CITY OF BENTONVILLE, ARKANSAS

BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

MARCH 2025 PROJECT NO. 2021037

Black Hills Energy:
Josh Knight
1301 Federal Way
PO Box 2129
Lowell, AR 72745
(479) 333-7005
Joshua.knight@blackhillscorp.com

AT&T:
Brent Baldwin
1133 E. Harold St.
Fayetteville, AR 72701
(479) 200-9022 or (479) 571-6609
bb585@att.com or
Layne Rhodes,
(479) 442-1977
lr159@att.com

Cox Communications:
Chad Hodge
4901 S. 48th/ Street
Springdale, AR 72762 C
(479) 263-7057
chad.hodge@cox.com and
Timothy Goss
(479) 651-5583
timothy.goss@cox.com

Fire Department:
City of Bentonville
Justin Scantlin, Fire Chief
800 SW A Street
Bentonville, AR 72712
(479) 271-5927 or (479) 685-1096

Street Department:
City of Bentonville
Tony Davis
3200 SW Municipal Drive
Bentonville, AR 72712
(479) 271-3130

Water Department:
City of Bentonville
Beau Thompson
3200 SW Municipal Drive
Bentonville, AR 72712
(479) 271-3140

Electric Department:
City of Bentonville
Charlie Barnes
3200 SW Municipal Drive
Bentonville, AR 72712
(479) 271-3159

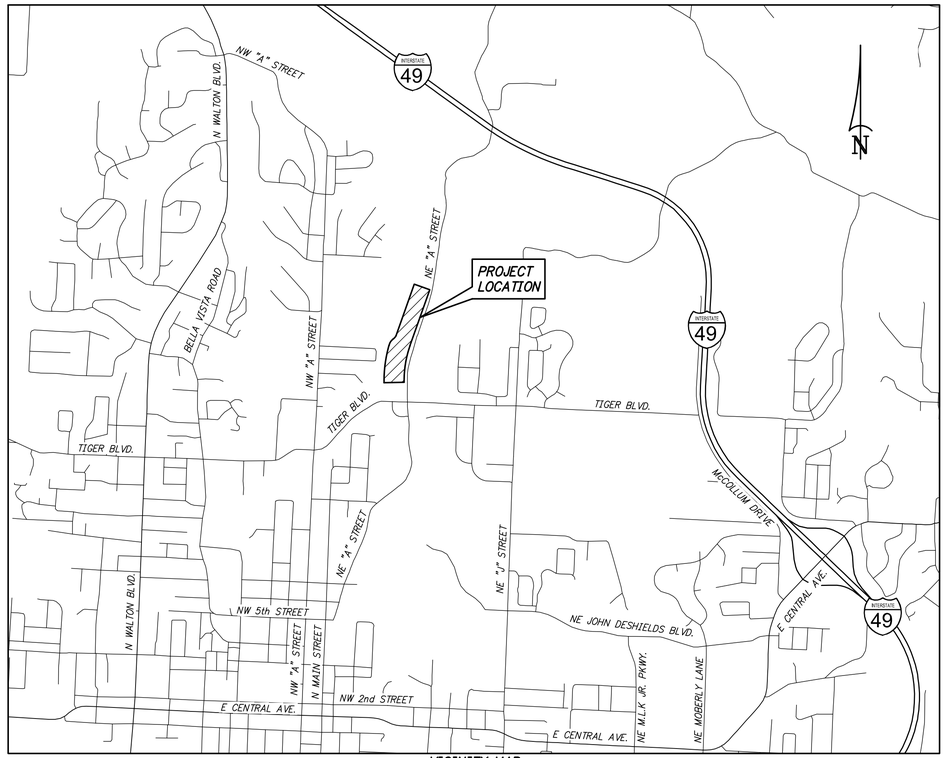
Wastewater Department:
City of Bentonville
Chris Earl
1901 NE A Street
Bentonville, AR 72712
(479) 271-3161

Planning Department:
City of Bentonville
Tyler Overstreet
305 SW A Street
Bentonville, AR 72712
(479) 271-3122

Building and Fire Safety:
City of Bentonville
Brad Arnold
305 SW A Street
Bentonville, AR 72712
(479) 271-3108

City Engineer:
City of Bentonville
Ellen Norvell
3200 SW Municipal Drive
Bentonville, AR 72712
(479) 271-5993

Stormwater:
City of Bentonville
Alison West
3200 SW Municipal Drive
Bentonville, AR 72712
(479) 271-6719
jwest@bentonvillear.com



VICINITY MAP
SCALE: 1"=1500'

VOLUME 3 OF 4

Prepared By:

HAWKINS WEIR ENGINEERS, INC.
Van Buren (479) 474-1227 | Fort Smith (479) 242-4685 | Fayetteville (479) 455-2206 | Little Rock (501) 374-4846
www.hawkins-weir.com
BLACK & VEATCH

CERTIFICATE OF AUTHORIZATION — HAWKINS-WEIR ENGINEERS, INC. No. 101 — ARKANSAS ENGINEER
CERTIFICATE OF AUTHORIZATION — BLACK & VEATCH CORP. No. 381 — ARKANSAS
STATE OF ARKANSAS — LICENSED PROFESSIONAL ENGINEER — No. 15397 — JOSHUA S. DURHAM — 3/21/25
STATE OF ARKANSAS — LICENSED PROFESSIONAL ENGINEER — No. 22360 — 3/21/2025 — AMANDA K. JOHNSON

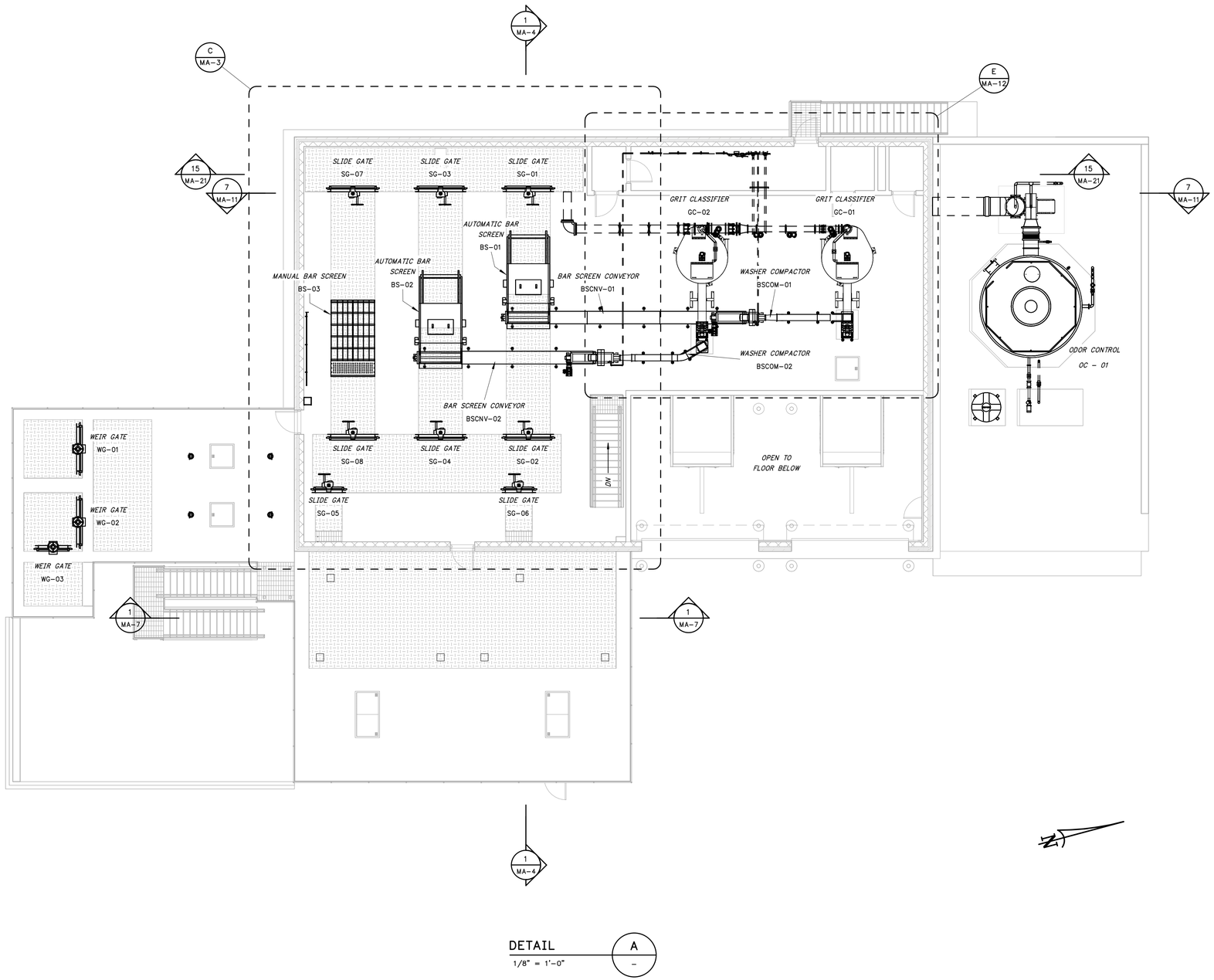
BID DRAWINGS
MARCH 21, 2025

811 Know what's below. Call before you dig.

2021037

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\G-01 COVER VOLUME 3.DWG, 3/14/2025 8:36 AM, MATT WEIR, LAYOUT1

NOTES:
1. ALL HARDWARE SHALL BE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED. ANTISEIZE LUBRICANTS SHALL BE USED WHEN ASSEMBLING STAINLESS STEEL HARDWARE.
2. PAINT ALL EXPOSED PIPING IN ACCORDANCE WITH SPECIFICATION SECTION 09902.
3. SEE SITE PIPING PLAN AND PROFILES IN CIVIL SHEETS FOR CONTINUATION OF CONNECTING PIPES.



DETAIL A
1/8" = 1'-0"

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS *** LICENSED PROFESSIONAL ENGINEER *** No. 15397 JOSHUA S. DUGGINS

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

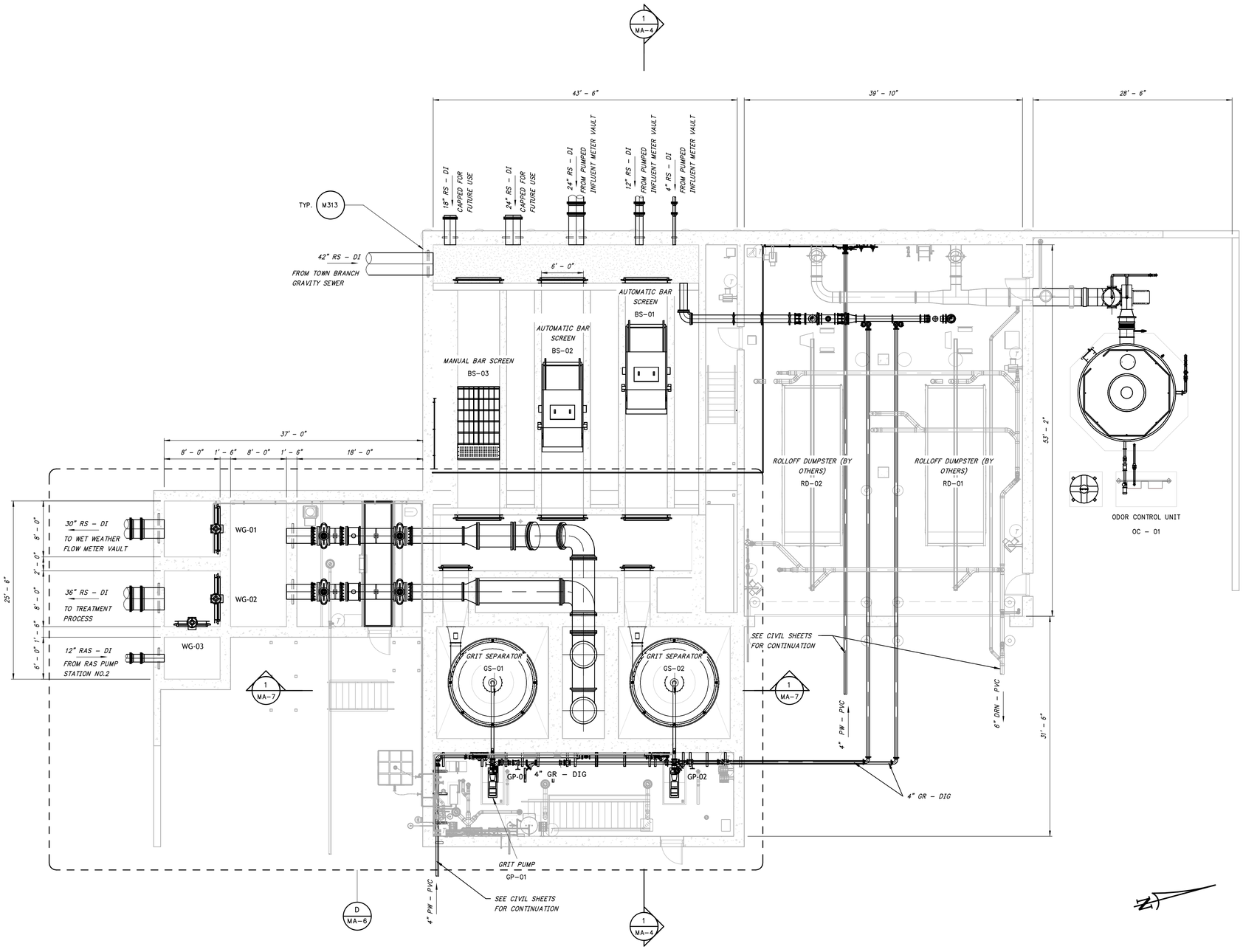
CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

INFLUENT BUILDING UPPER FLOOR DETAIL

FOR: BENTONVILLE WATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: JSD
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-ME

SHEET NO.
MA-1



HEADWORKS LOWER LEVEL

DETAIL B

1/8" = 1'-0"

NOTES:

1. ALL HARDWARE SHALL BE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED. ANTISEIZE LUBRICANTS SHALL BE USED WHEN ASSEMBLING STAINLESS STEEL HARDWARE.
2. PAINT ALL EXPOSED PIPING IN ACCORDANCE WITH SPECIFICATION SECTION 09902.
3. SEE SITE PIPING PLAN AND PROFILES IN CIVIL SHEETS FOR CONTINUATION OF CONNECTING PIPES.
4. ALL GRIT PIPING AND FITTINGS SHALL BE GLASS LINED DUCTILE IRON PIPE.

1"

ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15397
JOSHUA S. DUGGINS
3/20/25

HAWKINS WEIR ENGINEERS, INC.

BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

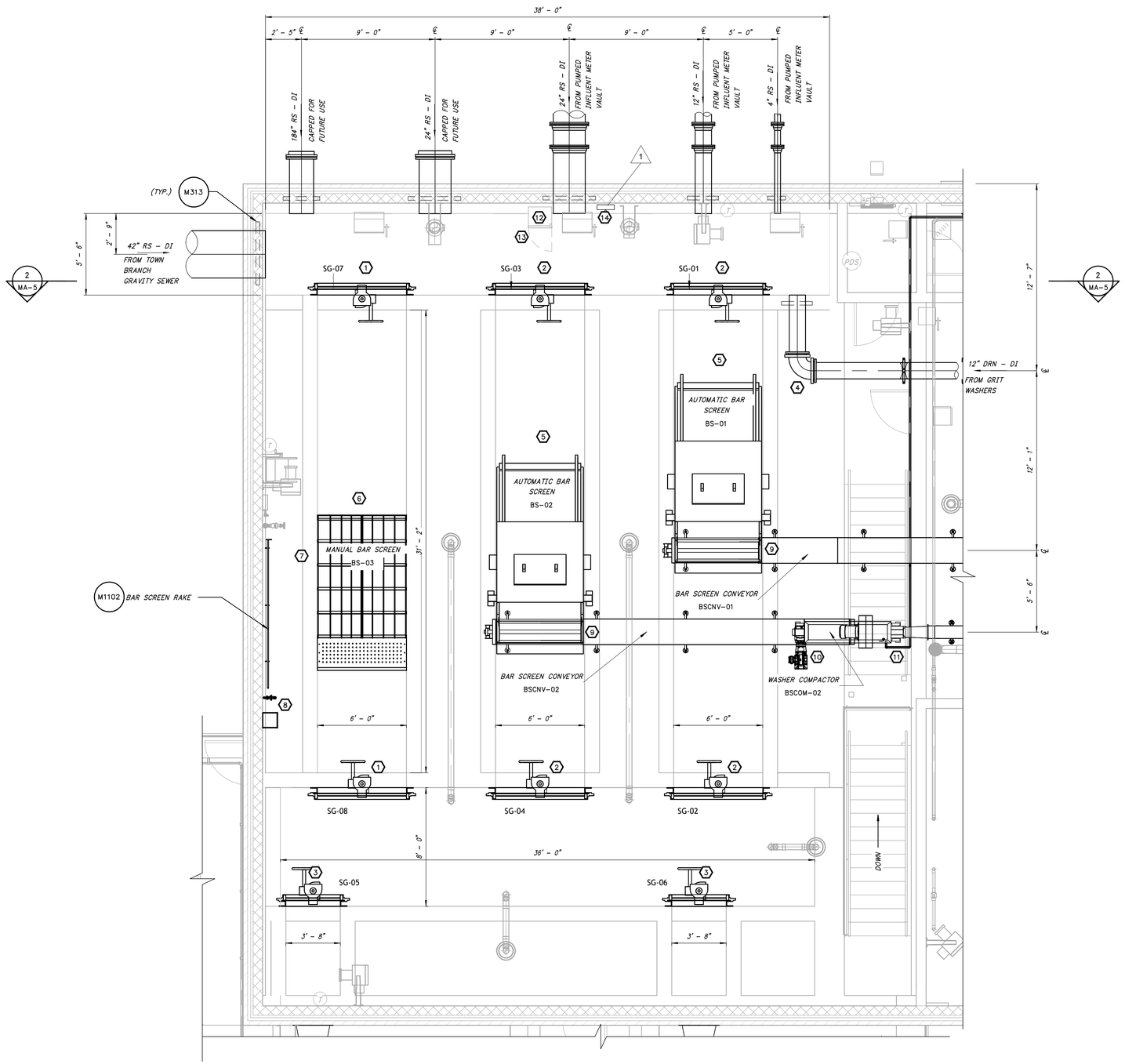
INFLUENT BUILDING LOWER FLOOR DETAIL

FOR: BENTONVILLE WATER UTILITIES

DATE: MARCH 2025
SCALE: 1/8" = 1'-0"
DESIGNED BY: JSD
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-ME

SHEET NO.
MA-2

BID DRAWINGS
MARCH 21, 2025



DETAIL C
1/4" = 1'-0"

NOTES:

1. ALL HARDWARE SHALL BE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED. ANTISEIZE LUBRICANTS SHALL BE USED WHEN ASSEMBLING STAINLESS STEEL HARDWARE.
2. PAINT ALL EXPOSED PIPING IN ACCORDANCE WITH SPECIFICATION SECTION 09902.
3. SEE SITE PIPING PLAN AND PROFILES IN CIVIL SHEETS FOR CONTINUATION OF CONNECTING PIPES.
4. INSTALL PLUG VALVES ON THE GRIT PIPING SUCH THAT THE PLUG IS PARALLEL TO THE FLOOR.
5. THE INTERIOR WALLS OF THE BAR SCREEN INLFUENT CHANNEL SHALL BE EPOXY COATED IN ACCORDANCE WITH SPECIFICATION SECTION 09800
6. ALL GRIT PIPING AND FITTINGS SHALL BE GLASS LINED DUCTILE IRON PIPE.

KEYED NOTES:

1. INSTALL 72" x 96" STAINLESS STEEL SLIDE GATE WITH MANUAL OPERATOR
2. INSTALL 72" x 96" STAINLESS STEEL SLIDE GATE WITH ELECTRIC OPERATOR
3. INSTALL 44" x 96" STAINLESS STEEL SLIDE GATE WITH ELECTRIC OPERATOR
4. INSTALL 12" 90° BEND
5. INSTALL AUTOMATIC BAR SCREEN AND WASHER / COMPACTOR
6. INSTALL MANUAL BAR SCREEN (M1101)
7. PROVIDE MANUAL BAR SCREEN RELEASE AND INSTALL HOLDER
8. INSTALL PLANT WATER HOSE STATION WITH SIGN (M501) (M506)
9. INSTALL 1" PVC BALL VALVE, 1" PVC WYE STRAINER, AND CONNECT 1" PW - PVC TO WASHER COMPACTOR
10. ROUTE WASHER/COMPACTOR DRAIN LINE TO FLOOR SINK
11. INSTALL 1" PVC BALL VALVE, 1" PVC WYE STRAINER, AND CONNECT 1" PW - PVC TO WASHER COMPACTER
12. INSTALL EXISTING AUTOMATIC SAMPLER. ROUTE SAMPLE LINE THROUGH ALUMINUM PLATING TO BOTTOM OF CHANNEL INSIDE 4" SCH 40 PVC PIPE. (M106)
13. APPLY EPOXY COATING TO INTERIOR WALLS OF BAR SCREEN INFLUENT CHANNEL
14. INSTALL PH AND TEMPERATURE PROBE WITH CONTROLLER AND POWER SUPPLY. PROBE SHALL BE INSTALLED IN INFLUENT CHANNEL WITH EXTENSION POLE AND MOUNT.

1

ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE
1 ISSUED FOR BID	03/21/2025

STATE OF ARKANSAS *** LICENSED PROFESSIONAL ENGINEER *** No. 15397 JOSHUA S. DUGGINS

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

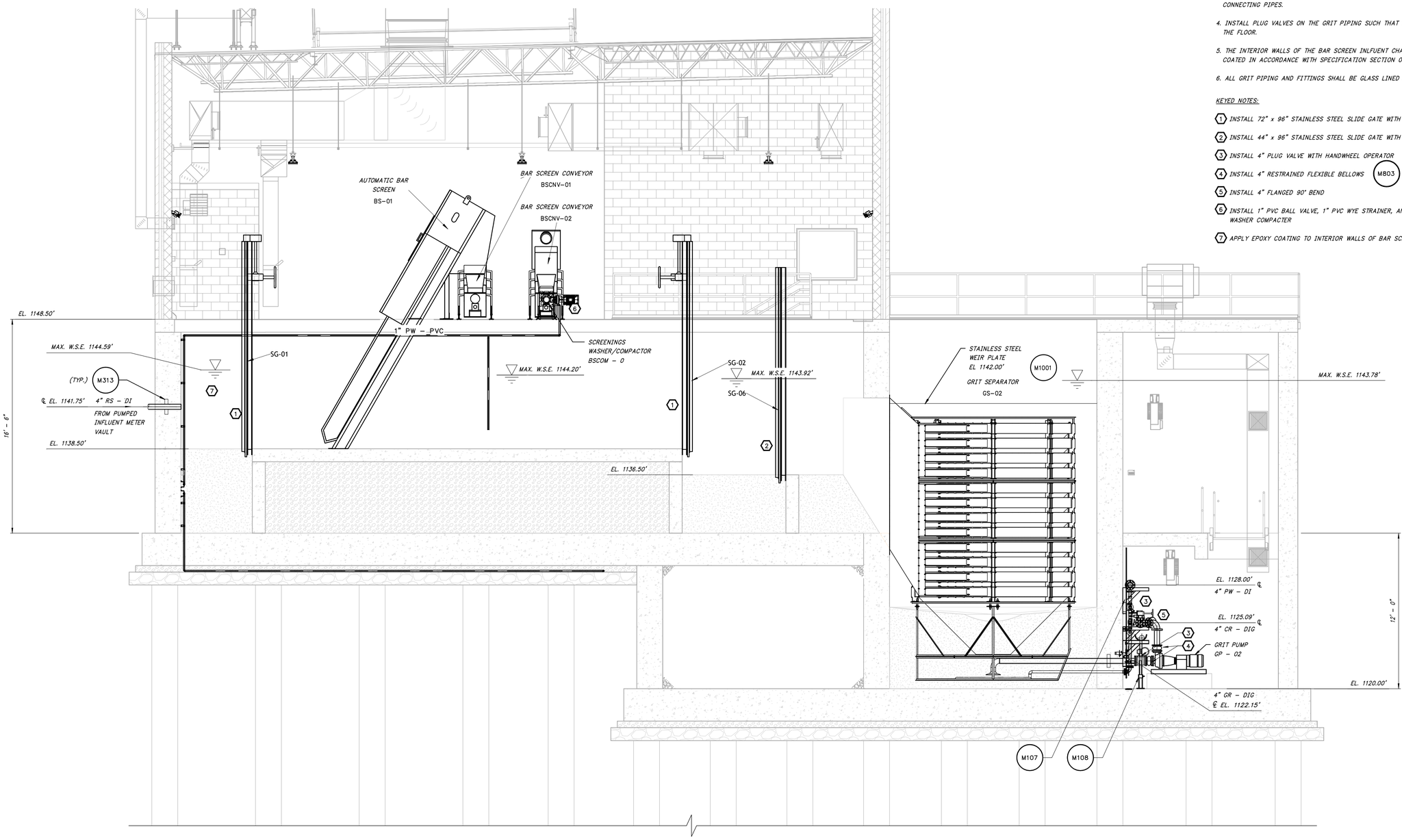
INFLUENT BUILDING BAR SCREEN CHANNEL DETAIL

FOR: BENTONVILLE WATER UTILITIES

DATE: MARCH 2025
SCALE: 1/4" = 1'-0"
DESIGNED BY: JSD
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-ME

SHEET NO.
MA-3

BID DRAWINGS
MARCH 21, 2025



NOTES:

1. ALL HARDWARE SHALL BE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED. ANTISEIZE LUBRICANTS SHALL BE USED WHEN ASSEMBLING STAINLESS STEEL HARDWARE.
2. PAINT ALL EXPOSED PIPING IN ACCORDANCE WITH SPECIFICATION SECTION 09902.
3. SEE SITE PIPING PLAN AND PROFILES IN CIVIL SHEETS FOR CONTINUATION OF CONNECTING PIPES.
4. INSTALL PLUG VALVES ON THE GRIT PIPING SUCH THAT THE PLUG IS PARALLEL TO THE FLOOR.
5. THE INTERIOR WALLS OF THE BAR SCREEN INLFUENT CHANNEL SHALL BE EPOXY COATED IN ACCORDANCE WITH SPECIFICATION SECTION 09800
6. ALL GRIT PIPING AND FITTINGS SHALL BE GLASS LINED DUCTILE IRON PIPE.

KEYED NOTES:

1. INSTALL 72" x 96" STAINLESS STEEL SLIDE GATE WITH ELECTRIC OPERATOR
2. INSTALL 44" x 96" STAINLESS STEEL SLIDE GATE WITH ELECTRIC OPERATOR
3. INSTALL 4" PLUG VALVE WITH HANDWHEEL OPERATOR
4. INSTALL 4" RESTRAINED FLEXIBLE BELLOWS
5. INSTALL 4" FLANGED 90° BEND
6. INSTALL 1" PVC BALL VALVE, 1" PVC WYE STRAINER, AND CONNECT 1" PW - PVC TO WASHER COMPACTER
7. APPLY EPOXY COATING TO INTERIOR WALLS OF BAR SCREEN INFLUENT CHANNEL

SECTION 1 / MA-1
1/4" = 1'-0"

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS *** LICENSED PROFESSIONAL ENGINEER *** No. 15397 JOSHUA S. DUGGINS

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

INFLUENT BUILDING
SECTION

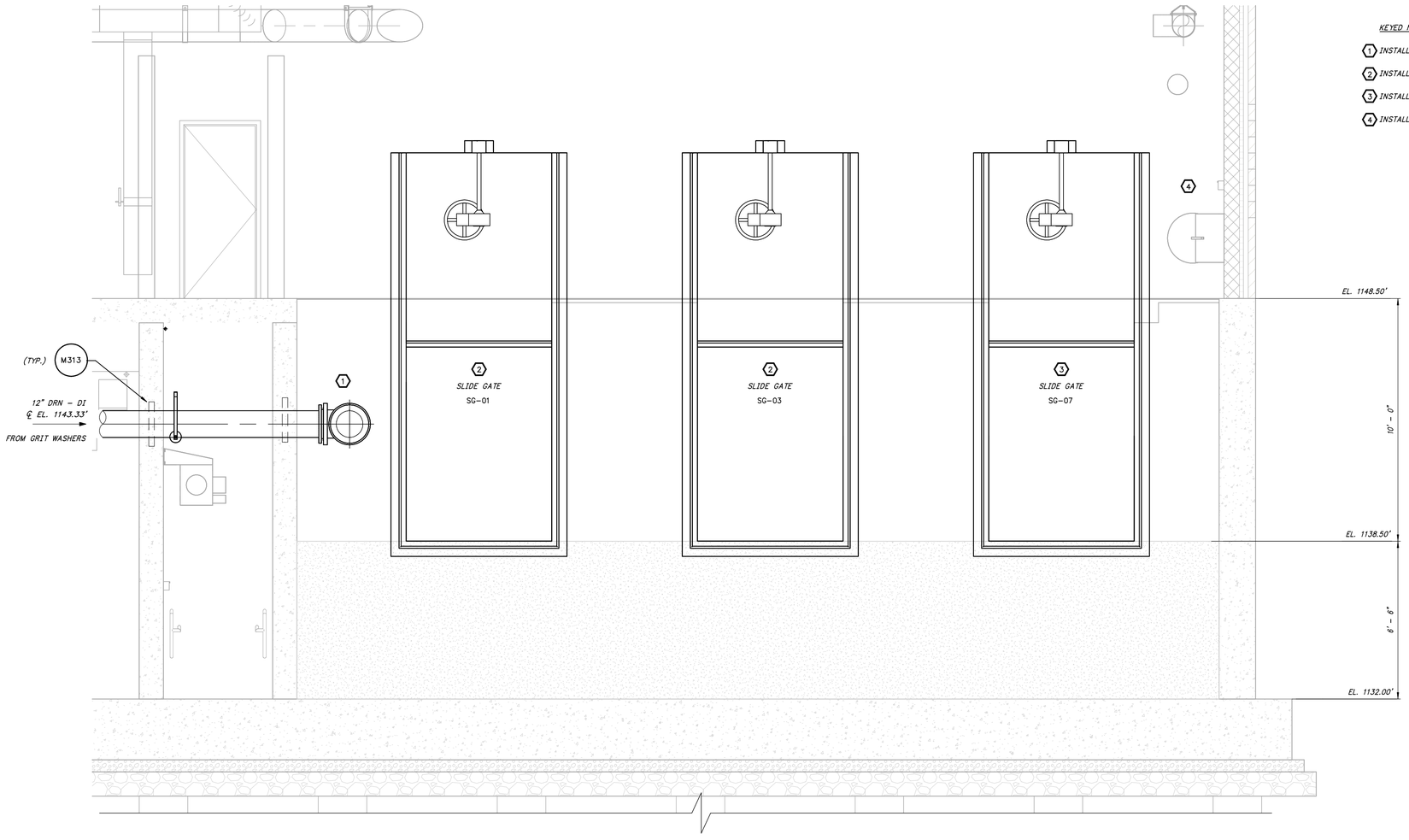
FOR: BENTONVILLE WATER UTILITIES

DATE: MARCH 2025
SCALE: 1/4" = 1'-0"
DESIGNED BY: JSD
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-ME

SHEET NO.
MA-4

NOTES:
1. ALL HARDWARE SHALL BE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED. ANTISEIZE LUBRICANTS SHALL BE USED WHEN ASSEMBLING STAINLESS STEEL HARDWARE.
2. PAINT ALL EXPOSED PIPING IN ACCORDANCE WITH SPECIFICATION SECTION 09902.
3. SEE SITE PIPING PLAN AND PROFILES IN CIVIL SHEETS FOR CONTINUATION OF CONNECTING PIPES.
4. INSTALL PLUG VALVES ON THE GRIT PIPING SUCH THAT THE PLUG IS PARALLEL TO THE FLOOR.

KEYED NOTES:
1. INSTALL 12" 90° BEND
2. INSTALL 72" x 96" STAINLESS STEEL SLIDE GATE WITH ELECTRIC OPERATOR
3. INSTALL 72" x 96" STAINLESS STEEL SLIDE GATE WITH MANUAL OPERATOR
4. INSTALL PLANT WATER HOSE STATION WITH SIGN (M501) (M506)



SECTION 2 / MA-3
3/8" = 1'-0"

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS *** LICENSED PROFESSIONAL ENGINEER *** No. 15397 JOSHUA S. DUGGINS

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

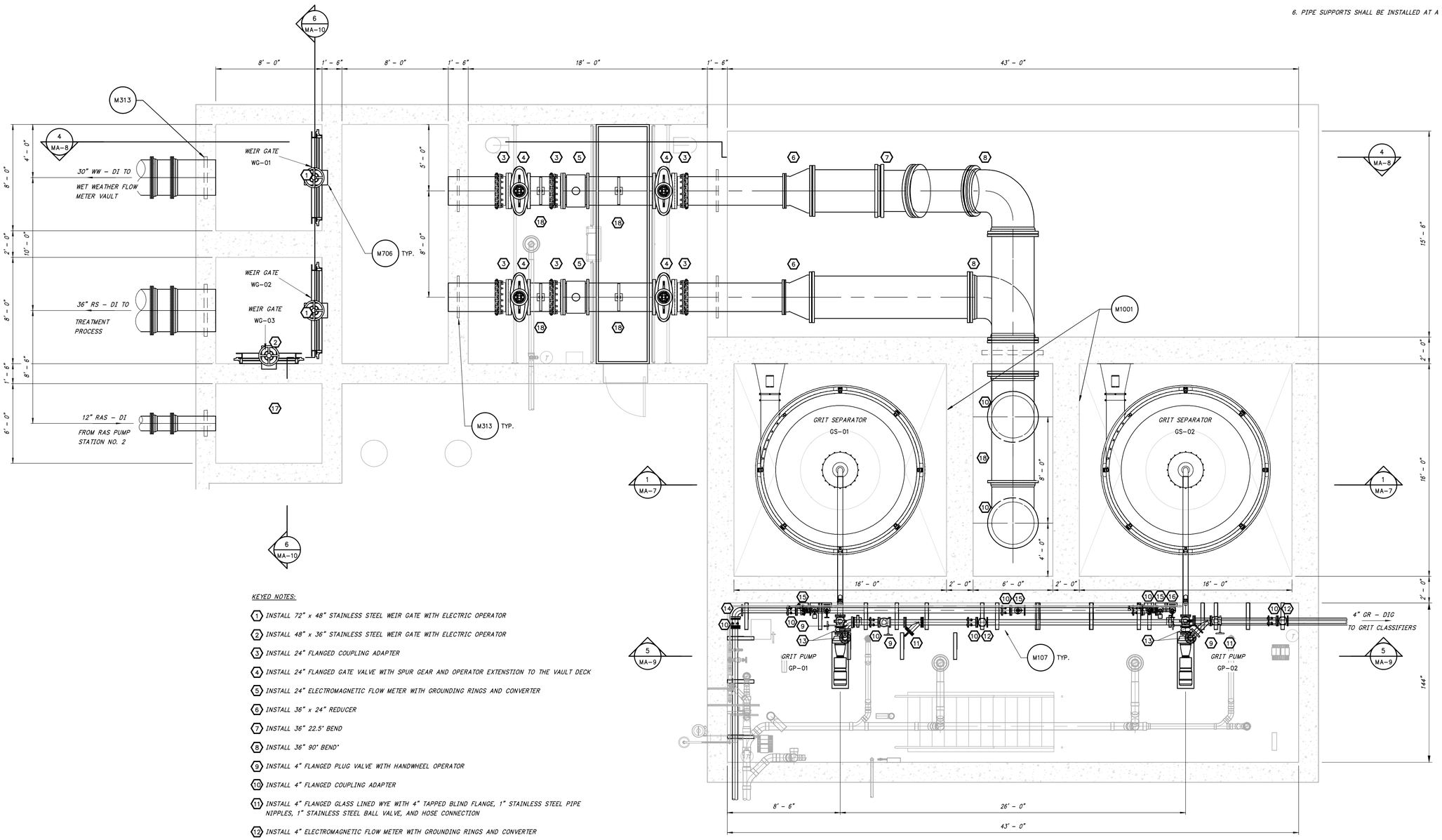
INFLUENT BUIDLING
SECTION

FOR: BENTONVILLE WATER UTILITIES

DATE: MARCH 2025
SCALE: 3/8" = 1'-0"
DESIGNED BY: JSD
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-ME

SHEET NO.
MA-5

NOTES:
1. ALL HARDWARE SHALL BE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED. ANTISEIZE LUBRICANTS SHALL BE USED WHEN ASSEMBLING STAINLESS STEEL HARDWARE.
2. PAINT ALL EXPOSED PIPING IN ACCORDANCE WITH SPECIFICATION SECTION 09902.
3. SEE SITE PIPING PLAN AND PROFILES IN CIVIL SHEETS FOR CONTINUATION OF CONNECTING PIPES.
4. INSTALL PLUG VALVES ON THE GRIT PIPING SUCH THAT THE PLUG IS PARALLEL TO THE FLOOR.
5. ALL GRIT PIPING AND FITTINGS SHALL BE GLASS LINED DUCTILE IRON PIPE.
6. PIPE SUPPORTS SHALL BE INSTALLED AT A MAXIMUM OF 4 FEET.



KEYED NOTES:

1. INSTALL 72" x 48" STAINLESS STEEL WEIR GATE WITH ELECTRIC OPERATOR
2. INSTALL 48" x 36" STAINLESS STEEL WEIR GATE WITH ELECTRIC OPERATOR
3. INSTALL 24" FLANGED COUPLING ADAPTER
4. INSTALL 24" FLANGED GATE VALVE WITH SPUR GEAR AND OPERATOR EXTENSTION TO THE VAULT DECK
5. INSTALL 24" ELECTROMAGNETIC FLOW METER WITH GROUNDING RINGS AND CONVERTER
6. INSTALL 36" x 24" REDUCER
7. INSTALL 36" 22.5° BEND
8. INSTALL 36" 90° BEND
9. INSTALL 4" FLANGED PLUG VALVE WITH HANDWHEEL OPERATOR
10. INSTALL 4" FLANGED COUPLING ADAPTER
11. INSTALL 4" FLANGED GLASS LINED WYE WITH 4" TAPPED BLIND FLANGE, 1" STAINLESS STEEL PIPE NIPPLES, 1" STAINLESS STEEL BALL VALVE, AND HOSE CONNECTION
12. INSTALL 4" ELECTROMAGNETIC FLOW METER WITH GROUNDING RINGS AND CONVERTER
13. INSTALL 4" FLANGED GLASS LINED 90° BEND
14. INSTALL 4" FLANGED 90° BEND
15. INSTALL 4" FLANGED TEE WITH 4" TAPPED BLIND FLANGE
16. INSTALL 4" BLIND FLANGE
17. INSTALL 12"x12" HATCH IN GRATING FOR SAMPLING
18. INSTALL ADJUSTABLE PIPE SUPPORT (M202)

HEADWORKS LOWER LEVEL

DETAIL D
1/4" = 1'-0" –

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS *** LICENSED PROFESSIONAL ENGINEER *** No. 15397 JOSHUA S. DUGGINS

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

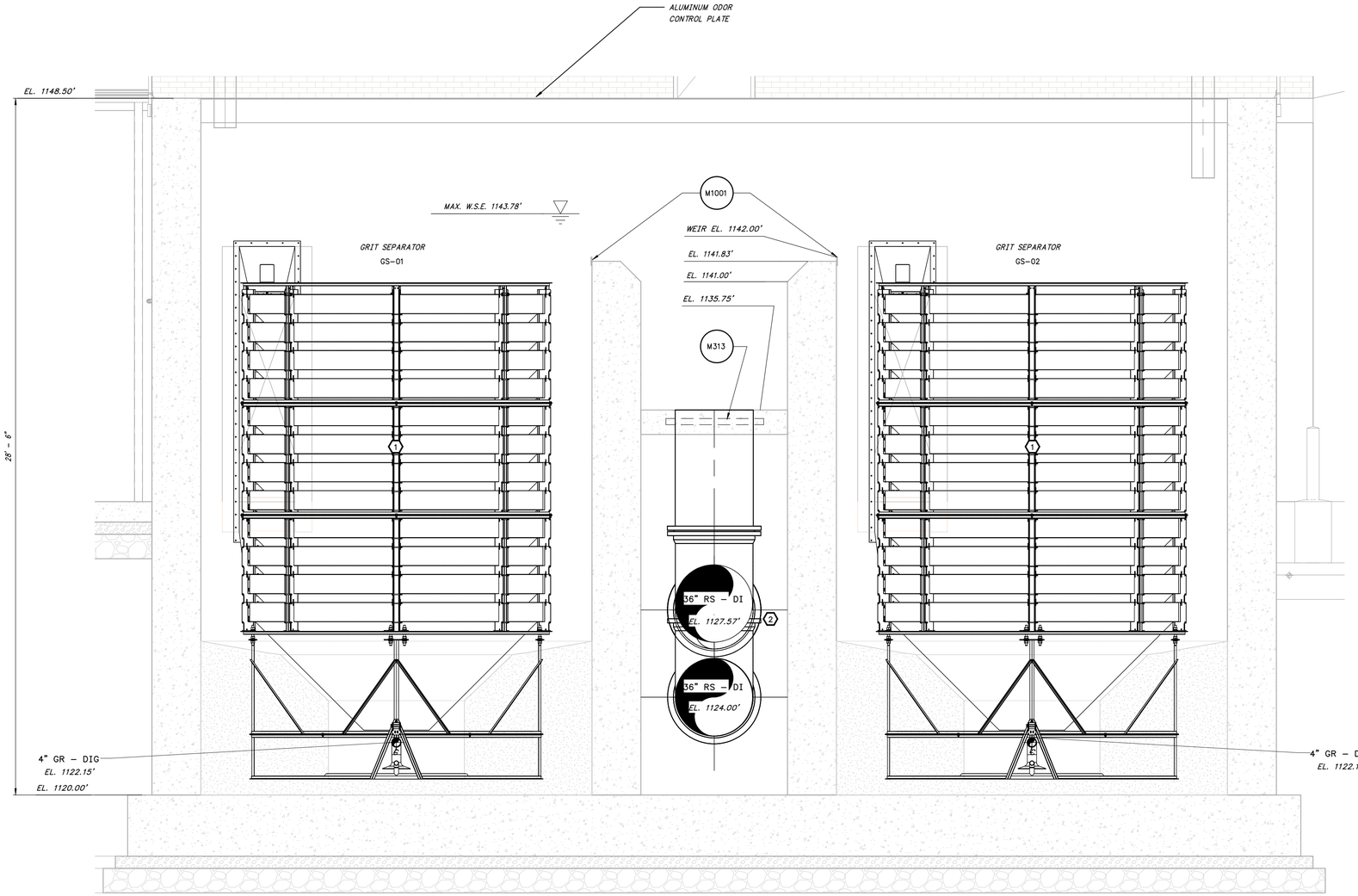
INFLUENT BUILDING

DETAIL

FOR: BENTONVILLE WATER UTILITIES

DATE: MARCH 2025
SCALE: 1/4" = 1'-0"
DESIGNED BY: JSD
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-ME

SHEET NO.
MA-6



SECTION 1 / MA-1
3/8" = 1'-0"

NOTES:

1. ALL HARDWARE SHALL BE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED. ANTISEIZE LUBRICANTS SHALL BE USED WHEN ASSEMBLING STAINLESS STEEL HARDWARE.
2. PAINT ALL EXPOSED PIPING IN ACCORDANCE WITH SPECIFICATION SECTION 09902.
3. SEE SITE PIPING PLAN AND PROFILES IN CIVIL SHEETS FOR CONTINUATION OF CONNECTING PIPES.
4. INSTALL PLUG VALVES ON THE GRIT PIPING SUCH THAT THE PLUG IS PARALLEL TO THE FLOOR.
5. ALL GRIT PIPING AND FITTINGS SHALL BE GLASS LINED DUCTILE IRON PIPE.

KEYED NOTES:

1. INSTALL GRIT SEPERATOR
2. INSTALL 36" 90° BEND

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15397
JOSHUA S. DUGGINS
3/21/25

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

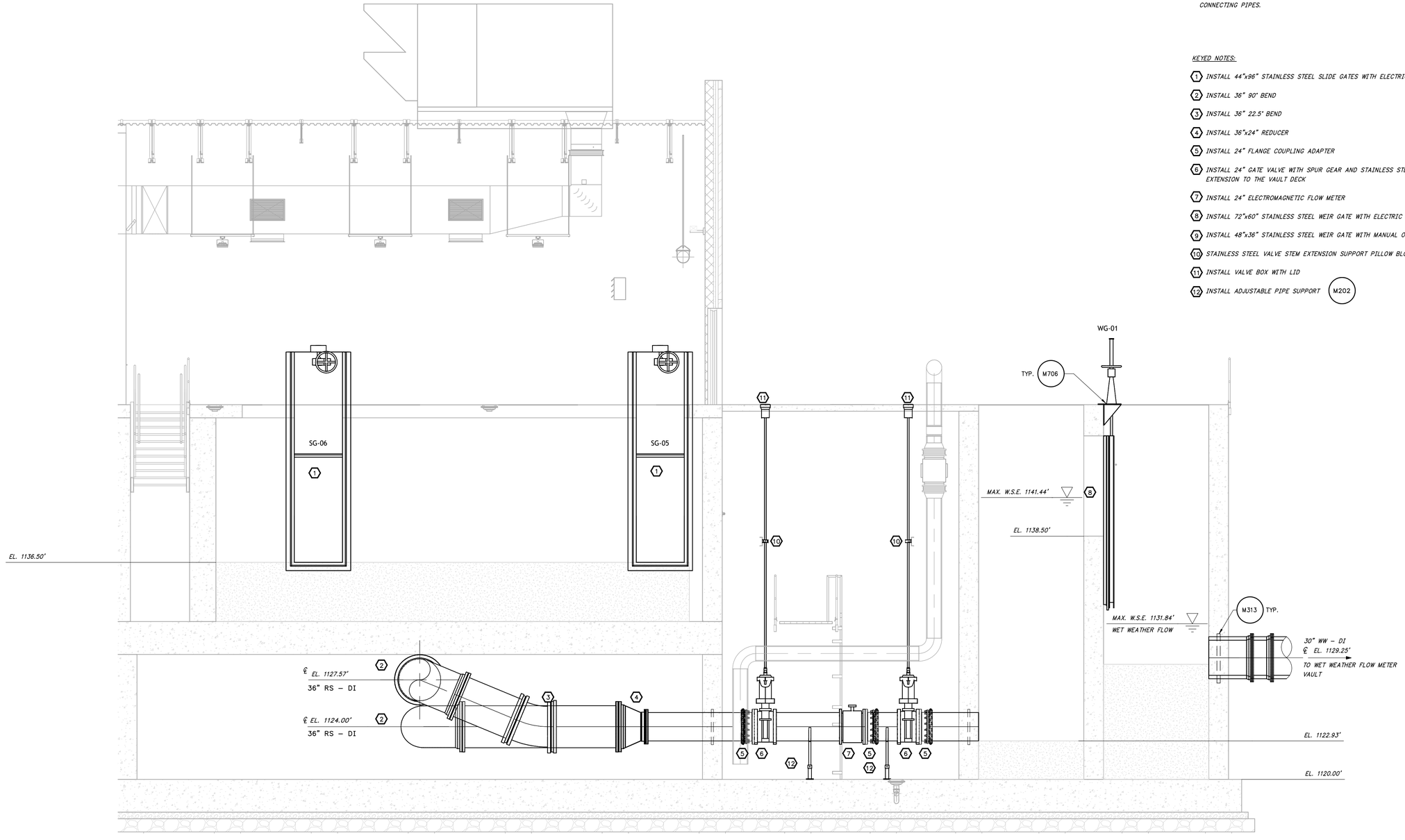
CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

INFLUENT BUILDING
SECTION

FOR: BENTONVILLE WATER UTILITIES

DATE: MARCH 2025
SCALE: 3/8" = 1'-0"
DESIGNED BY: JSD
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME:

SHEET NO.
MA-7



SECTION 4 / 1/4" = 1'-0" / MA-6

NOTES:
1. ALL HARDWARE SHALL BE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED. ANTISEIZE LUBRICANTS SHALL BE USED WHEN ASSEMBLING STAINLESS STEEL HARDWARE.
2. PAINT ALL EXPOSED PIPING IN ACCORDANCE WITH SPECIFICATION SECTION 09902.
3. SEE SITE PIPING PLAN AND PROFILES IN CIVIL SHEETS FOR CONTINUATION OF CONNECTING PIPES.

KEYED NOTES:
1. INSTALL 44"x96" STAINLESS STEEL SLIDE GATES WITH ELECTRIC OPERATORS
2. INSTALL 36" 90° BEND
3. INSTALL 36" 22.5° BEND
4. INSTALL 36"x24" REDUCER
5. INSTALL 24" FLANGE COUPLING ADAPTER
6. INSTALL 24" GATE VALVE WITH SPUR GEAR AND STAINLESS STEEL OPERATOR EXTENSION TO THE VAULT DECK
7. INSTALL 24" ELECTROMAGNETIC FLOW METER
8. INSTALL 72"x60" STAINLESS STEEL WEIR GATE WITH ELECTRIC OPERATOR
9. INSTALL 48"x36" STAINLESS STEEL WEIR GATE WITH MANUAL OPERATOR
10. STAINLESS STEEL VALVE STEM EXTENSION SUPPORT PILLOW BLOCK
11. INSTALL VALVE BOX WITH LID
12. INSTALL ADJUSTABLE PIPE SUPPORT M202

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS *** LICENSED PROFESSIONAL ENGINEER *** No. 15397 JOSHUA S. DUGGINS

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

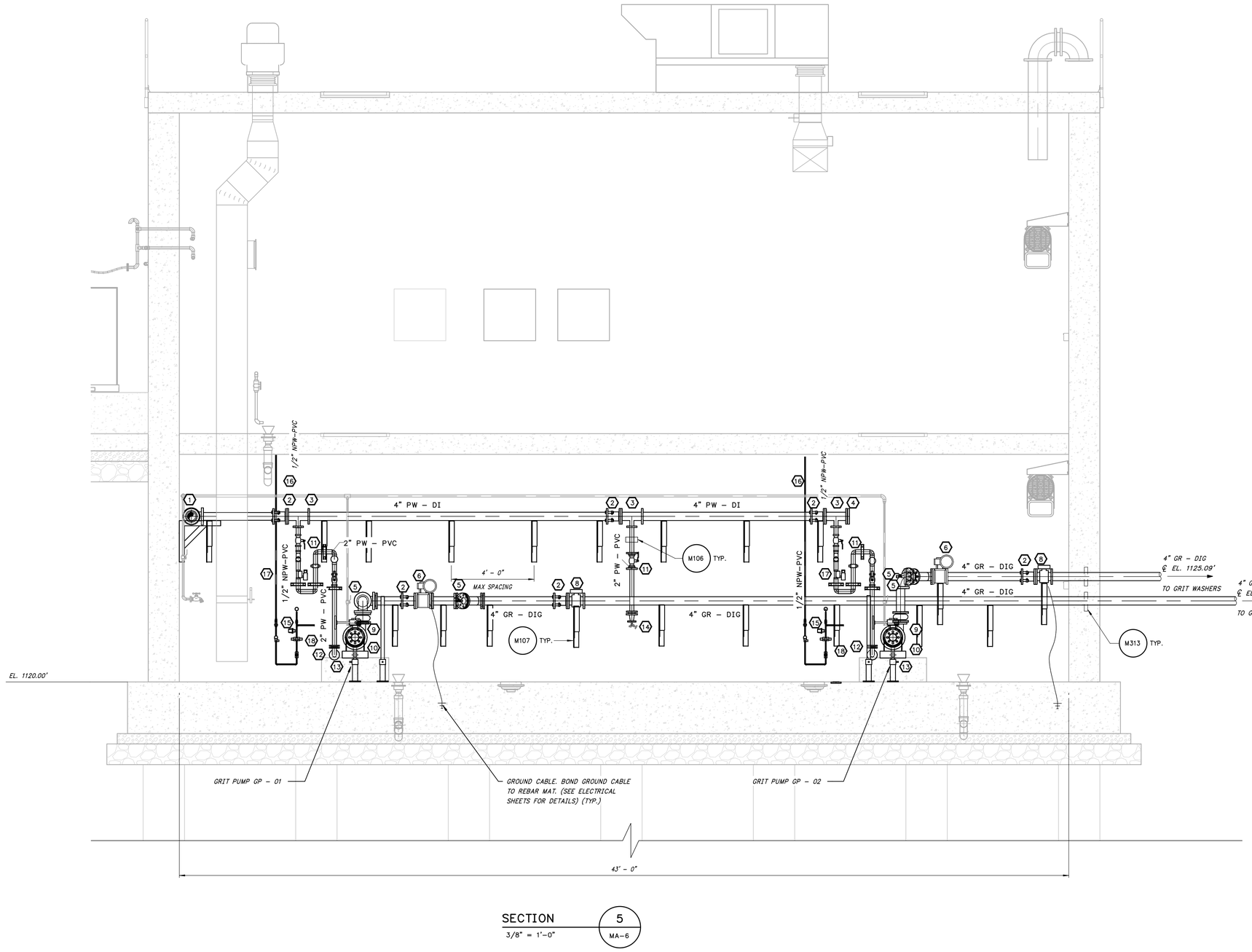
CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

INFLUENT BUILDING SECTION

FOR: BENTONVILLE WATER UTILITIES

DATE: MARCH 2025
SCALE: As indicated
DESIGNED BY: JSD
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037–ME

SHEET NO.
MA–8



SECTION 5
3/8" = 1'-0" MA-6

NOTES:

1. ALL HARDWARE SHALL BE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED. ANTISEIZE LUBRICANTS SHALL BE USED WHEN ASSEMBLING STAINLESS STEEL HARDWARE.
2. PAINT ALL EXPOSED PIPING IN ACCORDANCE WITH SPECIFICATION SECTION 09902.
3. SEE SITE PIPING PLAN AND PROFILES IN CIVIL SHEETS FOR CONTINUATION OF CONNECTING PIPES.
4. INSTALL PLUG VALVES ON THE GRIT PIPING SUCH THAT THE PLUG IS PARALLEL TO THE FLOOR.
5. ALL GRIT PIPING AND FITTINGS SHALL BE GLASS LINED DUCTILE IRON PIPE.
6. ROTAMETERS SHALL BE INSTALLED IN A VERTICAL ORIENTATION WITH FLOW ENTERING AT THE BOTTOM AND EXITING AT THE TOP.

KEYED NOTES:

1. INSTALL 4 FLANGED 90° BEND
2. INSTALL 4" FLANGE COUPLING ADAPTOR
3. INSTALL 4" FLANGED TEE WITH 4" TAPPED BLIND FLANGE
4. INSTALL 4" BLIND FLANGE
5. INSTALL 4" FLANGED GLASS LINED 90° BEND
6. INSTALL 4" PLUG VALVE WITH HANDWHEEL OPERATOR
7. INSTALL 4" FLANGED GLASS LINED WYE WITH 4" TAPPED FLIND FLANGE, 1" STAINLESS STEEL PIPE NIPPLES, 1" STAINLESS STEEL BALL VALVE, AND HOSE CONNECTION
8. INSTALL 4" ELECTROMAGNETIC FLOW METER
9. INSTALL 4" RESTAINED FLEXIBLE BELLOWS
10. INSTALL GRIT PUMP SUPPLIED BY GRIT SYSTEM MANUFACTURER
11. INSTALL 2" PVC BALL VALVE
12. CONNECT TO GRIT SEPERATOR FLUIDIZER RING
13. INSTALL ADJUSTABLE PIPE SUPPORT M202
14. INSTALL PLANT WATER HOSE STATION WITH SIGN M501 M506
15. INSTALL SEAL WATER STATION M1004
16. CONNECT 1/2" NPW-PVC TO WATER SUPPLY (SEE PLUMBING SHEETS FOR CONNECTION)
17. INSTALL 2" GLOBE VALVE, 2" SOLENOID CONTROL VALVE, 2" ROTAMETER, AND 2" BALL VALVE FOR GRIT FLUIDIZATION SYSTEM. THESE COMPONENTS SHALL BE SUPPLIED AS PART OF THE GRIT REMOVAL EQUIPMENT.
18. CONNECT SEAL WATER STATION TO GRIT PUMP

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15397
JOSHUA S. DUNSWORTH

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

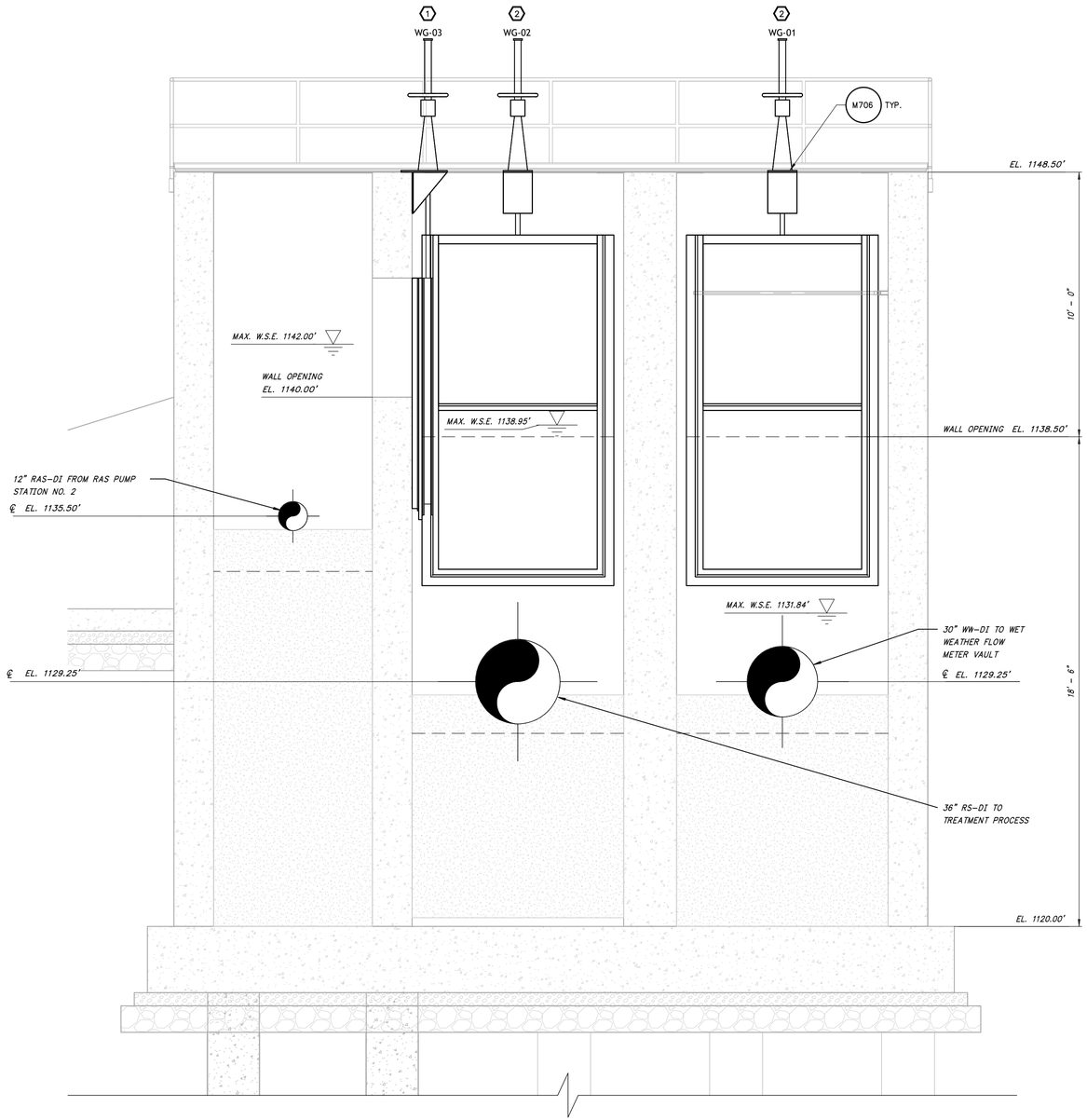
CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

INFLUENT BUIDLING
SECTION

FOR: BENTONVILLE WATER UTILITIES

DATE: MARCH 2025
SCALE: 3/8" = 1'-0"
DESIGNED BY: JSD
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-ME

SHEET NO.
MA-9



SECTION 6 / MA-6
3/8" = 1'-0"

NOTES:
1. ALL HARDWARE SHALL BE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED. ANTISEIZE LUBRICANTS SHALL BE USED WHEN ASSEMBLING STAINLESS STEEL HARDWARE.
2. PAINT ALL EXPOSED PIPING IN ACCORDANCE WITH SPECIFICATION SECTION 09902.
3. SEE SITE PIPING PLAN AND PROFILES IN CIVIL SHEETS FOR CONTINUATION OF CONNECTING PIPES.

KEYED NOTES:

1 INSTALL 48"x36" STAINLESS STEEL WEIR GATE WITH MANUAL OPERATOR

2 INSTALL 72"x60" STAINLESS STEEL WEIR GATE WITH ELECTRIC OPERATOR

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15397
JOSHUA S. DUGGINS
3/20/25

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

INFLUENT BUILDING SECTION

FOR: BENTONVILLE WATER UTILITIES

DATE: MARCH 2025
SCALE: 3/8" = 1'-0"
DESIGNED BY: JSD
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-ME

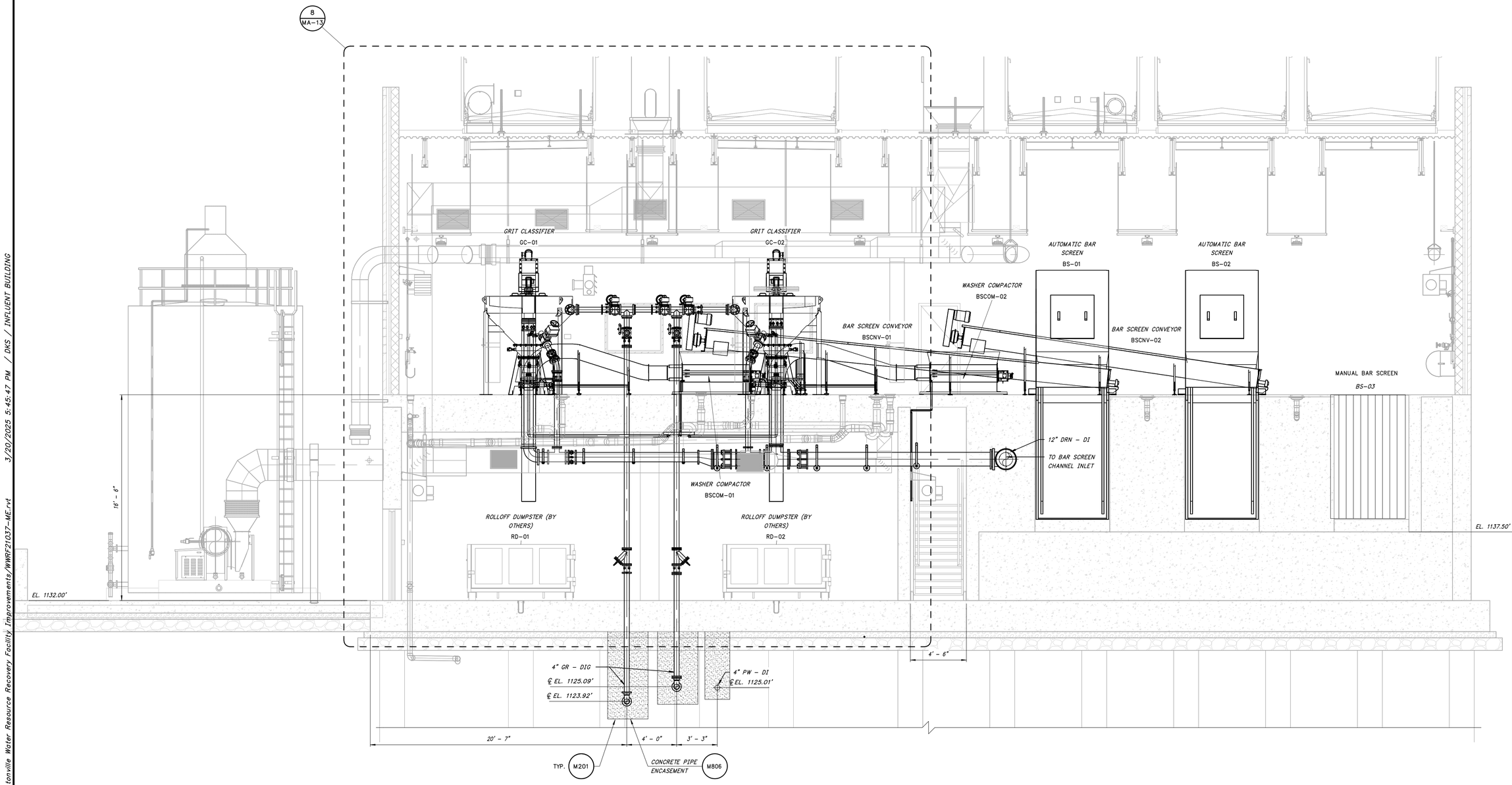
SHEET NO.
MA-10

NOTES:
1. ALL HARDWARE SHALL BE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED. ANTISEIZE LUBRICANTS SHALL BE USED WHEN ASSEMBLING STAINLESS STEEL HARDWARE.

2. PAINT ALL EXPOSED PIPING IN ACCORDANCE WITH SPECIFICATION SECTION 09902.

3. SEE SITE PIPING PLAN AND PROFILES IN CIVIL SHEETS FOR CONTINUATION OF CONNECTING PIPES.

4. ALL GRIT PIPING AND FITTINGS SHALL BE GLASS LINED DUCTILE IRON PIPE.



SECTION 7
1/4" = 1'-0" MA-1

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
JOSHUA S. DUGGINS
No. 15397
3/20/25

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

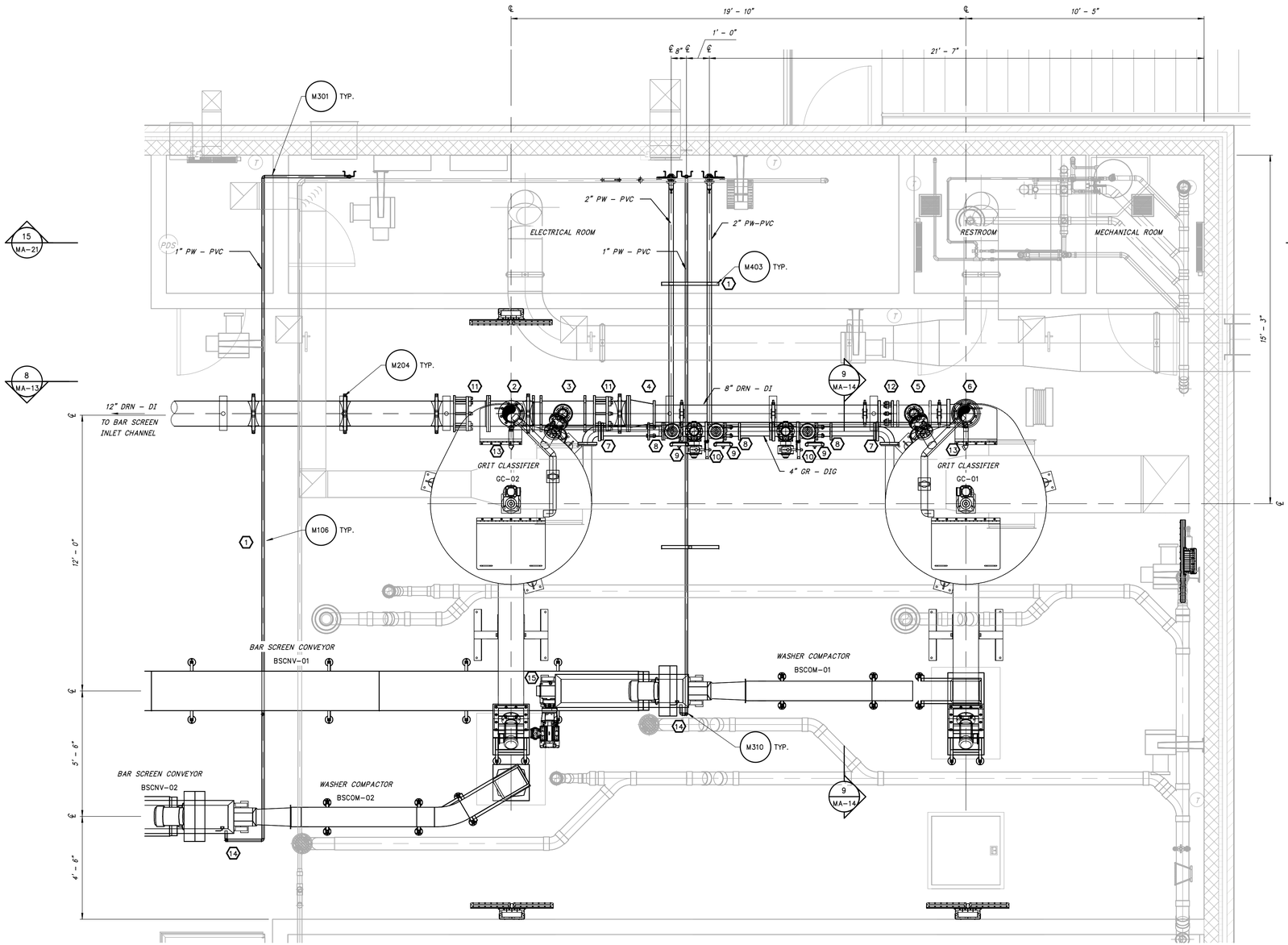
CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

INFLUENT BUILDING
SECTION

FOR: BENTONVILLE WATER UTILITIES

DATE: MARCH 2025
SCALE: 1/4" = 1'-0"
DESIGNED BY: JSD
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-ME

SHEET NO.
MA-11



DETAIL E
3/8" = 1'-0"

NOTES:

1. ALL HARDWARE SHALL BE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED. ANTISEIZE LUBRICANTS SHALL BE USED WHEN ASSEMBLING STAINLESS STEEL HARDWARE.
2. PAINT ALL EXPOSED PIPING IN ACCORDANCE WITH SPECIFICATION SECTION 09902.
3. SEE SITE PIPING PLAN AND PROFILES IN CIVIL SHEETS FOR CONTINUATION OF CONNECTING PIPES.
4. INSTALL PLUG VALVES ON THE GRIT PIPING SUCH THAT THE PLUG IS PARALLEL TO THE FLOOR.
5. ALL GRIT PIPING AND FITTINGS SHALL BE GLASS LINED DUCTILE IRON PIPE.

KEYED NOTES:

1. INSTALL PVC PIPE SUPPORTS AT 4' CENTER TO CENTER SPACING
2. INSTALL 12" x 8" FLANGED REDUCING TEE
3. INSTALL 12" x 4" FLANGED REDUCING TEE
4. INSTALL 12" x 8" FLANGED ECCENTRIC REDUCER
5. INSTALL 8" x 4" FLANGED REDUCING TEE
6. INSTALL 8" FLANGED 90° BEND
7. INSTALL 4" FLANGED GLASS LINED 90 BEND
8. INSTALL 4" FLANGED COUPLING ADAPTER
9. INSTALL 4" FLANGED PLUG VALVE WITH CHAINWHEEL OPERATOR
10. INSTALL 4" FLANGED GLASS LINED TEE
11. INSTALL 12" FLANGED COUPLING ADAPTER
12. INSTALL 8" FLANGE COUPLING ADAPTER
13. CONNECT 2" PW–PVC TO GRIT CLASSIFIER
14. CONNECT 1" PW–PVC TO WASHER/COMPACTOR
15. ROUTE WASHER/COMPACTOR DRAIN LINE TO FLOOR SINK

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15397
JOSHUA S. DUGGINS

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

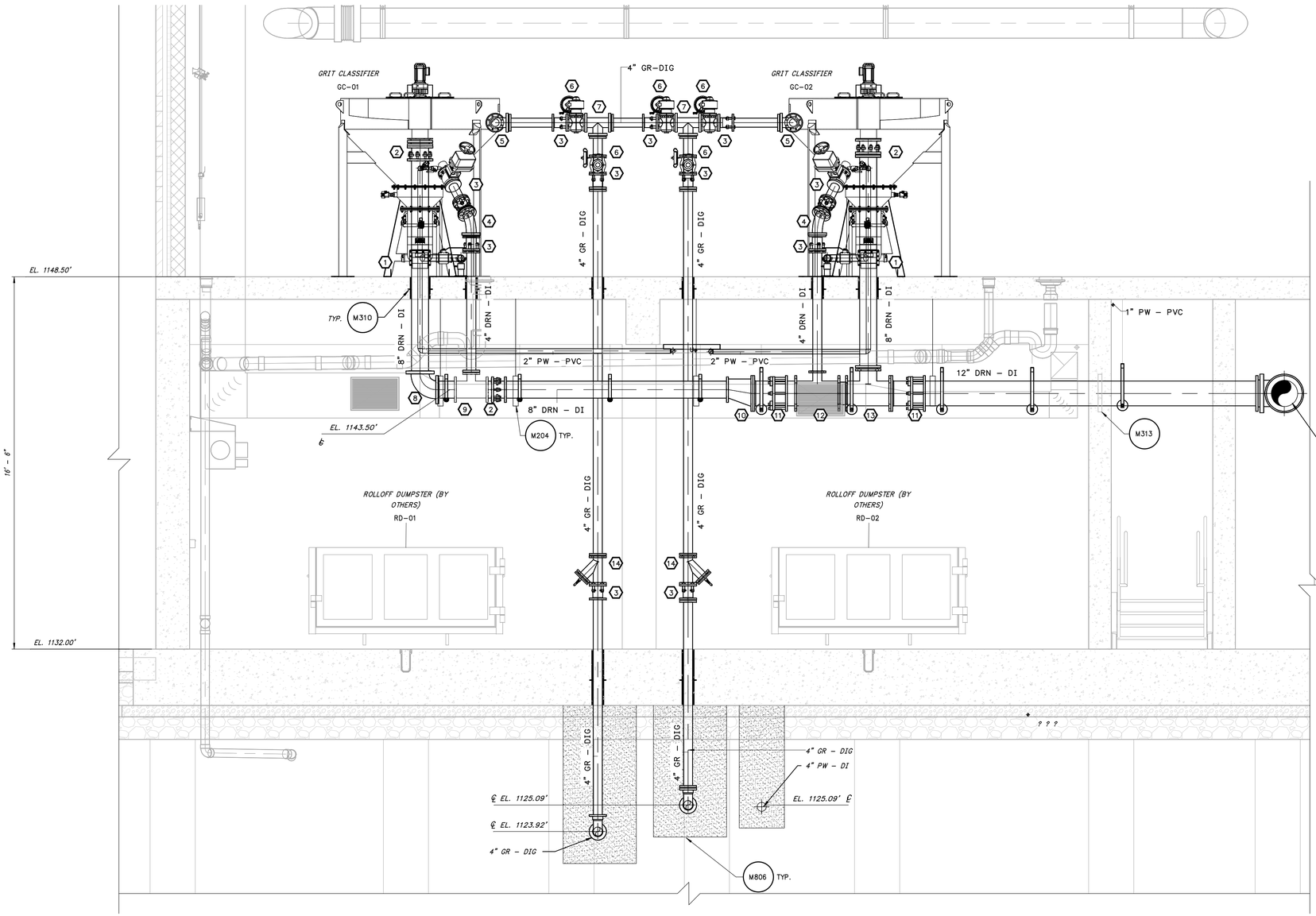
CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

INFLUENT BUILDING GRIT CLASSIFIER DETAIL

FOR: BENTONVILLE WATER UTILITIES

DATE: MARCH 2025
SCALE: 3/8" = 1'-0"
DESIGNED BY: JSD
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037–ME

SHEET NO.
MA–12



SECTION 8
3/8" = 1'-0" MA-11

NOTES:

1. ALL HARDWARE SHALL BE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED. ANTISEIZE LUBRICANTS SHALL BE USED WHEN ASSEMBLING STAINLESS STEEL HARDWARE.
2. PAINT ALL EXPOSED PIPING IN ACCORDANCE WITH SPECIFICATION SECTION 09902.
3. SEE SITE PIPING PLAN AND PROFILES IN CIVIL SHEETS FOR CONTINUATION OF CONNECTING PIPES.
4. INSTALL PLUG VALVES ON THE GRIT PIPING SUCH THAT THE PLUG IS PARALLEL TO THE FLOOR.
5. ALL GRIT PIPING AND FITTINGS SHALL BE GLASS LINED DUCTILE IRON PIPE.

KEYED NOTES:

1. INSTALL 3" DOUBLE BALE TAPPING SADDLE
2. INSTALL 8" FLANGE COUPLING ADAPTER
3. INSTALL 4" FLANGE COUPLING ADAPTER
4. INSTALL 4" FLANGED 45° BEND
5. INSTALL 4" FLANGED GLASS LINED 90° BEND
6. INSTALL 4" FLANGED PLUG VALVE WITH CHAINWHEEL OPERATOR
7. INSTALL 4" FLANGED GLASS LINED TEE
8. INSTALL 8" FLANGED 90° BEND
9. INSTALL 8"x4" FLANGED REDUCING TEE
10. INSTALL 12"x8" FLANGED ECCENTRIC REDUCER
11. INSTALL 12" FLANGE COUPLING ADAPTER
12. INSTALL 12"x8" FLANGED REDUCING TEE
13. INSTALL 12"x4" FLANGED REDUCING TEE
14. INSTALL 4" FLANGED GLASS LINED WYE WITH 4" TAPPED BLIND FLANGE, 1" STAINLESS STEEL PIPE NIPPLES, 1" STAINLESS STEEL BALL VALVE, AND HOSE CONNECTION.

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
JOSHUA S. DUGGINS
No. 15397
3/21/25

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

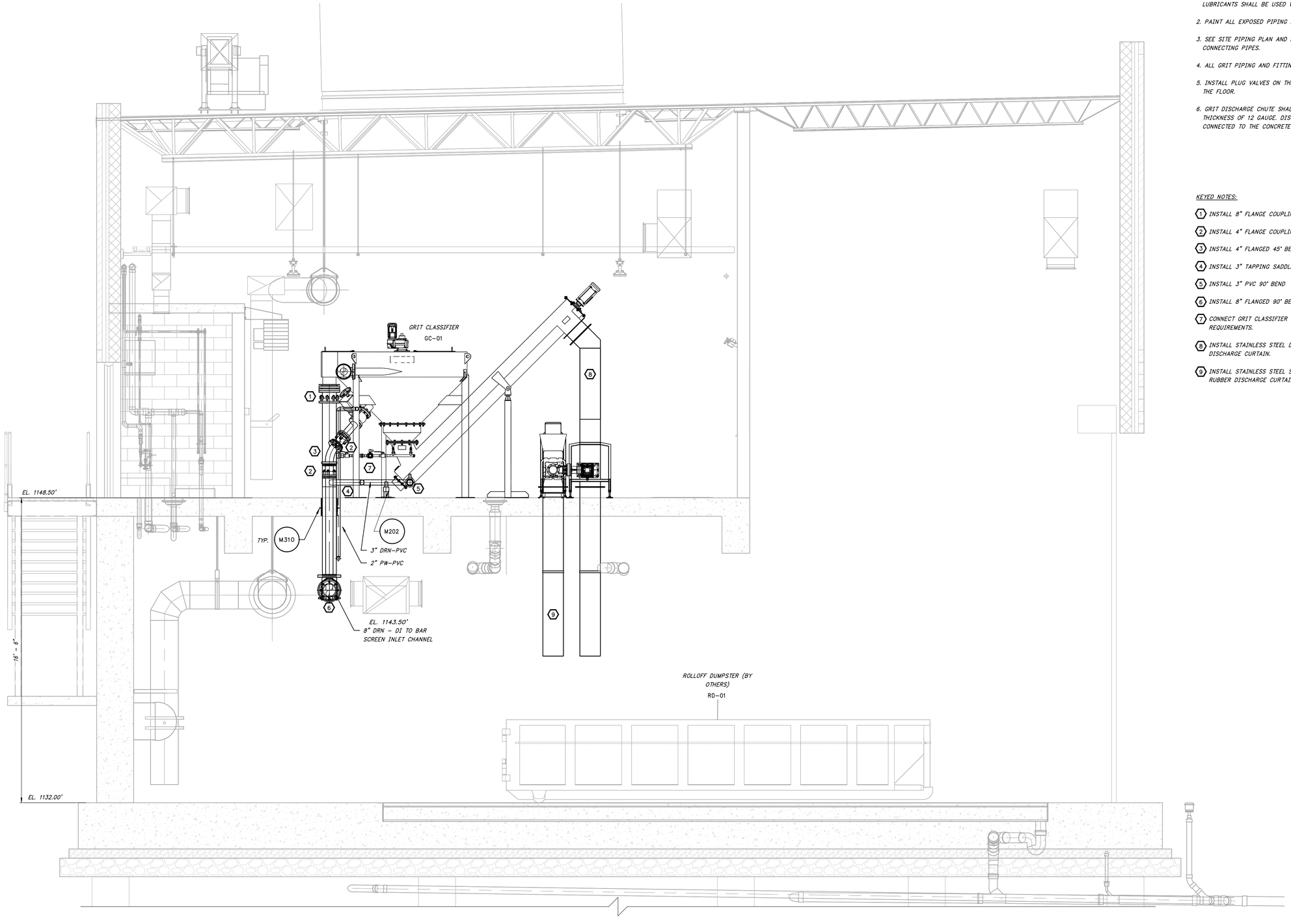
CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

INFLUENT BUILDING
SECTION

FOR: BENTONVILLE WATER UTILITIES

DATE: MARCH 2025
SCALE: 3/8" = 1'-0"
DESIGNED BY: JSD
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-ME

SHEET NO.
MA-13



SECTION 9
3/8" = 1'-0" MA-12

NOTES:

1. ALL HARDWARE SHALL BE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED. ANTISEIZE LUBRICANTS SHALL BE USED WHEN ASSEMBLING STAINLESS STEEL HARDWARE.
2. PAINT ALL EXPOSED PIPING IN ACCORDANCE WITH SPECIFICATION SECTION 09902.
3. SEE SITE PIPING PLAN AND PROFILES IN CIVIL SHEETS FOR CONTINUATION OF CONNECTING PIPES.
4. ALL GRIT PIPING AND FITTINGS SHALL BE GLASS LINED DUCTILE IRON PIPE.
5. INSTALL PLUG VALVES ON THE GRIT PIPING SUCH THAT THE PLUG IS PARALLEL TO THE FLOOR.
6. GRIT DISCHARGE CHUTE SHALL BE TYPE 316 STAINLESS STEEL WITH A MINIMUM THICKNESS OF 12 GAUGE. DISCHARGE CHUTE SHALL BE SUPPORT WITH BRACKETS CONNECTED TO THE CONCRETE FLOOR BEYOND THE LIMITS OF THE OPENING.

KEYED NOTES:

1. INSTALL 8" FLANGE COUPLING ADAPTER
2. INSTALL 4" FLANGE COUPLING ADAPTER
3. INSTALL 4" FLANGED 45° BEND
4. INSTALL 3" TAPPING SADDLE WITH 3" PVC UNION, AND 3" PVC 45° BEND
5. INSTALL 3" PVC 90° BEND
6. INSTALL 8" FLANGED 90° BEND
7. CONNECT GRIT CLASSIFIER TO 2" PW – PVC PER THE MANUFACTURER'S REQUIREMENTS.
8. INSTALL STAINLESS STEEL DISCHARGE CHUTE WITH REINFORCED RUBBER DISCHARGE CURTAIN.
9. INSTALL STAINLESS STEEL SCREENINGS DISCHARGE TUBE WITH REINFORCED RUBBER DISCHARGE CURTAIN.

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15397
JOSHUA S. DUGGINS
3/19/25

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

INFLUENT BUILDING
SECTION

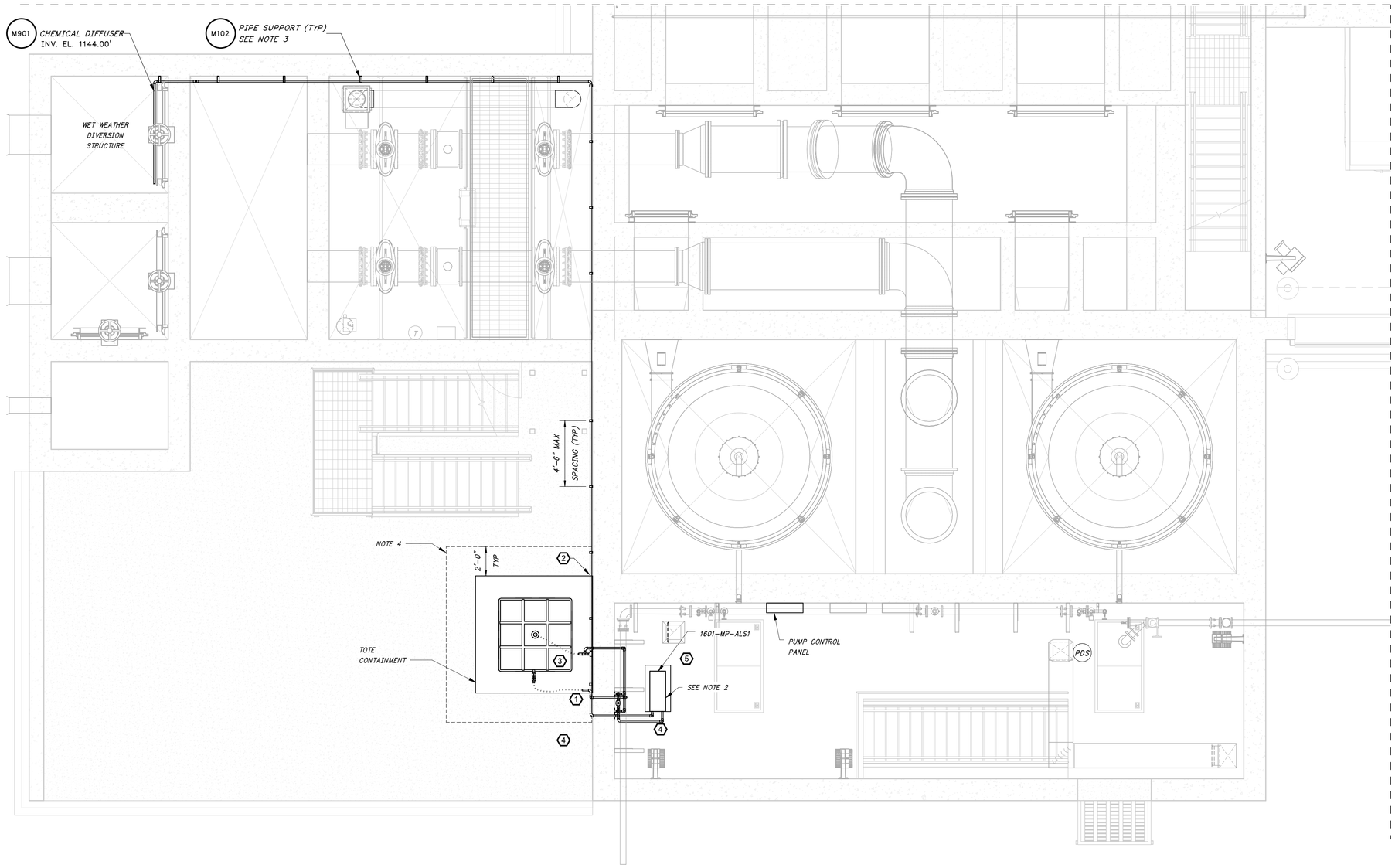
FOR: BENTONVILLE WATER UTILITIES

DATE: MARCH 2025
SCALE: 3/8" = 1'-0"
DESIGNED BY: JSD
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-ME

SHEET NO.
MA-14

BID DRAWINGS
MARCH 21, 2025

MATCHLINE SEE SHEET MA-1



INFLUENT STRUCTURE OPERATING DETAIL F
1/4" = 1'-0" MA-1

GENERAL NOTES:

1. LIQUID CHEMICAL FEED SYSTEM SUPPLIER SHALL ROUTE CHEMICAL PIPING AND INSTALL INSTRUMENTATION, VALVES, AND APPURTENANCES PER THE CHEMICAL FEED P&IDS AND LIQUID CHEMICAL FEED SPECIFICATIONS.

2. PUMP SHALL BE INSTALLED SUCH THAT HOSE PIPING IS ACCESSIBLE FOR REMOVAL AND REPLACEMENT.

3. CONTRACTOR SHALL ENSURE ALL PIPING IS PROPERLY SUPPORTED. IF OVERHEAD OR CANTILEVERED PIPING SUPPORTS ARE REQUIRED, CONTRACTOR SHALL SUBMIT FOR REVIEW AND APPROVAL OF ENGINEER AND OWNER. PIPING SHALL BE SLOPED TO DRAIN TOWARDS CHEMICAL DIFFUSER (MINIMUM 1%).

4. THE ALUMINUM SULFATE AREA UNDER THE TOTE CONTAINMENT PALLET AND EXTENDING TWO FEET AROUND IT SHALL BE COATED WITH AN EPOXY LINING WITH A FLEXIBLE BASECOAT PROTECTION SYSTEM BY DUDICK INC., CARBOLINE COMPANY, TNEMEC COMPANY, INTERNATIONAL PAINT, LLC/CEILOTE, OR STONARD. THE CURBED AREA FLOOR, TANK PAD, AND CURB WALLS SHALL BE COATED. CONCRETE SURFACES SHALL BE PREPARED IN ACCORDANCE WITH SSPC-SP13/NACE 6. CORROSION PROTECTION SYSTEM SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND IN A NEAT MANNER, WITH FINISHED SURFACES FREE OF RUNS, SAGES, RIDGES, LAPS, AND BRUSH MARKS. GRIT SHALL BE BROADCAST INTO FIRST FINISH LINING COAT TO PRODUCE AN ANTI-SKID SURFACE.

5. THE CHEMICAL FEED SYSTEM PIPING AND APPURTENANCES ARE SHOWN FOR ILLUSTRATIVE PURPOSES. SEE SHEETS P-8 AND P-9 FOR COMPLETE PROCESS AND INSTRUMENTATION DIAGRAMS.

KEYED NOTES

1. 1"-ALS-CPVC-1 PUMP SUCTION LINE.
2. 1"-ALS-CPVC-1 PUMP DISCHARGE LINE TO WET WEATHER DIVERSION STRUCTURE.
3. 1"-ALS-CPVC-1 PRESSURE RELIEF AND ANTISIPHON LOOP LINES.
4. EMERGENCY EYEWASH AND SAFETY SHOWER. REFER TO PLUMBING SHEETS.
5. PERISTALTIC HOSE PUMP MOUNTED ON FRP TABLE WITH LIP AND DRAIN. PUMP DIMENSIONS AS REQUIRED BY MANUFACTURER. REFER TO LIQUID CHEMICAL FEED SPECIFICATIONS. SEE NOTE 2.

BID DRAWINGS
MARCH 21, 2025

4' 2' 0' 4' 8'
1/4" = 1'-0"

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 22387
ERIN BRIGGEMAN
03/21/2025

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

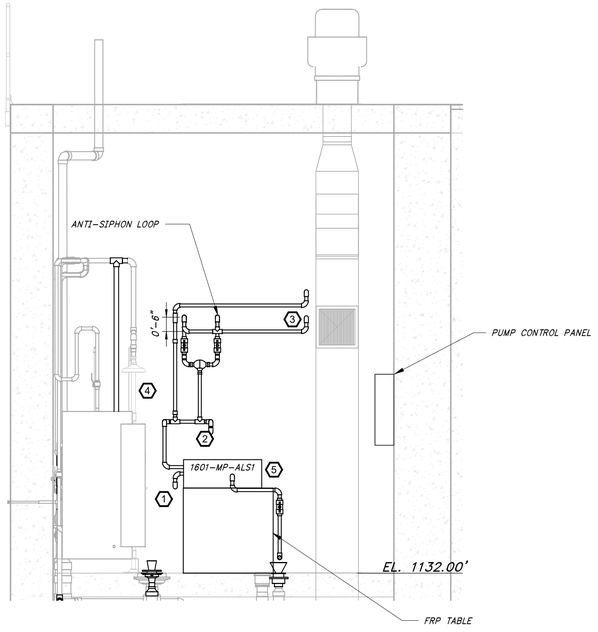
CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

CHEMICAL FEED PLAN

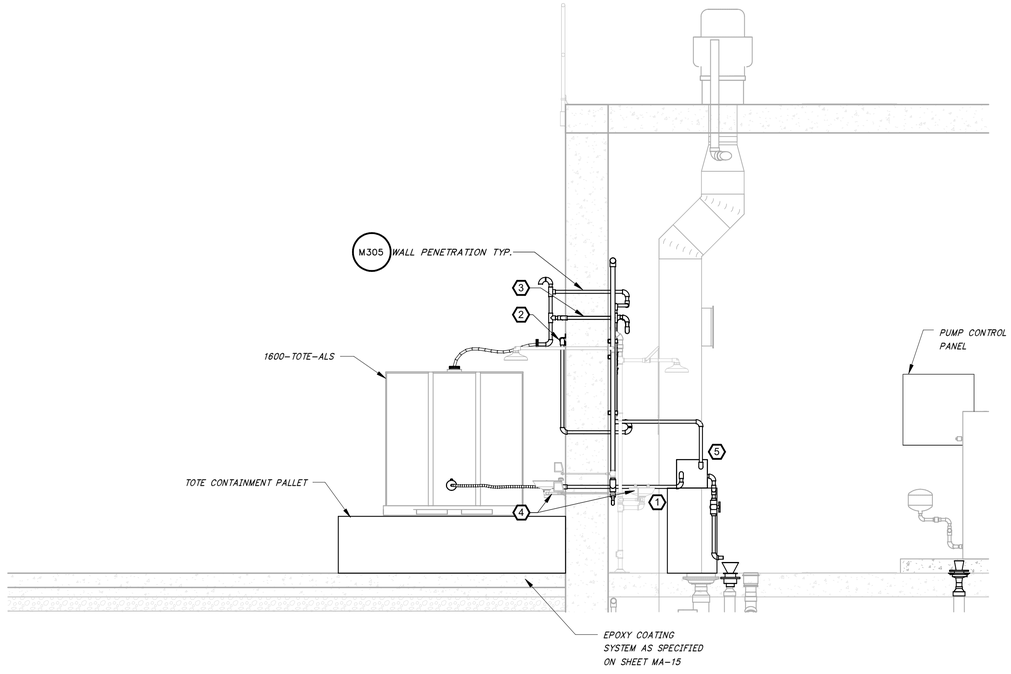
BENTONVILLE, ARKANSAS

DATE:	MARCH 2025
SCALE:	1/4" = 1'-0"
DESIGNED BY:	BGM
DRAWN BY:	NVN
HWEI NO.:	2021037
FILENAME:	H-HEADWORKS

SHEET NO.
MA-15



SECTION 10
3/8" = 1'-0"



SECTION 11
3/8" = 1'-0"

GENERAL NOTES:

1. LIQUID CHEMICAL FEED SYSTEM SUPPLIER SHALL ROUTE CHEMICAL PIPING AND INSTALL INSTRUMENTATION, VALVES, AND APPURTENANCES PER THE CHEMICAL FEED P&IDS AND LIQUID CHEMICAL FEED SPECIFICATIONS.

2. PUMP SHALL BE INSTALLED SUCH THAT HOSE PIPING IS ACCESSIBLE FOR REMOVAL AND REPLACEMENT.

3. CONTRACTOR SHALL ENSURE ALL PIPING IS PROPERLY SUPPORTED. IF OVERHEAD OR CANTILEVERED PIPING SUPPORTS ARE REQUIRED, CONTRACTOR SHALL SUBMIT FOR REVIEW AND APPROVAL OF ENGINEER AND OWNER.

4. THE CHEMICAL FEED SYSTEM PIPING AND APPURTENANCES ARE SHOWN FOR ILLUSTRATIVE PURPOSES. SEE SHEETS P-8 AND P-9 FOR COMPLETE PROCESS AND INSTRUMENTATION DIAGRAMS.

KEYED NOTES

1. 1"-ALS-CPVC-1 PUMP SUCTION LINE.
2. 1"-ALS-CPVC-1 PUMP DISCHARGE LINE TO WET WEATHER DIVERSION STRUCTURE.
3. 1"-ALS-CPVC-1 PRESSURE RELIEF AND ANTISIPHON LOOP LINES.
4. EMERGENCY EYEWASH AND SAFETY SHOWER. REFER TO PLUMBING SHEETS.
5. PERISTALTIC HOSE PUMP MOUNTED ON FRP TABLE WITH LIP AND DRAIN. PUMP DIMENSIONS AS REQUIRED BY MANUFACTURER. REFER TO LIQUID CHEMICAL FEED SPECIFICATIONS. SEE NOTE 2.

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 22387
03/21/2025
ERIN BRIGGEMAN

HAWKINS-WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

CHEMICAL FEED SECTIONS

BENTONVILLE, ARKANSAS

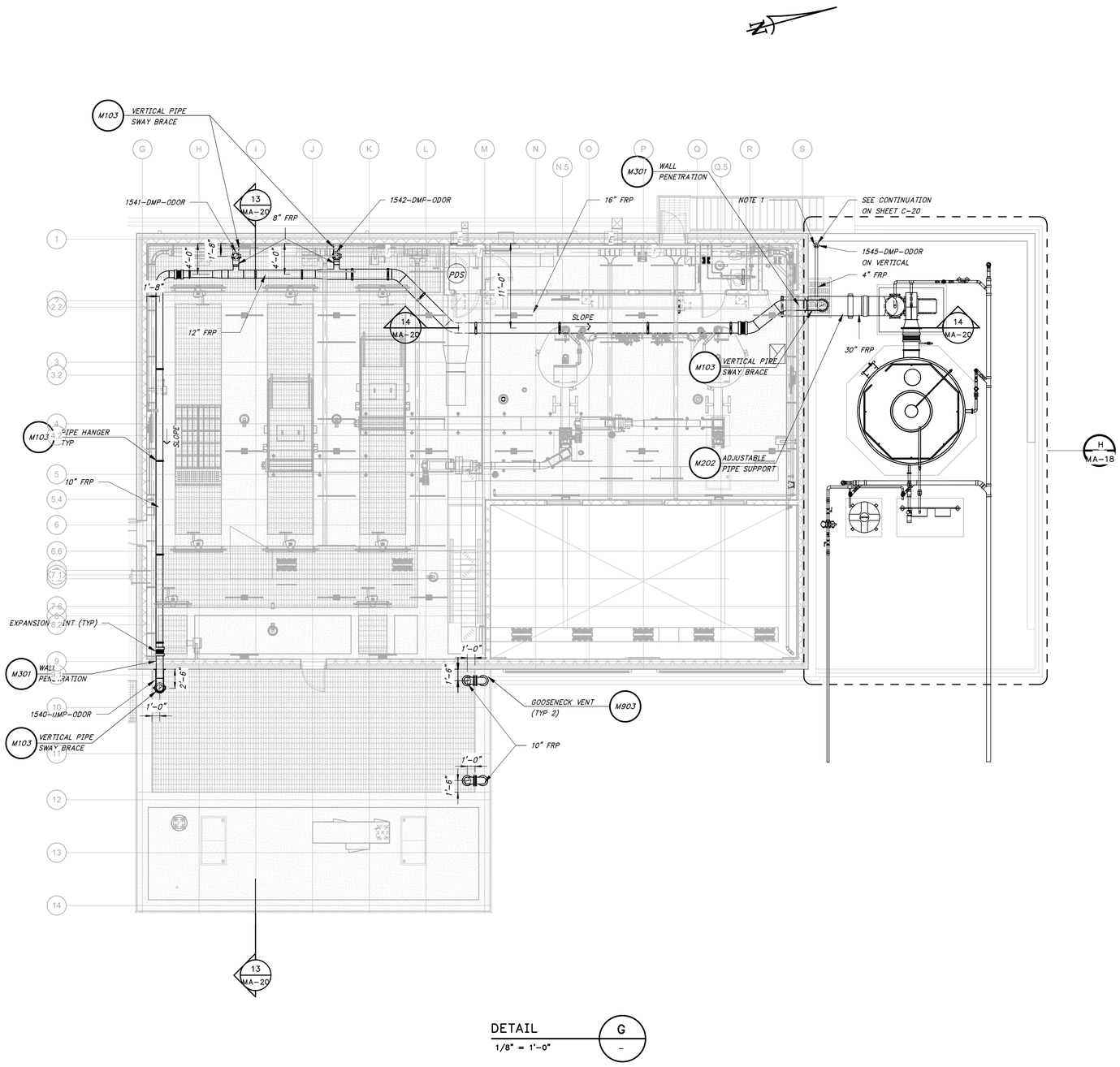
BID DRAWINGS
MARCH 21, 2025

DATE:	MARCH 2025
SCALE:	3/8" = 1'-0"
DESIGNED BY:	BGM
DRAWN BY:	NVN
HWEI NO.:	2021037
FILENAME:	H-HEADWORKS

SHEET NO.
MA-16

GENERAL NOTES:

1. ALL ABOVE PIPING SHALL BE FRP PER SPECIFICATION 15066. ALL BELOW GRADE PIPING SHALL BE HDPE PER SPECIFICATION 02634.



DETAIL G
1/8" = 1'-0"

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17959
NICHOLAS FRANCOM ROTH
3/21/2025

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

INFLUENT BUILDING ODOR CONTROL FLOOR PLAN

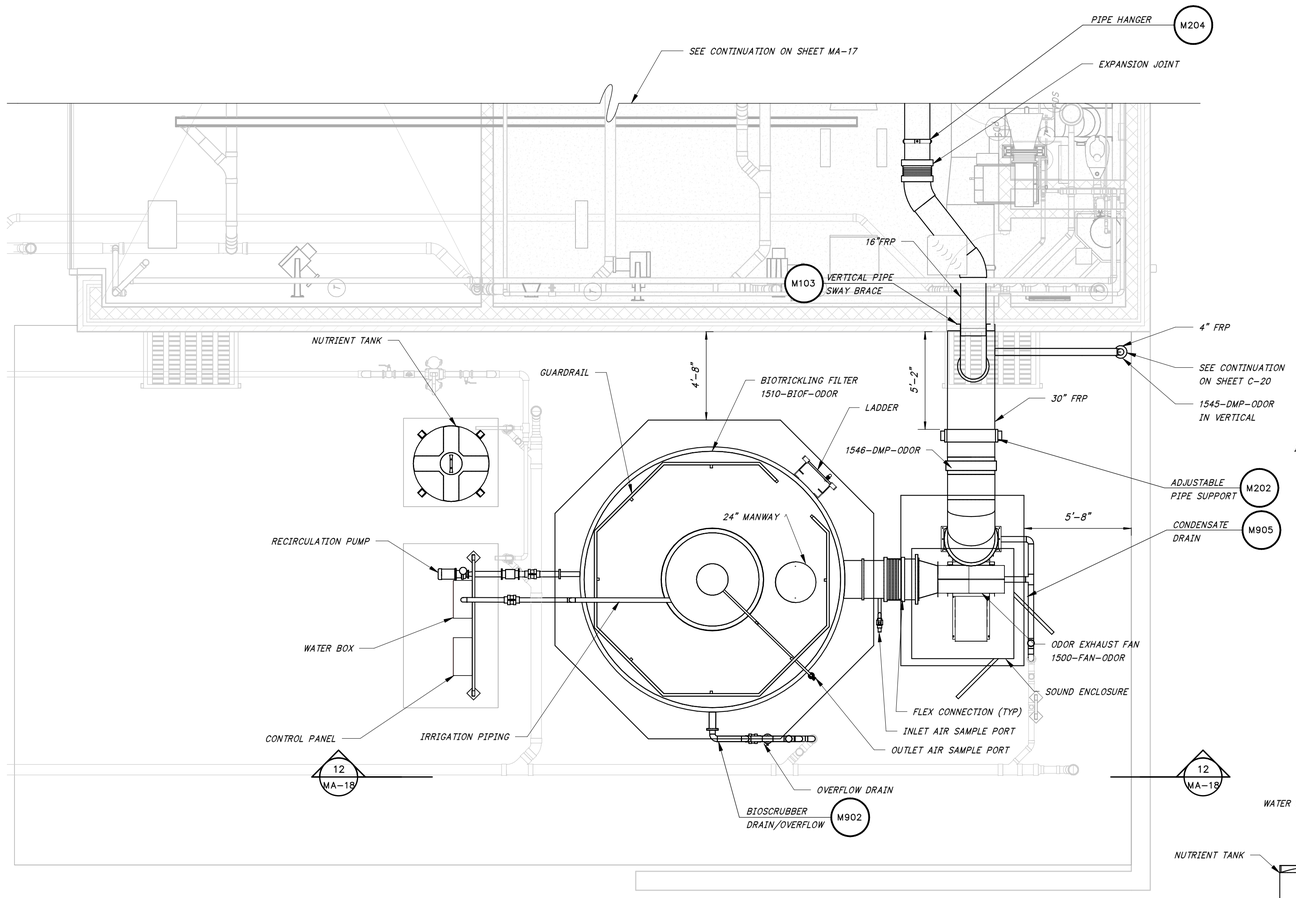
BENTONVILLE, ARKANSAS

DATE: MARCH 2025
SCALE: 1/8" = 1'-0"
DESIGNED BY: CJ
DRAWN BY: NVN
HWEI NO.: 2021037
FILENAME: M-ODOR CONTROL

SHEET NO.
MA-17

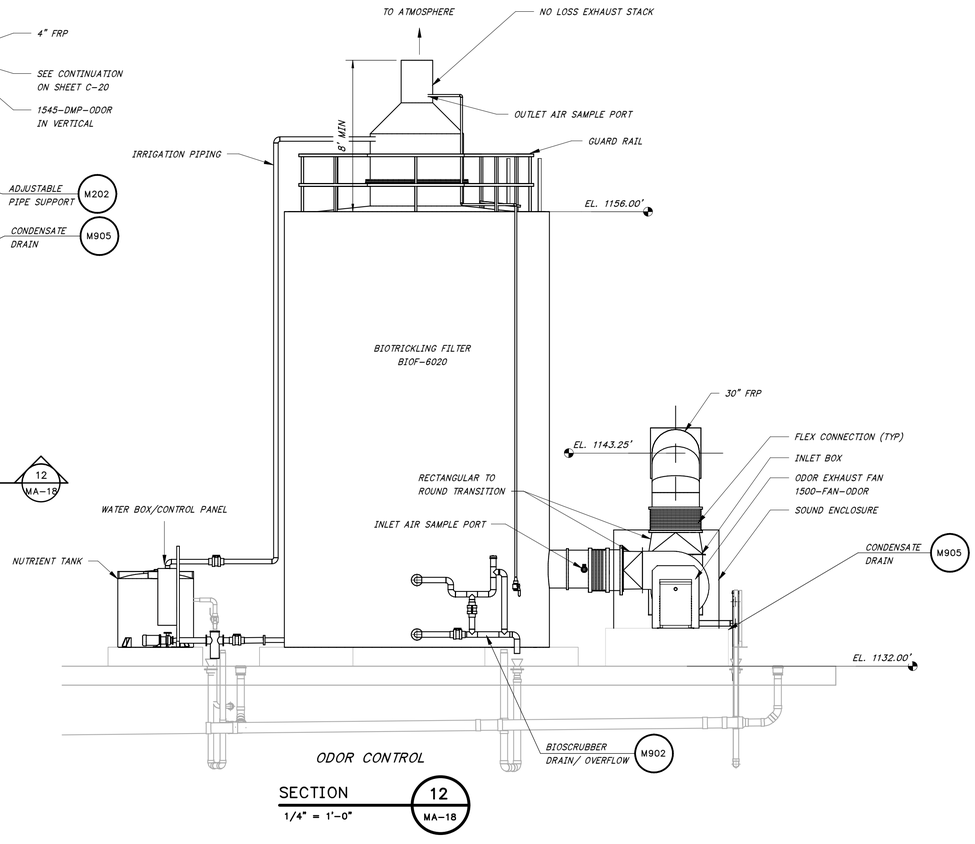
NOTES:

1. ALL ABOVE GRADE CONDENSATE DRAINS AND IRRIGATION PIPING SHALL BE INSULATED AND HEAT TRACED.



ODOR CONTROL

DETAIL H
1/4" = 1'-0"



ODOR CONTROL

SECTION 12
1/4" = 1'-0" MA-18

BID DRAWINGS
MARCH 21, 2025

ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

DATE	REVISION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17959
MICHAEL FRANCOM ROTH
3/21/2025

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

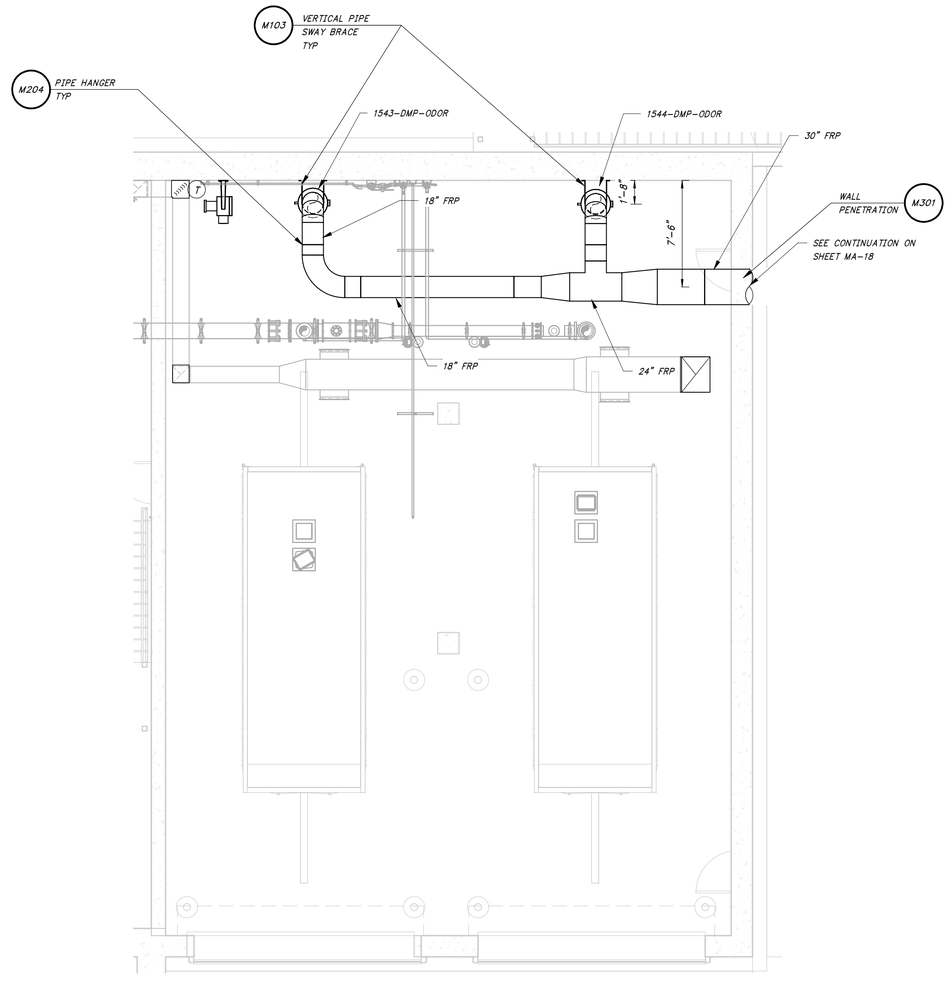
CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

ODOR CONTROL SYSTEM PLAN AND SECTION

BENTONVILLE, ARKANSAS

DATE: MARCH 2025
SCALE: 1/4" = 1'-0"
DESIGNED BY: CJ
DRAWN BY: NVN
HWEI NO.: 2021037
FILENAME: M-ODOR CONTROL

SHEET NO.
MA-18



DETAIL I
3/16" = 1'-0"

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17959
MICHELE FRANCOM ROTH
3/21/2025

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

INFLUENT BUILDING ODOR CONTROL LOWER FLOOR PLAN

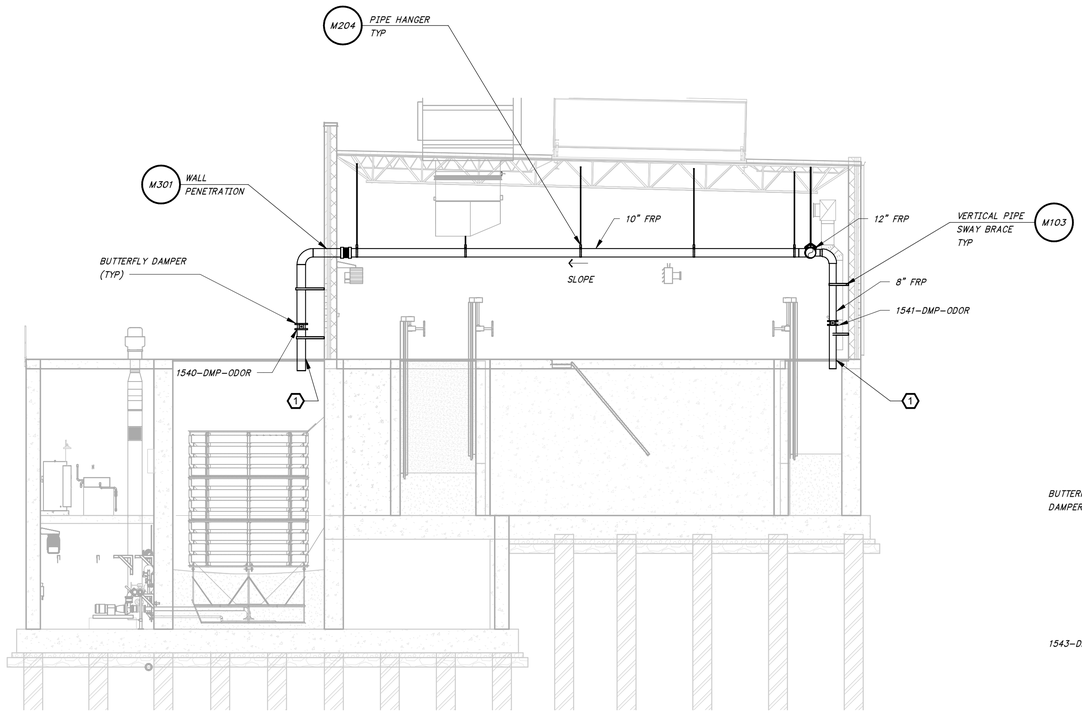
BENTONVILLE, ARKANSAS

DATE: MARCH 2025
SCALE: 3/16" = 1'-0"
DESIGNED BY: CJ
DRAWN BY: NVN
HWEI NO.: 2021037
FILENAME: M- ODOR CONTROL

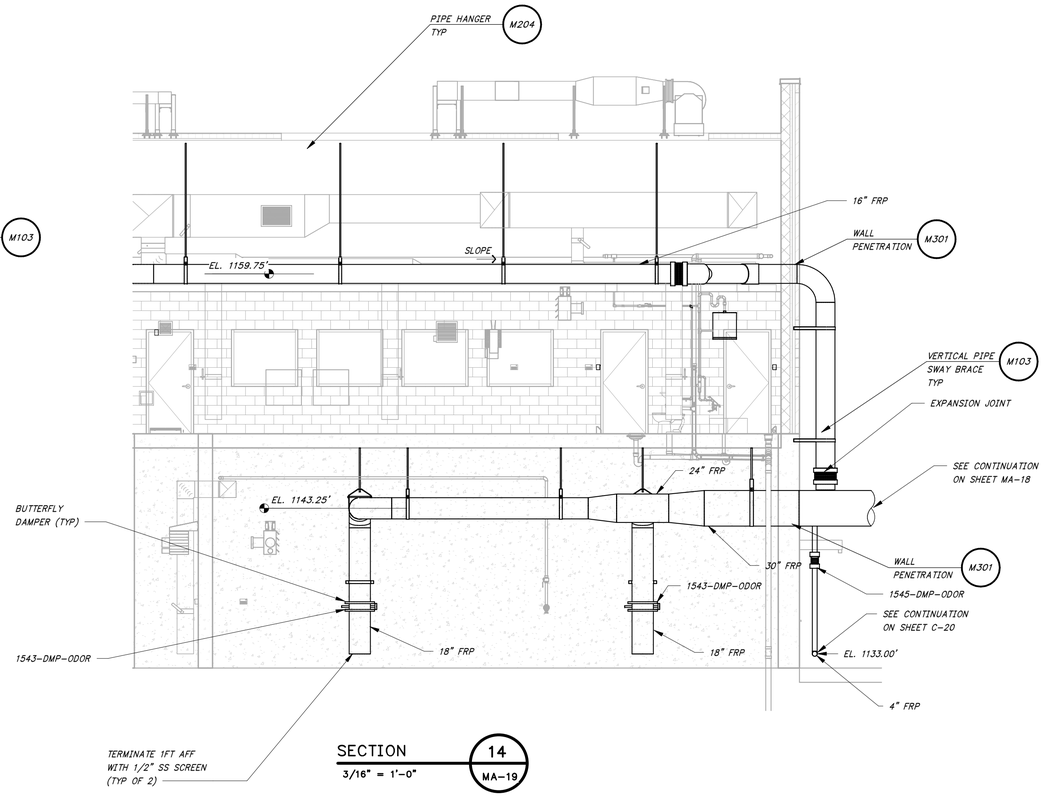
SHEET NO.
MA-19

NOTES:

1. SEAL OPENING IN ACCORDANCE WITH THE COVER SPECIFICATION



SECTION 13 / 1/8" = 1'-0" / MA-17



SECTION 14 / 3/16" = 1'-0" / MA-19

BID DRAWINGS
MARCH 21, 2025

ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

DATE	REVISION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17959
MICHAEL FRANCOM ROTH
3/21/2025

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

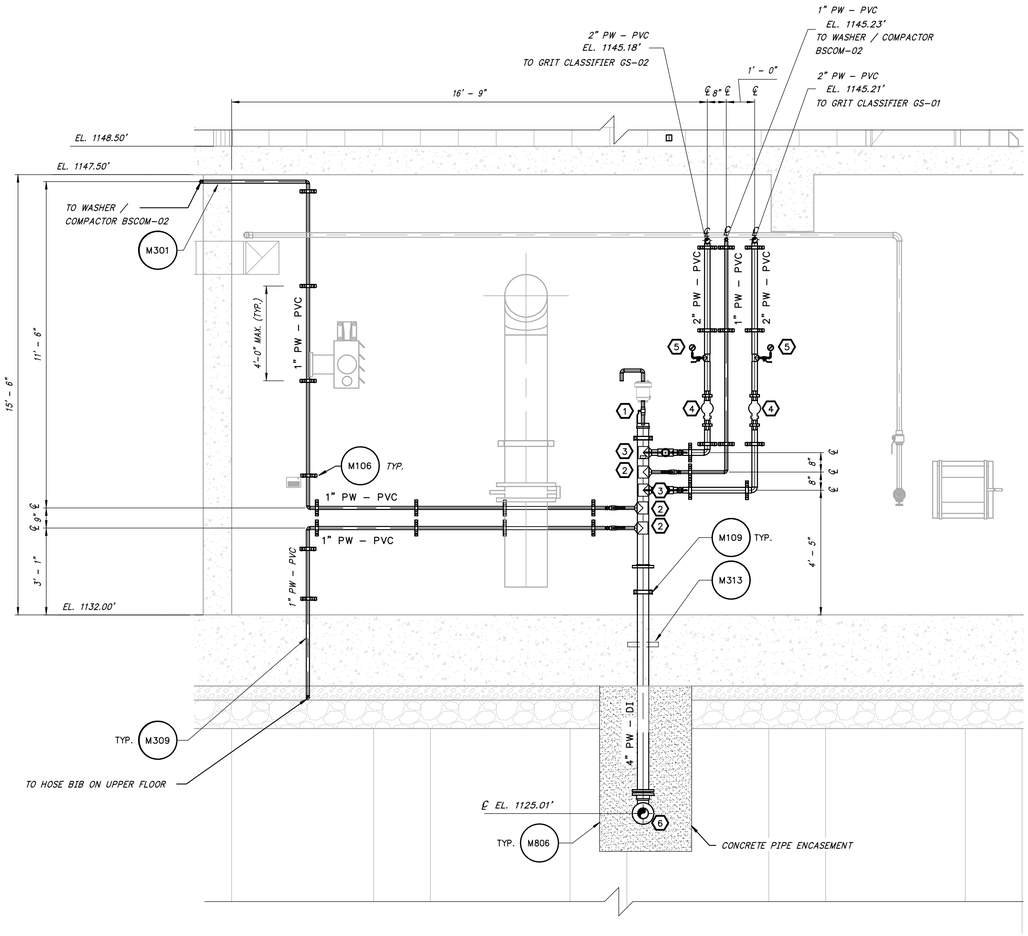
CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

INFLUENT BUILDING ODOR CONTROL SECTIONS

BENTONVILLE, ARKANSAS

DATE: MARCH 2025
SCALE:
DESIGNED BY: CJ
DRAWN BY: NVN
HWEI NO.: 2021037
FILENAME: M- ODOR CONTROL

SHEET NO.
MA-20



SECTION 15
3/8" = 1'-0" MA-1

NOTES:

1. ALL HARDWARE SHALL BE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED. ANTISEIZE LUBRICANTS SHALL BE USED WHEN ASSEMBLING STAINLESS STEEL HARDWARE.
2. PAINT ALL EXPOSED PIPING IN ACCORDANCE WITH SPECIFICATION SECTION 09902.
3. SEE SITE PIPING PLAN AND PROFILES IN CIVIL SHEETS FOR CONTINUATION OF CONNECTING PIPES.

KEYED NOTES:

1. INSTALL 4" TAPPED BLIND FLANGE WITH 1" STAINLESS STEEL PIPE NIPPLES, 1" STAINLESS STEEL BALL VALVE, AND 1" COMBINATION AIR/VACUUM VALVE
2. INSTALL 4"x1" DOUBLE BALE TAPPING SADDLE WITH STAINLESS STEEL PIPE NIPPLE AND 1" STAINLESS STEEL BALL VALVE
3. INSTALL 4"x2" DOUBLE BALE TAPPING SADDLE WITH STAINLESS STEEL PIPE NIPPLE AND 2" STAINLESS STEEL BALL VALVE
4. INSTALL 2" PRESSURE REDUCING VALVE WITH TWO (2) PVC UNIONS
5. INSTALL 2"x1/2" PVC TEE, 1/2" PVC PIPE NIPPLES, 1/2" BALL VALVE, AND PRESSURE GAUGE
6. INSTALL 4" 90° BEND

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
JOSHUA S. DUGGINS
No. 15397
3/20/25

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

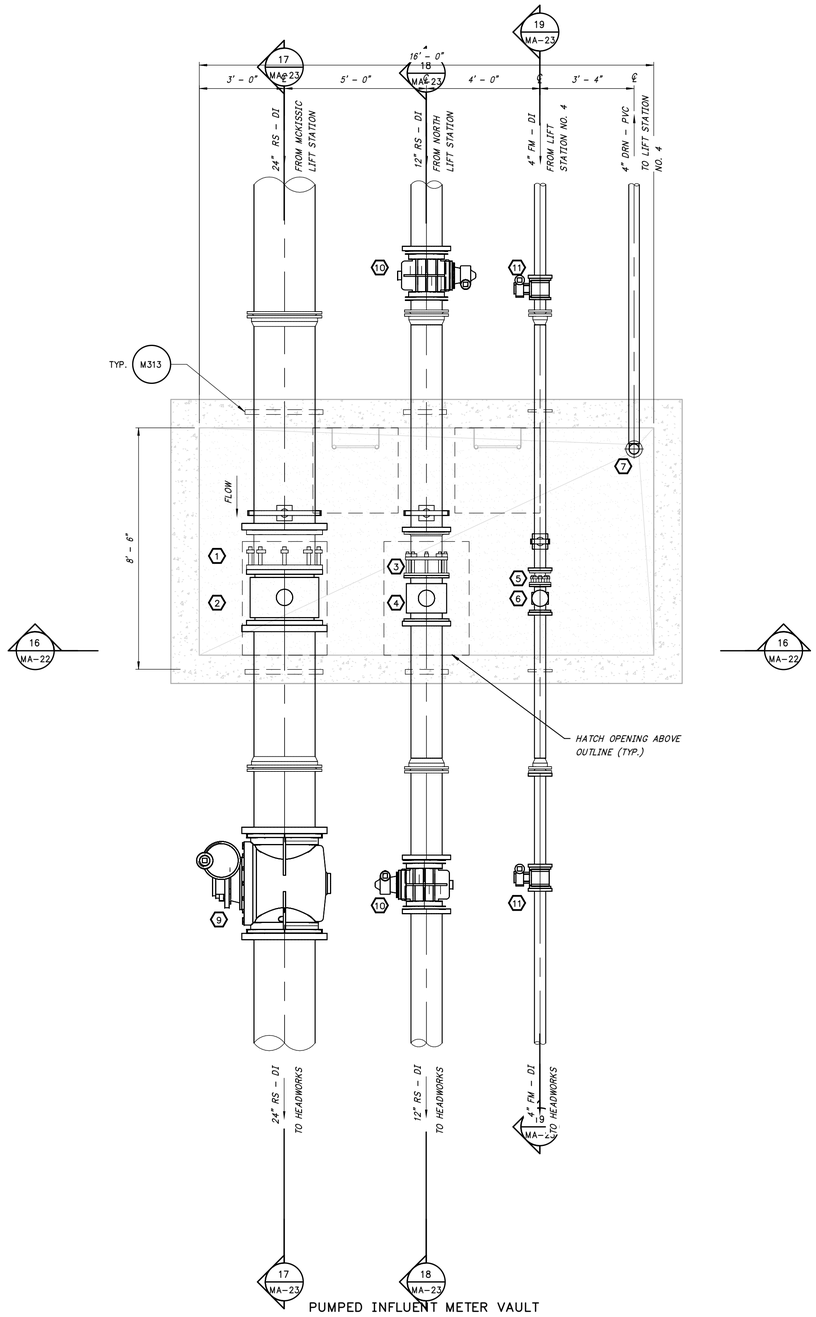
CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

INFLUENT BUILDING DUMPSTER FLOOR SECTION

FOR: BENTONVILLE WATER UTILITIES

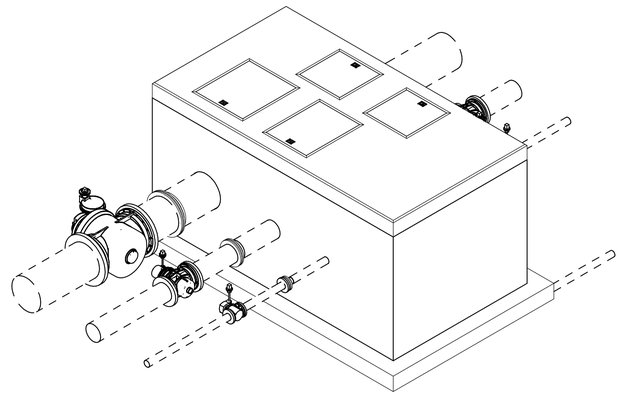
DATE: MARCH 2025
SCALE: 3/8" = 1'-0"
DESIGNED BY: JSD
DRAWN BY: JEB
HWEI NO.: 2021037
FILENAME: WWRF21037-ME

SHEET NO.
MA-21

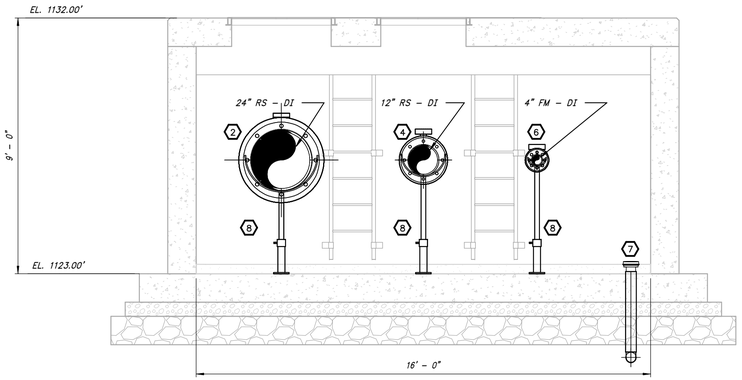


PUMPED INFLUENT METER VAULT

DETAIL J
3/8" = 1'-0" –



ISOMETRIC/3D
N.T.S.



PUMPED INFLUENT METER VAULT

SECTION 16
3/8" = 1'-0" MA-22

NOTES:
1. ALL HARDWARE SHALL BE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED. ANTISEIZE LUBRICANTS SHALL BE USED WHEN ASSEMBLING STAINLESS STEEL HARDWARE.
2. SLOPE VAULT FLOOR TO DRAIN.
3. ROUTE ACCESS DOOR DRAINS IN VALVE VAULT TO ADJACECENT WALL AND THEN FLOOR WITH PVC PIPE. SECURE PIPE TO THE CEILING AND WALL WITH STAINLESS STEEL PIPE CLAMPS.
4. PAINT ALL EXPOSED PIPING IN ACCORDANCE WITH SPECIFICATION SECTION 09902. (M102)
5. SEE CIVIL SITE PIPING PLANS FOR CONTINUATION OF CONNECTING PIPES.

KEYED NOTES:
1. INSTALL 24" FLANGE COUPLING ADAPTER
2. INSTALL 24" ELECTROMAGNETIC FLOW METER
3. INSTALL 12" FLANGED COUPLING ADAPTER
4. INSTALL 12" ELECTROMAGNETIC FLOW METER
5. INSTALL 4" FLANGED COUPLING ADAPTER
6. INSTALL 4" ELECTROMAGNETIC FLOW METER
7. INSTALL 4" FLOOR DRAIN (M505)
8. INSTALL ADJUSTABLE PIPE SUPPORT (M202)
9. INSTALL 24" PLUG VALVE WITH GEAR OPERATOR AND VALVE BOX
10. INSTALL 12" PLUG VALVE WITH GEAR OPERATOR AND VALVE BOX
11. INSTALL 4" PLUG VALVE WITH GEAR OPERATOR AND VALVE BOX

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 23388
WESLEY JAY LAWS

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

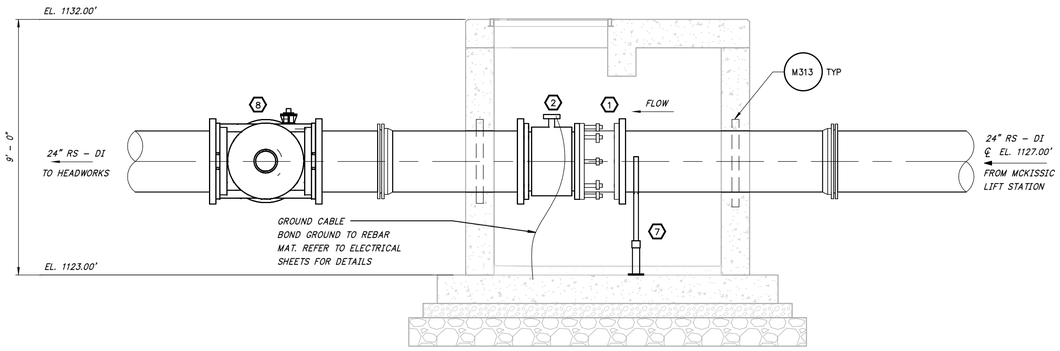
CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

PUMPED INFLUENT METER VAULT
DETAIL AND SECTION

FOR: BENTONVILLE WATER UTILITIES

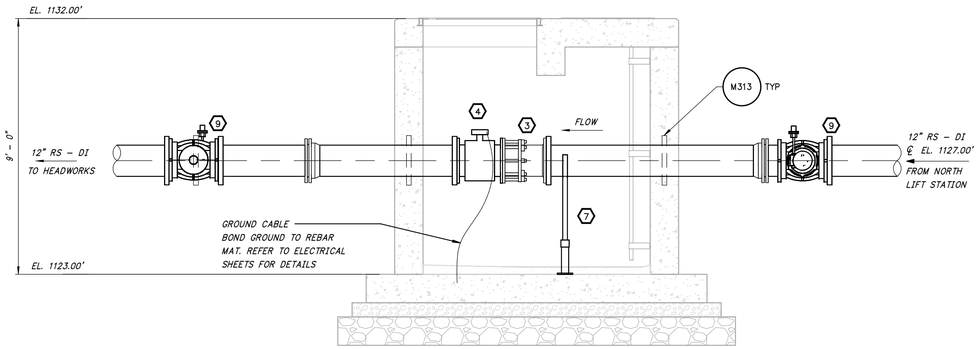
DATE: MARCH 2025
SCALE: 3/8" = 1'-0"
DESIGNED BY: WJL
DRAWN BY: DS
HWEI NO.: 2021037
FILENAME: WWRF21037-ME

SHEET NO.
MA-22



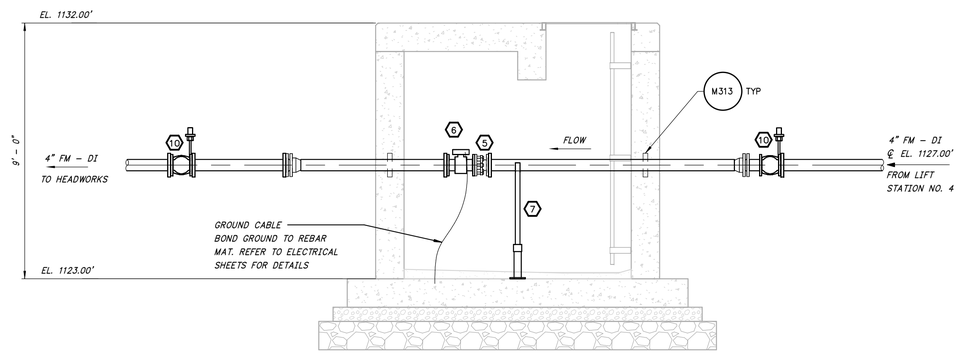
PUMPED INFLUENT METER VAULT

SECTION 17 — 3/8" = 1'-0" — MA-22



PUMPED INFLUENT METER VAULT

SECTION 18 — 3/8" = 1'-0" — MA-22



PUMPED INFLUENT METER VAULT

SECTION 19 — 3/8" = 1'-0" — MA-22

NOTES:

1. ALL HARDWARE SHALL BE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED. ANTISEIZE LUBRICANTS SHALL BE USED WHEN ASSEMBLING STAINLESS STEEL HARDWARE.
2. SLOPE VAULT FLOOR TO DRAIN.
3. ROUTE ACCESS DOOR DRAINS IN VALVE VAULT TO ADJACECENT WALL AND THEN FLOOR WITH PVC PIPE. SECURE PIPE TO THE CEILING AND WALL WITH STAINLESS STEEL PIPE CLAMPS.
4. PAINT ALL EXPOSED PIPING IN ACCORDANCE WITH SPECIFICATION SECTION 09902. (M102)
5. SEE CIVIL SITE PIPING PLANS FOR CONTINUATION OF CONNECTING PIPES.

KEYED NOTES:

1. INSTALL 24" FLANGE COUPLING ADAPTER
2. INSTALL 24" ELECTROMAGNETIC FLOW METER
3. INSTALL 12" FLANGED COUPLING ADAPTER
4. INSTALL 12" ELECTROMAGNETIC FLOW METER
5. INSTALL 4" FLANGED COUPLING ADAPTER
6. INSTALL 4" ELECTROMAGNETIC FLOW METER
7. INSTALL ADJUSTABLE PIPE SUPPORT (M202)
8. INSTALL 24" PLUG VALVE WITH GEAR OPERATOR AND VALVE BOX
9. INSTALL 12" PLUG VALVE WITH GEAR OPERATOR AND VALVE BOX
10. INSTALL 4" PLUG VALVE WITH GEAR OPERATOR AND VALVE BOX

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS — LICENSED PROFESSIONAL ENGINEER — No. 23398 — WESLEY JAY LEWIS — 12-31-26

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

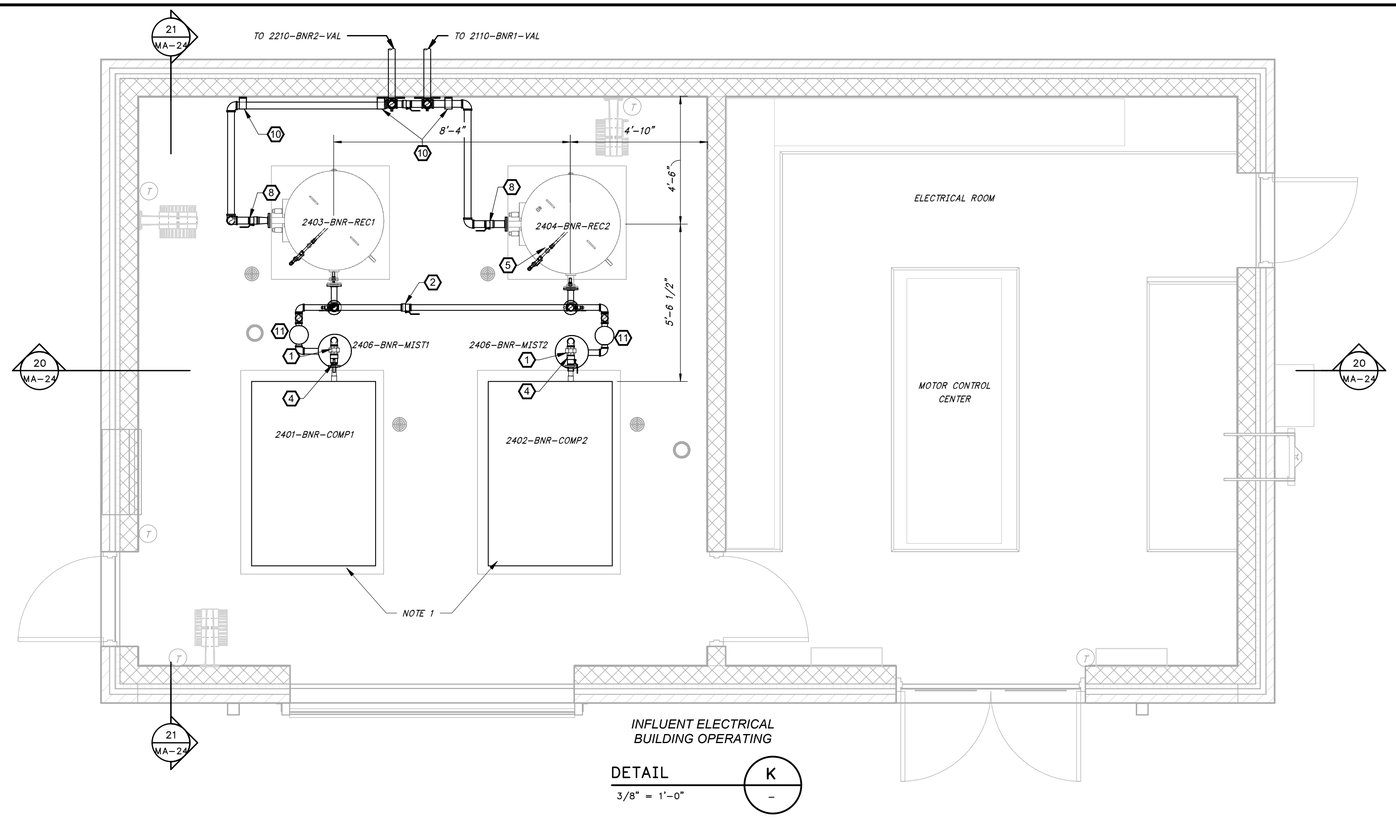
CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

PUMPED INFLUENT METER VAULT SECTIONS

FOR: BENTONVILLE WATER UTILITIES

DATE: MARCH 2025
SCALE: 3/8" = 1'-0"
DESIGNED BY: WJL
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-ME

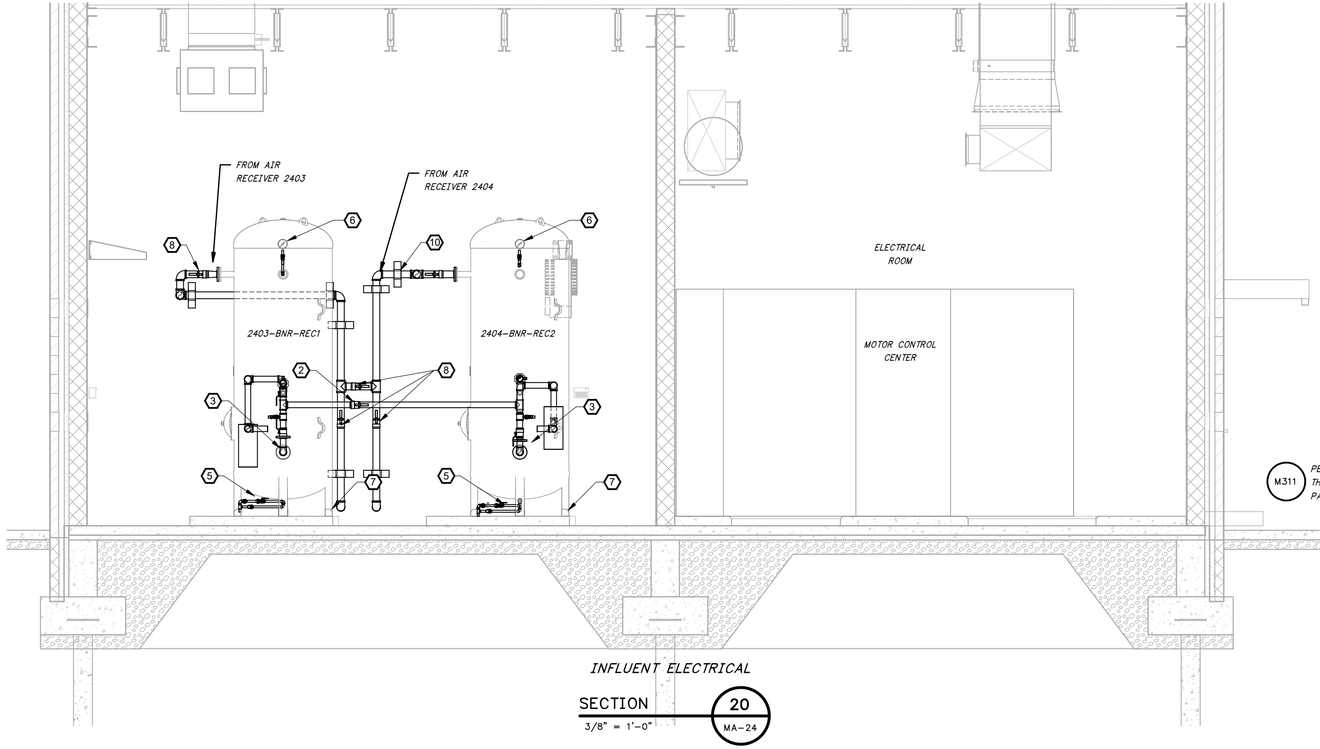
SHEET NO.
MA-23



INFLUENT ELECTRICAL BUILDING OPERATING

DETAIL K

3/8" = 1'-0"

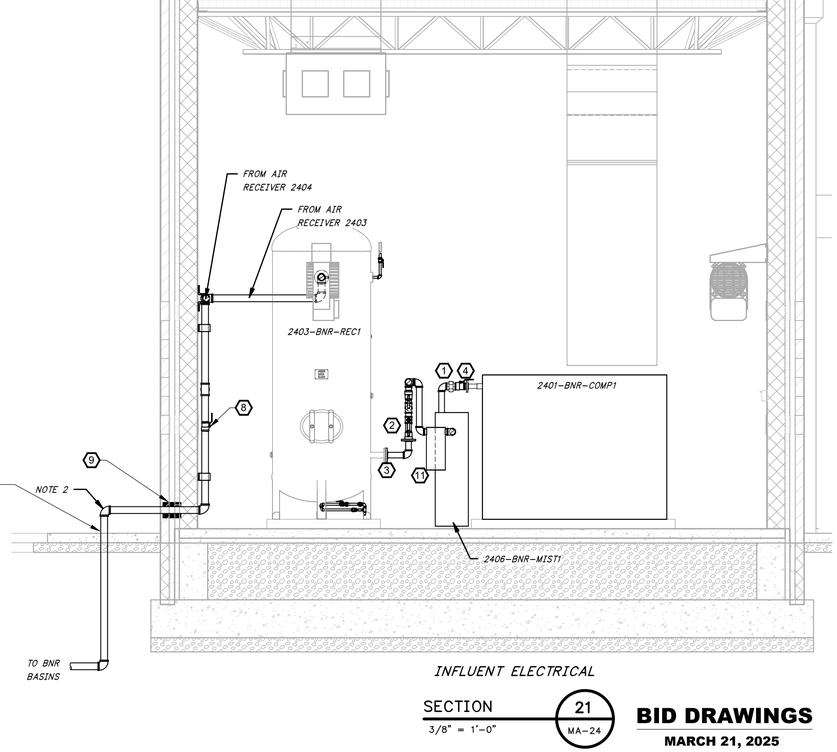


INFLUENT ELECTRICAL

SECTION 20

3/8" = 1'-0" MA-24

M311 PENETRATION THROUGH PAVEMENT



INFLUENT ELECTRICAL

SECTION 21

3/8" = 1'-0" MA-24

NOTES:

1. COMPRESSED AIR MIXING SYSTEM IS SHOWN FOR ILLUSTRATIVE PURPOSES DESIGN OF THE COMPRESSED AIR MIXING LAYOUT IS THE RESPONSIBILITY OF THE MANUFACTURER. SEE COMPRESSED AIR MIXING SYSTEM AND MIXING SYSTEM AND ROTARY SCREW AIR COMPRESSORS SPECIFICATION SECTIONS.
2. COMPRESSED AIR PIPING OUTDOORS AND ABOVE-GRADE SHALL BE HEAT TRACED AND INSULATED AS SPECIFIED IN THE THERMAL INSULATION SPECIFICATION.

KEYED NOTES:

1. INSTALL 2" UNION
2. INSTALL 2" BALL VALVE
3. 3/8" QUICK DISCONNECT HOSE COUPLING AND ISOLATION VALVE
4. 2" BALL VALVE PROVIDED BY VENDOR
5. 1/2" AUTO DRAIN VALVE PROVIDED BY VENDOR
6. PRESSURE TRANSMITTER PROVIDED BY VENDOR
7. GROUT TO MAINTAIN LEVEL COMPRESSED AIR PIPING FROM COMPRESSOR TO RECEIVER
8. INSTALL 2.5" BALL VALVE
9. INSTALL WALL SLEEVE. (M401)
10. INSTALL PIPE SUPPORT. MAXIMUM SPACING 10'-0". (M102)
11. COALESCING FILTER.

1"

ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

DATE	REVISION

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER 03.21.2025 No. 22299 JOHN R. OVERMILLION

HAWKINS WEIR ENGINEERS, INC.

BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

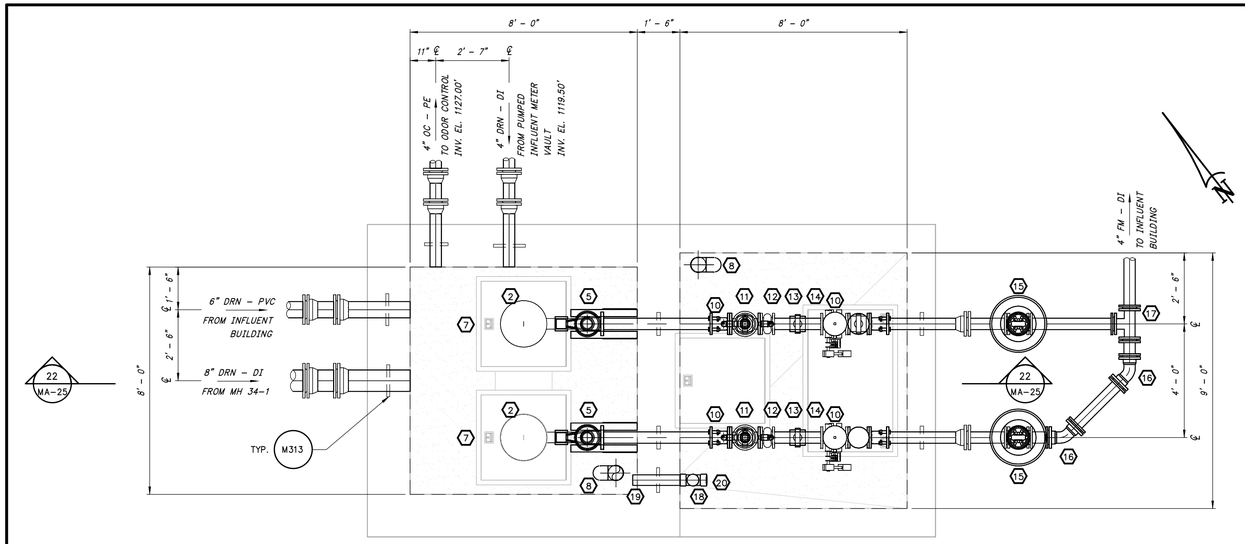
INFLUENT ELECTRICAL BUILDING DETAIL AND SECTION

BENTONVILLE, ARKANSAS

DATE: MARCH 2025
SCALE: 3/8" = 1'-0"
DESIGNED BY: BGM
DRAWN BY: MD
HWEI NO.: 2021037
FILENAME: M-HW ELEC

SHEET NO.
MA-24

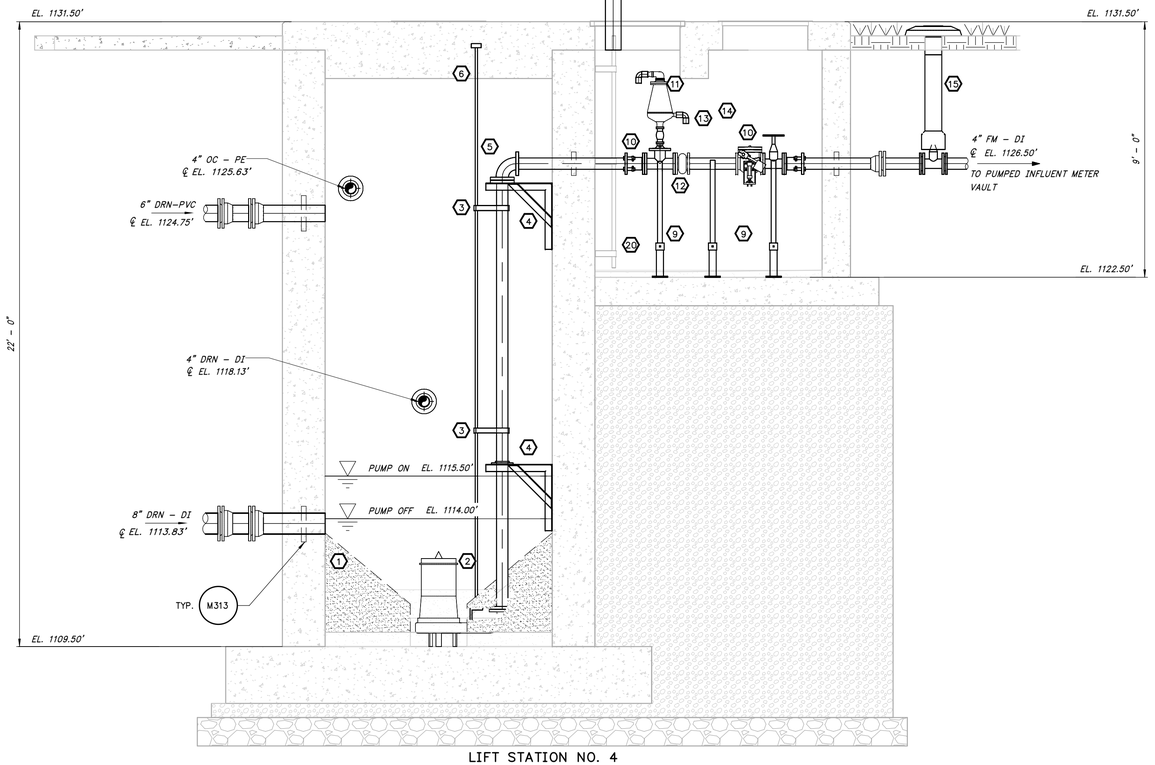
BID DRAWINGS
MARCH 21, 2025



LIFT STATION NO. 4

DETAIL L

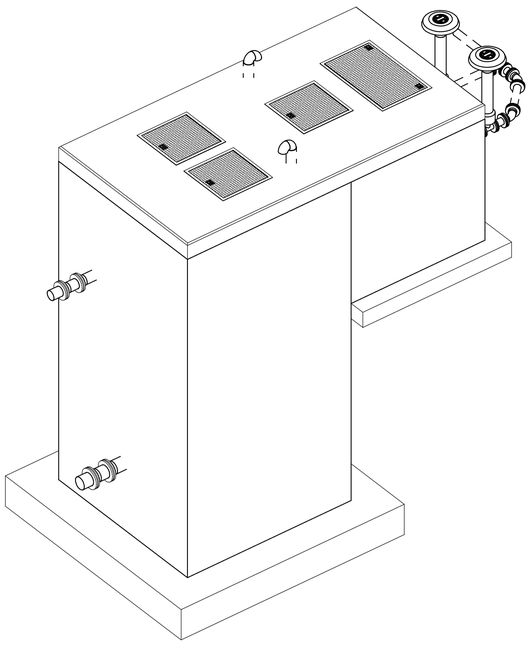
3/8" = 1'–0"



LIFT STATION NO. 4

SECTION 22

3/8" = 1'–0" MA–25



ISOMETRIC/3D

N.T.S.

NOTES:

1. ALL HARDWARE SHALL BE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED. ANTISEIZE LUBRICANTS SHALL BE USED WHEN ASSEMBLING STAINLESS STEEL HARDWARE TO PREVENT GALLING.
2. THE SIZE OF THE ALUMINUM ACCESS DOORS ON THE WET WELL SHALL BE DETERMINED BY THE PUMP MANUFACTURERFOR COMPATABILITY WITH THE SPECIFIC PUMP. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO SUBMIT SHOP DRAWINGS AND COORDINATE INSTALLATION WITH THE PUMP MANUFACTURER.
3. ALL HATCHES SHALL INCLUDE PROTECTIVE GRATING.
4. PAINT ALL INTERIOR PIPING IN ACCORDANCE WITH SPECIFICATION SECTION 09902. STAINLESS STEEL PIPE SHALL NOT BE PAINTED.
5. THE INTERIOR OF THE WET WELL EXCLUDING THE FLOOR SHALL BE EPOXY COATED IN ACCORDANCE WITH SPECIFICATION SECTION 09800
6. ALL PIPING BETWEEN THE PUMP BASE ELBOWS AND THE GATE VALVES OUTSIDE OF THE VALVE VAULT SHALL BE TYPE 304 STAINLESS STEEL.
7. SEE SITE PIPING PLAN AND PROFILES IN CIVIL SHEETS FOR CONTINUATION OF CONNECTION PIPES.

KEYED NOTES:

1. DIMENSIONS AND SLOPES OF CLASS "A" CONCRETE FILLETS TO BE IN ACCORDANCE WITH PUMP MANUFACTURER'S RECOMMENDATIONS.
2. INSTALL PUMP, BASE ELBOW, AND ALL OTHER APPURTENANCES IN ACCORDANCE WITH PUMP MANUFACTURER'S RECOMMENDATIONS.
3. INSTALL INTERMEDIATE GUIDE RAIL BRACKETS PER THE PUMP MANUFACTURER'S RECOMMENDATION. A MINIMUM OF TWO (2) INTERMEDIATE GUIDE BRACKETS SHALL BE INSTALLED.
4. INSTALL PIPE SUPPORTS. A MIMIMUM OF TWO (2) PIPE SUPPORTS SHALL BE INSTALLED. M110
5. INSTALL 4" FLANGED 90° BEND
6. INSTALL ∪–HOOK FOR ELECTRICAL CABLE STRAIN RELIEF, AND STAINLESS STEEL EYE BOLT TO SUPPORT PUMP LIFTING CHAIN.
7. THE ALUMINUM ACCESS DOORS ON THE WET WELL SHALL BE SIZED BY THE PUMP MANUFACTURER FOR COMPATIBILITY WITH THE PROVIDED PUMP
8. INSTALL 8" STAINLESS STEEL GOOSENECK VENT WITH STAINLESS STEEL INSECT SCREEN M406
9. INSTALL ADJUSTABLE PIPE SUPPORT M202
10. INSTALL 4" FLANGE COUPLING ADAPTER
11. INSTALL 4" TEE, 4" BLIND FLANGE WITH 2" TAP, 2" STAINLESS STEEL THREADED PIPE NIPPLES, 2" STAINLESS STEEL BALL VALVE, AND 2" STAINLESS STEEL COMBINATION AIR/VACUUM VALVE PIPE AIR RELEASE, DRAIN TO FLOOR M802
12. INSTALL 4" RESTRAINED FLEXIBLE BELLOWS
13. INSTALL 4" SWING ARM CHECK VALVE
14. INSTALL 4" GATE VALVE WITH GEAR OPERATOR AND HANDWHEEL
15. INSTALL 4" GATE VALVE WITH VALVE BOX
16. INSTALL 4" 45° BEND
17. INSTALL 4" TEE
18. INSTALL IN–LINE CHECK VALVE
19. INSTALL 4" PVC SCHEDULE 40 PIPE DRAIN
20. SLOPE GROUT TOWARD VAULT FLOOR DRAIN

BID DRAWINGS

MARCH 21, 2025

1"

ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS ZACHARY J. MORGAN 24475 LICENSED PROFESSIONAL ENGINEER NOSNIOM

HAWKINS WEIR ENGINEERS, INC.

BLACK & VEATCH

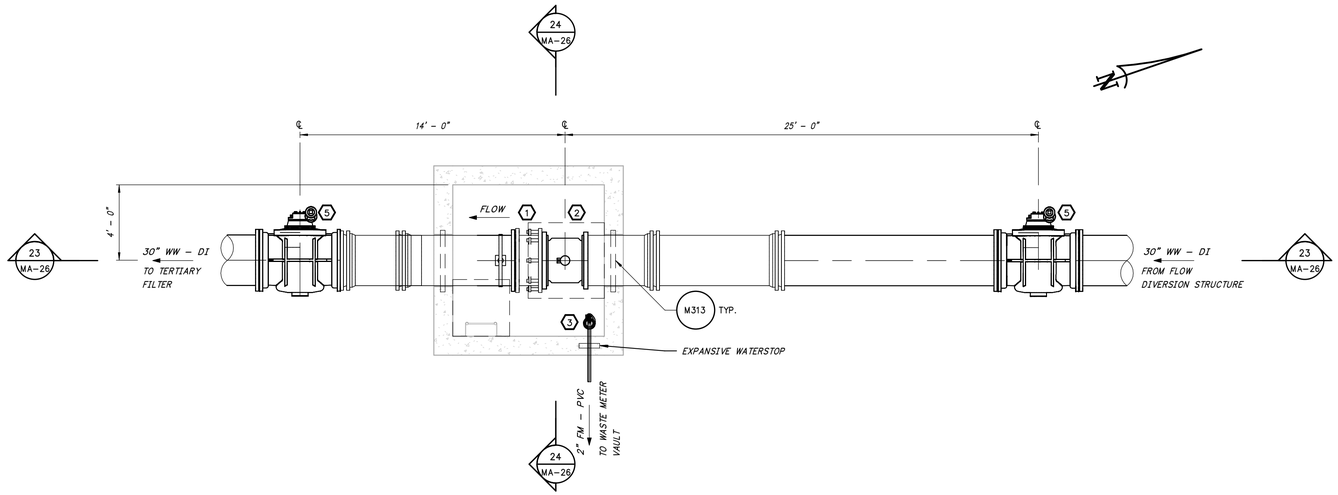
CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

LIFT STATION NO. 4
DETAIL AND SECTION

FOR: BENTONVILLE WATER UTILITIES

DATE: MARCH 2025
SCALE: 3/8" = 1'–0"
DESIGNED BY: ZMJ
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037–ME

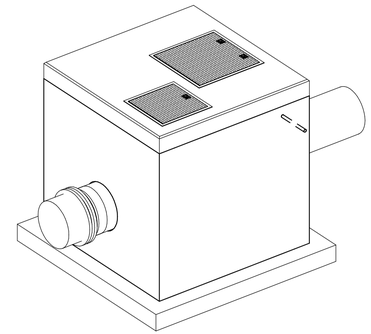
SHEET NO.
MA–25



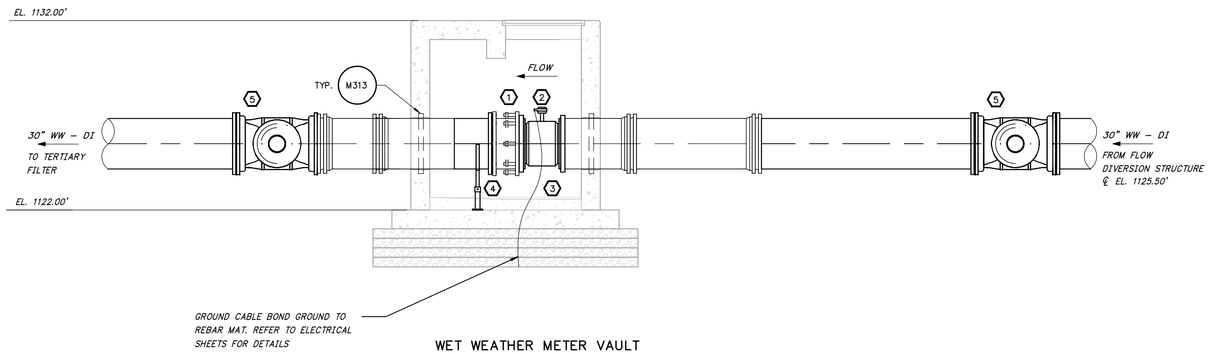
WET WEATHER METER VAULT

DETAIL N
1/4" = 1'-0" –

NOTES:
1. ALL HARDWARE SHALL BE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED. ANTISEIZE LUBRICANTS SHALL BE USED WHEN ASSEMBLING STAINLESS STEEL HARDWARE.
2. SLOPE VAULT FLOOR TO SUMP PIT.
3. ROUTE ACCESS DOOR DRAINS IN VALVE VAULT TO ADJACECENT WALL AND THEN FLOOR WITH PVC PIPE. SECURE PIPE TO THE CEILING AND WALL WITH STAINLESS STEEL PIPE CLAMPS. M102
4. PAINT ALL EXPOSED PIPING IN ACCORDANCE WITH SPECIFICATION SECTION 09902.
5. SEE CIVIL SITE PIPING PLANS FOR CONTINUATION OF CONNECTING PIPES.

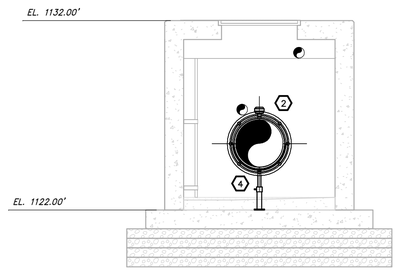


ISOMETRIC/3D
N.T.S.



WET WEATHER METER VAULT

SECTION 23
1/4" = 1'-0" MA-26



WET WEATHER METER VAULT

SECTION 24
1/4" = 1'-0" MA-26

KEYED NOTES:
1. INSTALL 30" FLANGE COUPLING ADAPTER
2. INSTALL 30" ELECTROMAGNETIC FLOW METER
3. INSTALL SUMP PIT WITH SUMP PUMP, 2" SCH 80 PVC DISCHARGE LINE, 2" PVC CHECK VALVE, AND 2" PVC UNION
4. INSTALL ADJUSTABLE PIPE SUPPORT M202
5. INSTALL 30" PLUG VALVE WITH GEAR OPERATOR AND VALVE BOX

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

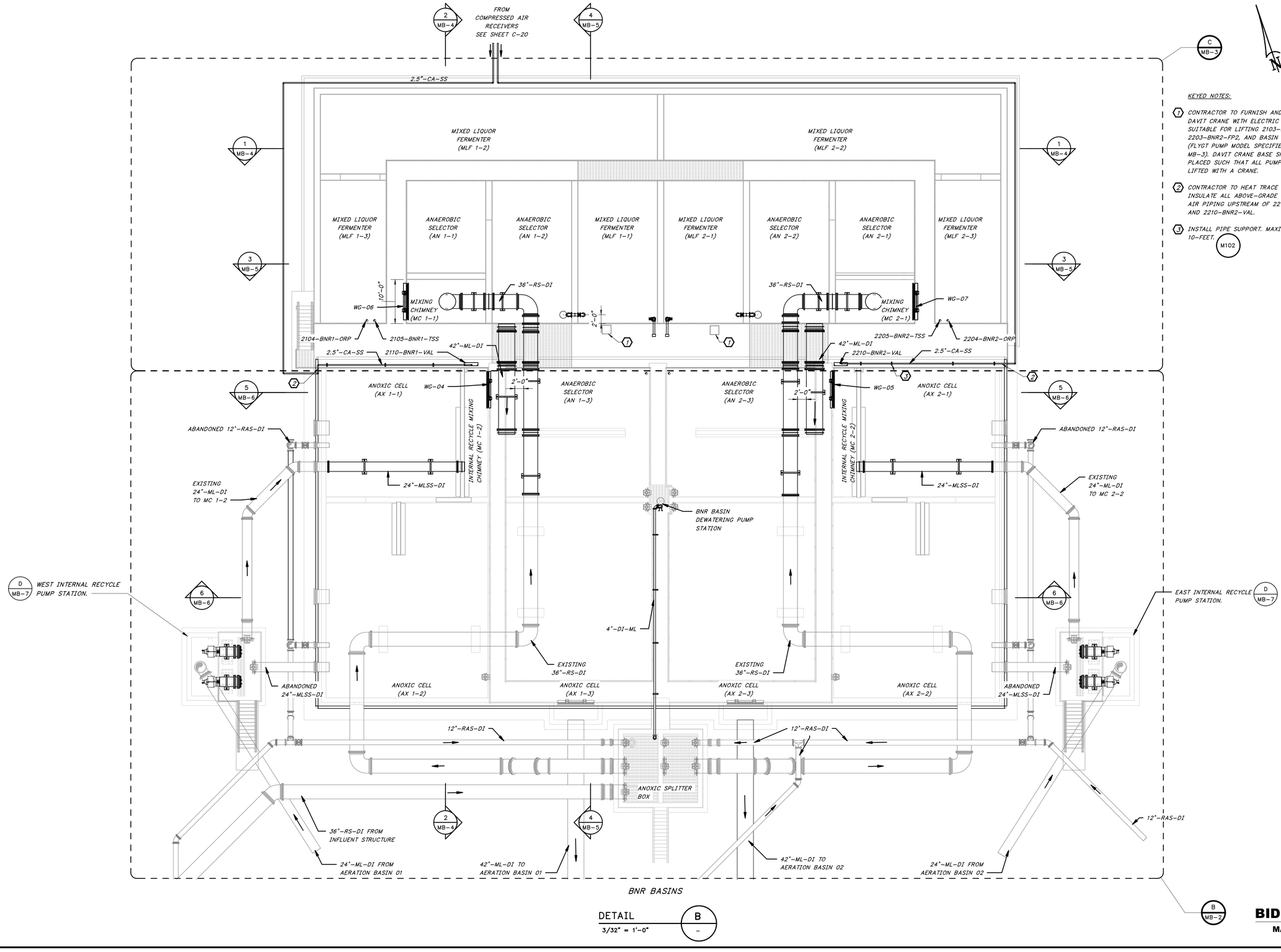
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
WESLEY JAY LOWE
No. 23388

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS
WET WEATHER METER VAULT
DETAIL AND SECTION
FOR: BENTONVILLE WATER UTILITIES

DATE: MARCH 2025
SCALE: 1/4" = 1'-0"
DESIGNED BY: WJL
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-ME

SHEET NO.
MA-26



BNR BASINS

DETAIL B
3/32" = 1'-0"

KEYED NOTES:

1. CONTRACTOR TO FURNISH AND INSTALL DAVIT CRANE WITH ELECTRIC HOIST SUITABLE FOR LIFTING 2103-BNR1-FP1, 2203-BNR2-FP2, AND BASIN BRAIN PUMP (FLYGT PUMP MODEL SPECIFIED ON SHEET MB-3). DAVIT CRANE BASE SHALL BE PLACED SUCH THAT ALL PUMPS CAN BE LIFTED WITH A CRANE.
2. CONTRACTOR TO HEAT TRACE AND INSULATE ALL ABOVE-GRADE COMPRESSED AIR PIPING UPSTREAM OF 2210-BNR1-VAL AND 2210-BNR2-VAL.
3. INSTALL PIPE SUPPORT. MAXIMUM SPACING 10-FEET.

M102

BID DRAWINGS
MARCH 21, 2025

1" ONE AT FULL IF NOT ONE SCALE

DATE | REVISION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 22360
3/21/2025
AMANDA K. JOHNSON

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

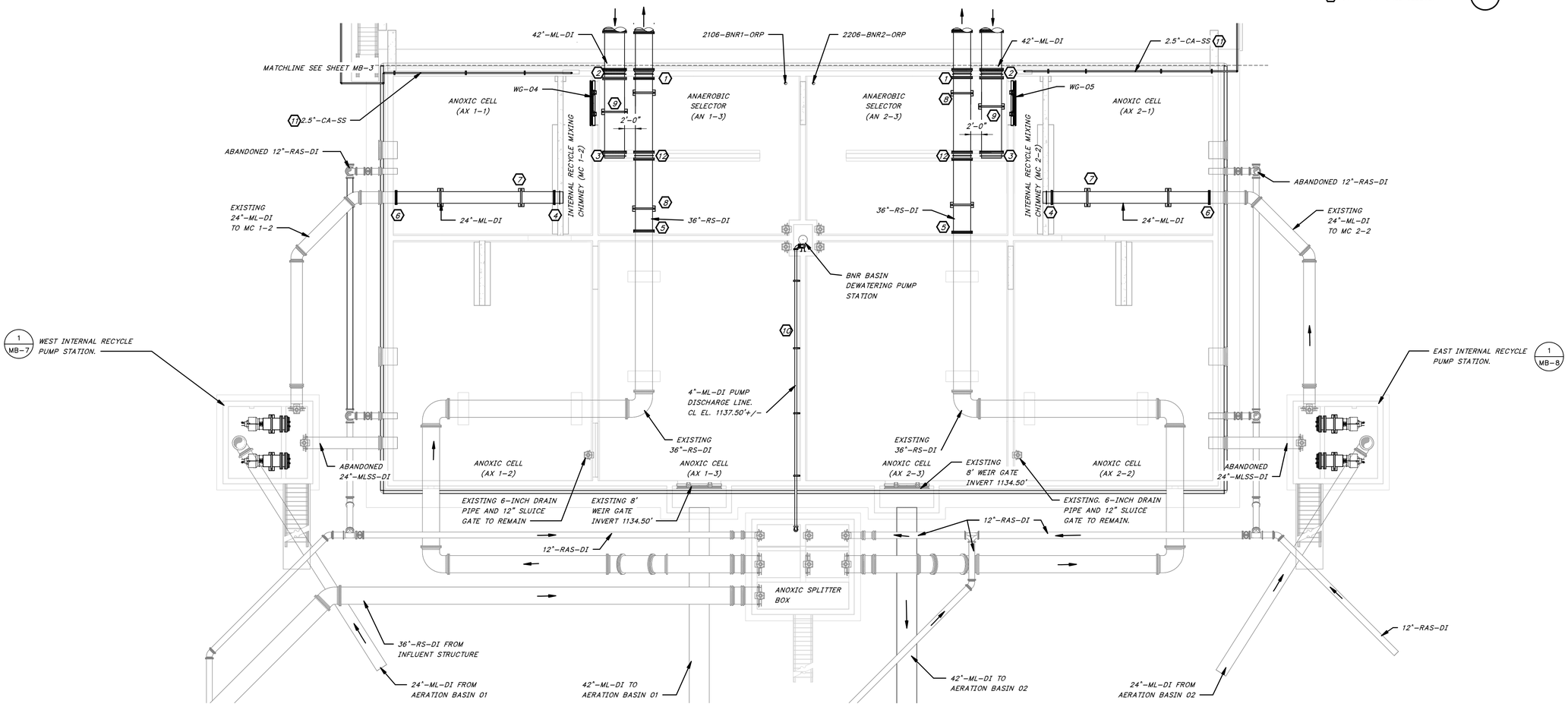
CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

BNR BASINS DETAIL

BENTONVILLE, ARKANSAS

DATE: MARCH 2025
SCALE: 3/32" = 1'-0"
DESIGNED BY: BGM
DRAWN BY: MD
HWEI NO.: 2021037
FILENAME: M-BNR BASIN

SHEET MB-1



BNR BASIN INTERMEDIATE

DETAIL B / MB-1
3/32" = 1'-0"

KEYED NOTES:

1. INSTALL 36" F X MJ WALL SLEEVE.
2. INSTALL 42" F X MJ WALL SLEEVE.
3. INSTALL 42" F X PE WALL SLEEVE.
4. INSTALL 24" F X PE WALL SLEEVE.

(1, 2, 3, 4 → M303)

5. INSTALL 36" FLANGED COUPLING ADAPTER. CONTRACTOR TO FIELD VERIFY EXISTING PIPE END TYPE PRIOR TO ORDERING MATERIALS. IF FLANGED COUPLING ADAPTER CANNOT BE INSTALLED, CONTRACTOR SHALL COORDINATE WITH OWNER AND ENGINEER.
6. INSTALL 24" FLANGED COUPLING ADAPTER. CONTRACTOR TO FIELD VERIFY EXISTING PIPE END TYPE PRIOR TO ORDERING MATERIALS. IF FLANGED COUPLING ADAPTER CANNOT BE INSTALLED, CONTRACTOR SHALL COORDINATE WITH OWNER AND ENGINEER.
7. INSTALL PIPE SUPPORT (MINIMUM OF 2). MAXIMUM SPACING 15-FEET.
8. INSTALL PIPE SUPPORT (MINIMUM OF 2). MAXIMUM SPACING 15-FEET.
9. INSTALL PIPE SUPPORT (MINIMUM OF 1). MAXIMUM SPACING 15-FEET.

(7, 8, 9 → M203)

10. INSTALL PIPE SUPPORT (MINIMUM OF 3). MAXIMUM SPACING 15-FEET. (→ M102)
11. COMPRESSED AIR PIPING SHALL BE BURIED UP TO THE WALL OF THE STRUCTURE. MINIMUM BURIAL DEPTH SHALL BE 3 FEET UNLESS OTHERWISE APPROVED BY ENGINEER. ALL COMPRESSED AIR PIPING INSTALLED OUTDOORS AND ABOVE-GRADE SHALL BE HEAT TRACED AND INSULATED AS SPECIFIED IN THE THERMAL INSULATION SPECIFICATION.
12. 36" F X F WALL SLEEVE. (→ M303)

BID DRAWINGS
MARCH 21, 2025

1" ONE AT FULL IF NOT ONE SCALE

DATE	REVISION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 22360
3/21/2025
AMANDA K. JOHNSON

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

PARTIAL BNR BASIN DETAIL 1 OF 2

BENTONVILLE, ARKANSAS

DATE: MARCH 2025
SCALE: 3/32" = 1'-0"
DESIGNED BY: BGM
DRAWN BY: RJM
HWEI NO.: 2021037
FILENAME: M-BNR-BASIN

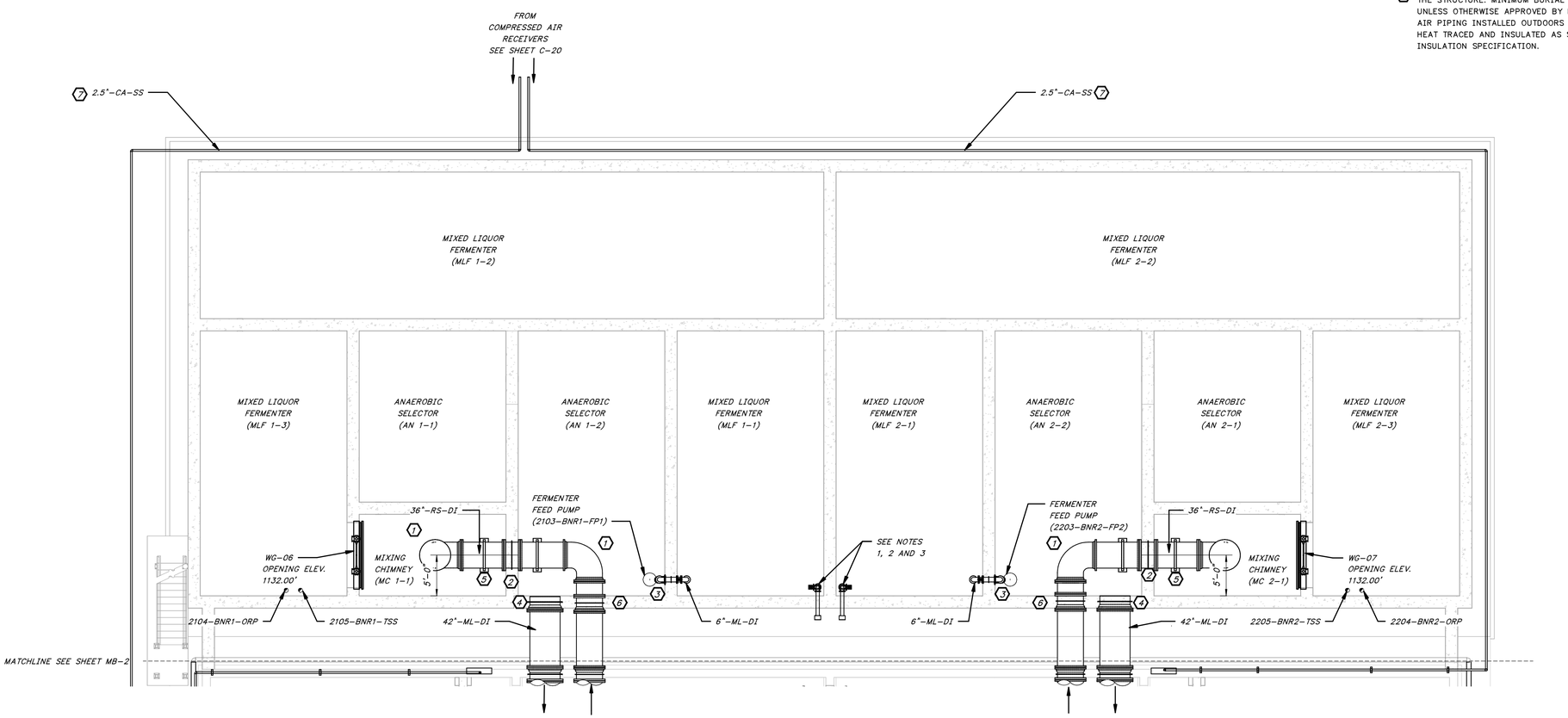
SHEET
MB-2

GENERAL NOTES:

1. CONTRACTOR TO FURNISH AND INSTALL PUMP BASE ELBOW AND GUIDERAILS FOR FLYGT PUMP MODEL 3102.060-0158.
2. CONTRACTOR TO FURNISH AND INSTALL DAVIT CRANE WITH ELECTRIC HOIST SUITABLE FOR LIFTING THE FLYGT PUMPS SPECIFIED IN NOTE 1, 2103-BNR1-FP1, AND 203-BNR2-FP2. DAVIT CRANE BASE SHALL BE PLACED SUCH THAT ALL PUMPS CAN BE LIFTED WITH A CRANE.
3. INSTALL 4" CAMLOCK FITTING WITH CAP.

KEYED NOTES:

1. INSTALL 36" 90 DEGREE BEND.
2. INSTALL 36" F X F WALL PIPE. (M313)
3. INSTALL PUMP, BASE ELBOW, AND ALL OTHER APPURTENANCES IN ACCORDANCE WITH PUMP MANUFACTURER'S RECOMMENDATIONS.
4. INSTALL 42" MJ X PE WALL PIPE. (M313)
5. INSTALL PIPE SUPPORTS (MINIMUM OF 2). MAXIMUM SPACING OF 15-FEET. (M203)
6. INSTALL 36" MJ x F WALL PIPE. (M313)
7. COMPRESSED AIR PIPING SHALL BE BURIED UP TO THE WALL OF THE STRUCTURE. MINIMUM BURIAL DEPTH SHALL BE 3 FEET UNLESS OTHERWISE APPROVED BY ENGINEER. ALL COMPRESSED AIR PIPING INSTALLED OUTDOORS AND ABOVE-GRADE SHALL BE HEAT TRACED AND INSULATED AS SPECIFIED IN THE THERMAL INSULATION SPECIFICATION.



BNR BASIN INTERMEDIATE LEVEL

DETAIL C MB-1
1/8" = 1'-0"

BID DRAWINGS
MARCH 21, 2025

1"
ONE AT FULL IF NOT ONE SCALE

DATE	REVISION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 22360
AMANDA K. JOHNSON
3/21/2025

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

PARTIAL BNR BASIN DEATIL 2 OF 2

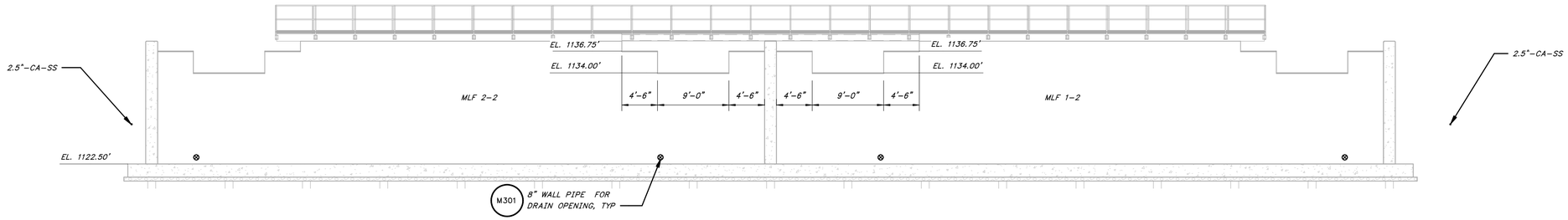
BENTONVILLE, ARKANSAS

DATE: MARCH 2025
SCALE: 1/8" = 1'-0"
DESIGNED BY: BGM
DRAWN BY: NVN
HWEI NO.: 2021037
FILENAME: M-BNR BASIN

SHEET
MB-3

KEYED NOTES:

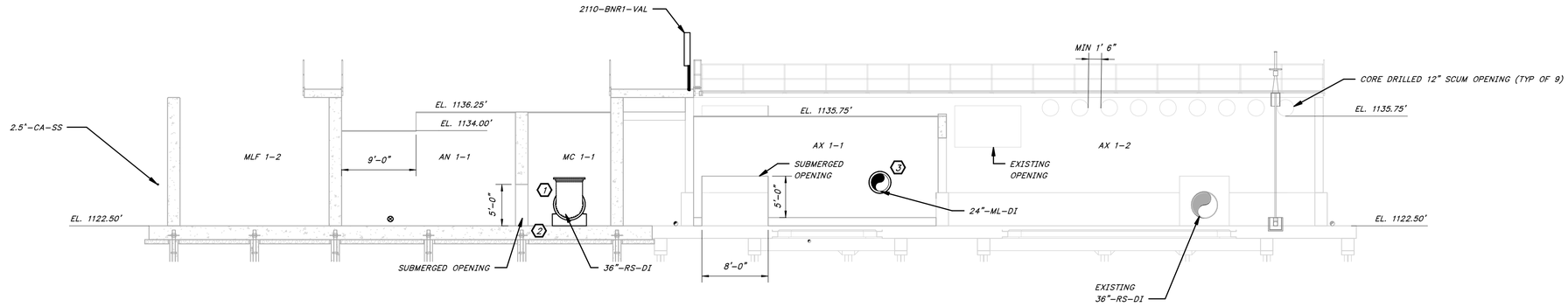
1. INSTALL 36" 90 DEGREE BEND
2. INSTALL PIPE SUPPORT. MAXIMUM SPACING 15-FEET. M203
3. INSTALL 24" F X PE WALL SLEEVE. M303



BNR BASINS

SECTION 1 / MB-1

1/8" = 1'-0"



BNR BASINS

SECTION 2 / MB-1

1/8" = 1'-0"

BID DRAWINGS

MARCH 21, 2025

1"

ONE
AT FULL
IF NOT ONE
SCALE

REVISION	DATE

STATE OF ARKANSAS
LICENSED
PROFESSIONAL
ENGINEER
No. 22360
3/21/2025
AMANDA K. JOHNSON

HAWKINS WEIR ENGINEERS, INC.

BLACK & VEATCH

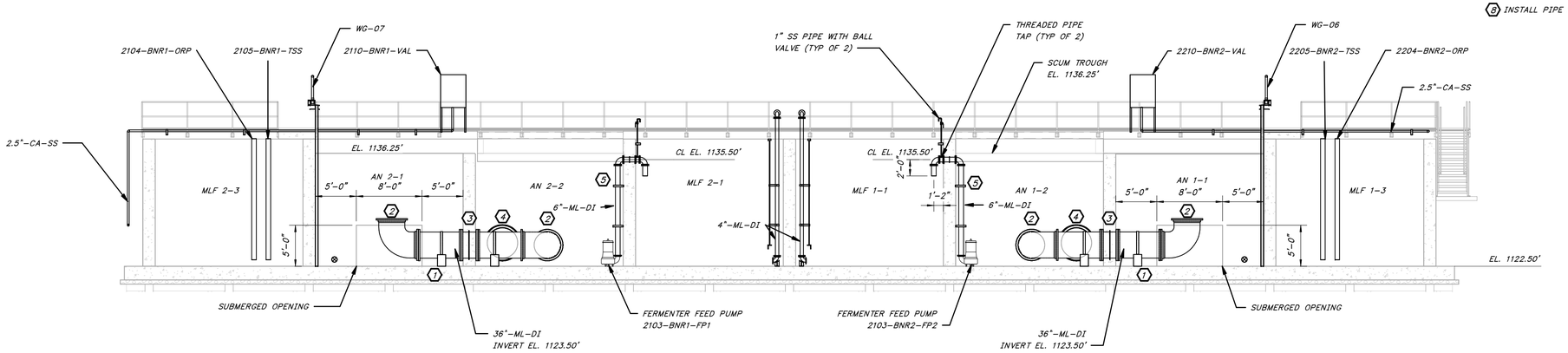
CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

BNR BASIN SECTION

BENTONVILLE, ARKANSAS

DATE: MARCH 2025
SCALE: 1/8" = 1'-0"
DESIGNED BY: BGM
DRAWN BY: MD
HWEI NO.: 2021037
FILENAME: M-BNR-BASIN

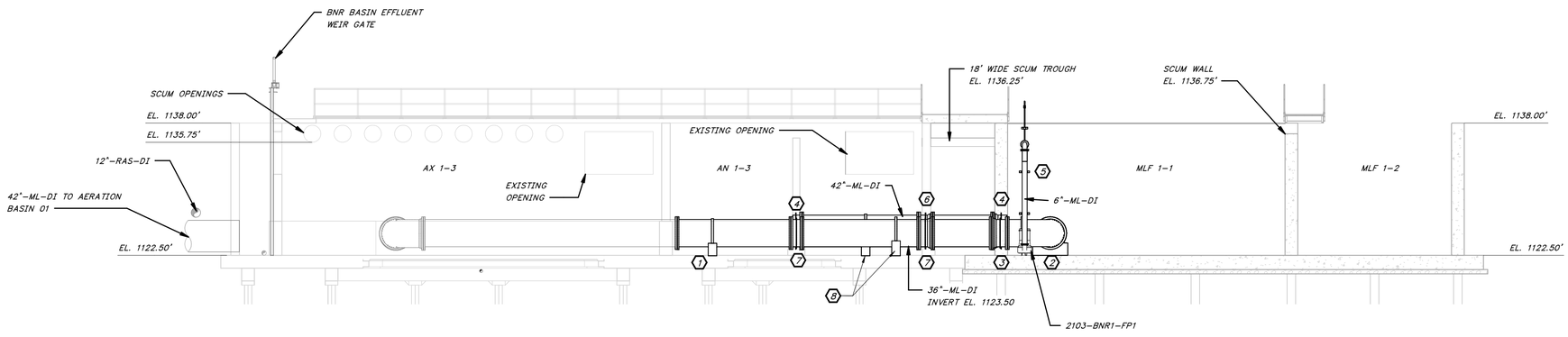
SHEET
MB-4



BNR BASINS

SECTION 3 / MB-1

1/8" = 1'-0"



BNR BASINS

SECTION 4 / MB-1

1/8" = 1'-0"

KEYED NOTES:

1. INSTALL PIPE SUPPORT (MINIMUM OF 2). MAXIMUM SPACING 15-FEET. (M203)
2. INSTALL 36" 90 DEGREE BEND
3. INSTALL 36" MJ X F WALL PIPE (M313)
4. INSTALL 42" MJ X PE WALL SLEEVE. (M314)
5. INSTALL PIPE SUPPORTS (MINIMUM OF 2). MAXIMUM SPACING OF 15-FEET. (M102)
6. INSTALL 42" MJ X F WALL SLEEVE. (M303)
7. INSTALL 36" MJ X F WALL PIPE. (M303)
8. INSTALL PIPE SUPPORT (MINIMUM OF 1). MAXIMUM SPACING 15-FEET. (M203)

1"

ONE AT FULL IF NOT ONE SCALE

DATE

REVISION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 22360
3/21/2025
AMANDA K. JOHNSON

HAWKINS WEIR ENGINEERS, INC.

BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

BNR BASIN SECTION

BENTONVILLE, ARKANSAS

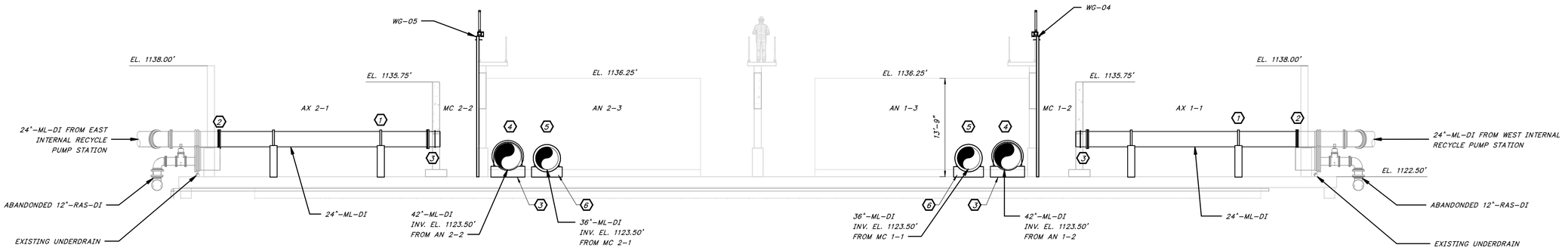
DATE: MARCH 2025
SCALE: 1/8" = 1'-0"
DESIGNED BY: BGM
DRAWN BY: NVN
HWEI NO.: 2021037
FILENAME: M-BNR-BASIN

SHEET MB-5

BID DRAWINGS
MARCH 21, 2025

KEYED NOTES:

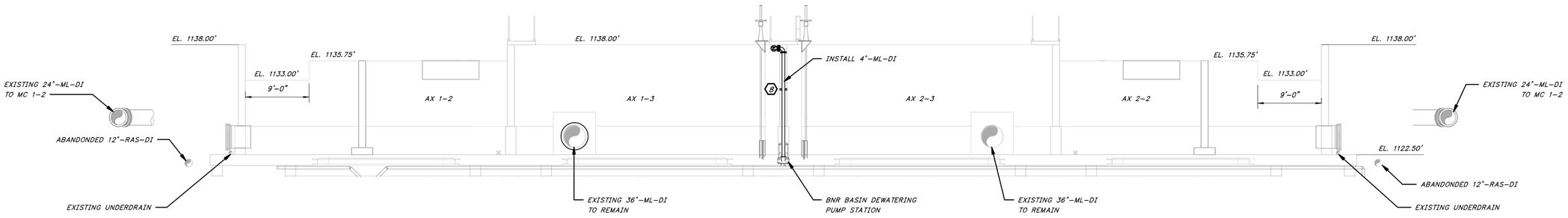
1. INSTALL PIPE SUPPORT (MINIMUM OF 2). MAXIMUM SPACING 15-FEET. (M203)
2. INSTALL 24" FLANGED COUPLING ADAPTER. CONTRACTOR TO FIELD VERIFY EXISTING PIPE END TYPE PRIOR TO ORDERING MATERIALS. IF FLANGED COUPLING ADAPTER CANNOT BE INSTALLED, CONTRACTOR SHALL COORDINATE WITH OWNER AND ENGINEER.
3. INSTALL 24" F X PE WALL PIPE
4. INSTALL 42" F X PE WALL SLEEVE. (M303)
5. INSTALL 36" F X F WALL PIPE.
6. INSTALL PIPE SUPPORT (MINIMUM OF 2). MAXIMUM SPACING 15-FEET. (M203)
7. INSTALL PIPE SUPPORT (MINIMUM OF 1). MAXIMUM SPACING 15-FEET.
8. INSTALL PIPE SUPPORT (MINIMUM OF 1). MAXIMUM SPACING 15-FEET. (M102)



BNR BASINS

SECTION 5 / MB-1

1/8" = 1'-0"



BNR BASINS

SECTION 6 / MB-1

1/8" = 1'-0"

BID DRAWINGS

MARCH 21, 2025

1" ONE AT FULL IF NOT ONE SCALE

REVISION	DATE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 22360
3/21/2025
AMANDA K. JOHNSON

HAWKINS-WEIR ENGINEERS, INC.

BLACK & VEATCH

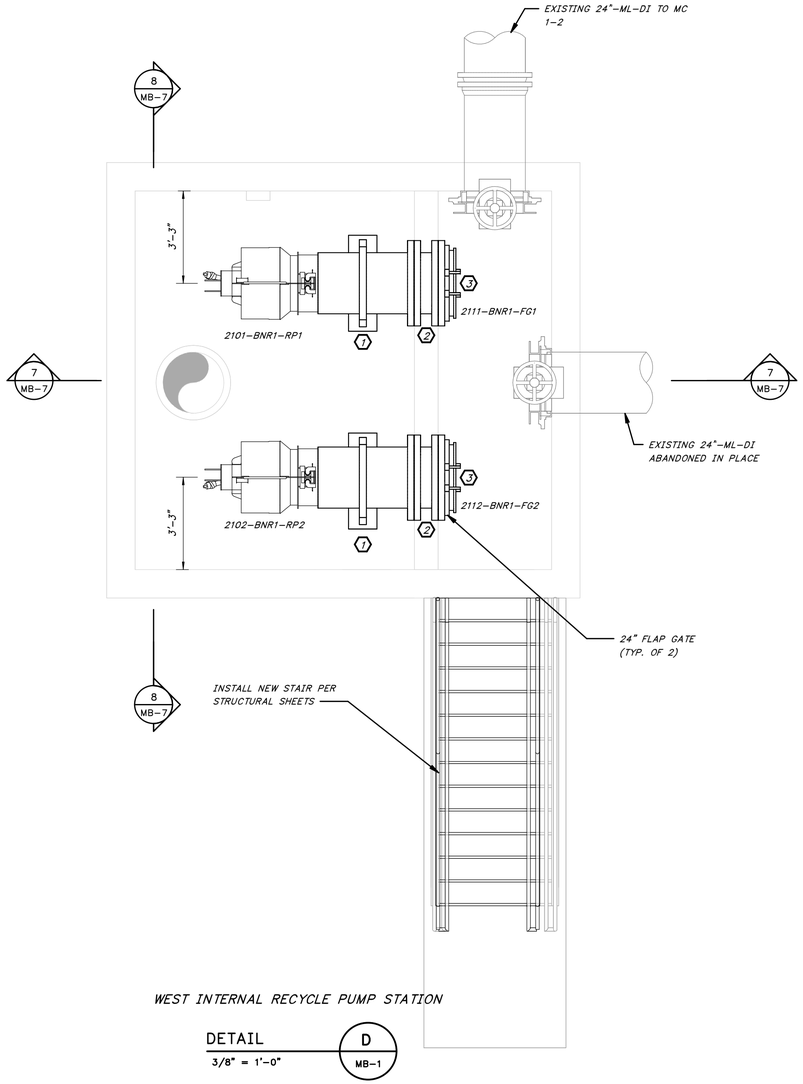
CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

BNR BASIN SECTION

BENTONVILLE, ARKANSAS

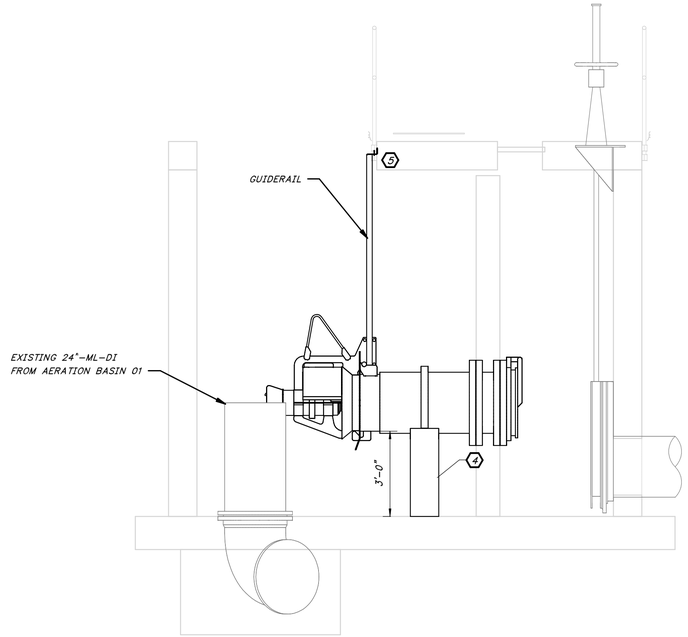
DATE: MARCH 2025
SCALE: 1/8" = 1'-0"
DESIGNED BY: BGM
DRAWN BY: NVN
HWEI NO.: 2021037
FILENAME: M-BNR BASIN

SHEET MB-6



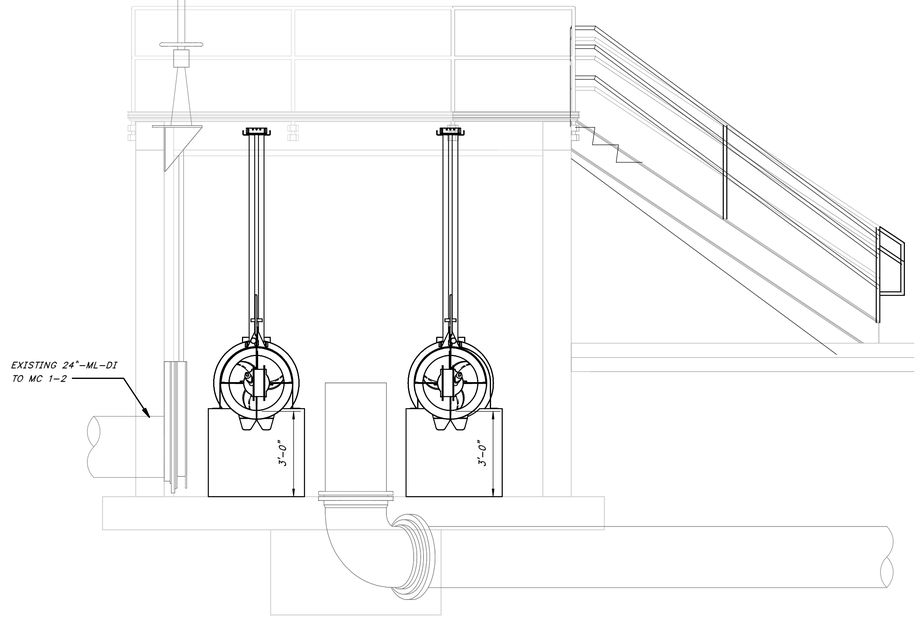
WEST INTERNAL RECYCLE PUMP STATION

DETAIL D — 3/8" = 1'-0" — MB-1



WEST INTERNAL RECYCLE PUMP STATION

SECTION 7 — 3/8" = 1'-0" — MB-7



WEST INTERNAL RECYCLE PUMP STATION

SECTION 8 — 3/8" = 1'-0" — MB-7

KEYED NOTES:

7. PUMP ADAPTER FITTING AND PUMP/ADAPTER FITTING SUPPORTS TO BE DESIGNED AND SPECIFIED BY PUMP MANUFACTURER.
2. INSTALL 24" FLXFL WALL SLEEVE. CONTRACTOR TO FIELD VERIFY WALL THICKNESS PRIOR TO ORDERING MATERIALS. (M303)
3. INSTALL 24" STAINLESS STEEL FLAP GATE.
4. INSTALL PIPE SUPPORT. (M203)
5. INSTALL J-HOOK FOR ELECTRICAL CABLE STRAIN RELIEF, AND STAINLESS STEEL EYE BOLT TO SUPPORT PUMP LIFTING CHAIN.

1" — ONE AT FULL IF NOT ONE SCALE

REVISION	DATE

STATE OF ARKANSAS — LICENSED PROFESSIONAL ENGINEER — No. 22360 — 3/21/2025 — AMANDA K. JOHNSON

HAWKINS-WEIR ENGINEERS, INC.

BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

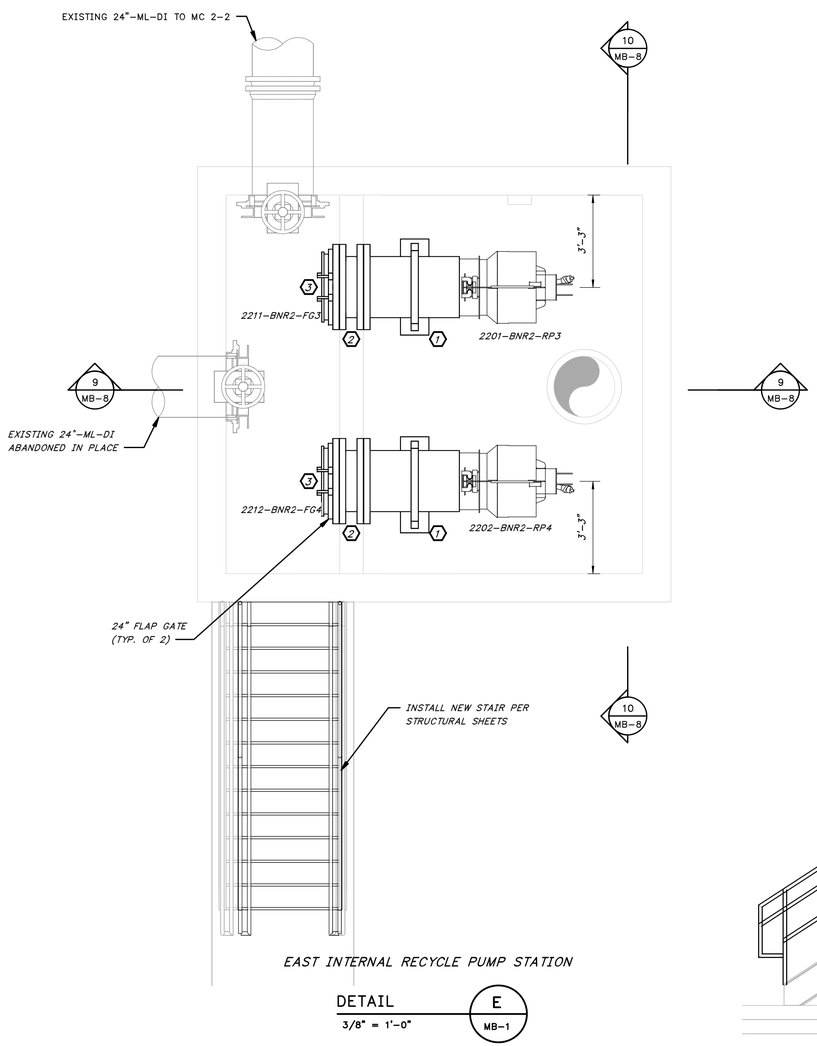
WEST INTERNAL RECYCLE PUMP STATION DETAIL & SECTION

BENTONVILLE, ARKANSAS

DATE: MARCH 2025
SCALE: 3/8" = 1'-0"
DESIGNED BY: BGM
DRAWN BY: RJM
HWEI NO.: 2021037
FILENAME: M-BNR BASIN

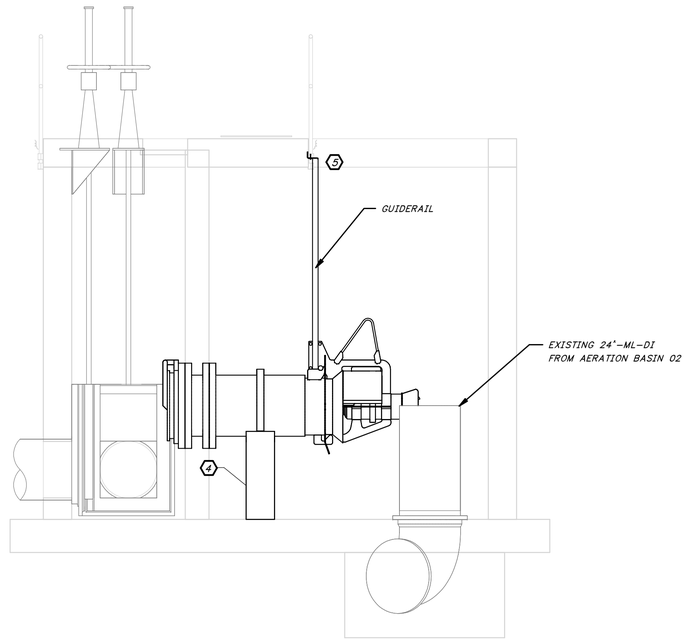
BID DRAWINGS
MARCH 21, 2025

SHEET MB-7



EAST INTERNAL RECYCLE PUMP STATION

DETAIL E
3/8" = 1'-0"
MB-1

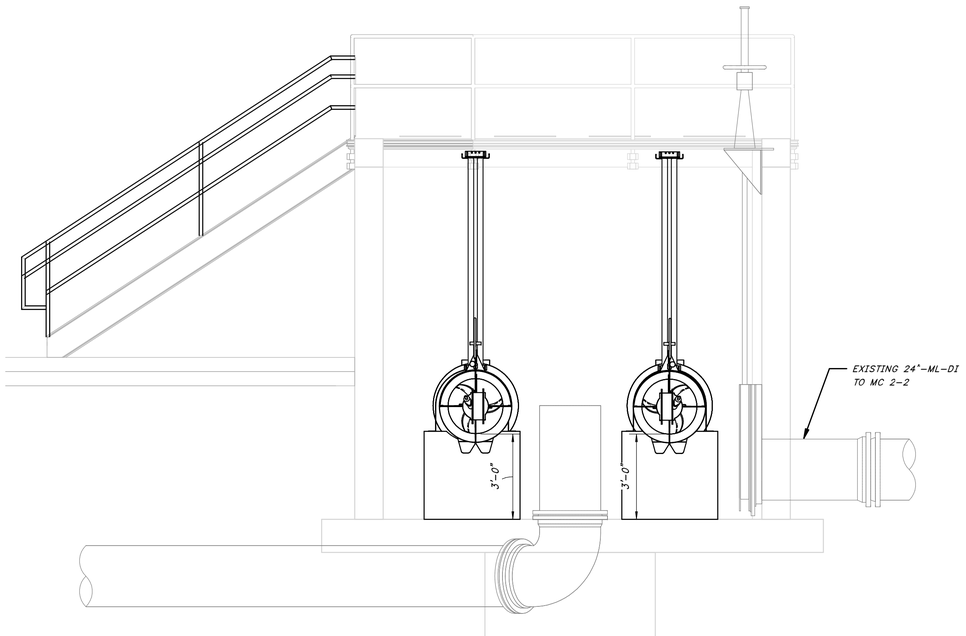


EAST INTERNAL RECYCLE PUMP STATION

SECTION 9
3/8" = 1'-0"
MB-8

KEYED NOTES:

1. PUMP ADAPTER FITTING AND PUMP/ADAPTER FITTING SUPPORTS TO BE DESIGNED AND SPECIFIED BY PUMP MANUFACTURER.
2. INSTALL 24" FLXFL WALL SLEEVE. CONTRACTOR TO FIELD VERIFY WALL THICKNESS PRIOR TO ORDERING MATERIALS. (M303)
3. INSTALL 24" STAINLESS STEEL FLAP GATE.
4. INSTALL PIPE SUPPORT. (M203)
5. INSTALL J-HOOK FOR ELECTRICAL CABLE STRAIN RELIEF, AND STAINLESS STEEL EYE BOLT TO SUPPORT PUMP LIFTING CHAIN.



EAST INTERNAL RECYCLE PUMP STATION

SECTION 10
3/8" = 1'-0"
MB-8

BID DRAWINGS
MARCH 21, 2025

1"
ONE
AT FULL
IF NOT ONE
SCALE

REVISION	DATE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 22360
3/21/2025
AMANDA K. JOHNSON

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

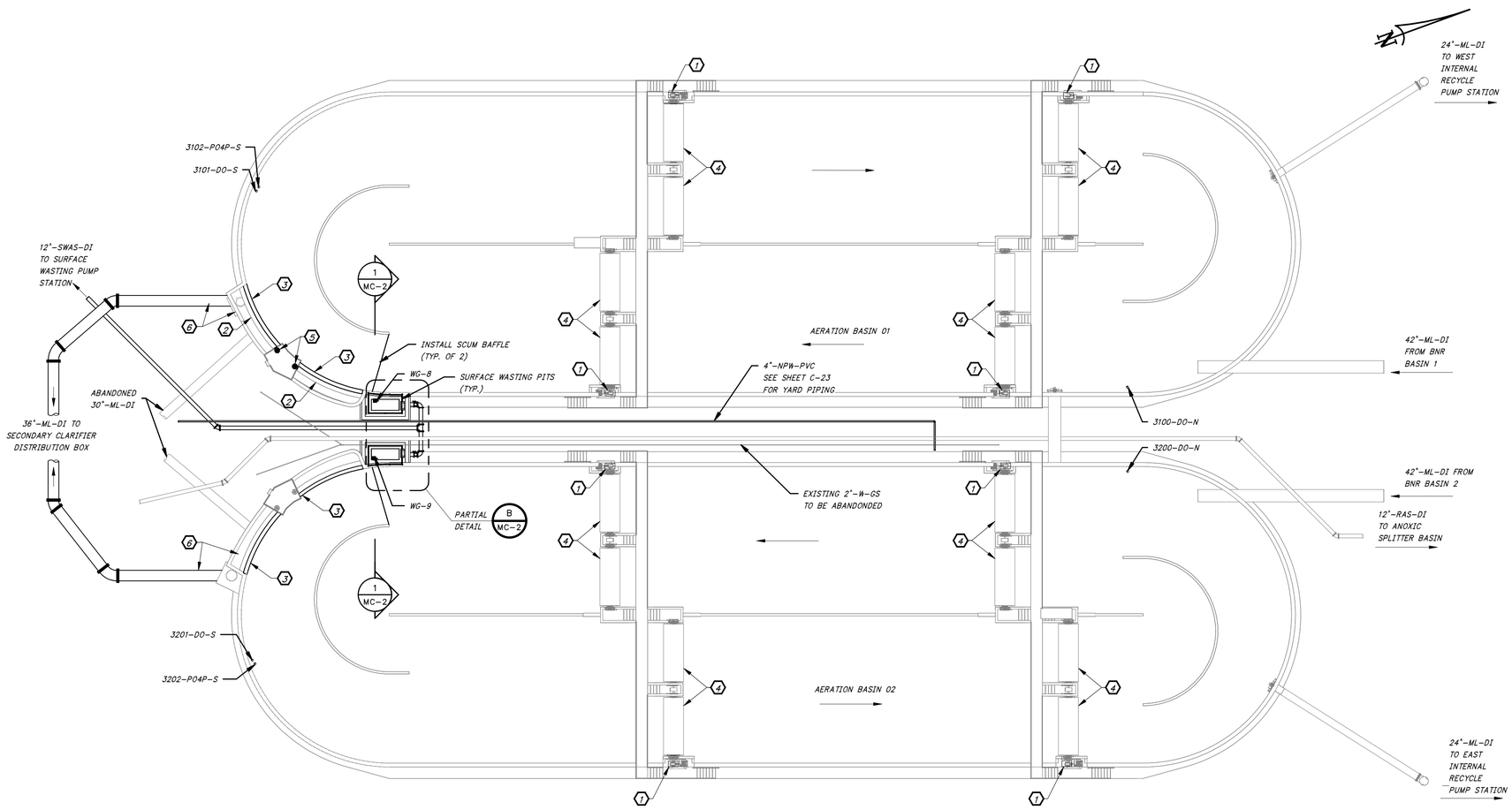
CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

EAST INTERNAL RECYCLE PUMP STATION DETAIL & SECTION

BENTONVILLE, ARKANSAS

DATE: MARCH 2025
SCALE: 3/8" = 1'-0"
DESIGNED BY: BGM
DRAWN BY: RJM
HWEI NO.: 2021037
FILENAME: M-BNR BASIN

SHEET
MB-8



AERATION BASINS

DETAIL A

1" = 20'-0"

KEYED NOTES:

(1) *INSTALL NEW 75 HP AERATOR MOTOR. REFER TO SPECIFICATION SECTION 01171 ELECTRIC MOTORS FOR SPECIAL REQUIREMENTS. REDUCERS, BELTS AND SHEAVES TO BE REPLACED AS REQUIRED BY LAKESIDE.*

(2) *AERATION BASIN 01 EFFLUENT WEIR IS CURRENTLY BLOCKED OFF. CONTRACTOR SHALL COORDINATE WITH OWNER TO REMOVE BLOCK AND PERFORM WORK.*

(3) *INSTALL 20' ROTATING PIPE PLATE WEIR ASSEMBLY SUPPLIED BY OWNER.*

(4) *EXISTING BRUSH AERATORS TO REMAIN.*

(5) *INSTALL ROTATING PIPE PLATE WEIR GATE OPERATOR (SUPPLIED BY OWNER).*

(6) *REMOVE EXISTING 30-INCH PIPE, FITTINGS, AND APPURTENANCES AND REPLACE WITH 36-INCH DI PIPE, FITTINGS AND APPURTENANCES. CONTRACTOR TO FIELD VERIFY PIPE SIZE PRIOR TO REMOVAL AND ORDERING MATERIALS. IF EXISTING PIPE IS 36-INCH, CONTRACTOR SHALL COORDINATE WITH ENGINEER AND OWNER. CONTRACTOR SHALL CORE DRILL AN OPENING IN THE SIDE OF AERATION BASIN EFFLUENT VAULT TO MAKE THE CONNECTION. PLUG AND ABANDON EXISTING 30-INCH OPENING AT BOTTOM OF STRUCTURE.*

1"

ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

DATE	REVISION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 22360
AMANDA K. JOHNSON
3/21/2025

HAWKINS-WEIR ENGINEERS, INC.

BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

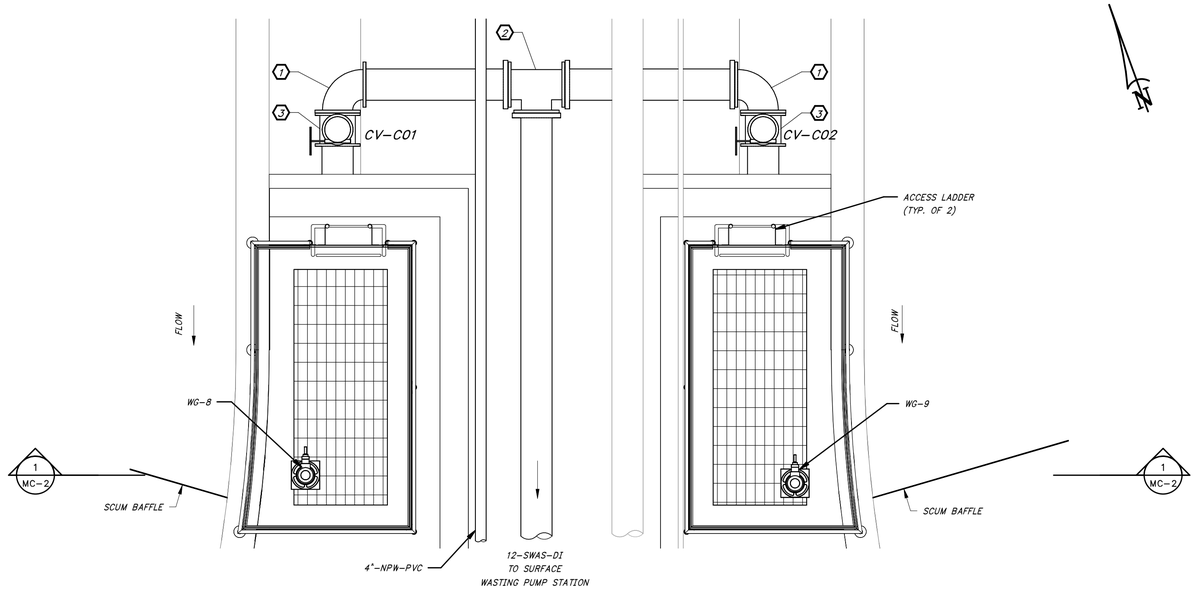
AERATION BASINS DETAIL

BENTONVILLE, ARKANSAS

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: BGM
DRAWN BY: MD
HWEI NO.: 2021037
FILENAME: M-AERATION BASIN

BID DRAWINGS
MARCH 21, 2025

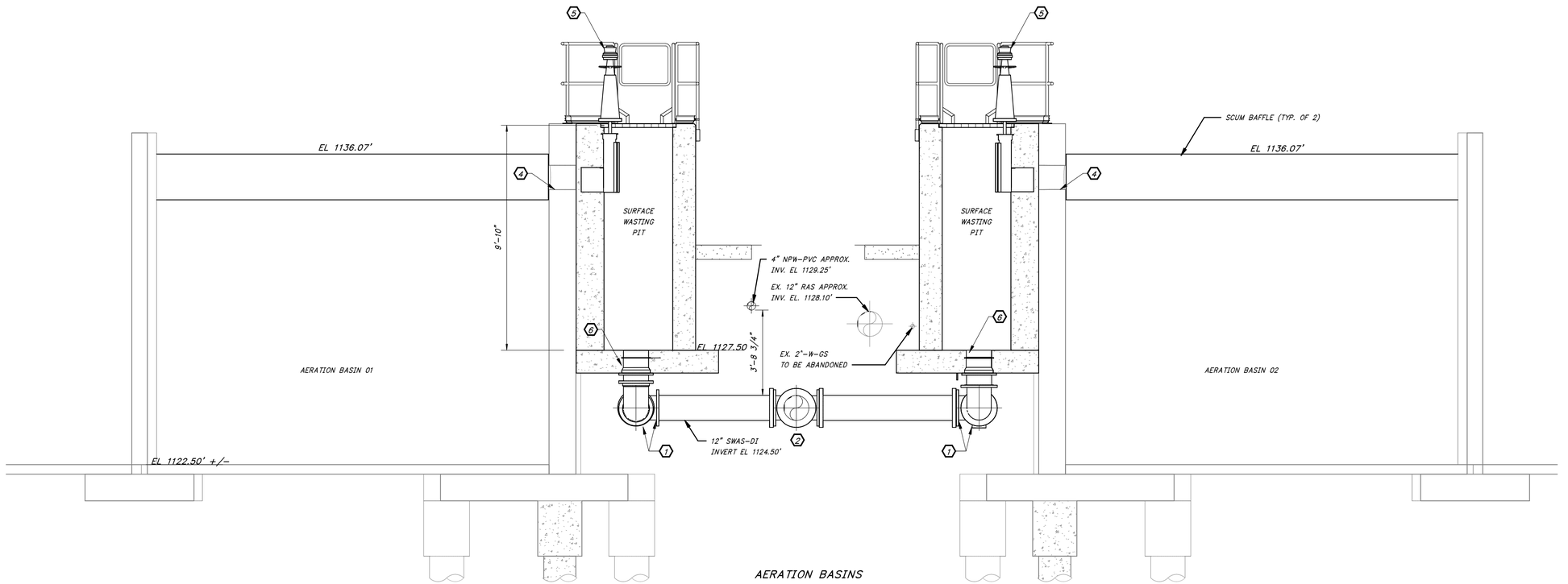
SHEET NO.
MC-1



AERATION BASINS

DETAIL B / MC-1

3/8" = 1'-0"



AERATION BASINS

SECTION 1 / MC-1

3/8" = 1'-0"

BID DRAWINGS

MARCH 21, 2025

GENERAL NOTES:

1. EXISTING BASIN ELEVATIONS AND PIPE DIAMETERS ARE BASED ON EXISTING AS-BUILT INFORMATION AND SOME SURVEY INFORMATION. CONTRACTOR SHALL FIELD VERIFY ELEVATIONS PRIOR TO CONSTRUCTION.

KEYED NOTES:

1. INSTALL 12" MJ X MJ 90-DEGREE BEND.
2. INSTALL 12" MJ X MJ TEE.
3. INSTALL 12" MJ X MJ PLUG VALVE WITH NUT OPERATOR AND VALVE BOX.
4. CORE DRILL 12" OPENING INV. EL. 1134.50'
5. INSTALL 12" WEIR GATE. WEIR OPERATOR AND STEM SHALL BE SUPPORTED WITH WALL MOUNT BRACKET.
6. INSTALL 12" PE x MJ FLOOR SLEEVE M308

ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 22360
3/21/2025
AMANDA K. JOHNSON

HAWKINS-WEIR ENGINEERS, INC.

BLACK & VEATCH

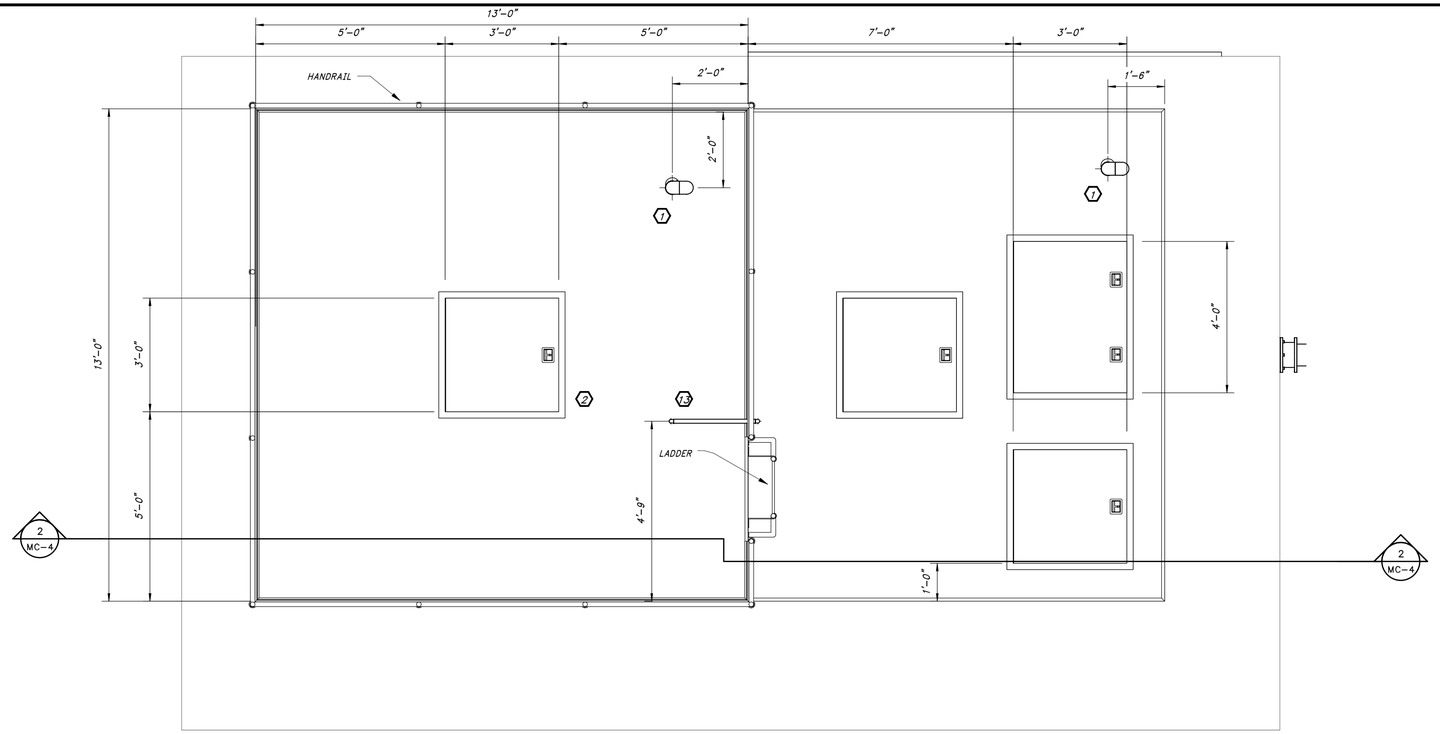
CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

AERATION BASINS SECTION

BENTONVILLE, ARKANSAS

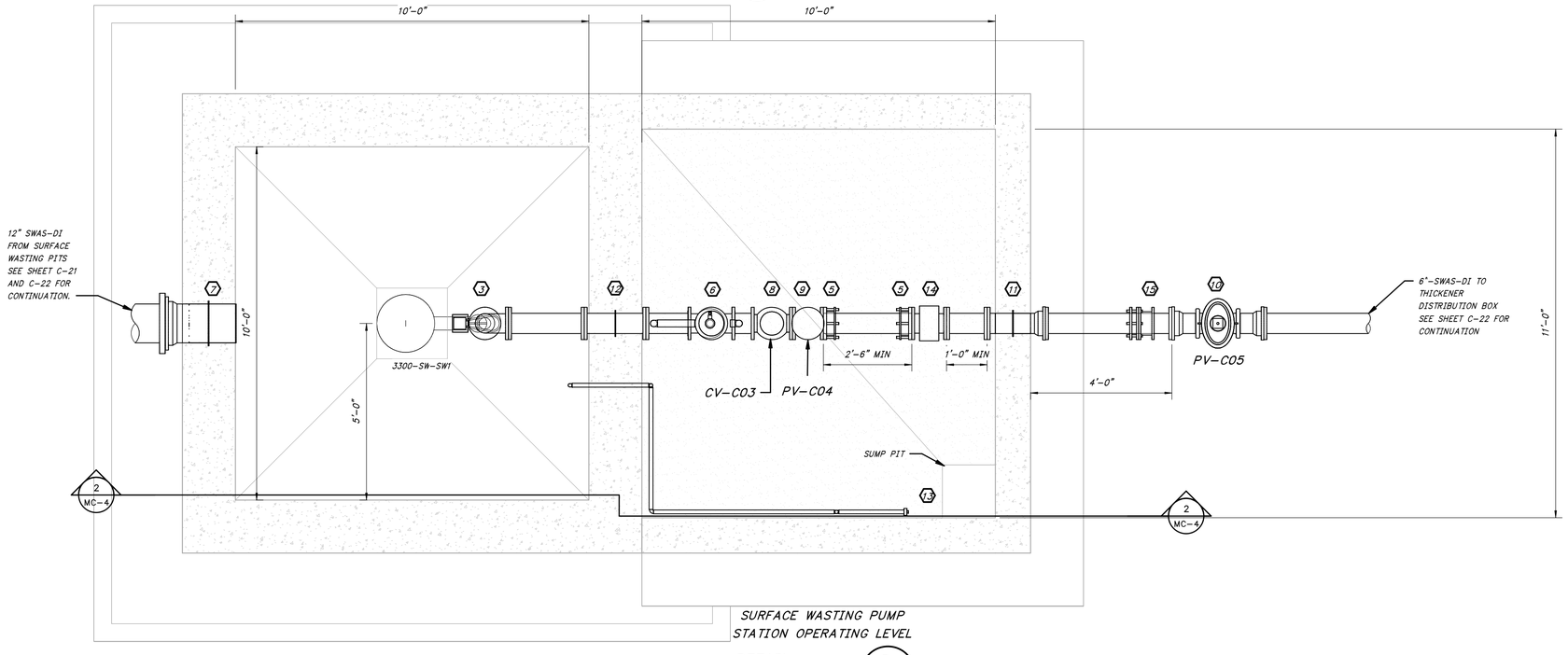
DATE: MARCH 2025
SCALE: 3/8" = 1'-0"
DESIGNED BY: BGM
DRAWN BY: MD
HWEI NO.: 2021037
FILENAME: M-AERATION BASIN

SHEET NO.
MC-2



SURFACE WASTING PUMP
STATION DECK LEVEL

DETAIL C
1/2" = 1'-0"



SURFACE WASTING PUMP
STATION OPERATING LEVEL

DETAIL D
1/2" = 1'-0"

GENERAL NOTES:

1. ALL PIPING, VALVES, METERS, ETC. INSIDE WETWELL AND VALVE VAULT SHALL BE STAINLESS STEEL UNLESS OTHERWISE NOTED.
2. EPOXY COATING OF THE WETWELL IS NOT REQUIRED.
3. SEE STRUCTURAL SHEETS FOR REINFORCEMENT.

KEYED NOTES:

1. INSTALL 4" STAINLESS STEEL GOOSENECK VENT WITH STAINLESS STEEL INSECT SCREEN. M406
2. INSTALL ALUMINUM ACCESS HATCH.
3. INSTALL PUMP, BASE ELBOW, AND ALL OTHER APPURTENANCES IN ACCORDANCE WITH PUMP MANUFACTURER'S RECOMMENDATIONS.
4. INSTALL 6" STEEL F X F X F WALL PIPE. M306
5. INSTALL 6" STAINLESS STEEL FLANGED COUPLING ADAPTER.
6. INSTALL STAINLESS STEEL 6" x 4" REDUCING TEE, 4" BLIND FLANGE, 2" STAINLESS STEEL PIPE NIPPLES, 2" STAINLESS STEEL BALL VALVE, AND 2" STAINLESS STEEL COMBINATION AIR/VACUUM VALVE. ROUTE PVC SCH 80 PIPE TO SUMP PIT, SUPPORT AS NECESSARY. SIZE TO MATCH VALVE OUTLET.
7. INSTALL 12" MJ X PE WALL PIPE. M313
8. INSTALL 6" SWING ARM CHECK VALVE WITH MANUAL OPERATOR.
9. INSTALL 6" PLUG VALVE WITH GEAR OPERATOR AND HANDWHEEL.
10. INSTALL 6" PLUG VALVE WITH OPERATING NUT, EXTENSION STEM, AND VALVE BOX.
11. INSTALL 6" STAINLESS STEEL FL X MJ WALL PIPE. M313
12. INSTALL 6" STAINLESS STEEL F X F X F WALL PIPE. M306
13. INSTALL 1" STAINLESS STEEL PIPING WITH 1" FEMALE CAMLOCK QUICK CONNECT WITH CAP FOR SUMP DISCHARGE, SUPPORT PIPING FROM VALVE VAULT LID.
14. INSTALL 6" MAGNETIC FLOW METER.
15. INSTALL 6" STAINLESS STEEL TO DUCTILE IRON TRANSITION COUPLING.

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

DATE	REVISION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 22360
3/21/2025
AMANDA K. JOHNSON

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

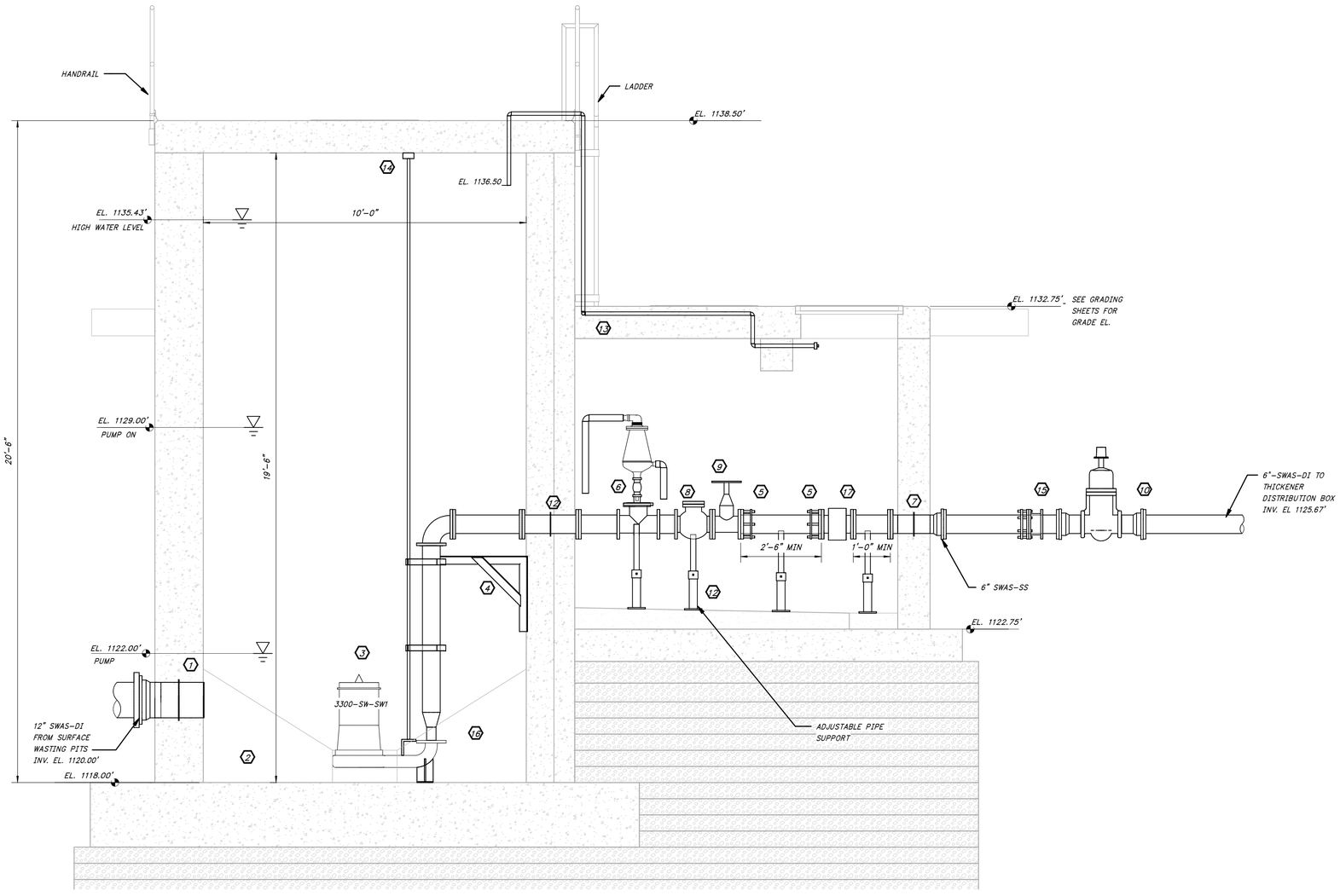
SURFACE WASTING PUMP STATION DETAIL

BENTONVILLE, ARKANSAS

DATE: MARCH 2025
SCALE: 1/2" = 1'-0"
DESIGNED BY: BGM
DRAWN BY: MD
HWEI NO.: 2021037
FILENAME: M-SURFACE WASTING

SHEET NO.
MC-3

DETAIL
3/13/2025 9:38:36 AM / MD / SURFACE WASTING PUMP STATION
Autodesk Docs://410144 - Bentonville Water Resource Recovery Facility Improvements/M-Surface Wasting Pump Station.rvt



SURFACE WASTING PUMP STATION

SECTION 2 / MC-3

1/2" = 1'-0"

GENERAL NOTES:

1. ALL PIPING, VALVES, METERS, ETC. INSIDE WETWELL AND VALVE VAULT SHALL BE STAINLESS STEEL UNLESS OTHERWISE NOTED.
2. EPOXY COATING OF THE WETWELL IS NOT REQUIRED.
3. SEE STRUCTURAL SHEETS FOR REINFORCEMENT.

KEYED NOTES:

1. INSTALL 12" MJ X PE WALL PIPE.
2. DIMENSIONS AND SLOPES OF CLASS A CONCRETE FILLETS TO BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
3. INSTALL PUMP, BASE ELBOW, AND ALL OTHER APPURTENANCES IN ACCORDANCE WITH PUMP MANUFACTURER'S RECOMMENDATIONS.
4. INSTALL PIPE SUPPORTS (MINIMUM OF 1).
5. INSTALL 6" STAINLESS STEEL FLANGED COUPLING ADAPTER.
6. INSTALL STAINLESS STEEL 6" x 4" REDUCING TEE, 4" BLIND FLANGE, 2" STAINLESS STEEL PIPE NIPPLES, 2" STAINLESS STEEL BALL VALVE, AND 2" STAINLESS STEEL COMBINATION AIR/VACUUM VALVE. ROUTE PVC SCH 80 PIPE TO SUMP PIT, SUPPORT AS NECESSARY. SIZE TO MATCH VALVE OUTLET.
7. INSTALL 6" STAINLESS STEEL FL X MJ WALL PIPE.
8. INSTALL 6" SWING ARM CHECK VALVE WITH MANUAL OPERATOR.
9. INSTALL 6" PLUG VALVE WITH GEAR OPERATOR AND HANDWHEEL.
10. INSTALL 6" PLUG VALVE WITH OPERATING NUT, EXTENSION STEM, AND VALVE BOX.
11. INSTALL 6" STAINLESS STEEL FL X MJ WALL PIPE.
12. INSTALL 6" STAINLESS STEEL F X F X F WALL PIPE.
13. INSTALL 1" STAINLESS STEEL PIPING WITH 1" FEMALE CAMLOCK QUICK CONNECT WITH CAP FOR SUMP DISCHARGE, SUPPORT PIPING FROM VALVE VAULT LID.
14. INSTALL J-HOOK FOR ELECTRICAL CABLE STRAIN RELIEF, AND STAINLESS STEEL EYE BOLT TO SUPPORT PUMP LIFTING CHAIN.
15. INSTALL 6" STAINLESS STEEL TO DUCTILE IRON TRANSITION COUPLING.
16. INSTALL 4"X6" STAINLESS STEEL INCREASER.
17. INSTALL 6" MAGNETIC FLOW METER.

BID DRAWINGS

MARCH 21, 2025

1"

ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

DATE	REVISION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 22360
3/21/2025
AMANDA K. JOHNSON

HAWKINS WEIR ENGINEERS, INC.

BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

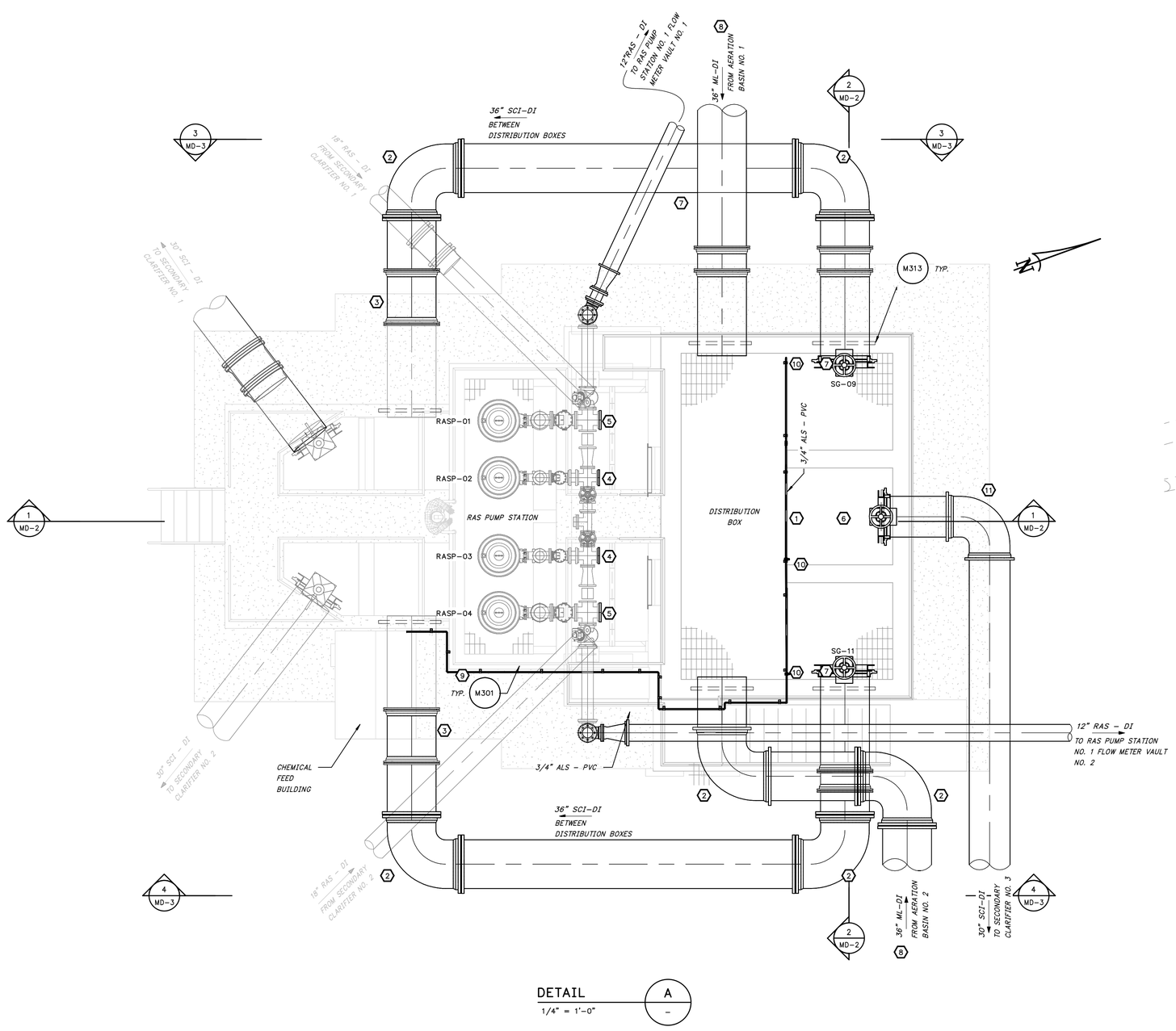
SURFACE WASTING PUMP STATION
SECTION

BENTONVILLE, ARKANSAS

DATE: MARCH 2025
SCALE: 1/2" = 1'-0"
DESIGNED BY: BGM
DRAWN BY: RJM
HWEI NO.: 2021037
FILENAME: M-SURFACE WASTING

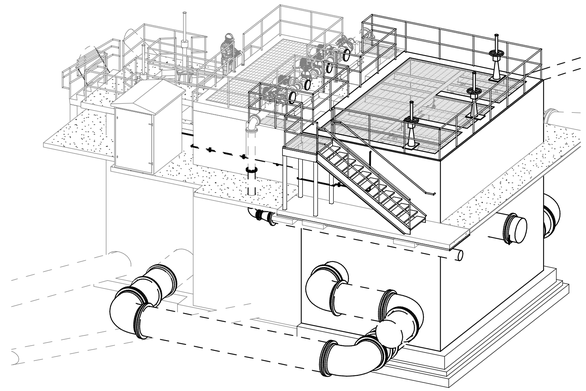
SHEET NO.
MC-4

SECTION



DETAIL A
1/4" = 1'-0"

NOTES:
1. ALL HARDWARE SHALL BE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED. ANTISEIZE LUBRICANTS SHALL BE USED WHEN ASSEMBLING STAINLESS STEEL HARDWARE.
2. PAINT ALL EXPOSED PIPING IN ACCORDANCE WITH SPECIFICATION SECTION 09902.
3. SEQUENCE CONSTRUCTION SO THAT ONE (1) AERATION BASIN IS MAINTAINED IN SERVICE AT ALL TIMES.
4. SEE SITE PIPING PLAN FOR THE CONTINUATION OF DISTRIBUTION BOX INFUENT AND EFFLUENT PIPING.
5. CONTRACTOR SHALL FIELD VERIFY DIAMETER WITH EXISTIING 36" ML – DI



ISOMETRIC/3D
N.T.S.

KEYED NOTES:
1. INSTALL PIPE SUPPORTS AT 4'–0" SPACING (M102)
2. INSTALL 36" 90° BEND
3. INSTALL 36" SOLID SLEEVE
4. REMOVE VALVE AND INSTALL 6" BLIND FLANGE
5. REMOVE VALVE AND INSTALL 8" BLIND FLANGE
6. INSTALL 30" X 30" STAINLESS STEEL SLIDE GATE WITH MANUAL OPERATOR
7. INSTALL 36"x36" STAINLESS STEEL SLIDE GATE WITH MANUAL OPERATOR
8. INSTALL 36" 90° BEND AND THRUST BLOCKING TO CONNECT PROPOSED LINE TO EXISTING 36" ML–DI LINE (SEE NOTE #4).
9. INSULATE AND HEAT TRACE ALUMINUM SULFATE CHEMICAL FEED LINE ABOVE GRADE
10. ALUMINUM SULFATE CHEMICAL FEED LOCATION
11. INSTALL 30" 90° BEND

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS
MARGARET E. HOSKINS
LICENSED PROFESSIONAL ENGINEER
No. 20465
See Digitally Signed Document

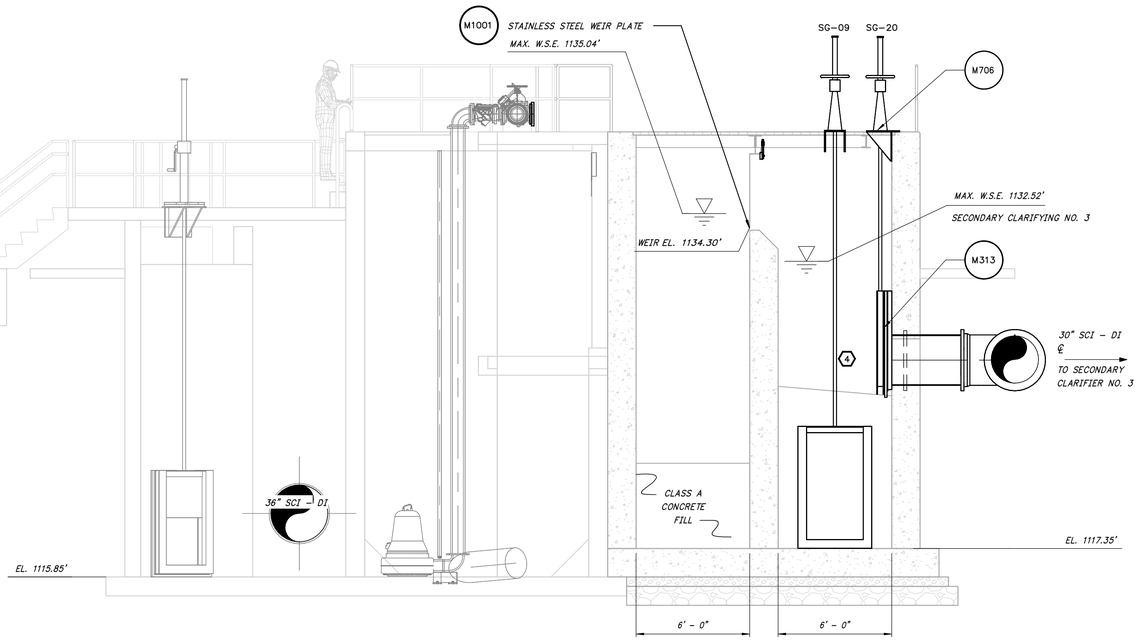
HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

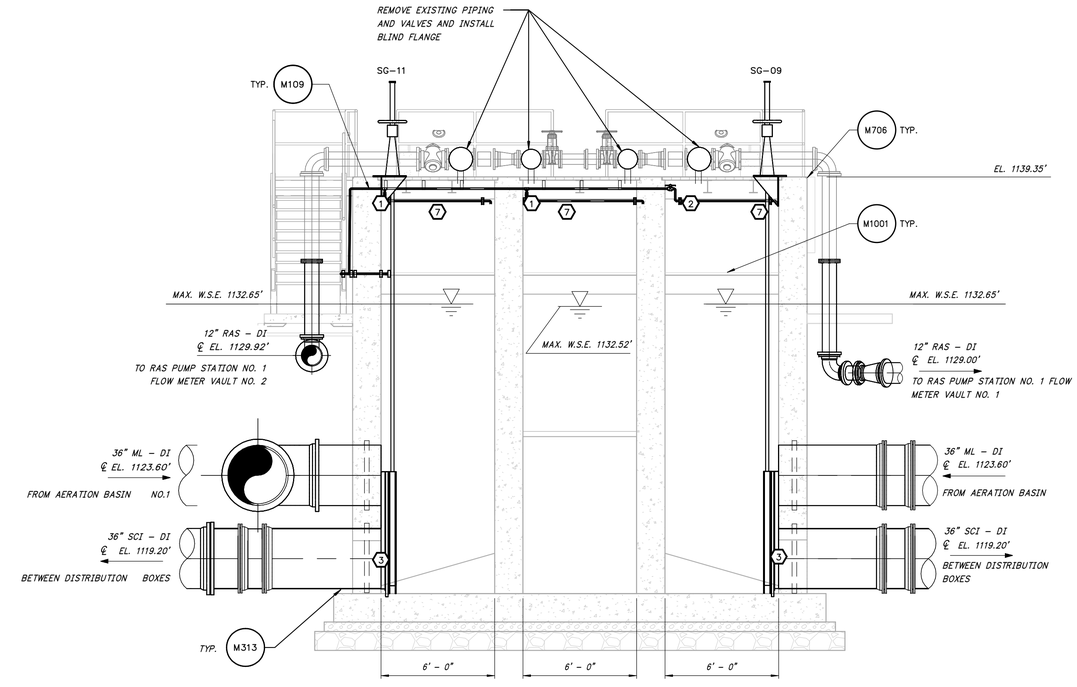
SECONDARDY CLARIFIER DISTRIBUTION BOX AND RAS PUMP STATION
DETAIL
FOR: BENTONVILLE WATER UTILITIES

DATE: MARCH 2025
SCALE: 1/4" = 1'-0"
DESIGNED BY: MEK
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037–ME

SHEET NO.
MD–1



SECTION 1 — 1/4" = 1'-0" — MD-1



SECTION 2 — 1/4" = 1'-0" — MD-1

NOTES:

1. ALL HARDWARE SHALL BE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED. ANTISEIZE LUBRICANTS SHALL BE USED WHEN ASSEMBLING STAINLESS STEEL HARDWARE.
2. PAINT ALL EXPOSED PIPING IN ACCORDANCE WITH SPECIFICATION SECTION 09902.
3. SEQUENCE CONSTRUCTION SO THAT ONE (1) AERATION BASIN IS MAINTAINED IN SERVICE AT ALL TIMES.

KEYED NOTES:

1. INSTALL 3/4" x 1/2" TEE AND 1/2" PVC BALL VALVE
2. INSTALL 3/4"x1/2" REDUCER, 1/2" PVC BALL VALVE
3. INSTALL 36"x36" STAINLESS STEEL SLIDE GATE WITH MANUAL OPERATOR
4. INSTALL 30"x30" STAINLESS STEEL SLIDE GATE WITH MANUAL OPERATOR
5. INSTALL CONCRETE PIPE SUPPORT
6. INSULATE AND HEAT TRACE ALUMINUM CHEMICAL FEED LINE ABOVE GRADE.
7. INSTALL PVC CHEMICAL DIFFUSER (M1005)

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS — MARGARET E. KESLER — LICENSED PROFESSIONAL ENGINEER — No. 20465

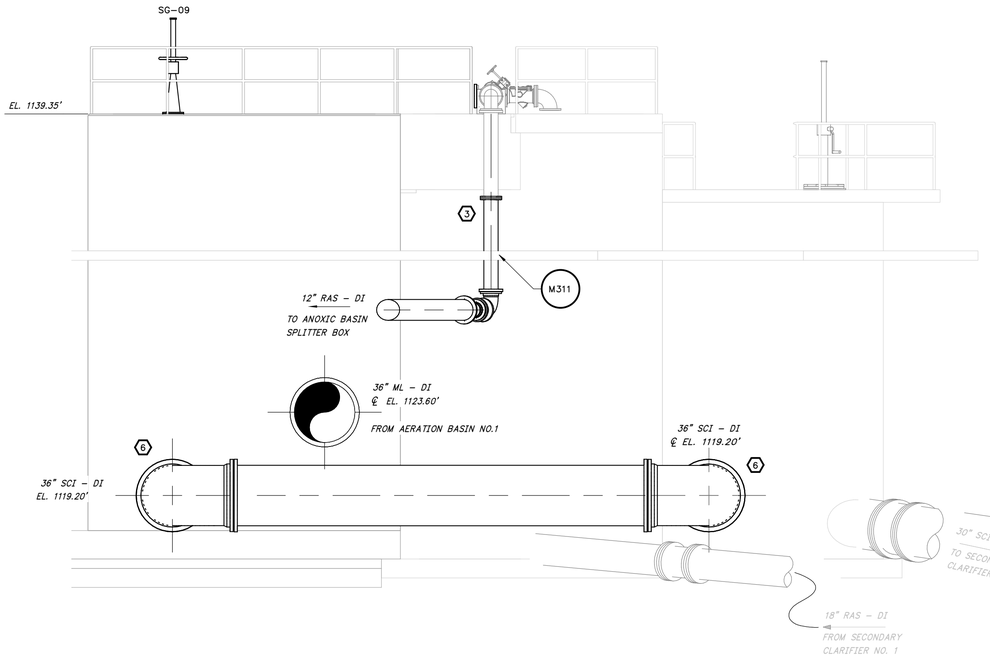
HAWKINS-WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE
RECOVERY FACILITY IMPROVEMENTS

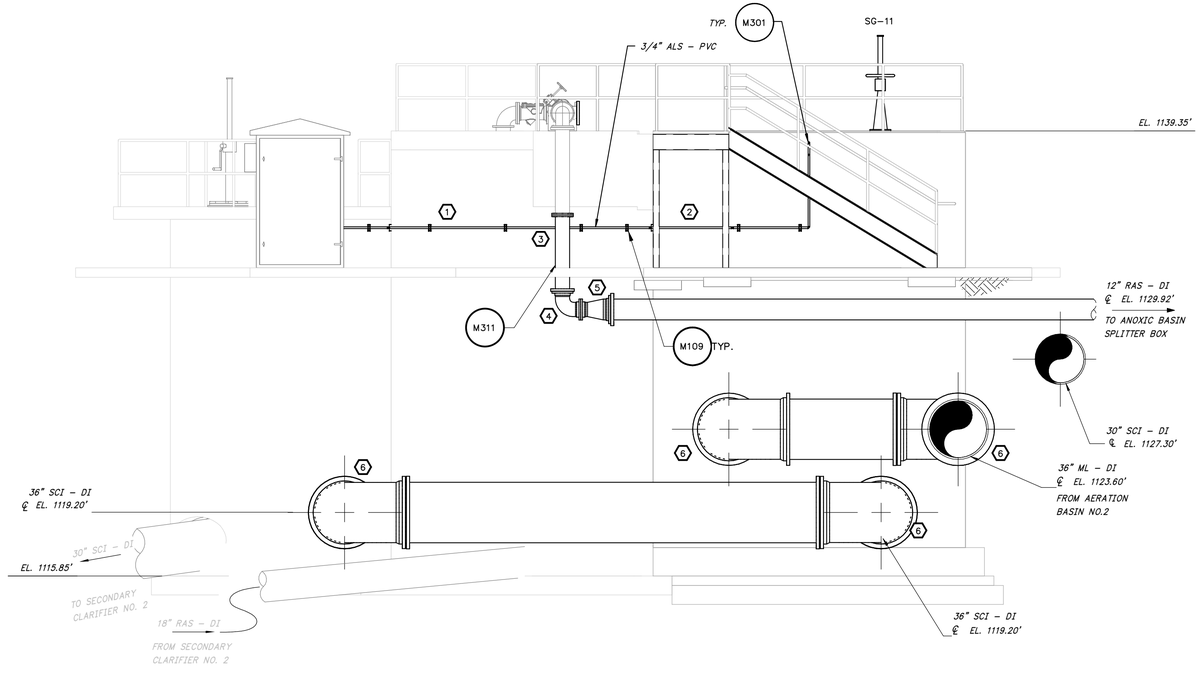
SECONDARDY CLARIFIER DISTRIBUTION BOX
AND RAS PUMP STATION
SECTIONS
FOR: BENTONVILLE WATER UTILITIES

DATE: MARCH 2025
SCALE: 1/4" = 1'-0"
DESIGNED BY: MEK
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-ME

SHEET NO.
MD-2



SECTION 3
1/4" = 1'-0"
MD-1



SECTION 4
1/4" = 1'-0"
MD-1

NOTES:
1. ALL HARDWARE SHALL BE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED. ANTISEIZE LUBRICANTS SHALL BE USED WHEN ASSEMBLING STAINLESS STEEL HARDWARE.
2. PAINT ALL EXPOSED PIPING IN ACCORDANCE WITH SPECIFICATION SECTION 09902.
3. SEQUENCE CONSTRUCTION SO THAT ONE (1) AERATION BASIN IS MAINTAINED IN SERVICE AT ALL TIMES.

KEYED NOTES:

1. INSULATE AND HEAT TRACE ALUMINUM SULFATE CHEMICAL FEED LINE ABOVE GRADE.
2. INSTALL PIPE SUPPORTS AT MAXIMUM 4'-0" SPACING (M109)
3. INSTALL 8" FLANGE BY PLAIN END SPOOL
4. INSTALL 8" 90° BEND
5. INSTALL 12" x 8" REDUCER
6. INSTALL 36" 90° BEND

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS
MARGARET E. HESLEP
LICENSED PROFESSIONAL ENGINEER
No. 20465
Specified

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

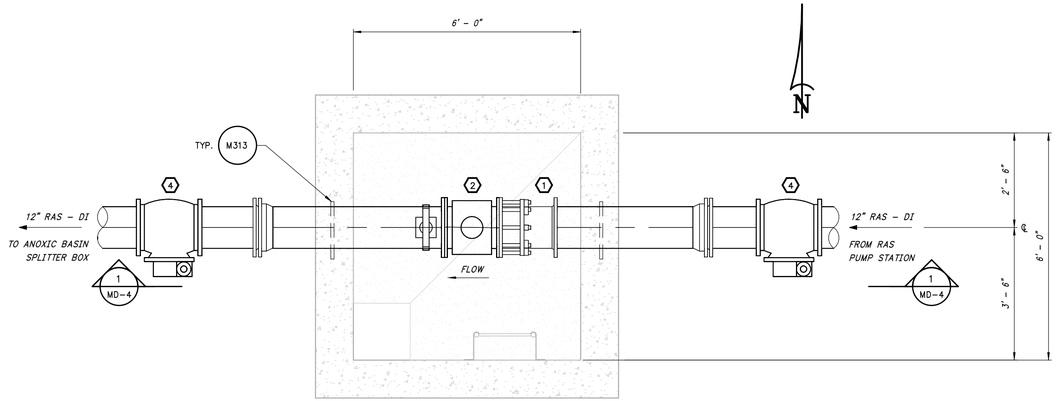
CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

SECONDARY CLARIFIER DISTRIBUTION BOX AND RAS PUMP STATION SECTIONS

FOR: BENTONVILLE WATER UTILITIES

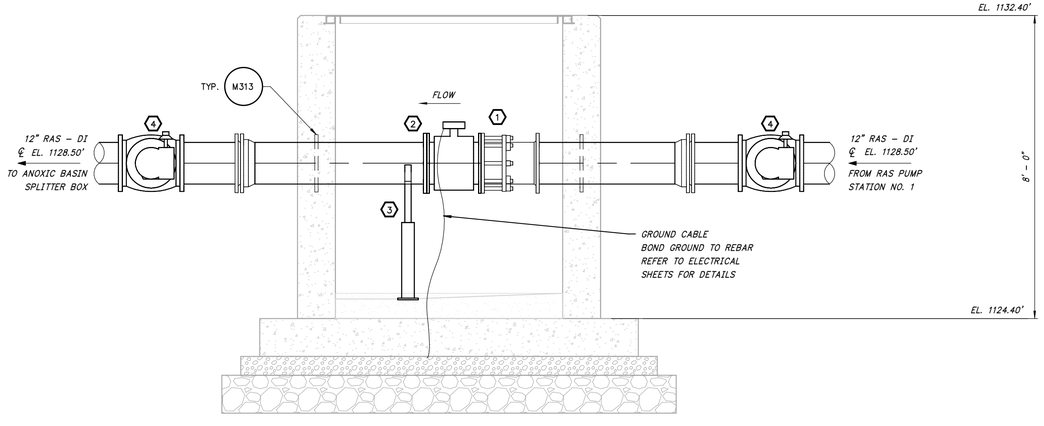
DATE: MARCH 2025
SCALE: 1/4" = 1'-0"
DESIGNED BY: MEK
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-ME

SHEET NO.
MD-3



RAS PUMP STATION NO. 1
FLOW METER VAULT NO. 1

DETAIL A
1/2" = 1'-0"

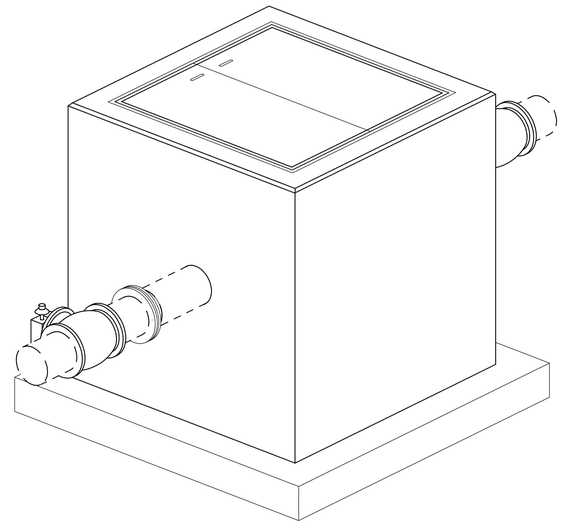


RAS PUMP STATION NO. 1
FLOW METER VAULT NO. 1

SECTION 1
1/2" = 1'-0" MD-4

NOTES:

1. ALL HARDWARE SHALL BE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED. ANTISEIZE LUBRICANTS SHALL BE USED WHEN ASSEMBLING STAINLESS STEEL HARDWARE.
2. SLOPE VAULT FLOOR TO SUMP PIT.
3. ROUTE ACCESS DOOR DRAINS IN VALVE VAULT TO ADJACECENT WALL AND THEN FLOOR WITH PVC PIPE. SECURE PIPE TO THE CEILING AND WALL WITH STAINLESS STEEL PIPE CLAMPS. M102
4. PAINT ALL EXPOSED PIPING IN ACCORDANCE WITH SPECIFICATION SECTION 09902.
5. SEE CIVIL SITE PIPING PLANS FOR CONTINUATION OF CONNECTING PIPES
6. TOP OF VAULT SHALL BE FLUSH WITH THE FINISHED CONCRETE PAVEMENT.



ISOMETRIC/3D
N.T.S.

KEYED NOTES:

1. INSTALL 12" FLANGE COUPLING ADAPTER
2. INSTALL 12" ELECTROMAGNETIC FLOW METER
3. INSTALL ADJUSTABLE PIPE SUPPORT M202
4. INSTALL 12" PLUG VALVE WITH GEAR OPERATOR AND VALVE BOX

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
WESLEY JAY LEWIS
No. 23338
03-25-25

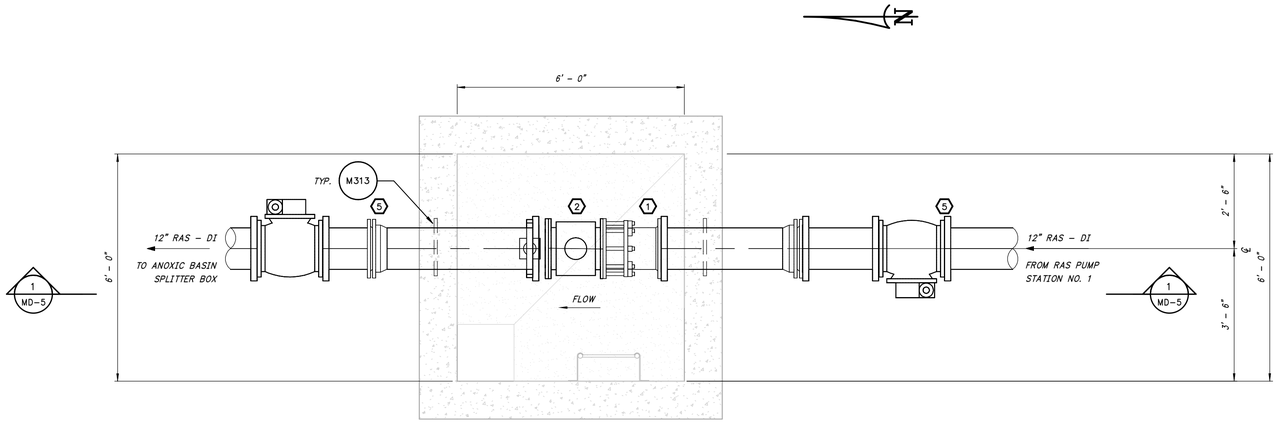
HAWKINS-WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

RAS PUMP STATION NO. 1
FLOW METER VAULT NO. 1
DETAIL AND SECTION
FOR: BENTONVILLE WATER UTILITIES

DATE: MARCH 2025
SCALE: 1/2" = 1'-0"
DESIGNED BY: WJL
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-ME

SHEET NO.
MD-4

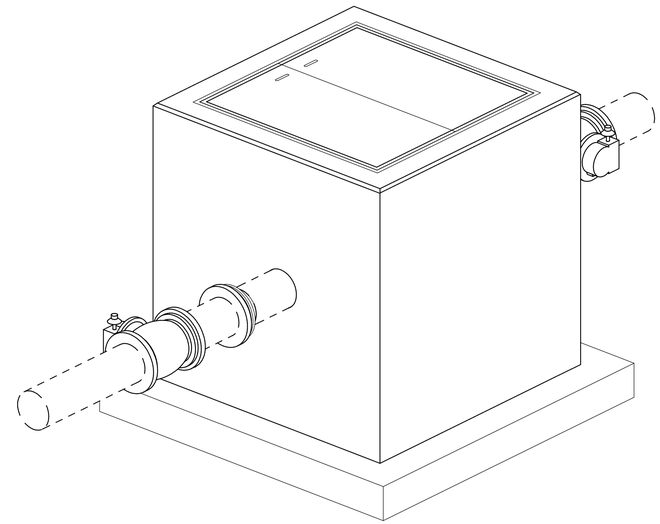


RAS PUMP STATION NO. 1
FLOW METER VAULT NO. 2

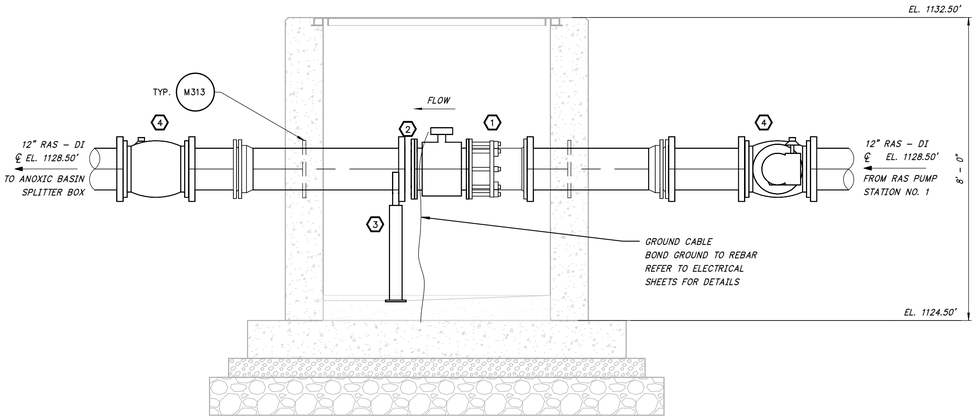
DETAIL A
1/2" = 1'-0"

NOTES:

1. ALL HARDWARE SHALL BE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED. ANTISEIZE LUBRICANTS SHALL BE USED WHEN ASSEMBLING STAINLESS STEEL HARDWARE.
2. SLOPE VAULT FLOOR TO SUMP PIT.
3. ROUTE ACCESS DOOR DRAINS IN VALVE VAULT TO ADJACECENT WALL AND THEN FLOOR WITH PVC PIPE. SECURE PIPE TO THE CEILING AND WALL WITH STAINLESS STEEL PIPE CLAMPS. M102
4. PAINT ALL EXPOSED PIPING IN ACCORDANCE WITH SPECIFICATION SECTION 09902.
5. SEE CIVIL SITE PIPING PLANS FOR CONTINUATION OF CONNECTING PIPES.
6. TOP OF VAULT SHALL BE FLUSH WITH THE FINISHED CONCRETE PAVEMENT.



ISOMETRIC/3D
N.T.S.



RAS PUMP STATION NO. 1
FLOW METER VAULT NO. 2

SECTION 1
1/2" = 1'-0" MD-5

KEYED NOTES:

1. INSTALL 12" FLANGE COUPLING ADAPTER
2. INSTALL 12" ELECTROMAGNETIC FLOW METER
3. INSTALL ADJUSTABLE PIPE SUPPORT M202
4. INSTALL 12" PLUG VALVE WITH GEAR OPERATOR AND VALVE BOX

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 20398
WESLEY JAY LEWIS

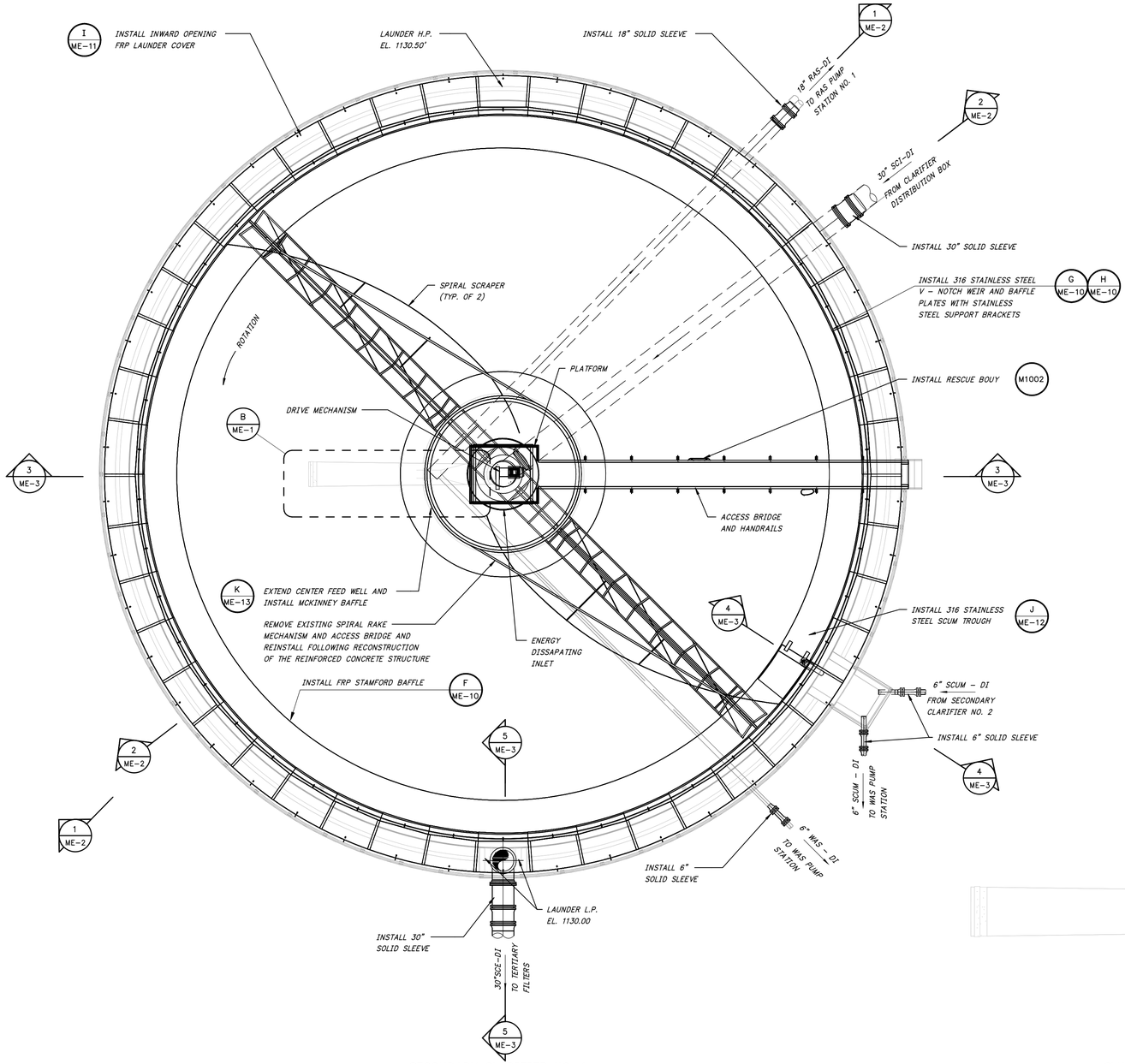
HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE
RECOVERY FACILITY IMPROVEMENTS

RAS PUMP STATION NO. 1
FLOW METER VAULT NO. 2
DETAIL AND SECTION
FOR: BENTONVILLE WATER UTILITIES

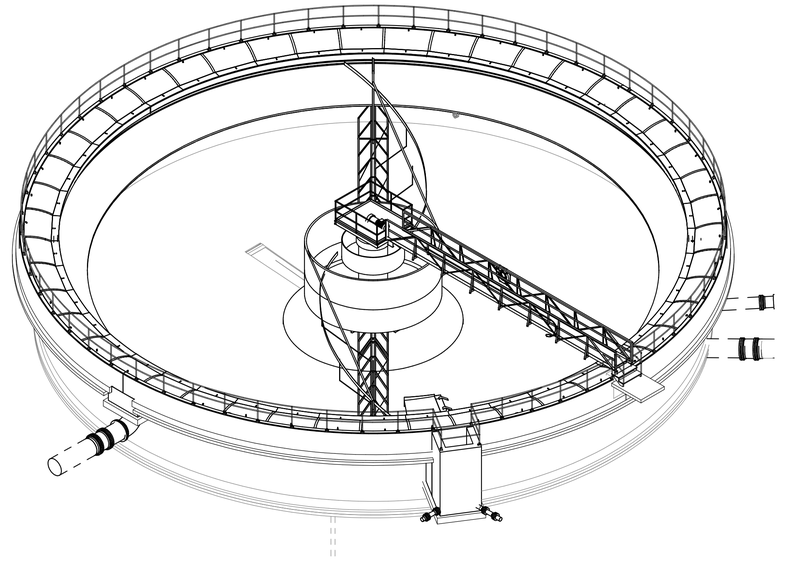
DATE: MARCH 2025
SCALE: 1/2" = 1'-0"
DESIGNED BY: WJL
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-ME

SHEET NO.
MD-5

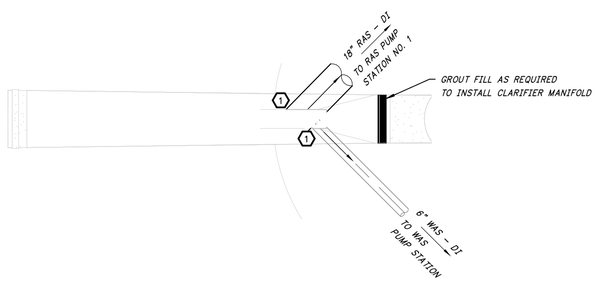


SECONDARY CLARIFIER NO. 1

DETAIL A
1/8" = 1'-0"



ISOMETRIC/3D
N.T.S.



SLUDGE TROUGH

DETAIL B
1/4" = 1'-0"

NOTES:

1. *ALL HARDWARE SHALL BE TYPE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED. ANTI-SEIZE LUBRICANTS SHALL BE USED WHEN ASSEMBLING STAINLESS STEEL HARDWARE TO PREVENT GALLING.*
2. *CONSTRUCTION SHALL BE SEQUENCED SUCH THAT 2 CLARIFIERS REMAIN IN SERVICE AT ALL TIMES. REFER TO SPECIFICATION SECTION 11225.*
3. *SLUDGE WITHDRAWAL RING NOT SHOWN.*
4. *NEW SECONDARY CLARIFIER COMPONENTS SHALL BE HOT-DIP GALVANIZED.*
5. *PIPE ELEVATIONS ARE BASED ON AVAILABLE RECORD DRAWINGS. ACTUAL ELEVATIONS MAY VARY. CONTRACTOR SHALL COORDINATE WITH ENGINEER ON ALL CENTERLINE ELEVATIONS PRIOR TO CONSTRUCTION.*

KEYED NOTES:

1. *PIPES SHALL BE TRIMMED FLUSH TO MATCH SLOPE OF WALL*

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS — MARGARET E. HOLT — LICENSED PROFESSIONAL ENGINEER — No. 20465 — Scope Limited

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

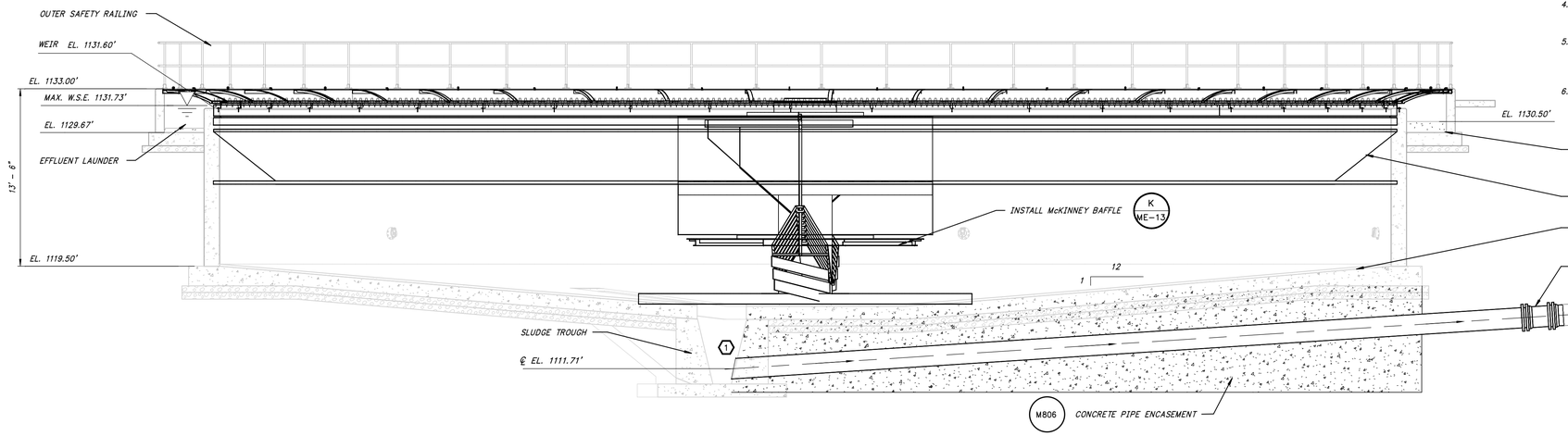
CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

SECONDARY CLARIFIER NO. 1 DETAIL

FOR: BENTONVILLE WATER UTILITIES

DATE: MARCH 2025
SCALE: As indicated
DESIGNED BY: MEK
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-ME

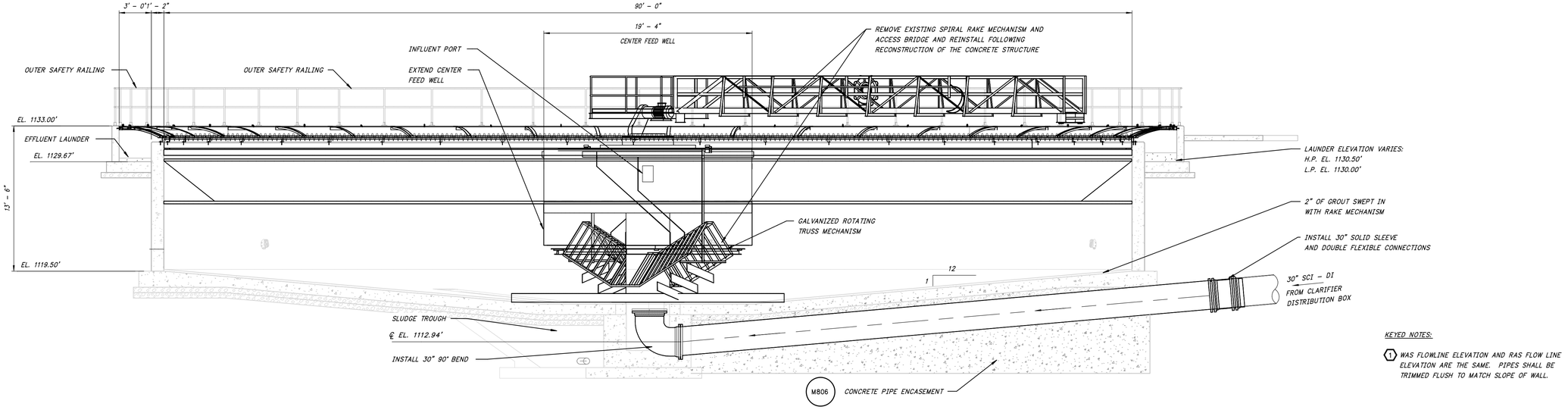
SHEET NO.
ME-1



18" RAS LINE

SECTION 1 / ME-1

3/16" = 1'-0"



30" INFLUENT LINE

SECTION 2 / ME-1

3/16" = 1'-0"

NOTES:

1. ALL HARDWARE SHALL BE TYPE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED. ANTI-SEIZE LUBRICANTS SHALL BE USED WHEN ASSEMBLING STAINLESS STEEL HARDWARE TO PREVENT GALLING.
2. CONSTRUCTION SHALL BE SEQUENCED SUCH THAT 2 CLARIFIERS REMAIN IN SERVICE AT ALL TIMES. REFER TO SPECIFICATION SECTION 11225.
3. NEW SECONDARY CLARIFIER COMPONENTS SHALL BE HOT-DIP GALVANIZED.
4. PIPE ELEVATIONS ARE BASED ON AVAILABLE RECORD DRAWINGS. ACTUAL ELEVATIONS MAY VARY. CONTRACTOR SHALL COORDINATE WITH ENGINEER ON ALL CENTERLINE ELEVATIONS PRIOR TO CONSTRUCTION.
5. EXTEND CENTER FEEDWELL TO 1'-0" ABOVE MCKINNEY BAFFLE. MCKINNEY BAFFLE SHALL HAVE A DIAMETER 3'-0" LARGER THAN THE DIAMETER OF THE INFLUENT FEEDWELL. MCKINNEY BAFFLE SHALL BE MADE WITH 1/4" STEEL PLATE AND EXTEND TO WITHIN 1" OF THE PIER.
6. INSTALL TYPE 316 STAINLESS STEEL V-NOTCH WEIR AND BAFFLE PLATES WITH STAINLESS STEEL SUPPORT BRACKETS

KEYED NOTES:

1. WAS FLOWLINE ELEVATION AND RAS FLOW LINE ELEVATION ARE THE SAME. PIPES SHALL BE TRIMMED FLUSH TO MATCH SLOPE OF WALL.

BID DRAWINGS

MARCH 21, 2025

1"

ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

DATE	REVISION

STATE OF ARKANSAS
MARGARET E. HOLT
LICENSED PROFESSIONAL ENGINEER
No. 20465
Specified Date

HAWKINS WEIR ENGINEERS, INC.

BLACK & VEATCH

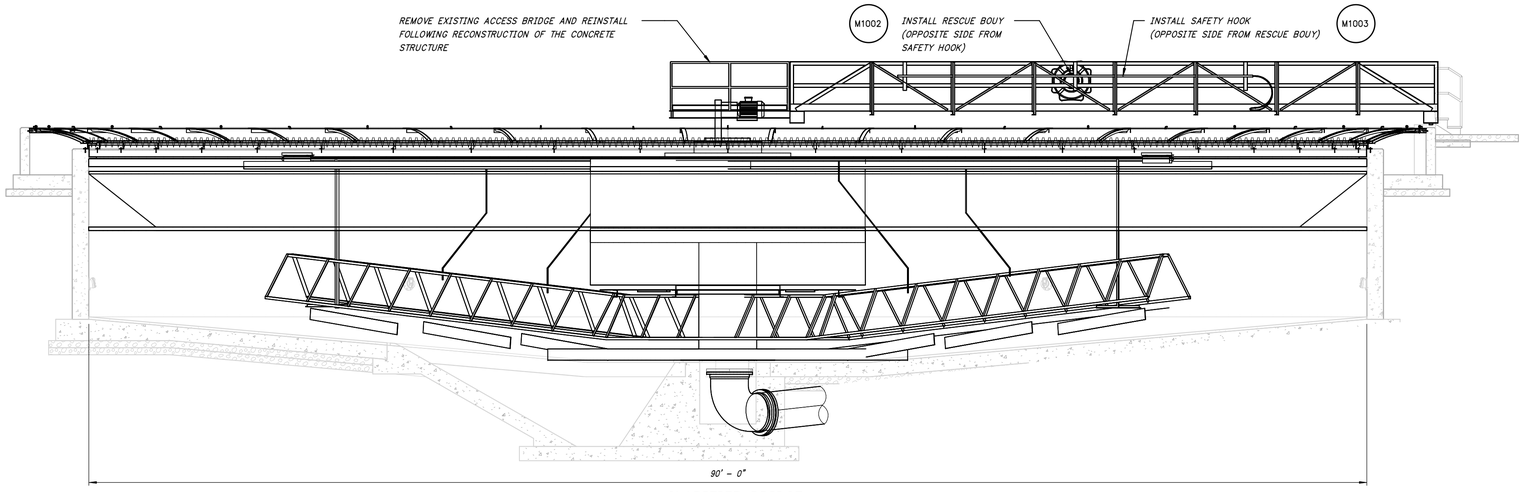
CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE
RECOVERY FACILITY IMPROVEMENTS

SECONDARY CLARIFIER NO. 1
SECTIONS

FOR: BENTONVILLE WATER UTILITIES

DATE: MARCH 2025
SCALE: 3/16" = 1'-0"
DESIGNED BY: MEK
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-ME

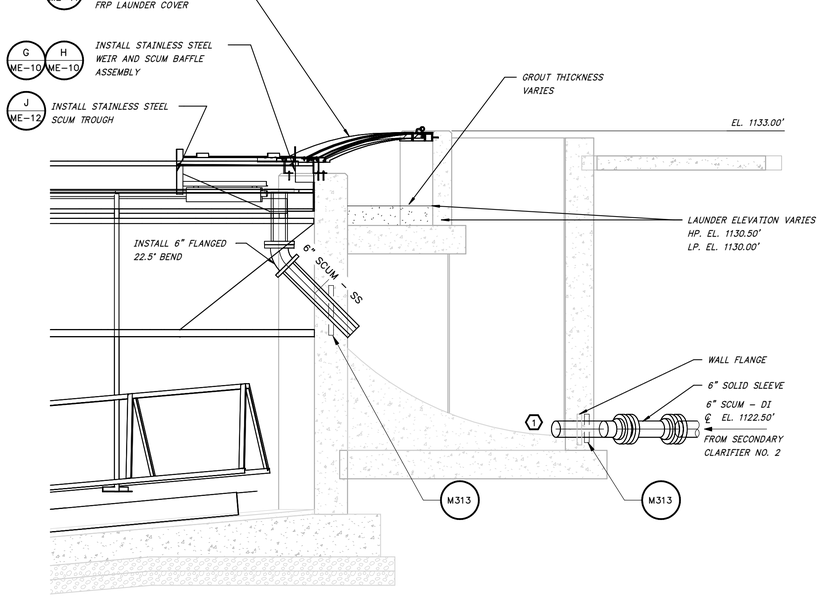
SHEET NO.
ME-2



CLARIFIER BRIDGE

SECTION 3 / ME-1

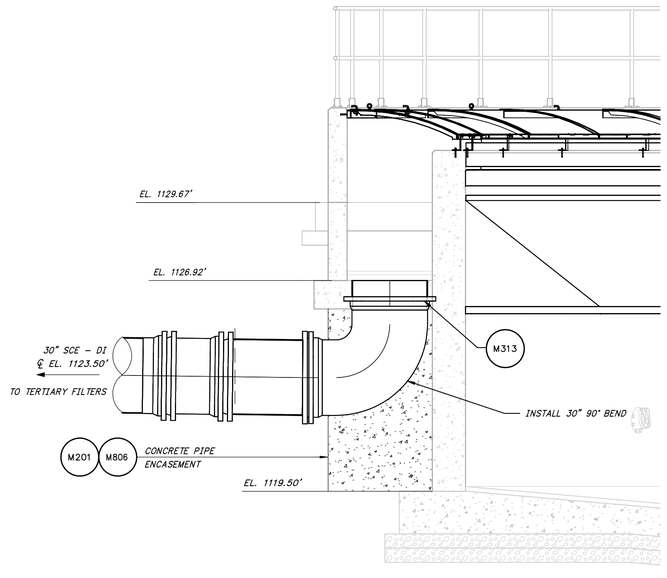
3/16" = 1'-0"



SCUM BOX

SECTION 4 / ME-1

3/8" = 1'-0"



30" EFFLUENT LINE

SECTION 5 / ME-1

3/8" = 1'-0"

NOTES:

1. ALL HARDWARE SHALL BE TYPE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED. ANTI-SEIZE LUBRICANTS SHALL BE USED WHEN ASSEMBLING STAINLESS STEEL HARDWARE TO PREVENT GALLING.
2. CONSTRUCTION SHALL BE SEQUENCED SUCH THAT 2 CLARIFIERS REMAIN IN SERVICE AT ALL TIMES. REFER TO SPECIFICATION SECTION 11225.
3. SLUDGE WITHDRAWAL RING NOT SHOWN.
4. SCUM TROUGH DRAIN SHALL BE 6" TYPE 316 STAINLESS STEEL
5. NEW SECONDARY CLARIFIER COMPONENTS SHALL BE HOT-DIP GALVANIZED.
6. CONNECT EXISTING SPRAY BAR MANIFOLD TO PROPOSED 2" PW - PVC.

KEYED NOTES:

1. ELEVATION OF 6" SCUM LINE LEAVING THE SCUM BOX IS AT THE SAME ELEVATION AS THE 6" SCUM INE ENTERING THE BOX.

BID DRAWINGS

MARCH 21, 2025

1"

ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS
MARGARET E. HESTER
LICENSED PROFESSIONAL ENGINEER
No. 20465
Scheduled

HAWKINS WEIR ENGINEERS, INC.

BLACK & VEATCH

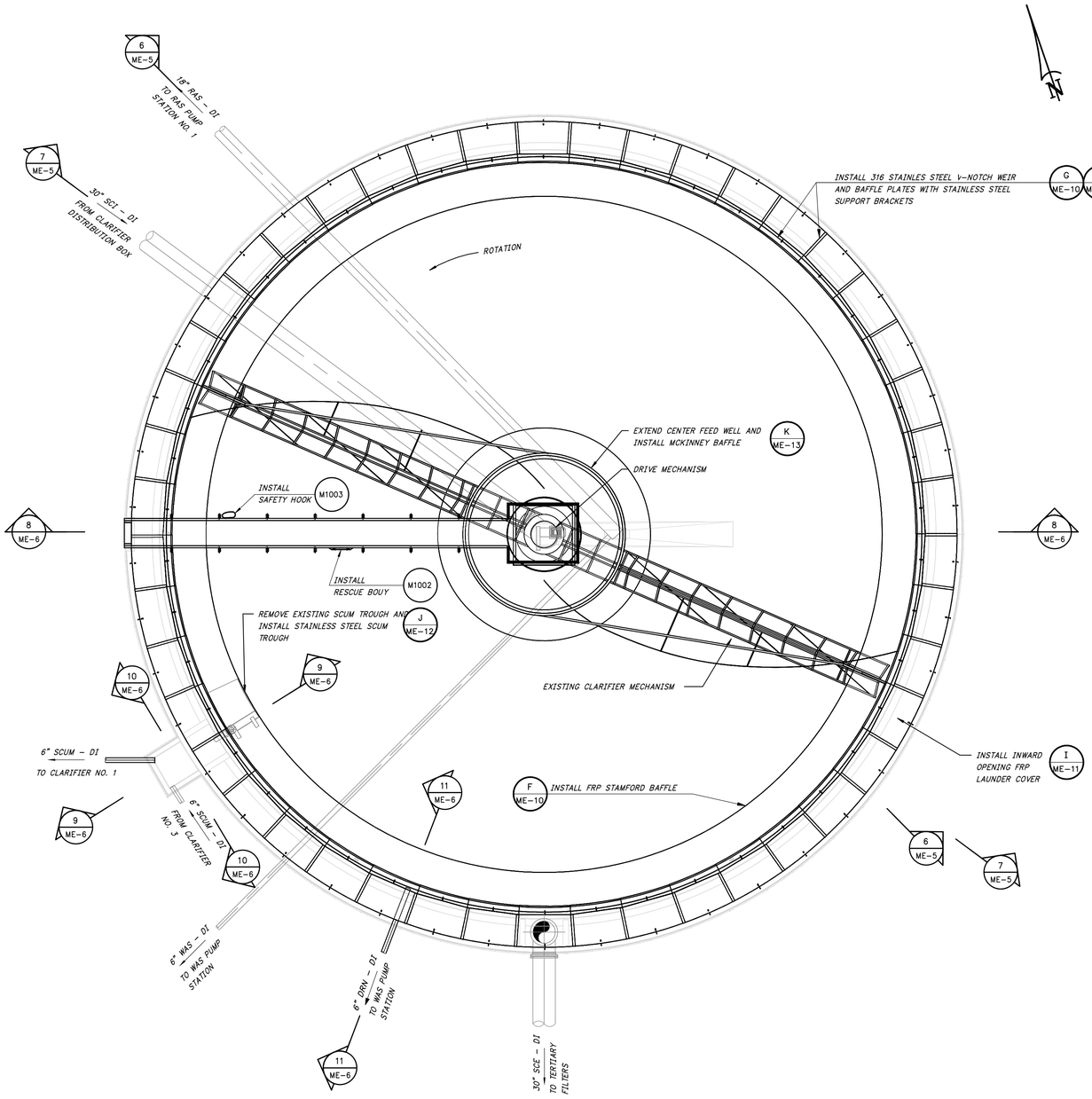
CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

SECONDARY CLARIFIER NO. 1
DETAIL AND SECTIONS

FOR: BENTONVILLE WATER UTILITIES

DATE: MARCH 2025
SCALE: As indicated
DESIGNED BY: MEK
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-ME

SHEET NO.
ME-3

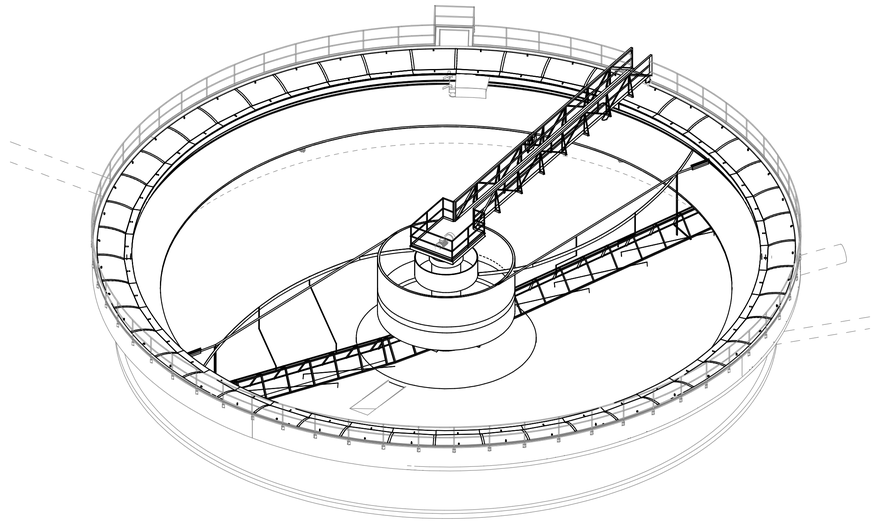


SECONDARY CLARIFIER NO. 2

DETAIL C
1/8" = 1'-0" –

NOTES:

1. *ALL HARDWARE SHALL BE TYPE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED. ANTI-SEIZE LUBRICANTS SHALL BE USED WHEN ASSEMBLING STAINLESS STEEL HARDWARE TO PREVENT GALLING.*
2. *DIMENSIONS AND ELEVATIONS SHOWN ARE BASED ON AVAILABLE RECORD DRAWINGS AND ARE REPRESENTATIVE OF CLARIFIERS. CONTRACTORS SHALL VERIFY ALL DIMENSIONS PRIOR TO BID.*
3. *CONSTRUCTION SHALL BE SEQUENCED SUCH THAT TWO (2) CLARIFIERS REMAIN IN SERVICE AT ALL TIMES. REFER TO SPECIFICATION SECTION 11225.*
4. *SLUDGE WITHDRAWAL RING NOT SHOWN.*
5. *NEW SECONDARY CLARIFIER COMPONENTS SHALL BE HOT-DIP GALVANIZED.*



ISOMETRIC/3D
N.T.S.

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS MARGARET E. KELLY LICENSED PROFESSIONAL ENGINEER No. 20465 Scheduled to Renew 6/30/2026

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

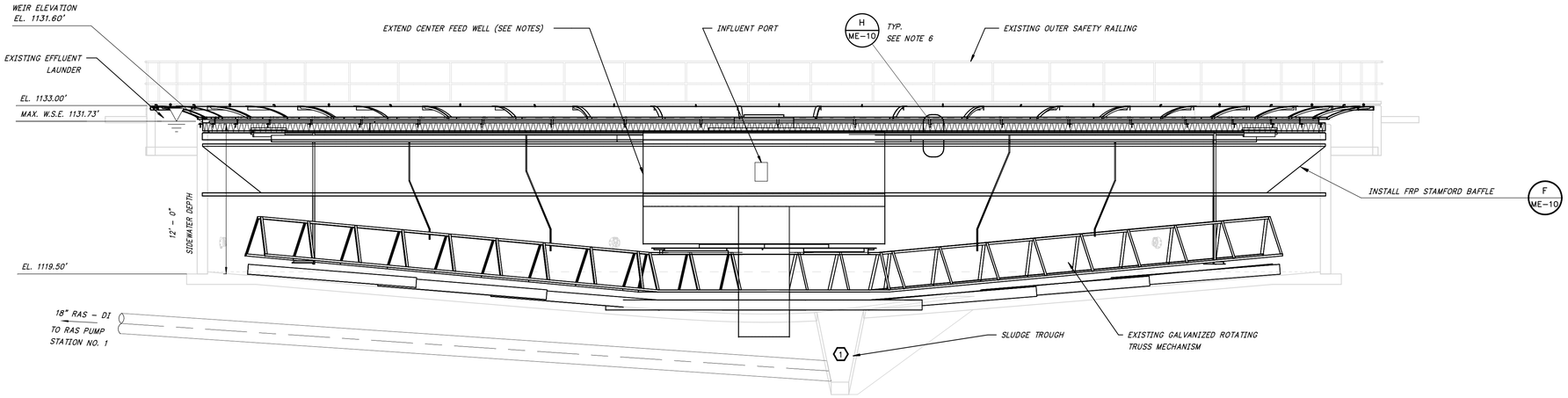
CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

SECONDARY CLARIFIER NO. 2
DETAIL

FOR: BENTONVILLE WATER UTILITIES

DATE: MARCH 2025
SCALE: 1/8" = 1'-0"
DESIGNED BY: MEK
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-ME

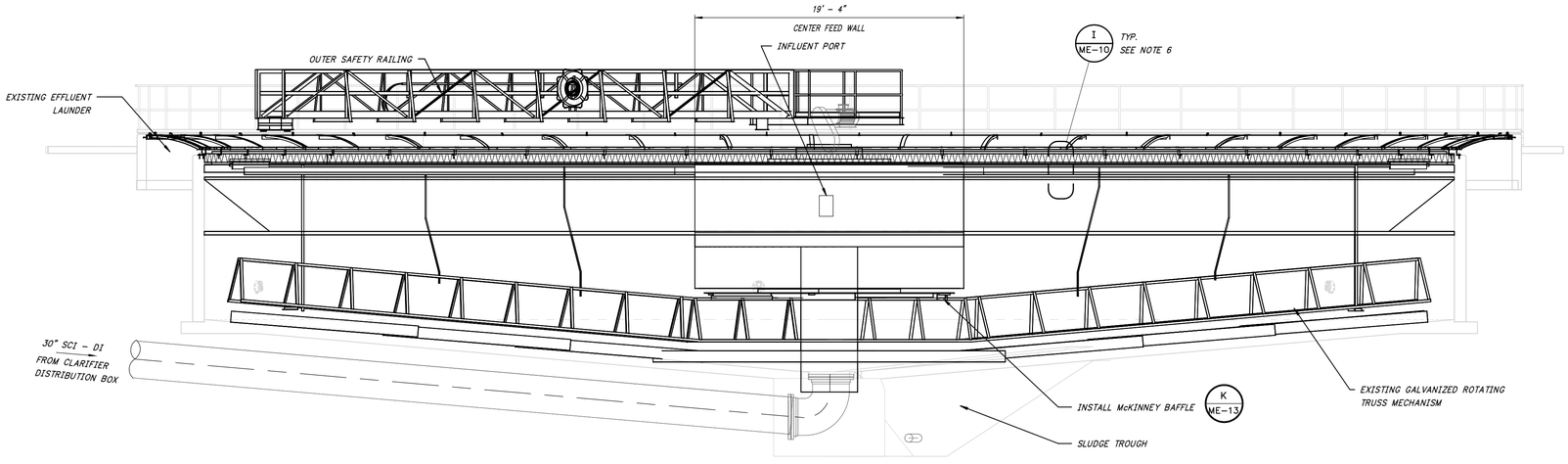
SHEET NO.
ME-4



18" RAS LINE

SECTION 6 / ME-4

3/16" = 1'-0"



30" INFLUENT LINE

SECTION 7 / ME-4

3/16" = 1'-0"

NOTES:

1. ALL HARDWARE SHALL BE TYPE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED. ANTI-SEIZE LUBRICANTS SHALL BE USED WHEN ASSEMBLING STAINLESS STEEL HARDWARE TO PREVENT GALLING.
2. DIMENSIONS AND ELEVATIONS SHOWN ARE BASED ON AVAILABLE RECORD DRAWINGS AND ARE REPRESENTATIVE OF CLARIFIERS. CONTRACTORS SHALL VERIFY ALL DIMENSIONS PRIOR TO BID.
3. CONSTRUCTION SHALL BE SEQUENCED SUCH THAT TWO (2) CLARIFIERS REMAIN IN SERVICE AT ALL TIMES. REFER TO SPECIFICATION SECTION 11225.
4. SLUDGE WITHDRAWAL RING NOT SHOWN.
5. EXTEND CENTER FEEDWELL TO 1'-0" ABOVE MCKINNEY BAFFLE. MCKINNEY BAFFLE SHALL HAVE A DIAMETER 3'-0" LARGER THAN THE DIAMETER OF THE INFLUENT FEEDWELL. MCKINNEY BAFFLE SHALL BE MADE WITH 1/4" STEEL PLATE AND EXTEND TO WITHIN 1" OF THE PIER.
6. INSTALL TYPE 316 STAINLESS STEEL V-NOTCH WEIR AND BAFFLE PLATES WITH STAINLESS STEEL SUPPORT BRACKETS
7. CONNECT EXISTING SPRAY BAR MANIFOLD TO PROPOSED 2" PW - PVC.

KEYED NOTES:

(1) WAS FLOWLINE ELEVATION AND RAS FLOWLINE ELEVATION ARE THE SAME. EXISTING PIPES ARE TRIMMED FLUSH TO MATCH SLOPE OF WALL.

BID DRAWINGS

MARCH 21, 2025

1"

ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

DATE	REVISION

STATE OF ARKANSAS
GEORGE HOLT KELLY
LICENSED PROFESSIONAL ENGINEER
No. 20465
MARGARET E.

HAWKINS WEIR ENGINEERS, INC.

BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

SECONDARY CLARIFIER NO. 2
SECTIONS

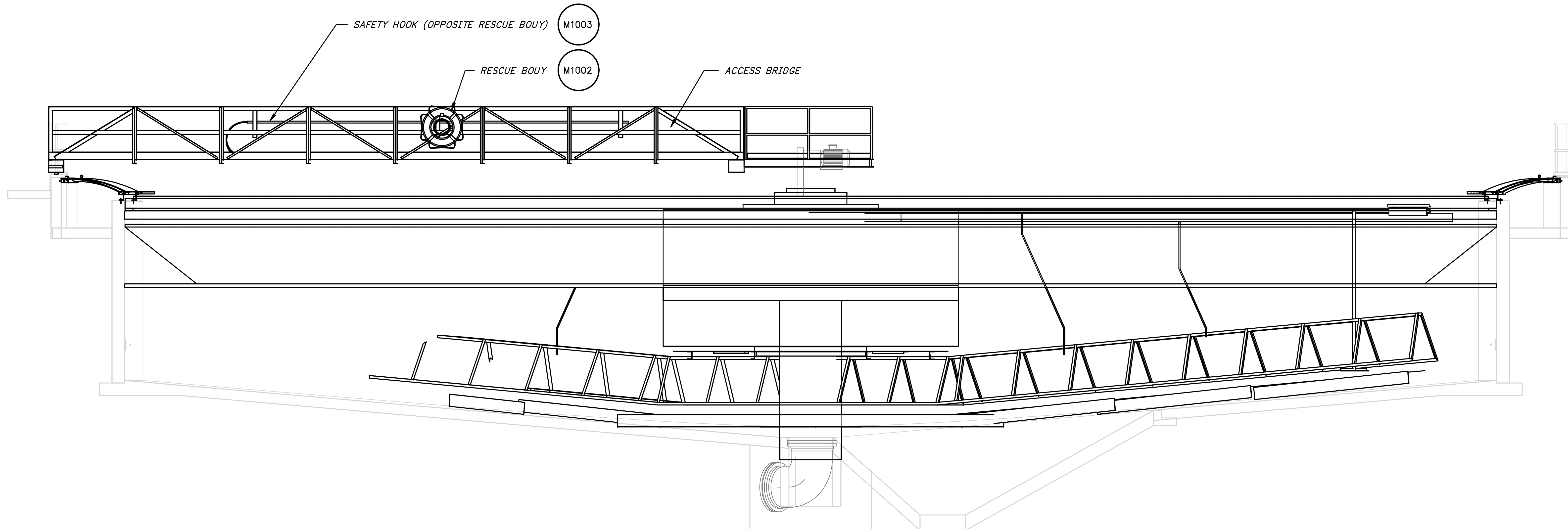
FOR: BENTONVILLE WATER UTILITIES

DATE: MARCH 2025
SCALE: 3/16" = 1'-0"
DESIGNED BY: MEK
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-ME

SHEET NO.
ME-5

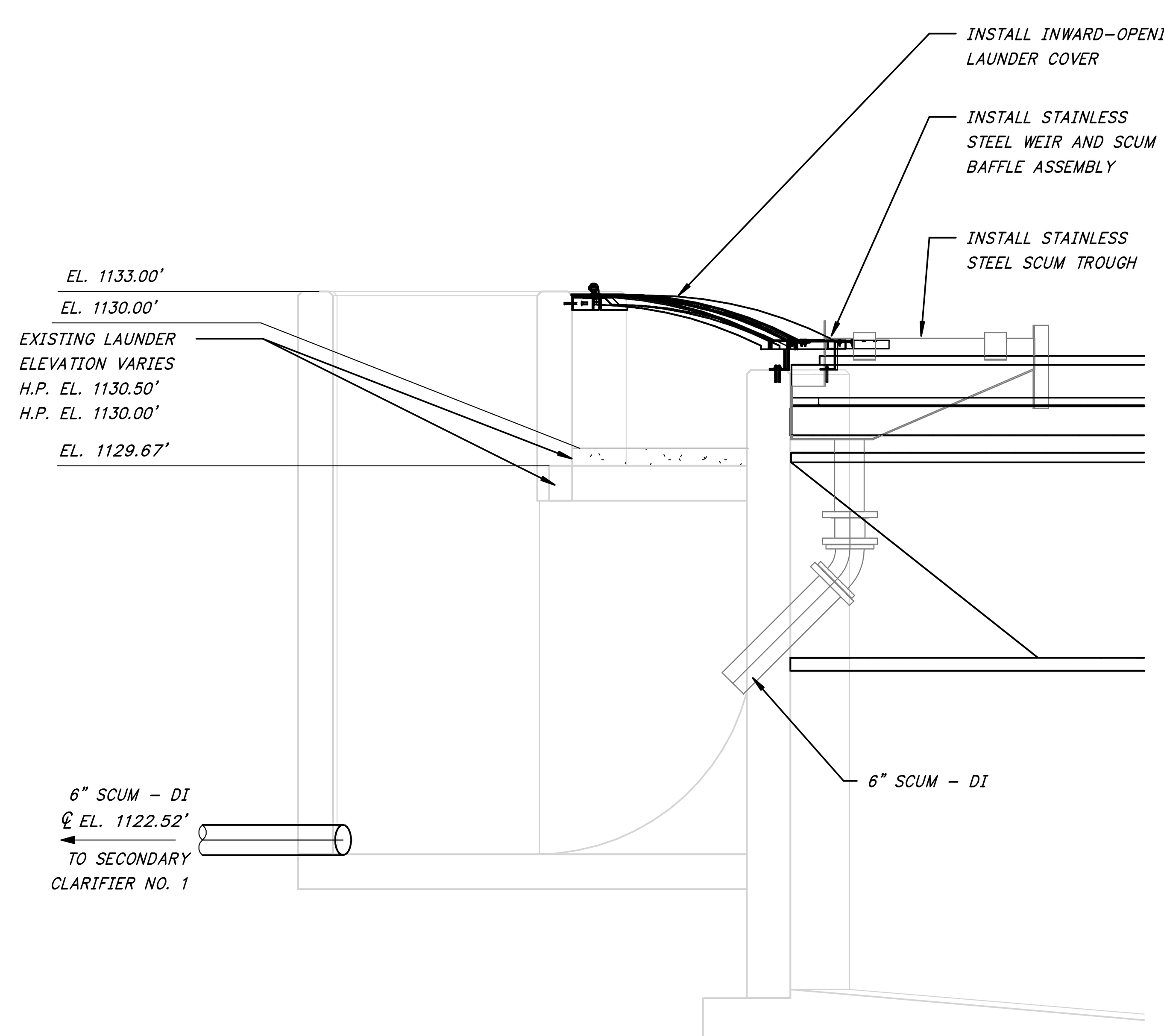
NOTES:

1. ALL HARDWARE SHALL BE TYPE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED. ANTI-SEIZE LUBRICANTS SHALL BE USED WHEN ASSEMBLING STAINLESS STEEL HARDWARE TO PREVENT GALLING.
2. DIMENSIONS AND ELEVATIONS SHOWN ARE BASED ON AVAILABLE RECORD DRAWINGS AND ARE REPRESENTATIVE OF CLARIFIERS. CONTRACTORS SHALL VERIFY ALL DIMENSIONS PRIOR TO BID.
3. CONSTRUCTION SHALL BE SEQUENCED SUCH THAT TWO (2) CLARIFIERS REMAIN IN SERVICE AT ALL TIMES. REFER TO SPECIFICATION SECTION 11225.
4. SLUDGE WITHDRAWAL RING NOT SHOWN.
5. SOME STRUCTURES HIDDEN FOR CLARITY
6. NEW SECONDARY CLARIFIER COMPONENTS SHALL BE HOT-DIP GALVINIZED.



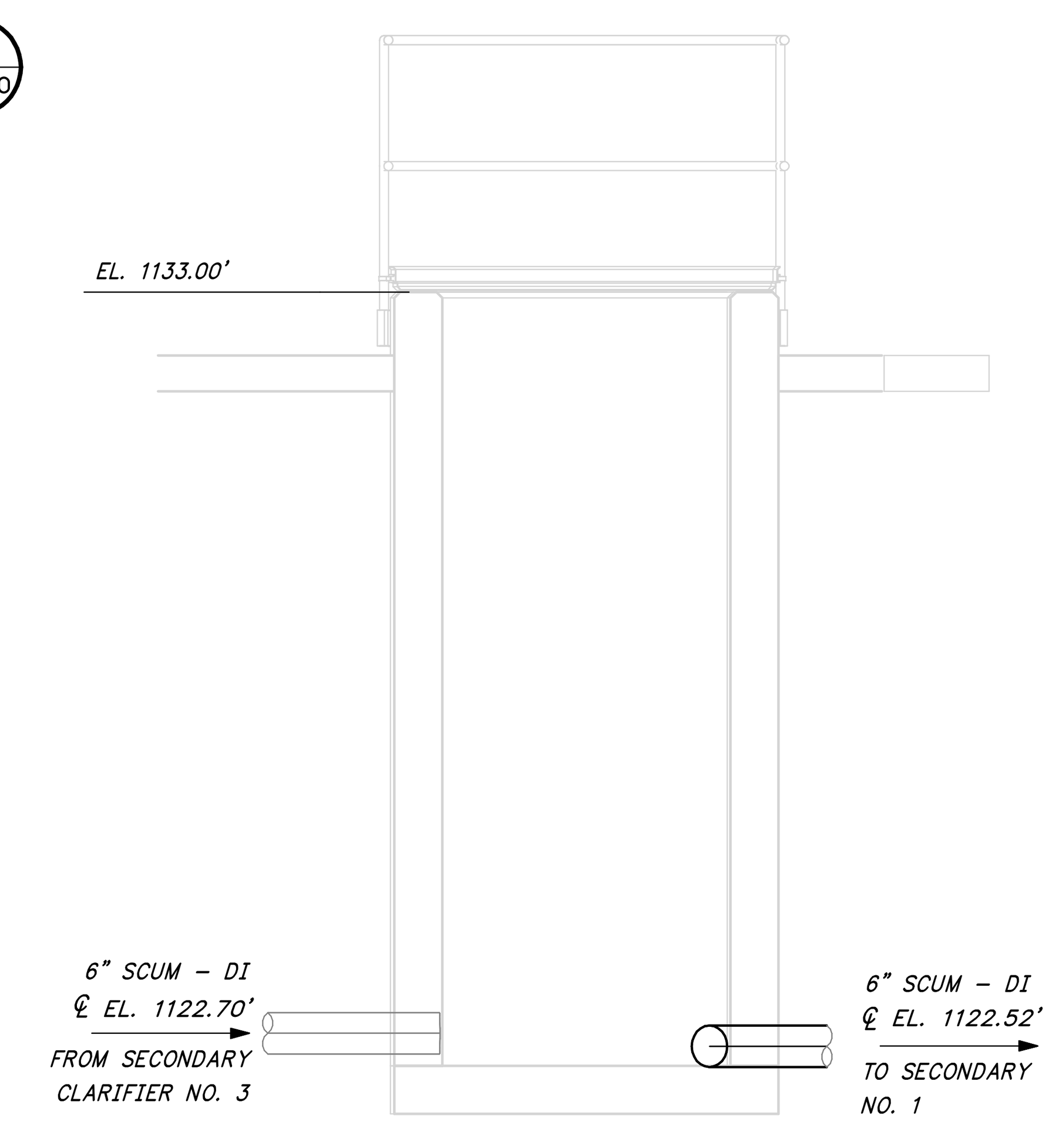
CLARIFIER BRIDGE

SECTION 8 ME-4
3/16" = 1'-0"



SCUM BOX

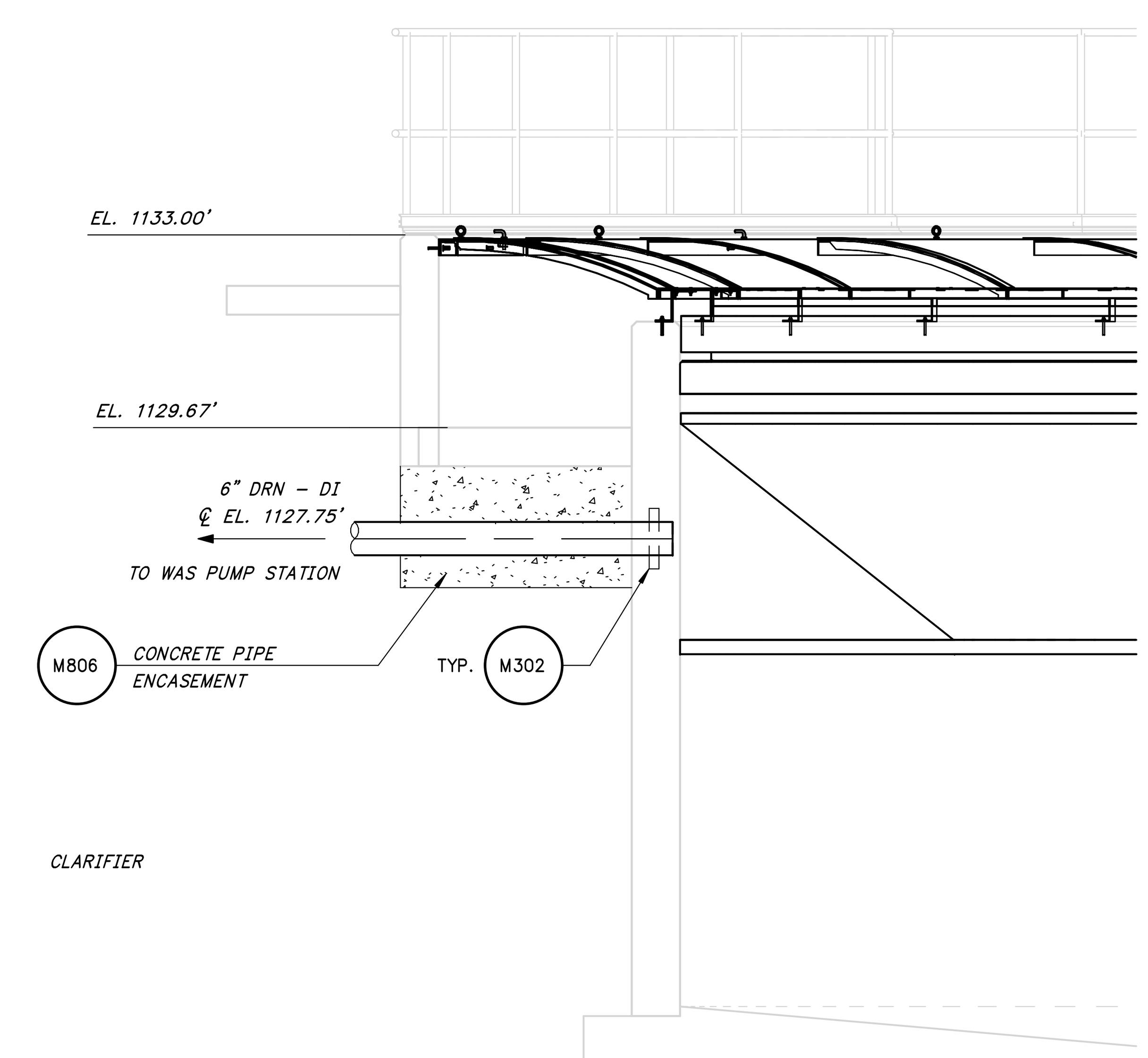
SECTION 9 ME-4
3/8" = 1'-0"



CLARIFIER

SCUM BOX

SECTION 10 ME-4
3/8" = 1'-0"



6" DRAIN LINE FOR FLUSHING WAS PUMPS

SECTION 11 ME-4
3/8" = 1'-0"

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

DATE
REVISION

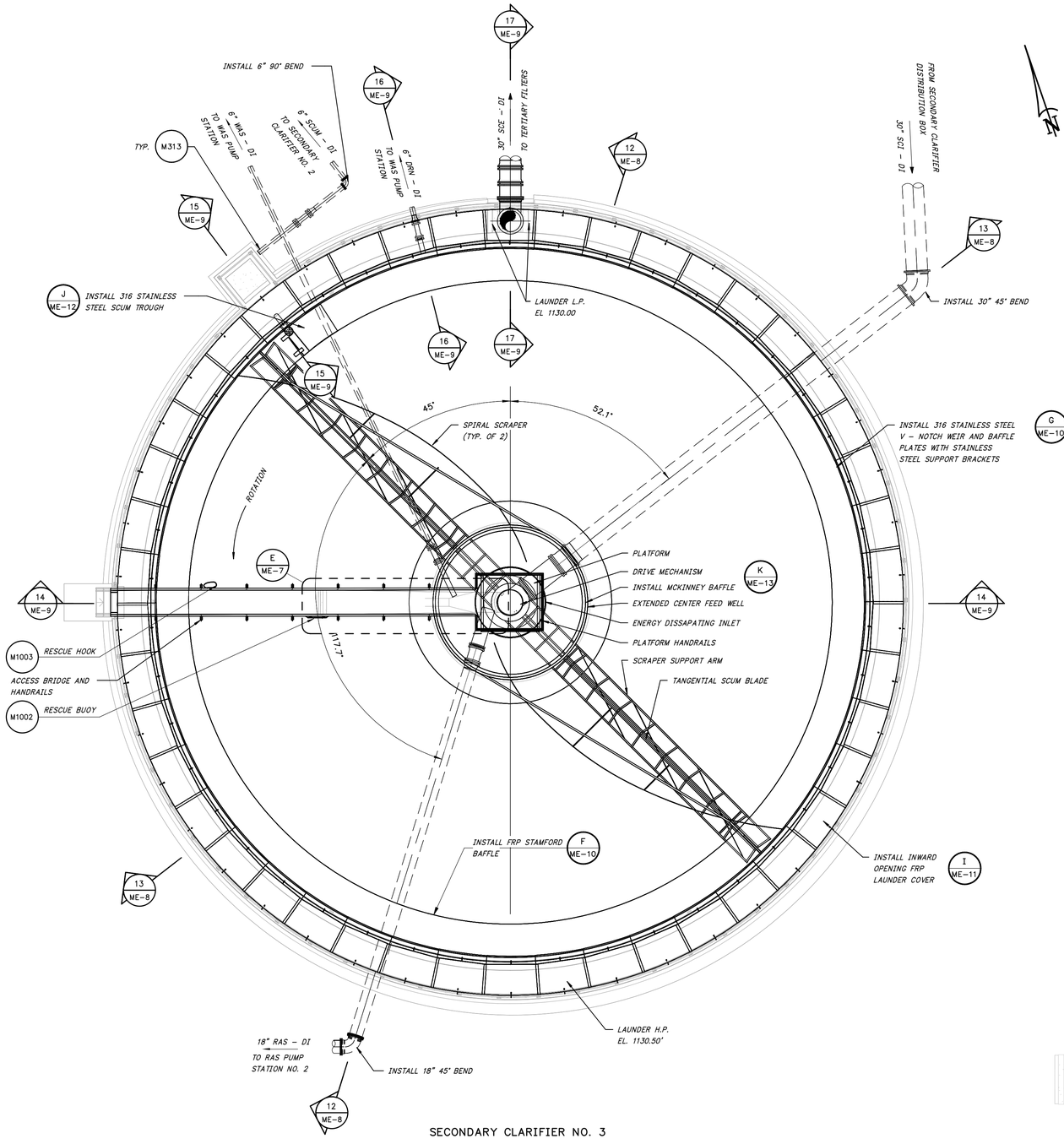
STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 20465 MARGARET E. WELCH

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS
SECONDARY CLARIFIER NO. 2
SECTIONS
FOR: BENTONVILLE WATER UTILITIES

DATE:	MARCH 2025
SCALE:	As indicated
DESIGNED BY:	MEK
DRAWN BY:	DKS
HWEI NO.:	2021037
FILENAME:	WWRF21037-ME

SHEET NO.
ME-6



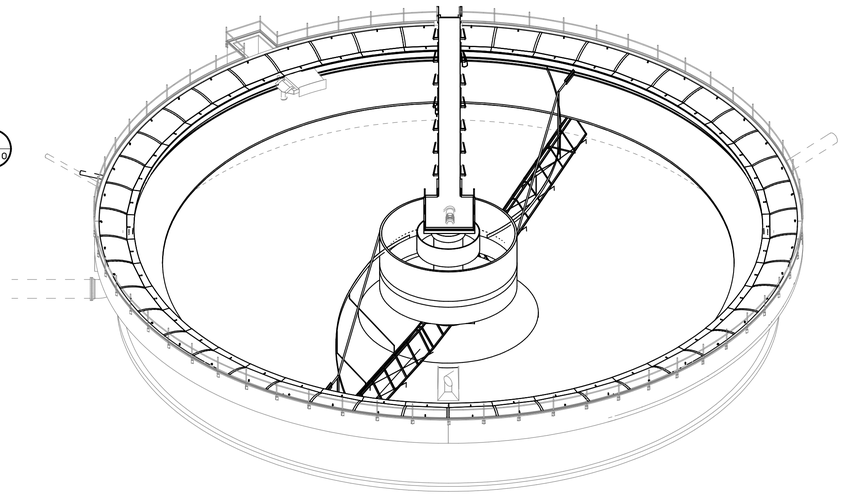
SECONDARY CLARIFIER NO. 3

DETAIL D

1/8" = 1'-0"

NOTES:

1. ALL HARDWARE SHALL BE TYPE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED. ANTI-SEIZE LUBRICANTS SHALL BE USED WHEN ASSEMBLING STAINLESS STEEL HARDWARE TO PREVENT GALLING.
2. CONSTRUCTION SHALL BE SEQUENCED SUCH THAT TWO (2) CLARIFIERS REMAIN IN SERVICE AT ALL TIMES. REFER TO SPECIFICATION SECTION 11225.
3. SLUDGE WITHDRAWAL RING NOT SHOWN.
4. SECONDARY CLARIFIER MECHANISM AND ACCESS BRIDGE SHALL BE HOT DIP GALVANIZED.

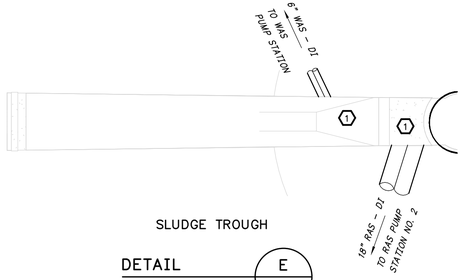


ISOMETRIC/3D

N.T.S.

KEYED NOTES:

1. PIPES SHALL BE TRIMMED FLUSH TO MATCH SLOPE OF WALL



SLUDGE TROUGH

DETAIL E

1/4" = 1'-0"

BID DRAWINGS

MARCH 21, 2025

1"

ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS MARGARET E. KELLY LICENSED PROFESSIONAL ENGINEER No. 20465

HAWKINS WEIR ENGINEERS, INC.

BLACK & VEATCH

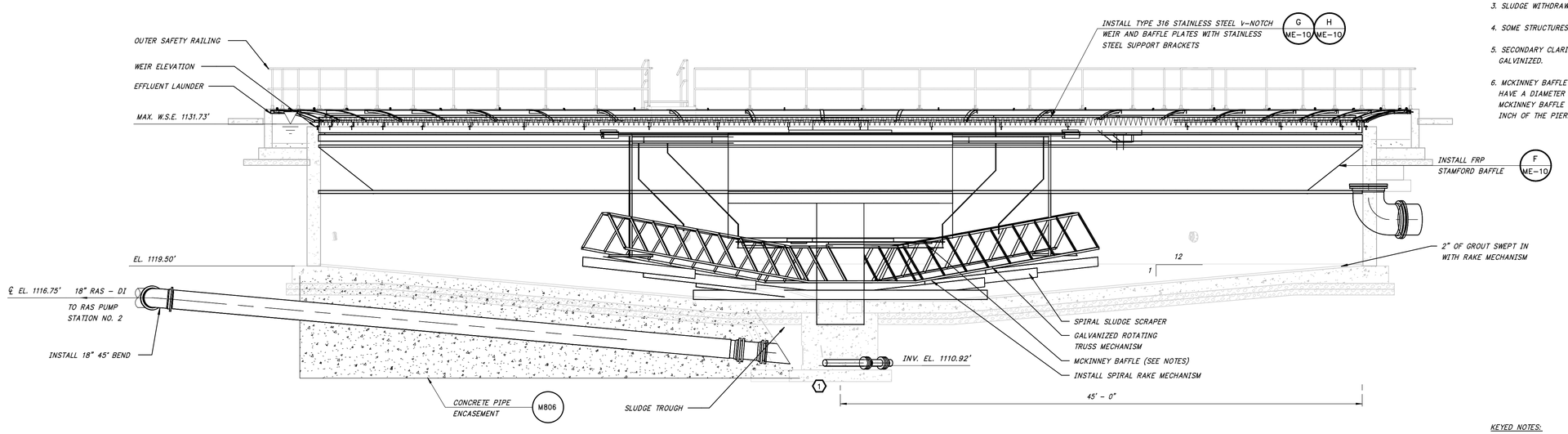
CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

SECONDARY CLARIFIER NO. 3
DETAILS

FOR: BENTONVILLE WATER UTILITIES

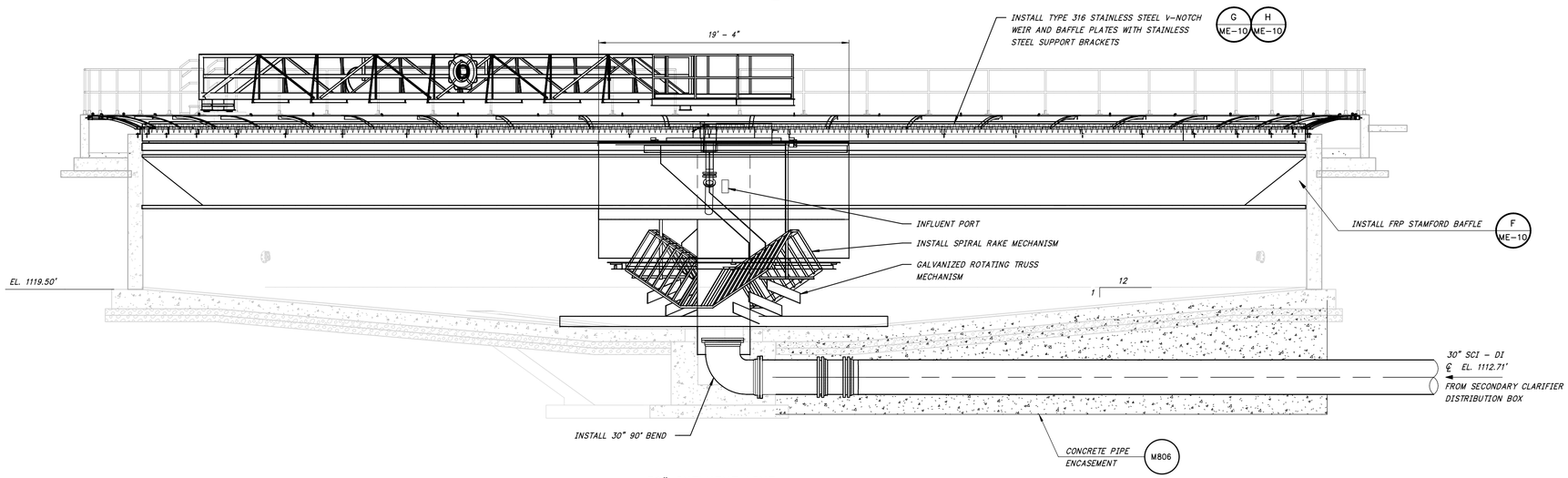
DATE: MARCH 2025
SCALE: As indicated
DESIGNED BY: MEK
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-ME

SHEET NO.
ME-7



18" RAS LINE

SECTION 12
3/16" = 1'-0"
ME-7



30" INFLUENT LINE

SECTION 13
3/16" = 1'-0"
ME-7

NOTES:

1. ALL HARDWARE SHALL BE TYPE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED. ANTI-SEIZE LUBRICANTS SHALL BE USED WHEN ASSEMBLING STAINLESS STEEL HARDWARE TO PREVENT GALLING.
2. CONSTRUCTION SHALL BE SEQUENCED SUCH THAT TWO (2) CLARIFIERS REMAIN IN SERVICE AT ALL TIMES. REFER TO SPECIFICATION SECTION 11225.
3. SLUDGE WITHDRAWAL RING NOT SHOWN.
4. SOME STRUCTURES HIDDEN FOR CLARITY.
5. SECONDARY CLARIFIER MECHANISM AND ACCESS BRIDGE SHALL BE HOT DIP GALVINIZED.
6. MCKINNEY BAFFLE SHALL BE LOCATED 1'-0" BELOW CENTER OF FEEDWELL AND SHALL HAVE A DIAMETER 3'-0" LARGER THAN THE DIAMETER OF THE INFLUENT FEEDWELL. MCKINNEY BAFFLE SHALL BE MADE WITH 1/4" STEEL PLATE AND EXTEND TO WITHIN 1 INCH OF THE PIER.

KEYED NOTES:

1 WAS FLOWLINE ELEVATION AND RAS FLOW LINE ELEVATION ARE THE SAME. PIPES SHALL BE TRIMMED FLUSH TO MATCH SLOPE OF WALL.

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS — LICENSED PROFESSIONAL ENGINEER — No. 20465 — MARGARET E. HOLT — See Digital Signature

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

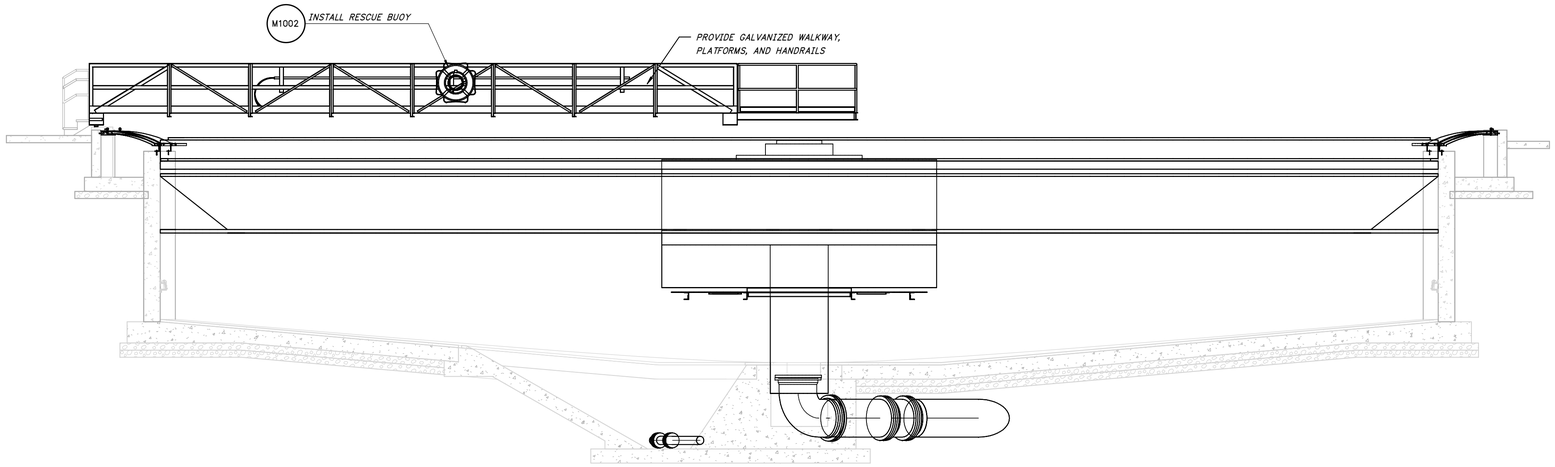
CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

SECONDARY CLARIFIER NO. 3
SECTIONS

FOR: BENTONVILLE WATER UTILITIES

DATE: MARCH 2025
SCALE: 3/16" = 1'-0"
DESIGNED BY: MEK
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-ME

SHEET NO.
ME-8



CLARIFIER BRIDGE

SECTION 14 / ME-7

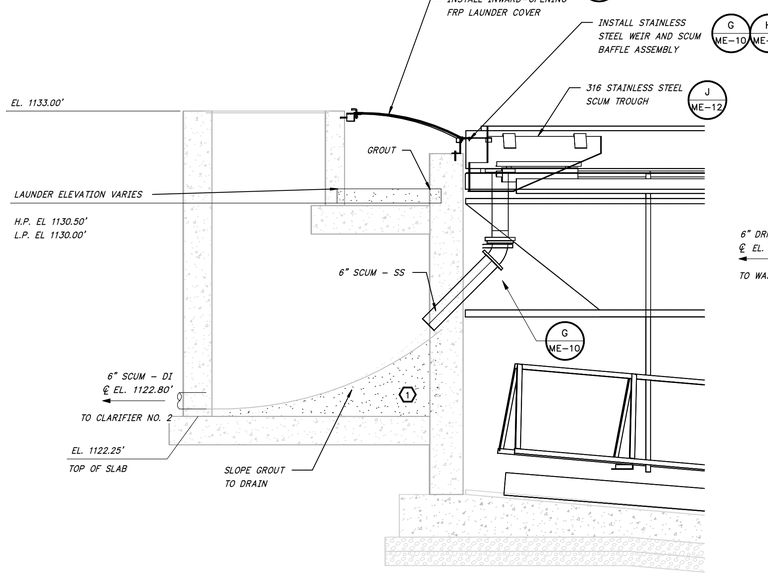
3/16" = 1'-0"

NOTES:

1. ALL HARDWARE SHALL BE TYPE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED. ANTI-SEIZE LUBRICANTS SHALL BE USED WHEN ASSEMBLING STAINLESS STEEL HARDWARE TO PREVENT GALLING.
2. CONSTRUCTION SHALL BE SEQUENCED SUCH THAT TWO (2) CLARIFIERS REMAIN IN SERVICE AT ALL TIMES. REFER TO SPECIFICATION SECTION 11225.
3. SLUDGE WITHDRAWAL RING NOT SHOWN.
4. SOME STRUCTURES HIDDEN FOR CLARITY
5. SECONDARY CLARIFIER MECHANISM AND ACCESS BRIDGE SHALL BE HOT DIP GALVANIZED.
6. THE 2" SCH. 80 PVC SPRAY BAR MANIFOLD SHALL BE SECURED TO THE ACCESS BRIDGE AT EACH BRIDGE HANDRAIL SUPPORT WITH STAINLESS STEEL BRACKETS AND CONNECTED TO THE 2" PW – PVC. EACH SPRAY NOZZLE LOCATION SHALL HAVE A 2" x 3/4" PVC TEE, 3/4" PVC BALL VALVE, AND A SPRAY NOZZLE. ONE (1) NOZZLE SHALL BE LOCATED IN TEH INNER FEED WELL, FOUR (4) NOZZLES SHALL BE LOCATED IN THE OUTER FEED WELL, AND ONE (1) NOZZLE SHALL BE LOCATED CENTERED ON THE BRIDGE TO MATCH THE TWO (2) EXISTING SYSTEMS.

KEYED NOTES:

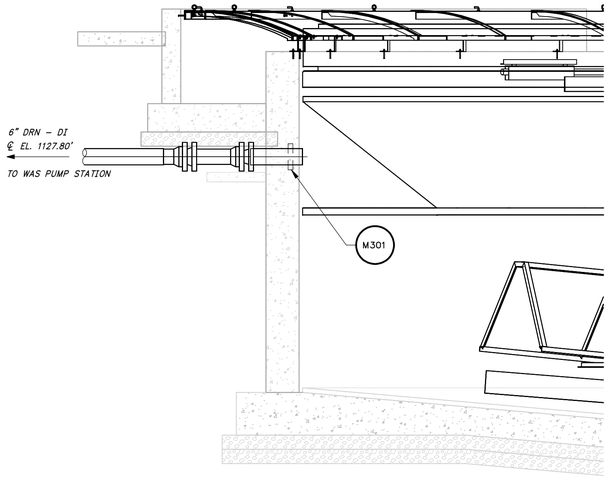
(1) INSTALL GROUT AND SLOPE FROM 6" SCUM DRAIN LINE TO BOX OUTLET.



SCUM BOX

SECTION 15 / ME-7

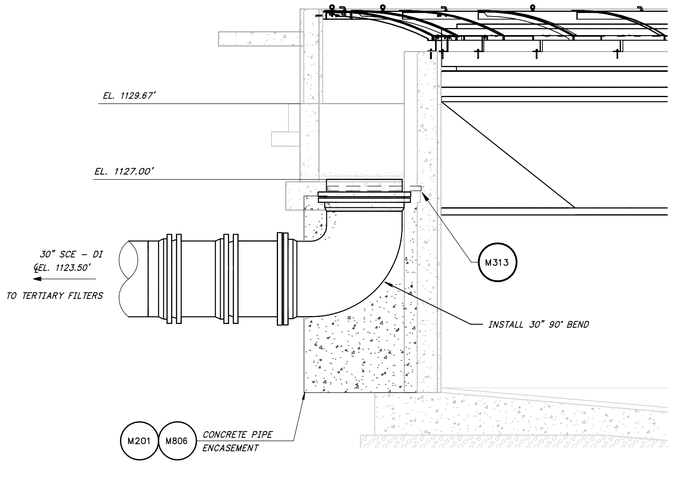
3/8" = 1'-0"



6" DRAIN LINE FOR FLUSHING WAS PUMPS

SECTION 16 / ME-7

3/8" = 1'-0"



30" EFFLUENT LINE

SECTION 17 / ME-7

3/8" = 1'-0"

BID DRAWINGS

MARCH 21, 2025

1"

ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

DATE	REVISION

STATE OF ARKANSAS — MARGARET E. KELLY — LICENSED PROFESSIONAL ENGINEER — No. 20465 — See Digital Signature

HAWKINS WEIR ENGINEERS, INC.

BLACK & VEATCH

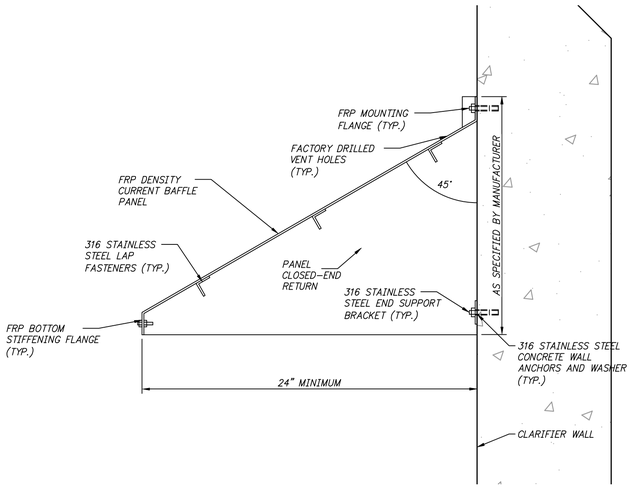
CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

SECONDARY CLARIFIER NO 3, DETAIL AND SECTIONS

FOR: BENTONVILLE WATER UTILITIES

DATE: MARCH 2025
SCALE: As indicated
DESIGNED BY: MEK
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-ME

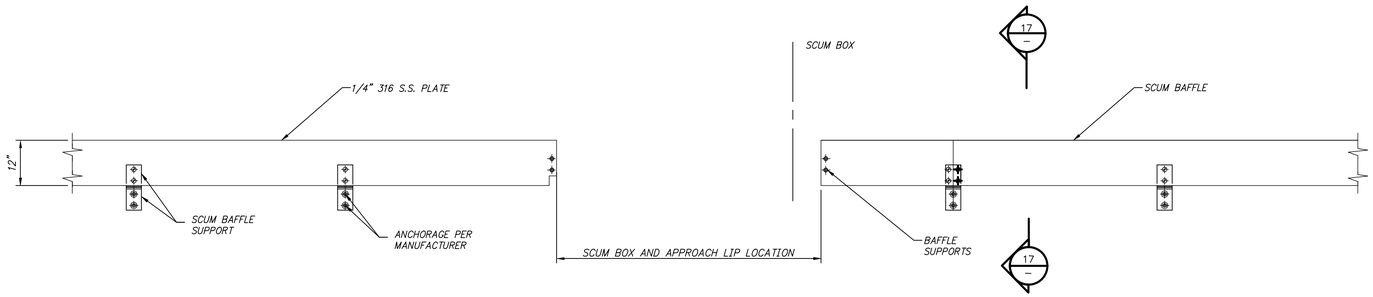
SHEET NO.
ME-9



STAMFORD BAFFLE DETAIL

DETAIL F / –

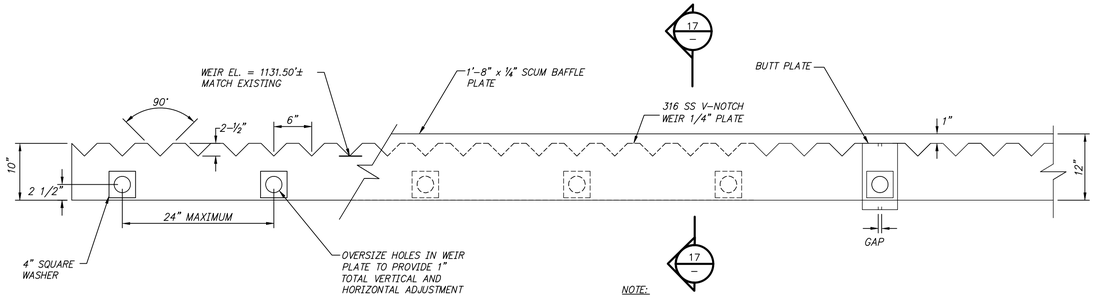
N.T.S



SCUM BAFFLE ASSEMBLY DETAIL

DETAIL G / –

N.T.S



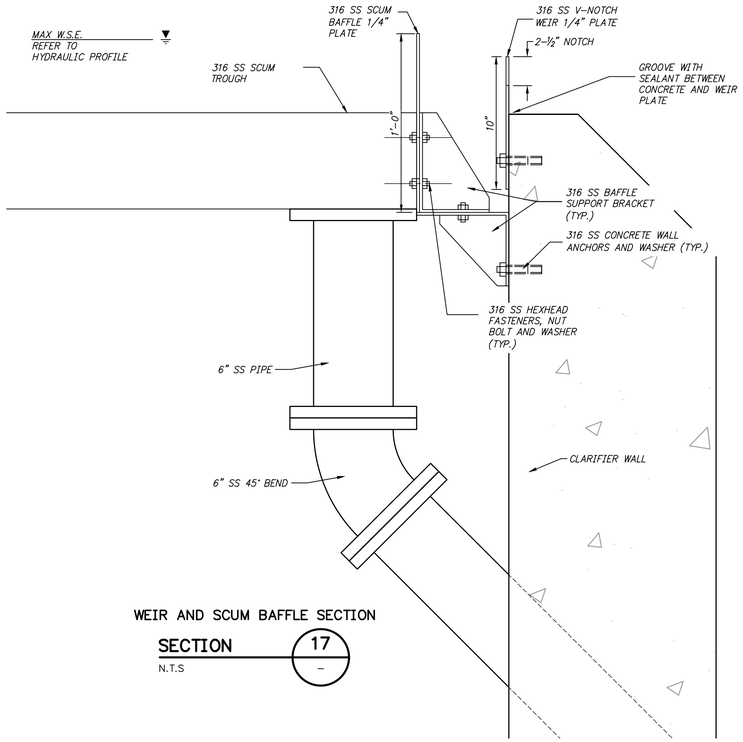
NOTE:

SCUM BAFFLE PLATE, WEIR PLATE, AND ALL HARDWARE TO BE 316 STAINLESS STEEL.

WEIR AND SCUM BAFFLE DETAIL

DETAIL H / –

N.T.S



WEIR AND SCUM BAFFLE SECTION

SECTION 17 / –

N.T.S

NOTES:

1. ALL DIMENSIONS AND ANCHORING SHALL BE VERIFIED WITH CLARIFIER MANUFACTURER AND SUBMITTED THROUGH SHOP DRAWINGS FOR ENGINEER'S APPROVAL.

BID DRAWINGS

MARCH 21, 2025

1"

ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER MARGARET E. KEITH No. 20465

HAWKINS WEIR ENGINEERS, INC.

BLACK & VEATCH

BENTONVILLE, ARKANSAS

BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

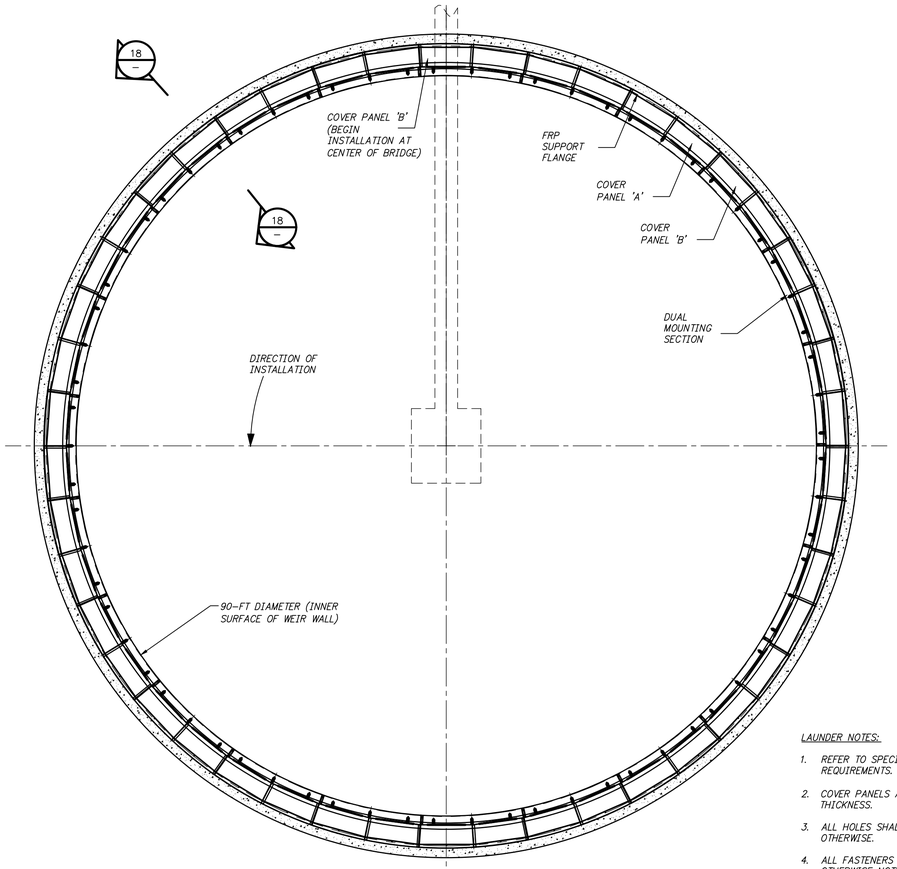
SECONDARY CLARIFIER DETAILS I

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: MEK
DRAWN BY: MAW
HWEI NO.: 2021037
FILENAME: ME-10

SHEET NO. ME-10

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\ME-10.DWG, 3/19/2025 9:28 AM, MATT WEIR, LAYOUT1



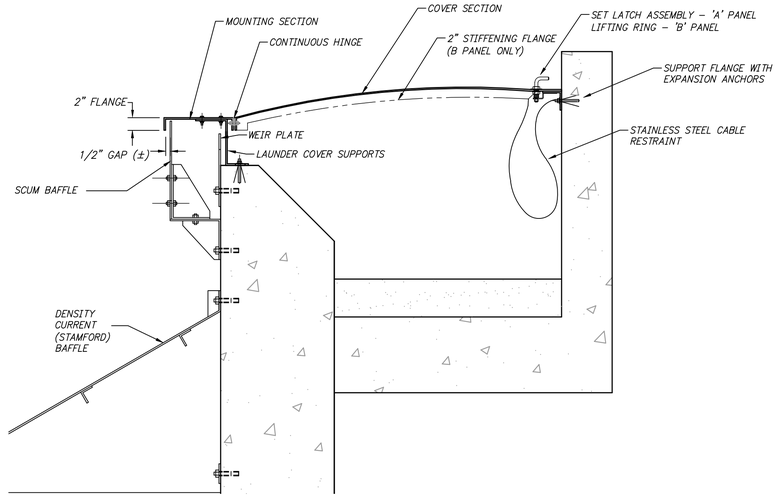
EFFLUENT WEIR WALL MOUNT LAUNDER COVERS

DETAIL I

N.T.S –

LAUNDER NOTES:

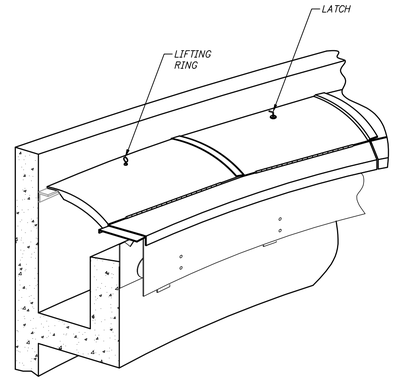
1. *REFER TO SPECIFICATION SECTION 11226 FOR LAUNDER COVER REQUIREMENTS.*
2. *COVER PANELS ARE CHOPPED STRAND FRP WITH 1/4" MINIMUM THICKNESS.*
3. *ALL HOLES SHALL BE FACTORY DRILLED UNLESS NOTED OTHERWISE.*
4. *ALL FASTENERS AND HARDWARE ARE 304 SS UNLESS OTHERWISE NOTED*
5. *FIELD CUT PANELS AS REQUIRED PER MANUFACTURERS INSTRUCTIONS.*



LAUNDER COVER

SECTION 18

N.T.S –



LAUNDER COVER

ISOMETRIC –

N.T.S –

NOTES:

1. *ALL DIMENSIONS AND ANCHORING SHALL BE VERIFIED WITH CLARIFIER MANUFACTURER AND SUBMITTED THROUGH SHOP DRAWINGS FOR ENGINEER'S APPROVAL.*

BID DRAWINGS

MARCH 21, 2025

1"

ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER MARGARET E. KELCH No. 20465

HAWKINS WEIR ENGINEERS, INC.

BLACK & VEATCH

BENTONVILLE, ARKANSAS

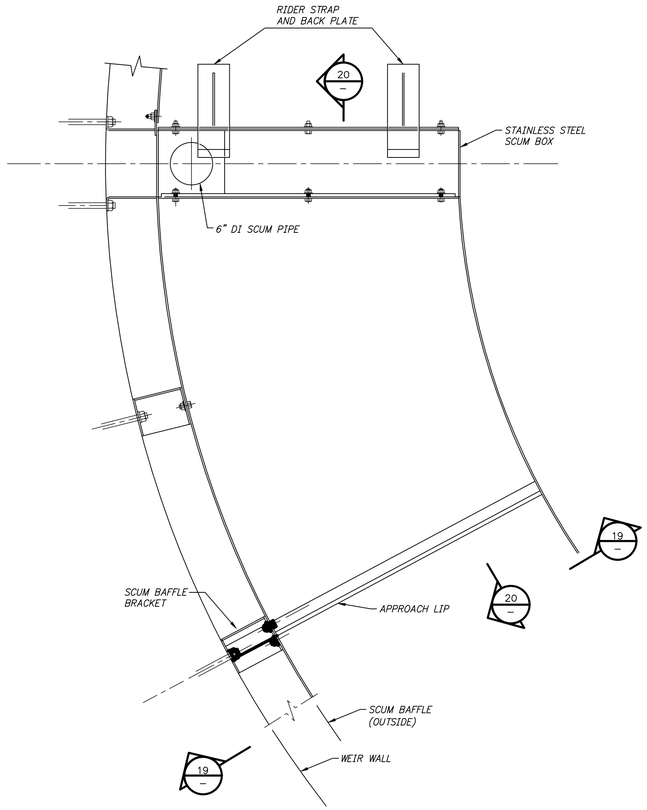
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

SECONDARY CLARIFIER DETAILS II

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: MEK
DRAWN BY: MAW
HWEI NO.: 2021037
FILENAME: ME-11

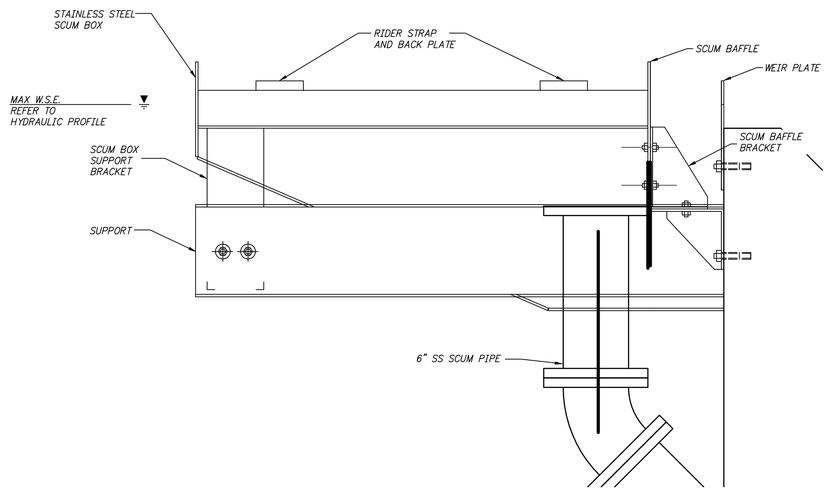
SHEET NO. ME-11



SCUM BOX DETAIL

DETAIL J

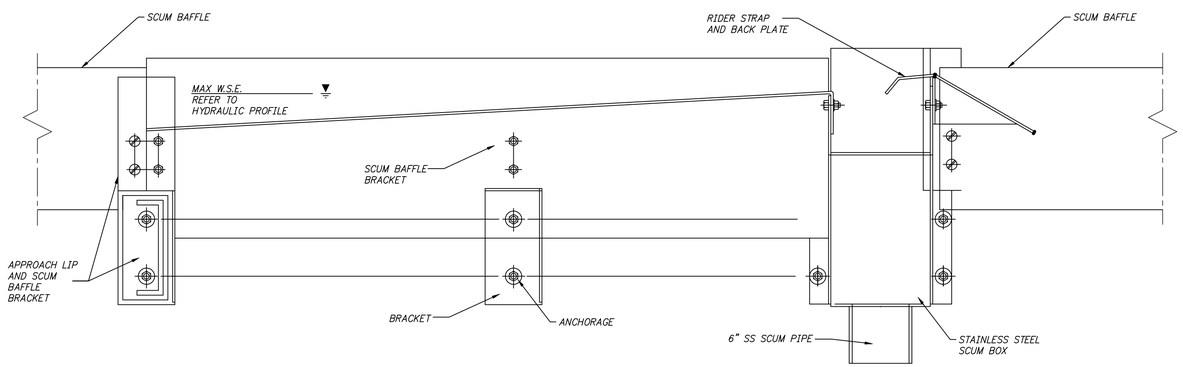
N.T.S



SCUM BOX SECTION

SECTION 19

N.T.S



SCUM BOX SECTION

SECTION 20

N.T.S

ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS
LICENSED
PROFESSIONAL
ENGINEER
No. 20495
MARGARET E. KELCH

HAWKINS WEIR ENGINEERS, INC.

BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY
FACILITY IMPROVEMENTS

SECONDARY CLARIFIER
DETAILS III

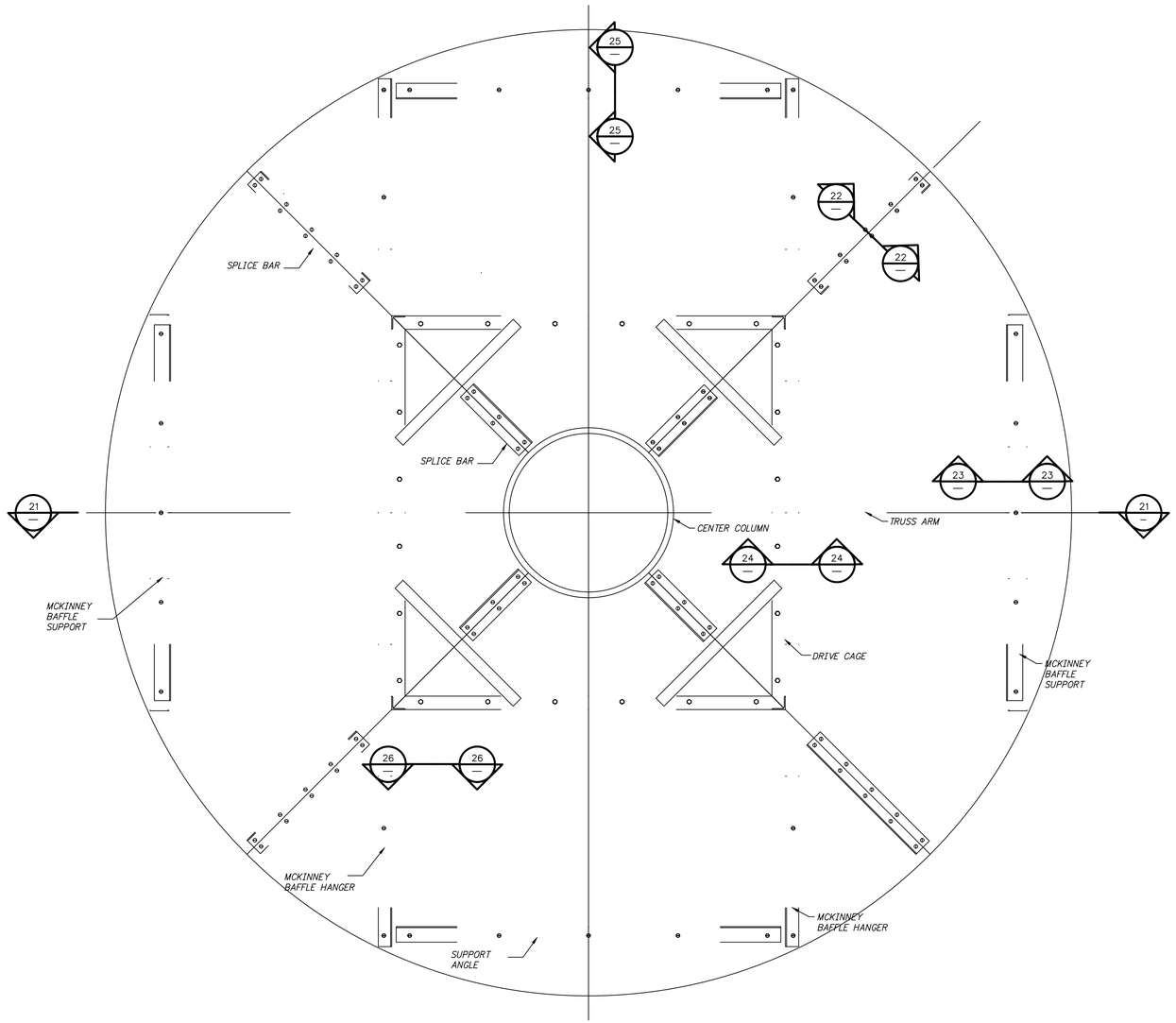
FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: MEK
DRAWN BY: MAW
HWEI NO.: 2021037
FILENAME: ME-12

SHEET NO.
ME-12

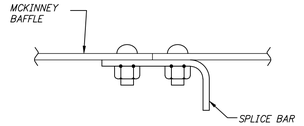
BID DRAWINGS
MARCH 21, 2025

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\ME-12.DWG, 3/19/2025 9:29 AM, MATT WEIR, LAYOUT1

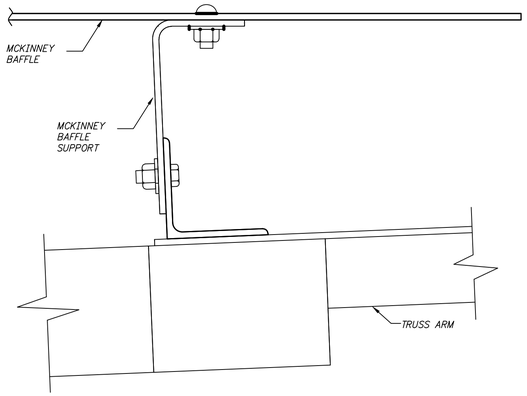


MCKINNEY BAFFLE DETAIL

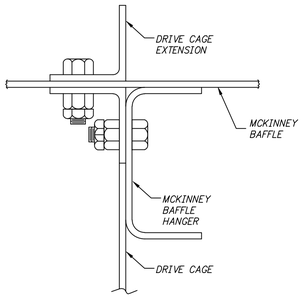
DETAIL K
N.T.S



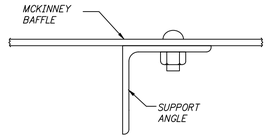
SECTION 22
N.T.S



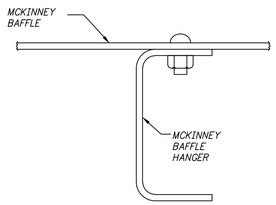
SECTION 23
N.T.S



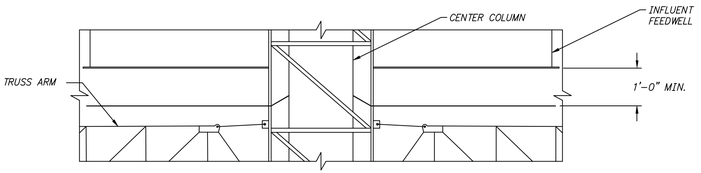
SECTION 24
N.T.S



SECTION 25
N.T.S



SECTION 26
N.T.S



MCKINNEY BAFFLE SECTION

SECTION 21
N.T.S

NOTES:

1. ALL DIMENSIONS AND ANCHORING SHALL BE VERIFIED WITH CLARIFIER MANUFACTURER AND SUBMITTED THROUGH SHOP DRAWINGS FOR ENGINEER'S APPROVAL.
2. MCKINNEY BAFFLE SHALL BE LOCATED 1'-0" BELOW THE BOTTOM OF THE FEEDWELL AND SHALL HAVE A DIAMETER 3'-0" LARGER THAN THE DIAMETER OF THE INFLUENT FEEDWELL. MCKINNEY BAFFLE SHALL BE MADE WITH 1/4" STEEL PLATE AND EXTEND TO WITHIN ONE (1) INCH OF THE PIER.
3. ALL COMPONENTS SHALL BE HOT-DIPPED GALVANIZED TO MATCH CLARIFIER MECHANISM.

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 20965 MARGARET E. KEITH

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

SECONDARY CLARIFIER DETAILS 1V

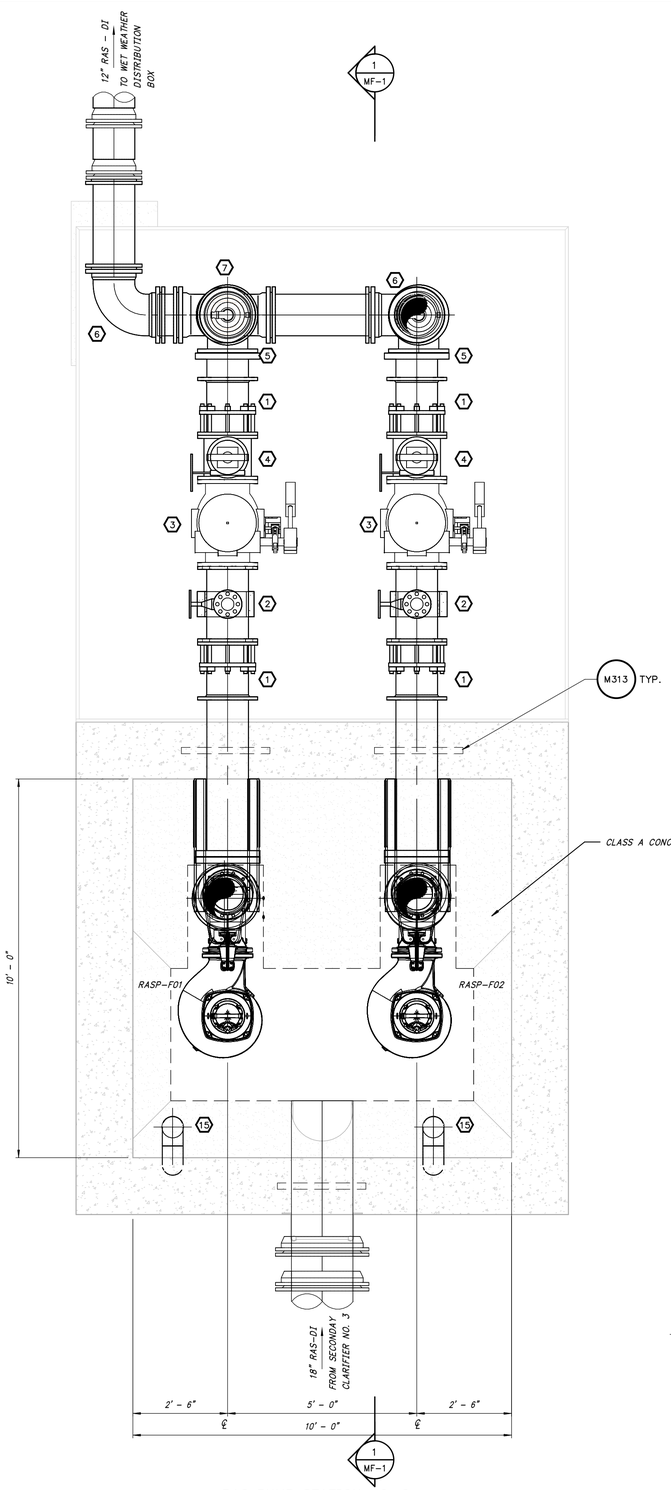
FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: MEK
DRAWN BY: MAW
HWEI NO.: 2021037
FILENAME: ME-13

SHEET NO.
ME-13

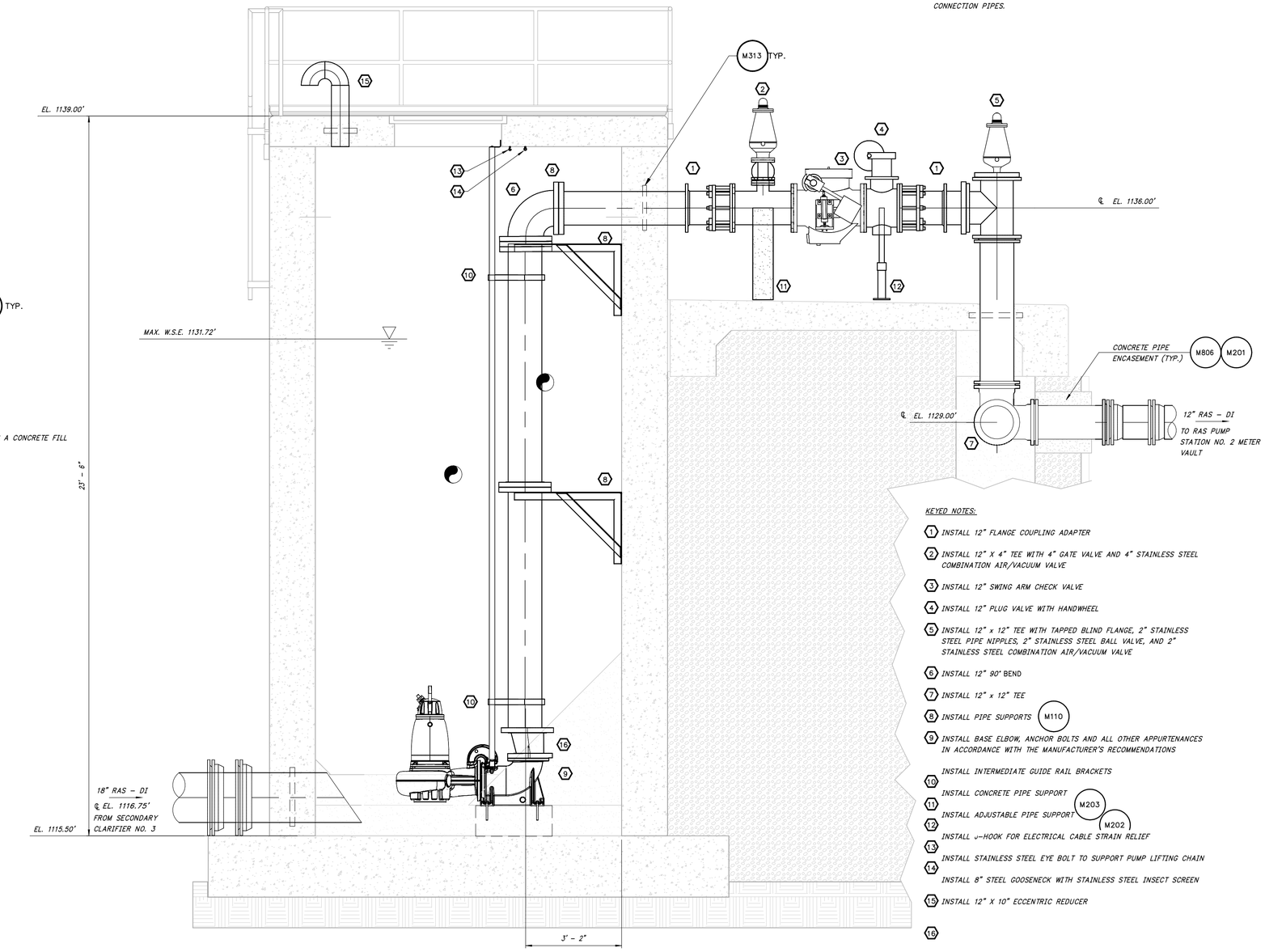
BID DRAWINGS
MARCH 21, 2025

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\ME-13.DWG, 3/19/2025 9:29 AM, MATT WEIR, LAYOUT1



RAS PUMP STATION NO. 2

DETAIL A — 1/2" = 1'-0"



RAS PUMP STATION NO. 2

SECTION 1 — 1/2" = 1'-0" (MF-1)

NOTES:

1. ALL HARDWARE SHALL BE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED. ANTISEIZE LUBRICANTS SHALL BE USED WHEN ASSEMBLING STAINLESS STEEL HARDWARE.
2. PAINT ALL EXPOSED PIPING IN ACCORDANCE WITH SPECIFICATION SECTION 09902.
3. THE SIZE OF THE ALUMINUM ACCESS DOORS ON THE WET WELL SHALL BE DETERMINED BY THE PUMP MANUFACTURERFOR COMPATABILITY WITH THE SPECIFIC PUMP. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO SUBMIT SHOP DRAWINGS AND COORDINATE INSTALLATION WITH THE PUMP MANUFACTURER.
4. ALL HATCHES SHALL INCLUDE PROTECTIVE GRATING.
5. THE WET WELL SHALL BE CONSIDERED A SEVERE SERVICE ENVIROMENT FOR COATING SYSTEMS.
6. SEE SITE PIPING PLAN AND PROFILES IN CIVIL SHEETS FOR CONTINUATION OF CONNECTION PIPES.

KEYED NOTES:

1. INSTALL 12" FLANGE COUPLING ADAPTER
2. INSTALL 12" X 4" TEE WITH 4" GATE VALVE AND 4" STAINLESS STEEL COMBINATION AIR/VACUUM VALVE
3. INSTALL 12" SWING ARM CHECK VALVE
4. INSTALL 12" PLUG VALVE WITH HANDWHEEL
5. INSTALL 12" x 12" TEE WITH TAPPED BLIND FLANGE, 2" STAINLESS STEEL PIPE NIPPLES, 2" STAINLESS STEEL BALL VALVE, AND 2" STAINLESS STEEL COMBINATION AIR/VACUUM VALVE
6. INSTALL 12" 90° BEND
7. INSTALL 12" x 12" TEE
8. INSTALL PIPE SUPPORTS M110
9. INSTALL BASE ELBOW, ANCHOR BOLTS AND ALL OTHER APPURTENANCES IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS
10. INSTALL INTERMEDIATE GUIDE RAIL BRACKETS
11. INSTALL CONCRETE PIPE SUPPORT
12. INSTALL ADJUSTABLE PIPE SUPPORT M203 M202
13. INSTALL J-HOOK FOR ELECTRICAL CABLE STRAIN RELIEF
14. INSTALL STAINLESS STEEL EYE BOLT TO SUPPORT PUMP LIFTING CHAIN
15. INSTALL 8" STEEL GOOSENECK WITH STAINLESS STEEL INSECT SCREEN
16. INSTALL 12" X 10" ECCENTRIC REDUCER

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS — MARGARET E. HOLT — LICENSED PROFESSIONAL ENGINEER — No. 20465 — Scheduled to Expire 6/30/2026

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

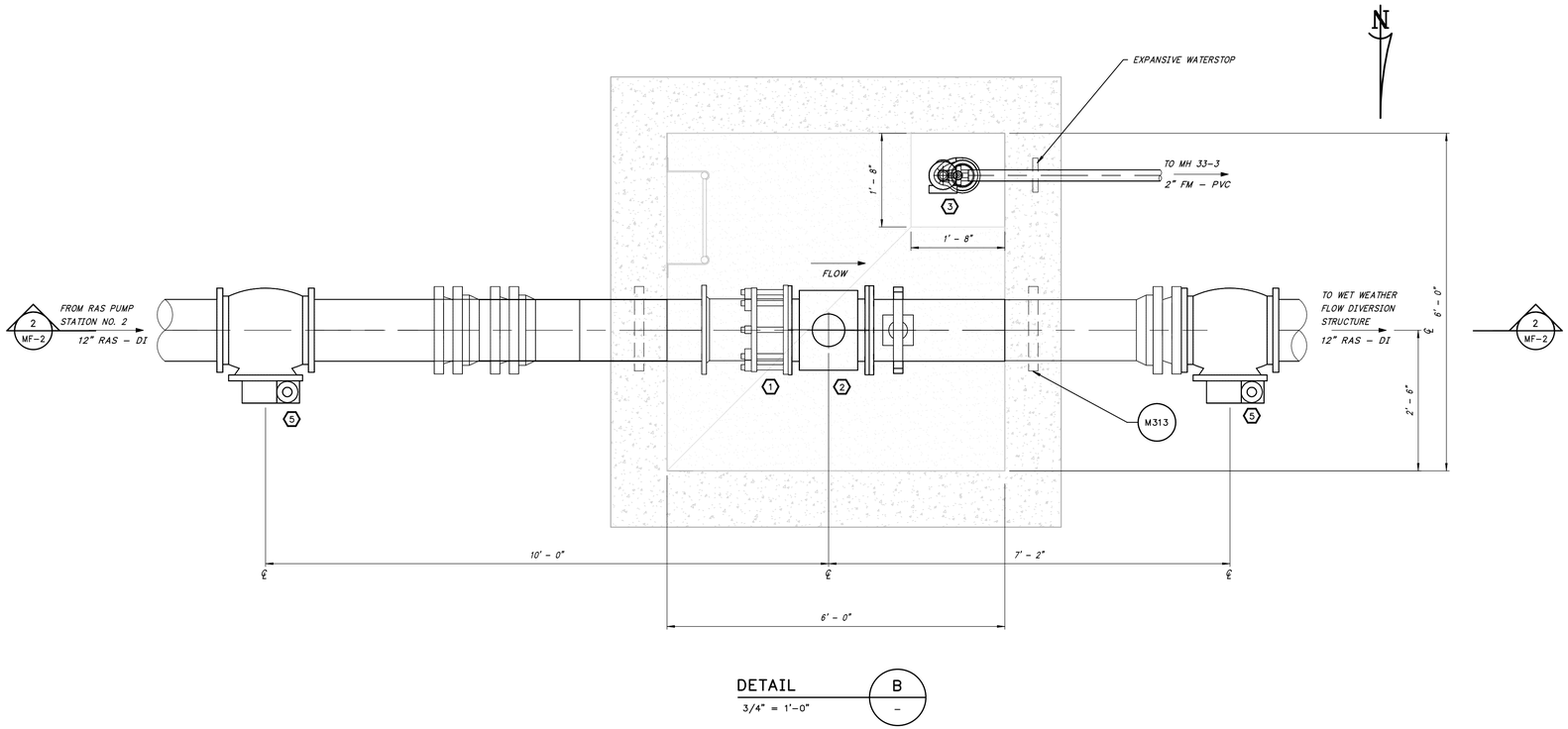
CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

RAS PUMP STATION NO. 2
DETAIL AND SECTION

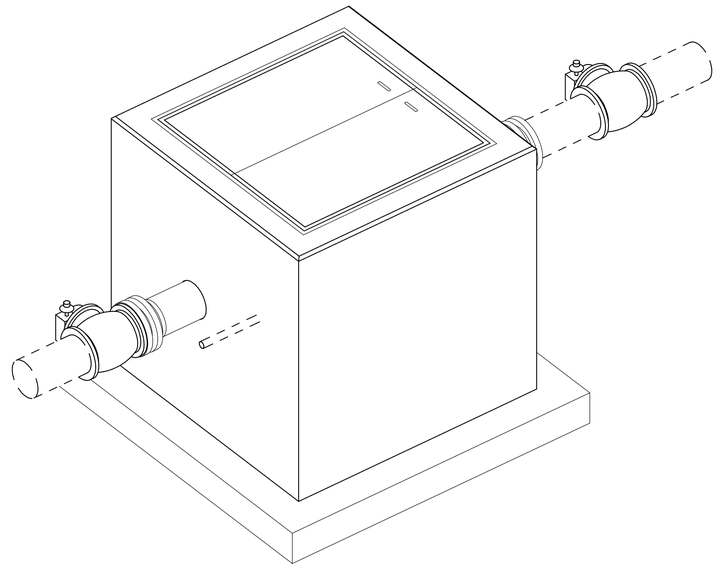
FOR: BENTONVILLE WATER UTILITIES

DATE: MARCH 2025
SCALE: 1/2" = 1'-0"
DESIGNED BY: MEK
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-ME

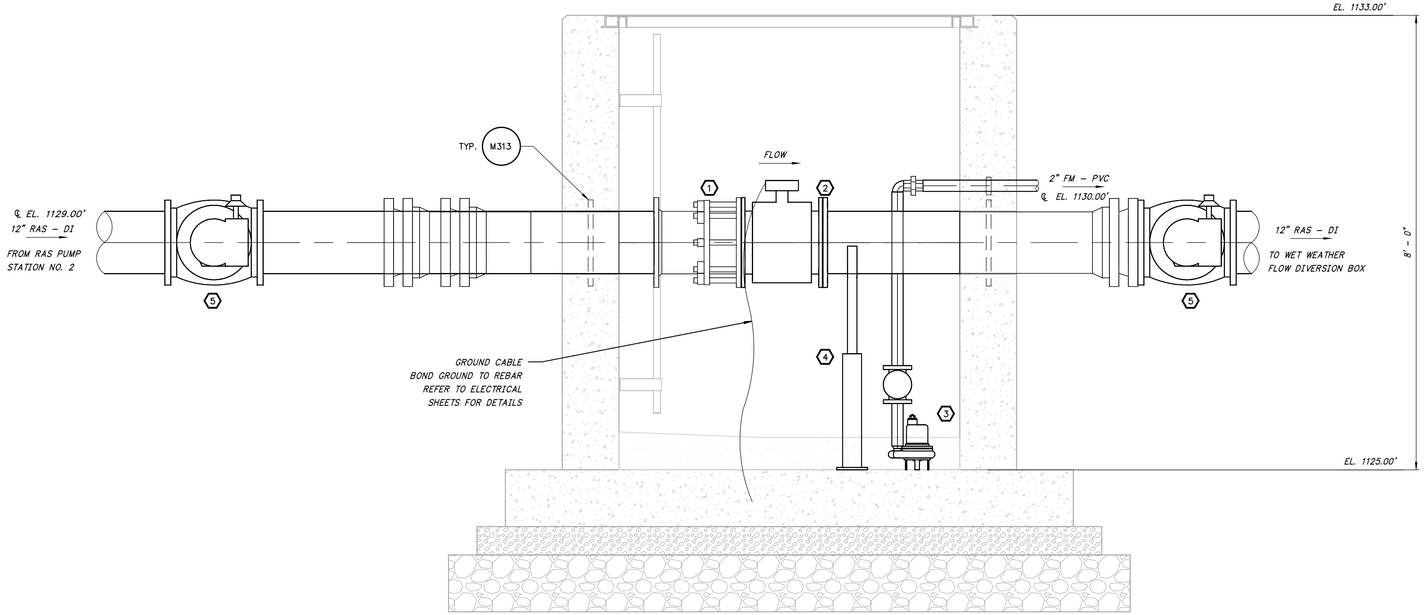
SHEET NO.
MF-1



DETAIL B
3/4" = 1'-0"



ISOMETRIC/3D
N.T.S.



RAS PUMP STATION NO. 2
FLOW METER VAULT
SECTION 2
3/4" = 1'-0" MF-2

NOTES:
1. ALL HARDWARE SHALL BE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED. ANTISEIZE LUBRICANTS SHALL BE USED WHEN ASSEMBLING STAINLESS STEEL HARDWARE.
2. SLOPE VAULT FLOOR TO SUMP PIT.
3. ROUTE ACCESS DOOR DRAINS IN VALVE VAULT TO ADJACECENT WALL AND THEN FLOOR WITH PVC PIPE. SECURE PIPE TO THE CEILING AND WALL WITH STAINLESS STEEL PIPE CLAMPS. (M102)
4. PAINT ALL EXPOSED PIPING IN ACCORDANCE WITH SPECIFICATION SECTION 09902.
5. SEE CIVIL SITE PIPING PLANS FOR CONTINUATION OF CONNECTING PIPES.
6. TOP OF VAULT SHALL BE FLUSH WITH FINISHED CONCRETE SIDEWALK.

KEYED NOTES:
1. INSTALL 12" FLANGE COUPLING ADAPTER
2. INSTALL 12" ELECTROMAGNETIC FLOW METER
3. INSTALL SUMP PIT AND SUMP PUMP, 2" SCH 80 PVC DISCHARGE LINE, 2" PVC CHECK VALVE, AND 2" PVC UNION.
4. INSTALL ADJUSTABLE PIPE SUPPORT (M202)
5. INSTALL 12" PLUG VALVE WITH GEAR OPERATOR AND VALVE BOX

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

DATE
REVISION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 23398
WESLEY JAY LEWIS
12-31-25

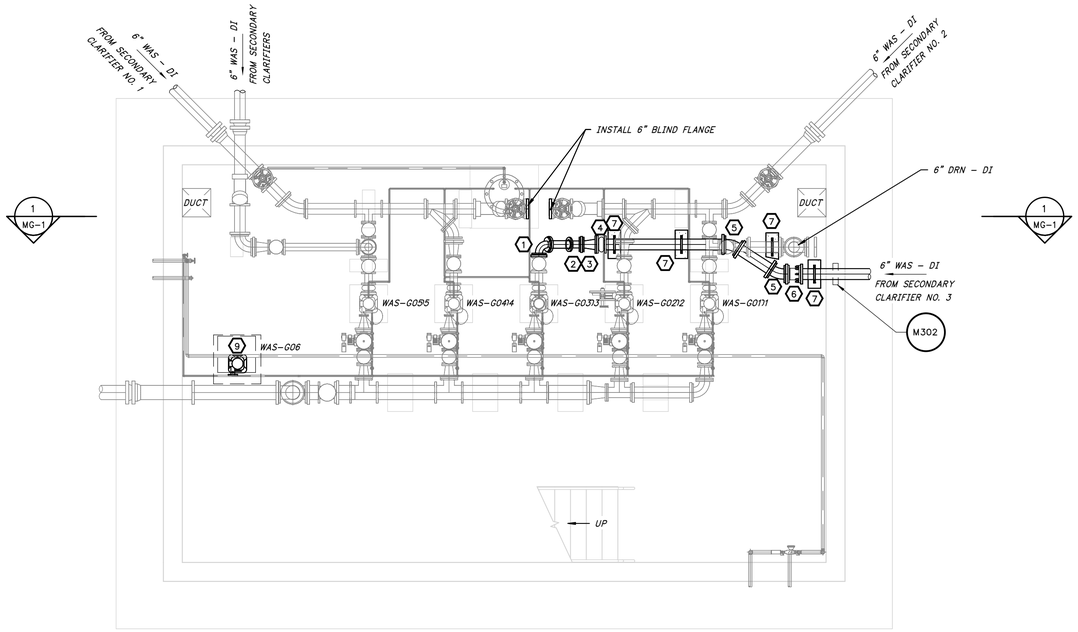
HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

RAS PUMP STATION NO. 2
FLOW METER VAULT
DETAIL AND SECTION
FOR: BENTONVILLE WATER UTILITIES

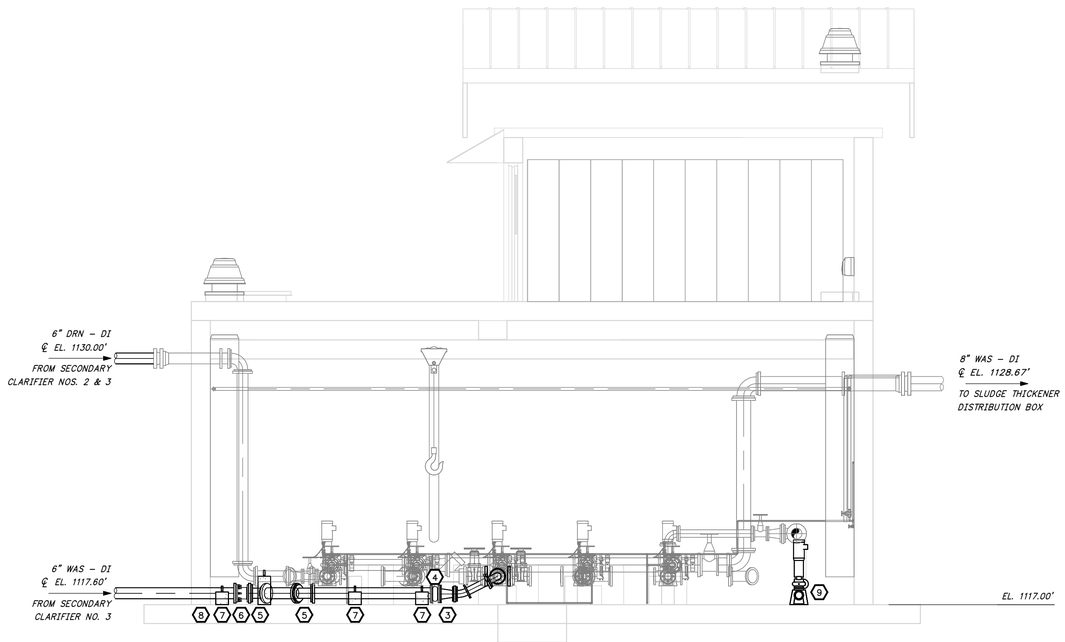
DATE: MARCH 2025
SCALE: 3/4" = 1'-0"
DESIGNED BY: WJL
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-ME

SHEET NO.
MF-2



WAS PUMP STATION

DETAIL A
1/4" = 1'-0"

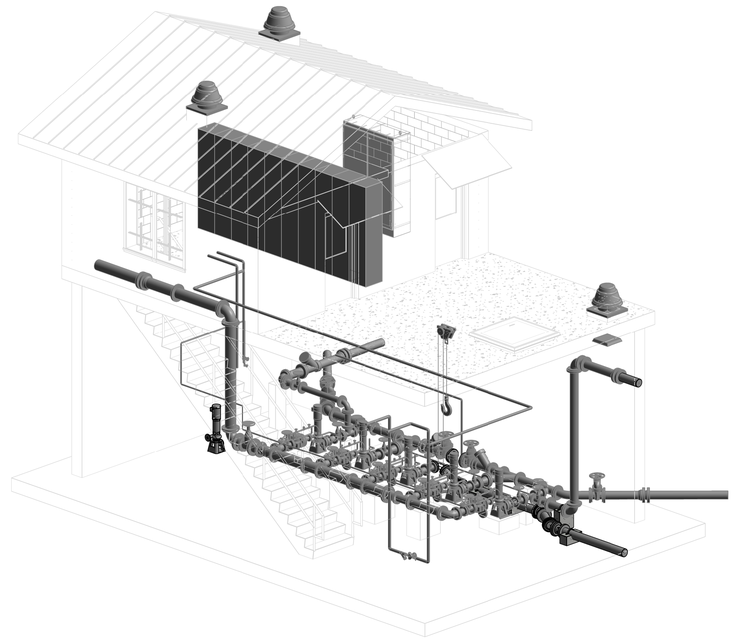


WAS PUMP STATION

SECTION 1
1/4" = 1'-0" MG-1

NOTES:
1. ALL HARDWARE SHALL BE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED. ANTISEIZE LUBRICANTS SHALL BE USED WHEN ASSEMBLING STAINLESS STEEL HARDWARE.

2. PAINT ALL EXPOSED PIPING IN ACCORDANCE WITH SPECIFICATION SECTION 09902.



ISOMETRIC/3D
N.T.S.

KEYED NOTES:

1. INSTALL 4" 90° BEND
2. INSTALL 4" 45° BEND
3. INSTALL 6" X 4" REDUCER
4. INSTALL 6" RESTRAINED FLEXIBLE BELLOWS
5. INSTALL 6" 45° BEND
6. INSTALL 6" FLANGE COUPLING ADAPTER
7. INSTALL CONCRETE PIPE SUPPORTS (M203)
8. CORE DRILL WAS PUMP STATION WALL FOR 6" WAS-DI AND SEAL WITH LINK-SEAL (M302)
9. PLACE SPARE WAS PUMP HERE

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15397
JOSHUA S. DUGGINS
3/20/25

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

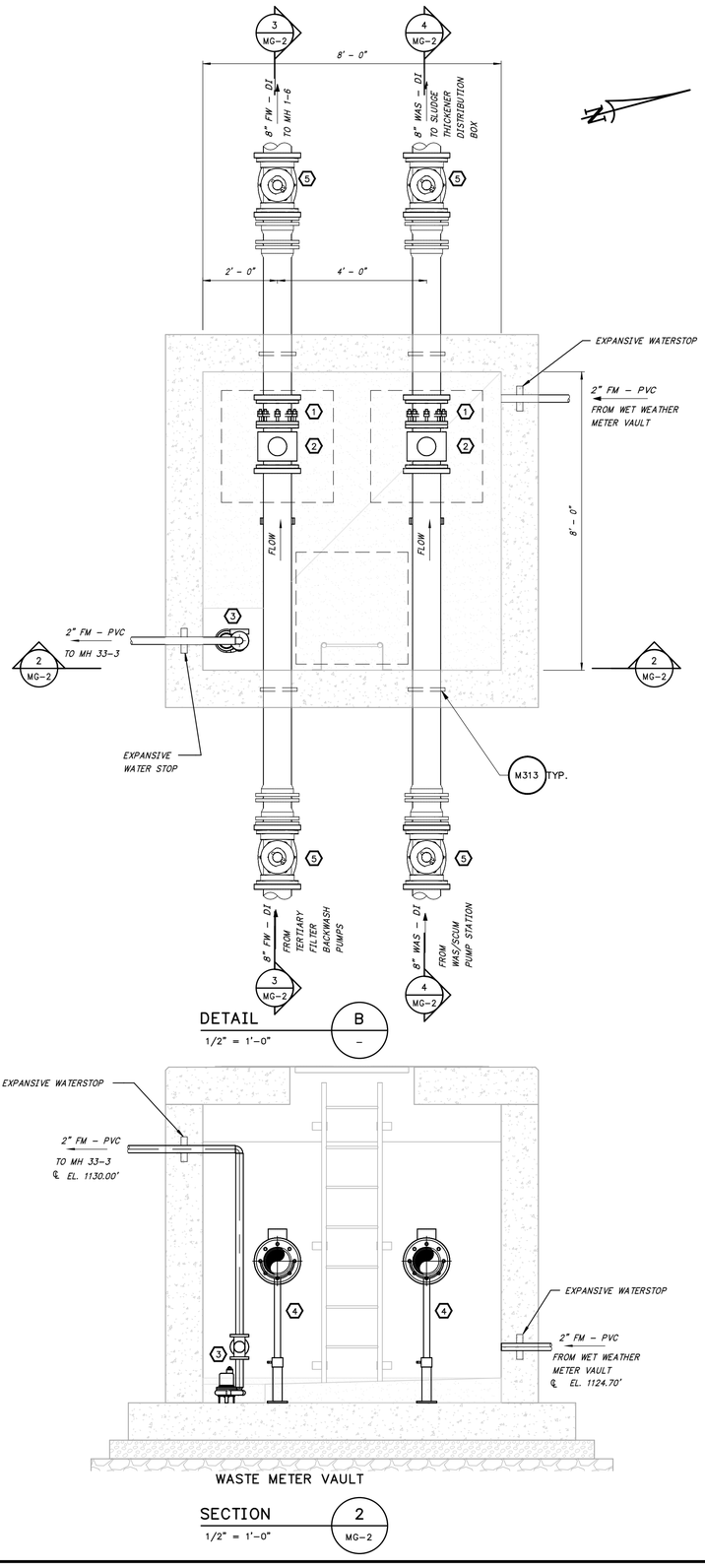
CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

EXISTING WAS PUMP STATION
DETAILS AND SECTIONS

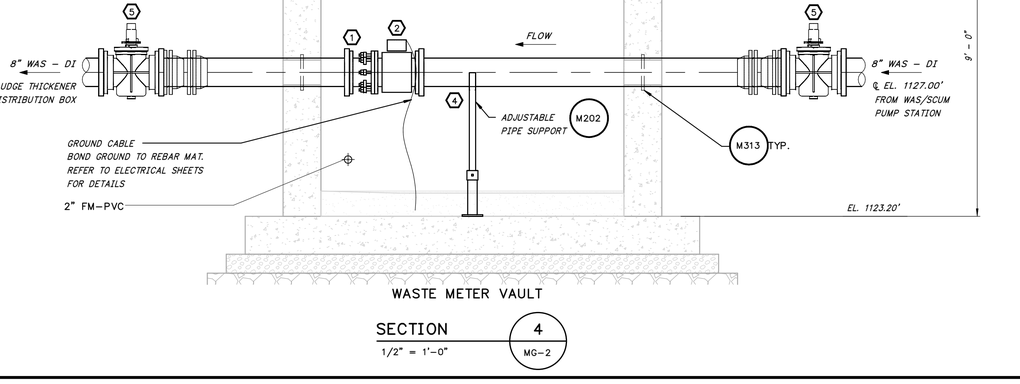
FOR: BENTONVILLE WATER UTILITIES

DATE: MARCH 2025
SCALE: 1/4" = 1'-0"
DESIGNED BY: JSD
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-ME

SHEET NO.
MG-1



DETAIL B
1/2" = 1'-0"



WASTE METER VAULT

SECTION 3
1/2" = 1'-0"

WASTE METER VAULT

SECTION 2
1/2" = 1'-0"

WASTE METER VAULT

SECTION 4
1/2" = 1'-0"

NOTES:
1. ALL HARDWARE SHALL BE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED. ANTISEIZE LUBRICANTS SHALL BE USED WHEN ASSEMBLING STAINLESS STEEL HARDWARE.
2. SLOPE VAULT FLOOR TO SUMP PIT.
3. ROUTE ACCESS DOOR DRAINS IN VALVE VAULT TO ADJACECENT WALL AND THEN FLOOR WITH PVC PIPE. SECURE PIPE TO THE CEILING AND WALL WITH STAINLESS STEEL PIPE CLAMPS. (M102)
4. PAINT ALL EXPOSED PIPING IN ACCORDANCE WITH SPECIFICATION SECTION 09902.
5. SEE CIVIL SITE PIPING PLANS FOR CONTINUATION OF CONNECTING PIPES.
6. TOP OF VAULT SHALL BE FLUSH WITH THE FINISHED ASPHALT PAVEMENT.
7. ROUTE WET WEATHER METER VAULT DRAIN LINE THROUGH WALL AND THEN TO FLOOR WITH PVC PIPE. SECURE PIPE TO WALL WITH STAINLESS STEEL PIPE CLAMPS. (M102)

KEYED NOTES:
1. INSTALL 8" FLANGE COUPLING ADAPTER
2. INSTALL 8" ELECTROMAGNETIC FLOW METER
3. INSTALL SUMP PIT WITH SUMP PUMP, 2" SCH 80 PVC DISCHARGE LINE, 2" PVC CHECK VALVE, AND 2" PVC UNION.
4. INSTALL ADJUSTABLE PIPE SUPPORT (M202)
5. INSTALL 8" PLUG VALVE WITH GEAR OPERATOR AND VALVE BOX

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 23398
WESLEY JAY LEWIS

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

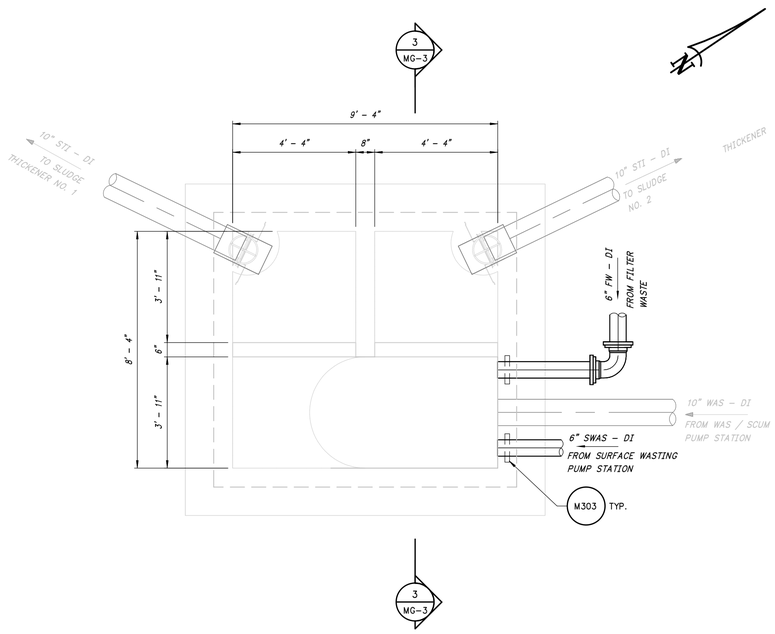
WASTE METER VAULT DETAILS AND SECTIONS

FOR: BENTONVILLE WATER UTILITIES

DATE: MARCH 2025
SCALE: 1/2" = 1'-0"
DESIGNED BY: WJL
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-ME

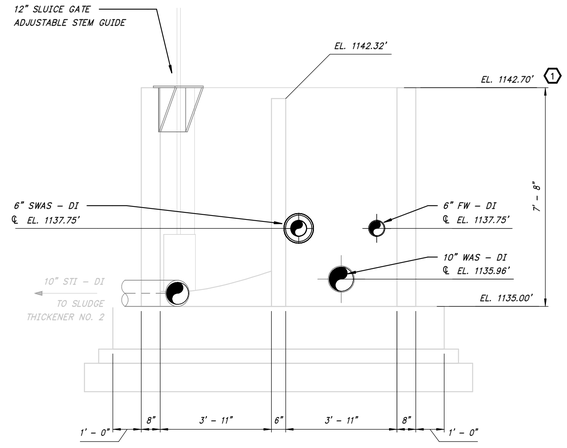
BID DRAWINGS
MARCH 21, 2025

SHEET NO.
MG-2



SLUDGE THICKNER DISTRIBUTION BOX

DETAIL C
3/8" = 1'-0"



SECTION 3
3/8" = 1'-0"
MG-3

KEYED NOTES:

1 NOTE THAT TOP OF WALL ELEVATION IS BASED ON CURRENT SURVEY DATA, BUT TOP OF SLAB ELEVATION IS BASED ON RECORD DRAWING DATA. ALL DIMENSIONS AND ELEVATIONS SHOULD BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS
MARGARET E. HOSKYN
LICENSED PROFESSIONAL ENGINEER
No. 20465
Specified

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

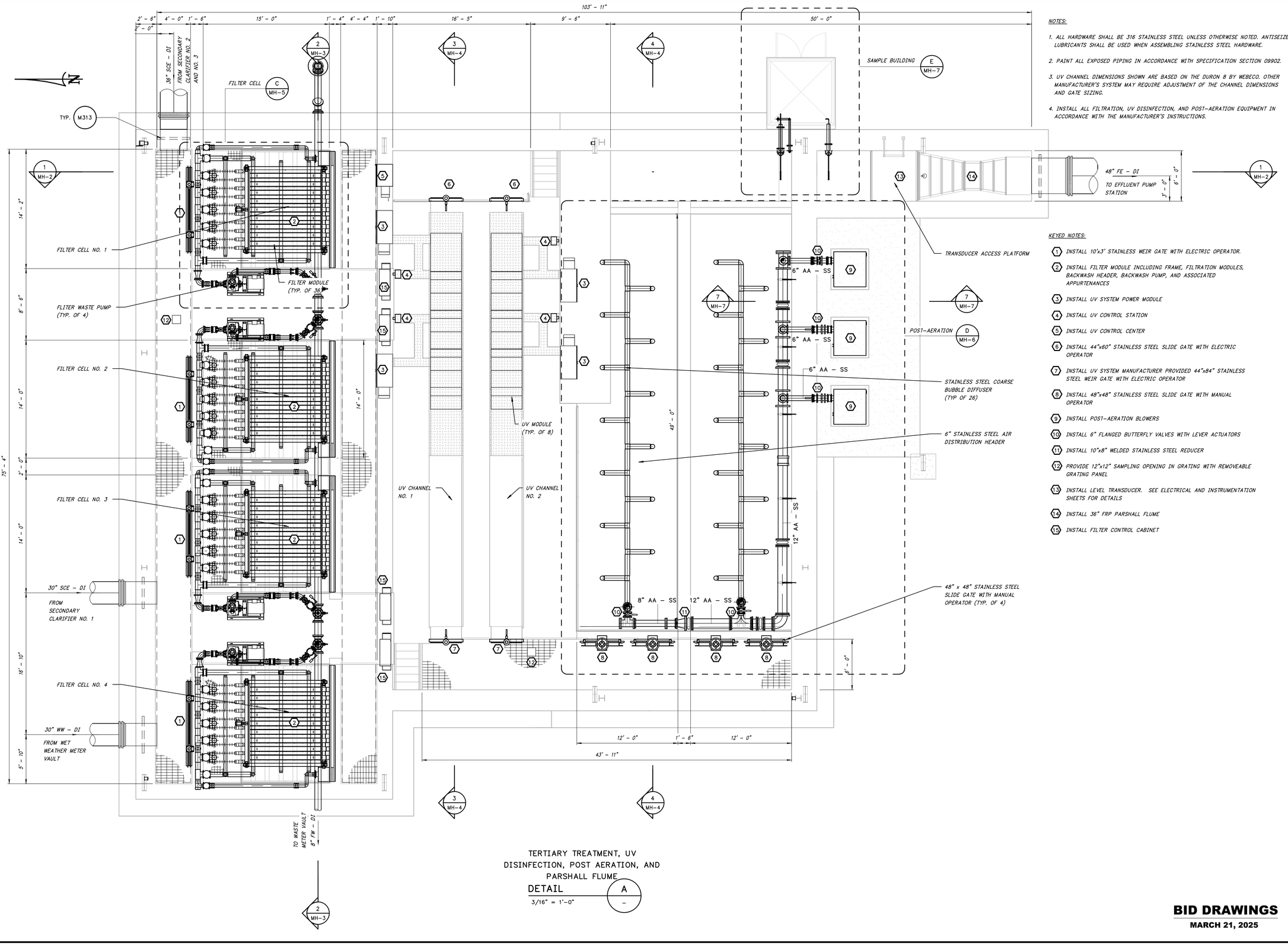
CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

SLUDGE THICKENER DISTRIBUTION BOX
DETAIL AND SECTIONS

FOR: BENTONVILLE WATER UTILITIES

DATE: MARCH 2025
SCALE: 3/8" = 1'-0"
DESIGNED BY: MEK
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-ME

SHEET NO.
MG-3



TERTIARY TREATMENT, UV DISINFECTION, POST AERATION, AND PARSHALL FLUME DETAIL

3/16" = 1'–0"

A

–

NOTES:

1. ALL HARDWARE SHALL BE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED. ANTISEIZE LUBRICANTS SHALL BE USED WHEN ASSEMBLING STAINLESS STEEL HARDWARE.
2. PAINT ALL EXPOSED PIPING IN ACCORDANCE WITH SPECIFICATION SECTION 09902.
3. UV CHANNEL DIMENSIONS SHOWN ARE BASED ON THE DURON 8 BY WEBECO. OTHER MANUFACTURER'S SYSTEM MAY REQUIRE ADJUSTMENT OF THE CHANNEL DIMENSIONS AND GATE SIZING.
4. INSTALL ALL FILTRATION, UV DISINFECTION, AND POST–AERATION EQUIPMENT IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

KEYED NOTES:

1. INSTALL 10'x3' STAINLESS WEIR GATE WITH ELECTRIC OPERATOR.
2. INSTALL FILTER MODULE INCLUDING FRAME, FILTRATION MODULES, BACKWASH HEADER, BACKWASH PUMP, AND ASSOCIATED APPURTENANCES
3. INSTALL UV SYSTEM POWER MODULE
4. INSTALL UV CONTROL STATION
5. INSTALL UV CONTROL CENTER
6. INSTALL 44"x60" STAINLESS STEEL SLIDE GATE WITH ELECTRIC OPERATOR
7. INSTALL UV SYSTEM MANUFACTURER PROVIDED 44"x84" STAINLESS STEEL WEIR GATE WITH ELECTRIC OPERATOR
8. INSTALL 48"x48" STAINLESS STEEL SLIDE GATE WITH MANUAL OPERATOR
9. INSTALL POST–AERATION BLOWERS
10. INSTALL 6" FLANGED BUTTERFLY VALVES WITH LEVER ACTUATORS
11. INSTALL 10"x8" WELDED STAINLESS STEEL REDUCER
12. PROVIDE 12"x12" SAMPLING OPENING IN GRATING WITH REMOVEABLE GRATING PANEL
13. INSTALL LEVEL TRANSDUCER. SEE ELECTRICAL AND INSTRUMENTATION SHEETS FOR DETAILS
14. INSTALL 36" FRP PARSHALL FLUME
15. INSTALL FILTER CONTROL CABINET

BID DRAWINGS

MARCH 21, 2025

1"

ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

DATE

REVISION

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER JOSHUA S. DUGGINS No. 15397

HAWKINS WEIR ENGINEERS, INC.

BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

TERTIARY TREATMENT, UV DISINFECTION, POST AERATION AND PARSHALL FLUME DETAIL

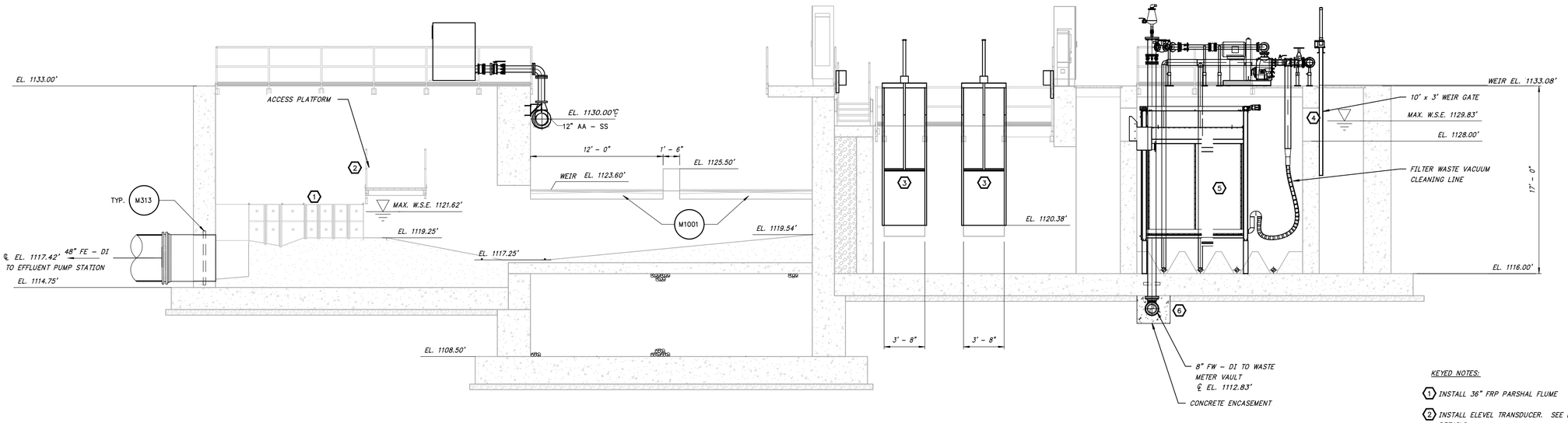
FOR: BENTONVILLE WATER UTILITIES

DATE: MARCH 2025
SCALE: 3/16" = 1'–0"
DESIGNED BY: JSD
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037–ME

SHEET NO.
MH–1

NOTES:

1. ALL HARDWARE SHALL BE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED. ANTISEIZE LUBRICANTS SHALL BE USED WHEN ASSEMBLING STAINLESS STEEL HARDWARE.
2. PAINT ALL EXPOSED PIPING IN ACCORDANCE WITH SPECIFICATION SECTION 09902.
3. UV CHANNEL DIMENSIONS SHOWN ARE BASED ON THE DURON 8 BY WEBECO. OTHER MANUFACTURER'S SYSTEM MAY REQUIRE ADJUSTMENT OF THE CHANNEL DIMENSIONS AND GATE SIZING.
4. INSTALL ALL FILTRATION, UV DISINFECTION, AND POST-AERATION EQUIPMENT IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.



KEYED NOTES:

1. INSTALL 36" FRP PARSHAL FLUME
2. INSTALL ELEVEL TRANSDUCER. SEE ELECTRICAL AND INSTRUMENTATION SHEETS FOR DETAILS
3. INSTALL 44"x60" STAINLESS STEEL SLICE GATE WITH ELECTRIC OPERATOR
4. INSTALL 10'x3' STAINLESS STEEL WEIR GATE WITH ELECTRIC OPERATOR
5. INSTALL TERTIARY FILTER MODULE
6. INSTALL 8"x6" TEE

SECTION 1 / MH-1
3/16" = 1'-0"

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15397
JOSHUA S. DUNSMORE
3/19/25

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

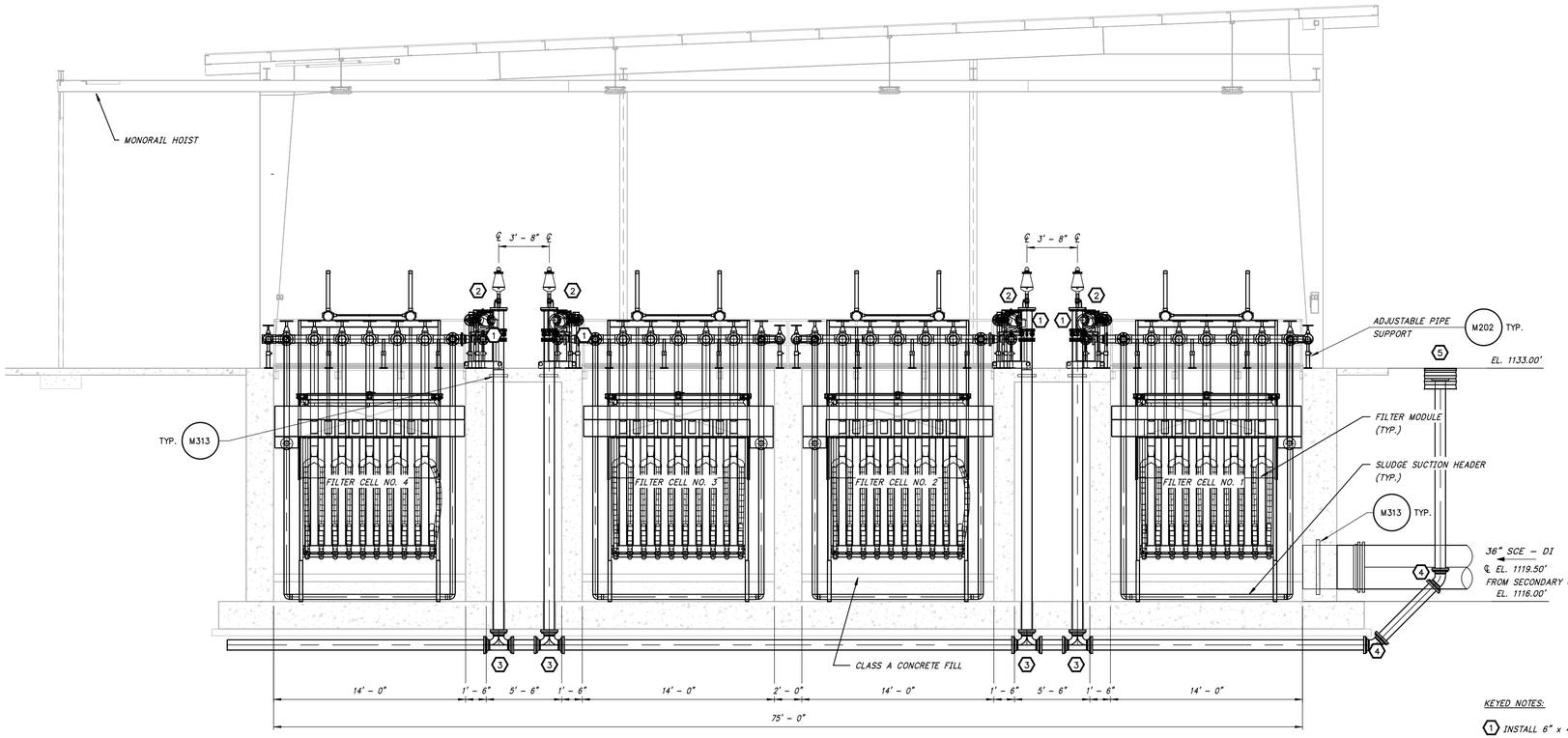
TERTIARY TREATMENT, UV DISINFECTION, POST AERATION AND PARSHALL FLUME SECTION

FOR: BENTONVILLE WATER UTILITIES

DATE: MARCH 2025
SCALE: 3/16" = 1'-0"
DESIGNED BY: JSD
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-ME

SHEET NO.
MH-2

NOTES:
1. ALL HARDWARE SHALL BE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED. ANTISEIZE LUBRICANTS SHALL BE USED WHEN ASSEMBLING STAINLESS STEEL HARDWARE.
2. PAINT ALL EXPOSED PIPING IN ACCORDANCE WITH SPECIFICATION SECTION 09902.



SECTION 2 / MH–1
3/16" = 1'–0"

KEYED NOTES:

1. INSTALL 6" x 4" TEE
2. INSTALL 6" BLIND FLANGE WITH 2" STAINLESS STEEL NIPPLES, 2" STAINLESS STEEL BALL VALVE, AND 2" STAINLESS STEEL COMBINATION AIR/VACUUM VALVE
3. INSTALL 8" x 6" TEE
4. INSTALL 45 BEND
5. INSTALL 8" CAP AND 28" BASS & HAYS BHSS SERIES METER BOX OR EQUAL LID SHALL HAVE SEWER CAST IN TOP.

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS *** LICENSED PROFESSIONAL ENGINEER *** No. 15397 JOSHUA S. DUGGINS

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

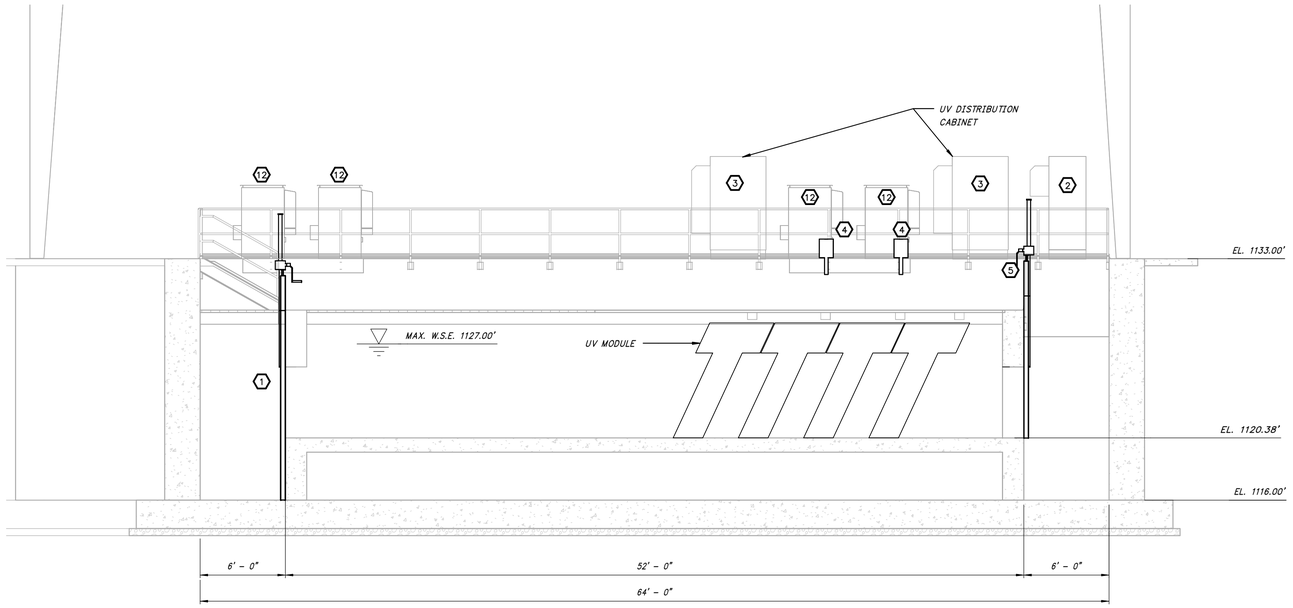
CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

TERTIARY TREATMENT, UV DISINFECTION, POST AERATION AND PARSHALL FLUME SECTION

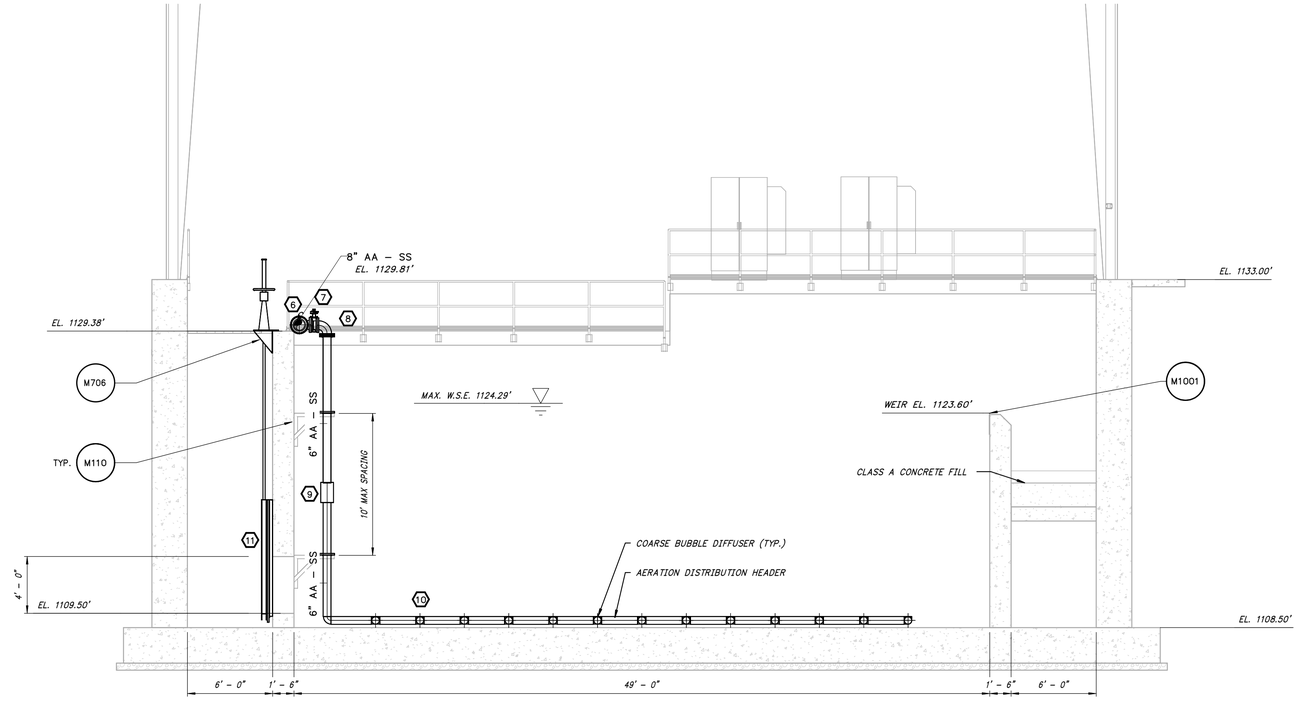
FOR: BENTONVILLE WATER UTILITIES

DATE: MARCH 2025
SCALE: 3/16" = 1'–0"
DESIGNED BY: JSD
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037–ME

SHEET NO.
MH–3



SECTION 3 — MH-1
3/16" = 1'-0"



SECTION 4 — MH-1
3/16" = 1'-0"

NOTES:
1. ALL HARDWARE SHALL BE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED. ANTISEIZE LUBRICANTS SHALL BE USED WHEN ASSEMBLING STAINLESS STEEL HARDWARE.
2. PAINT ALL EXPOSED PIPING IN ACCORDANCE WITH SPECIFICATION SECTION 09902.
3. UV CHANNEL DIMENSIONS SHOWN ARE BASED ON THE DURON 8 BY WEBECO. OTHER MANUFACTURER'S SYSTEM MAY REQUIRE ADJUSTMENT OF THE CHANNEL DIMENSIONS.
4. INSTALL ALL FILTRATION, UV DISINFECTION, AND POST-AERATION EQUIPMENT IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

KEYED NOTES:

1. INSTALL UV SYSTEM MANUFACTURER PROVIDED 44"x84" STAINLESS STEEL WEIR GATE WITH ELECTRIC OPERATOR
2. INSTALL UV CONTROL CENTER
3. INSTALL UV SYSTEM POWER MODULE
4. INSTALL UV CONTROL STATION
5. INSTALL 44"x60" STAINLESS STEEL WEIR GATE WITH ELECTRIC OPERATOR
6. INSTALL 8"x6" STAINLESS STEEL WELDED REDUCING TEE
7. INSTALL 6" WAFER STYLE BUTTERFLY VALVE WITH LEVER ACTUATOR
8. INSTALL 6" STAINLESS STEEL WELDED 90° BEND
9. INSTALL 6" RISER COUPLING
10. INSTALL COARSE BUBBLE POST-AERATION SYSTEM
11. INSTALL 48"x48" STAINLESS STEEL SLIDE GATE WITH MANUAL OPERATOR
12. INSTALL FILTER CONTROL CABINET

M804

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15397
JOSHUA S. DUGGINS

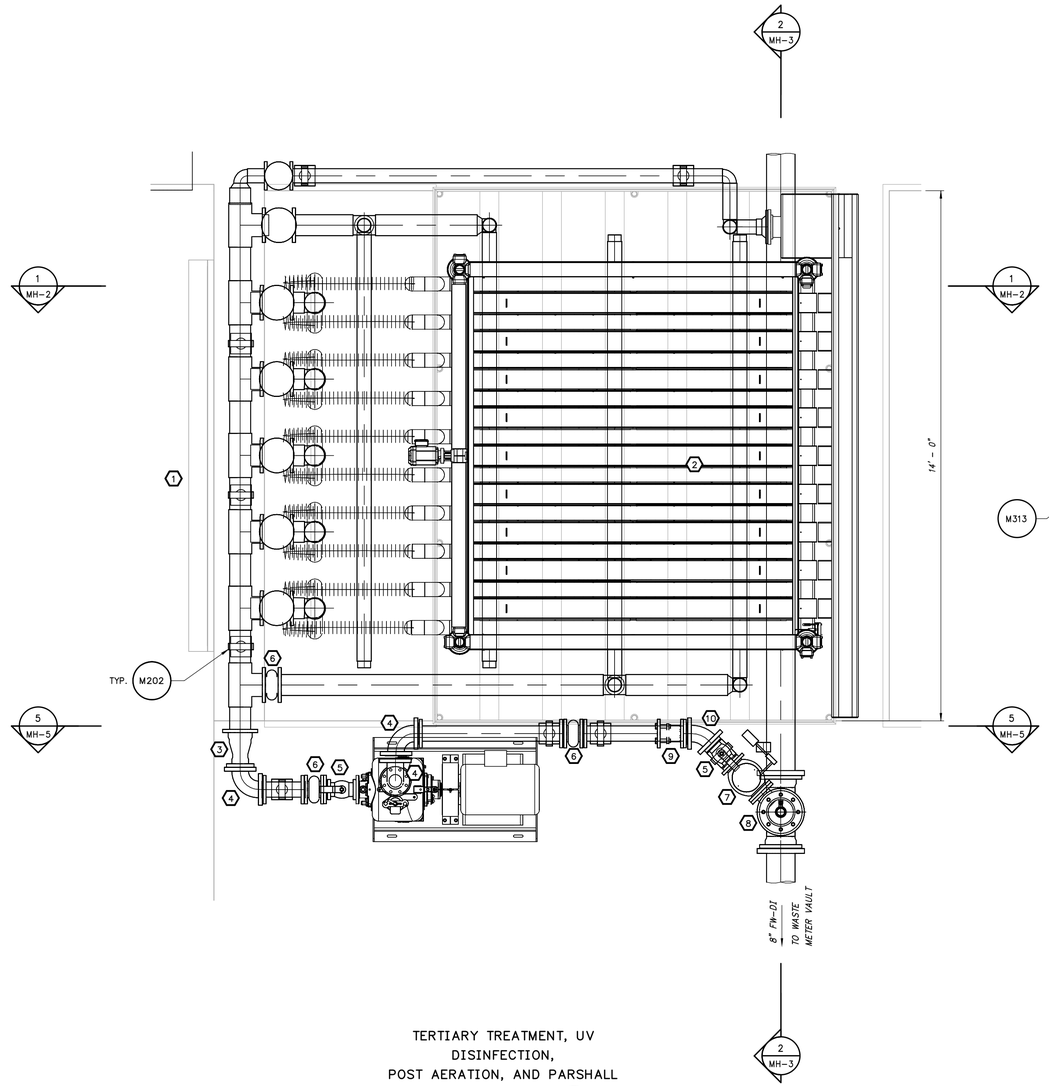
HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

TERTIARY TREATMENT, UV DISINFECTION, POST AERATION AND PARSHALL FLUME
SECTION
FOR: BENTONVILLE WATER UTILITIES

DATE: MARCH 2025
SCALE: 3/16" = 1'-0"
DESIGNED BY: JSD
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-ME

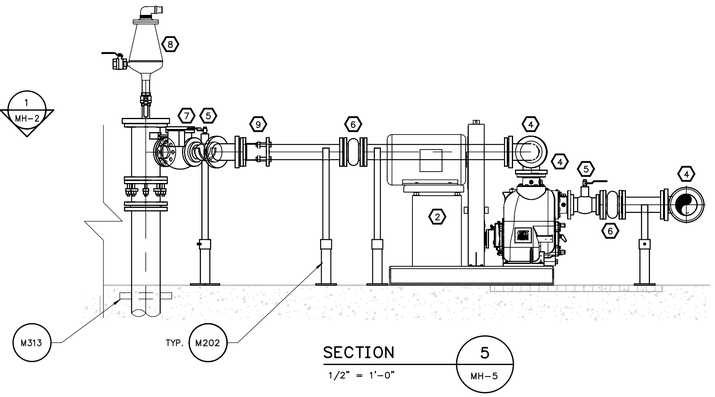
SHEET NO.
MH-4



TERTIARY TREATMENT, UV DISINFECTION, POST AERATION, AND PARSHALL FLUME

DETAIL C

1/2" = 1'-0"



SECTION 5

1/2" = 1'-0" MH-5

NOTES:

1. *ALL HARDWARE SHALL BE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED. ANTISEIZE LUBRICANTS SHALL BE USED WHEN ASSEMBLING STAINLESS STEEL HARDWARE.*
2. *PAINT ALL EXPOSED PIPING IN ACCORDANCE WITH SPECIFICATION SECTION 09902.*
3. *UV CHANNEL DIMENSIONS SHOWN ARE BASED ON THE DURON 8 BY WEBECO. OTHER MANUFACTURER'S SYSTEM MAY REQUIRE ADJUSTMENT OF THE CHANNEL DIMENSIONS.*
4. *INSTALL ALL FILTRATION, UV DISINFECTION, AND POST-AERATION EQUIPMENT IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.*
5. *FILTER MANUFACTURER SHALL PROVIDE ALL NECESSARY PIPE SUPPORT WITHIN THE FILTER BASIN.*

KEYED NOTES:

1. *INSTALL 10'x3' STAINLESS WEIR GATE WITH ELECTRIC OPERATOR.*
2. *INSTALL FILTER MODULE INCLUDING FRAME, FILTRATION MODULES, BACKWASH HEADER, BACKWASH PUMP, AND ASSOCIATED APPURTENANCES*
3. *INSTALL 6"x4" FLANGED STAINLESS STEEL REDUCER*
4. *INSTALL 4" FLANGED STAINLESS STEEL 90° BEND*
5. *INSTALL 4" BALL VALVE WITH HANDWHEEL OPERATOR*
6. *INSTALL 4" RESTRAINED FLEXIBLE BELLOWS*
7. *INSTALL 4" SWING ARM CHECK VALVE*
8. *INSTALL 6"x4" FLANGED REDUCING TEE, WITH 6" TAPPED BLIND FLANGE, 2" STAINLESS STEEL PIPE NIPPLES, 2" STAINLESS STEEL BALL VALVE, AND A 2" STAINLESS STEEL COMBINATION AIR/VACUUM VALVE. ROUTE SCH. 80 PVC VENT TO ADJACENT FILTER CELL.*
9. *INSTALL 6" FLANGE COUPLING ADAPTER*
10. *INSTALL 6" FLANGED 45° BEND*

BID DRAWINGS

MARCH 21, 2025

1"

ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS
JOSHUA S. DUGGINS
No. 15397
LICENSED PROFESSIONAL ENGINEER

HAWKINS WEIR ENGINEERS, INC.

BLACK & VEATCH

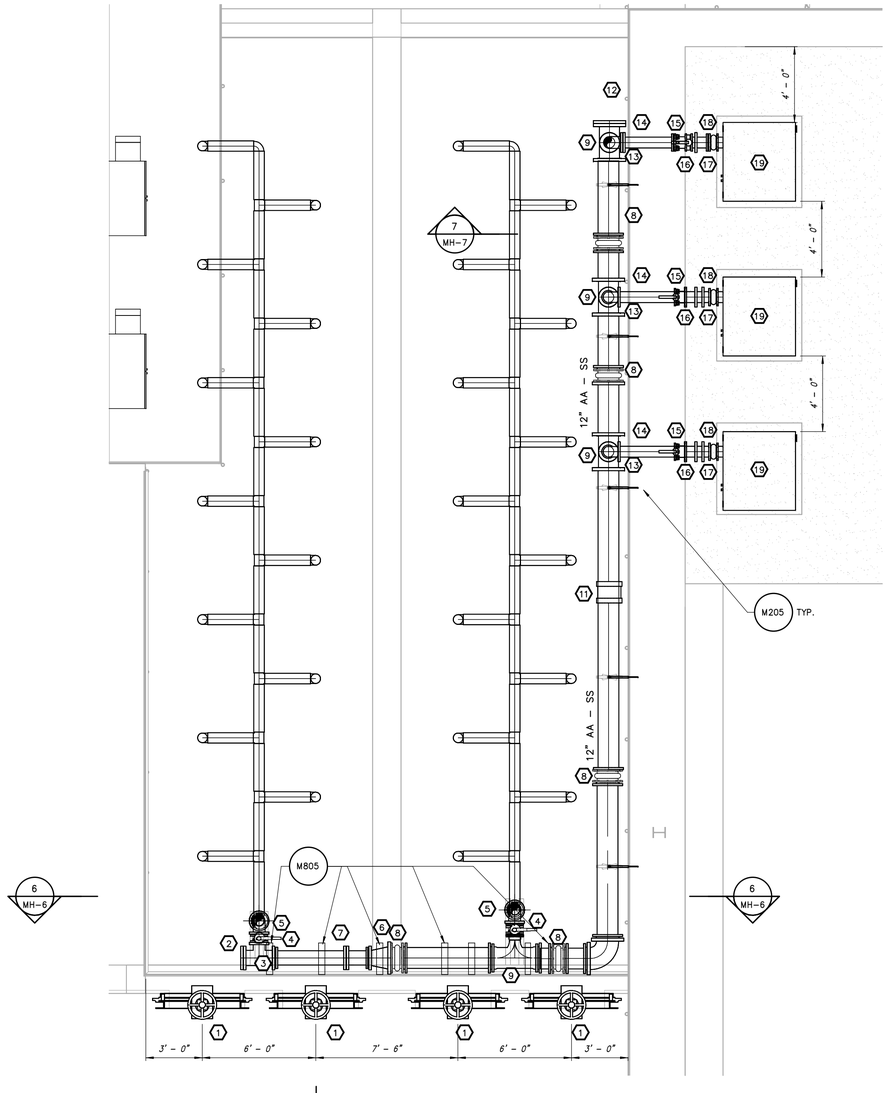
CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

FILTER MODULE
DETAIL AND SECTION

FOR: BENTONVILLE WATER UTILITIES

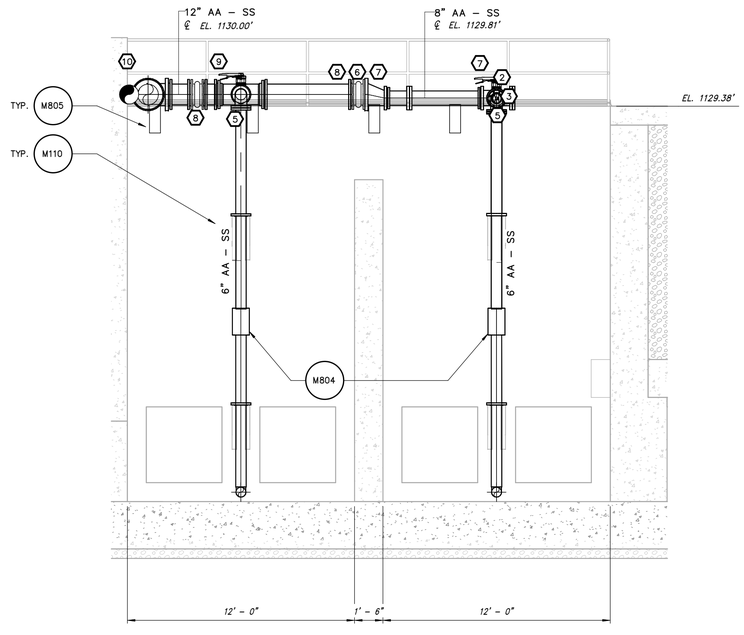
DATE: MARCH 2025
SCALE: 1/2" = 1'-0"
DESIGNED BY: JSD
DRAWN BY: JEB
HWEI NO.: 2021037
FILENAME:

SHEET NO.
MH-5



POST–AERATION BLOWERS

DETAIL D — 1/4" = 1'–0"



SLIDE GATE SECTION

SECTION 6 — MH–6 — 1/4" = 1'–0"

BID DRAWINGS
MARCH 21, 2025

NOTES:

1. ALL HARDWARE SHALL BE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED. ANTISEIZE LUBRICANTS SHALL BE USED WHEN ASSEMBLING STAINLESS STEEL HARDWARE.
2. PAINT ALL EXPOSED PIPING IN ACCORDANCE WITH SPECIFICATION SECTION 09902.
3. UV CHANNEL DIMENSIONS SHOWN ARE BASED ON THE DURON 8 BY WEBECO. OTHER MANUFACTURER'S SYSTEM MAY REQUIRE ADJUSTMENT OF THE CHANNEL DIMENSIONS.
4. INSTALL ALL FILTRATION, UV DISINFECTION, AND POST–AERATION EQUIPMENT IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

KEYED NOTES:

1. INSTALL 48"x48" STAINLESS STEEL SLIDE GATE WITH MANUAL OPERATOR
2. INSTALL 8" BLIND FLANGE WITH 1" BLOWOFF (M407)
3. INSTALL 8"x6" WELDED STAINLESS STEEL REDUCING TEE
4. INSTALL 6" WAFER STYLE BUTTERFLY VALVE WITH LEVER ACTUATOR
5. INSTALL 6" WELDED STAINLESS STEEL 90° BEND
6. INSTALL 12"x8" WELDED STAINLESS STEEL EXCENTRIC REDUCER
7. INSTALL 8" DRESSER COUPLING
8. INSTALL 12" FLEXIBLE METAL BELLOWS
9. INSTALL 12"x6" WELDED STAINLESS STEEL REDUCING TEE
10. INSTALL 12" WELDED STAINLESS STEEL 90° BEND
11. INSTALL 12" DRESSER COUPLING
12. INSTALL 12" WELDED STAINLESS STEEL CAP
13. INSTALL 6" FLANGED STAINLESS STEEL 90° BEND (M806)
14. INSTALL CONCRETE PIPE SUPPORT
15. INSTALL 6" FLANGE COUPLING ADAPTER
16. INSTALL 6" FLANGED BUTTERFLY VALVE WITH LEVER ACTUATOR
17. INSTALL 6" DOUBLE DOOR CHECK VALVE. NOT REQUIRED IF BLOWER IS EQUIPED WITH AN INTERGRAL CHECK VALVE.
18. INSTALL 6" FLEXIBLE METAL BELLOWS
19. INSTALL POST–AERATION BLOWERS

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS *** LICENSED PROFESSIONAL ENGINEER *** No. 15397 JOSHUA S. DUGGINS

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

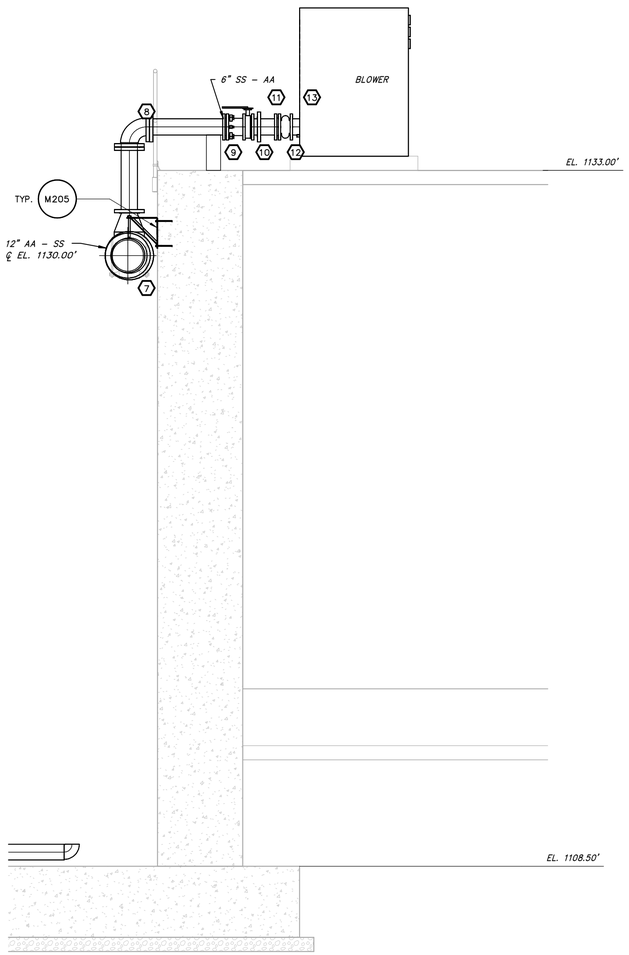
CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

POST–AERATION BASIN
DETAIL AND SECTION

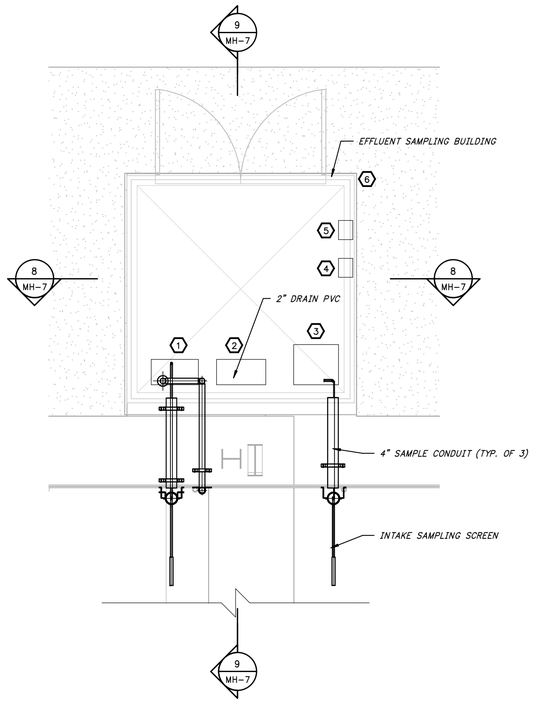
FOR: BENTONVILLE WATER UTILITIES

DATE: MARCH 2025
SCALE: 1/4" = 1'–0"
DESIGNED BY: JSD
DRAWN BY: JEB
HWEI NO.: 2021037
FILENAME: WWRF21037–ME

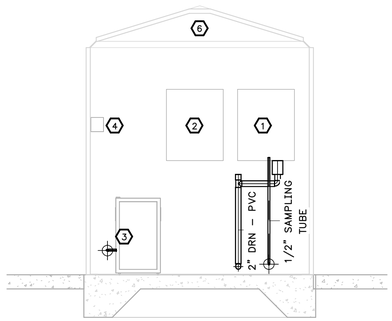
SHEET NO.
MH–6



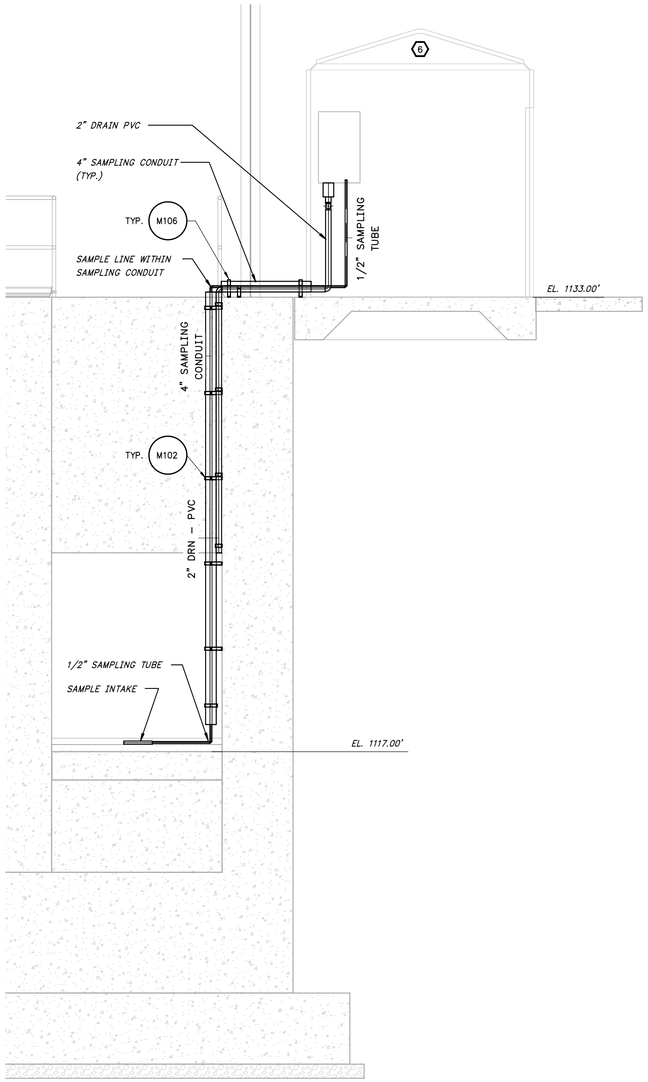
SECTION 7 / MH–1
3/8" = 1'–0"



SAMPLER BUILDING
DETAIL E
3/8" = 1'–0"



SECTION 8 / MH–7
3/8" = 1'–0"



SECTION 9 / MH–7
3/8" = 1'–0"

NOTES:

1. ALL HARDWARE SHALL BE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED. ANTISEIZE LUBRICANTS SHALL BE USED WHEN ASSEMBLING STAINLESS STEEL HARDWARE.
2. PAINT ALL EXPOSED PIPING IN ACCORDANCE WITH SPECIFICATION SECTION 09902.

KEYED NOTES:

1. INSTALL ONLINE PHOSPHORUS ANALYZER. ROUTE SAMPLE LINE THROUGH 4" CONDUIT TO PARSHAL FLUME CHANNEL.
2. LOCATION FOR FUTURE ONLINE ANALYZER
3. INSTALL EXISTING EFFLUENT AUTO SAMPLER. ROUTE SAMPLE LINE THROUGH 4" CONDUIT TO PARSHALL FLUME CHANNEL.
4. INSTALL ONLINE INSTRUMENTATION JUNCTION BOX
5. INSTALL PARSHALL FLUME LEVEL TRANSMITTER AND DISPLAY
6. INSTALL 8'x8' PREFABRICATED FIBERGLASS BUILDING
7. INSTALL 12"x6" STAINLESS STEEL WELDED TEE
8. INSTALL 6" FLANGED STAINLESS STEEL 90° BEND
9. INSTALL CONCRETE PIPE SUPPORT
10. INSTALL 6" FLANGE COUPLING ADAPTER
11. INSTALL 6" FLANGED BUTTERFLY VALVE WITH LEVER OPERATOR
12. INSTALL 6" DOUBLE DOOR CHECK VALVE. NOT REQUIRED IF BLOWER IS EQUIPED WITH AN INTERGRAL CHECK VALVE.
13. INSTALL 6" FLEXIBLE METAL BELLOWS

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS *** LICENSED PROFESSIONAL ENGINEER *** No. 15397 *** JOSHUA S. DUGGINS *** 3/21/25

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

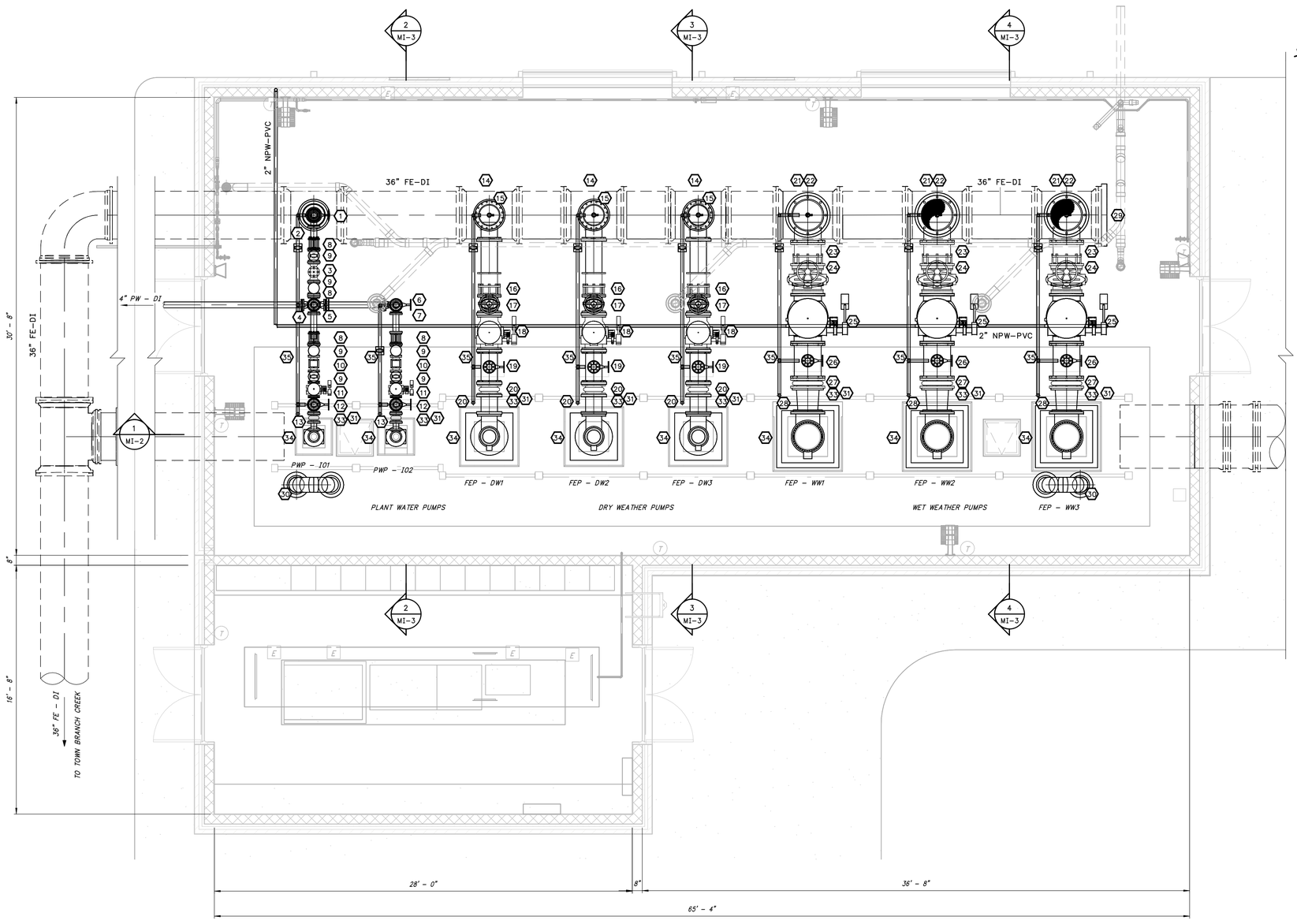
CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

SAMPLING BUILDING AND BLOWER DETAIL AND SECTIONS

FOR: BENTONVILLE WATER UTILITIES

DATE: MARCH 2025
SCALE: 3/8" = 1'–0"
DESIGNED BY: JSD
DRAWN BY: JEB
HWEI NO.: 2021037
FILENAME:

SHEET NO.
MH–7



EFFLUENT PUMP STATION

DETAIL A

1/4" = 1'-0"

NOTES:

1. ALL HARDWARE SHALL BE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED. ANTISEIZE LUBRICANTS SHALL BE USED WHEN ASSEMBLING STAINLESS STEEL HARDWARE.
2. PAINT ALL EXPOSED PIPING IN ACCORDANCE WITH SPECIFICATION SECTION 09902.
3. SEAL WATER SHALL BE DELIVERED TO EACH PUMP'S SEAL WATER STATION THROUGH A 1-INCH PVC SUPPLY LINE MOUNTED TO THE FLOOR THAT BRANCHES OFF OF A 2-INCH PVC HEADER INSTALL SOUTH TO NORTH BENEATH THE FLOOR SLAB.

KEYED NOTES:

1. INSTALL 36"x16" TEE AND 16"x6" REDUCER
2. INSTALL 6"x4" TEE WITH 6" BLIND FLANGE WITH 1" THREADED TAP, 1" STAINLESS STEEL NIPPLES, 1" STAINLESS STEEL BALL VALVE , AND 1" STAINLESS STEEL COMBINATION AIR/VACUUM VALVE. M802
3. INSTALL 4" PRESSURE SUSTAINING AND PRESSURE RELIEF VALVE
4. INSTALL 4" CROSS WITH 4" BLIND FLANGE WITH 1" THREADED TAP, 1" STAINLESS STEEL NIPPLES, 1" STAINLESS STEEL BALL VALVE, AND 1" STAINLESS STEEL COMBINATION AIR/VACUUM VALVE M802
5. INSTALL 4" TEE
6. INSTALL 4" TEE WITH 4" BLIND FLANGE WITH 1" THREADED TAP, 1" STAINLESS STEEL NIPPLES, 1" STAINLESS STEEL BALL VALVE, AND 1" STAINLESS STEEL COMBINATION AIR/VACUUM VALVE
7. INSTALL 4" 90° BEND
8. INSTALL 4" FLANGED COUPLING ADAPTER
9. INSTALL 4" GATE VALVE WITH HANDWHEEL
10. INSTALL 4" H-STYLE STRAINER
11. INSTALL 4" SWING ARM CHECK VALVE
12. INSTALL 4" TEE WITH 4" BLIND FLANGE WITH 2" THREADED TAP, 2" STAINLESS STEEL NIPPLES, 2" STAINLESS STEEL BALL VALVE, AND 2" STAINLESS STEEL COMBINATION AIR/VACUUM VALVE M802
13. INSTALL 4" RESTRAINED BELLOWS
14. INSTALL 36" X 16" TEE
15. INSTALL 16" x 12" TEE WITH 16" BLIND FLANGE WITH 2" THREADED TAP, 2" STAINLESS STEEL NIPPLES, 2" STAINLESS STEEL BALL VALVE, AND 2" STAINLESS STEEL COMBINATION AIR/VACUUM VALVE M802
16. INSTALL 12" FLANGED COUPLING ADAPTER
17. INSTALL 12" GATE VALVE WITH HANDWHEEL
18. INSTALL 12" SWING ARM CHECK VALVE
19. INSTALL 12" x 4" TEE WITH 4" GATE VALVE AND 4" STAINLESS STEEL COMBINATION AIR/VACUUM VALVE M801
20. INSTALL 12" RESTRAINED BELLOWS
21. INSTALL 36" x 24" TEE
22. INSTALL 24" x 20" TEE WITH 24" BLIND FLANGE WITH 2" THREADED TAP, 2" STAINLESS STEEL NIPPLES, 2" STAINLESS STEEL BALL VALVE, AND 2" STAINLESS STEEL COMBINATION AIR/VACUUM VALVE M802
23. INSTALL 20" FLANGED COUPLING ADAPTER
24. INSTALL 20" GATE VALVE WITH SPUR GEAR OPERATOR AND HANDWHEEL
25. INSTALL 20" SWING ARM CHECK VALVE
26. INSTALL 20" x 6" TEE WITH 6" x 4" REDUCER, 4" GATE VALVE AND 4" STAINLESS STEEL COMBINATION AIR/VACUUM VALVE M801
27. INSTALL 20" RESTRAINED BELLOWS
28. INSTALL 20" x 14" REDUCER
29. INSTALL 36" PLUG
30. INSTALL 12" STAINLESS STEEL GOOSENECK VENT WITH STAINLESS STEEL INSECT SCREEN
31. INSTALL SEAL WATER STATION M1006 M1007
32. ROUTE PUMP SEAL DRAIN TO WET WELL
33. INSTALL VERTICAL TURBINE PUMP SEAL WATER RACK AND STATION BETWEEN CONCRETE PIPE SUPPORT AND PUMP BASE
34. INSTALL 1/2" PVC DRAIN FOR EFFLUENT PUMP M1008
35. INSTALL 2" PVC DRAIN LINE FOR AIR RELIEF VALVES

BID DRAWINGS

MARCH 21, 2025

1" ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

HAWKINS WEIR ENGINEERS, INC.

BLACK & VEATCH

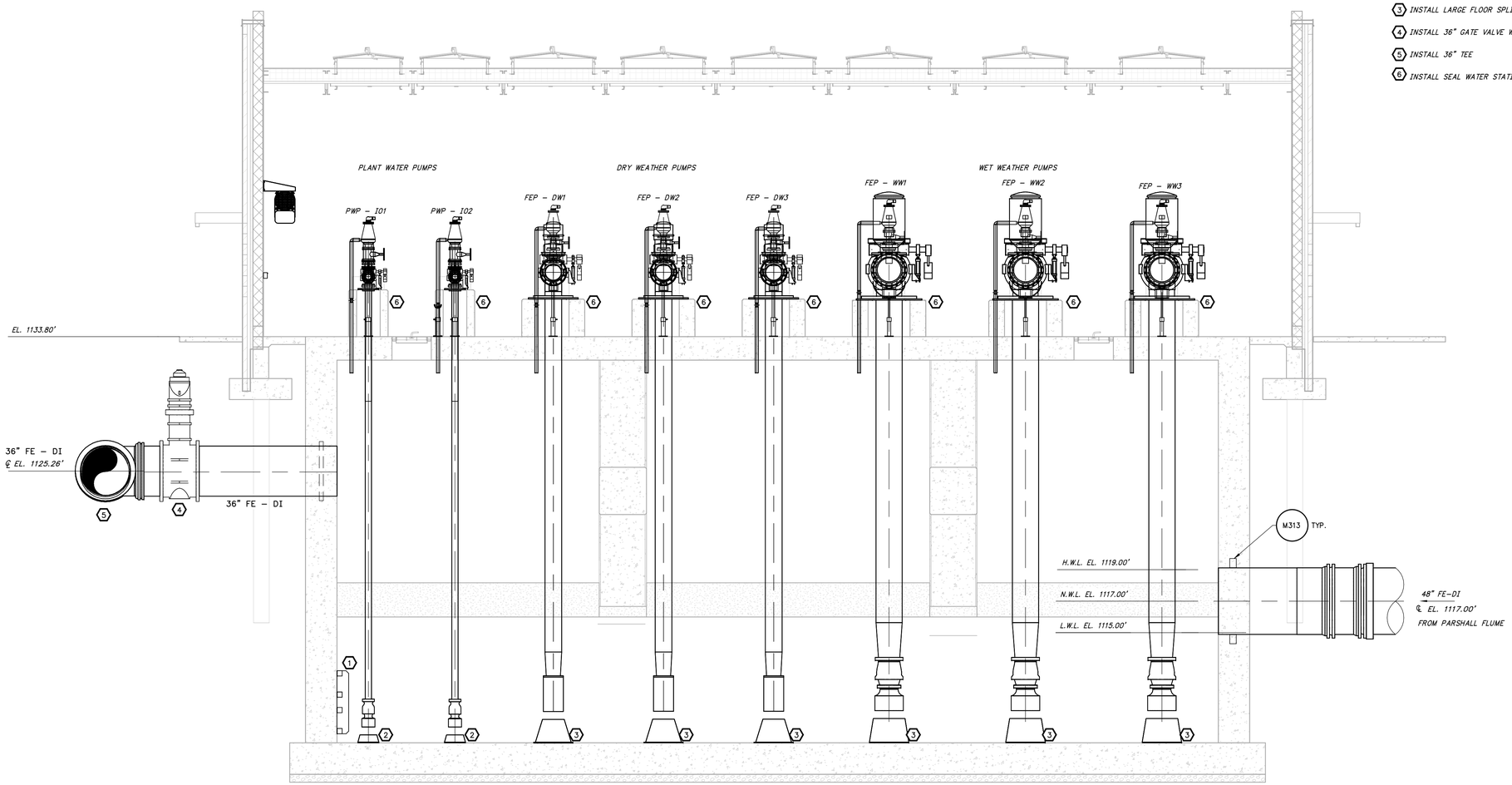
CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

EFFLUENT PUMP STATION DETAIL

FOR: BENTONVILLE WATER UTILITIES

DATE: MARCH 2025
SCALE: 1/4" = 1'-0"
DESIGNED BY: ZMJ
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-ME

SHEET NO.
MI-1



EFFLUENT PUMP STATION

SECTION 1 / MI-1

1/4" = 1'-0"

NOTES:

1. ALL HARDWARE SHALL BE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED. ANTISEIZE LUBRICANTS SHALL BE USED WHEN ASSEMBLING STAINLESS STEEL HARDWARE.
2. PAINT ALL EXPOSED PIPING IN ACCORDANCE WITH SPECIFICATION SECTION 09902.

KEYED NOTES:

1. INSTALL ANTI-VORTEX BAFFLE — M607
2. INSTALL SMALL FLOOR SPLITTER — M606
3. INSTALL LARGE FLOOR SPLITTER — M605
4. INSTALL 36" GATE VALVE WITH VALVE BOX AND STEM EXTENSION
5. INSTALL 36" TEE
6. INSTALL SEAL WATER STATION — M1004

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

DATE	REVISION

STATE OF ARKANSAS
ZACHARY JOSEPH MORGAN
LICENSED PROFESSIONAL ENGINEER
No. 24145
3/20/2025

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

EFFLUENT PUMP STATION
SECTION

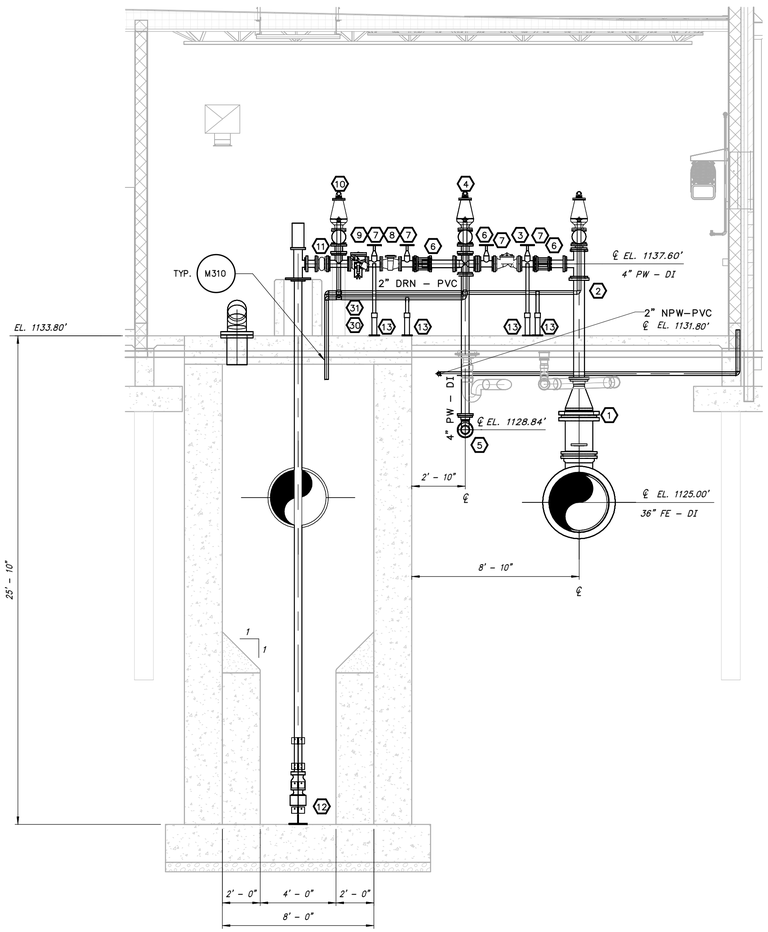
FOR: BENTONVILLE WATER UTILITIES

DATE: MARCH 2025
SCALE: 1/4" = 1'-0"
DESIGNED BY: ZMJ
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-ME

SHEET NO.
MI-2

NOTES:

1. ALL HARDWARE SHALL BE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED. ANTISEIZE LUBRICANTS SHALL BE USED WHEN ASSEMBLING STAINLESS STEEL HARDWARE.
2. PAINT ALL EXPOSED PIPING IN ACCORDANCE WITH SPECIFICATION SECTION 09902.
3. DRAIN LINES SHALL BE SIZED ACCORDING TO THE OUTLET SPECIFIED BY THE COMBINATION AIR/VACUUM VALVE MANUFACTURER.



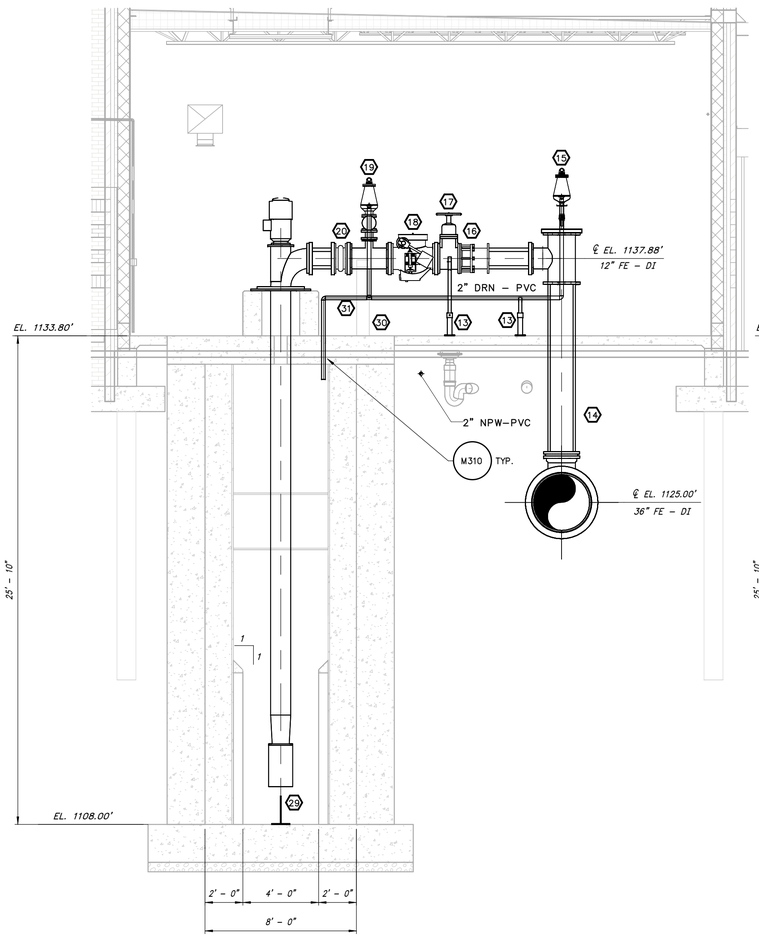
PLANT WATER PUMPS

SECTION 2 / MI-1

1/4" = 1'-0"

KEYED NOTES:

1. INSTALL 36"x16" TEE AND 16"x6" REDUCER
2. INSTALL 6"x4" TEE WITH 8" BLIND FLANGE WITH 1" THREADED TAP, 1" STAINLESS STEEL NIPPLES, 1" STAINLESS STEEL BALL VALVE, AND 1" STAINLESS STEEL COMBINATION AIR/VACUUM VALVE — M802
3. INSTALL 4" PRESSURE RELIEF VALVE
4. INSTALL 4" CROSS WITH 4" BLIND FLANGE WITH 1" THREADED TAP, 1" STAINLESS STEEL NIPPLES, 1" STAINLESS STEEL BALL VALVE, AND 1" STAINLESS STEEL COMBINATION AIR/VACUUM VALVE — M802
5. INSTALL 4" TEE
6. INSTALL 4" FLANGED COUPLING ADAPTER
7. INSTALL 4" GATE VALVE WITH HANDWHEEL
8. INSTALL 4" H-STYLE STRAINER
9. INSTALL 4" SWING ARM CHECK VALVE
10. INSTALL 4" TEE WITH 4" BLIND FLANGE WITH 2" THREADED TAP, 2" STAINLESS STEEL NIPPLES, 2" STAINLESS STEEL BALL VALVE, AND 2" STAINLESS STEEL COMBINATION AIR/VACUUM VALVE — M802



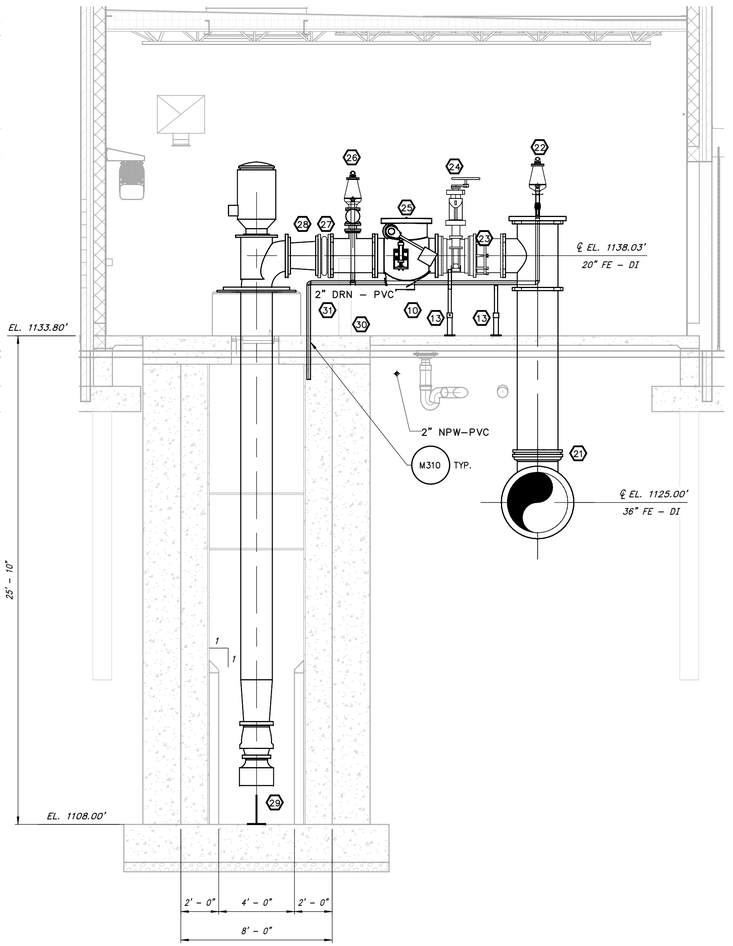
DRY WEATHER PUMPS

SECTION 3 / MI-1

1/4" = 1'-0"

KEYED NOTES:

11. INSTALL 4" RESTRAINED BELLOWS
12. INSTALL SMALL FLOOR SPLITTER — M606
13. ADJUSTABLE PIPE SUPPORT — M202
14. INSTALL 36" X 16" TEE
15. INSTALL 16" x 12" TEE WITH 16" BLIND FLANGE WITH 2" THREADED TAP, 2" STAINLESS STEEL NIPPLES, 2" STAINLESS STEEL BALL VALVE, AND 2" STAINLESS STEEL COMBINATION AIR/VACUUM VALVE — M802
16. INSTALL 12" FLANGED COUPLING ADAPTER
17. INSTALL 12" GATE WITH HANDWHEEL
18. INSTALL 12" SWING ARM CHECK VALVE
19. INSTALL 12" x 4" TEE WITH 4" GATE VALVE WITH HANDWHEEL AND 4" STAINLESS STEEL COMBINATION AIR/VACUUM VALVE — M801
20. INSTALL 12" RESTRAINED BELLOWS



WET WEATHER PUMPS

SECTION 4 / MI-1

1/4" = 1'-0"

KEYED NOTES:

21. INSTALL 36" x 24" TEE
22. INSTALL 24" x 20" TEE WITH 24" BLIND FLANGE WITH 2" THREADED TAP, 2" STAINLESS STEEL NIPPLES, 2" STAINLESS STEEL BALL VALVE, AND 2" STAINLESS STEEL COMBINATION AIR/VACUUM VALVE — M802
23. INSTALL 20" FLANGED COUPLING ADAPTER
24. INSTALL 20" GATE VALVE WITH HANDWHEEL
25. INSTALL 20" SWING ARM CHECK VALVE
26. INSTALL 20" x 6" TEE WITH 6" x 4" REDUCER, 4" GATE VALVE WITH HANDWHEEL AND 4" STAINLESS STEEL COMBINATION AIR/VACUUM VALVE — M801
27. INSTALL 20" RESTRAINED BELLOWS
28. INSTALL 20" x 14" REDUCER
29. INSTALL LARGE FLOOR SLITTER — M605
30. CONCRETE PIPE SUPPORT — M203
31. INSTALL PIPE CLAMP ON CONCRETE SUPPORT FOR DRAIN LINE — M106

BID DRAWINGS

MARCH 21, 2025

1"

ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS — LICENSED PROFESSIONAL ENGINEER — ZACHARY JOSEPH MORGAN — NO. 24145 — 03/20/25

HAWKINS WEIR ENGINEERS, INC.

BLACK & VEATCH

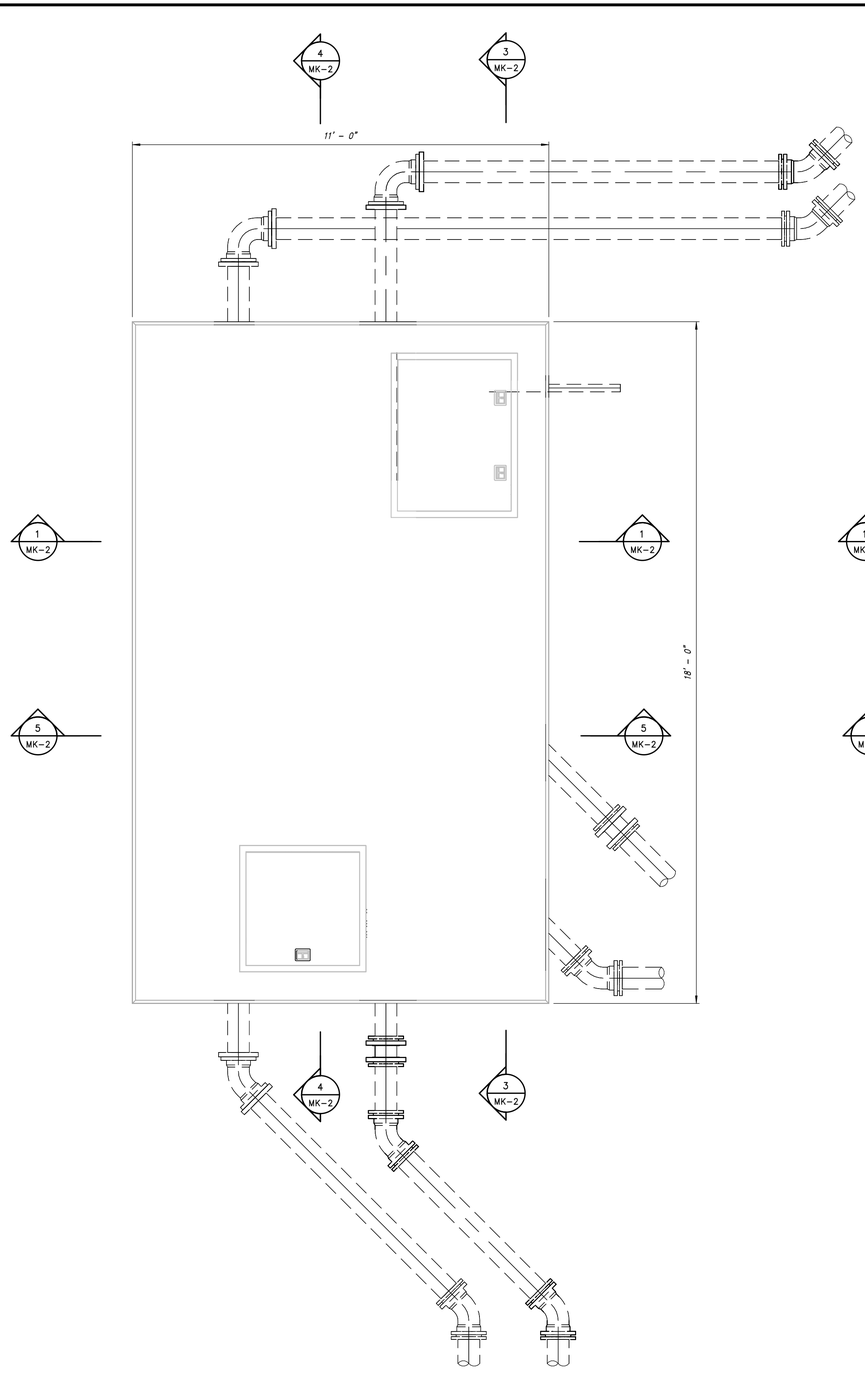
CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

EFFLUENT PUMP STATION SECTIONS

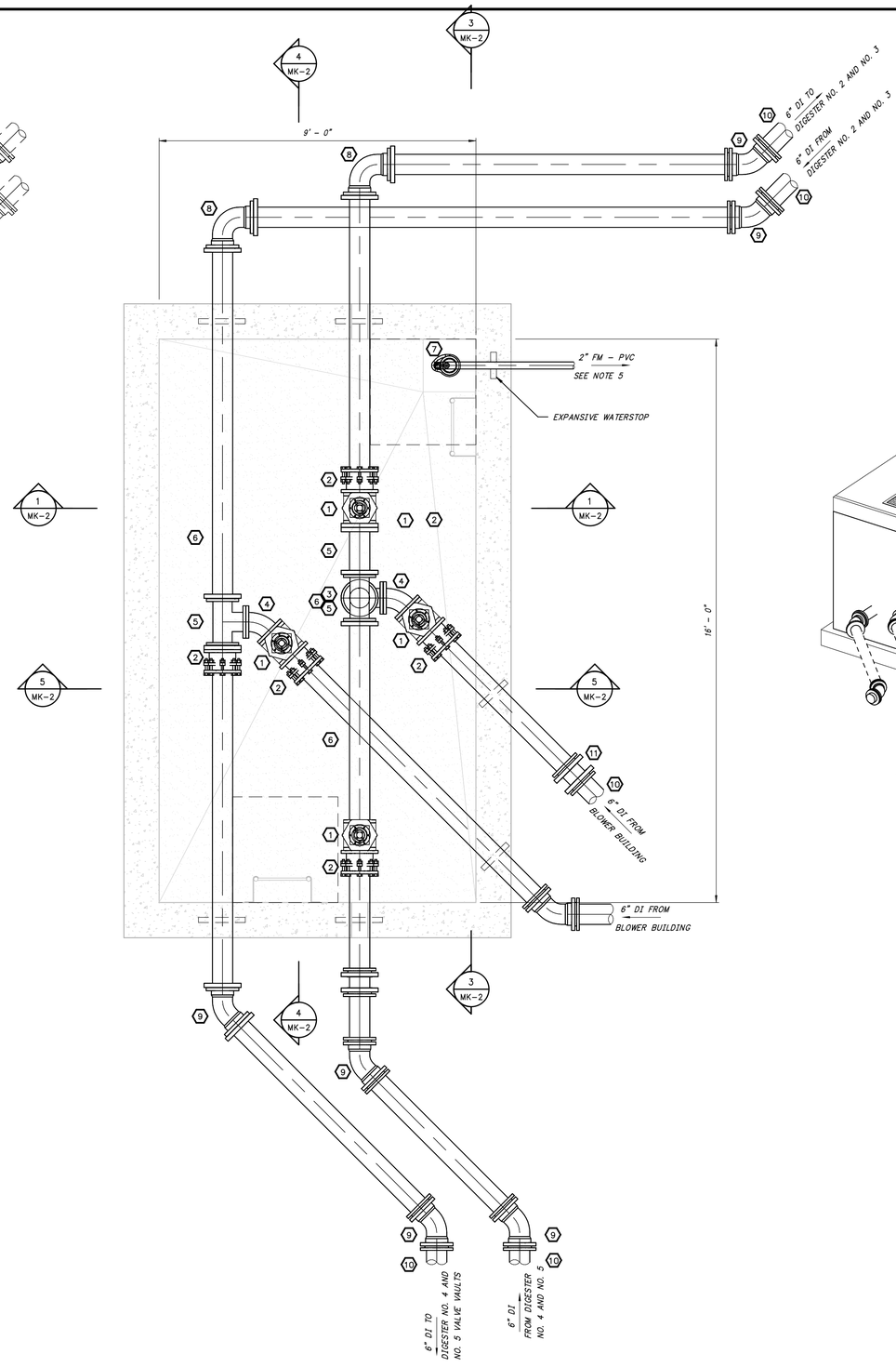
FOR: BENTONVILLE WATER UTILITIES

DATE: MARCH 2025
SCALE: 1/4" = 1'-0"
DESIGNED BY: ZMJ
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-ME

SHEET NO.
MI-3



DETAIL 3
1/2" = 1'-0"

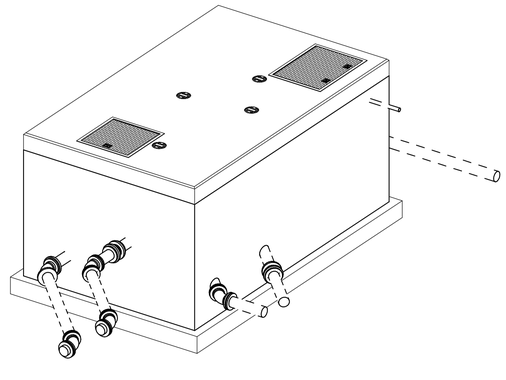


BLOWER BUILDING VALVE VAULT

DETAIL A
1/2" = 1'-0"

NOTES:
1. ALL EXISTING PIPING, FITTINGS, AND VALVES SHALL BE REMOVED. REFER TO DEMOLITION DRAWINGS.
2. SLOPE VAULT FLOOR TO DRAIN.
3. ROUTE ACCESS DOOR DRAINS IN VALVE VAULT TO ADJACECENT WALL AND THEN FLOOR WITH PVC PIPE. SECURE PIPE TO THE CEILING AND WALL WITH STAINLESS STEEL PIPE CLAMPS.
4. PAINT ALL EXPOSED PIPING IN ACCORDANCE WITH SPECIFICATION SECTION 09902.
5. SUMP PUMP DISCHARGE PIPING SHALL DISCHARGE INTO EXISTING SANITARY SEWER MANHOLE NEAR THE NORTHEAST CORNER OF THE BLOWER BUILDING. SEE SITE PIPING PLAN IN CIVIL DRAWINGS FOR REFERENCE.

M102



ISOMETRIC/3D
N.T.S.

KEYED NOTES:

1. 6" FLANGED PLUG VALVE WITH ADJUSTABLE PIPE SUPPORT, STEM EXTENSION TO TOP SLAB, AND VALVE BOX CAST IN TOP SLAB. (M202)
2. 6" FLANGED COUPLING ADAPTER
3. FLANGED 6" 90° BEND
4. FLANGED 6" 45° BEND
5. 6" FLANGED TEE
6. 6" FLANGED SPOOL PIECE
7. SUMP PUMP, PVC CHECK VALVE, PVC UNION, AND DISCHARGE PIPING, SEE NOTE 5
8. 6" MJ 90° BEND
9. 6" MJ 45° BEND
10. CONNECT TO EXISTING 6"-DI
11. 6" MJ SOLID SLEEVE

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
WESLEY JAY LOWE
No. 23398

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

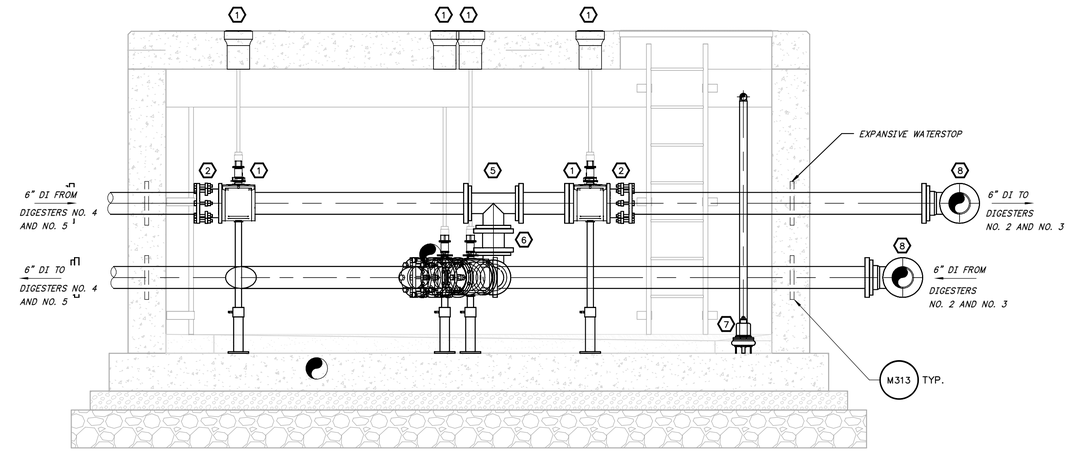
BLOWER BUILDING VALVE VAULT DETAILS

FOR: BENTONVILLE WATER UTILITIES

DATE: MARCH 2025
SCALE: 1/2" = 1'-0"
DESIGNED BY: WJL
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-ME

SHEET NO.
MK-1

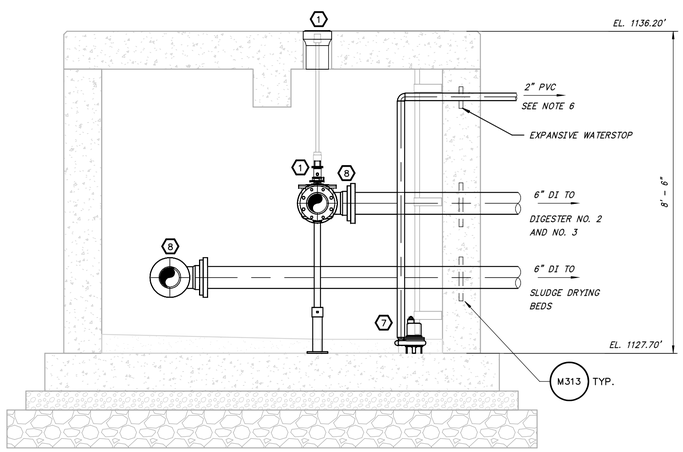
BID DRAWINGS
MARCH 21, 2025



BLOWER BUILDING VALVE VAULT

SECTION 3 — MK-1

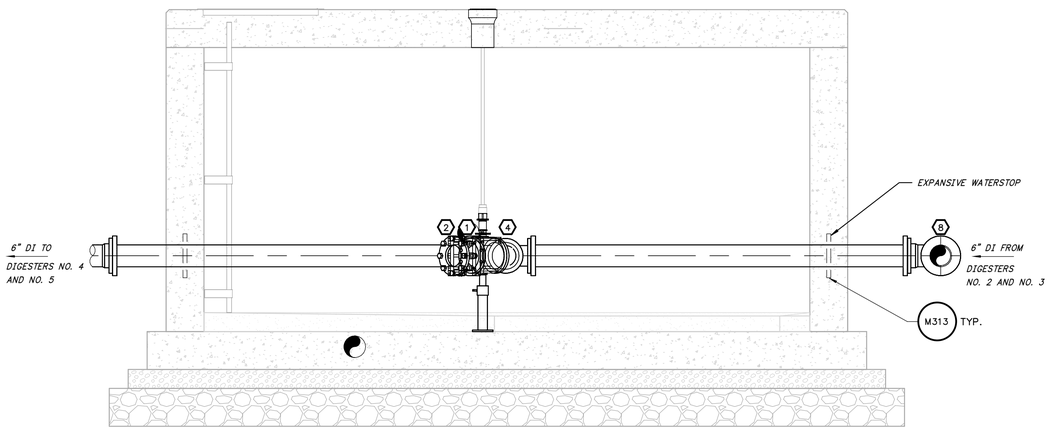
1/2" = 1'-0"



BLOWER BUILDING VALVE VAULT

SECTION 1 — MK-1

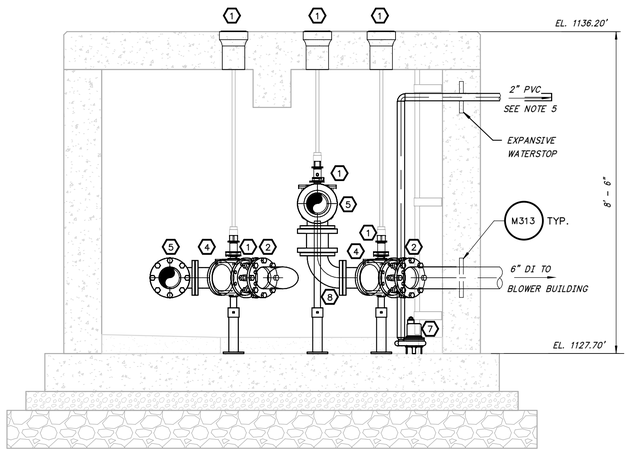
1/2" = 1'-0"



BLOWER BUILDING VALVE VAULT

SECTION 4 — MK-1

1/2" = 1'-0"



BLOWER BUILDING VALVE VAULT

SECTION 5 — MK-1

1/2" = 1'-0"

NOTES:

1. *ALL EXISTING PIPING, FITTINGS, AND VALVES SHALL BE REMOVED. REFER TO DEMOLITION DRAWINGS.*
2. *SLOPE VAULT FLOOR TO DRAIN.*
3. *ROUTE ACCESS DOOR DRAINS IN VALVE VAULT TO ADJACECENT WALL AND THEN FLOOR WITH PVC PIPE. SECURE PIPE TO THE CEILING AND WALL WITH STAINLESS STEEL PIPE CLAMPS.* (M102)
4. *PAINT ALL EXPOSED PIPING IN ACCORDANCE WITH SPECIFICATION SECTION 09902.*
5. *FLOOR DRAIN SHALL CONNECT TO 8" DRN – DI AT MINIMUM SLOPE OF 1.00%. SEE SITE PIPING PLANS IN CIVIL DRAWINGS FOR REFERENCE. DRAIN LINE SHALL INCLUDE A CLEANOUT.*
6. *SUMP PUMP DISCHARGE PIPING SHALL DISCHARGE INTO EXISTING SANITARY SEWER MANHOLE NEAR THE NORTHEAST CORNER OF THE BLOWER BUILDING. SEE SITE PIPING PLAN IN CIVIL DRAWINGS FOR REFERENCE.*

KEYED NOTES:

1. *6" FLANGED PLUG VALVE WITH ADJUSTABLE PIPE SUPPORT, STEM EXTENSION TO TOP SLAB, AND VALVE BOX CAST IN TOP SLAB.* (M202)
2. *6" FLANGED COUPLING ADAPTER*
3. *FLANGED 6" 90° BEND*
4. *FLANGED 6" 45° BEND*
5. *6" FLANGED TEE*
6. *6" FLANGED SPOOL PIECE*
7. *SUMP PUMP, PVC CHECK VALVE, PVC UNION, AND DISCHARGE PIPING, SEE NOTE 6*
8. *6" MJ 90° BEND*
9. *6" MJ 45° BEND*
10. *CONNECT TO EXISTING 6"-DI*
11. *6" MJ SOLID SLEEVE*

BID DRAWINGS

MARCH 21, 2025

1"

ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS — LICENSED PROFESSIONAL ENGINEER — WESLEY JAY LOWE — No. 23398

HAWKINS WEIR ENGINEERS, INC.

BLACK & VEATCH

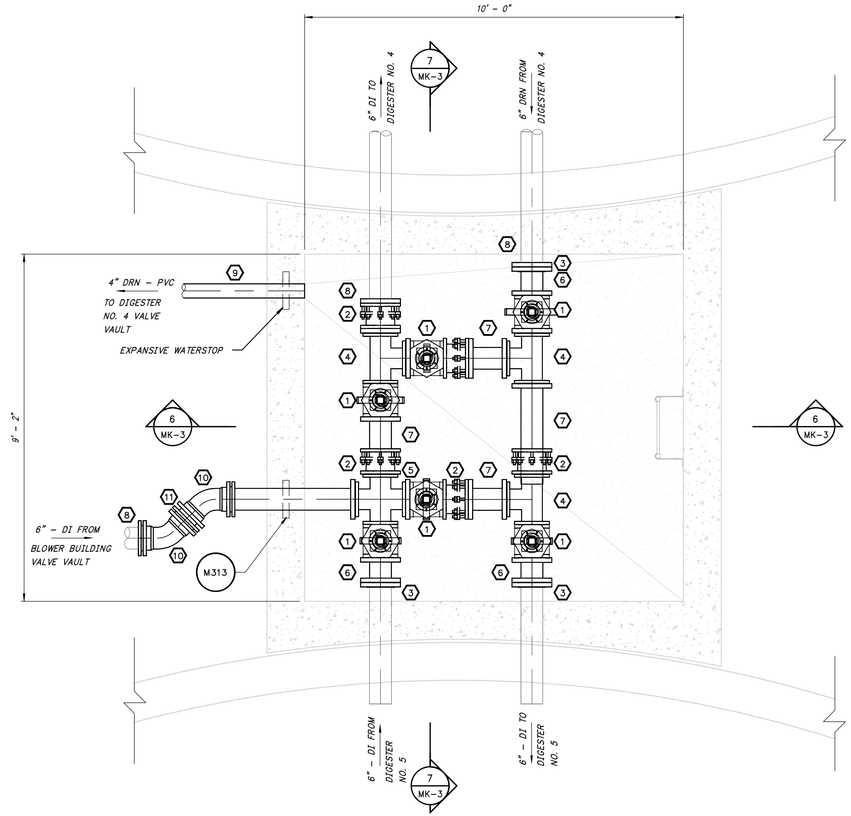
CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

BLOWER BUILDING VALVE VAULT SECTIONS

FOR: BENTONVILLE WATER UTILITIES

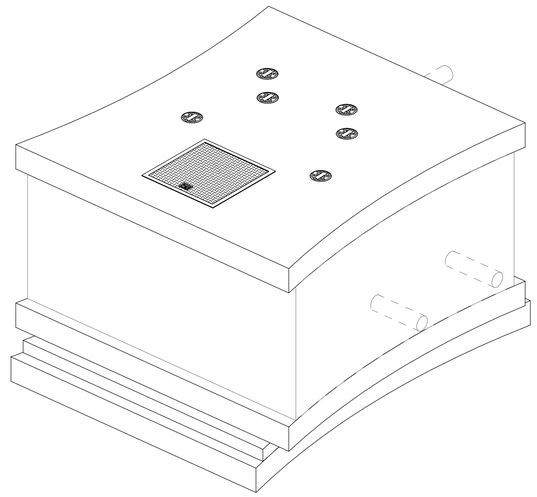
DATE: MARCH 2025
SCALE: 1/2" = 1'-0"
DESIGNED BY: WJL
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-ME

SHEET NO.
MK-2



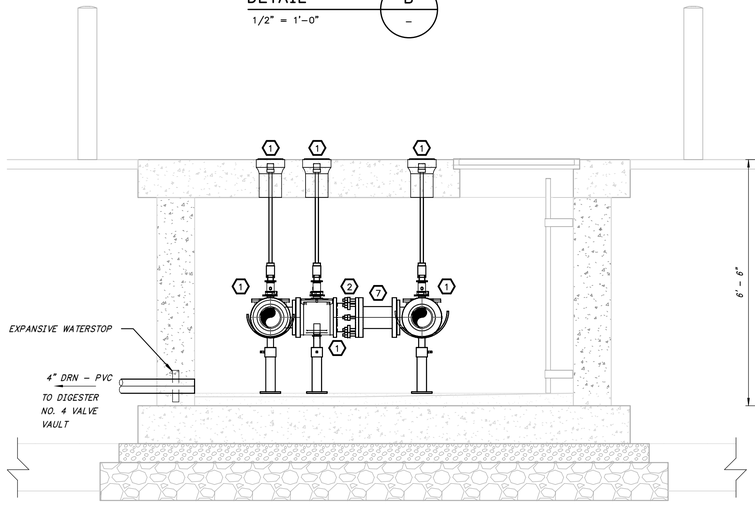
DIGESTER NO. 4 AND NO. 5
VALVE VAULT

DETAIL B
1/2" = 1'-0"



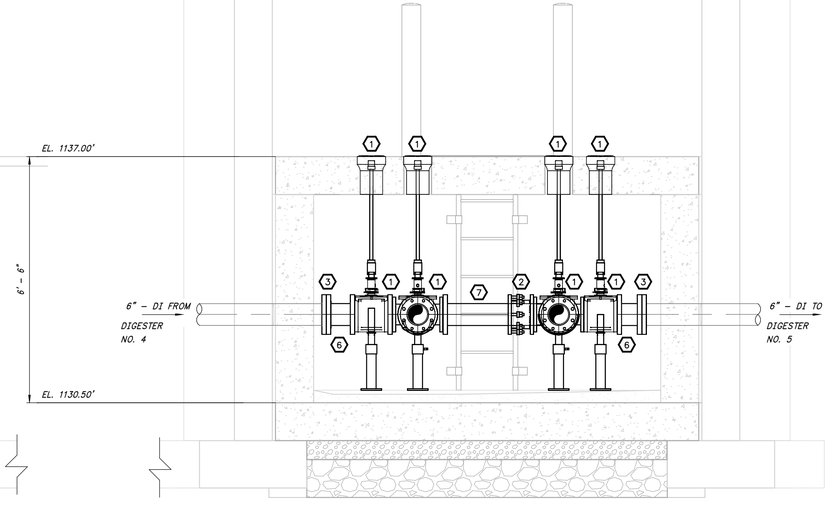
ISOMETRIC/3D

N.T.S.



DIGESTER NO. 4 AND NO. 5
VALVE VAULT

SECTION 6
1/2" = 1'-0"
MK-3



DIGESTER NO. 4 AND NO. 5
VALVE VAULT

SECTION 7
1/2" = 1'-0"
MK-3

NOTES:

1. *ALL HARDWARE SHALL BE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED. ANTISEIZE LUBRICANTS SHALL BE USED WHEN ASSEMBLING STAINLESS STEEL HARDWARE.*
2. *SLOPE VAULT FLOOR TO DRAIN.*
3. *ROUTE ACCESS DOOR DRAINS IN VALVE VAULT TO ADJACECENT WALL AND THEN FLOOR WITH PVC PIPE. SECURE PIPE TO THE CEILING AND WALL WITH STAINLESS STEEL PIPE CLAMPS PER DETAIL MXXX.*
4. *PAINT ALL EXPOSED PIPING IN ACCORDANCE WITH SPECIFICATION SECTION 09902.*
5. *FLOOR DRAIN SHALL CONNECT TO PROPOSED 4" DRN - PVC FROM DIGESTER NO. 5 VALVE VAULT AND EXTEND TO DIGESTER NO. 4 VALVE VAULT. DRAIN PIPING SHALL BE INSTALLED AT A MINIMUM SLOPE OF 1.00% AND INCLUDE CLEANOUTS. SEE SITE PIPING PLANS IN CIVIL DRAWINGS FOR REFERENCE.*
6. *EXISTING PIPE, FITTINGS, AND VALVES TO BE REMOVED. REFER TO DEMOLITION DRAWINGS.*

KEYED NOTES:

1. *6" FLANGED PLUG VALVE WITH ADJUSTABLE SUPPORT, STEM EXTENSION, AND VALVE BOX CAST INTO TOP SLAB* (M202)
2. *6" FLANGED COUPLING ADAPTER*
3. *6" UNI-FLANGE*
4. *6" FLANGED TEE*
5. *6" FLANGED CROSS*
6. *6" FLANGED SPOOL PIECE*
7. *6" FLXPE SPOOL PIECE*
8. *CONNECT TO EXISTING 6" - DI PIPE*
9. *4" PVC DRAIN, SEE NOTE 5*
10. *6" MJ 45° BEND*
11. *FOSTER ADAPTER, IF NECESSARY*

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
WESLEY JAY LOWE
No. 23388

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

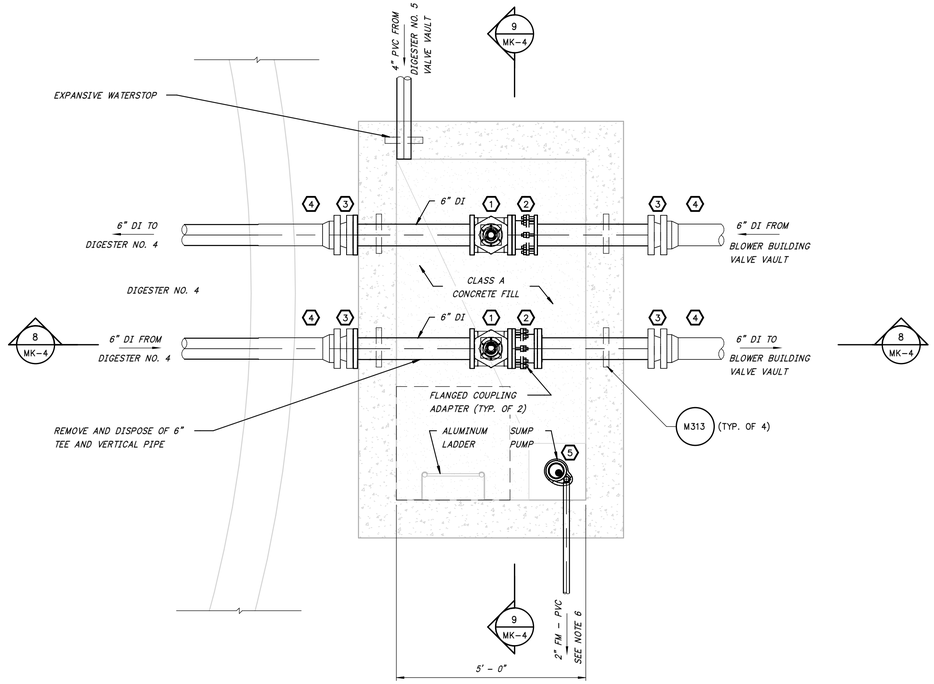
CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

DIGESTER NO. 4 AND AND NO. 5 VALVE VAULT DETAILS AND SECTIONS

FOR: BENTONVILLE WATER UTILITIES

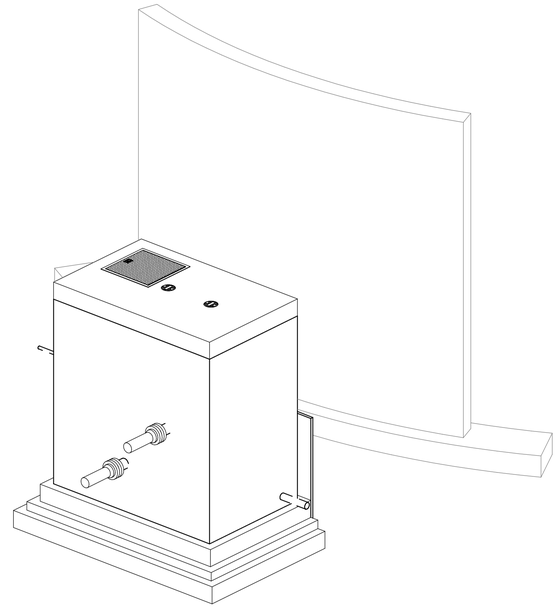
DATE: MARCH 2025
SCALE: 1/2" = 1'-0"
DESIGNED BY: WJL
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-ME

SHEET NO.
MK-3



DIGESTER NO. 4
VALVE VAULT

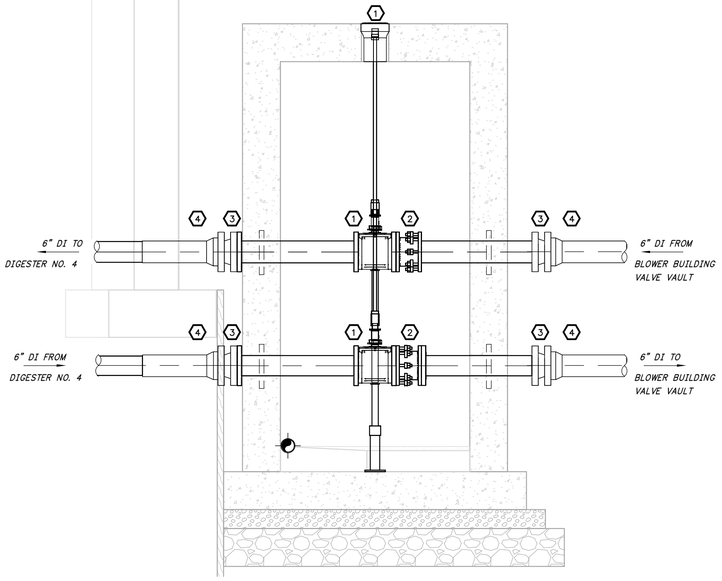
DETAIL C
1/2" = 1'-0"



ISOMETRIC/3D
N.T.S.

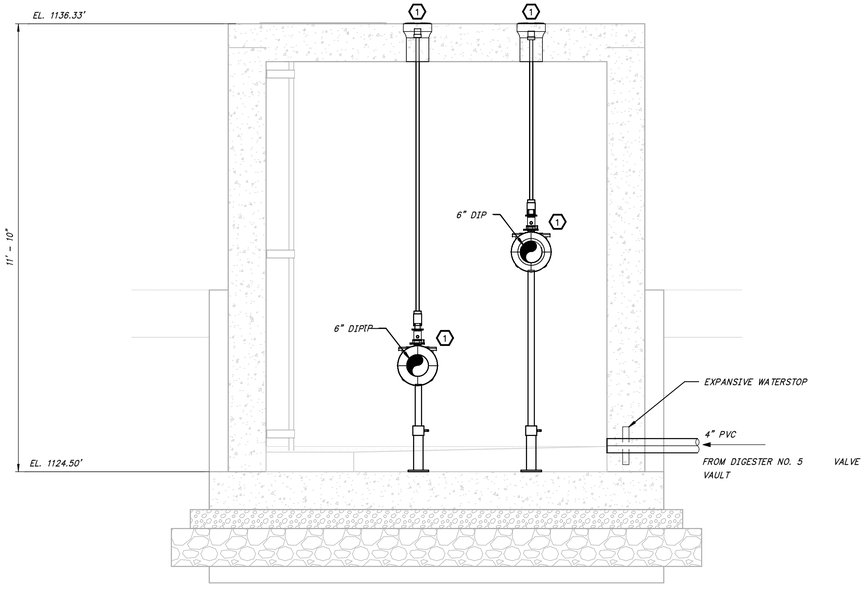
NOTES:

1. *ALL HARDWARE SHALL BE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED. ANTISEIZE LUBRICANTS SHALL BE USED WHEN ASSEMBLING STAINLESS STEEL HARDWARE.*
2. *SLOPE VAULT FLOOR TO DRAIN.*
3. *ROUTE ACCESS DOOR DRAINS IN VALVE VAULT TO ADJACECENT WALL AND THEN FLOOR WITH PVC PIPE. SECURE PIPE TO THE CEILING AND WALL WITH STAINLESS STEEL PIPE CLAMPS PER DETAIL M102.*
4. *PAINT ALL EXPOSED PIPING IN ACCORDANCE WITH SPECIFICATION SECTION 09902.*
5. *EXISTING PIPE, FITTINGS, AND VALVES TO BE REMOVED. REFER TO DEMOLITION DRAWINGS.*
6. *SUMP PUMP DISCHARGE PIPING SHALL DISCHARGE INTO EXISTING SANITARY SEWER MANHOLE NEAR THE NORTHEAST CORNER OF THE BLOWER BUILDING. SEE SITE PIPING PLAN IN CIVIL DRAWINGS FOR REFERENCE.*



DIGESTER NO. 4
VALVE VAULT

SECTION 8
1/2" = 1'-0"



DIGESTER NO. 4
VALVE VAULT

SECTION 9
1/2" = 1'-0"

KEYED NOTES:

1. *6" FLANGED PLUG VALVE WITH ADJUSTABLE PIPE SUPPORT, STEM EXTENSION, AND VALVE BOX CAST INTO TOP SLAB.* M202
2. *6" FLANGED COUPLING ADAPTER*
3. *6" MJ SOLID SLEEVE*
4. *CONNECT TO EXISTING 6" - DI PIPE*
5. *SUMP PUMP, PVC CHECK VALVE, PVC UNION, AND DISCHARGE PIPING, SEE NOTE 6*

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 23398
WESLEY JAY LOWE

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

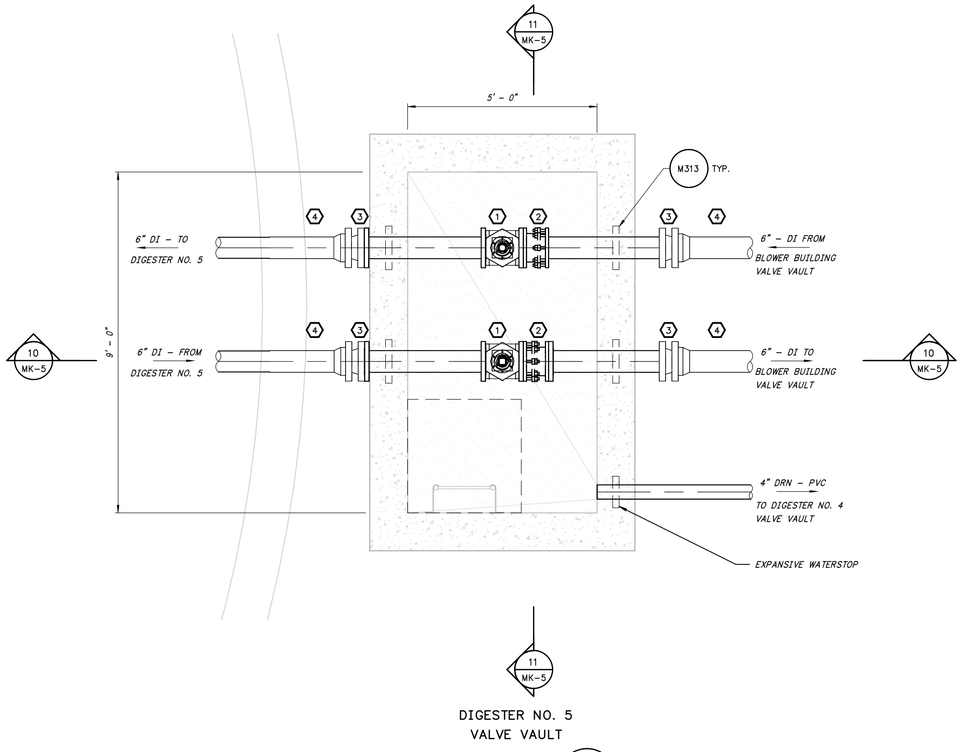
CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

DIGESTER NO. 4 VALVE VAULT
DETAIL AND SECTIONS

FOR: BENTONVILLE WATER UTILITIES

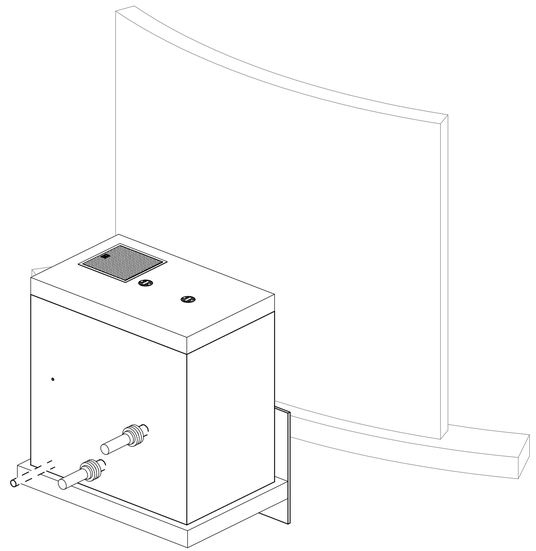
DATE: MARCH 2025
SCALE: 1/2" = 1'-0"
DESIGNED BY: WJL
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-ME

SHEET NO.
MK-4

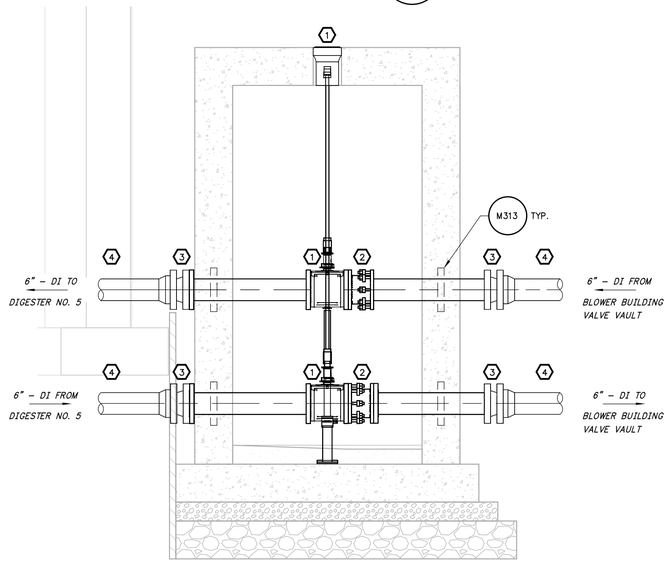


DIGESTER NO. 5
VALVE VAULT

DETAIL D
1/2" = 1'-0" –

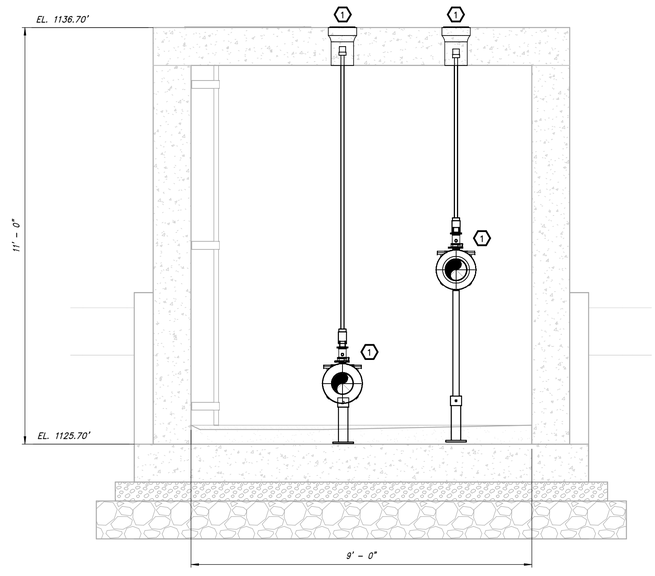


ISOMETRIC/3D
N.T.S.



DIGESTER NO. 5
VALVE VAULT

SECTION 10
1/2" = 1'-0" MK-5



DIGESTER NO. 5
VALVE VAULT

SECTION 11
1/2" = 1'-0" MK-5

NOTES:

1. ALL HARDWARE SHALL BE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED. ANTISEIZE LUBRICANTS SHALL BE USED WHEN ASSEMBLING STAINLESS STEEL HARDWARE.
2. SLOPE VAULT FLOOR TO DRAIN.
3. ROUTE ACCESS DOOR DRAINS IN VALVE VAULT TO ADJACECENT WALL AND THEN FLOOR WITH PVC PIPE. SECURE PIPE TO THE CEILING AND WALL WITH STAINLESS STEEL PIPE CLAMPS PER DETAIL MXXX.
4. PAINT ALL EXPOSED PIPING IN ACCORDANCE WITH SPECIFICATION SECTION 09902.
5. FLOOR DRAIN SHALL CONNECT TO PROPOSED 4" DRN - PVC FROM DIGESTER NO. 4 AND NO. 5 VALVE VAULT AND EXTEND TO DIGESTER NO. 4 VALVE VAULT. DRAIN PIPING SHALL BE INSTALLED AT A MINIMUM SLOPE OF 1.00% AND INCLUDE CLEANOUTS. SEE SITE PIPING PLANS IN CIVIL DRAWINGS FOR REFERENCE.
6. EXISTING PIPE, FITTINGS, AND VALVES TO BE REMOVED. REFER TO DEMOLITION DRAWINGS.

KEYED NOTES:

1. 6" FLANGED PLUG VALVE WITH ADJUSTABLE PIPE SUPPORT, STEM EXTENSION, AND VALVE BOX CAST INTO TOP SLAB (M202)
2. 6" FLANGED COUPLING ADAPTER
3. 6" MJ SOLID SLEEVE
4. CONNECT TO EXISTING 6" - DI PIPE
5. 4" PVC DRAIN, SEE NOTE 5

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 23389
WESLEY JAY LEWIS

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE
RECOVERY FACILITY IMPROVEMENTS

DIGESTER NO. 5 VALVE VAULT
DETAIL AND SECTION

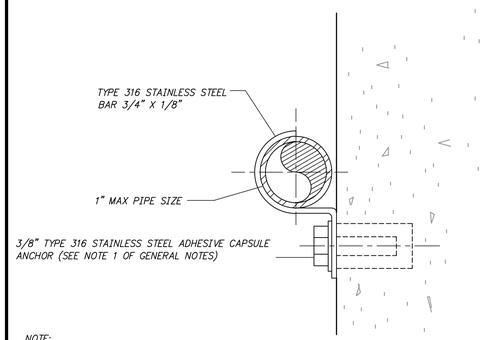
FOR: BENTONVILLE WATER UTILITIES

DATE: MARCH 2025
SCALE: 1/2" = 1'-0"
DESIGNED BY: WJL
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037-ME

SHEET NO.
MK-5

GENERAL NOTES (TYP FOR ALL STD MECH DETAIL SHTS):

1. STAINLESS STEEL ADHESIVE CAPSULE ANCHORS SHALL BE A TWO-PART STUD & CAPSULE RESIN ANCHORING SYSTEM. CAPSULES SHALL BE SELF-CONTAINED, SEALED GLASS UNITS CONTAINING PREMEASURED AMOUNTS OF RESIN, AGGREGATES, & HARDENER. STUD ASSEMBLIES SHALL BE ALL-THREAD ANCHOR ROD WITH NUT & WASHER. INSTALL ANCHOR IN FULL COMPLIANCE WITH THE MANUFACTURERS RECOMMENDATIONS. ANCHORS SHALL BE TYPE 316 SS AND SHALL BE HILTI "HVA ADHESIVE ANCHOR", MOLLY "PARABOUND CAPSULE ANCHOR", OR EQUAL. PROVIDE MINIMUM EMBEDMENT OF 10 BOLT DIAMETERS IN CONC.



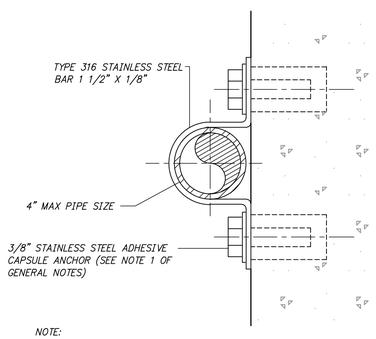
NOTE:

1. WHEN USED WITH PVC OR FIBERGLASS PIPE, PROVIDE STEEL SHIELD AROUND PIPE AT CLAMP WITH LOOSE FIT. WRAP COPPER TUBES WITH 2" WIDE STRIP OF RUBBER FABRIC.

PIPE CLAMP FOR INDIVIDUAL PIPES

DETAIL M101

N.T.S.



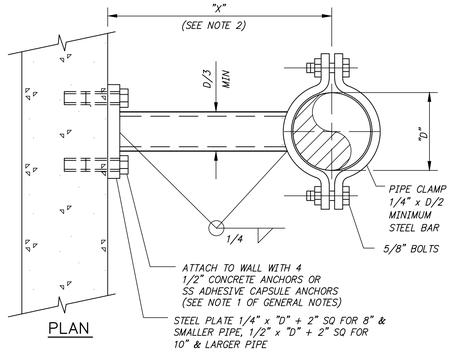
NOTE:

1. WHEN USED WITH PVC OR FIBERGLASS PIPE, PROVIDE STEEL SHIELD AROUND PIPE AT CLAMP WITH LOOSE FIT. WRAP COPPER TUBES WITH 2" WIDE STRIP OF RUBBER FABRIC.

PIPE CLAMP FOR INDIVIDUAL PIPES

DETAIL M102

N.T.S.



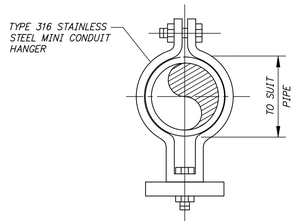
NOTES:

1. SWAY BRACE SHALL NOT SUPPORT VERTICAL LOADS.
2. FOR USE WHEN "X" IS GREATER THAN 12". FOR "X" 12" OR LESS, USE DETAIL M103 OR AS OTHERWISE NOTED.
3. SWAY BRACES SHALL BE TYPE 316 STAINLESS STEEL.

VERTICAL PIPE SWAY BRACE

DETAIL M103

N.T.S.



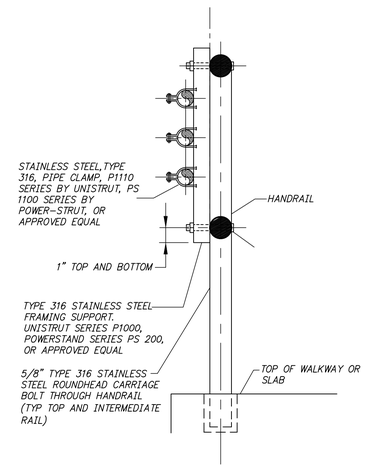
NOTES:

1. PIPE CLAMP, WASHER, AND BOLTS SHALL BE TYPE 316 STAINLESS STEEL.
2. WHEN USED WITH PVC OR FIBERGLASS PIPE, PROVIDE STEEL SHIELD AROUND PIPE AT CLAMP WITH LOOSE FIT. WRAP COPPER TUBES WITH 2" WIDE STRIP OF RUBBER FABRIC.

PIPE CLAMP FOR INDIVIDUAL PIPES

DETAIL M104

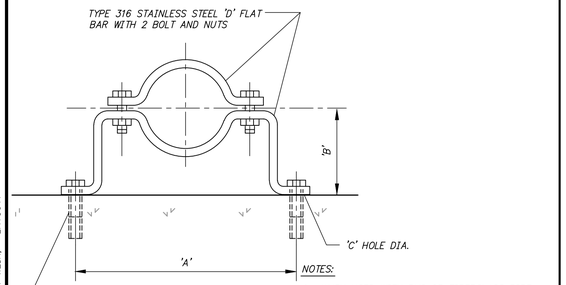
N.T.S.



HANDRAIL SUPPORTED PIPE

DETAIL M105

NTS



NOTES:

1. WHEN USED WITH PVC OR FIBERGLASS PIPE PROVIDE STEEL SHIELD AROUND PIPE AT CLAMP, WITH LOOSE FIT. WRAP COPPER TUBES WITH 2" STRIP OF RUBBER FABRIC.
2. FOR FLANGED PIPING INCREASE 'B' DIMENSION AS REQUIRED.

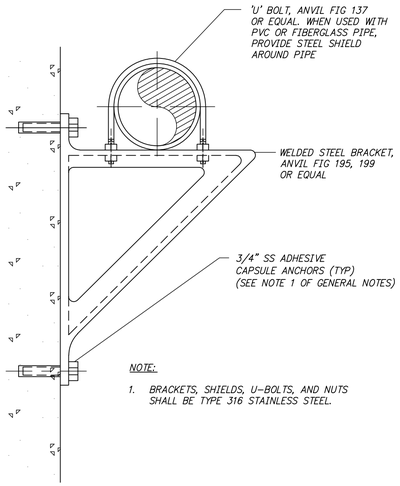
DIMENSIONS IN INCHES					
PIPE DIA	'A'	'B' SEE NOTE 3 BELOW	'C' HOLE DIA	'D' FLAT BAR SIZE	LOAD RATING LBS*
3/4	5-15/16	2-1/2	7/16	3/16 X 1-1/4	300
1	6-1/4	2-5/8	7/16	3/16 X 1-1/4	300
1-1/4	6-11/16	2-3/4	7/16	3/16 X 1-1/4	300
1-1/2	6-15/16	3	7/16	3/16 X 1-1/4	300
2	8-5/16	3-3/16	7/16	1/4 X 1-1/4	500
2-1/2	8-7/8	3-7/16	7/16	1/4 X 1-1/4	500
3	9-1/8	3-3/4	7/16	1/4 X 1-1/4	500
3-1/2	10-1/16	4	7/16	1/4 X 1-1/4	500
4	10-9/16	4-1/4	9/16	1/4 X 1-1/2	600
5	11-3/4	4-3/4	9/16	1/4 X 1-1/2	600
6	14-3/8	5-5/16	9/16	3/8 X 1-1/2	850
8	16-5/8	6-5/16	9/16	3/8 X 1-1/2	850

* SAFETY FACTOR OF 5

PIPE CLAMP FOR INDIVIDUAL PIPES

DETAIL M106

N.T.S.



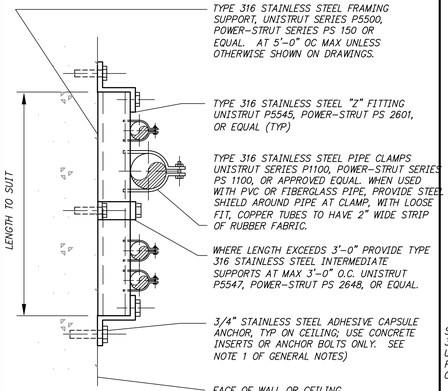
NOTE:

1. BRACKETS, SHIELDS, U-BOLTS, AND NUTS SHALL BE TYPE 316 STAINLESS STEEL.

PIPE BRACKET

DETAIL M107

N.T.S.



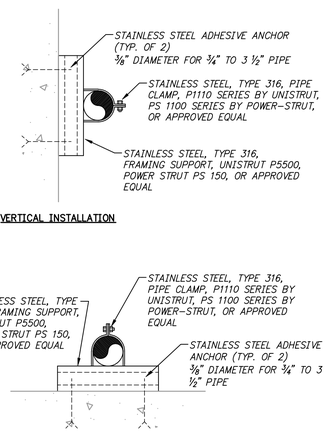
NOTE:

1. FRAMING SUPPORT, Z FITTINGS, INTERMEDIATE SUPPORTS, BOLTS, WASHERS, AND SHIELDS SHALL BE TYPE 316 STAINLESS STEEL.

FLUSH MOUNTED PIPE SUPPORT

DETAIL M108

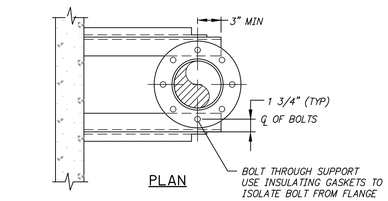
N.T.S.

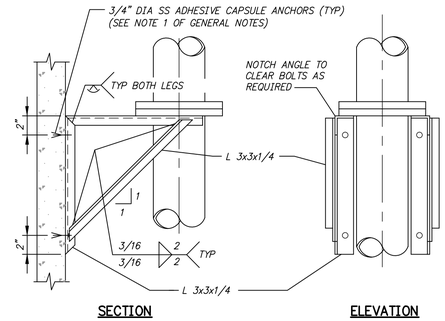


PIPE SUPPORT

DETAIL M109

N.T.S.





NOTES:

1. FOR 4" AND LARGER PIPE.
2. PIPE BRACKET ASSEMBLY & BOLTS SHALL BE 316 STAINLESS STEEL.
3. MAXIMUM VERTICAL LOAD EQUALS 900 POUNDS.
4. FOR PIPE WITH JOINT TYPE OTHER THAN FLANGED, WELD SINGLE SLIP-ON TYPE FLANGE TO PIPE AT LOCATION OF EACH SUPPORT.

PIPE SUPPORT

DETAIL M110

NTS

ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

DATE	REVISION

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 15397 JOSHUA S. DUNIVAN 3/19/25

HAWKINS WEIR ENGINEERS, INC.

BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS
MECHANICAL STANDARD DETAILS I
FOR: BENTONVILLE WASTEWATER UTILITIES

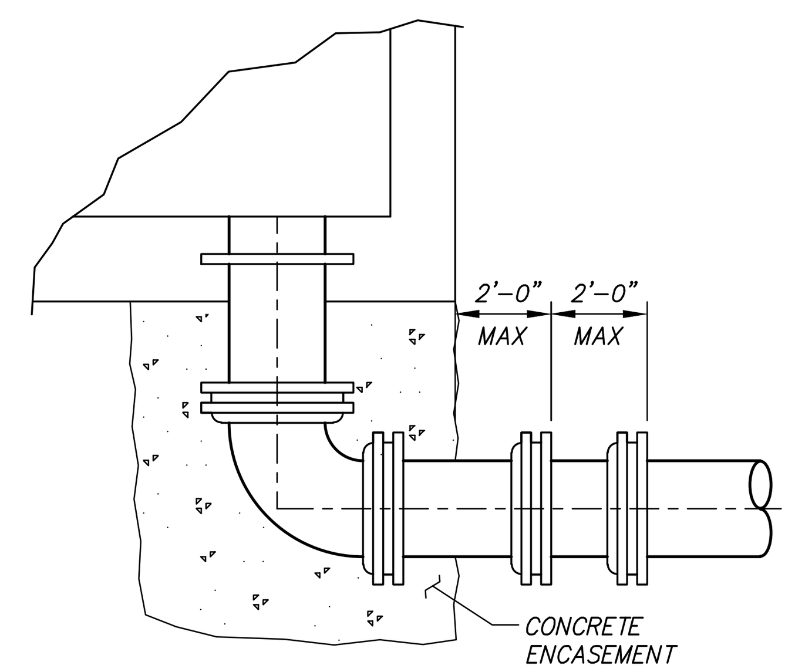
DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: JSD
DRAWN BY: MKH
HWEI NO.: 2021037
FILENAME: MZ-01

SHEET NO. MZ-1

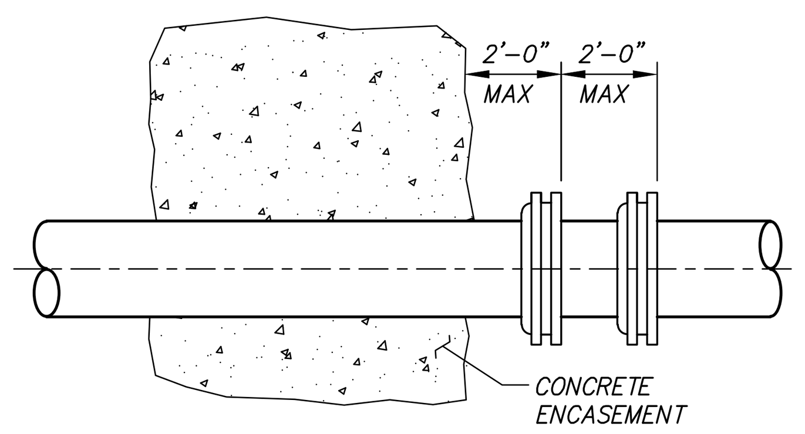
BID DRAWINGS
MARCH 21, 2025

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\MZ-01.DWG, 3/19/2025 9:30 AM, MATT WEIR, LAYOUT1

DETAIL M201 — PIPE CONNECTION AFTER ENCASED ELBOW (NTS)



PIPE CONNECTION
AFTER ENCASED ELBOW

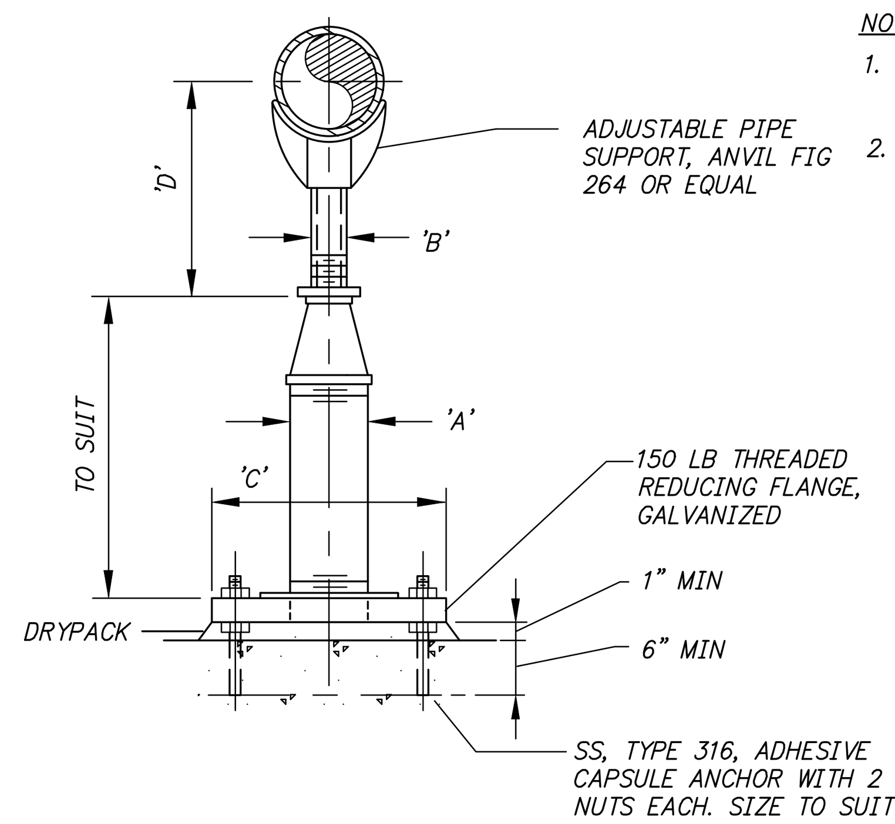


PIPE CONNECTION
AFTER ENCASEMENT

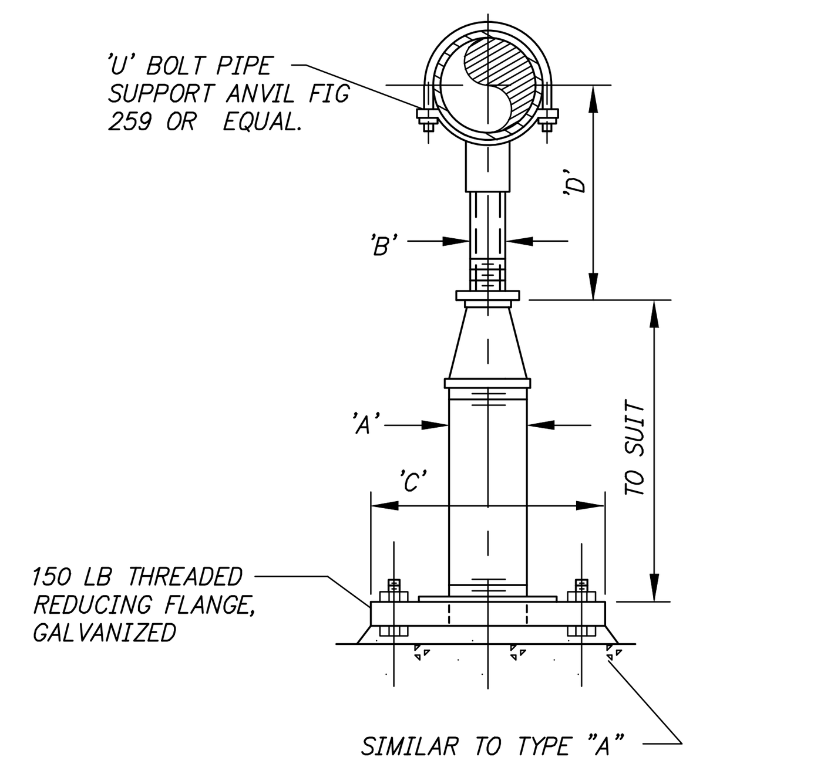
PIPE CONNECTION
AFTER ENCASED ELBOW

DETAIL M201
NTS

DETAIL M202 — ADJUSTABLE PIPE SUPPORT (NTS)



TYPE "A"



TYPE "B"

NOTES:

1. UNDER VALVES, METERS OR OTHER SPECIAL APPURTENANCES, A FABRICATED SUPPORT PIECE MAY BE UTILIZED AS ACCEPTABLE TO ENGINEER.
2. PIPE SUPPORTS SHALL BE TYPE 316 STAINLESS STEEL.

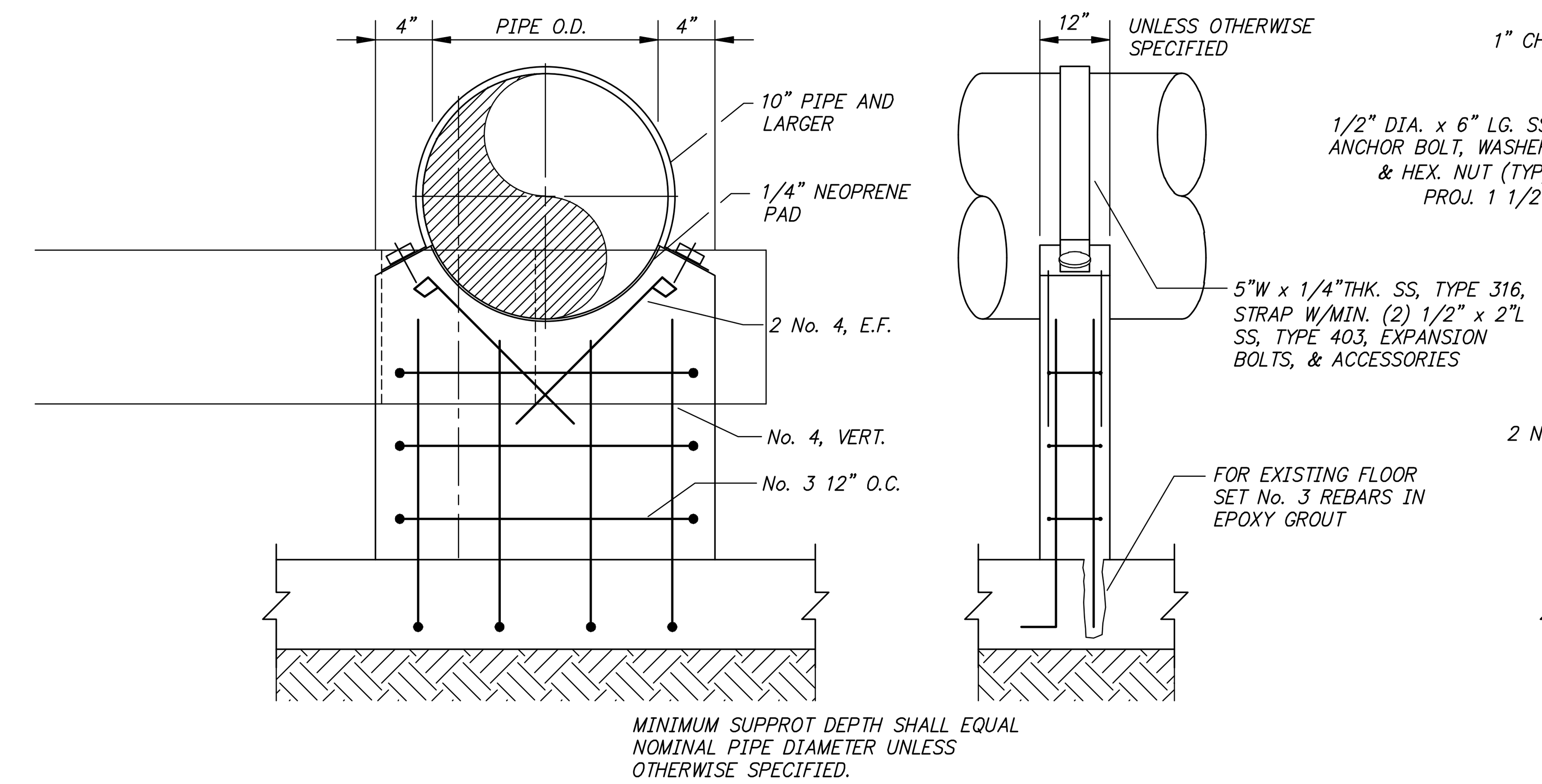
ADJUSTABLE PIPE SUPPORT
APPROX. DIMENSIONS IN INCHES

PIPE SIZE	A	B	C	D MIN	D MAX
2-1/2	2-1/2	1-1/2	9	8	11-1/2
3	2-1/2	1-1/2	9	8-1/4	11-3/4
3-/12	2-1/2	1-1/2	9	8-1/2	12
4	3	2-1/2	9	10-1/4	14
6	3	2-1/2	9	11-5/8	15-1/4
8	3	2-1/2	9	13-5/8	16-1/2
10	3	2-1/2	9	14-5/8	18-1/4
12	3	2-1/2	9	15-5/8	19-3/4
14	4	3	11	18-7/8	20-3/4
16	4	3	11	19-7/8	22-1/4
18	6	3-1/2	13-1/2	21-1/4	24
20	6	3-1/2	13-1/2	23-1/4	25-1/2
24	6	4	13-1/2	26-1/2	28-1/4
30	6	4	13-1/2	29-5/8	31-1/2
32	6	4	13-1/2	30-5/8	32-3/4
36	6	4	13-1/2	32-5/8	34-3/4

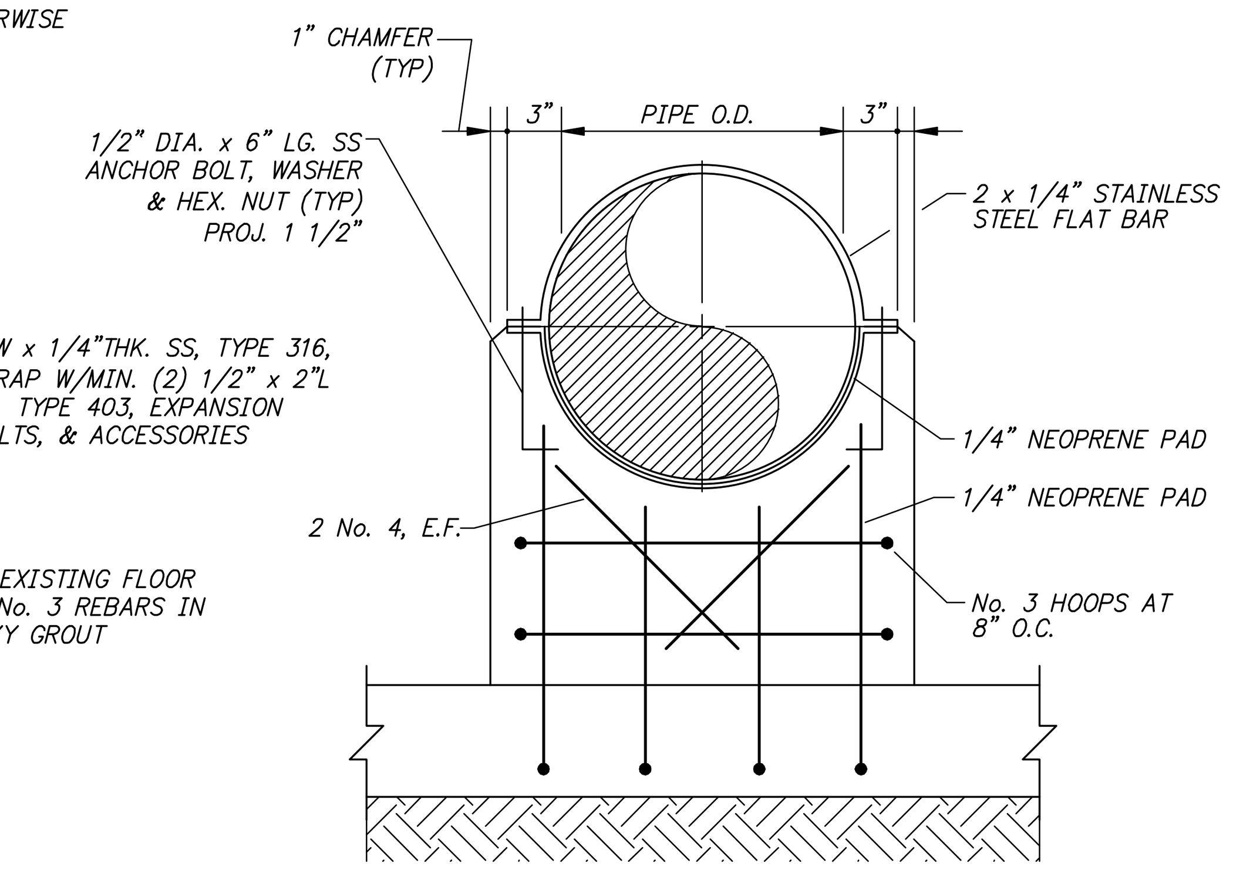
ADJUSTABLE PIPE SUPPORT

DETAIL M202
NTS

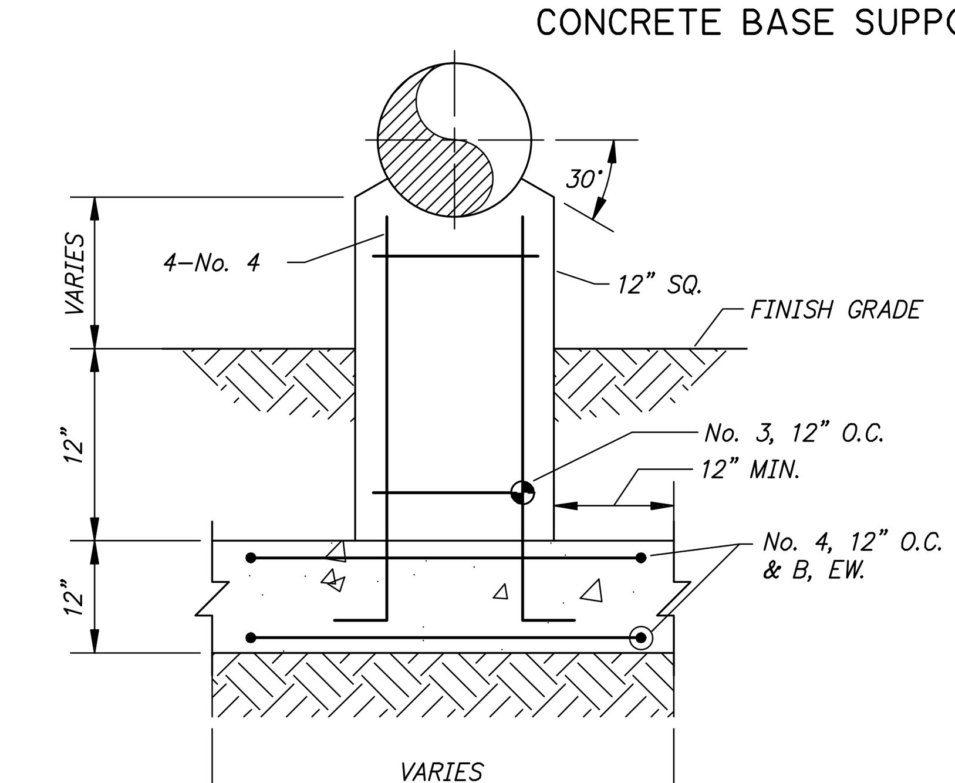
DETAIL M203 — CONCRETE BASE SUPPORT (NTS)

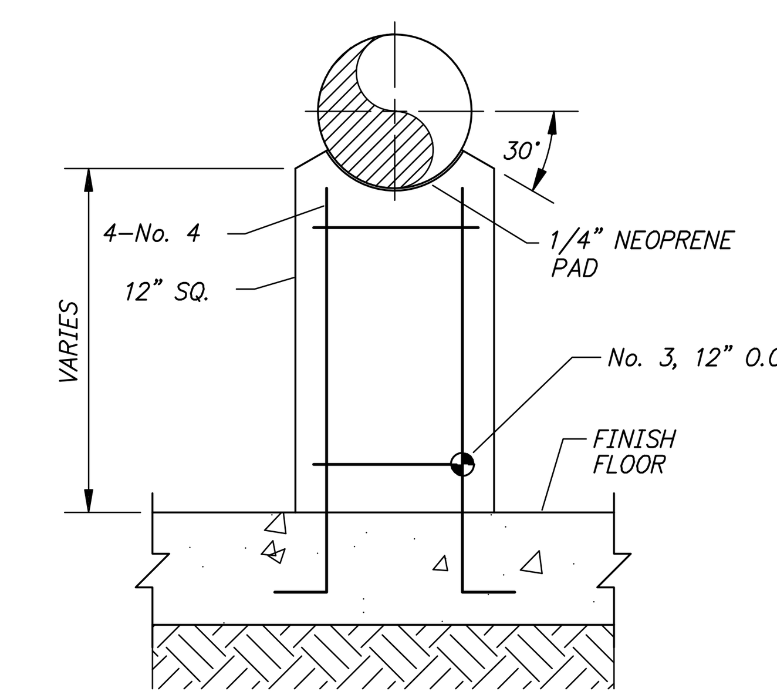


CONCRETE BASE SUPPORT



REACTION TYPE PIPE SUPPORTS

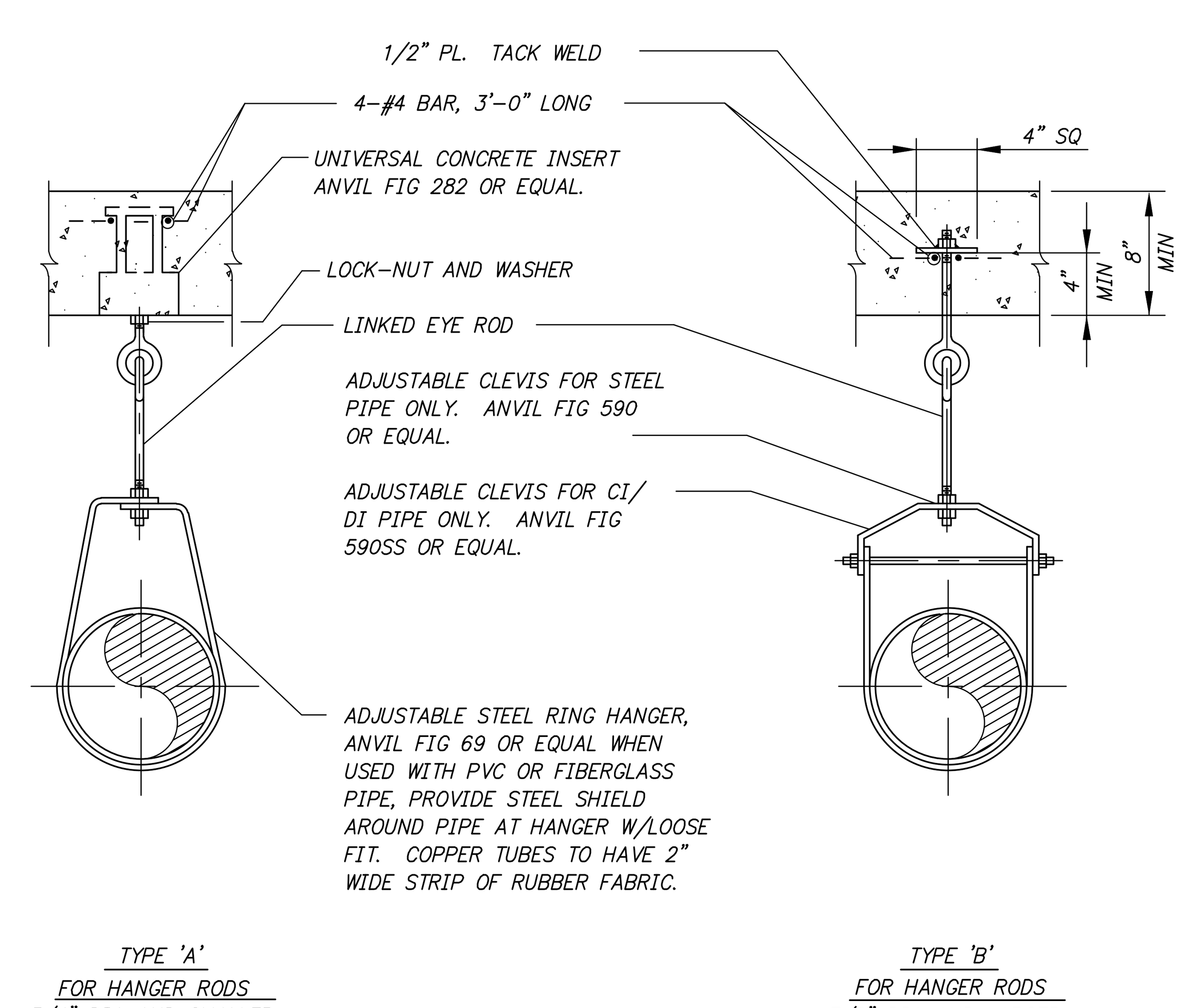




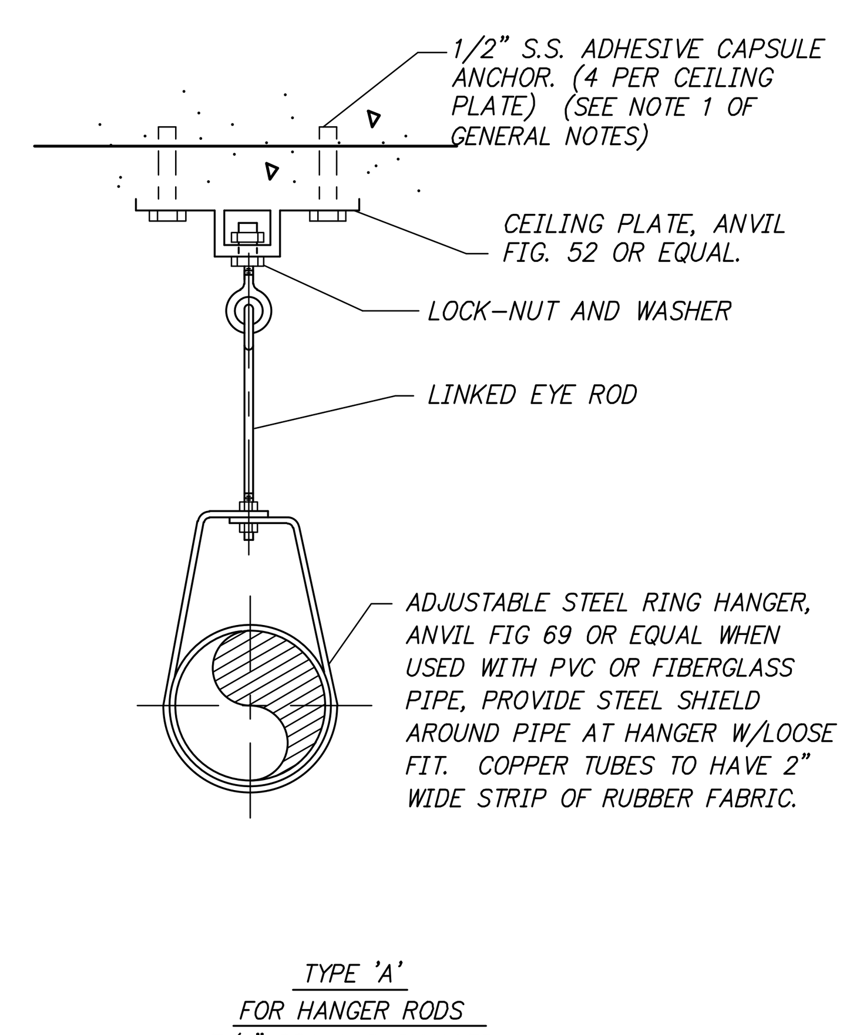
CONCRETE BASE SUPPORT

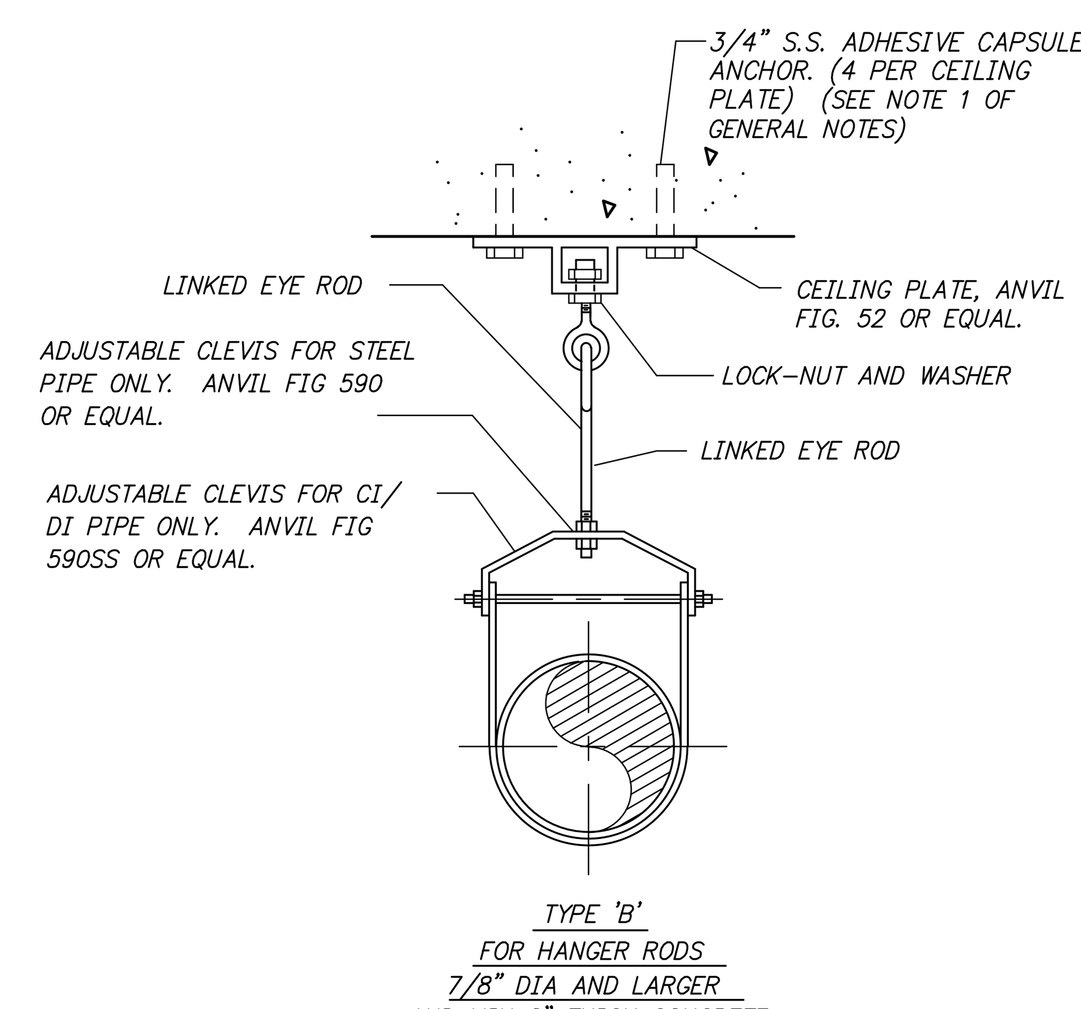
DETAIL M203
NTS

DETAIL M204 — PIPE HANGER (NTS)



NEW CEILING





EXISTING CEILING

PIPE HANGER RODS & SUPPORT SPACING

PIPE DIA (INCHES)	ROD DIA (INCHES)	MAX. SUPPORT SPACING (FEET)		WEIGHT LIMIT (LBS)	
		STL PIPE	CI/DI/FRP PIPE	TYPE 'A'	TYPE 'B'
1 & SMALLER	3/8	5	MIN 1 HANGER PER PIPE LENGTH AND FITTING MAX SPACING 5 FEET- LOCATE HANGER CLOSE TO EACH CONNECTION.	610	---
$1^1/_4$ TO 2	3/8	5		610	---
$2^1/_2$ TO $3^1/_2$	1/2	10		1130	---
4 TO 5	5/8	10		1430	---
6	3/4	10		1430	3800
8,10,12	7/8	10		---	3800
14,16,18	1	10		---	3800

NOTE:

1. THE BRACKETS, SHIELDS, U-BOLTS, AND NUTS SHALL BE TYPE 316 STAINLESS STEEL.

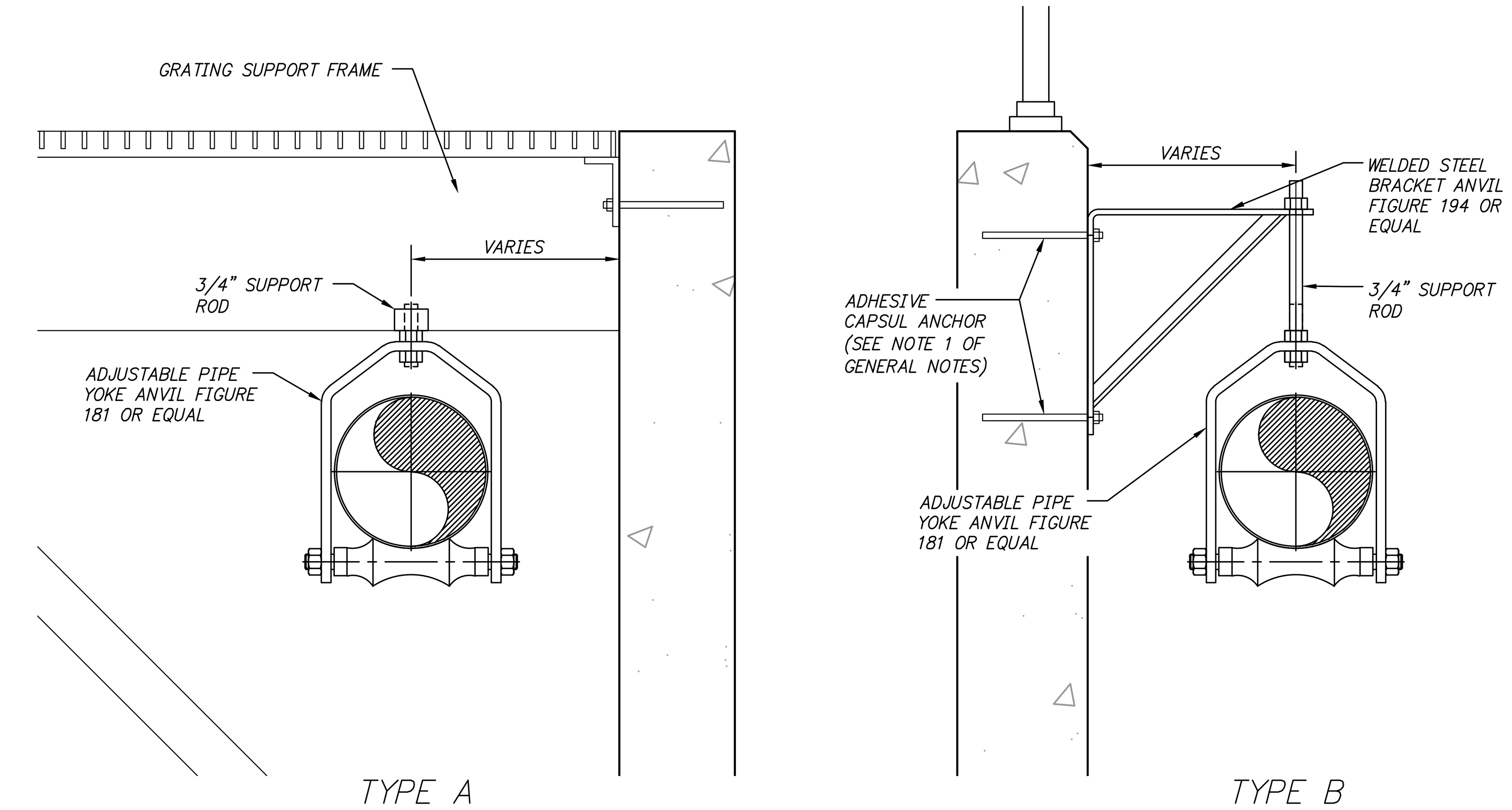
PIPE HANGER

DETAIL M204
NTS

DETAIL M205 (NTS)

NOTES:

1. BRACKETS, SHIELDS, U-BOLTS, AND NUTS SHALL BE TYPE 316 STAINLESS STEEL.
2. ALL SHIELDS, BRACKETS, BOLTS, AND HARDWARE SHALL BE TYPE 316 SS WHEN USED FOR SUPPORT OF SS PIPING.



DETAIL M205
NTS

BID DRAWINGS
MARCH 21, 2025

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\MZ-02.DWG, 3/19/2025 9:30 AM, MATT WEIR, LAYOUT1

ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY (1")

DATE | REVISION

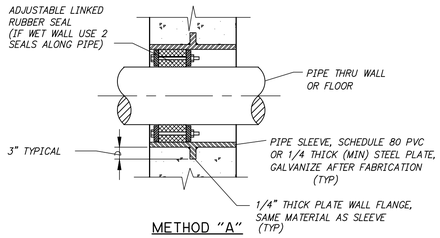
STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 15397 JOSHUA S. DURHAM

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS
MECHANICAL STANDARD DETAILS II
FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: JSD
DRAWN BY: MKH
HWEI NO.: 2021037
FILENAME: MZ-02

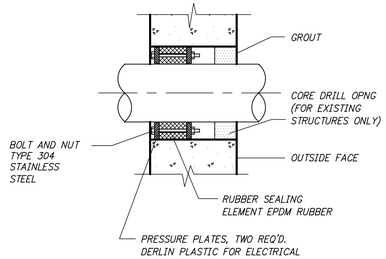
SHEET NO.
MZ-2



WALL PENETRATION IN NEW WALL

DETAIL M301

NTS



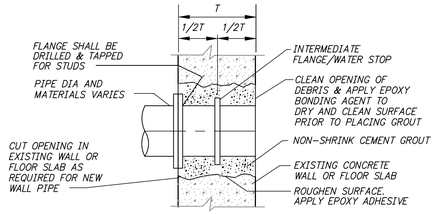
NOTES:

1. INSIDE DIA OF EACH WALL OPENING SHALL BE OF THE SIZE RECOMMENDED BY MANUFACTURER TO FIT THE PIPE OR CONDUIT AND THE WALL SEAL ASSEMBLY TO ENSURE A WATER-TIGHT JOINT.
2. PIPE TO WALL PENETRATION CLOSURES SHALL BE OF THE MODULAR MECHANICAL TYPE, CONSISTING OF INTERLOCKING SYNTHETIC RUBBER LINKS SHAPED TO FILL THE ANNULAR SPACE BETWEEN THE PIPE AND WALL OPENING. A PRESSURE PLATE SHALL BE PROVIDED UNDER EACH BOLT HEAD AND NUT, WITH THE SEAL CONSTRUCTED TO PROVIDE ELECTRICAL INSULATION BETWEEN WALL AND PIPE.
3. WALL SEAL ASSEMBLY SHALL BE LINK SEAL AS MFGR. BY THUNDERLINE CORP WAYNE MICHIGAN OR EQUAL.
4. PROVIDE ESCUTCHEONS IN FINISHED SPACES.

WALL PENETRATION IN EXISTING WALL

DETAIL M302

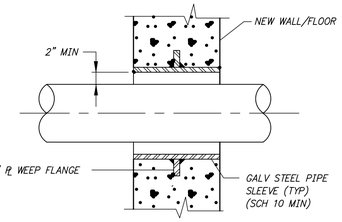
NTS



WALL SLEEVE IN EXISTING WALL/FLOOR

DETAIL M303

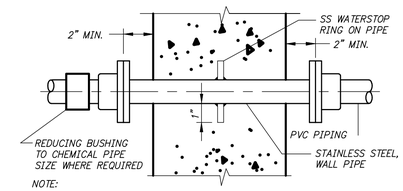
NTS



UNSEALED PIPE SLEEVE

DETAIL M304

NTS



NOTES:

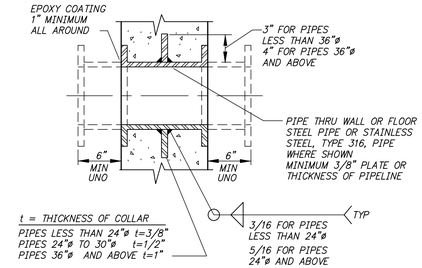
1. CORE HOLE THROUGH WALL APPROX. SAME DIA. AS OD.D. OF WATERSTOP RING. CHIP CONC. BACK ADDL. 2" ALL ARND. LEAVING EXIST. REINF. EXPOSED.
2. ALL CHEMICAL PIPE WALL PENETRATIONS SHALL BE 2-INCH MINIMUM DIAMETER. IF CHEMICAL PIPE IS LARGER THAN 2-INCH, THE WALL PIPE SHALL BE THE SAME SIZE AS THE CHEMICAL PIPE.

EXISTING WALL

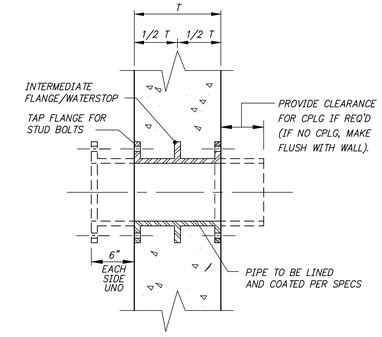
CHEMICAL PIPE WALL PENETRATION

DETAIL M305

NTS



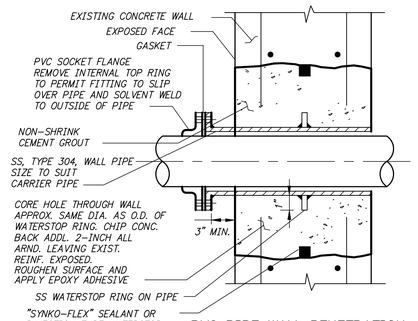
STEEL F X F X F WALL PIPE



DI FxFxPE WALL PIPE IN NEW WALL

DETAIL M306

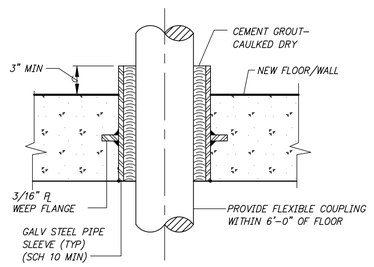
NTS



PVC PIPE WALL PENETRATION

DETAIL M307

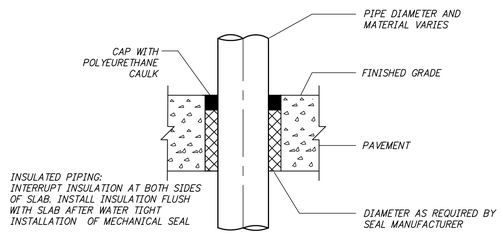
NTS



PIPE SLEEVE (WET FLOOR)

DETAIL M309

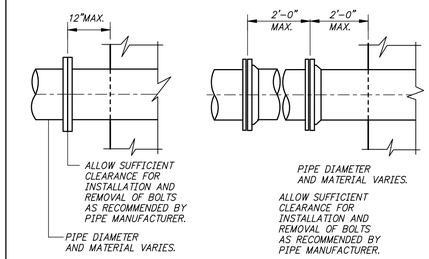
NTS



PENETRATION THROUGH PAVEMENT

DETAIL M311

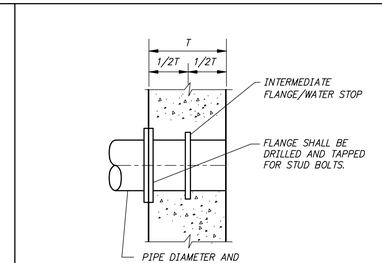
NTS



CASTING WITH NON-FLUSH JOINTS

DETAIL M313

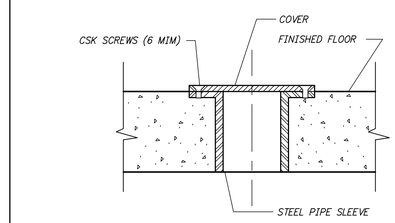
NTS



FLANGE x PLAIN END WALL PIPE

DETAIL M314

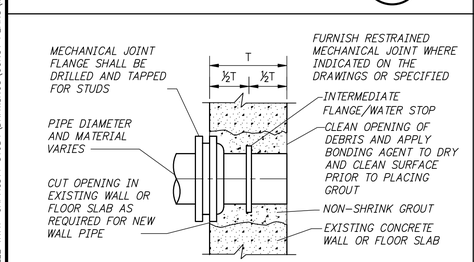
NTS



SLEEVE AND COVER PLATE

DETAIL M315

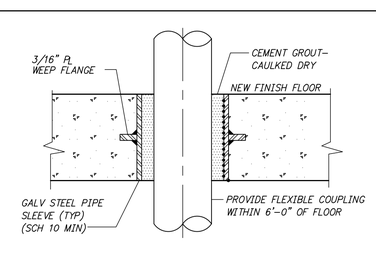
NTS



MECHANICAL JOINT x PLAIN END IN EXISTING WALL/FLOOR

DETAIL M308

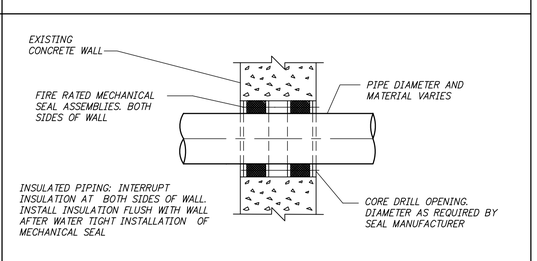
NTS



PIPE SLEEVE W/ GROUT INTERMEDIATE FLOOR PENETRATION

DETAIL M310

NTS



CORE DRILLED OPENING AND DUAL FIRE RATED MECHANICAL SEALS PENETRATION THROUGH EXISTING CONCRETE

DETAIL M312

NTS

1"

ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

DATE

REVISION

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 19397 JOSHUA S. DUNNAWAY 3/19/25

HAWKINS WEIR ENGINEERS, INC.

BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

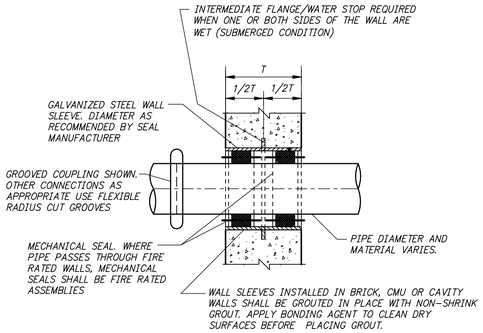
MECHANICAL STANDARD DETAILS III

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: JSD
DRAWN BY: MKH
HWEI NO.: 2021037
FILENAME: MZ-03

SHEET NO.
MZ-3

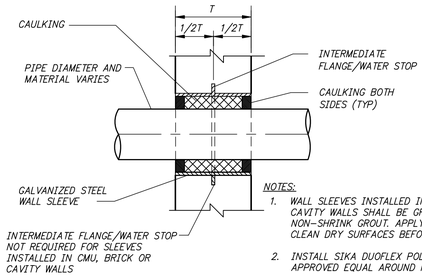
BID DRAWINGS
MARCH 21, 2025



NOTE:
INSULATED PIPING:
INTERRUPT INSULATION AT BOTH SIDES OF WALL. INSTALL INSULATION FLUSH WITH WALL AFTER WATER TIGHT INSTALLATION OF MECHANICAL SEAL.

WALL SLEEVE WITH MECHANICAL SEAL FOR CONCRETE, BRICK, CMU, OR CAVITY WALLS

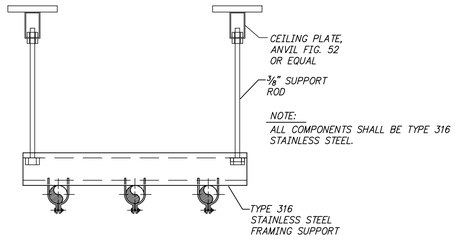
DETAIL M401
NTS



NOTES:
1. WALL SLEEVES INSTALLED IN BRICK, CMU OR CAVITY WALLS SHALL BE GROUTED IN PLACE WITH NON-SHRINK GROUT. APPLY BONDING AGENT TO CLEAN DRY SURFACES BEFORE PLACING GROUT.
2. INSTALL SIKA DUOFLEX POLYSULFIDE SEALANT OR APPROVED EQUAL AROUND PENETRATIONS.

CAULKED WALL SLEEVE FOR CONCRETE, BRICK, CMU, OR CAVITY WALLS

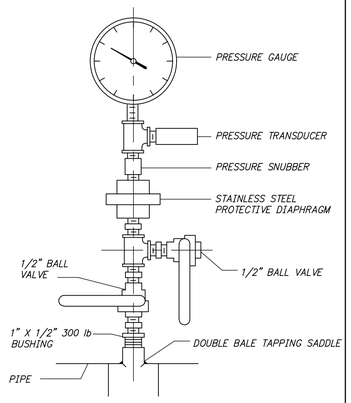
DETAIL M402
NTS



NOTE:
ALL COMPONENTS SHALL BE TYPE 316 STAINLESS STEEL.

SUSPENDED PIPE SUPPORT

DETAIL M403
NTS

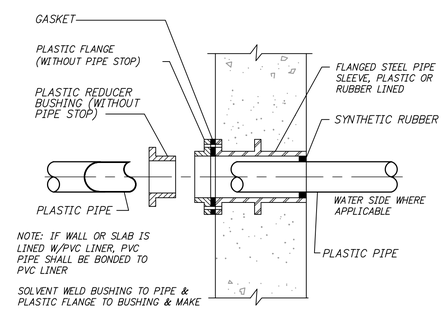


NOTE:
USE DIAPHRAGM SEALS AND VALVES FOR ALL CHEMICALS, SEWAGE, SLUDGE AND OTHER LIQUIDS CONTAINING SOLIDS.

PRESSURE GAUGE OR SWITCH

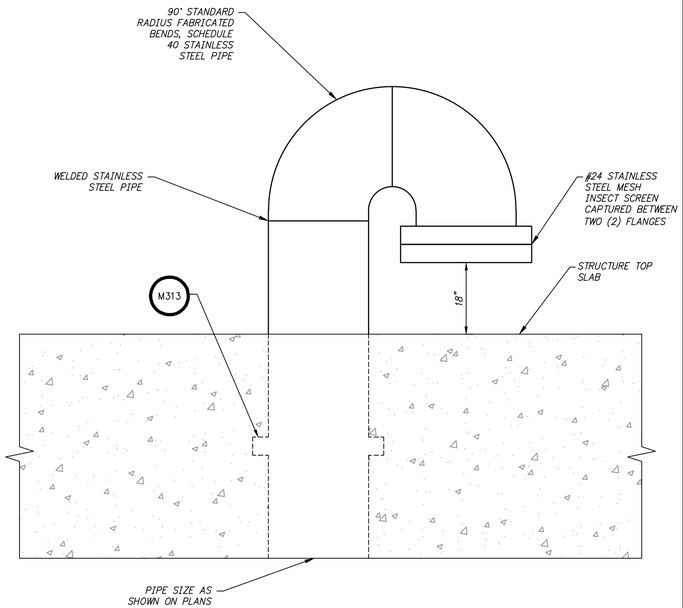
DETAIL M404
NTS

PLASTIC PIPE SIZE	OUTSIDE DIAMETER	WALL SLEEVE SIZE	FLANGE DIAMETER
¾"	1.050	2"	6"
1"	1.315	2"	6"
1 ¼"	1.660	3"	7 ø
1 ø	1.900	3"	7 ø
2"	2.375	4"	9"
3"	3.500	4"	9"
4"	4.500	6"	11"
6"	6.625	8"	13 ø
8"	8.625	10"	16"



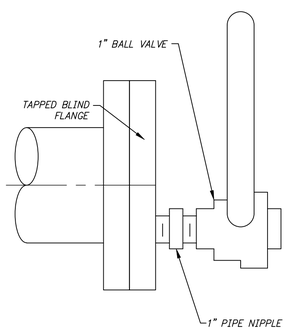
PLASTIC WALL PIPE PENETRATION IN NEW WALL

DETAIL M405
NTS



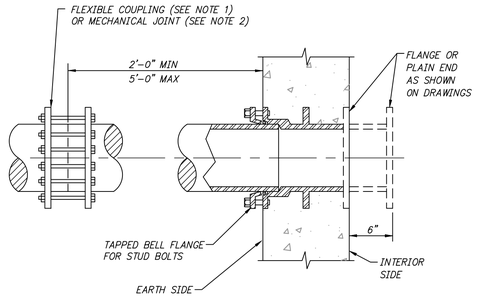
STEEL GOOSENECK VENT

DETAIL M406
NTS



AIR BLOWOFF CONNECTION

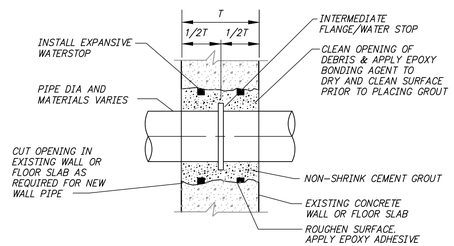
DETAIL M407
N.T.S.



NOTES:
1. COAT FLEXIBLE COUPLING AFTER INSTALLATION WITH TWO (2) COATS OF COAL TAR EPOXY (9 MILS DFT EACH COAT) PER SPECIFICATIONS.
2. MECHANICAL JOINT MAY BE FITTING OR SOLID SLEEVE.

UNRESTRAINED DUCTILE IRON-MECHANICAL JOINT WALL PIPE IN NEW WALL

DETAIL M408
N.T.S.



WALL PIPE IN EXISTING WALL

DETAIL M409
N.T.S.

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

DATE
REVISION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 15597
JOSHUA S. DUNIVAN
3/19/25

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

MECHANICAL STANDARD DETAILS IV

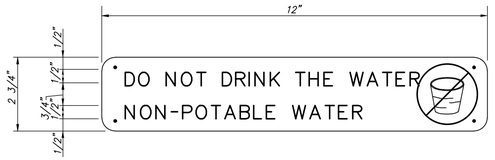
FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: JSD
DRAWN BY: MKH
HWEI NO.: 2021037
FILENAME: MZ-04

SHEET NO.
MZ-4

BID DRAWINGS
MARCH 21, 2025

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\MZ-04.DWG, 3/19/2025 9:31 AM, MATT WEIR, LAYOUT1



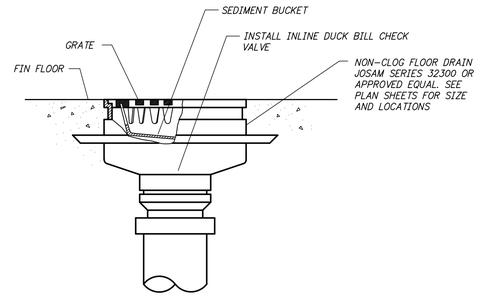
COLORS: BACKGROUND SHALL BE OSHA SAFETY YELLOW, LETTERS SHALL BE RECESSED BLACK

NOTES:

1. FURNISH & INSTALL THE ABOVE SIGN ABOVE ALL (EXIST & NEW) NON-POTABLE WATER HOSE BIBBS. ATTACH THE SIGN TO THE STRUCTURE, GUARDRAIL OR POST WITH STAINLESS STEEL HARDWARE & MOUNTING BRACKET.
2. 25 OF THESE SIGNS. CONFIRM QUANTITY WITH OWNER DURING CONSTRUCTION.
3. FURNISH ONE SIGN & RECEIVE APPROVAL FROM OWNER PRIOR TO ORDERING REMAINDER OF SIGNS.

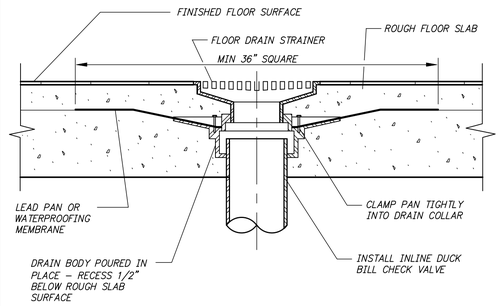
NON-POTABLE WATER SIGN

DETAIL M501 — NTS



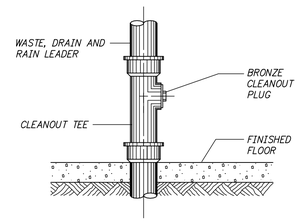
FLOOR DRAIN WITH INSERTION-STYLE CHECK VALVE

DETAIL M502 — NTS



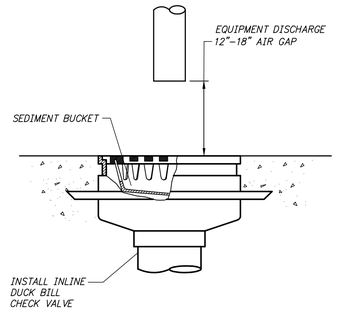
FLOOR DRAIN

DETAIL M503 — NTS



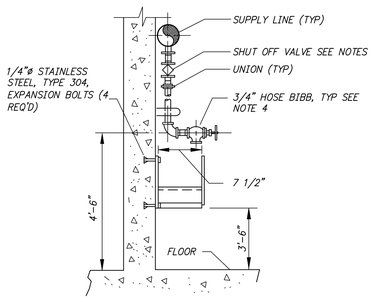
CLEANOUT TEE

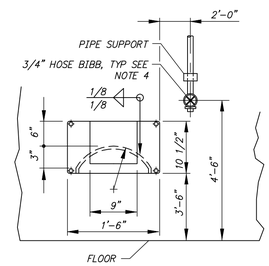
DETAIL M504 — NTS



EQUIPMENT DRAIN

DETAIL M505 — NTS





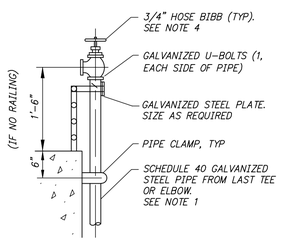
NOTES:

1 HOSE RACK AND RUBBER HOSE DESCRIBED ON THIS DETAIL SHALL BE PROVIDED IF SO NOTED ON DRAWING UNIT SHALL BE FABRICATED FROM 1/8" TYPE 304 STAINLESS STEEL

2 FURNISH 50' OF RUBBER HOSE (BOSTON INDUSTRIAL WATER OR EQUAL) AT EACH HOSE STATION HOSE SHALL BE DESIGNED FOR 150 PSI WORKING PRESSURE NEOPRENE EXTERIOR THAT RESISTS OIL, GREASE, ABRASION AND SEVERE WEATHER CONDITION FOR INDUSTRIAL USE BOTH ENDS OF HOSE SHALL BE THREADED, ONE END MALE, ONE END FEMALE PROVIDE A RUBBER COVERED SPRAY NOZZLE WITH SWIVEL TYPE ADAPTORS, (STRAHMAN MODEL 70) OR EQUAL, LEVER ACTION, RATED AT 150 PSI

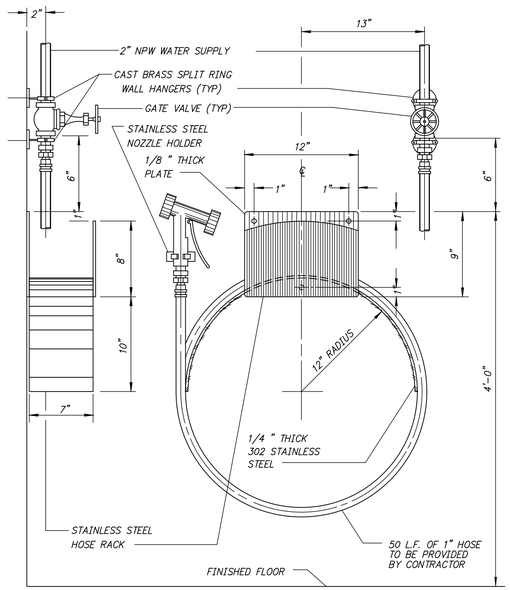
3 INSIDE DIAMETER OF HOSE SHALL BE SAME AS HOSE VALVE

4 PROVIDE VACUUM BREAKER-BACKFLOW PREVENTER (NIDEL 34H) OR EQUAL



HOSE STATION

DETAIL M506 — NTS

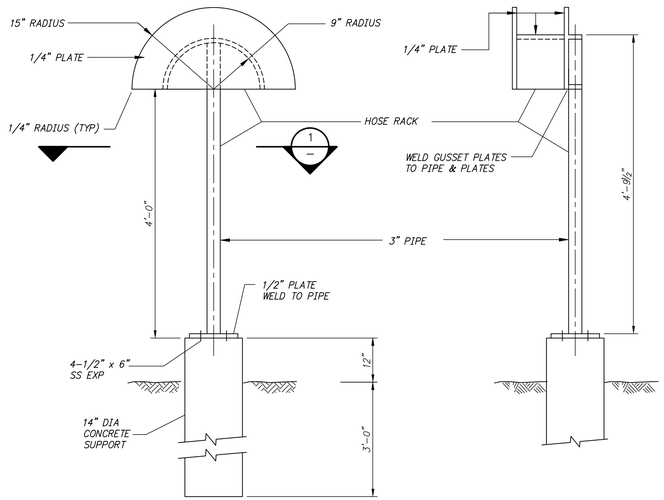


NOTE:

PROVIDE HOSE RACK AND HOSE ONLY UNLESS WATER SUPPLY PIPING IS INDICATED ON THE DRAWINGS.

WASH HOSE STATION

DETAIL M507 — N.T.S.

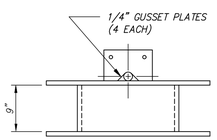


NOTES:

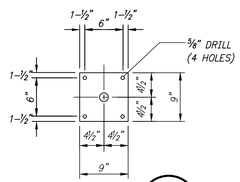
1 HOSE RACK AND RUBBER HOSE DESCRIBED ON THIS DETAIL SHALL BE PROVIDED IF SO NOTED ON DRAWING UNIT SHALL BE FABRICATED FROM 1/4" TYPE 304 STAINLESS STEEL

2 FURNISH 50' OF RUBBER HOSE (BOSTON INDUSTRIAL WATER OR EQUAL) AT EACH HOSE STATION HOSE SHALL BE DESIGNED FOR 150 PSI WORKING PRESSURE NEOPRENE EXTERIOR THAT RESISTS OIL, GREASE, ABRASION AND SEVERE WEATHER CONDITION FOR INDUSTRIAL USE BOTH ENDS OF HOSE SHALL BE THREADED, ONE END MALE, ONE END FEMALE PROVIDE A RUBBER COVERED SPRAY NOZZLE WITH SWIVEL TYPE ADAPTORS, (STRAHMAN MODEL 70) OR EQUAL, LEVER ACTION, RATED AT 150 PSI

3 INSIDE DIAMETER OF HOSE SHALL BE SAME AS HOSE VALVE



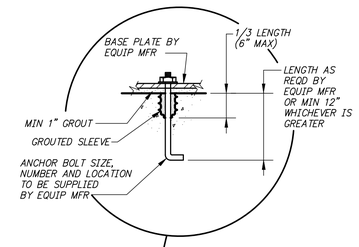
TOP VIEW



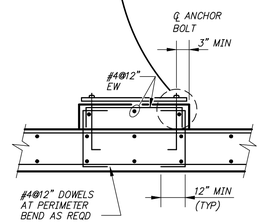
SECTION 1

YARD HYDRANT HOSE RACK

DETAIL M508 — NTS



DIMENSIONS OF PAD AS REQD TO SUIT EQUIP (4" MIN HEIGHT UNLESS PAD IS CAST INTEGRALLY WITH SLAB)



NOTE: ANCHOR BOLTS MAY NEED TO BE DESIGNED, CAPSULE ANCHORS MAY BE USED IN SOME LOCATIONS

EQUIPMENT PAD

DETAIL M509 — NTS

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS ★★★ LICENSED PROFESSIONAL ENGINEER ★★★ No. 19397 JOSHUA S. DUNN 9/19/25

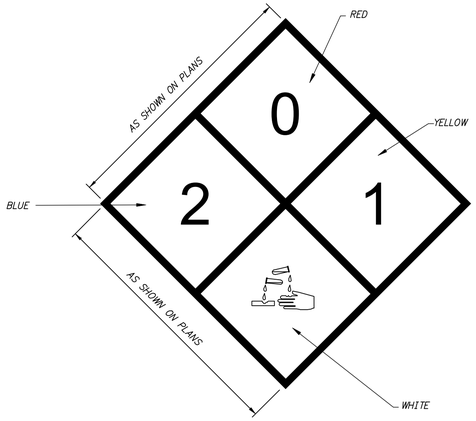
HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS
MECHANICAL STANDARD DETAILS V
FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: JSD
DRAWN BY: MKH
HWEI NO.: 2021037
FILENAME: MZ-05

SHEET NO.
MZ-5

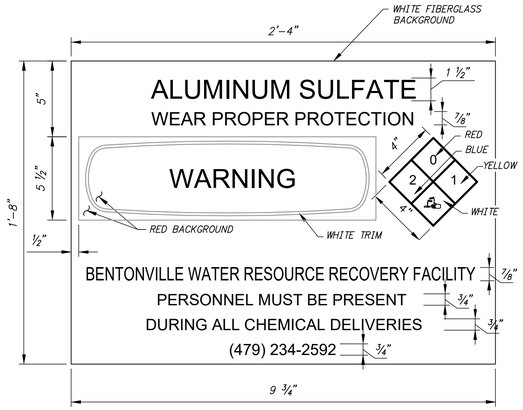
Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\MZ-05.DWG, 3/19/2025 9:31 AM, MATT WEIR, LAYOUT1



CHEMICAL DIAMOND LABEL

DETAIL M601

NTS



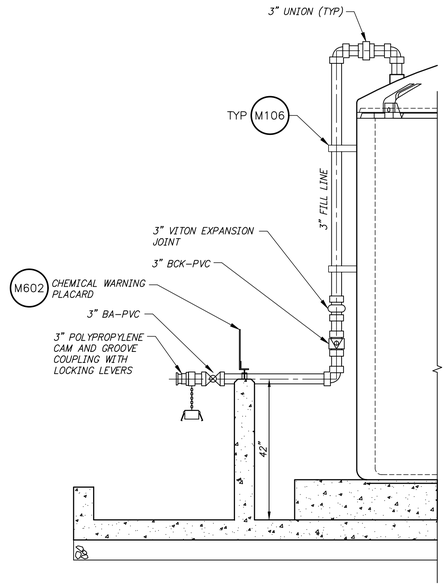
NOTES:

1. ALL TEXTS ARE BLACK IN COLOR EXCEPT SIGNAL WORD.
2. SIGNAL WORD IS COLOR WHITE ON RED BACKGROUND.

CHEMICAL WARNING PLACARD

DETAIL M602

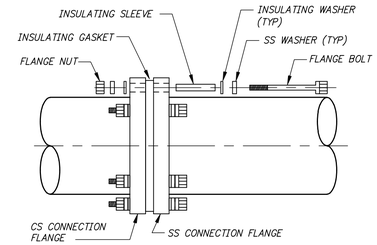
NTS



CHEMICAL FILL POINT

DETAIL M603

N.T.S.



NOTE:

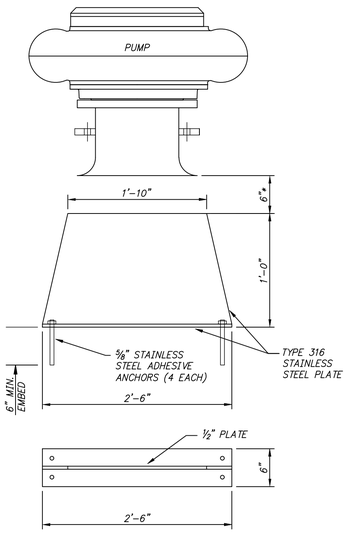
1. ALL NUTS, BOLTS, AND WASHERS SHALL BE TYPE 316 SS MATERIALS.
2. INSULATING GASKET, INSULATING SLEEVE AND INSULATING WASHERS SHALL BE VITON MATERIAL AND RATED FOR 300°F.

INSULATING FLANGE ASSEMBLY

C306

N.T.S.

M604

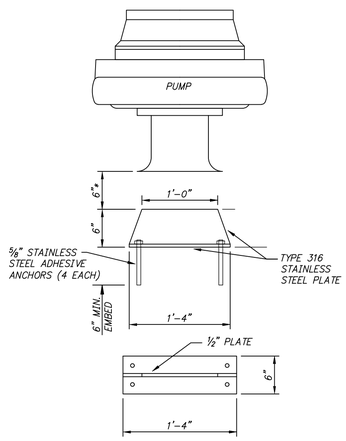


* CONFIRM DIMENSION WITH PUMP MANUFACTURER

LARGE FLOOR SPLITTER

DETAIL M605

N.T.S.

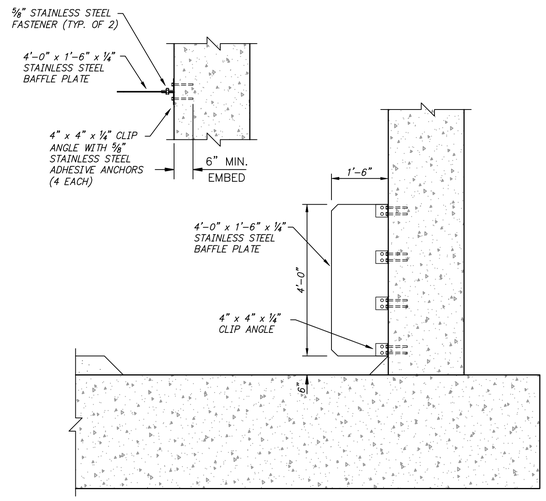


* CONFIRM DIMENSION WITH PUMP MANUFACTURER

SMALL FLOOR SPLITTER

DETAIL M606

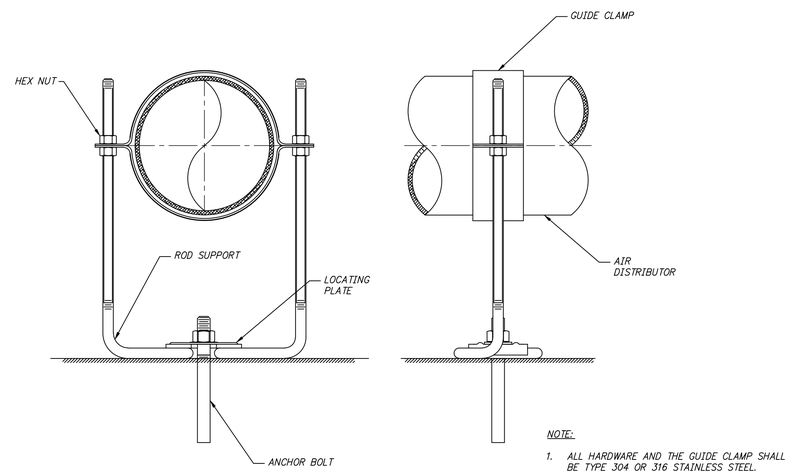
N.T.S.



ANTI-VORTEX BAFFLE

DETAIL M607

N.T.S.



NOTE:

1. ALL HARDWARE AND THE GUIDE CLAMP SHALL BE TYPE 304 OR 316 STAINLESS STEEL.

AIR DISTRIBUTOR GUIDE SUPPORT ASSEMBLY

DETAIL M608

N.T.S.

BID DRAWINGS

MARCH 21, 2025

1"

ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 15597 JOSHUA S. DUGGAN

HAWKINS WEIR ENGINEERS, INC.

BLACK & VEATCH

BENTONVILLE, ARKANSAS

BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

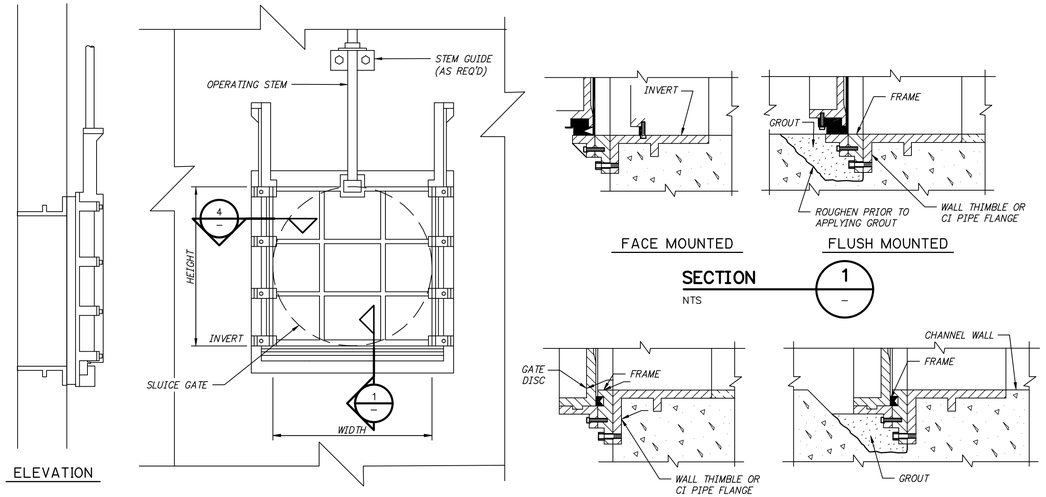
MECHANICAL STANDARD DETAILS VI

FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: JSD
DRAWN BY: MKH
HWEI NO.: 2021037
FILENAME: MZ-06

SHEET NO.
MZ-6

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\MZ-06.DWG, 3/19/2025 9:31 AM, MATT WEIR, LAYOUT1



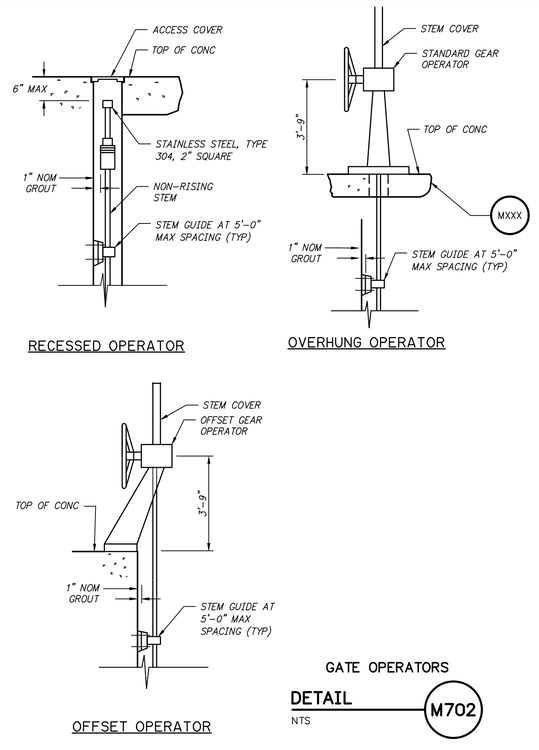
SLUICE GATE

DETAIL M701

NTS

NOTE:

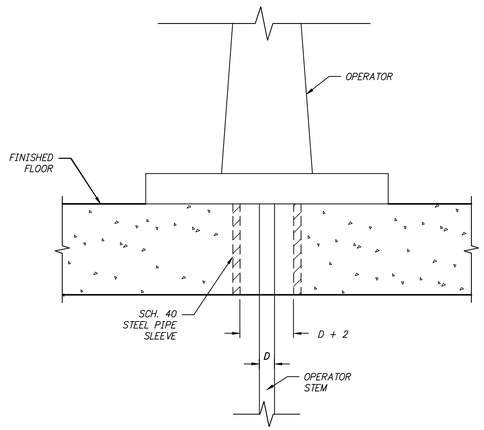
ALL SLUICE GATES SHALL HAVE WALL THIMBLES. FOR THOSE GATES WHERE A PIPE ENTERS THE STRUCTURE, A WALL THIMBLE WITH AN MJ CONNECTION SHALL BE PROVIDED. DOUBLE JOINT SHALL STILL BE REQUIRED AS SHOWN IN DETAIL M412.



GATE OPERATORS

DETAIL M702

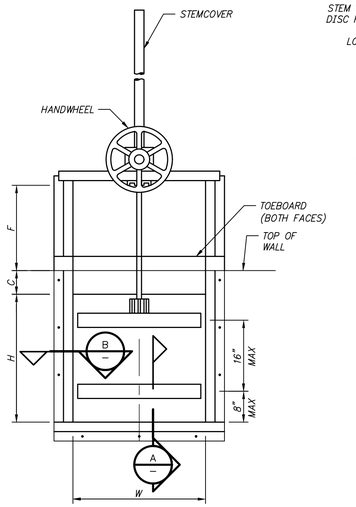
NTS



GATE/VALVE OPERATOR SLEEVE

DETAIL M703

NTS

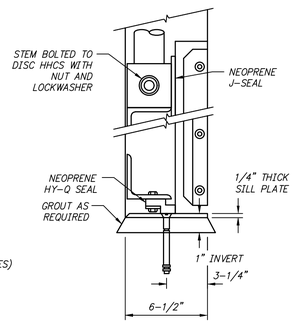


IN CHANNEL MOUNTED UNSEATED SS SLIDE GATE ELEVATION

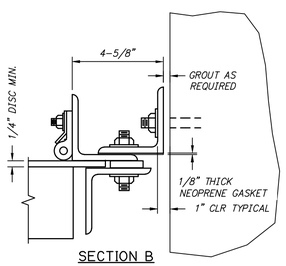
IN CHANNEL MOUNTED UNSEATED SS SLIDE GATE

DETAIL M704

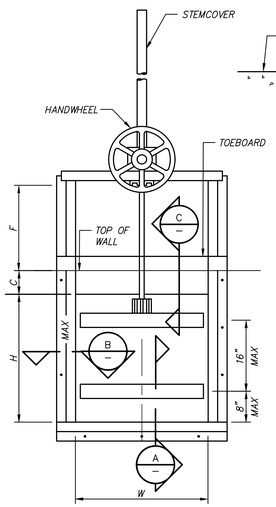
NTS



IN CHANNEL MOUNTED UNSEATED SS SLIDE GATE THROUGH SECTION B



IN CHANNEL MOUNTED UNSEATED SS SLIDE GATE THROUGH SECTION A

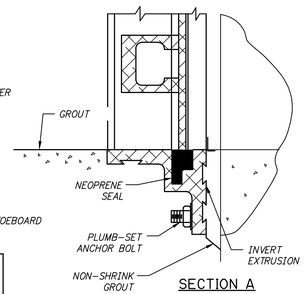


FACE MOUNTED SS SLIDE GATE ELEVATION

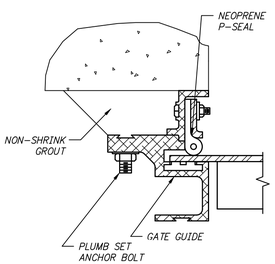
FACE MOUNTED SS SLIDE GATE

DETAIL M705

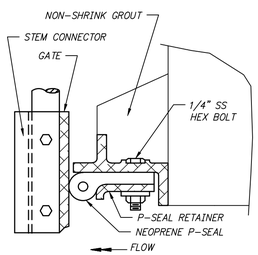
NTS



FACE MOUNTED SS SLIDE GATE THROUGH SECTION A

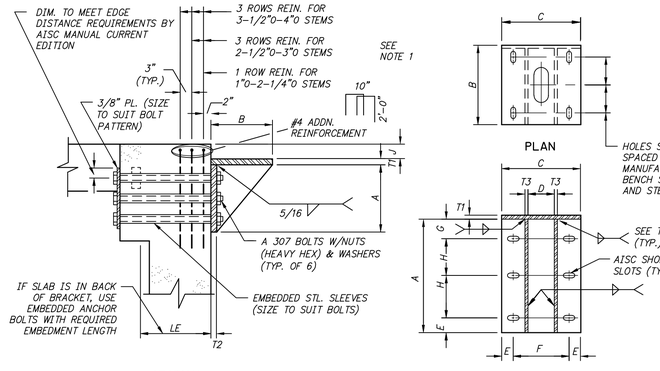


FACE MOUNTED SS SLIDE GATE THROUGH SECTION B



FACE MOUNTED SS SLIDE GATE THROUGH SECTION C

DIMENSIONS IN INCHES														
SLUICE GATE STEM DIA	BOLT DIA	A	B	C	D	E	F	G	H	J	LE	T1	T2	T3	WELD SIZE
1	3/4	16	16	15	2-1/4	2-13/16	9-3/8	3-3/16	5	0	6	1/2	1-1/8	3/4	5/16
1-1/2	1-1/8	17	16	16	2-3/4	2-7/8	10-1/4	3-5/8	5-1/4	1	8	5/8	1-3/8	7/8	5/16
2	1-1/2	18	16	17	3-1/2	2-7/8	11-1/4	4-1/8	5-1/2	2	10	7/8	1-1/2	1	3/8
2-1/2	1-3/4	21	18	18	4	2-15/16	12-1/8	4-9/16	6-3/4	3	12	1	1-1/2	1-1/8	3/8
3	2	25	18	19	4-3/4	2-15/16	13-1/8	5-1/16	8-1/2	4	14	1-1/8	1-1/2	1-1/4	1/2
3-1/2	2-1/4	29	18	20-1/2	5-1/4	3-1/8	14-1/4	5-3/8	10-1/4	5	16	1-1/4	1-1/2	1-3/8	1/2
4	2-1/2	33	18	22	5-3/4	3-5/16	15-3/8	5-11/16	12	6	18	1-3/8	1-1/2	1-1/2	1/2



NOTE:

1. *SEE STRUCTURAL DRAWINGS AT SPECIFIC GATE FOR REINFORCING IN SUPPORTING BEAM. SPECIAL ADDITIONAL SHEAR FRICTION REINFORCEMENT SHOWN IN THIS DRAWING ONLY.*

SLIDE OR WEIR GATE OPERATOR SUPPORT BRACKET

DETAIL M706

N.T.S.

BID DRAWINGS

MARCH 21, 2025

ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

DATE

REVISION

STATE OF ARKANSAS — JOSHUA S. DUNIVIN — LICENSED PROFESSIONAL ENGINEER — No. 19397 — 5/9/25

HAWKINS WEIR ENGINEERS, INC.

BLACK & VEATCH

BENTONVILLE, ARKANSAS

BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

MECHANICAL STANDARD DETAILS VII

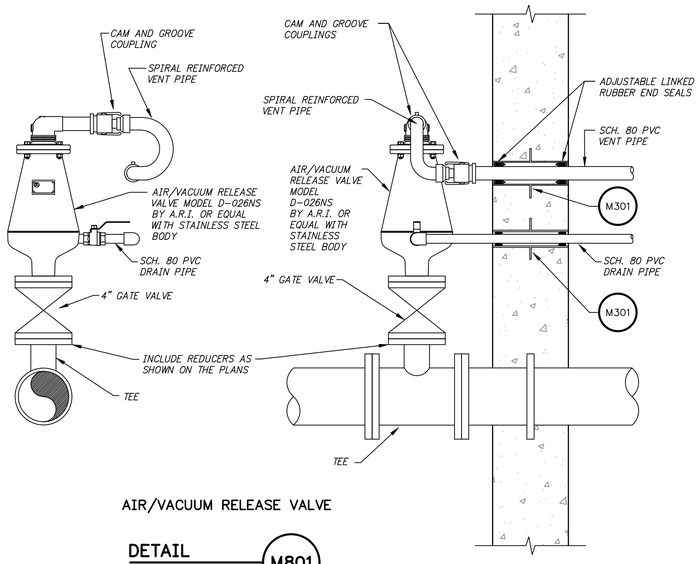
FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: JSD
DRAWN BY: MKH
HWEI NO.: 2021037
FILENAME: MZ-07

SHEET NO. MZ-7

NOTES:

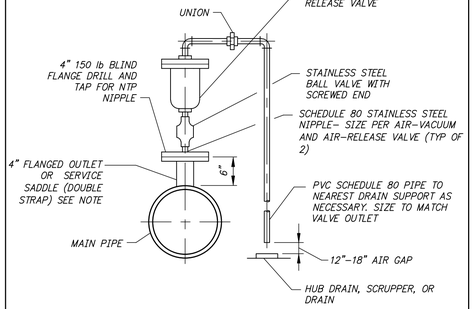
1. ALL HARDWARE SHALL BE TYPE 316 STAINLESS STEEL
2. SIZE VENT AND DRAIN LINES TO MATCH AIR/VACUUM RELEASE VALVE



AIR/VACUUM RELEASE VALVE

DETAIL M801

NTS



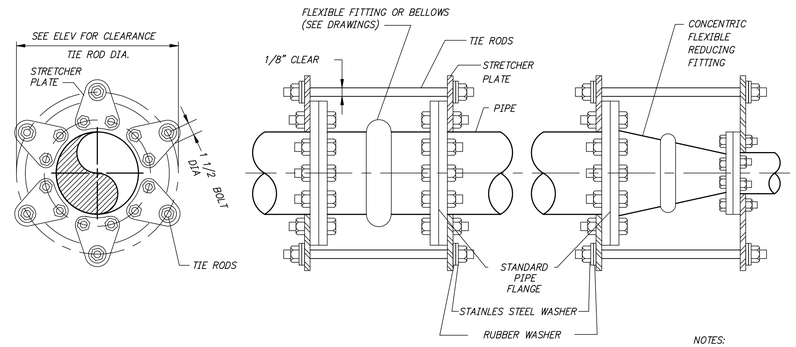
NOTE:

1. ALL HARDWARE SHALL BE TYPE 316 STAINLESS STEEL

SMALL AIR/VACUUM AND AIR RELEASE VALVE

DETAIL M802

NTS



ELEVATION

PIPE DIA.	TIE ROD NUMBER	TIE ROD DIA.	STRETCHER PL THICK
4	4	5/8"	1/2"
6	4	3/4"	1/2"
8	4	3/4"	1/2"
10	6	3/4"	3/4"
12	6	3/4"	3/4"
14	6	3/4"	3/4"
16	8	3/4"	3/4"
18	8	3/4"	1"
20	10	3/4"	1"
24	10	1"	1"
30	14	1"	1 1/4"
36	16	1 1/4"	1 1/4"
42	18	1 1/4"	1 1/4"
48	22	1 1/4"	1 1/2"
54	22	1 3/8"	1 1/2"

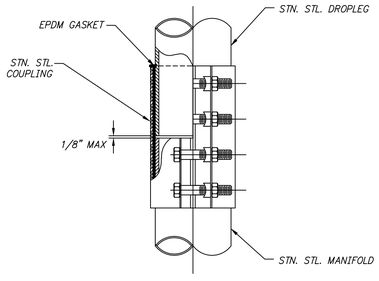
NOTES:

1. BOLTS : TYPE 316 STAINLESS STEEL.
2. STRETCHER PLATE : TYPE 316 STAINLESS STEEL.
3. FLEXIBLE FITTINGS AND METAL BELLOWS SHALL BE PROVIDED PER SPECIFICATIONS.

EXPANSION JOINT W/THRUST PROTECTION

DETAIL M803

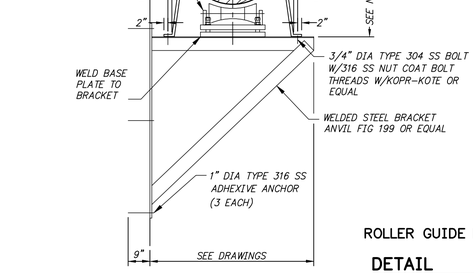
NTS



RISER COUPLING

DETAIL M804

3/8"=1'-0"



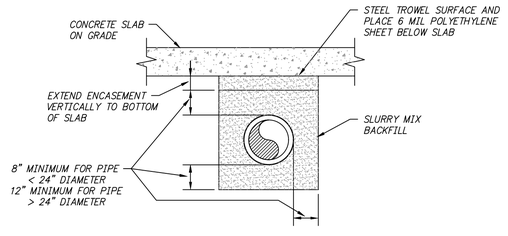
NOTES:

1. BRACKETS, SHIELDS, U-BOLTS, AND NUTS SHALL BE TYPE 316 STAINLESS STEEL.
2. PROVIDE STRAP ONLY WHERE INDICATED ON DRAWINGS
3. CONTRACTOR TO COORDINATE WITH PIPE SUPPORT MANUFACTURER.

ROLLER GUIDE PIPE SUPPORT

DETAIL M805

NTS



NOTES:

1. PIPE ENCASEMENT SHALL TERMINATE AT LIMITS OF STRUCTURAL FOUNDATION.

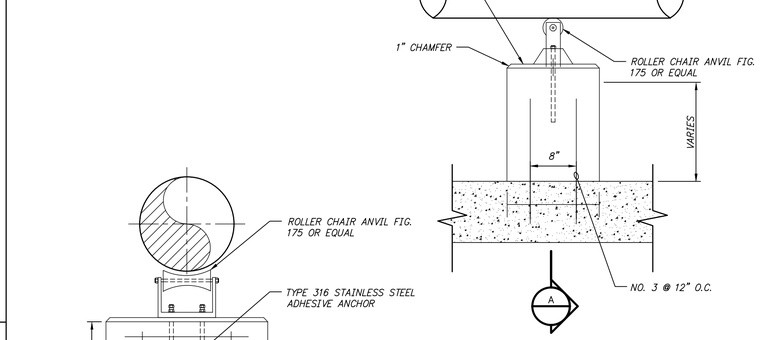
PIPE ENCASEMENT

DETAIL M806

N.T.S.

NOTES:

1. BRACKETS, SHIELDS, U-BOLTS, AND NUTS SHALL BE TYPE 316 STAINLESS STEEL.
2. PROVIDE STRAP ONLY WHERE INDICATED ON DRAWINGS
3. CONTRACTOR TO COORDINATE WITH PIPE SUPPORT MANUFACTURER.



SECTION A

ROLLER GUIDE PIPE SUPPORT WITH CONCRETE BASE

DETAIL M807

NTS

ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

DATE

REVISION

STATE OF ARKANSAS 15397 LICENSED PROFESSIONAL ENGINEER No. 15397 FLORIDA STATE OF FLORIDA 3/19/25

HAWKINS WEIR ENGINEERS, INC.

BLACK & VEATCH

BENTONVILLE, ARKANSAS

BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

MECHANICAL STANDARD DETAILS VIII

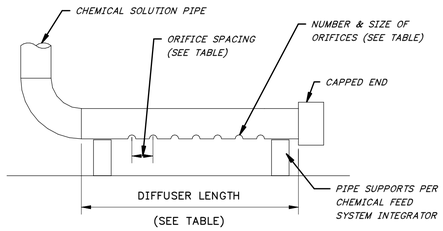
FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: JSD
DRAWN BY: MKH
HWEI NO.: 2021037
FILENAME: MZ-08

SHEET NO.
MZ-8

BID DRAWINGS
MARCH 21, 2025

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\MZ-08.DWG, 3/19/2025 9:32 AM, MATT WEIR, LAYOUT1



CHANNEL DIFFUSER DETAILS

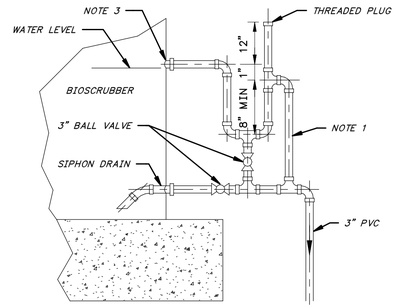
CHEMICAL	DIFFUSER LOCATION	DIFFUSER PIPE DIA, IN	DIFFUSER PIPE LENGTH, FT	NUMBER OF ORIFICES (NOTE 1)	DIAMETER OF ORIFICES, IN	ORIFICE SPACING, IN
ALUMINUM SULFATE	WET WEATHER DIVERSION VAULT	1	6	5	3/16"	5

NOTES:

1. ALL ORIFICES SHALL BE LOCATED ON THE TOP SIDE OF THE DIFFUSER PIPE.

CHEMICAL DIFFUSER - ORIFICE CHANNEL TYPE

DETAIL M901
12" = 1'-0"

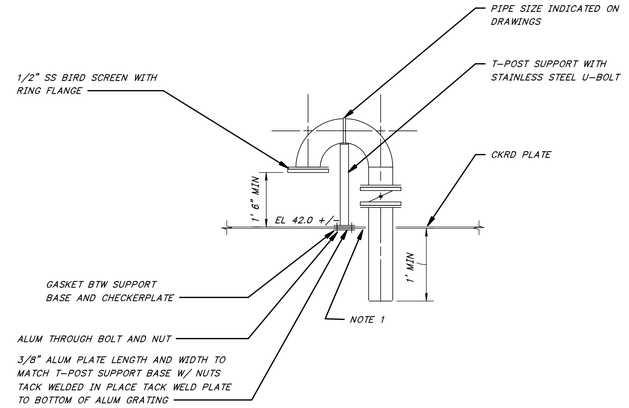


NOTES:

1. TYPCIAL DRAIN/OVERFLOW ARRRANGEMENT SHOWN. ACTUAL ARRANGEMENT MAY VARY DEPENDING ON FINAL ODOR CONTROL SYSTEM SUPPLIER REQUIREMENTS. CONTRACTOR TO COORDINATE.
2. DRAIN SHOWN ROTATED FOR CLARITY. REFER TO MECHANICAL DRAWINGS FOR ADDITIONAL FITTINGS/BENDS.
3. MINIMUM 6" BELOW INVERT OF AIR INLET CONNECTION.

BIOSCRUBBER DRAIN/OVERFLOW

DETAIL M902
12" = 1'-0"

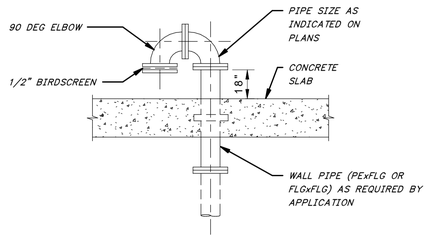


NOTE:

1. SEAL OPENING IN ACCORDANCE WITH COVER SPECIFICATION.

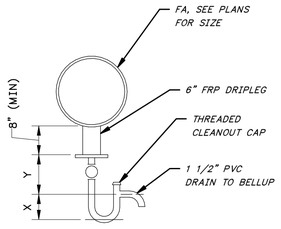
GOOSENECK AIR VENT TO COVER DETAIL

DETAIL M903
12" = 1'-0"



GOOSE NECK AIR VENT

DETAIL M904
12" = 1'-0"



NOTES:

1. TRAPS ON THE SUCTION SIDE OF FANS SHALL HAVE MINIMUM DIMENSIONS OF 10" FOR "Y" AND 8" FOR "X".
2. DRAIN CONNECTION TO FAN SCROLL IS TO BE TRAPPED AND DRAIN SIMILAR.

CONDENSATE DRAIN

DETAIL M905
12" = 1'-0"

1"
ONE AT FULL IF NOT ONE SCALE

DATE
REVISION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 22360
3/21/2025
AMANDA K. JOHNSON

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

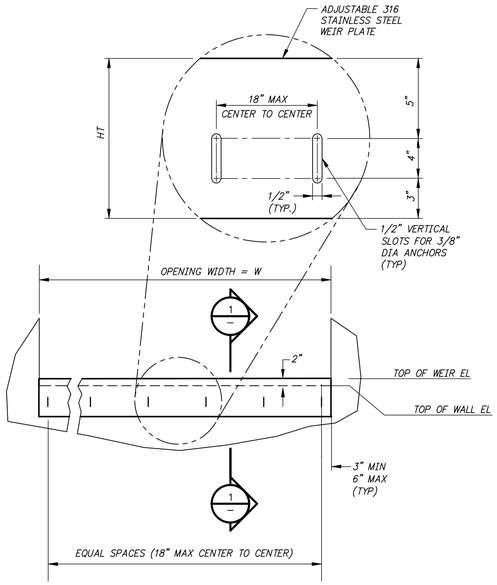
MECHANICAL STANDARD DETAILS IX

BENTONVILLE, ARKANSAS

DATE: MARCH 2025
SCALE:
DESIGNED BY: BGM
DRAWN BY: NVN
HWEI NO.: 2021037
FILENAME: M-DETAILS

SHEET
MZ-9

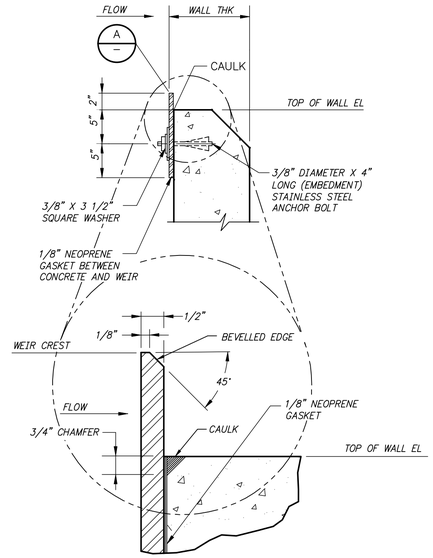
BID DRAWINGS
MARCH 21, 2025



WEIR PLATE

DETAIL A

N.T.S.



WEIR PLATE

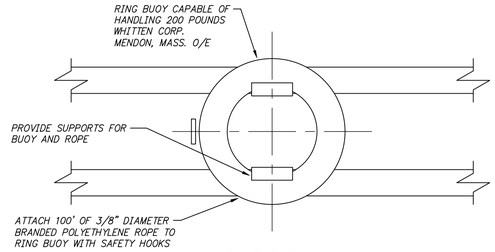
SECTION 1

N.T.S.

WEIR PLATE

DETAIL M1001

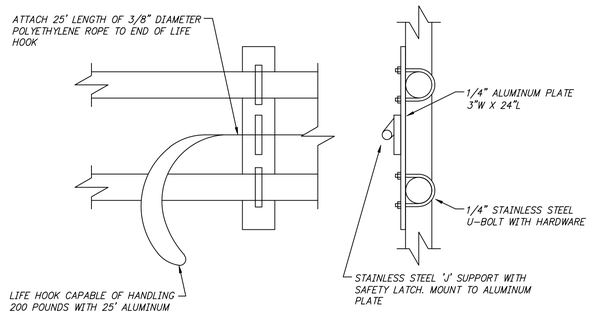
NTS



RING BUOY

DETAIL M1002

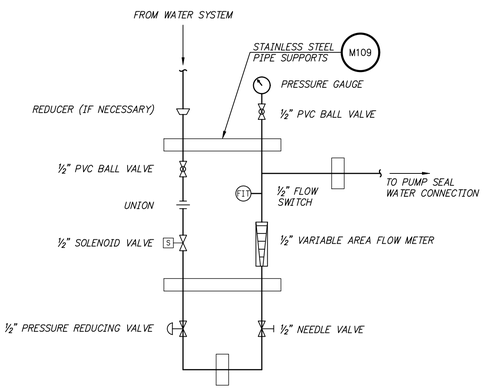
N.T.S.



RESCUE POLE AND LIFE HOOK

DETAIL M1003

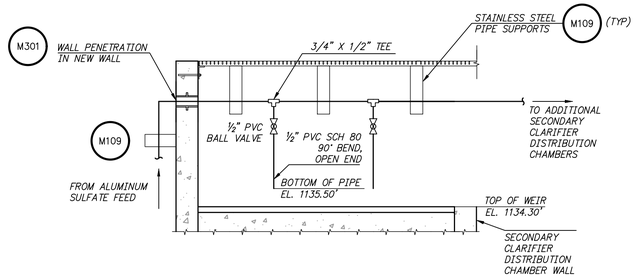
N.T.S.



SEAL WATER STATION

DETAIL M1004

N.T.S.

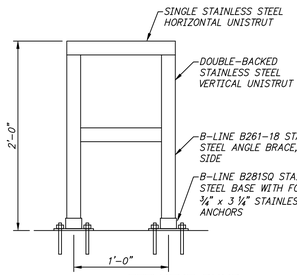


NOTES:
1. INSULATE AND HEAT TRACE ALUMINUM CHEMICAL FEED LINE ABOVE GRADE.
2. 1/2" PVC BALL VALVE SHALL BE LOCATED DIRECTLY BENEATH GRATING FOR EASE OF ACCESS
3. PIPE SUPPORTS SHALL BE MOUNTED TO WALKWAY GRATING.

PVC CHEMICAL DIFFUSER

DETAIL M1005

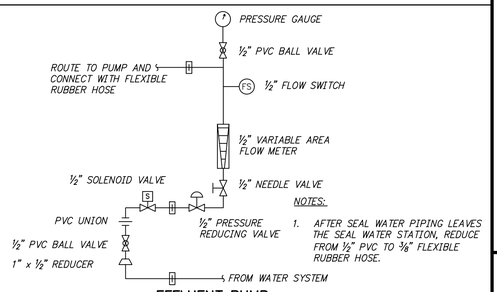
N.T.S.



EFFLUENT PUMP SEAL WATER STATION RACK

DETAIL M1006

N.T.S.

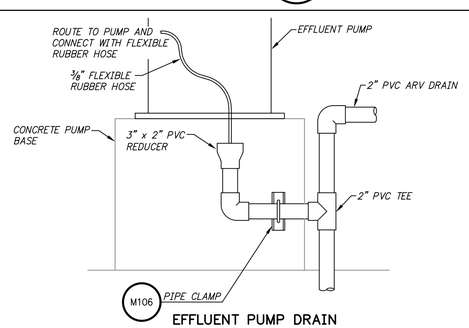


NOTES:
1. AFTER SEAL WATER PIPING LEAVES THE SEAL WATER STATION, REDUCE FROM 1/2" PVC TO 3/8" FLEXIBLE RUBBER HOSE.

EFFLUENT PUMP SEAL WATER STATION

DETAIL M1007

N.T.S.



EFFLUENT PUMP DRAIN

DETAIL M1008

N.T.S.

1"

ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS — JOSHUA S. DUNIVAN — LICENSED PROFESSIONAL ENGINEER — No. 15397 — 12/31/25

HAWKINS WEIR ENGINEERS, INC.

BLACK & VEATCH

BENTONVILLE, ARKANSAS

BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

MECHANICAL STANDARD DETAILS X

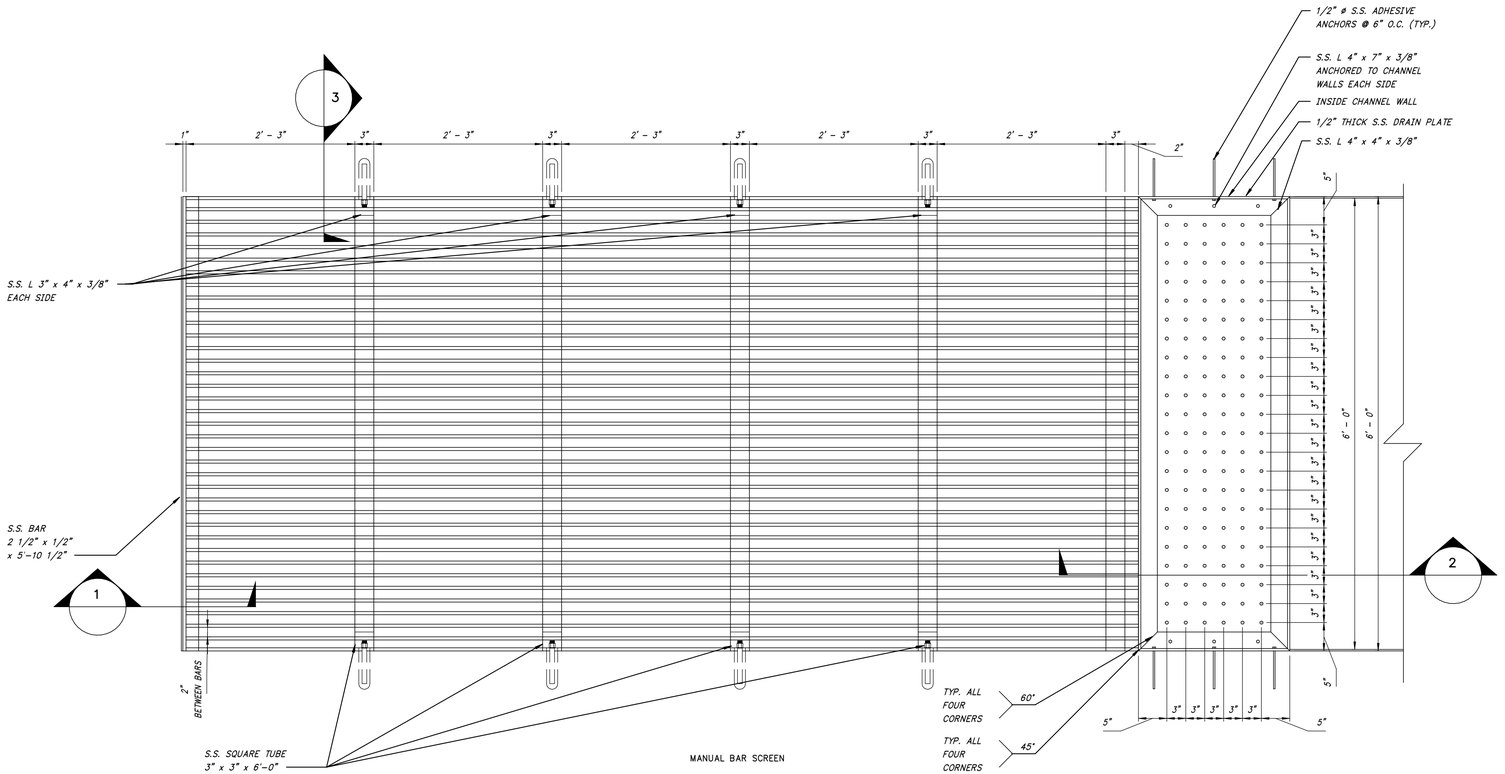
FOR: BENTONVILLE WASTEWATER UTILITIES

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: JSD
DRAWN BY: MKH
HWEI NO.: 2021037
FILENAME: MZ-10

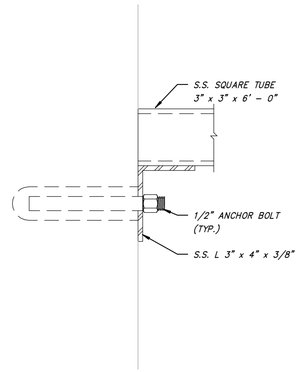
BID DRAWINGS
MARCH 21, 2025

SHEET NO.
MZ-10

Z:\21\2021037 BENTONVILLE WWTP CAPACITY STUDY\DRAWINGS\CONST PLANS\MZ-10.DWG, 3/19/2025 9:32 AM, MATT WEIR, LAYOUT1

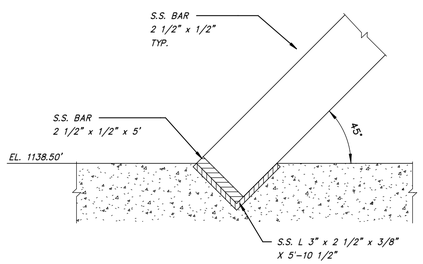


DETAIL 1 — 1" = 1' – 0" — M1101



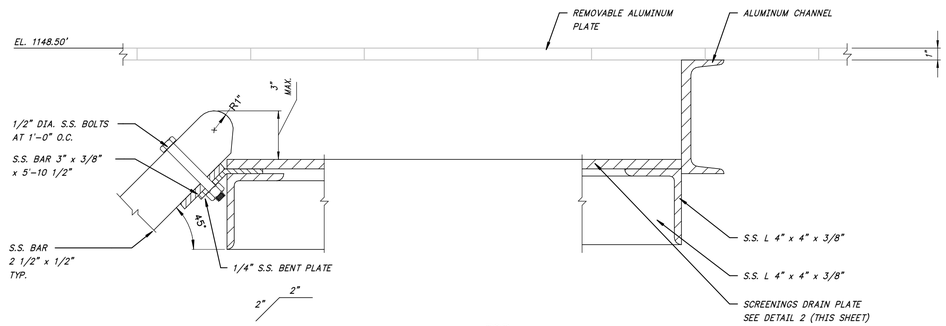
MOUNTING DETAIL

DETAIL 3 — 3" = 1'–0"



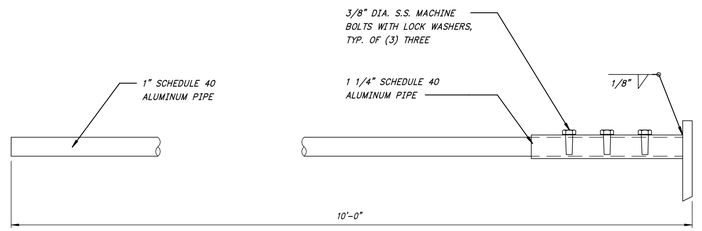
BOTTOM

SECTION 1 — 3" = 1'–0"

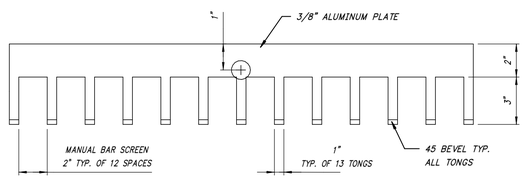


TOP

SECTION 2 — 3" = 1'–0"



SIDE VIEW



END VIEW

BAR SCREEN RAKE

DETAIL M1102 — 3" = 1' – 0"

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS — LICENSED PROFESSIONAL ENGINEER — No. 15397 — JOSHUA S. DUGGINS

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

MECHANICAL STANDARD DETAILS XI

FOR: BENTONVILLE WATER UTILITIES

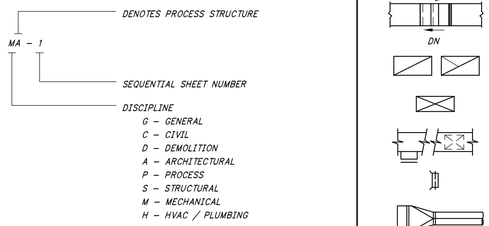
DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: JSD
DRAWN BY: DKS
HWEI NO.: 2021037
FILENAME: WWRF21037–ME

SHEET NO.
MZ–11

SYSTEM ABBREVIATIONS

CWR	CHILLED WATER RETURN
CWS	CHILLED WATER SUPPLY
C	CONDENSATE DRAIN
CDWR	CONDENSER WATER RETURN
CDWS	CONDENSER WATER SUPPLY
HWR	HEATING WATER RETURN
HWS	HEATING WATER SUPPLY
LPC	LOW PRESSURE CONDENSATE

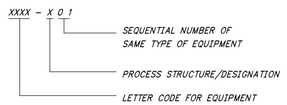
DRAWING IDENTIFICATION SYSTEM



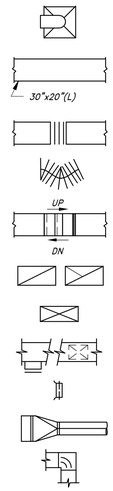
PROCESS STRUCTURE/FACILITY IDENTIFICATION

A – HEADWORKS
B – ANOXIC BASINS
C – AERATION BASINS
D – SECONDARY CLARIFIER DISTRIBUTION BOX AND RAS PUMP STATION
E – SECONDARY CLARIFIER
F – RAS PUMP STATION NO. 2
G – WAS PUMP STATION
H – FILTER / UV / POST AERATION
I – EFFLUENT PUMP STATION
J – ELECTRICAL BUILDING
K – DIGESTER VALVE VAULTS
L – OPERATIONS / LABORATORY BUILDING
M – MAINTENANCE BUILDING
N – VEHICAL STORAGE BUILDING AND EQUIPMENT STORAGE BUILDING
Z – STANDARD DETAILS

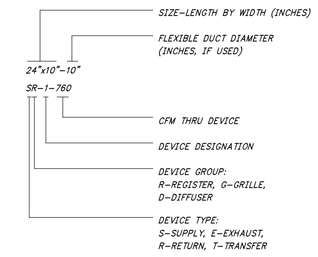
EQUIPMENT IDENTIFICATION SYSTEM



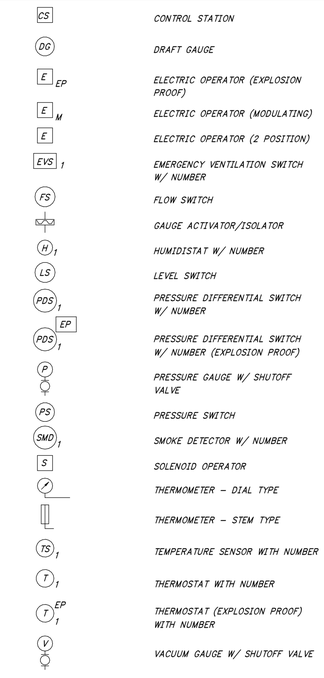
HVAC LEGEND



AIR INLET & OUTLET IDENTIFICATIONS



CONTROLS & INSTRUMENTATION LEGEND



MECHANICAL ABBREVIATIONS

A	
A	ALARM
AC	AIR COMPRESSOR
AD	ACCESS DOOR
AF	AIR FLOW, AIRFOIL
AFD	ADJUSTABLE FREQUENCY DRIVE
AFF	ABOVE FINISH FLOOR
AFM	AIR FLOW MONITOR
AHU	AIR HANDLING UNIT
ALUM	ALUMINUM
AP	ACCESS PANEL
APPROX	APPROXIMATE
AS	AIR SEPARATOR
ATU	AIR TERMINAL UNIT
AUTO	AUTOMATIC
AVG	AVERAGE
B	
B	BELT DRIVE, BLOW THROUGH
BDD	BACKDRAFT DAMPER
BF	BLIND FLANGE
BFF	BELOW FINISH FLOOR
BFP	BACKFLOW PREVENTER
BH	BASEBOARD HEATER
BI	BACKWARD INCLINED, BUILT–IN THERMOSTAT
BL	BOTTOM LEVEL
BLDG	BUILDING
BLR	BLOWER
BOD	BOTTOM OF DUCT ELEVATION
BOT	BOTTOM
BOUH	BOTTOM OF UNIT HEATER
BTUH	BRITISH THERMAL UNITS PER HOUR
BU	BELL–UP
BV	BALL VALVE
C	
C	CHANNEL, CONVECTOR, COOLING, COOLING (MAKE ON RISE)
CB	CENTRIFUGAL BLOWER
CBD	COUNTERBALANCE BACKDRAFT DAMPER
CC	COOLING COIL
CD	CONTROL DAMPER
CDWP	CONDENSER WATER PUMP
CENTR	CENTRIFUGAL
CF	CABINET FAN
CFM	CUBIC FEET PER MINUTE
CH	CONVECTION HEATER
CL	CLASS, CENTERLINE
C/L	CENTERLINE
CO	CLEANOUT
CONC	CONCRETE
CONN	CONNECTION
CONT	CONTINUATION
CS	CONTROL STATION
CT	COOLING TOWER
CU	CONDENSING UNIT
CV	CHECK VALVE, CONTROL VALVE
CWP	CHILLED WATER PUMP
D	
D	DIRECT DRIVE, DRAW–THRU
DB	DRY BULB
DDC	DIRECT DIGITAL CONTROL
DEH	DEHUMIDIFIER
DF	DUCT FAN
DIA	DIAMETER
DM	DUCT MOUNTED
DN	DOWN
DOAU	DEDICATED OUTDOOR AIR UNIT
DSCP	DUTY STANDBY CONTROL PANEL
DX	DIRECT EXPANSION
E	
E	ELECTRIC, ELECTRIC OPERATOR, EXHAUST
EA	EACH, EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EC	ECONOMIZER, EVAPORATIVE COOLER
ECH	ELECTRIC CABINET HEATER
ECP	EQUIPMENT CONTROL PANEL
EDH	ELECTRIC DUCT HEATER
EF	EXHAUST FAN
EFF	EFFICIENCY
EGS	EMERGENCY GAS SCRUBBER
EIH	ELECTRIC INFRARED HEATER
EL	ELEVATION
EP	EXPLOSION PROOF
EQUIP	EQUIPMENT
ES	EMERGENCY SWITCH
ESP	EXTERNAL STATIC PRESSURE
ET	EXPANSION TANK
EUH	ELECTRIC UNIT HEATER
EV	EXHAUST VALVE
EVS	EMERGENCY VENTILATION SWITCH
EWT	ENTERING WATER TEMPERATURE
EXIST	EXISTING
F	
F	DEGREES FAHRENHEIT
FBD	FACE AND BYPASS DAMPER
FC	FORWARD CURVE, FAN COIL
FD	FIRE DAMPER
FDB	DEGREES FAHRENHEIT DRY BULB
FEF	FUME EXHAUST FAN
FLEX	FLEXIBLE
FM	FLOW METER
FPM	FEET PER MINUTE
FR	FUNNEL RECEPTOR
FRP	FIBERGLASS REINFORCED PLASTIC PIPE
FS	FLOW SWITCH
FSD	COMBINATION FIRE/SMOKE DAMPER
FT	FEET, FIN TUBE HEATER
FUR	FURNACE
FWB	DEGREES FAHRENHEIT WET BULB

G	
GA	GAUGE
GALV	GALVANIZED
GIH	GAS INFRARED HEATER
GPM	GALLONS PER MINUTE
GUH	GAS UNIT HEATER
GV	GATE VALVE
H	
H	HAND OPERATOR, HEATING, HEATING (MAKE ON FALL), HEIGHT, HORIZONTAL, HUMIDISTAT
	HVAC / PLUMBING
HC	HEATING COIL
HCH	HEATING WATER CABINET HEATER
HE	HEAT EXCHANGER
HO	HAND–OFF
HOA	HAND–OFF–AUTO
HP	HEAT PUMP, HORSEPOWER
HR	HEAT RECOVERY UNIT
HUH	HEATING WATER UNIT HEATER
HUM	HUMIDIFIER
HWB	HEATING WATER BOILER
HWP	HEATING WATER PUMP
HZ	HERTZ
I	
I	INTAKE
ID	INSIDE DIAMETER
IN	INCHES
INV	INVERT
K	
KW	KILOWATT
L	
L	LINED DUCT, LOUVER
LAT	LEAVING AIR TEMPERATURE
LBS	POUNDS
LD	COMBINATION LOUVER/DAMPER
LI	LEVEL INDICATOR
LS	LEVEL SWITCH
LWT	LEAVING WATER TEMPERATURE
LLCP	LEAD LAG CONTROL PANEL
M	
MAU	MAKEUP AIR UNIT
MAX	MAXIMUM
MCA	MINIMUM CIRCUIT AMPS
ME	MIST ELIMINATOR
MFR	MANUFACTURER
MOCP	MAXIMUM OVERCURRENT PROTECTION
MIN	MINIMUM
MOD	MODULATING
N	
NC	NORMALLY CLOSED
NO	NORMALLY OPEN, NUMBER
NPSHR	NET POSITIVE SUCTION HEAD REQUIRED
O	
OA	OUTSIDE AIR
OED	OPEN ENDED DUCT
OD	OUTSIDE DIAMETER
P	
P	PNEUMATIC
PD	PRESSURE DROP (INCHES OF WATER FOR AIR, FEET OF WATER FOR FLUIDS)
PAC	PACKAGED AIR CONDITIONING UNIT
PAH	PACKAGED AIR HANDLING UNIT
PDS	PRESSURE DIFFERENTIAL SWITCH
PEHX	POWERED EXHAUST
PF	PROPELLER FAN
PHP	PACKAGED HEAT PUMP
PL	PLATE
POS	POSITION
PPM	PARTS PER MILLION
PROP	PROPELLER
PRS	PRESSURE REDUCING STATION
PRV	POWER ROOF VENTILATOR, PRESSURE REDUCING VALVE
PS	PRESSURE SWITCH
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH ABSOLUTE
PSIG	POUNDS PER SQUARE INCH GAUGE
PTAC	PACKAGED TERMINAL AIR CONDITIONER
R	
RA	REACTIVATION AIR, RETURN AIR
RAC	ROOM AIR CONDITIONER
RCS	REMOTE CONTROL STATION
REQD	REQUIRED
RH	RELATIVE HUMIDITY, ROOF HOOD
RSF	ROOF SUPPLY FAN
RTU	ROOF TOP UNIT
S	
SA	SUPPLY AIR
SCD	SMOKE CONTROL DAMPER
SCFM	STANDARD CUBIC FEET PER MINUTE
SF	SQUARE FEET, SUPPLY FAN
SH	SHEET
SIM	SIMILAR
SMD	SMOKE DETECTOR
SP	STATIC PRESSURE (INCHES OF WATER)
SPS	STATIC PRESSURE SENSOR
SS	STAINLESS STEEL
STD	STANDARD
SV	SERVICE VALVE, SHUTOFF VALVE, SOLENOID VALVE

T	
T	THERMOSTAT
TCP	TEMPERATURE CONTROL PANEL
TCV	TEMPERATURE CONTROL VALVE
TE	TEMPERATURE ELEMENT
TL	TOP LEVEL
TS	TIP SPEED
TYP	TYPICAL
V	
V	VERTICAL
VAC	VACUUM OUTLET
VANE	VANEAXIAL
VAV	VARIABLE AIR VOLUME
VCD	VOLUME CONTROL DAMPER
VF	VANEAXIAL FAN
W	
W	WIDE FLANGE, WIDTH
WB	WET BULB
WC	WATER CHILLER
	WATER COLUMN
WF	WALL FAN
WG	WATER GAUGE
WH	WALL HEATER
WM	WALL MOUNTED
WST	WATER STORAGE TANK
WT	WEIGHT
WV	WATER CONTROL VALVE
Z	
ZD	ZONE DAMPER

GENERAL HVAC NOTES

1. THIS IS GENERAL LEGEND AND ABBREVIATION SHEET FOR HVAC DRAWINGS. SOME ITEMS CONTAINED ON THIS SHEET MAY NOT BE USED ON THIS SPECIFIC PROJECT.
2. ALL MECHANICAL HVAC WORK SHALL BE IN ACCORDANCE WITH THE FOLLOWING APPLICABLE CODES:
   2021 INTERNATIONAL BUILDING CODE.
   2021 ARKANSAS MECHANICAL CODE.
   2014 ARKANSAS ENERGY CODE.
   ASHRAE 62.1, 2022 VENTILATION FOR ACCEPTABLE INDOOR AIR QUALITY.
   NFPA 820, 2020 STANDARD FOR FIRE PROTECTION IN WASTEWATER TREATMENT AND COLLECTION FACILITIES.
   ANSI / ASHRAE Z9.5, 2022 LABORATORY VENTILATION.
3. FOR ROOFTOP EQUIPMENT CURBS, FLUES AND FLASHING DETAILS, SEE ARCHITECTURAL DRAWINGS.
4. SEE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR ALL EQUIPMENT BASE DETAILS.
5. "SCREENED" DELINEATION DENOTES EXISTING AND NEW FACILITIES AND IS FOR REFERENCE ONLY. "LIGHT" LINE DELINEATION DENOTES EXISTING MECHANICAL EQUIPMENT AND SYSTEMS. EXISTING FACILITY AND MECHANICAL SYSTEMS INFORMATION WAS TAKEN FROM PREVIOUS DRAWINGS, CONSTRUCTION RECORDS, DATA, AND FIELD SURVEY INFORMATION. ACTUAL LOCATION, ARRANGEMENT AND DIMENSIONS SHALL BE FIELD VERIFIED AND WORK INSTALLED TO MEET ACTUAL CONDITIONS AND LOCATIONS ENCOUNTERED. "BOLD" (DARK) DELINEATION IS NEW WORK TO BE CONSTRUCTED UNDER THIS CONTRACT.
6. ALL MATERIALS, FITTINGS, COVERS AND EQUIPMENT INSTALLED IN RETURN AIR PLENUMS SHALL BE NONCOMBUSTIBLE AND UL LISTED FOR USE IN RETURN AIR PLENUMS.
7. ALL PIPE AND DUCT PENETRATIONS THROUGH FIRE RESISTANCE RATED ASSEMBLIES SHALL BE PROVIDED WITH FIRESTOP SYSTEMS, EQUIPMENT AND ACCESSORIES TO RESIST THE PASSAGE OF FIRE, SMOKE AND OTHER GASES. THE ORIGINAL FIRE RESISTANCE RATING OF THE ASSEMBLY PENETRATED SHALL BE MAINTAINED FOR ALL TYPES OF PENETRATIONS. SEE ARCHITECTURAL DRAWINGS FOR RATED ASSEMBLY LOCATIONS.
8. METAL ROOF DECKING OR BOTTOM CHORD OF BAR JOISTS SHALL NOT BE USED FOR THE SUPPORT OF EQUIPMENT, PIPING OR DUCTWORK.
9. ALL HANGERS, BRACKETS OR BRACES FOR PIPING, DUCTWORK AND EQUIPMENT ARE NOT INDICATED ON THE DRAWINGS. REFER TO THE SPECIFICATIONS FOR SUPPORT REQUIREMENTS NOT SHOWN ON THE PLANS.
10. OUTSIDE AIR INLETS SHALL BE LOCATED A MINIMUM OF 10'–0" AWAY FROM ANY EXHAUST AIR OR PLUMBING VENT OUTLET.
11. ALL EQUIPMENT, PIPING AND DUCTWORK FINAL LOCATIONS SHALL BE COORDINATED TO AVOID INTERFERENCES WITH STRUCTURE, OTHER PIPING, EQUIPMENT, DUCTWORK AND CONDUIT. UNLESS SPECIFICALLY DIMENSIONED, THE PIPE AND DUCTWORK ROUTING SHOWN IS INTENDED TO INDICATE GENERAL LOCATION ONLY. INSTALL DUCTWORK TO ALLOW FOR PIPING TO BE ROUTED NEAR WALLS.
12. ALL PIPING AND DUCTWORK SHALL BE ROUTED AS HIGH AS POSSIBLE WITH A MINIMUM HEIGHT OF 8'–0" ABOVE THE WALKING SURFACE UNLESS OTHERWISE INDICATED BY A CENTERLINE OR BOTTOM OF DUCT ELEVATION.
13. PIPING AND DUCTWORK INSTALLED ABOVE SUSPENDED CEILINGS SHALL BE INSTALLED TO ALLOW A MINIMUM 8 INCH CLEARANCE BETWEEN THE CEILING AND PIPING OR BOTTOM OF DUCT.
14. DUCTWORK SHALL BE FABRICATED, REINFORCED, SUPPORTED AND SEALED FOR OPERATING PRESSURES INDICATED IN THE SCHEDULES FOR THE EQUIPMENT IT SERVES. ALL DUCTWORK SHALL HAVE A MINIMUM SMACNA PRESSURE CLASSIFICATION OF ONE INCH.
15. DUCT SIZES INDICATED ARE CLEAR DIMENSIONS INSIDE THE DUCT OR DUCT LINING. SHEET METAL SIZES ARE LARGER FOR INTERNALLY LINED DUCTWORK.
16. MINIMUM INSULATION THICKNESSES FOR DUCTWORK SHALL BE AS INDICATED IN THE SPECIFICATIONS UNLESS OTHERWISE INDICATED ON THE PLANS WITH A "L" OR "W" DESIGNATION. WHERE AN INSULATION THICKNESS IS INDICATED ON THE DRAWINGS, IT SHALL GOVERN. THE FOLLOWING DENOTES THE DIFFERENT INSULATION THICKNESSES INDICATED ON THE DRAWINGS:
    L,L1 – 1 INCH INTERNALLY LINED W,W1 – 1 INCH EXTERNALLY WRAPPED
    L15 – 1.5 INCH INTERNALLY LINED W15 – 1.5 INCH EXTERNALLY WRAPPED
    L2 – 2 INCH INTERNALLY LINED W2 – 2 INCH EXTERNALLY WRAPPED
17. DUCT CONNECTIONS TO EQUIPMENT, PIPING SIZES TO EQUIPMENT AND EQUIPMENT SUPPORTS SHALL BE VERIFIED AND ADJUSTED TO MATCH ACTUAL EQUIPMENT FURNISHED.
18. THE LOCATION OF PIPING AND VALVES TO THE AIR HANDLING EQUIPMENT SHALL NOT INTERFERE WITH FILTER REMOVAL OR AIR HANDLING EQUIPMENT SERVICING.
19. ROOFTOP EQUIPMENT SHALL NOT BE LOCATED SUCH THAT ACCESS TO CONTROLS AND TO PERFORM SERVICE FOR EQUIPMENT IS LOCATED WITHIN 10'–0" OF THE BUILDING EDGE.
20. CONTROL DAMPER SIZES SHALL MATCH DIMENSIONS OF ASSOCIATED LOUVER UNLESS OTHERWISE INDICATED.
21. ALL RELIEF VALVES SHALL BE PIPED TO 12" AFF.
22. SEISMIC RESTRAINTS/BRACING SHALL BE PROVIDED FOR ALL EQUIPMENT, DUCTWORK, AND ACCESSORIES IN ACCORDANCE WITH THE LATEST SMACNA SEISMIC RESTRAINT MANUAL AND LOCAL BUILDING CODES. DESIGN BUILDER SHALL BE RESPONSIBLE FOR ALL SEISMIC SUPPORTS AND ADDITIONAL/MISCELLANEOUS STEEL REQUIRED FOR PROPER INSTALLATION OF SUPPORTS. SUPPORTS AND SEISMIC RESTRAINTS DESIGN SUBMITTALS SHALL BEAR THE STAMP AND SIGNATURE OF A LICENSED ENGINEER.
23. INSULATION SHALL BE PROVIDED FOR EQUIPMENT, PIPING AND DUCT SYSTEMS AS INDICATED IN THE SPECIFICATIONS.
24. THE BOTTOM ELEVATION OF UNIT HEATERS SHALL BE 8'–0" ABOVE FINISHED FLOOR UNLESS OTHERWISE INDICATED.
25. THE BOTTOM ELEVATION OF WALL HEATERS SHALL BE 16" ABOVE FINISHED FLOOR UNLESS OTHERWISE INDICATED.
26. WALL THERMOSTATS SHALL BE 4'–6" ABOVE THE FLOOR UNLESS OTHERWISE REQUIRED.
27. ALL UNIT HEATERS SALL BE PROVIDED WITH WALL MOUNTED THERMOSTAT AS INDICATED IN THE SPECIFICATIONS.
28. DUCTWORK MATERIALS SHALL BE AS FOLLOWS, UNLESS OTHERWISE INDICATED BY NOTES ON THE DRAWINGS, SEE SPECIFICATION 15500:
    AIR CONDITIONING SPACES – GALVANIZED STEEL
    PROCESS SPACES – ALUMINUM
    OUTDOOR – ALUMINUM
29. INSULATION FOR HVAC SYSTEM SHALL BE PER SPECIFICATION 15251, UNLESS OTHERWISE INDICATED BY NOTES ON THE DRAWINGS.

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

DATE
REVISION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17959
MICHEL C. FRANCOM ROTH
3/21/2025

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

HVAC
LEGEND, ABBREVIATIONS AND GENERAL NOTES
CITY OF BENTONVILLE, ARKANSAS

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: AK
DRAWN BY: CP
HWEI NO.: 2021037
FILENAME: H–GENERAL

SHEET NO.
H–1

GENERAL ABBREVIATIONS

A	
A	ALARM, COMPRESSED AIR OUTLET
AC	AIR COMPRESSOR
AD	ACCESS DOOR, AIR DRYER
AFD	ADJUSTABLE FREQUENCY DRIVE
AFF	ABOVE FINISH FLOOR
ALUM	ALUMINUM
AP	ACCESS PANEL
APPROX	APPROXIMATE
AR	AIR RECEIVER
AUTO	AUTOMATIC
AVG	AVERAGE
AVS	AUTOMATIC VALVE STATION
B	
BF	BLIND FLANGE
BFF	BELOW FINISH FLOOR
BFP	BACKFLOW PREVENTER
BLDG	BUILDING
BOT	BOTTOM
BTUH	BRITISH THERMAL UNITS PER HOUR
BU	BELL-UP
BV	BALL VALVE
C	
C	CHANNEL
CA	COMPRESS AIR
CENTR	CENTRIFUGAL
CF	CABINET FAN
CI	CAST IRON
CL	CENTERLINE
CO	CLEANOUT
CONC	CONCRETE
CONN	CONNECTION
CONT	CONTINUATION
CP	CIRCULATING PUMP
CPVC	CHLORINATED POLYVINYL CHLORIDE
CS	CONTROL STATION
CU	COPPER
CV	CHECK VALVE, CONTROL VALVE
CWW	CLEAR WATER WASTE
D	
D	DIRECT DRIVE
DEH	DEHUMIDIFIER
DF	DRINKING FOUNTAIN
DIA	DIAMETER
DN	DOWN
DSN	DOWNSPOUT NOZZLE
E	
E	ELECTRIC
EA	EACH
EEW	EMERGENCY EYE WASH
EFF	EFFICIENCY
EL	ELEVATION
EP	EXPLOSION PROOF
EQUIP	EQUIPMENT
ES	EMERGENCY SHOWER
ES/EEW	EMERGENCY SHOWER AND EYEWASH
ET	EXPANSION TANK
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
EWT	ENTERING WATER TEMPERATURE
EXIST	EXISTING
F	
F	DEGREES FAHRENHEIT
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
FDB	DEGREES FAHRENHEIT DRY BULB
FLEX	FLEXIBLE
FM	FLOW METER
FPM	FEET PER MINUTE
FR	FUNNEL RECEPTOR
FS	FLOOR SINK, FLOW SWITCH
FSW	FILTER SURFACE WASH
FT	FEET
G	
G	GAS OUTLET
GA	GAUGE
GALV	GALVANIZED
GCO	GRADE CLEANOUT
GD	GARBAGE DISPOSER
GIH	GAS INFRARED HEATER
GPM	GALLONS PER MINUTE
GUH	GAS UNIT HEATER
GV	GATE VALVE
GW	GLASS WASHER
GWH	GAS WATER HEATER
H	
H	HAND OPERATOR, HEIGHT, HORIZONTAL
HE	HEAT EXCHANGER, HELIUM
HF	HOSE FAUCET
HO	HAND-OFF
HOA	HAND-OFF-AUTO
HP	HORSEPOWER
HR	HOUR, HOSE REEL
HUM	HUMIDIFIER
HV	HOSE VALVE
HWB	HEATING WATER BOILER
HZ	HERTZ
I	
I	INTAKE
ID	INSIDE DIAMETER
IN	INCHES
INV	INVERT
J	
JS	JANITOR'S SINK
K	
KS	KITCHEN SINK
KW	KILOWATT
L	
LAV	LAVATORY
LBS	POUNDS
LI	LEVEL INDICATOR
LS	LABORATORY SINK, LEVEL SWITCH
LWT	LEAVING WATER TEMPERATURE
M	
MAU	MAKEUP AIR UNIT
MAX	MAXIMUM
MCA	MINIMUM CIRCUIT AMPS
MFR	MANUFACTURER
MIN	MINIMUM
MOD	MODULATING
MS	MOP SINK
N	
NC	NORMALLY CLOSED
NFPH	NON FREEZE POST HYDRANT
NFRH	NON FREEZE ROOF HYDRANT
NO	NORMALLY OPEN, NUMBER
NPSHR	NET POSITIVE SUCTION HEAD REQUIRED
NT	NEUTRALIZATION TANK
O	
OD	OUTSIDE DIAMETER
ORD	OVERFLOW ROOF DRAIN
P	
PD	PRESSURE DROP (FEET OF WATER)
PAC	PACKAGED AIR CONDITIONING UNIT
PDI	PLUMBING AND DRAINAGE INSTITUTE
PDS	PRESSURE DIFFERENTIAL SWITCH
PL	PLATE
POS	POSITION
PP1	POLYPROPELENE SCH80
PP2	POLYPROPELENE SCH40
PPM	PARTS PER MILLION
PRS	PRESSURE REDUCING STATION
PRV	PRESSURE REDUCING VALVE
PS	PRESSURE SWITCH
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH ABSOLUTE
PSIG	POUNDS PER SQUARE INCH GAUGE
PVC	POLYVINYL CHLORIDE
R	
RCS	REMOTE CONTROL STATION
RD	ROOF DRAIN
REQD	REQUIRED
RO	REVERSE OSMOSIS
S	
SF	SQUARE FEET, SUPPLY FAN
SH	SHEET, SHOWER
SIM	SIMILAR
SS	STAINLESS STEEL, SERVICE SINK
SSP	SUBMERSIBLE SUMP PUMP
STD	STANDARD
SV	SERVICE VALVE, SHUTOFF VALVE, SUPPLY VALVE, SOLENOID VALVE
T	
TD	TRENCH DRAIN
TP	TRAP PRIMER
TPP	TRAP PRIMER PANEL
TS	TAMPER SWITCH
TYP	TYPICAL
U	
UR	URINAL
V	
V	VERTICAL
VAC	VACUUM OUTLET
VB	VACUUM BREAKER
VCD	VOLUME CONTROL DAMPER
VF	VANEAXIAL FAN
VP	VACUUM PUMP
VSP	VERTICAL COLUMN SUMP PUMP
VTR	VENT THRU ROOF
W	
W	WIDE FLANGE, WIDTH
WBP	WATER BOOSTER PUMP
WC	WATER CLOSET, WATER COLUMN
WCO	WALL CLEANOUT
WG	WATER GAUGE
WH	WALL HYDRANT
WHA	WATER HAMMER ARRESTOR
WM	WALL MOUNTED
WST	WATER STORAGE TANK
WT	WEIGHT

SYSTEM ABBREVIATIONS

WATER	
DI	DEIONIZED WATER
DW	DISTILLED WATER
F	FIRE PROTECTION WATER
HWC	HOT WATER CIRCULATING (POTABLE)
HW	HOT WATER (POTABLE)
NPHW	HOT WATER (NON-POTABLE)
NPW	NON-POTABLE WATER
PW	PLANT EFFLUENT WATER
SVW	SERVICE WATER
SW	SOFTENED WATER
TNPW	TEMPERED NON-POTABLE WATER
TW	TEMPERED OR BLENDED WATER (POTABLE)
TPW	TEMPERED WATER (POTABLE)
W3	PLANT SERVICE WATER
W	COLD WATER (POTABLE)

WASTE	
CRV	CHEMICAL RESISTANT VENT
CRW	CHEMICAL RESISTANT WASTE
CWW	CLEAR WATER WASTE
D	INDIRECT DRAIN
DRN	SANITARY DRAIN
GWW	GREY WATER WASTE
PD	SUMP PUMP DISCHARGE
ST	STORM DRAIN
V	VENT

FUEL GAS	
G	NATURAL GAS
PG	PROPANE GAS

SPECIAL	
A	COMPRESSED AIR
AR	ARGON
FOR	FUEL OIL RETURN
FOS	FUEL OIL SUPPLY
FOV	FUEL OIL VENT
H	HYDROGEN
HE	HELIUM
ME	METHANE
N	NITROGEN
NO	NITROUS OXIDE
OX	OXYGEN
VAC	VACUUM

VALVE LEGEND

PLAN	SECTION	2D SYMBOL	DESCRIPTION
			ANGLE VALVE
			BACKFLOW PREVENTER W/ STRAINER (2" AND SMALLER)
			BACKFLOW PREVENTER
			BACKWATER VALVE
			BALL VALVE
			BUTTERFLY VALVE
			CHECK VALVE
			GATE VALVE
			GLOBE VALVE
			PLUG VALVE
			PRESSURE REDUCING VALVE
			THREE WAY VALVE

PIPING ACCESSORIES LEGEND

PLAN	2D SYMBOL	DESCRIPTION
		FLEXIBLE CONNECTION
HF	HF	HOSE FAUCET W/O VACUUM BREAKER
HFV	HF	HOSE FAUCET W/ VACUUM BREAKER
HV		HOSE VALVE W/ HOSE NIPPLE
PR	PR	PRESSURE REDUCING STATION
		PRESSURE RELIEF VALVE
T		PRESSURE / TEMPERATURE RELIEF VALVE
Q	Q	QUICK COUPLING
WH	WH	WALL HYDRANT W/ VACUUM BREAKER
		METER
		WYE STRAINER
	S	WYE STRAINER W/ BLOWOFF
		VACUUM BREAKER

PIPING LEGEND

PLAN	2D SYMBOL	DESCRIPTION
		PIPING ABOVE FLOOR OR GRADE
		PIPING BELOW FLOOR OR GRADE
		PIPE TURNING UP
		PIPE TURNING DOWN

CONTROLS AND INSTRUMENTATION

2D SYMBOL	DESCRIPTION
FS	FLOW SWITCH
LS	LEVEL SWITCH
P	PRESSURE GAUGE W/ SHUTOFF VALVE
S	SOLENOID OPERATOR
	THERMOMETER - DIAL TYPE
	THERMOMETER - STEM TYPE
V	VACUUM GAUGE W/ SHUTOFF VALVE

PIPE FITTING LEGEND

PLAN	2D SYMBOL	DESCRIPTION
		BLIND FLANGE
		CAP
		REDUCER
		SLEEVE
TP	TP	TEST PLUG
		UNION
		P-TRAP
		VTR

PLUMBING LEGEND

PLAN	2D SYMBOL	DESCRIPTION
		BELL-UP DRAIN OR FUNNEL RECEPTOR W/ TRAP
	FCO	CLEANOUT (FLOOR)
	CO	CLEANOUT (PIPE)
	CW / HW	BLENDING VALVE
		DOWNSPOUT NOZZLE
		EMERGENCY SHOWER / EYEWASH
		FLOOR DRAIN
		HOSE RACK
		HOSE REEL
		ROOF DRAIN
		SHOWER
		SPLASH BLOCK
A	A	WATER HAMMER ARRESTOR W/ PDI SIZE DESIGNATION

SCHEMATICS

2D SYMBOL	DESCRIPTION
	AIR-GAP FITTING
	BELL-UP DRAIN OR FUNNEL RECEPTOR
	FLOOR CLEANOUT
	FLOOR DRAIN
	FLOOR DRAIN W/ FUNNEL
	VENT THROUGH ROOF

SCHEMATICS SPECIALTIES

2D SYMBOL	DESCRIPTION
	AUTOMATIC VALVE STATION
S	BASKET STRAINER
	COMBINATION PUMP DISCHARGE VALVE
	FLOW CONTROL VALVE
	FLOW SENSOR METER
	AIR VENT
	ROTAMETER
	SIGHT FLOW INDICATOR
	SUCTION DIFFUSER (SCHEMATIC)
TP	TRAP PRIMER

GENERAL PLUMBING NOTES

1. THIS IS GENERAL LEGEND AND ABBREVIATION SHEET FOR THE PLUMBING DRAWINGS. SOME ITEMS CONTAINED ON THIS SHEET MAY NOT BE USED ON THIS SPECIFIC PROJECT.
2. ALL MECHANICAL PLUMBING WORK SHALL BE IN ACCORDANCE WITH THE FOLLOWING APPLICABLE CODES:
   - 2021 INTERNATIONAL BUILDING CODE
   - 2021 ARKANSAS FIRE PROTECTION CODE, VOLUME 1 – FIRE
   - 2018 ARKANSAS FUEL GAS CODE
   - 2018 ARKANSAS PLUMBING CODE
   - 2009 INTERNATIONAL ENERGY CONSERVATION CODE (IECC)
   - 2021 ARKANSAS MECHANICAL CODE
   - 2020 NATIONAL ELECTRICAL CODE
   - 2014 ARKANSAS ENERGY CODE
3. FOR PLUMBING VENTS, FLUE FLASHING, AND ROOF DRAIN DETAILS, SEE ARCHITECTURAL DRAWINGS.
4. SEE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR ALL EQUIPMENT BASE DETAILS.
5. "SCREENED" DELINEATION DENOTES EXISTING AND NEW FACILITIES AND IS FOR REFERENCE ONLY. "LIGHT" LINE DELINEATION DENOTES EXISTING MECHANICAL EQUIPMENT AND SYSTEMS. EXISTING FACILITY AND MECHANICAL SYSTEMS INFORMATION WAS TAKEN FROM PREVIOUS DRAWINGS, CONSTRUCTION RECORDS, DATA, AND FIELD SURVEY INFORMATION. ACTUAL LOCATION, ARRANGEMENT, AND DIMENSIONS SHALL BE FIELD VERIFIED AND WORK INSTALLED TO MEET ACTUAL CONDITIONS AND LOCATIONS ENCOUNTERED. "BOLD" (DARK) DELINEATION IS NEW WORK TO BE CONSTRUCTED UNDER THIS CONTRACT.
6. ALL PIPE PENETRATIONS THROUGH FIRE RESISTANCE RATED ASSEMBLIES SHALL BE PROVIDED WITH FIRESTOP SYSTEMS, EQUIPMENT AND ACCESSORIES TO RESIST THE PASSAGE OF FIRE, SMOKE AND OTHER GASES. THE ORIGINAL FIRE RESISTANCE RATING OF THE ASSEMBLY PENETRATED SHALL BE MAINTAINED FOR ALL TYPES OF PENETRATIONS. SEE ARCHITECTURAL DRAWINGS FOR RATED ASSEMBLY LOCATIONS.
7. METAL ROOF DECKING OR BOTTOM CHORD OF BAR JOISTS SHALL NOT BE USED FOR THE SUPPORT OF EQUIPMENT OR PIPING.
8. ALL HANGERS, BRACKETS, OR BRACES FOR EQUIPMENT AND PIPING ARE NOT INDICATED ON THE DRAWINGS. REFER TO THE SPECIFICATIONS FOR SUPPORT REQUIREMENTS NOT SHOWN ON THE PLANS.
9. ALL EQUIPMENT AND PIPING FINAL LOCATIONS SHALL BE COORDINATED TO AVOID INTERFERENCES WITH STRUCTURE, OTHER PIPING, EQUIPMENT, DUCTWORK, AND CONDUIT. UNLESS SPECIFICALLY DIMENSIONED, THE PIPE ROUTING SHOWN IS INTENDED TO INDICATE GENERAL LOCATION ONLY.
10. ALL PIPING SHALL BE ROUTED AS HIGH AS POSSIBLE WITH A MINIMUM HEIGHT OF 8'-0" ABOVE THE WALKING SURFACE UNLESS OTHERWISE INDICATED BY A CENTERLINE OR INVERT ELEVATION.
11. PIPING INSTALLED ABOVE SUSPENDED CEILINGS SHALL BE INSTALLED TO ALLOW A MINIMUM 4 INCH CLEARANCE BETWEEN THE CEILING AND PIPING.
12. ALL HOSE FAUCETS AND HOSE VALVES SHALL BE INSTALLED 3'-0" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED. WALL HYDRANTS SHALL BE INSTALLED 2'-0" ABOVE GRADE UNLESS OTHERWISE NOTED.
13. ALL HOSE FAUCETS AND WALL HYDRANTS SHALL BE NOMINAL 3/4" PIPE SIZE UNLESS OTHERWISE NOTED. ALL HOSE VALVES SHALL BE 1 1/2" NOMINAL PIPE SIZE UNLESS OTHERWISE NOTED.
14. ALL HOSE FAUCETS, WALL HYDRANTS, AND OTHER OUTLETS ON NON-POTABLE WATER LINES WHICH COULD BE USED FOR DRINKING OR DOMESTIC USE SHALL BE POSTED AS REQUIRED BY THE APPLICABLE CODES. IN ABSENCE OF A CODE REQUIREMENT, THE OUTLETS SHALL BE POSTED WITH A TAG IN THE SHAPE OF A 4" EQUILATERAL TRIANGLE BEARING THE L EGEND "DANGER: UNSAFE WATER" IN LETTERS NOT LESS THAN 1/2" IN HEIGHT. THIS TAG SHALL BE SECURELY ATTACHED IN A VISIBLE LOCATION DIRECTLY ABOVE OUTLET. THE TAG SHALL BE PAINTED ORANGE AND THE LETTERS BLACK.
15. ALL RELIEF VALVES SHALL BE PIPED TO FLOOR OR BELL-UP DRAINS.
16. SEISMIC RESTRAINTS/BRACING SHALL BE PROVIDED FOR ALL EQUIPMENT, PIPING AND ACCESSORIES IN ACCORDANCE WITH THE LATEST SMACNA SEISMIC RESTRAINT MANUAL AND LOCAL BUILDING CODES. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SEISMIC SUPPORTS AND ADDITIONAL/MISCELLANEOUS STEEL REQUIRED FOR PROPER INSTALLATION OF SUPPORTS. SUPPORTS AND SEISMIC RESTRAINTS DESIGN SUBMITTALS SHALL BEAR THE STAMP AND SIGNATURE OF A LICENSED ENGINEER.
17. INSULATION SHALL BE PROVIDED FOR EQUIPMENT AND PIPING SYSTEMS AS INDICATED IN THE SPECIFICATIONS.
18. PLUMBING VENTS OUTLETS SHALL BE LOCATED A MINIMUM OF 10'-0" AWAY FROM ANY OUTSIDE AIR INLET.
19. PIPING SIZES TO EQUIPMENT AND EQUIPMENT SUPPORTS SHALL BE VERIFIED AND ADJUSTED TO MATCH ACTUAL EQUIPMENT FURNISHED.
20. ALL MATERIALS, FITTINGS, COVERS, AND EQUIPMENT INSTALLED IN RETURN AIR PLENUMS SHALL BE NONCOMBUSTIBLE AND UL LISTED FOR USE IN RETURN AIR PLENUMS.

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

DATE
REVISION

STATE OF ARKANSAS
MICHAEL FRANCONA ROTH
LICENSED PROFESSIONAL ENGINEER
No. 17959
3/21/2025

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

PLUMBING
LEGEND, ABBREVIATIONS AND GENERAL NOTES
CITY OF BENTONVILLE, ARKANSAS

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: SAM
DRAWN BY: AJP
HWEI NO.: 2021037
FILENAME: H-GENERAL

SHEET NO.
H-2

BID DRAWINGS

MARCH 21, 2025

AIR DEVICE SCHEDULE

UNIT NUMBER	MANUFACTURER	MODEL	FRAME/BORDER	MODULE SIZE	MATERIAL	FINISH	DAMPER TYPE	NOTES
ER-1	TITUS	50F	SURFACE MOUNT	---	ALUMINUM	CUSTOM COLOR	OPPOSED BLADE	1,3
RD-1	TITUS	OMNI-AA	LAY-IN	24"x24"	ALUMINUM	CUSTOM COLOR	OPPOSED BLADE	1,2,3
RD-2	TITUS	TMRA-AA	SURFACE MOUNT	18" DIA	ALUMINUM	CUSTOM COLOR	OPPOSED BLADE	1,3
RR-1	TITUS	50F	SURFACE MOUNT	---	ALUMINUM	CUSTOM COLOR	OPPOSED BLADE	1,3
SD-1	TITUS	OMNI-AA	LAY-IN	24"x24"	ALUMINUM	CUSTOM COLOR	OPPOSED BLADE	1,2,3
SD-2	TITUS	TMRA-AA	SURFACE MOUNT	18" DIA	ALUMINUM	CUSTOM COLOR	OPPOSED BLADE	1,3
SR-1	TITUS	271	SURFACE MOUNT	---	ALUMINUM	CUSTOM COLOR	OPPOSED BLADE	1,3

ROOF HOOD SCHEDULE

UNIT NUMBER	LOCATION	MANUFACTURER	MODEL	AIR FLOW (CFM)	AIR PD (IN WC)	TYPE	THROAT SIZE (IN X IN)	HOOD CONSTRUCTION	APPROX WEIGHT (LBS)	NOTES
RH-A01	INFLUENT ELECTRICAL BUILDING - COMPRESSOR ROOM	GREENHECK	FGR	7650	0.1	RELIEF/EXHAUST	38x38	ALUMINUM	150	1,2
RH-A02	INFLUENT ELECTRICAL BUILDING - COMPRESSOR ROOM	GREENHECK	FGR	7650	0.1	RELIEF/EXHAUST	38x38	ALUMINUM	150	1,2

DEDICATED OUTDOOR AIR UNIT SCHEDULE

				SUPPLY FAN				EXHAUST FAN				POWER SUPPLY			COOLING					HEATING						FILTER DATA				
															EAT		CAPACITY (BTUH)		MIN											
UNIT NUMBER	LOCATION	MANUFACTURER	MODEL	AIR FLOW (CFM)	ESP (IN WG)	MOTOR HP	DRIVE	AIRFLOW (CFM)	ESP (IN WG)	MOTOR HP	DRIVE	VOLTS	PHASE	MINIMUM CIRCUIT AMPACITY	(FDB)	(FWB)	SENSIBLE	TOTAL	CAPACITY STAGES	EAT	TYPE	CAPACITY (BTUH OR (KW))	MINIMUM HEAT STAGES	DISCHARGE DIRECTION	ARI MINIMUM EFFICIENCY	TYPE	THICKNESS (IN)	APPROX WEIGHT (LBS)	NOTES
DOAU-L01	ADMINISTRATION / LABORATORY BUILDING - LABORATORY	GREENHECK	RV-25-12.5A-1-E2	1900	0.75	1	DIRECT	---	---	---	---	480	3	60.6	84	77.1	46430	121970	VARIABLE	15.9	HEAT PUMP, AUXILIARY ELECTRIC	89000, (20)	VARIABLE SCR	VERTICAL	8.3 ISMRE2	PLEATED	2	2700	1,2,3,4,5,6

FAN SCHEDULE

UNIT NUMBER	LOCATION	MANUFACTURER	MODEL	FAN TYPE	AIR FLOW (CFM)	ESP (IN WC)	BRAKE HP	MOTOR HP	POWER SUPPLY		MINIMUM WHEEL DIAMETER (IN)	WHEEL TYPE	DRIVE	FILTER DATA		VIBRATION ISOLATION	APPROX WEIGHT (LBS)	NOTES
									VOLTS	PHASE				TYPE	THICKNESS (IN)			
EF-A01	INFLUENT STRUCTURE - EQUIPMENT AREA	GREENHECK	VEKTOR-H-36	FEF	8100/16200	1.375	12.41	15	480	3	36	C	BELT	---	---	INTERNAL	2000	1,2,3,5,6B,7,10
EF-A02	INFLUENT STRUCTURE - EQUIPMENT ROOM	GREENHECK	CUBE-130-7	PRV	1400	0.625	0.4	3/4	480	3	13	C	BELT	---	---	INTERNAL	100	2,4,5,6A
EF-A03	INFLUENT STRUCTURE - EQUIPMENT AREA	GREENHECK	VEKTOR-H-22	FEF	6400	1.125	4.26	7.5	480	3	22	C	BELT	---	---	INTERNAL	1000	1,2,3,5,6B,10
EF-A04	INFLUENT STRUCTURE - METER ACCESS	GREENHECK	BSQ-130HP	DF	1000	1	0.43	3/4	480	3	13	C	BELT	---	---	INTERNAL	150	6A
EF-J01	EFFLUENT PUMP STATION - PUMP ROOM	GREENHECK	CUBE-240HP-30	WF	6100	1	2.25	3	480	3	24	C	BELT	---	---	INTERNAL	200	2,5,6A
EF-L01	ADMINISTRATION / LABORATORY BUILDING - LABORATORY	GREENHECK	VEKTOR-H-12	FEF	1900	0.875	2.03	3	480	3	12	C	BELT	---	---	INTERNAL	500	1,3,5,6A,9
EF-L02	ADMINISTRATION / LABORATORY BUILDING - TOILET	GREENHECK	G-098-VG	PRV	300	0.75	0.1	1/4	208	1	9	C	DIRECT	---	---	INTERNAL	100	2,5,6A,8
EF-L03	ADMINISTRATION / LABORATORY BUILDING - CHEMICAL STORAGE	GREENHECK	G-097-VG	PRV	100	0.625	0.11	1/4	208	1	9	C	DIRECT	---	---	INTERNAL	100	3,5,6A,8,9
EF-L04	ADMINISTRATION / LABORATORY BUILDING - BREAK ROOM	GREENHECK	G-095-VG	PRV	300	0.75	0.11	1/6	208	1	9	C	DIRECT	---	---	INTERNAL	100	2,5,6A,8
EF-L05	ADMINISTRATION / LABORATORY BUILDING - MECH ROOM	GREENHECK	G-097-VG	PRV	100	0.625	0.03	1/4	208	1	9	C	DIRECT	---	---	INTERNAL	100	2,5,6A,8
EF-L06	ADMINISTRATION / LABORATORY BUILDING - LABORATORY	GREENHECK	G-098-VG	PRV	400	0.75	0.11	1/4	208	1	9	C	DIRECT	---	---	INTERNAL	100	5,6A,8,9
EF-M01	MAINTENANCE BUILDING - WELDING BAY 101	GREENHECK	CUBE-180-10	WF	2400	0.75	0.71	1	480	3	18	C	BELT	---	---	INTERNAL	200	5,6A
EF-M02	MAINTENANCE BUILDING - MAINTENANCE BAY 104	GREENHECK	CUBE-180-15	WF	3200	0.75	1.03	1.5	480	3	18	C	BELT	---	---	INTERNAL	200	5,6A
EF-M03	MAINTENANCE BUILDING - MAINTENANCE BAY 105	GREENHECK	CUBE-180-15	WF	3200	0.75	1.03	1.5	480	3	18	C	BELT	---	---	INTERNAL	200	5,6A
EF-M04	MAINTENANCE BUILDING - TOILET 108	GREENHECK	CUE-099-VG	WF	500	0.75	0.14	1/4	208	1	9	C	DIRECT	---	---	INTERNAL	50	5,6A,8
SF-A01	INFLUENT STRUCTURE - ELECTRICAL ROOM	GREENHECK	USF-15	UB	1200	1.25	0.37	1/2	480	3	15	C	BELT	---	---	SPRING MOUNT	300	2,5,6A,11,12,13
SF-A02	INFLUENT STRUCTURE - VESTIBULE	GREENHECK	USF-10	UB	350	0.75	0.11	1/4	480	3	10	C	BELT	---	---	SPRING MOUNT	200	2,5,6A,11,12,13

MAKEUP AIR UNIT SCHEDULE

UNIT NUMBER	LOCATION	MANUFACTURER	MODEL	HEATING TYPE	AIR FLOW (CFM)	ESP (IN WC)	MOTOR HP	POWER SUPPLY		MINIMUM CIRCUIT AMPACITY	OUTPUT CAPACITY (BTUH OR (KW))	MINIMUM WHEEL DIAMETER (IN)	FILTER DATA		VIBRATION ISOLATION	APPROX WEIGHT (LBS)	NOTES
								VOLTS	PHASE				TYPE	THICKNESS (IN)			
MAU-A01	INFLUENT STRUCTURE - EQUIPMENT AREA	ENGINEERED AIR	LM030	E	27150	2	(2) 15	480	3	405.6	(275)	(2) 11	PLEATED	2	INTERNAL	8200	1,2,5,7,8,10,11
MAU-A02	INFLUENT STRUCTURE - EQUIPMENT ROOM	ENGINEERED AIR	LM2	E	1600	1	1.5	480	3	31.9	(17)	5	PLEATED	2	INTERNAL	1300	1,2,5,10
MAU-A03	INFLUENT ELECTRICAL BUILDING - COMPRESSOR ROOM	ENGINEERED AIR	LM16	E	7650/15300	1	10	480	3	216.9	(155)	11	PLEATED	2	INTERNAL	4800	1,2,3,4,5,6,9,11
MAU-M01	MAINTENANCE BUILDING - WELDING BAY	GREENHECK	MSX	E	2100	0.375	1	480	3	57.7	(35)	16	PLEATED	2	INTERNAL	1200	1,2,5,10
MAU-M02	MAINTENANCE BUILDING - TOOL STORAGE, MAINTENANCE BAYS	GREENHECK	MSX	E	5700	0.5	3	480	3	119.2	(90)	22	PLEATED	2	INTERNAL	1700	1,2,5,10

PACKAGED AIR CONDITIONING UNIT/HEAT PUMP SCHEDULE

				INDOOR FAN				POWER SUPPLY			COOLING					HEATING						FILTER DATA		ECONOMIZER DATA			
											EAT		CAPACITY (BTUH)		MIN												
UNIT NUMBER	LOCATION	MANUFACTURER	MODEL	AIR FLOW (CFM)	ESP (IN WG)	MOTOR HP	DRIVE	VOLTS	PHASE	MINIMUM CIRCUIT AMPACITY	(FDB)	(FWB)	SENSIBLE	TOTAL	CAPACITY STAGES	EAT	TYPE	CAPACITY (BTUH OR (KW))	MINIMUM HEAT STAGES	DISCHARGE DIRECTION	ARI MINIMUM EFFICIENCY	OA (CFM)	TYPE	THICKNESS (IN)	TYPE	CONTROLS	APPROX WEIGHT (LBS)	NOTES
PAC-A01	INFLUENT ELECTRICAL BUILDING - ELECTRICAL ROOM	TRANE	TSK150A4S0G	4200	1	5	DIRECT	480	3	40	79.3	62.8	112500	126000	3	66.7	ELECTRIC	(14)	2	VERTICAL	11.0 EER	400	PLEATED	2	POWER EXHAUST	DIFFERENTIAL ENTHALPY WITH FIXED DRY BULB	1600	1,2,3,4
PAC-A02	INFLUENT ELECTRICAL BUILDING - ELECTRICAL ROOM	TRANE	TSK150A4S0G	4200	0.875	5	DIRECT	480	3	40	79.3	62.8	112500	126000	3	66.7	ELECTRIC	(14)	2	VERTICAL	11.0 EER	400	PLEATED	2	POWER EXHAUST	DIFFERENTIAL ENTHALPY WITH FIXED DRY BULB	1600	1,2,3,4
PAC-J01	EFFLUENT PUMP STATION - ELECTRICAL ROOM	TRANE	TSK150A4S0G	4000	0.625	5	DIRECT	480	3	40	79.4	63	107500	121500	3	66.4	ELECTRIC	(13)	2	VERTICAL	11.0 EER	400	PLEATED	2	POWER EXHAUST	DIFFERENTIAL ENTHALPY WITH FIXED DRY BULB	1600	1,2,3,4
PAC-J02	EFFLUENT PUMP STATION - ELECTRICAL ROOM	TRANE	TSK150A4S0G	4000	0.625	5	DIRECT	480	3	40	79.4	63	107500	121500	3	66.4	ELECTRIC	(13)	2	VERTICAL	11.0 EER	400	PLEATED	2	POWER EXHAUST	DIFFERENTIAL ENTHALPY WITH FIXED DRY BULB	1600	1,2,3,4
PHP-L01	ADMINISTRATION / LABORATORY BUILDING - BREAKROOM, DINING	TRANE	WHK072A4S0G	1800	1.625	3	DIRECT	480	3	51	80.3	66.2	47500	62500	3	62.7	HEAT PUMP, AUXILIARY ELECTRIC	53200, (16)	2	VERTICAL	12.8 EER	300	PLEATED	2	POWER EXHAUST	DIFFERENTIAL ENTHALPY WITH FIXED DRY BULB	1300	1,2,3,4,6
PHP-L02	ADMINISTRATION / LABORATORY BUILDING - CORRIDOR, RESTROOMS, LAB OFFICE	TRANE	HORIZON ASHP	800	0.875	1	DIRECT	480	3	40.1	87	71.5	28000	44500	3	35.2	HEAT PUMP, AUXILIARY ELECTRIC	49100, (14)	---	VERTICAL	9.7 EER	525	PLEATED	2	---	---	1500	1,2,3,4,6
PHP-L03	ADMINISTRATION / LABORATORY BUILDING - LABORATORY	TRANE	WHK120A4S0K	3800	1.5	3	DIRECT	480	3	76	71.7	60.1	69000	80500	3	65.7	HEAT PUMP, AUXILIARY ELECTRIC	79100, (23)	2	VERTICAL	11.4 EER	300	PLEATED	2	POWER EXHAUST	DIFFERENTIAL ENTHALPY WITH FIXED DRY BULB	1500	1,2,3,4
PHP-M01	MAINTENANCE BUILDING	TRANE	WHK090A4S0C	2250	1	(2) 1.5	DIRECT	480	3	67	79	66.2	54000	74500	3	58.5	HEAT PUMP, AUXILIARY ELECTRIC	49000, (23)	---	HORIZONTAL	12 EER	540	PLEATED	2	POWER EXHAUST	DIFFERENTIAL ENTHALPY WITH FIXED DRY BULB	1100	1,2,3,4,5,6

CONT SCHEDULE NOTES

MAKEUP AIR UNIT SCHEDULE:

CONT NOTES:

9. LOUVERED INLET.
10. VARIABLE FREQUENCY DRIVE - FOR BALANCING DIRECT DRIVE FAN.
11. HEATING CAPACITY AND ESP SPECIFIED FOR HIGH FLOWRATE.

PACKAGED AIR CONDITIONING UNIT/HEAT PUMP SCHEDULE:

CAPACITY NOTE:
CAPACITIES LISTED IN PARENTHESES ARE IN UNITS OF "KW". CAPACITIES LISTED WITHOUT PARENTHESES ARE IN UNITS OF "BTUH".

OUTDOOR COIL ENTERING AIR TEMPERATURE:
COOLING - 102°F DESIGN/ 0°F MIN
HEATING - 15°F DESIGN (HEAT PUMP)

NOTES:

1. INTEGRAL VFD OR VARIABLE SPEED MOTOR TO ALLOW BALANCING OF DIRECT DRIVE FAN.
2. UNIT IS SUBJECT TO CORROSION FROM A HYDROGEN SULFIDE LADEN ATMOSPHERE. ALL AIRSTREAM COMPONENTS AND EXPOSED HEAT TRANSFER COMPONENTS SHALL BE GIVEN A PROTECTIVE SPECIAL COATING OF HERESITE, MICROGUARD 1, ELECTROFIN E-COAT OR APPROVED EQUAL. CONTROLS PANELS, WIRING CONNECTIONS AND OTHER SENSITIVE ELECTRONICS SHALL HAVE A CONFORMAL COATING APPLIED.
3. FILTER VELOCITY SHALL NOT EXCEED 350 FEET PER MINUTE.
4. MODULATING HOT GAS REHEAT FOR HUMIDITY CONTROL.
5. PROVIDE FACTORY INSTALLED HAIL GUARD.
6. ELECTRIC HEATING CAPACITY LISTED IS ADDITIONAL (SECONDARY) TO THE HEAT PUMP CAPACITY.

GENERAL SHEET NOTES

1. SEE DRAWING H-1 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.

SCHEDULE NOTES

AIR DEVICE SCHEDULE:

NOTES:

1. SEE DRAWINGS FOR DEVICE LENGTH, WIDTH, AND SUPPLY PATTERN.
2. ALL DIFFUSER CORE STYLES ARE 4-WAY UNLESS OTHERWISE INDICATED ON THE PLAN.
3. COORDINATE COLOR WITH ARCHITECT PRIOR TO ORDERING.

ROOF HOOD SCHEDULE:

NOTES:

1. UNIT IS SUBJECT TO CORROSION FROM A HYDROGEN SULFIDE LADEN ATMOSPHERE. A PROTECTIVE SPECIAL COATING OF EPOXY SHALL BE PROVIDED.
2. 1/2" ALUMINUM BIRD SCREEN TO BE PROVIDED.

DEDICATED OUTDOOR AIR UNIT SCHEDULE:

CAPACITY NOTE:
CAPACITIES LISTED IN PARENTHESES ARE IN UNITS OF ""KW"". CAPACITIES LISTED WITHOUT PARENTHESES ARE IN UNITS OF ""BTUH"".

OUTDOOR COIL ENTERING AIR TEMPERATURE:
COOLING - 102°F DESIGN/ 0°F MIN
HEATING - 15°F DESIGN (HEAT PUMP)

NOTES:

1. INTEGRAL VFD OR VARIABLE SPEED MOTOR TO ALLOW BALANCING OF DIRECT DRIVE FAN.
2. UNIT IS SUBJECT TO CORROSION FROM A HYDROGEN SULFIDE LADEN ATMOSPHERE. ALL AIRSTREAM COMPONENTS AND EXPOSED HEAT TRANSFER COMPONENTS SHALL BE GIVEN A PROTECTIVE SPECIAL COATING AS FOLLOWS, USE TWO COATS OF CORROSION RESISTANT EPOXY FOR ALL INTERIOR COMPONENTS. USE ONE COAT CORROSION RESISTANT EPOXY AND ONE COAT CORROSION RESISTANT POLYURETHANE ON EXTERIOR COMPONENTS. CONTROLS PANELS, WIRING CONNECTIONS AND OTHER SENSITIVE ELECTRONICS SHALL BE PROVIDED WITH HERESITE, E-COAT, MICROGUARD OR EQUAL.
3. FILTER VELOCITY SHALL NOT EXCEED 350 FEET PER MINUTE.
4. MODULATING HOT GAS REHEAT FOR HUMIDITY CONTROL.
5. ELECTRIC HEATING CAPACITY LISTED IS ADDITIONAL (SECONDARY) TO THE HEAT PUMP CAPACITY.
6. PROVIDE FACTORY INSTALLED HAIL GUARD.

FAN SCHEDULE:

FAN TYPE ABBREVIATIONS:
DF - DUCT FAN
FEF - FUME HOOD EXHAUST FAN
PRV - POWER ROOF VENTILATOR
UB - UTILITY BLOWER
UF - UTILITY FAN
WF - WALL FAN
WHEEL TYPE ABBREVIATIONS:
C - CENTRIFUGAL

NOTES:

1. TYPE B SPARK RESISTANT CONSTRUCTION.
2. UNIT IS SUBJECT TO CORROSION FROM A HYDROGEN SULFIDE LADEN ATMOSPHERE. ALL AIRSTREAM COMPONENTS SHALL BE GIVEN A PROTECTIVE SPECIAL COATING OF HERESITE, LABCOAT OR APPROVED EQUAL. CONTROLS PANELS, WIRING CONNECTIONS AND OTHER SENSITIVE ELECTRONICS SHALL HAVE A CONFORMAL COATING APPLIED.
3. EXPLOSION PROOF MOTOR RATED FOR VFD DUTY.
4. BACKDRAFT DAMPER TO BE PROVIDED AS AN ACCESSORY, DAMPER LOSSES TO BE INCLUDED IN INTERNAL LOSSES.
5. ALUMINUM BIRD SCREEN TO BE PROVIDED.
6. CONSTRUCTION:
A) ALUMINUM FAN BLADES B) STEEL FAN BLADES.
7. VARIABLE FREQUENCY DRIVE-VARIABLE VOLUME APPLICATION.
8. VARI-GREEN TYPE CONTROL.
9. UNIT IS SUBJECT TO CORROSION FROM A ACID LADEN ATMOSPHERE. ALL AIRSTREAM COMPONENTS SHALL BE GIVEN A PROTECTIVE SPECIAL COATING OF LABCOAT OR APPROVED EQUAL. CONTROLS PANELS, WIRING CONNECTIONS AND OTHER SENSITIVE ELECTRONICS SHALL HAVE A CONFORMAL COATING APPLIED.
10. PROVIDE NEMA 8 ENCLOSURE FOR CONTROL PANELS AND VFD.
11. SEE PLAN DRAWINGS FOR FAN ROTATION AND DISCHARGE.
12. ENTIRE UNIT AND CONTROLS SHALL BE SUITABLE FOR OUTDOOR INSTALLATION.
13. PROVIDE ISOLATION BASE FOR ENTIRE UNIT.
14. ESP SPECIFIED FOR HIGH FLOWRATE.

MAKEUP AIR UNIT SCHEDULE:

CAPACITY NOTE:
CAPACITIES LISTED IN PARENTHESES ARE IN UNITS OF "KW". CAPACITIES LISTED WITHOUT PARENTHESES ARE IN UNITS OF "BTUH".

HEATING TYPE ABBREVIATIONS:
E - ELECTRIC

NOTES:

1. FILTER VELOCITY SHALL NOT EXCEED 350 FEET PER MINUTE.
2. UNIT IS SUBJECT TO CORROSION FROM A HYDROGEN SULFIDE LADEN ATMOSPHERE. ALL AIRSTREAM COMPONENTS AND EXPOSED HEAT TRANSFER COMPONENTS SHALL BE GIVEN A PROTECTIVE SPECIAL COATING AS FOLLOWS, USE TWO COATS OF CORROSION RESISTANT EPOXY FOR ALL INTERIOR COMPONENTS. USE ONE COAT CORROSION RESISTANT EPOXY AND ONE COAT CORROSION RESISTANT POLYURETHANE ON EXTERIOR COMPONENTS. CONTROLS PANELS, WIRING CONNECTIONS AND OTHER SENSITIVE ELECTRONICS SHALL BE PROVIDED WITH HERESITE, E-COAT, MICROGUARD OR EQUAL.
3. PROVIDE FOUR WAY ADJUSTABLE DIFFUSER AT THE DISCHARGE AS AN ACCESSORY. LOSSES TO BE INCLUDED AS PART OF INTERNAL LOSSES.
4. VARIABLE FREQUENCY DRIVE-VARIABLE VOLUME APPLICATION.
5. ELECTRIC HEATING ELEMENT - STAINLESS STEEL FINNED TUBE.
6. THE SPECIFIED ESP IS FOR HIGH AIRFLOW RATE. SPECIFIED HEATING CAPACITY IS FOR HIGH AIRFLOW SETTING.
7. PROVIDE NEMA 4X ENCLOSURE FOR CONTROL PANEL, AND VFD.
8. PROVIDE SUPPLY AIR DAMPER WITH ACTUATOR IN NEMA 4X ENCLOSURE.

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

DATE | REVISION

STATE OF ARKANSAS
MICHAEL FRANCON ROTH
LICENSED PROFESSIONAL ENGINEER
No. 17959
3/21/2025

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

HVAC SCHEDULES

CITY OF BENTONVILLE, ARKANSAS

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: AK
DRAWN BY: CP
HWEI NO.: 2021037
FILENAME: H-GENERAL

SHEET NO.
H-3

HEATER SCHEDULE

UNIT NUMBER	LOCATION	MANUFACTURER	MODEL	FAN TYPE	UNIT ORIENTATION	AIR FLOW (CFM)	AIR PD (IN WC)	OUTPUT CAPACITY (BTUH)	OUTPUT CAPACITY (KW)	MOTOR HP	POWER SUPPLY VOLTS	POWER SUPPLY PHASE	APPROX WEIGHT (LBS)	NOTES
CH-A01	INFLUENT STRUCTURE - MECH. ROOM	INDEECO	CONVECTOR	CH	SURFACE MOUNT	---	---	---	1	---	208	1	25	2,3,6
CH-A02	INFLUENT STRUCTURE - TOILET	INDEECO	CONVECTOR	CH	SURFACE MOUNT	---	---	---	1	---	208	1	25	2,3,6
CH-A03	INFLUENT STRUCTURE - VESTIBULE	INDEECO	CONVECTOR	CH	SURFACE MOUNT	---	---	---	1	---	208	1	25	2,3,6
EDH-A01	INFLUENT STRUCTURE - ELECTRICAL ROOM	INDEECO	CUSTOM DUCT HEATER	EDH	HORIZONTAL	1200	---	---	19	---	480	3	350	1,4,5,7,8
EDH-A02	INFLUENT STRUCTURE - VESTIBULE	INDEECO	CUSTOM DUCT HEATER	EDH	HORIZONTAL	350	---	---	6	---	480	3	150	1,4,5,7,8
EUH-A01	INFLUENT STRUCTURE - EQUIPMENT ROOM	INDEECO	TRIAD	EUHCR	HORIZONTAL	700	---	---	5	1/4	480	3	75	2,4
EUH-A02	INFLUENT STRUCTURE - ELECTRICAL ROOM	INDEECO	TRIAD	EUHCR	HORIZONTAL	700	---	---	5	1/4	480	3	75	2,4
EUH-A03	INFLUENT STRUCTURE - EQUIPMENT ROOM	INDEECO	TRIAD	EUHCR	HORIZONTAL	700	---	---	5	1/4	480	3	75	2,4
EUH-A04	INFLUENT STRUCTURE - EQUIPMENT ROOM	INDEECO	TRIAD	EUHCR	HORIZONTAL	700	---	---	5	1/4	480	3	75	2,4
EUH-A05	INFLUENT STRUCTURE - DUMPSTER AREA	INDEECO	ULTRASAFE EXP	EUHEXP	HORIZONTAL	850	---	---	7.5	1/4	480	3	150	2,4,3
EUH-A06	INFLUENT STRUCTURE - DUMPSTER AREA	INDEECO	ULTRASAFE EXP	EUHEXP	HORIZONTAL	850	---	---	7.5	1/4	480	3	150	2,4,3
EUH-A07	INFLUENT STRUCTURE - DUMPSTER AREA	INDEECO	ULTRASAFE EXP	EUHEXP	HORIZONTAL	650	---	---	5	1/4	480	3	150	2,4,3
EUH-A08	INFLUENT STRUCTURE - DUMPSTER AREA	INDEECO	ULTRASAFE EXP	EUHEXP	HORIZONTAL	650	---	---	5	1/4	480	3	150	2,4,3
EUH-A09	INFLUENT STRUCTURE - STAIR	INDEECO	ULTRASAFE EXP	EUHEXP	HORIZONTAL	650	---	---	3	1/4	480	3	150	2,4,3
EUH-A10	INFLUENT STRUCTURE - EQUIPMENT AREA	INDEECO	ULTRASAFE EXP	EUHEXP	HORIZONTAL	650	---	---	5	1/4	480	3	150	2,4,3
EUH-A11	INFLUENT STRUCTURE - EQUIPMENT AREA	INDEECO	ULTRASAFE EXP	EUHEXP	HORIZONTAL	650	---	---	5	1/4	480	3	150	2,4,3
EUH-A12	INFLUENT STRUCTURE - EQUIPMENT AREA	INDEECO	ULTRASAFE EXP	EUHEXP	HORIZONTAL	650	---	---	5	1/4	480	3	150	2,4,3
EUH-A13	INFLUENT STRUCTURE - EQUIPMENT AREA	INDEECO	ULTRASAFE EXP	EUHEXP	HORIZONTAL	650	---	---	5	1/4	480	3	150	2,4,3
EUH-A14	INFLUENT STRUCTURE - EQUIPMENT AREA	INDEECO	ULTRASAFE EXP	EUHEXP	HORIZONTAL	650	---	---	5	1/4	480	3	150	2,4,3
EUH-A15	INFLUENT ELECTRICAL BUILDING-COMPRESSOR	INDEECO	TRIAD	EUHCR	HORIZONTAL	700	---	---	2	1/4	277	1	75	2,4
EUH-A16	INFLUENT ELECTRICAL BUILDING-COMPRESSOR	INDEECO	TRIAD	EUHCR	HORIZONTAL	700	---	---	2	1/4	277	1	75	2,4
EUH-A17	INFLUENT ELECTRICAL BUILDING-COMPRESSOR	INDEECO	TRIAD	EUHCR	HORIZONTAL	700	---	---	2	1/4	277	1	75	2,4
EUH-A18	INFLUENT STRUCTURE - ELECTRICAL ROOM	INDEECO	TRIAD	EUHCR	HORIZONTAL	700	---	---	2	1/4	277	1	75	2,4
EUH-J01	EFFLUENT PUMP STATION - PUMP ROOM	INDEECO	TRIAD	EUHCR	HORIZONTAL	700	---	---	5	1/4	480	3	75	2,4
EUH-J02	EFFLUENT PUMP STATION - PUMP ROOM	INDEECO	TRIAD	EUHCR	HORIZONTAL	700	---	---	5	1/4	480	3	75	2,4
EUH-J03	EFFLUENT PUMP STATION - PUMP ROOM	INDEECO	TRIAD	EUHCR	HORIZONTAL	700	---	---	5	1/4	480	3	75	2,4
EUH-J04	EFFLUENT PUMP STATION - PUMP ROOM	INDEECO	TRIAD	EUHCR	HORIZONTAL	700	---	---	5	1/4	480	3	75	2,4
EUH-J05	EFFLUENT PUMP STATION - PUMP ROOM	INDEECO	TRIAD	EUHCR	HORIZONTAL	700	---	---	5	1/4	480	3	75	2,4
EUH-M01	MAINTENANCE BUILDING- WELDING BAY 101	INDEECO	TRIAD	EUHCR	HORIZONTAL	700	---	---	5	1/4	480	3	75	2,4
EUH-M02	MAINTENANCE BUILDING- WELDING BAY 101	INDEECO	TRIAD	EUHCR	HORIZONTAL	700	---	---	5	1/4	480	3	75	2,4
EUH-M03	MAINTENANCE BUILDING- MAINTENANCE BAY 103	INDEECO	TRIAD	EUHCR	HORIZONTAL	700	---	---	7.5	1/4	480	3	75	2,4
EUH-M04	MAINTENANCE BUILDING- MAINTENANCE BAY 105	INDEECO	TRIAD	EUHCR	HORIZONTAL	700	---	---	7.5	1/4	480	3	75	2,4
EUH-M05	MAINTENANCE BUILDING- MAINTENANCE BAY 105	INDEECO	TRIAD	EUHCR	HORIZONTAL	700	---	---	7.5	1/4	480	3	75	2,4
EUH-M06	MAINTENANCE BUILDING- MAINTENANCE BAY 103	INDEECO	TRIAD	EUHCR	HORIZONTAL	700	---	---	7.5	1/4	480	3	75	2,4
WH-A01	ADMINISTRATION / LABORATORY BUILDING - LOCKERS	INDEECO	WAI	WH	SURFACE MOUNT	160	---	---	1.125	---	208	1	50	9,10
WH-A02	ADMINISTRATION / LABORATORY BUILDING - WOMENS	INDEECO	WAI	WH	SURFACE MOUNT	160	---	---	1.125	---	208	1	50	9,10
WH-M01	MAINTENANCE BUILDING - LOCKERS 109	INDEECO	WAI	WH	SURFACE MOUNT	160	---	---	1.125	---	208	1	50	9,10
WH-M02	MAINTENANCE BUILDING - OFFICE 112	INDEECO	WAI	WH	SURFACE MOUNT	160	---	---	1.125	---	208	1	50	9,10
WH-M03	MAINTENANCE BUILDING - WORK AREA 111	INDEECO	WAI	WH	SURFACE MOUNT	160	---	---	1.125	---	208	1	50	9,10
WH-M04	MAINTENANCE BUILDING - BREAKROOM 114	INDEECO	WAI	WH	SURFACE MOUNT	160	---	---	1.125	---	208	1	50	9,10

GENERAL SHEET NOTES

1. SEE DRAWING H-1 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.

SCHEDULE NOTES

HEATER SCHEDULE:

TYPE ABBREVIATIONS:

EDH - ELECTRIC DUCT HEATER
EUHEXP - EXPLOSIONPROOF ELECTRIC UNIT HEATER
EUHCR - CORROSION RESISTANT ELECTRIC UNIT HEATER
CH - CONVECTION HEATER

NOTES:

1. ELECTRIC DUCT HEATER ELEMENT TYPE
   A) STAINLESS STEEL FINNED TUBE B) OPEN COIL.
2. PROVIDE CORROSION RESISTANT WALL MOUNTING BRACKET.
3. EXPLOSION PROOF THERMOSTAT TO BE PROVIDED AS AN ACCESSORY.
4. PROVIDE CORROSION RESISTANT WALL MOUNTING THERMOSTAT.
5. IN-DUCT THERMOSTAT TO BE PROVIDED AS AN ACCESSORY.
6. EXPLOSION-PROOF CONVECTOR. CORROSION RESISTANT STAINLESS STEEL CONSTRUCTION.
7. ENTIRE UNIT AND CONTROLS SHALL BE SUITABLE FOR OUTDOOR INSTALLATION.
8. SEE PLAN DRAWINGS FOR DUCT DIMENSIONS.
9. PROVIDE BUILT-IN THERMOSTAT.
10. PROVIDE SURFACE MOUNTING FRAME.

1"
ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

DATE
REVISION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17959
MICHAEL FRANCON ROTH
3/21/2025

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

BID DRAWINGS
MARCH 21, 2025

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

HVAC SCHEDULES

CITY OF BENTONVILLE, ARKANSAS

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: AK
DRAWN BY: CP
HWEI NO.: 2021037
FILENAME: H-GENERAL

SHEET NO.
H-4

BACKFLOW PREVENTER SCHEDULE

UNIT NUMBER	LOCATION	MANUFACTURER	MODEL	SERVICE	BODY SIZE (IN)	MAXIMUM FLOW (GPM)	MAXIMUM PRESSURE DIFFERENTIAL (PSI)	NOTES
BFP-A01	INFLUENT STRUCTURE BUILDING	ZURN	975XL3	POTABLE WATER	1 1/4	33	14	1
BFP-A02	INFLUENT STRUCTURE BUILDING	ZURN	975XL3	POTABLE WATER	1 1/2	42	14	1
BFP-A03	INFLUENT STRUCTURE BUILDING	ZURN	975XL3	NON POTABLE WATER	1	12	12	1
BFP-J01	EFFLUENT PUMP STATION BUILDING	ZURN	975XL3	POTABLE WATER	1 1/4"	20	12	1
BFP-L01	ADMINISTRATION / LABORATORY BUILDING	ZURN	375 DA	POTABLE WATER	2 1/2	69	15	1
BFP-L02	ADMINISTRATION / LABORATORY BUILDING	ZURN	975XL3	NON POTABLE WATER	3/4"	8	12	1
BFP-M01	MAINTENANCE BUILDING	ZURN	375 DA	POTABLE WATER	2 1/2	62	15	1

PIPING ACCESSORIES SCHEDULE

UNIT NUMBER	MANUFACTURER	MODEL	DESCRIPTION	NOTES
FCO-1	SMITH	4111 SERIES	HEAVY DUTY FLOOR CLEANOUT, SECURED ROUND ADJUSTABLE NICKEL BRONZE TOP.	---
FCO-2	SMITH	4240 SERIES	HEAVY DUTY FLOOR CLEANOUT WITH ADJUSTABLE TRACTOR COVER.	---
FD-1	SMITH	2141 SERIES	HEAVY DUTY CAST IRON FLOOR DRAIN, 12" DIAMETER TRACTOR GRATE,TRAP PRIMER CONNECTION – P050	---
FD-2	SMITH	2005-A SERIES	MEDIUM DUTY CAST IRON FLOOR DRAIN, ADJUSTABLE TOP, NICKEL BRONZE ROUND GRATE W/ TRAP PRIMER CONN.	---
FD-3	SMITH	2141 SERIES	HEAVY DUTY CAST IRON FLOOR DRAIN, 12" DIAMETER TRACTOR GRATE WITH TRAP BARRIER.	---
FR-1	SMITH	3800 SERIES	MEDIUM DUTY CAST IRON FUNNEL RECEPTOR, WATERSTOP FLANGE, THREADED OR NO-HUB CONNECTION, W/ TRAP PRIMER CONN.	---
FR-2	SMITH	3510 SERIES	DUCO CAST IRON BODY AND FLASHING COLLAR WITH ADJUSTABLE STRAINER HEAD WITH SECURED SQUARE HOLE GRATE AND FUNNEL ATTACHED TO THE GRATE. W/ TRAP PRIMER CONN.	---
FS-1	SMITH	3040 SERIES	SQUARE FLOOR SINK; CAST IRON BODY, WHITE ACID RESISTING PROCELAIN ENAMEL INTERIOR AND TOP, ANTI-SPLASH INTERIOR BOTTOM DOME STRAINER, NICKEL BRONZE FRAME AND FULL GRATE.	---
GCO-1	SMITH	4240 SERIES	HEAVY DUTY FLOOR CLEANOUT WITH ADJUSTABLE TRACTOR COVER.	---
MV-1	SYMMONS	MAXLINE 7-225-CK	THERMOSTATIC MIXING VALVE, 1/2" BODY, 0.5 GPM MINIMUM FLOW, 7.5 GPM FLOW AT 20 PSI MAXIMUM DIFFERENTIAL PRESSURE, INITIAL SETPOINT 110 F.	---
TD-1	ACO	POWER DRAIN/K-200 SERIES	EXTRA HEAVY DUTY TRENCH DRAIN, POLYMER CONCRETE, PRESLOPED, HEAVY DUTY CAST IRON GRATE, 4" BOTTOM OUTLET, S200K, SECTION LENGTH 36' 0". WITH LOAD CLASS F – 200,000 LB	---
TD-2	ACO	POWER DRAIN/K-200 SERIES	EXTRA HEAVY DUTY TRENCH DRAIN, POLYMER CONCRETE, PRESLOPED, HEAVY DUTY CAST IRON GRATE, 4" BOTTOM OUTLET, S200K, SECTION LENGTH 50' 0" WITH LOAD CLASS F – 200,000 LB	---
TD-3	ACO	POWER DRAIN/K-200 SERIES	EXTRA HEAVY DUTY TRENCH DRAIN, POLYMER CONCRETE, PRESLOPED, HEAVY DUTY CAST IRON GRATE, 4" BOTTOM OUTLET, S200K, SECTION LENGTH 12' 0" WITH LOAD CLASS F – 200,000 LB	---

PLUMBING EQUIPMENT SCHEDULE

UNIT NUMBER	MANUFACTURER	MODEL	DESCRIPTION	APPROX WEIGHT (LBS)	NOTES
CP -L01	BELL & GOSSETT	NBF-22	IN-LINE HOT WATER CIRCULATING PUMP, 1 GPM, 7 FEET HEAD, 120 VOLT, 1 PHASE, 60 HZ.	---	---
CP-M01	BELL & GOSSETT	NBF-22	IN-LINE HOT WATER CIRCULATING PUMP, 1 GPM, 7 FEET HEAD, 120 VOLT, 1 PHASE, 60 HZ.	---	---
ET -L01	AMTROL THERM-X-TROL	ST-C SERIES	EXPANSION TANK, PIPELINE MOUNTED, 8.96 GALLON, PRECHARGE TO 55 PSIG.	---	---
ET-A01	AMTROL THERM-X-TROL	ST-C SERIES	EXPANSION TANK, PIPELINE MOUNTED, 14 GALLON, PRECHARGE TO 80 PSIG.	---	---
ET-M01	AMTROL THERM-X-TROL	ST-C SERIES	EXPANSION TANK, PIPELINE MOUNTED, 6.4 GALLON, PRECHARGE TO 55 PSIG.	---	---
EWH -L01	STATE	CSB SERIES	ELECTRIC WATER HEATER, COMMERCIAL GRADE, 119 GALLONS STORAGE, 277 GPH RECOVERY AT 100 F RISE, 54 KW, 480 VOLT, 3 PHASE, 60 HZ.	390	---
EWH-A01	STATE	CSB SERIES	ELECTRIC WATER HEATER, COMMERCIAL GRADE, 119 GALLONS STORAGE, 123 GPH RECOVERY AT 100 F RISE, 24 KW, 480 VOLT, 3 PHASE, 60 HZ.	390	---
EWH-A02	HUBBELL	ER10-2 SSA	ELECTRIC WATER HEATER, EXPLOSION RESISTANCE, 10 GALLONS OF STORAGE,STAINLESS STEEL VESSEL, 2 KW, 120 VOLT, 1 PHASE, 60 HZ.	---	1
EWH-M01	STATE	CSB SERIES	ELECTRIC WATER HEATER, COMMERCIAL GRADE, 50 GALLONS STORAGE, 123 GPH RECOVERY AT 100 F RISE, 24 KW, 480 VOLT, 3 PHASE, 60 HZ.	120	---
HR-1	HANNAY	3528-25-26	HOSE REEL WITH 1 1/2" SWIVEL WATER SUPPLY AND 100 FEET TYPE 1 HOSE.	---	---
HR-2	HANNAY	3024-25-26	HOSE REEL WITH 3/4" SWIVEL WATER SUPPLY AND 100 FEET TYPE 2 HOSE.	---	---
HR-3	REELCRAFT	SERIES 80000	ULTIMATE DUTY DUAL PEDESTAL HOSE REEL WITH 3/4" COMPRESSOR AIR SUPPLY AND 60 FEET TYPE 2 HOSE.	---	---
NT-L01	ORION	STYLE 9	NEUTRALIZATION TANK, 5 GALLON, 2" INLET AND OUTLET, 1 1/2" VENT CONNECTION.	---	---
OI-M01	HDPI/ SEDIMENT INTERCEPTORS	BIG-1150-O	HDPE OIL / SEDIMENT INTERCEPTORS, MULTI-STAGE BASIN TYPE, 300 GALLONS, 2 STAGE, 6" INLET AND OUTLET, 3" VENT., DEEP SEAL TRAP COVERED BY LOAD CLASS "C" DUCTILE IRONTOP INLET GRATES, SEDIMENT BUCKET (3/8" DIA HOLES, 1/2" APART) WITHIN ADJUSTABLE TOP ASSEMBLY SYSTEM, INTERNAL AIR RELIEF BY-PASS AND SAMPLE PORT ACCESS.	---	---
TP-A01	PRECISION PLUMBING PRODUCTS	PRIME-TIME PT-4	ELECTRONIC TRAP PRIMING MANIFOLD, SURFACE MOUNTED, 3/4" NPT INLET, 1/2" TUBE CONNECTIONS, 120 VOLTS, 1 PHASE, 60 HZ, 4 CONNECTIONS.	---	2
TP-A02	PRECISION PLUMBING PRODUCTS	PRIME-TIME PT-4	ELECTRONIC TRAP PRIMING MANIFOLD, SURFACE MOUNTED, 3/4" NPT INLET, 1/2" TUBE CONNECTIONS, 120 VOLTS, 1 PHASE, 60 HZ, 4 CONNECTIONS.	---	2
TP-A03	PRECISION PLUMBING PRODUCTS	PRIME-TIME PT-4	ELECTRONIC TRAP PRIMING MANIFOLD, SURFACE MOUNTED, 3/4" NPT INLET, 1/2" TUBE CONNECTIONS, 120 VOLTS, 1 PHASE, 60 HZ, 4 CONNECTIONS.	---	2
TP-J01	PRECISION PLUMBING PRODUCTS	PRIME-TIME PT-4	ELECTRONIC TRAP PRIMING MANIFOLD, SURFACE MOUNTED, 3/4" NPT INLET, 1/2" TUBE CONNECTIONS, 120 VOLTS, 1 PHASE, 60 HZ, 4 CONNECTIONS.	---	---
TP-M01	PRECISION PLUMBING PRODUCTS	PRIME-TIME PT-6	ELECTRONIC TRAP PRIMING MANIFOLD, SURFACE MOUNTED, 3/4" NPT INLET, 1/2" TUBE CONNECTIONS, 120 VOLTS, 1 PHASE, 60 HZ, 6 CONNECTIONS.	---	2

PLUMBING FIXTURE SCHEDULE

UNIT NUMBER	MANUFACTURER	MODEL	DESCRIPTION	WATER (IN)		SANITARY (IN)		APPROX WEIGHT (LBS)	NOTES
				HOT	COLD	WASTE	VENT		
WC-1	AMERICAN STANDARD	BOWL: 2234.001 MADERNA VALVE: 6047.161	WATER CLOSET, FLOOR MOUNT, FLUSH VALVE, 1.6 GALLON/FLUSH MAX, C/W/ HEAVY-DUTY COMMERCIAL ELONGATED SEAT.	---	1"	4"	2"	---	1
WC-2	AMERICAN STANDARD	BOWL: 3461.001 MADERNA VALVE: 6047.161	WATER CLOSET, FLOOR MOUNT, FLUSH VALVE, 1.6 GALLON/FLUSH MAX, C/W/ HEAVY-DUTY COMMERCIAL ELONGATED SEAT.	---	1"	4"	2"	---	1
UR-1	AMERICAN STANDARD	CHINA: 6590.001 WASHBROOK VALVE: 6045.051	URINAL, WALL MOUNT, FLUSH VALVE, 0.5 GALLON/FLUSH MAX.	---	3/4"	2"	1 1/2"	---	1
L-1	AMERICAN STANDARD	LAV: 0476.028 AQUALYN FAUCET: 7358.003 RELIANT 3	LAVATORY, COUNTERTOP 20"x17", OVAL, 4" CENTER, WITH 0.5 GPM AERATED FAUCET AND GRID DRAIN.	1/2"	1/2"	1 1/2"	1 1/2"	---	---
LS	---	---	LAB SINK SEE LAB SPEC SECTION FOR DETAIL	---	1/2"	1 1/2"	1 1/2"	---	---
KS-1	SINK: ELKAY FAUCET: AMERICAN STANDARD	SINK: PSR3321 FAUCET: 6409.170 MONTERREY	KITCHEN SINK, 21"x33", DOUBLE BOWL, 7 1/2" DEEP, 20 GAUGE STAINLESS STEEL, THREE HOLE PUNCHED, LEVER HANDLES, SWIVEL FAUCET.	1/2"	1/2"	2"	1 1/2"	---	---
SS-1	SINK: ELKAY FAUCET: AMERICAN STANDARD	SINK: ELKAY WNSF8124 DRAIN: ELKAY LK25 RT FAUCET: LK940HA08L2S	SAMPLE SINK, 24"x24", FREE STANDING, 14" DEEP, 14 GAUGE STAINLESS STEEL, 2" DRAIN, 24" RIGHT & LEFT DRAIN BOARD, STAINLESS STEEL LEGS. 8" CENTERSET WALL MOUNT FAUCET WITH 8" HIGH ARC SPOUT 2" LEVER HANDLES 1/2" OFFSET INLETS + STOP.	1/2"	1/2"	2"	1 1/2"	---	---
MS-1	SINK: STERN-WILLIAMS FAUCET: AMERICAN STANDARD	SINK: HL-1810-BP3 FAUCET: 8354.112	MOP SINK, 32"x32", 12" DEEP, FLOOR MOUNTED, DIAGONAL FRONT, TWO SPLASH PANELS.	1/2"	1/2"	3"	2"	---	---
SH-1	FAUCET: SYMMONS	FAUCET: S-96-300-B30-V-X-T36	SHOWER VALVE, WALL/HAND SHOWER HEAD WITH VACUUM BREAKER, SLIDE BAR, AND ACCESSORIES.	---	---	---	---	---	---
CS	---	---	CUP SINK, SEE LAB SPEC SECTION FOR DETAILS.	---	1/2"	1 1/2"	1 1/2"	---	---
EWC-1	ELKAY	LZS8WSSP / EZH20	ELECTRIC WATER COOLER, WALL MOUNTED, 8 GPH, 120 VOLT, 1 PHASE, 60 HZ, WATER FOUNTAIN WITH BUILT IN FILTER. BOTTLE FILLING STATION.	---	1/2"	1 1/2"	1 1/2"	---	---
ES/EEW-1	HAWS	8300-8309	EMERGENCY SHOWER/EYE/FACE WASH COMBINATION, PEDESTAL MOUNTED, 1 1/4" IPS SUPPLY.	---	1 1/4"	---	---	---	2,3
ES/EEW-2	HAWS	8336	EMERGENCY SHOWER/EYE WASH COMBINATION, PEDESTAL MOUNTED, CORROSION RESISTANT, 1 1/4" IPS SUPPLY, 120 VOLT.	---	1 1/4"	---	---	---	2,3
ES-1	HAWS	8111FP	EMERGENCY SHOWER, WALL MOUNTED, FROST-PROOF, REMOTE ACTUATED BALL VALVE, 1" IPS SUPPLY.	---	1 1/4"	---	---	---	2,4
EEW-1	HAWS	7433FP	EMERGENCY EYE WASH, WALL MOUNTED, FROST-PROOF, REMOTE ACTUATED BALL VALVE, 1/2" IPS SUPPLY.	---	1 1/4"	---	---	---	2,4
EEW-2	HAWS	7361-7461	EMERGENCY EYE/FACE WASH, PEDESTAL MOUNTED, DUST COVER, 1/2" IPS SUPPLY.	---	---	---	---	---	2,3

GENERAL SHEET NOTES

1. SEE DRAWING H-2 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.

SCHEDULE NOTES

BACKFLOW PREVENTER SCHEDULE:
NOTES:
1. PROVIDE AIR GAP FITTINGS.

PIPING ACCESSORIES SCHEDULE:
NONE

PLUMBING EQUIPMENT SCHEDULE:
NOTES:
1. WATER HEATER SHALL BE EXPLOSION PROOF: CLASS 1, DIVISION 1, GROUPS C&D.
2. SOLENOID VALVE OF TRAP PRIMER SHALL BE EXPLOSION PROOF: CLASS 1, DIVISION 1, GROUPS C&D.

PLUMBING FIXTURE SCHEDULE:
NOTES:
1. FIXTURE AND INSTALLATION SHALL BE ADA COMPLIANT.
2. TEMPERED WATER SUPPLY.
3. LOCAL AND REMOTE ALARM SYSTEM.
4. COMMON FLOW SWITCH SERVES BOTH EEW-1 AND ES-1.

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

DATE	REVISION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17959
MICHELE FRANCON BOTH
3/21/2025

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

PLUMBING SCHEDULES

CITY OF BENTONVILLE, ARKANSAS

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: SAM
DRAWN BY: YBM
HWEI NO.: 2021037
FILENAME: H-GENERAL

SHEET NO.
H-5

HVAC SEQUENCE OF OPERATIONS:

1. GENERAL SYSTEM OPERATIONS.

1.1. TEMPERATURE CONTROL PANEL(S). TEMPERATURE CONTROL PANEL(S) (TCP) AND EQUIPMENT CONTROL PANELS (ECP) IDENTIFIED IN THE SEQUENCE OF OPERATION SHALL BE PROVIDED WITH THE INDICATING LIGHTS, RUNNING LIGHTS, ALARM LIGHTS, AUDIBLE ALARMS, TIMERS, AND SELECTOR SWITCHES FOR CONTROL AND STATUS INDICATION OF THE EQUIPMENT SERVED. WHERE NO CONTROL PANELS ARE PROVIDED FOR EQUIPENT, THE LIGHTS AND SWITCHES SHALL BE AT THE STARTER OR MCC. RUNNING LIGHTS SHALL BE PROVIDED TO INDICATE BOTH ENERGIZED AND DE-ENERGIZED CONDITIONS FOR THE EQUIPMENT AND SHALL POSITIVELY INDICATE EQUIPMENT CONDITIONS FROM THE MOTOR STARTER OR CURRENT SENSOR. SWITCH POSITION SHALL NOT BE USED FOR LIGHT ILLUMINATION. INDICATING AND RUNNING LIGHTS SHALL BE LOCATED DIRECTLY ABOVE EACH RESPECTIVE SELECTOR SWITCH WITH LIGHT COLORS AS FOLLOWS:

RED	–	ENERGIZED
GREEN	–	DE-ENERGIZED
AMBER	–	ALARM
WHITE	–	STATUS

INDICATING LIGHTS AND SELECTOR SWITCHES SHALL BE LOCATED ON THE FACE OF THE TEMPERATURE CONTROL PANEL SERVING THE RESPECTIVE EQUIPMENT. IN ADDITION TO THE LIGHTS, TIMERS, AND SELECTOR SWITCHES DESCRIBED IN THE SEQUENCE OF OPERATION FOR THE INDIVIDUAL EQUIPMENT, EACH CONTROL PANEL SHALL BE PROVIDED WITH THE FOLLOWING:

"CONTROL POWER ON"	STATUS LIGHT
"INDICATING LIGHT TEST"	PUSHBUTTON
"ALARM SILENCE"	PUSHBUTTON
"ALARM RESET"	PUSHBUTTON (WHERE APPLICABLE)

CONTROL PANELS SPECIFIED TO BE PROVIDED WITH ALARM CONDITION INDICATING LIGHTS SHALL BE PROVIDED WITH AN ELECTRICALLY ISOLATED CONTACT TO PROVIDE A COMMON ALARM TO THE PLANT CONTROL SYSTEM (PCS). EACH CONTROL PANEL SHALL BE PROVIDED WITH A MINIMUM OF ONE COMMON ALARM OUTPUT POINT TO THE PCS AND ADDITIONAL INDIVIDUAL ALARM POINTS AS INDICATED BELOW.

TEMPERATURE CONTROL PANELS SHALL COME WITH PHENOLIC NAMEPLATES FOR EACH CONTROL SWITCH INDICATING SWITCH TYPE, EQUIPMENT CONTROLLED, ROOM OR AREA SERVED, AND SWITCH AUTOMATIC POSITION EQUIPMENT INTERLOCK.

1.2. SYSTEM INTERLOCKS AND ALARMS

UNLESS OTHERWISE INDICATED, ALL EQUIPMENT INTERLOCKING DEVICES AS DESCRIBED HEREIN SHALL BE PROVIDED WITHIN THE RESPECTIVE TEMPERATURE/EQUIPMENT CONTROL PANEL (TCP/ECP).

1.2.1. SMOKE DETECTION SYSTEMS

1.2.1.1. SMOKE DETECTION (DUCT MOUNTED DETECTORS). SMOKE DETECTORS SHALL BE LOCATED IN THE DUCT OF EQUIPMENT LISTED BELOW. IN THE EVENT SMOKE IS DETECTED BY A DETECTOR, A SMOKE DETECTED SIGNAL SHALL BE TRANSMITTED TO THE REMOTE TEST STATION AND FIRE ALARM PANEL OR PLANT CONTROL SYSTEM (PCS) AND TCP/ECP WHEN A FIRE ALARM PANEL IS NOT PRESENT. A "SMOKE DETECTED" ALARM LIGHT ON THE RESPECTIVE REMOTE TEST STATION SHALL BE ILLUMINATED. WHERE A TCP/ECP IS PRESENT, THE REMOTE TEST STATION SHALL BE MOUNTED ON OR ADJACENT TO THE TEMPERATURE CONTROL PANEL. THE RESPECTIVE EQUIPMENT AND ANY INTERLOCKED EQUIPMENT SHALL BE DE-ENERGIZED AND OUTSIDE AIR DAMPERS ASSOCIATED WITH THE DE-ENERGIZED EQUIPMENT SHALL CLOSE.

IN THE EVENT A SMOKE DETECTOR MALFUNCTIONS, A MALFUNCTION SIGNAL SHALL BE TRANSMITTED TO THE REMOTE TEST STATION OR FIRE ALARM PANEL, ILLUMINATING A "SMOKE DETECTOR MALFUNCTION" INDICATING LIGHT.

SMOKE DETECTOR	DE-ENERGIZED EQUIPMENT
SMD–A01	MAU–A01

1.2.1.2. SMOKE DETECTION (AREA SMOKE DETECTION). A SMOKE DETECTED SIGNAL SHALL BE SENT FROM THE FIRE ALARM PANEL TO THE RESPECTIVE TEMPERATURE/EQUIPMENT CONTROL PANEL IN THE EVENT SMOKE IS DETECTED BY THE BUILDING SMOKE DETECTION SYSTEM. THE EQUIPMENT BELOW AND ANY INTERLOCKED EQUIPMENT SHALL BE DE-ENERGIZED AND OUTSIDE AIR DAMPERS ASSOCIATED WITH THE DE-ENERGIZED EQUIPMENT SHALL CLOSE.

EQUIPMENT	TEMPERATURE/EQUIPMENT CONTROL PANEL
MAU–A02	ECP–A02
MAU–A03	ECP–A03
PAC–A01	BUILT–IN
PAC–A02	BUILT–IN
SF–A01	TCP–A04
PAC–J01	BUILT–IN
PAC–J02	BUILT–IN
PHP–L01	BUILT–IN
PHP–L02	BUILT–IN
PHP–L03	BUILT–IN
DOAU–L01	ECP–L01
MAU–M01	ECP–M01
MAU–M02	ECP–M02
PHP–M01	BUILT–IN

1.2.2. LOW TEMPERATURE PROTECTION. LOW AIR TEMPERATURE THERMOSTATS/SENSORS SHALL BE LOCATED IN THE SYSTEMS INDICATED BELOW. UPON DETECTION OF LOW AIR TEMPERATURE, THE THERMOSTAT SHALL DE-ENERGIZE THE RESPECTIVE EQUIPMENT AND ALL INTERLOCKED EQUIPMENT, CONTROL DAMPER(S) OF THE RESPECTIVE EQUIPMENT AND INTERLOCKED EQUIPMENT SHALL RETURN TO THE NORMAL POSITION, AND A "LOW AIR TEMPERATURE" ALARM LIGHT ON THE FACE OF THE RESPECTIVE TEMPERATURE/EQUIPMENT CONTROL PANEL SHALL BE ILLUMINATED OR ALARM INDICATION SENT TO THE PLANT CONTROL SYSTEM. AN ADJUSTABLE 0 TO 5 MINUTE TIME DELAY RELAY SHALL BE PROVIDED TO ALLOW FOR STARTING OF THE EQUIPMENT UNDER COLD AMBIENT CONDITIONS. UPON LOW TEMPERATURE SHUTDOWN, THE EQUIPMENT SHALL REQUIRE A MANUAL RESTART.

EQUIPMENT	THERMOSTAT	TEMPERATURE/EQUIPMENT CONTROL PANEL
MAU–A01	BUILT–IN	ECP–A01
MAU–A02	BUILT–IN	ECP–A02
MAU–A03	BUILT–IN	ECP–A03
SF–A01	T–A03	TCP–A01
SF–A02	T–A04	TCP–A01
DOAU–L01*	BUILT–IN	ECP–L01
MAU–M01	BUILT–IN	ECP–M01
MAU–M02	BUILT–IN	ECP–M02
N/A	T–A05**	N/A

* THIS EQUIPMENT SHALL ONLY GENERATE AN ALARM IN THE INSTANCE OF LOW TEMPERATURE AS DESCRIBED ABOVE, BUT SHOULD NOT BE DE-ENEGIZED.

** THIS THERMOSTAT SHALL GENERATE A FREEZE WARNING ALARM TO THE PLANT CONTROL SYSTEM.

1.2.3. HIGH FILTER PRESSURE LOSS. A HIGH LIMIT PRESSURE DIFFERENTIAL FLOW SWITCH SHALL BE LOCATED ACROSS THE FILTER BANK OF THE EQUIPMENT INDICATED BELOW. IN THE EVENT THE PRESSURE DIFFERENTIAL ACROSS THE FILTER EXCEEDS THE PRESET VALUE, A "HIGH FILTER PRESSURE LOSS" ALARM LIGHT ON THE FACE OF THE RESPECTIVE TEMPERATURE/EQUIPMENT CONTROL PANEL OR THERMOSTAT (WHERE FURNISHED WITH LIGHTS) SHALL BE ILLUMINATED.

EQUIPMENT	FLOW SWITCH	TEMPERATURE/EQUIPMENT CONTROL PANEL
MAU–A01	BUILT–IN	ECP–A01
MAU–A02	BUILT–IN	ECP–A02
MAU–A03	BUILT–IN	ECP–A03
SF–A01	PDS–A06, PDS–A07	TCP–A01
SF–A02	PDS–A05	TCP–A01
PAC–A01	BUILT–IN	BUILT–IN
PAC–A02	BUILT–IN	BUILT–IN
PAC–J01	BUILT–IN	BUILT–IN
PAC–J02	BUILT–IN	BUILT–IN
PHP–L01	BUILT–IN	BUILT–IN
PHP–L02	BUILT–IN	BUILT–IN
PHP–L03	BUILT–IN	BUILT–IN
DOAU–L01	BUILT–IN	ECP–L01
MAU–M01	BUILT–IN	ECP–M01
MAU–M02	BUILT–IN	ECP–M02
PHP–M01	BUILT–IN	BUILT–IN

1.2.4. VENTILATION SYSTEM FAILURE.

1.2.4.1. VENTILATION SYSTEM FAILURE (AIRFLOW SWITCHES). VENTILATION SYSTEM FAILURE PRESSURE DIFFERENTIAL SWITCHES SHALL BE LOCATED IN THE SYSTEMS INDICATED BELOW. IN THE EVENT THAT AIRFLOW IS NOT ATTAINED OR LOST AS DETERMINED BY THE PRESSURE DIFFERENTIAL FLOW SWITCH, A "VENTILATION SYSTEM FAILURE" SIGNAL SHALL BE TRANSMITTED TO THE FIRE ALARM SIGNALING SYSTEM. WHERE A FIRE ALARM SIGNALING SYSTEM IS NOT PRESENT, THE "VENTILATION SYSTEM FAILURE" SIGNAL SHALL BE TRANSMITTED TO THE PLANT CONTROL SYSTEM (PCS). WHERE INDICATED ON THE DRAWINGS, A VISUAL ALARM SHALL BE ILLUMINATED AND AUDIBLE ALARM SHALL SOUND AT EACH ROOM ENTRANCE AND WITHIN THE ROOM. THE FIRE ALARM SIGNALING SYSTEMS HAVE A NORMALLY OPEN CONTACT FOR TRANSMITTING A SIGNAL TO THE RESPECTIVE TEMPERATURE/EQUIPMENT CONTROL PANEL ILLUMINATING AN ALARM INDICATING LIGHT FOR THE RESPECTIVE EQUIPMENT.

EQUIPMENT	FLOW SWITCH	TEMPERATURE/EQUIPMENT CONTROL PANEL
MAU–A01	PDS–A01	ECP–A01
MAU–A02	PDS–A08	ECP–A02
SF–A01	PDS–A05	TCP–A01
SF–A02	PDS–A03	TCP–A01
DOAU–L01	PDS–L01	ECP–L01

1.2.4.2. VENTILATION SYSTEM FAILURE. PRESSURE DIFFERENTIAL SWITCHES SHALL BE LOCATED IN THE AIR LOCK VESTIBULE AS SHOWN IN THE AIR FLOW DIAGRAMS. IN THE EVENT AN AIR LOCK DOOR IS OPEN FOR LONGER THAN 20 SECONDS OR VENTILATION FAILS AS DETERMINED BY THE PRESSURE DIFFERENTIAL SWITCH (PDS–A02) (AN ADJUSTABLE 0 TO 5 MINUTE TIME DELAY RELAY SHALL BE PROVIDED TO ALLOW FOR DOOR TO CLOSE) OR COMBUSTIBLE GAS CONCENTRATIONS ARE GREATER THAN 10 PERCENT OF THE LOWER FLAMMABLE LIMIT OR FAN FAILURE, A "VENTILATION SYSTEM FAILURE" SIGNAL SHALL BE TRANSMITTED TO THE PLANT CONTROL SYSTEM AND VISIBLE AND AUDIBLE ALARMS SHALL ACTIVATE AT THE ENTRANCES AND WITHIN THE ROOM.

2. HEATING SYSTEMS.

2.1. UNIT HEATERS. UNIT HEATERS SHALL BE CONTROLLED BY THEIR RESPECTIVE THERMOSTATS.

3. VENTILATING/EXHAUST SYSTEMS.

3.1. "ON–OFF" EQUIPMENT CONTROL. EQUIPMENT INDICATED FOR "ON–OFF" CONTROL SHALL EACH BE CONTROLLED BY AN INDIVIDUAL "ON–OFF" FAN SELECTOR SWITCH. THE SWITCH LOCATION SHALL BE AS INDICATED BELOW. WHEN THE SWITCH IS PLACED IN THE "ON" POSITION, THE RESPECTIVE EQUIPMENT FAN SHALL BE ENERGIZED. BEFORE THE FAN CAN OPERATE, THE CONTROL DAMPER(S) SHALL BE PROVEN OPEN. WHEN THE EQUIPMENT FAN IS DE–ENERGIZED, THE CONTROL DAMPER(S) SHALL RETURN TO THE NORMAL POSITION.

EQUIPMENT	SWITCH LOCATION	CONTROL DAMPER(S)
SF–A01	TCP–A01	CD–A10
EF–L03	TCP–L01	---
EF–M04	TCP–M01	---
SF–A02	TCP–A01	CD–A09

3.2. "ON–OFF–AUTO" EQUIPMENT CONTROL. EQUIPMENT INDICATED FOR "ON–OFF–AUTO" CONTROL SHALL EACH BE CONTROLLED BY AN INDIVIDUAL "ON–OFF–AUTO" FAN SELECTOR SWITCH. THE SWITCH LOCATION SHALL BE AS INDICATED BELOW. WHEN THE SWITCH IS PLACED IN THE "AUTO" POSITION, THE FAN SHALL BE INTERLOCKED AND CONTROLLED BY THE FAN INTERLOCK. WHEN THE SWITCH IS PLACED IN THE "ON" POSITION, THE FAN SHALL BE ENERGIZED. BEFORE A FAN CAN OPERATE, THE CONTROL DAMPER(S) SHALL BE PROVEN OPEN. WHERE THE FAN IS INTERLOCKED WITH ANOTHER FAN OR EQUIPMENT WITH A FAN, THE FANS SHALL BE ENERGIZED SIMULTANEOUSLY AFTER ALL ASSOCIATED CONTROL DAMPERS ARE PROVEN OPEN. WHEN THE FAN IS DE–ENERGIZED, THE CONTROL DAMPER(S) SHALL RETURN TO THE NORMALLY CLOSED POSITION UNLESS OTHERWISE INDICATED.

EQUIPMENT	SWITCH LOCATION	FAN INTERLOCK	CONTROL DAMPER(S)
EF–A01	TCP–A01	MAU–A01	---
EF–A02	TCP–A02	MAU–A02	---
EF–A03	TCP–A01	MAU–A01	---
EF–A04	CS–A01	LIGHT SWITCH	CD–A08
EF–J01	TCP–J01	T–J02	CD–J05, CD–J06,
EF–L05	TCP–L01	T–L05	---
EF–L06*	TCP–L01	PHP–L03	---
EF–L02	TCP–L01	LIGHT SWITCH	---
EF–L04	TCP–L01	PHP–L01	---
EF–M01	TCP–M01	MAU–M01	---
EF–M02	TCP–M01	MAU–M02	---
EF–M03	TCP–M01	MAU–M02	---

* EF–L06 SHALL BE INTERLOCKED WITH PHP–L03 TO MAINTAIN THE LAB UNDER NEGATIVE PRESSURE WHEN THE PHP–L03 IS OPERATING.

4. HEATING AND VENTILATING SYSTEMS.

4.1. MAKEUP AIR UNITS (100% OUTSIDE AIR). MAKEUP AIR UNITS SHALL EACH BE CONTROLLED BY AN INDIVIDUAL "SUMMER–OFF–WINTER" SYSTEM SELECTOR SWITCH. THE SWITCH LOCATION SHALL BE AS INDICATED BELOW. WHEN THE SWITCH IS PLACED IN THE "WINTER" POSITION, THE FAN SHALL OPERATE AND THE SUPPLY AIR SENSOR/THERMOSTAT SHALL MODULATE THE HEATING OUTPUT OF THE UNIT TO MAINTAIN THE DESIRED SUPPLY AIR TEMPERATURE. BEFORE THE FAN CAN OPERATE, THE CONTROL DAMPERS SHALL BE PROVEN OPEN. WHEN THE OUTSIDE AIR TEMPERATURE IS GREATER THAN THE HEATING CHANGEOVER TEMPERATURE SETPOINT AS DETECTED BY THE OUTDOOR AIR SENSOR/THERMOSTAT, THE HEATING SHALL BE LOCKED OUT. WHEN THE SWITCH IS PLACED IN THE "SUMMER" POSITION, THE FAN SHALL OPERATE AND THE HEATING SHALL BE LOCKED OUT. WHEN THE UNIT IS DE–ENERGIZED, THE CONTROL DAMPER(S) SHALL CLOSE.

EQUIPMENT	SWITCH LOCATION	SUPPLY AIR THERMOSTAT	CONTROL DAMPER(S)
MAU–A01#	ECP–A01	BUILT–IN	CD–A01
MAU–A02#	ECP–A02	BUILT–IN	CD–A02
MAU–A03*#	ECP–A03	BUILT–IN	CD–A07
MAU–M01	ECP–M01	BUILT–IN	CD–M01
MAU–M02	ECP–M02	BUILT–IN	CD–M02

* MAU–A03 SHALL BE INTERLOCKED WITH COMPRESSOR(S) AS WELL AS WITH THE ROOM THERMOSTAT, T–A01. THE SUPPLY FAN OF MAU–A03 SHALL BE PROVIDED WITH A VARIABLE FREQUENCY DRIVE. THE MAU SHALL BE ABLE TO VARY THE SUPPLY AIR CFM ACCORDING TO BELOW SPECIFIED SCENARIOS. SET FAN SPEED IN TESTING AND BALANCING.

SCENARIO	HEATING COIL	SUPPLY AIRFLOW
BOTH COMPRESSORS OFF, AND ROOM TEMPERATURE BELOW VENTILATION SETPOINT	LOCKED–OUT	0 CFM
ONLY ONE COMPRESSOR ON, OR ROOM TEMPERATURE ABOVE VENTILATION SETPOINT	LOCKED–OUT	7650 CFM
ONLY ONE COMPRESSOR ON AND ROOM TEMPERATURE BELOW SETPOINT	ENERGIZED	7650 CFM
BOTH COMPRESSORS ON AND ROOM TEMPERATURE ABOVE SETPOINT	LOCKED–OUT	15300 CFM
BOTH COMPRESSOR ON AND ROOM TEMPERATURE BELOW SETPOINT	ENERGIZED	15300 CFM

WHEN THE HEATING COIL IS ENERGIZED, THE CAPACITY SHALL BE MODULATED TO MAINTAIN THE SUPPLY AIR SETPOINT.

THE ECP FOR MAU–A01, A02, AND A03 SHALL BE PROVIDED WITH A RELAY TO DISABLE THE HEATING UPON RECEIVING A GENERATOR POWER SIGNAL FROM THE PLC. WHEN THE SIGNAL IS LOST, THE RELAY SHALL RETURN TO NORMAL POSITION.

4.2. FANS WITH DUCT HEATERS. FANS ASSOCIATED WITH DUCT HEATERS SHALL BE CONTROLLED BY AN "ON–OFF" SELECTOR SWITCH LOCATED ON THE FACE OF THE TEMPERATURE CONTROL PANEL. WHEN THE SWITCH IS PLACED IN THE "ON" POSITION, THE FAN SHALL BE ENERGIZED. BEFORE THE FAN CAN OPERATE, THE CONTROL DAMPER(S) SHALL BE PROVEN OPEN. WHEN THE FAN IS DE–ENERGIZED, THE CONTROL DAMPER(S) SHALL CLOSE. DUCT HEATERS SHALL EACH BE CONTROLLED BY A DUCT MOUNTED SUPPLY AIR THERMOSTAT. THE THERMOSTAT SHALL MODULATE THE OUTPUT OF THE DUCT HEATER TO MAINTAIN THE DESIRED SUPPLY AIR TEMPERATURE. AIRFLOW THROUGH THE HEATER SHALL BE PROVEN BEFORE THE HEATER CAN OPERATE.

EQUIPMENT	DUCT HEATER	SUPPLY AIR THERMOSTAT	CONTROL DAMPER(S)
SF–A01	EDH–A01	BUILT–IN	---
SF–A02	EDH–A02	BUILT–IN	---

5. AIR CONDITIONING SYSTEMS.

5.1. PACKAGED SYSTEMS. PACKAGED SYSTEMS SHALL BE CONTROLLED BY THEIR RESPECTIVE THERMOSTAT. SYSTEM OPERATION SHALL BE CONTROLLED BY AN "OFF–HEAT–AUTO–COOL" (AUTOMATIC CHANGEOVER, PROGRAMMABLE) SYSTEM SWITCH AND AN "AUTO–ON" FAN SWITCH LOCATED ON THE THERMOSTAT SUB–BASE. HEAT PUMPS SHALL ALSO HAVE AN "EMERGENCY HEAT" SYSTEM SWITCH POSITION TO ENERGIZE THE HEATING AND DE–ENERGIZE THE COMPRESSORS.

WHEN THE SWITCH IS PLACED IN "HEAT" POSITION, COOLING SHALL BE LOCKED OUT, THE FAN SHALL OPERATE AND THE ROOM THERMOSTAT SHALL MODULATE THE HEATING OUTPUT OF THE UNIT TO MAINTAIN DESIRED ROOM TEMPERATURE SETPOINT. BEFORE THE FAN CAN OPERATE THE CONTROL DAMPER(S) SHALL BE PROVEN OPEN. WHEN THE SWITCH IS PLACED IN "COOL" POSITION, HEATING SHALL BE LOCKED OUT, THE FAN SHALL OPERATE AND THE THERMOSTAT SHALL ENERGIZE COMPRESSOR(S) TO MAINTAIN DESIRED ROOM TEMPERATURE SETPOINT. WHEN THE SWITCH IS PLACED IN "AUTO" POSITION, THE FAN SHALL BE ENERGIZED UPON A CALL FOR COOLING OR HEATING AS REQUIRED TO MAINTAIN THE DESIRED ROOM TEMPERATURE.

EACH SYSTEM SHALL BE PROVIDED WITH AN ECONOMIZER IF SPECIFIED IN THE SCHEDULE OF DRAWINGS. THE SYSTEM SHALL BE IN THE ECONOMIZER MODE WHEN THE SYSTEM IS IN THE AUTO MODE, COOLING IS REQUIRED, AND THE OUTSIDE AIR IS SUITABLE FOR COOLING. OUTSIDE AIR IS SUITABLE FOR COOLING WHEN THE OUTSIDE AIR TEMPERATURE IS BELOW THE CHANGEOVER TEMPERATURE INITIALLY SET AT 75F AND THE OUTSIDE AIR ENTHALPY IS LESS THAN THE RETURN AIR ENTHALPY ON SYSTEM EQUIPPED WITH DIFFERENTIAL ENTHALPY WITH FIXED DRY BULB TEMPERATURE CONTROL. THE CONTROLS SHALL BE CAPABLE OF MODULATING THE OUTSIDE AIR, RETURN AIR, AND RELIEF AIR DAMPERS IN CONJUNCTION WITH THE MECHANICAL COOLING TO SATISFY THE SPACE CONDITIONS. THE HEATING CONTROLS SHALL BE LOCKED OUT. WHERE POWER EXHAUST IS INDICATED, THE ECONOMIZER CONTROL SHALL SEND AN ENABLE SIGNAL TO THE POWER EXHAUST ACCESSORY WHEN THE ECONOMIZER MODE IS INITIATED. POWER EXHAUST SHALL HAVE A VARIABLE FREQUENCY DRIVE FOR MODULATING SPEED WITH RESPECT TO ROOM PRESSURE BY USING BUILT–IN DIFFERENTIAL PRESSURE TRANSDUCER.

EQUIPMENT	ROOM THERMOSTAT	CONTROL DAMPER(S)	ECONOMIZER
PAC–A01	T–A02	CD–A03, CD–A04	PEXH–A01
PAC–A02	T–A02	CD–A05, CD–A06	PEXH–A02
PAC–J01	T–J01	CD–J01, CD–J02	PEXH–J01
PAC–J02	T–J01	CD–J03, CD–J04	PEXH–J02
PHP–L01*	T–L01	CD–L03, CD–L04	PEXH–L01
PHP–L02	T–L03	CD–L07, CD–L08	---
PHP–L03*	T–L02	CD–L05, CD–L06	PEXH–L02
PHP–M01	T–M04	---	PEXH–M01

THE BELOW SYSTEM(S) SHALL MONITOR THE SPACE RELATIVE HUMIDITY AND SHALL NOT ALLOW THE SUPPLY AIR TEMPERATURE TO BE RESET UPWARD IF THE SPACE RELATIVE HUMIDITY EXCEEDS 60%. MODULATING HOT GAS REHEAT SHALL BE UTILIZED TO CONTROL THE SPACE RELATIVE HUMIDITY IN CONTROL.

EQUIPMENT	ROOM HUMIDISTAT
PHP–L01	H–L01
PHP–L02	H–L03
PHP–L03	H–L02
PHP–M01	H–M01

* THESE PHP(S) SHALL HAVE CAPACITY TO BE INTERLOCKED WITH EXHAUST FAN, REFER SECTION 3.2. WHEN THE PHP IS CALLED TO OPERATE, THE PHP SHALL SEND A SIGNAL TO TEMPERATURE CONTROL PANEL TO ENERGIZE THE INTERLOCKED EXHAUST FAN AND WHEN THE PHP IS DE–ENERGIZED, THE INTERLOCKED EXHAUST FAN SHALL BE DE–ENERGIZED.

5.1.1. DUTY/STANDBY CONTROL. THE AIR CONDITIONING SYSTEM CONSISTING OF TWO 100% CAPACITY PACKAGED UNITS SHALL OPERATE IN A DUTY/STANDBY CONFIGURATION. THE PACKAGED AIR CONDITIONING UNITS INDICATED BELOW SHALL BE PROVIDED WITH A DUTY/STANDBY TYPE CONTROL SYSTEM. THE UNITS SHALL BE CONTROLLED BY THEIR DUTY/STANDBY CONTROL PANEL (DSCP) AND RESPECTIVE THERMOSTATS. THE DSCP SHALL BE PROGRAMMED AS DESCRIBED HEREIN. IF THE DUTY OPERATING SYSTEM IS UNABLE TO MAINTAIN SPACE TEMPERATURE, THE DSCP SHALL ENERGIZE THE STANDBY UNIT TO ASSIST IN COOLING THE SPACE. THE DSCP SHALL BE FIELD PROGRAMMABLE FOR ANY SPACE TEMPERATURE. THE INITIAL SETPOINT SHALL BE 78F. THE DSCP SHALL BE COMPATIBLE WITH THE BUILT–IN CONTROLS OF THE EQUIPMENT AND SHALL BE CAPABLE OF CONTROLLING ANY PRE–EXISTING FUNCTIONS INCLUDING, BUT NOT LIMITED TO MIXED AIR ECONOMIZER, COOLING STAGES, AUTO CHANGEOVER ETC.

EQUIPMENT	ROOM THERMOSTAT	DUTY/STANDBY CONTROL PANEL
PAC–A01	T–A02	DSCP–A01
PAC–A02	T–A02	DSCP–A01
PAC–J01	T–J01	DSCP–J01
PAC–J02	T–J01	DSCP–J01

5.2. 100% DEDICATED OUTDOOR AIR UNIT. THE DEDICATED OUTDOOR AIR UNIT SHALL BE OPERATED TO PROVIDE 100% CONDITIONED OUTDOOR AIR TO THE LABORATORY SPACE TO ACT AS MAKE–UP AIR FOR THE FUME HOOD EXHAUST. DOAU SHALL BE CONTROLLED BY "ON–OFF–AUTO" SELECTOR SWITCH. WHEN THE SWITCH IS PLACED IN "AUTO" POSITION, THE DOAU SHALL BE INTERLOCKED WITH FUME HOOD EXHAUST FAN, EF–L01. WHEN THE EF–L01 IS CALLED TO OPERATE, THE DOAU SHALL BE ENERGIZED. BEFORE THE FAN CAN OPERATE, THE CONTROL DAMPER(S) SHALL PROVE OPEN. WHEN THE FAN IS DE–ENERGIZED, THE CONTROL DAMPER(S) SHALL RETURN TO NORMAL POSITION. THE SUPPLY AIR BLOWER OPERATES CONTINUOUSLY TO PROVIDE CONSTANT AIR FLOW WHILE THE FUME HOOD EXHAUST FAN IS ON.

THE PACKAGED COOLING SYSTEM SHALL BE ENERGIZED WHEN TEMPERATURE OF OUTSIDE AIR IS GREATER THAN THE COOLING SETPOINT AS SENSED BY BUILT–IN TEMPERATURE SENSOR. THE COMPRESSOR SHALL MODULATE TO MAINTAIN A CONSTANT SUPPLY AIR SETPOINT. WITH FURTHER REDUCTION IN THE OUTDOOR AIR TEMPERATURE, THE HEATING COIL SHALL BE ENERGIZED, AND COOLING SHALL BE LOCKED OUT. HEATING COIL SHALL BE MODULATED TO MAINTAIN THE SUPPLY AIR TEMPERATURE SETPOINT.

THE DOAU SHALL ALSO ADJUST THE SUPPLY AIR DEWPOINT BASED ON THE INPUT OF ROOM THERMOSTAT AND HUMIDISTAT TO AVOID CONDENSATE FORMATION. MODULATING HOT GAS REHEAT COIL SHALL BE UTILISED TO MAINTAIN SUPPLY AIR DEW POINT.

EQUIPMENT	SWITCH LOCATION	FAN INTERLOCK	CONTROL DAMPER(S)	ROOM THERMOSTAT / HUMIDISTAT
DOAU–L01	ECP–L01	EF–L01	CD–L09	T–L04, H–L04

6. LAB CONTROL SYSTEMS

6.1. LAB FUME HOOD EXHAUST SYSTEM. THE EXHAUST FAN SHALL BE PROVIDED WITH A "OFF–AUTO–ON" SELECTOR SWITCH. WHEN THE SWITCH IS PLACED IN "AUTO" POSITION, FUME HOOD CONTROLLER/SASH POSITION SENSOR SHALL CONTROL THE EXHAUST FAN OPERATION. BEFORE THE FAN CAN OPERATE, THE CONTROL DAMPER(S) SHALL BE PROVEN OPEN. WHEN THE FAN IS DE–ENERGIZED, THE CONTROL DAMPER(S) SHALL RETURN TO NORMAL POSITION.

EQUIPMENT	FAN INTERLOCK	CONTROL DAMPER(S)	SWITCH LOCATION
EF–L01	FUME HOOD	CD–L10	TCP–L01

7. THERMOSTAT SETPOINTS

7.1. THERMOSTAT SETPOINTS SHALL BE AS INDICATED BELOW, UNLESS THE SETPOINT HAS BEEN DESCRIBED PREVIOUSLY IN THIS SEQUENCE OF OPERATIONS.

LOW TEMPERATURE THERMOSTATS	
HEATERS	– 40 F
MAKEUP AIR SUPPLY HEATING, MAU–M01, M02	– 60 F
MAKEUP AIR SUPPLY HEATING, MAU–A01, A02, A03	– 45 F
VENTILATING EQUIPMENT	– 90 F
AIR CONDITIONED AREAS	– 75 F
PROGRAMMABLE THERMOSTATS	– 75 F COOLING
	– 72 F HEATING
LABORATORY	– 70 F COOLING
	– 70 F HEATING
CHANGEOVER TEMPERATURE SETPOINT	– 50 F
	– 75 F ECONOMIZING

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

DATE	REVISION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17959
MICHAEL FRANCON ROTH
3/21/2025

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVULLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

HVAC
SEQUENCE OF OPERATIONS

CITY OF BENTONVILLE, ARKANSAS

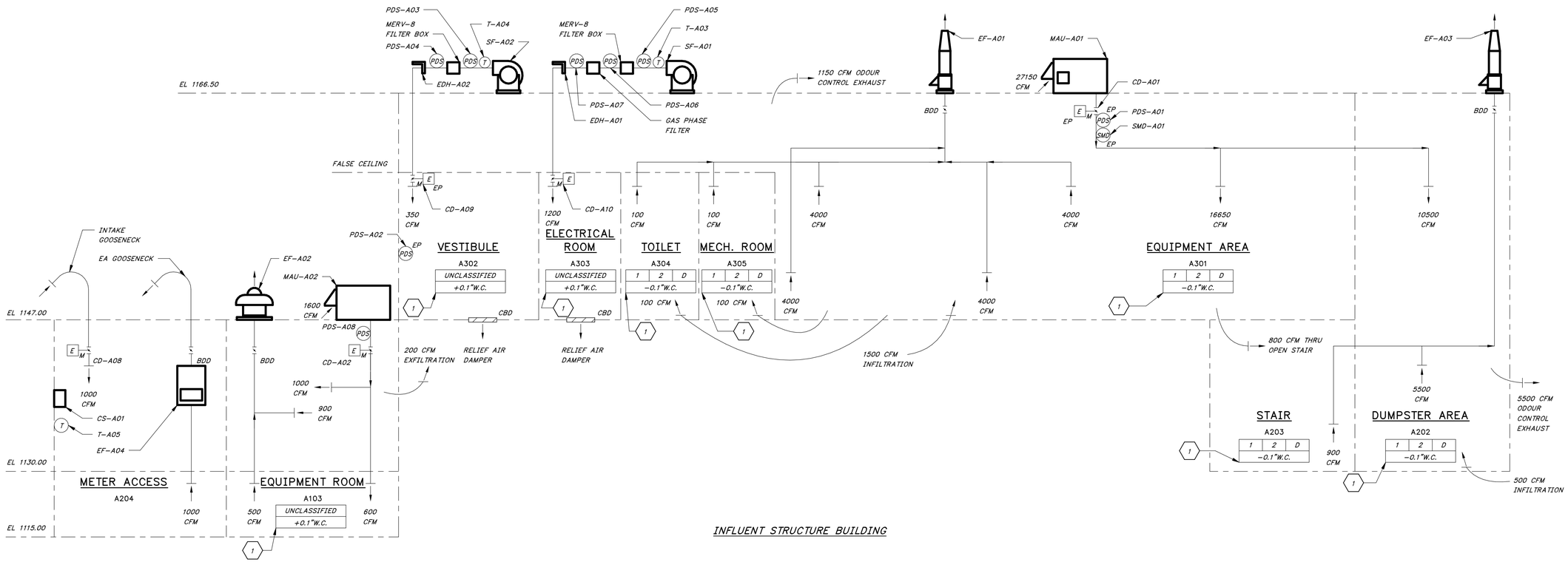
DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: AK
DRAWN BY: CP
HWEI NO.: 2021037
FILENAME: H–GENERAL

SHEET NO.
H–6

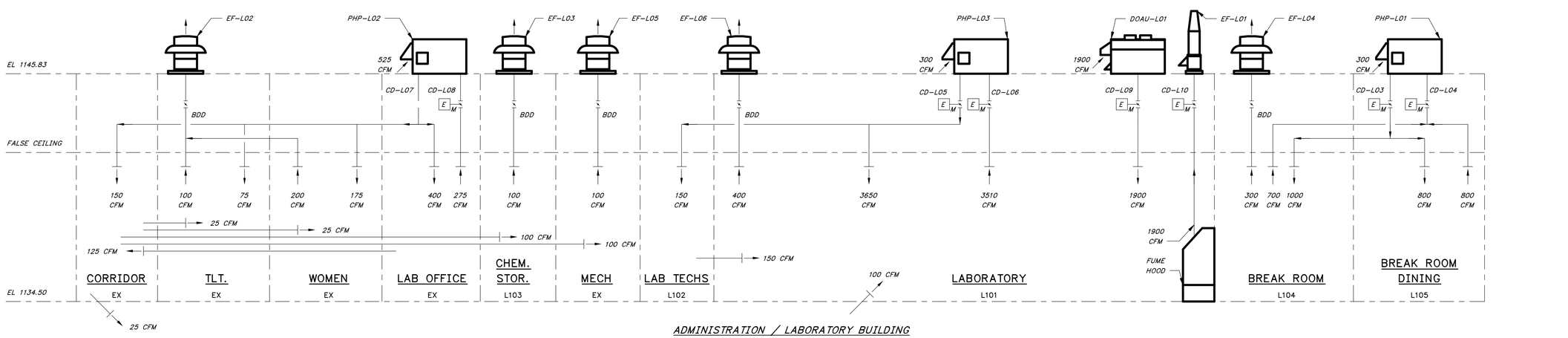
SHEET KEYNOTES

1. CLASSIFICATION/PRESSURIZATION LEGEND:

NEC CLASSIFICATION:	CLASS	DIVISION	GROUP
ROOM PRESSURIZATION:	VALUE INCHES OF W.C.		



INFLUENT STRUCTURE BUILDING



ADMINISTRATION / LABORATORY BUILDING

HVAC AIRFLOW SCHEMATICS

NO SCALE

BID DRAWINGS

MARCH 21, 2025

ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

DATE	REVISION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17959
MICHEL FRANCON ROTH
3/21/2025

HAWKINS–WEIR ENGINEERS, INC.
BLACK & VEATCH

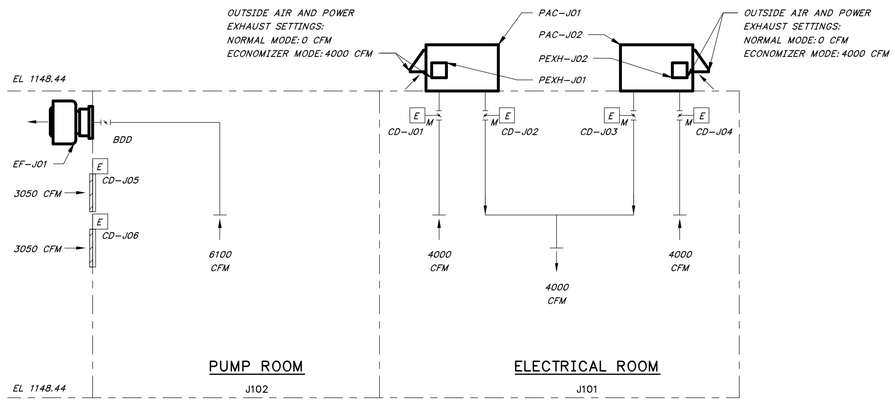
CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

HVAC AIRFLOW SCHEMATICS

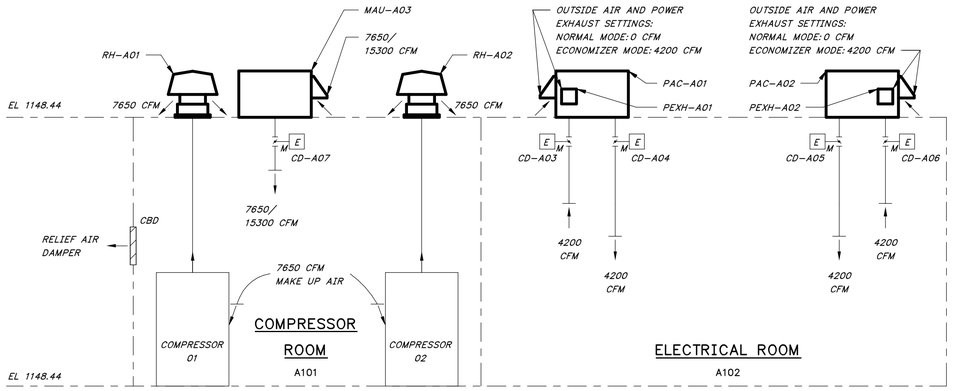
CITY OF BENTONVILLE, ARKANSAS

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: AK
DRAWN BY: CP
HWEI NO.: 2021037
FILENAME: H–GENERAL

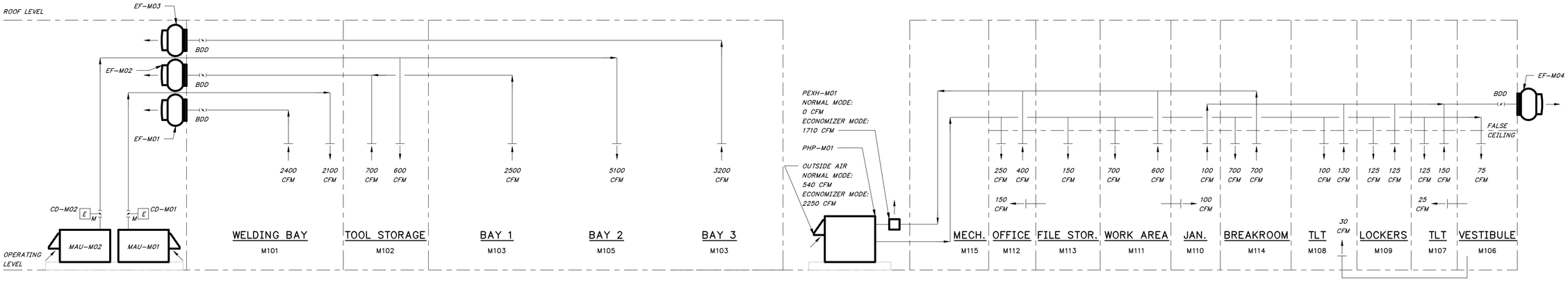
SHEET NO.
H–7



EFFLUENT PUMP STATION BUILDING



INFLUENT ELECTRICAL BUILDING



MAINTENANCE BUILDING

HVAC AIRFLOW SCHEMATICS

NO SCALE

BID DRAWINGS

MARCH 21, 2025

1"

ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

DATE

REVISION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17959
MICHAEL FRANCOM ROTH
3/21/2025

HAWKINS WEIR ENGINEERS, INC.

BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

HVAC
AIRFLOW SCHEMATICS

CITY OF BENTONVILLE, ARKANSAS

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: AK
DRAWN BY: CP
HWEI NO.: 2021037
FILENAME: H-GENERAL

SHEET NO.
H-8

2/12/2025 10:28:32 AM / CP / HVAC

Autodesk Docs://410144 - Bentonville Water Resource Recovery Facility Improvements/H-GENERAL.rvt

PRESSURE REDUCING VALVE SCHEDULE

UNIT NUMBER	LOCATION	MANUFACTURER	MODEL	SERVICE	TYPE	FLOW RATE (WATER-GPM)			REDUCED PRESSURE SETPOINT (PSI)	INLET PRESSURE (PSI)		MINIMUM PRESSURE AT MAXIMUM FLOW (PSI)	NOTES
						MINIMUM	MAXIMUM	ORDINARY		MINIMUM	MAXIMUM		
PRV-A01	INFLUENT STRUCTURE BUILDING	WATTS	CRD-L	POTABLE WATER	DIRECT ACTING	0	35	35	80.00	80	135	72	---
PRV-A02	INFLUENT STRUCTURE BUILDING	WATTS	CRD-L	POTABLE WATER	DIRECT ACTING	0	42	42	80.00	80	135	72	---
PRV-J01	EFFLUENT PUMP STATION	WATTS	CRD-L	POTABLE WATER	DIRECT ACTING	0	20	20	80.00	80	135	72	---
PRV-L01	ADMINISTRATION / LABORATORY BUILDING	WATTS	CRD-L	POTABLE WATER	DIRECT ACTING	0	69	69	80.00	80	135	72	---
PRV-L02	ADMINISTRATION / LABORATORY BUILDING	WATTS	CRD-L	POTABLE WATER	DIRECT ACTING	0	8	8	45.00	60	80	52	---
PRV-M01	MAINTENANCE BUILDING	WATTS	CRD-L	POTABLE WATER	DIRECT ACTING	0	62	62	80.00	80	135	72	---

GENERAL SHEET NOTES

1. SEE DRAWING H-2 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.

SCHEDULE NOTES

PRESSURE REDUCING VALVE SCHEDULE:
NONE

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

DATE

REVISION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17959
MICHAEL FRANCOM ROTH
3/21/2025

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

PLUMBING SCHEDULE

CITY OF BENTONVILLE, ARKANSAS

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: SAM
DRAWN BY: AJP
HWEI NO.: 2021037
FILENAME: H-GENERAL

SHEET NO.
H-9

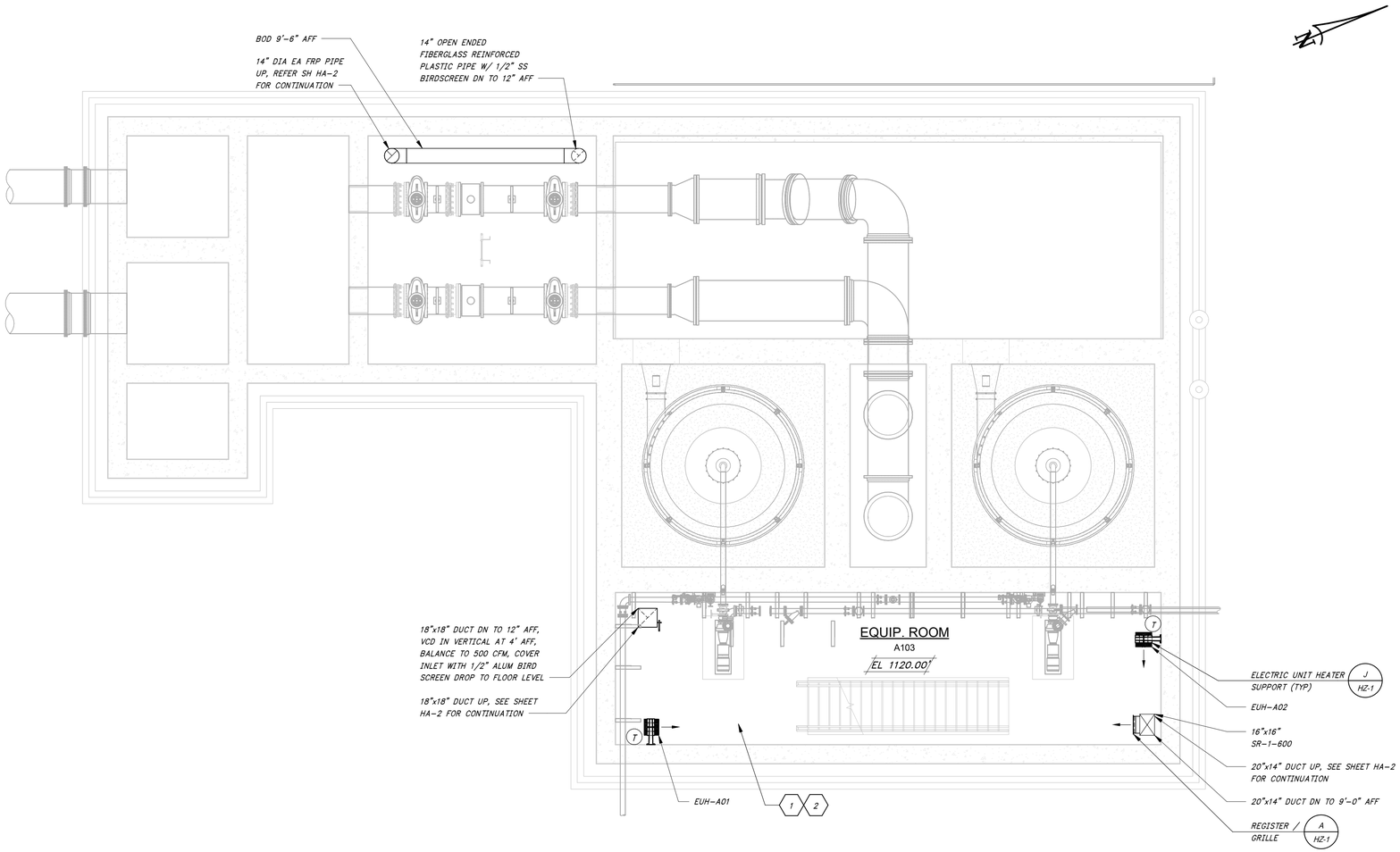
GENERAL SHEET NOTES

1. SEE DRAWING H-1 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.

SHEET KEYNOTES

1. ALL ROOMS SHALL BE BALANCED TO POSITIVE OR NEGATIVE PRESSURE AS INDICATED BY THE AIRFLOWS SHOWN ON THE DRAWINGS, AND THAT IN NO CASE SHALL A ROOM BE ADJUSTED TO PLUS OR MINUS 0.1" W.C. AS REQUIRED BY THE AIRFLOWS INDICATED. MINIMUM AIR CHANGES SHALL BE MAINTAINED, CONSULT ENGINEER FOR GUIDANCE ON REDUCING OR INCREASING SUPPLY OR EXHAUST FLOWS PER SPACE OR SYSTEM.

2. THIS ROOM SHALL BE BALANCED TO POSITIVE PRESSURE OF 0.1" W.C. AS INDICATED BY THE AIRFLOWS SHOWN ON THE DRAWINGS.



INFLUENT STRUCTURE LOWER LEVEL

DETAIL A
3/16" = 1'-0"

BID DRAWINGS
MARCH 21, 2025

6' 4' 2' 0' 5' 10'
3/16" = 1'-0"

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17959
MICHAEL FRANCON ROTH
3/21/2025

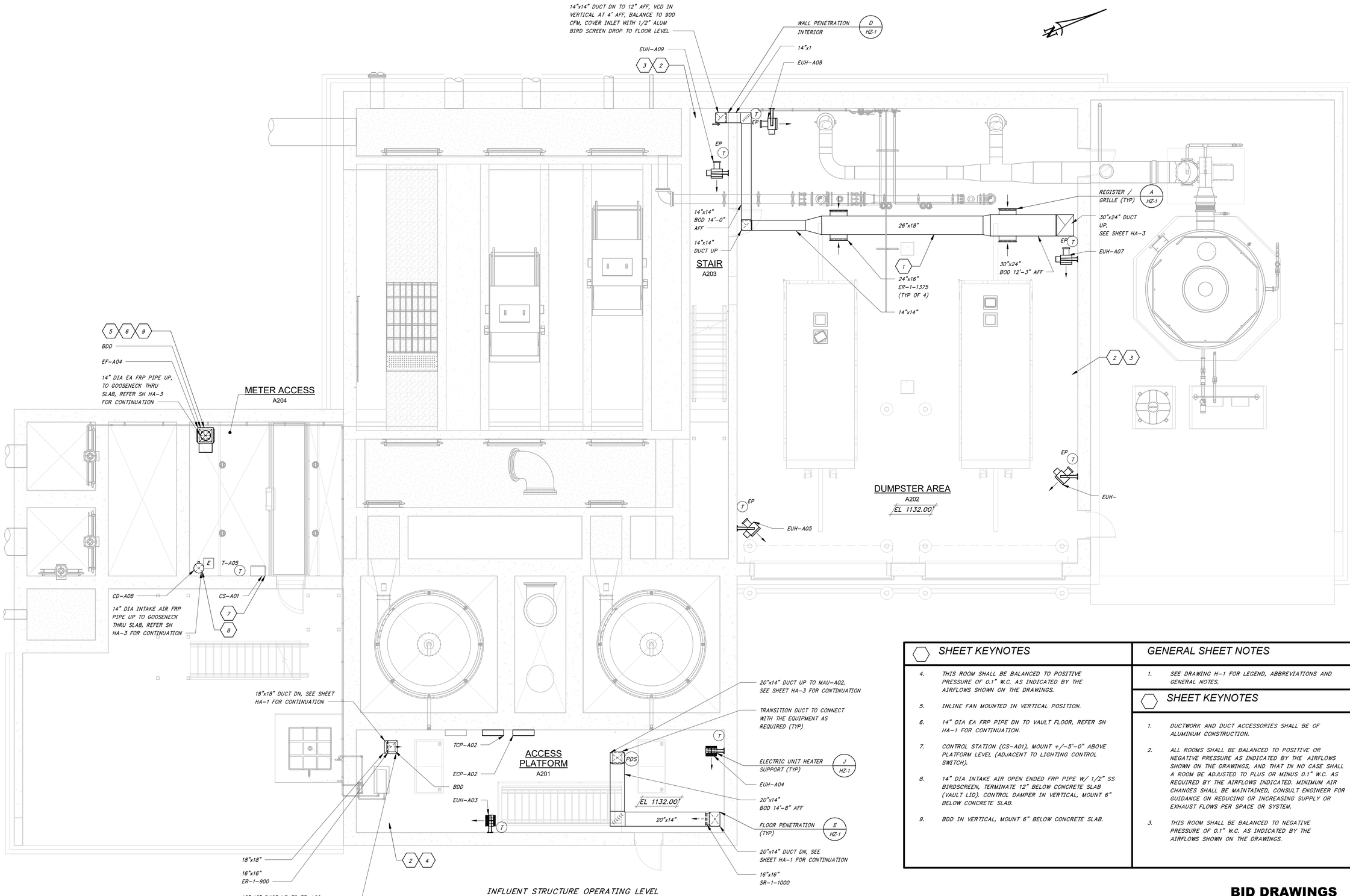
HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

HVAC
INFLUENT STRUCTURE LOWER LEVEL PLAN
BENTONVILLE, ARKANSAS

DATE: MARCH 2025
SCALE: 3/16" = 1'-0"
DESIGNED BY: AK
DRAWN BY: CP
HWEI NO.: 2021037
FILENAME: H-HEADWOKRS

SHEET NO.
HA-1



INFLUENT STRUCTURE OPERATING LEVEL

DETAIL B
3/16" = 1'-0"

SHEET KEYNOTES

4. THIS ROOM SHALL BE BALANCED TO POSITIVE PRESSURE OF 0.1" W.C. AS INDICATED BY THE AIRFLOWS SHOWN ON THE DRAWINGS.
5. INLINE FAN MOUNTED IN VERTICAL POSITION.
6. 14" DIA EA FRP PIPE DN TO VAULT FLOOR, REFER SH HA-1 FOR CONTINUATION.
7. CONTROL STATION (CS-A01), MOUNT +/-5'-0" ABOVE PLATFORM LEVEL (ADJACENT TO LIGHTING CONTROL SWITCH).
8. 14" DIA INTAKE AIR OPEN ENDED FRP PIPE W/ 1/2" SS BIRDSCREEN, TERMINATE 12" BELOW CONCRETE SLAB (VAULT LID). CONTROL DAMPER IN VERTICAL, MOUNT 6" BELOW CONCRETE SLAB.
9. BDD IN VERTICAL, MOUNT 6" BELOW CONCRETE SLAB.

GENERAL SHEET NOTES

1. SEE DRAWING H-1 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.

SHEET KEYNOTES

1. DUCTWORK AND DUCT ACCESSORIES SHALL BE OF ALUMINUM CONSTRUCTION.
2. ALL ROOMS SHALL BE BALANCED TO POSITIVE OR NEGATIVE PRESSURE AS INDICATED BY THE AIRFLOWS SHOWN ON THE DRAWINGS, AND THAT IN NO CASE SHALL A ROOM BE ADJUSTED TO PLUS OR MINUS 0.1" W.C. AS REQUIRED BY THE AIRFLOWS INDICATED. MINIMUM AIR CHANGES SHALL BE MAINTAINED, CONSULT ENGINEER FOR GUIDANCE ON REDUCING OR INCREASING SUPPLY OR EXHAUST FLOWS PER SPACE OR SYSTEM.
3. THIS ROOM SHALL BE BALANCED TO NEGATIVE PRESSURE OF 0.1" W.C. AS INDICATED BY THE AIRFLOWS SHOWN ON THE DRAWINGS.

BID DRAWINGS
MARCH 21, 2025

6' 4' 2' 0' 5' 10'
3/16" = 1'-0"

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

DATE
REVISION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17959
MICHAEL FRANCOM ROTH
3/21/2025

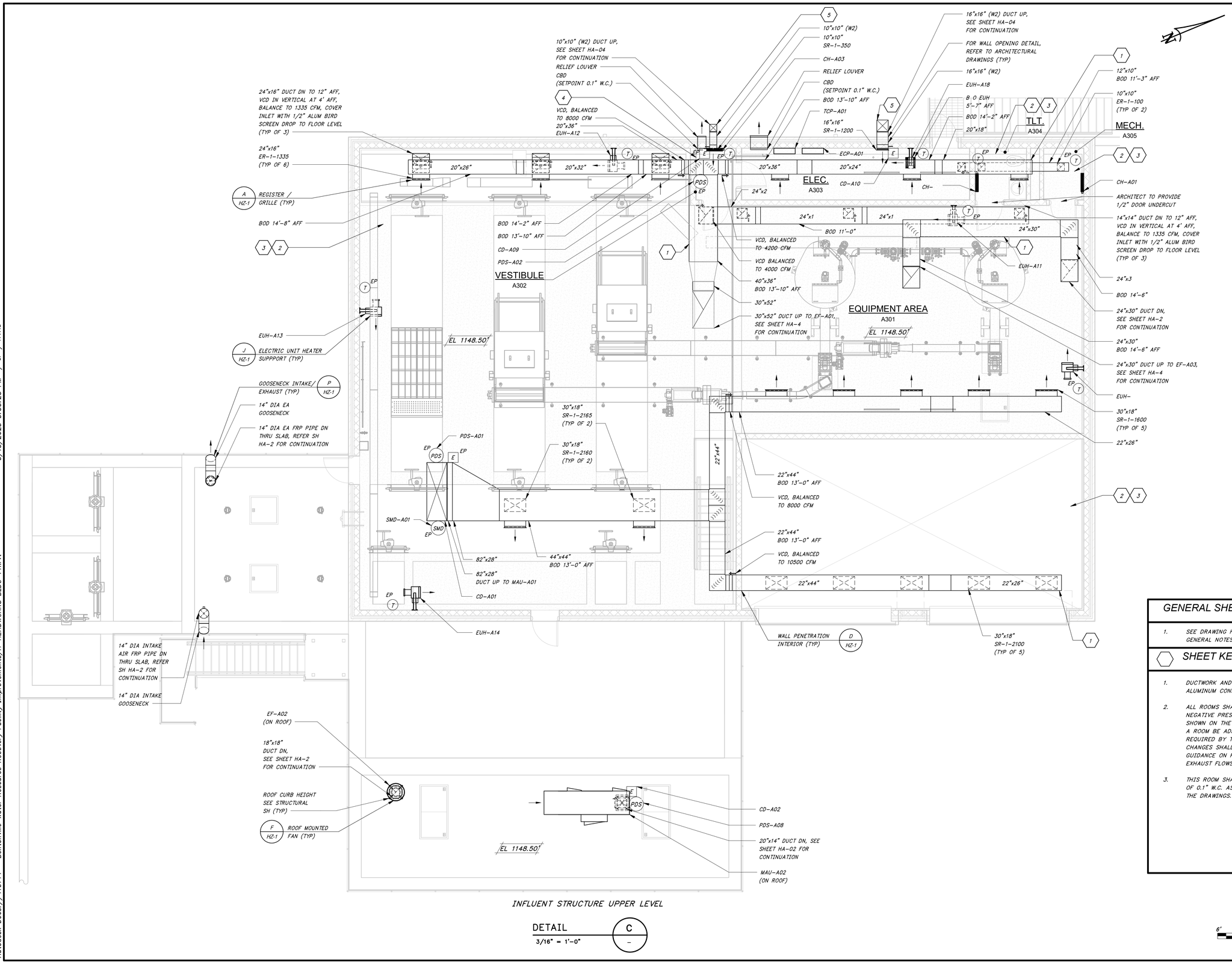
HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

HVAC
INFLUENT STRUCTURE OPERATING LEVEL PLAN
BENTONVILLE, ARKANSAS

DATE: MARCH 2025
SCALE: 3/16" = 1'-0"
DESIGNED BY: AK
DRAWN BY: CP
HWEI NO.: 2021037
FILENAME: H-HEADWKRS

SHEET NO.
HA-2



INFLUENT STRUCTURE UPPER LEVEL

DETAIL C
3/16" = 1'-0"

GENERAL SHEET NOTES

1. SEE DRAWING H-1 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.

SHEET KEYNOTES

1. DUCTWORK AND DUCT ACCESSORIES SHALL BE OF ALUMINUM CONSTRUCTION.
2. ALL ROOMS SHALL BE BALANCED TO POSITIVE OR NEGATIVE PRESSURE AS INDICATED BY THE AIRFLOWS SHOWN ON THE DRAWINGS, AND THAT IN NO CASE SHALL A ROOM BE ADJUSTED TO PLUS OR MINUS 0.1" W.C. AS REQUIRED BY THE AIRFLOWS INDICATED. MINIMUM AIR CHANGES SHALL BE MAINTAINED, CONSULT ENGINEER FOR GUIDANCE ON REDUCING OR INCREASING SUPPLY OR EXHAUST FLOWS PER SPACE OR SYSTEM.
3. THIS ROOM SHALL BE BALANCED TO NEGATIVE PRESSURE OF 0.1" W.C. AS INDICATED BY THE AIRFLOWS SHOWN ON THE DRAWINGS.

BID DRAWINGS
MARCH 21, 2025

6' 4' 2' 0' 5' 10'
3/16" = 1'-0"

ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

DATE
REVISION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
MICHAEL FRANCON ROTH
No. 17959
3/21/2025

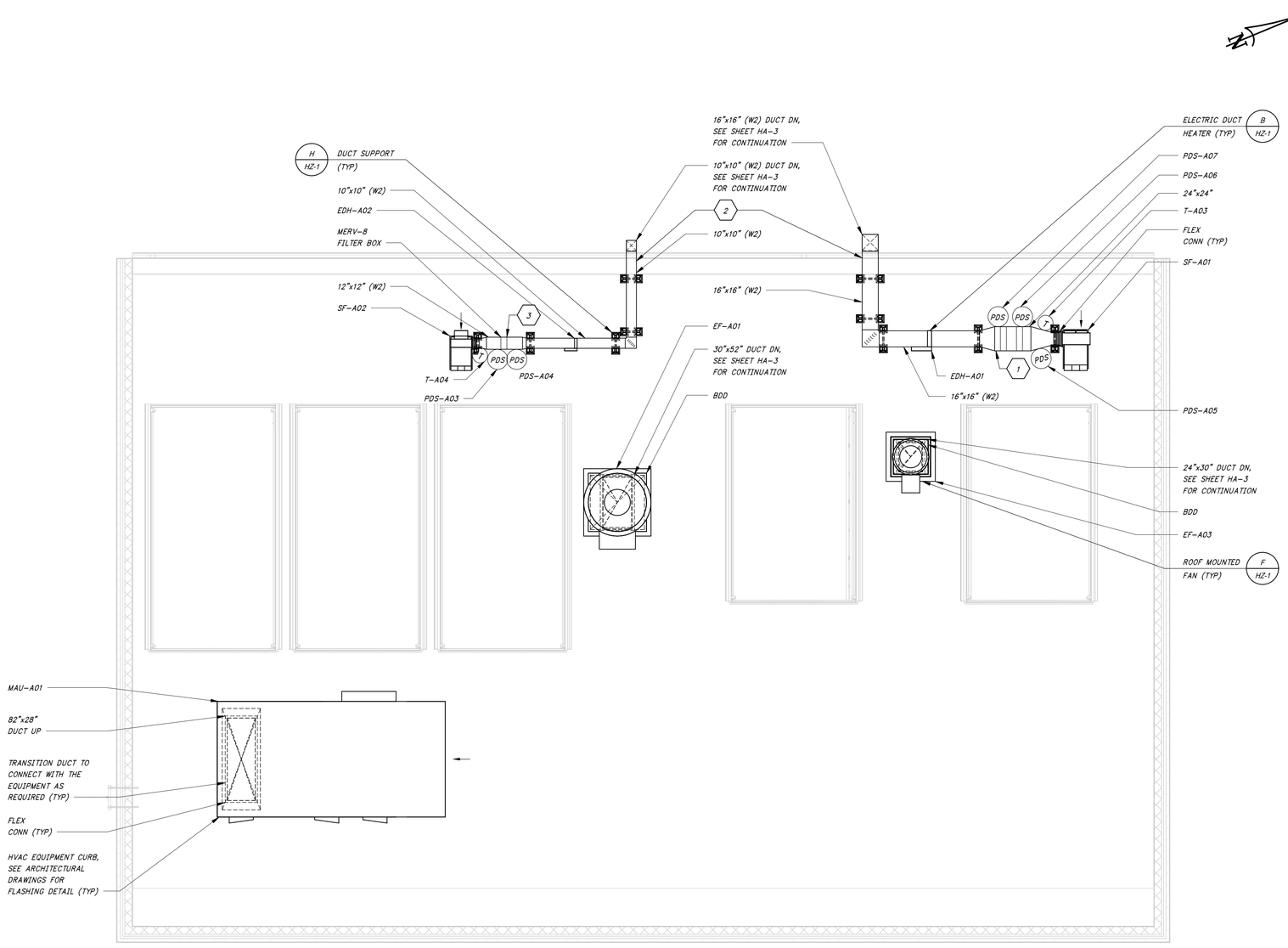
HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

HVAC
INFLUENT STRUCTURE UPPER LEVEL PLAN
BENTONVILLE, ARKANSAS

DATE: MARCH 2025
SCALE: 3/16" = 1'-0"
DESIGNED BY: AK
DRAWN BY: CP
HWEI NO.: 2021037
FILENAME: H-HEADWOKRS

SHEET NO.
HA-3



INFLUENT STRUCTURE ROOF LEVEL

DETAIL D
3/16" = 1'-0"

GENERAL SHEET NOTES

1. SEE DRAWING H-1 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.

SHEET KEYNOTES

1. PROVIDE SIDE ACCESS FILTER HOUSING WITH 2" THICK MERV-8 PRE-FILTER FOLLOWED BY GAS PHASE FILTER SECTION, WITH PROVISIONS TO INSTALL PDS ACROSS BOTH THE SECTIONS. THE HOUSING SHALL BE SUITABLE FOR OUTDOOR INSTALLATION.
2. EXPOSED DUCT SHALL BE CONSTRUCTED FACTORY-INSULATED, DOUBLE-WALLED DUCT. REFER TO SPECIFICATION 15500 FOR ADDITIONAL DETAIL.
3. PROVIDE SIDE ACCESS FILTER HOUSING WITH 2" THICK MERV-8 FILTER, WITH PROVISIONS TO INSTALL PDS ACROSS THE FILTER. THE HOUSING SHALL BE SUITABLE FOR OUTDOOR INSTALLATION.

BID DRAWINGS
MARCH 21, 2025

6' 4' 2' 0' 5' 10'
3/16" = 1'-0"

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17959
MICHAEL FRANCOM ROTH
3/21/2025

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

HVAC
INFLUENT STRUCTURE
ROOF LEVEL PLAN
BENTONVILLE, ARKANSAS

DATE: MARCH 2025
SCALE: 3/16" = 1'-0"
DESIGNED BY: AK
DRAWN BY: CP
HWEI NO.: 2021037
FILENAME: H-HEADWOKRS

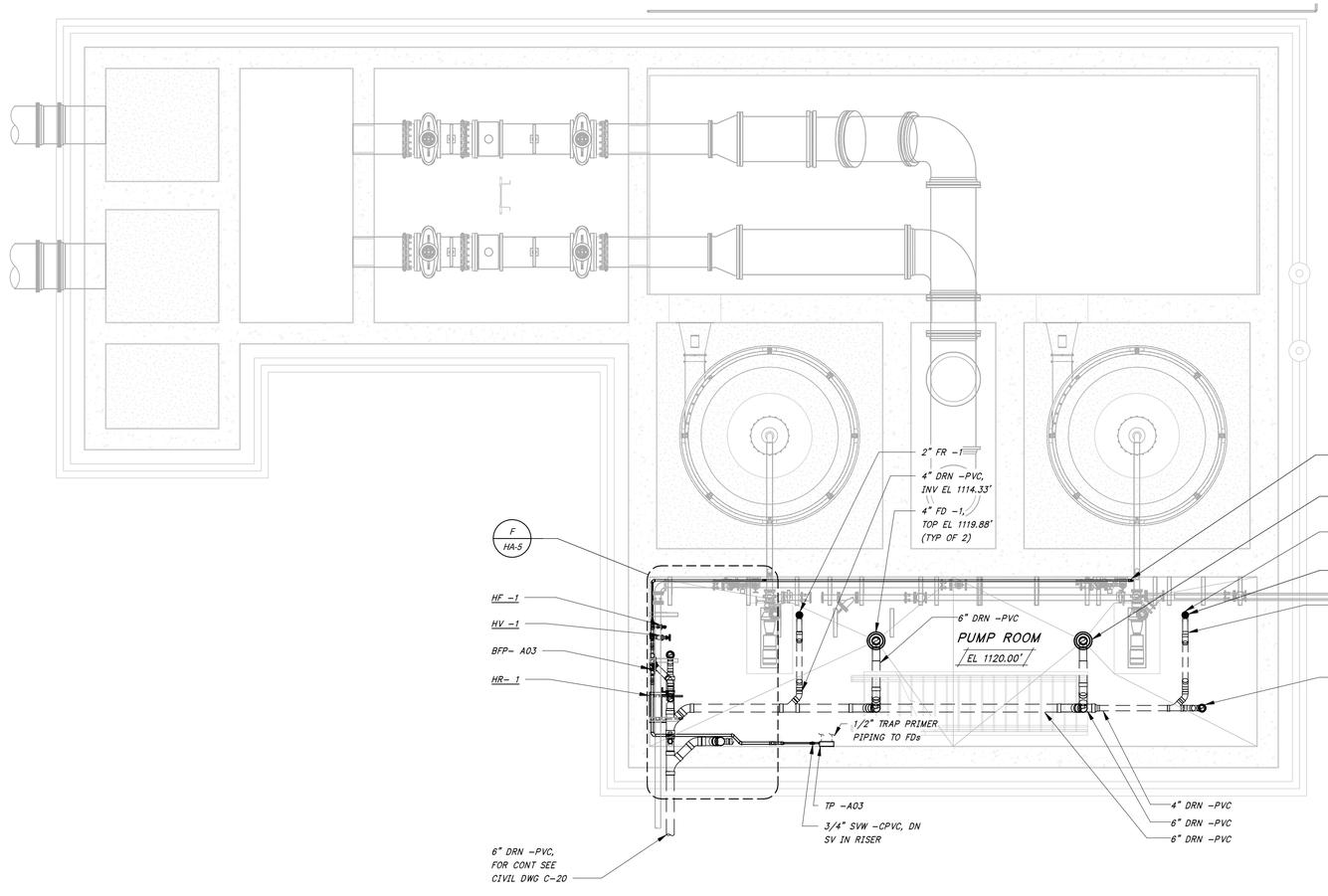
SHEET NO.
HA-4

GENERAL SHEET NOTES

1. SEE DRAWING H-2 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.

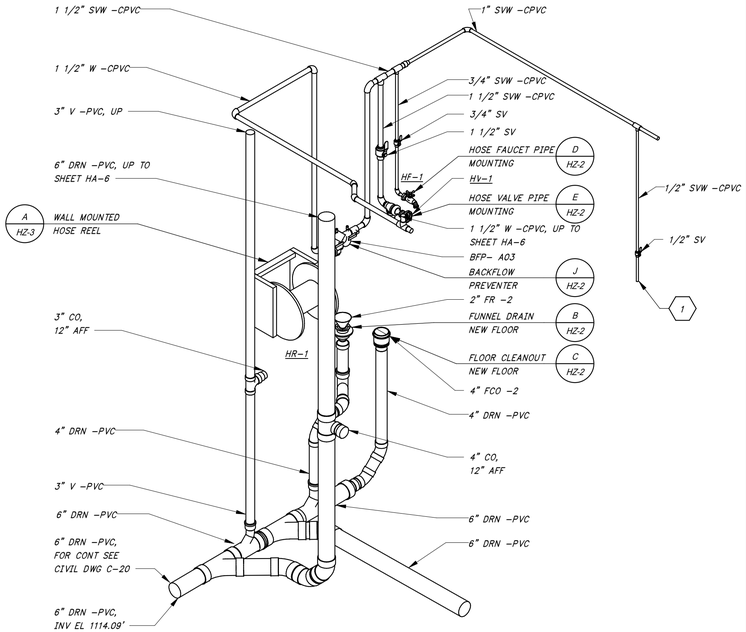
SHEET KEYNOTES

1. 1/2" SVW FOR SEAL WATER TO GRIT PUMPS, SV IN DROP.



INFLUENT STRUCTURE LOWER LEVEL

DETAIL E
3/16" = 1'-0"



DETAIL – F

DETAIL F
N.T.S.

BID DRAWINGS
MARCH 21, 2025

6' 4' 2' 0' 5' 10'
3/16" = 1'-0"

ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17959
MICHAEL FRANCOM ROTH
3/21/2025

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

PLUMBING
INFLUENT STRUCTURE
LOWER LEVEL PLAN
BENTONVILLE, ARKANSAS

DATE: MARCH 2025
SCALE: N.T.S.
DESIGNED BY: SAM
DRAWN BY: YBM
HWEI NO.: 2021037
FILENAME: H-HEADWOKS

SHEET NO.
HA-5

3/13/2025 12:35:43 PM / YBM / PLUMBING

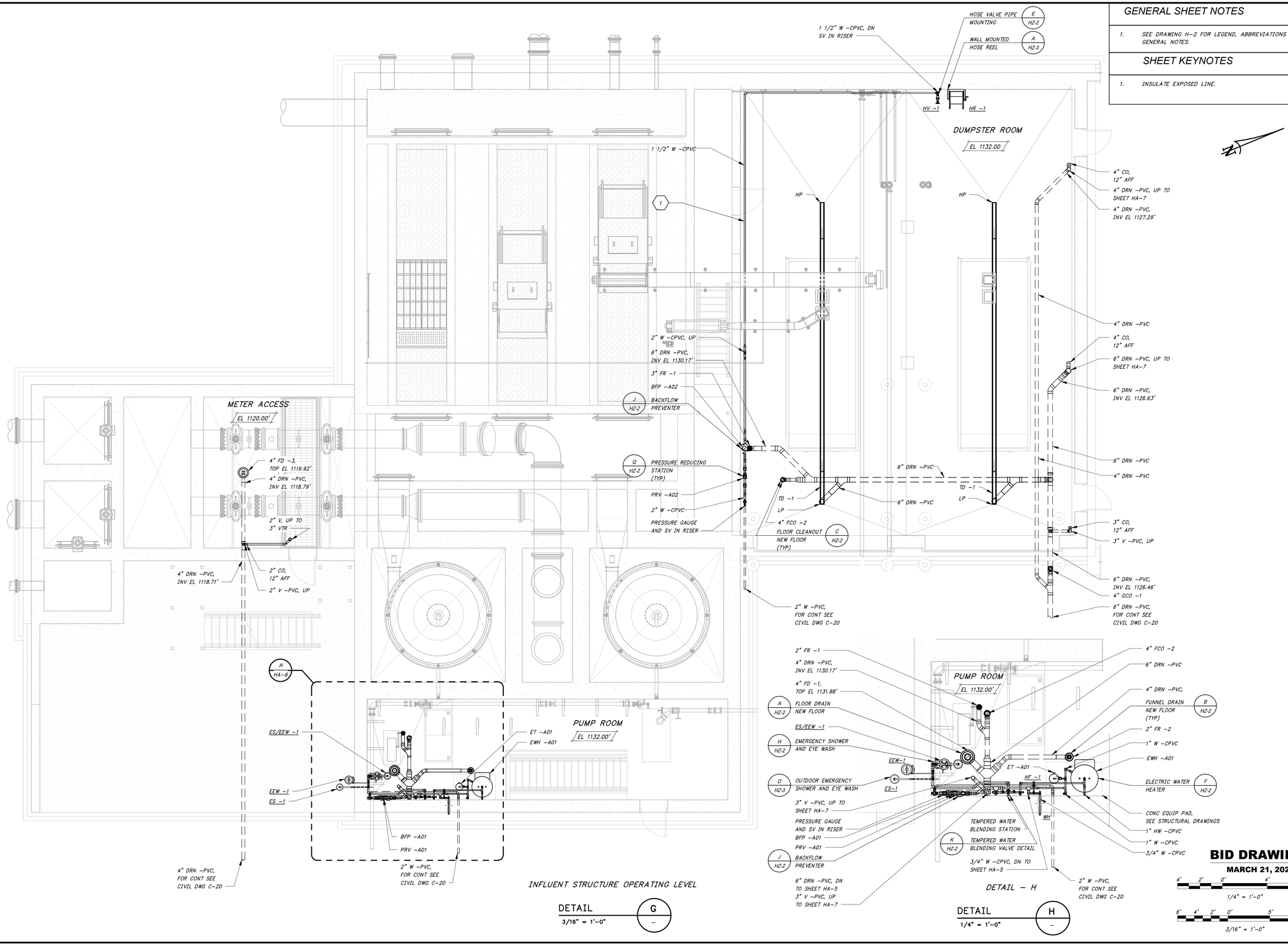
Autodesk Docs://410144 - Bentonville Water Resource Recovery Facility Improvements/H-HEADWORKS BLDG-PR.rvt

GENERAL SHEET NOTES

1. SEE DRAWING H-2 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.

SHEET KEYNOTES

1. INSULATE EXPOSED LINE.



INFLUENT STRUCTURE OPERATING LEVEL

DETAIL G / 3/16" = 1'-0"

DETAIL - H

DETAIL H / 1/4" = 1'-0"

BID DRAWINGS
MARCH 21, 2025

1/4" = 1'-0"

3/16" = 1'-0"

ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

DATE	REVISION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17959
MICHAEL FRANCOM ROTH
3/21/2025

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

PLUMBING
INFLUENT STRUCTURE
OPERATING LEVEL PLAN
BENTONVILLE, ARKANSAS

DATE:	MARCH 2025
SCALE:	AS SHOWN
DESIGNED BY:	SAM
DRAWN BY:	YBM
HWEI NO.:	2021037
FILENAME:	H-HEADWOKS

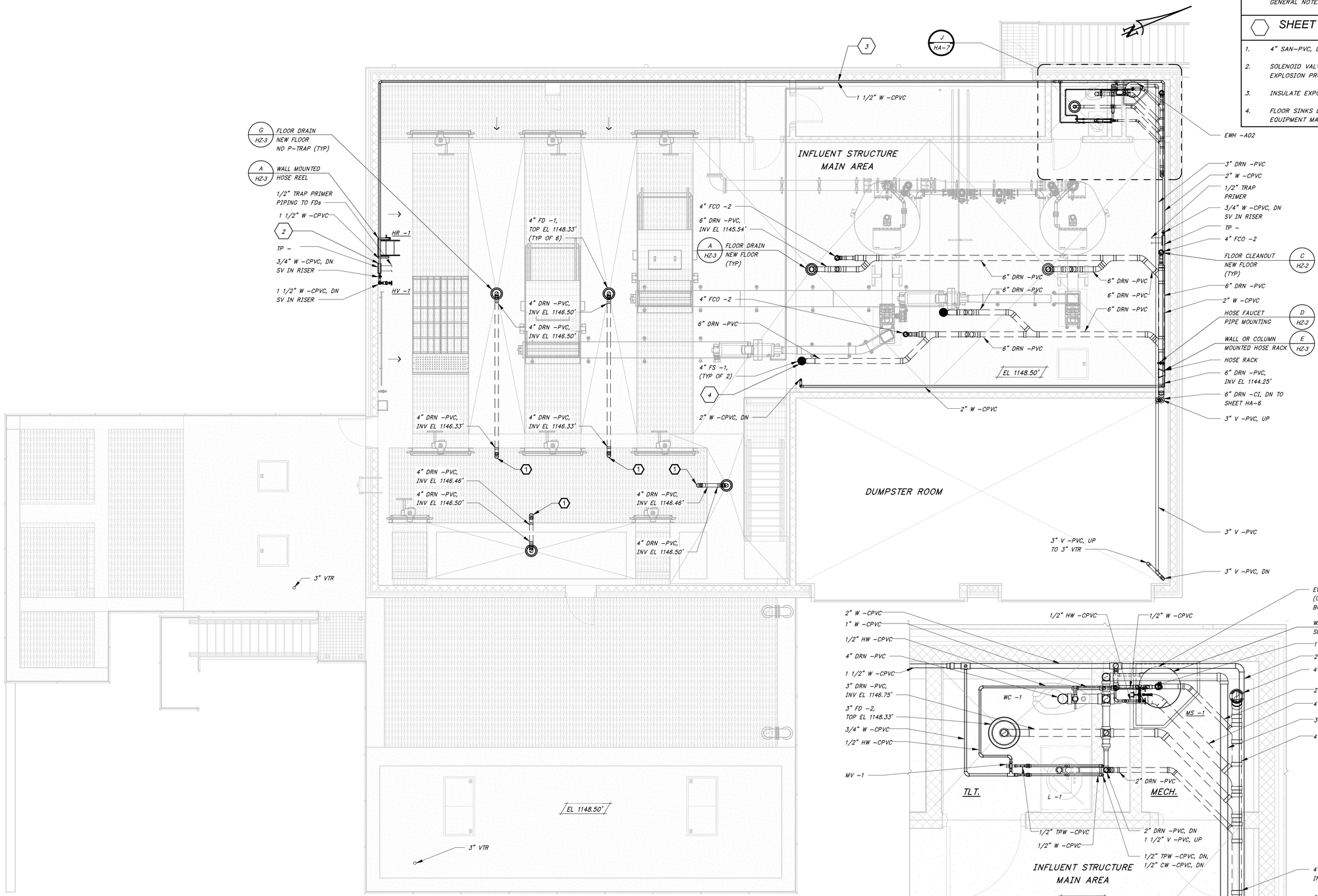
SHEET NO.
HA-6

GENERAL SHEET NOTES

1. SEE DRAWING H-2 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.

SHEET KEYNOTES

1. 4" SAN-PVC, DN TO CHANNEL BELOW.
2. SOLENOID VALVE OF ELECTRONIC TRAP PRIMER SHALL BE EXPLOSION PROOF: CLASS 1, DIVISION 2, GROUPS C&D.
3. INSULATE EXPOSED LINE.
4. FLOOR SINKS LOCATION SHALL BE COORDINATED WITH THE EQUIPMENT MANUFACTURER.



INFLUENT STRUCTURE UPPER LEVEL

DETAIL I — 3/16" = 1'-0"

DETAIL - J

DETAIL J — 1/2" = 1'-0"

BID DRAWINGS
MARCH 21, 2025

12" 6" 0" 1' 2' 3' 4' 5'
1/2" = 1'-0"
6' 4' 2' 0' 5' 10'
3/16" = 1'-0"

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

DATE	REVISION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17959
MICHAEL FRANCON ROTH
3/21/2025

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

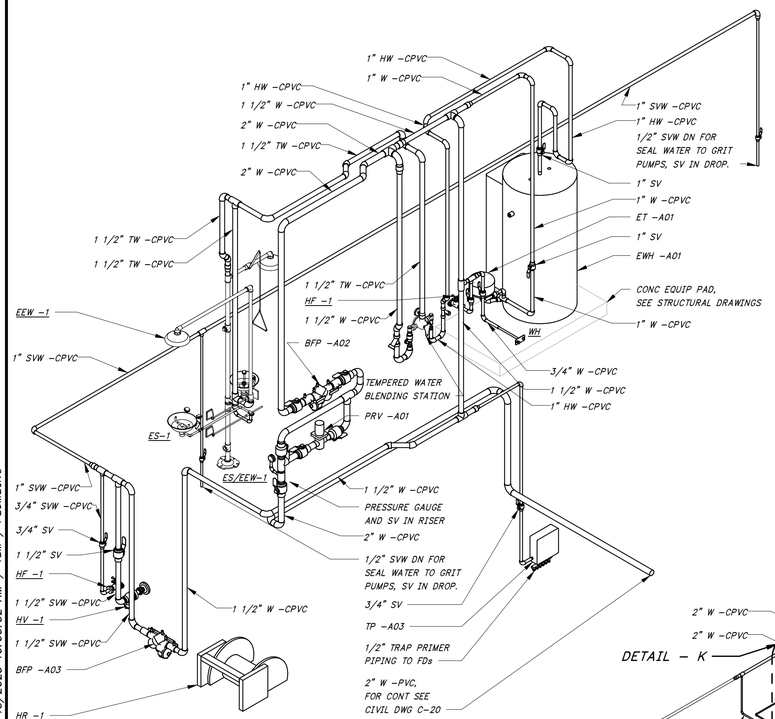
PLUMBING
INFLUENT STRUCTURE
UPPER LEVEL PLAN
BENTONVILLE, ARKANSAS

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: SAM
DRAWN BY: YBM
HWEI NO.: 2021037
FILENAME: H-HEADWOKS

SHEET NO.
HA-7

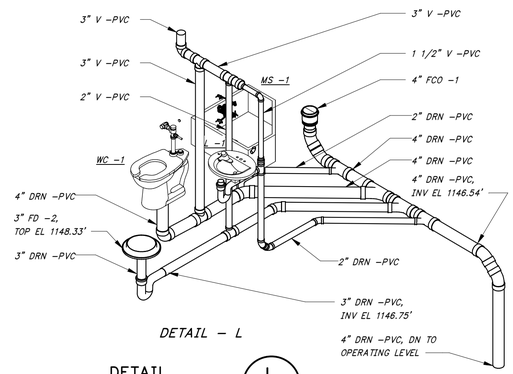
GENERAL SHEET NOTES

1. SEE DRAWING H-2 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.



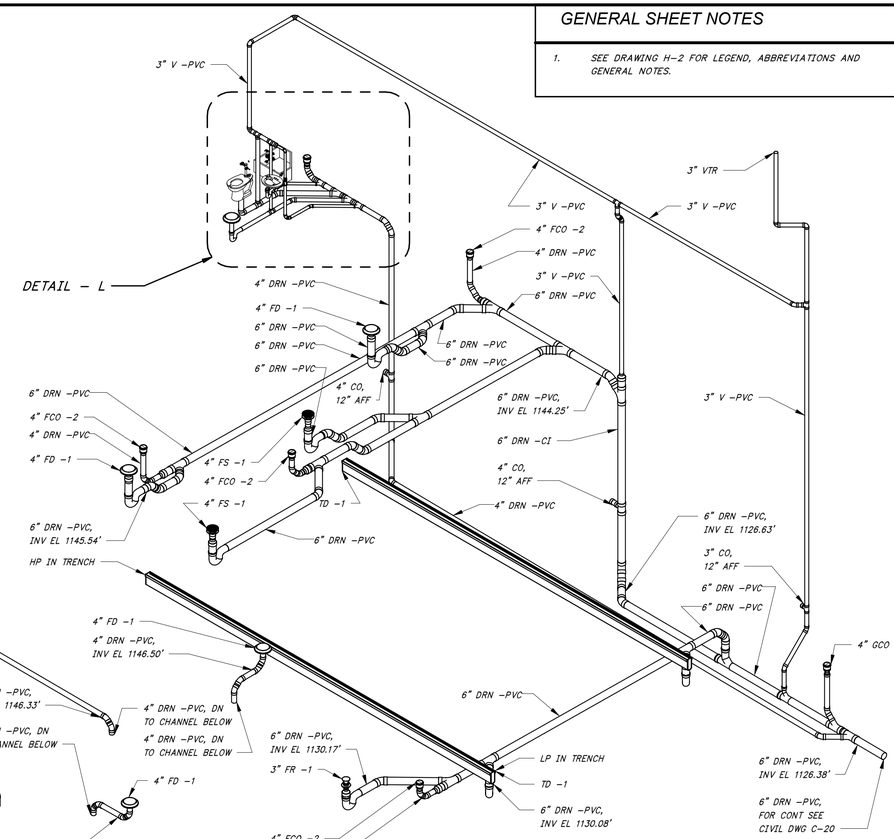
OPERATING LEVEL WATER SUPPLY ISOMETRIC

N.T.S.



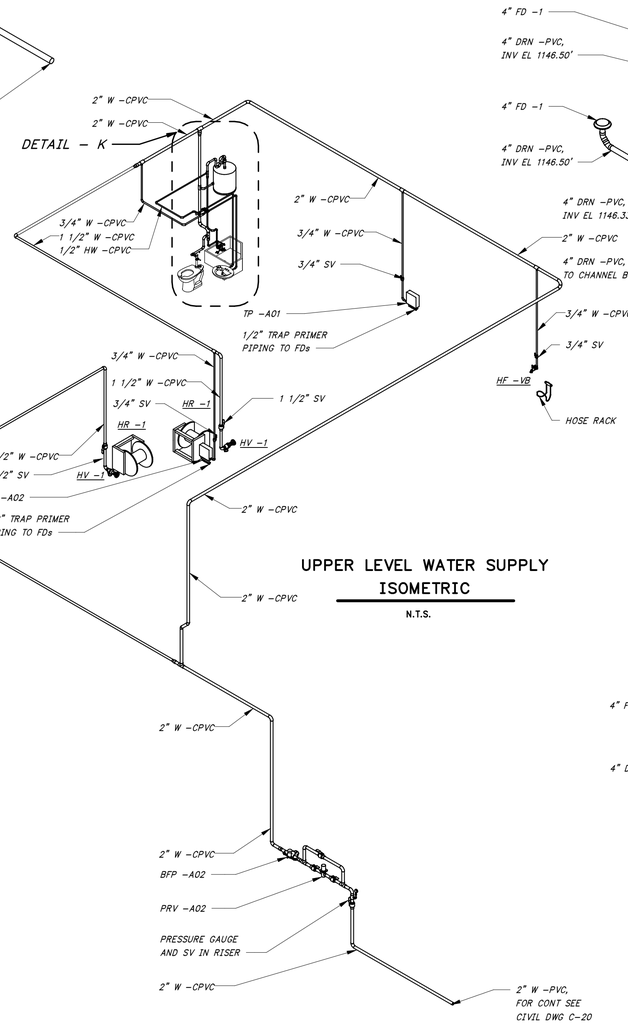
DETAIL – L

DETAIL L N.T.S.



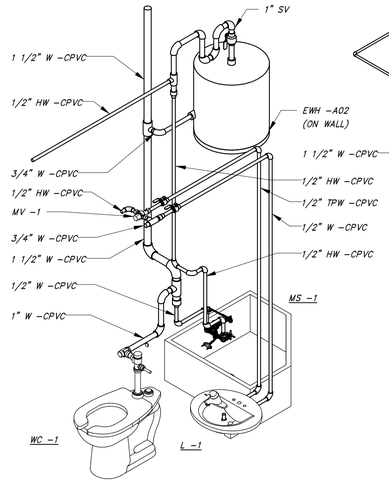
UPPER AND OPERATING LEVEL SANITARY ISOMETRIC

N.T.S.



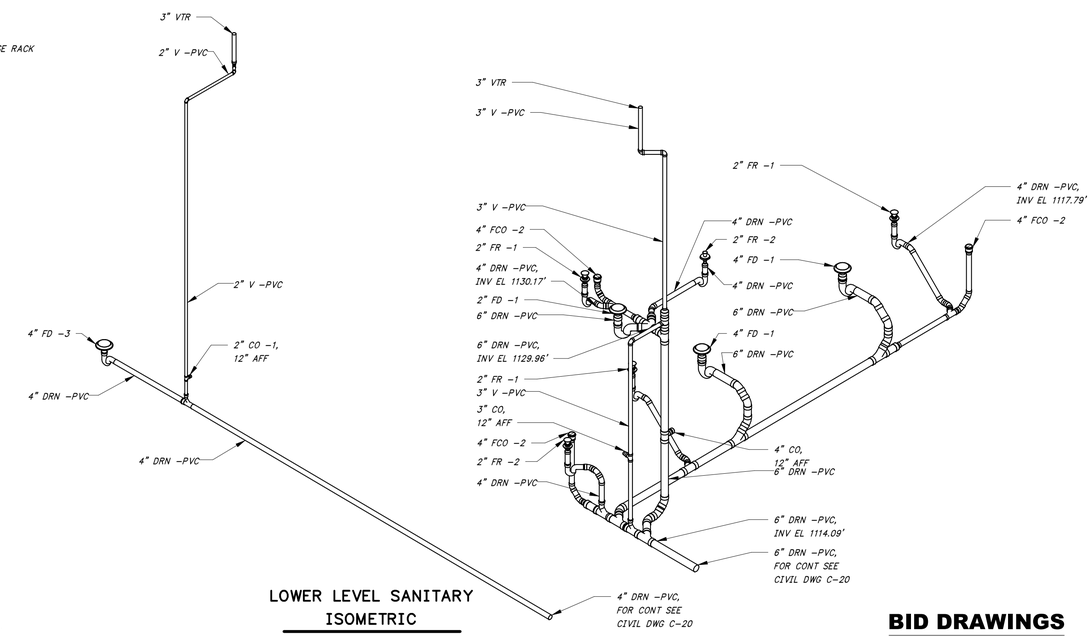
UPPER LEVEL WATER SUPPLY ISOMETRIC

N.T.S.



DETAIL – K

DETAIL K N.T.S.



LOWER LEVEL SANITARY ISOMETRIC

N.T.S.

BID DRAWINGS

MARCH 21, 2025

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

DATE	REVISION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17959
MICHAEL FRANCON ROTH
3/21/2025

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

PLUMBING
INFLUENT STRUCTURE ISOMETRICS
BENTONVILLE, ARKANSAS

DATE:	MARCH 2025
SCALE:	AS SHOWN
DESIGNED BY:	SAM
DRAWN BY:	YBM
HWEI NO.:	2021037
FILENAME:	H-HEADWOKS

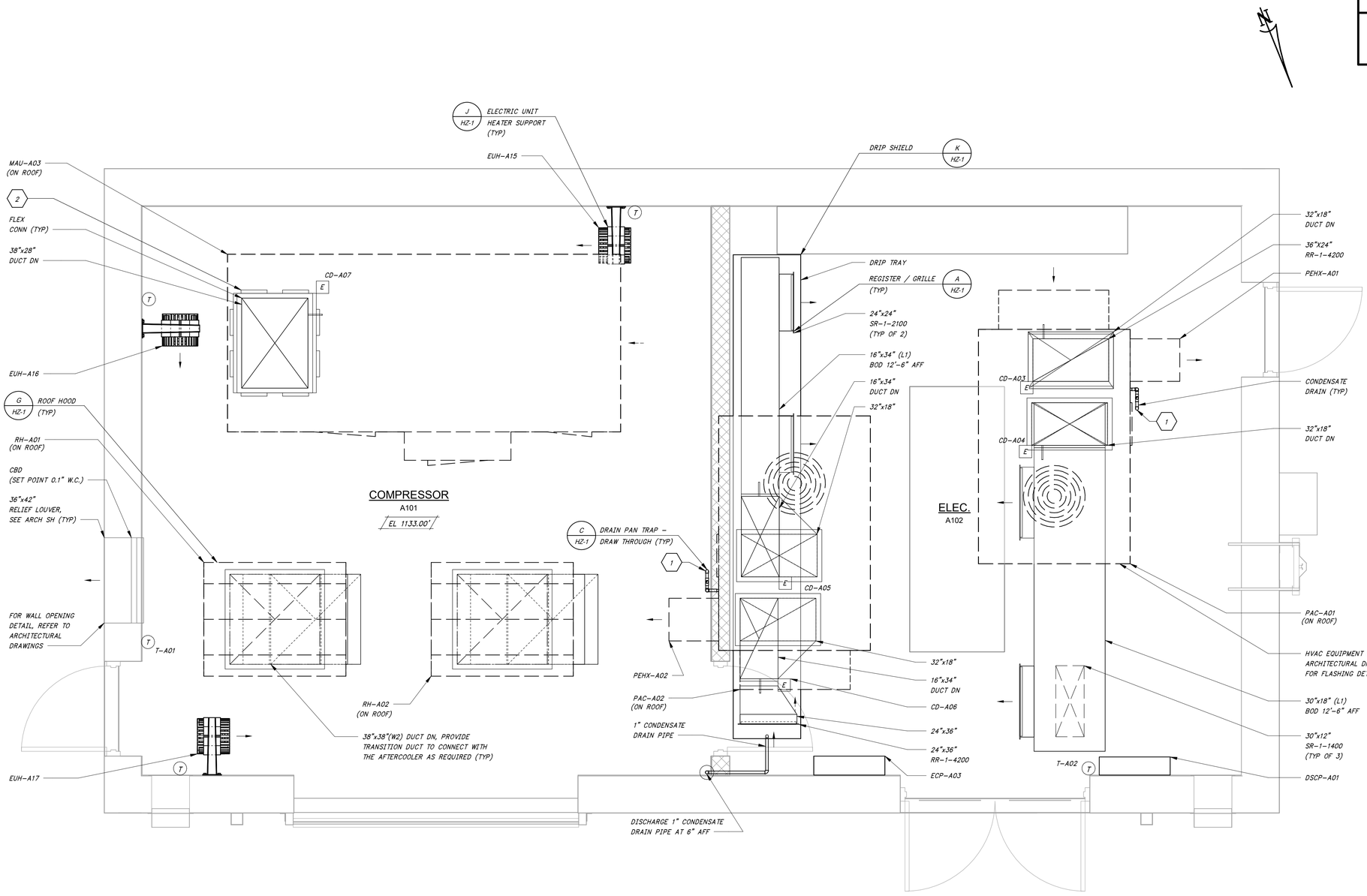
SHEET NO.
HA-8

GENERAL SHEET NOTES

1. SEE DRAWING H-1 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.

SHEET KEYNOTES

1. CONDENSATE WATER DIRECTED ON THE ROOF.
2. PROVIDE MATCHING 4-WAY ADJUSTABLE DIFFUSER AT THE OUTLET AS AN ACCESSORY MOUNT, NOT LESS THAN 14'-6" AFF.



INFLUENT ELECTRICAL BUILDING

DETAIL M / – 1/2" = 1'-0"

BID DRAWINGS

MARCH 21, 2025

12" 6" 0' 1' 2' 3' 4' 5'

1/2" = 1'-0"

1" ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 17959 MICHAEL FRANCOM ROTH 3/21/2025

HAWKINS WEIR ENGINEERS, INC.

BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

HVAC
INFLUENT ELECTRICAL BUILDING
FLOOR PLAN

CITY OF BENTONVILLE, ARKANSAS

DATE: MARCH 2025
SCALE: 1/2" = 1'-0"
DESIGNED BY: AK
DRAWN BY: CP
HWEI NO.: 2021037
FILENAME: H-HW ELEC

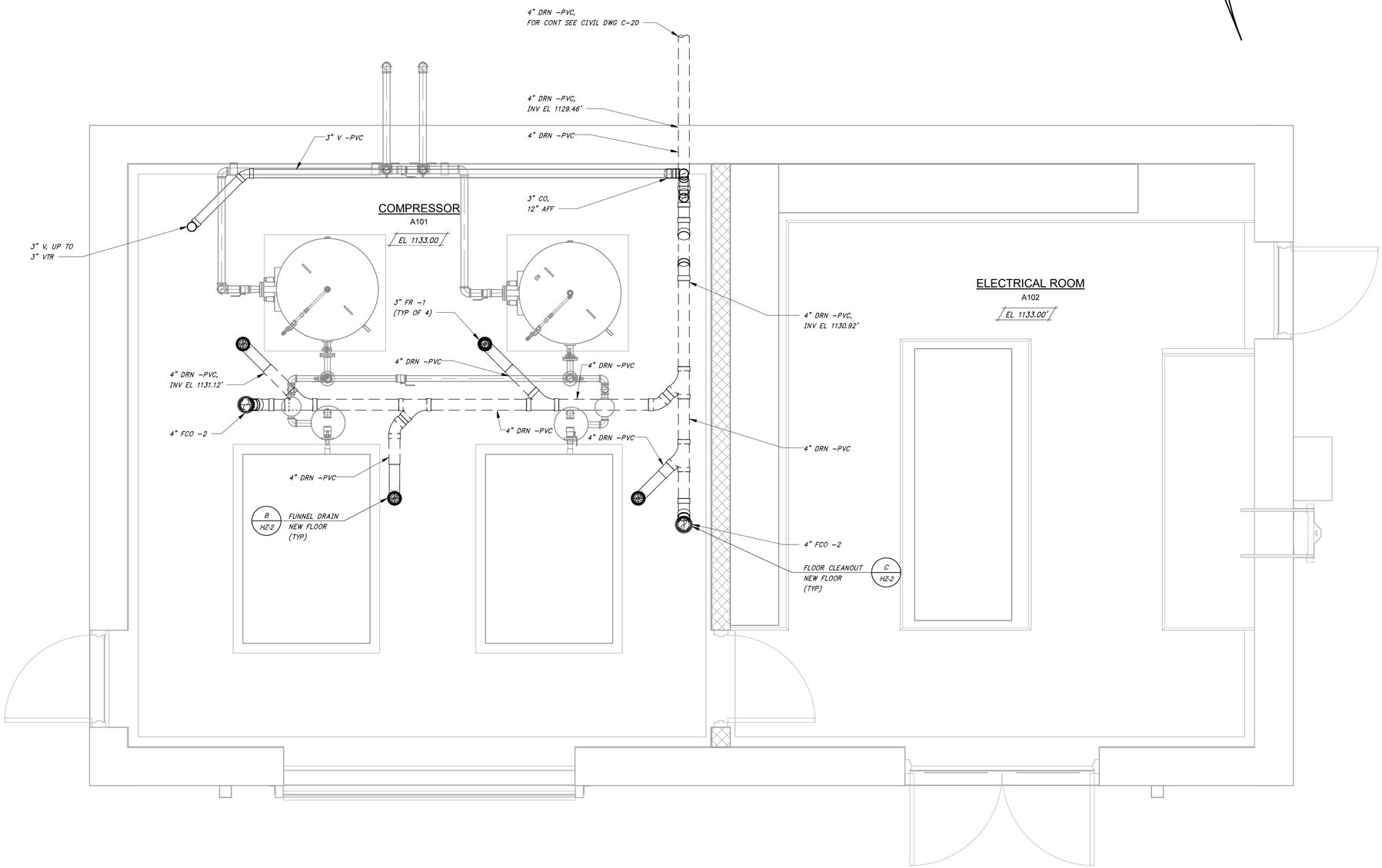
SHEET NO.
HA-9

2/12/2025 11:02:12 AM / CP / HVAC

Autodesk Docs://410144 - Bentonville Water Resource Recovery Facility Improvements/H-HW ELEC BLDG-PR.rvt

GENERAL SHEET NOTES

1. SEE DRAWING H-2 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.



INFLUENT ELECTRICAL BUILDING

DETAIL N / 1/2" = 1'-0" / -

BID DRAWINGS

MARCH 21, 2025

12' 6' 0' 1' 2' 3' 4' 5'

1/2" = 1'-0"

1"

ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

DATE	REVISION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17959
MICHAEL FRANCOM ROTH
3/21/2025

HAWKINS-WEIR ENGINEERS, INC.

BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

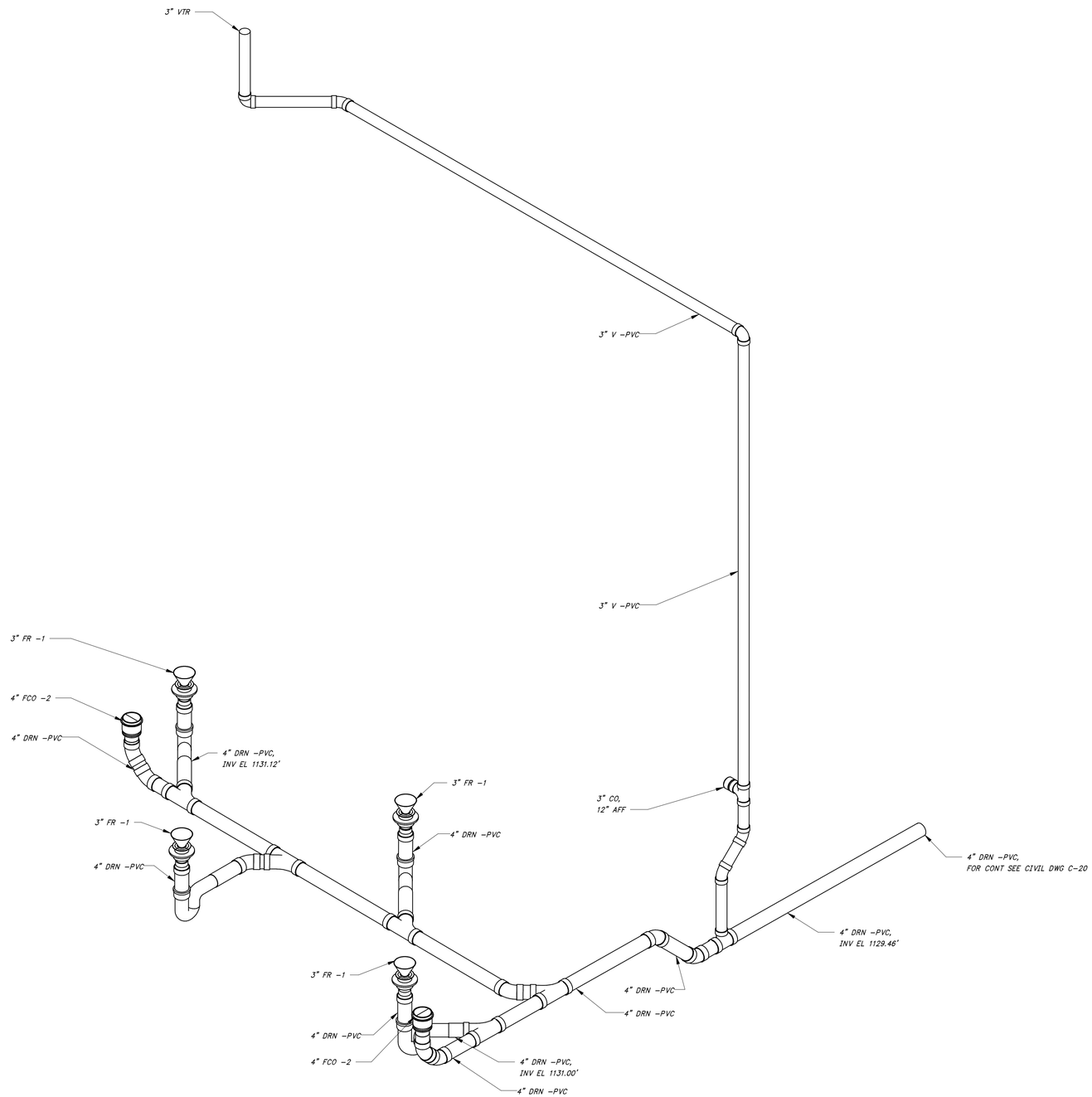
PLUMBING
INFLUENT ELECTRICAL BUILDING FLOOR PLAN
CITY OF BENTONVILLE, ARKANSAS

DATE: MARCH 2025
SCALE: 1/2" = 1'-0"
DESIGNED BY: SAM
DRAWN BY: AJP
HWEI NO.: 2021037
FILENAME: H-HW ELEC

SHEET NO.
HA-10

GENERAL SHEET NOTES

1. SEE DRAWING H-2 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.



SANITARY RISER DIAGRAM

N.T.S.

BID DRAWINGS

MARCH 21, 2025

1"

ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17959
MICHELE FRANCON ROTH
3/21/2025

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

PLUMBING
INFLUENT ELECTRICAL BUILDING
ISOMETRIC
CITY OF BENTONVILLE, ARKANSAS

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: SAM
DRAWN BY: AJP
HWEI NO.: 2021037
FILENAME: H-HW ELEC

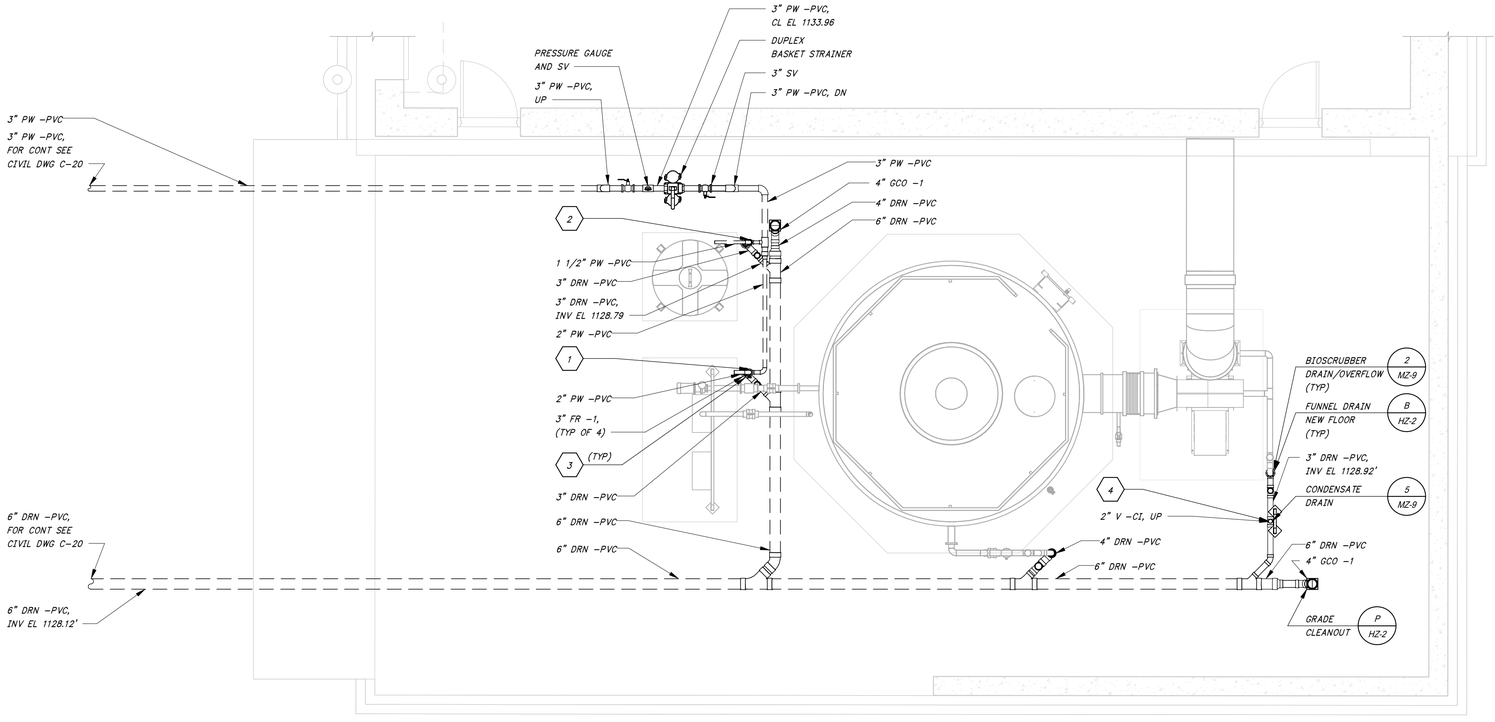
SHEET NO.
HA-11

GENERAL SHEET NOTES

1. SEE DRAWING H-2 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.
2. HEAT TRACE AND INSULATE EXPOSED PIPING.

SHEET KEYNOTES

1. 2" PW-CPVC, FOR WATER CONTROL PANEL SV IN DROP.
2. 1 1/2" PW-CPVC, FOR NUTRIENT TANK, SV IN DROP.
3. PROVIDE AN INSULATED AND JACKETED BOX AROUND THE RECEPTOR. PROVIDE INSULATION ON THE BELOW GRADE PIPE TO FROST DEPTH.
4. ALL EXPOSED VENT LINE MATERIALS SHALL BE PROVIDED WITH TANSITION BETWEEN DISSIMILIAR MATERIALS.



ODOR CONTROL

DETAIL O / 1/4" = 1'-0" / -

BID DRAWINGS

MARCH 21, 2025

4' 2' 0' 4' 8'

1/4" = 1'-0"

ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

DATE	REVISION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
MICHAEL FRANCOM ROTH
No. 17959
3/21/2025

HAWKINS WEIR ENGINEERS, INC.

BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

PLUMBING
ODOR CONTROL AREA
PLAN

CITY OF BENTONVILLE, ARKANSAS

DATE: MARCH 2025
SCALE: 1/4" = 1'-0"
DESIGNED BY: SAM
DRAWN BY: YBM
HWEI NO.: 2021037
FILENAME: H-ODOR CONT

SHEET NO.
HA-12

PUMP ROOM
J102
EL 1133.00

EUH-J02
LOUVER, SEE ARCH SH (TYP)
CD-J05
EUH-J03
ELECTRIC UNIT HEATER SUPPORT (TYP)
J / HZ-1
CD-J06
EUH-J04
EUH-J01
BDD
WALL FAN Q / HZ-1
EF-J01
AD
DISCHARGE 1" CONDENSATE DRAIN PIPE AT 6" AFF
22"x18"
22"x10" ER-1-1000 (TYP OF 5)
22"x10" ER-1-1100
30"x24" BOD 11'-6" AFF
1" CONDENSATE DRAIN PIPE
T-J02
EUH-J05
TRANSITION DUCT TO CONNECT WITH THE EQUIPMENT AS REQUIRED (TYP)
FOR WALL OPENING DETAIL, REFER TO ARCHITECTURAL DRAWINGS (TYP)

T-J01
36"x24" RR-1-4000 (TYP OF 2)
PEXH-J01
FLEX CONN (TYP)
DRIP SHIELD K / HZ-1
REGISTER / GRILLE (TYP) A / HZ-1
PAC-J01 (ON ROOF)
CD-J01
CD-J02
CD-J03
28"x18" (L1) BOD 14'-0" AFF
18"x12" SR-1-1000 (TYP OF 4)
C / HZ-1 DRAIN PAN TRAP – DRAW THROUGH (TYP)
PEXH-J02
32"x18" (L1) BOD 14'-0" AFF
36"x24" (L1) DUCT UP, CONNECT TO PAC (TYP OF 2)
ELECTRICAL
J101
EL 1133.00
DSCP-J01
28"x18" (L1) DUCT UP (TYP OF 2)
33"x18" (L1) DUCT UP, CONNECT TO PAC (TYP OF 2)
PAC-J02 (ON ROOF)
DRIP TRAY
CD-J04
32"x18" (L1) BOD 14'-0" AFF
HVAC EQUIPMENT CURB, SEE ARCHITECTURAL DRAWINGS FOR FLASHING DETAIL (TYP)
EQUIPMENT CURB, SEE ARCH SH (TYP)
TCP-J01

EFFLUENT PUMP STATION
DETAIL A
3/8" = 1'-0"

GENERAL SHEET NOTES

1. SEE DRAWING H-1 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.

SHEET KEYNOTES

1. CONDENSATE WATER DIRECTED ON THE ROOF.

BID DRAWINGS
MARCH 21, 2025

12" 0' 1' 2' 3' 4' 5' 6' 7'
3/8" = 1'-0"

ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

DATE	REVISION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17959
MICHAEL FRANCOM ROTH
3/21/2025

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

HVAC
EFFLUENT PUMP STATION
FLOOR PLAN

CITY OF BENTONVILLE, ARKANSAS

DATE: MARCH 2025
SCALE: 3/8" = 1'-0"
DESIGNED BY: AK
DRAWN BY: CP
HWEI NO.: 2021037
FILENAME: H-ELEC

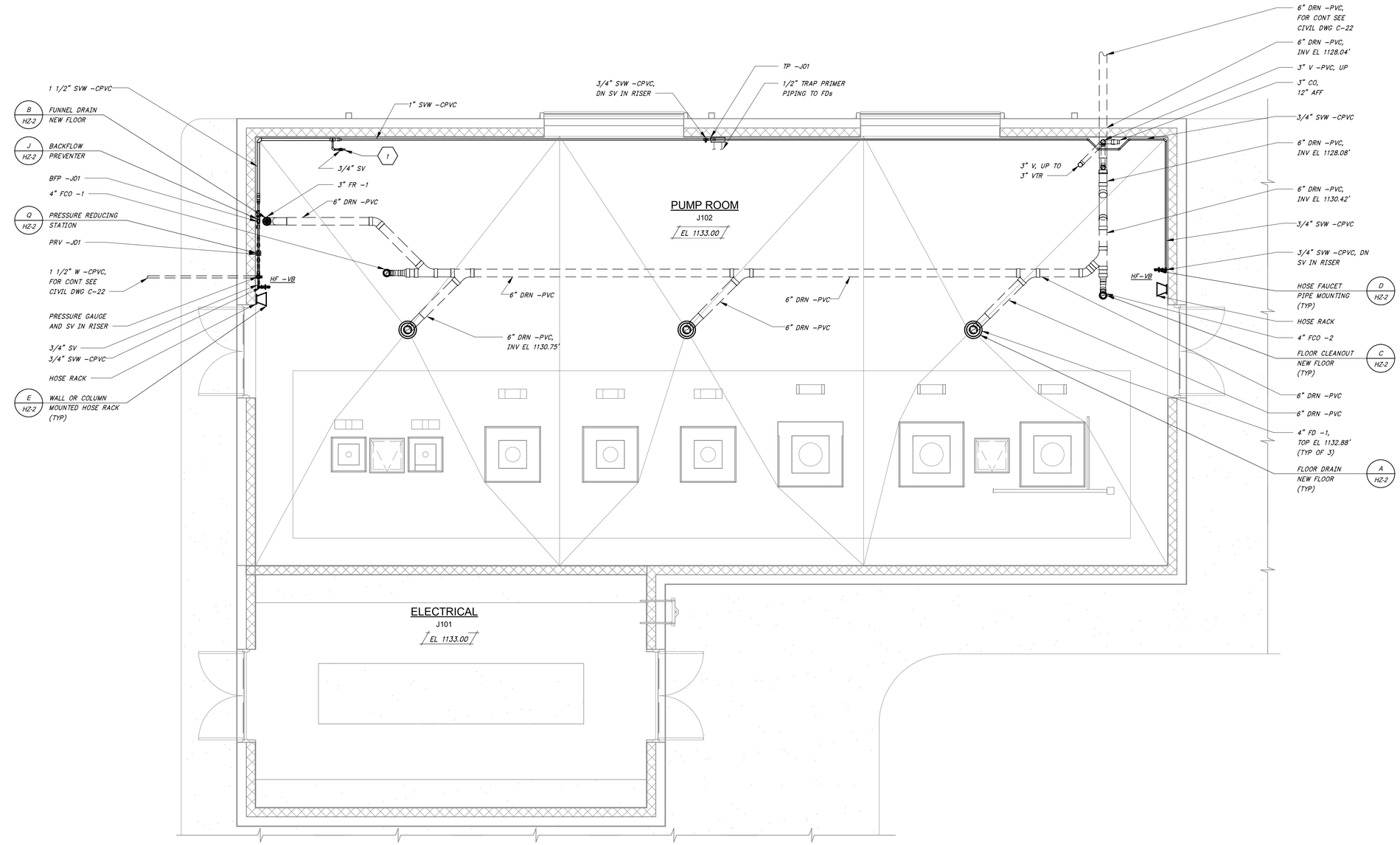
SHEET NO.
HJ-1

GENERAL SHEET NOTES

1. SEE DRAWING H-2 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.

SHEET KEYNOTES

1. 3/4" SVW DN FOR SEAL WATER.



EFFLUENT PUMP STATION

DETAIL B
1/4" = 1'-0"

BID DRAWINGS
MARCH 21, 2025

4' 2' 0' 4' 8'
1/4" = 1'-0"

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

DATE	REVISION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17959
MICHAEL FRANCOM ROTH
3/21/2025

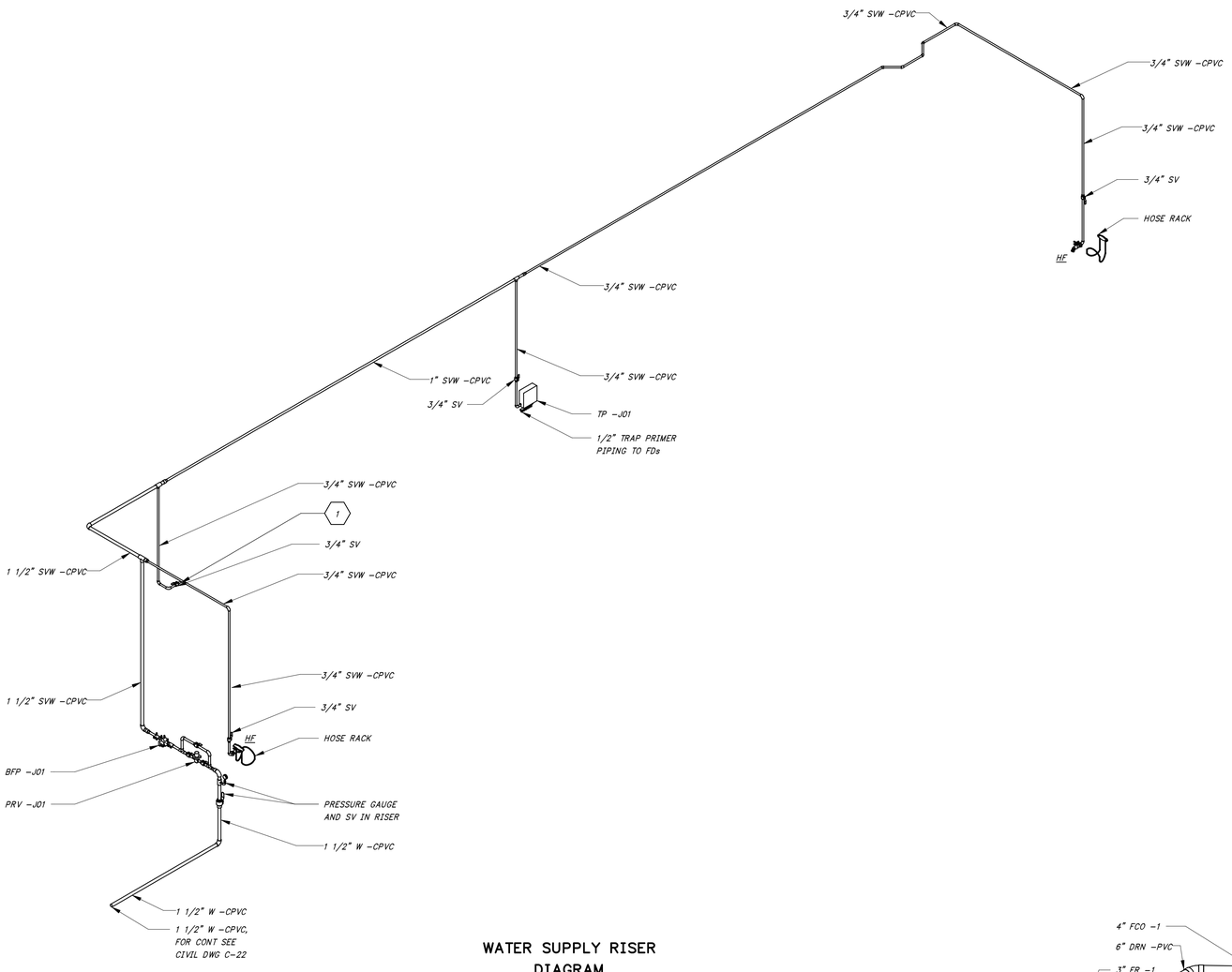
HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

PLUMBING
EFFLUENT PUMP STATION
FLOOR PLAN
CITY OF BENTONVILLE, ARKANSAS

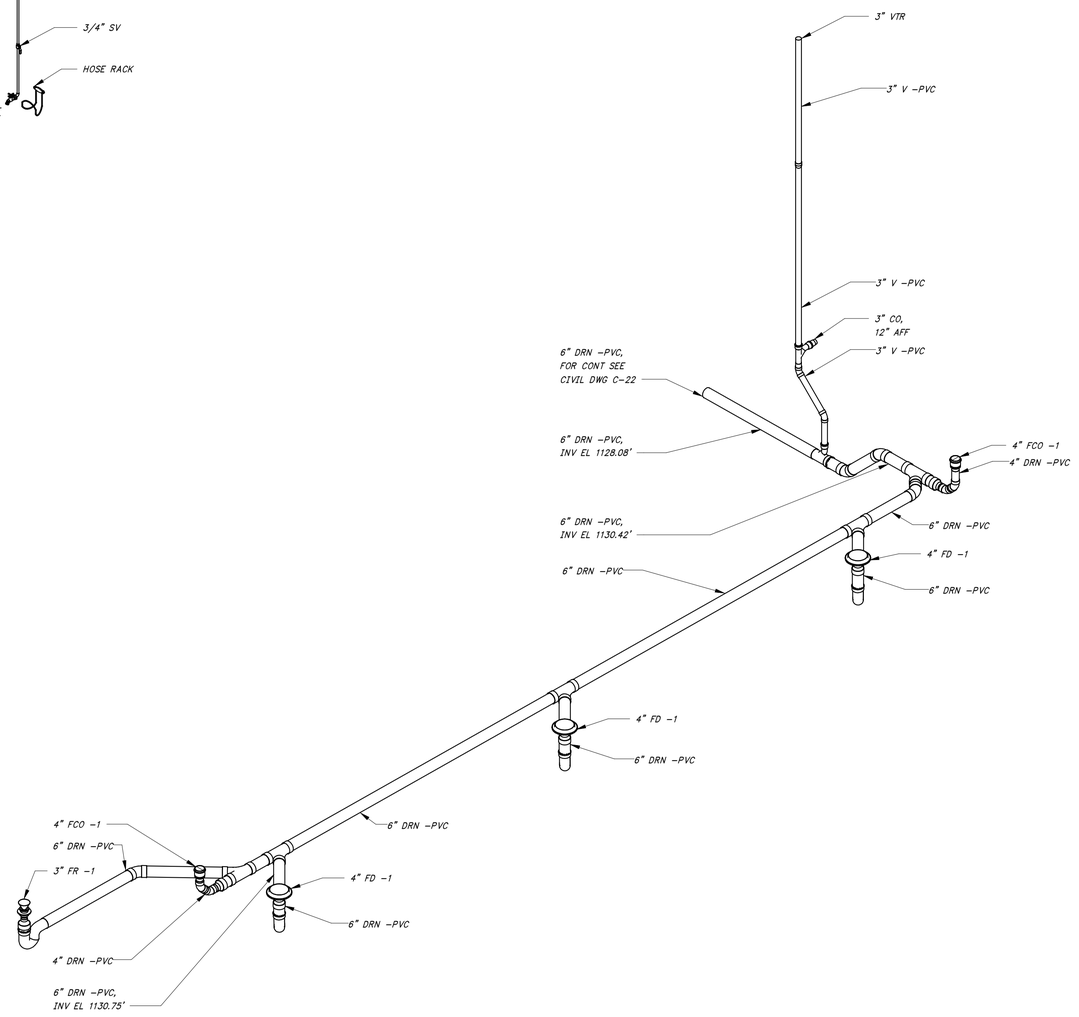
DATE:	MARCH 2025
SCALE:	1/4" = 1'-0"
DESIGNED BY:	SAM
DRAWN BY:	YBM
HWEI NO.:	2021037
FILENAME:	H-ELEC

SHEET NO.
HJ-2



WATER SUPPLY RISER DIAGRAM

N.T.S.



SANITARY RISER DIAGRAM

N.T.S.

GENERAL SHEET NOTES

1. SEE DRAWING H-2 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.

SHEET KEYNOTES

1. 3/4" SVW DN FOR SEAL WATER STATION.

BID DRAWINGS

MARCH 21, 2025

1"

ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17959
MICHAEL FRANCOM ROTH
3/21/2025

HAWKINS-WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

PLUMBING
EFFLUENT PUMP STATION ISOMETRICS

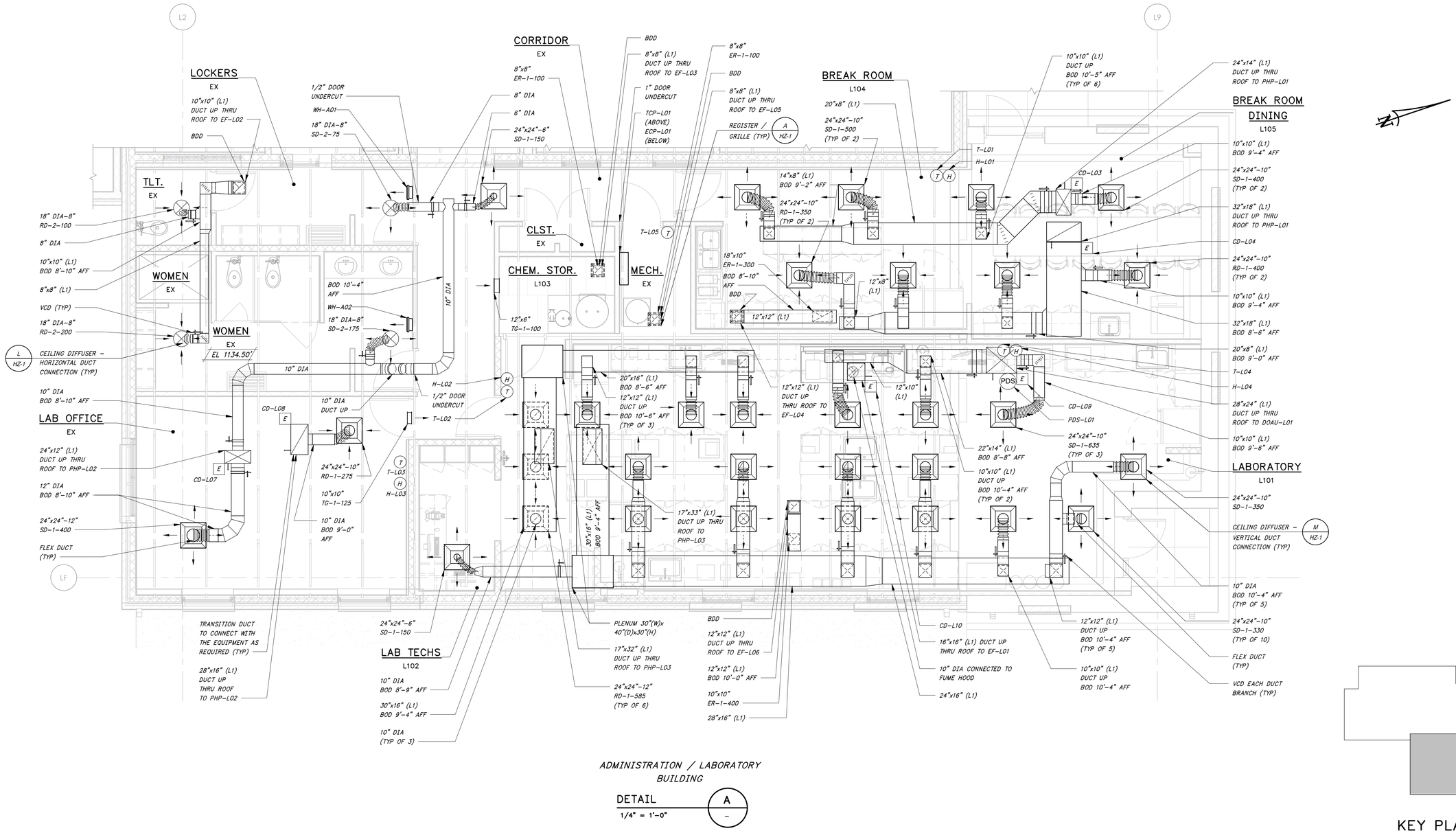
CITY OF BENTONVILLE, ARKANSAS

DATE:	MARCH 2025
SCALE:	AS SHOWN
DESIGNED BY:	SAM
DRAWN BY:	YBM
HWEI NO.:	2021037
FILENAME:	H-ELEC

SHEET NO.
HJ-3

GENERAL SHEET NOTES

1. SEE DRAWING H-1 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.
2. ALL ROUND SUPPLY AND RETURN DUCTWORK SHALL BE FACTORY-FABRICATED DOUBLE-WALL DUCTWORK ASSEMBLY WITH 1" THICK INSULATION, ALUMINUM INNER DUCT AND ALUMINUM OUTER JACKET. THE CONSTRUCTION SHALL CONSIST OF AN AIRTIGHT VAPOUR BARRIER, ALUMINUM OUTER PRESSURE SHELL (0.040" THICKNESS), A 1-INCH INSULATION LAYER AND AN ALUMINUM INNER LAYER (0.040" THICKNESS) WHICH COMPLETELY COVERS THE INSULATION. JOINTS FOR STRAIGHT DUCT RUNS AND FITTINGS SHALL BE FLANGED AND GASKETED.



ADMINISTRATION / LABORATORY BUILDING

DETAIL A
1/4" = 1'-0"

KEY PLAN
NTS

BID DRAWINGS
MARCH 21, 2025

4' 2' 0' 4' 8'
1/4" = 1'-0"

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17959
MICHAEL FRANCON ROTH
3/21/2025

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

HVAC
ADMINISTRATION / LABORATORY BUILDING
FLOOR PLAN

CITY OF BENTONVILLE, ARKANSAS

DATE: MARCH 2025
SCALE: 1/4" = 1'-0"
DESIGNED BY: AK
DRAWN BY: CP
HWEI NO.: 2021037
FILENAME: H-OPS ADMIN

SHEET NO.
HL-1

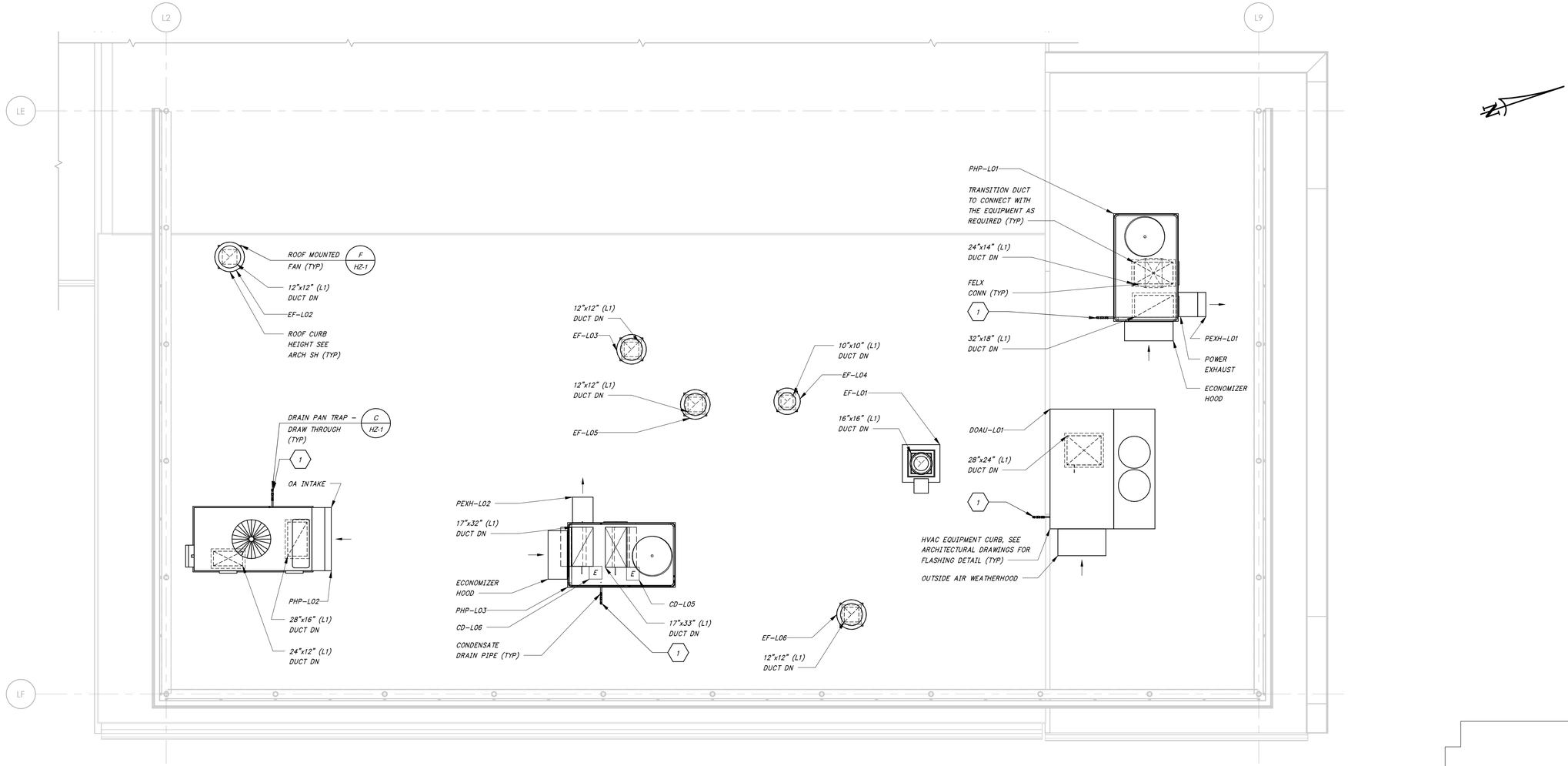
Autodesk Docs://410144 - Bentonville Water Resource Recovery Facility Improvements/H-OPS ADMIN LAB BLDG.rvt
2/12/2025 4:52:39 PM / CP / HVAC

GENERAL SHEET NOTES

1. SEE DRAWING H-1 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.

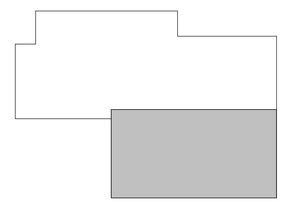
SHEET KEYNOTES

1. CONDENSATE WATER DIRECTED ON THE ROOF



ADMINISTRATION / LABORATORY BUILDING

DETAIL B
1/4" = 1'-0"



KEY PLAN
NTS

BID DRAWINGS
MARCH 21, 2025

4' 2' 0' 4' 8'
1/4" = 1'-0"

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

DATE	REVISION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17959
MICHAEL FRANCOM ROTH
3/21/2025

HAWKINS-WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

HVAC
ADMINISTRATION / LABORATORY BUILDING
ROOF PLAN
CITY OF BENTONVILLE, ARKANSAS

DATE: MARCH 2025
SCALE: 1/4" = 1'-0"
DESIGNED BY: AK
DRAWN BY: CP
HWEI NO.: 2021037
FILENAME: H-OPS ADMIN

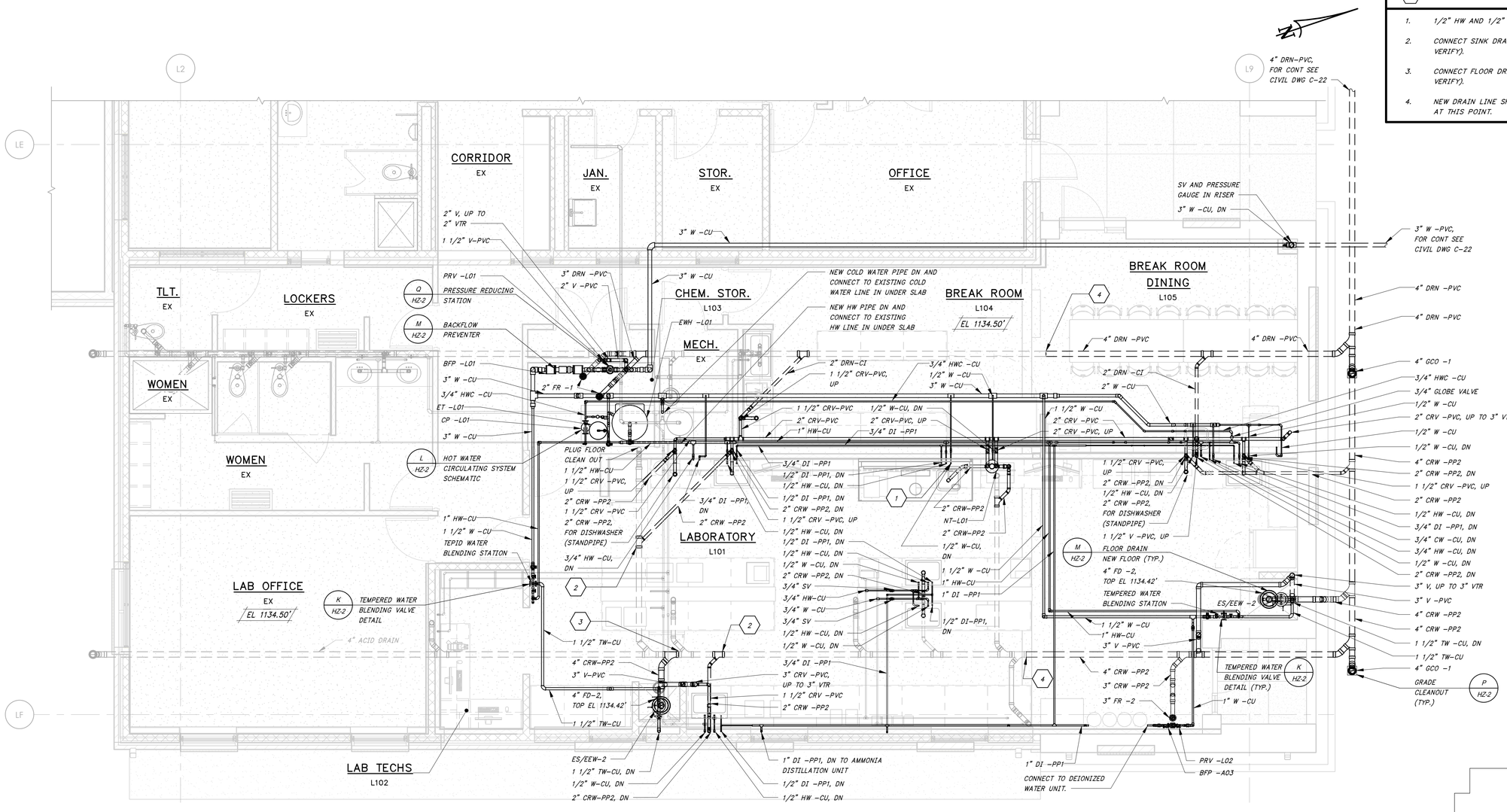
SHEET NO.
HL-2

GENERAL SHEET NOTES

1. SEE DRAWING H–2 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.
2. CORE DRILL ALL FLOOR PENETRATIONS THROUGH EXISTING FLOOR SLAB FOR NEW PIPING, COORDINATE LOCATION WITH STRUCTURAL.

SHEET KEYNOTES

1. 1/2" HW AND 1/2" W DN, TO FUME HOOD.
2. CONNECT SINK DRAIN TO EXISTING DRAIN LINE (FIELD VERIFY).
3. CONNECT FLOOR DRAIN TO EXISTING DRAIN LINE (FIELD VERIFY).
4. NEW DRAIN LINE SHALL CONNECT TO THE EXISTING LINE AT THIS POINT.



ADMINISTRATION / LABORATORY BUILDING

DETAIL C
1/4" = 1'–0"

ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

DATE

REVISION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17959
MICHAEL FRANCON ROTH
3/21/2025

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

PLUMBING
ADMINISTRATION / LABORATORY BUILDING
FLOOR PLAN
CITY OF BENTONVILLE, ARKANSAS

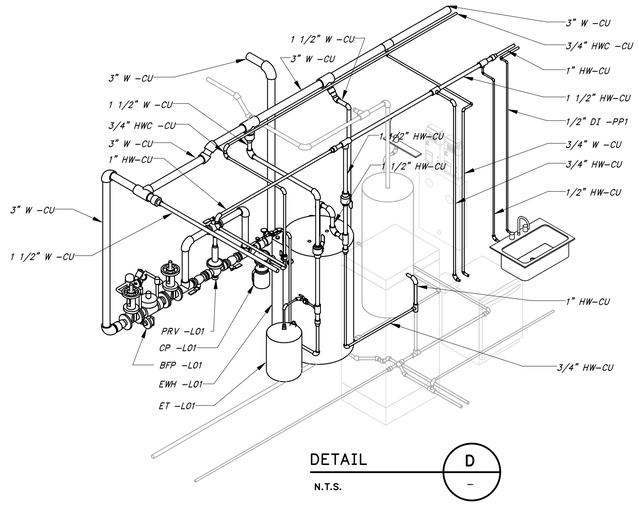
KEY PLAN
NTS

BID DRAWINGS
MARCH 21, 2025

4' 2' 0' 4' 8'
1/4" = 1'-0"

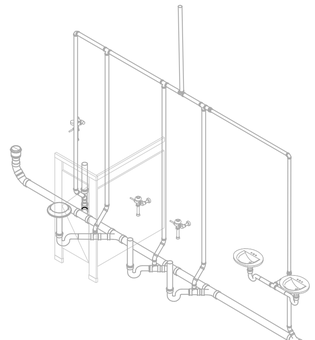
DATE: MARCH 2025
SCALE: 1/4" = 1'–0"
DESIGNED BY: SAM
DRAWN BY: AJP
HWEI NO.: 2021037
FILENAME: H–OPS ADMIN

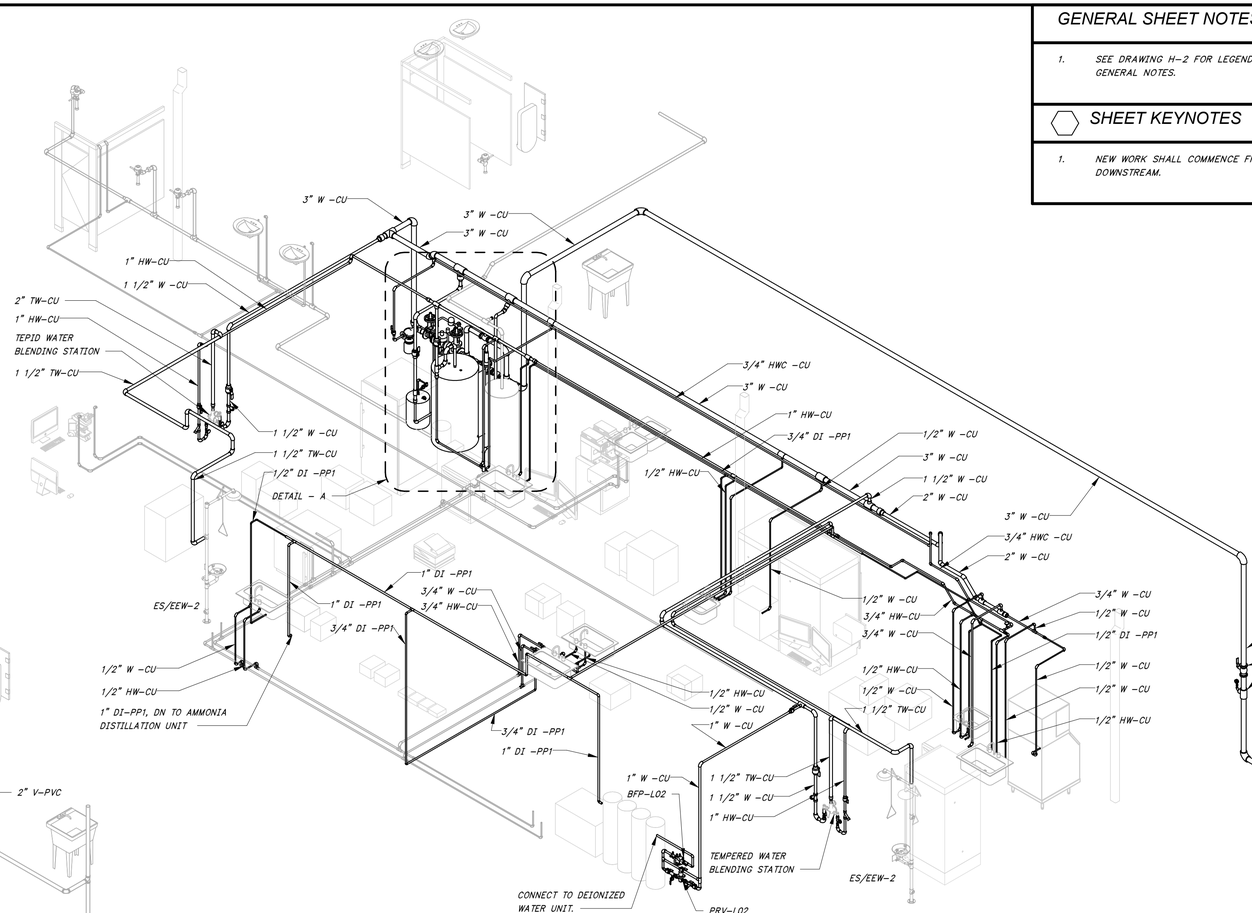
SHEET NO.
HL–3



DETAIL D

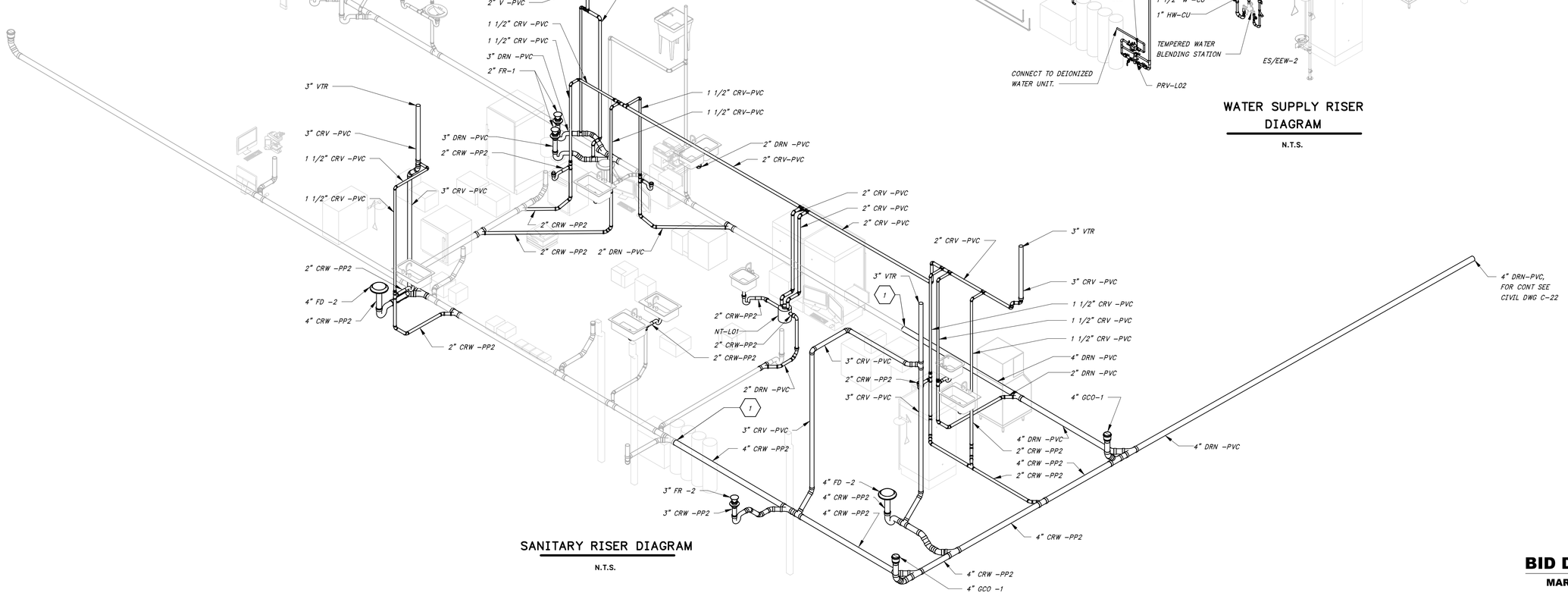
N.T.S.





WATER SUPPLY RISER DIAGRAM

N.T.S.



SANITARY RISER DIAGRAM

N.T.S.

GENERAL SHEET NOTES

1. SEE DRAWING H-2 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.

SHEET KEYNOTES

1. NEW WORK SHALL COMMENCE FROM THIS POINT DOWNSTREAM.

1"

ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17959
MICHAEL FRANCOM ROTH
3/21/2025

HAWKINS WEIR ENGINEERS, INC.

BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

PLUMBING
ADMINISTRATION / LABORATORY BUILDING
ISOMETRICS

CITY OF BENTONVILLE, ARKANSAS

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: SAM
DRAWN BY: AJP
HWEI NO.: 2021037
FILENAME:

SHEET NO.
HL-4

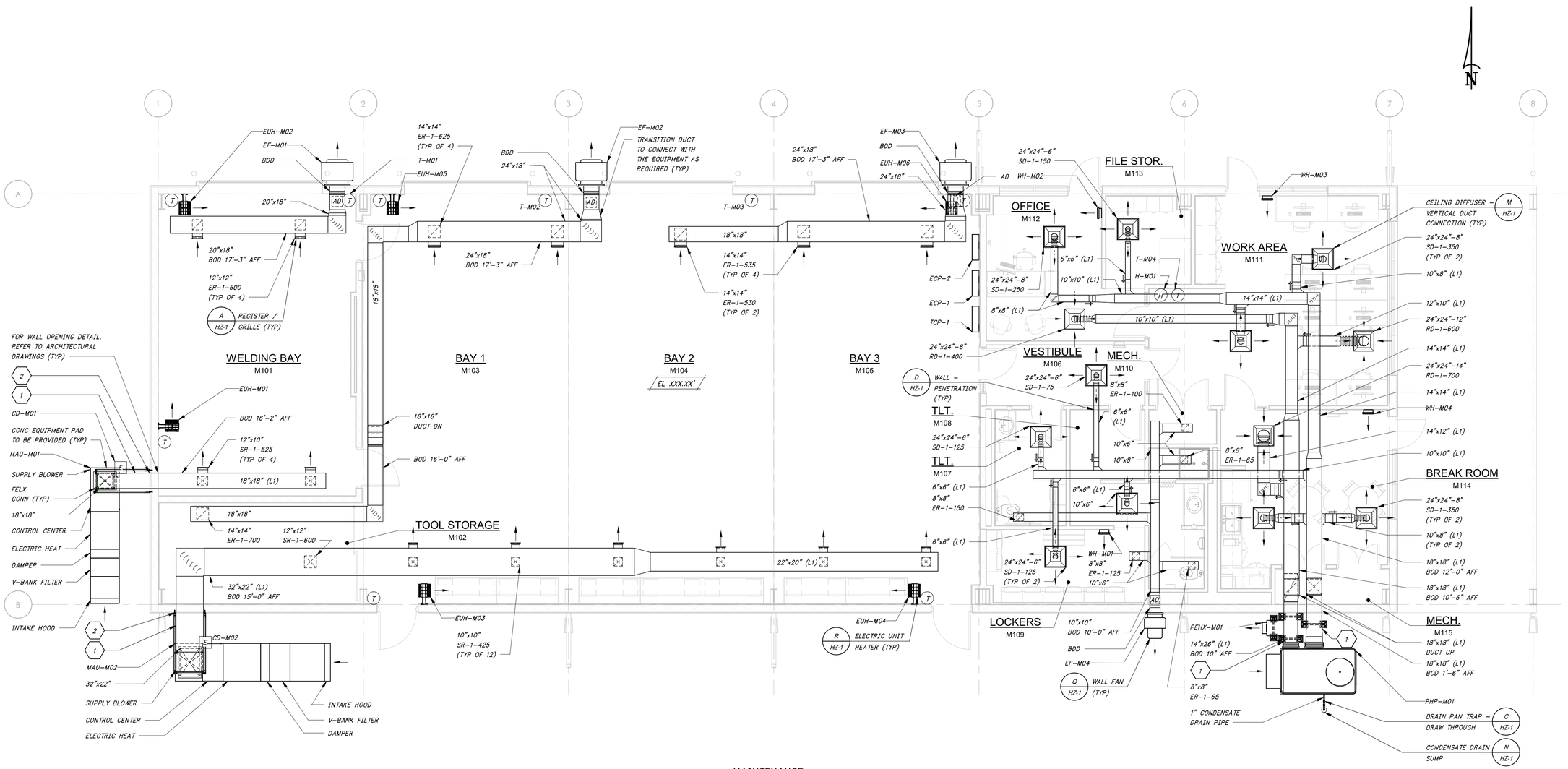
BID DRAWINGS
MARCH 21, 2025

GENERAL SHEET NOTES

1. SEE DRAWING H-1 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.

SHEET KEYNOTES

1. EXPOSED DUCT SHALL BE CONSTRUCTED FACTORY-INSULATED, DOUBLE-WALLED DUCT. REFER TO SPECIFICATION 15500 FOR ADDITIONAL DETAIL.
2. SEE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR WALL PENETRATION DETAILS.



MAINTENANCE BUILDING

DETAIL A / 3/16" = 1'-0"

BID DRAWINGS

MARCH 21, 2025

6' 4' 2' 0' 5' 10'

3/16" = 1'-0"

ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER MICHAEL FRANCON ROTH No. 17959 3/21/2025

HAWKINS WEIR ENGINEERS, INC.

BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

HVAC
MAINTENANCE BUILDING
FLOOR PLAN

CITY OF BENTONVILLE, ARKANSAS

DATE: MARCH 2025
SCALE: 3/16" = 1'-0"
DESIGNED BY: AK
DRAWN BY: CP
HWEI NO.: 2021037
FILENAME: H-MAIN

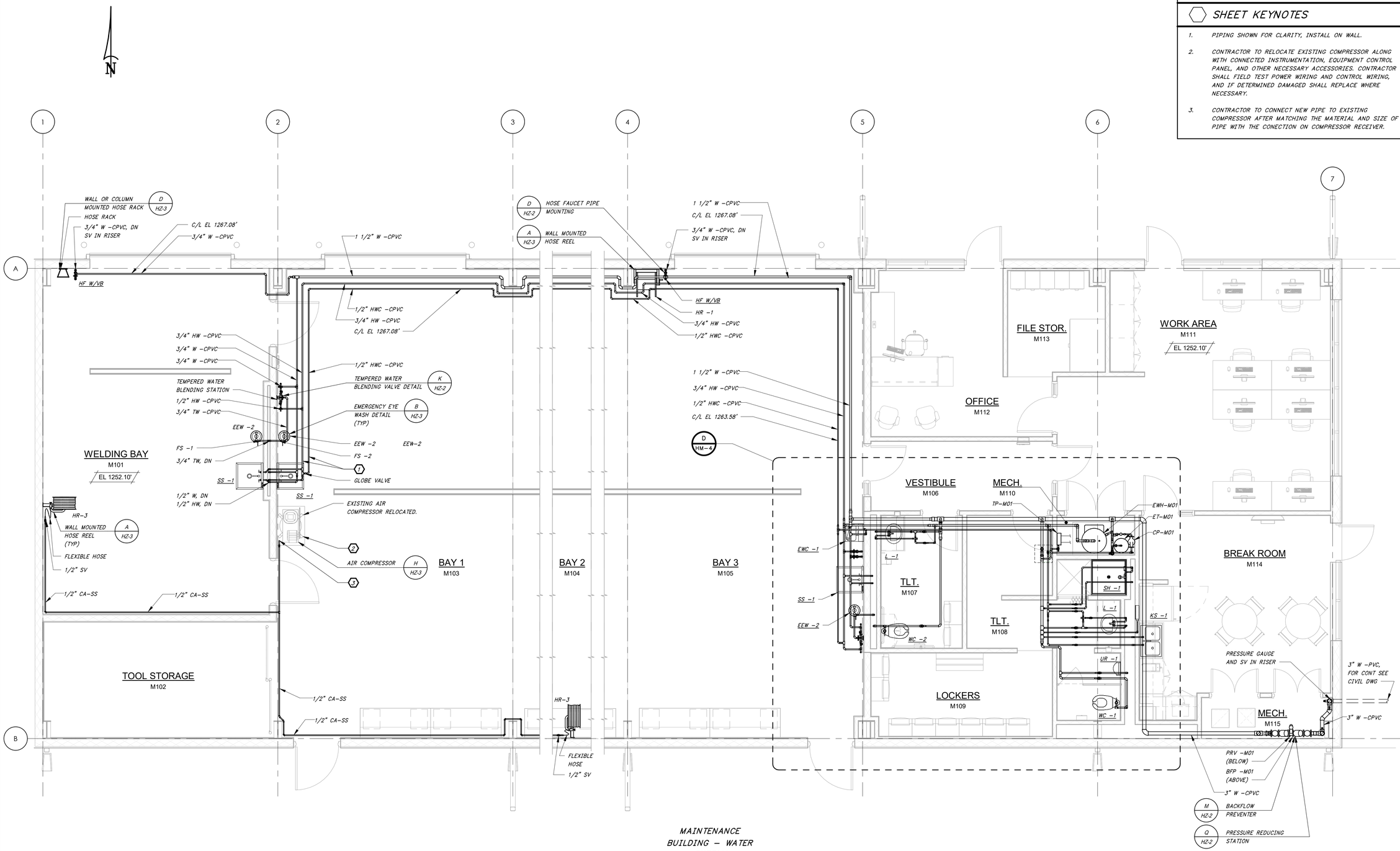
SHEET NO.
HM-1

GENERAL SHEET NOTES

1. SEE DRAWING H-2 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.

SHEET KEYNOTES

1. PIPING SHOWN FOR CLARITY, INSTALL ON WALL.
2. CONTRACTOR TO RELOCATE EXISTING COMPRESSOR ALONG WITH CONNECTED INSTRUMENTATION, EQUIPMENT CONTROL PANEL, AND OTHER NECESSARY ACCESSORIES. CONTRACTOR SHALL FIELD TEST POWER WIRING AND CONTROL WIRING, AND IF DETERMINED DAMAGED SHALL REPLACE WHERE NECESSARY.
3. CONTRACTOR TO CONNECT NEW PIPE TO EXISTING COMPRESSOR AFTER MATCHING THE MATERIAL AND SIZE OF PIPE WITH THE CONECTION ON COMPRESSOR RECEIVER.



MAINTENANCE BUILDING - WATER SUPPLY

DETAIL B / 1/4" = 1'-0"

BID DRAWINGS
MARCH 21, 2025

4' 2' 0' 4' 8'
1/4" = 1'-0"

ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17959
MICHAEL FRANCOM ROTH
3/21/2025

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

PLUMBING
MAINTENANCE BUILDING
WATER SUPPLY FLOOR PLAN
CITY OF BENTONVILLE, ARKANSAS

DATE: MARCH 2025
SCALE: 1/4" = 1'-0"
DESIGNED BY: SAM
DRAWN BY: AJP
HWEI NO.: 2021037
FILENAME: H-MAIN

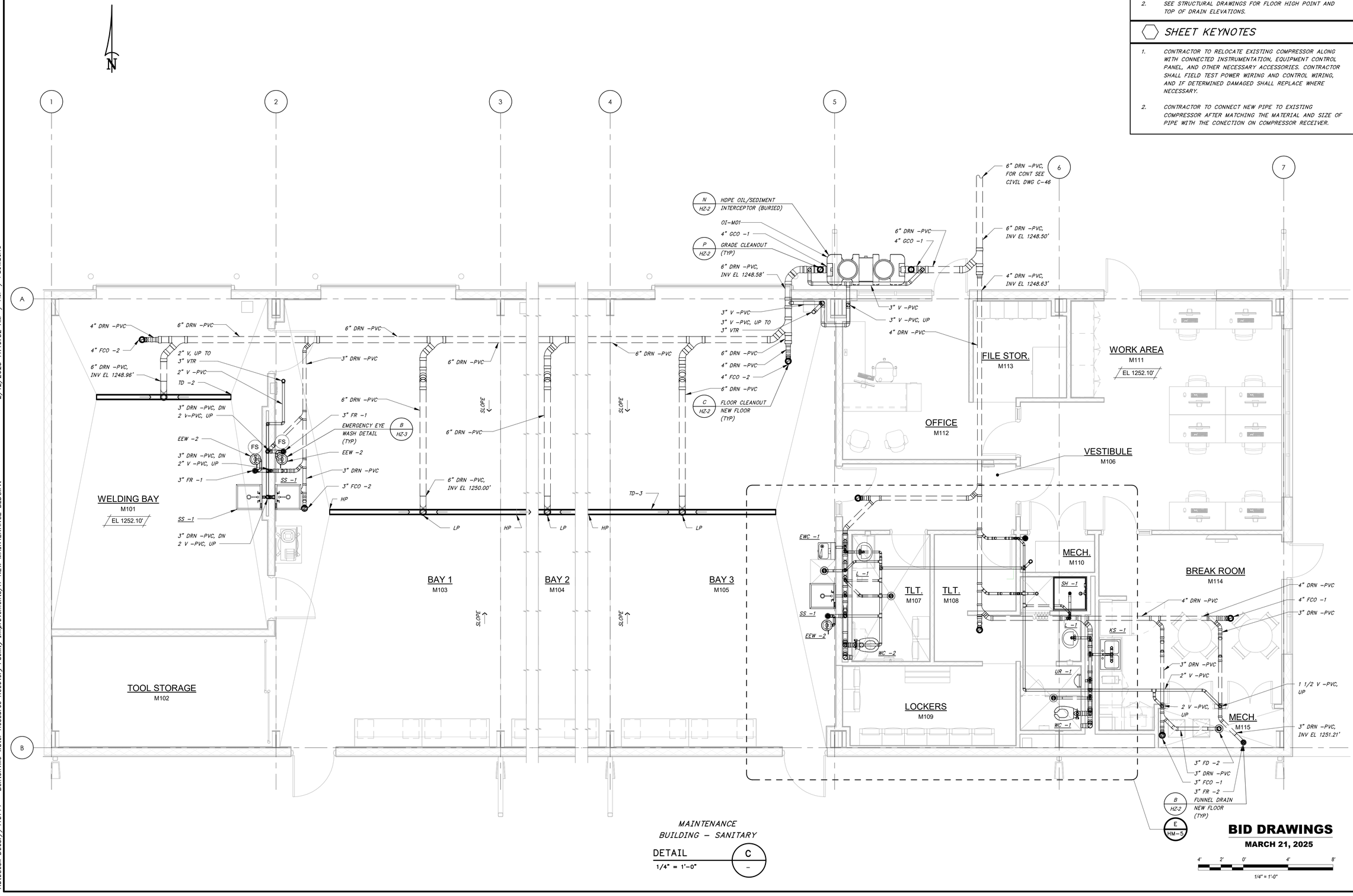
SHEET NO.
HM-2

GENERAL SHEET NOTES

1. SEE DRAWING H-2 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.
2. SEE STRUCTURAL DRAWINGS FOR FLOOR HIGH POINT AND TOP OF DRAIN ELEVATIONS.

SHEET KEYNOTES

1. CONTRACTOR TO RELOCATE EXISTING COMPRESSOR ALONG WITH CONNECTED INSTRUMENTATION, EQUIPMENT CONTROL PANEL, AND OTHER NECESSARY ACCESSORIES. CONTRACTOR SHALL FIELD TEST POWER WIRING AND CONTROL WIRING, AND IF DETERMINED DAMAGED SHALL REPLACE WHERE NECESSARY.
2. CONTRACTOR TO CONNECT NEW PIPE TO EXISTING COMPRESSOR AFTER MATCHING THE MATERIAL AND SIZE OF PIPE WITH THE CONECTION ON COMPRESSOR RECEIVER.



MAINTENANCE BUILDING – SANITARY

DETAIL C / 1/4" = 1'–0"

BID DRAWINGS
MARCH 21, 2023

4' 2' 0' 4' 8'
1/4" = 1'–0"

ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

DATE	REVISION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17959
MICHAEL FRANCON ROTH
3/21/2025

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

PLUMBING
MAINTENANCE BUILDING
SANITARY FLOOR PLAN

CITY OF BENTONVILLE, ARKANSAS

DATE: MARCH 2025
SCALE: 1/4" = 1'–0"
DESIGNED BY: SAM
DRAWN BY: AJP
HWEI NO.: 2021037
FILENAME: H–MAIN

SHEET NO.
HM–3

2/12/2025 11:19:32 AM / AJP / PLUMBING

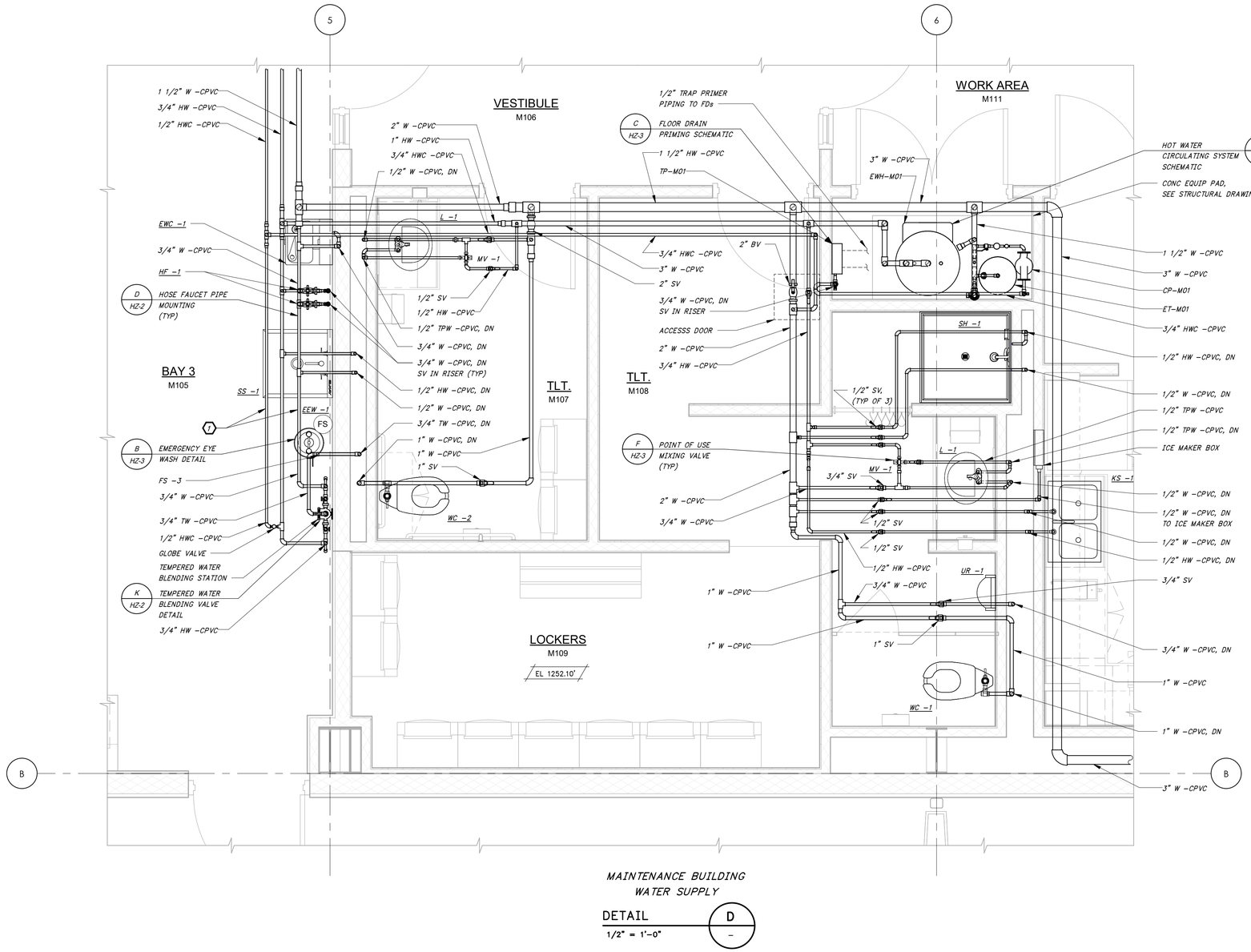
Autodesk Docs://4101144 - Bentonville Water Resource Recovery Facility Improvements/H-NEW MAINTENANCE BLDG.rvt

GENERAL SHEET NOTES

1. SEE DRAWING H-2 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.

SHEET KEYNOTES

1. PIPING SHOWN FOR CLARITY, INSTALL ON WALL.



MAINTENANCE BUILDING
WATER SUPPLY

DETAIL D
1/2" = 1'-0"

BID DRAWINGS
MARCH 21, 2025

12" 6" 0' 1' 2' 3' 4' 5'
1/2" = 1'-0"

1"
ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

DATE	REVISION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
MICHAEL FRANCOM ROTH
No. 17959
3/21/2025

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

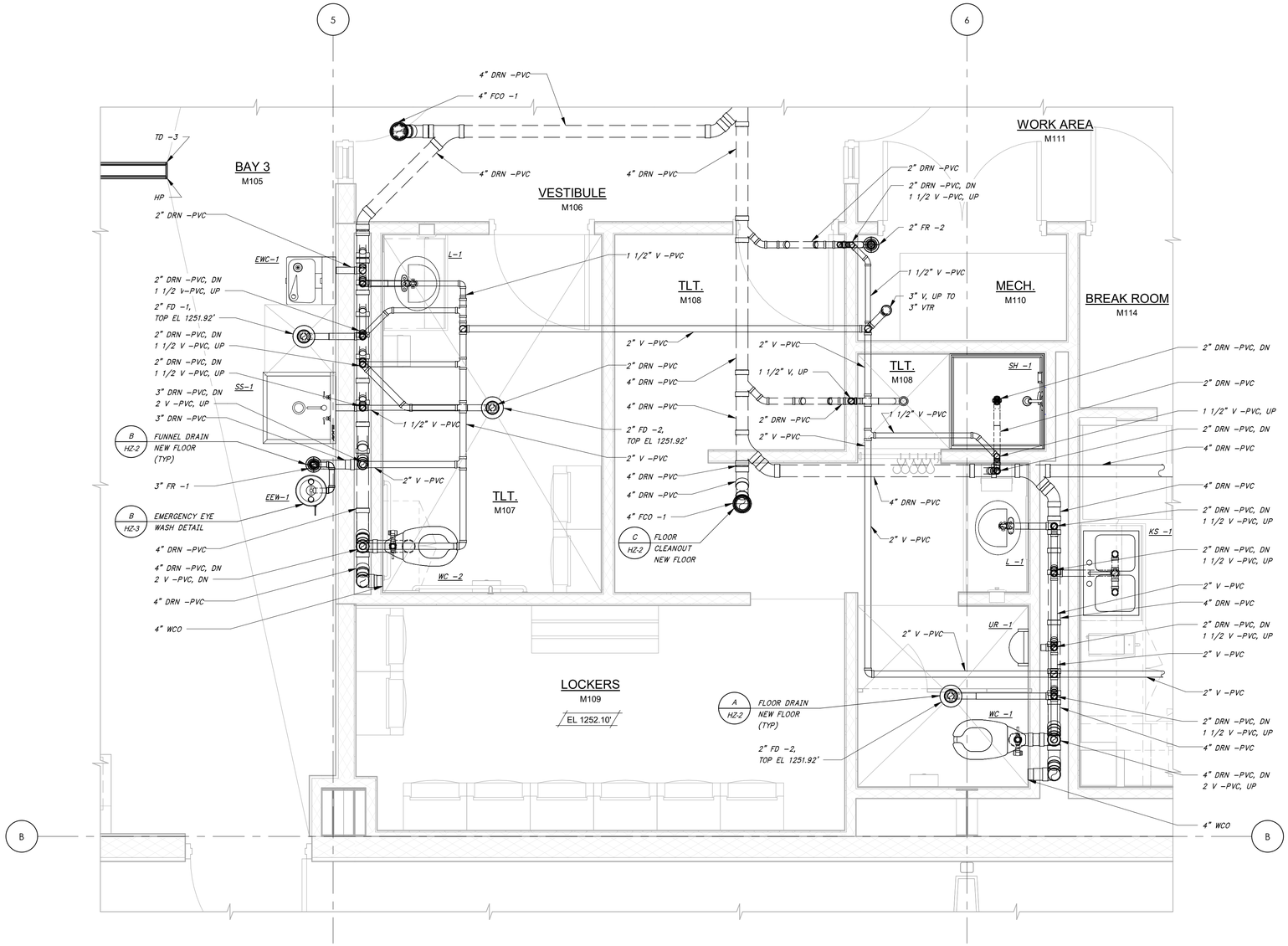
PLUMBING
MAINTENANCE BUILDING
WATER SUPPLY ENLARGED PLAN
CITY OF BENTONVILLE, ARKANSAS

DATE: MARCH 2025
SCALE: 1/2" = 1'-0"
DESIGNED BY: SAM
DRAWN BY: AJP
HWEI NO.: 2021037
FILENAME: H-MAIN

SHEET NO.
HM-4

GENERAL SHEET NOTES

1. SEE DRAWING H-2 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.



MAINTENANCE BUILDING
SANITARY

DETAIL E
1/2" = 1'-0"

BID DRAWINGS
MARCH 21, 2025

12" 6" 0' 1' 2' 3' 4' 5'
1/2" = 1'-0"

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17959
MICHAEL FRANCOM ROTH
3/21/2025

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

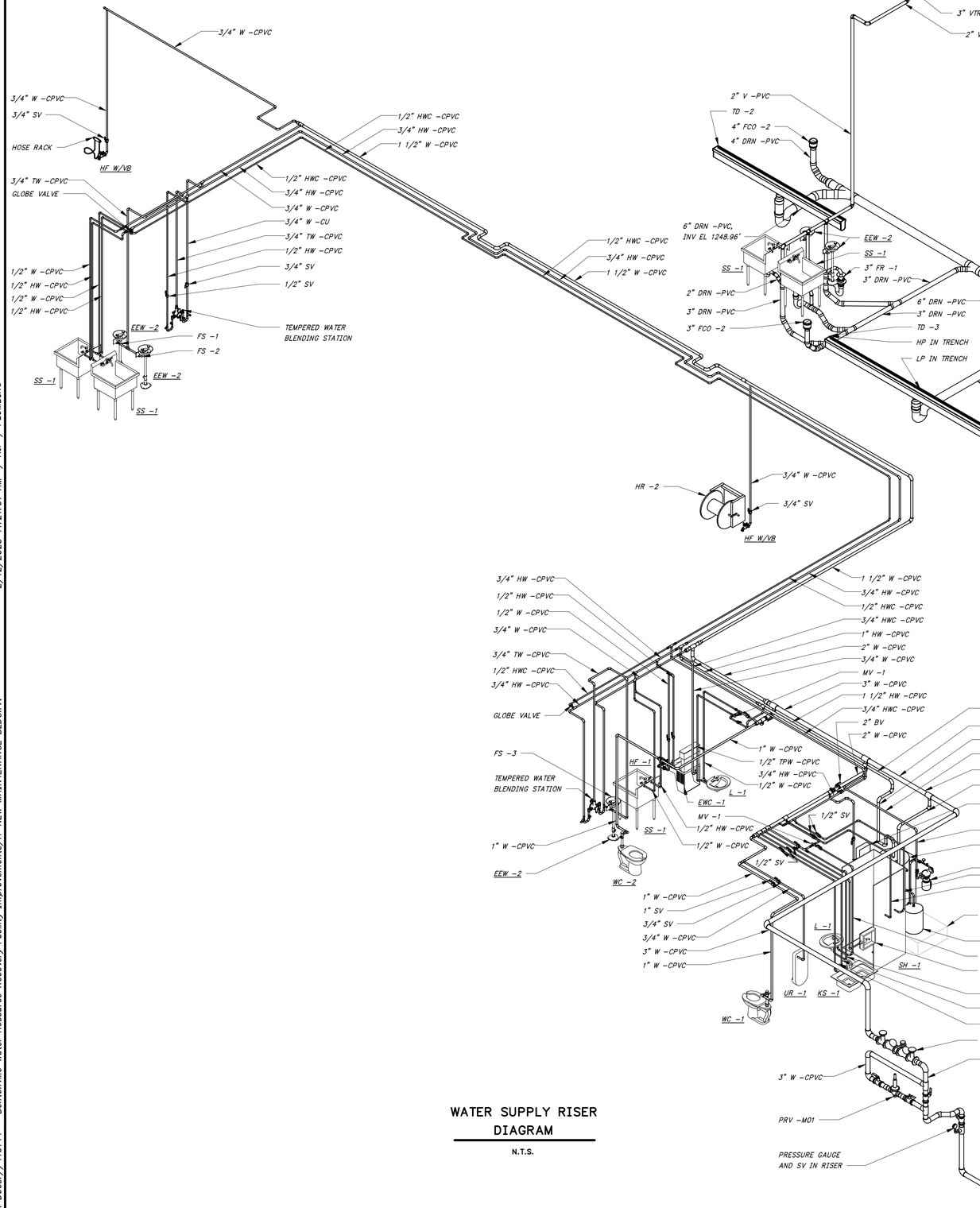
PLUMBING
MAINTENANCE BUILDING
SANITARY ENLARGED PLAN
CITY OF BENTONVILLE, ARKANSAS

DATE:	MARCH 2025
SCALE:	1/2" = 1'-0"
DESIGNED BY:	SAM
DRAWN BY:	AJP
HWEI NO.:	2021037
FILENAME:	H-MAIN

SHEET NO.
HM-5

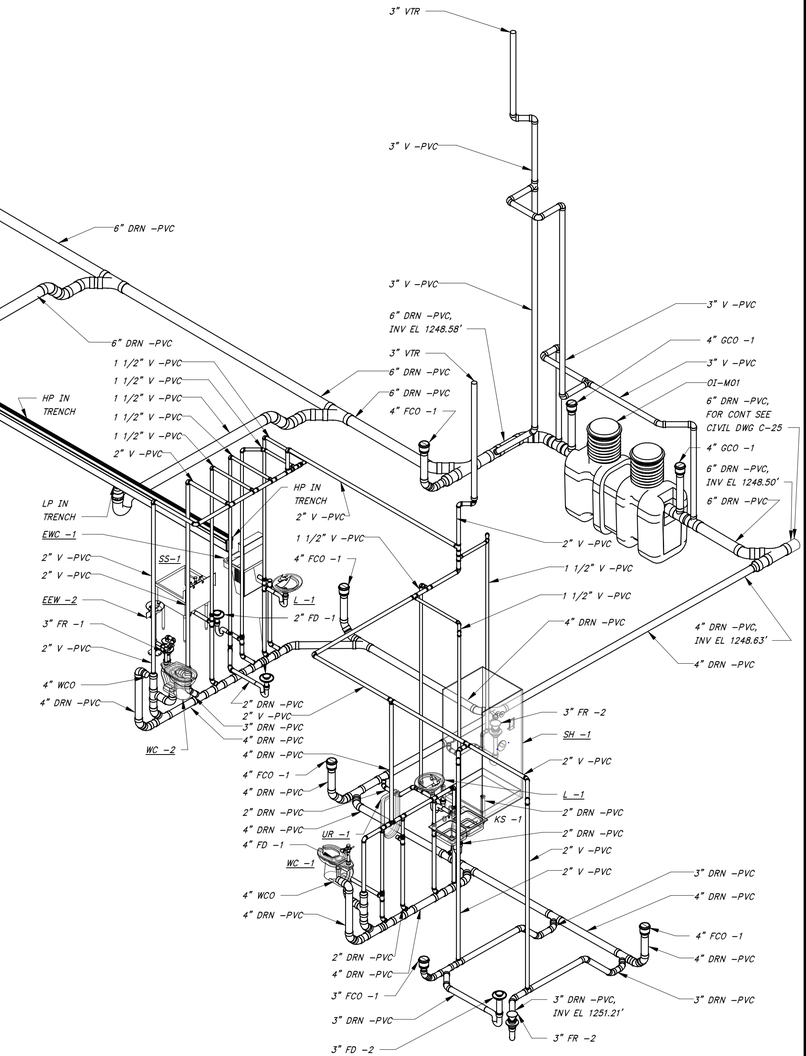
GENERAL SHEET NOTES

1. SEE DRAWING H-2 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.



WATER SUPPLY RISER DIAGRAM

N.T.S.



SANITARY RISER DIAGRAM

N.T.S.

BID DRAWINGS

MARCH 21, 2025

ONE INCH AT FULL SIZE
IF NOT ONE INCH SCALE ACCORDINGLY

DATE	REVISION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17959
MICHAEL FRANCOM ROTH
3/21/2025

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

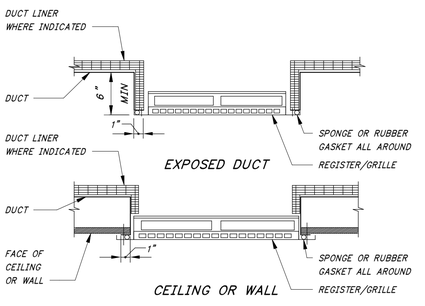
CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

PLUMBING
MAINTENANCE BUILDING
ISOMETRICS

CITY OF BENTONVILLE, ARKANSAS

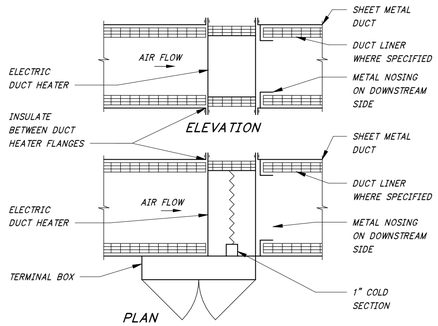
DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: SAM
DRAWN BY: AJP
HWEI NO.: 2021037
FILENAME: H-MAIN

SHEET NO.
HM-6



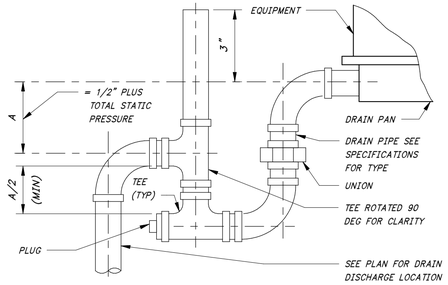
REGISTER / GRILLE — A

N.T.S.



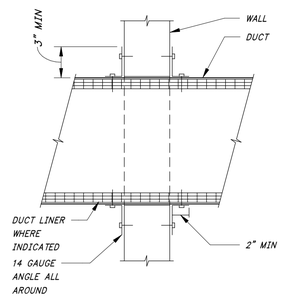
ELECTRIC DUCT HEATER — B

N.T.S.



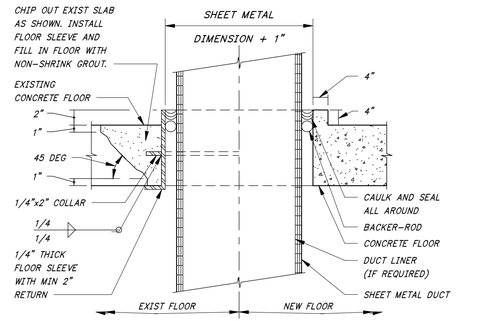
DRAIN PAN TRAP – DRAW THROUGH — C

N.T.S.



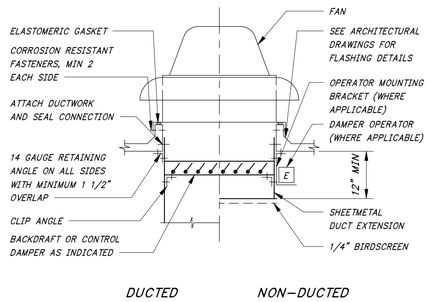
WALL PENETRATION – INTERIOR — D

N.T.S.



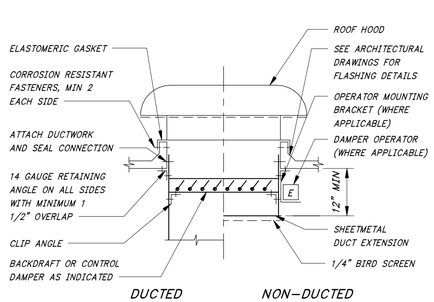
FLOOR PENETRATION — E

N.T.S.



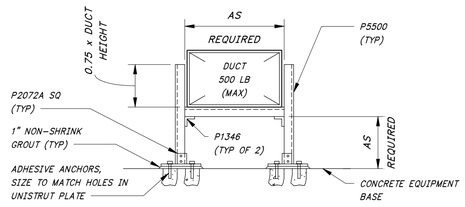
ROOF MOUNTED FAN — F

N.T.S.



ROOF HOOD — G

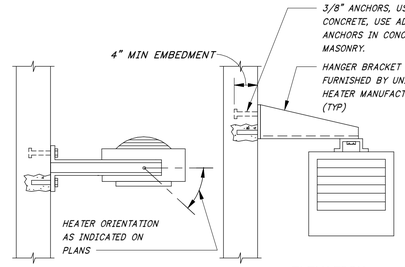
N.T.S.



NOTES:
1. DISTANCE BETWEEN SUPPORTS APPROXIMATELY 10 FEET OR AS INDICATED ON PLANS.
2. USE HVAC DUCT CONSTRUCTION STANDARDS (SMACNA) TO DETERMINE WEIGHT OF DUCT.
3. PART NUMBERS USED REFLECT UNISTRUT PRODUCTS. USE UNISTRUT OR EQUAL PRODUCTS.
4. UNISTRUT MATERIAL TO MATCH DUCT MATERIAL.

DUCT SUPPORT — H

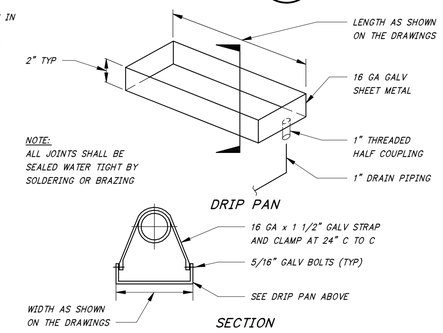
N.T.S.



NOTES:
1. MASONRY WALLS SHALL BE SOLIDLY GROUTED 4" MIN, ALL SIDES OF ANCHORS.
2. UNIT HEATER BOTTOM ELEVATION SHALL BE 8 FT ABOVE FINISHED FLOOR UNLESS OTHERWISE INDICATED.

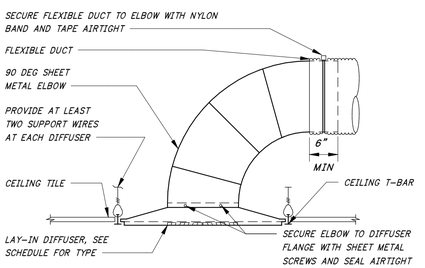
ELECTRIC UNIT HEATER SUPPORT — J

N.T.S.



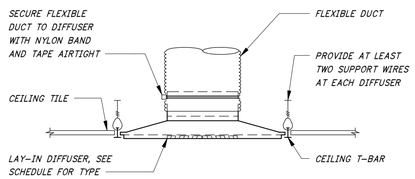
DRIP SHIELD — K

N.T.S.



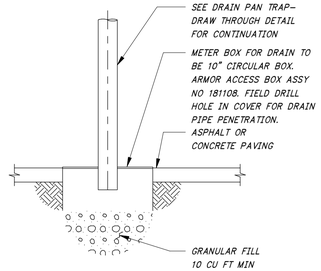
CEILING DIFFUSER – HORIZONTAL DUCT CONNECTION — L

N.T.S.



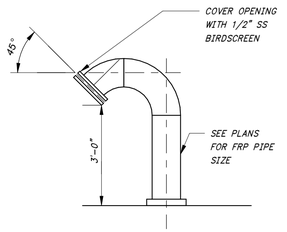
CEILING DIFFUSER – VERTICAL DUCT CONNECTION — M

N.T.S.



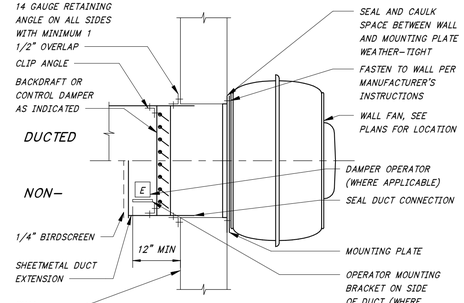
CONDENSATE DRAIN SUMP — N

N.T.S.



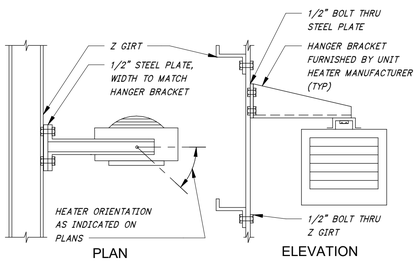
GOOSENECK INTAKE/ EXHAUST — P

N.T.S.



WALL FAN — Q

N.T.S.



ELECTRIC UNIT HEATER SUPPORT — R

N.T.S.

BID DRAWINGS
MARCH 21, 2025

1" ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

DATE	REVISION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
MICHAEL FRANCON ROTH
No. 17959
3/21/2025

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

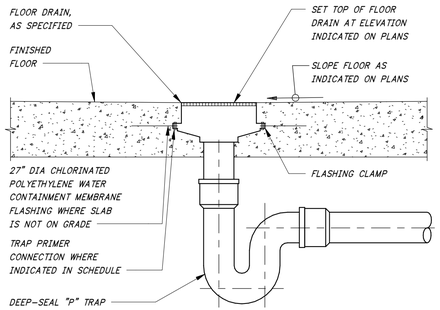
CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

HVAC DETAILS

CITY OF BENTONVILLE, ARKANSAS

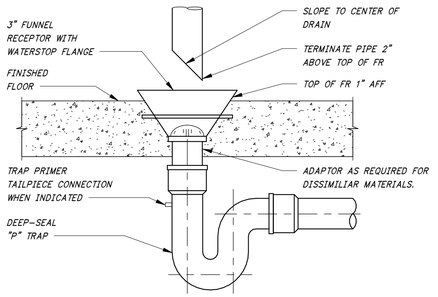
DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: AK
DRAWN BY: CP
HWEI NO.: 2021037
FILENAME: H-GENERAL

SHEET NO.
HZ-1



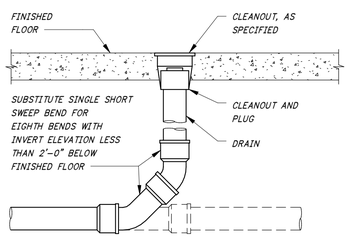
FLOOR DRAIN NEW FLOOR — A

N.T.S.



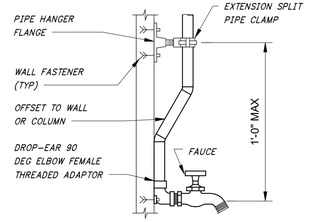
FUNNEL DRAIN NEW FLOOR — B

N.T.S.



FLOOR CLEANOUT NEW FLOOR — C

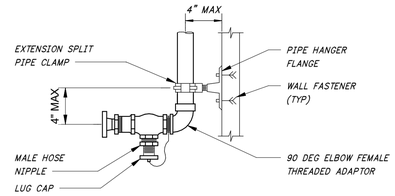
N.T.S.



NOTES:
1. PROVIDE VACUUM BREAKER ON HOSE FAUCETS WHERE INDICATED ON THE PLANS.
2. SEE PLANS AND SPECIFICATIONS FOR PIPE DIAMETERS.

HOSE FAUCET PIPE MOUNTING — D

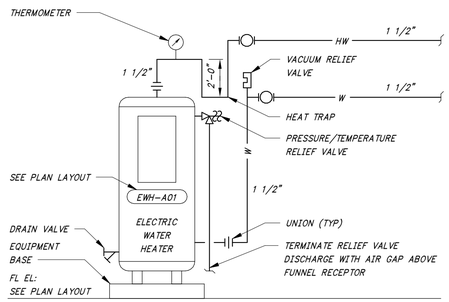
N.T.S.



NOTES:
1. SEE PLANS AND SPECIFICATIONS FOR PIPE DIAMETERS.
2. LUG CAPS AND CHAINS SHALL BE PROVIDED ON HOSE VALVES LOCATED OUTDOORS.

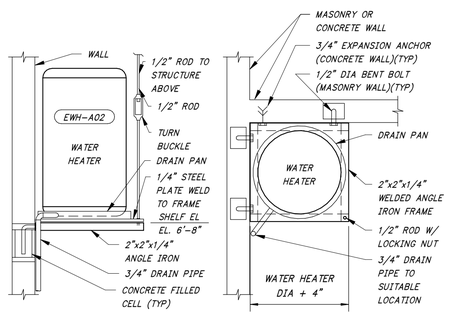
HOSE VALVE PIPE MOUNTING — E

N.T.S.



ELECTRIC WATER HEATER — F

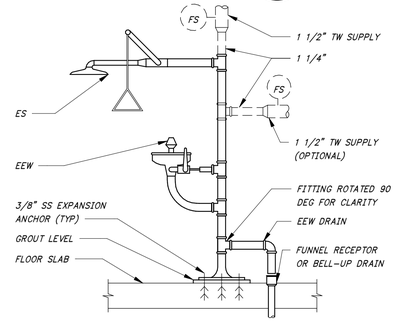
N.T.S.



ELEVATION PLAN

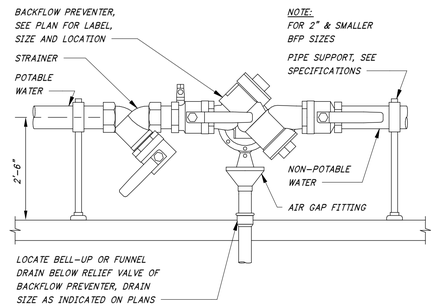
WATER HEATER SUPPORT — G

N.T.S.



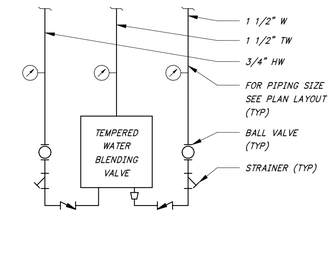
EMERGENCY SHOWER AND EYE WASH — H

N.T.S.



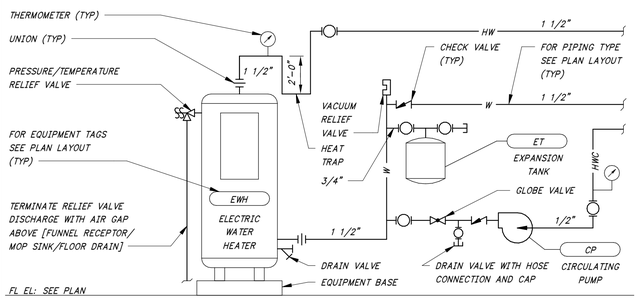
BACKFLOW PREVENTER — J

N.T.S.



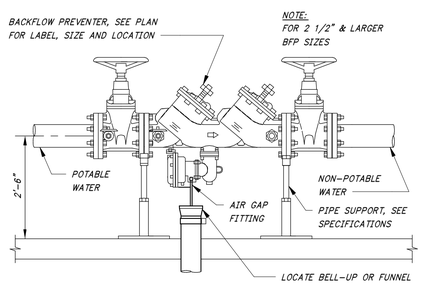
TEMPERED WATER BLENDING VALVE DETAIL — K

N.T.S.



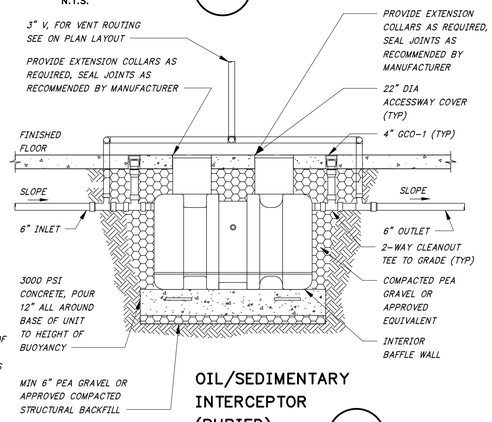
HOT WATER CIRCULATING SYSTEM SCHEMATIC — L

N.T.S.



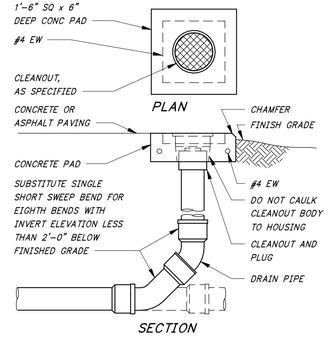
BACKFLOW PREVENTER — M

N.T.S.



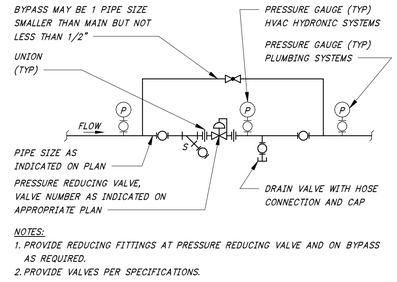
OIL/SEDIMENTARY INTERCEPTOR (BURIED) — N

N.T.S.



GRADE CLEANOUT — P

N.T.S.



NOTES:
1. PROVIDE REDUCING FITTINGS AT PRESSURE REDUCING VALVE AND ON BYPASS AS REQUIRED.
2. PROVIDE VALVES PER SPECIFICATIONS.

PRESSURE REDUCING STATION — Q

N.T.S.

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH
AT FULL SIZE
IF NOT ONE INCH
SCALE ACCORDINGLY

REVISION	DATE

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17959
MICHAEL FRANCON ROTH
3/21/2025

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

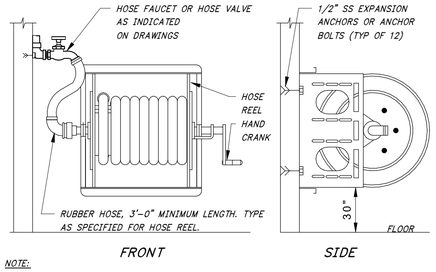
CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

PLUMBING DETAILS

CITY OF BENTONVILLE, ARKANSAS

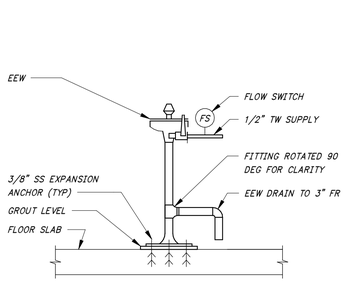
DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: SAM
DRAWN BY: AJP
HWEI NO.: 2021037
FILENAME: H-GENERAL

SHEET NO.
HZ-2

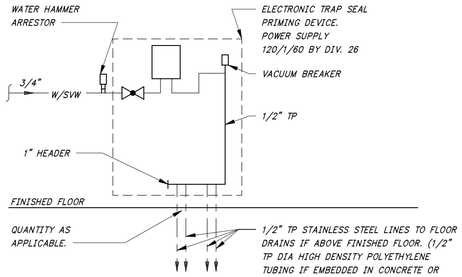


NOTE:
THE EXACT ORIENTATION OF WATER SUPPLY PIPE AND HOSE VALVE SHOULD BE AS REQUIRED TO SUIT THE SPECIFIC INSTALLATION.

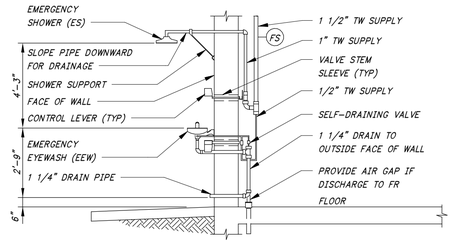
WALL MOUNTED HOSE REEL — A
N.T.S.



EMERGENCY EYE WASH DETAIL — B
N.T.S.

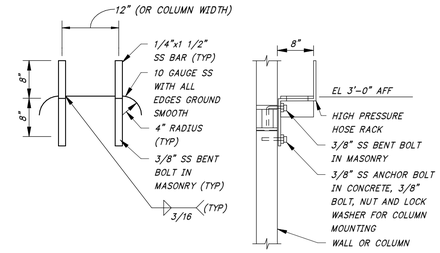


FLOOR DRAIN PRIMING SCHEMATIC — C
N.T.S.

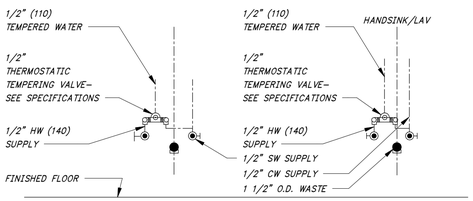


NOTES:
1. ES CONTROL LEVER SHALL BE LOCATED 1'-0" TO THE RIGHT OF ES CENTERLINE, MAX OF 5'-6" ABOVE GRADE. EEW CONTROL LEVER AND WATER SUPPLY SUPPLY LINE SHALL BE LOCATED 4 3/4" TO THE RIGHT OF EEW CENTERLINE, EEW CONTROL LEVER CONTROL LEVER SHALL BE LOCATED 5 5/8" BELOW WATER SUPPLY LINE. SUPPLY PIPING SHALL NOT INTERFERE WITH CONTROL LEVER OPERATION.
2. ANNULAR SPACE IN VALVE STEM SLEEVES SHALL BE LOOSELY PACKED WITH OAKUM TO REDUCE AIR INFILTRATION, BUT SHALL NOT HINDER VALVE OPERATION.

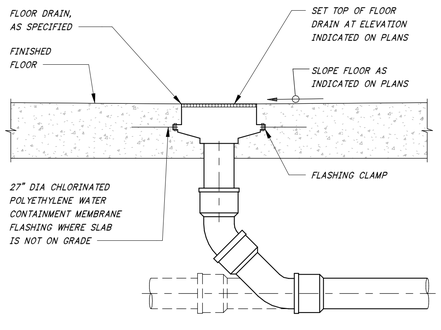
OUTDOOR EMERGENCY SHOWER AND EYE WASH — D
N.T.S.



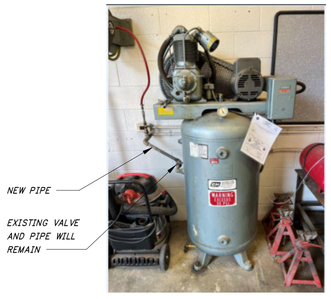
WALL OR COLUMN MOUNTED HOSE RACK — E
N.T.S.



POINT OF USE MIXING VALVE — F
N.T.S.



FLOOR DRAIN – NEW FLOOR NO P–TRAP — G
N.T.S.



AIR COMPRESSOR — H
N.T.S.

BID DRAWINGS
MARCH 21, 2025

1"
ONE INCH AT FULL SIZE IF NOT ONE INCH SCALE ACCORDINGLY

DATE	REVISION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 17959
MICHELE FRANCON ROTH
3/21/2025

HAWKINS WEIR ENGINEERS, INC.
BLACK & VEATCH

CITY OF BENTONVILLE, ARKANSAS
BENTONVILLE WATER RESOURCE RECOVERY FACILITY IMPROVEMENTS

PLUMBING DETAILS

CITY OF BENTONVILLE, ARKANSAS

DATE: MARCH 2025
SCALE: AS SHOWN
DESIGNED BY: SAM
DRAWN BY: YBM
HWEI NO.: 2021037
FILENAME: H–GENERAL

SHEET NO.
HZ–3