



MADISON WATER UTILITY

UNIT WELL 12 BOOSTER PUMP REPLACEMENT

2022

DESIGNED BY:



PETER E. HOLMGREN, PE
MADISON WATER UTILITY

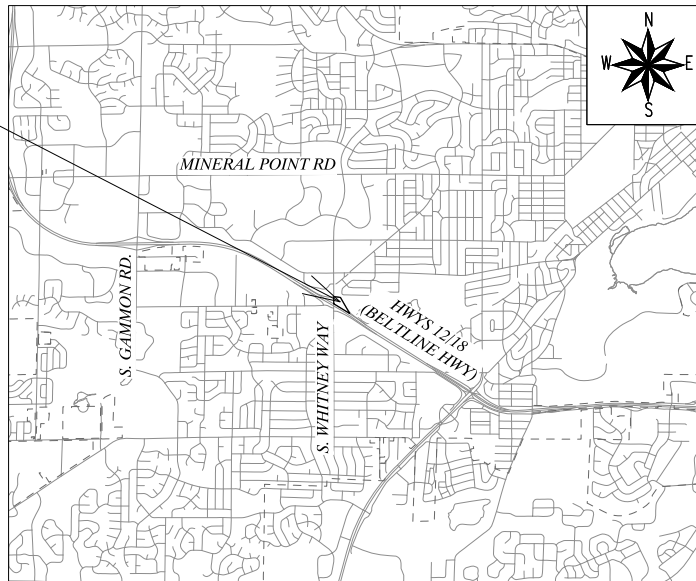
PUBLIC IMPROVEMENT PROJECT
APPROVED ON JUNE 21, 2022
BY THE COMMON COUNCIL OF
MADISON, WISCONSIN

INDEX OF SHEETS

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CITY PROJECT NO. 14027
CITY CONTRACT NO. 9228

PROJECT LOCATION
801 S. WHITNEY WAY



GENERAL NOTES

- UNLESS OTHERWISE SPECIFIED, ALL CONSTRUCTION SHALL CONFORM TO CITY OF MADISON STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, 2022 EDITION. SEE [HTTPS://WWW.CITYOFMADISON.COM/BUSINESS/PW/SPECS.CFM](https://www.cityofmadison.com/business/pw/specs.cfm)
- PIPE MATERIAL SHALL BE CLASS 52 DUCTILE IRON PIPE
- REMOVAL AND PROPER DISPOSAL OF THE OLD PUMP, AND INSTALLATION OF A NEW PUMP IS PART OF THIS CONTRACT. THE NEW PUMP AND UNIT ELECTRICAL WIRING ARE PROVIDED BY MWU. SEE SUGGESTED SEQUENCE OF DEMOLITION AND CONSTRUCTION ON SHEET W-5 FOR ADDITIONAL NOTES.
- NEW PUMP IS STORED AT THE UTILITY OPERATIONS CENTER AT 110 S. PATERSON ST. ARRANGE WITH UTILITY TO PICK UP PUMP AND TRANSPORT TO JOB SITE.
- ALL REQUIRED PERMITS ARE THE RESPONSIBILITY OF THE CONTRACTOR.
- CONTRACTOR IS REQUIRED TO MAINTAIN A SAFE WORKSPACE THROUGHOUT THE PROJECT.
- WORK SHALL COMMENCE NO MORE THAN 30 DAYS AFTER EXECUTION OF THE CONTRACT AND RECEIPT OF THE START WORK LETTER.
- PROJECT DURATION IS 21 CALENDAR DAYS FROM START OF WORK.

PLOT SCALE: 1" = 1'

PLOT NAME: ---

REV. DATE: 7/20/2022 9:53 AM

ORIGINATOR: CITY_OF_MADISON

PLOT SCALE: 1" = 40'

PLOT NAME: _____

REV. DATE: ---

ORIGINATOR: CITY_OF_MADISON_WATER_UTILITY

MADISON WATER UTILITY UNIT WELL 12 BOOSTER PUMP REPLACEMENT 14027		SHEET NO. W-1/9
APPURTENANCE SCHEDULE		
INSPECTOR: MWU	DRAWN BY: PEH	
CHECKED BY: DVH	DATE: 7/20/2022	

NUMBER	SIZE	TYPE	DISPOSITION	NORMAL POSITION	FUNCTION	NOTES
V-1	12"	BUTTERFLY	EXISTING	OPEN	DEEP WELL ISOLATION	
V-2	10"	BUTTERFLY	REPLACE	OPEN	SUCTION ISOLATION	
V-3	10"	BUTTERFLY	EXISTING	OPEN	DISCHARGE ISOLATION	
V-4	10"	BUTTERFLY	NEW	OPEN	SUCTION ISOLATION	
CV-1	10"	CHECK VALVE	REPLACE	-	PREVENT BACKFLOW AT BOOSTER PUMP	
CV-2	6"	CHECK VALVE	NEW	-	PREVENT BACKFLOW AT BOOSTER PUMP	
M-1	10"	METER	EXISTING	-	METERS BOOSTER PUMP DISCHARGE	

GENERAL NOTES

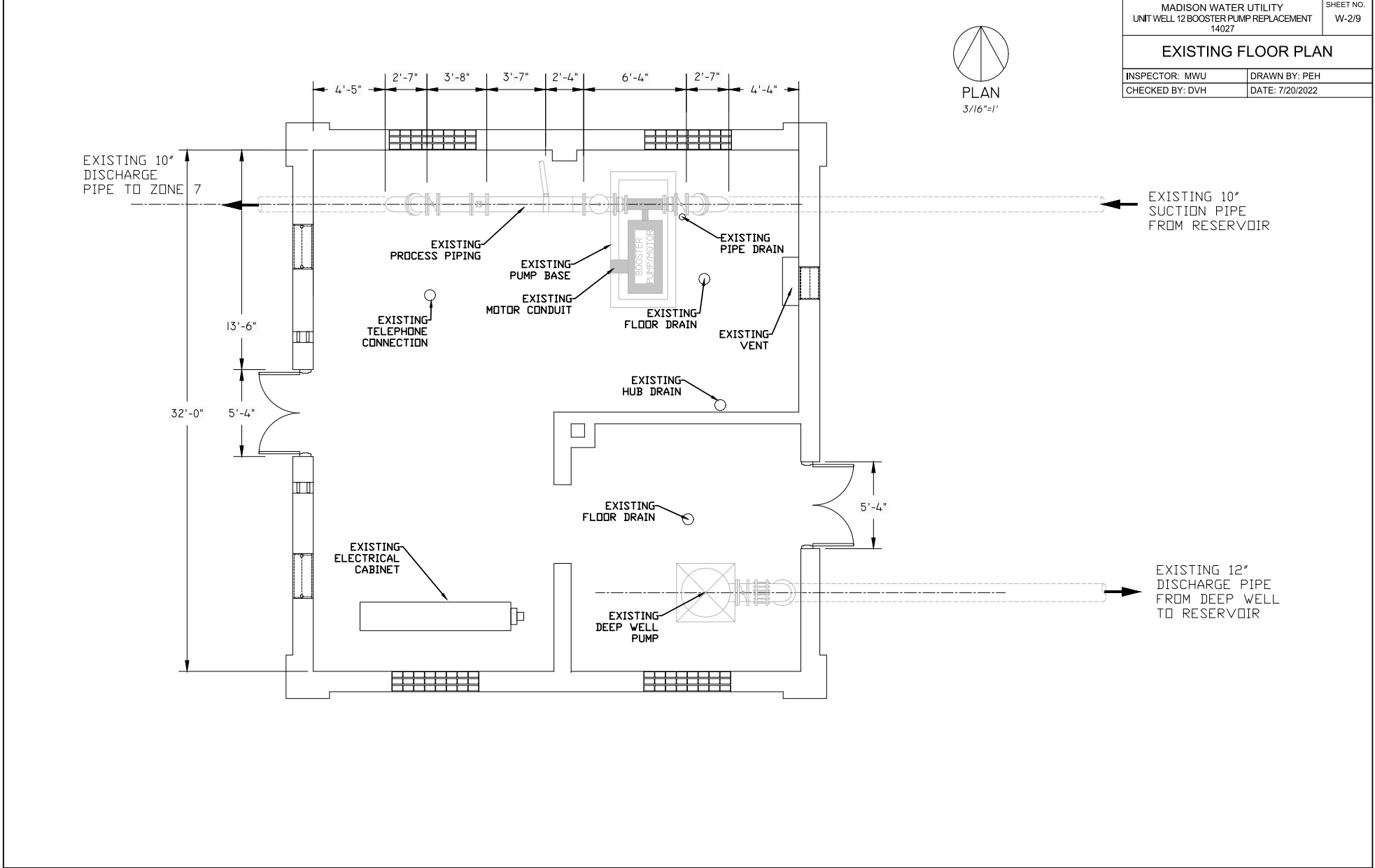
1. CHECK VALVE SHALL BE A FLANGED SWING CHECK VALVE WITH OUTSIDE LEVER AND WEIGHT EQUIPPED WITH AN AIR-CUSHION CHAMBER TO CUSHION THE CLOSING OF THE VALVE DISC. THE VALVE SHALL BE MANUFACTURED IN ACCORDANCE WITH AWWA C508. CHECK VALVE SHALL BE MANUFACTURED BY GA INDUSTRIES OR APPROVED EQUIVALENT.
2. GATE VALVE SHALL BE RESILIENT WEDGE DESIGN PER AWWA C509, FLANGED AND EQUIPPED WITH HANDWHEEL OPERATOR. GATE VALVE SHALL BE MANUFACTURED BY KENNEDY, MUELLER OR CLOW.

PLOT SCALE: 1"=40'

PLOT NAME:

REV. DATE:

ORIGINATOR: CITY OF MADISON WATER UTILITY



MADISON WATER UTILITY UNIT WELL 12 BOOSTER PUMP REPLACEMENT 14027		SHEET NO. W-2/9
EXISTING FLOOR PLAN		
INSPECTOR: MWU	DRAWN BY: PEH	
CHECKED BY: DVH	DATE: 7/20/2022	

PLOT SCALE: 1"=40'

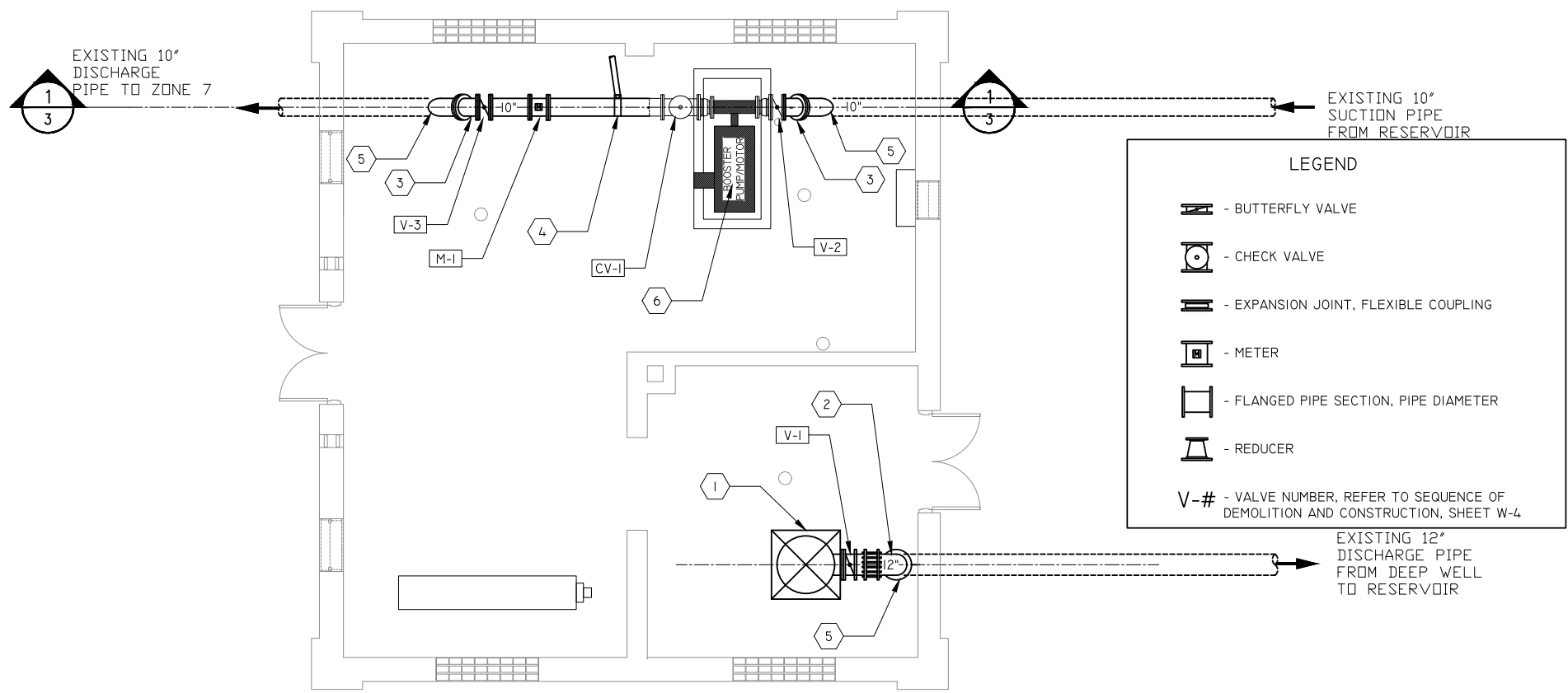
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REV. DATE:







ORIGINATOR: CITY_OF_MADISON_WATER_UTILITY



MADISON WATER UTILITY UNIT WELL 12 BOOSTER PUMP REPLACEMENT 14027		SHEET NO. W-3/9
EXISTING PIPING PLAN		
INSPECTOR: MWU	DRAWN BY: PEH	
CHECKED BY: DVH	DATE: 7/20/2022	



LEGEND

-  - BUTTERFLY VALVE
-  - CHECK VALVE
-  - EXPANSION JOINT, FLEXIBLE COUPLING
-  - METER
-  - FLANGED PIPE SECTION, PIPE DIAMETER
-  - REDUCER

V-# - VALVE NUMBER, REFER TO SEQUENCE OF DEMOLITION AND CONSTRUCTION, SHEET W-4

GENERAL NOTES

- A. PIPES & FITTINGS WRAPPED IN INSULATION WHEN MEASURED. DIMENSIONS SHOWN MAY VARY BY 1"-2". VERIFY ALL DIMENSIONS FOR FABRICATED PIPING.
- B. PUMPS SHOWN SCHEMATICALLY FOR INFORMATION PURPOSES.
- C. FOR FURTHER, OR CLARIFIED INFORMATION, CONTACT MADISON WATER UTILITY.
- D. SEE PHOTOS ON SHEETS 7 AND 8 FOR ADDITIONAL DETAIL.

KEYED NOTES

- 1. DEEP WELL PUMP
- 2. 12-IN 90° BEND (VERTICAL)
- 3. 10-IN 45° BEND (VERTICAL)
- 4. 2-IN COPPER TAP FOR SPRINKLER
- 5. PIPING TRANSITION INTO FLOOR
- 6. BOOSTER PUMP AND BASE

MADISON WATER UTILITY UNIT WELL 12 BOOSTER PUMP REPLACEMENT 14027		SHEET NO. W-4/9
EXISTING PIPING SECTION		
INSPECTOR: MWU	DRAWN BY: PEH	
CHECKED BY: DVH	DATE: 7/20/2022	

PLOT SCALE: 1" = 40'

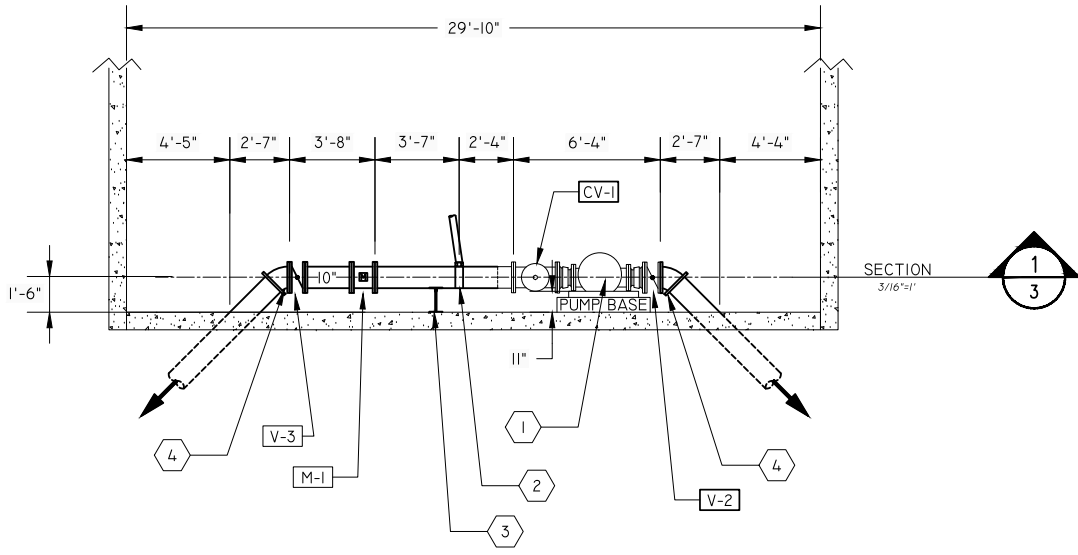
PLOT NAME: _____

REV. DATE: ---

ORIGINATOR: CITY_OF_MADISON_WATER_UTILITY

GENERAL NOTES
A. VERIFY ALL DIMENSIONS

KEYED NOTES
1. EXISTING PUMP
2. 2-IN TAP FOR SPRINKLER
3. PIPE SUPPORT
4. 45° BEND



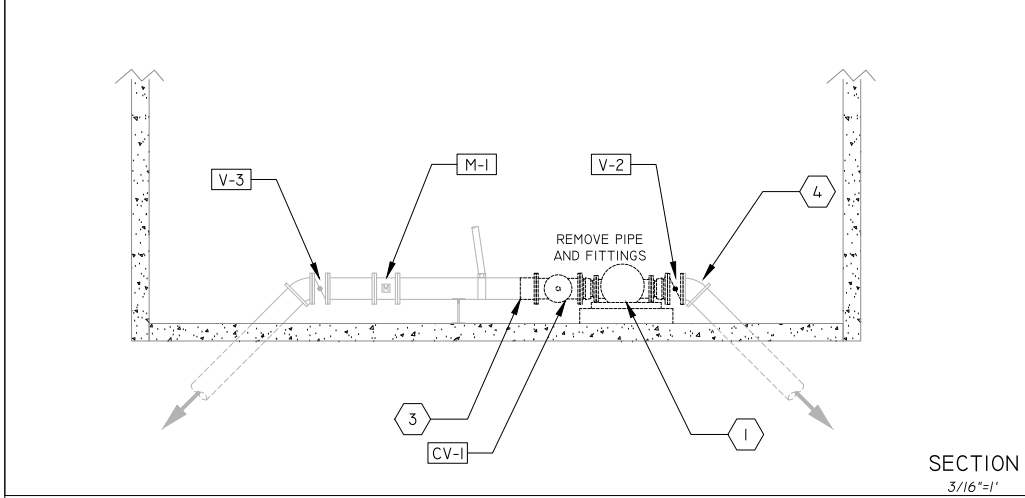
LEGEND	
	- BUTTERFLY VALVE
	- CHECK VALVE
	- EXPANSION JOINT, FLEXIBLE COUPLING
	- METER
	- FLANGED PIPE SECTION, PIPE DIAMETER
	- REDUCER
V-4 - VALVE NUMBER, REFER TO SEQUENCE OF DEMOLITION AND CONSTRUCTION, SHEET W-4	

PLOT SCALE: 1" = 40'

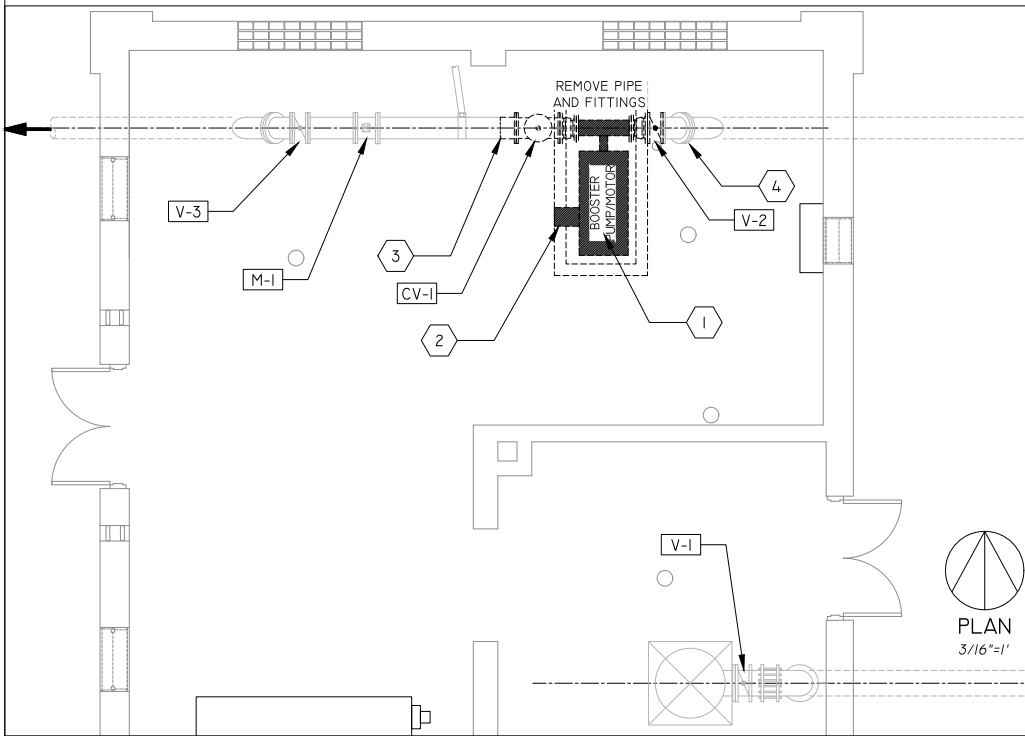
PLOT NAME:

REV. DATE:

ORIGINATOR: CITY_OF_MADISON_WATER_UTILITY



SECTION
3/16"=1'



PLAN
3/16"=1'

MADISON WATER UTILITY UNIT WELL 12 BOOSTER PUMP REPLACEMENT 14027		SHEET NO. W-5/9
DEMOLITION & SEQUENCING PLAN		
INSPECTOR: MWU	DRAWN BY: PEH	
CHECKED BY: DVH	DATE: 7/20/2022	

GENERAL DEMOLITION AND CONSTRUCTION NOTES

- A. PRESENT PROPOSED DEMOLITION PLAN AND CONSTRUCTION SEQUENCE FOR REVIEW BY MWU.
- B. REFER TO VALVE SCHEDULE, SHEET W-1, EXISTING FLOOR PLAN, SHEET W-2, PROPOSED PIPING PLAN, SHEET W-6 AND PROPOSED PIPING SECTION, SHEET W-7.
- C. WORK SHALL NOT START WITHOUT AN AGREED UPON SEQUENCE OF DEMOLITION AND CONSTRUCTION.

SUGGESTED SEQUENCE OF DEMOLITION AND CONSTRUCTION

- A. COORDINATE WITH MWU A MINIMUM OF 2 WORKING DAYS PRIOR TO ANY SHUT DOWN OF THE FACILITY.
- B. MWU SHALL CLOSE VALVES V-1, V-3, AND ANY APPROPRIATE YARD VALVES.
- C. DEMOLISH AND REMOVE EXISTING PUMP, BASE, AND PIPE/FITTINGS AS SHOWN.
- D. INSTALL NEW PUMP, BASE (AS NECESSARY), AND CONFIGURATION AS SHOWN ON PROPOSED SHEETS.
- E. PRESSURE TEST ALL NEW PIPING AND NEW PUMP.
- F. DISINFECT ALL NEW PIPING AND PUMP.
- G. FOLLOWING INSTALLATION OF THE PUMP, MWU WILL INSTALL WIRING AND CONTROLS.
- H. ASSIST MWU IN TESTING AND STARTUP OF THE PUMP. MWU WILL PROVIDE PUMP VENDOR INSPECTION OF THE INSTALLATION PRIOR TO STARTUP.
- I. PUMP OPERATION, INCLUDING, BUT NOT LIMITED TO PUMPING CAPACITY; VIBRATION; AND VFD OPERATION WILL BE TESTED PRIOR TO ACCEPTANCE OF THE WORK.

KEYED NOTES

- 1. REMOVE PUMP, MOTOR AND MOUNTING BRACKETS. REMOVE OR MODIFY CONCRETE BASE.
- 2. ELECTRIC POWER SUPPLY CONDUIT TO BE PRESERVED AND RE-ROUTED AFTER REMOVAL OF CONCRETE BASE.
- 3. CUT OFF EXISTING PIPE LENGTH AS REQUIRED TO FIT NEW CONFIGURATION.
- 4. IF NECESSARY, REPLACE EXISTING 10-IN 45° BEND TO MATCH NEW CONFIGURATION.

PLOT SCALE: 1" = 40'

PLOT NAME:

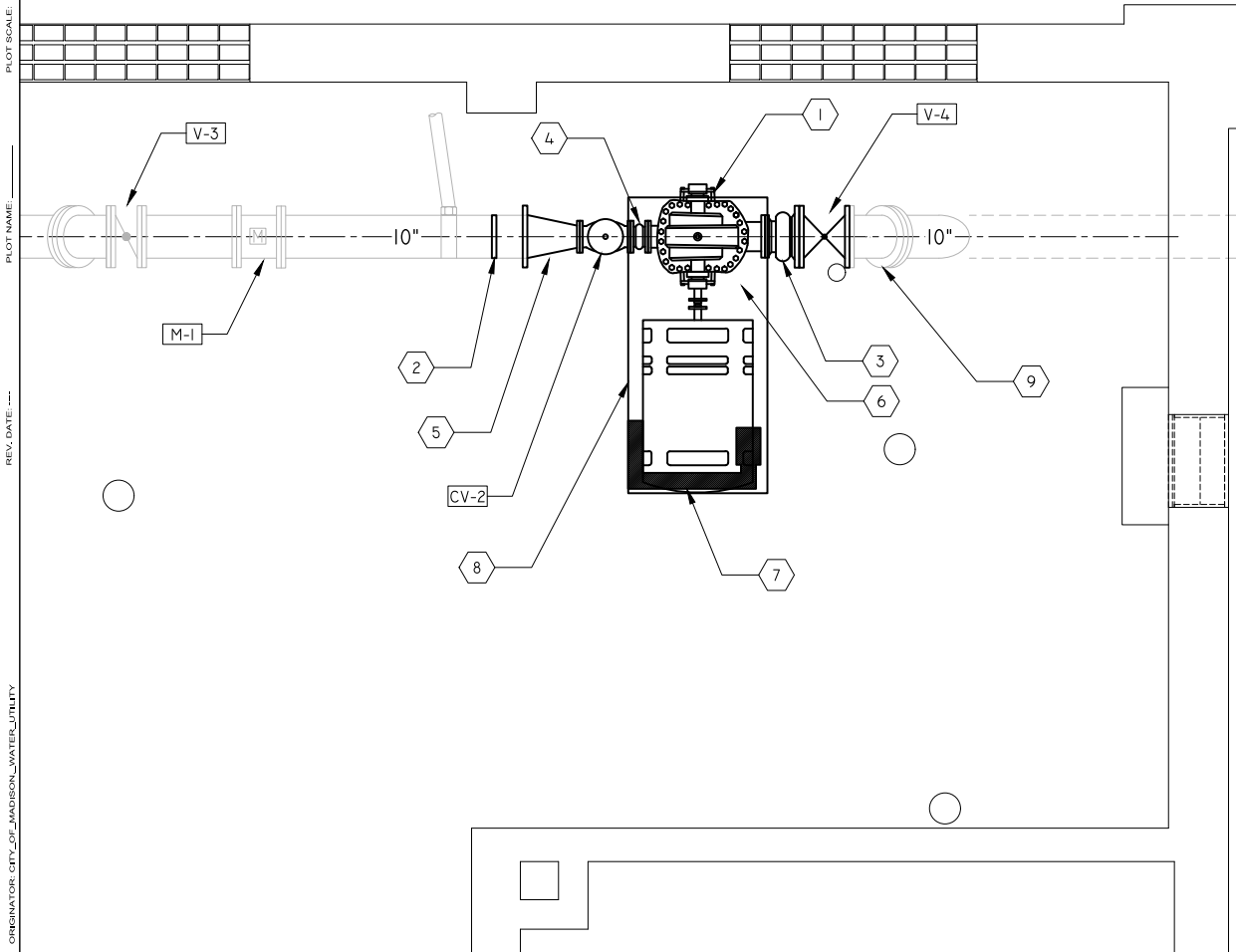
REV. DATE: ---

ORIGINATOR: CITY OF MADISON, WATER UTILITY



PLAN
3/8"=1'

MADISON WATER UTILITY UNIT WELL 12 BOOSTER PUMP REPLACEMENT 14027		SHEET NO. W-6/9
PROPOSED PIPING PLAN		
INSPECTOR: MWU	DRAWN BY: PEH	
CHECKED BY: DVH	DATE: 7/20/2022	



GENERAL NOTES

- A. ALL NEW VALVES SHALL HAVE WHEELED OPERATORS TO MATCH EXISTING
- B. PROVIDE SPACERS AND FLANGE ADAPTERS AS NECESSARY

KEYED NOTES

- 1. CONNECT NEW PUMP TO EXISTING PUMP PRIMING SYSTEM
- 2. PROVIDE MANUFACTURED PIPE SUPPORT SYSTEM AS REQUIRED TO PREVENT LATERAL AND VERTICAL MOVEMENT. SEE DETAIL 9-1, SHEET W-8
- 3. RESTRAINED 10-IN X 8-IN REDUCING EXPANSION JOINT
- 4. RESTRAINED 6-IN EXPANSION JOINT
- 5. RESTRAINED 10-IN X 6-IN REDUCER.
- 6. TRANSPORT AND INSTALL NEW SPLIT CASE CENTRIFUGAL PUMP & MOTOR (PROVIDED BY MWU)
- 7. EXISTING ELECTRICAL POWER SUPPLY CONDUIT TO BE REUSED AND REROUTED APPROXIMATELY AS SHOWN
- 8. RECONSTRUCT CONCRETE BASE AS NECESSARY TO FIT AND SUPPORT NEW PUMP AND MOTOR
- 9. REPLACE 10-IN 45° BEND IF NECESSARY FOR PROPOSED CONFIGURATION

PLOT SCALE: 1"=40'

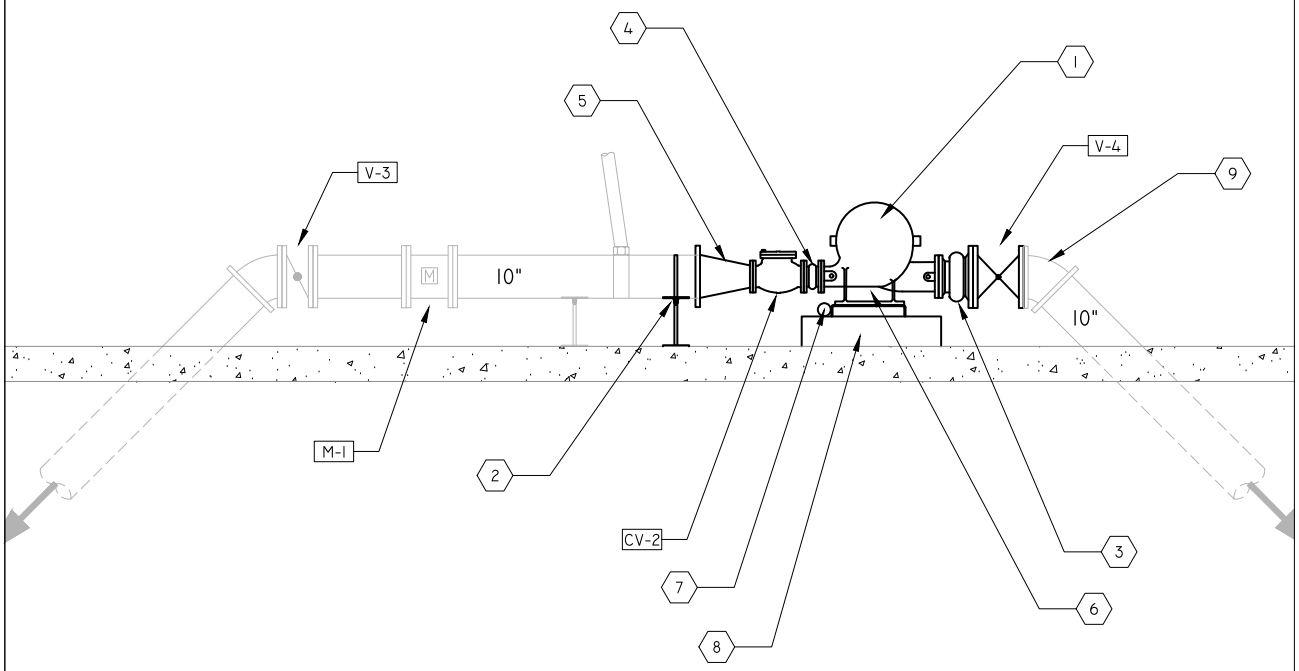
PLOT NAME: _____

REV. DATE: _____

ORIGINATOR: CITY_OF_MADISON_WATER_UTILITY

SECTION
3/8"=1'

MADISON WATER UTILITY UNIT WELL 12 BOOSTER PUMP REPLACEMENT 14027		SHEET NO. W-7/9
PROPOSED PIPING SECTION		
INSPECTOR: MWU	DRAWN BY: PEH	
CHECKED BY: DVH	DATE: 7/20/2022	



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- A. ALL NEW VALVES SHALL HAVE WHEELED OPERATORS TO MATCH EXISTING
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KEYED NOTES

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- 5. RESTRAINED 10-IN X 6-IN REDUCER.
- 6. TRANSPORT AND INSTALL NEW SPLIT CASE CENTRIFUGAL PUMP & MOTOR (PROVIDED BY MWU)
- 7. EXISTING ELECTRICAL POWER SUPPLY CONDUIT TO BE REUSED AND REROUTED; SEE SHEET W-6
- 8. RECONSTRUCT CONCRETE BASE AS NECESSARY TO FIT AND SUPPORT NEW PUMP AND MOTOR
- 9. REPLACE 10-IN 45° BEND IF NECESSARY FOR PROPOSED CONFIGURATION

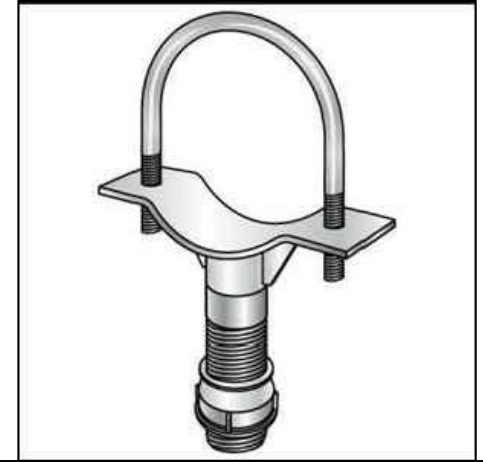
MADISON WATER UTILITY UNIT WELL 12 BOOSTER PUMP REPLACEMENT 14027		SHEET NO. W-8/9
PHOTOS & DETAILS		
INSPECTOR: MWU	DRAWN BY: PEH	
CHECKED BY: DVH	DATE: 7/20/2022	



EXISTING PUMP AND MOTOR
FACING NORTHEAST CORNER

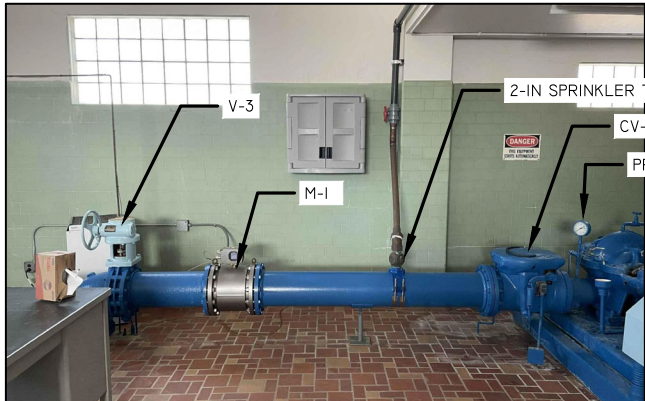


EXISTING PUMP AND MOTOR
FACING NORTHWEST



DETAIL 9-1: TYPICAL MANUFACTURED PIPE SUPPORT COMPONENT

MANUFACTURED PIPE SUPPORT SYSTEM REQUIRED TO PREVENT LATERAL AND VERTICAL PIPE MOVEMENT (AS APPROPRIATE).
SUBMIT SHOP DRAWINGS OF PIPE SUPPORT SYSTEMS TO MWU FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.



DISCHARGE-SIDE PIPING
FACING NORTH WALL



EXISTING PUMP CONFIGURATION
FACING NORTH WALL

PLOT SCALE: 1" = 40'

PLOT NAME:

REV. DATE:

ORIGINATOR: CITY OF MADISON WATER UTILITY