

**CITY OF SOUTH SALT LAKE
DOWNTOWN SEWER IMPROVEMENTS AND DOWNTOWN SEWER PUMPING STATION**

**DOCUMENT 00 90 00.1
ADDENDUM NO. 1**

PART 1 - GENERAL

- A. Receipt of this Addendum must be acknowledged by indicating acknowledgement on Document 00 40 00 Bid.

1.1 DOCUMENT INCLUDES

- A. Changes to the Bid Documents.
- B. Changes to Contract Drawings.

1.2 CONSTRUCTION CONTRACT

- A. The Construction Contract is known as: **DOWNTOWN SEWER IMPROVEMENTS AND DOWNTOWN SEWER PUMPING STATION**
- B. Date of this Addendum: May 8, 2024.

1.3 PRE-BID CONFERENCE NOTE

- A. The Pre-Bid Conference Notes and Attendance List are attached.

1.4 ADDITIONAL INFORMATION

- A. The stack sheets for the manholes already procured by the City for the work in West Temple are attached.

PART 2 – CHANGES

2.1 CHANGES TO PRIOR ADDENDA

- A. NONE

2.2 CHANGES TO INTRODUCTORY INFORMATION

- A. Section 00 00 30 - Replace Section 00 00 30 with the attached new Section 00 00 30. Section 33 05 11 has been added to the Table of Contents.

2.3 CHANGES TO BIDDING REQUIREMENTS

- A. Section 00 10 00 - Replace Section 00 10 00 with the attached new Section 00 10 00.
 - i. The Bid Opening date in Part 1.2 has been changed to **Wednesday, June 5, 2024**. The time, location and meeting details are not changed.
 - ii. The Substantial Completion date for all phases in Part 1.6 has been extended to May 31, 2026.

2.4 CHANGES TO AGREEMENT AND OTHER CONTRACT FORMS

A. NONE

2.5 CHANGES TO CONDITIONS OF THE CONTRACT

A. NONE

2.6 CHANGES TO SPECIFICATIONS

A. Replace Section 31 23 15 with the attached. Part 2.1.B is modified to include HDPE pipe.

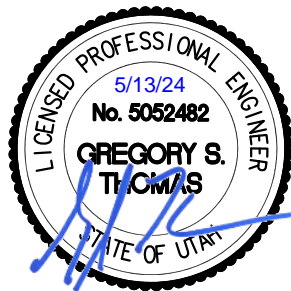
B. Add Section 33 05 11, HDPE Pipe.

2.7 CHANGES TO CONTRACT DRAWINGS

A. NONE.

THIS ADDENDUM IS HEREBY ATTACHED TO AND MADE A PART OF THE CONTRACT DOCUMENTS, AND EACH BIDDER SHALL ACKNOWLEDGE RECEIPT OF THIS ADDENDUM WITH THE BID.

END OF DOCUMENT 00 90 00.1





MEETING NOTES

MEETING DATE: May 1, 2024, 2:00 PM – 3:00 PM

SUBJECT: South Salt Lake Downtown Sewer Improvements and Downtown Sewer Pumping Station
Mandatory Pre-Bid Meeting

PROJECT NO.: 126.42.200

ATTENDEES: Chris Merket, City of South Salt Lake
Ed Rufener, City of South Salt Lake
Jason Taylor, City of South Salt Lake
Ben Vaea, City of South Salt Lake
Craig Giles, City of South Salt Lake
Greg Thomas, Hansen, Allen & Luce
Aaron Spencer, Hansen, Allen & Luce
Drew Wangsgard, Hansen, Allen & Luce
Amalia Andrews, Kimley-Horn
Ed Kluber, Condie Construction
Paul Hunsaker, VanCon
Spencer Mitchell, Newman Construction
Quinn Hanson, Whitaker Construction
Tim Ard, COP Construction
Eric Spackman, Capital Pump & Equipment

NOTES BY: Hansen, Allen & Luce, Inc.

The following meeting notes summarize items discussed related to the Downtown Sewer Improvements and Downtown Sewer Pumping Station during the in-person Pre-Bid Meeting at South Salt Lake City.

1. Table 1 summarizes the contact information for all attendees.

Table 1: Pre-Bid Meeting Attendee Contact Information

Name	Affiliation	Phone	Email Address
Chris Merket	South Salt Lake		
Ed Rufener	South Salt Lake		
Jason Taylor	South Salt Lake		
Ben Vaea	South Salt Lake		
Craig Giles	South Salt Lake		
Ed Kluber	Condie	(801) 205-9623	ekluber@condieconstruction.com

Name	Affiliation	Phone	Email Address
Paul Hunsaker	VanCon	(385) 495-5262	bid@wedigutah.com
Spencer Mitchell	Newman Construction	(801) 254-3524	mdavis@newmanllc.com
Quinn Hanson	Whitaker Construction	(801) 589-6858	quinn@whitcon.com
Tim Ard	COP Construction	(801) 514-3739	tima@copconstruction.com
Eric Spackman	Capital Pump & Equipment	(801) 631-5881	espackman@cpepumps.com

2. Greg Thomas began the meeting with an introduction of South Salt Lake and HAL staff involved in the project.
3. Greg Thomas provided a brief description of the project and outlined the Instruction to Bidders and General Discussion as noted in the Pre-Bid Meeting Agenda included in Appendix A.
4. Greg Thomas noted that all requests for interpretation of the Contract Documents shall be made in writing and delivered to ENGINEER no later than seven (7) calendar days prior to opening of Bids. In ENGINEER’s discretion, ENGINEER will send the written interpretation to all persons receiving a set of Bid Documents in the form of an Addendum. If ENGINEER does not respond to a Bidder’s request for interpretation the Bidder shall comply with the intent and terms of the Contract Documents per Section 00 20 00, Article 2.1. The last day to submit questions is May 29, 2024.

Engineer: Greg Thomas, PE, Hansen, Allen & Luce gthomas@halengineers.com

5. Items below were discussed in further detail and will be included in Addendum 1:
 - a. Bid opening date to change to June 5, 2024 in the invitation to bid.
 - b. Section 31 23 15 that includes HDPE pipe bedding, part 2.1.B, to be provided.
 - c. Section 31 23 11 HDPE pipe to be provided.
 - d. Manhole stack sheets for previously purchased manholes to be provided.
 - e. Contract completion time shall be 24 months to May 31, 2026.
6. Sanitary sewer bypass flows can only be discharged to the South Salt Lake sanitary sewer system.
7. Storage of City supplied items (pipe and manholes) for the West Temple Sewer Improvements is located at approximately 198 W Oakland Ave.
8. No other items were discussed.

APPENDIX A – PRE-BID MEETING AGENDA



CITY OF SOUTH SALT LAKE
DOWNTOWN SEWER IMPROVEMENTS AND DOWNTOWN SEWER PUMPING STATION
MANDATORY PRE-BID MEETING
MAY 1, 2024

INTRODUCTION

City Engineer: Dennis Pay, P.E.
Wastewater Division Manager: Jason Taylor
Designer: Greg Thomas, P.E., Hansen, Allen & Luce, Inc.
Inspector(s): Ed Rufener, Ben Vaea
Public Involvement: Amalia Andrews, Kimley-Horn

BRIEF DESCRIPTION OF THE WORK

Downtown Sewer Improvements: The installation of approximately 2,805-feet of new 48-inch GRFP (or PVC SDR35) and HDPE (IPS) sewer pipeline with manholes along Utopia Avenue; 300-feet east of 300 West To 300 West, 300 West; Utopia Avenue To Andy Avenue, and Andy Avenue; 300 West To Downtown Sewer Pumping Station (2250 South 600 West). The total length of pipe includes replacing existing 30-inch sewers, by-pass pumping, surface restoration, reconnection of service laterals, coordination with UTA, and incidental work to provide a functioning sewer system.

Downtown Sewer Pumping Station: The construction of a new sewer pumping station at 2250 South 600 West with a capacity of 5,100 gallons per minute, wet well, building, electrical, controls, SCADA, storm drainage, commissioning, startup, and site restoration, and incidental work to provide a functioning sewer system.

West Temple Sewer Improvements: The installation of approximately 1,848-feet of new 30-inch GFRP (or PVC SDR35) sewer pipeline with manholes along West Temple Street; 2400 South to Utopia Avenue. The total length of pipe includes replacing existing 18" sewers, by-pass pumping, surface restoration, reconnection of service laterals, coordination with UTA, installing 75-feet of 30-inch pipe with 40-inch new steel casing jack and bored under UTA tracks, and incidental work to provide a functioning sewer system.

INSTRUCTION TO BIDDERS

- A. Contract Time: As per Invitation to Bid Section 00 10 001.6 of the Project Manual – The Project shall be completed by **October 31, 2025**. The Project shall begin upon execution of the Agreement.
- B. Liquidated Damages: As per Agreement Section 00 50 00-2.2 of the Project Manual, the following Liquidated Damages shall apply - If the Project is not completed on schedule, CONTRACTOR agrees to pay CITY **\$2,000.00** as liquidated damages for each day the Project continues beyond the date set forth in Section 00 50 00-2.1 without substantial completion (unless the date is extended by amendment to the Agreement).
- C. Interruption of Public Services: No interruption of public services shall be caused by Contractor, its agents, or employees without Engineer's prior written approval.
- D. Regular Working Hours: 7:30 AM to 5:00 PM, five days per week, Monday through Friday.

- E. Utility Coordination: Contractor is responsible to notify Blue Stakes (801) 208-2100 for all utility locations.
- F. Testing & Certification Requirement: Contractor is required to have their own quality control program, see APWA Section 01 45 00.
- G. Construction Staking: Contractor is responsible for own construction staking and layout.
- H. Measurement & Documentation of Quantities: Coordinate with the City Inspector and field person on site.
- I. Safety: Contractor is responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the work.
- J. Bid Opening: Bid Documents: Section 00 20 00-2.6.C, identifies all forms comprising the bid documents.
- K. Separate sealed bids will be received by the OWNER at the City Recorder's office until 2:00 PM, on **May 17, 2014** at 220 East Morris Avenue, South Salt Lake City, Utah 84115. Bids received after 2:00 PM will not be accepted. Bids will be publicly opened and read by the OWNER.
- L. Bid Bonds required or Certified Check: The bond amount must equal at least 5% percent of the total amount of the bid.
- M. The Bid shall contain an acknowledgement of receipt of all Addenda. The addenda numbers must be filled in on the Bid Form.
- N. Questions: Due May 10, 2024 5:00 PM. Questions received less than seven days prior to the date for opening of Bids may not be answered. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

GENERAL DISCUSSION

- A. All provisions of the 2017 Edition of the Manual of Standard Specifications and Manual of Standard Plans published by the Utah Chapter of the American Public Works Association that are applicable to the Work are hereby made a part of the Contract Documents by reference.
- B. Project includes multiple jurisdictions and entities including UDOT and UTA. Refer to Project Notes on G-3.
- C. Permits: Refer to Section 01 81 00-6.7.
- D. OWNER Obtained Permits:
 - i. UTA General Application.
 - ii. Copies of Permits will be provided to CONTRACTOR.
- E. Limits of Operations, Refer to Drawing Sheet G-005 for additional information:
 - i. West Temple, Utopia Ave., 300 West and 600 West: Maintain two lanes of traffic, maintain business access.
 - ii. Andy Ave.: One, seven-day closure is allowed. Must get County approvals for night work. Must coordinate with Hilti for deliveries during closure.
 - iii. UDOT: Must bypass or maintain storm drain in service while installing conflict box.
 - iv. UTA:
 - a. Contractor must obtain track access permit (fee waived).
 - b. Must submit and follow a rail monitoring plan and contingency plan.
 - c. Work limited to non-revenue hours (midnight to 4 am).
 - d. Railroad liability policy required.
 - e. UTA worker safety certification required.
 - v. Refer to Sheet G-005 for additional requirements.
- F. All work is within public rights-of-way. Additional easements or rights of entry to be obtained by CONTRACTOR.

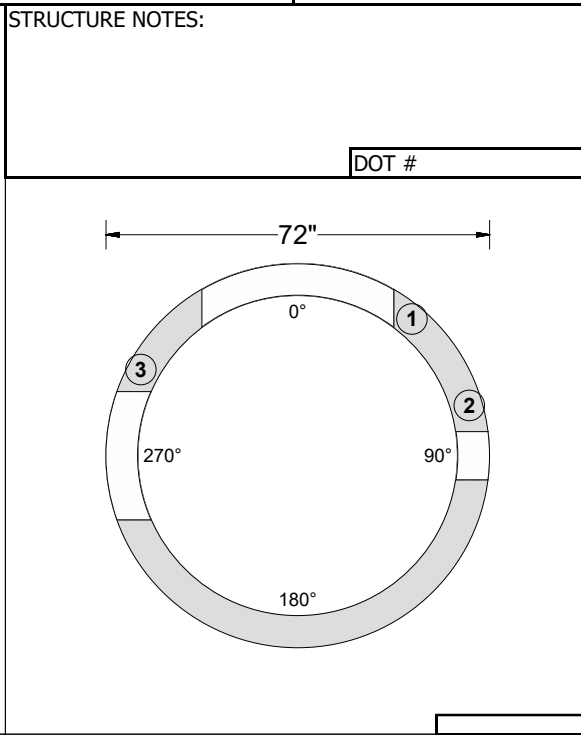
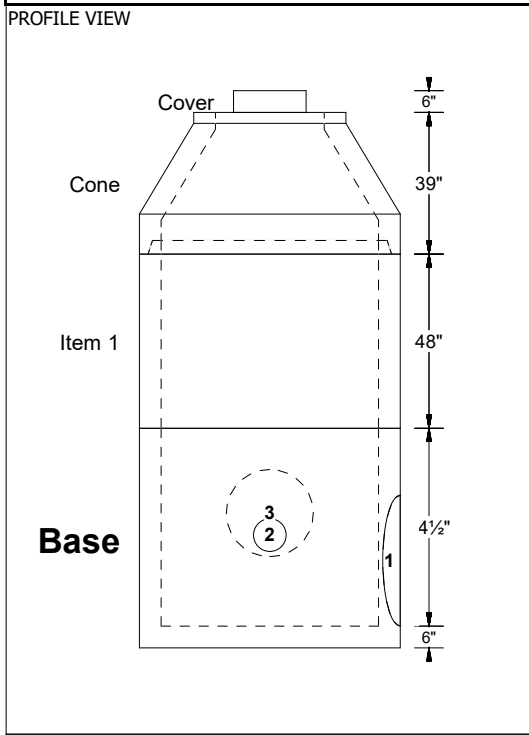
QUESTIONS

SOUTH SALT LAKE
DOWNTOWN SEWER IMPROVEMENTS AND DOWNTOWN SEWER PUMPING STATION
PRE-BID MEETING
MAY 1, 2024

ATTENDANCE

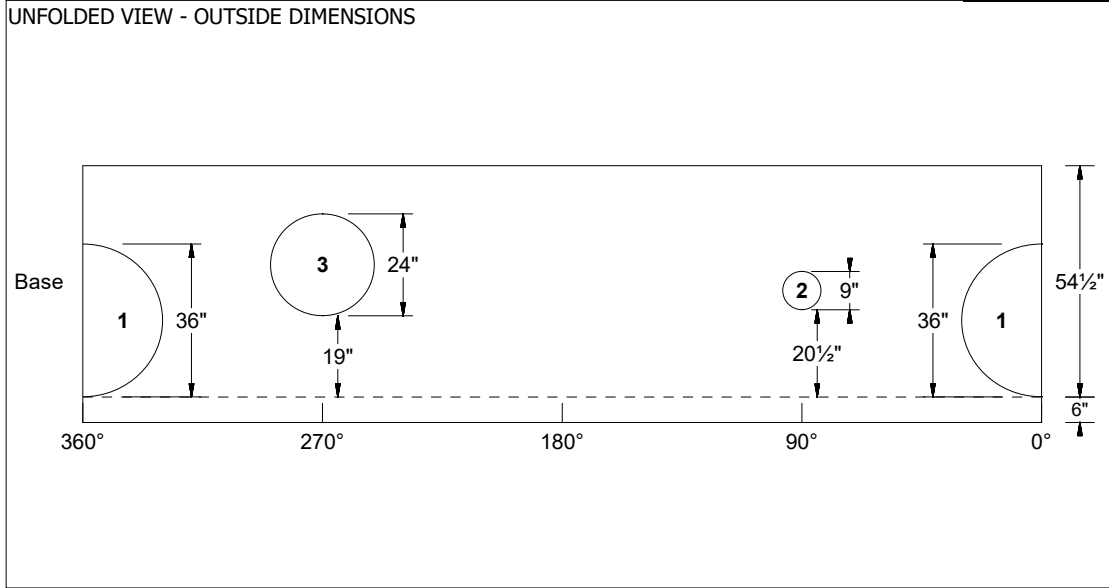
NAME	REPRESENTING	PHONE	EMAIL
Ed Kluber	Condie Construction	801.205.9623	eKluber@condieconstruction.com
Paul Hunsaker	Vanco	385 495 5262	bid@wedigitah.com
Tim Ard	COP Construction	801 514 3739	tima@COPConstruction.com
Quinn Hanson	WHITAKER CONSTRUCTION	801-589-6858	QUINN@WHITCON.COM
Speaker Matthew	NEWMAN CONSTRUCTION	801-254-3524	MDAVIS@NEWMANLLC.COM
Eric Spackman	Capital Pump & Equipment	801-631-5881	espackman@cpepumps.com

Customer:	SILVER SPUR CONSTRUCTION	Item:	Base	Rim:	42.99'
Job Name:	300 EAST AND WEST TEMPLE SEWER IMPROVEMENTS	ProductID:	PMHB60	Invert:	29.89'
Job #:	45350	Description:	60 IN X VAR HEIGHT MONOLITHIC	Rim to Invert:	13.10'
Structure ID:	SMH 220	Weight:	PRECAST BASE x 5.04'	Precast Height:	11.79'
Station:				Overall Height:	13.84'
Type:	5' DIAMETER MANHOLE MONO - SANITARY			Floor Height:	6.00"
SalesPerson:	RANDY TRUJILLO			Wall Thickness:	6.00"
				Sump Height:	.00' Adjustment: 12.62"



Item	Pipe #	Elev.	Angle	Pipe	Hole Type	Over Outside	Up to Center	Hole Height	Hole Width	Pipe ID	Pipe OD
Base	(1)	29.89	0	30 PVC - PS46	MHBT36A	0	24.03	36	36	30.194	32
Base	(2)	31.49	90	6 SDR-35 PVC	BTCAS964	56.55	31.06	9	9	5.91	6.275
Base	(3)	31.49	270	18 CLAY	MHBT24A	169.65	37.12	24	24	18	21.87

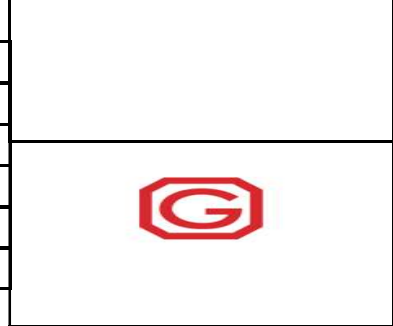
Item	Product ID	Qty	Description	Yards	Weight
Rim	CIR1180	1	A-1180 RING NO NOTCH	0	190
Top 3	MHC60	1	60 IN CONCENTRIC CONE SECTION	1.11	3725
Item 1	MHS60X4	1	60 IN X 4 FT MH SECTION	1.35	5400
Base	PMHB60	1	60 IN X VAR HEIGHT MONOLITHIC PRECAST	2.12	8479
Misc 1	CICSV	1	COVER - SEWER VENTED	0	150
Access.	MHBT24A	1	24A DD BOOT w/ Double 376 Clamp (21 IN P)	0	0
Access.	MHBT36A	1	36A DD BOOT w/ (4) 296 Clamp	0	0
Access.	MHBTCAS964	1	964 CAST A SEAL BOOT w/ Single 128 Clamp	0	0
Access.	MASJT1.25	4	1 1/8in X 3/4in X 14 FT JOINT MASTIC	0	0



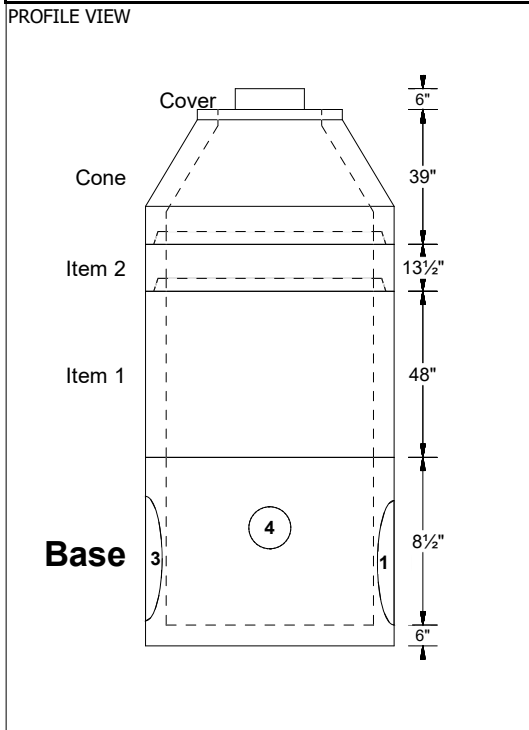
Item	Product ID	Qty	Description	Yards	Weight
Rim	CIR1180	1	A-1180 RING NO NOTCH	0	190
Top 3	MHC60	1	60 IN CONCENTRIC CONE SECTION	1.11	3725
Item 1	MHS60X4	1	60 IN X 4 FT MH SECTION	1.35	5400
Base	PMHB60	1	60 IN X VAR HEIGHT MONOLITHIC PRECAST	2.12	8479
Misc 1	CICSV	1	COVER - SEWER VENTED	0	150
Access.	MHBT24A	1	24A DD BOOT w/ Double 376 Clamp (21 IN P)	0	0
Access.	MHBT36A	1	36A DD BOOT w/ (4) 296 Clamp	0	0
Access.	MHBTCAS964	1	964 CAST A SEAL BOOT w/ Single 128 Clamp	0	0
Access.	MASJT1.25	4	1 1/8in X 3/4in X 14 FT JOINT MASTIC	0	0

CHECK OFF

Engineer/Contractor	
Office Check	
Set Up	
Pre Pour	
Post Pour	
Pre Ship	

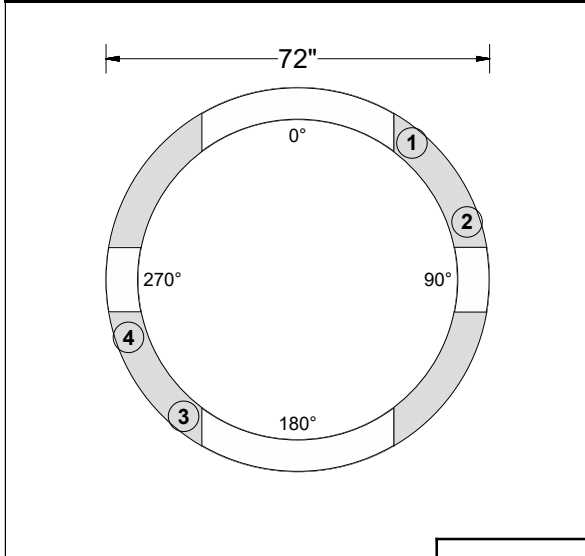


Customer:	SILVER SPUR CONSTRUCTION	Item:	Base	Rim:	43.09'
Job Name:	300 EAST AND WEST TEMPLE SEWER IMPROVEMENTS	ProductID:	PMHB60	Invert:	29.62'
Job #:	45350	Description:	60 IN X VAR HEIGHT MONOLITHIC	Rim to Invert:	13.47'
Structure ID:	SMH 221	Weight:	PRECAST BASE x 4.54'	Precast Height:	12.42'
Station:				Overall Height:	14.21'
Type:	5' DIAMETER MANHOLE MONO - SANITARY			Floor Height:	6.00"
SalesPerson:	RANDY TRUJILLO			Wall Thickness:	6.00"
				Sump Height:	.00' Adjustment: 9.50"



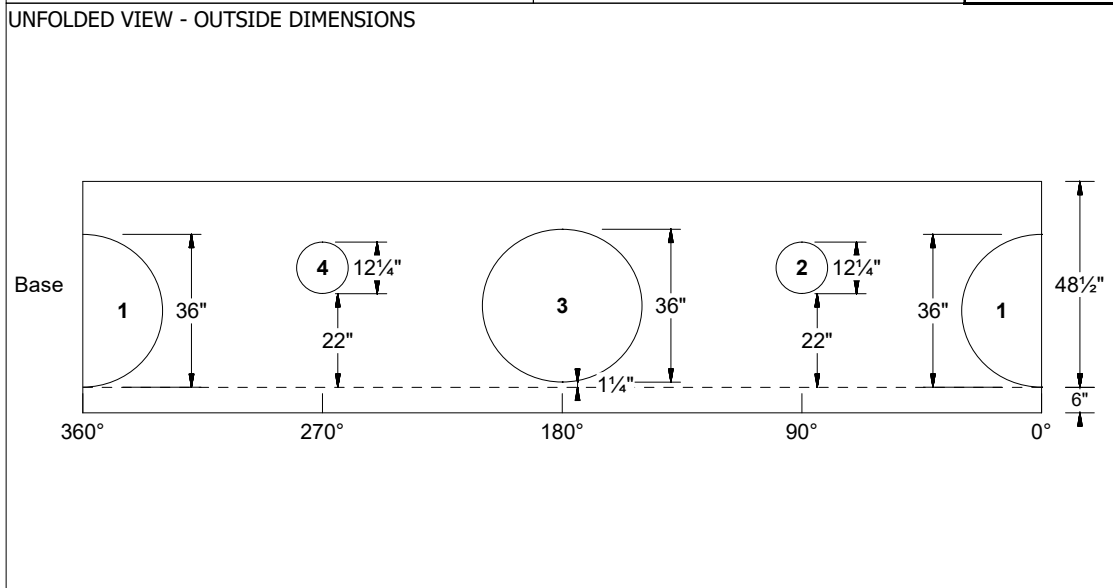
STRUCTURE NOTES:

DOT #



Item	Pipe #	Elev.	Angle	Pipe	Hole Type	Over Outside	Up to Center	Hole Height	Hole Width	Pipe ID	Pipe OD
Base	(1)	29.62	0	30 PVC - PS46	MHBT36A	0	24.01	36	36	30.194	32
Base	(2)	31.39	90	8 SDR-35 PVC	TCAS1208	56.55	34.12	12.14	12.14	7.92	8.4
Base	(3)	29.72	180	30 PVC - PS46	MHBT36A	113.1	25.2	36	36	30.194	32
Base	(4)	31.39	270	8 SDR-35 PVC	TCAS1208	169.65	34.12	12.14	12.14	7.92	8.4

Item	Product ID	Qty	Description	Yards	Weight
Rim	CIR1180	1	A-1180 RING NO NOTCH	0	190
Top 3	MHC60	1	60 IN CONCENTRIC CONE SECTION	1.11	3725
Item 2	MHS60X1	1	60 IN X 1 FT MH SECTION	0.36	1450
Item 1	MHS60X4	1	60 IN X 4 FT MH SECTION	1.35	5400
Base	PMHB60	1	60 IN X VAR HEIGHT MONOLITHIC PRECAST	1.86	7401
Misc 1	CICSV	1	COVER - SEWER VENTED	0	150
Access.	MHBT36A	2	36A DD BOOT w/ (4) 296 Clamp	0	0
Access.	MHBTCAS1208	2	1208 CAST A SEAL BOOT w/ Single 152 Clamp	0	0
Access.	MASJT1.25	6	1 1/8in X 3/4in X 14 FT JOINT MASTIC	0	0

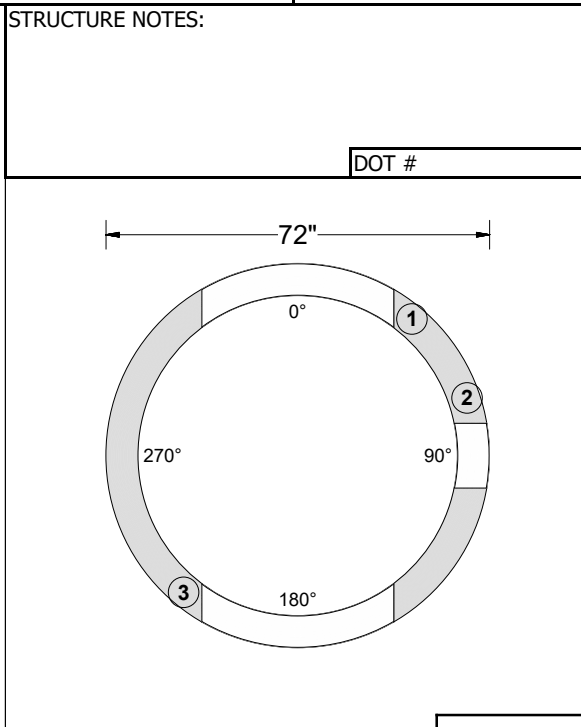
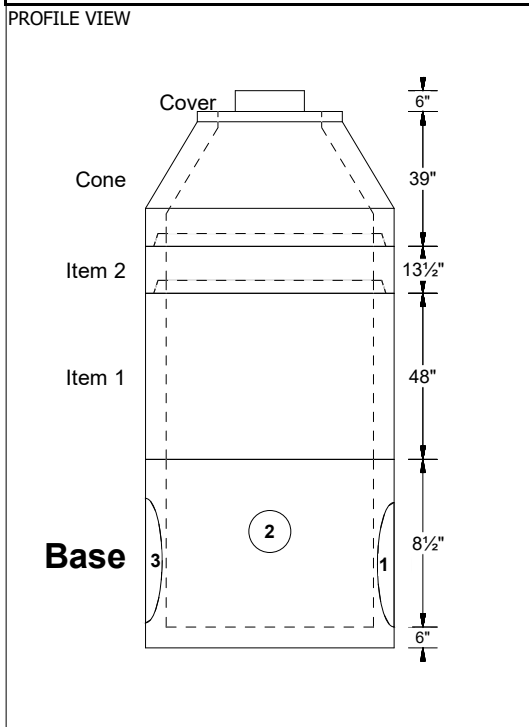


Item	Product ID	Qty	Description	Yards	Weight
Rim	CIR1180	1	A-1180 RING NO NOTCH	0	190
Top 3	MHC60	1	60 IN CONCENTRIC CONE SECTION	1.11	3725
Item 2	MHS60X1	1	60 IN X 1 FT MH SECTION	0.36	1450
Item 1	MHS60X4	1	60 IN X 4 FT MH SECTION	1.35	5400
Base	PMHB60	1	60 IN X VAR HEIGHT MONOLITHIC PRECAST	1.86	7401
Misc 1	CICSV	1	COVER - SEWER VENTED	0	150
Access.	MHBT36A	2	36A DD BOOT w/ (4) 296 Clamp	0	0
Access.	MHBTCAS1208	2	1208 CAST A SEAL BOOT w/ Single 152 Clamp	0	0
Access.	MASJT1.25	6	1 1/8in X 3/4in X 14 FT JOINT MASTIC	0	0

CHECK OFF	
Engineer/Contractor	
Office Check	
Set Up	
Pre Pour	
Post Pour	
Pre Ship	

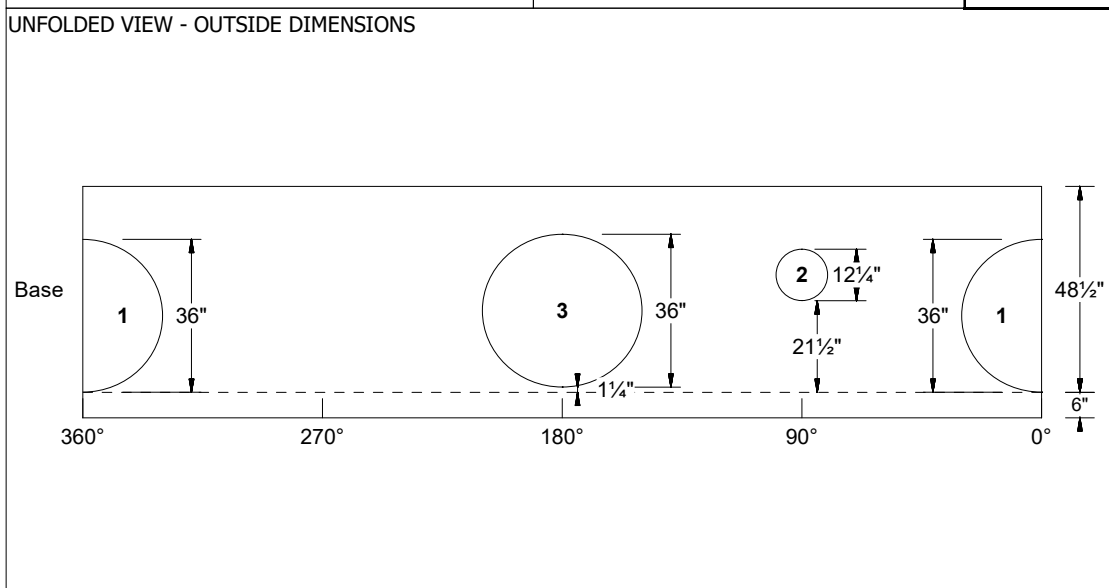


Customer:	SILVER SPUR CONSTRUCTION	Item:	Base	Rim:	42.13'
Job Name:	300 EAST AND WEST TEMPLE SEWER IMPROVEMENTS	ProductID:	PMHB60	Invert:	29.36'
Job #:	45350	Description:	60 IN X VAR HEIGHT MONOLITHIC	Rim to Invert:	12.77'
Structure ID:	SMH 222	Weight:	7,461	Precast Height:	12.42'
Station:				Overall Height:	13.51'
Type:	5' DIAMETER MANHOLE MONO - SANITARY			Floor Height:	6.00"
SalesPerson:	RANDY TRUJILLO			Wall Thickness:	6.00"
				Sump Height:	.00' Adjustment: 1.10"



Item	Pipe #	Elev.	Angle	Pipe	Hole Type	Over Outside	Up to Center	Hole Height	Hole Width	Pipe ID	Pipe OD
Base	(1)	29.36	0	30 PVC - PS46	MHBT36A	0	24.02	36	36	30.194	32
Base	(2)	31.09	90	8 SDR-35 PVC	TCAS1208	56.55	33.63	12.14	12.14	7.92	8.4
Base	(3)	29.46	180	30 PVC - PS46	MHBT36A	113.1	25.22	36	36	30.194	32

Item	Product ID	Qty	Description	Yards	Weight
Rim	CIR1180	1	A-1180 RING NO NOTCH	0	190
Top 3	MHC60	1	60 IN CONCENTRIC CONE SECTION	1.11	3725
Item 2	MHS60X1	1	60 IN X 1 FT MH SECTION	0.36	1450
Item 1	MHS60X4	1	60 IN X 4 FT MH SECTION	1.35	5400
Base	PMHB60	1	60 IN X VAR HEIGHT MONOLITHIC PRECAST	1.87	7461
Misc 1	CICSV	1	COVER - SEWER VENTED	0	150
Access.	MHBT36A	2	36A DD BOOT w/ (4) 296 Clamp	0	0
Access.	MHBTCAS1208	1	1208 CAST A SEAL BOOT w/ Single 152 Clamp	0	0
Access.	MASJT1.25	6	1 1/8in X 3/4in X 14 FT JOINT MASTIC	0	0

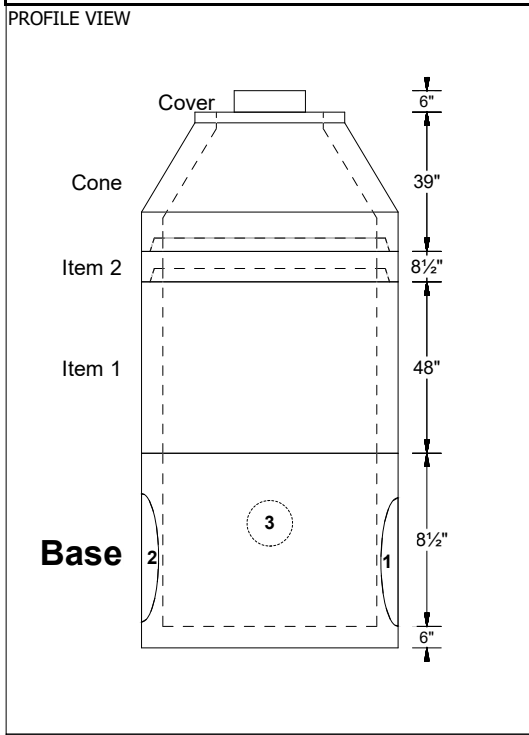


Item	Product ID	Qty	Description	Yards	Weight
Rim	CIR1180	1	A-1180 RING NO NOTCH	0	190
Top 3	MHC60	1	60 IN CONCENTRIC CONE SECTION	1.11	3725
Item 2	MHS60X1	1	60 IN X 1 FT MH SECTION	0.36	1450
Item 1	MHS60X4	1	60 IN X 4 FT MH SECTION	1.35	5400
Base	PMHB60	1	60 IN X VAR HEIGHT MONOLITHIC PRECAST	1.87	7461
Misc 1	CICSV	1	COVER - SEWER VENTED	0	150
Access.	MHBT36A	2	36A DD BOOT w/ (4) 296 Clamp	0	0
Access.	MHBTCAS1208	1	1208 CAST A SEAL BOOT w/ Single 152 Clamp	0	0
Access.	MASJT1.25	6	1 1/8in X 3/4in X 14 FT JOINT MASTIC	0	0

CHECK OFF

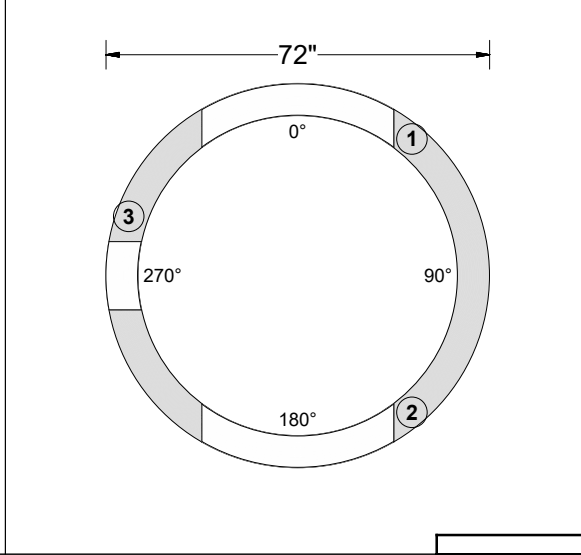
Engineer/Contractor	
Office Check	
Set Up	
Pre Pour	
Post Pour	
Pre Ship	

Customer:	SILVER SPUR CONSTRUCTION	Item:	Base	Rim:	41.7'
Job Name:	300 EAST AND WEST TEMPLE SEWER IMPROVEMENTS	ProductID:	PMHB60	Invert:	29.15'
Job #:	45350	Description:	60 IN X VAR HEIGHT MONOLITHIC	Rim to Invert:	12.55'
Structure ID:	SMH 223	Weight:	7,455	Precast Height:	11.29'
Station:				Overall Height:	13.29'
Type:	5' DIAMETER MANHOLE MONO - SANITARY			Floor Height:	6.00"
SalesPerson:	RANDY TRUJILLO			Wall Thickness:	6.00"
				Sump Height:	.00' Adjustment: 12.02"



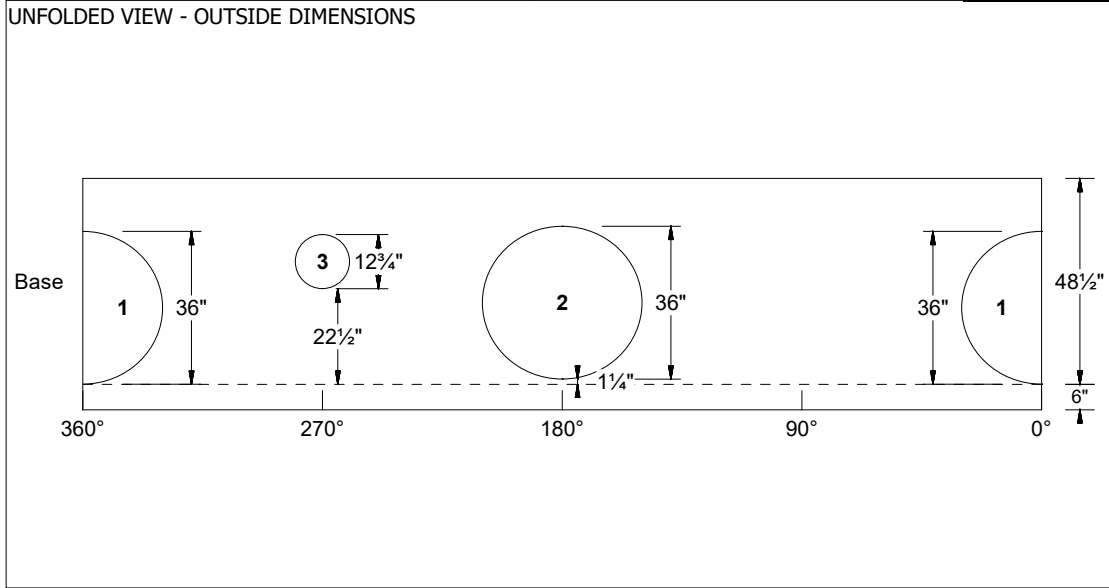
STRUCTURE NOTES:

DOT #



Item	Pipe #	Elev.	Angle	Pipe	Hole Type	Over Outside	Up to Center	Hole Height	Hole Width	Pipe ID	Pipe OD
Base	(1)	29.15	0	30 PVC - PS46	MHBT36A	0	24.02	36	36	30.194	32
Base	(2)	29.25	180	30 PVC - PS46	MHBT36A	113.1	25.21	36	36	30.194	32
Base	(3)	30.9	270	10 SDR-35 PV	S603 10in	169.65	34.88	12.76	12.76	9.9	10.5

Item	Product ID	Qty	Description	Yards	Weight
Rim	CIR1180	1	A-1180 RING NO NOTCH	0	190
Top 3	MHC60	1	60 IN CONCENTRIC CONE SECTION	1.11	3725
Item 2	MHS60	1	* Do Not Use * 60 IN MH SECTION x 0.71'	0	0
Item 1	MHS60X4	1	60 IN X 4 FT MH SECTION	1.35	5400
Base	PMHB60	1	60 IN X VAR HEIGHT MONOLITHIC PRECAST	1.86	7455
Misc 1	CICSV	1	COVER - SEWER VENTED	0	150
Access.	MHBT36A	2	36A DD BOOT w/ (4) 296 Clamp	0	0
Access.	MHBTCAS603 10in	1	603 - 10.5in CAST A SEAL BOOT w/ Single 18	0	0
Access.	MASJT1.25	4	1 1/8in X 3/4in X 14 FT JOINT MASTIC	0	0



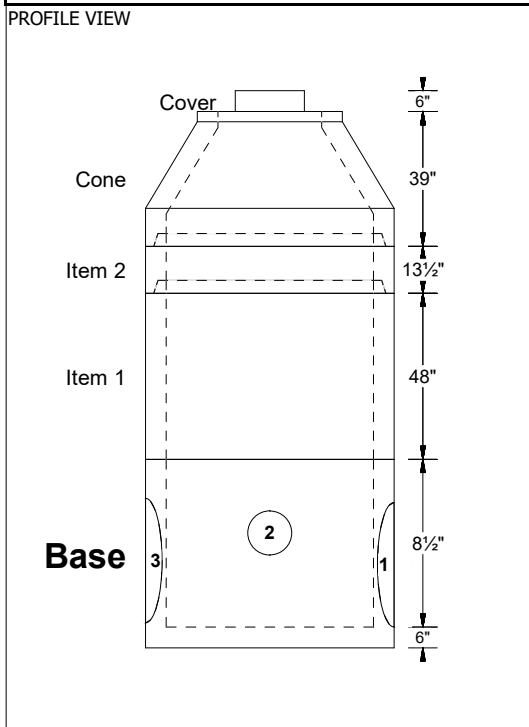
Item	Product ID	Qty	Description	Yards	Weight
Rim	CIR1180	1	A-1180 RING NO NOTCH	0	190
Top 3	MHC60	1	60 IN CONCENTRIC CONE SECTION	1.11	3725
Item 2	MHS60	1	* Do Not Use * 60 IN MH SECTION x 0.71'	0	0
Item 1	MHS60X4	1	60 IN X 4 FT MH SECTION	1.35	5400
Base	PMHB60	1	60 IN X VAR HEIGHT MONOLITHIC PRECAST	1.86	7455
Misc 1	CICSV	1	COVER - SEWER VENTED	0	150
Access.	MHBT36A	2	36A DD BOOT w/ (4) 296 Clamp	0	0
Access.	MHBTCAS603 10in	1	603 - 10.5in CAST A SEAL BOOT w/ Single 18	0	0
Access.	MASJT1.25	4	1 1/8in X 3/4in X 14 FT JOINT MASTIC	0	0

CHECK OFF

Engineer/Contractor	
Office Check	
Set Up	
Pre Pour	
Post Pour	
Pre Ship	

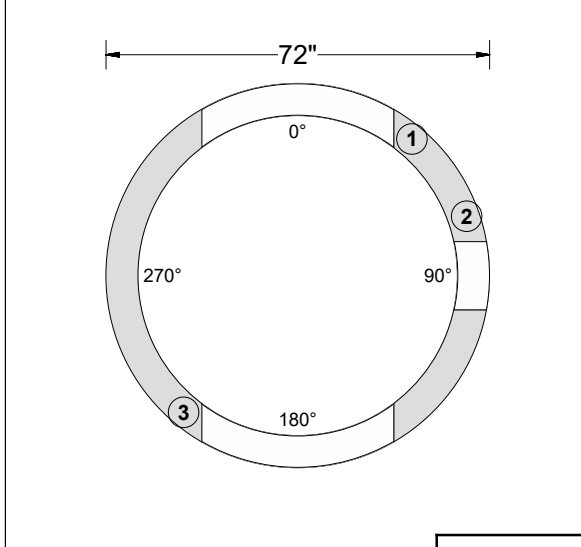


Customer:	SILVER SPUR CONSTRUCTION	Item:	Base	Rim:	41.95'
Job Name:	300 EAST AND WEST TEMPLE SEWER IMPROVEMENTS	ProductID:	PMHB60	Invert:	28.86'
Job #:	45350	Description:	60 IN X VAR HEIGHT MONOLITHIC	Rim to Invert:	13.09'
Structure ID:	SMH 224	Weight:	7,455	Precast Height:	12.42'
Station:				Overall Height:	13.83'
Type:	5' DIAMETER MANHOLE MONO - SANITARY			Floor Height:	6.00"
SalesPerson:	RANDY TRUJILLO			Wall Thickness:	6.00"
				Sump Height:	.00' Adjustment: 4.94"



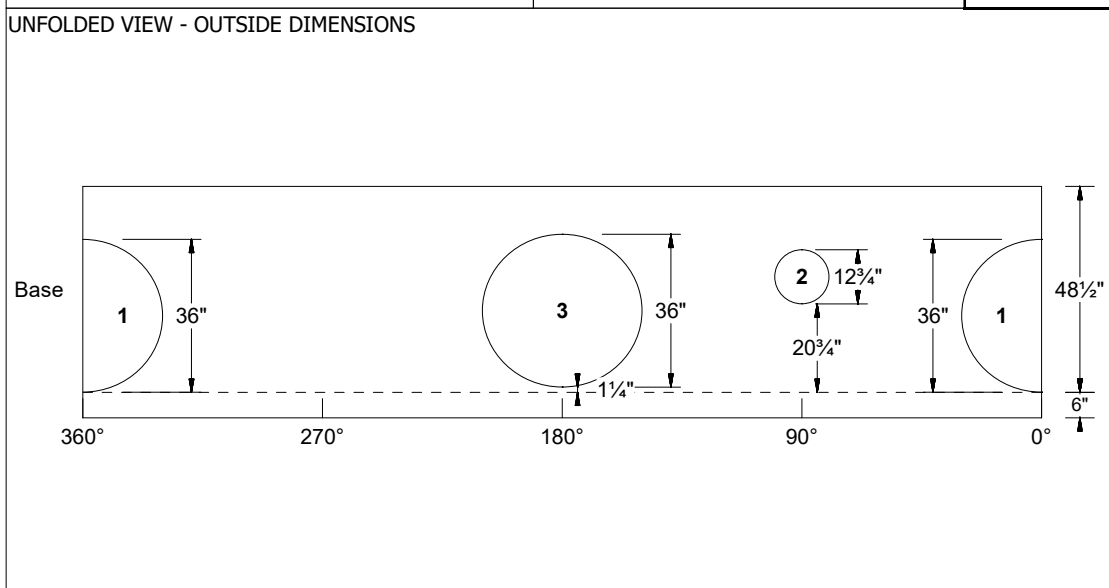
STRUCTURE NOTES:

DOT #



Item	Pipe #	Elev.	Angle	Pipe	Hole Type	Over Outside	Up to Center	Hole Height	Hole Width	Pipe ID	Pipe OD
Base	(1)	28.86	0	30 PVC - PS46	MHBT36A	0	24.03	36	36	30.194	32
Base	(2)	30.47	90	10 SDR-35 PV	S603 10in	56.55	33.2	12.76	12.76	9.9	10.5
Base	(3)	28.96	180	30 PVC - PS46	MHBT36A	113.1	25.22	36	36	30.194	32

Item	Product ID	Qty	Description	Yards	Weight
Rim	CIR1180	1	A-1180 RING NO NOTCH	0	190
Top 3	MHC60	1	60 IN CONCENTRIC CONE SECTION	1.11	3725
Item 2	MHS60X1	1	60 IN X 1 FT MH SECTION	0.36	1450
Item 1	MHS60X4	1	60 IN X 4 FT MH SECTION	1.35	5400
Base	PMHB60	1	60 IN X VAR HEIGHT MONOLITHIC PRECAST	1.86	7455
Misc 1	CICSV	1	COVER - SEWER VENTED	0	150
Access.	MHBT36A	2	36A DD BOOT w/ (4) 296 Clamp	0	0
Access.	MHBTCAS603 10in	1	603 - 10.5in CAST A SEAL BOOT w/ Single 18	0	0
Access.	MASJT1.25	6	1 1/8in X 3/4in X 14 FT JOINT MASTIC	0	0

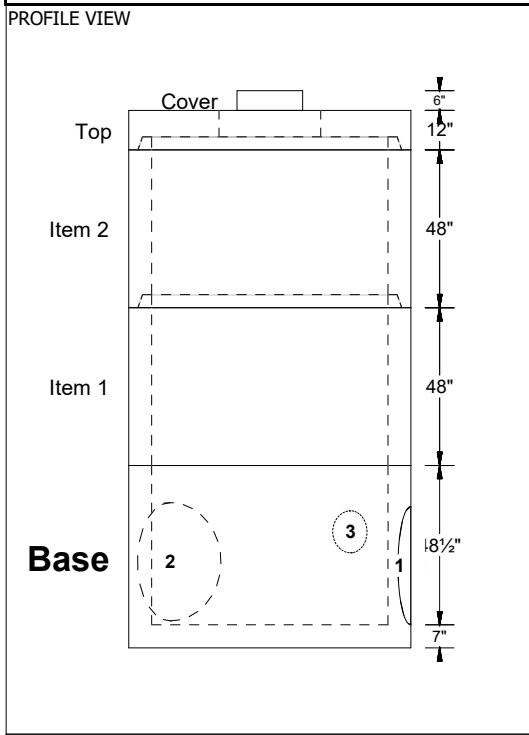


Item	Product ID	Qty	Description	Yards	Weight
Rim	CIR1180	1	A-1180 RING NO NOTCH	0	190
Top 3	MHC60	1	60 IN CONCENTRIC CONE SECTION	1.11	3725
Item 2	MHS60X1	1	60 IN X 1 FT MH SECTION	0.36	1450
Item 1	MHS60X4	1	60 IN X 4 FT MH SECTION	1.35	5400
Base	PMHB60	1	60 IN X VAR HEIGHT MONOLITHIC PRECAST	1.86	7455
Misc 1	CICSV	1	COVER - SEWER VENTED	0	150
Access.	MHBT36A	2	36A DD BOOT w/ (4) 296 Clamp	0	0
Access.	MHBTCAS603 10in	1	603 - 10.5in CAST A SEAL BOOT w/ Single 18	0	0
Access.	MASJT1.25	6	1 1/8in X 3/4in X 14 FT JOINT MASTIC	0	0

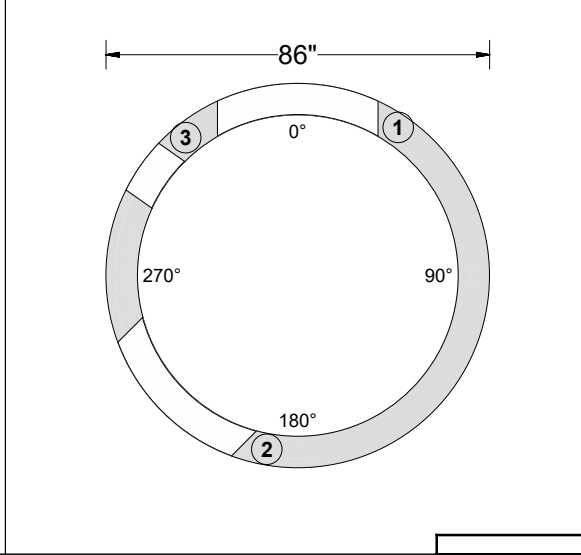
CHECK OFF	
Engineer/Contractor	
Office Check	
Set Up	
Pre Pour	
Post Pour	
Pre Ship	



Customer:	SILVER SPUR CONSTRUCTION	Item:	Base	Rim:	42.18'
Job Name:	300 EAST AND WEST TEMPLE SEWER IMPROVEMENTS	ProductID:	PMHB72	Invert:	28.72'
Job #:	45350	Description:	72 IN X VAR HEIGHT MONOLITHIC	Rim to Invert:	13.46'
Structure ID:	SMH 225	Weight:	PRECAST BASE x 4.62'	Precast Height:	13.04'
Station:				Overall Height:	14.29'
Type:	6' DIAMETER MANHOLE MONO - SANITARY			Floor Height:	7.00"
SalesPerson:	RANDY TRUJILLO			Wall Thickness:	7.00"
				Sump Height:	.00' Adjustment: 1.94"

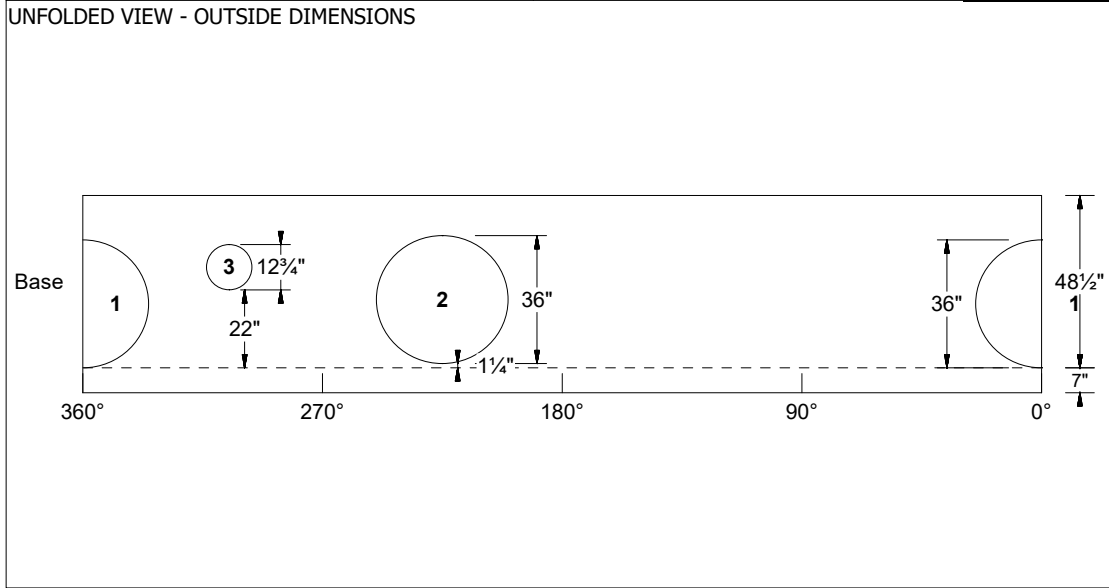


STRUCTURE NOTES:
UPSIZED MANHOLE DUE TO PIPE SIZE AND ANGLE



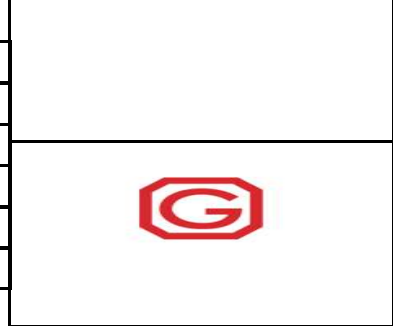
Item	Pipe #	Elev.	Angle	Pipe	Hole Type	Over Outside	Up to Center	Hole Height	Hole Width	Pipe ID	Pipe OD
Base	(1)	28.72	0	30 PVC - PS46	MHBT36A	0	24.99	36	36	30.194	32
Base	(2)	28.82	225	30 PVC - PS46	MHBT36A	168.79	26.19	36	36	30.194	32
Base	(3)	30.42	305	10 SDR-35 PV	S603 10in	228.8	35.3	12.76	12.76	9.9	10.5

Item	Product ID	Qty	Description	Yards	Weight
Rim	CIR1180	1	A-1180 RING NO NOTCH	0	190
Top 3	MHL72	1	72 IN CONCENTRIC FLAT LID	1.07	4200
Item 2	MHS72X4	1	72 IN X 4 FT MH SECTION	1.81	7240
Item 1	MHS72X4	1	72 IN X 4 FT MH SECTION	1.81	7240
Base	PMHB72	1	72 IN X VAR HEIGHT MONOLITHIC PRECAST	2.75	11017
Misc 1	CICSV	1	COVER - SEWER VENTED	0	150
Access.	MHBT36A	2	36A DD BOOT w/ (4) 296 Clamp	0	0
Access.	MHBTCAS603 10in	1	603 - 10.5in CAST A SEAL BOOT w/ Single 18	0	0
Access.	MASJT1.25	6	1 1/8in X 3/4in X 14 FT JOINT MASTIC	0	0

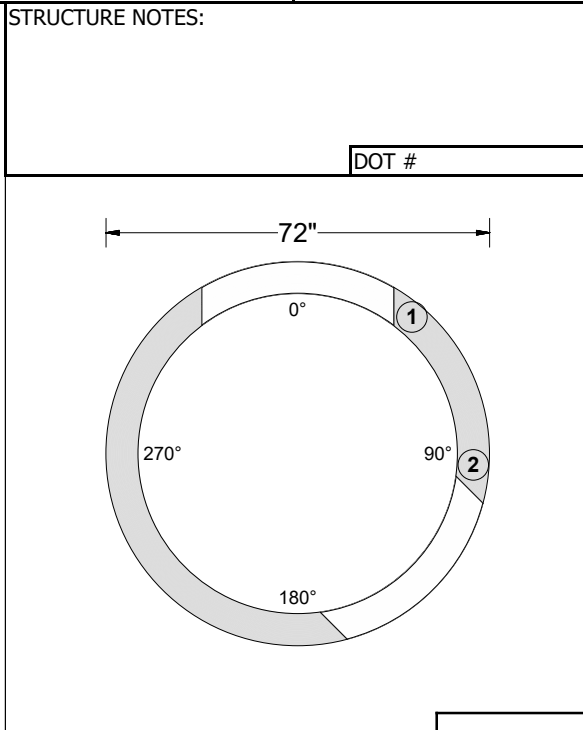
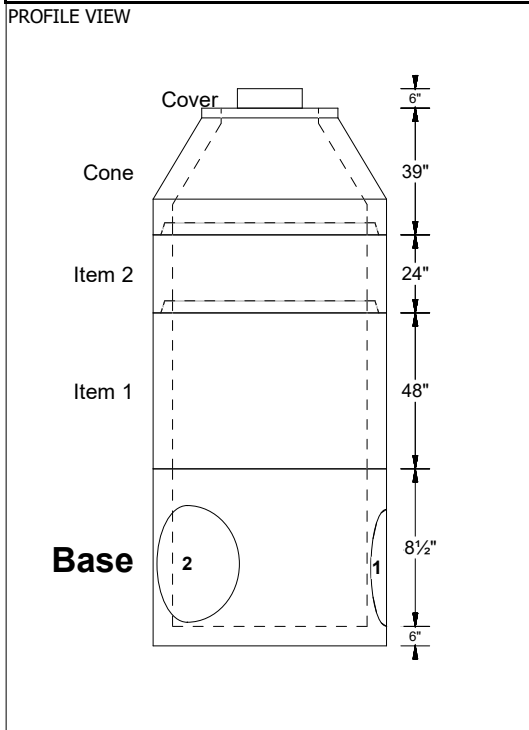


Item	Product ID	Qty	Description	Yards	Weight
Rim	CIR1180	1	A-1180 RING NO NOTCH	0	190
Top 3	MHL72	1	72 IN CONCENTRIC FLAT LID	1.07	4200
Item 2	MHS72X4	1	72 IN X 4 FT MH SECTION	1.81	7240
Item 1	MHS72X4	1	72 IN X 4 FT MH SECTION	1.81	7240
Base	PMHB72	1	72 IN X VAR HEIGHT MONOLITHIC PRECAST	2.75	11017
Misc 1	CICSV	1	COVER - SEWER VENTED	0	150
Access.	MHBT36A	2	36A DD BOOT w/ (4) 296 Clamp	0	0
Access.	MHBTCAS603 10in	1	603 - 10.5in CAST A SEAL BOOT w/ Single 18	0	0
Access.	MASJT1.25	6	1 1/8in X 3/4in X 14 FT JOINT MASTIC	0	0

CHECK OFF	
Engineer/Contractor	
Office Check	
Set Up	
Pre Pour	
Post Pour	
Pre Ship	

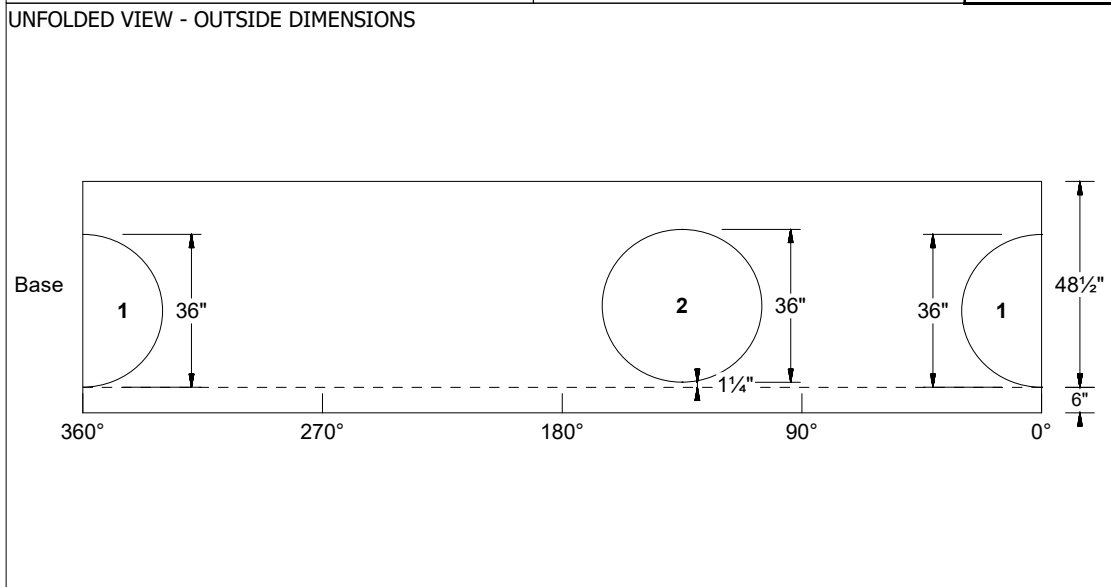


Customer:	SILVER SPUR CONSTRUCTION	Item:	Base	Rim:	42.33'
Job Name:	300 EAST AND WEST TEMPLE SEWER IMPROVEMENTS	ProductID:	PMHB60	Invert:	28.62'
Job #:	45350	Description:	60 IN X VAR HEIGHT MONOLITHIC	Rim to Invert:	13.71'
Structure ID:	SMH 226	Weight:	PRECAST BASE x 4.54'	Precast Height:	13.29'
Station:				Overall Height:	14.45'
Type:	5' DIAMETER MANHOLE MONO - SANITARY			Floor Height:	6.00"
SalesPerson:	RANDY TRUJILLO			Wall Thickness:	6.00"
				Sump Height:	.00' Adjustment: 1.94"



Item	Pipe #	Elev.	Angle	Pipe	Hole Type	Over Outside	Up to Center	Hole Height	Hole Width	Pipe ID	Pipe OD
Base	(1)	28.62	0	30 PVC - PS46	MHBT36A	0	24	36	36	30.194	32
Base	(2)	28.72	135	30 PVC - PS46	MHBT36A	84.82	25.19	36	36	30.194	32

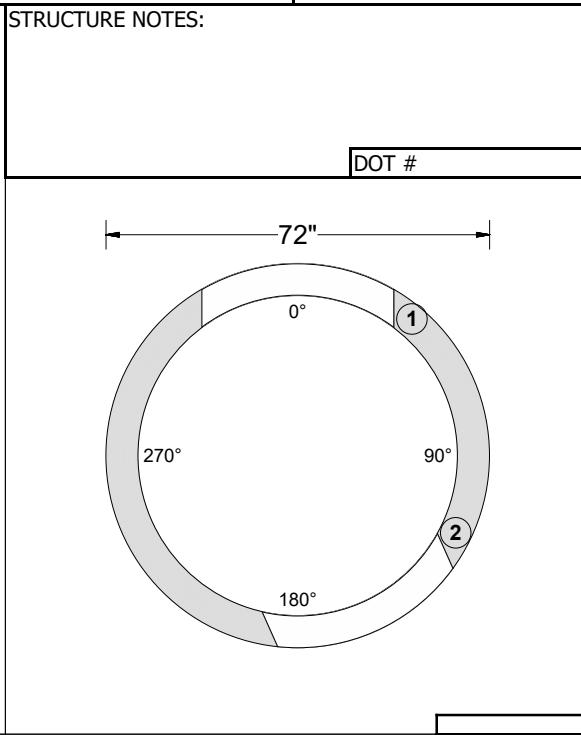
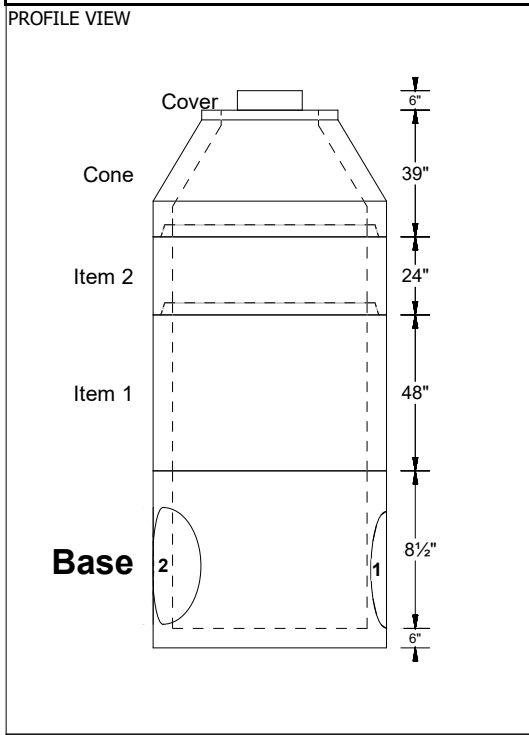
Item	Product ID	Qty	Description	Yards	Weight
Rim	CIR1180	1	A-1180 RING NO NOTCH	0	190
Top 3	MHC60	1	60 IN CONCENTRIC CONE SECTION	1.11	3725
Item 2	MHS60X2	1	60 IN X 2 FT MH SECTION	0.65	2610
Item 1	MHS60X4	1	60 IN X 4 FT MH SECTION	1.35	5400
Base	PMHB60	1	60 IN X VAR HEIGHT MONOLITHIC PRECAST	1.88	7521
Misc 1	CICSV	1	COVER - SEWER VENTED	0	150
Access.	MHBT36A	2	36A DD BOOT w/ (4) 296 Clamp	0	0
Access.	MASJT1.25	6	1 1/8in X 3/4in X 14 FT JOINT MASTIC	0	0



Item	Product ID	Qty	Description	Yards	Weight
Rim	CIR1180	1	A-1180 RING NO NOTCH	0	190
Top 3	MHC60	1	60 IN CONCENTRIC CONE SECTION	1.11	3725
Item 2	MHS60X2	1	60 IN X 2 FT MH SECTION	0.65	2610
Item 1	MHS60X4	1	60 IN X 4 FT MH SECTION	1.35	5400
Base	PMHB60	1	60 IN X VAR HEIGHT MONOLITHIC PRECAST	1.88	7521
Misc 1	CICSV	1	COVER - SEWER VENTED	0	150
Access.	MHBT36A	2	36A DD BOOT w/ (4) 296 Clamp	0	0
Access.	MASJT1.25	6	1 1/8in X 3/4in X 14 FT JOINT MASTIC	0	0

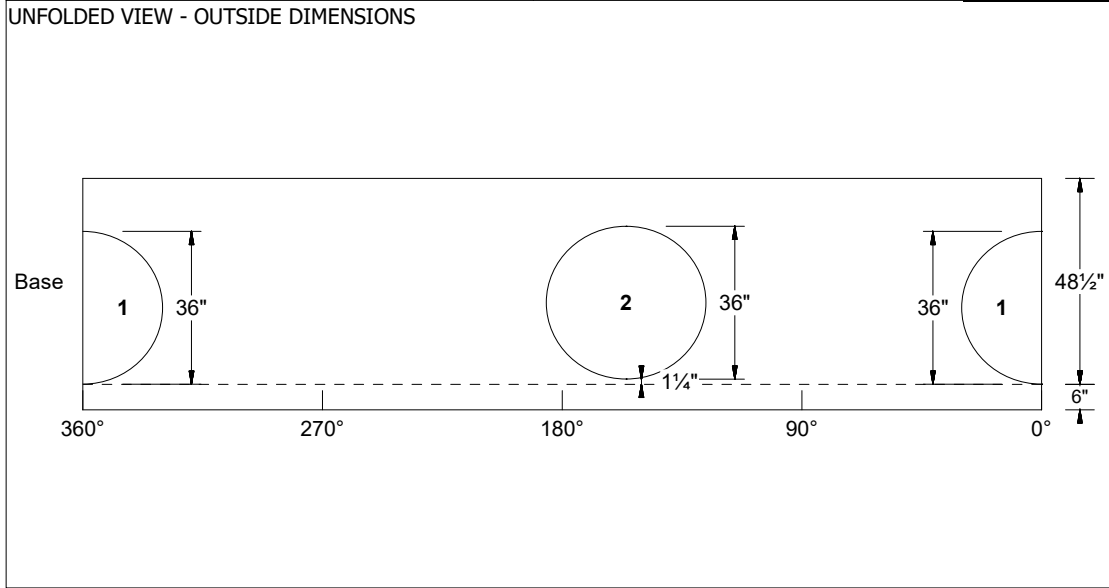
CHECK OFF	
Engineer/Contractor	
Office Check	
Set Up	
Pre Pour	
Post Pour	
Pre Ship	

Customer:	SILVER SPUR CONSTRUCTION	Item:	Base	Rim:	42.59'
Job Name:	300 EAST AND WEST TEMPLE SEWER IMPROVEMENTS	ProductID:	PMHB60	Invert:	28.35'
Job #:	45350	Description:	60 IN X VAR HEIGHT MONOLITHIC	Rim to Invert:	14.24'
Structure ID:	SMH 227	Weight:	7,521	Precast Height:	13.29'
Station:				Overall Height:	14.98'
Type:	5' DIAMETER MANHOLE MONO - SANITARY			Floor Height:	6.00"
SalesPerson:	RANDY TRUJILLO			Wall Thickness:	6.00"
				Sump Height:	.00' Adjustment: 8.30"



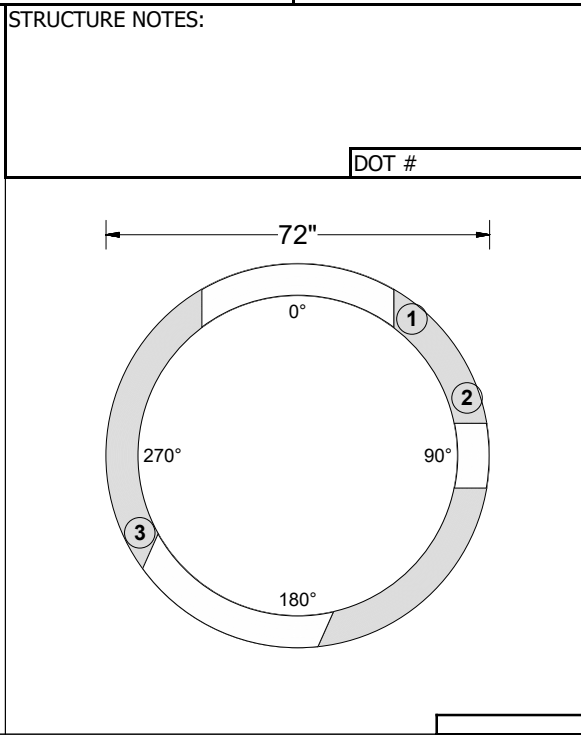
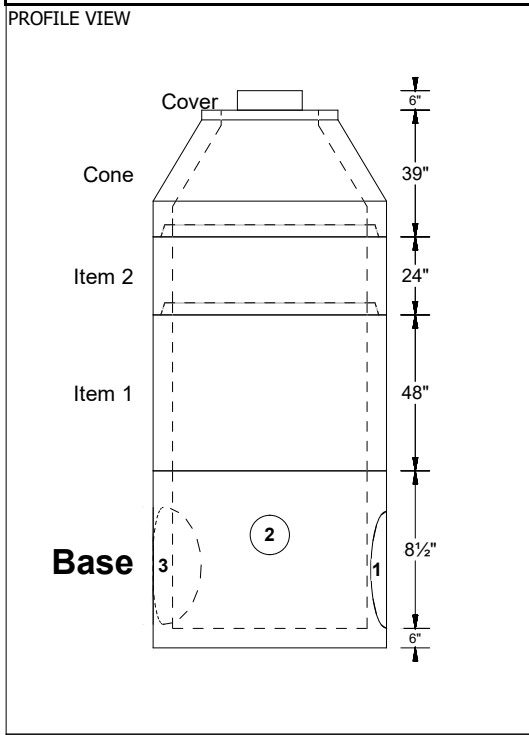
Item	Pipe #	Elev.	Angle	Pipe	Hole Type	Over Outside	Up to Center	Hole Height	Hole Width	Pipe ID	Pipe OD
Base	(1)	28.35	0	30 PVC - PS46	MHBT36A	0	24.02	36	36	30.194	32
Base	(2)	28.45	156	30 PVC - PS46	MHBT36A	98.02	25.21	36	36	30.194	32

Item	Product ID	Qty	Description	Yards	Weight
Rim	CIR1180	1	A-1180 RING NO NOTCH	0	190
Top 3	MHC60	1	60 IN CONCENTRIC CONE SECTION	1.11	3725
Item 2	MHS60X2	1	60 IN X 2 FT MH SECTION	0.65	2610
Item 1	MHS60X4	1	60 IN X 4 FT MH SECTION	1.35	5400
Base	PMHB60	1	60 IN X VAR HEIGHT MONOLITHIC PRECAST	1.88	7521
Misc 1	CICSV	1	COVER - SEWER VENTED	0	150
Access.	MHBT36A	2	36A DD BOOT w/ (4) 296 Clamp	0	0
Access.	MASJT1.25	6	1 1/8in X 3/4in X 14 FT JOINT MASTIC	0	0



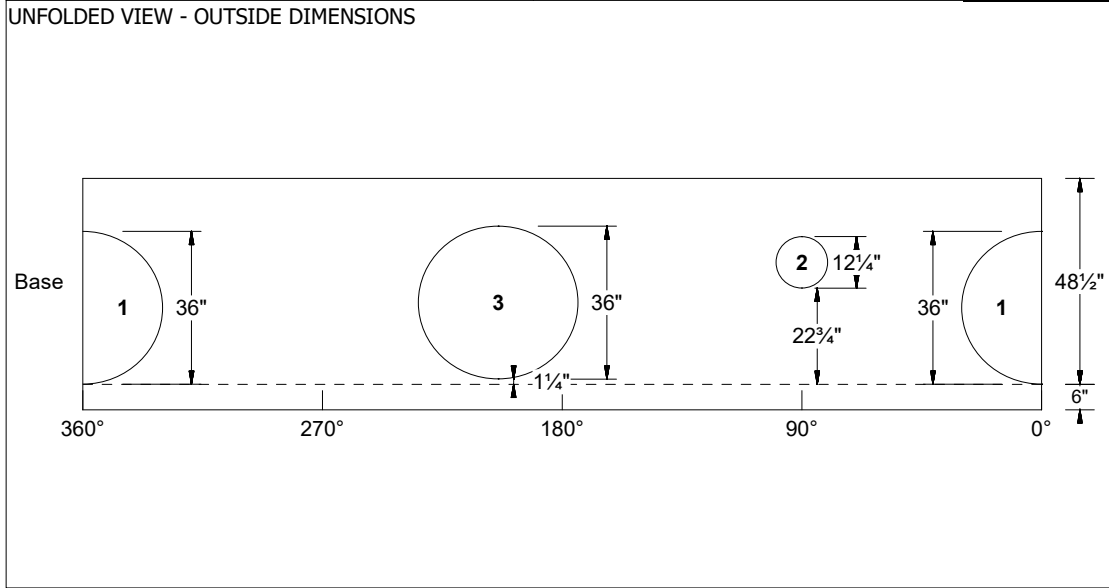
CHECK OFF	
Engineer/Contractor	
Office Check	
Set Up	
Pre Pour	
Post Pour	
Pre Ship	

Customer:	SILVER SPUR CONSTRUCTION	Item:	Base	Rim:	42.57'
Job Name:	300 EAST AND WEST TEMPLE SEWER IMPROVEMENTS	ProductID:	PMHB60	Invert:	28.25'
Job #:	45350	Description:	60 IN X VAR HEIGHT MONOLITHIC	Rim to Invert:	14.32'
Structure ID:	SMH 228	Weight:	7,461	Precast Height:	13.29'
Station:				Overall Height:	15.06'
Type:	5' DIAMETER MANHOLE MONO - SANITARY			Floor Height:	6.00"
SalesPerson:	RANDY TRUJILLO			Wall Thickness:	6.00"
				Sump Height:	.00' Adjustment: 9.26"



Item	Pipe #	Elev.	Angle	Pipe	Hole Type	Over Outside	Up to Center	Hole Height	Hole Width	Pipe ID	Pipe OD
Base	(1)	28.25	0	30 PVC - PS46	MHBT36A	0	24.03	36	36	30.194	32
Base	(2)	30.07	90	8 SDR-35 PVC	TCAS1208	56.55	34.71	12.14	12.14	7.92	8.4
Base	(3)	28.35	204	30 PVC - PS46	MHBT36A	128.18	25.23	36	36	30.194	32

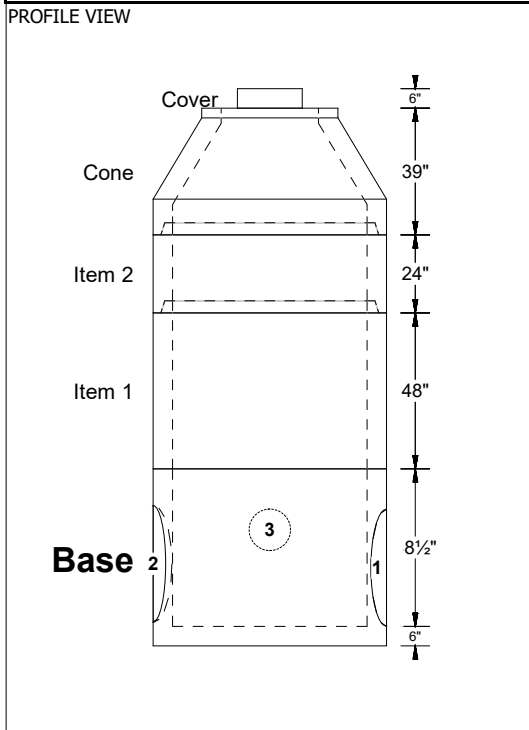
Item	Product ID	Qty	Description	Yards	Weight
Rim	CIR1180	1	A-1180 RING NO NOTCH	0	190
Top 3	MHC60	1	60 IN CONCENTRIC CONE SECTION	1.11	3725
Item 2	MHS60X2	1	60 IN X 2 FT MH SECTION	0.65	2610
Item 1	MHS60X4	1	60 IN X 4 FT MH SECTION	1.35	5400
Base	PMHB60	1	60 IN X VAR HEIGHT MONOLITHIC PRECAST	1.87	7461
Misc 1	CICSV	1	COVER - SEWER VENTED	0	150
Access.	MHBT36A	2	36A DD BOOT w/ (4) 296 Clamp	0	0
Access.	MHBTCAS1208	1	1208 CAST A SEAL BOOT w/ Single 152 Clamp	0	0
Access.	MASJT1.25	6	1 1/8in X 3/4in X 14 FT JOINT MASTIC	0	0



Item	Product ID	Qty	Description	Yards	Weight
Rim	CIR1180	1	A-1180 RING NO NOTCH	0	190
Top 3	MHC60	1	60 IN CONCENTRIC CONE SECTION	1.11	3725
Item 2	MHS60X2	1	60 IN X 2 FT MH SECTION	0.65	2610
Item 1	MHS60X4	1	60 IN X 4 FT MH SECTION	1.35	5400
Base	PMHB60	1	60 IN X VAR HEIGHT MONOLITHIC PRECAST	1.87	7461
Misc 1	CICSV	1	COVER - SEWER VENTED	0	150
Access.	MHBT36A	2	36A DD BOOT w/ (4) 296 Clamp	0	0
Access.	MHBTCAS1208	1	1208 CAST A SEAL BOOT w/ Single 152 Clamp	0	0
Access.	MASJT1.25	6	1 1/8in X 3/4in X 14 FT JOINT MASTIC	0	0

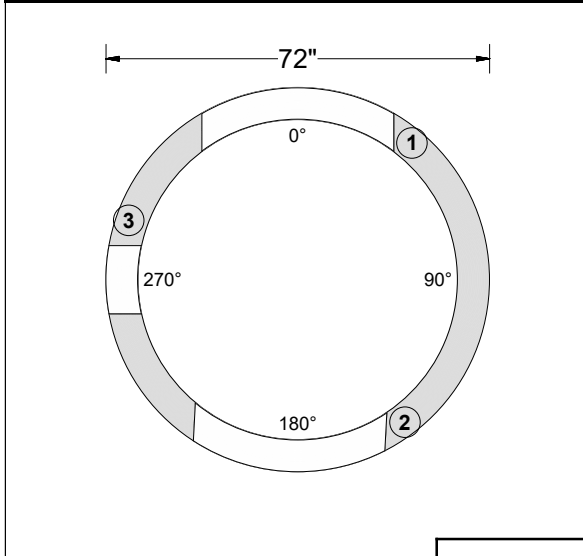
CHECK OFF	
Engineer/Contractor	
Office Check	
Set Up	
Pre Pour	
Post Pour	
Pre Ship	

Customer:	SILVER SPUR CONSTRUCTION	Item:	Base	Rim:	42.44'
Job Name:	300 EAST AND WEST TEMPLE SEWER IMPROVEMENTS	ProductID:	PMHB60	Invert:	28.14'
Job #:	45350	Description:	60 IN X VAR HEIGHT MONOLITHIC	Rim to Invert:	14.30'
Structure ID:	SMH 229	Weight:	PRECAST BASE x 4.54'	Precast Height:	13.29'
Station:				Overall Height:	15.04'
Type:	5' DIAMETER MANHOLE MONO - SANITARY			Floor Height:	6.00"
SalesPerson:	RANDY TRUJILLO			Wall Thickness:	6.00"
				Sump Height:	.00' Adjustment: 9.02"



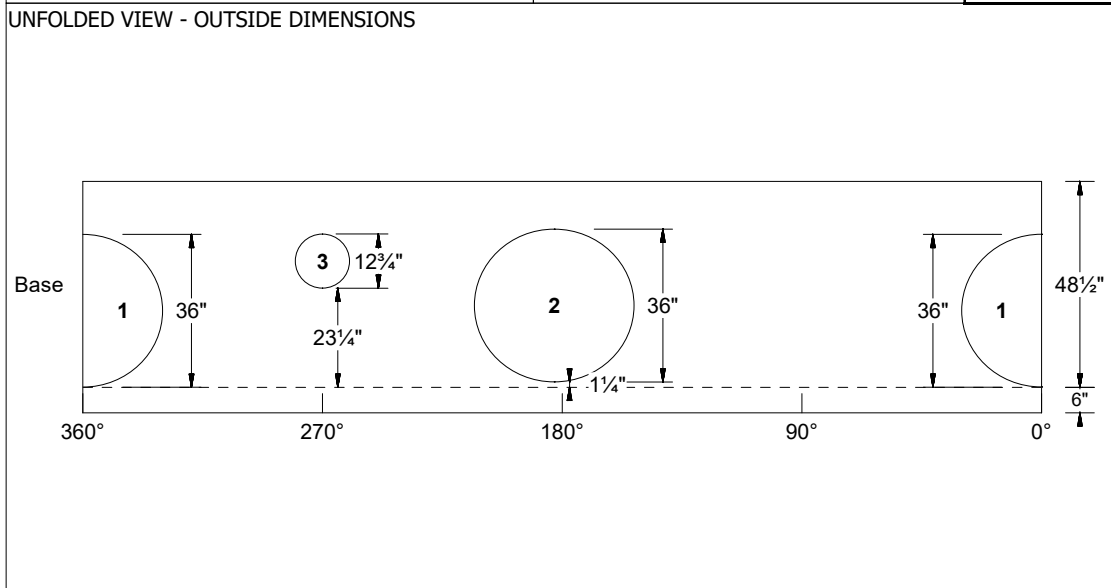
STRUCTURE NOTES:

DOT #



Item	Pipe #	Elev.	Angle	Pipe	Hole Type	Over Outside	Up to Center	Hole Height	Hole Width	Pipe ID	Pipe OD
Base	(1)	28.14	0	30 PVC - PS46	MHBT36A	0	24.04	36	36	30.194	32
Base	(2)	28.24	183	30 PVC - PS46	MHBT36A	114.98	25.24	36	36	30.194	32
Base	(3)	29.96	270	10 SDR-35 PV	S603 10in	169.65	35.72	12.76	12.76	9.9	10.5

Item	Product ID	Qty	Description	Yards	Weight
Rim	CIR1180	1	A-1180 RING NO NOTCH	0	190
Top 3	MHC60	1	60 IN CONCENTRIC CONE SECTION	1.11	3725
Item 2	MHS60X2	1	60 IN X 2 FT MH SECTION	0.65	2610
Item 1	MHS60X4	1	60 IN X 4 FT MH SECTION	1.35	5400
Base	PMHB60	1	60 IN X VAR HEIGHT MONOLITHIC PRECAST	1.86	7455
Misc 1	CICSV	1	COVER - SEWER VENTED	0	150
Access.	MHBT36A	2	36A DD BOOT w/ (4) 296 Clamp	0	0
Access.	MHBTAS603 10in	1	603 - 10.5in CAST A SEAL BOOT w/ Single 18	0	0
Access.	MASJT1.25	6	1 1/8in X 3/4in X 14 FT JOINT MASTIC	0	0



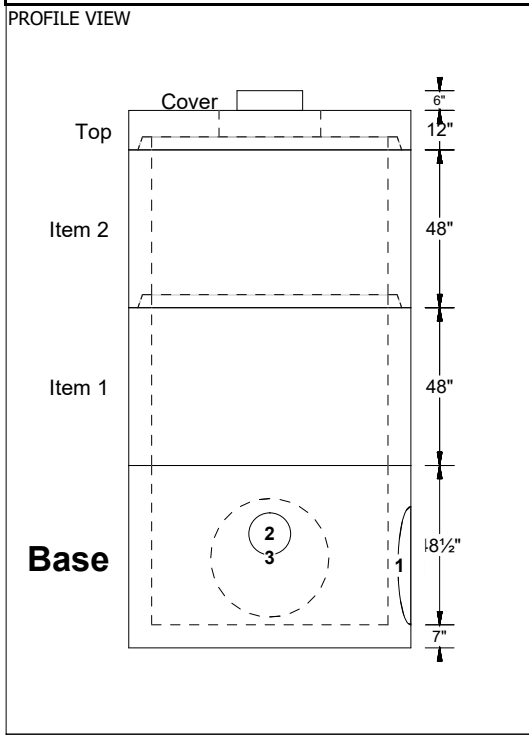
Item	Product ID	Qty	Description	Yards	Weight
Rim	CIR1180	1	A-1180 RING NO NOTCH	0	190
Top 3	MHC60	1	60 IN CONCENTRIC CONE SECTION	1.11	3725
Item 2	MHS60X2	1	60 IN X 2 FT MH SECTION	0.65	2610
Item 1	MHS60X4	1	60 IN X 4 FT MH SECTION	1.35	5400
Base	PMHB60	1	60 IN X VAR HEIGHT MONOLITHIC PRECAST	1.86	7455
Misc 1	CICSV	1	COVER - SEWER VENTED	0	150
Access.	MHBT36A	2	36A DD BOOT w/ (4) 296 Clamp	0	0
Access.	MHBTAS603 10in	1	603 - 10.5in CAST A SEAL BOOT w/ Single 18	0	0
Access.	MASJT1.25	6	1 1/8in X 3/4in X 14 FT JOINT MASTIC	0	0

CHECK OFF

Engineer/Contractor	
Office Check	
Set Up	
Pre Pour	
Post Pour	
Pre Ship	

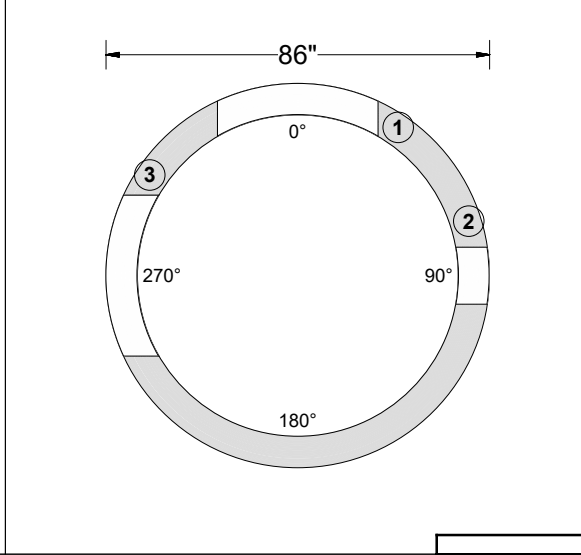


Customer:	SILVER SPUR CONSTRUCTION	Item:	Base	Rim:	41.6'
Job Name:	300 EAST AND WEST TEMPLE SEWER IMPROVEMENTS	ProductID:	PMHB72	Invert:	27.7'
Job #:	45350	Description:	72 IN X VAR HEIGHT MONOLITHIC	Rim to Invert:	13.90'
Structure ID:	SMH 230	Weight:	PRECAST BASE x 4.62'	Precast Height:	13.04'
Station:				Overall Height:	14.73'
Type:	6' DIAMETER MANHOLE MONO - SANITARY			Floor Height:	7.00"
SalesPerson:	RANDY TRUJILLO			Wall Thickness:	7.00"
				Sump Height:	.00' Adjustment: 7.22"



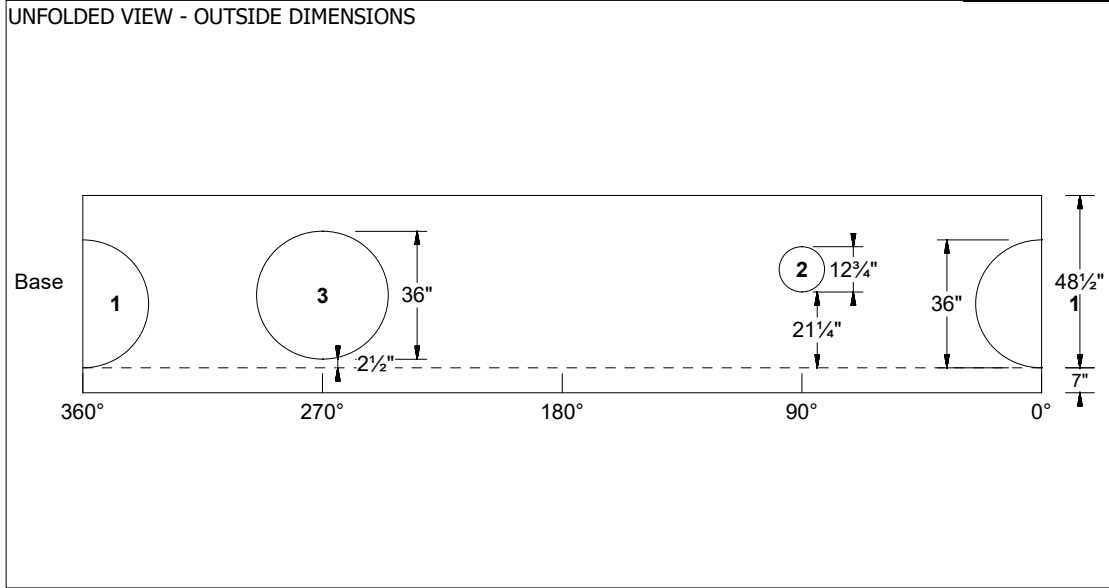
STRUCTURE NOTES:
UPSIZED MANHOLE DUE TO PIPE SIZE AND ANGLE

DOT #



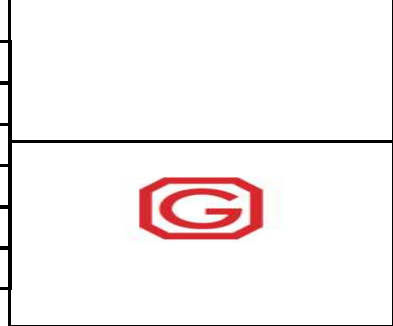
Item	Pipe #	Elev.	Angle	Pipe	Hole Type	Over Outside	Up to Center	Hole Height	Hole Width	Pipe ID	Pipe OD
Base	(1)	27.7	0	30 PVC - PS46	MHBT36A	0	24.99	36	36	30.194	32
Base	(2)	29.35	90	10 SDR-35 PV	S603 10in	67.52	34.7	12.76	12.76	9.9	10.5
Base	(3)	27.9	270	30 PVC - PS46	MHBT36A	202.55	27.4	36	36	30.194	32

Item	Product ID	Qty	Description	Yards	Weight
Rim	CIR1180	1	A-1180 RING NO NOTCH	0	190
Top 3	MHL72	1	72 IN CONCENTRIC FLAT LID	1.07	4200
Item 2	MHS72X4	1	72 IN X 4 FT MH SECTION	1.81	7240
Item 1	MHS72X4	1	72 IN X 4 FT MH SECTION	1.81	7240
Base	PMHB72	1	72 IN X VAR HEIGHT MONOLITHIC PRECAST	2.75	11017
Misc 1	CICSV	1	COVER - SEWER VENTED	0	150
Access.	MHBT36A	2	36A DD BOOT w/ (4) 296 Clamp	0	0
Access.	MHBTCAS603 10in	1	603 - 10.5in CAST A SEAL BOOT w/ Single 18	0	0
Access.	MASJT1.25	6	1 1/8in X 3/4in X 14 FT JOINT MASTIC	0	0



Item	Product ID	Qty	Description	Yards	Weight
Rim	CIR1180	1	A-1180 RING NO NOTCH	0	190
Top 3	MHL72	1	72 IN CONCENTRIC FLAT LID	1.07	4200
Item 2	MHS72X4	1	72 IN X 4 FT MH SECTION	1.81	7240
Item 1	MHS72X4	1	72 IN X 4 FT MH SECTION	1.81	7240
Base	PMHB72	1	72 IN X VAR HEIGHT MONOLITHIC PRECAST	2.75	11017
Misc 1	CICSV	1	COVER - SEWER VENTED	0	150
Access.	MHBT36A	2	36A DD BOOT w/ (4) 296 Clamp	0	0
Access.	MHBTCAS603 10in	1	603 - 10.5in CAST A SEAL BOOT w/ Single 18	0	0
Access.	MASJT1.25	6	1 1/8in X 3/4in X 14 FT JOINT MASTIC	0	0

CHECK OFF	
Engineer/Contractor	
Office Check	
Set Up	
Pre Pour	
Post Pour	
Pre Ship	



DOCUMENT 00 00 30
TABLE OF CONTENTS

Downtown Sewer Improvements
and
Downtown Sewer Pumping Station

Reference Number	Title	No. of Pages
-----------------------------	--------------	-------------------------

INTRODUCTORY INFORMATION

00 00 10	Title Page.....	2
00 00 30	Table of Contents	8
00 00 40	List of Drawings.....	2

BIDDING REQUIREMENTS

BID SOLICITATION

00 10 00	Invitation to Bid.....	4
----------	------------------------	---

INSTRUCTIONS TO BIDDERS

00 20 00	Instructions to Bidders.....	14
00 22 00	Modifications to Instructions to Bidders.....	4
00 32 00	Geotechnical Data	2

BID FORMS

00 40 00	Bid	2
00 41 00	Bid Schedule.....	12

SUPPLEMENTS TO BID FORMS

00 45 30	Subcontractor and Supplier Report	2
----------	---	---

CONTRACTING REQUIREMENTS

AGREEMENT FORMS

00 50 00	Agreement	6
----------	-----------------	---

Reference Number	Title	No. of Pages
---------------------	-------	-----------------

BONDS AND CERTIFICATES

00 60 50	E Verify Form	2
00 61 00	Performance Bond.....	6
00 62 00	Payment Bond	6
00 65 00	Certificate of Insurance	2

SUPPLEMENTARY CONDITIONS

00 81 00	Modifications to the General Conditions	4
----------	---	---

ADDENDA AND MODIFICATIONS

00 90 00	Addenda and Modifications	2
----------	---------------------------------	---

DIVISION 01 - GENERAL REQUIREMENTS

01 11 00	Summary of Work.....	2
01 14 00	Work Restrictions.....	2
01 26 00	Contract Modification Procedures	2
01 29 00	Payment Procedures	6
01 30 00	Administrative Requirements.....	4
01 31 13	Coordination.....	2
01 32 16	Construction Progress Schedule.....	8
01 33 00	Submittal Procedures.....	8
01 42 13	Abbreviations	2
01 42 19	Reference Standards.....	2
01 45 00	Quality Control and Materials Testing.....	6
01 45 23	Testing Agency Services.....	4
01 50 00	Temporary Construction Utilities and Environmental Controls.....	6
01 50 30	Protection of Existing Facilities	6
01 55 26	Traffic Control.....	2
01 56 00	Dust Control	2
01 60 00	Product Requirements	4
01 71 13	Mobilization	2
01 78 20	Operation and Maintenance Manuals	2
01 78 50	Project Closeout	10

DIVISION 02 - EXISTING CONDITIONS

02 41 00	Demolition.....	4
----------	-----------------	---

Reference Number	Title	No. of Pages
---------------------	-------	-----------------

DIVISION 03 - CONCRETE

03 10 00	Concrete Forming and Accessories.....	4
03 20 00	Concrete Reinforcement.....	6
03 25 00	Expansion Joints, Construction Joints, and Waterstops	6
03 30 00	Cast-In-Place Concrete.....	18
03 31 05	Controlled Low Strength Material	6
03 60 00	Grout.....	12

DIVISION 04 - MASONRY

04 22 00	Reinforced Unit Masonry.....	12
----------	------------------------------	----

DIVISION 05 - METALS

05 45 00	Mechanical Metal Supports (Pipe Supports)	6
05 50 00	Miscellaneous Specialties	8

DIVISION 06 – WOOD, PLASTICS AND COMPOSITES

06 10 00	Rough Carpentry	6
----------	-----------------------	---

DIVISION 07 - THERMAL AND MOISTURE PROTECTION

07 21 00	Insulation	6
07 32 00	Metal Roofing Systems	6
07 62 00	Sheet Metal Flashing and Trim.....	8
07 92 00	Joint Sealants.....	8

DIVISION 08 – OPENINGS

08 10 00	Doors, Frames and Hardware.....	8
08 31 00	Access Hatches.....	4
08 33 23	Overhead Coiling Doors	8

DIVISION 09 – FINISHES

09 90 00	Painting and Finishes (HAL)	22
09 96 57	Epoxy Coating for Sewer Structures.....	8

Reference Number	Title	No. of Pages
---------------------	-------	-----------------

DIVISIONS 10 THROUGH 21 - NOT USED

DIVISION 22 – PLUMBING

22 10 10	Plumbing Piping and Specialties.....	8
22 13 29	Sanitary Sewerage Pumps.....	8

DIVISION 23 – HEATING, VENTILATION, AND AIR CONDITION

23 05 00	General HVAC Requirements	14
23 05 20	HVAC Identification	2
23 05 30	HVAC Operation and Maintenance Manuals.....	4
23 05 93	Testing, Adjusting and Balancing.....	6
23 06 03	Supporting Devices for HVAC	8
23 06 05	Mechanical Sound, Vibration and Seismic Control	4
23 06 07	Motors, Drives & Electrical Requirements.....	4
23 09 00	HVAC Control Systems.....	6
23 31 00	Ductwork	6
23 31 10	Ductwork Accessories.....	4
23 37 00	Air Outlets and Inlets	4
23 61 00	Refrigeration Equipment	6
23 76 00	Terminal Electric Heat Transfer Units.....	4
23 82 00	Power Ventilators	6
23 90 00	Air Filter	4

DIVISIONS 24 THROUGH 25 – NOT USED

DIVISION 26 – ELECTRICAL

26 05 00	Electrical General Requirements.....	10
26 05 05	Operation and Maintenance Manuals	4
26 05 07	Electrical Power System Studies.....	16
26 05 08	Electrical Acceptance Tests	18
26 05 09	Electrical Identification	4
26 05 10	Equipment For Hazardous Locations.....	6
26 05 19	Conductors and Cables.....	4
26 05 22	Wiring Devices.....	4
26 05 24	Equipment Wiring.....	4
26 05 26	Grounding and Bonding.....	4
26 05 30	Conduits.....	10
26 05 32	Conduit Ductbanks	2
26 05 34	Electrical Boxes and Fittings.....	2

Reference Number	Title	No. of Pages
26 05 74	Electrical Motors	10
26 09 13	Control Devices.....	10
26 16 00	Panels and Consoles.....	10
26 20 00	Service and Distribution Systems	2
26 22 00	Dry Type Transformers.....	2
26 24 16	Branch Circuit Panelboards.....	6
26 24 21	Motor Starters.....	4
26 26 00	Terminal Blocks	2
26 28 13	Fuses	2
26 28 19	Disconnect Switches	2
26 29 23	Pulse Width Modulated Variable Frequency Drives	10
26 32 00	Standby Engine Generator	14
26 33 00	Static Un-Interruptible Power Supply.....	4
26 35 53	Surge Protection Devices	8
26 36 23	Automatic Transfer Switches.....	12
26 41 00	Lightning Protection Systems	4
26 51 13	Interior Luminaries.....	8
26 56 00	Area Lighting	8
26 80 10	HVAC Systems Control.....	2

DIVISION 27 – COMMUNICATIONS

27 08 01	Testing Calibration and Commissioning	20
27 15 13	Copper Horizontal Cabling	8
27 16 19	Patch Cords, Station Cords & Cross Connect Wire.....	6

DIVISIONS 28 THROUGH 30 – NOT USED

DIVISION 31 – EARTH WORK

31 05 19	Geosynthetics	4
31 11 00	Clearing, Grubbing, and Stripping.....	2
31 22 00	Site Grading.....	4
31 23 15	Excavation and Backfill for Pipelines.....	10
31 23 19	Dewatering	2
31 23 23	Excavation and Backfill for Structures	6

DIVISION 32 – EXTERIOR IMPROVEMENTS

32 11 23	Road Base – Untreated Base Course	4
32 12 16	Hot-Mix Asphalt Concrete Paving.....	6
32 31 13	Chain Link Fences and Gates (Galvanized).....	6

Reference Number	Title	No. of Pages
---------------------	-------	-----------------

DIVISION 33 – UTILITIES

33 05 03	Copper Pipe	4
33 05 05	Ductile Iron Pipe	10
33 05 07	Polyvinyl Chloride (PVC) Pressure Pipe Rubber Joints (AWWA C900)	6
33 05 07.2	Polyvinyl Chloride (PVC) Sewer Pipe (ASTM D 3034 & F 679).....	8
33 05 11	HDPE Pipe	10
33 05 13	Precast Concrete Manholes and Structures.....	6
33 08 30	Gravity Pipeline Testing.....	8
33 12 00	Mechanical Appurtenances	6
33 30 05	Glass-Fiber Reinforced Polymer (GFRP) Pipe.....	6

DIVISIONS 34 – NOT USED

DIVISION 33 – UTILITIES

35 20 16.03	Stainless Steel Hydraulic Slide Gates	8
-------------	---	---

DIVISIONS 36 THROUGH 39 – NOT USED

DIVISION 40 – PROCESS INTEGRATION

40 10 00	Process Control and Instrumentation System - General	12
40 11 00	Programmable Logic Controller (PLC)	6
40 15 06	PLC Programming Software.....	12
40 15 07	Control Systems – Network Equipment	8
40 15 10	Process Control Strategies.....	10
40 20 00	Instruments General	6
40 21 20	Magnetic Flow Meters	2
40 24 10	Level Detector	2
40 27 10	Liquid Level Switches.....	2
40 27 60	Pressure Switches and Seals.....	4
40 71 00	Control Systems – Panels, Enclosures and Components.....	24
40 91 23	Miscellaneous Properties Measurement Devices	4
40 94 33	Control Systems – Human Machine Interface Software	4

DIVISION 41 – UTILITIES

41 22 13.13	Overhead Bridge Cranes	10
41 22 23.19	Monorail Hoists	8

Reference Number	Title	No. of Pages
---------------------	-------	-----------------

DIVISIONS 42 THROUGH 43 – NOT USED

DIVISION 44 – POLLUTION AND WASTE CONTROL EQUIPMENT

44 31 20	Dry Air Scrubbers	4
----------	-------------------------	---

DIVISION 45 – NOT USED

DIVISION 46 – PROCESS INTEGRATION

46 21 13	Chain & Rake Bar Screen System	6
46 24 33	Open Channel Grinders.....	14
46 24 37	Screenings Washing & Compacting Equipment	10
46 25 48	Submersible Chopper Pumps For Grease Removal	6

APPENDICES

Appendix A		
	Geotechnical Investigation Reports.....	89
Appendix B		
	Subsurface Utility Investigation Data	28
Appendix C		
	City of South Salt Lake Market Station Sewer Drawings	16
	City of South Salt Lake Main Wastewater Lift Station Drawings	38
	Central Valley Water Reclamation Facility South Salt Lake Force Main Drawings.....	25

END OF TABLE OF CONTENTS

**Reference
Number Title**

**No. of
Pages**

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DOCUMENT 00 10 00
INVITATION TO BID

PART 1 GENERAL

1.1 CONSTRUCTION CONTRACT

A. Bidders are invited to bid on Construction Contract known as Downtown Sewer Improvements and Downtown Sewer Pumping Station. **Only Bidders who have been pre-qualified by OWNER may submit bids on this project.**

B. The location of the work is:

Bid Schedule A – covers work on Downtown Sewer Improvements: Utopia Avenue; 300-feet east of 300 West To 300 West, 300 West; Utopia Avenue To Andy Avenue, and Andy Avenue; 300 West To Downtown Sewer Pumping Station (2250 South 600 West).

Bid Schedule B – covers work on Downtown Sewer Pumping Station: 2250 South 600 West.

Bid Schedule C – covers work on West Temple Sewer Improvements: West Temple Street; 2400 South To Utopia Avenue.

C. The work to be performed consists of furnishing and installing the equipment, facilities, services and appurtenances thereto as included in the Contract Documents. The Work generally includes, but is not limited to, the following:

Downtown Sewer Improvements: The installation of approximately 2,805-feet of new 48-inch GRFP (or PVC SDR35) and HDPE (IPS) sewer pipeline with manholes along Utopia Avenue; 300-feet east of 300 West To 300 West, 300 West; Utopia Avenue To Andy Avenue, and Andy Avenue; 300 West To Downtown Sewer Pumping Station (2250 South 600 West). The total length of pipe includes replacing existing 30-inch sewers, by-pass pumping, surface restoration, reconnection of service laterals, coordination with UTA, and incidental work to provide a functioning sewer system.

Downtown Sewer Pumping Station: The construction of a new sewer pumping station at 2250 South 600 West with a capacity of 5,100 gallons per minute, wet well, building, electrical, controls, SCADA, storm drainage, commissioning, startup, and site restoration, and incidental work to provide a functioning sewer system.

West Temple Sewer Improvements: The installation of approximately 1,848-feet of new 30-inch GFRP (or PVC SDR35) sewer pipeline with manholes along West Temple Street; 2400 South to Utopia Avenue. The total length of pipe includes replacing existing 18” sewers, by-pass pumping, surface restoration, reconnection of service laterals, coordination with UTA, installing 75-feet of 30-inch pipe with 40-inch new steel casing jack and bored under UTA tracks, and incidental work to provide a functioning sewer system.

- D. For information about the award of this Construction Contract, contact Dennis Pay at 801-483-6038.

1.2 BID LOCATION AND OPENING

- A. Sealed bids will be received at the City Recorder's office until 2:00 p.m., on Wednesday, June 5, 2024 at the City offices located on the second floor at 220 East Morris Avenue, South Salt Lake City, Utah 84115. Sealed bids will be received based on local prevailing time, as conclusively established by the clock at the Bid opening location. Bids received after 2:00 p.m. will not be accepted. Bids will be publicly opened and read by OWNER as soon as possible.
- B. On the outside of the envelope, the bidder shall indicate the Construction Contract title, the name and mailing address of the Bidder, and the date and time of Bid opening.

1.3 BID SECURITY

- A. Bid security in the amount of 5.0 percent of the Bid must accompany each Bid in accordance with the Instructions to Bidders. Bid Security will be returned to each unsuccessful Bidder after tabulation and award of the Construction Contract.

1.4 PRE-BID CONFERENCE

- A. A mandatory pre-bid conference will be held for this project at 2:00 p.m., on Wednesday, May 1, 2024 at the City offices located on the second floor at 220 East Morris Avenue, South Salt Lake City, Utah 84115.

1.5 BASIS OF BIDS

- A. Bids shall be on a unit price basis. Unsealed or segregated Bids will not be accepted.

1.6 CONTRACT TIME

- A. CONTRACTOR shall begin work on a date mutually agreed upon by CONTRACTOR, and the Owner, but no later than the dates shown below for each bid schedule. One construction work is started on a bid schedule/segment, CONTRACTOR shall complete all work related to that bid schedule within the number of calendar days shown.
- B. **Bid Schedule A** – covers work on Downtown Sewer Improvements: Utopia Avenue; 300-feet east of 300 West To 300 West, 300 West; Utopia Avenue To Andy Avenue, and Andy Avenue; 300 West To Downtown Sewer Pumping Station (2250 South 600 West).
1. Achieve substantial completion no later than May 31, 2026
- C. **Bid Schedule B** – covers work on Downtown Sewer Pumping Station: 2250 South 600 West.
1. Achieve substantial completion no later than May 31, 2026.

D. **Bid Schedule C** – covers work on West Temple Sewer Improvements: West Temple Street; 2400 South To Utopia Avenue.

1. Achieve substantial completion no later than [May 31, 2026](#).

1.7 EXAMINATION AND PROCUREMENT OF DOCUMENTS

A. Complete sets of Contract Documents will be transmitted to Bidders who have been pre-qualified by OWNER.

1.8 RIGHT TO REJECT BIDS

A. OWNER reserves the right to reject any or all bids or to waive any informality or technicality in any bid if deemed to be in the best interest of OWNER.

1.9 VALIDITY PERIOD FOR BIDS

A. Bids shall remain valid for 45 days after the day of Bid opening. Bidders, who withdraw their bid after Bid opening, but before expiration of said period, shall forfeit their bid security if Notice of Intent to Award to the successful Bidder is made by OWNER.

1.10 GOVERNING LAWS AND REGULATIONS

A. This project is not federally funded and does not require the payment of specific wage rates. Payroll submittal will not be required.

B. Bidders on this Work will be subject to the applicable provisions of all federal rules, laws and regulations or orders.

C. In compliance with Americans with Disabilities Act, (ADA) the following information is provided: FAX Number 801-483-6060, TDD Number 801-467-1147, Contact person: Dennis Pay.

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SECTION 31 23 15
EXCAVATION AND BACKFILL FOR BURIED PIPELINES

PART 1 GENERAL

1.1 SUMMARY

- A. This item shall consist of excavating all pipeline trenches to the lines and grades indicated on the Contract Drawings or as directed by ENGINEER in the field, and the backfilling of all pipeline trenches. Excavation shall include the removal of all materials of whatever nature encountered to the depths shown on the Contract Drawings, or as modified in the Field by ENGINEER.

1.2 RELATED SECTIONS

- A. Related Work specified in other Sections includes, but is not limited to:
1. Section 01 33 00 Submittal Procedures
 2. Section 01 45 00 Quality Control & Materials Testing
 3. Section 01 50 00 Temporary Construction Utilities and Environmental Controls
 4. Section 31 23 19 Dewatering
 5. Section 31 23 23 Excavation and Backfill for Structures
 6. Section 33 05 05 Ductile Iron Pipe
 7. Section 33 05 11 HDPE Pressure Pipe

1.3 REFERENCES

- A. The latest edition of the following publications form a part of this Specification to the extent referred. The publications are referred to in the text by basic designation only.
- B. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)
1. M 145 Standard Specification for Classification of Soils and Soil-Aggregate Mixtures for Highway Construction Purposes
 2. T 27 Standard Method of Test for Sieve Analysis of Fine and Coarse Aggregates
 3. T 88 Standard Method of Test for Particle Size Analysis of Soils
 4. T 96 Standard Method of Test for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
 5. T 180 Standard Method of Test for Moisture Density Relations of Soils Using a 10 lb. (4.54 kg) Rammer and an 18 in (457 mm) Drop
 6. T 191 Standard Method of Test for Density of Soil In Place by the Sand Cone Method
 7. T 205 Density of Soil In-Place by the Rubber-Balloon Method
 8. T 238 Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
 9. T 239 Moisture Content of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
 10. T 310 Standard Specification for In-Place Density and Moisture Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

C. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

1. C 131 Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
2. C 136 Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
3. D 422 Standard Test Method for Particle Size Analysis of Soils
4. D 698 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lb/ft³)
5. D 1556 Standard Test Method for Density and Unit Weight of Soil in Place by the Sand Cone method
6. D 1557 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lb/ft³)
7. D 2321 Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity -Flow Applications
8. D 2487 Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)
9. D 6938 Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

1.4 DEFINITIONS

- A. Degree of Compaction: Degree of compaction shall be expressed as a percentage of the maximum density obtained by the test procedure presented in ASTM D 1557.
- B. Pipe Zone: That zone in an Excavation which supports, surrounds, and extends to 12 inches above the top of the pipe barrel. Specifically, 4 inches below the bottom (where rock, hard pan, boulders, etc. are encountered), 12 inches above the top of the pipe, and 1 foot laterally beyond both sides of the pipe, unless noted otherwise on the Drawings.
- C. Trench Zone Backfill: That zone in an Excavation which begins 12 inches above the top of the pipe barrel and extends to the natural surface level or the finished grade indicated on the Plans.
- D. Unyielding Material: Unyielding material shall consist of rock and gravelly soils with stones greater than 12 inches in any dimension or as defined by the pipe manufacturer, whichever is smaller.
- E. Unstable Material: Unstable material shall consist of materials too wet to allow backfill compaction or to properly support the utility pipe, conduit, or appurtenant structures.
- F. Rock: Solid mineral material which cannot be removed with equipment reasonably expected to be used in the Work without cutting, drilling or blasting. Minimum equipment size, in good running order, shall be similar to a **Komatsu 300, Caterpillar 320 or 330**, or equal.

1.5 SUBMITTALS

- A. The following shall be submitted in accordance with Section 01 33 00 - Submittal Procedures:

1. Copies of Field Density Test reports shall be submitted to ENGINEER or RPR at the beginning of each workday for the previous day's testing of subgrades, embankments and backfill Materials.
2. Copies of all Laboratory Test Reports shall be submitted to ENGINEER or RPR within 24 hours of the completion of the test.
3. Submit gradations and proctors for Pipe Zone Material and Trench Zone Backfill, and any other imported materials.
4. Excavation Protection Plan: Describe sheeting, shoring, and bracing materials and installation required to protect excavations and adjacent structures and property; include structural calculations to support plan.

1.6 SITE CONDITIONS

- A. Unsuitable Weather Limitations: CONTRACTOR shall not place, spread, or roll any fill material during unsuitable weather conditions. CONTRACTOR shall not resume operations until moisture content of material is satisfactory.
- B. Weather Softened Subgrade: CONTRACTOR shall remove and replace at no additional cost to OWNER soft subgrade materials resulting from adverse weather conditions.
- C. Protection of Graded Areas: CONTRACTOR shall protect all graded areas from traffic and erosion and shall keep these areas free of trash and debris. Work required to repair and reestablish grades in settled, eroded, and rutted areas shall be completed to specified tolerances at CONTRACTOR's expense.
- D. Reconditioning Compacted Areas: All areas compacted to required specifications that become disturbed by subsequent construction operations or weather conditions shall be scarified, moisture conditioned, and re-compacted to the required density prior to further construction.
- E. Grading: the final compacted surface of base course shall not vary more than 1/4 inch above or below design grade.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Stabilization Material: Stabilization material shall consist of hard, durable particles of stone or gravel, screened or crushed to the required size and gradation. The material shall be free from vegetation matter, lumps or balls of clay, or other deleterious matter and shall conform to the following gradation when tested in accordance with AASHTO T 27 or ASTM C 136.
 1. Coarse material shall be crushed or washed and fine material shall be wasted to meet the grading requirements set forth below. Note that if stabilization material is required, an 8 oz. non-woven filter fabric shall be placed between the stabilization material and the pipe zone material.
 2. Coarse aggregate, retained on the No. 4 sieve, shall have a percentage of wear not greater than 40 percent when tested by the Los Angeles Test, AASHTO T-96 or ASTM C 131.

<u>Sieve Size (Square Opening)</u>	<u>Percent By Weight Passing Screen</u>
2-inch	100
1-1/2 inch	10 - 50
3/4-inch	0 - 25
No. 4	0 - 10
No. 200	0 - 3

B. Pipe Zone Material: All material in the pipe zone shall be clean and free from alkali, salt, petroleum products, vegetative matter or other deleterious matter, slag, cinders, ashes and rubbish or other material that in the opinion of the ENGINEER may be objectionable or deleterious. "Squeegee" or any other flowable material shall not be permitted. Pipe zone material shall conform to the following:

1. GFRP Pipe

a. Pipe zone material for GFRP pipe shall be Granular Backfill Borrow meeting the following requirements:

- 1) Classification A-1, ASTM D3282
- 2) Well graded
- 3) Particle size, 3/4-inch maximum

2. PVC Pipe

a. Pipe zone material for PVC pipe shall be Granular Backfill Borrow meeting the following requirements:

- 1) Classification A-1, ASTM D3282
- 2) Well graded
- 3) Particle size, 3/4-inch maximum

3. Ductile Iron Pipe (DIP), Reinforced Concrete Pipe (RCP)

a. Pipe zone material for DIP and RCP shall be Granular Backfill Borrow meeting the following requirements:

- 1) Classification A-1, ASTM D3282
- 2) Well graded
- 3) Particle size, 3/4-inch maximum

4. High Density Polyethylene (HDPE)

a. Pipe zone material for HDPE shall be Granular Backfill Borrow meeting the following requirements:

- 1) Classification A-1, ASTM D3282
- 2) Well graded
- 3) Particle size, 3/4-inch maximum

C. Trench Backfill: imported granular trench backfill shall be used and shall consist of materials meeting soils classifications A-1, A-2, or A-3, ASTM D3282, well graded, and shall be non-plastic. Maximum particle size for backfill shall be no greater than 2 inches. Imported granular trench backfill shall be capable of meeting the compaction requirements.

PART 3 EXECUTION

3.1 EXCAVATION

- A. Excavation shall be performed to the lines and grades indicated. All excavated materials not intended for reuse shall be removed from the site and disposed of by the Contractor.
- B. Rock Removal
 - 1. CONTRACTOR shall cut away Rock at excavation bottom to form level bearing.
 - 2. All shaled layers shall be removed to provide sound and unshattered base for foundations.
 - 3. CONTRACTOR shall remove and legally dispose of excess excavated material and debris off-site unless indicated otherwise.
 - 4. CONTRACTOR shall correct unauthorized Rock removal at no additional cost to OWNER.

3.2 SAFETY

- A. Excavations shall be sloped or otherwise supported in a safe manner in accordance with applicable State safety requirements and the latest requirements of OSHA Safety and Health Standards for Construction (29 CFR 1926). CONTRACTOR is responsible for assessing safety needs to meet such requirements, arranging for proper equipment and/or construction methods, and maintaining such equipment, methods and construction practices so as to fully comply with all safety requirements.
- B. CONTRACTOR is responsible for assessing needs related to confined space entry, as defined by OSHA. CONTRACTOR shall meet all such requirements, arranging for proper equipment and/or construction methods, and maintaining such equipment, methods and construction practices so as to fully comply with all confined space safety requirements.

3.3 DEWATERING

- A. Water removal shall be in accordance with Section 31 23 19 - Dewatering.

3.4 TRENCH WIDTH

- A. The bottom of the trench shall have a minimum width equal to the outside diameter of the pipe plus 24-inches or as detailed on the Contract Drawings.
- B. The width of the trench shall be ample to permit the pipe to be laid and jointed properly, and the backfill to be placed and compacted as specified. Trenches shall be of such extra width, when required, as will permit the convenient placing of timber supports, sheeting, and bracing, and the handling of special units as necessary.

3.5 TRENCH PREPARATION

- A. Each trench shall be excavated so that the pipe can be laid to the alignment and grade as required. The trench wall shall be so braced that the workmen may work safely and efficiently. All trenches shall be drained so the pipe laying may take place in dewatered conditions.

B. Bottom Preparation

1. Pipe Bedding: The bottom of the trench shall be excavated below the bottom of the pipe, excluding the bell, and replaced with Pipe Zone Backfill. The pipe bedding shall be 4 inches deep (minimum) for pipes up to 24" in diameter. For larger pipe, the pipe bedding shall be 6 inches deep or 1/12 the outside diameter of the pipe (minimum), whichever is greater. If a pipe manufacturer's recommendations exceed these depths, the stricter requirements will govern.
2. Where rock, hard pan, boulders or other material which might damage the pipe are encountered, the bottom of the trench shall be over excavated 4 inches below the pipe bedding and replaced with Stabilization Material.
3. The bottoms of trenches shall be accurately graded to provide uniform bearing and support for the bottom quadrant of each section of the pipe. Bell holes shall be excavated to the necessary size at each joint or coupling to eliminate point bearing. Stones of 1-inch or greater in any dimension, or as recommended by the pipe manufacturer, whichever is smaller, shall be removed to avoid point bearing.

C. Removal of Unstable Material

1. Where unstable material is encountered in the bottom of the trench, such material shall be removed to the depth directed by ENGINEER and replaced to the proper grade with Stabilization Material. When removal of unstable material is required due to the fault or neglect of CONTRACTOR in his performance of the work, the resulting material shall be excavated and replaced by CONTRACTOR without additional cost to OWNER.

- D. The trench bottom (at the level of the base of the pipe) shall be given a final trim using a string line, laser, or another method approved by ENGINEER for establishing grade, such that each pipe section when first laid will be continually in contact with the ground along the extreme bottom of the pipe. Bell holes shall be provided at each joint to permit the jointing to be made properly. The trench grade shall permit the pipe spigot to be accurately centered in the preceding laid pipe joint, without lifting the pipe above the grade, and without exceeding the permissible joint deflection.

3.6 SHEETING AND SHORING

- A. Sheet, shore, and brace excavations to prevent danger to persons, structures and adjacent properties and to prevent caving, erosion, and loss of surrounding subsoil.
- B. Support trenches excavated through unstable, loose, or soft material. Provide sheeting, shoring, bracing, or other protection to maintain stability of excavation.
- C. Design sheeting and shoring to be removed at completion of excavation work.
- D. Repair damage caused by failure of the sheeting, shoring, or bracing and for settlement of filled excavations or adjacent soil.
- E. Repair damage to new and existing Work from settlement, water or earth pressure or other causes resulting from inadequate sheeting, shoring, or bracing.

3.7 LAYING AND JOINING PIPE

- A. Laying pipe: Provide proper facilities for lowering pipe sections into place. Dropping pipe will not be permitted. Place each section true to line and gradient in close and true contact with adjacent sections.

- B. Joining pipe:
 - 1. Use methods of joining conduit sections ensuring ends are fully entered and inner surfaces are flush and even. The equipment used to force the joints together must be adequate to overcome the gasket pressure involved. Pipe shall be installed in accordance with these specifications and the manufacturers written specifications.
 - 2. Just prior to joining the pipes, both spigot and bell ends shall be thoroughly cleaned to remove all foreign substances which may have adhered to the bell and spigot surfaces. All dust and dirt shall be removed with a clean rag. An approved lubricant (recommended by the manufacturer), that is not injurious to the gasket, shall be applied in accordance with the manufacturer's recommendations.
 - 3. In the event any foreign material becomes embedded in the lubricant, or the lubricant becomes contaminated by water or other substances before the joint is started, the area affected shall be re-cleaned and new lubricant applied.
 - 4. The pipe being joined shall be carefully moved into position, line and grade checked, and, as the spigot end is started into the bell of the section previously laid, the gasket shall be checked to insure uniform entry into the bell at all points. Align the spigot to the bell and insert the spigot into the bell until it contacts the gasket uniformly. Apply firm steady pressure either by hand or by bar and block assembly, until the spigot easily slips through the gasket. Care must be taken to ensure that the spigot is not over-inserted and that previously assembled pipe joints are not disturbed.

3.8 PIPELINE TRENCH BACKFILLING AND COMPACTION

- A. Pipe Zone:
 - 1. Pipe Zone Backfill shall be placed in layers not exceeding 6 inches loose thickness for compaction by hand operated machine compactors, and 8 inches loose thickness for other than hand operated machines, unless otherwise approved or specified. The backfill shall be brought up evenly on both sides of the pipe for the full length of the pipe. Care shall be taken to ensure thorough compaction of the fill under the haunches of the pipe. Each layer shall be compacted to at least 95 percent of the maximum Modified Proctor density (ASTM D-1557), unless otherwise specified.
 - 2. Replacement of Unyielding Material: Unyielding material removed from the bottom of the trench shall be replaced with Stabilization Material placed in layers not exceeding 6 inches loose thickness.
 - 3. Replacement of Unstable Material: Unstable material removed from the bottom of the trench or excavation shall be replaced with Stabilization Material placed in layers not exceeding 6 inches loose thickness.
 - 4. Where the pipe grade exceeds 30%, cohesive material shall be used in lieu of pipe bedding. The cohesive material shall be moistened to within 2% of optimum moisture and compacted as noted.
 - 5. The relative density of the compacted cohesionless material shall not be less than 60% as determined by the Bureau of Reclamation Relative Density of Cohesionless Soil Test (Designation E-12) of the "Earth Manual."

B. Trench Backfill: Trenches shall be backfilled to the grade shown with Trench Backfill material as specified.

1. Trench backfill in asphalted road shall consist of backfilling the trench from above the pipe zone up to underneath the noted recommended depth for untreated base course and asphalt or concrete of finished grade with Trench Backfill material compacted to 95 percent of maximum density (ASTM D-1557). Backfill shall be placed in layers not exceeding 6-inches loose thickness for compaction by hand operated machine compactors, and 8 inches loose thickness for other than hand operated machines, unless otherwise approved or specified.
2. Trench backfill in unimproved or landscaped areas shall consist of backfilling the trench from above the pipe zone to 8-inches below finished grade with Trench Backfill material compacted to 95 percent of maximum density (ASTM D-1557). Backfill from 8-inches below finished grade to finished grade shall consist of topsoil replacement in addition to replacement of all landscaped materials. Trench backfill shall be placed in layers not exceeding 8 inches loose thickness.
3. It shall be the responsibility of CONTRACTOR to be assured that the Trench Backfill material is capable of being compacted to the degree specified. It shall be CONTRACTOR's responsibility to remove and dispose of all excess excavated material.

C. Final Backfill:

1. Unimproved and Landscaped Areas: The top 8-inches of the trench shall be filled with topsoil. Topsoil may be native material stripped prior to excavation of the trench. Backfill shall be deposited in layers of a maximum of 12-inch loose thickness and compacted to a minimum of 85 percent maximum density (ASTM D-1557). Compaction by water flooding or jetting will not be permitted. This requirement shall also apply to all other areas not specifically designated above.
2. Roadways shall be completed with the type and thickness of materials (i.e., Untreated Road Base and Asphalt) as indicated or shown on the Contract Drawings

3.9 SPECIAL REQUIREMENTS

A. Special requirements for both excavation and backfill relating to the specific utilities from above the pipe zone to the natural surface level or the finished grade indicated on the Plans shall be placed and compacted as follows:

1. Where existing underground pipes or conduits larger than 3 inches in diameter and all sizes of sewer lines or sewer laterals cross the trench above the new work, the backfill from the bottom of the trench to 1 foot above the top of the intersecting pipe or conduit shall be pipe zone material compacted to 95 percent of maximum density (ASTM D-1557). The pipe zone material shall extend 2 feet on either side of the intersecting pipe or conduit to ensure that the material will remain in place while other backfill is placed.

B. The maximum trench length open at any given time shall not exceed 200 feet unless approved by ENGINEER and must be backfilled in a timely manner.

3.10 MAINTENANCE OF BACKFILL

- A. All backfill shall be maintained in satisfactory condition, and all places showing signs of settlement shall be filled and maintained during the life of the Contract and for a period of one year following the day of final acceptance of all work performed under the Contract. When CONTRACTOR is notified by ENGINEER or OWNER that any backfill is hazardous, CONTRACTOR shall correct such hazardous condition at once. Any utility, road and/or parking surfacing damaged by such settlement shall be repaired by CONTRACTOR to the satisfaction of OWNER and ENGINEER. In addition, CONTRACTOR shall be responsible for the cost to OWNER of all claims for damage filed with the Court, actions brought against the said OWNER for, and on account of, such damage.

3.11 FINISH GRADING AND CLEANUP

- A. CONTRACTOR shall grade the trench line to a smooth grade to affect a neat and workmanlike appearance of the trench line.
- B. All tools, equipment and temporary structures shall be removed. All excess dirt and rubbish shall be removed from the site by CONTRACTOR.
- C. CONTRACTOR shall restore the site to at least as good as original condition, including but not limited to final trench grade and restoration of affected public and private facilities whether in the public right-of-way or on private property. Any exception to this requirement must be in writing from ENGINEER for the job specific conditions.

3.12 COMPACTION TESTS

- A. It shall be the responsibility of CONTRACTOR to accomplish the specified compaction for backfill, fill, and other earthwork. It shall be the responsibility of CONTRACTOR to control his operations by performing any additional tests necessary to verify and confirm that CONTRACTOR has complied, and is complying at all times, with the requirements of these Specifications concerning compaction, control, and testing.
 - 1. Testing of Backfill Materials
 - a. Characteristics of backfill materials shall be determined in accordance with the requirements of Section 01 45 00 - Quality Control & Materials Testing.
 - b. The CONTRACTOR shall demonstrate the adequacy of compaction equipment and procedures before exceeding any of the following amounts of earthwork quantities:
 - i) 50 linear feet of trench backfill.
 - c. Until the specified degree of compaction on the previously specified amounts of earthwork is achieved, no additional earthwork of the same kind shall be performed.
 - d. After satisfactory conclusion of the initial compaction demonstration and at any time during construction, earthwork which does not comply with the specified degree of compaction shall not exceed the previously specified quantities.
 - e. Compliance tests may be made by ENGINEER to verify that compaction is meeting the requirements previously specified at no cost to CONTRACTOR.
 - f. ENGINEER may require retesting of backfill that has settled from water penetration in the trench. CONTRACTOR shall remove the overburden above

the level at which ENGINEER wishes to test and shall backfill and recompact the excavation after the test is complete at no additional cost to the OWNER.

- g. If compaction fails to meet the specified requirements, CONTRACTOR shall remove and replace the backfill at proper density or shall bring the density up to specified level by other means acceptable to ENGINEER. Subsequent tests required to confirm and verify that the reconstructed backfill has been brought up to specified density shall be paid by CONTRACTOR. CONTRACTOR's confirmation tests shall be performed in a manner acceptable to ENGINEER

2. Field Density Tests

- a. Field density tests shall be made in accordance with ASTM D 1557.

- END OF SECTION -

SECTION 33 05 11
HDPE PIPE

PART 1 GENERAL

1.1 DESCRIPTION

- A. This section covers furnishing and installation of high-density polyethylene (HDPE) pipe as shown in the Contract Drawings and specified herein.

1.2 RELATED WORK

- A. Related Work specified in other Sections includes, but is not limited to:
1. Section 01 33 00 Submittal Procedures
 2. Section 31 23 15 Excavation and Backfill of Buried Pipelines
 3. Section 33 08 30 Gravity Pipeline Testing

1.3 REFERENCES

- A. The Work covered by this Specification shall meet or exceed the provisions of the latest editions of the following Codes and Standards in effect at the time of award of the Contract. The publication is referred to in the text by basic designation only.

B. AMERICAN SOCIETY FOR TESTING MATERIALS (ASTM)

1. ASTM D 1248 Standard Specifications for Polyethylene Plastics Extrusion Materials for Wire and Cable
2. ASTM D 2321 Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications.
3. ASTM D 2683 Standard Specification for Socket-Type Polyethylene Fittings for Outside Diameter-Controlled Polyethylene Pipe and Tubing
4. ASTM D 2837 Standard Test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials or Pressure Design Basis for Thermoplastic Pipe Products
5. ASTM D 3261 Standard Specification for Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing
6. ASTM D 3350 Standard Specification for Polyethylene Plastic Pipe and Fittings Materials
7. ASTM F 585 Standard Guide for Insertion of Flexible Polyethylene Pipe Into Existing Sewers
8. ASTM F 714 Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Outside Diameter
9. ASTM F 1055 Standard Specification for Electrofusion Type Polyethylene Fittings for Outside Diameter Controlled Polyethylene and Crosslinked Polyethylene (PEX) Pipe and Tubing
10. ASTM F 1804 Standard Practice for Determining Allowable Tensile Load for Polyethylene (PE) Gas Pipe During Pull-In Installation
11. ASTM F 2620 Standard Practice for Heat Fusion Joining of Polyethylene Pipe and Fittings

- 12. ASTM F 3124 Standard Practice for Data Recording the Procedure used to Produce Heat Butt Fusion Joints in Plastic Piping Systems or Fittings
- 13. ASTM F 3183 Standard Practice for Guided Side Bend Evaluation of Polyethylene Pipe Butt Fusion Joint
- 14. ASTM F 3190 Standard Practice for Heat Fusion Equipment (HFE) Operator Qualification on Polyethylene (PE) and Polyamide (PA) Pipe and Fittings

C. AMERICAN WATER WORKS ASSOCIATION (AWWA)

- 1. AWWA C 901 Polyethylene (PE) Pressure Pipe and Tubing, 1/2"-inch through 3-inch, for Water Service.
- 2. AWWA C 906 Polyethylene (PE) Pressure Pipe and Fittings, 4-inch through 63-inch, for Water Distribution and Transmission.
- 3. AWWA M 55 PE Pipe – Design and Installation

D. PLASTICS PIPE INSTITUTE (PPI)

- 1. PPI Handbook Handbook of Polyethylene Pipe
- 2. PPI MAB-01 MAB Generic Electrofusion Procedure for Field Joining of 12 Inch & Smaller Polyethylene (PE) Pipe
- 3. PPI MAB-02 MAB Generic Electrofusion Procedure for Field Joining of 14 Inch to 30 Inch Polyethylene (PE) Pipe
- 4. PPI TR 33 Generic Butt Fusion Joining Procedure for Field Joining of Polyethylene Pipe

1.4 SUBMITTALS

A. Provide submittals in accordance with Section 01 33 00 – Submittal Procedures.

B. The following shall be submitted:

- 1. Product data sheets, brochures, and other information demonstrating conformance to applicable pipe specifications before pipe is installed.
- 2. Certified dimensional as-built drawings/profile of all installed pipe, specials, and fittings.
- 3. Details of fittings and specials such as elbows, tees, outlets, connections, test bulkheads, nozzles or other special items where shown in the Contract Drawings. All connections to jointed gasketed pipe materials, valves or fire hydrants must be restrained and supported independently to withstand the pressure transients, soil settlement, and external loading conditions.
- 4. The Supplier of the material shall submit, through CONTRACTOR, a Certificate of Compliance that the HDPE pipe and fittings furnished for this project meet or exceed the standards set forth in this Specification. CONTRACTOR shall submit these certificates to ENGINEER prior to installation of the pipe materials.
- 5. A plan for pipe joining and installation. The plan must be reviewed and approved by ENGINEER prior to pipe installation.
- 6. Provide a certification that personnel responsible for fusing the pipe have been trained and qualified per ASTM F 3190.
- 7. Information on manufacturer and model of machine to be used for fusion of HDPE pipe.

1.5 QUALITY ASSURANCE

- A. Pipe shall be subject to inspection at the place of manufacture. Notify ENGINEER not less than 14 days prior to the start of any phase of the pipe manufacture. During manufacture ENGINEER shall be given access to all areas of the process and shall be permitted to make inspections necessary to confirm compliance with the Specifications.
- B. Materials used in the manufacture of the pipe shall be tested in accordance with this Section and the referenced standards. CONTRACTOR shall perform said material tests. ENGINEER shall have the right to witness testing if CONTRACTOR's schedule is not delayed for convenience of ENGINEER.

PART 2 PRODUCTS

2.1 PIPE AND FITTINGS

- A. Pipe up to 3-inch nominal diameter shall meet the requirements of AWWA C901. Pipe 4-inch through 63-inch nominal diameter shall meet the requirements of AWWA C906.
- B. The high-density polyethylene pipe shall be manufactured by **JM Eagle, WL Plastics Corp.**, or approved equal, and shall have a minimum pressure rating as noted on the Contract Drawings. The HDPE pipe shall have designation of PE 4710 (IPS size), made from prime virgin resin with a minimum cell classification of PE 445574C or higher in accordance with ASTM F 714 and D 3350. The resin shall be listed by the Plastic Pipe Institute (PPI) in its pipe-grade registry Technical Report (TR) 4, "Listing of HDB/HDS/SDB/PDB/MRS for Thermoplastic Piping Materials or Pipe".
- C. Fittings shall be pressure rated to match the system piping to which they are joined. At the point of fusion, the outside diameter and minimum wall thickness of the fitting shall meet the outside diameter and minimum wall thickness specifications of AWWA C901 or AWWA C906 for the same size of pipe.
- D. Service connections shall be electrofusion saddles with stainless steel outlet, electrofusion saddle, tapping tees, or mechanical saddles. Electrofusion fittings shall be made of the same material as the mainline pipe and meet manufacturer standard ASTM F1055 and have a pressure rating equal to the pipe unless noted otherwise on the Contract Drawings. Tapping tees shall meet ASTM D3261 or ASTM D2683. Mechanical strap-on saddles can only be used where their use on PE pipe is approved by the mechanical saddle manufacturer. The body of the saddle shall be stainless steel with a minimum of 2-inch wide straps. The gasket material and design must be acceptable to PE pipe. Mechanical strap-on saddles will be installed per the manufacturer's instructions.

2.2 FUSION UNIT REQUIREMENTS

- A. All Fusion Equipment, whether new or used, rented, or owned, shall comply with the requirements of ISO 12176-1 "Equipment for Fusion Jointing Polyethylene Systems".
- B. The butt fusion equipment must be in satisfactory working order and the hydraulic system must be leak free. Heater plates shall be free from scrapes, gouges, and have a consistent clean coated surface. The pressure gauge and thermometer should be

properly calibrated. When requested by ENGINEER, records showing a maintenance service/inspection within 3 months prior to use for this project shall be provided.

- C. Rental Butt Fusion Equipment must be maintained by an Authorized Service and Repair Center with at least one Certified Master Mechanic on staff. When requested by ENGINEER, an inspection report detailing the components inspected within 3 months prior to arrival at the jobsite will be provided.
- D. For 16-inch diameter and larger pipe sizes, the butt fusion machine shall be capable of autonomously calculating the drag pressure and perform the shift sequence autonomously.
- E. Electrofusion Processors shall be maintained and calibrated per manufacturer's requirements and recommendations.

PART 3 EXECUTION

3.1 STORAGE AND HANDLING

- A. Pipe shall be stored on clean level ground to prevent undue scratching or gouging. Sections of pipe with deep cuts or gouges shall be removed and ends of pipes rejoined. Handling of the joined pipe shall be in such a manner that the pipe is not damaged by dragging over sharp or cutting objects.
- B. Lifting of joined pipe sections shall preclude concentration of bending stresses at joints and shall be done in a manner which evenly distributes lifting stresses along the full length of the pipe.
- C. Pipe shall be stored in a shaded area or covered to avoid temperature extremes which may cause the pipe to bow or warp.

3.2 EXCAVATION AND BACKFILL

- A. Excavation and backfill of trenches and for appurtenances and backfilling for high density polyethylene pipe shall be in accordance with Section 31 23 15 Excavation and Backfill for Buried Pipelines.

3.3 INSTALLATION

- A. High density polyethylene pipe shall be installed according to the requirements of ASTM D 2321, AWWA M 55, and the manufacturer's requirements. Wherever these requirements are in conflict, the more stringent requirement shall apply.
- B. Sections of pipe shall be joined into continuous lengths by the butt fusion method and shall be performed in strict conformance with the pipe manufacturer's recommendations using approved equipment. Sections of pipe shall be as long as practical to minimize the number of joints.
- C. High density polyethylene pipe shall be installed, backfilled, and allowed to acclimatize to the typical soil temperatures prior to connection to other piping systems.

3.4 FUSION AND JOINING

A. Fusion Joining Requirements:

1. All HDPE pipes shall be joined to by the heat fusion process which produces homogeneous, sealed, leak-tight joints. Tie-ins between sections of HDPE pipe shall be made by butt fusion whenever possible.
2. Butt Fusion: The pipe shall be joined by the butt fusion procedure outlined in ASTM F2620 or PPI TR 33. All fusion joints shall be made in compliance with the pipe or fitting manufacturer's recommendations. Fusion joints shall be made by qualified fusion technicians per ASTM F 3190. A record or certificate of training for the fusion operator must be provided which documents training to the fundamentals of ASTM F2620. Considerations should be given to, and provisions made, for adverse weather conditions, such as temperatures below freezing, precipitation, or wind, which is accepted by OWNER and ENGINEER. The use of a controlled cooling cycle procedure to reduce cooling time is acceptable only as part of a controlled cooling cycle procedure where testing demonstrates that acceptable joints are produced using the controlled cooling cycle procedure.
3. Electrofusion: Electrofusion for joints and appurtenances must be approved by OWNER and ENGINEER prior to beginning the project. Electrofusion joining shall be done in accordance with the manufacturer's recommended procedure. Other sources of electrofusion joining information are PPI MAB-01 and PPI MAB-02. The process of electrofusion requires an electric source, commonly called an electrofusion processor that has wire leads. The electrofusion processor must be capable of reading and storing the input parameters and the fusion results for later download to a record file. The qualification of the fusion technician shall be demonstrated by evidence electrofusion training within the past year on the equipment to be utilized for this project.

B. Fusion Operators:

1. The employer of the fusion machine operator is responsible for the fusion joint quality of the fusion weld made by that individual. The employer is responsible for documenting all training and qualification records for that individual, including compliance with any code requirements for fusion/bonder operators.
2. All HDPE fusion equipment operators shall be qualified in the procedure used to perform pipe joining. Fusion equipment operators shall have current, formal training on all fusion equipment employed on the project. Training received more than two years prior to operation with no evidence of activity within the past 6 months shall not be considered current.
3. For Projects with at least 5,000 feet or with pipe larger than 24-inches diameter, operators or their supervisor must have a current training certificate for the equipment to be used on the project.
4. When the fusion machine operator is employed by the HDPE pipe and fusion machine supplier, the supplier shall maintain an ISO 9001 Certified Quality Management System.

C. Butt Fusion Equipment:

1. For 6-inch and larger pipe sizes, the pipe butt fusion machine shall be a self-contained hydraulic fusion machine capable of butt fusing HDPE pipe. The carriage must be removable from the chassis for in-ditch use. The machine must be

- compatible with an electronic data recording device. Accessories will include all butt fusion inserts for the specified range of pipe sizes, a pyrometer kit for checking the surface temperature of the heater, extension cord of appropriate gauge (25 feet minimum), and hydraulic extension hoses (minimum of four). The butt fusion machine will be **McElroy**, or approved equivalent.
2. For 16-inch diameter and larger pipe sizes, the butt fusion machine shall be capable of autonomously calculating the drag pressure and perform the shift sequence autonomously.
 3. In areas where there may be insufficient space for layout of the entire length of fused pipe to be pulled-back, CONTRACTOR shall utilize a continuous HDPE pipe fusion equipment such as a PolyHorse by McElroy or other means to fuse the length of pipe necessary for the installation.

D. Fusion Data Recording:

1. For 6-inch and larger pipe sizes, McElroy DataLogger or equivalent fusion data recorder shall be used to record all fusion welds on hydraulically operated fusion machines. The device shall be capable of meeting the requirements of ASTM F3124. The device, or combination of devices, shall record the following variables of each fused joint:
 - a. Heater surface temperature- immediately before inserting the heater plate, measure with a pyrometer and manually enter into the weld record.
 - b. Gauge pressure during the initial heat cycle
 - c. Gauge pressure and elapsed time during the heat-soak cycle
 - d. Heater removal (dwell) time
 - e. Gauge pressure and elapsed time during the fusing/cool cycle
 - f. Drag pressure
 - g. Pipe diameter and wall thickness
 - h. Type of HDPE material (Specification and Classification) and manufacturer
 - i. Fusion Machine Identification
2. The device shall record the operator's name and a unique operator ID number, along with the date and time of each weld.
3. Records showing the device is up to date on all required calibration should be available for presentation when requested.
4. All fusion welds should be traceable to the report (via operator and weld ID) with an indentation weld stamp or by permanent paint marker/pen next to fusion weld.
5. A weld location map may be requested, prior to commencement of work, by the OWNER or OWNER's representative.

E. Butt Fusion Examination and Testing:

1. Examinations

- a. Visual: For pipe sections, examine the full exterior circumference for bead uniformity before cutting. After cutting the pipe section, review the interior bead. All beads should have visually acceptable bead formation as shown in Fig 4 and Appendix X2 of ASTM F 2620. In addition, the following characteristics are expected:
 - 1) There shall be no evidence of cracks or incomplete fusing.
 - 2) There shall be no evidence of captured objects (e.g., pipe shavings, facer ribbons) between bonded surfaces.
 - 3) Variations in upset bead heights on opposite sides of the cleavage and around the circumference of fused pipe joints are acceptable.
 - 4) The apex of the cleavage between the upset beads of the fused joint shall remain above the base material surface.
 - 5) Fused joints shall not display visible angular misalignment, and outside diameter mismatch shall be less than 10% of the nominal wall thickness.
 - 6) Fusion data record review that meets criteria of section 3.04.D.1 can be used as additional verification of visual indicators.
- b. Fusion Data Record Review: The fusion data record for each fused joint shall be compared to the approved fusion procedure. The reviewer shall verify the following:
 - 1) That all data required by section 3.04.D.1 was recorded
 - 2) Interfacial pressure was within the acceptable range.
 - 3) The heater surface temperature was within the acceptable range.
 - 4) The butt fusion pressure applied during the fusing/cool cycle was correctly calculated to include drag pressure, fell within the acceptable range for the applicable size and agrees with the recorded hydraulic fusing pressure.
 - 5) The butt fusing pressure was reduced to a value less than or equal to drag pressure at the beginning of the heat soak cycle.
 - 6) The fusing machine was opened at the end of the heat soak cycle, the heater was removed, and the ends were brought together at the fusion pressure with the acceptable time range.
 - 7) Cooling time at butt fusing pressure met the minimum time specified.
- c. If the recorded data in section 3.4.D.1 is outside the limits of the acceptable range, the joint is unacceptable, and must be removed and replaced.
- d. Frequency. Records for test fusion joints should be reviewed immediately after the joint is completed. Fusion joints for jobsite fusions should be reviewed daily or before being covered with backfill.

2. Mechanical Tests

- a. CONTRACTOR shall mechanically test the first fusion of each operator and each machine used on the project. Installation shall not continue until a fusion test has passed the test. Additional mechanical tests are not required as long as long as the fusion is reviewed with the frequency specified in section 3.4.E.1.d. Testing of fusion joints with no fusion data record review shall be at a frequency specified by OWNER or ENGINEER.
- b. The fusion shall be allowed to cool completely, then fusion test straps shall be cut out.
- c. All samples shall be labeled with operator information. Testing must be done at 73 degrees F plus or minus 5 degrees. The test temperature and sample size are

critical to testing. Testing performed at cold or elevated temperatures may not give similar results to tests performed at ambient temperatures.

- d. Each pipe sample weld shall be subjected to testing at two locations 180 degrees apart from each other in the joint weld. All specimens shall be tested by one of the following methods:
 - 1) Reverse Bend Test are allowed for pipe sizes 4-inch diameter IPS or smaller. The specimens shall be prepared and tested in accordance with ASTM F 2620, Appendix X4.
 - 2) Guided Side Bend Test is allowed for all wall thicknesses of 1-inch or greater. The specimens shall be removed and tested in accordance with ASTM F 3183.
 - 3) Hydrostatic Burst Test is allowed for pipe sizes 2- to 24-inch. The specimen length should measure 6 times pipe diameter with the butt fusion joint in the center of the specimen. The specimen should be tested in a tank filled with water, and testing conditions monitored and recorded with computerized equipment. The specimen will be tested at 4 times pipe rated pressure for 5 minutes with no failure of joint allowed.
- e. Results of any mechanical test should be documented. Information on the weld and operator should be transferred from the sample to the testing record.

3.5 PRELIMINARY CLEANING AND FLUSHING

- A. CONTRACTOR shall flush the pipeline as the work progresses by a means in accordance with good practice to ensure that sand, rocks, or other foreign material are not left in any of the pipeline. If possible, the flushing shall be made with an open pipe end.
- B. CONTRACTOR shall provide to ENGINEER a proposed schedule and method of flushing for review before the flushing starts.

3.6 TESTING OF PIPELINE

- A. Testing for the HDPE pipe shall be in accordance with Section 33 08 30 - Gravity Pipeline Testing.