.
- B. Soldered joints shall be 95-5 tin-antimony solder, conforming to ASTM B32.
- C. All joints shall conform to manufacturer's recommendations and shall be made by skilled workmen.
- D. Joints shall develop full strength and shall be greater than the pipe joined.

2.3 MARKING

- A. All items shall be marked or labeled with the following information:
 - 1. Metal or alloy designation.
 - 2. Temper.
 - 3. Size and schedule.
 - 4. ASTM specification number.
 - 5. Name and location of supplier.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Refer to Section 15051, Buried Piping Installation, for installation, testing and cleaning.
- B. Dielectric Protection: Copper tubing or fittings shall not be permitted to come in contact with steel piping, reinforcing steel, or other steel at any location. Electrical checks shall be made to ensure no contact is made between copper tubing and steel elements. Wherever electrical contact is demonstrated by such test, CONTRACTOR shall provide dielectric protection as specified in Section 15120, Piping Specialties and Accessories.
- C. All copper piping being buried shall be provided with a protective covering or wrapping such as polyethylene wrap as specified in MAG Section 610.6 – Polyethylene Corrosion Protection.

++ END OF SECTION ++

SECTION 15067

VITRIFIED CLAY PIPE

PART 1 - GENERAL

1.1 SUMMARY

- A. CONTRACTOR shall provide all labor, materials, equipment, and incidentals as shown on the plans, specified and required to furnish and install vitrified clay pipe, fittings and appurtenances.
- B. Any pipe, which does not meet specifications or has been rejected, shall be removed from the job site at no cost to the owner.
- C. The extent of vitrified clay pipe is shown within the Drawings and in the schedules included in Section 15051, Buried Piping Installation.

1.2 SECTION INCLUDES

- A. Vitrified Clay Pipe (VCP).

1.3 RELATED SECTIONS

- A. Section 15050, Piping Systems.
- B. Section 15051, Buried Piping Installation.

1.4 REFERENCES

- A. National Clay Pipe Institute (NCPI) Engineering Manual
- B. ASTM C12 – Standard Practice for Installing Vitrified Clay Pipe
- C. ASTM C301 – Test Methods for Vitrified Clay Pipe
- D. ASTM C425 – Compression Joints for Vitrified Clay Pipe and Fittings
- E. ASTM C700 – Vitrified Clay Pipe, Extra Strength, Standard Strength, and Perforated
- F. ASTM C828 – Test Method for Low-Pressure Air Test of Vitrified Clay Pipe Lines
- G. ASTM C896 – Terminology Relating to Clay Products
- H. ASTM C1091 – Test Method for Hydrostatic Infiltration Testing of Vitrified Clay Pipe Lines

1.5 SUBMITTAL

- A. Shop Drawings: Submit for approval the following:
 - 1. Detailed drawings and data on pipe, fittings, gaskets, and appurtenances. Submit these with Shop Drawings required under Section 15051, Buried Piping Installation.
- B. The manufacturer shall submit design calculations to the ENGINEER. The design calculations shall be signed and sealed by a Registered Professional Engineer licensed in the State of Arizona. The design calculations shall indicate that the pipe wall thickness will be satisfactory for all conditions of external pressure and earth loadings, special physical loadings, and internal pressure.
- C. Certificates: Submit certificates of compliance with referenced standards.
- D. Also shall be in accordance with Section 15050, Piping Systems submittal information.

1.6 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Refer to Section 15051, Buried Piping Installation.
- B. Refer to Manufacturer's recommendations.

PART 2 - PRODUCTS

2.1 SERVICE CONDITIONS

- A. General:
 - 1. Pipe shall be designed for an external live loading, including impact, equal to AASHTO, H-20 truck loading with earth cover as shown on the Drawings. The external loading shall be calculated in accordance with the National Clay Pipe Institute (NCPI) Engineering Manual and as modified in accordance with the City of Chandler Standard Specifications.
- B. Service Conditions:
 - 1. Liquid Service: (Refer to Section 15051, Buried Piping).
 - 2. Pipe overburden and trench bedding condition: Refer to Drawings.
 - 3. Pipe should be able to attain the full design life of the pipe when surrounding earth is at a continuous temperature of up to 90°C.

2.2 MATERIALS

- A. All materials used in the manufacturing of the piping and its components shall be new and of the best quality used for the purpose of commercial practice.

2.3 VITRIFIED CLAY PIPE (VCP) AND FITTINGS

A. General:

1. All VCP and fittings shall be suitable for use as a gravity sewer conduit. VCP shall be Extra Strength Vitrified Clay Pipe conforming to all the requirements of ASTM C700 and MAG Specifications Section 743.
2. Fittings shall be made to such dimensions as will accommodate the joint system specified. Wye and Tee branch fittings shall be furnished with spurs securely fastened by the manufacturer to the barrel of the fitting. There shall be no projection on the inner surface of the barrel.
3. Joints for vitrified clay pipe and fittings shall be factory applied, mechanical, flexible-compression type and shall conform to ASTM C425 – Compression Joints for Vitrified Clay Pipe and Fittings. Clay pipe joint material must be polyurethane. The polyurethane joint must be a standard joint for the pipe manufacturer furnishing pipe on this project for a minimum of five years for all pipe sizes specified. The polyurethane joint must meet all requirements of ASTM C425.
 - a. Rubber couplings used for mainline connections or reconnecting services shall be a stainless steel shielded rubber coupling. Gasket to meet ASTM C-425-91 Table 2. Shear ring to be Series 300 stainless steel with a minimum thickness of .012". Tightening bands shall be Series 316 stainless steel with stainless steel nut and bolt tightening clamps. Shear ring and clamps to meet all requirements of ASTM A-240-94A.
4. All pipe load tested shall be loaded to the ultimate limit. The load test is destructive and any pipe section tested shall be rejected from installation.

PART 3 - EXECUTION

3.1 TRENCHING, BACKFILLING, AND SUBGRADE PREPARATION

- A. Trenching, backfilling, and sub-grade preparation shall conform to MAG Specifications Section 601 and 615, and the City of Chandler Wastewater Technical Design Manual. Bury depth shall be as shown in the Plans.
- B. Sheet, shore, and brace trenches, as necessary, to prevent caving or sliding of trench walls, to provide protection for workmen and the pipe, and to protect adjacent structures and facilities.
- C. Where solid timber sheeting is driven to a level below the top of pipe, it should not be removed after the pipe has been installed. The sheeting may be cut off at the level of the top of the pipe.
- D. If a movable shield is used, it is imperative that pipe already laid be securely blocked or braced to prevent opening of pipe joints when the shield is advanced in the trench.

- E. The bedding shall be placed on a flat undisturbed or restored trench bottom with a minimum thickness beneath the pipe barrel of 6 inches or one eighth of the outside diameter of the pipe, whichever is greater. "Carefully placed material" shall be sliced in the haunches of the pipe with a flattened shovel or other suitable tool.
- F. Pipe barrel shall be placed so that it is true to line and grade and to provide uniform and continuous support.
- G. A foundation may be required if soft, spongy, unstable, or other similar material is encountered upon which bedding material or pipe is to be placed. Unstable material shall be removed to a depth ordered by the Engineer and replaced with foundation material suitably densified.

3.2 TESTING

- A. The CONTRACTOR shall be responsible for testing all pipelines. All testing shall be performed in the presence of the CONSTRUCTION MANAGER and conform to the following paragraphs.
- B. After installation, backfilling, compaction, cleaning and before paving, acceptance testing shall be performed by low pressure air testing.
- C. Air Testing
 - a. Testing shall be performed by the low pressure air test method conforming to ASTM C828 - Standard Test Method for Low Pressure Air Test of Vitrified Clay Pipe or per MAG Standard Specification 611.4.

Table 1
Minimum Test Time for Various Pipe Sizes

Nominal Pipe Size, in.	T (time) min/100 ft	Nominal Pipe Size, in.	T (time) min/100 ft
4	0.3	24	3.6
6	0.7	27	4.2
8	1.2	30	4.8
10	1.5	33	5.4
12	1.8	36	6.0
15	2.1	39	6.6
18	2.4	42	7.3
21	3.0		

Lines which fail any testing will be evaluated, repaired/replaced and retested for compliance with these specifications and the cost of any re-testing shall be borne by the contractor.

D. Pressure testing for Gravity Pipe:

1. Shall be in accordance with Section 15050, Piping Systems.

++ END OF SECTION ++

SECTION 15120

PIPING SPECIALTIES AND ACCESSORIES

PART 1 - GENERAL

1.1 DESCRIPTION

A. Scope:

1. CONTRACTOR shall provide all labor, materials, equipment, and incidentals as shown, specified, and required to furnish and install all piping specialties and accessories. Included, but not limited to, are flexible couplings, mechanical couplings, flanged adapters, expansion joints, saddle taps.

B. Related Work Specified Elsewhere:

1. Division 15, Mechanical, Sections on piping and piping systems.

1.2 QUALITY ASSURANCE

A. Manufacturer's Qualifications:

1. Manufacturer shall have a minimum of five years of experience in the production of substantially similar types of piping specialties specified and shall show evidence of satisfactory service in at least five installations.
2. Each type of piping specialty and accessory shall be the product of one manufacturer.

1.3 SUBMITTALS

- A. Descriptive submittals shall be made in accordance with Section 01300, Submittals.
- B. Coordinate these with Shop Drawings required for the piping systems.
- C. Each Shop Drawing submittal shall include a copy of the relevant Specification Section. Each and every paragraph of the Specification Section shall be clearly marked to indicate whether the requirements for equipment and/or services in the Specification Section are met. If clarifications are needed to any of the paragraphs in the Specification Section, they shall be addressed next to the paragraph or in an attached letter as such and explained further with any additional information necessary. If any exceptions and/or deviations are proposed to any of the Specifications, they shall be clearly noted as such in the submittal, and an explanation of any deviation and/or exception shall be provided. The CONTRACTOR shall furnish equipment and/or services as specified if an exception and/or deviation is rejected.

1.4 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Refer to Division 15, Mechanical, Sections on piping and piping systems.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Couplings: Unless otherwise specified, piping 2-inches in diameter and larger passing from concrete to earth shall be provided with two pipe couplings or flexible joints as specified within 2 feet or one pipe diameter of the structure, whichever is greater.
 - 1. Below-Grade Restrained Type Coupling:
 - a. Pressure and Service: Same as connected piping.
 - b. Material: ASTM A536 Ductile Iron.
 - c. Gasket: Suitable for water service and specification 15050.
 - d. Bolts and Nuts: Type 316 stainless steel bolts and nuts.
 - e. Product and Manufacturer:
 - 1) Per City of Chandler Approved Product List
 - 2) No approved equal.
 - 2. Sleeve Type, Couplings:
 - a. Pressure and Service: Same as connected piping.
 - b. Material: Carbon steel for carbon steel and exposed ductile iron piping systems, or stainless steel for stainless steel and buried or submerged ductile iron piping systems.
 - c. Gasket: Suitable for water service – NSF 61 Certified and specification 15050.
 - d. Bolts and Nuts: Alloy steel, corrosion-resistant, prime coated. Buried couplings shall have Type 316 stainless steel bolts and nuts.
 - e. Harnessing:
 - 1) Harness couplings to restrain pressure piping. Test pressures for pressure pipelines shall conform to the requirements of Section 15050, Piping Systems.
 - 2) Adjacent flanges shall be tied with bolts of corrosion resistant alloy steel. Provide flange mounted stretcher bolt plates as shown on the Drawings and to be designed by manufacturer, unless otherwise approved by the ENGINEER.
 - 3) Conform to dimensions, size, spacing and materials for lugs, bolts, washers and nuts as recommended by manufacturer and approved by ENGINEER for the pipe size, wall thickness and test pressure required. However, the following minimum bolting shall be provided, unless otherwise approved by the ENGINEER.

<u>Pipe Diameter (Inches)</u>	<u>Number of Bolts</u>	<u>Bolt Diameter (Inches)</u>	<u>At (Degrees)</u>
4	2	5/8	180
6-8	2	3/4	180
10-12	2	7/8	180 or 250
14-20	4	1	190
24-48	4	1	90
54	4	1	250
60	4	1-1/4	90

- f. Remove pipe stop, unless otherwise shown on the Drawings or specified.
- g. Product and Manufacturer: Provide one of the following:
 - 1) Type 501, Romac Industries.
 - 2) Or equal.
3. Flanged Adapters:
 - a. Description: One end of adapter shall be flanged and the other end shall have a sleeve type flexible coupling.
 - b. Pressure and Service: Same as connected piping.
 - c. Material: Cast iron or steel.
 - d. Gasket: Suitable for water service, and specification 15050.
 - e. Bolts and Nuts: Type 316 stainless steel.
 - f. Harnessing:
 - 1) Harness adapters to restrain pressure piping. Test pressures for pressure pipe lines are included in the piping schedules in Section 15051, Buried Piping Installation.
 - 2) For adapters 12-inch diameter and less, provide 1/2-inch minimum stainless steel anchor studs installed in a pressure tight anchor boss. Provide number of studs required to restrain test pressure and service conditions. Harness shall be as designed and recommended by manufacturer; however, the following minimum anchor studs shall be provided, unless otherwise approved by ENGINEER.
 - a) 6-inch Diameter and Less: Two.
 - b) 8-inch Diameter and Less: Four.
 - c) 10-inch Diameter and Less: Six.
 - d) 12-inch Diameter and Less: Eight.
 - 3) For adapters larger than 12-inch diameter, provide split-ring harness clamps with a minimum of four Type 316 stainless steel bolts. Harness assembly shall be as designed and recommended by manufacturer. Dimensions, sizes, spacing, and materials shall be suitable for service and conditions encountered and shall be approved by ENGINEER.
 - 4) Harness couplings to restrain pressure piping.
 - 5) Test pressures for pressure pipe lines are included in Section 15051, Buried Piping Installation.

- 6) Harnessing shall conform to the details shown on the Drawings.
- g. Product and Manufacturer: Provide one of the following:
 - 1) Style FCA501, as manufactured by Romac Industries.
 - 2) Style 128, as manufactured by Dresser.
 - 3) Or approved equal.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install piping specialties and accessories in accordance with manufacturer's instructions.
- B. Make adjustments to expansion joints as required to ensure that they will be fully extended when the ambient temperature is at minimum operating temperature and fully compressed at maximum operating temperature for the system in which they are installed.

++ END OF SECTION ++