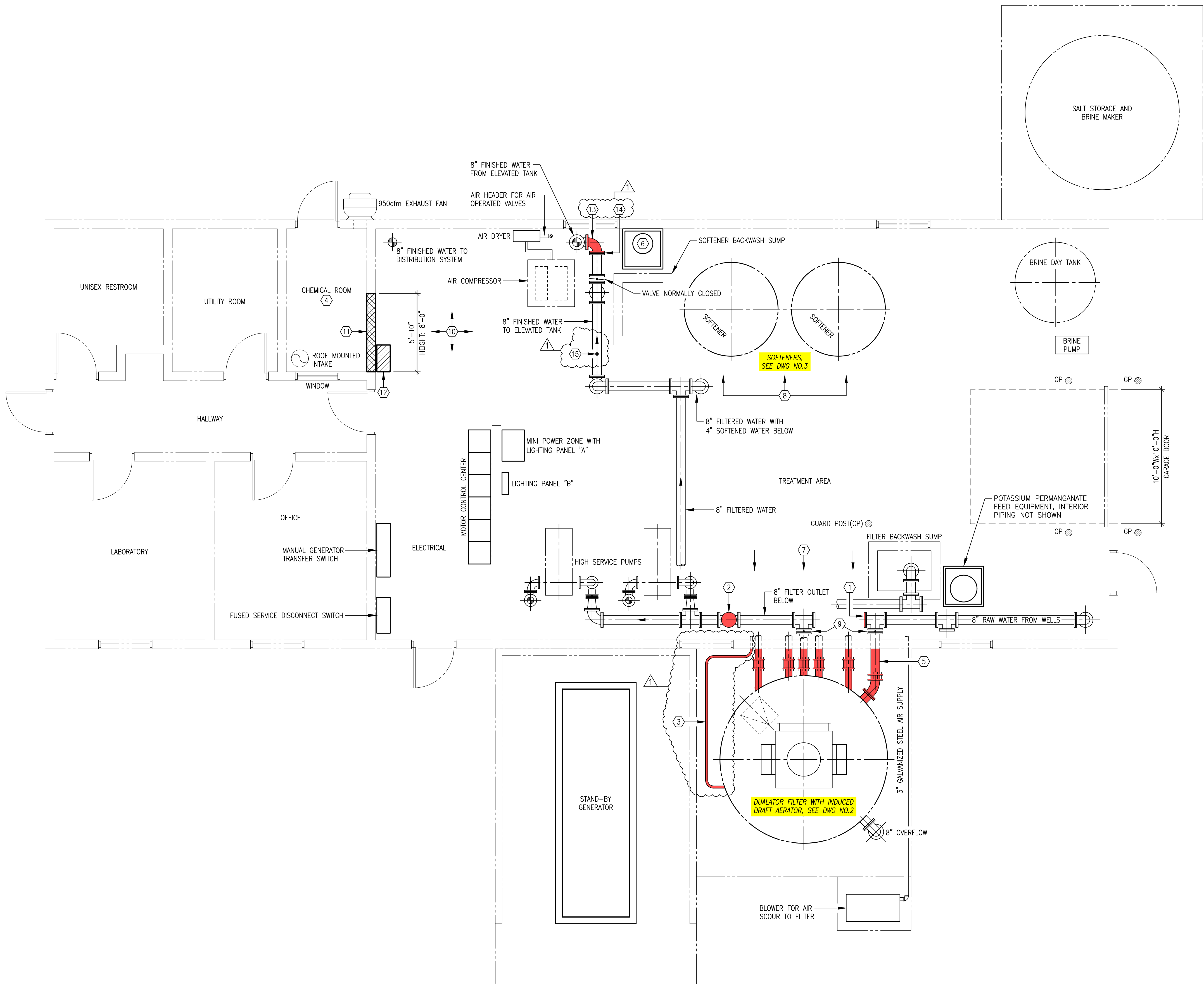


Attachment M  
ODNR Environmental Review Request  
Part 2

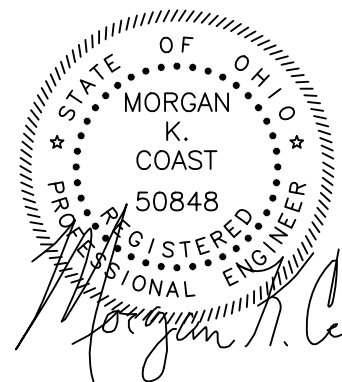


KEY NOTES THIS DWG:

- ① TEE WITH BLIND FLANGE, REMOVE BLIND FLANGE AND CONNECT TEMPORARY TREATMENT SYSTEM INFLUENT, SEE MODIFIED PLAN DWG NO.4
- ② TEE WITH BLIND FLANGE, REMOVE BLIND FLANGE, ROTATE TEE AND CONNECT TEMPORARY TREATMENT SYSTEM EFFLUENT, SEE MODIFIED PLAN DWG NO.4
- ③ 1/2" SCHD 80 PVC POTASSIUM PERMANGANATE FEED PIPING AT EXTERIOR TO BE REMOVED AND REPLACED WITH NEW, SEE MODIFIED PLAN DWG NO.4
- ④ CHEMICAL FEED ROOM (NOT IN USE), PIPING AND ASSOCIATED ELECTRICAL TO BE REMOVED BY OWNER. TO BE MODIFIED FOR SODIUM HYPOCHLORITE FEED, SEE MODIFIED PLAN DWG NO.4
- ⑤ A. EXTERIOR PIPING BETWEEN FILTER AND WALL HAVE HEAT TRACING AND INSULATION WITH PROTECTIVE JACKETING AS SHOWN WITH SHADING, TYP. 12 PLACES.  
B. HEAT TRACING AND INSULATION WITH PROTECTIVE JACKETING SHALL BE REMOVED AND REPLACED WITH NEW.
- ⑥ SODIUM HYPOCHLORITE FEED EQUIPMENT, PIPING AND ASSOCIATED ELECTRICAL TO BE REMOVED BY OWNER.
- ⑦ SEE DUALATOR FILTER PIPING PHOTOS NO.4 AND 5, DWG NO.2
- ⑧ SEE SOFTENER PIPING PHOTO NO.6, DWG NO.3
- ⑨ VALVE TO BE CLOSED DURING WORK ON DUALATOR FILTER
- ⑩ CHEMICAL FEED ROOM ADDITION TO BE CONSTRUCTED IN THIS AREA, SEE MODIFIED PLAN DWG NO.4
- ⑪ REMOVE BLOCK WALL FOR NEW PRECAST CONCRETE LINTEL AND WALL OPENING TO ROOM ADDITION, SEE MODIFIED PLAN DWG NO.4
- ⑫ REMOVE BOOSTER PUMP CONTROL PANEL AND ASSOCIATED ELECTRICAL.
- ⑬ ROTATE 90° ELBOW UP AND CONNECT TEMPORARY TREATMENT SYSTEM BACKWASH SUPPLY, SEE MODIFIED PLAN DWG NO.4
- ⑭ INSTALL BLIND FLANGE, SEE MODIFIED PLAN DWG NO.4.
- ⑮ REMOVE CHLORINE FEED TAP(NOT IN USE) AND INSTALL NEW TAP FOR SODIUM HYPOCHLORITE FEED, SEE MODIFIED PLAN DWG NO.4

EXISTING PLAN

1/4"=1'-0" (22'x34")  
1/8"=1'-0" (11'x17")



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| NO. | DATE    | REVISION                                                                             |     |
|-----|---------|--------------------------------------------------------------------------------------|-----|
| 1   | 5/30/23 | REVISED KEY NOTES, ADDED POTASSIUM PERMANGANATE FEED PIPING AT EXTERIOR, ROTATED 90° | dms |
|     |         | ELBOW UP AND INSTALLED BLIND FLANGE                                                  |     |

DRAWN BY:  
DAVID STEWART  
CHECKED BY:  
MORGAN K. COAST

**VAUGHN, COAST & VAUGHN, INC.**  
Engineers  
154 South Marietta Street  
St. Clairsville, Ohio 43950  
740-695-7256 Fax: 740-695-2203

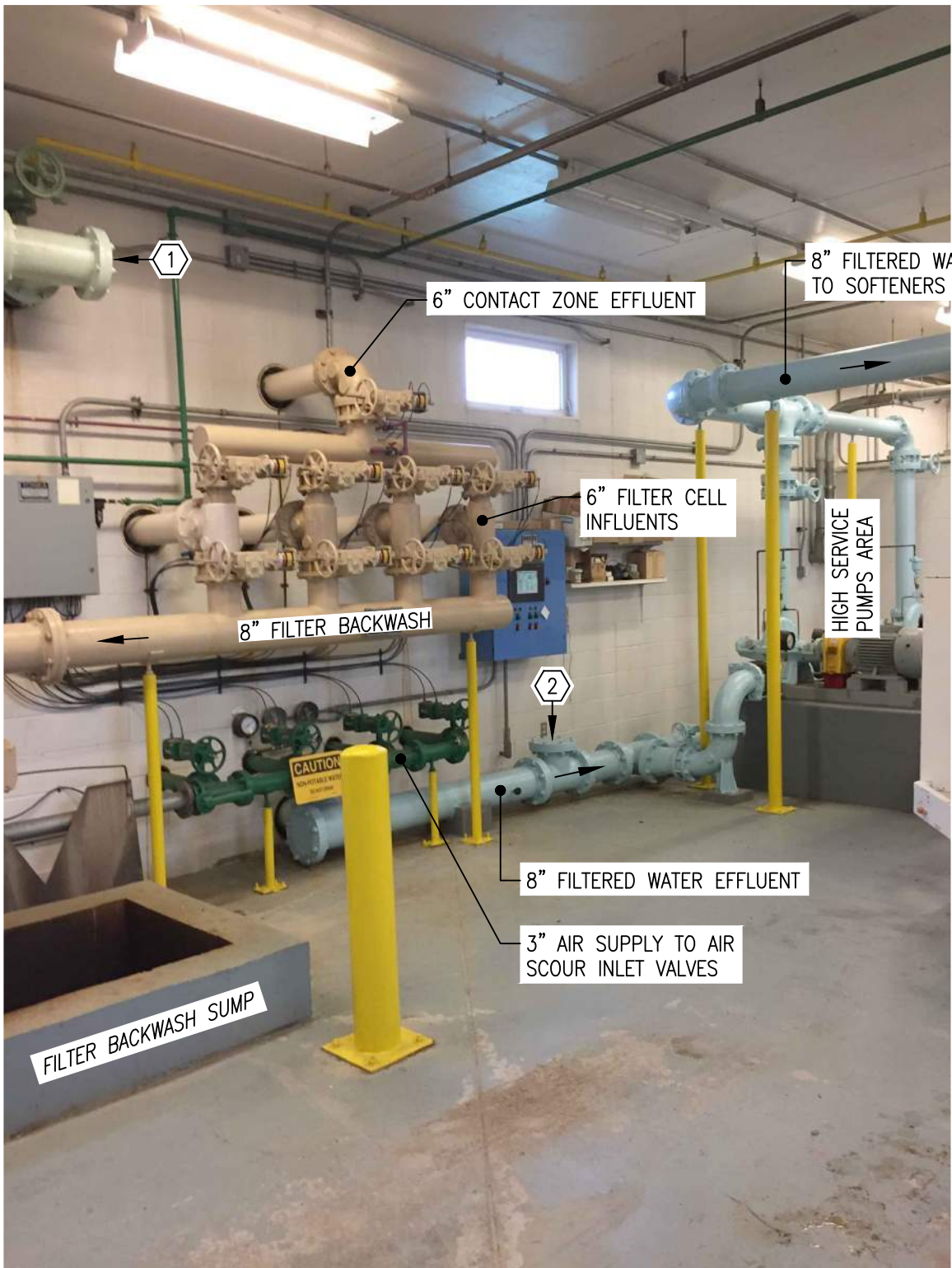
VILLAGE OF FRAZEYSBURG  
- Water Treatment Plant Improvements -  
Muskingum County, Ohio

EXISTING PLAN

|        |          |             |    |
|--------|----------|-------------|----|
| SCALE: | AS SHOWN | PROJECT NO. | -  |
| DATE:  | MAY 2022 | DRAWING NO. | 1r |



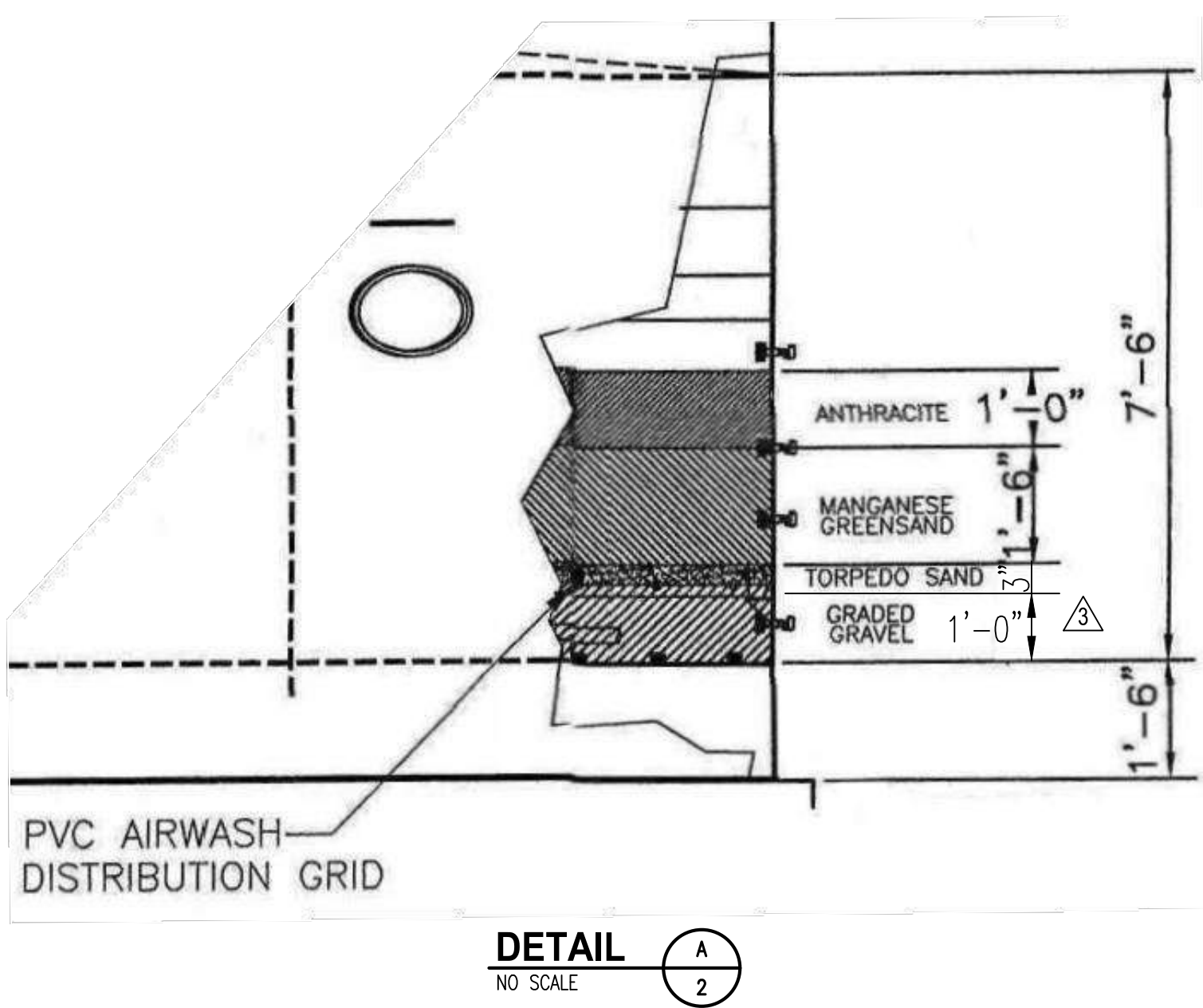
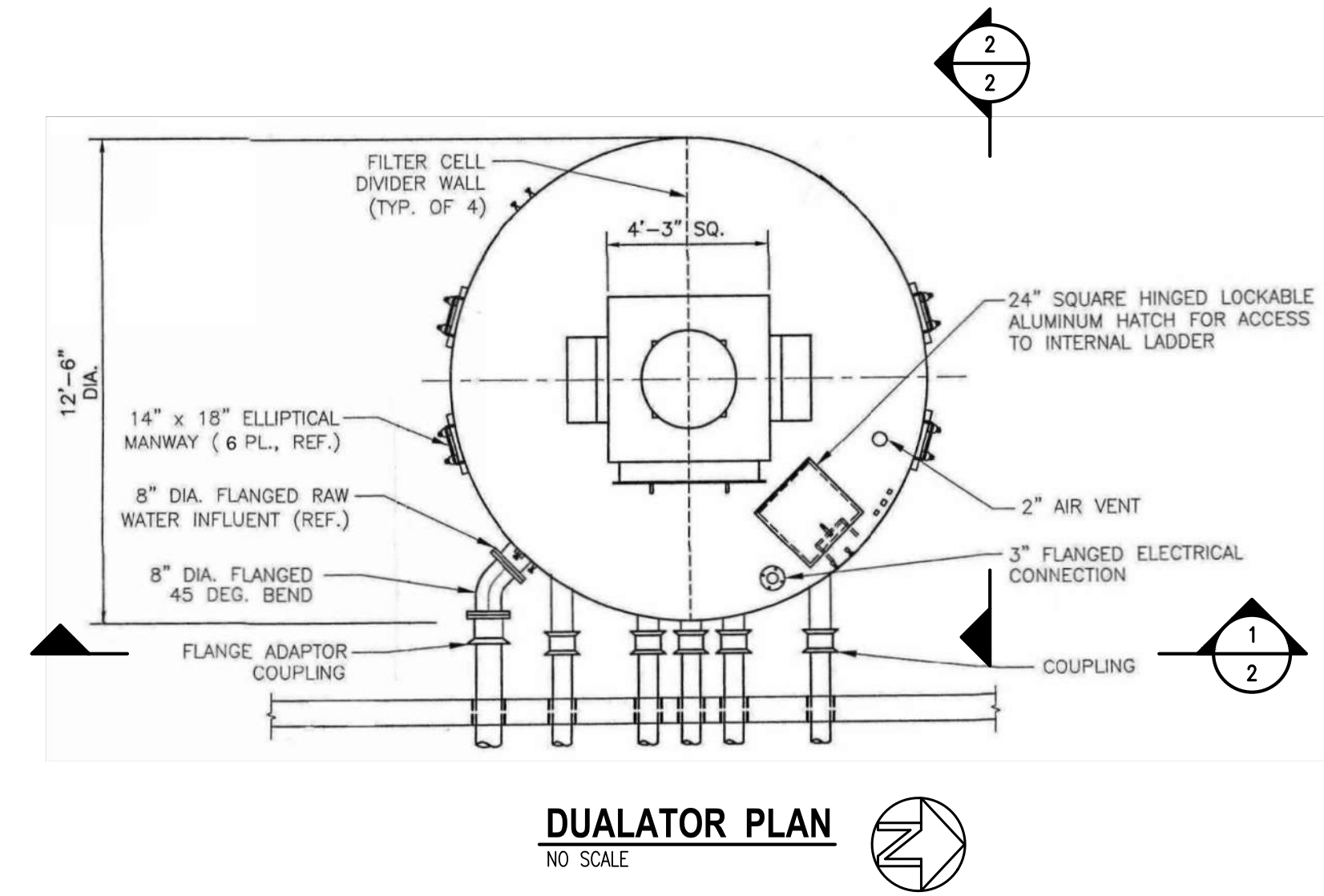
DUALATOR FILTER PIPING PHOTO NO.1  
NO SCALE



DUALATOR FILTER PIPING PHOTO NO.2  
NO SCALE

KEY NOTES FOR PHOTOS THIS DWG:

- TEE WITH BLIND FLANGE, REMOVE BLIND FLANGE AND CONNECT TEMPORARY TREATMENT SYSTEM INFLUENT, SEE MODIFIED PLAN DWG NO.4
- TEE WITH BLIND FLANGE, REMOVE BLIND FLANGE, ROTATE TEE AND CONNECT TEMPORARY TREATMENT SYSTEM EFFLUENT, SEE MODIFIED PLAN DWG NO.4
- POTASSIUM PERMANGANATE FEED EQUIPMENT TO REMAIN.

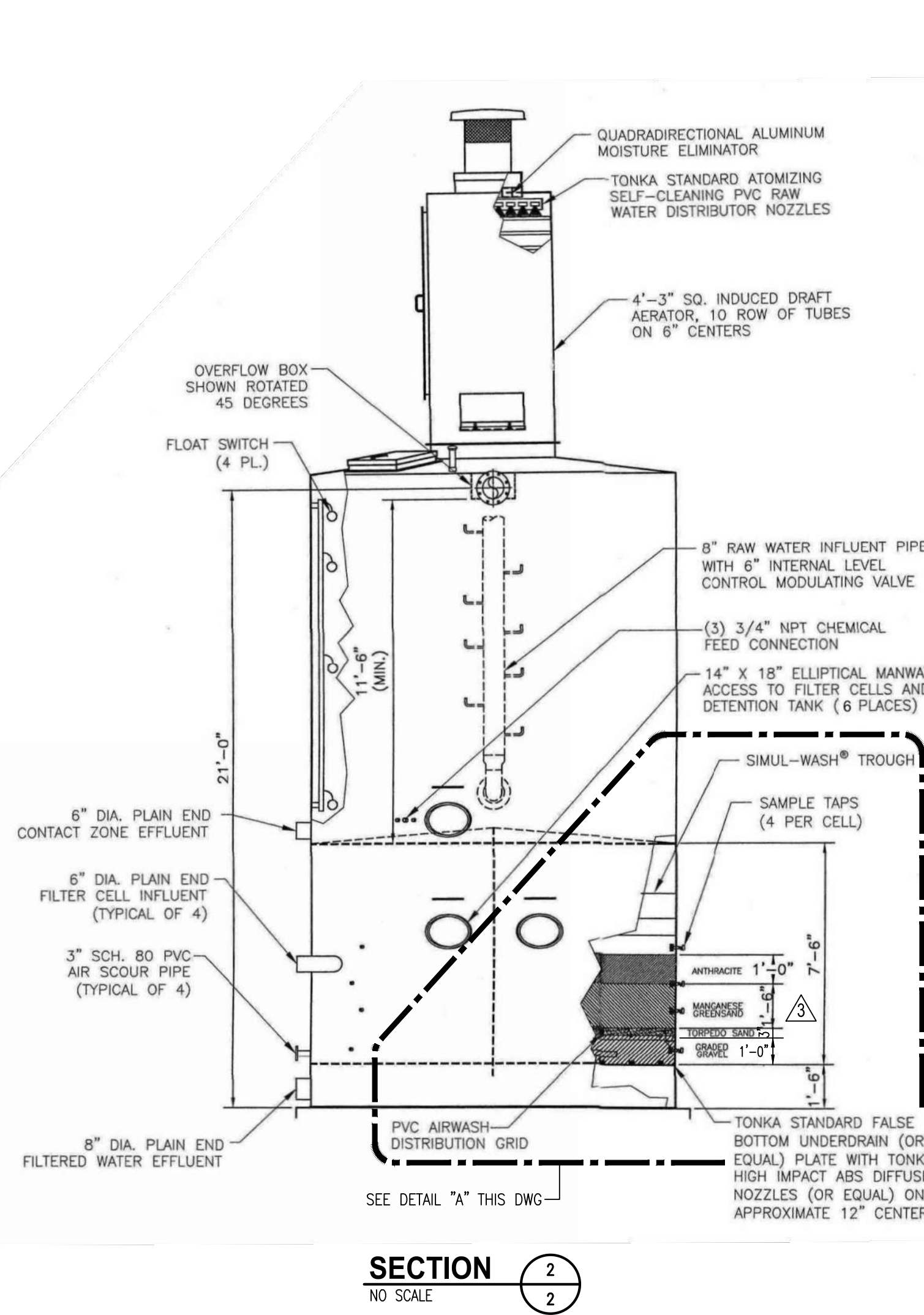
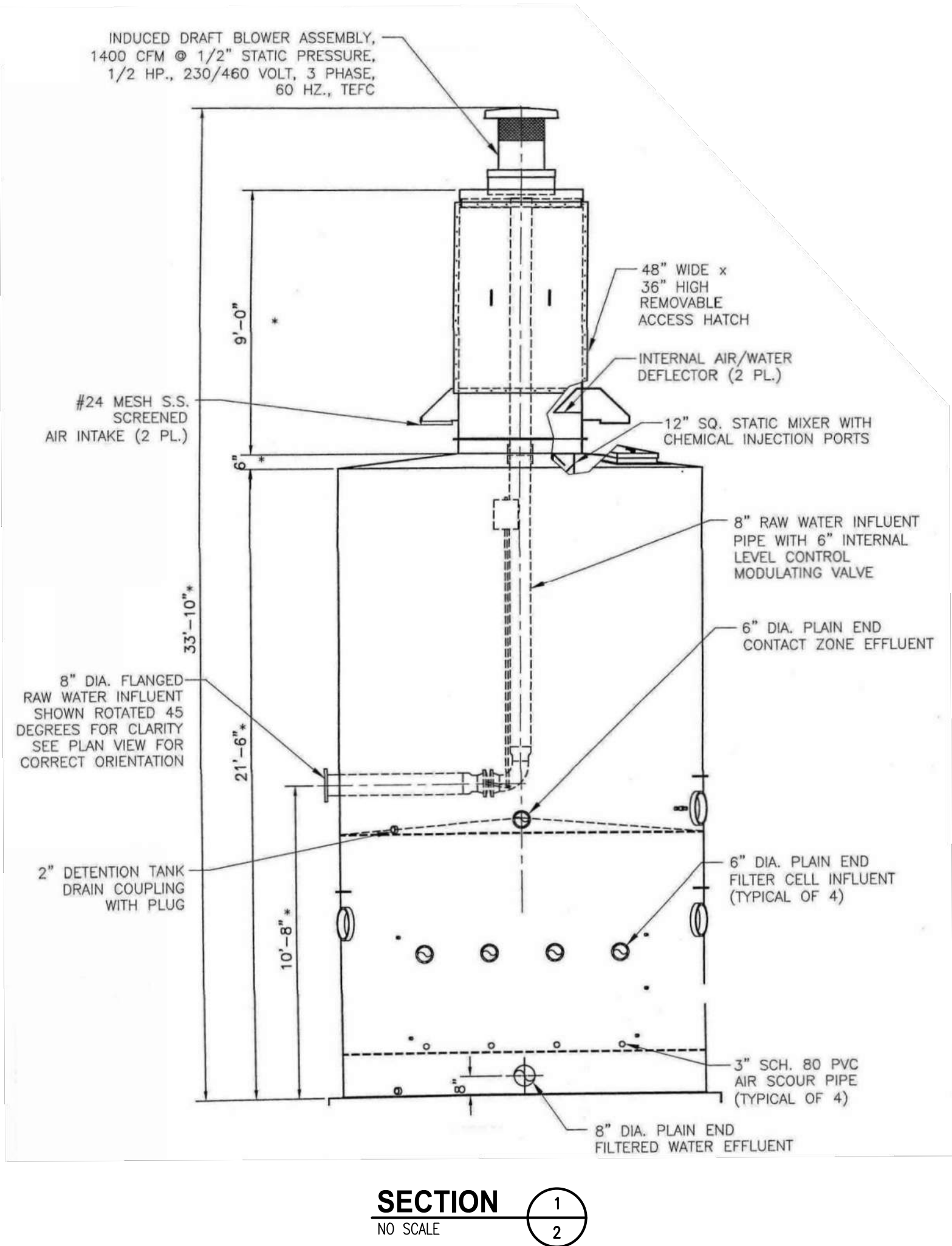


MEDIA SPECIFICATIONS

- Iron and Manganese Removal Filters – Dualator
  - Anthracite, torpedo sand and support gravel to meet AWWA B100 Standards
  - Anthracite – filter anthracite be 12 inches in depth with an effective size of 0.8 mm to 1.2 mm with a uniformity coefficient 1.7
  - Torpedo Sand – 3-inch layer having an effective size of 0.8 mm to 2.0 mm and a uniformity coefficient of 1.7
  - Support Gravel – 12 inches of support gravel consisting of four layers of gravel provided in accordance with the following size and depth distribution.

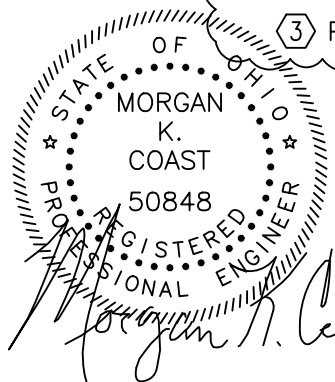
| Size (inches) | Depth (inches) |
|---------------|----------------|
| 3/16 to 3/32  | 2 to 3         |
| 1/2 to 3/16   | 2 to 3         |
| 3/4 to 1/2    | 3 to 5         |
| 1.5 to 3/4    | 3 to 5         |

- Greensand Plus Filter Media to be 18" in depth, effective size 0.30 mm to 0.35 mm, with uniformity coefficient of less than 1.6
- Installation of filter media to be in accordance with AWWA B102 Manganese Greensand for filters.



DUALATOR FILTER NOTES:

- FILTER MEDIA, AIR WASH DISTRIBUTION GRID AND UNDERDRAIN NOZZLES ARE TO BE REPLACED.
- THE EXTERIOR OF THE CARBON STEEL TANK AND INTERIOR OF TANK ABOVE FILTERS ARE TO BE SANDBLASTED AND PAINTED.
- POTASSIUM PERMANGANATE FEED LINE AT EXTERIOR NOT SHOWN, SHALL BE REMOVED AND REPLACED WITH NEW, SEE DWG NO.4
- EXTERIOR PIPING INSULATION AND HEAT TRACE ARE TO BE REPLACED.
- REFER TO SPECIFICATIONS FOR MEDIA REPLACEMENT AND DETAILS.



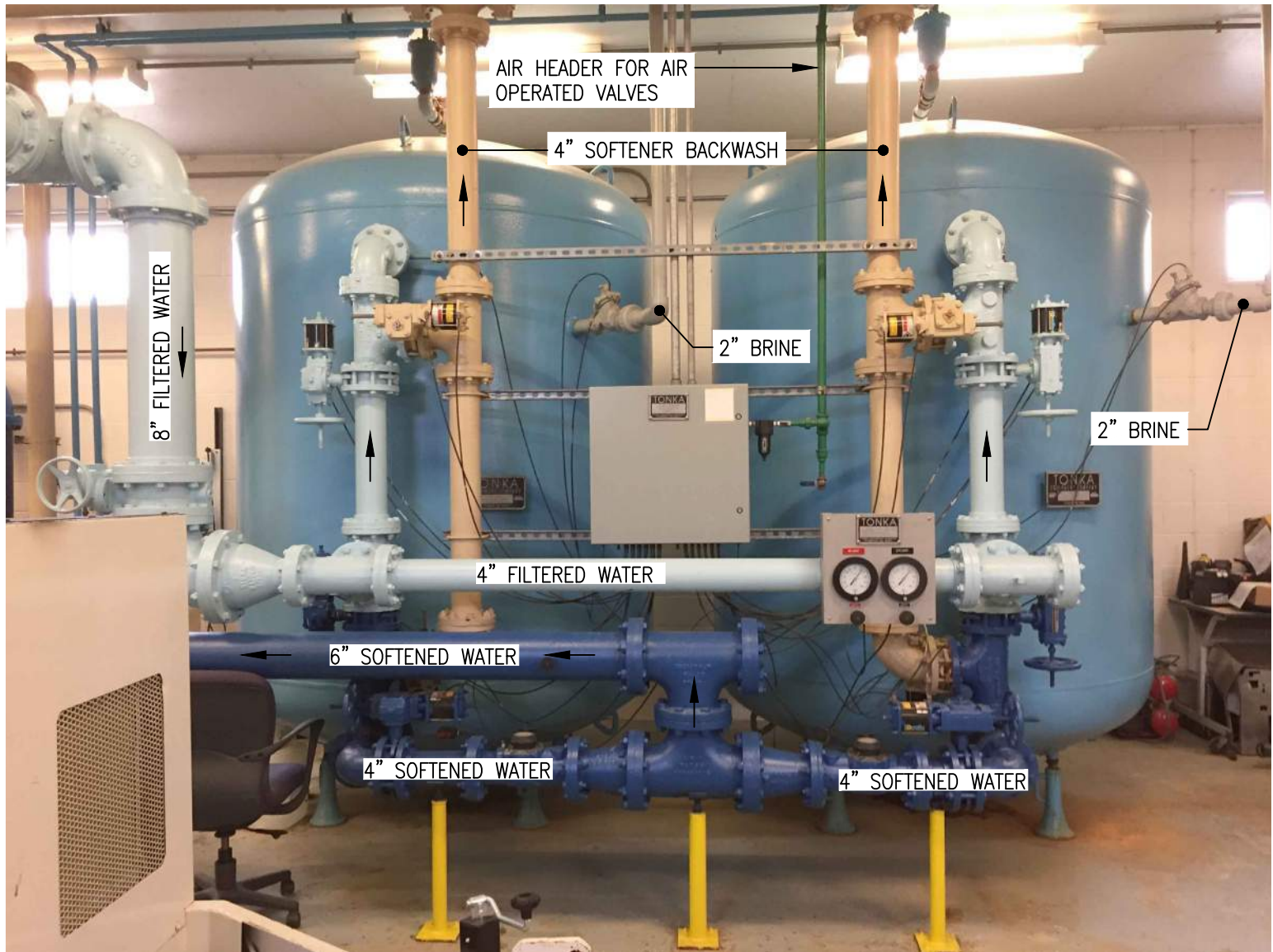
| NO. | DATE     | REVISION                     | DRAWN BY:       |
|-----|----------|------------------------------|-----------------|
| 4   | 11/20/23 | REVISED MEDIA SPECIFICATIONS | DAVID STEWART   |
|     |          |                              | CHECKED BY:     |
|     |          |                              | MORGAN K. COAST |



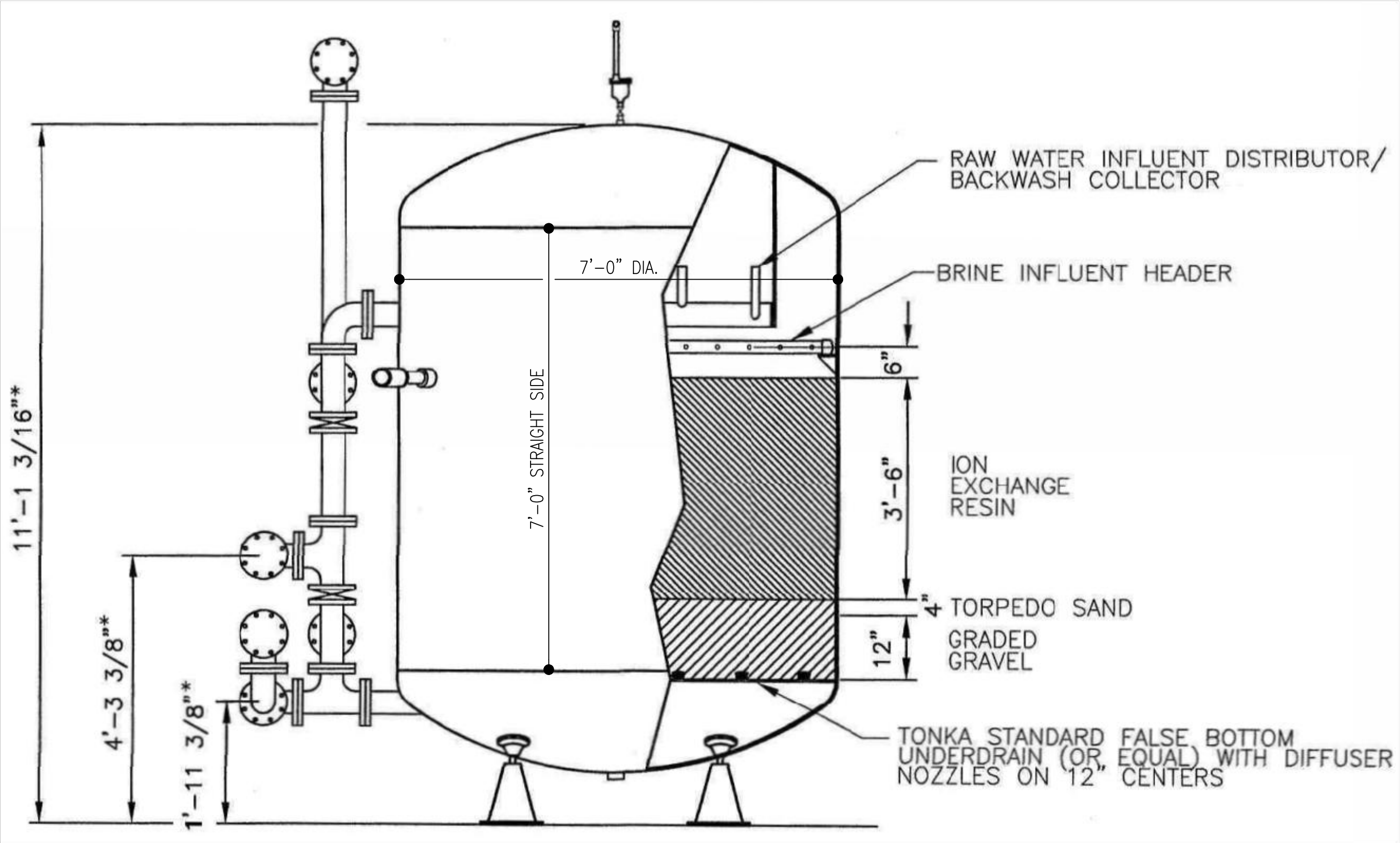
VILLAGE OF FRAZEYSBURG  
- Water Treatment Plant Improvements -  
Muskingum County, Ohio

EXISTING DUALATOR FILTER  
PIPING PHOTOS, PLAN, SECTIONS AND DETAIL

|        |          |             |    |
|--------|----------|-------------|----|
| SCALE: | AS SHOWN | PROJECT NO. | -  |
| DATE:  | MAY 2022 | DRAWING NO. | 2r |



**SOFTENERS PIPING PHOTO**  
NO SCALE



**SOFTENER DETAIL**  
NO SCALE TYP. OF TWO

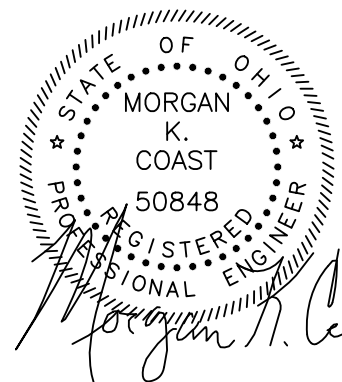
**SOFTENER NOTES:**

1. BRINE INFLUENT HEADER, UNDERDRAIN NOZZLES, ION EXCHANGE RESIN, SAND AND GRAVEL ARE TO BE REPLACED.
2. REFER TO SPECIFICATIONS FOR DETAILS.

**MEDIA SPECIFICATIONS**

- Softeners
- a. Support Gravel – 12 inches of support gravel consisting of four layers of gravel provided in accordance with the size and depth distribution in table below.

| Size (inches) | Depth (inches) |
|---------------|----------------|
| 3/16 to 3/32  | 2 to 3         |
| 1/2 to 3/16   | 2 to 3         |
| 3/4 to 1/2    | 3 to 5         |
| 1.5 to 3/4    | 3 to 5         |
  - b. Torpedo sand - 4-inch layer having an effective size of 0.8 mm to 2.0 mm and a uniformity coefficient of 1.7
  - c. Ion Exchange Resin to be 42 inches in depth.



| NO. | DATE    | REVISION                       |
|-----|---------|--------------------------------|
| 1   | 11/9/22 | ADDED SOFTENER NOTES dms       |
| 2   | 10/6/23 | ADDED MEDIA SPECIFICATIONS dms |

DRAWN BY:  
DAVID STEWART  
CHECKED BY:  
MORGAN K. COAST



**VAUGHN, COAST & VAUGHN, INC.**  
Engineers  
154 South Marietta Street  
St. Clairsville, Ohio 43950  
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VILLAGE OF FRAZEYSBURG  
- Water Treatment Plant Improvements -  
Muskingum County, Ohio

**EXISTING SOFTENERS  
PIPING PHOTO AND DETAIL**

SCALE:  
AS SHOWN  
DATE:  
MAY 2022

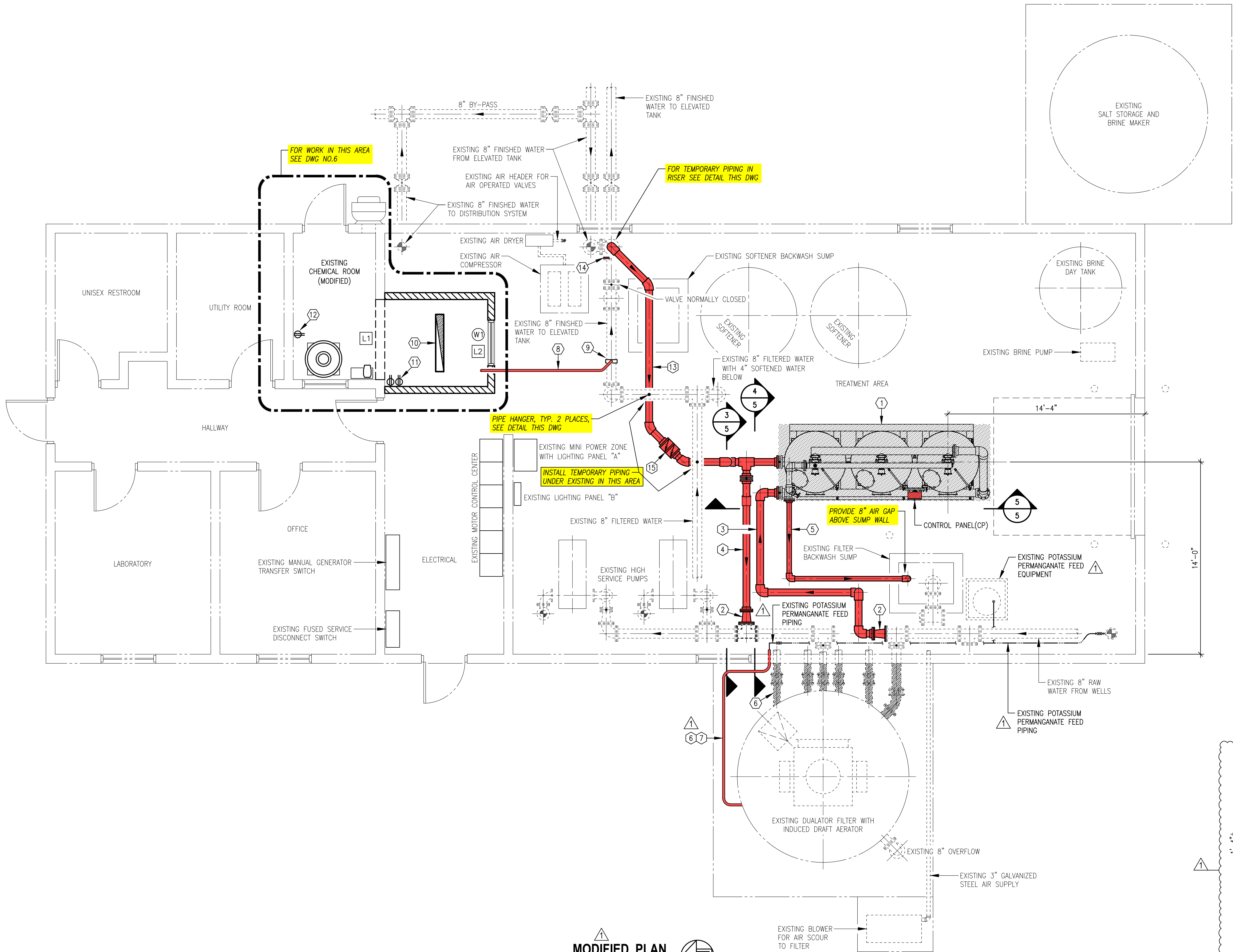
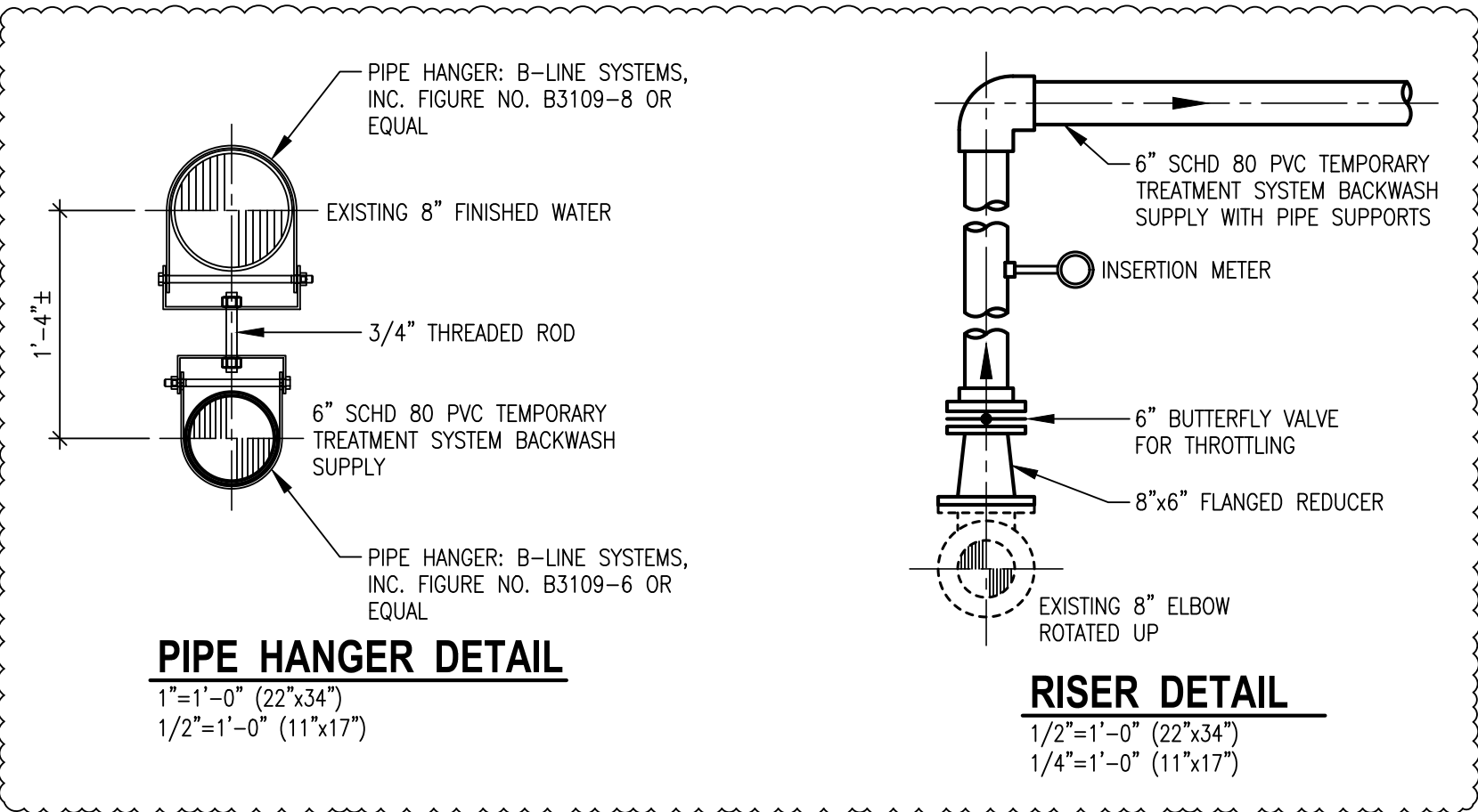
PROJECT NO.  
-  
DRAWING NO.  
**3r**

KEY NOTES THIS DWG:

- ① A. TEMPORARY TREATMENT SYSTEM ON SKID, TRIPLEX 54"x60" FILTER ARRANGEMENT, SEE SPECIFICATIONS.
- B. CP = SYSTEM 120V CONTROL PANEL
- C. RUN 3-12 AWG IN 3/4" CONDUIT FOR TEMPORARY POWER TO CONTROL PANEL FROM EXISTING LIGHTING PANEL "A" SPARE CIRCUIT
- ② 8"x6" FLANGED REDUCER.
- ③ 6" SCHD 80 PVC TEMPORARY TREATMENT SYSTEM INFLUENT WITH PIPE SUPPORTS.
- ④ 6" SCHD 80 PVC TEMPORARY TREATMENT SYSTEM EFFLUENT WITH PIPE SUPPORTS.
- ⑤ 4" SCHD 80 PVC TEMPORARY TREATMENT SYSTEM BACKWASH OUTLET WITH PIPE SUPPORTS.
- ⑥ INSTALL NEW HEAT TRACING AND INSULATION WITH PROTECTIVE JACKETING ON ALL EXTERIOR PIPING BETWEEN FILTER AND WALL AS SHOWN WITH SHADING, TYP. 12 PLACES. RECONNECT NEW HEAT TRACING TO EXISTING ELECTRICAL CIRCUITS.
- ⑦ NEW 1/2" SCHD 80 PVC POTASSIUM PERMANGANATE FEED PIPING, TIE-IN TO EXISTING AT INTERIOR.
- ⑧ 1" SCHD 80 PVC WITH 1/4" I.D. FLEXIBLE TUBING AT CEILING FOR SODIUM HYPOCHLORITE FEED TO FINISHED WATER PIPING TO ELEVATED TANK.
- ⑨ CHEMICAL FEED TAP WITH INJECTION NOZZLE, SEE DETAIL DWG NO.6
- ⑩ PHILIPS DAY-BRITE LIGHTING "DW VAPORLUME LED" MODEL NO. DWAE51L840-4-U OR EQUAL WITH SURFACE TYPE MOUNTING. CONNECT TO EXISTING LIGHTING PANEL "A" CIRCUIT FOR ROOM
- ⑪ DUPLEX GROUND FAULT RECEPTACLE FOR CHEMICAL FEED PUMP - 125V, 20A, 2P, 3W; 5-20R, SPEC. GRADE, HUBBELL GF 5362 OR EQUAL, ACCEPTABLE EQUAL: CROUSE-HINDS. RECEPTACLES TO BE ENERGIZED WHEN WELL AND/OR HIGH SERVICE PUMPS ARE RUNNING, CONNECT TO EXISTING LIGHTING PANEL "A" CIRCUIT FOR ROOM
- ⑫ DUPLEX GROUND FAULT RECEPTACLE FOR DIGITAL SCALE - 125V, 20A, 2P, 3W; 5-20R, SPEC. GRADE, HUBBELL GF 5362 OR EQUAL, ACCEPTABLE EQUAL: CROUSE-HINDS. CONNECT TO EXISTING LIGHTING PANEL "A" CIRCUIT FOR ROOM
- ⑬ 6" SCHD 80 PVC TEMPORARY TREATMENT SYSTEM BACKWASH SUPPLY WITH PIPE SUPPORTS.
- ⑭ BLIND FLANGE
- ⑮ 6" DOUBLE CHECK VALVE ASSEMBLY

GENERAL NOTES:

- 1) L1 DENOTES LINTEL LOCATION AND NUMBER, SEE DETAIL DWG NO.6
- W1 DENOTES WINDOW LOCATION AND NUMBER, SEE DETAIL DWG NO.6
- 2) ALL MATERIALS IN CONTACT WITH POTABLE WATER SHALL COMPLY WITH NSF STANDARDS 60 AND 61.
- 3) SCHD 80 PVC FOR FEED LINES SHALL HAVE LONG RADIUS ELBOWS.
- 4) PIPE SUPPORT CLIPS SHALL BE NONMETALLIC AND HAVE STAINLESS STEEL ANCHOR SCREWS. CLIP SPACING SHALL BE AS PER MANUFACTURER SPECIFICATIONS.
- 5) ALL ELECTRICAL WORK SHALL BE COMPLETED IN ACCORDANCE WITH NFPA 70 NEC 2017.
- 6) ALL CONDUITS SHALL BE SCHD 40 PVC WITH SIZE PER NEC 2017 ANNEX C TABLE C.10, ALL BURIED CONDUITS SHALL HAVE MINIMUM 30" COVER AND WARNING TAPE.
- 7) SIZE ALL CONDUCTORS IN ACCORDANCE WITH NEC 2017 TABLE 310.15(B)(16)
- 8) CONDUIT SUPPORT CLIPS SHALL BE NONMETALLIC AND HAVE STAINLESS STEEL ANCHOR SCREWS. CLIP SPACING SHALL BE AS PER MANUFACTURER SPECIFICATIONS.
- 9) INTERIOR PAINTING SHALL BE DONE PRIOR TO INSTALLING ELECTRICAL GEAR AND CONDUITS ON WALLS AND CEILING.
- 10) SURFACE MOUNT ALL RECEPTACLE BOXES PLUMB AND LEVEL.



**MODIFIED PLAN**  
1/4"=1'-0" (22"x34")  
1/8"=1'-0" (11"x17")



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| NO. | DATE    | REVISION                                           |
|-----|---------|----------------------------------------------------|
| 1   | 5/30/23 | REVISED PLAN, KEY NOTES AND ADDED DETAILS          |
| 2   | 10/6/23 | REVISED KEY NOTE 15 TO DOUBLE CHECK VALVE ASSEMBLY |

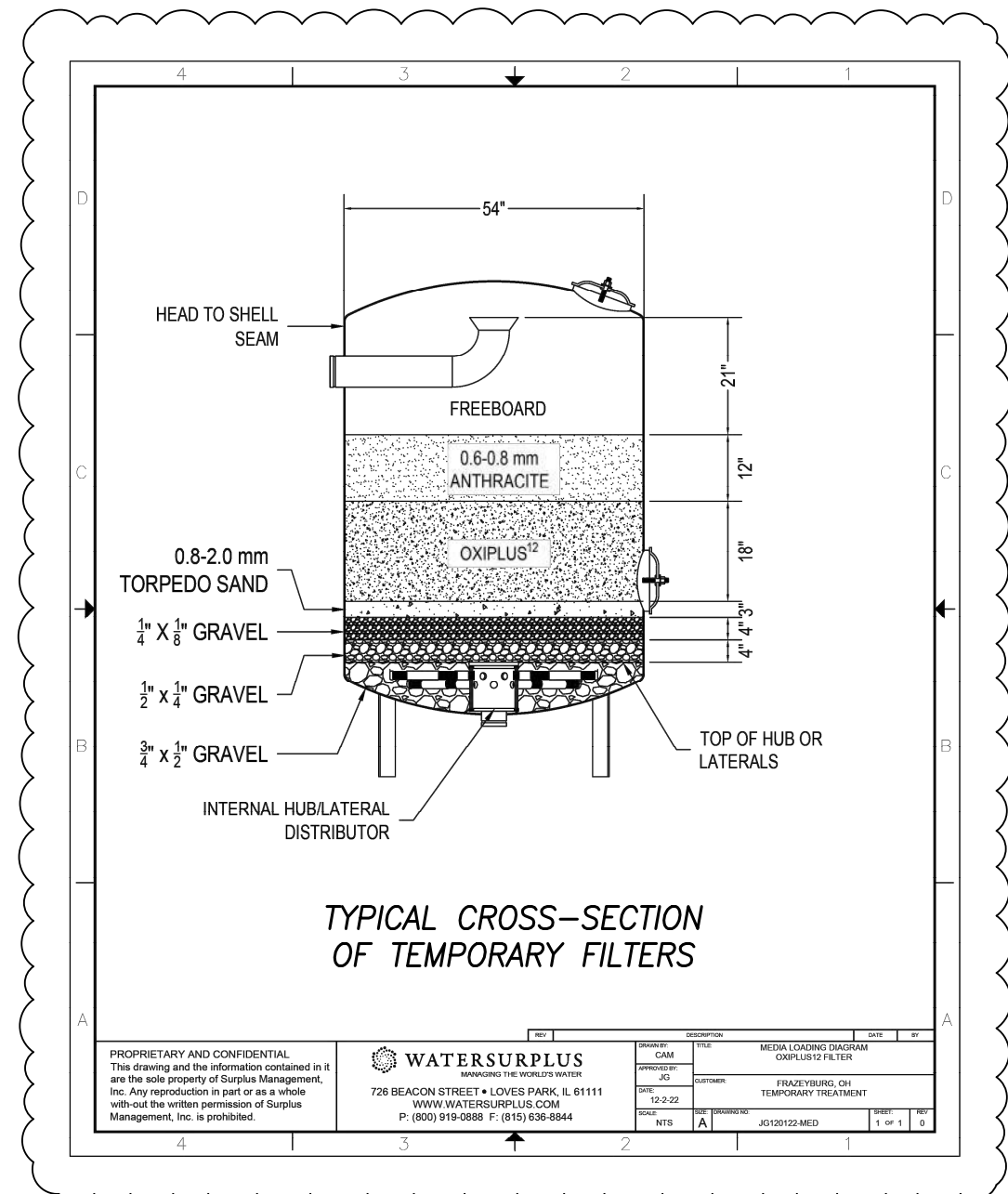
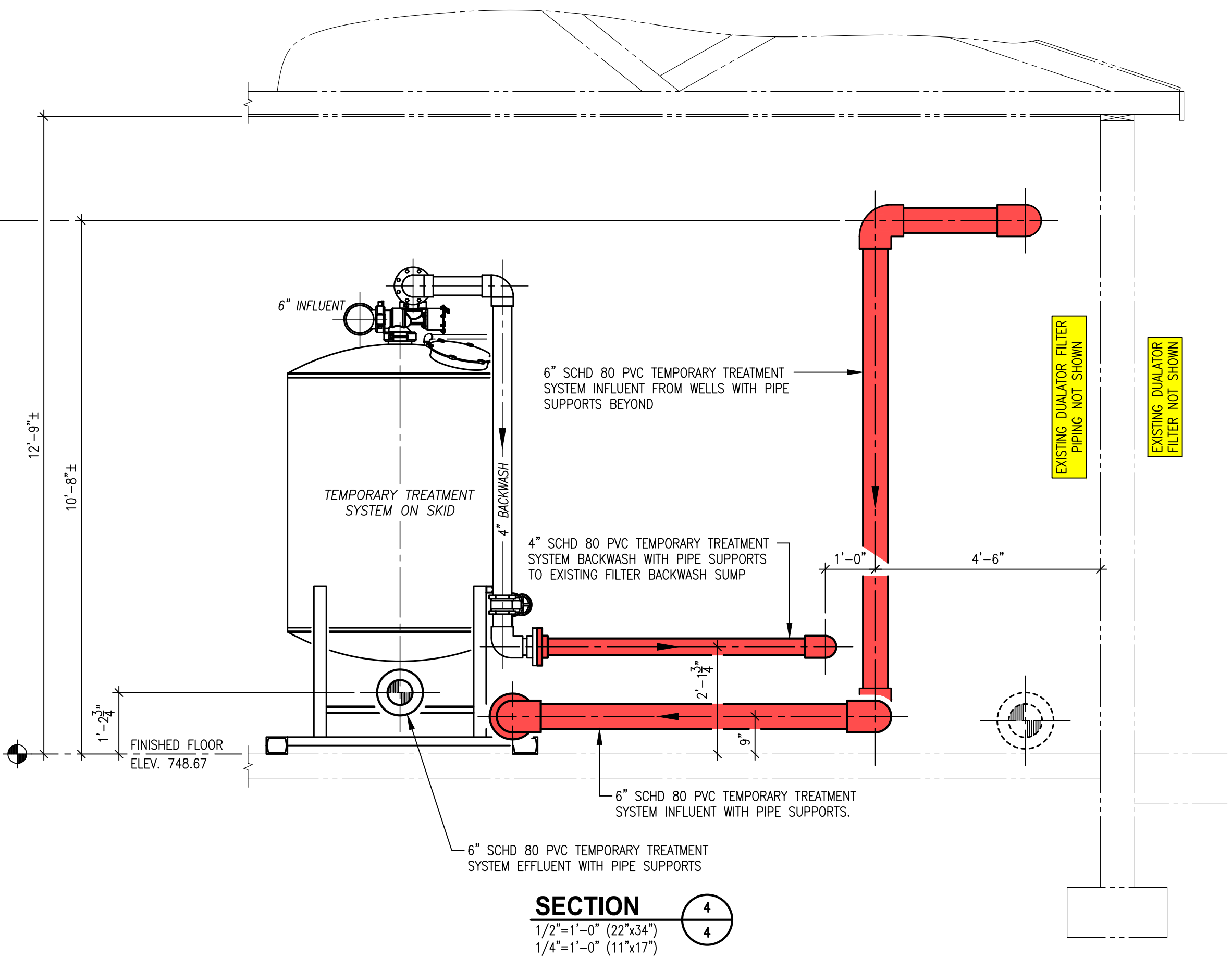
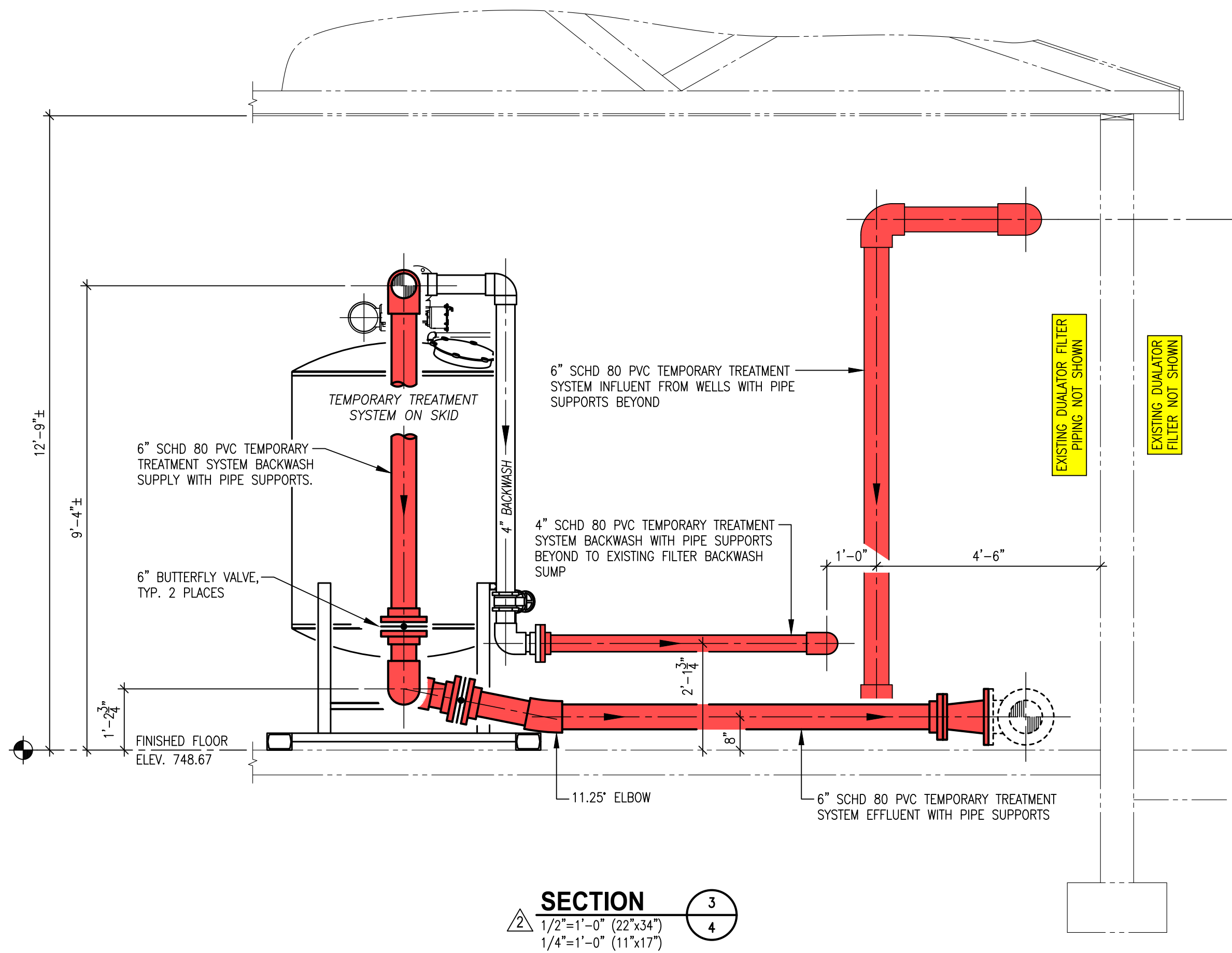
|             |                 |
|-------------|-----------------|
| DRAWN BY:   | DAVID STEWART   |
| CHECKED BY: | MORGAN K. COAST |



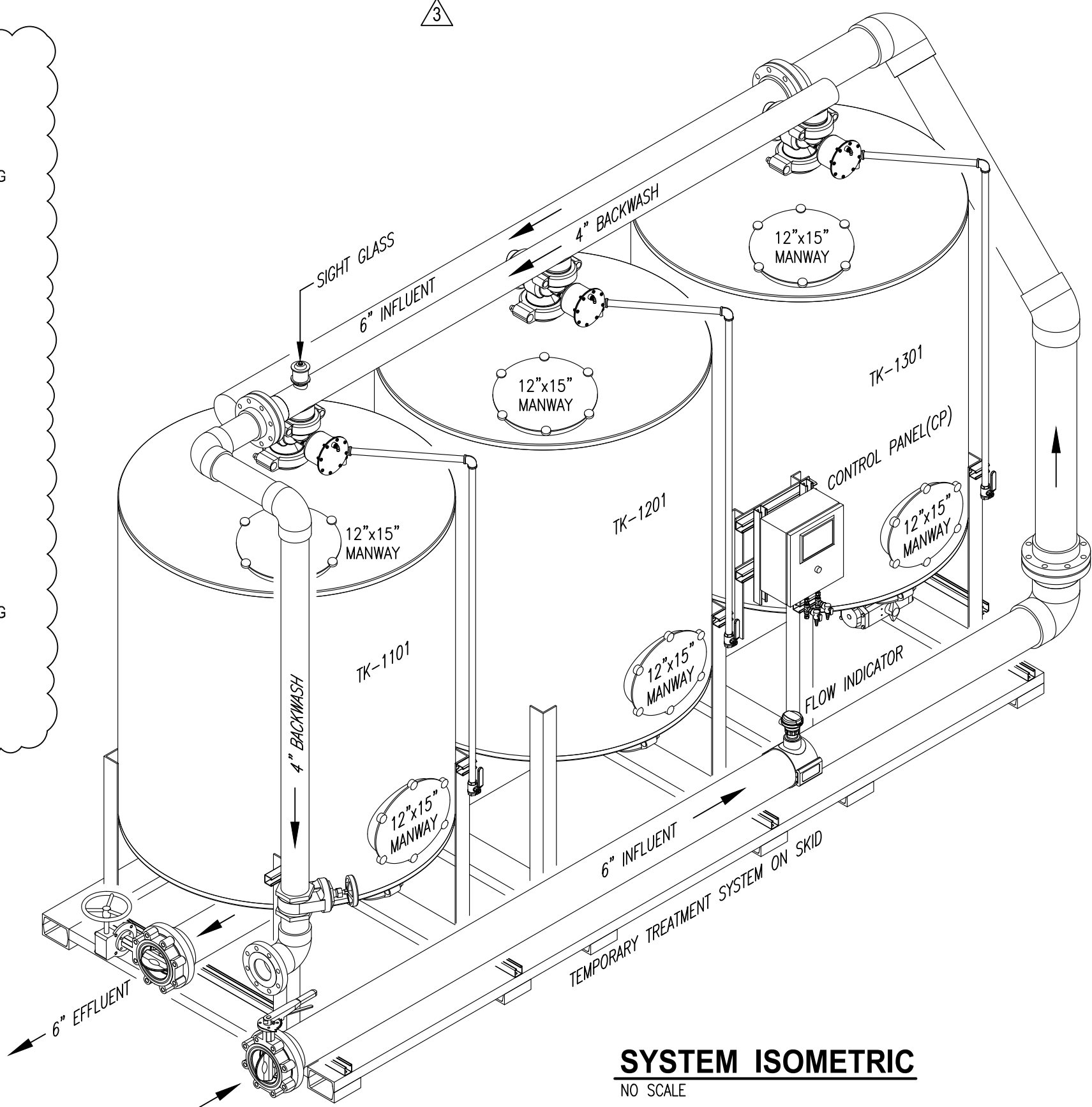
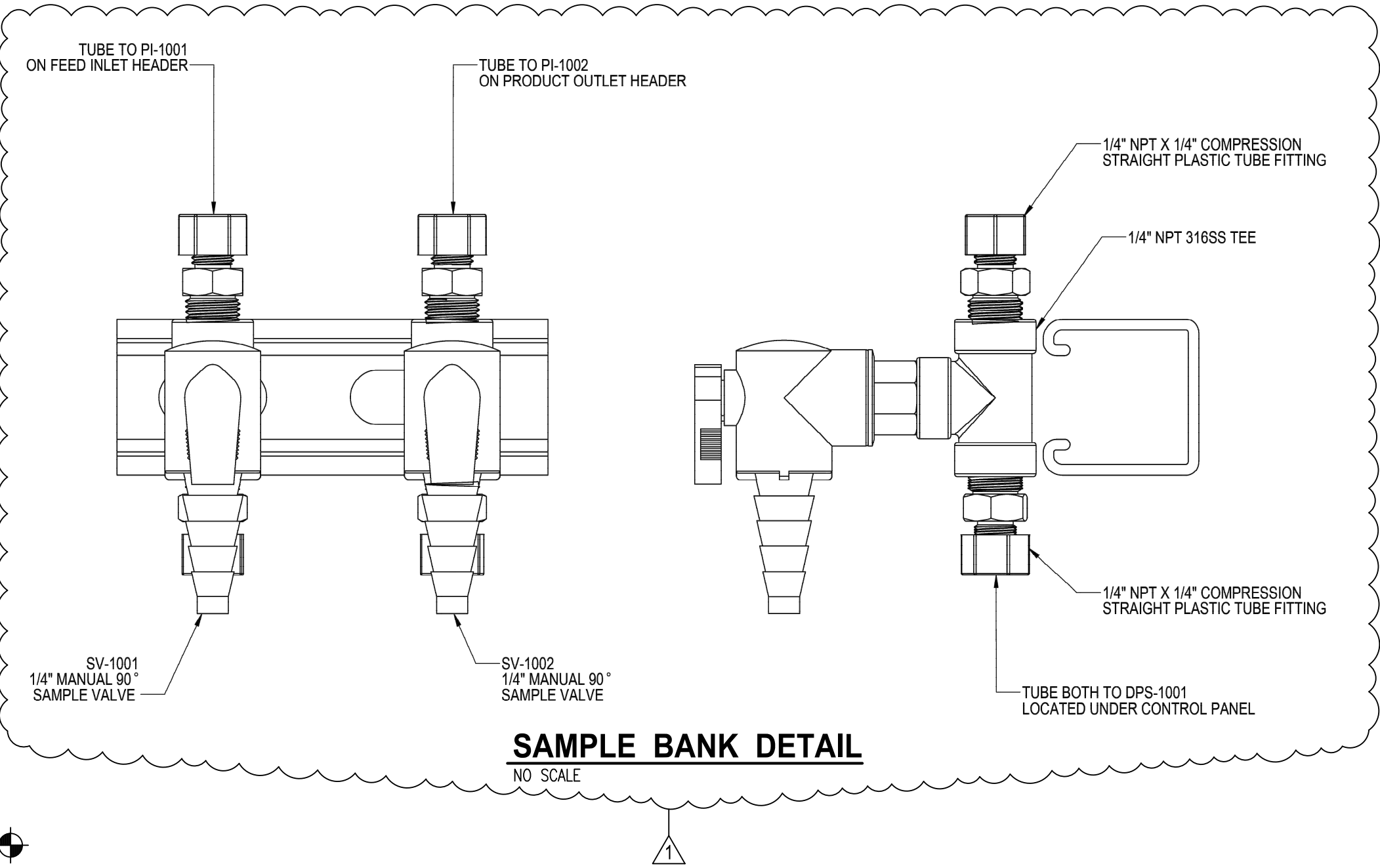
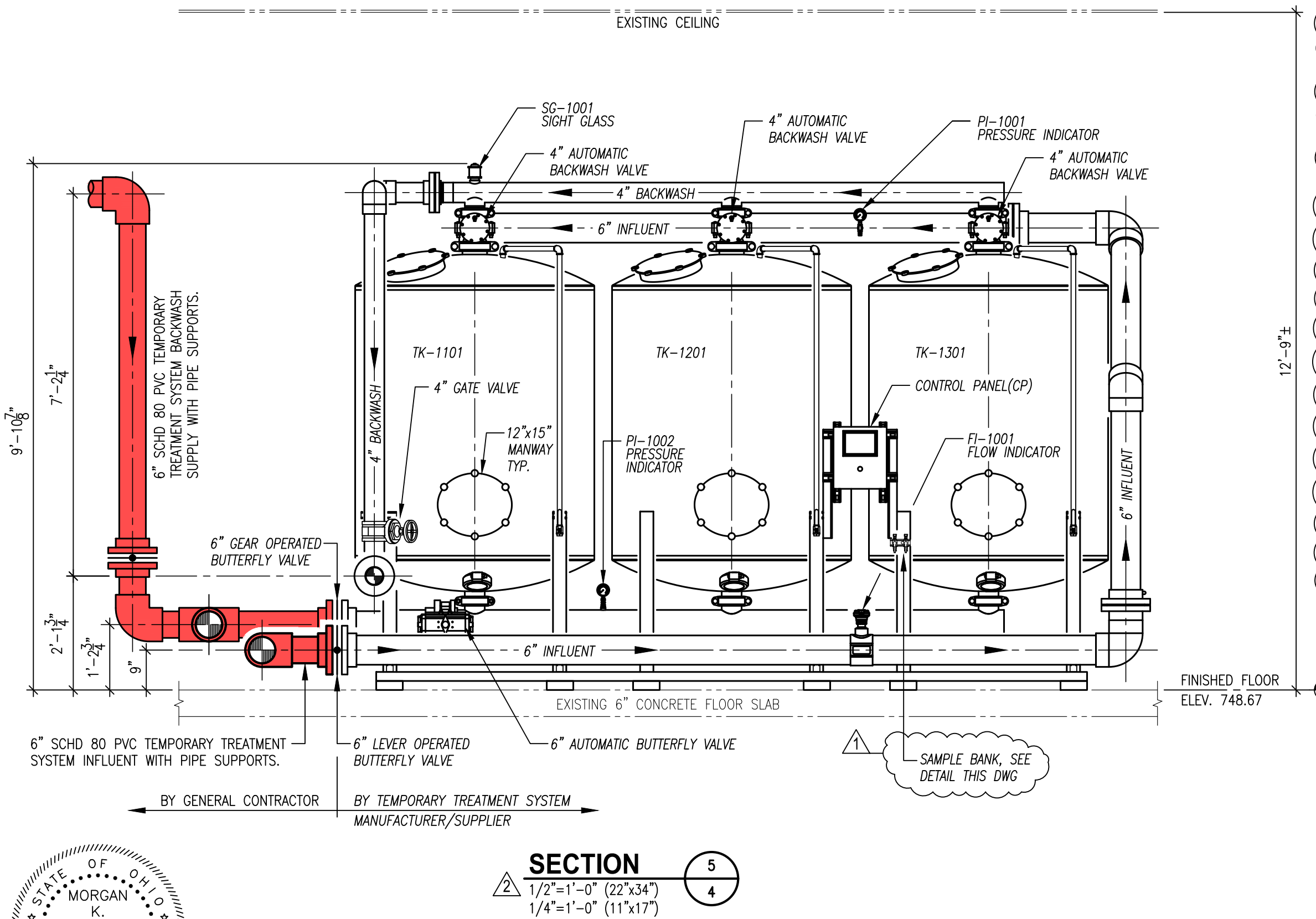
VILLAGE OF FRAZEYSBURG  
- Water Treatment Plant Improvements -  
Muskingum County, Ohio

MODIFIED PLAN AND DETAILS

|        |          |              |    |
|--------|----------|--------------|----|
| SCALE: | AS SHOWN | PROJECT NO.: | -  |
| DATE:  | MAY 2022 | DRAWING NO.: | 4r |



- MEDIA SPECIFICATIONS**
- Temporary Filters
- Anthracite, torpido sand and support gravel to meet AWWA B100 Standards
  - Anthracite - filter anthracite be 12 inches in depth with an effective size of 0.6 mm to 0.8 mm with a uniformity coefficient 1.7
  - Torpido Sand - 3-inch layer having an effective size of 0.8 mm to 2.0 mm and a uniformity coefficient of 1.7
  - OxiPlus 12 filter media, 18" depth, 0.55 mm effective size, uniformity coefficient of less than 1.6.



STATE OF OHIO  
 MORGAN K. COAST  
 50848  
 PROFESSIONAL ENGINEER  
 5/11/22

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| NO. | DATE     | REVISION                                                     | drawn by: |
|-----|----------|--------------------------------------------------------------|-----------|
| 1   | 11/9/22  | ADDED SAMPLE BANK LOCATIONS AND TYPICAL FILTER CROSS SECTION | dms       |
| 2   | 5/30/23  | REVISED SECTIONS 3 AND 5                                     | dms       |
| 3   | 11/20/23 | ADDED MEDIA SPECIFICATIONS                                   | dms       |

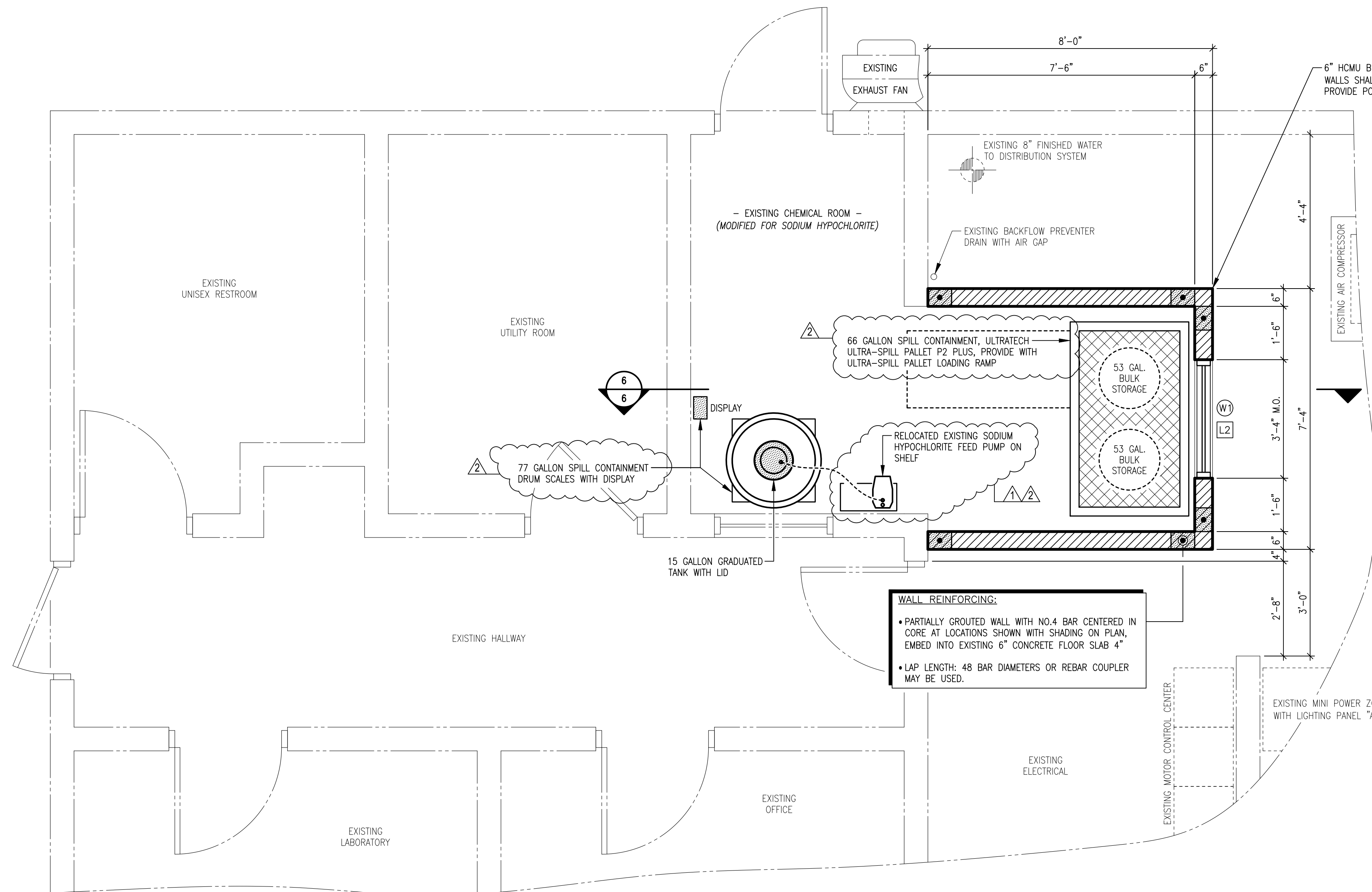
|             |                 |
|-------------|-----------------|
| CHECKED BY: | MORGAN K. COAST |
|-------------|-----------------|

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 154 South Marietta Street  
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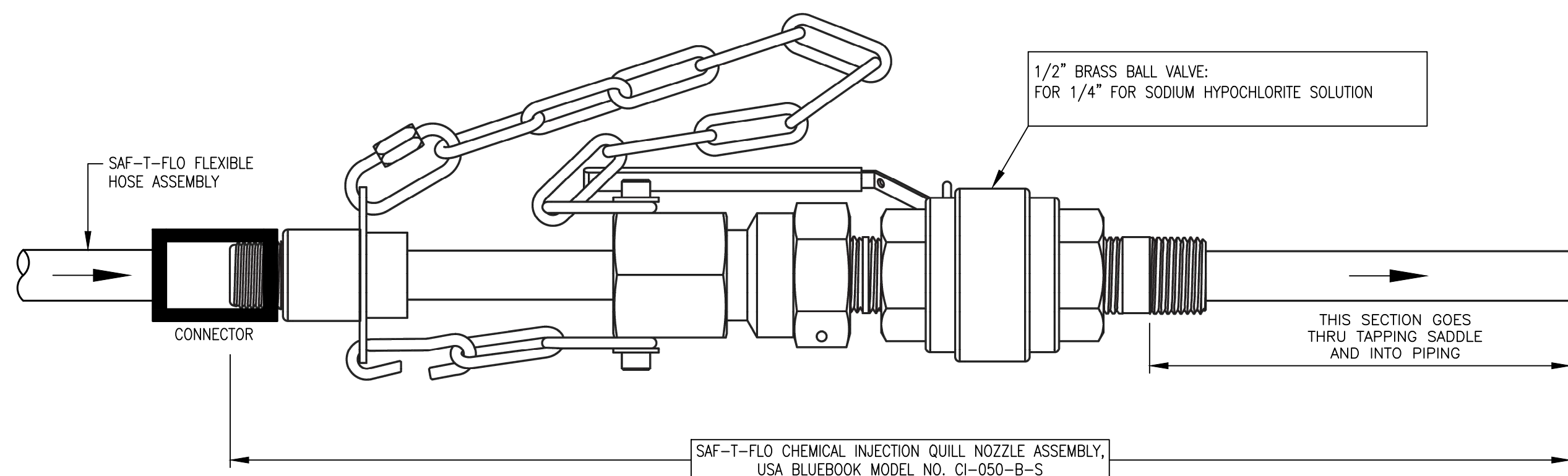
VILLAGE OF FRAZEYSBURG  
 - Water Treatment Plant Improvements -  
 Muskingum County, Ohio

**TEMPORARY TREATMENT SYSTEM  
 SECTIONS AND ISOMETRIC**

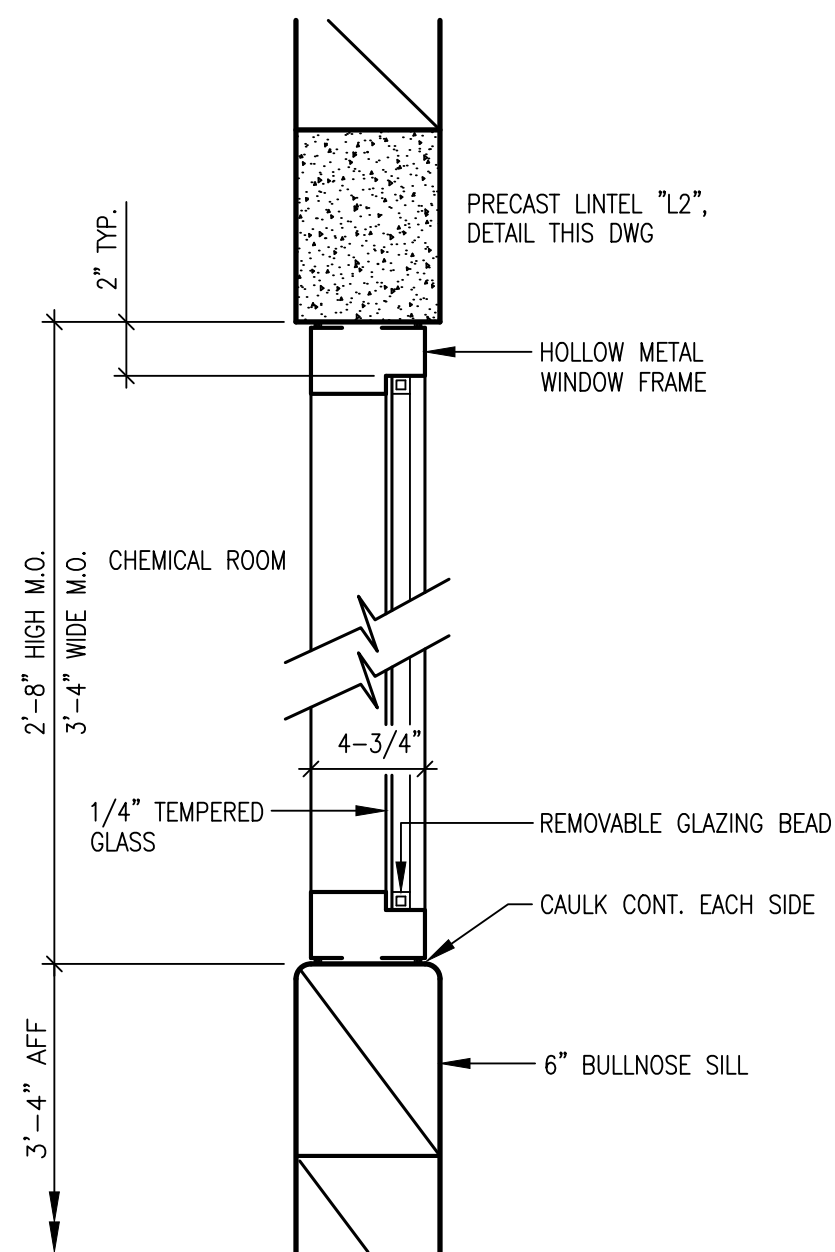
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| SCALE: | AS SHOWN | PROJECT NO. | -  |
| DATE:  | MAY 2022 | DRAWING NO. | 5r |



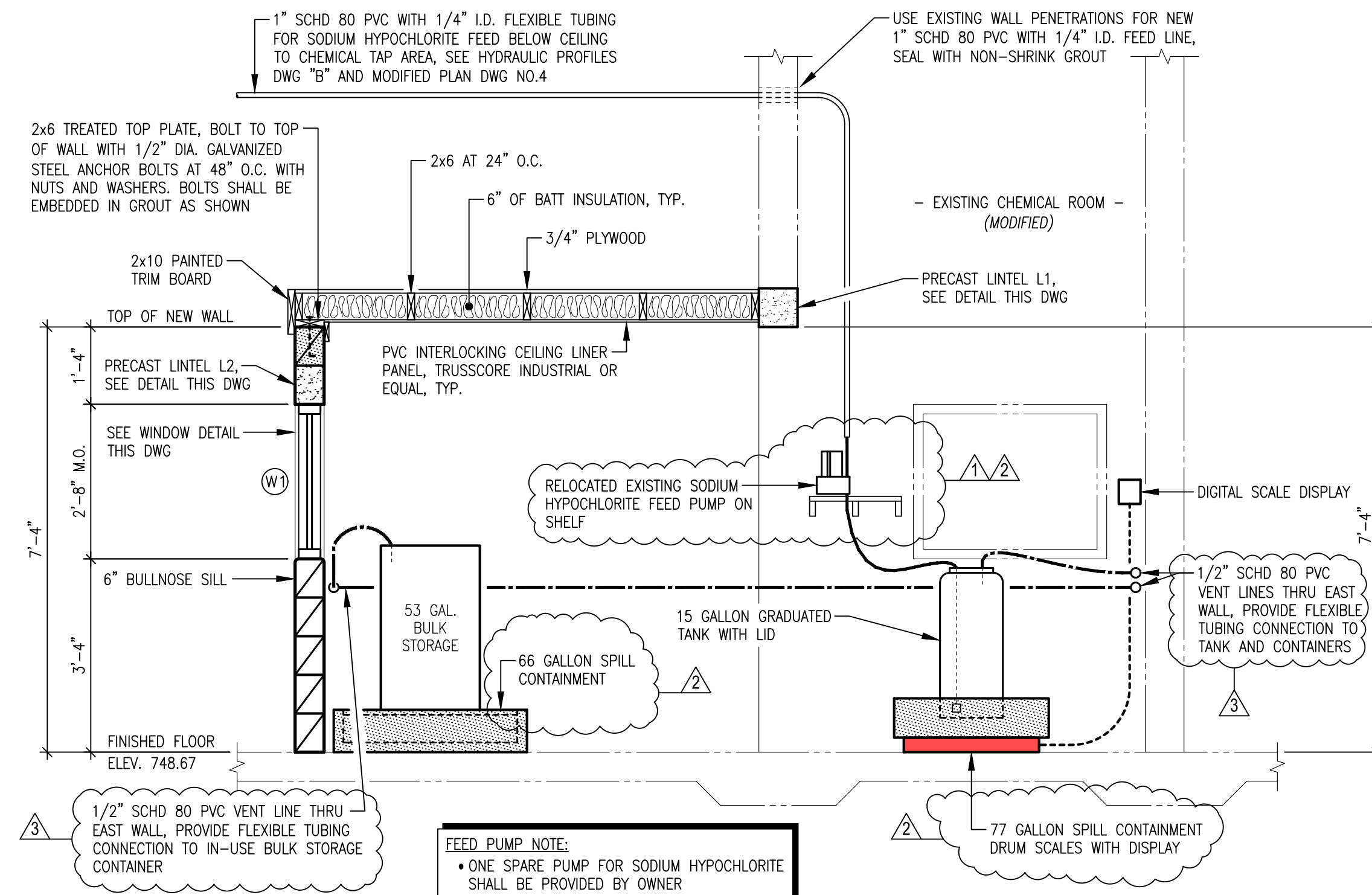
**EXISTING CHEMICAL ROOM PLAN**  
1/2"=1'-0" (22"x34")  
1/4"=1'-0" (11"x17")



**CHEMICAL SOLUTION NOZZLE ASSEMBLY DETAIL**  
NO SCALE



**WINDOW W1 DETAIL**  
1-1/2"=1'-0" (22"x34")  
3/4"=1'-0" (11"x17")

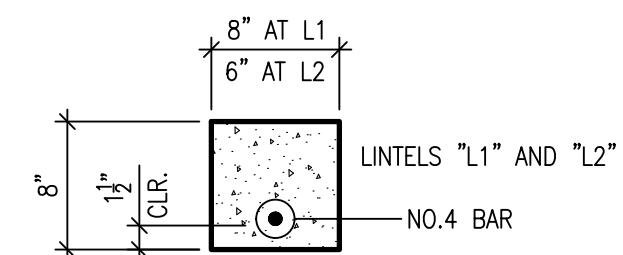


**SECTION 6**  
1/2"=1'-0" (22"x34")  
1/4"=1'-0" (11"x17")

| LINTEL SCHEDULE |                         |        |
|-----------------|-------------------------|--------|
| NO.             | DESCRIPTION             | LENGTH |
| L1              | 8" SQ. PRECAST CONCRETE | 7'-2"  |
| L2              | 8" SQ. PRECAST CONCRETE | 4'-8"  |

**LINTEL NOTES:**

1. PROVIDE 8" MIN. BEARING FOR ALL LINTELS UNLESS OTHERWISE NOTED OR SHOWN.
2. PROVIDE SLIDE BEARING ON ONE SIDE OF EACH LINTEL UNLESS OTHERWISE NOTED OR SHOWN.



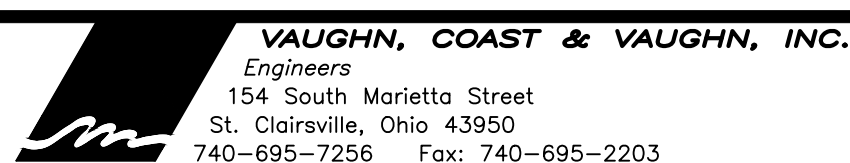
**LINTEL DETAIL**  
NO SCALE



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| NO. | DATE     | REVISION                                                                      |     |
|-----|----------|-------------------------------------------------------------------------------|-----|
| 1   | 5/30/23  | REMOVED SODIUM HYPOCHLORITE FEED TO DUALATOR FILTER AND RAW WATER RISER AREAS | dms |
| 2   | 10/6/23  | ADDED CAPACITIES TO SPILL CONTAINMENTS                                        | dms |
| 3   | 11/20/23 | ADDED VENT LINE FOR BULK STORAGE CONTAINER                                    | dms |

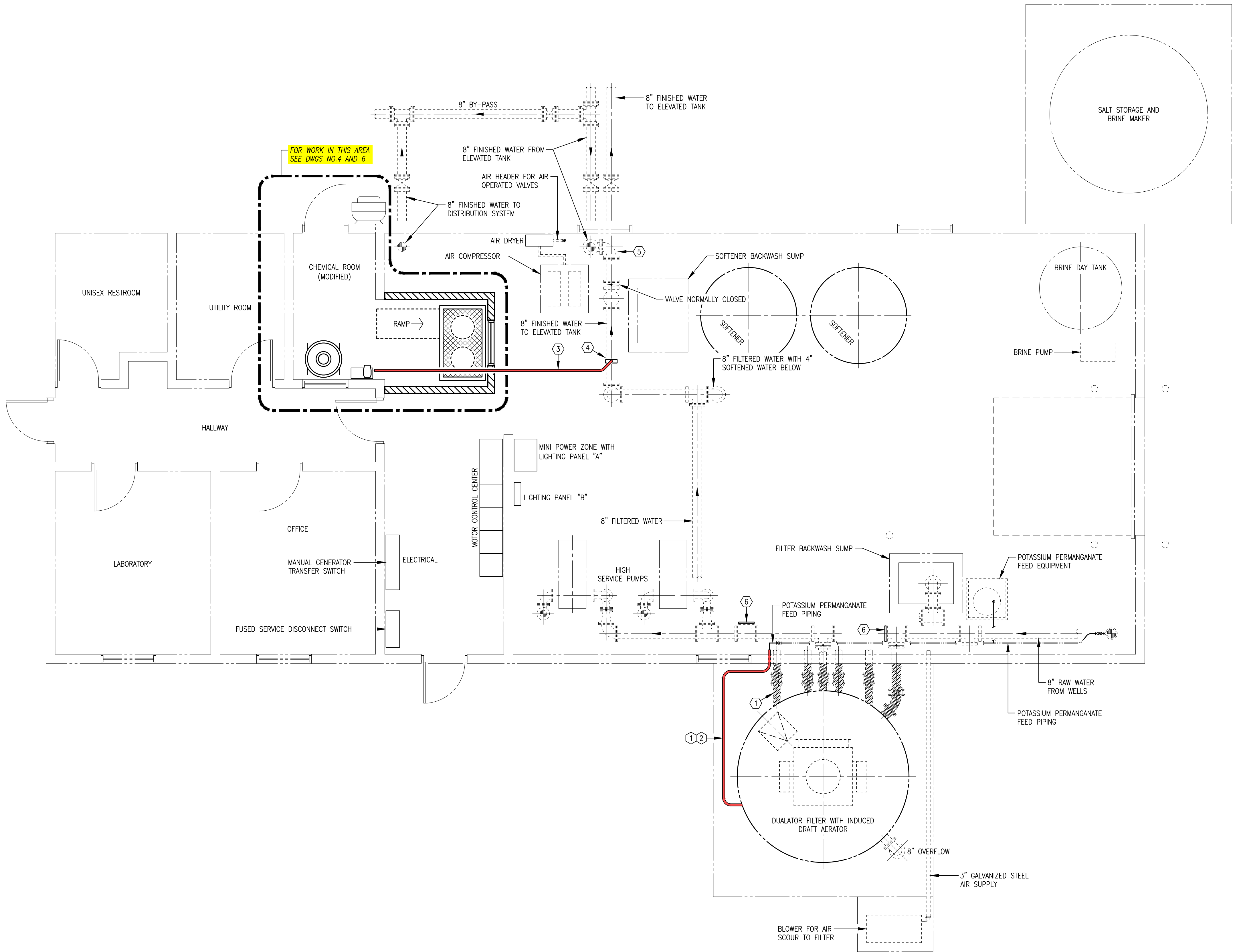
|             |                 |
|-------------|-----------------|
| DRAWN BY:   | DAVID STEWART   |
| CHECKED BY: | MORGAN K. COAST |



VILLAGE OF FRAZEYSBURG  
- Water Treatment Plant Improvements -  
Muskingum County, Ohio

**EXISTING CHEMICAL ROOM - MODIFIED  
PLAN, SECTION AND DETAILS**

|        |          |             |    |
|--------|----------|-------------|----|
| SCALE: | AS SHOWN | PROJECT NO. | -  |
| DATE:  | MAY 2022 | DRAWING NO. | 6r |

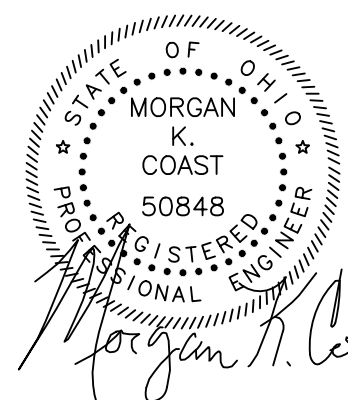


**KEY NOTES THIS DWG:**

- ① NEW HEAT TRACING AND INSULATION WITH PROTECTIVE JACKETING ON ALL EXTERIOR PIPING BETWEEN FILTER AND WALL AS SHOWN WITH SHADING, TYP. 12 PLACES. RECONNECT NEW HEAT TRACING TO EXISTING ELECTRICAL CIRCUITS.
- ② 1/2" SCHD 80 PVC POTASSIUM PERMANGANATE FEED PIPING, TIE-IN TO EXISTING AT INTERIOR.
- ③ 1" SCHD 80 PVC WITH 1/4" I.D. FLEXIBLE TUBING AT CEILING FOR SODIUM HYPOCHLORITE FEED TO FINISHED WATER PIPING TO ELEVATED TANK.
- ④ CHEMICAL FEED TAP WITH INJECTION NOZZLE, SEE DETAIL DWG NO.6
- ⑤ REINSTALL ELBOW AND FILLER FLANGE TO ORIGINAL POSITION AFTER TEMPORARY PIPING IS REMOVED.
- ⑥ INSTALL BLIND FLANGE AFTER TEMPORARY PIPING IS REMOVED.

**FLOOR PLAN AFTER COMPLETED WORK**

1/4"=1'-0" (22"x34")  
1/8"=1'-0" (11"x17")



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| NO. | DATE    | REVISION                  |
|-----|---------|---------------------------|
| 1   | 10/6/23 | THIS DRAWING ADDED TO SET |

DRAWN BY:  
DAVID STEWART  
CHECKED BY:  
MORGAN K. COAST



**VAUGHN, COAST & VAUGHN, INC.**  
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154 South Marietta Street  
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VILLAGE OF FRAZEYSBURG  
- Water Treatment Plant Improvements -  
Muskingum County, Ohio

**FLOOR PLAN AFTER COMPLETED WORK**

|              |             |
|--------------|-------------|
| SCALE:       | PROJECT NO. |
| AS SHOWN     | -           |
| DATE:        | DRAWING NO. |
| OCTOBER 2023 | 7           |