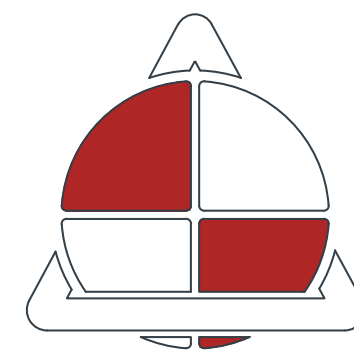


IMPROVEMENTS TO STORMWATER AND WASTEWATER COLLECTION SYSTEMS MISSOURI STATE FAIRGROUNDS SEDALIA, MISSOURI

OWNER:

STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR

DEPARTMENT OF AGRICULTURE
MISSOURI STATE FAIRGROUNDS



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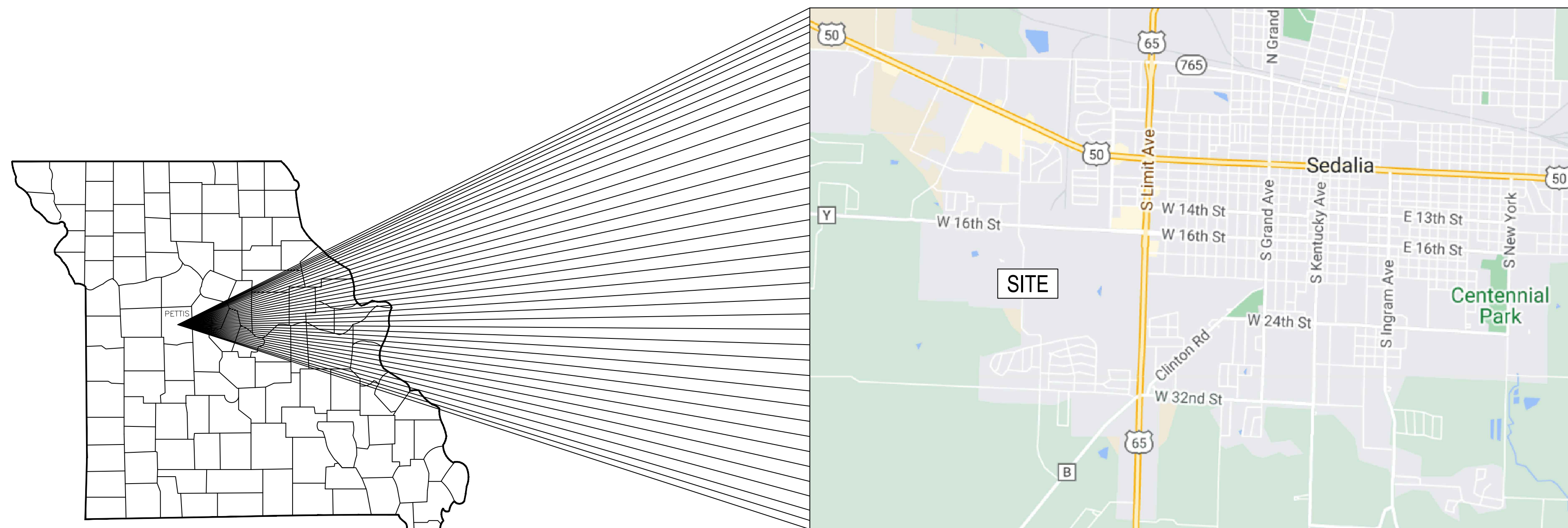
F2302-01

SITE NUMBER:

1501

FACILITY ASSET NUMBERS:

3511501138



GENERAL LOCATION MAP
NOT TO SCALE

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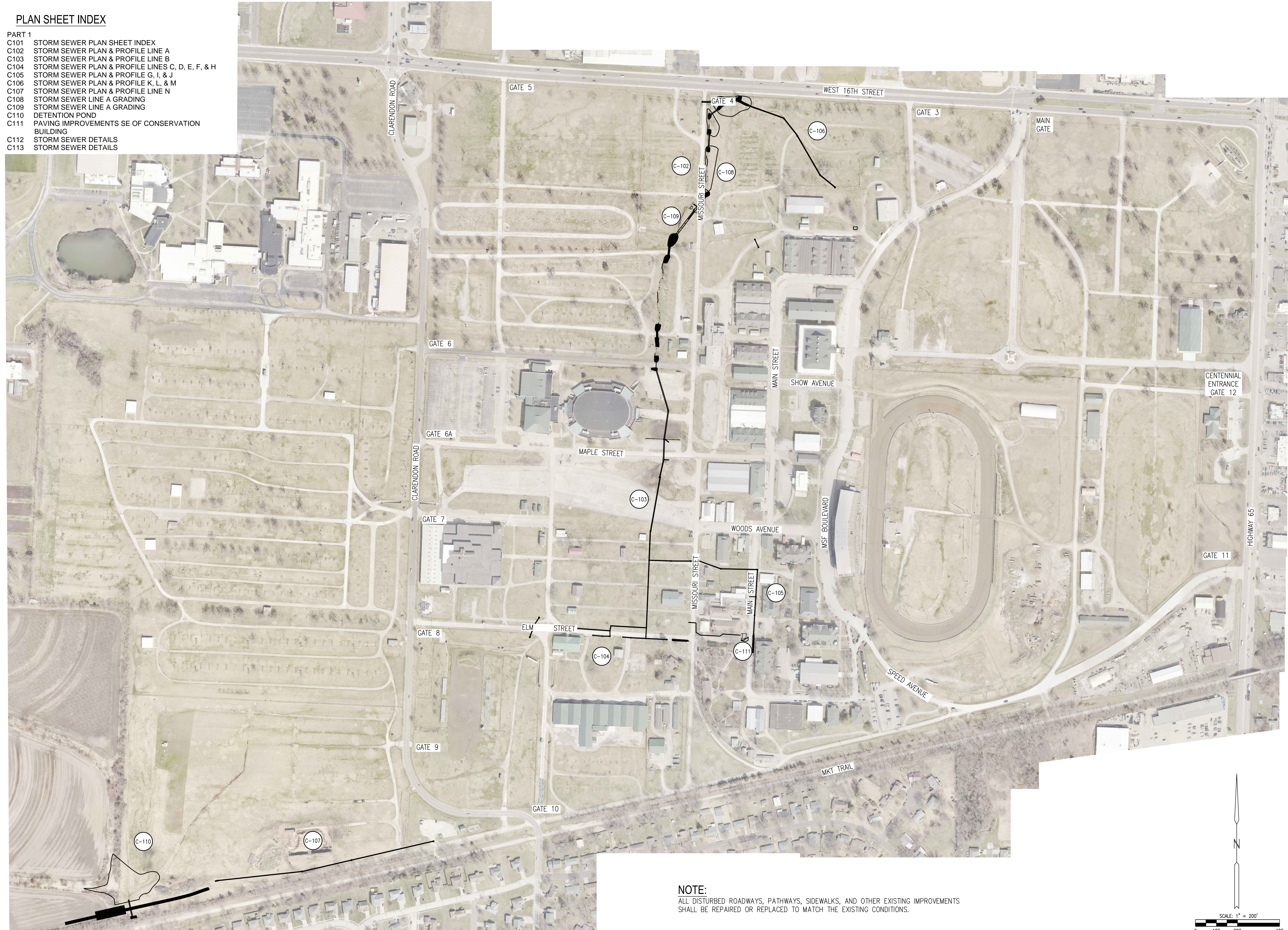
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- C230 PUMP STATION DETAILS
- C231 PUMP STATION DETAILS
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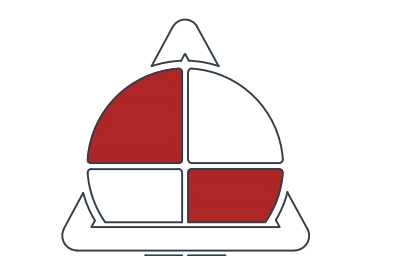
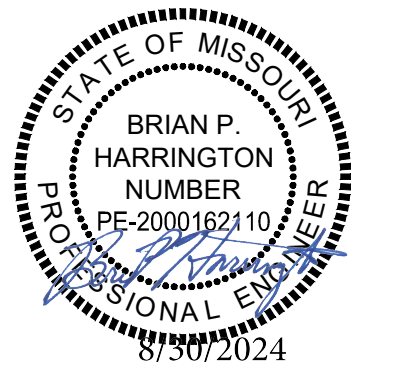
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- C111 PAVING IMPROVEMENTS SE OF CONSERVATION BUILDING
- C112 STORM SEWER DETAILS
- C113 STORM SEWER DETAILS



NOTE:
 ALL DISTURBED ROADWAYS, PATHWAYS, SIDEWALKS, AND OTHER EXISTING IMPROVEMENTS SHALL BE REPAIRED OR REPLACED TO MATCH THE EXISTING CONDITIONS.

STATE OF MISSOURI
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IMPROVEMENTS TO
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 SYSTEMS, INFRASTRUCTURE

MISSOURI
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 2503 W 16TH STREET
 SEDALIA, MISSOURI

PROJECT # F-2302-01
 SITE # 1501
 FACILITY # 3511501138

REVISION: _____
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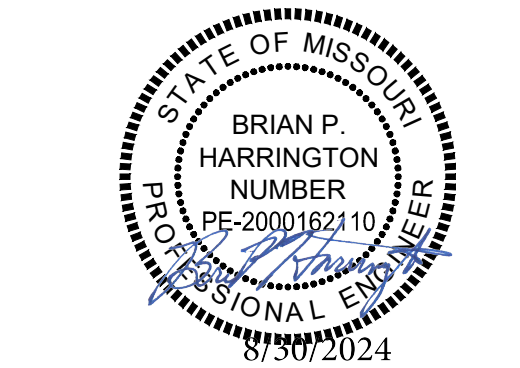
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 CHECKED BY: CWS
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SHEET TITLE:
**STORM SEWER PLAN
 SHEET INDEX**

SHEET NUMBER:

C-101

SHEET 2 OF 48
 8/30/2024



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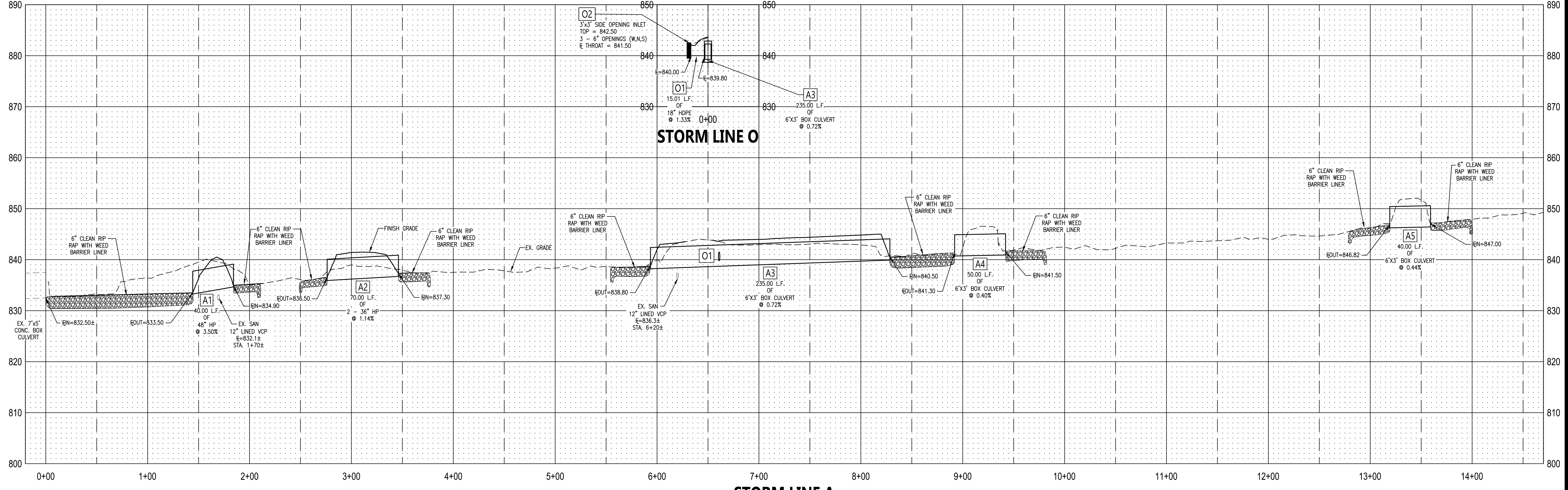
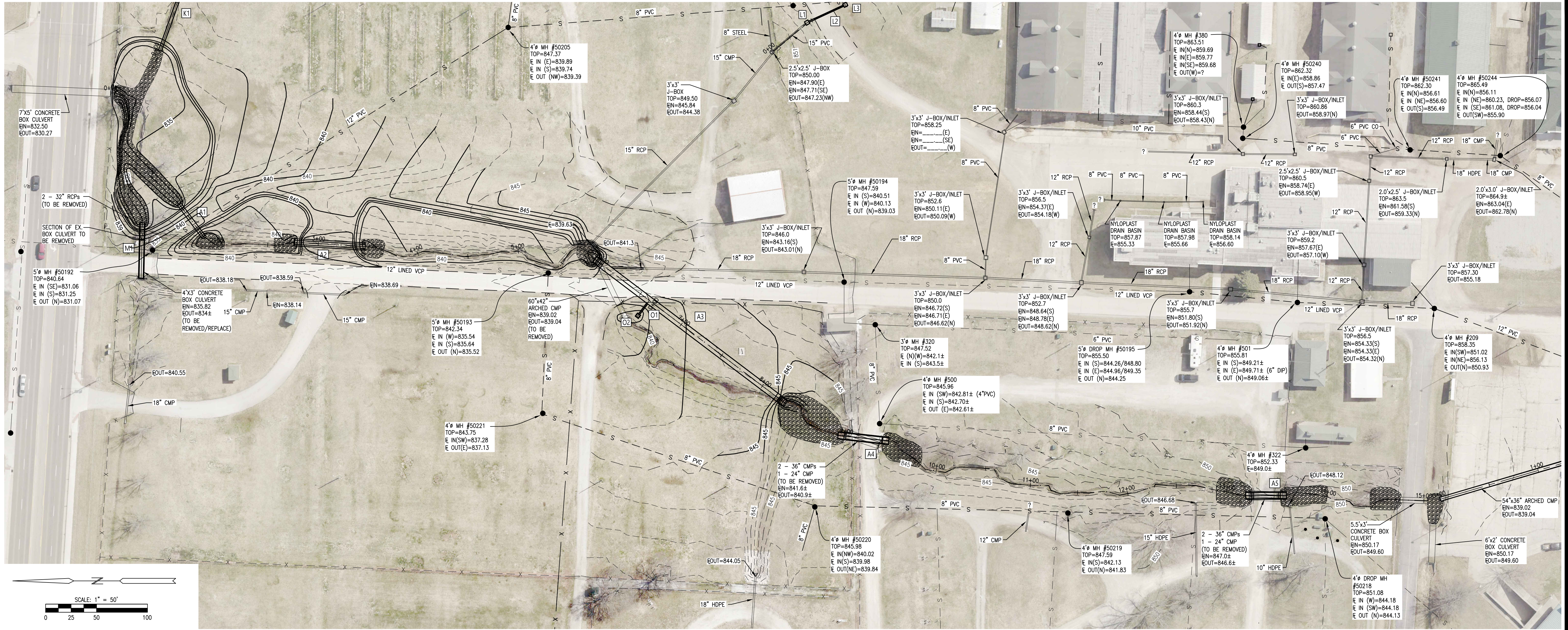
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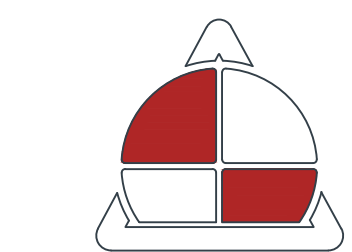
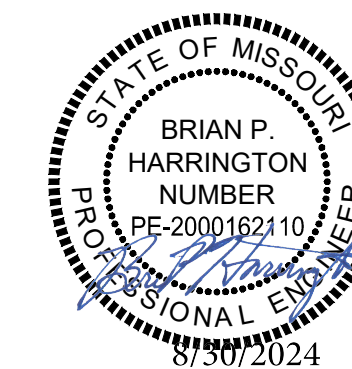
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SHEET NUMBER:

C-102

SHEET 3 OF 48
8/30/2024





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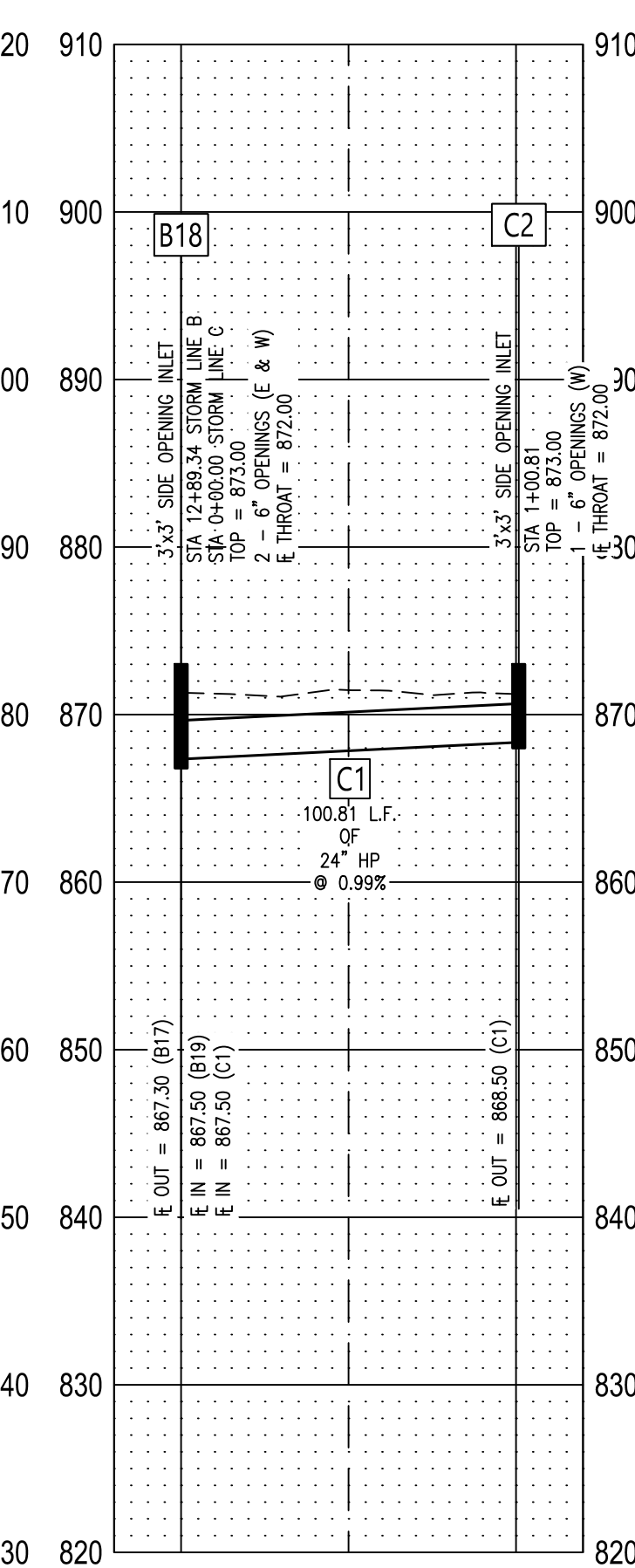
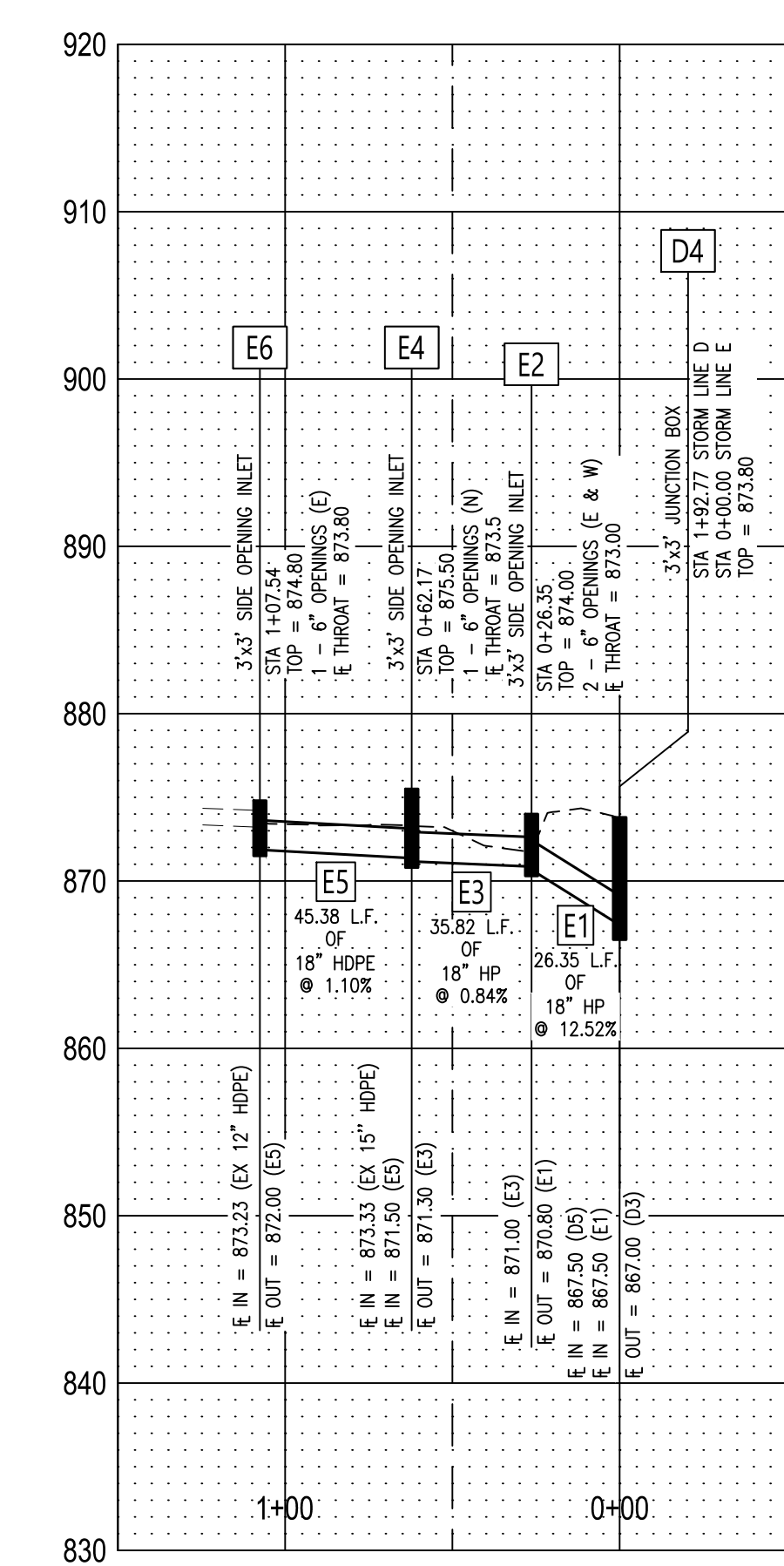
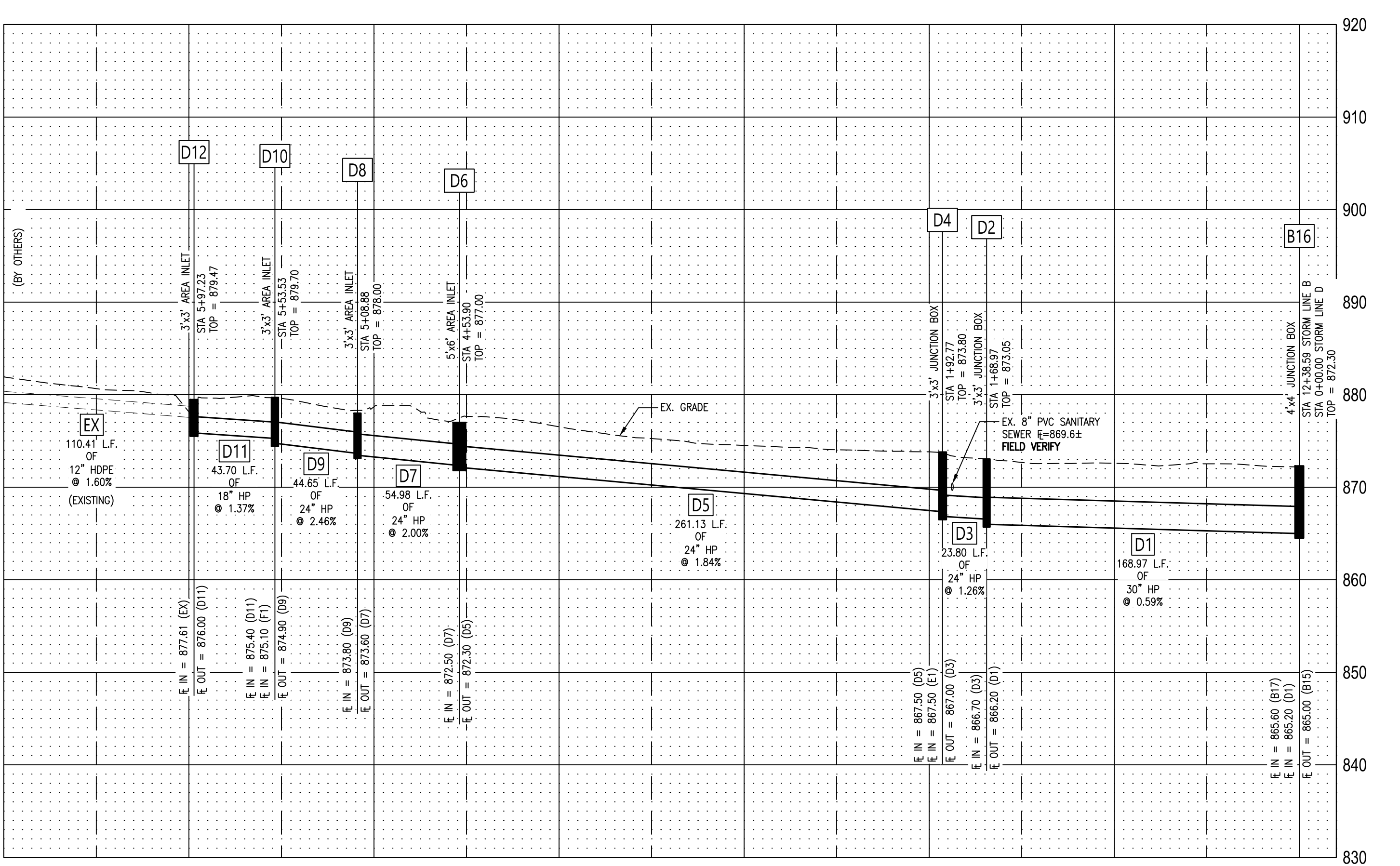
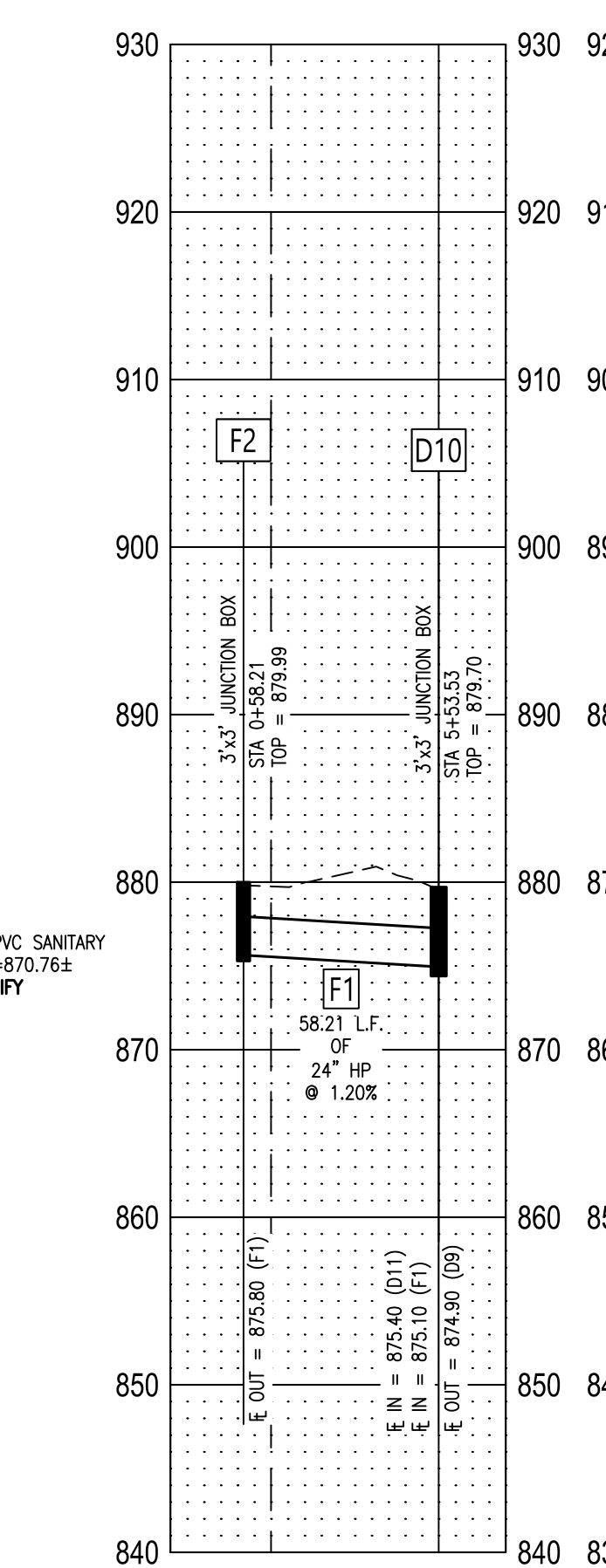
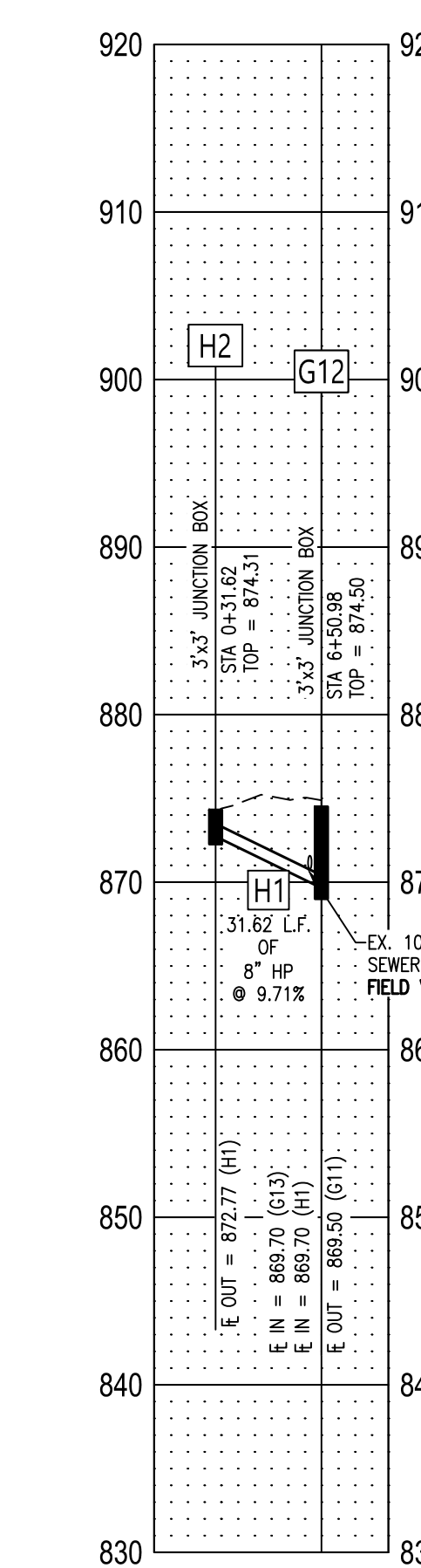
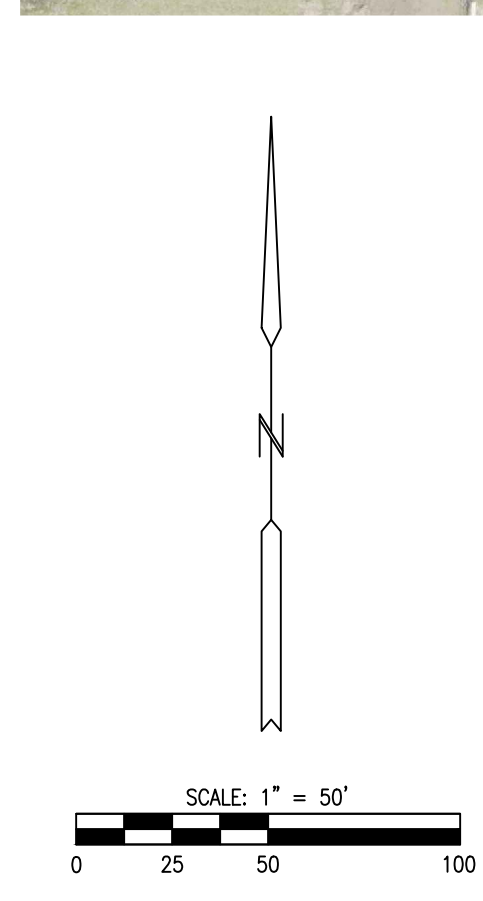
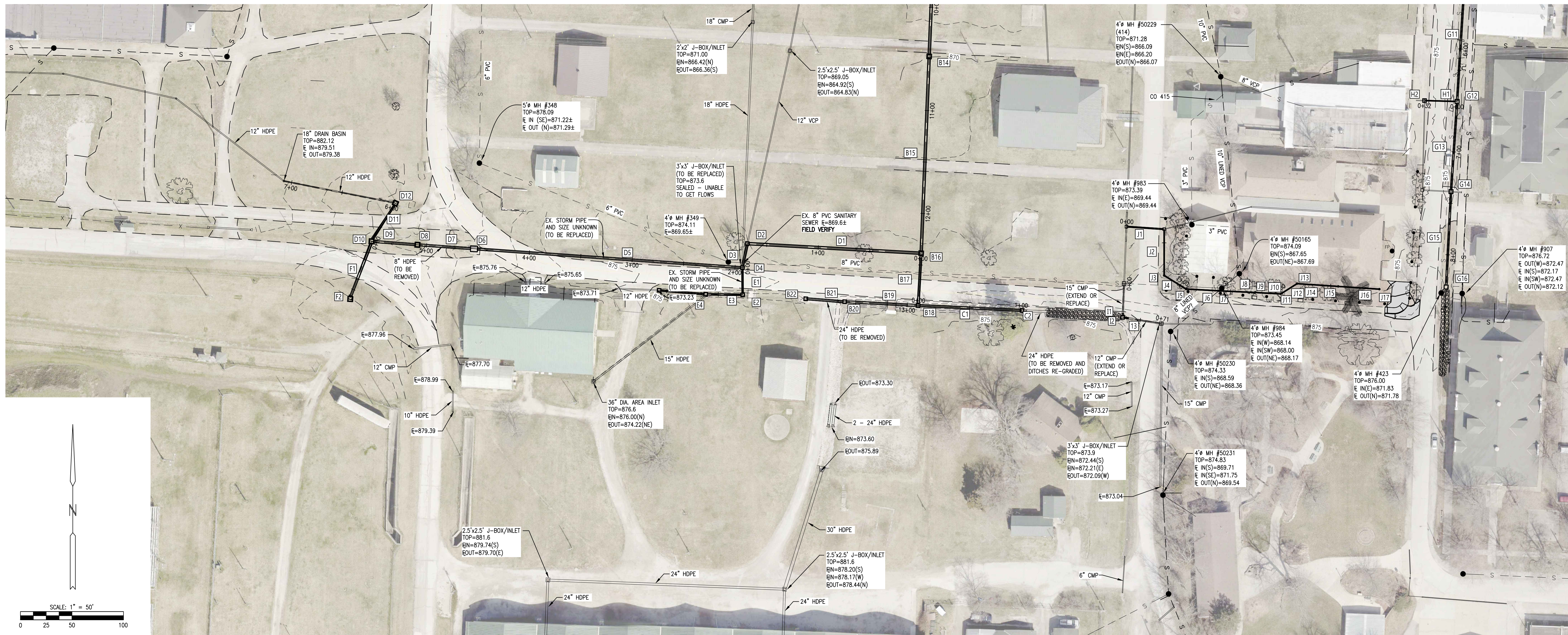
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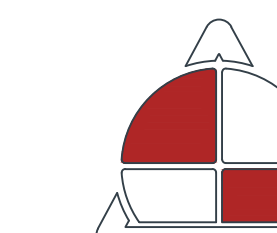
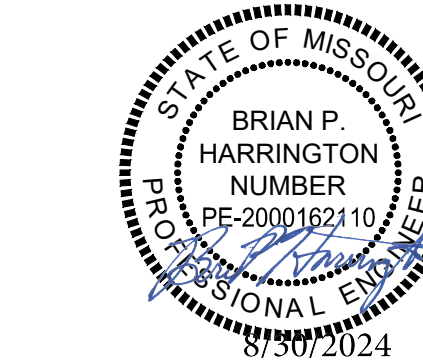
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**STORM SEWER PLAN
& PROFILE LINES C, D,
E, F, & H**

SHEET NUMBER:

C-104

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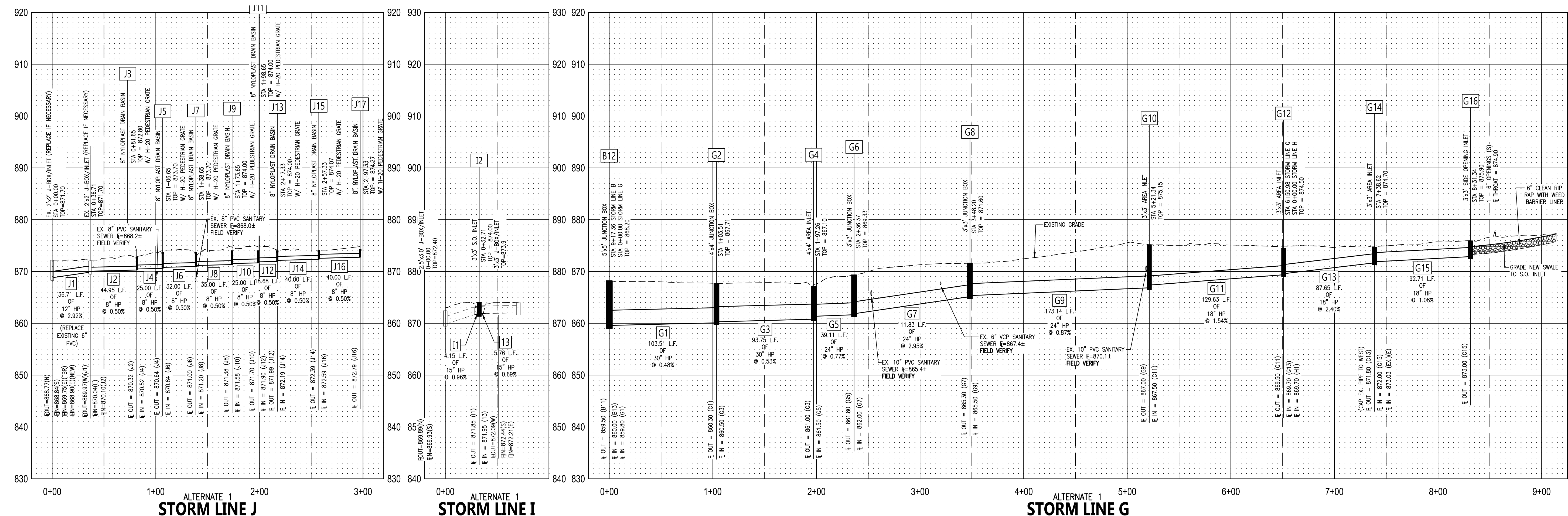
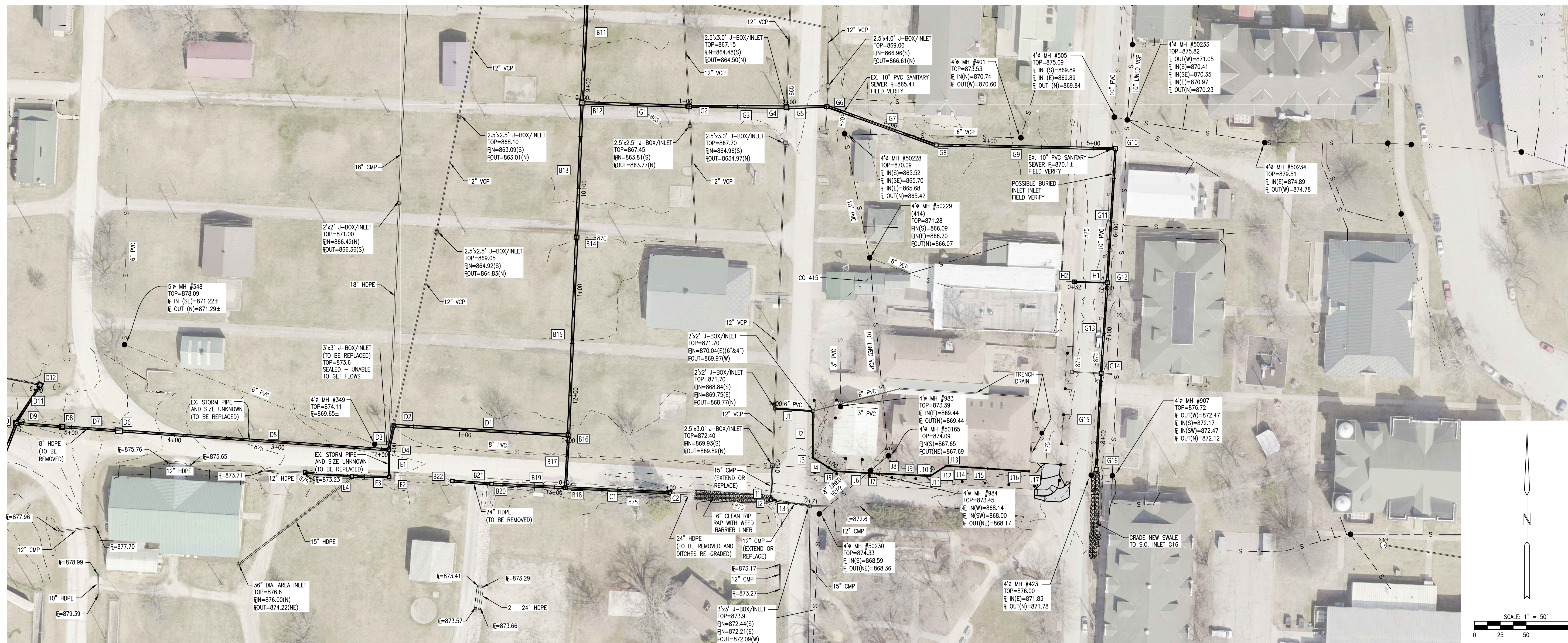
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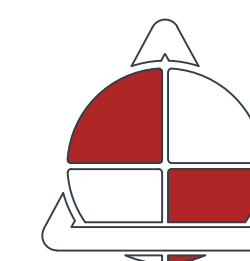
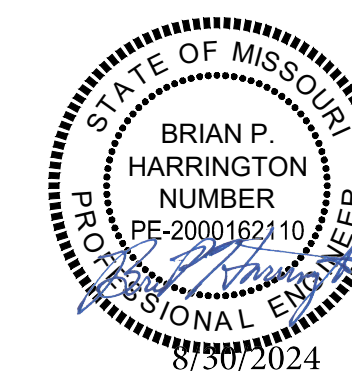
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& J**

SHEET NUMBER:

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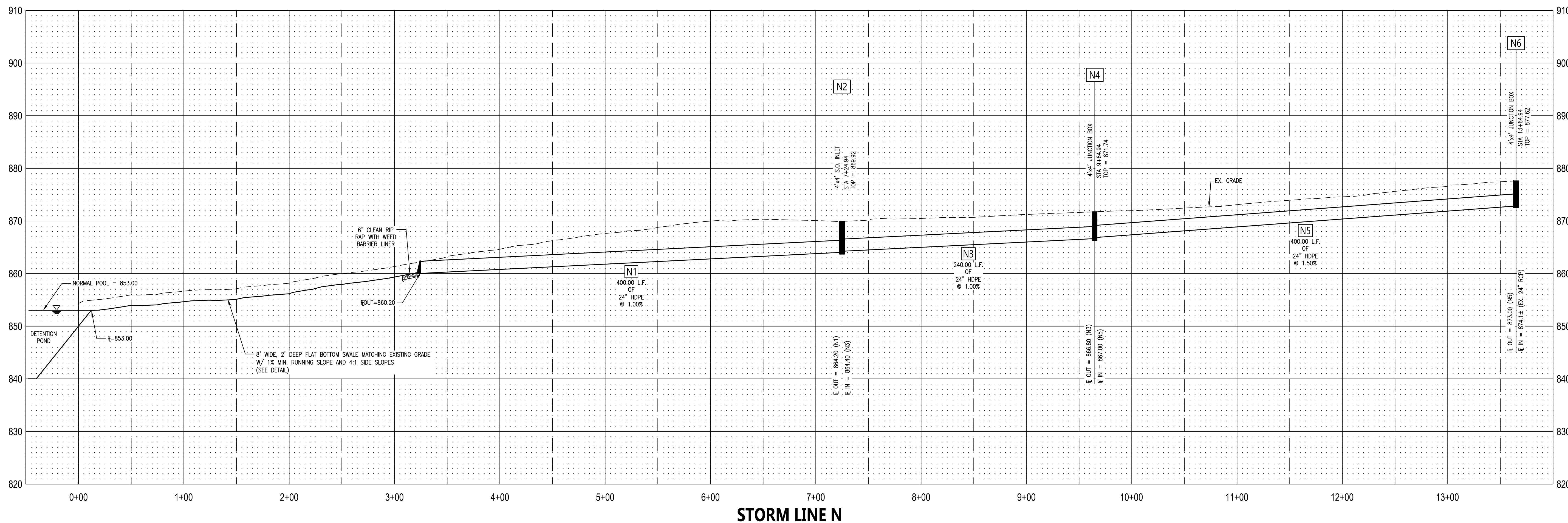
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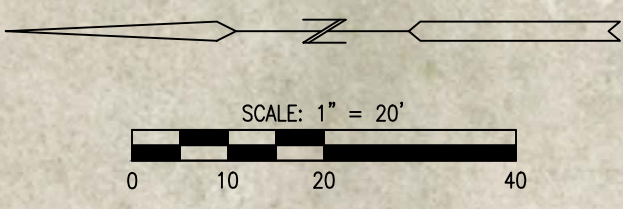
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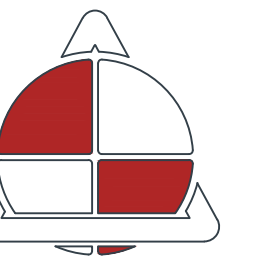
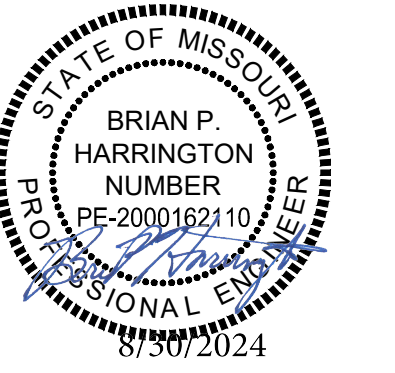
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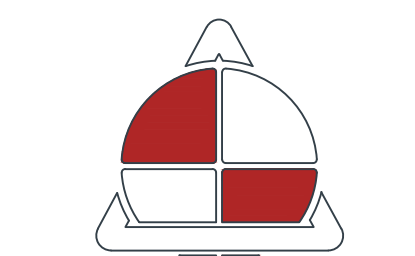
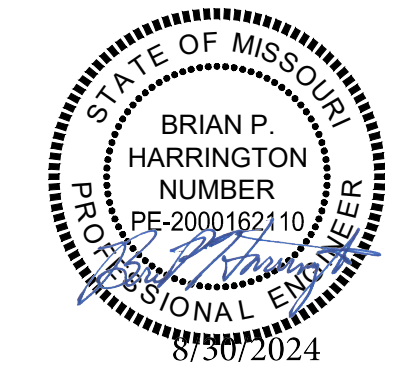
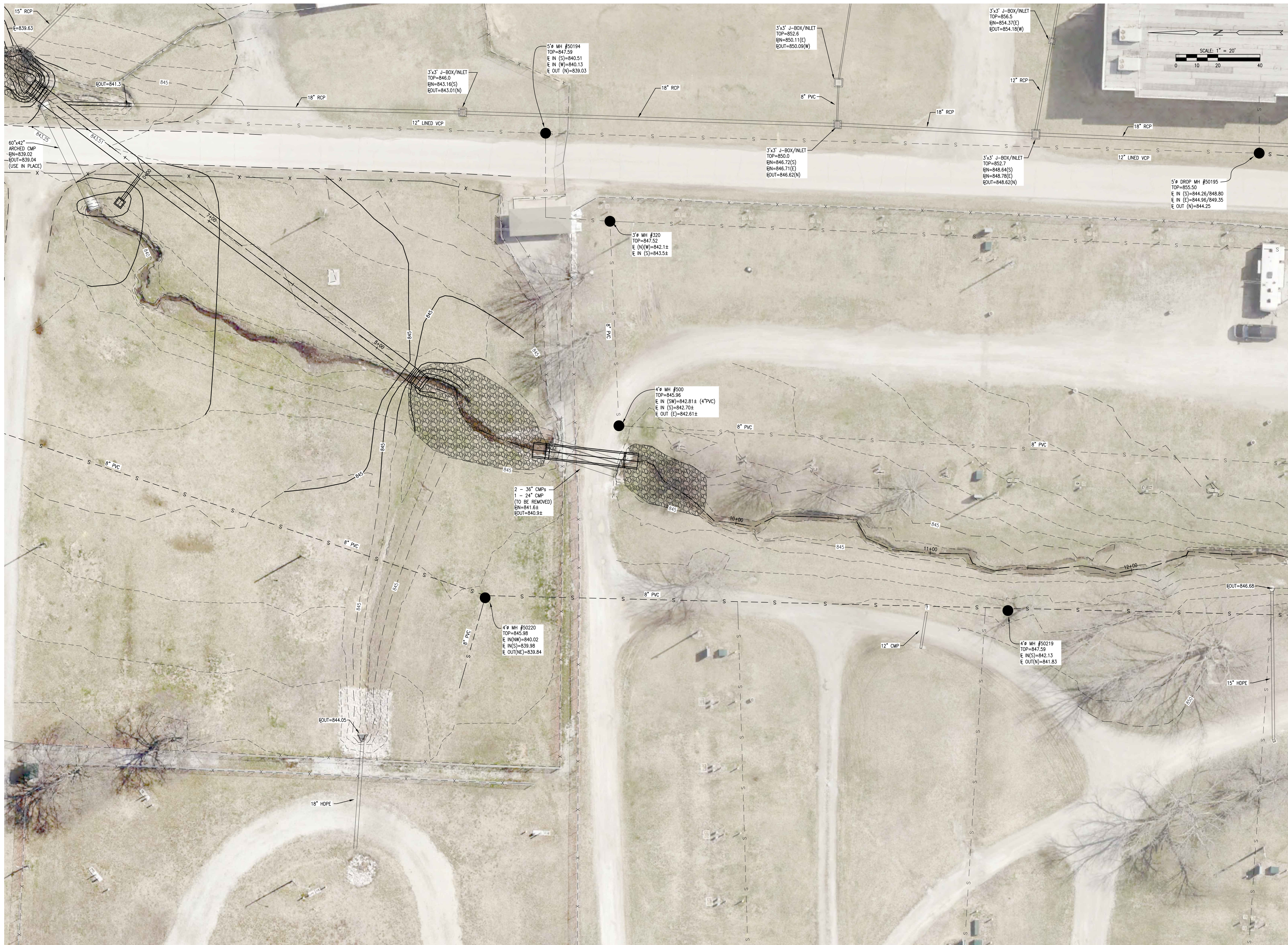
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SHEET TITLE:
**STORM SEWER LINE A
GRADING**

SHEET NUMBER:

C-108

SHEET 9 OF 48
8/30/2024



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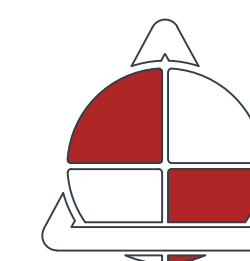
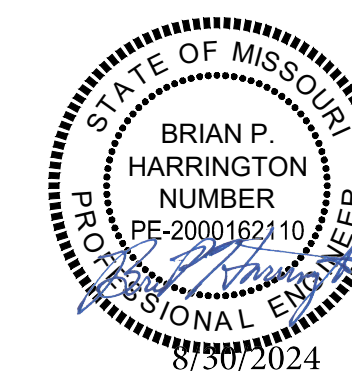
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SHEET TITLE:
**STORM SEWER LINE A
GRADING**

SHEET NUMBER:

C-109

SHEET 10 OF 48
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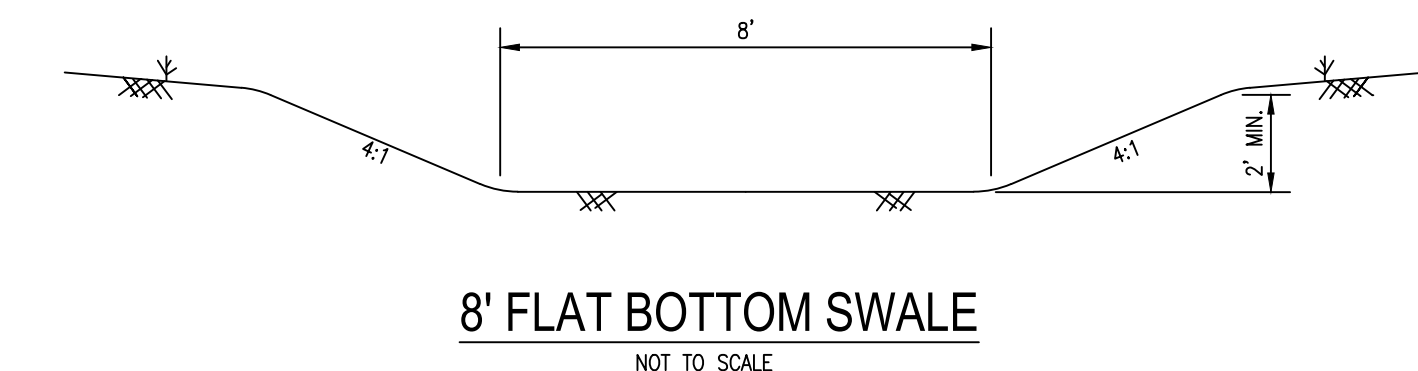
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DETENTION POND

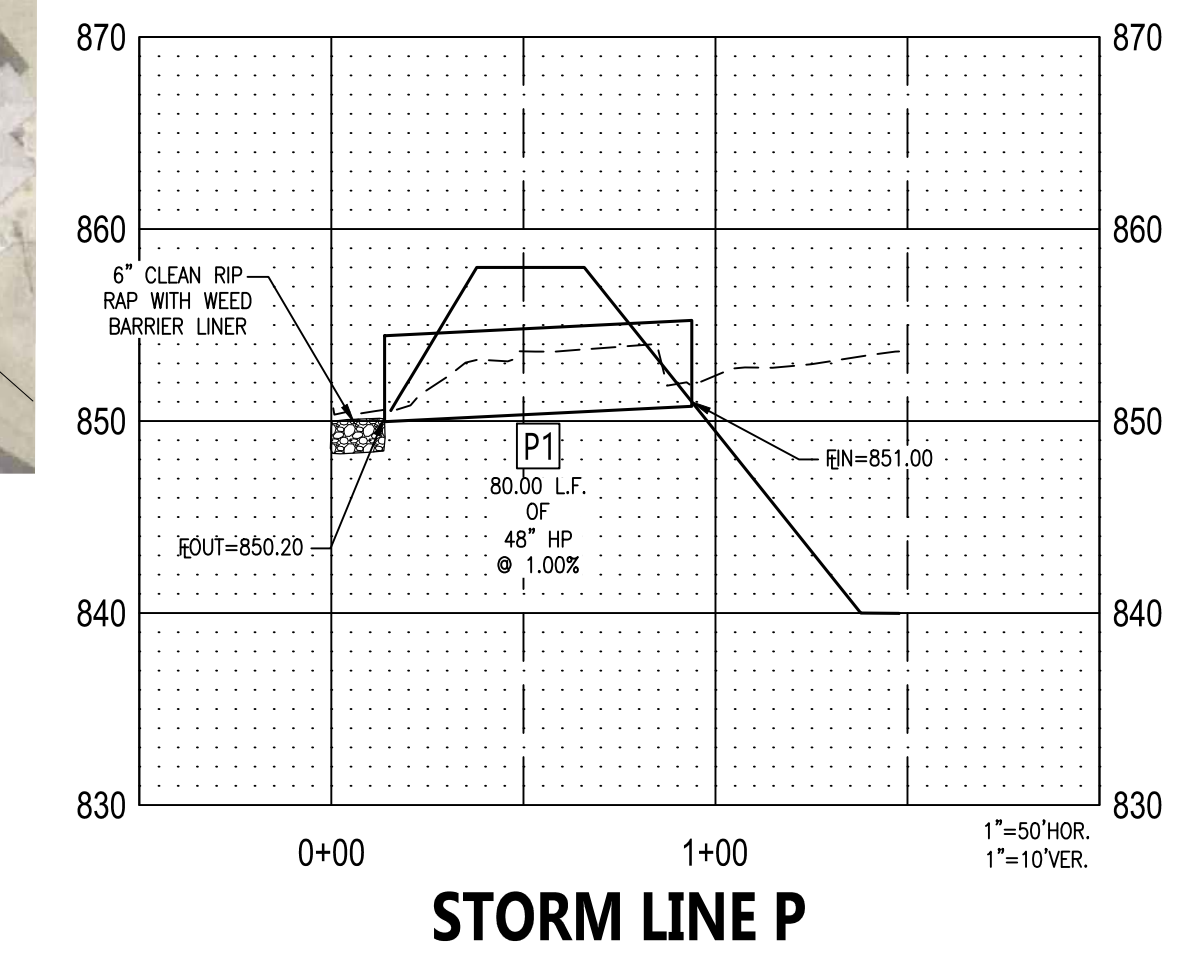
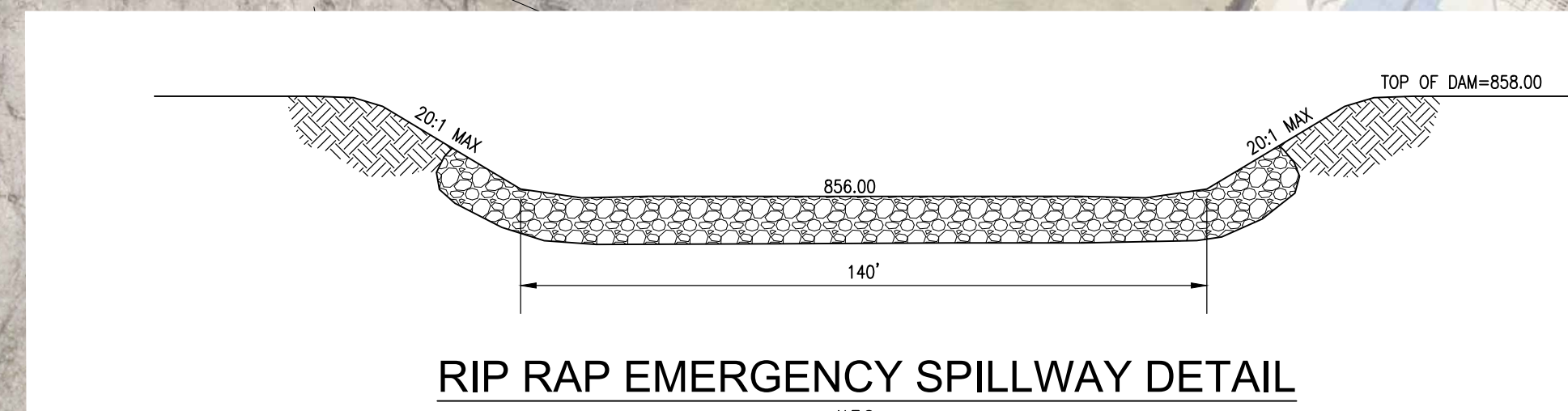
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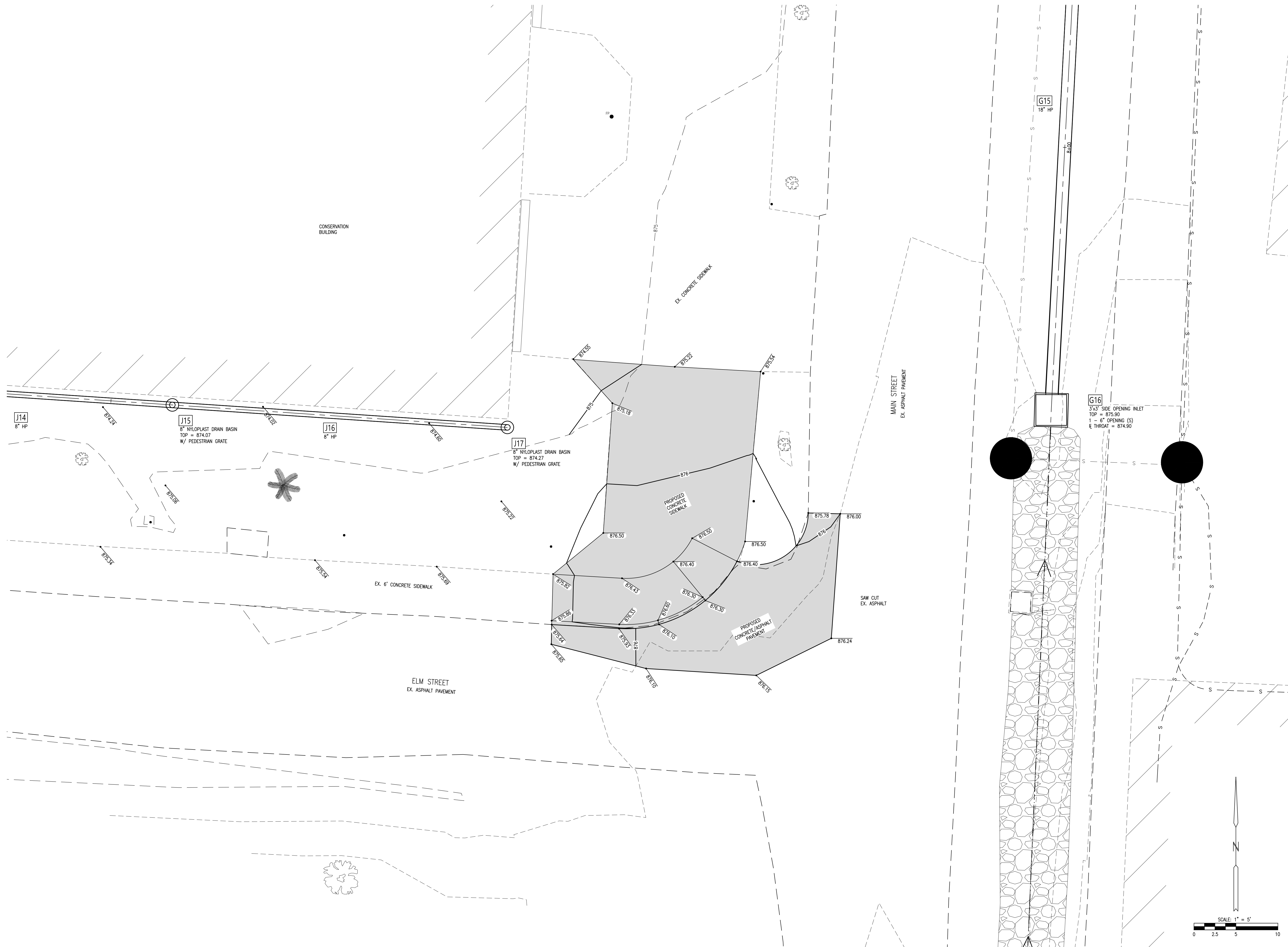
C-110

SHEET 11 OF 48
8/30/2024

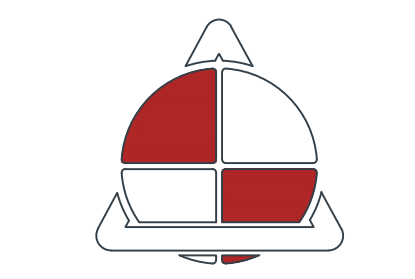
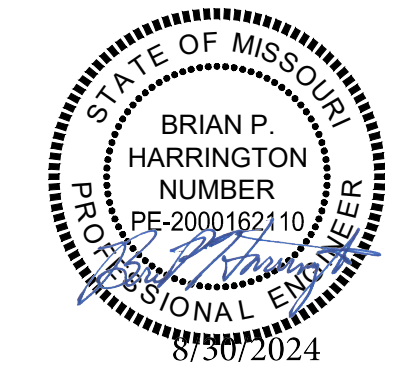


8' WIDE, 2' DEEP FLAT BOTTOM SWALE MATCHING EXISTING GRADE
W/ 1% MIN. RUNNING SLOPE AND 4:1 SIDE SLOPES
(SEE DETAIL)





STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



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(660) 376-2941
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MISSOURI STATE
FAIRGROUNDS

IMPROVEMENTS TO
STORMWATER AND
WASTEWATER COLLECTION
SYSTEMS, INFRASTRUCTURE

MISSOURI
STATE FAIRGROUNDS
2503 W 16TH STREET
SEDALIA, MISSOURI

PROJECT # F-2302-01
SITE # 1501
FACILITY # 3511501138

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 8/30/2024

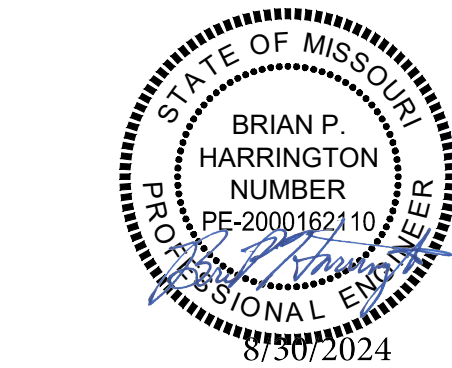
CAD DWG FILE: 22230-DESIGN STORM.dwg
DRAWN BY: JPS
CHECKED BY: CWS
DESIGNED BY: BPH

SHEET TITLE:
PAVING
IMPROVEMENT SE OF
CONSERVATION
BUILDNG

SHEET NUMBER:

C-111

SHEET 12 OF 48
8/30/2024



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PROJECT # F-2302-01
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REVISION: _____
DATE: _____
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ISSUE DATE: 8/30/2024

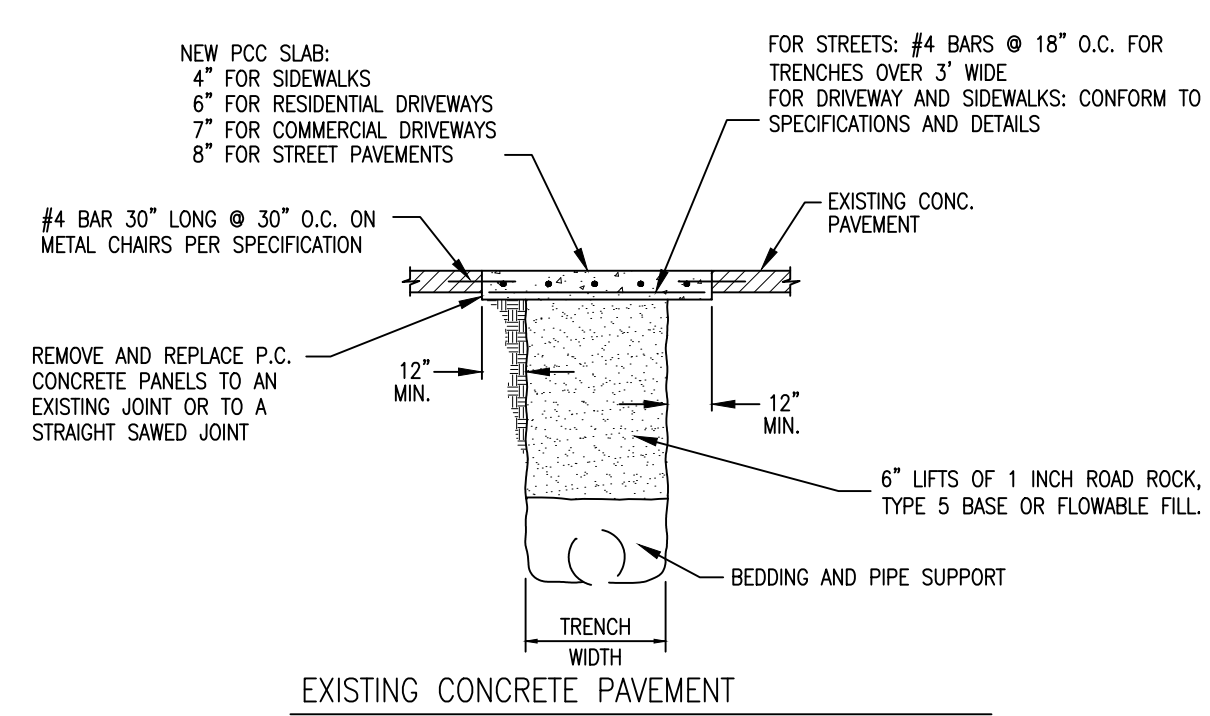
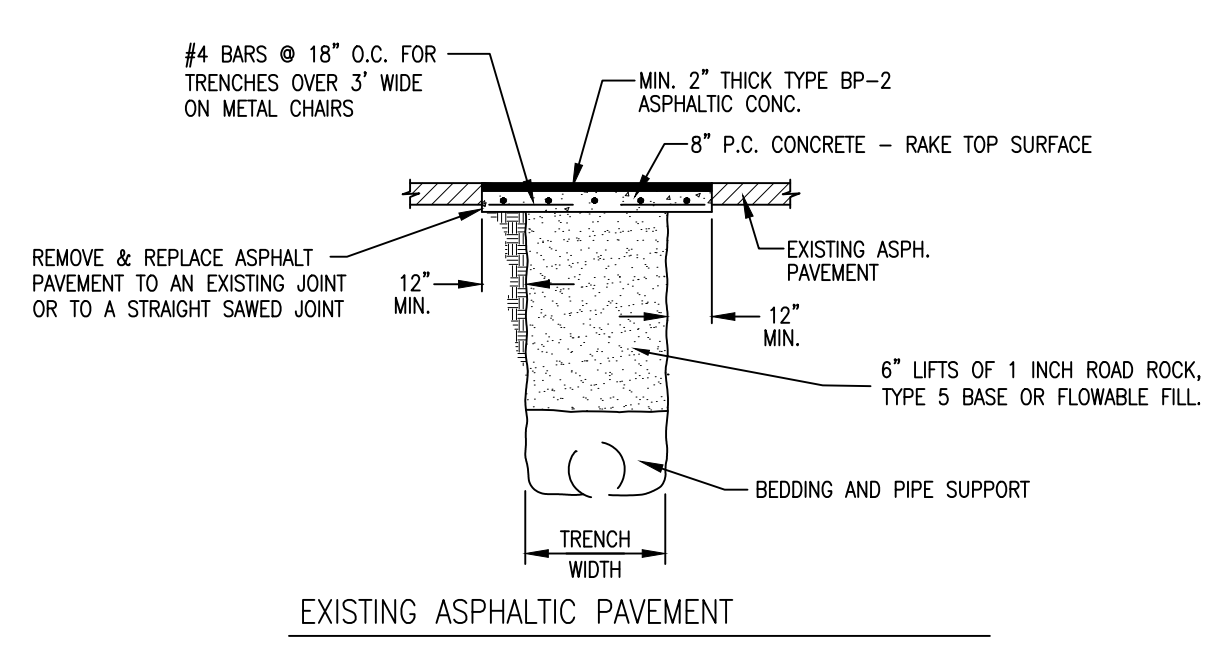
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DRAWN BY: JPS
CHECKED BY: CWS
DESIGNED BY: BPH

SHEET TITLE:
**STORM SEWER
DETAILS**

SHEET NUMBER:

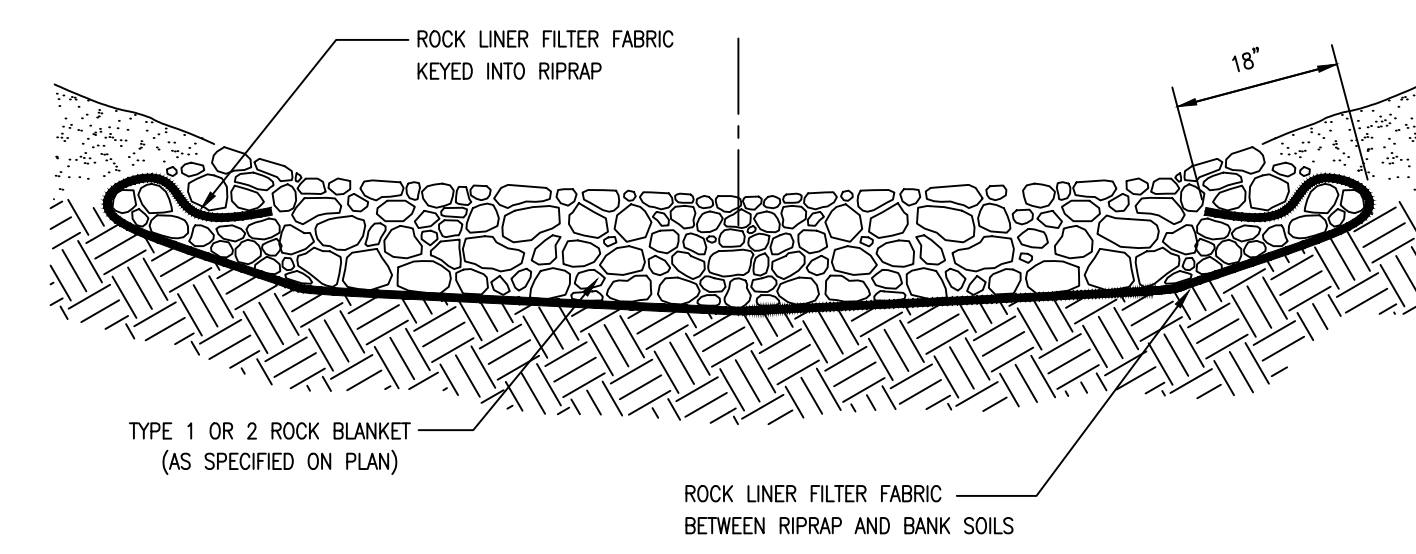
C-112

SHEET 13 OF 48
8/30/2024



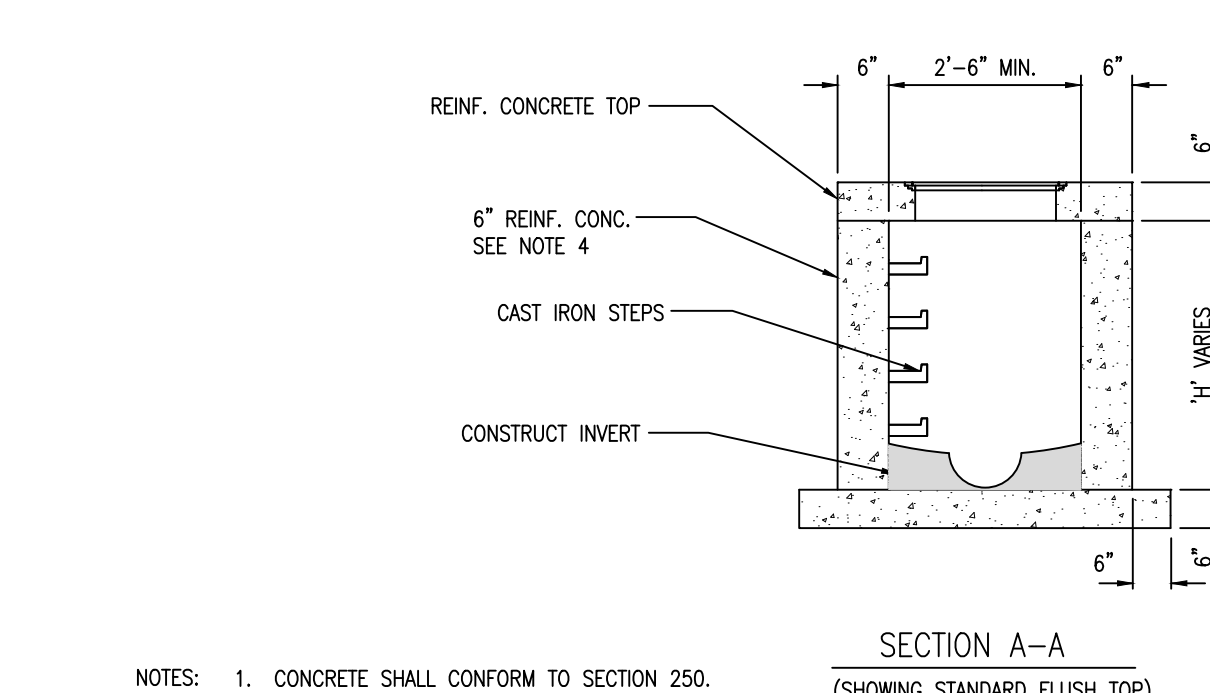
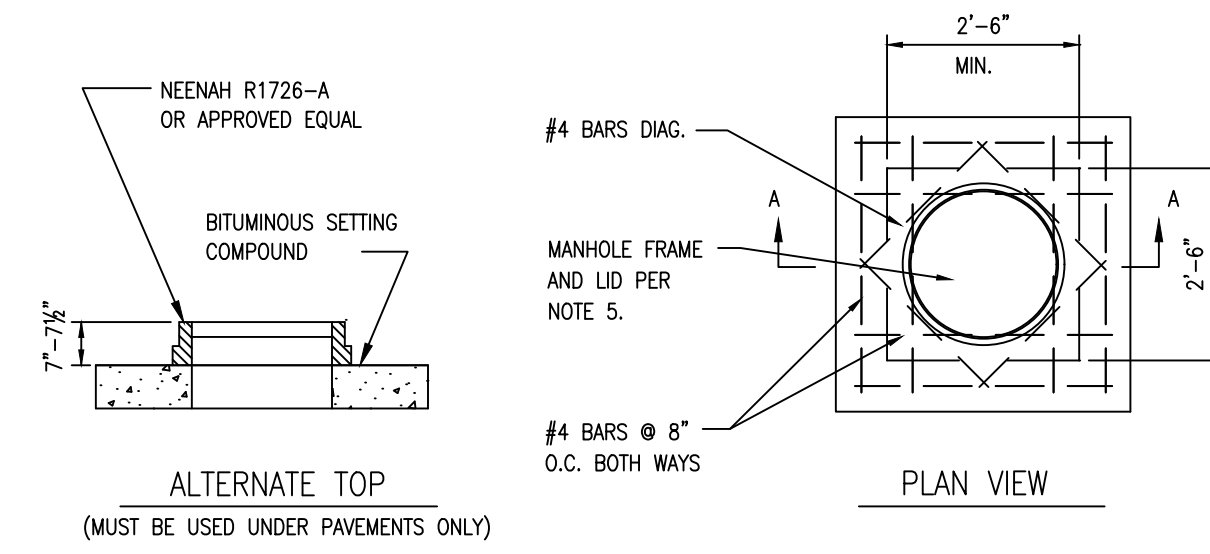
- NOTES:
- CONCRETE SHALL BE MODOT PAVEMENT CONCRETE. REINFORCING STEEL SHALL BE GRADE 60.
 - FOR BRICK STREETS W/ASPHALTIC OVERLAY THE TOP OF 8" P.C.C. SLAB SHALL MATCH THE TOP OF BRICKS AND THE NEW ASPHALT THICKNESS SHALL MATCH EXISTING ASPHALT THICKNESS.
 - FOR BRICK STREETS THE TOP OF 8" P.C.C. SLAB SHALL MATCH TOP OF SUBGRADE.
 - SEE SECTION 201.12.10.1 FOR 1" ROAD ROCK GRADATION

PAVEMENT PATCHING



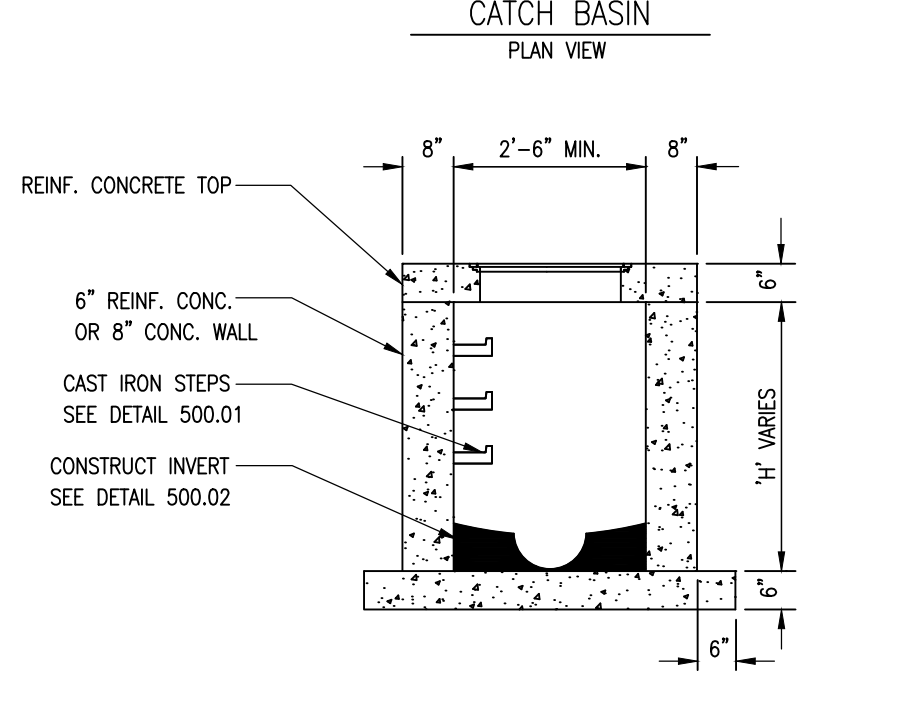
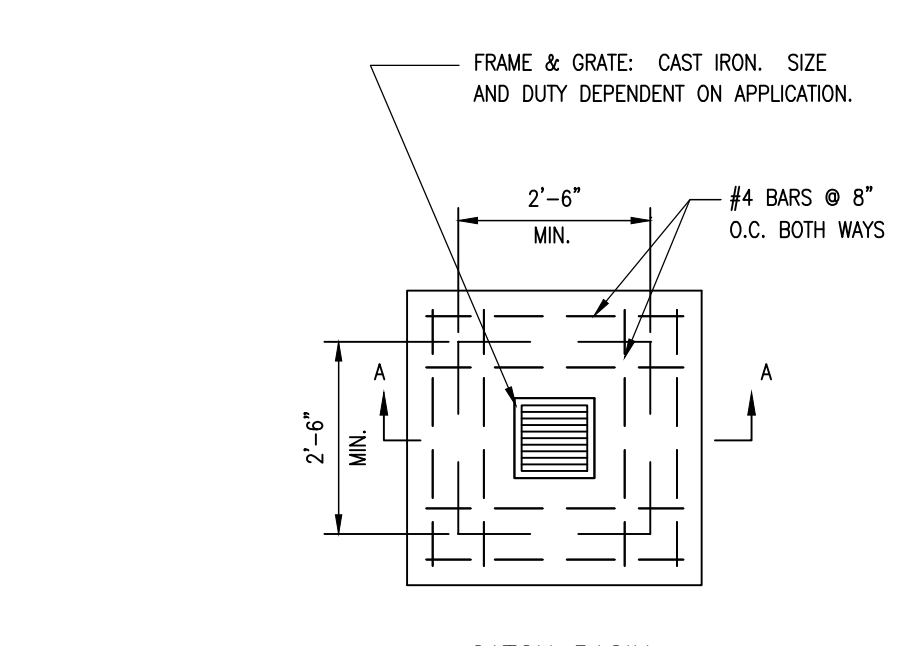
- NOTE:
- ROCK LINER FILTER FABRIC SHALL CONSIST OF A NON-WOVEN, POLYPROPYLENE TYPE FABRIC SUCH AS: AMOCO 4553 NON-WOVEN GEOTEXTILE FABRIC OR APPROVED EQUAL.

RIP RAP W / FILTER FABRIC



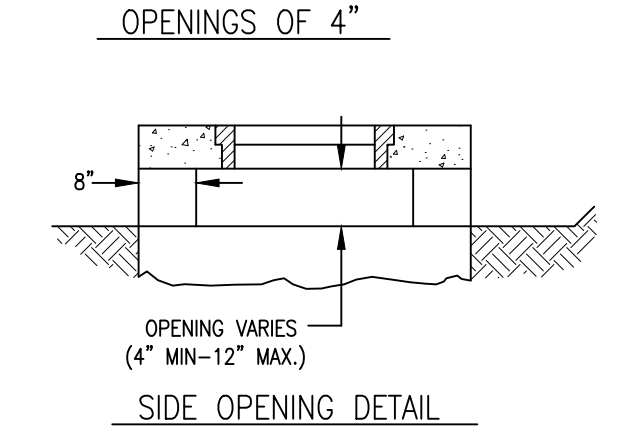
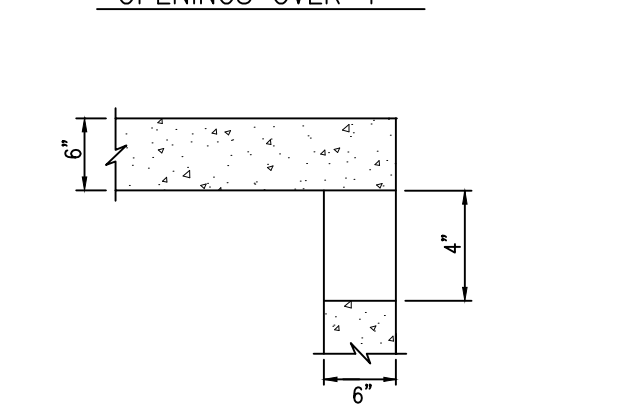
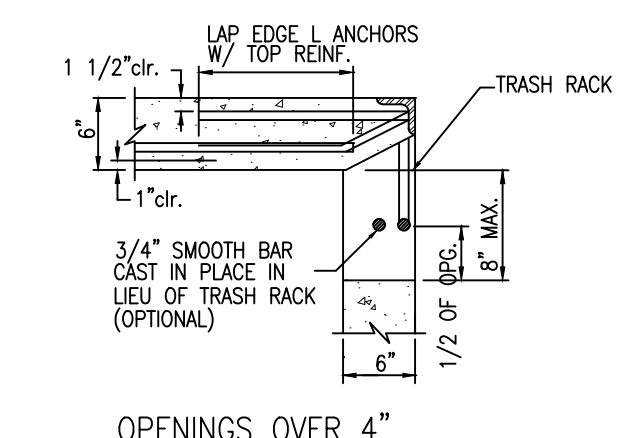
- NOTES:
- CONCRETE SHALL CONFORM TO SECTION 250.
 - REINFORCING STEEL SHALL BE GRADE 60
 - INSTALL WEEP HOLES
 - USE #4 BARS AT 12" CTRS, BOTH WAYS AND #4 BARS DIAGONAL AT PIPE OPENINGS.
 - FRAME AND LID SHALL BE NEENAH 4-1960-A (TYPE C LID) OR APPROVED EQUAL.

JUNCTION BOX



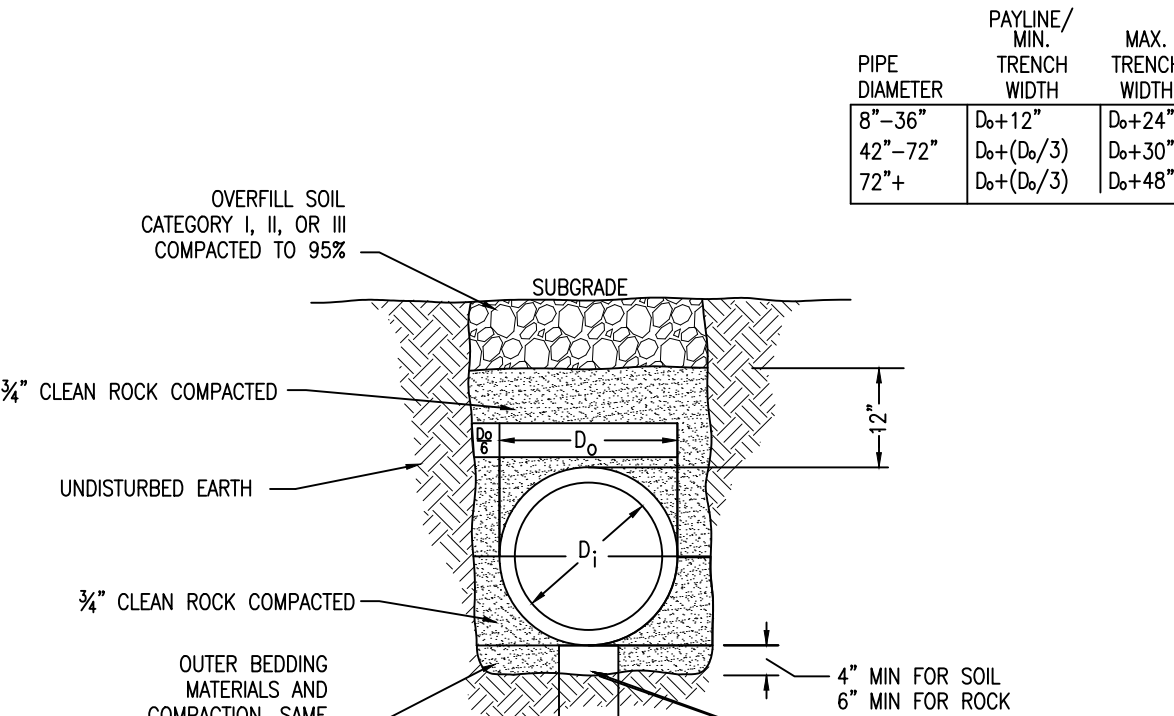
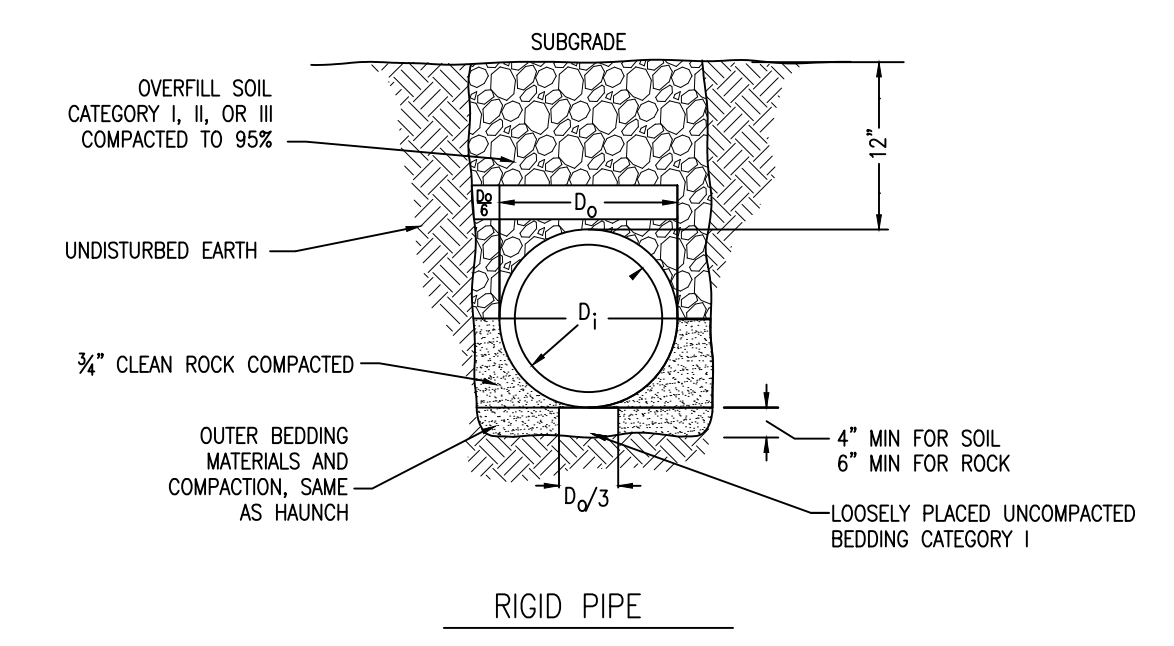
- NOTES:
- CONCRETE SHALL BE CLASS E FOR BASES, CLASS D FOR WALLS AND TOP.
 - REINFORCING STEEL SHALL BE GRADE 60
 - INSTALL WEEP HOLES AS PER DETAIL 500.04
 - STRUCTURES WHERE H>8" SHALL BE REINFORCED CONCRETE (#4 BARS AT 12" CTRS, BOTH WAYS AND #4 BARS DIAGONAL AT PIPE OPENINGS)

AREA INLET



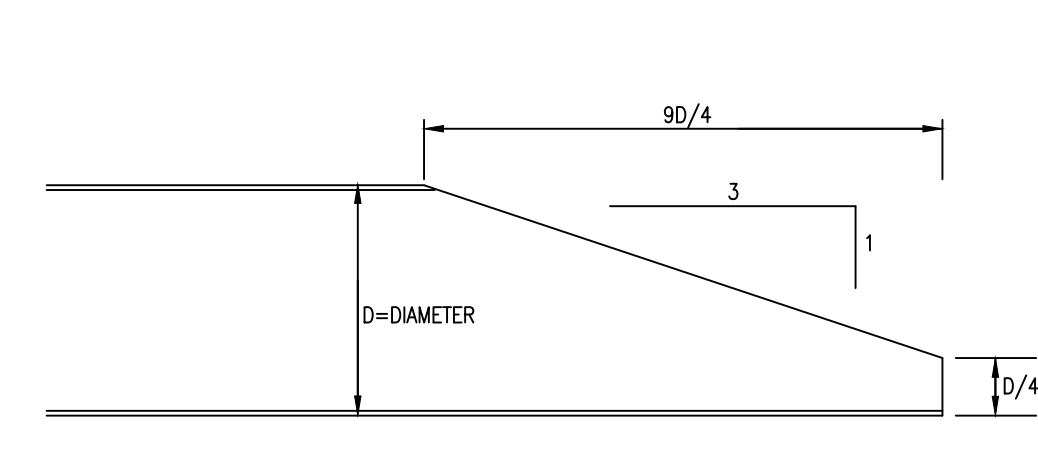
- NOTES:
- CONCRETE SHALL CONFORM TO SECTION 250.
 - REINFORCING STEEL SHALL BE GRADE 60
 - INSTALL WEEP HOLES
 - USE #4 BARS AT 12" CTRS, BOTH WAYS AND #4 BARS DIAGONAL AT PIPE OPENINGS.
 - FRAME AND LID SHALL BE NEENAH R-1960-A (TYPE C LID), DEETER 1180, OR APPROVED EQUAL.
 - SIDE OPENINGS TO BE ON ALL FOUR SIDES UNLESS NOTED OTHERWISE
 - INSTALL TRASH RACK ON OPENINGS OVER 4"

SIDE OPENING INLET



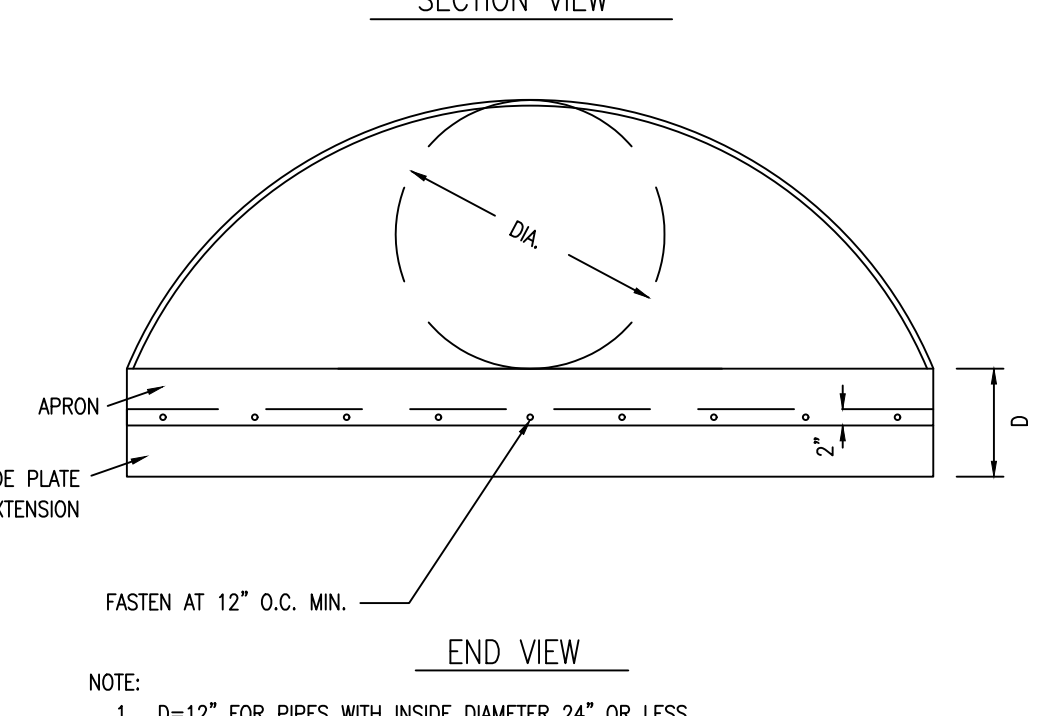
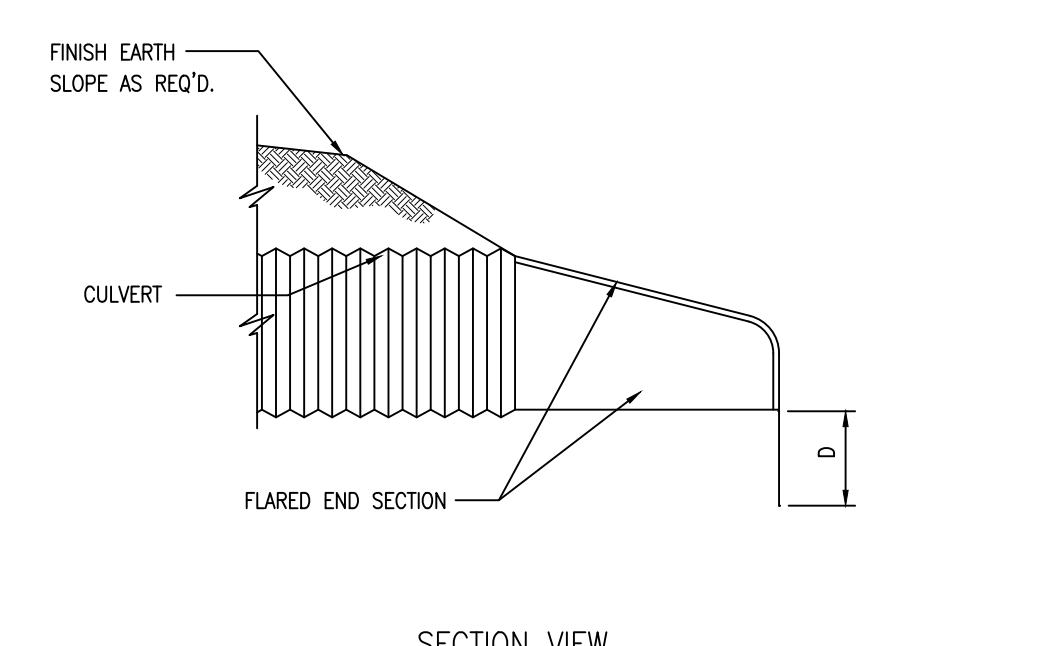
- NOTES:
- CONCRETE SHALL BE CLASS E FOR BASES, CLASS D FOR WALLS AND TOP.
 - REINFORCING STEEL SHALL BE GRADE 60
 - INSTALL WEEP HOLES AS PER DETAIL 500.04
 - STRUCTURES WHERE H>8" SHALL BE REINFORCED CONCRETE (#4 BARS AT 12" CTRS, BOTH WAYS AND #4 BARS DIAGONAL AT PIPE OPENINGS)

PIPE EMBEDMENT



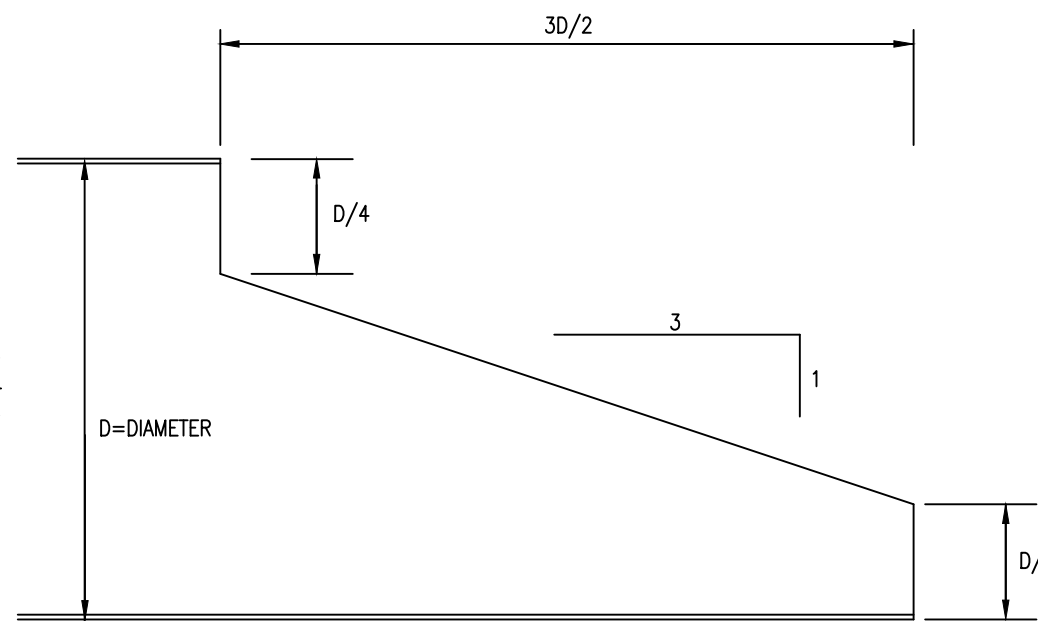
SECTION THRU MITERED END
CMP 15" THRU 21" DIAMETER

EXAMPLE FOR 18" CMP:
LOWER VERTICAL STEP=18" divided by 4= 4 1/2"
LENGTH OF MITER= 18" times 9 divided by 4= 40 1/2"



- NOTE:
- D=12" FOR PIPES WITH INSIDE DIAMETER 24" OR LESS.
 - D=18" FOR PIPES WITH INSIDE DIAMETER 27" OR MORE.
 - EXTENSION PLATE SHALL BE SAME MATERIAL AS PIPE. THICKNESS SHALL BE EQUAL TO EQUIVALENT DIAMETER CMP GAUGE.
 - APRON AND TOE PLATE SHALL BE SECURELY FASTENED WITH SPOT WELDS, BOLTS, OR RIVETS.

END SECTION FOR HDPE AND CMP



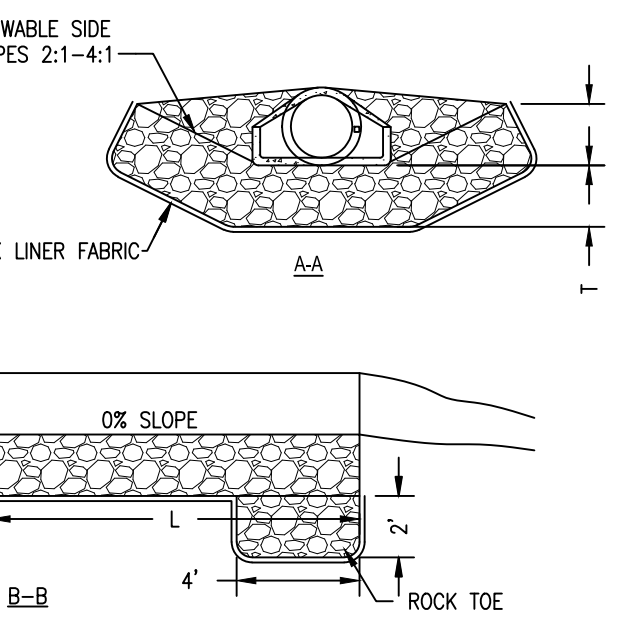
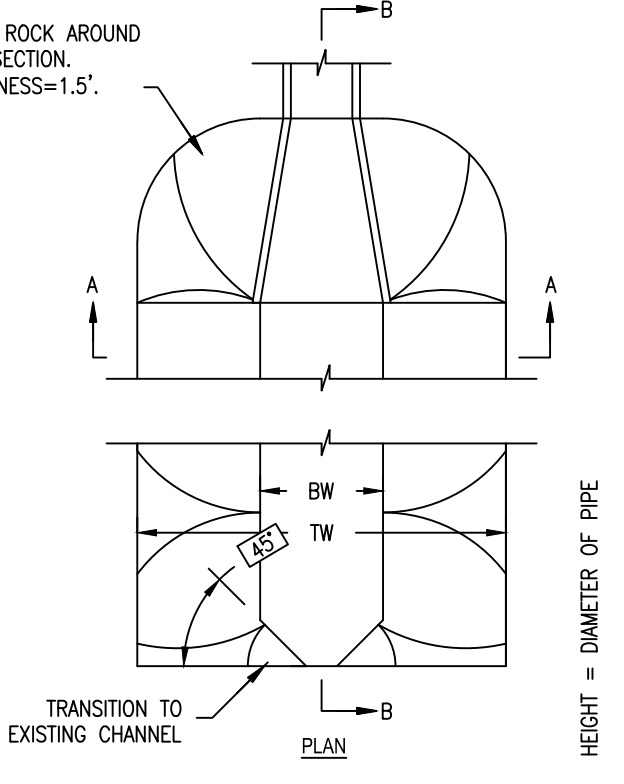
SECTION THRU MITERED END
CMP 24" THRU 144" DIAMETER

EXAMPLE FOR 60" CMP:
UPPER AND LOWER VERTICAL STEPS=60" divided by 4= 15"
LENGTH OF MITER= 60" times 3 divided by 2= 90"

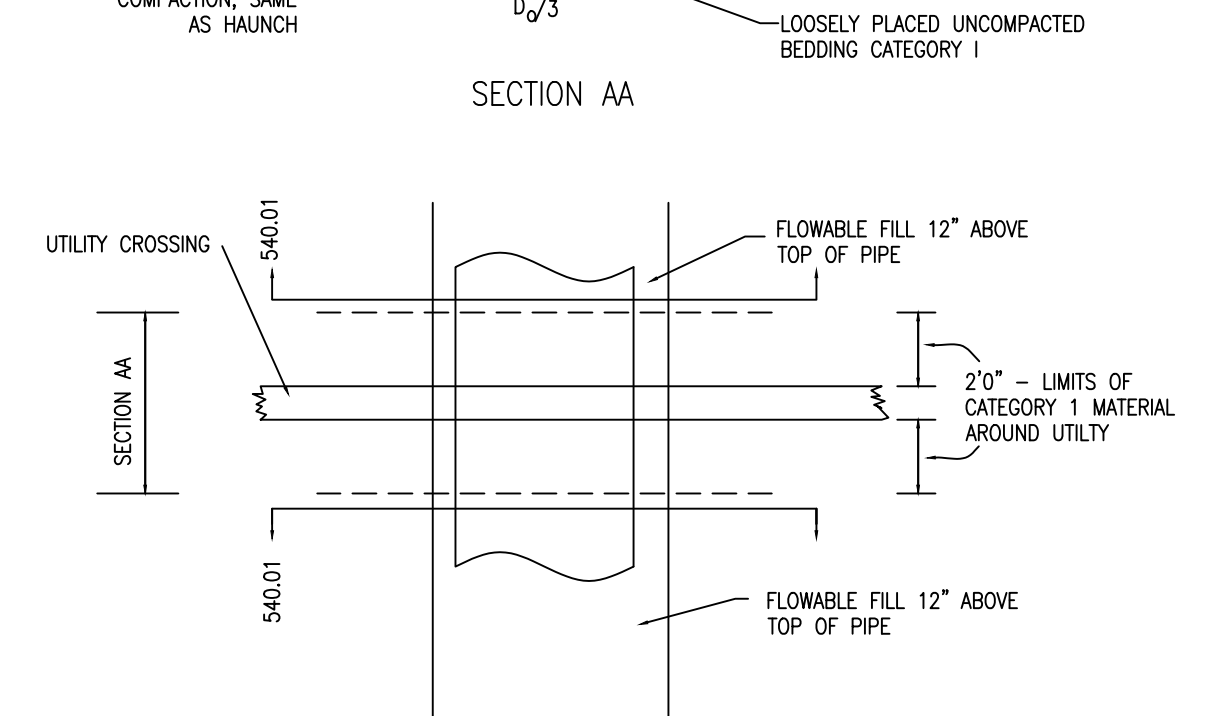
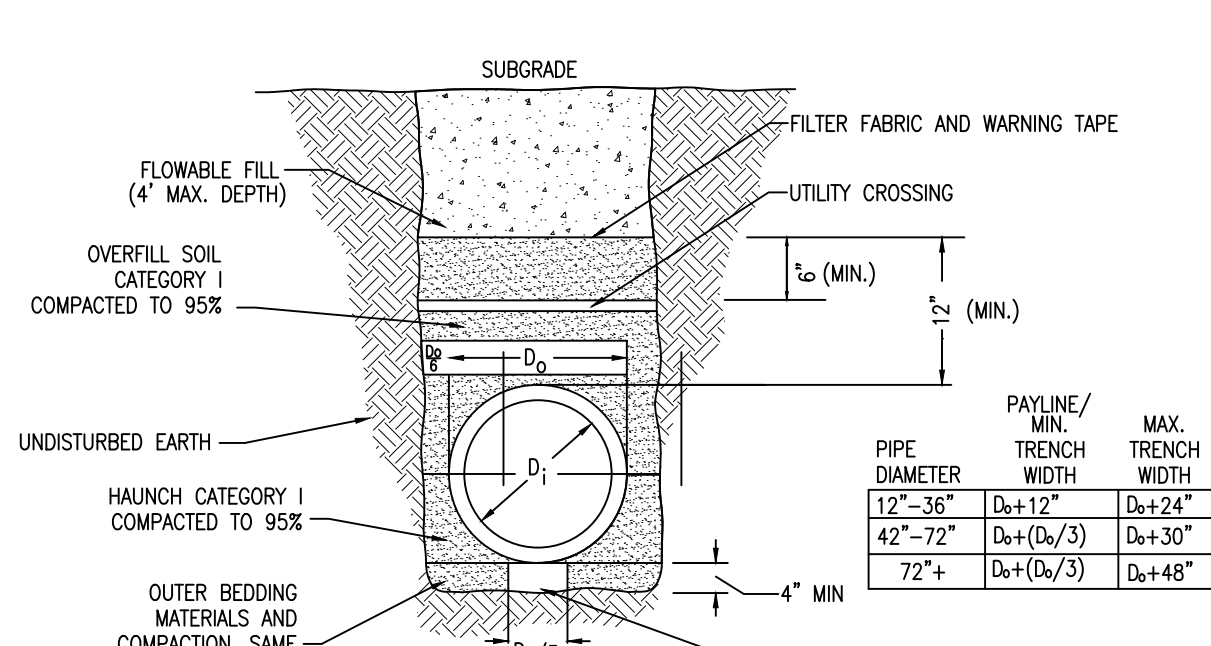
CMP MITERED END SECTION DETAIL

Pipe Size (in)	Maximum Pipe Slope (%)	Length (ft)	Bottom Width Minimum (ft)	Top Width Minimum (ft)	Thickness Minimum (ft)
12	3.50	12	4	8	2
15	2.60	15	4	9	2
18	2.00	16	4	10	2
24	1.70	20	4	12	2
30	1.40	24	6	16	2
36	1.00	28	6	18	2
42	0.80	32	6	20	3
48	0.65	36	6	22	3
54	0.55	40	8	26	3
60	0.45	44	8	28	3
72	0.40	48	8	32	3

RIP RAP TO BE TYPE 1: ROCK MUST BE ANGULAR, HARD AND DURABLE.
ROCK LINER FABRIC SHALL BE PROPEX GEOTEX 801 OR APPROVED EQUAL. ALTERNATIVELY, AN 8 INCH RED OF WELL GRADED SAND AND GRAVEL WITH GRAVEL UP TO 3" IS ACCEPTABLE.
WHERE BEDROCK IS ENCOUNTERED, RIP RAP MAY BE OMITTED.

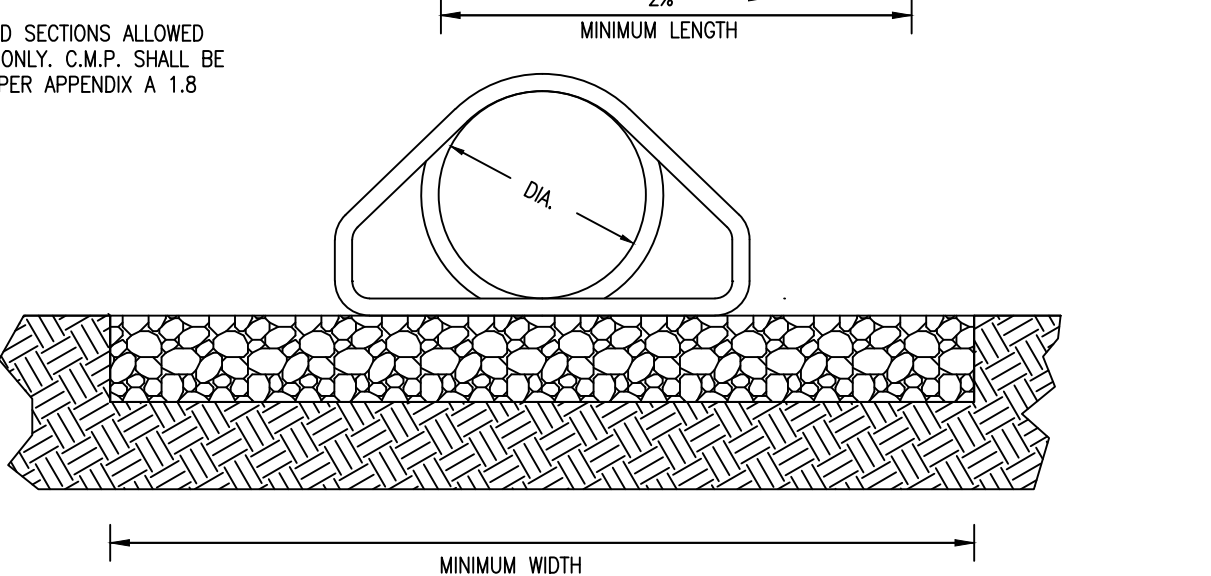
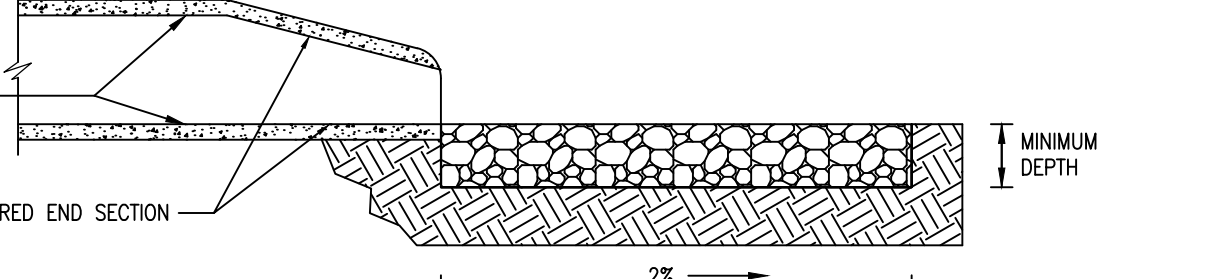
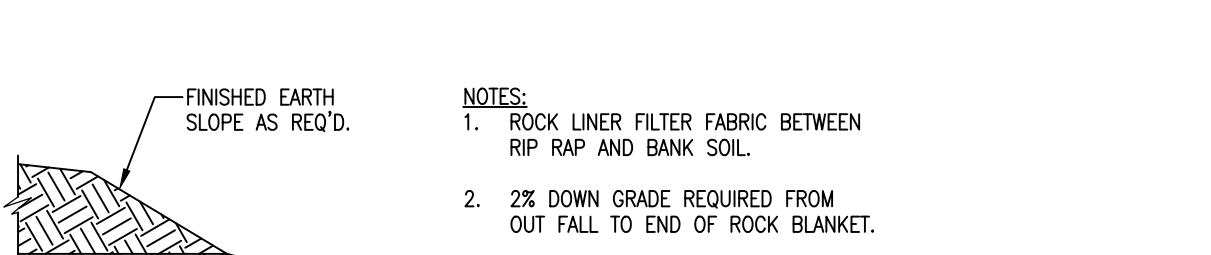


RIP RAP WITH FILTER FABRIC



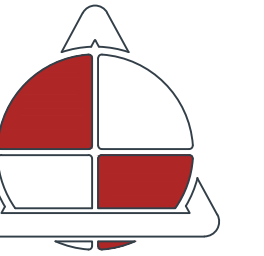
- NOTE:
- ROCK LINER FILTER FABRIC BETWEEN RIP RAP AND BANK SOIL.
 - 2% DOWN GRADE REQUIRED FROM OUT FALL TO END OF ROCK BLANKET.

UTILITY CROSSING



CULVERT DIAM. INCHES	MINIMUM DEPTH AND WIDTH FEET	MINIMUM LENGTH FEET	ROCK LINING CU. YDS.	EQUIVALENT PIPE ARCH CULVERT (APPROX)	EQUIVALENT CONC. BOX CULVERT (APPROX) FEET
18	1 X 4	12	2		
24	1 X 6	14	3		2 X 1 1/2
30	1 X 7	16	4	8 - 5	2 X 2
36	1.5 X 9	18	9	8 - 6	3 X 2
42	2 X 10	20	15	8 - 7	3 X 3
48	2 X 12	20	18	8 - 8	4 X 3
54	2 X 13.5	22	22	8 - 9	4 X 4
60	2 X 15	25	28	8 - 10	5 X 4
66	2 X 18	25	33	8 - 11	5 X 5
72	2 X 20	30	44	8 - 12	5 X 6
84	2.5 X 25	35	81		6 X 6
96	2.5 X 30	40	111		7 X 7
108	3 X 32	40	142		8 X 8

ROCK LINING FOR CULVERT OUTLETS



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SEDALIA, MISSOURI

PROJECT # F-2302-01
SITE # 1501
FACILITY # 3511501138

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DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____

ISSUE DATE: 8/30/2024

CAD DWG FILE: 22230.01-STORM DESIGN.dwg
DRAWN BY: JPS
CHECKED BY: CWS
DESIGNED BY: BPH

SHEET TITLE:
STORM SEWER
DETAILS

SHEET NUMBER:

C-113

SHEET 14 OF 48
8/30/2024

NYLOPLAST DRAIN BASIN CONSTRUCTION PROTECTION DETAIL - OPTION 2 (EROSION CONTROL STRUCTURE DETAIL)

1 - PERFORATED RISER SECTION IS TO BE REMOVED AND REPLACED WITH SOLID RISER FOLLOWING THE FINAL SITE GRADING. IF THE PERFORATED RISER SECTIONS ARE DAMAGED DURING CONSTRUCTION, THEY CAN BE EASILY REPLACED WITH MINIMAL DAMAGE TO MAIN BASIN BODY / BASE SECTION.

2 - FRAMES & GRATE/SOLID COVERS ARE TO BE INSTALLED ONCE EROSION CONTROL STRUCTURE IS NO LONGER NEEDED.

3 - PERFORATION SCHEDULE WILL MEET NYLOPLAST SPECIFICATIONS OUTLINED IN DRAWING 7001-110-001 UNLESS NOTED OTHERWISE.

4 - DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS. RISERS ARE NEEDED FOR BASINS OVER 84" DUE TO SHIPPING RESTRICTIONS. IN THE EVENT A BASIN IS DAMAGED DURING CONSTRUCTION, RISER SECTIONS CAN BE USED FOR FIELD REPAIRS.

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	APPROVED BY: NMH DATE: 10-03-18	PROJECT NO. NAME: NYLOPLAST EROSION CONTROL, DRAIN BASIN DETAIL	
	DWG SIZE: A	SCALE: 1:20	SHEET: 1 OF 1
	DWG NO.: 7001-110-003	REV: A	

NON TRAFFIC INSTALLATION

DRAIN BASIN

INLINE DRAIN

THE BACKFILL MATERIAL SHALL BE CRUSHED STONE OR OTHER GRANULAR MATERIAL MEETING THE REQUIREMENTS OF CLASS I, CLASS II, OR CLASS III MATERIAL AS DEFINED IN ASTM D2321. BEDDING & BACKFILL FOR SURFACE DRAINAGE INLETS SHALL BE PLACED & COMPACTED UNIFORMLY IN ACCORDANCE WITH ASTM D2321.

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	REVISED BY: NMH DATE: 03-11-16	PROJECT NO. NAME: NYLOPLAST EROSION CONTROL, DRAIN BASIN DETAIL	
	DWG SIZE: A	SCALE: 1:25	SHEET: 1 OF 1
	DWG NO.: 7001-110-111	REV: F	

NYLOPLAST INLINE DRAIN WITH PEDESTRIAN GRATE

1 - 12" - 30" PEDESTRIAN GRATES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.

2 - 12" - 30" FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.

3 - DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS N-12/HANCOR DUAL WALL, N-12 HP & PVC SEWER (EX. SCH 40), PVC C900/C905, CORRUGATED & RIBBED PVC).

4 - 12" - 24" PEDESTRIAN GRATES SHALL MEET H-20 LOAD RATING.

30" PEDESTRIAN GRATE SHALL MEET H-20 LOAD RATING (SEE DRAWING NO. 7001-110-022 FOR H-20 TRAFFIC LOAD GUIDELINES).

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	REVISED BY: NMH DATE: 03-15-16	PROJECT NO. NAME: NYLOPLAST EROSION CONTROL, DRAIN BASIN DETAIL	
	DWG SIZE: A	SCALE: 1:40	SHEET: 1 OF 1
	DWG NO.: 7001-110-027	REV: D	

NYLOPLAST DRAIN BASIN WITH PEDESTRIAN GRATE

1 - 12" - 30" PEDESTRIAN GRATES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.

2 - 12" - 30" FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.

3 - DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS. RISERS ARE NEEDED FOR BASINS OVER 84" DUE TO SHIPPING RESTRICTIONS. SEE DRAWING NO. 7001-110-001.

4 - DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS N-12/HANCOR DUAL WALL, N-12 HP & PVC SEWER (EX. SCH 40), PVC C900/C905, CORRUGATED & RIBBED PVC).

5 - ADAPTERS CAN BE MOUNTED UP TO 30" TO DETERMINE MINIMUM ANGLE BETWEEN ADAPTERS SEE DRAWING NO. 7001-110-012.

6 - 12" - 24" PEDESTRIAN GRATES SHALL MEET H-20 LOAD RATING.

30" PEDESTRIAN GRATE SHALL MEET H-20 LOAD RATING (SEE DRAWING NO. 7001-110-144 FOR H-20 TRAFFIC LOAD GUIDELINES).

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	REVISED BY: NMH DATE: 06-12-18	PROJECT NO. NAME: NYLOPLAST EROSION CONTROL, DRAIN BASIN DETAIL	
	DWG SIZE: A	SCALE: 1:40	SHEET: 1 OF 1
	DWG NO.: 7001-110-083	REV: E	

Section 2721 Engineered Surface Drainage Products

GENERAL
PVC surface drainage inlets shall include the drain basin type as indicated on the contract drawing and referenced within the contract specifications. The ductile iron grates for each of these fittings are to be considered an integral part of the surface drainage inlet and shall be furnished by the same manufacturer. The surface drainage inlets shall be as manufactured by Nyloplast of Advanced Drainage Systems, Inc., or prior approved equal.

MATERIALS
The drain basins required for this contract shall be manufactured from PVC pipe stock, utilizing a thermforming process to reform the pipe stock to the specified configuration. The drainage pipe connection stubs shall be manufactured from PVC pipe stock and formed to provide a watertight connection with the specified pipe system. This joint tightness shall conform to ASTM D3212 for joints for drain and sewer plastic pipe using flexible elastomeric seals. The flexible elastomeric seals shall conform to ASTM F477. The pipe bell spigot shall be joined to the main body of the drain basin or catch basin. The raw material used to manufacture the pipe stock that is used to manufacture the main body and pipe stubs of the surface drainage inlets shall conform to ASTM D1784 cell class 12454.

The grates and frames furnished for all surface drainage inlets shall be ductile iron for structure sizes 8", 10", 12", 15", 18", 24", 30" and 36" and shall be made specifically for each basin so as to provide a round bottom flange that closely matches the diameter of the surface drainage inlet. Grates for drain basins shall be capable of supporting various wheel loads as specified by Nyloplast. 12" and 15" square grates will be hinged to the frame using pins. Ductile iron used in the manufacture of the castings shall conform to ASTM A536 grade 70-50-05. Grates and covers shall be provided painted black.

INSTALLATION
The specified PVC surface drainage inlet shall be installed using conventional flexible pipe bedding materials and procedures. The backfill material shall be crushed stone or other granular material meeting the requirements of class 1, class 2, or class 3 material as defined in ASTM D2321. Bedding and backfill for surface drainage inlets shall be well placed and compacted uniformly in accordance with ASTM D2321. The drain basin body will be cut at the time of the final grade. No brick, stone or concrete block will be required to set the grate to the final grade height. For load rated installations, a concrete slab shall be poured under and around the grate and frame. The concrete slab must be designed taking into consideration local soil conditions, traffic loading, and other applicable design factors. For other installation considerations such as migration of fines, ground water, and soft foundations refer to ASTM D2321 guidelines.

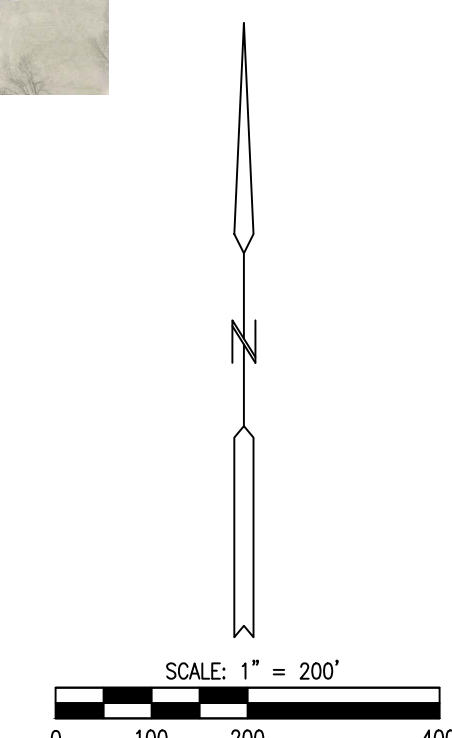
THIS PRINT DISCLOSES SUBJECT MATTER IN WHICH NYLOPLAST HAS PROPRIETARY RIGHTS. THE RECEIPT OR POSSESSION OF THIS PRINT DOES NOT CONFER, TRANSFER, OR LICENSE THE USE OF THE DESIGN OR TECHNICAL INFORMATION SHOWN HEREIN. REPRODUCTION OF THIS PRINT OR ANY INFORMATION CONTAINED HEREIN, OR MANUFACTURE OF ANY ARTICLE HEREFROM, FOR THE DISCLOSURE TO OTHERS IS FORBIDDEN, EXCEPT BY SPECIFIC WRITTEN PERMISSION FROM NYLOPLAST.	DRAWN BY: CIA DATE: 3-10-03	MATERIAL: PVC	3130 VERONA AVE BURFORD, GA 30518 PHN (770) 832-2443 FAX (770) 832-2489 www.nyloplast-us.com
	REVISED BY: NMH DATE: 02-21-18	PROJECT NO. NAME: NYLOPLAST EROSION CONTROL, DRAIN BASIN DETAIL	
	DWG SIZE: A	SCALE: 1:1	SHEET: 1 OF 1
	DWG NO.: 7001-110-011	REV: J	

PLAN SHEET INDEX

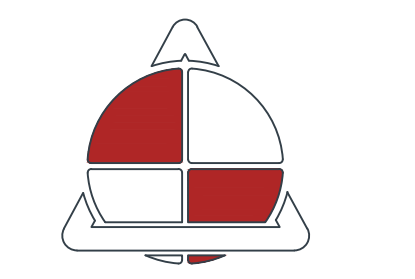
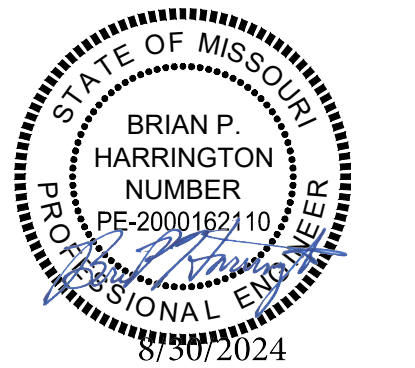
- PART 2
- C202 REPLACEMENT PLAN RESTROOM 65, RESTROOM 66, AND OLD HOUSE
- C203 REPLACEMENT PLAN WASH BARN NORTH OF CHAROLAIS BARN
- C204 REPLACEMENT PLAN WASH BARN NORTH OF CATTLE BARN
- C205 REPLACEMENT PLAN CATTLE BARN BUILDINGS 42-46
- C206 REPLACEMENT PLAN EMPTY BUILDING PAD EAST OF CATTLE BARN
- C207 REPLACEMENT PLAN RESTROOMS, WASH BARN, AND LIL' TRUCKS PLACE
- C208 REPLACEMENT PLAN GERKEN DAIRY
- C209 REPLACEMENT PLAN YOUTH CENTER
- C210 REPLACEMENT PLAN BUILDING 38 AND DONNELLY ARENA
- C211 REPLACEMENT PLAN RESTROOMS NORTH OF GRANDSTANDS
- C212 REPLACEMENT PLAN WOMEN'S BUILDING - GIFT SHOP
- C213 REPLACEMENT PLAN LEFTY'S RESTAURANT AND THE PORK PLACE
- C214 REPLACEMENT PLAN MO AG THEATER AND FARM BUREAU INSURANCE
- C215 REPLACEMENT PLAN OLD ADMIN BUILDING
- C216 REPLACEMENT PLAN HACIENDA, BIERGARTEN, AND MOOSE LODGE
- C217 REPLACEMENT PLAN GRAND STANDS
- C218 REPLACEMENT PLAN COMMERCIAL BUILDING
- C219 REPLACEMENT PLAN FAMILY FUN CENTER AND GOOD TIME CHARLIE'S
- C220 REPLACEMENT PLAN CATTLEMAN'S AND BEEF HOUSE
- C221 REPLACEMENT PLAN HOME ECON BUILDING AND JACKSON'S
- C222 REPLACEMENT PLAN VARIED INDUSTRIES
- C223 REPLACEMENT PLAN AGRICULTURE BUILDING
- C224 REPLACEMENT PLAN 4-H BUILDING
- C225 REPLACEMENT PLAN SWINE BARN
- C226 REPLACEMENT PLAN RAISE TOP OF MH 332 AND REGRADE SURROUNDING AREA
- C227 REPLACEMENT PLAN RESTROOM NE OF SWINE BARN
- C228 REPLACEMENT PLAN POULTRY & RABBIT, FLORICULTURE BUILDINGS
- C229 REPLACEMENT PLAN PUMP STATION
- C230 PUMP STATION DETAILS
- C231 PUMP STATION DETAILS
- C232 STANDARD DETAILS
- C233 STANDARD DETAILS
- C234 STANDARD DETAILS



NOTE:
ALL DISTURBED ROADWAYS, PATHWAYS, SIDEWALKS, AND OTHER EXISTING IMPROVEMENTS SHALL BE REPAIRED OR REPLACED TO MATCH THE EXISTING CONDITIONS.



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2503 W 16TH STREET
SEDALIA, MISSOURI

PROJECT # F-2302-01
SITE # 1501
FACILITY # 3511501138

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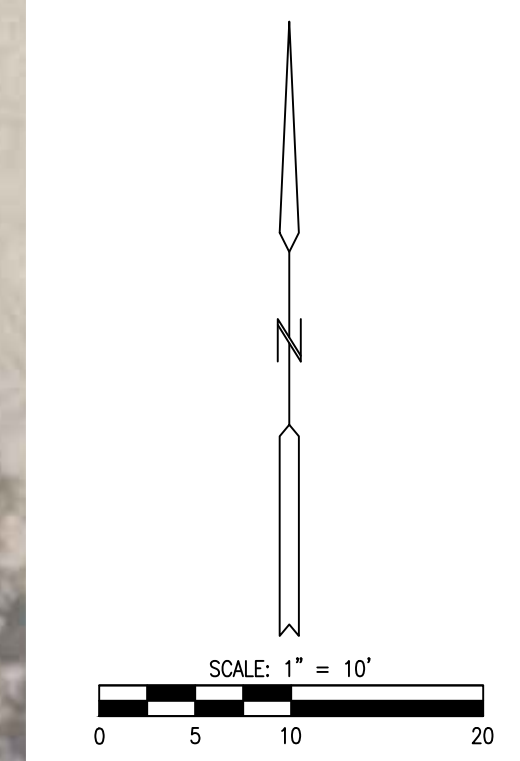
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PLAN SHEET INDEX

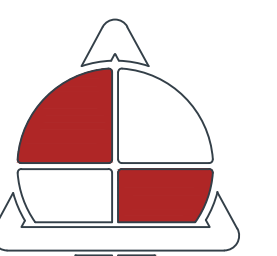
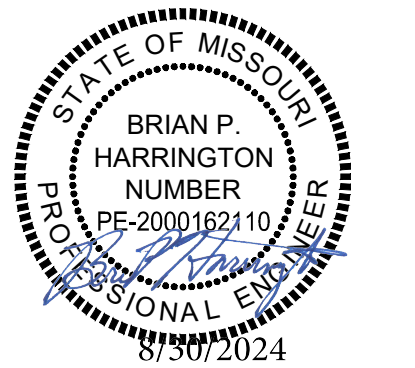
SHEET NUMBER:

C-201

SHEET 15 OF 48
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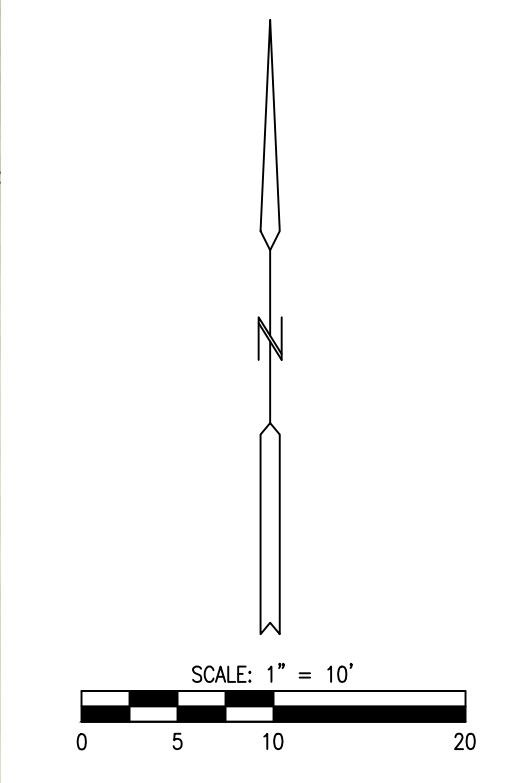
SHEET TITLE:
**REPLACEMENT PLAN
RESTROOM 65,
RESTROOM 66, AND
OLD HOUSE**

SHEET NUMBER:

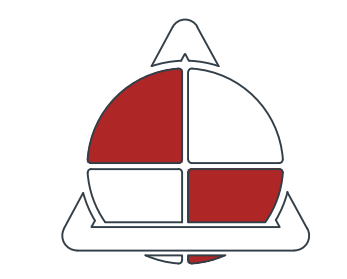
C-202

SHEET 16 OF 48
8/30/2024

- 1 REPLACE EXISTING 8" VCP SEWER MAIN WITH 8" PVC (FROM CO 50186 TO WHITE HOUSE) (ELIMINATE ANY STORM SEWER CONNECTIONS)
- 2 DETERMINE IF WATER METER IS ACTUALLY A CLEANOUT. DELETE FROM NEWER SEWER MAIN.
- 3 REPLACE EXISTING SEWER LATERAL FROM RR65 WITH 12 LF.± OF 4" PVC AND INSTALL CO 5"± OUTSIDE OF BUILDING.
- 4 REPLACE EXISTING SEWER LATERAL FROM RR66 WITH 22 LF.± OF 4" PVC AND INSTALL CO 5"± OUTSIDE OF BUILDING.
- 5 INSTALL MANHOLE AT END OF LINE.



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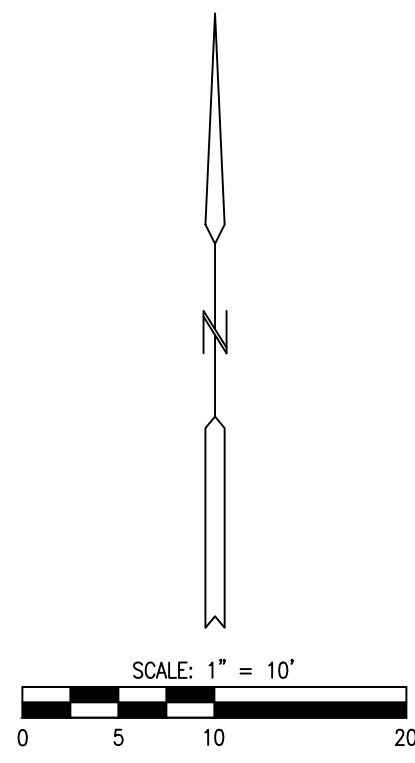
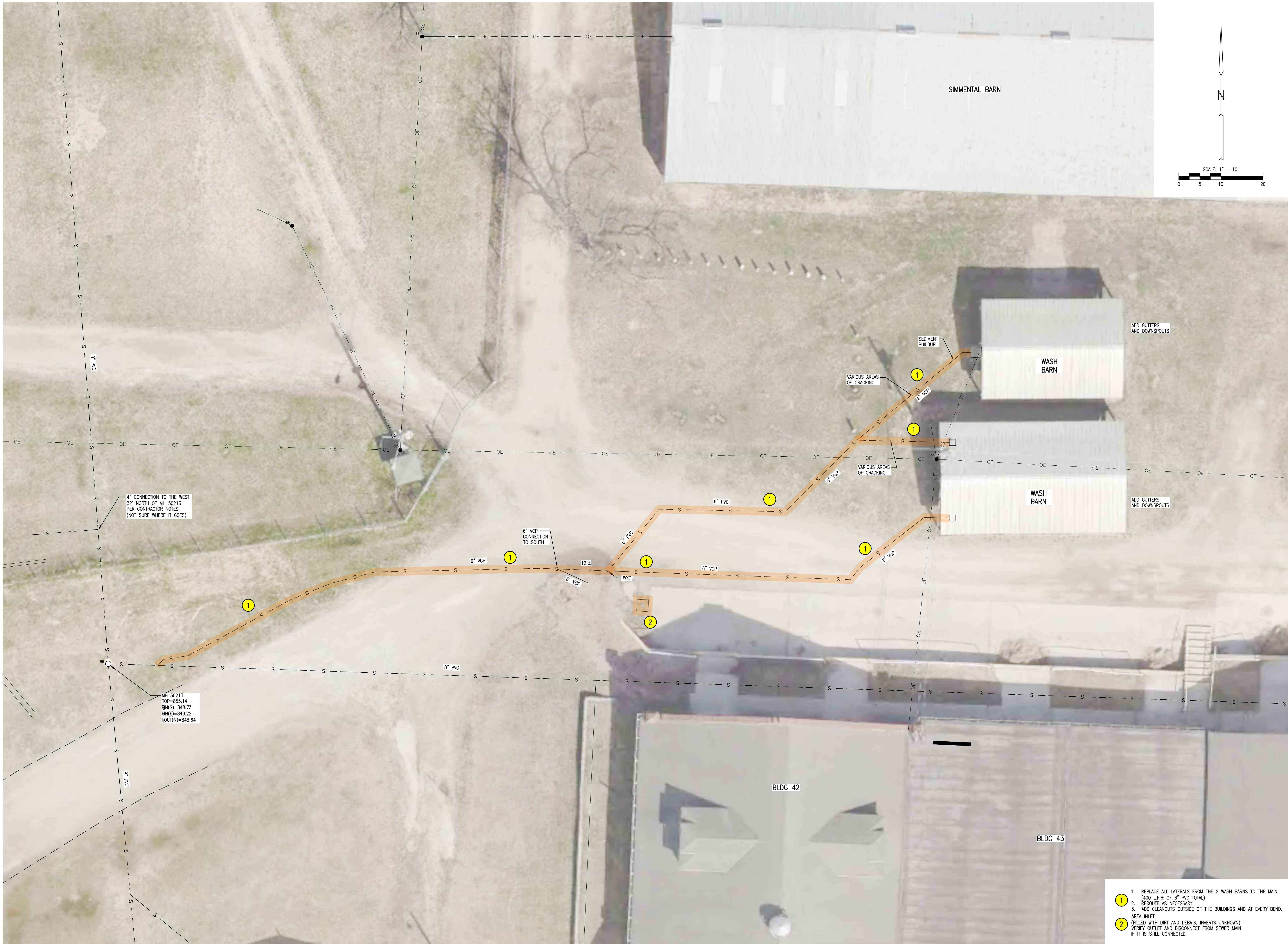
SHEET TITLE:
**REPLACEMENT PLAN
WASH BARNS NORTH
OF CHAROLAIS BARN**

SHEET NUMBER:

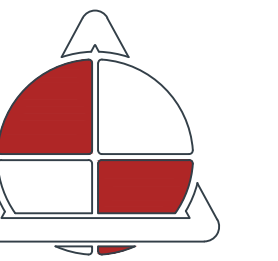
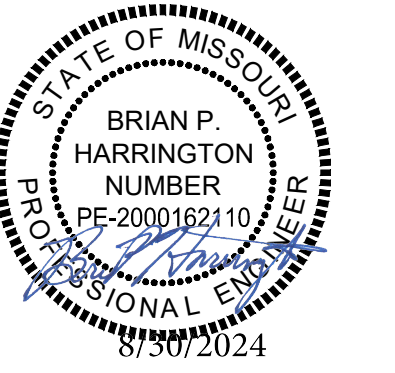
C-203

SHEET 17 OF 48
8/30/2024

- 1. SAG IN PIPE UNDER DRIVE.
- 1. REPLACE 65 LF ± OF 6" PVC FROM 20' ± NORTH OF DRIVE TO MH 50203.
- 2. LOWER THE NEW SECTION OF LINE TO ALLOW TIE IN OF NEW LATERALS FROM WASH BARN NE OF MH 50203.
- 2. REPLACE LATERAL WITH 10 LF ± OF 4" PVC AND TIE IN TO NEW 6" PVC TO THE WEST. ADD CLEANOUTS 5' ± OUTSIDE OF BUILDING.
- 3. REPLACE LATERAL WITH 10 LF ± OF 4" PVC AND TIE IN TO NEW 6" PVC TO THE WEST. ADD CLEANOUTS 5' ± OUTSIDE OF BUILDING.



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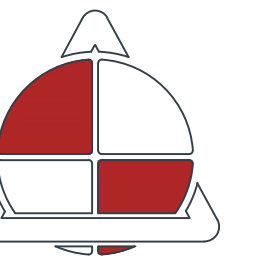
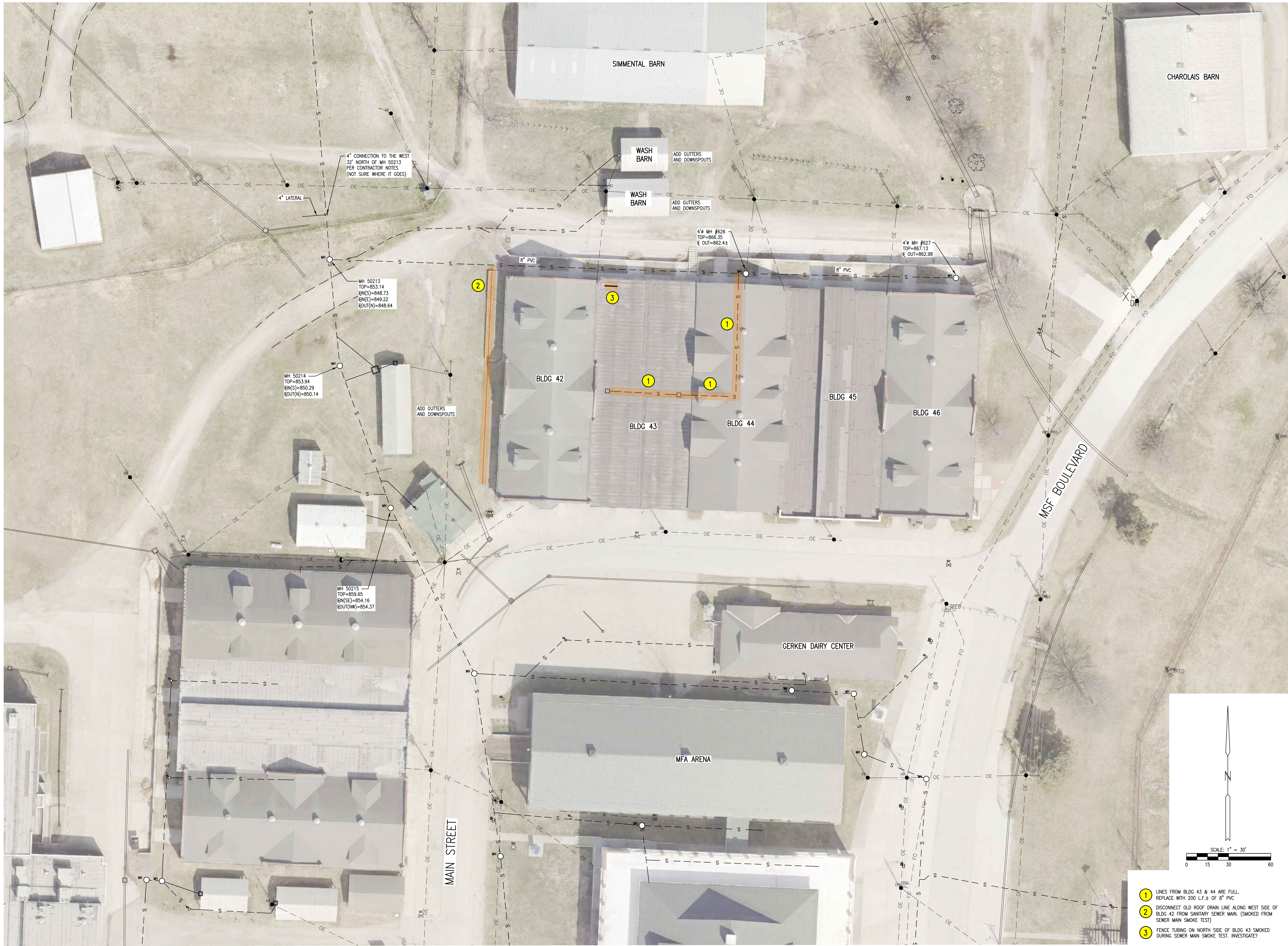
REPLACEMENT PLAN
WASH BARNS NORTH
OF CATTLE BARNS

SHEET NUMBER:

C-204

SHEET 18 OF 48
8/30/2024

1. REPLACE ALL LATERALS FROM THE 2 WASH BARNS TO THE MAIN. (ADD L.F. ± OF 6" PVC TOTAL)
 2. REROUTE AS NECESSARY.
 3. ADD CLEANOUTS OUTSIDE OF THE BUILDINGS AND AT EVERY BEND.
- AREA INLET
(FILLED WITH DIRT AND DEBRIS, INVERTS UNKNOWN)
VERIFY OUTLET AND DISCONNECT FROM SEWER MAIN IF IT IS STILL CONNECTED.



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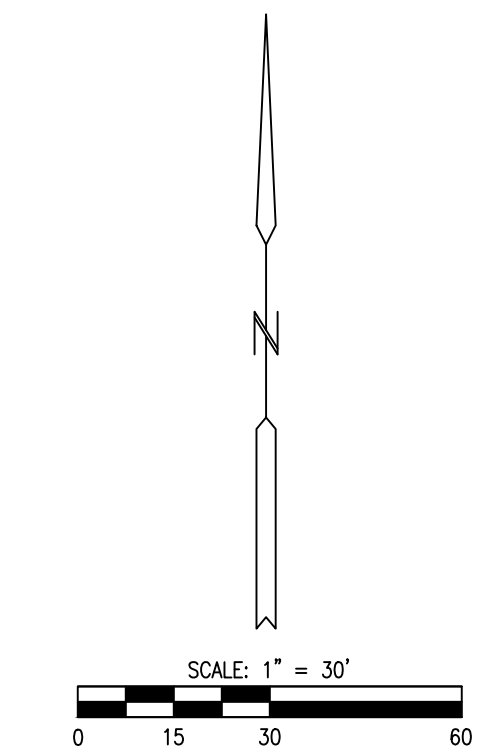
SHEET TITLE:

REPLACEMENT PLAN
CATTLE BARNS
BUILDINGS 42-46

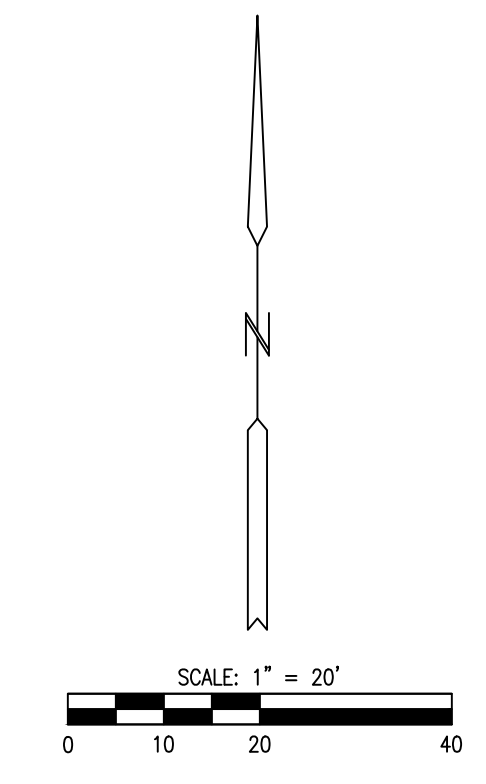
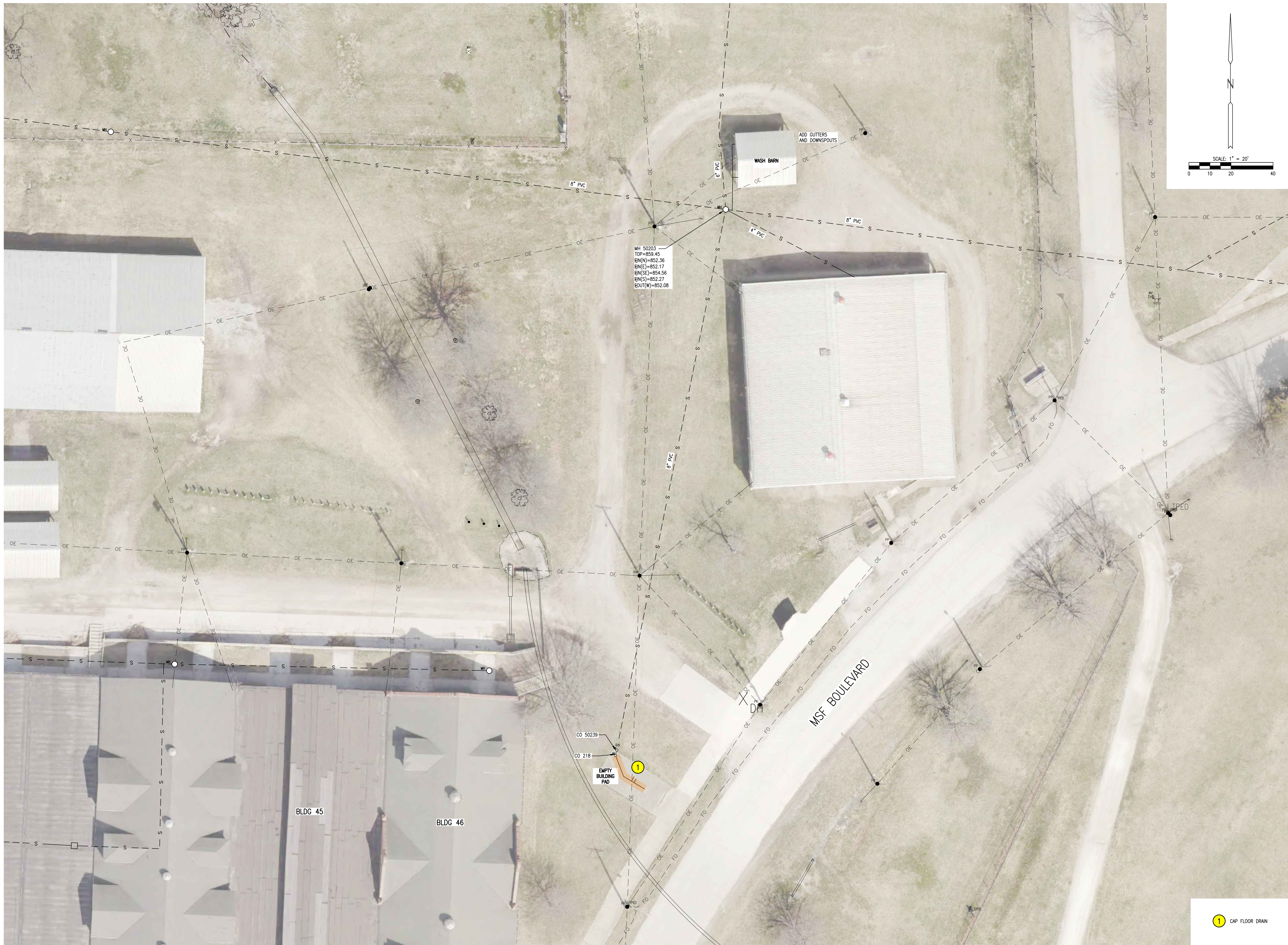
SHEET NUMBER:

C-205

SHEET 19 OF 48
8/30/2024



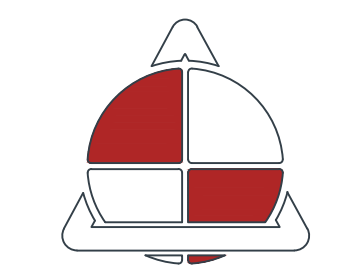
- 1 LINES FROM BLDG 43 & 44 ARE FULL. REPLACE WITH 200 L.F.± OF 8" PVC
- 2 DISCONNECT OLD ROOF DRAIN LINE ALONG WEST SIDE OF BLDG 42 FROM SANITARY SEWER MAIN. (SMOKED FROM SEWER MAIN SMOKE TEST)
- 3 FENCE TUBING ON NORTH SIDE OF BLDG 43 SMOKED DURING SEWER MAIN SMOKE TEST. INVESTIGATE?



MH 50203
 TOP=859.45
 BN(W)=852.36
 BN(E)=852.17
 BN(SE)=854.56
 BN(S)=852.27
 EDUT(W)=852.08

CO 50239
 CO 218
 EMPTY BUILDING PAD

1 CAP FLOOR DRAIN



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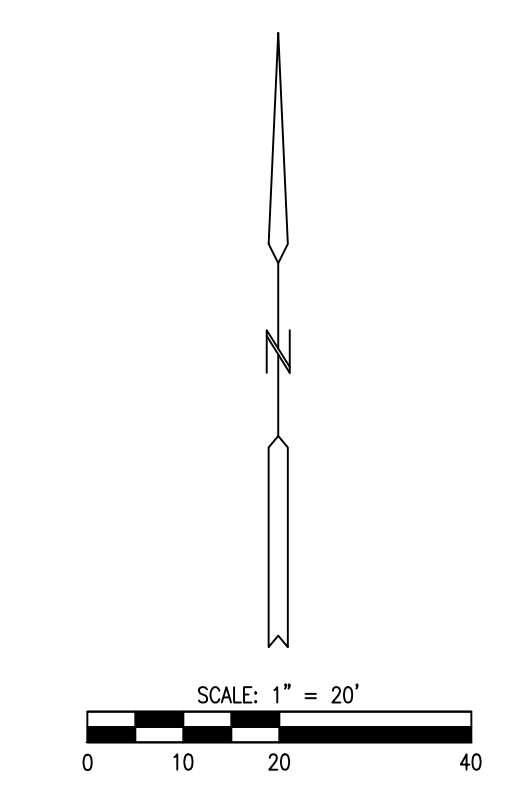
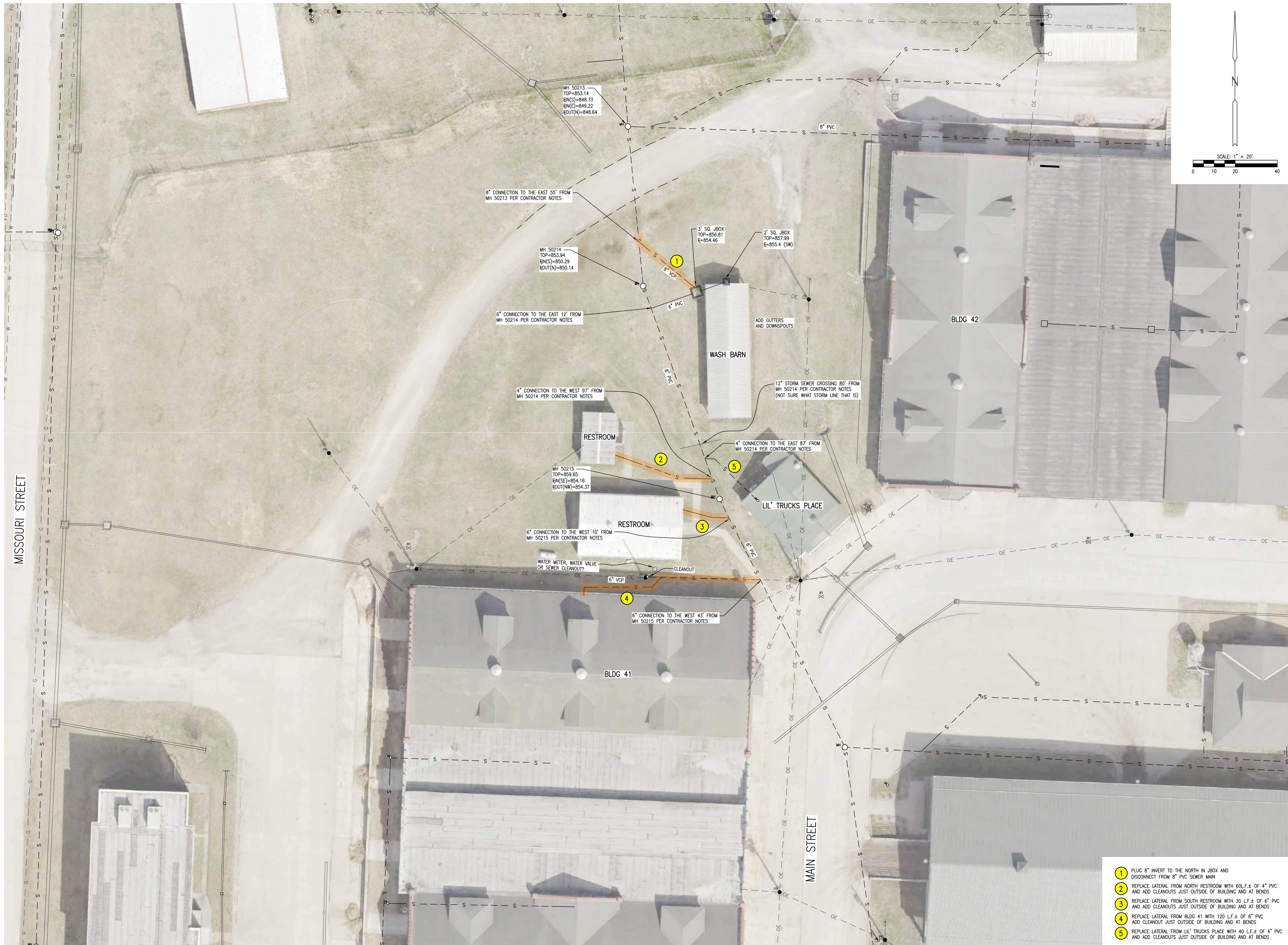
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 CHECKED BY: CWS
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SHEET TITLE:
**REPLACEMENT PLAN
 EMPTY BUILDING
 PAD EAST OF CATTLE
 BARN**

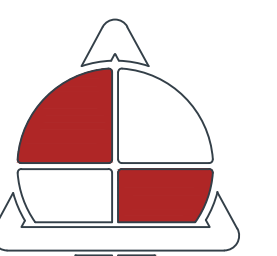
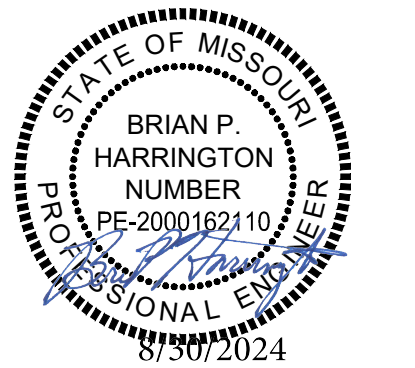
SHEET NUMBER:

C-206

SHEET 20 OF 48
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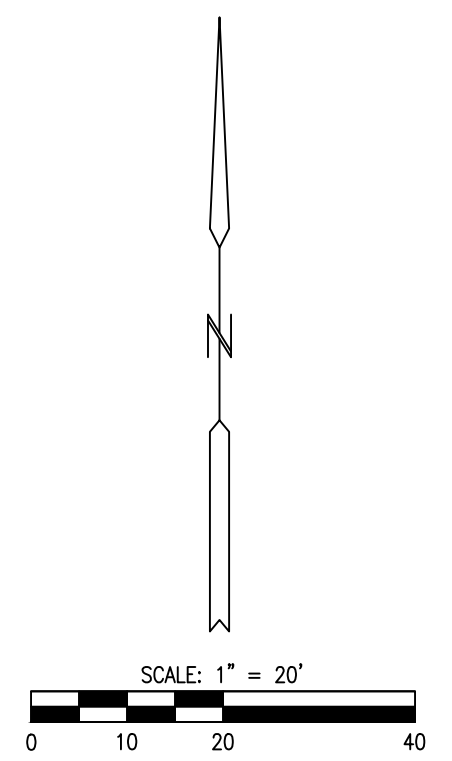
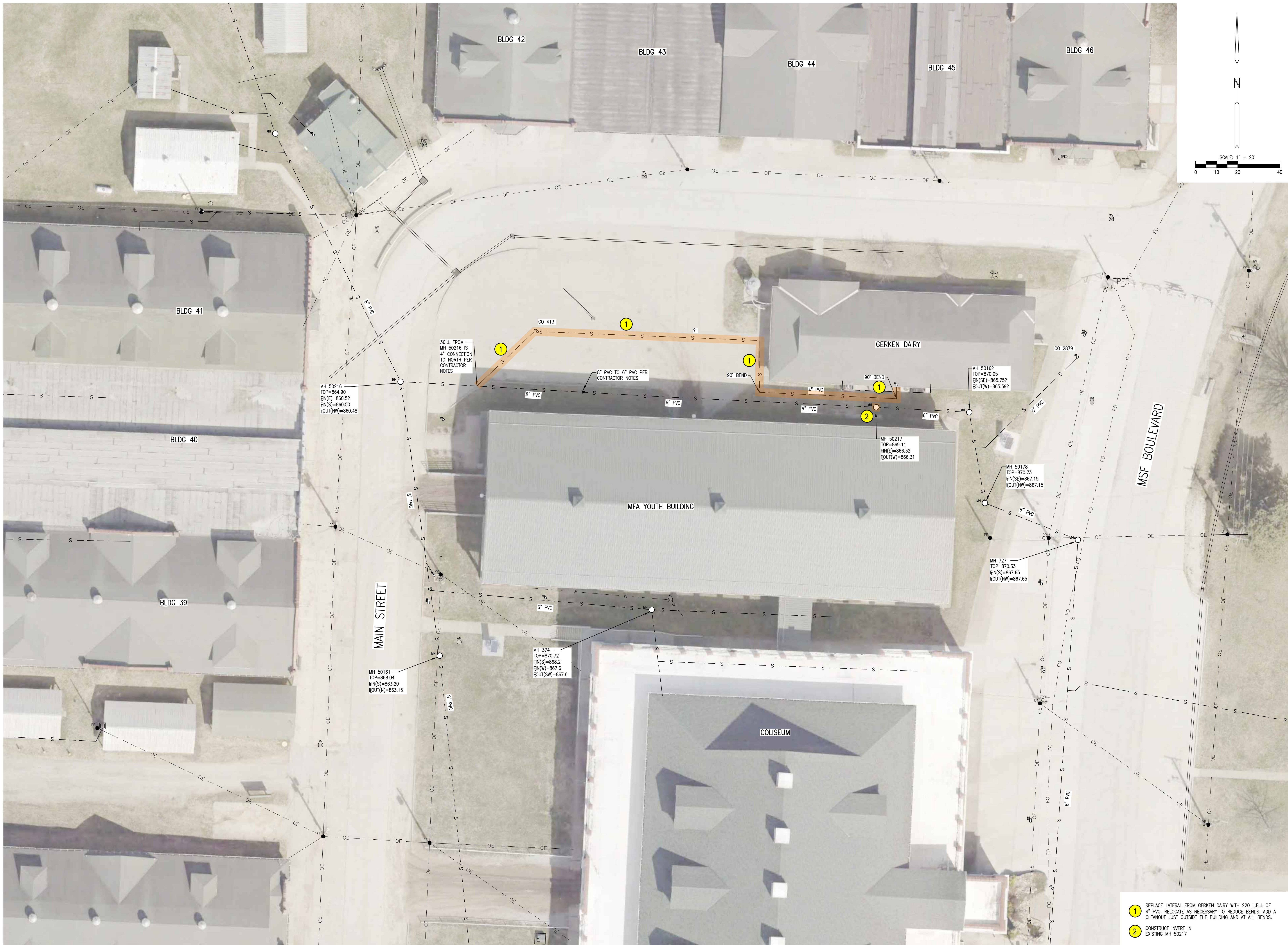
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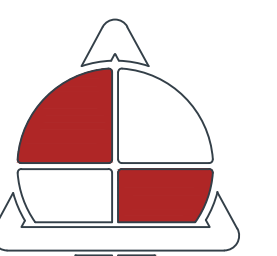
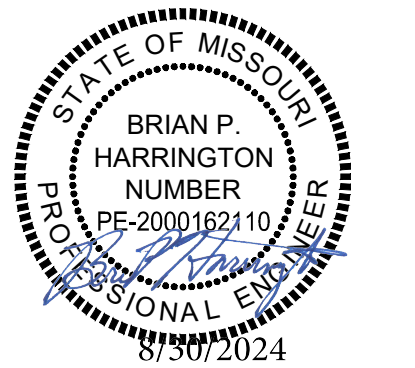
SHEET TITLE:
**REPLACEMENT PLAN
RESTROOMS, WASH
BARN, AND LIL'
TRUCKS PLACE**

SHEET NUMBER:
C-207
SHEET 21 OF 48
8/30/2024

- 1 PLUG 8" INVERT TO THE NORTH IN JBOX AND DISCONNECT FROM 8" PVC SEWER MAIN
- 2 REPLACE LATERAL FROM NORTH RESTROOM WITH 60 LF ± OF 4" PVC AND ADD CLEANOUTS JUST OUTSIDE OF BUILDING AND AT BENDS
- 3 REPLACE LATERAL FROM SOUTH RESTROOM WITH 30 LF ± OF 6" PVC AND ADD CLEANOUTS JUST OUTSIDE OF BUILDING AND AT BENDS
- 4 REPLACE LATERAL FROM BLDG 41 WITH 120 LF ± OF 6" PVC AND ADD CLEANOUT JUST OUTSIDE OF BUILDING AND AT BENDS
- 5 REPLACE LATERAL FROM LIL' TRUCKS PLACE WITH 40 LF ± OF 4" PVC AND ADD CLEANOUTS JUST OUTSIDE OF BUILDING AND AT BENDS



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SEDALIA, MISSOURI

PROJECT # F-2302-01
SITE # 1501
FACILITY # 3511501138

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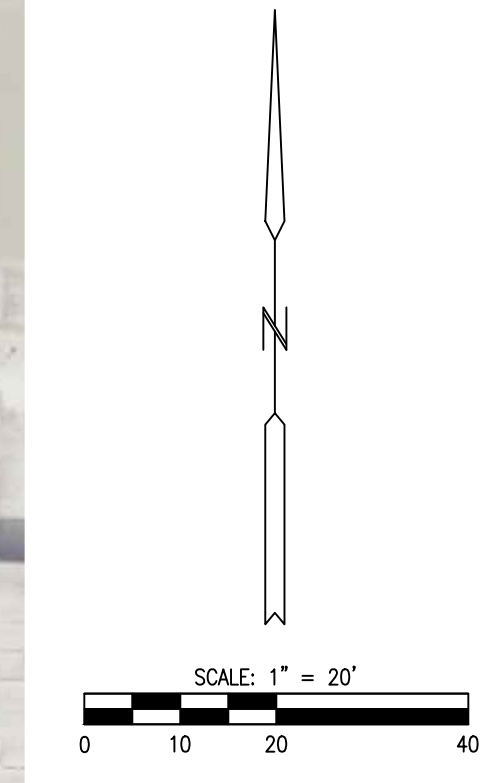
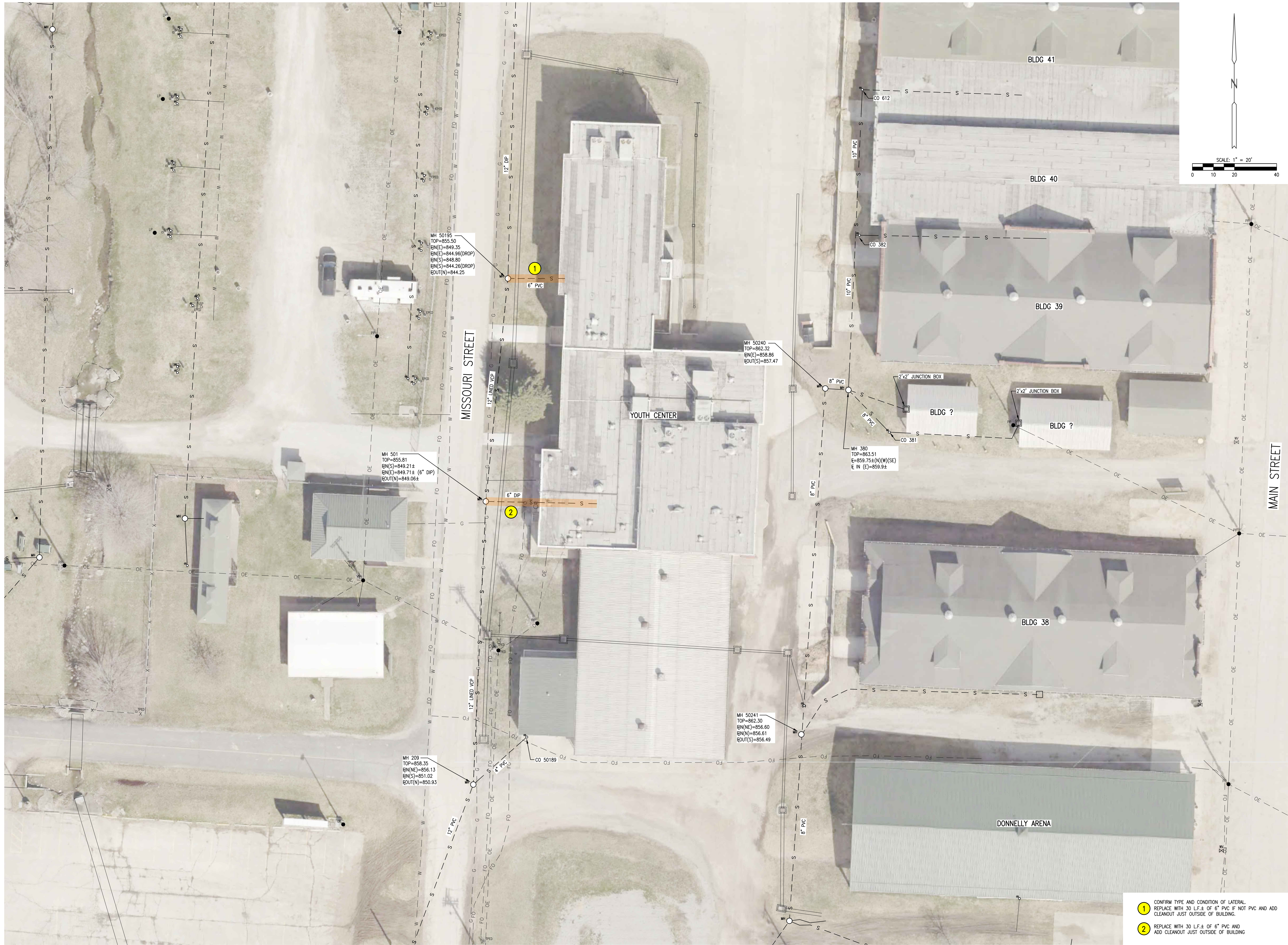
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**REPLACEMENT PLAN
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SHEET NUMBER:

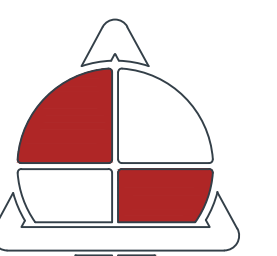
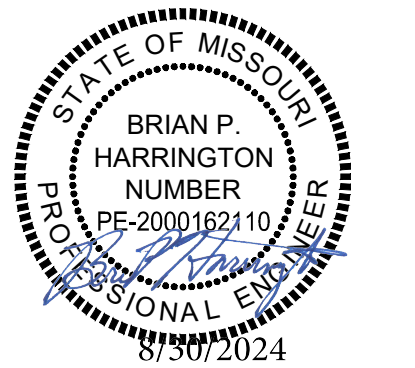
C-208

SHEET 22 OF 48
8/30/2024

- 1 REPLACE LATERAL FROM GERKEN DAIRY WITH 220 LF.± OF 4" PVC. RELOCATE AS NECESSARY TO REDUCE BENDS. ADD A CLEANOUT JUST OUTSIDE THE BUILDING AND AT ALL BENDS.
- 2 CONSTRUCT INVERT IN EXISTING MH 50217



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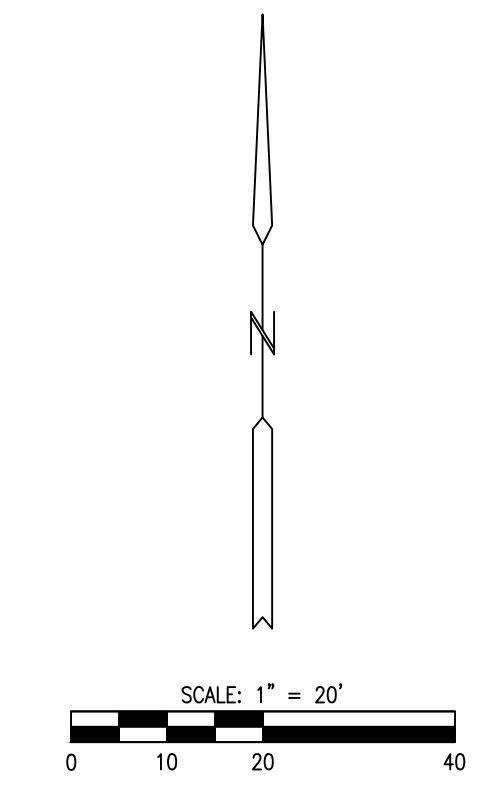
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**REPLACEMENT PLAN
YOUTH CENTER**

SHEET NUMBER:

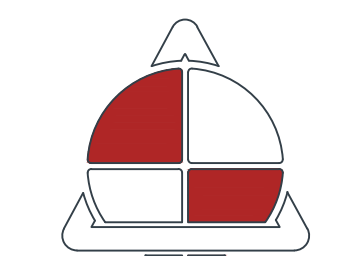
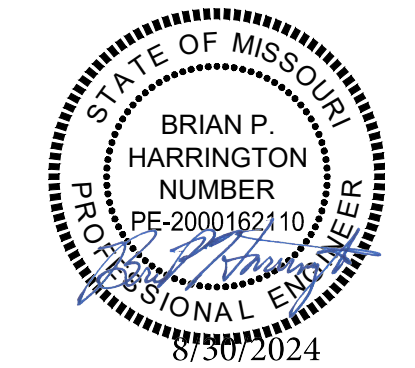
C-209

SHEET 23 OF 48
8/30/2024

- 1 CONFIRM TYPE AND CONDITION OF LATERAL. REPLACE WITH 30 L.F.± OF 6" PVC IF NOT PVC AND ADD CLEANOUT JUST OUTSIDE OF BUILDING.
- 2 REPLACE WITH 30 L.F.± OF 6" PVC AND ADD CLEANOUT JUST OUTSIDE OF BUILDING.



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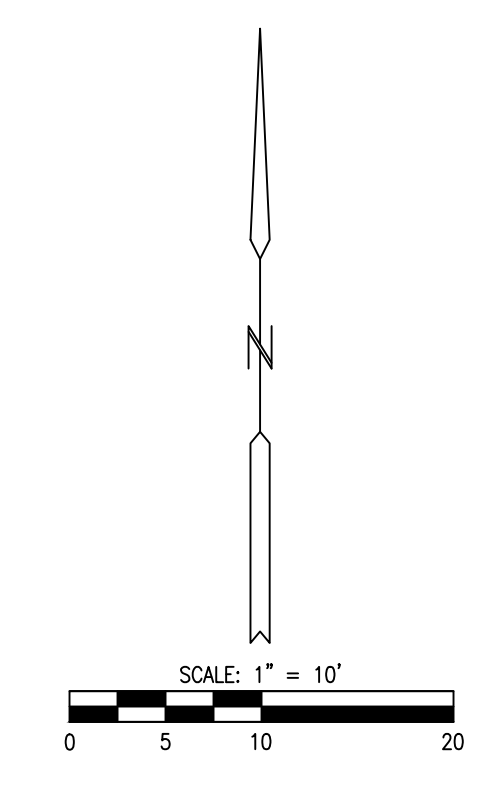
SHEET TITLE:
**REPLACEMENT PLAN
BUILDING 38 AND
DONNELLY ARENA**

SHEET NUMBER:

C-210

SHEET 24 OF 48
8/30/2024

- 1 REPLACE LATERAL FROM BLDG 36 WITH 125 LF.± OF 8" PVC AND ADD CLEANOUTS AT BENDS. DISCONNECT OLD ROOF DRAIN TIE-INS.
- 2 ADD MANHOLE TOP TO EXISTING JUNCTION BOX, PLUS OLD ROOF DRAIN TIE-IN TO THE EAST, AND CONSTRUCT INVERT.
- 3 ALL DRAINS FROM THE HORSE BARN TIE INTO THE LINE THAT CONNECTS TO MH 779. REPLACE LINES AND ADD CLEANOUTS



MH 50156
TOP=876.35
EN(S)=871.98 (8\"/>

MH 2891
TOP=880.78
EN(S)=873.10
EN(C)=872.48
EN(NC)=873.98
EQU(N)=872.49

4\"/>

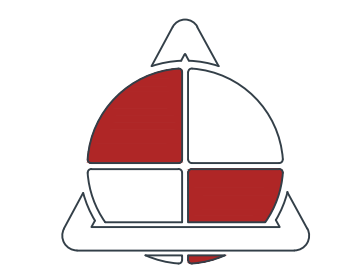
MO AG THEATER

FARM BUREAU INSURANCE

MSF BOULEVARD

RESTROOMS

1 LATERAL FROM RESTROOMS IS COLLAPSED. LOCATE IN FIELD AND REPLACE TO MAIN WITH 100 L.F.± OF 4\"/>



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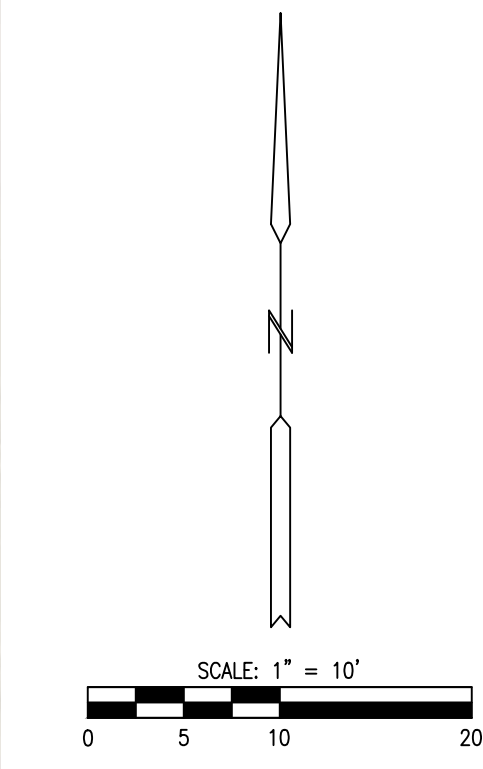
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SHEET TITLE:
**REPLACEMENT PLAN
RESTROOMS NORHT
OF GRAND STANDS**

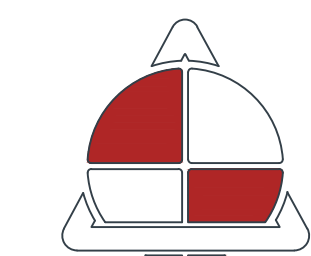
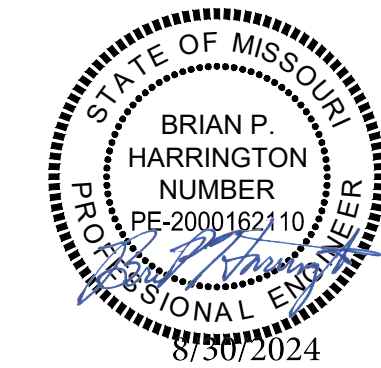
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C-211

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8/30/2024



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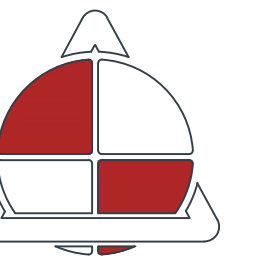
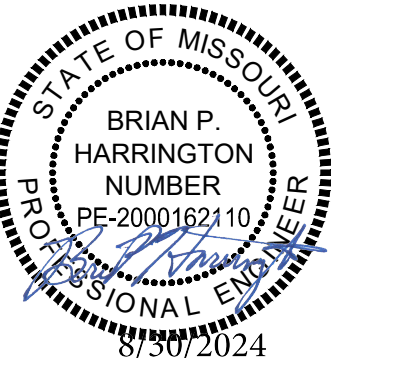
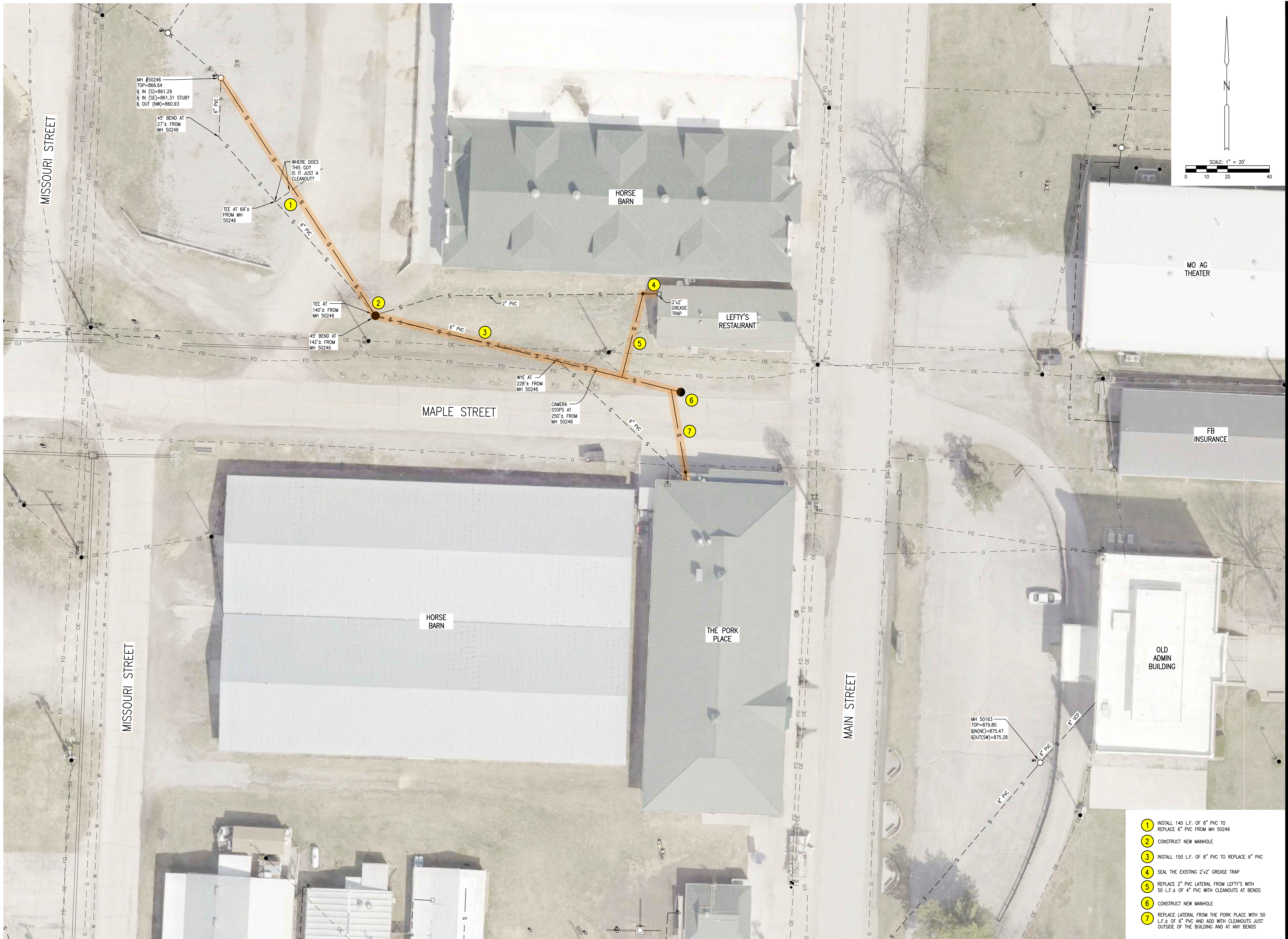
SHEET TITLE:
**REPLACEMENT PLAN
WOMEN'S BUILDING -
GIFT SHOP**

SHEET NUMBER:

C-212

SHEET 26 OF 48
8/30/2024

- 1 REPLACE 6" VCP WITH 100 L.F.± OF 6" PVC FROM BUILDING TO MH 50159 AND ADD CLEANOUT JUST OUTSIDE OF BUILDING AND AT ANY BENDS
- 2 REPLACE 8" VCP WITH 100 L.F.± OF 8" PVC FROM BUILDING TO MH 50157 AND ADD CLEANOUT JUST OUTSIDE OF BUILDING AND AT ANY BENDS



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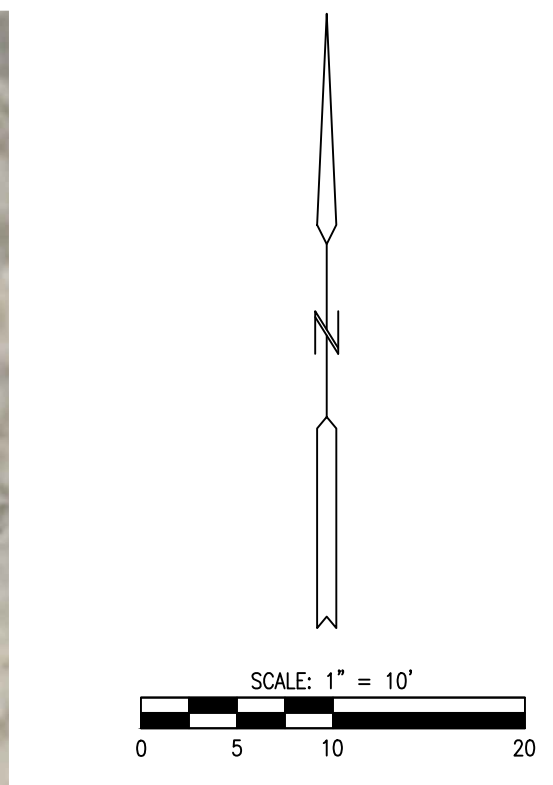
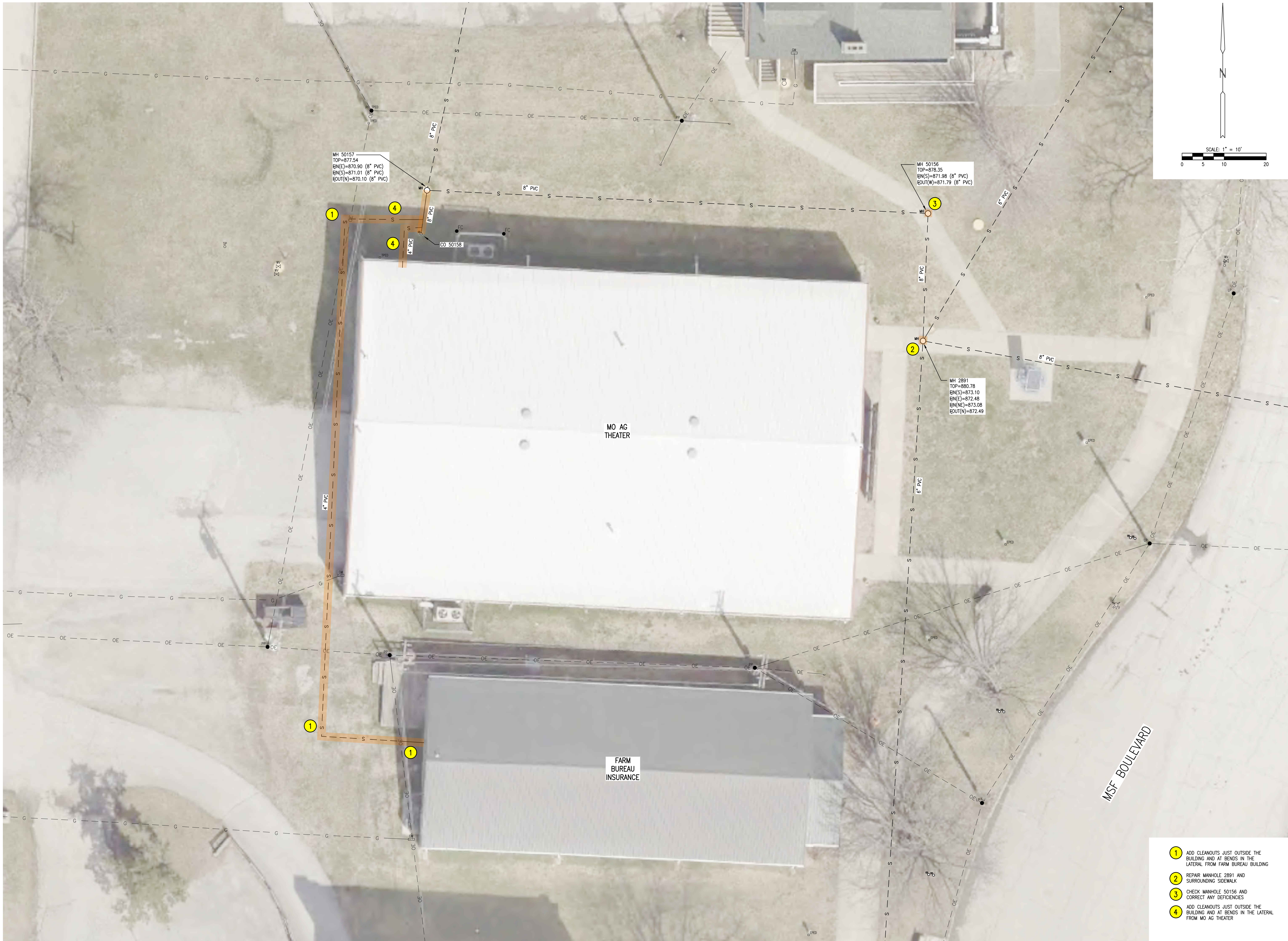
SHEET TITLE:

REPLACEMENT PLAN
LEFTY'S
RESTAURANT AND
THE PORK PLACE

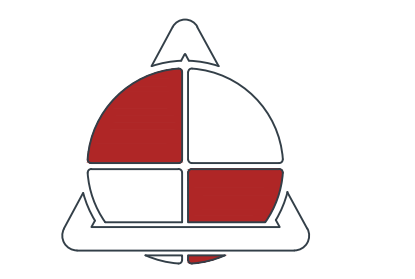
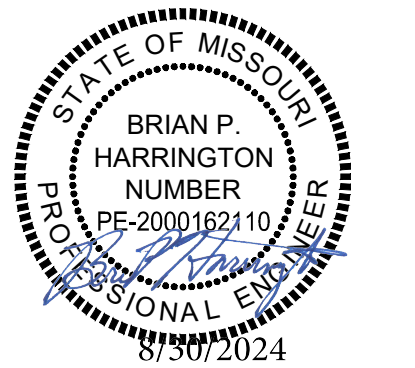
SHEET NUMBER:

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SHEET 27 OF 48
8/30/2024



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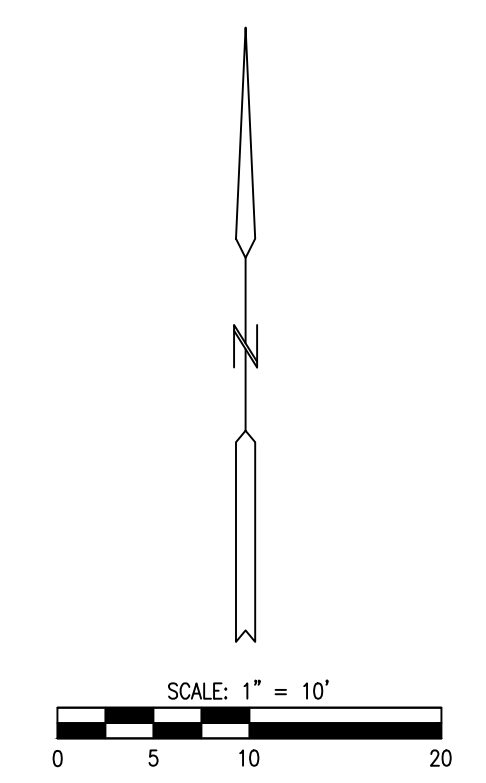
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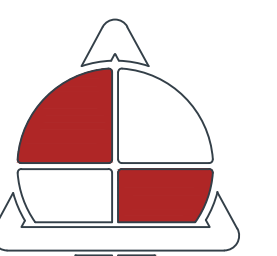
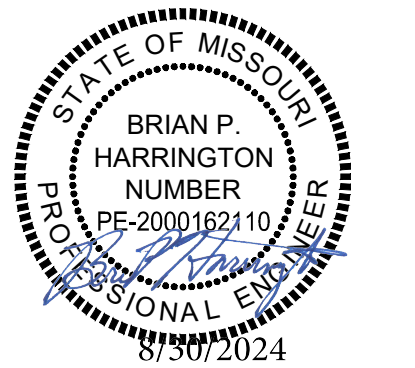
SHEET TITLE:
**REPLACEMENT PLAN
MO AG THEATER AND
FARM BUREAU
INSURANCE**

SHEET NUMBER:
C-214
SHEET 28 OF 48
8/30/2024

- 1 ADD CLEANOUTS JUST OUTSIDE THE BUILDING AND AT BENDS IN THE LATERAL FROM FARM BUREAU BUILDING
- 2 REPAIR MANHOLE 2891 AND SURROUNDING SIDEWALK
- 3 CHECK MANHOLE 50156 AND CORRECT ANY DEFICIENCIES
- 4 ADD CLEANOUTS JUST OUTSIDE THE BUILDING AND AT BENDS IN THE LATERAL FROM MO AG THEATER



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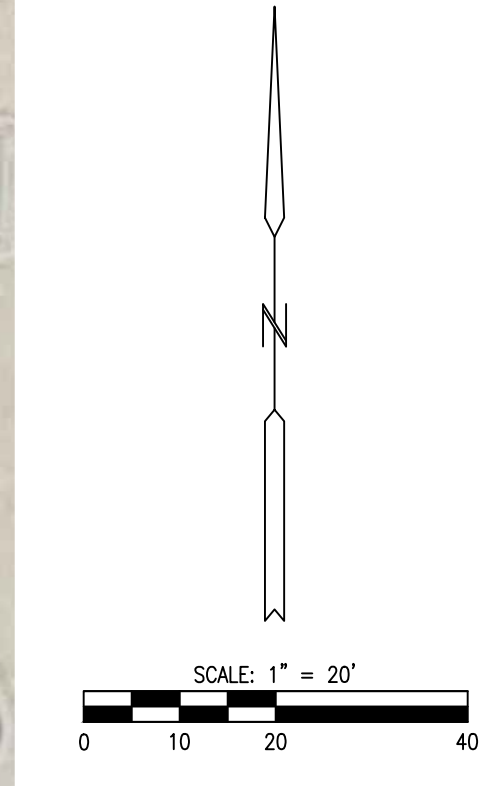
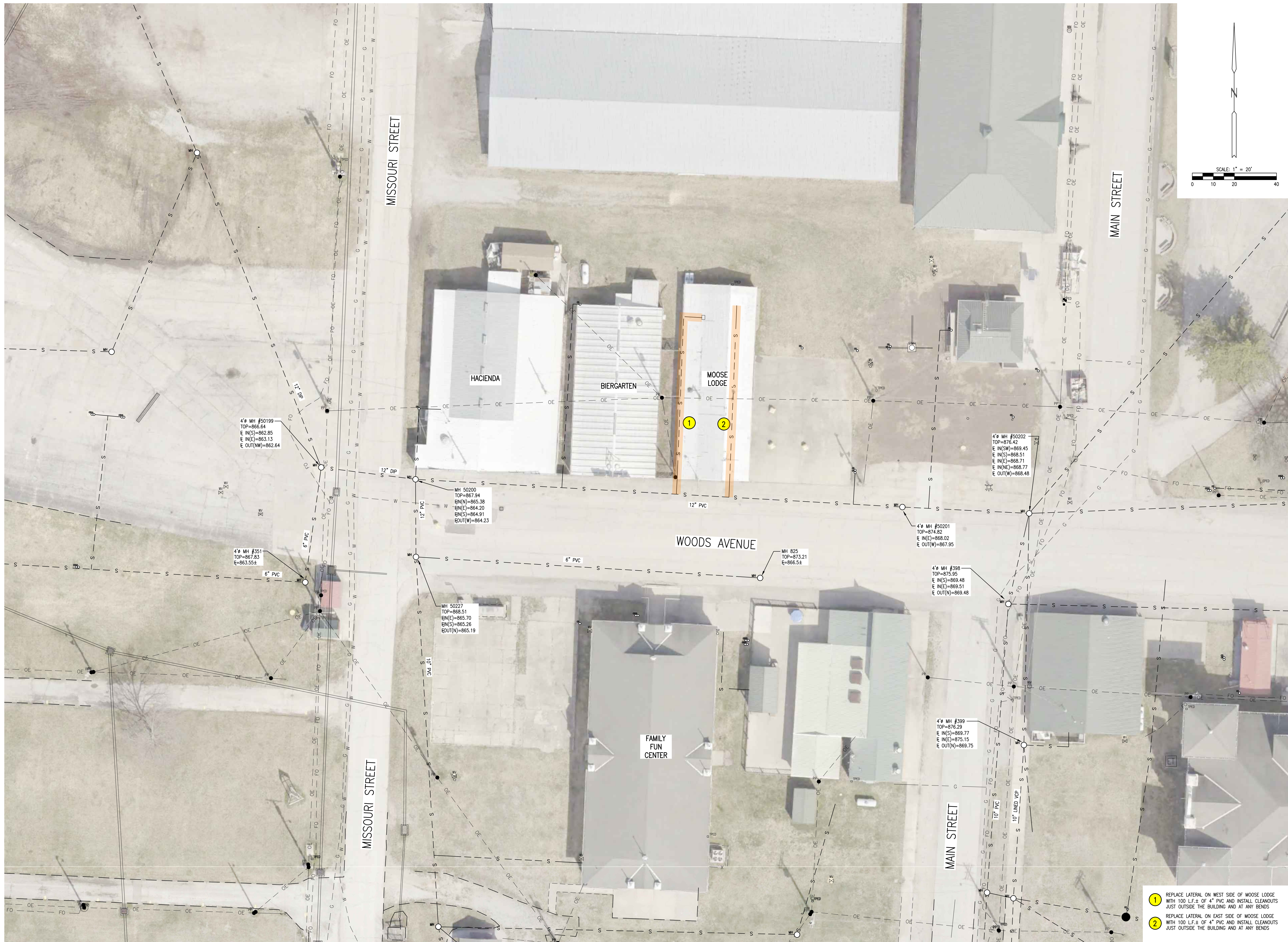
SHEET TITLE:
**REPLACEMENT PLAN
OLD ADMIN BUILDING**

SHEET NUMBER:

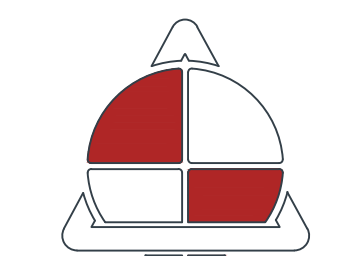
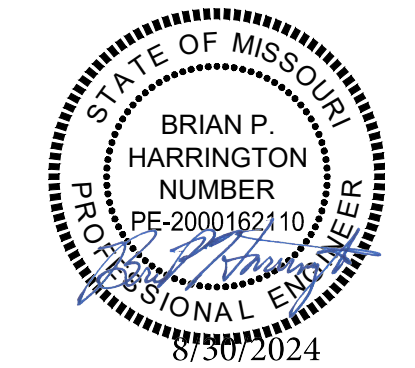
C-215

SHEET 29 OF 48
8/30/2024

1 REPLACE 8" VCP LATERAL SECTION FROM OLD ADMIN BUILDING TO EXISTING 8" PVC WITH 30 LF ± OF 8" PVC AND ADD A CLEANOUT JUST OUTSIDE THE BUILDING



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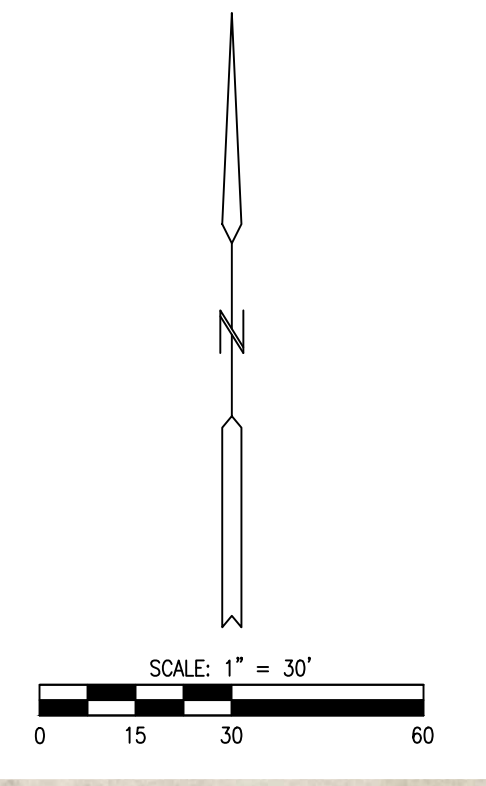
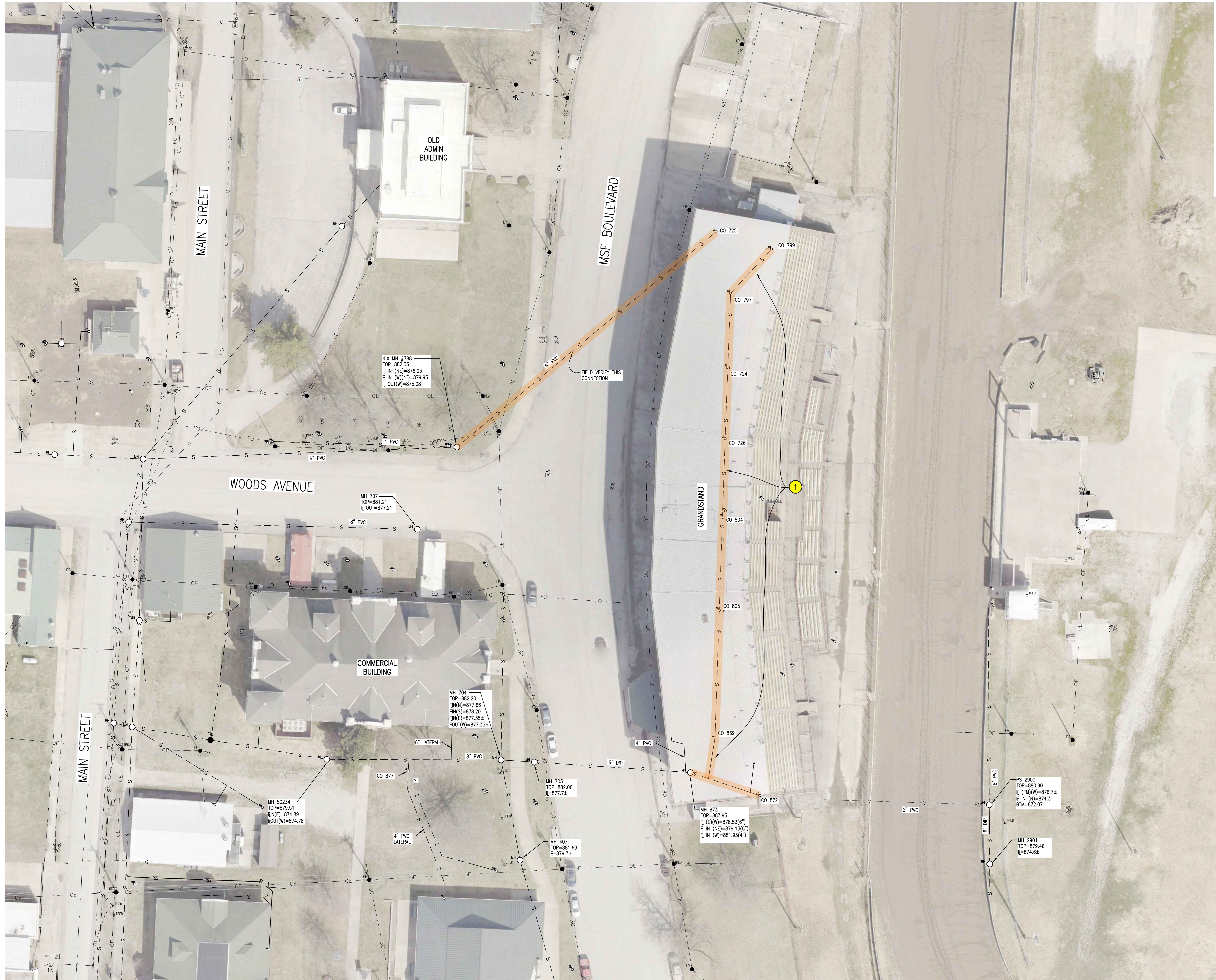
SHEET TITLE:
**REPLACEMENT PLAN
HACIENDA,
BIERGARTEN, AND
MOOSE LODGE**

SHEET NUMBER:

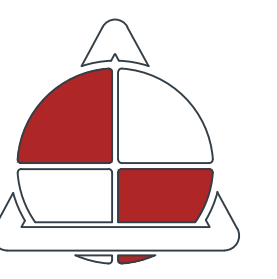
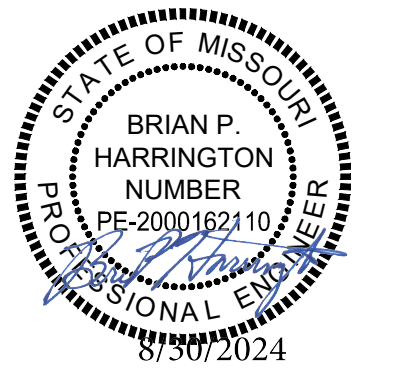
C-216

SHEET 30 OF 48
8/30/2024

- 1 REPLACE LATERAL ON WEST SIDE OF MOOSE LODGE WITH 100 L.F.± OF 4" PVC AND INSTALL CLEANOUTS JUST OUTSIDE THE BUILDING AND AT ANY BENDS
- 2 REPLACE LATERAL ON EAST SIDE OF MOOSE LODGE WITH 100 L.F.± OF 4" PVC AND INSTALL CLEANOUTS JUST OUTSIDE THE BUILDING AND AT ANY BENDS



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PROJECT # F-2302-01
SITE # 1501
FACILITY # 3511501138

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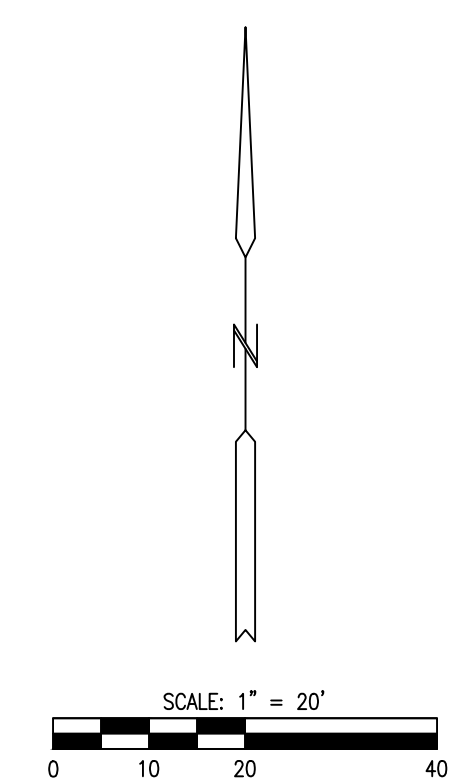
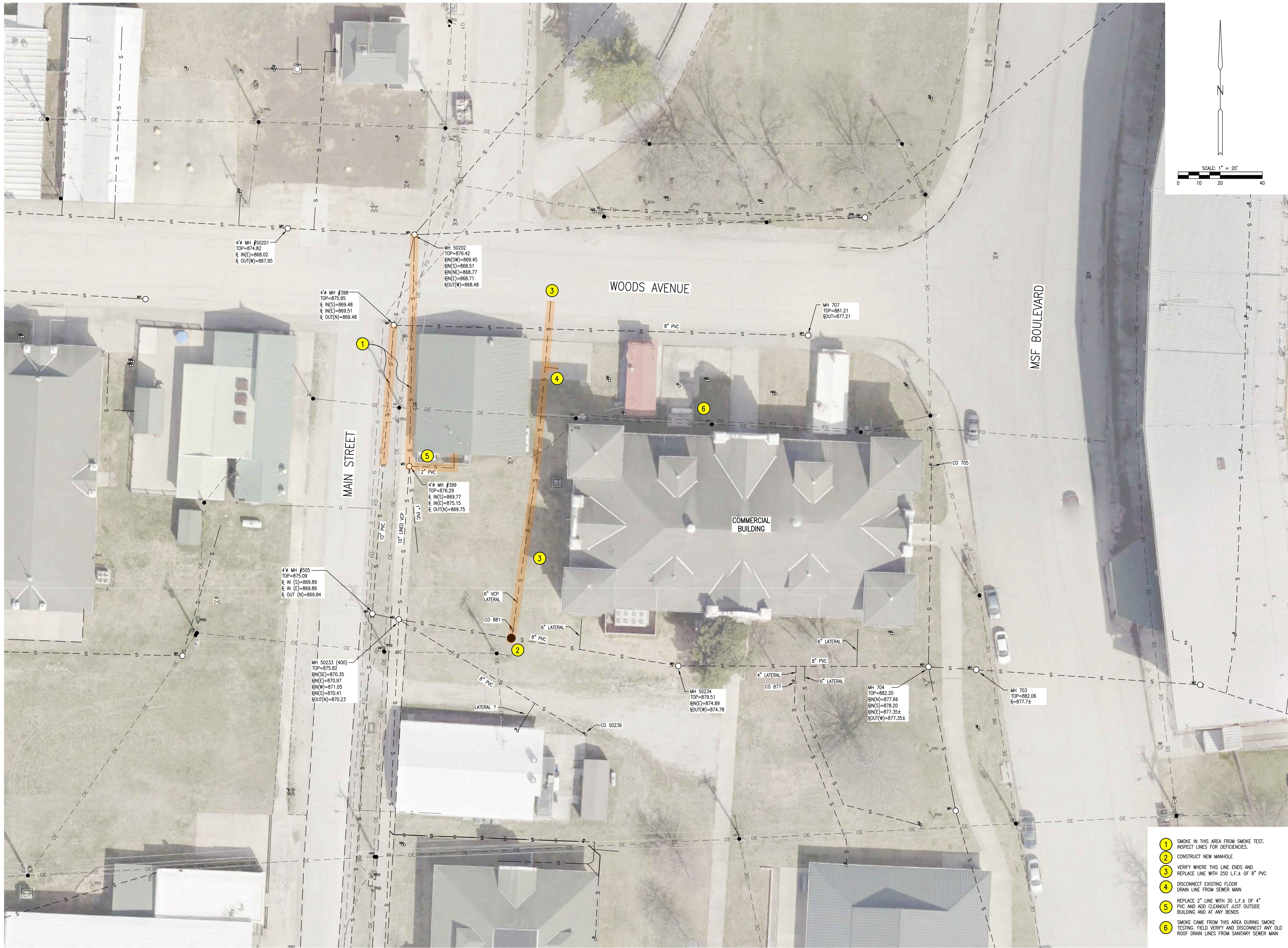
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**REPLACEMENT PLAN
GRAND STANDS**

SHEET NUMBER:

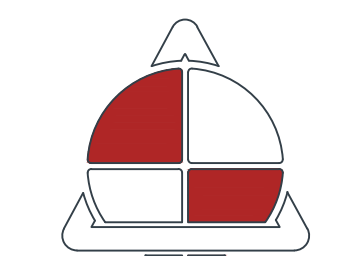
C-217

SHEET 31 OF 48
8/30/2024

① REPLACE ENTIRE LINE UNDER
GRAND STANDS WITH 400 L.F.± OF
6\"/>



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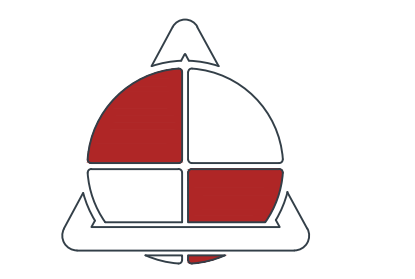
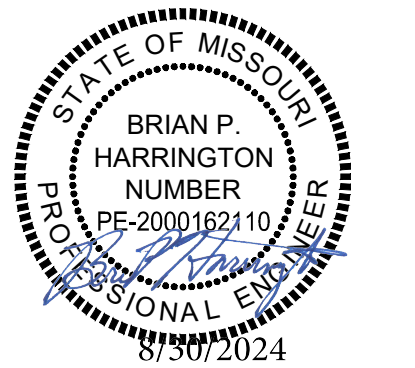
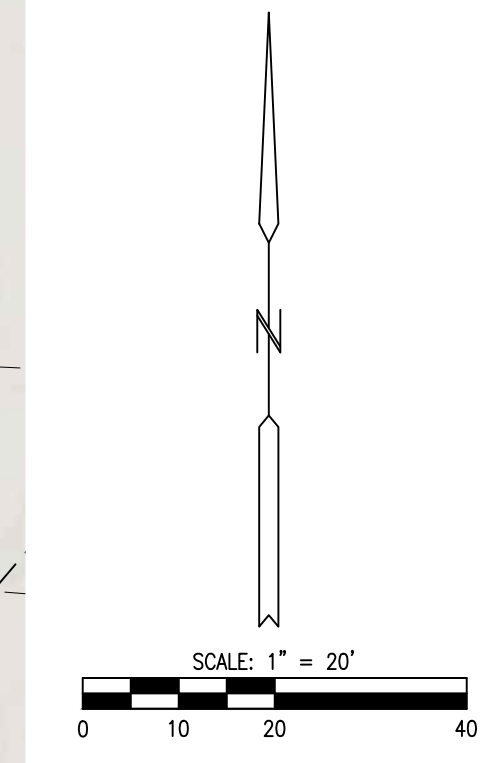
SHEET TITLE:
**REPLACEMENT PLAN
COMMERCIAL
BUILDING**

SHEET NUMBER:

C-218

SHEET 32 OF 48
8/30/2024

- 1 SMOKE IN THIS AREA FROM SMOKE TEST. INSPECT LINES FOR DEFICIENCIES.
- 2 CONSTRUCT NEW MANHOLE
- 3 VERIFY WHERE THIS LINE ENDS AND REPLACE LINE WITH 250 L.F.± OF 8" PVC
- 4 DISCONNECT EXISTING FLOOR DRAIN LINE FROM SEWER MAIN
- 5 REPLACE 2" LINE WITH 30 L.F.± OF 4" PVC AND ADD CLEANOUT JUST OUTSIDE BUILDING AND AT ANY BENDS
- 6 SMOKE CAME FROM THIS AREA DURING SMOKE TESTING. FIELD VERIFY AND DISCONNECT ANY OLD ROOF DRAIN LINES FROM SANITARY SEWER MAIN



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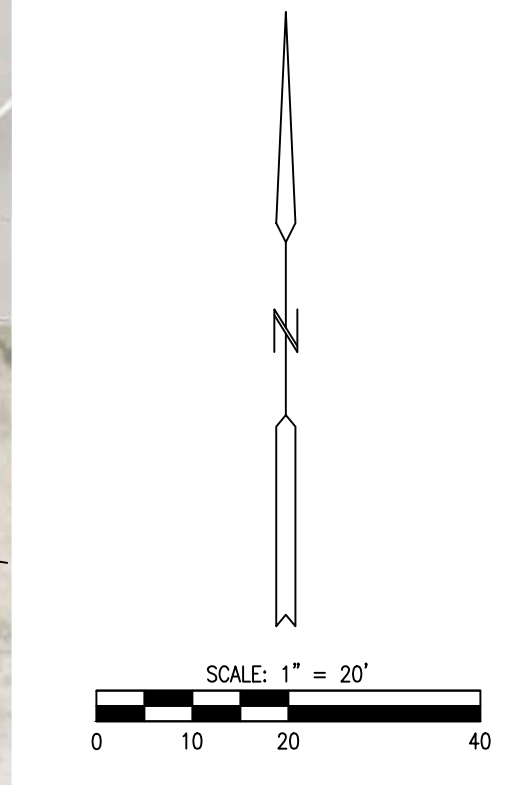
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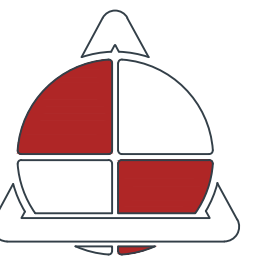
SHEET TITLE:
**REPLACEMENT PLAN
FAMILY FUN CENTER
AND GOOD TIME
CHARLIE'S**

SHEET NUMBER:
C-219
SHEET 33 OF 48
8/30/2024

- 1 REPLACE LATERAL FROM FAMILY FUN CENTER WITH 80 L.F.± OF 6" PVC AND ADD CLEANOUT JUST OUTSIDE OF BUILDING
- 2 REPLACE LATERAL FROM GOOD TIME CHARLIE'S WITH 90 L.F.± OF 4" PVC AND ADD CLEANOUT JUST OUTSIDE OF BUILDING
- 3 REPLACE 6" VCP FROM MH#401 TO MH#50228 WITH 170 L.F. OF 6" PVC
- 4 REMOVE THIS LINE



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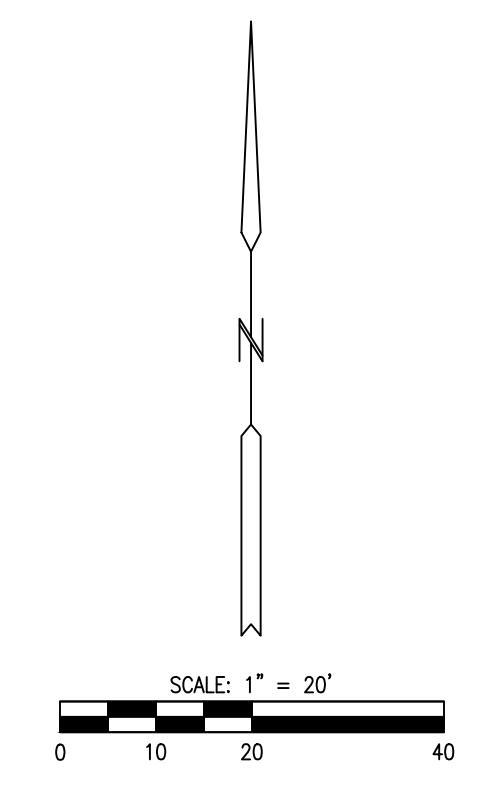
REPLACEMENT PLAN
CATTLEMAN'S AND
BEEF HOUSE

SHEET NUMBER:

C-220

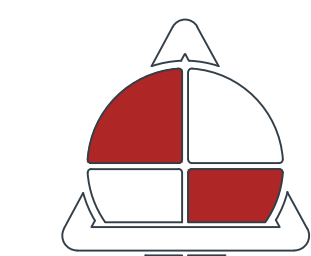
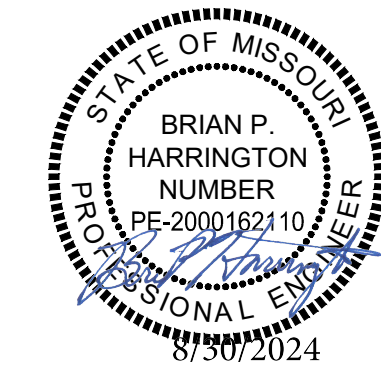
SHEET 34 OF 48
8/30/2024

- 1 REPLACE 8" VCP LATERAL FROM BEEF HOUSE WITH 90 L.F.± OF 8" PVC FROM BUILDING TO MH 50229 AND REPLACE EXISTING CLEANOUTS
- 2 REPLACE LATERAL FROM CATTLEMAN'S WITH 110 L.F.± OF 4" PVC AND ADD CLEANOUT JUST OUTSIDE OF BUILDING AND AT ANY BENDS



- 1 REPLACE SECTION OF LATERAL OF HOME ECON BUILDING FROM 10" LINED VCP SEWER MAIN TO EXISTING LATERAL AT FIRST 45° BEND (EX. PVC) WITH 120 L.F.± OF 6" PVC (REMOVE OLD ROOF DRAIN LINES)
- 2 REPLACE LATERAL FROM JACKSON'S WITH 20 L.F.± OF 4" PVC

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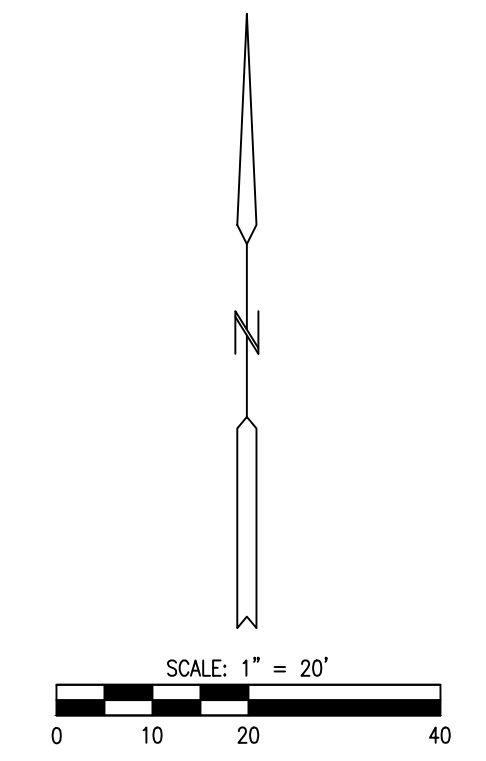
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SHEET TITLE:
**REPLACEMENT PLAN
HOME ECON
BUILDING AND
JACKSON'S**

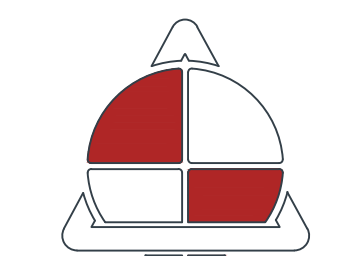
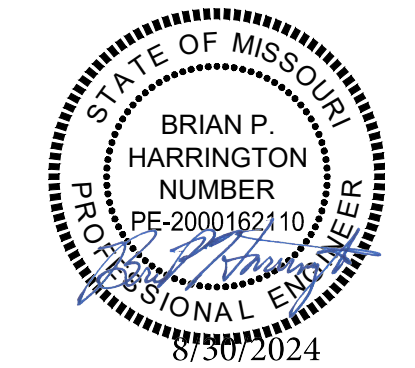
SHEET NUMBER:

C-221

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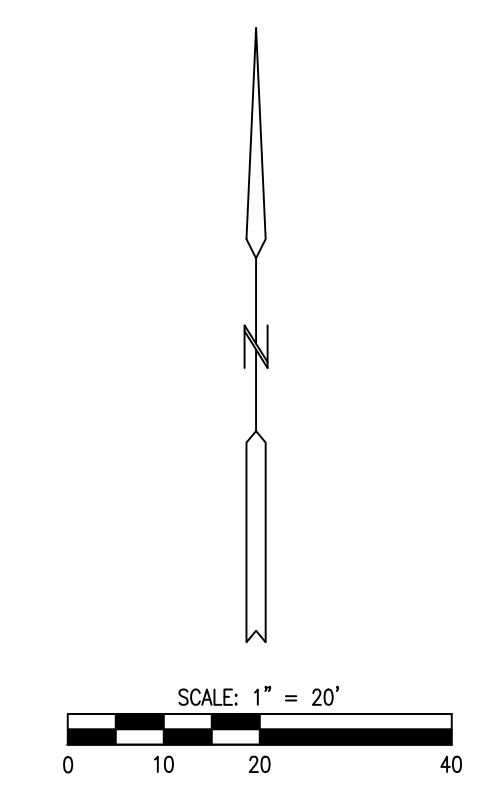
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**REPLACEMENT PLAN
VARIED INDUSTRIES**

SHEET NUMBER:

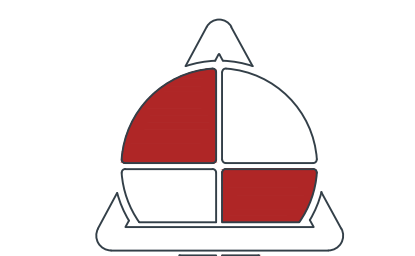
C-222

SHEET 36 OF 48
8/30/2024

- 1 REPLACE WITH 130 L.F.± OF 8" PVC AND RECONNECT LATERALS AND DISCONNECT ANY ROOF DRAIN LINES
- 2 REPLACE LATERALS FROM VARIED INDUSTRIES BUILDING WITH PVC FROM BUILDING TO SEWER MAIN AND INSTALL CLEANOUTS JUST OUTSIDE THE BUILDING AND AT ANY BENDS



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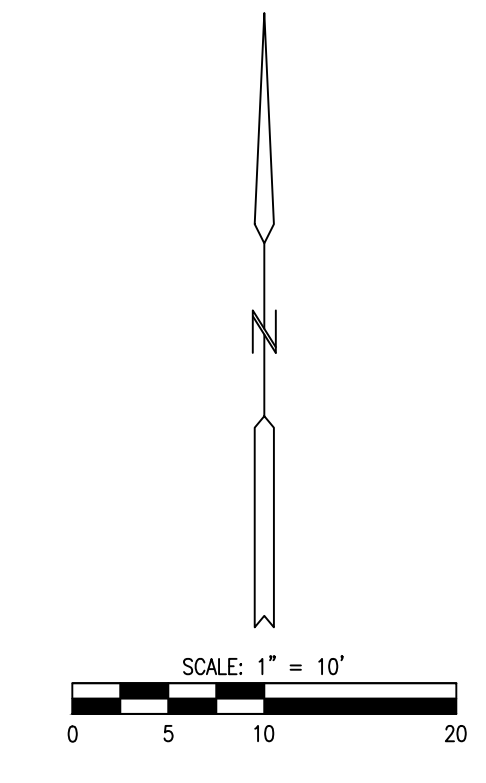
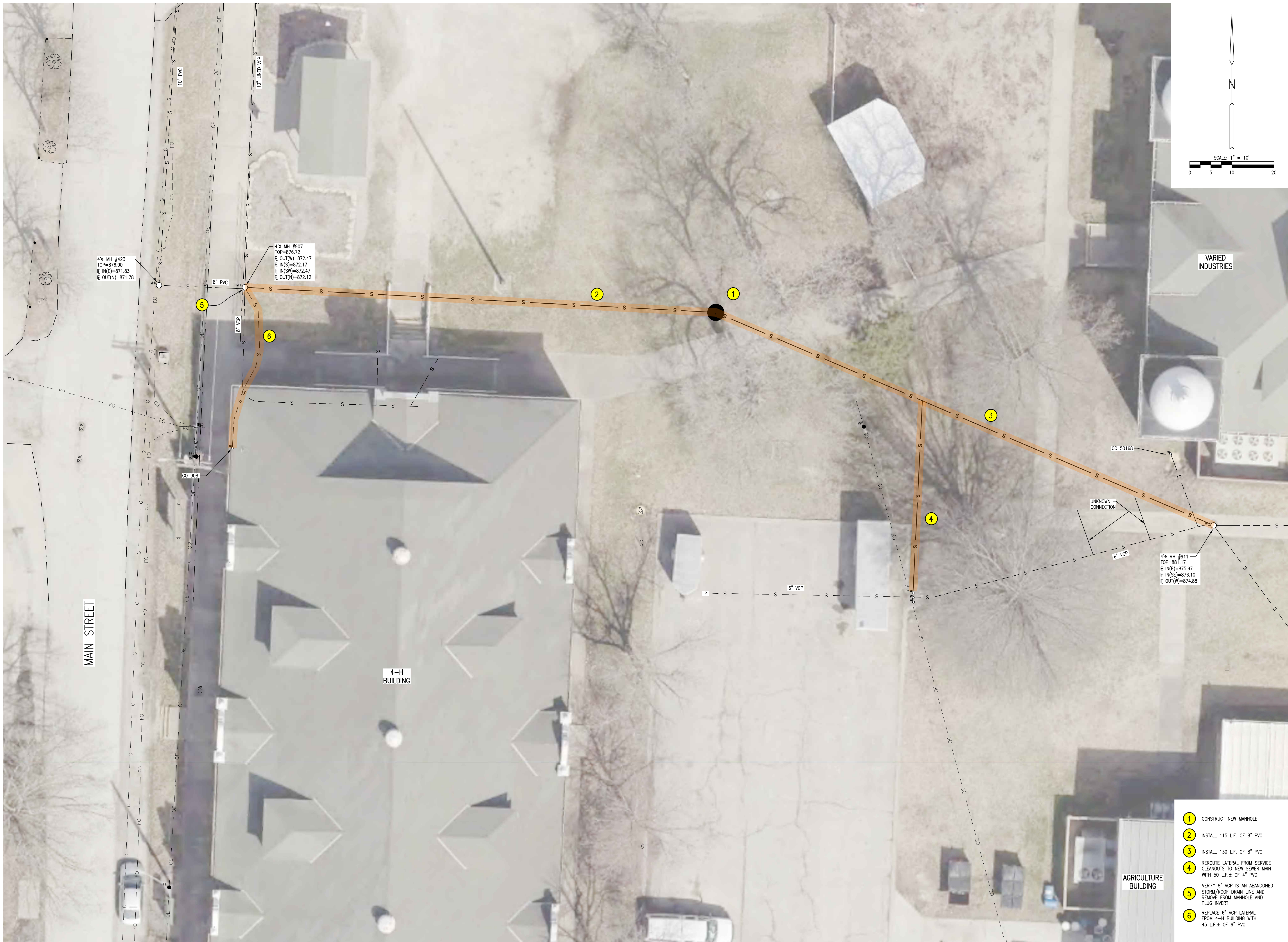
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AGRICULTURE
BUILDING**

SHEET NUMBER:

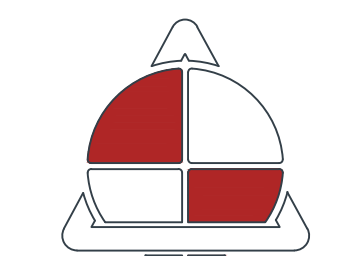
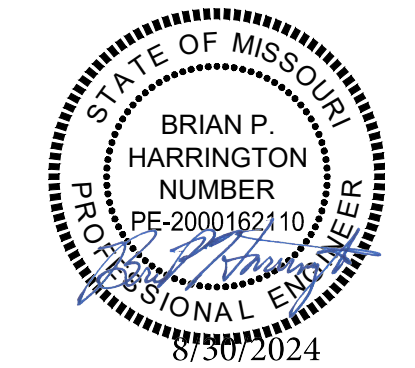
C-223

SHEET 37 OF 48
8/30/2024

- ① REPLACE LATERAL FROM AGRICULTURE BUILDING WITH 70 L.F.± OF 6" PVC AND ADD CLEANOUTS JUST OUTSIDE OF BUILDING AND AT ANY BENDS
- ② ROOTS IN SEWER MAIN. REMOVE ROOTS AND REPAIR MAIN (20 L.F.± OF 6" PVC)



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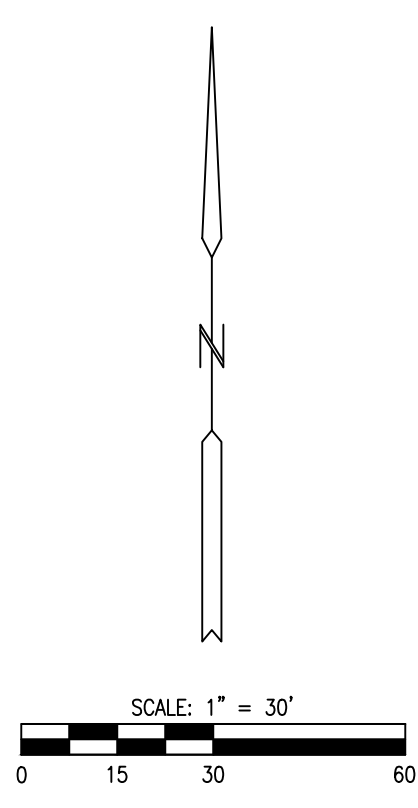
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4-H BUILDING**

SHEET NUMBER:

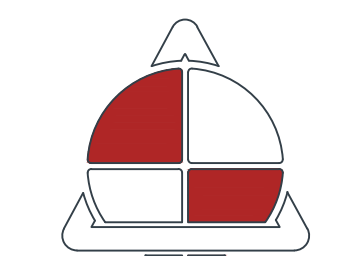
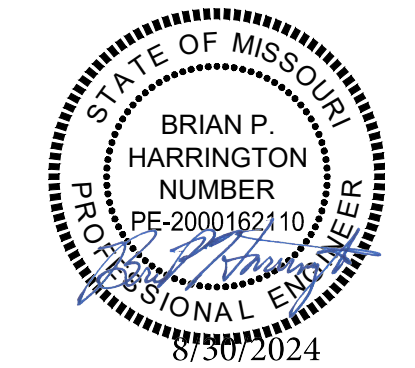
C-224

SHEET 38 OF 48
8/30/2024

- 1 CONSTRUCT NEW MANHOLE
- 2 INSTALL 115 LF. OF 8" PVC
- 3 INSTALL 130 LF. OF 8" PVC
- 4 REROUTE LATERAL FROM SERVICE CLEANOUTS TO NEW SEWER MAIN WITH 50 LF.± OF 4" PVC
- 5 VERIFY 8" VCP IS AN ABANDONED STORM/ROOF DRAIN LINE AND REMOVE FROM MANHOLE AND PLUG INVERT
- 6 REPLACE 6" VCP LATERAL FROM 4-H BUILDING WITH 45 LF.± OF 6" PVC



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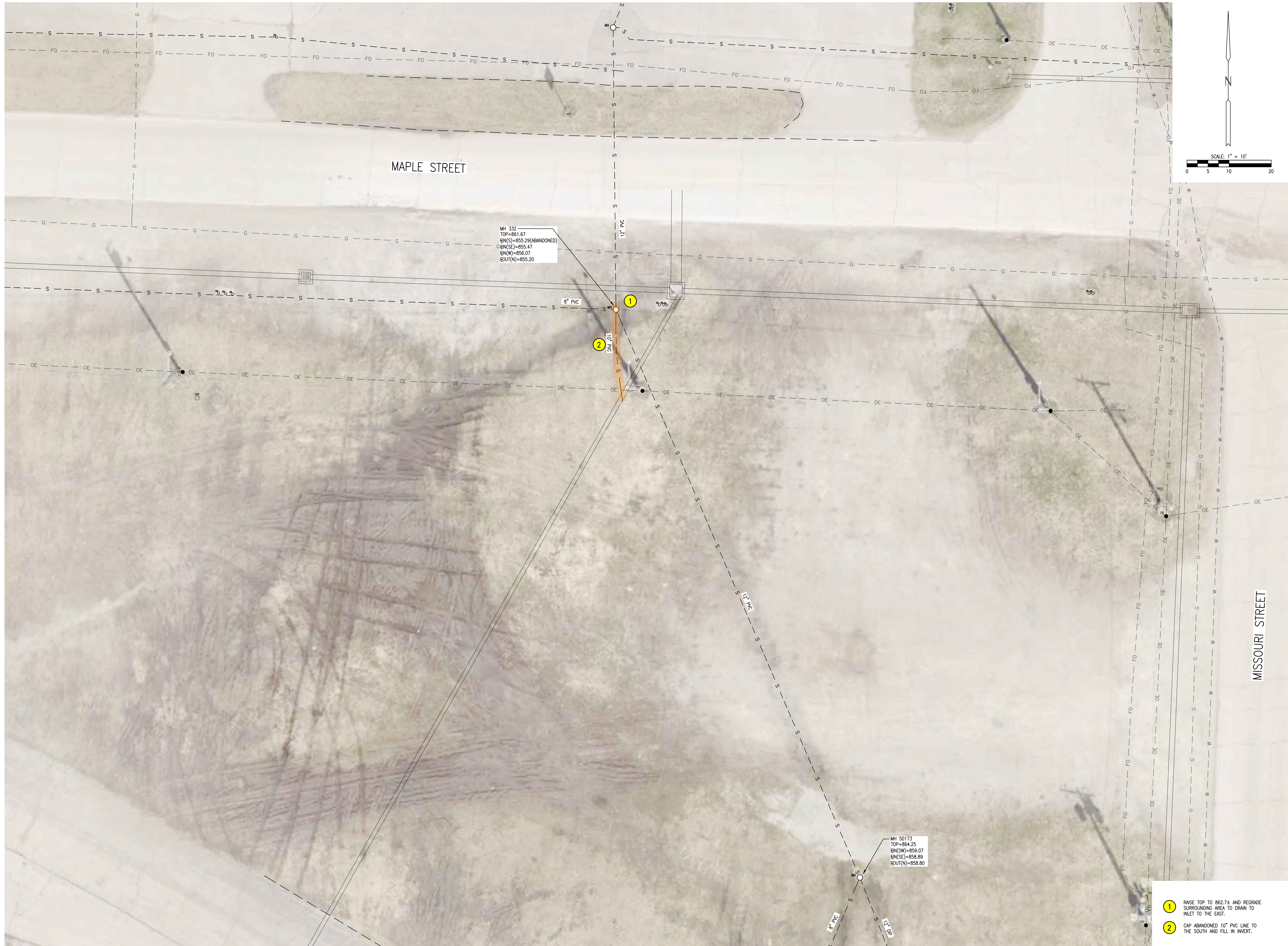
SHEET TITLE:
**REPLACEMENT PLAN
SWINE BARN**

SHEET NUMBER:

C-225

SHEET 39 OF 48
8/30/2024

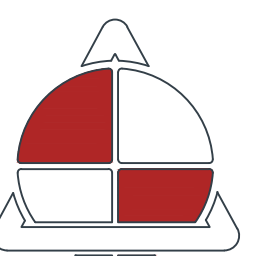
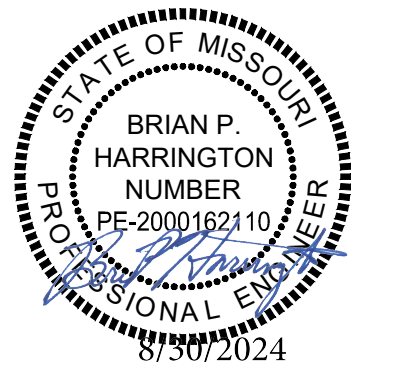
- 1 REPLACE WITH 40 L.F.± OF 6" PVC AND ADD CLEANOUT JUST OUTSIDE OF BUILDING
FIELD VERIFY IF THIS LATERAL CONNECTS TO THE SWINE BARN AND IF IT IS SEWER OR STORM. DISCONNECT IF STORM.
- 2 REPLACE IF SEWER AND NOT PVC WITH 6" PVC AND ADD CLEANOUTS JUST OUTSIDE THE BUILDING AND AT ANY BENDS
- 3 VERIFY END OF LINE AND CONSTRUCT NEW MANHOLE AT END OF LINE



MH 332
 TOP=861.67
 EN(S)=855.29(ABANDONED)
 EN(SE)=855.47
 EN(W)=856.07
 EOUT(N)=855.20

MH 50173
 TOP=858.25
 EN(SW)=859.07
 EN(SE)=858.89
 EOUT(N)=858.80

- ① RAISE TOP TO 862.74 AND REGRADE SURROUNDING AREA TO DRAIN TO INLET TO THE EAST.
- ② CAP ABANDONED 10" PVC LINE TO THE SOUTH AND FILL IN INVERT.



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PROJECT # F-2302-01
 SITE # 1501
 FACILITY # 3511501138

REVISION: _____
 DATE: _____
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 DATE: _____
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 DATE: _____
 ISSUE DATE: 8/30/2024

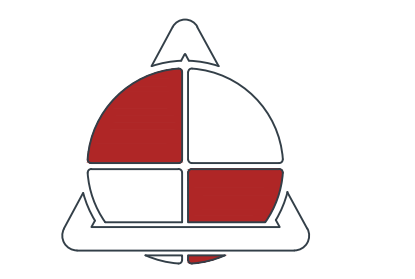
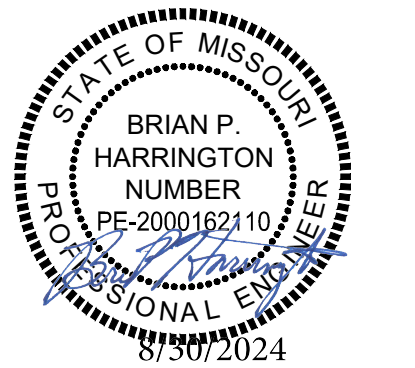
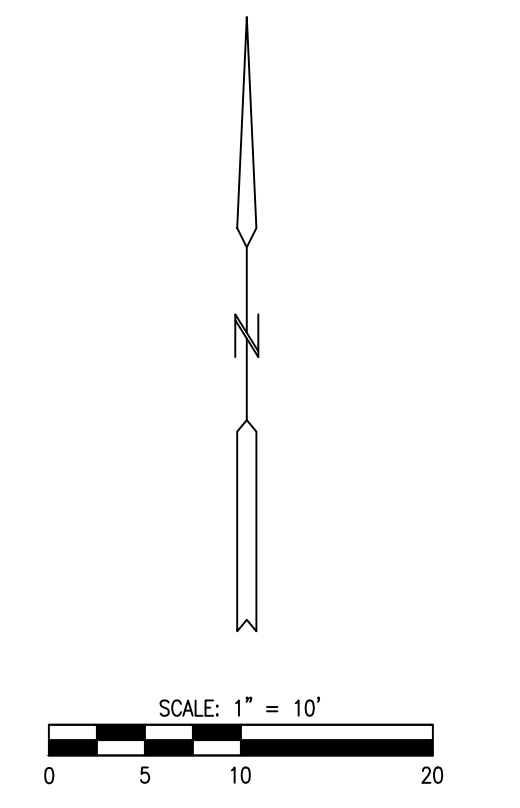
CAD DWG FILE: 22230.01-DESIGN SWR.LAT.dwg
 DRAWN BY: JPS
 CHECKED BY: CWS
 DESIGNED BY: BPH

SHEET TITLE:
**REPLACEMENT PLAN
 RAISE TOP OF MH 332
 AND RE-GRADE
 SURROUNDING AREA**

SHEET NUMBER:

C-226

SHEET 40 OF 48
 8/30/2024



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MISSOURI STATE
FAIRGROUNDS

IMPROVEMENTS TO
STORMWATER AND
WASTEWATER COLLECTION
SYSTEMS, INFRASTRUCTURE

MISSOURI
STATE FAIRGROUNDS
2503 W 16TH STREET
SEDALIA, MISSOURI

PROJECT # F-2302-01
SITE # 1501
FACILITY # 3511501138

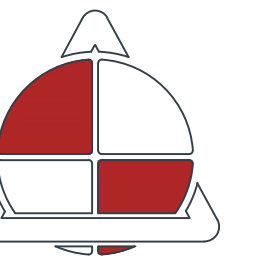
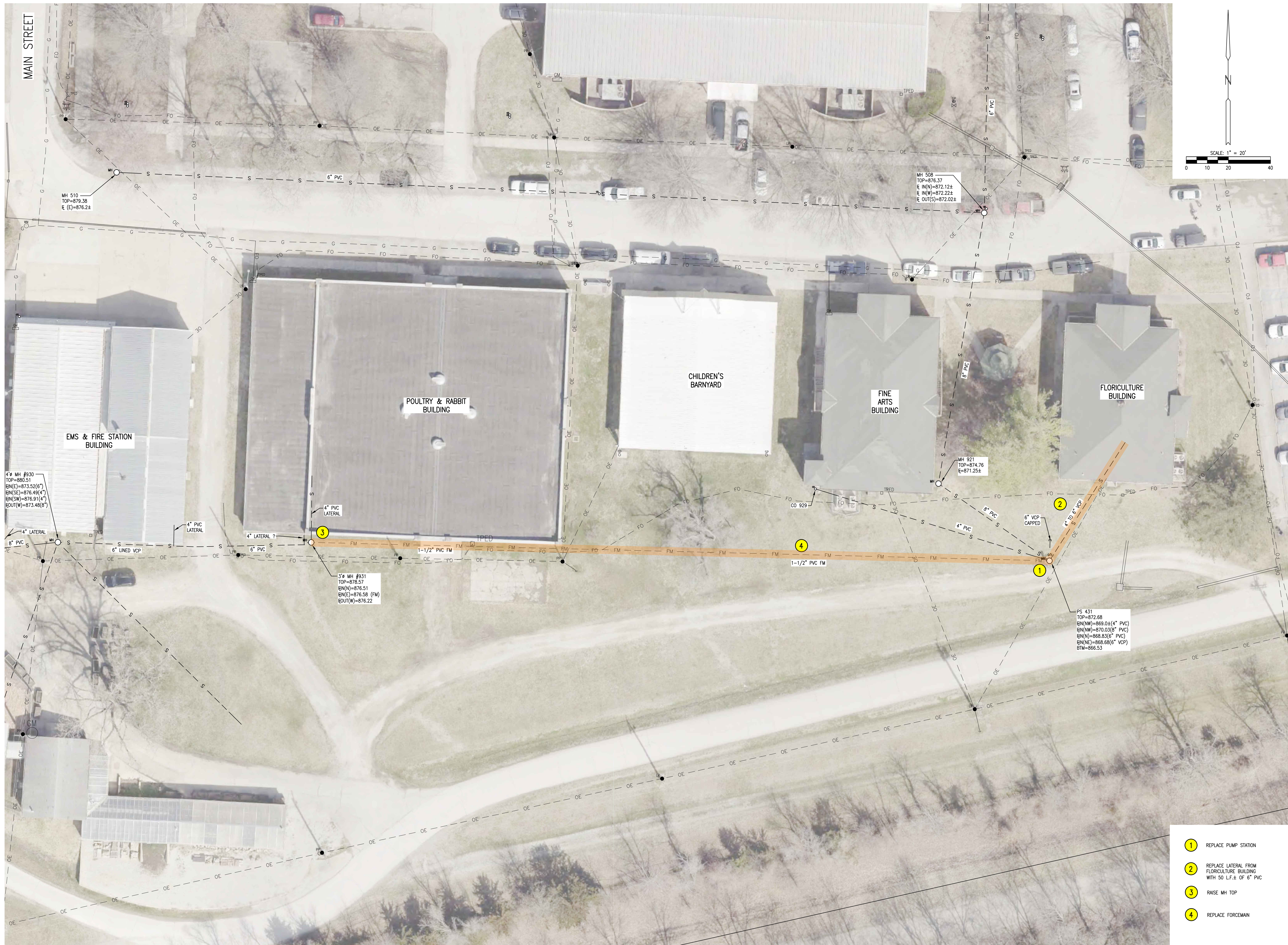
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SHEET TITLE:
**REPLACEMENT PLAN
RESTROOM NE OF
SWINE BARN**

SHEET NUMBER:
C-227
SHEET 41 OF 48
8/30/2024

- 1 REPLACE LATERAL FROM R15 WITH 20 LF.± OF 8" PVC AND ADD CLEANOUTS JUST OUTSIDE OF BUILDING AND AT ANY BENDS
- 2 REPLACE LATERAL FROM R16 WITH 20 LF.± OF 6" PVC AND ADD CLEANOUTS JUST OUTSIDE OF BUILDING AND AT ANY BENDS
- 3 REPLACE LATERAL FROM COMBINED BATHROOM WITH 10 LF.± OF 4" PVC AND ADD CLEANOUT JUST OUTSIDE OF BUILDING



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PROJECT # F-2302-01
SITE # 1501
FACILITY # 3511501138

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ISSUE DATE: 8/30/2024

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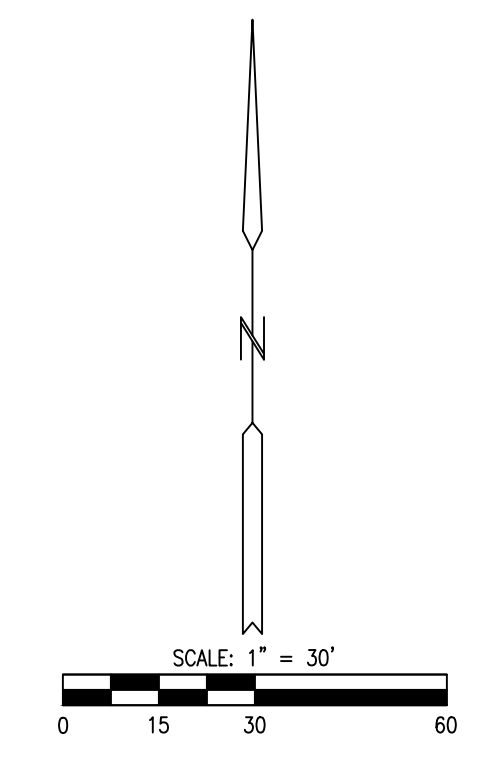
REPLACEMENT PLAN
POULTRY & RABBIT,
FLORICULTURE
BUILDINGS

SHEET NUMBER:

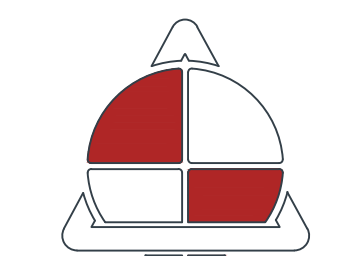
C-228

SHEET 42 OF 48
8/30/2024

- 1 REPLACE PUMP STATION
- 2 REPLACE LATERAL FROM FLORICULTURE BUILDING WITH 50 L.F.± OF 6" PVC
- 3 RAISE MH TOP
- 4 REPLACE FORCEMAIN



STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR



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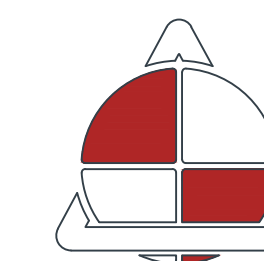
SHEET TITLE:
**REPLACEMENT PLAN
PUMP STATION**

SHEET NUMBER:

C-229

SHEET 43 OF 48
8/30/2024

1 REPLACE PUMP STATION EQUIPMENT



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SHEET TITLE:

**PUMP STATION
DETAILS**

SHEET NUMBER:

C-230

SHEET 44 OF 48
8/30/2024

PUMP STATION NOTES

- ALL PUMP STATION COMPONENTS SHALL COMPLY WITH THE MISSOURI DEPARTMENT OF NATURAL RESOURCES DESIGN CRITERIA FOR PUMP STATIONS. THE CONTRACTOR SHALL FOLLOW THE FINAL INSPECTION AND ACCEPTANCE PROCEDURES AND WARRANT THE PUMP STATION AND RELATED APPURTENANCES FOR NOT LESS THAN ONE YEAR PER THE SPECIFICATIONS.
- SHOP DRAWINGS ARE REQUIRED ON PUMPS, CONTROL PANEL, VALVES, FITTINGS, TRASH BASKET, AND ALL APPURTENANCES.
- ALL PUMPS SHALL BE THE SAME TYPE, HORSEPOWER AND SIZE AND SHALL BE INTERCHANGEABLE. ALL PUMPS MUST HANDLE A 2.00" SPHERICAL SOLID AND HAVE A NON-OVERLOADING MOTOR IF NOT GRINDER PUMPS.
- ALL BOLTS, NUTS, MISCELLANEOUS FASTENERS, BRACKETS, MOUNTS, LIFTING MECHANISMS AND NECESSARY APPURTENANCES IN WET WELL AND VALVE VAULT SHALL BE STAINLESS STEEL.
- CONTRACTOR SHALL PROVIDE THE NECESSARY DUCTILE IRON PIPE (CLASS 350psi), COUPLINGS, FITTINGS, VALVES, AND ALL NECESSARY APPURTENANCES, EXCAVATING, BACK FILL, ETC. TO COMPLETE THE PUMP STATION REHABILITATION AND CONSTRUCTION.
- THE EXISTING PUMPS ARE GOULDS MODEL 35D12F1ED, 1-PHASE, 230v., 1.5 HP, 1750 RPM, AND SHALL BE REMOVED AND REPLACED AS SPECIFIED OR ENGINEER APPROVED EQUIVALENT. THE PUMP GUIDE RAILS SHALL BE REMOVED AND REPLACED.
- THE EXISTING CONTROL PANEL CABINET SHALL BE REMOVED AND REPLACED. THE CONTROL PANEL OR CABINET SHALL BE FOR DUPLEX PUMP CONFIGURATION WITH LEAD AND LAG PUMP OPERATION AND SHALL BE SUPPLIED WITH EXTERIOR ALARM LIGHT AND HORN. PROVIDE PANEL HEATER AS REQUIRED FOR COLD WEATHER APPLICATIONS.
- THE EXISTING LEVEL CONTROL FLOATS SHALL BE REMOVED AND REPLACED. LEVEL CONTROL FLOATS WILL BE USED FOR PUMP STATION OPERATION. FOUR FLOAT OPERATION IS ANTICIPATED: LOW WATER ALARM, LEAD PUMP ON/OFF, LAG PUMP ON/OFF, AND HIGH WATER ALARM.
- A NEW STAINLESS STEEL RACK TO HANG FLOATS, ELECTRIC CABLE, AND LIFTING CHAIN SHALL BE PROVIDED.
- THE BASE DISCHARGE ELBOWS, REDUCERS, VERTICAL PIPING, 90° ELBOWS, AND TRASH BASKET AND RAILS LOCATED IN THE WET WELL SHALL BE REMOVED AND REPLACED.
- THE PLUG VALVES, CHECK VALVES, TEE, AND 90° ELBOWS LOCATED IN THE VALVE VAULT SHALL BE REMOVED AND REPLACED.
- ALL ELECTRIC WORK SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE AND LOCAL UTILITY COMPANY SPECIFICATIONS AND SHALL BE COORDINATED BY THE CONTRACTOR. CONTRACTOR SHALL COORDINATE POWER SERVICE CONNECTION AND ALL NECESSARY IMPROVEMENTS REQUIRED OUTSIDE OF THE PUMP STATION SITE. ELECTRICAL COMPONENTS OUTSIDE OF THE PUMP STATION SITE (TRANSFORMERS, REMOTE DISCONNECTS, BREAKERS, WIRE SIZE, ETC.) SHALL BE VERIFIED WITH SELECTED PUMPS. ANY AND ALL UPGRADES TO OUTSIDE ELECTRICAL COMPONENTS SHALL BE INCLUDED IN THE BID.
- ALL PUMP STATION EQUIPMENT AND INSTALLATION SHALL BE CERTIFIED BY EQUIPMENT SUPPLIER. PUMP MANUFACTURER AND GENERAL CONTRACTOR SHALL PROVIDE A START-UP TEST SESSION FOR FAIRGROUNDS STAFF OR REPRESENTATIVE. START-UP REPORTS SHALL BE SUBMITTED TO THE FAIRGROUNDS STAFF PRIOR TO FINAL ACCEPTANCE.
- COMPLETE OPERATING AND MAINTENANCE MANUALS AND AS-BUILT WIRING AND PIPING SCHEMATICS (4 COPIES EACH) ARE REQUIRED PRIOR TO FINAL ACCEPTANCE. 1 COPY TO ENGINEER, 1 COPY TO CONTRACTOR, 2 COPIES TO FAIRGROUNDS STAFF OR REPRESENTATIVE.
- CONTRACTOR SHALL INCLUDE 2 FULL DAY TRIPS TO THE SITE AFTER THE PUMP STATION HAS BEEN IN SERVICE FOR 30 DAYS FOR FAIRGROUNDS STAFF AND FOLLOW UP SERVICES AND TESTING OF DIAGNOSTICS.

DUPLEX PUMP STATION FOR 6' DIAMETER WET WELL AND 4" PIPING

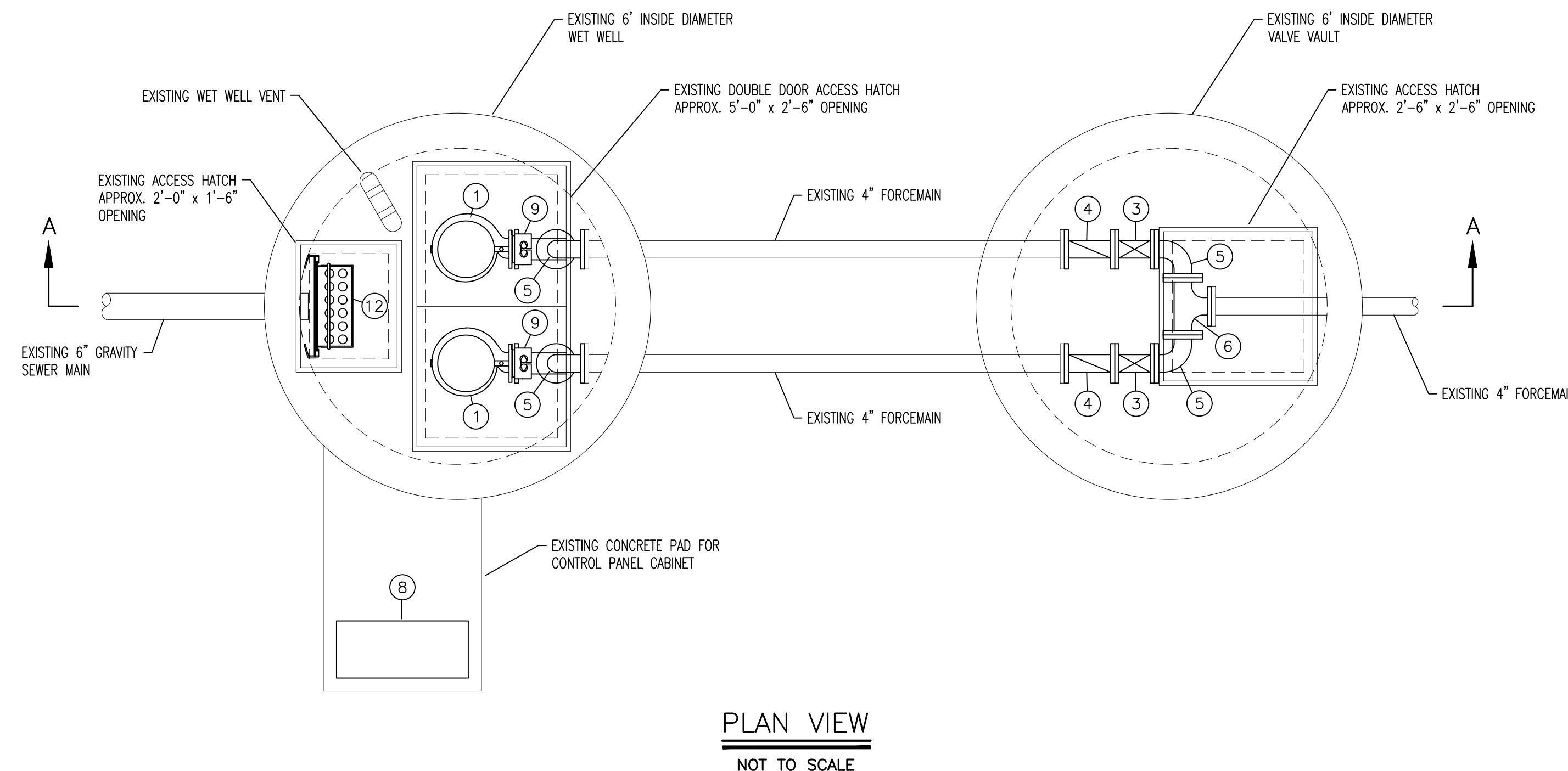
MANUFACTURER: PENTAIR MYERS OR OWNER/ENGINEER APPROVED EQUIVALENT

PUMP MODEL: MYERS 4R20M6-21
IMPELLER DIAMETER: 6.00 INCH
DISCHARGE: 4 INCH
SPEED: 1150 RPM
PUMP HORSEPOWER: 2.0
POWER REQUIREMENTS: 1Ø, 230v., 60hz.
DUTY POINT: 125 GPM @ 11.9' TDH

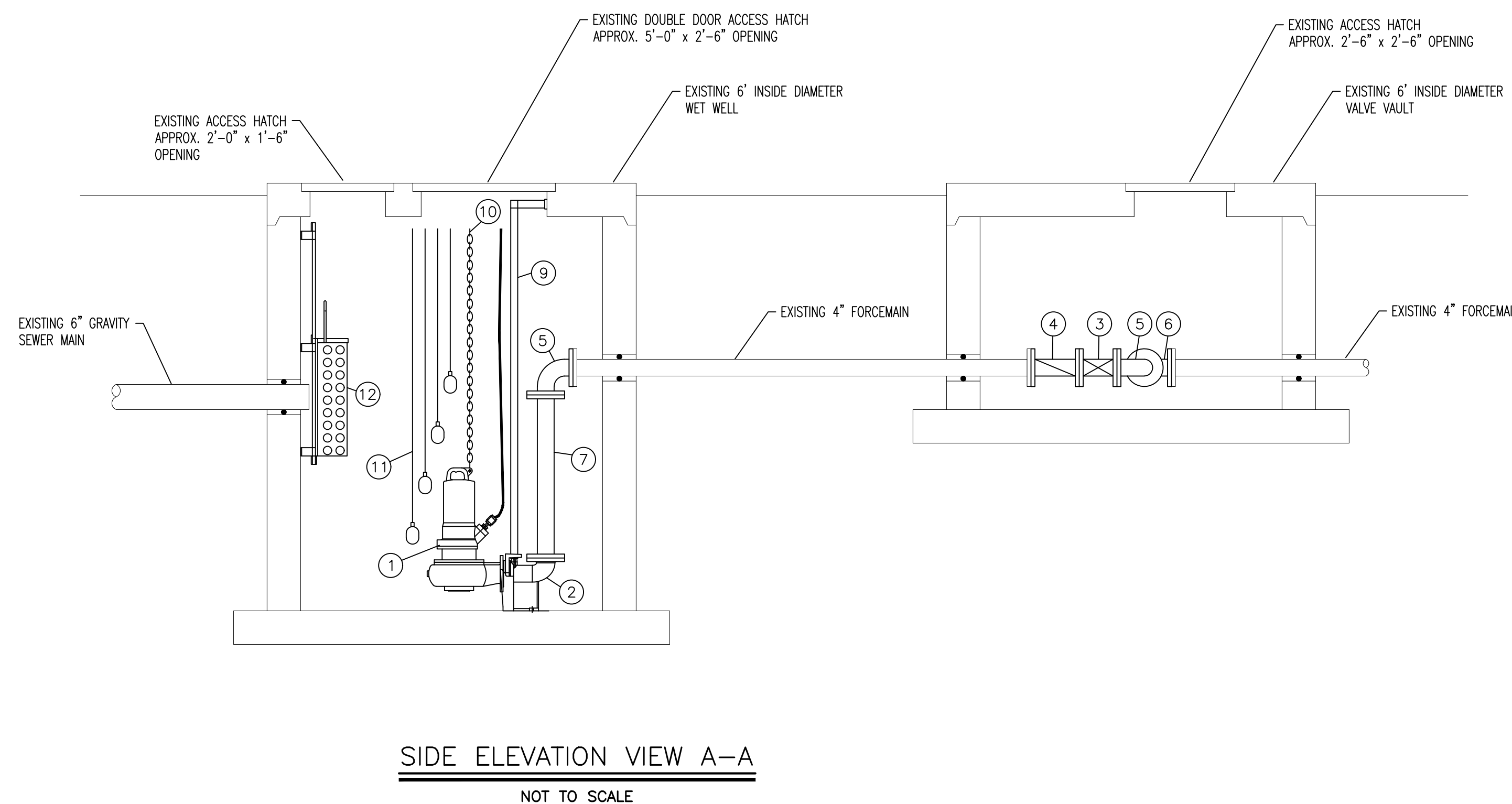
PUMP STATION OPERATION	
SWITCH SETTING	ELEVATION
HIGH WATER ALARM	875.62
LAG PUMP ON	875.62
LEAD PUMP ON	874.62
LEAD/LAG PUMP OFF	872.62
LOW WATER ALARM	872.12
TOP WET WELL	879.69
BOTTOM WET WELL	871.12
FL GRAVITY-IN (N)	875.20

DESIGN PUMP SYSTEM CURVE	
FLOW (GPM)	TDH (FT.)
0	6.0
25	6.3
50	7.0
75	8.2
100	9.9
125	11.9
150	14.4
175	17.3
200	20.6

REPLACEMENT SCHEDULE				
ITEM	DESCRIPTION	SIZE	MATERIAL	QUANTITY
1	SUBMERSIBLE PUMP	3" DISCHARGE	-	2
2	DISCHARGE ELBOW, COUPLING & UPPER BRACKET (2 EACH)	3"x3" ELBOW	DUCTILE IRON	2
3	PLUG VALVE	4"	DUCTILE IRON	2
4	CHECK VALVE	4"	DUCTILE IRON	2
5	90° ELBOW	4"	DUCTILE IRON	4
6	TEE	4"x4"x4"	DUCTILE IRON	1
7	PIPE	4"	CLASS 350 DUCTILE IRON	7 L.F.±
8	CONTROL PANEL (NEMA 4X)	TBD.	STAINLESS STEEL	1
9	PUMP GUIDE RAILS (2 PER PUMP) W/316 STAINLESS STEEL SUPPORT BRACKETS AS REQUIRED	1-1/4" DIA. MIN.	SCH. 40 304 STAINLESS STEEL	2
10	PUMP LIFTING CHAIN (1 PER PUMP) LINK SIZE SHALL BE RATED FOR FIVE TIMES THE INSTALLED PUMP & COUPLING WEIGHT	3/16" MIN. DIA. LINKS	316 STAINLESS STEEL	2
11	LEVEL CONTROL FLOATS WITH STAINLESS STEEL HANGING BRACKET	-	-	4 OR AS REQ'D
12	HALLIDAY PRODUCTS SERIES B1A TRASH BASKET W/ GUIDE RAILS AND SUPPORT BRACKETS OR EQUAL	-	ALUMINUM	1

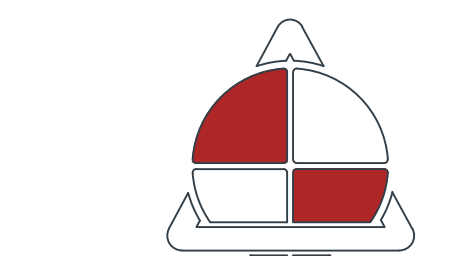
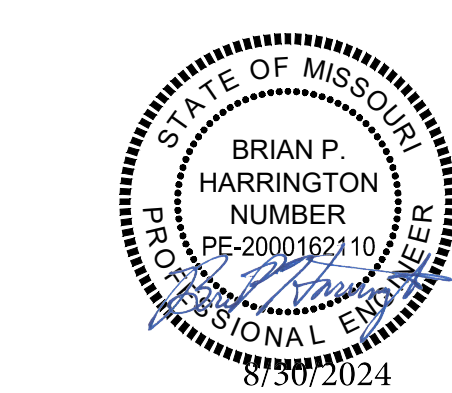


PLAN VIEW
NOT TO SCALE



SIDE ELEVATION VIEW A-A
NOT TO SCALE

SHEEP BARN PUMP STATION REHABILITATION
(SEE SHEET C-229)



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SHEET TITLE:
**PUMP STATION
DETAILS**

SHEET NUMBER:

C-231

SHEET 45 OF 48
8/30/2024

PUMP STATION NOTES

- ALL PUMP STATION COMPONENTS SHALL COMPLY WITH THE MISSOURI DEPARTMENT OF NATURAL RESOURCES DESIGN CRITERIA FOR PUMP STATIONS. THE CONTRACTOR SHALL FOLLOW THE FINAL INSPECTION AND ACCEPTANCE PROCEDURES AND WARRANT THE PUMP STATION AND RELATED APPURTENANCES FOR NOT LESS THAN ONE YEAR PER THE SPECIFICATIONS.
- SHOP DRAWINGS ARE REQUIRED ON PUMPS, CONTROL PANEL, VALVES, FITTINGS, TRASH BASKET, AND ALL APPURTENANCES.
- ALL PUMPS SHALL BE THE SAME TYPE, HORSEPOWER AND SIZE AND SHALL BE INTERCHANGEABLE.
- ALL BOLTS, NUTS, MISCELLANEOUS FASTENERS, BRACKETS, MOUNTS, LIFTING MECHANISMS AND NECESSARY APPURTENANCES IN WET WELL AND VALVE VAULT SHALL BE STAINLESS STEEL.
- CONTRACTOR SHALL PROVIDE THE NECESSARY DUCTILE IRON PIPE (CLASS 350gpi), COUPLINGS, FITTINGS, VALVES, AND ALL NECESSARY APPURTENANCES, EXCAVATING, BACK FILL, ETC. TO COMPLETE THE PUMP STATION REHABILITATION AND CONSTRUCTION.
- THE EXISTING SIMPLEX PUMP STATION IS 1-PHASE, 230v., 1.5 HP ON A 30 AMP BREAKER LOCATED IN THE FLORICULTURE BUILDING. THE SIMPLEX PUMP STATION AND CONTROL PANEL SHALL BE REMOVED AND REPLACED WITH A DUPLEX GRINDER PUMP STATION AND CONTROL PANEL AS SPECIFIED OR ENGINEER APPROVED EQUIVALENT. THE WET WELL FOR THE DUPLEX GRINDER PUMP STATION SHALL BE MINIMUM 4' DIAMETER PRECAST CONCRETE OR FIBERGLASS.
- THE CONTROL PANEL OR CABINET SHALL BE FOR DUPLEX PUMP CONFIGURATION WITH LEAD AND LAG PUMP OPERATION AND SHALL BE SUPPLIED WITH EXTERIOR ALARM LIGHT AND HORN. PROVIDE PANEL HEATER AS REQUIRED FOR COLD WEATHER APPLICATIONS.
- LEVEL CONTROL FLOATS WILL BE USED FOR PUMP STATION OPERATION. FOUR FLOAT OPERATION IS ANTICIPATED: LOW WATER ALARM, LEAD PUMP ON/OFF, LAG PUMP ON/OFF, AND HIGH WATER ALARM.
- ALL ELECTRIC WORK SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE AND LOCAL UTILITY COMPANY SPECIFICATIONS AND SHALL BE COORDINATED BY THE CONTRACTOR. CONTRACTOR SHALL COORDINATE POWER SERVICE CONNECTION AND ALL NECESSARY IMPROVEMENTS REQUIRED OUTSIDE OF THE PUMP STATION SITE. ELECTRICAL COMPONENTS OUTSIDE OF THE PUMP STATION SITE (TRANSFORMERS, REMOTE DISCONNECTS, BREAKERS, WIRE SIZE, ETC.) SHALL BE VERIFIED WITH SELECTED PUMPS. ANY AND ALL UPGRADES TO OUTSIDE ELECTRICAL COMPONENTS SHALL BE INCLUDED IN THE BID.
- ALL PUMP STATION EQUIPMENT AND INSTALLATION SHALL BE CERTIFIED BY EQUIPMENT SUPPLIER. PUMP MANUFACTURER AND GENERAL CONTRACTOR SHALL PROVIDE A START-UP TEST SESSION FOR FAIRGROUNDS STAFF OR REPRESENTATIVE. START-UP REPORTS SHALL BE SUBMITTED TO THE FAIRGROUNDS STAFF PRIOR TO FINAL ACCEPTANCE.
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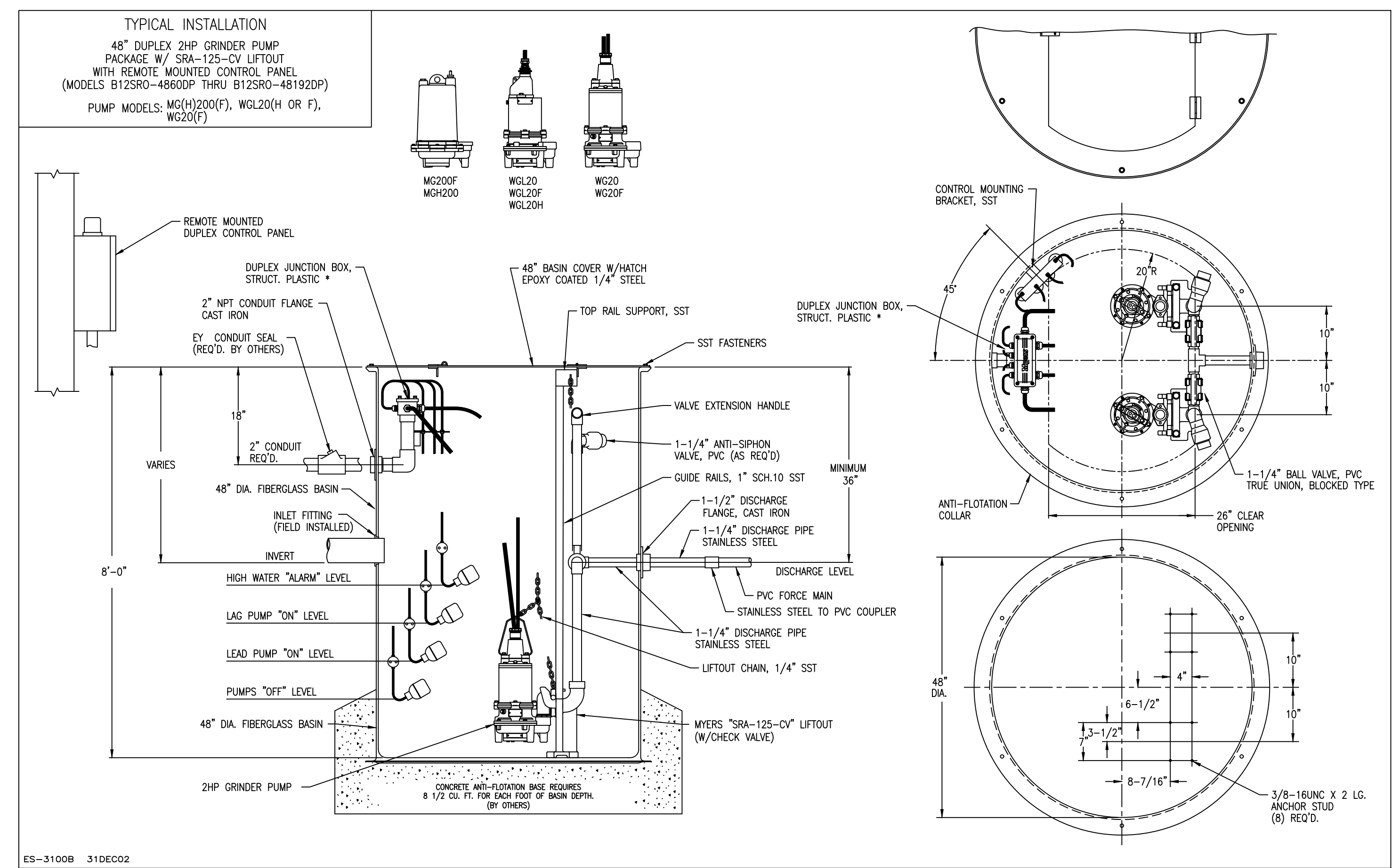
DUPLEX PUMP STATION FOR 4' DIAMETER WET WELL

MANUFACTURER: PENTAIR MYERS OR OWNER/ENGINEER APPROVED EQUIVALENT

PUMP MODEL: MYERS WG20-21
DISCHARGE: 1-1/4 INCH
SPEED: 3450 RPM
PUMP HORSEPOWER: 2.0
POWER REQUIREMENTS: 1Ø, 230v., 60hz.
DUTY POINT: 30 GPM @ 38.0' TDH

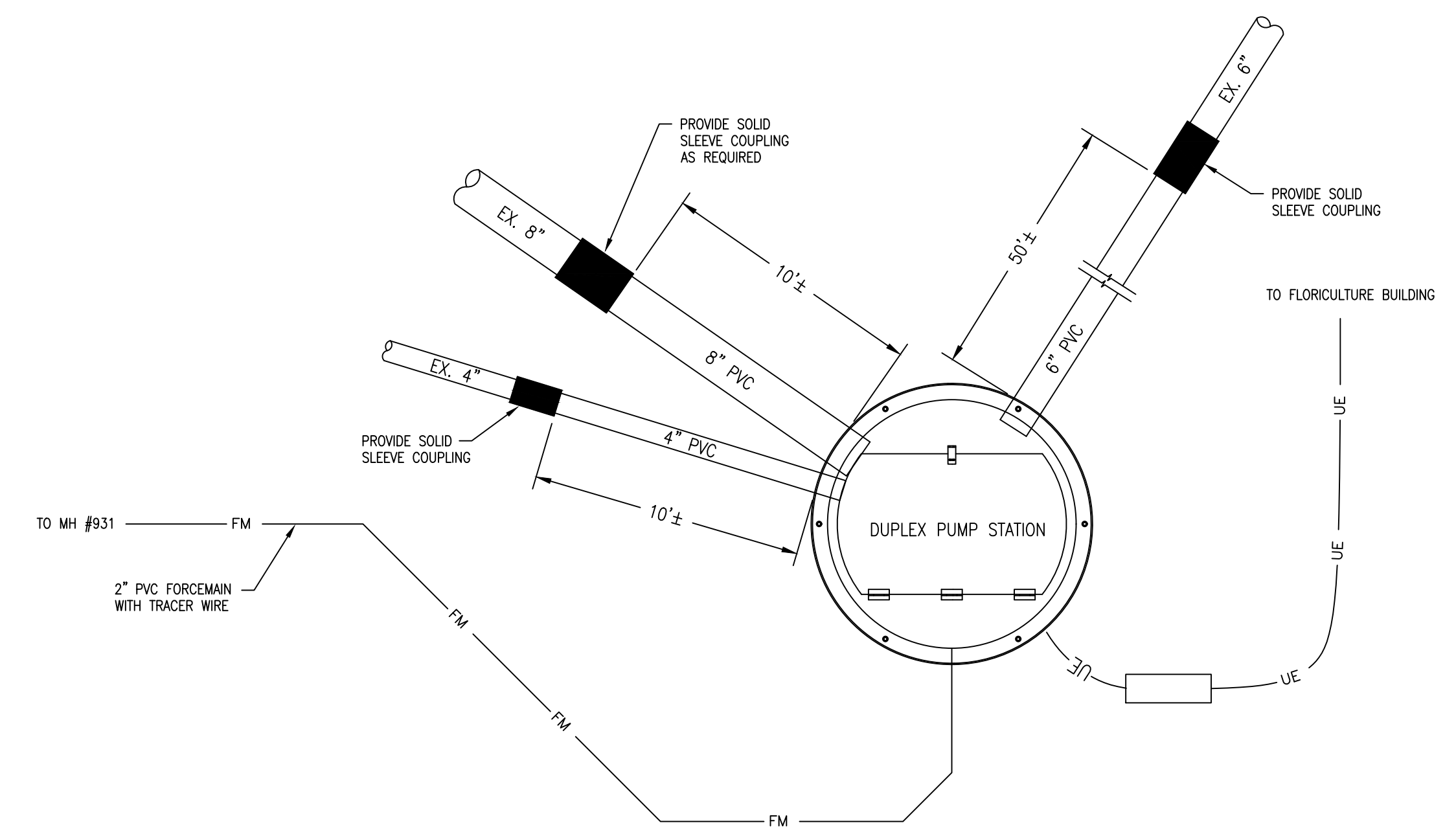
PUMP STATION OPERATION	
SWITCH SETTING	ELEVATION
HIGH WATER ALARM	869.50
LAG PUMP ON	868.50
LEAD PUMP ON	867.50
LEAD/LAG PUMP OFF	866.50
TOP WET WELL	872.50
BOTTOM WET WELL	864.50
4" FL GRAVITY-IN (NW)	869.00
8" FL GRAVITY-IN (NW)	870.03
6" FL GRAVITY-IN (NE)	868.68

DESIGN PUMP SYSTEM CURVE	
FLOW (GPM)	TDH (FT.)
0	10.5
5	11.4
10	13.8
15	17.7
20	23.1
25	29.8
30	38.0
35	47.5
40	58.3

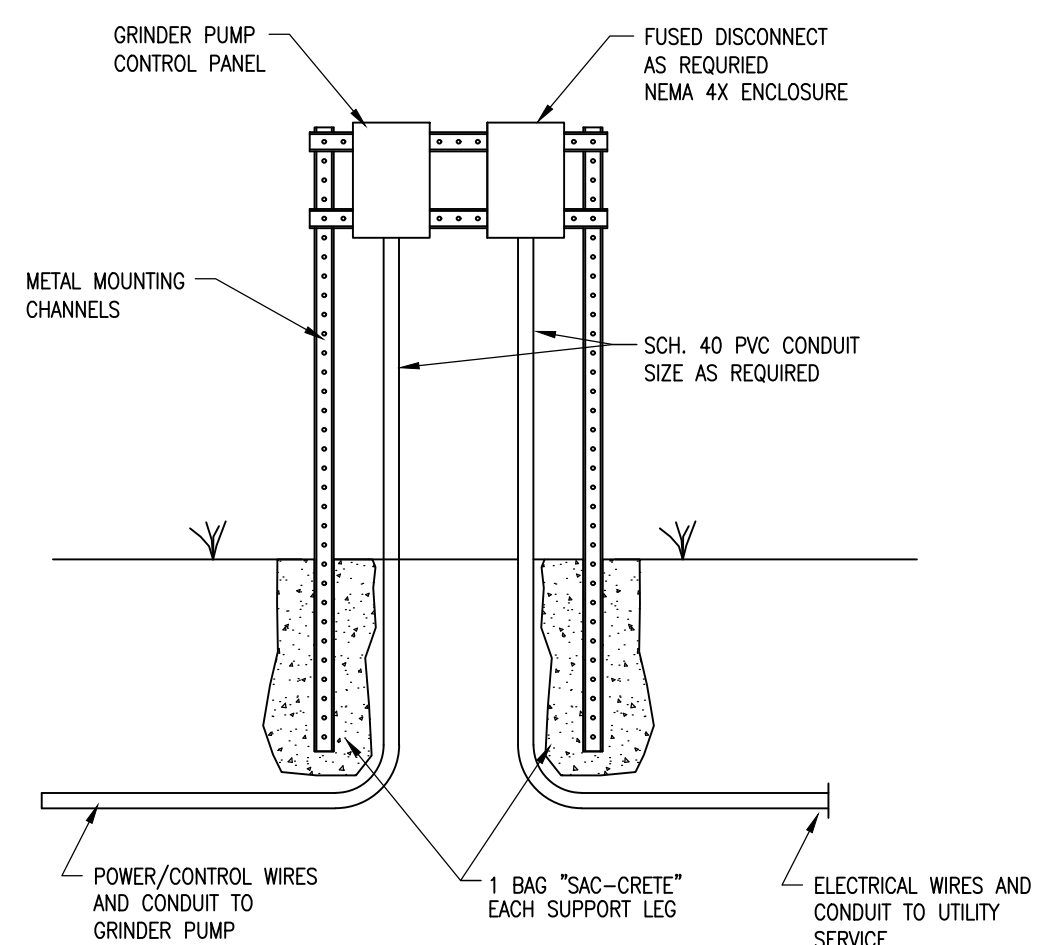


* NOTE: FACTORY INTERIOR JUNCTION BOX SHALL BE REMOVED AND MOUNTED TO THE EXTERIOR OF THE WET WELL OR MAY BE UTILIZED AS A PULL BOX. WIRES FOR PUMPS, FLOATS, CONTROLS, SENSORS, ETC. SHALL CONNECT TO THE EXTERIOR MOUNTED JUNCTION BOX AND NO WIRE CONNECTIONS OR SPLICES ARE ALLOWED INSIDE THE WET WELL.

**FLORICULTURE AND FINE ARTS PUMP STATION REPLACEMENT
(SEE SHEET C-228)**

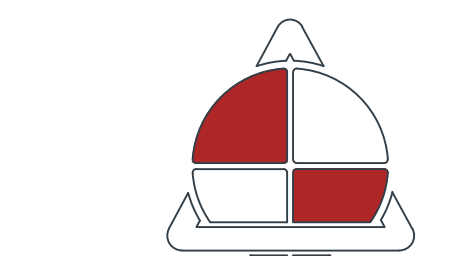
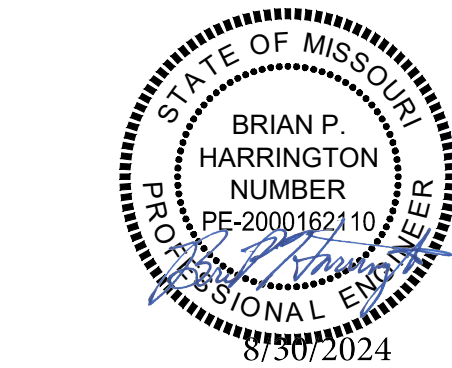


FLORICULTURE AND FINE ARTS PUMP STATION LAYOUT



- NOTES:
- ALL ELECTRICAL LINES SHALL BE INSTALLED AT A MINIMUM DEPTH OF 24 INCHES.
 - ALL ELECTRICAL INSTALLATION AND WIRING SHALL FOLLOW THE CURRENT EDITION OF THE NATIONAL ELECTRIC CODE (NEC), REGULATIONS SET BY THE LOCAL POWER COMPANY, AND LOCAL ELECTRIC CODES AND ORDINANCES.

TYPICAL DUPLEX GRINDER PUMP CONTROL PANEL INSTALLATION



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**OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION**

**MISSOURI STATE
FAIRGROUNDS**

**IMPROVEMENTS TO
STORMWATER AND
WASTEWATER COLLECTION
SYSTEMS, INFRASTRUCTURE**

**MISSOURI
STATE FAIRGROUNDS
2503 W 16TH STREET
SEDALIA, MISSOURI**

PROJECT # F-2302-01
SITE # 1501
FACILITY # 3511501138

REVISION: _____
DATE: _____
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DATE: _____
ISSUE DATE: 8/30/2024

CAD DWG FILE: 22230.01-STORM DESIGN DTL5.dwg
DRAWN BY: JPS
CHECKED BY: CWS
DESIGNED BY: BPH

SHEET TITLE:
STANDARD DETAILS

SHEET NUMBER:

C-232

SHEET 46 OF 48
8/30/2024

SANITARY SEWERS SPECIFICATIONS

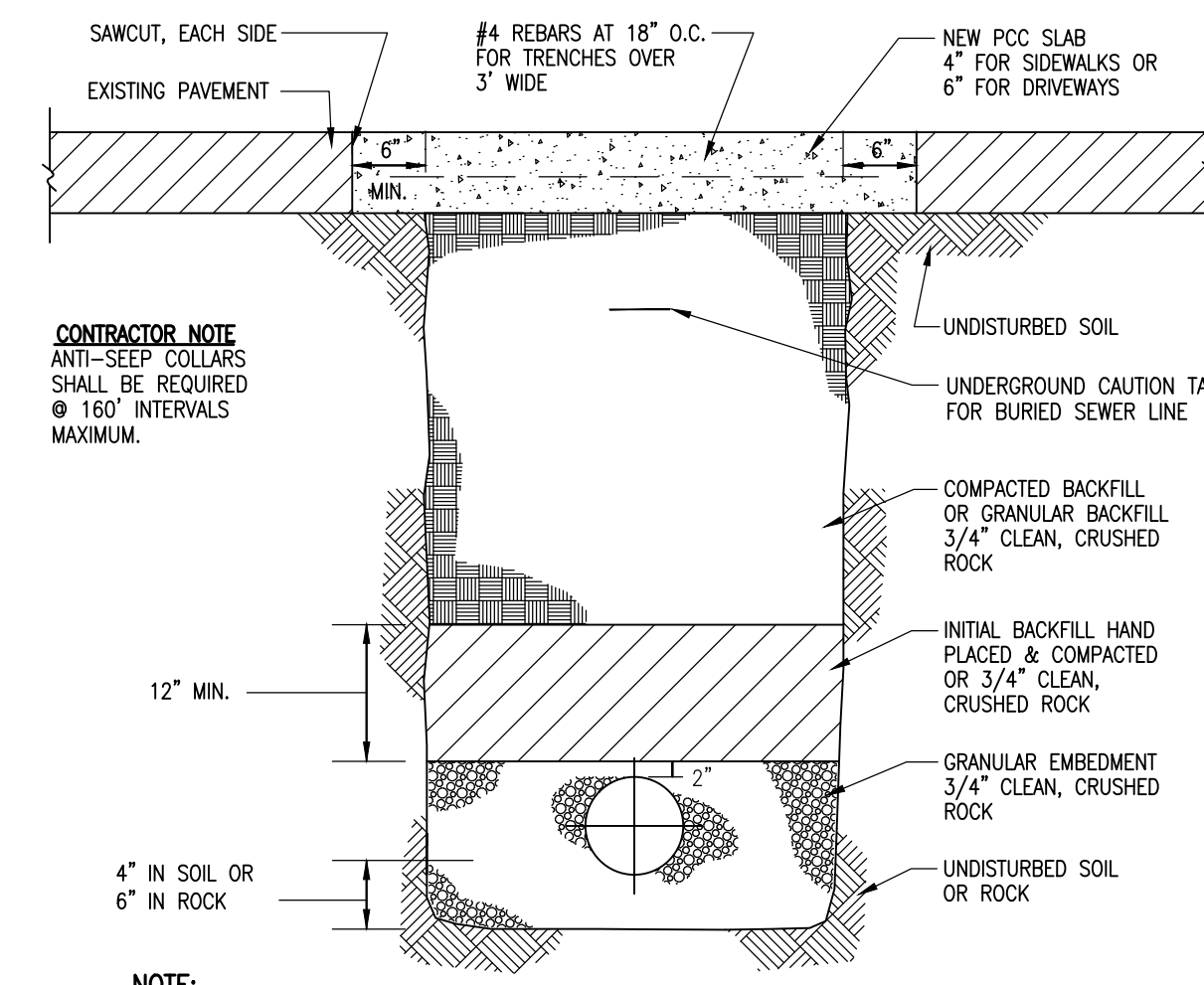
SEWER PIPE

- Reinforced Concrete Pipe – Reinforced concrete pipe and fittings shall conform to the requirements of ASTM C76. Gaskets shall be neoprene or other synthetic rubber. Natural rubber gaskets will not be acceptable.
- Ductile Iron Pipe – Ductile iron pipe shall conform to AWWA C151, Class 51 minimum. Joints shall be mechanical or push-on joints and conform to the current specification AWWA C111. Gaskets shall be neoprene or synthetic rubber material. Natural rubber gaskets will not be acceptable.
- Fittings shall conform to the current AWWA specifications C110 and C153 and shall have a pressure rating of not less than that specified for the pipe.
- Polyvinyl Chloride Pipe (PVC)
 - Gravity Sewer: Polyvinyl chloride pipe shall conform to ASTM D-3034, Type PSM. The minimum wall thickness shall conform to SDR 35 (minimum).
 - Service Lines: Polyvinyl chloride pipe shall be SDR 26 (minimum).
 - Pressure Force-main: Polyvinyl chloride pipe shall conform to ASTM D-2241. The minimum wall thickness shall conform to SDR 21 (minimum) for pipe size 2" in diameter or larger. For pipe size smaller than 2" in diameter the pipe shall conform to Schedule 40 (minimum).
- Flexible gasketed joints shall be compression-type with an integral bell. The integral bell shall have an elastomeric gasket ring conforming to the requirements of ASTM D-3139 (Pressure Pipe), ASTM D-3212 (Drain and Sewer), and ASTM F477. Gaskets shall be neoprene or other material. Natural rubber gaskets will not be acceptable.
- For sewer pipe with depth of cover exceeding 15 feet, the Engineer shall make earth loading analysis to determine if increased pipe strength is required in accordance with manufacturer specifications.

MANHOLES SPECIFICATIONS

Manholes shall be provided/installed complete with ring and cover, steps, fittings, and other appurtenances, in accordance with the following criteria and standard details, and manufacturers recommendations.

- Concrete – 4000 PSI MCIB Mix No. A558-1-2
3000 PSI MCIB Mix No. A535-1/2-4
- Precast Sections – Circular precast concrete shall meet the requirements of ASTM C478. The exterior of all joints shall be sealed with 6" Hamilton-Kent "Kent Seal" tape or approved equal.
- Dimensions – As shown, or per manufacturers recommendations.
- Flexible Joint – Hamilton-Kent "Kent Seal", Bidco Sealants, Inc. "Bidco C56", or approved equal. The minimum bed dimensions shall be one square inch.
- Cool Tar Paint – Koppers "Bitumastic Super Service Black", Tnemec "46-450 Heavy Tnemecol", Porter "Tar Mastic 100", or approved equal.
- Flexible Gaskets – Flexible gaskets shall be Press-wedge, PSX (Press Seal Gasket Corporation), A-Lok (A-Lok Products, Inc.), or approved equal.
- Portland Cement – Portland Cement shall conform to ASTM C150, Type II or IV. When high early strength is required, Type IV can be used.
- Fine Aggregate – Fine aggregate shall meet the requirements of ASTM C33.
- Coarse Aggregate – Coarse aggregate shall meet the requirements of ASTM C33.
- Mortar – One part Portland Cement, Type II, three parts sand, one-fourth part Hydrated lime, conforming to ASTM C207.
- Lifting Eyes – All manholes shall be cast with proper lifting eyes on all precast manhole sections.
- Reinforcing Steel – ASTM A615, Grade 40 or Grade 60.
- Precast concrete manholes shall conform to ASTM C478 except as modified by the specifications.
- Bases not built monolithic with bottom section shall be poured of 4000 PSI concrete. Monolithic bases shall not interfere w/pipe installation.
- Manhole may be transitioned to 4'0" diameter, 8' above F.L. of outfall for 5'0" and 6'0" manholes.
- The bottom section of all precast manholes not built monolithic with the base shall be set into a steel-reinforced poured concrete base a minimum of 4". (#4@6"E.W.)
- Waterproofing will be required on the outside of manholes. The bitumen shall consist of two (2) six (6) mil coats of cool tar paint.
- The compressive strength of concrete used in the construction of precast reinforced concrete manholes shall be not less than 4000 PSI.
- Only eccentric manhole cones will be allowed unless otherwise approved by the City Engineer.
- Plastic manhole steps shall be provided, spaced at 1'-4" O.C., where inlet or manhole depth is greater than 4'-0". Steps shall be M.A. Ind., Inc. model PS-2-PF or approved equal. Steps shall be cast-in-place unless otherwise approved by the Engineer.
- The fill concrete flow channel for side branches shall be placed to provide a smooth transition into the line flow.
- Manholes shall not be constructed within limits of stream banks.
- Flexible gaskets shall be Press-Wedge, PSX (Press Wedge Corp.) A-Lok (A-Lok Products Inc.), or approved equal. Gaskets shall be installed according to product manufacturer. Manhole manufacturer shall be responsible for extra reinf. steel and concrete placement on manholes.

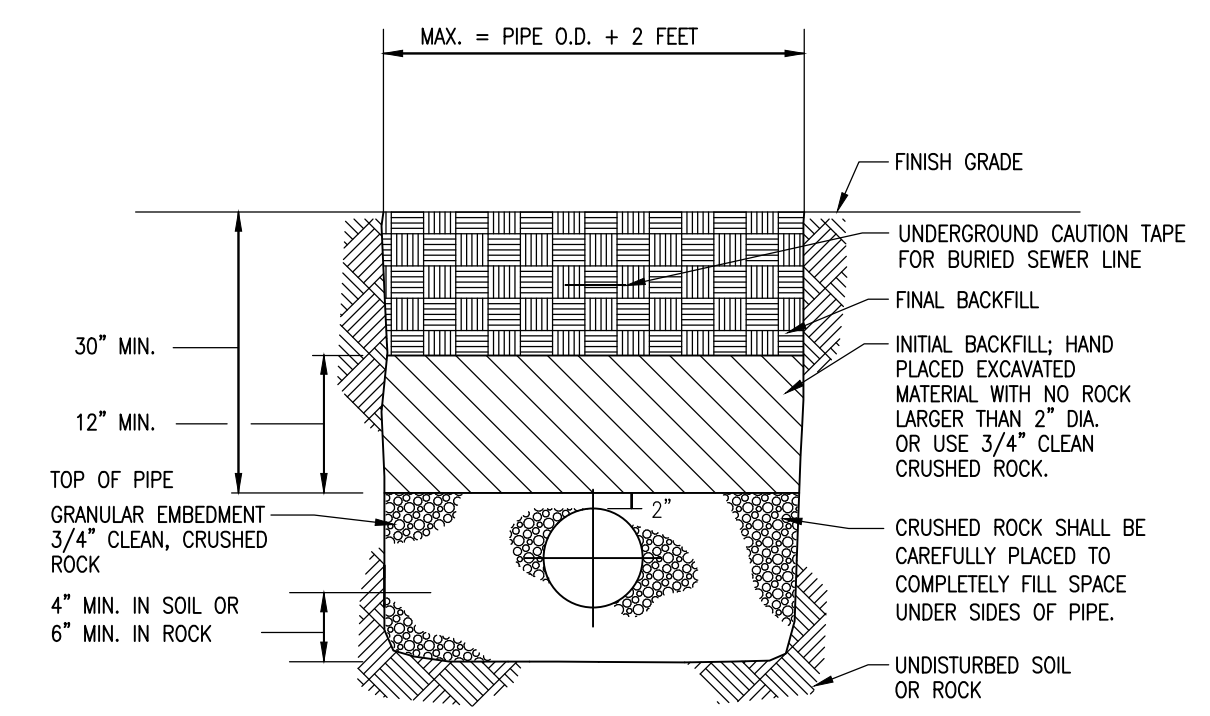


CONTRACTOR NOTE
ANTI-SLEEP COLLARS SHALL BE REQUIRED @ 160' INTERVALS MAXIMUM.

NOTE:
FOR ASPHALT PAVEMENT USE 6" PCC SLAB OVERLAIN BY A MINIMUM OF 2" ASPHALTIC CONCRETE TO MATCH EXISTING GRADE

PAVEMENT REPLACEMENT

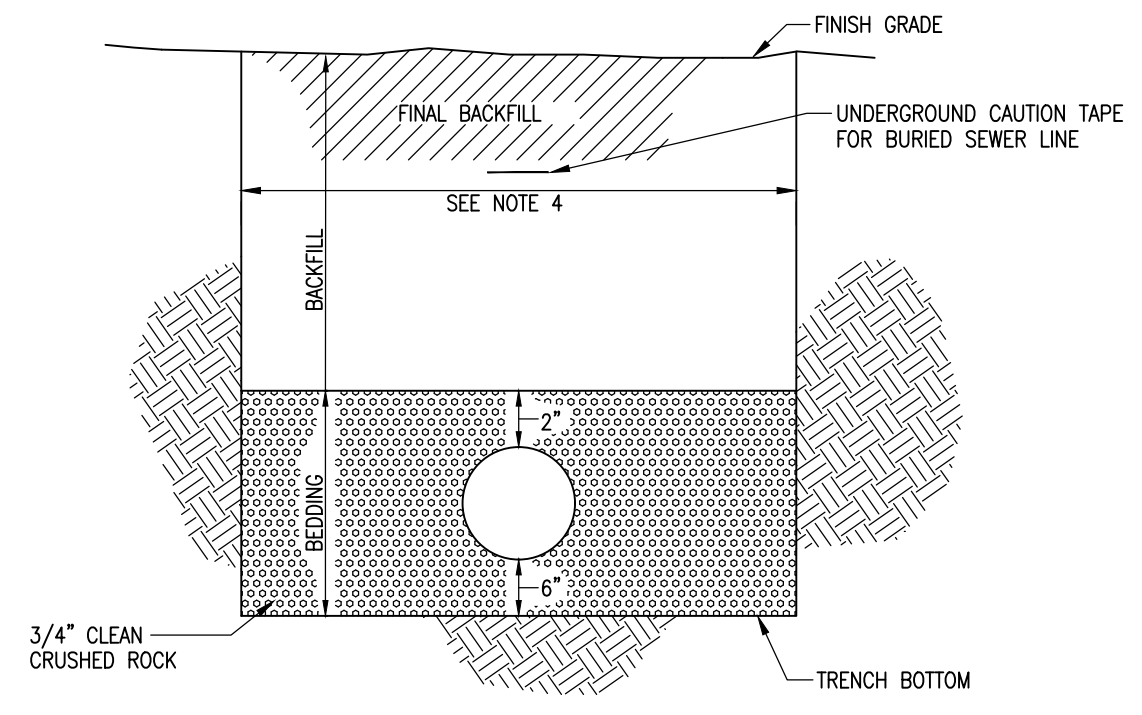
PIPE Ø	MIN. TRENCH WIDTH
8"-10"	PIPE Ø + 10"
12"-36"	PIPE Ø + 12"



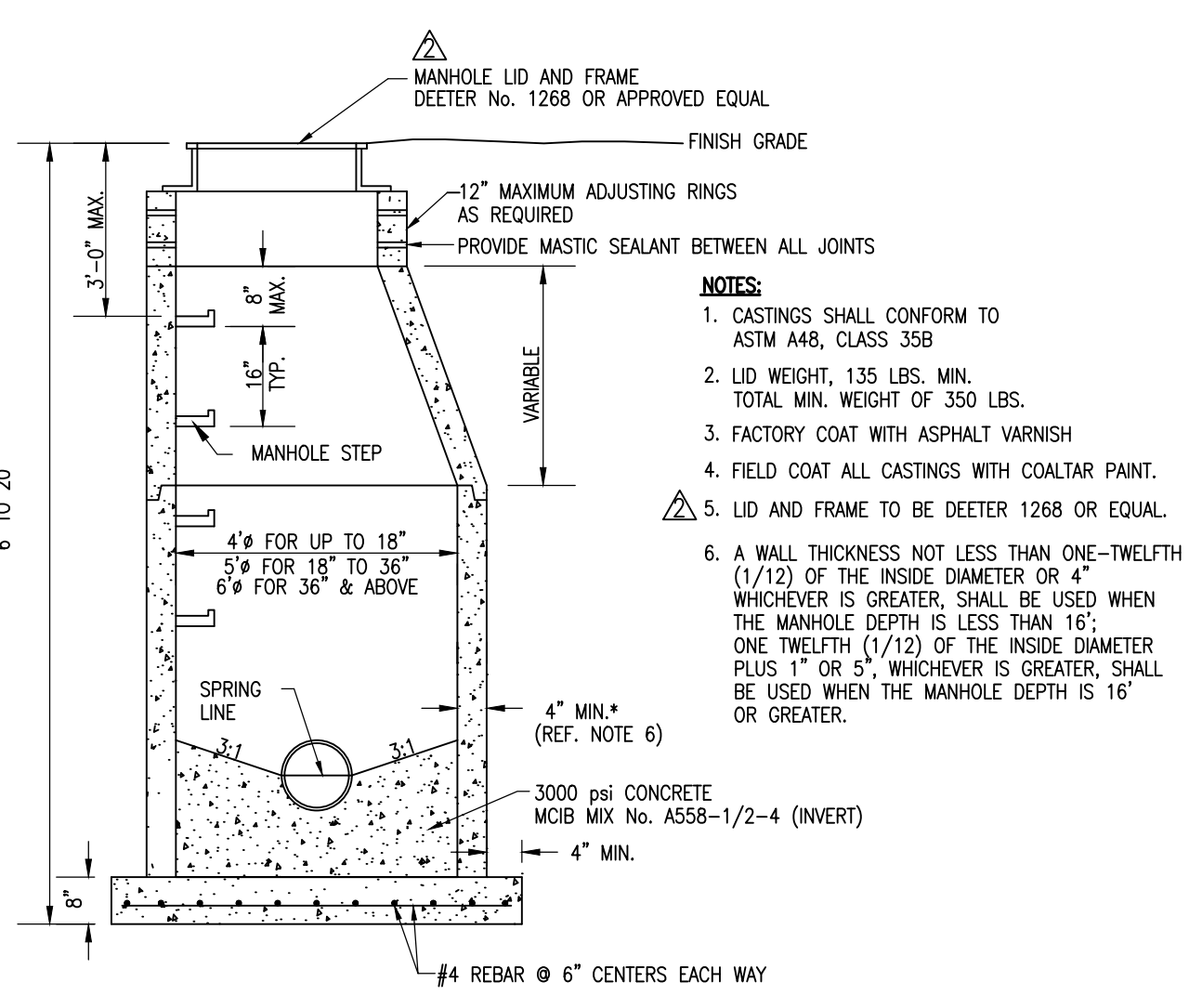
**PVC & DUCTILE IRON PIPE
w/ GRANULAR EMBEDMENT**

TYPICAL EMBEDMENT DETAIL FOR ALL DUCTILE IRON AND PVC PIPING NOT LOCATED UNDER PAVED OR AGGREGATE SURFACES.

- NOTES:**
- BACKFILL SHALL BE JOB EXCAVATED MATERIAL FREE FROM DEBRIS AND STONES COMPACTED TO 90% OF STANDARD PROCTOR DENSITY AT OPTIMUM MOISTURE CONTENT AS DETERMINED BY ASTM D698. FOR BACKFILL UNDER PAVEMENT (EXISTING OR PROPOSED) SEE SD-9 AND SD-11.
 - BEDDING MATERIAL SHALL BE 1/2" TO 3/4" CLEAN CRUSHED ROCK.
 - TRENCH BANKS WILL BE CUT BACK ON SLOPES IN ACCORDANCE WITH CURRENT OSHA REGULATIONS. SLOPES MUST NOT EXTEND BELOW TOP OF BEDDING.
 - MINIMUM AND MAXIMUM WIDTHS SHALL BE IN ACCORDANCE WITH PIPE MANUFACTURER'S RECOMMENDATION AS APPROVED ON ENGINEERING PLANS.

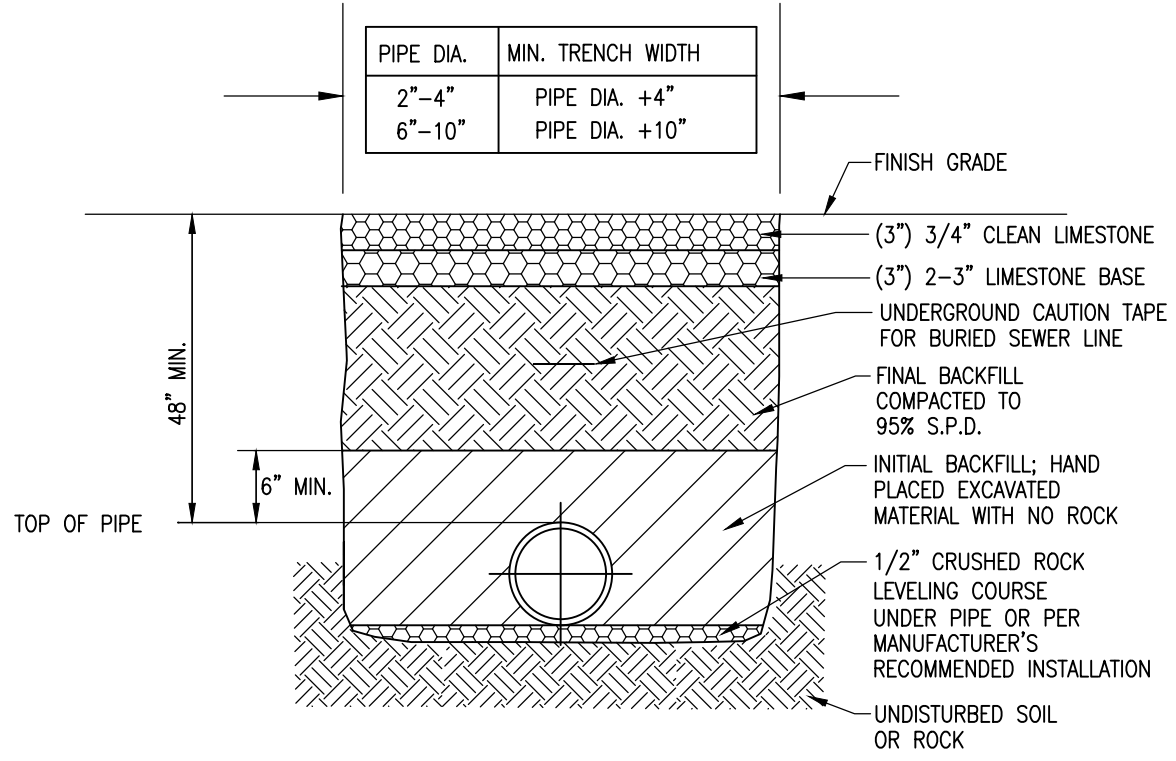


TYPICAL SECTION



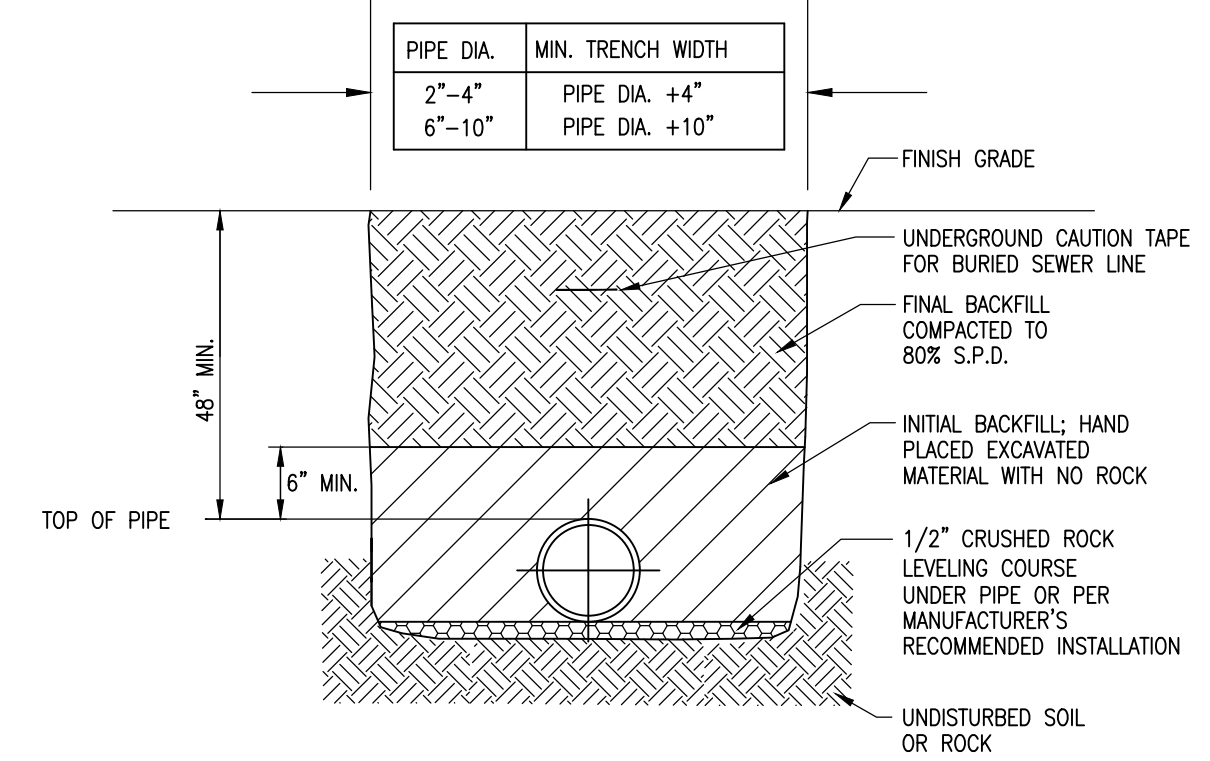
STANDARD MANHOLE

- NOTES:**
- CASTINGS SHALL CONFORM TO ASTM A48, CLASS 35B
 - LID WEIGHT, 135 LBS. MIN. TOTAL MIN. WEIGHT OF 350 LBS.
 - FACTORY COAT WITH ASPHALT VARNISH
 - FIELD COAT ALL CASTINGS WITH COAL TAR PAINT.
 - LID AND FRAME TO BE DEETER 1268 OR EQUAL.
 - A WALL THICKNESS NOT LESS THAN ONE-TWELFTH (1/12) OF THE INSIDE DIAMETER OR 4" WHICHEVER IS GREATER, SHALL BE USED WHEN THE MANHOLE DEPTH IS LESS THAN 16'; ONE TWELFTH (1/12) OF THE INSIDE DIAMETER PLUS 1" OR 5", WHICHEVER IS GREATER, SHALL BE USED WHEN THE MANHOLE DEPTH IS 16' OR GREATER.



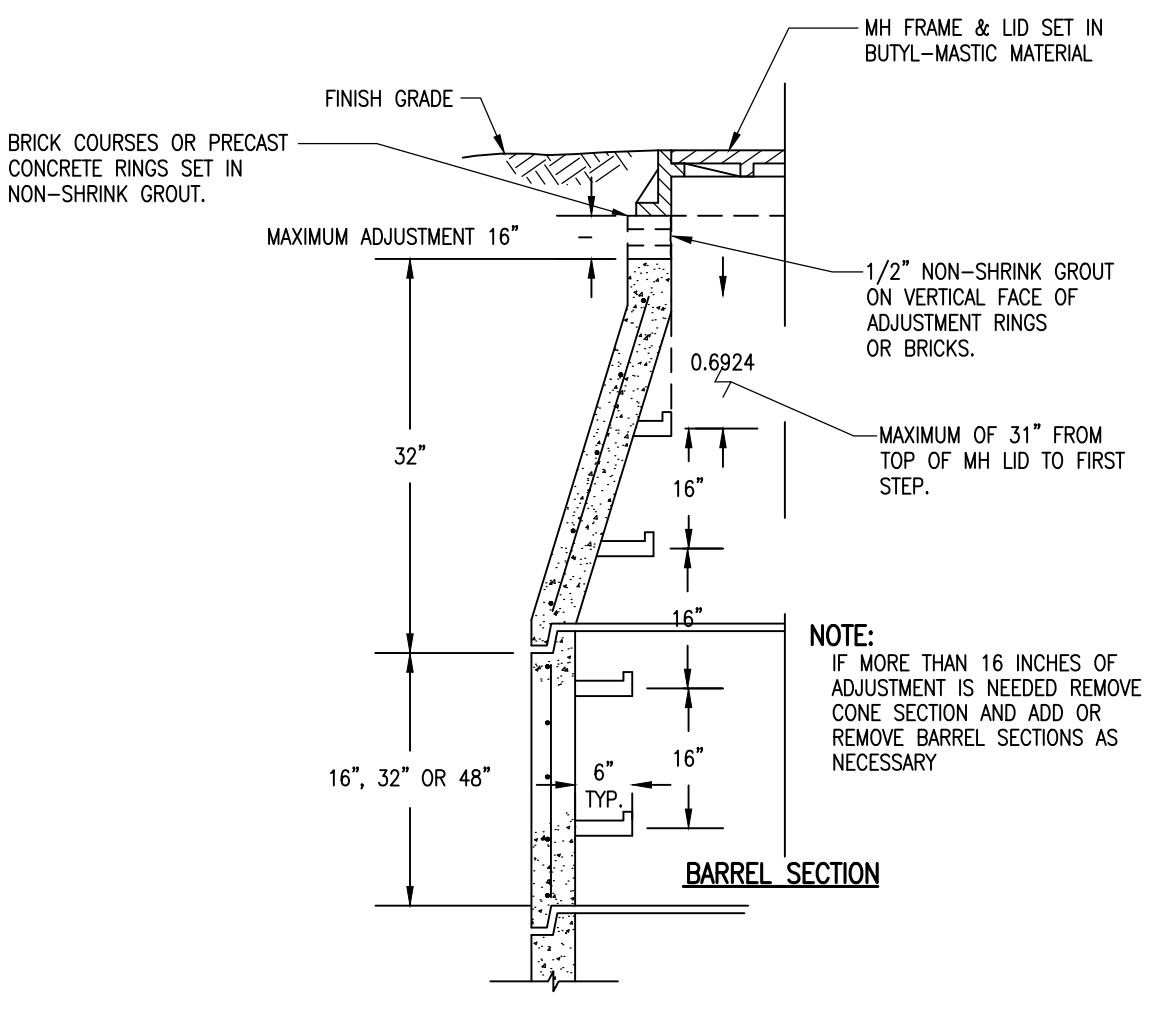
**PVC & DUCTILE IRON PIPE EMBEDMENT
LOCATED UNDER AGGREGATE SURFACES**

TYPICAL EMBEDMENT DETAIL FOR ALL DUCTILE IRON AND PVC PIPING LOCATED UNDER AGGREGATE SURFACES.

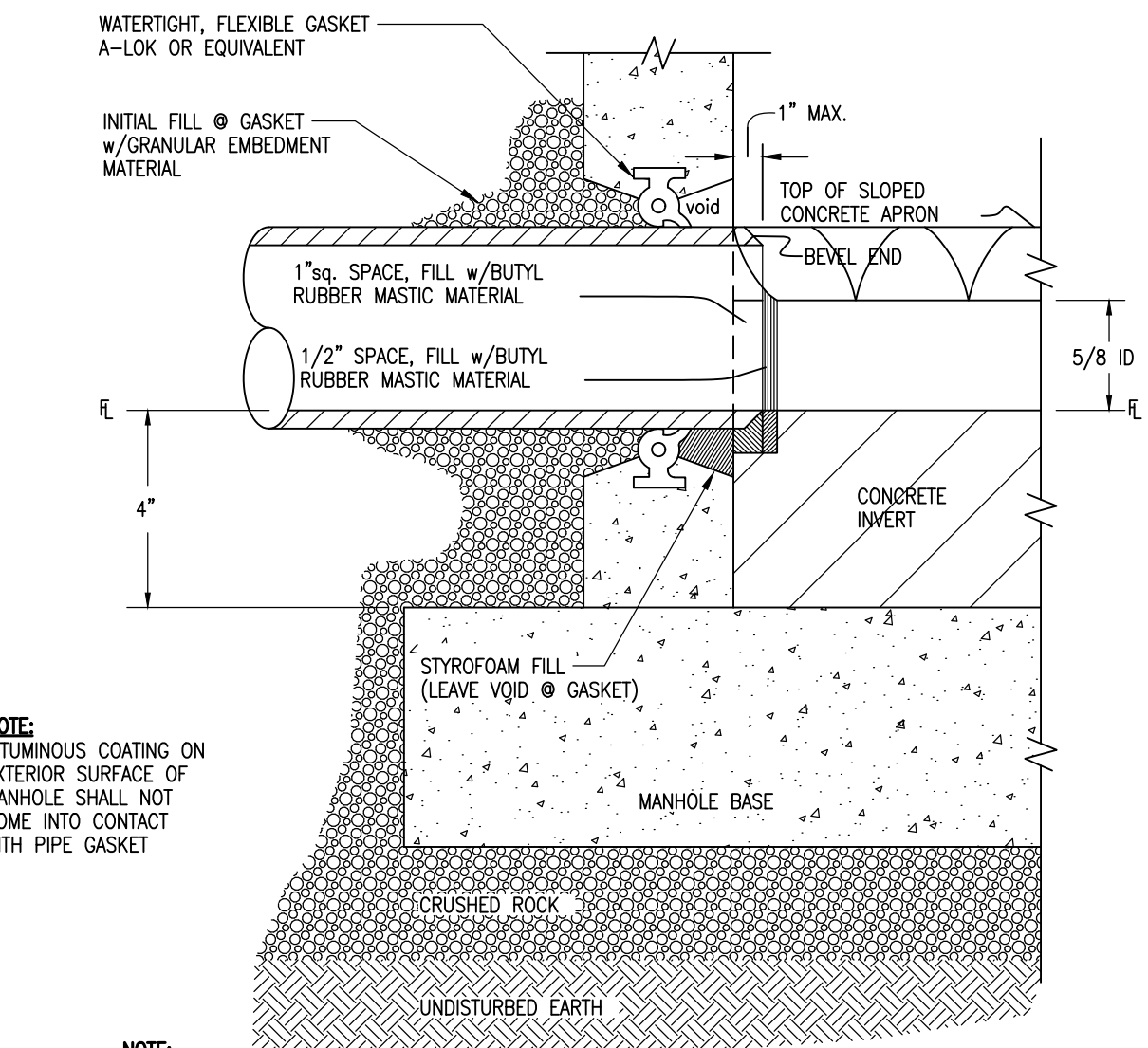


**PVC & DUCTILE IRON PIPE
w/o GRANULAR EMBEDMENT**

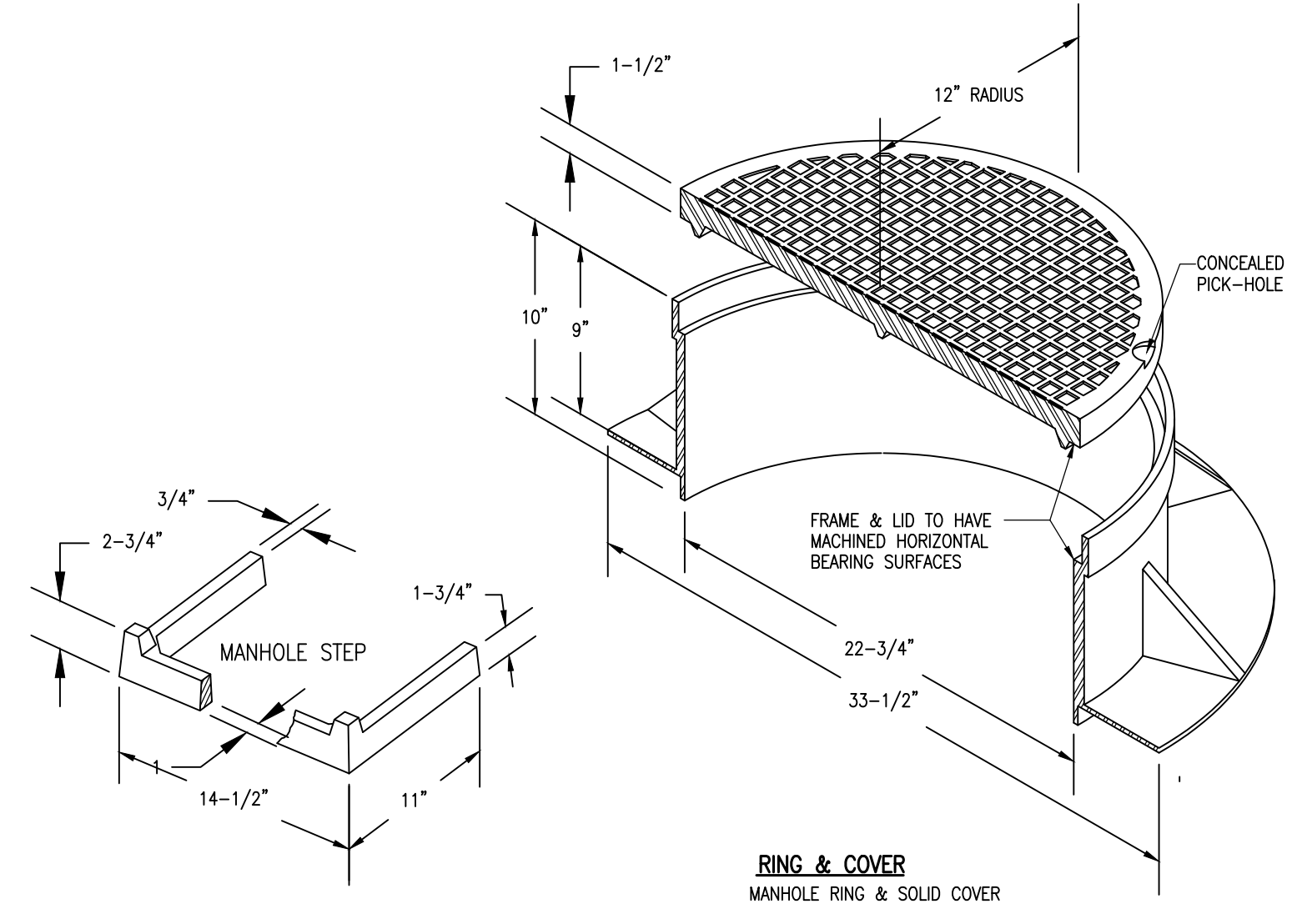
TYPICAL EMBEDMENT DETAIL FOR ALL DUCTILE IRON AND PVC PIPING NOT LOCATED UNDER PAVED OR AGGREGATE SURFACES.



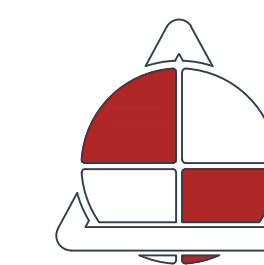
MANHOLE ADJUSTMENT



MANHOLE GASKET



MANHOLE CASTINGS



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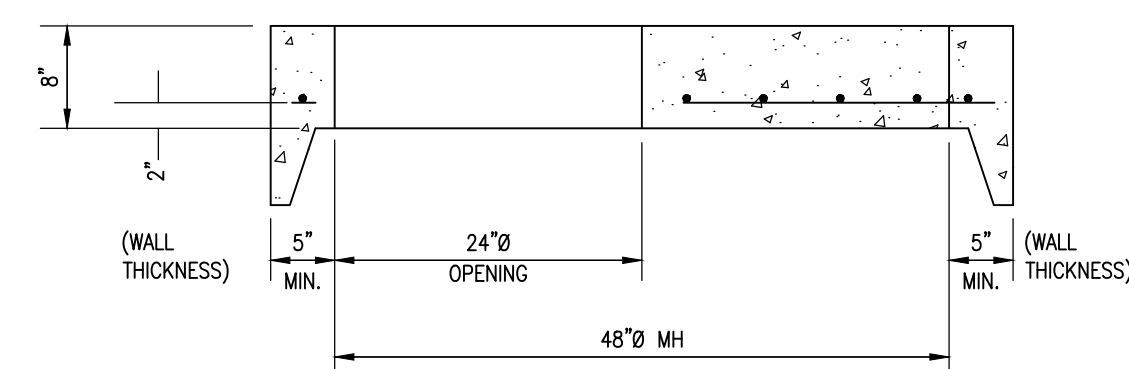
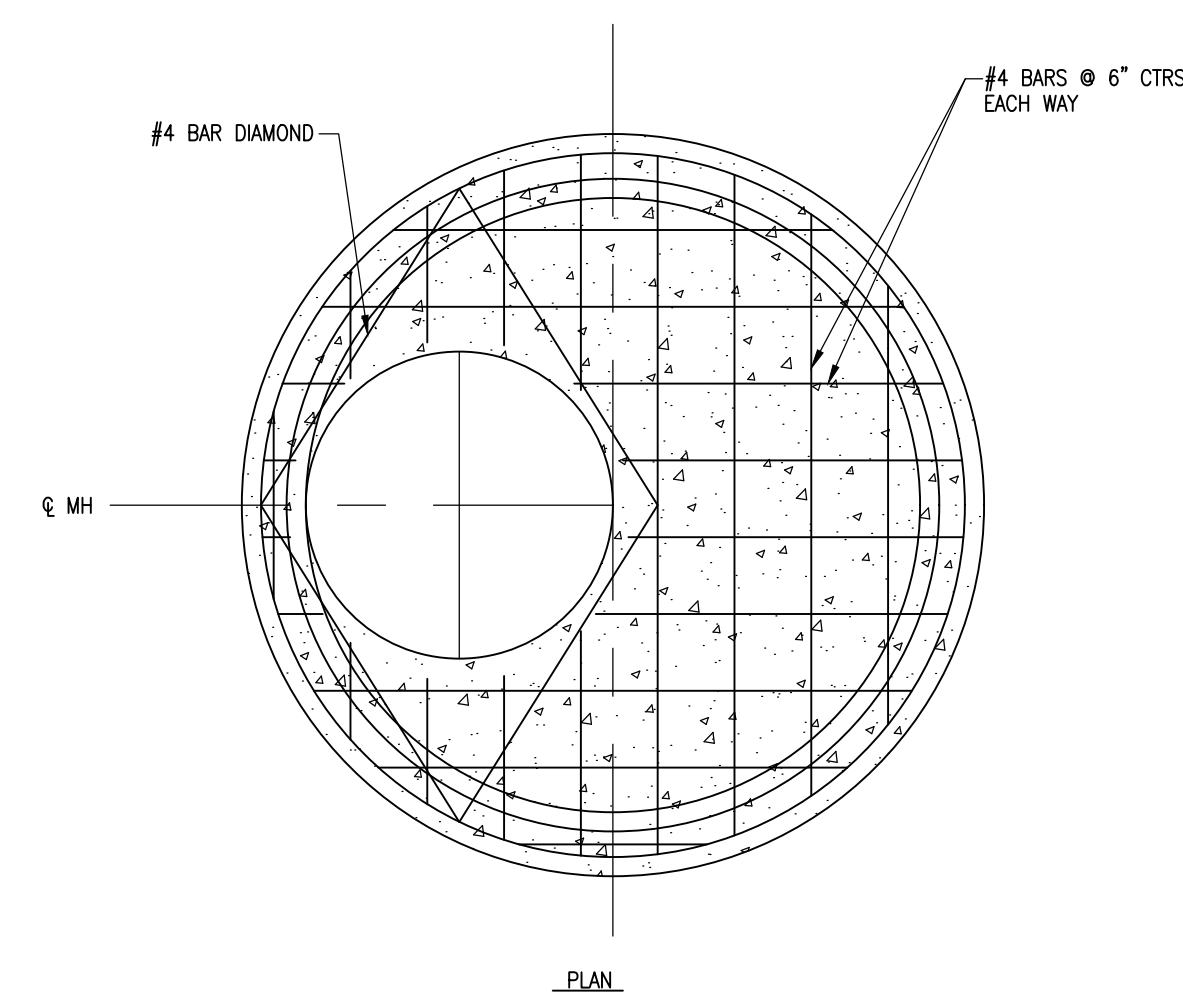
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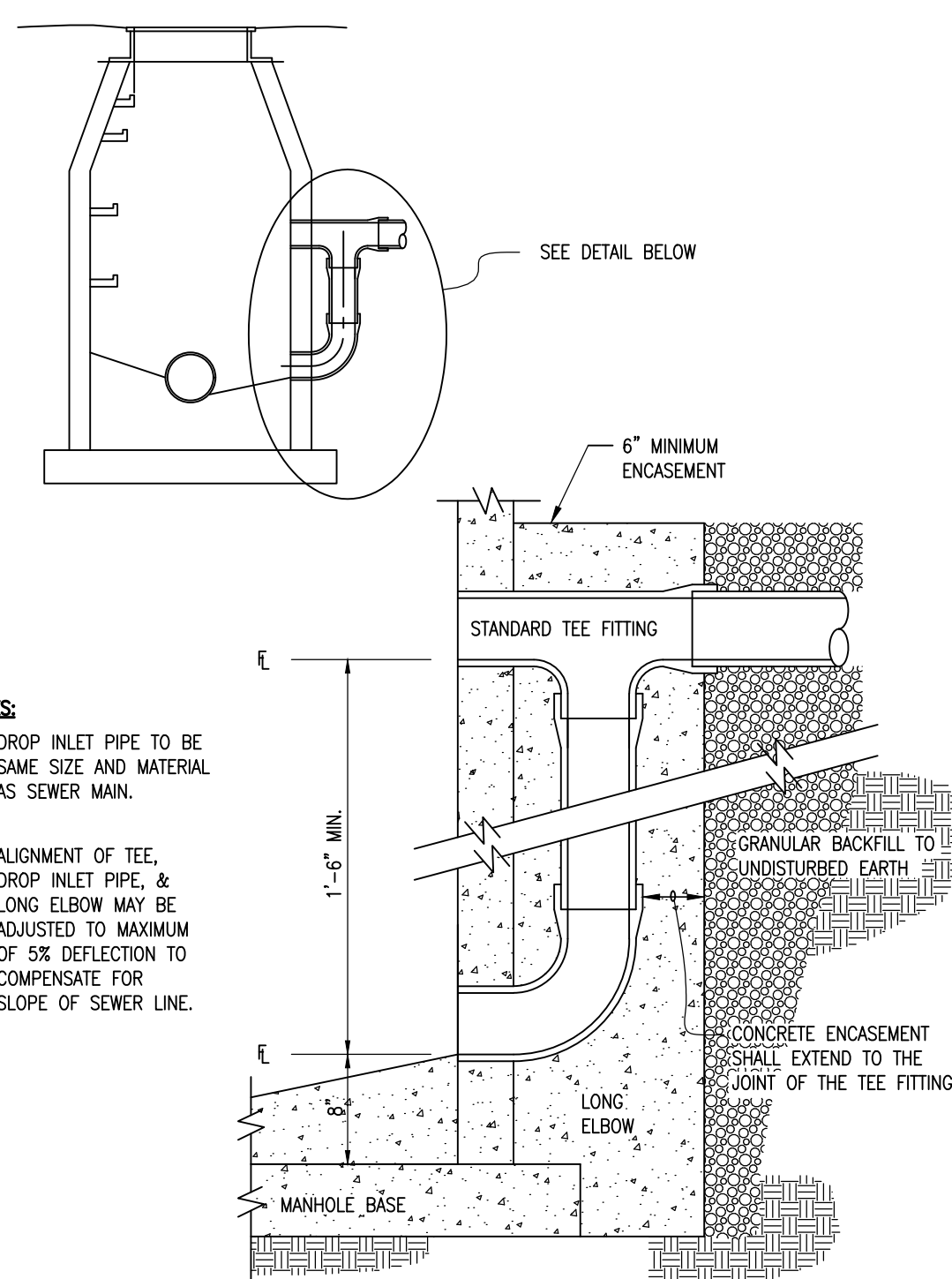
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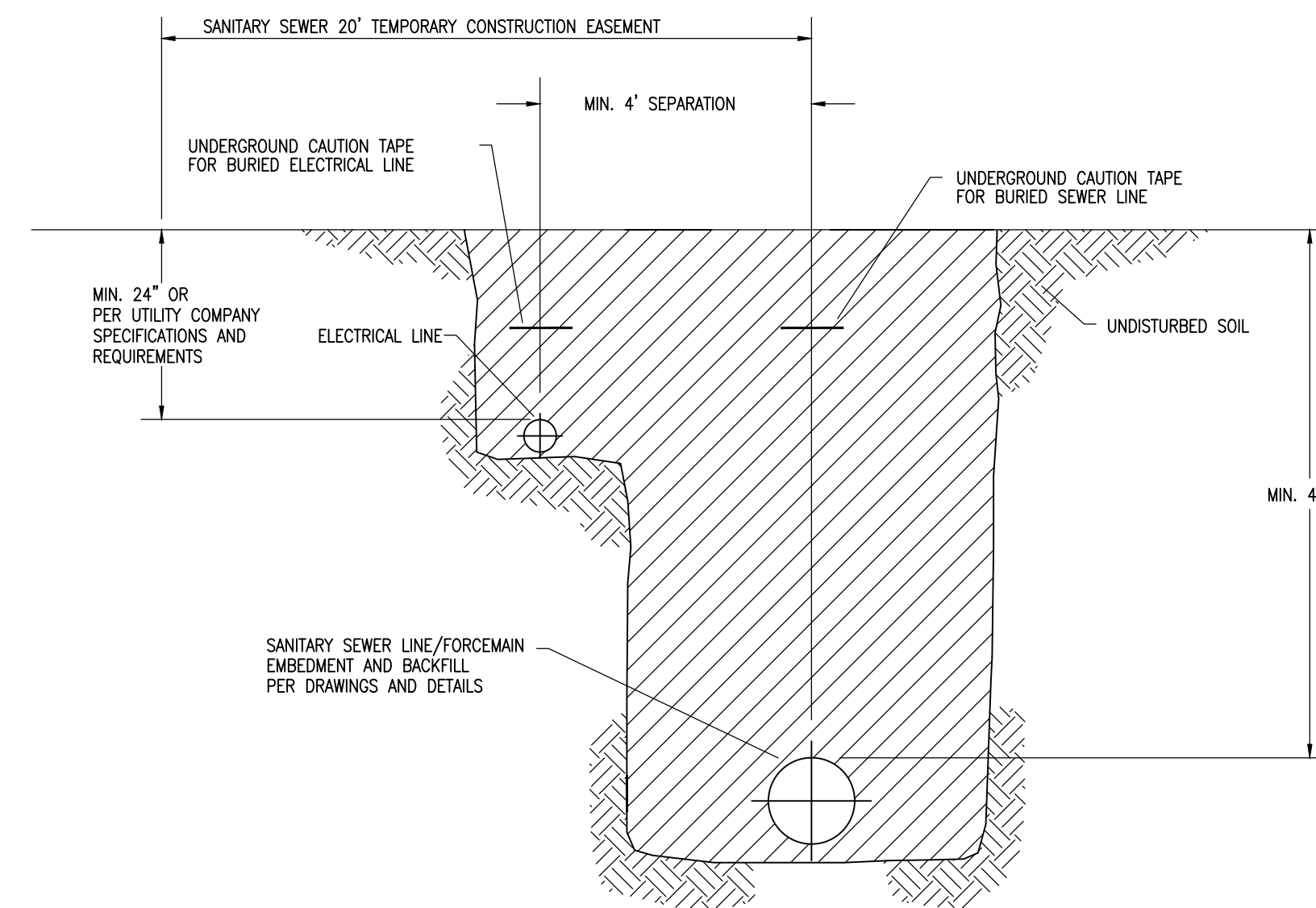


FLAT TOP MANHOLE SECTION

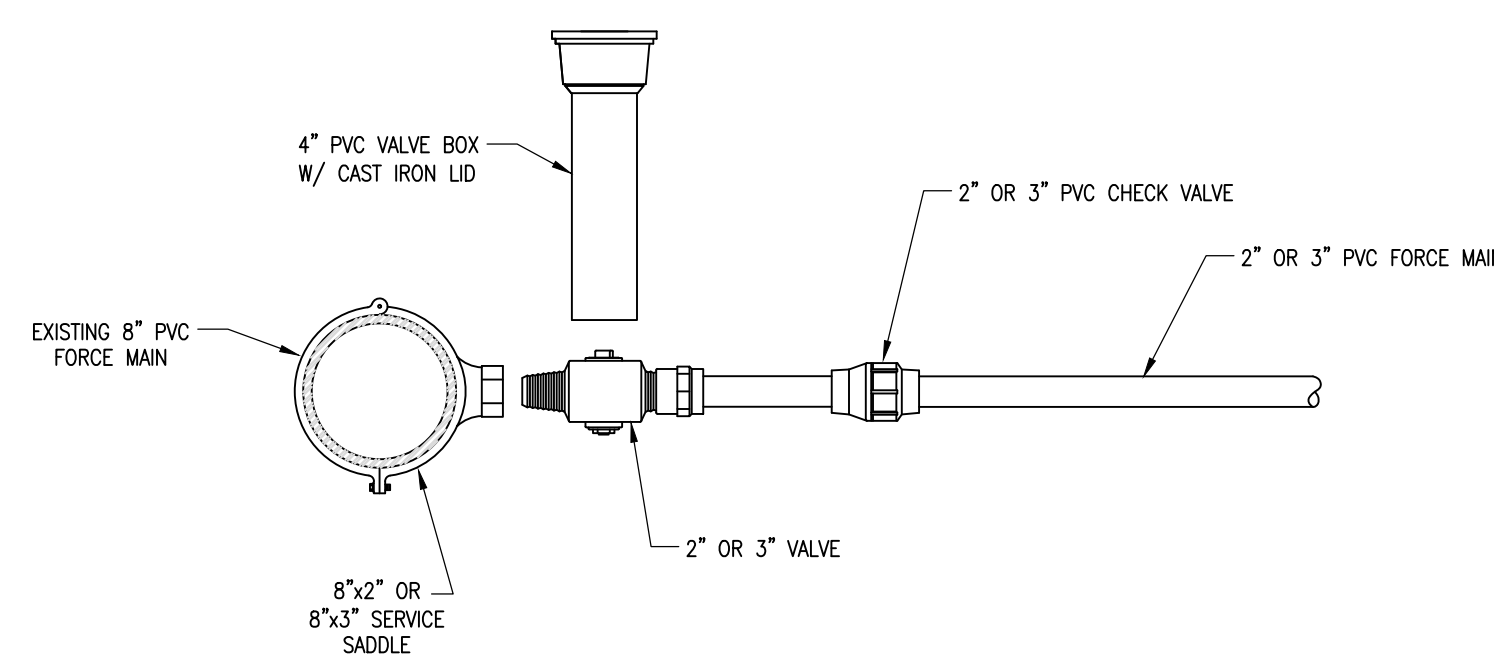


- NOTES:**
- DROP INLET PIPE TO BE SAME SIZE AND MATERIAL AS SEWER MAIN.
 - ALIGNMENT OF TEE, DROP INLET PIPE, & LONG ELBOW MAY BE ADJUSTED TO MAXIMUM OF 5% DEFLECTION TO COMPENSATE FOR SLOPE OF SEWER LINE.

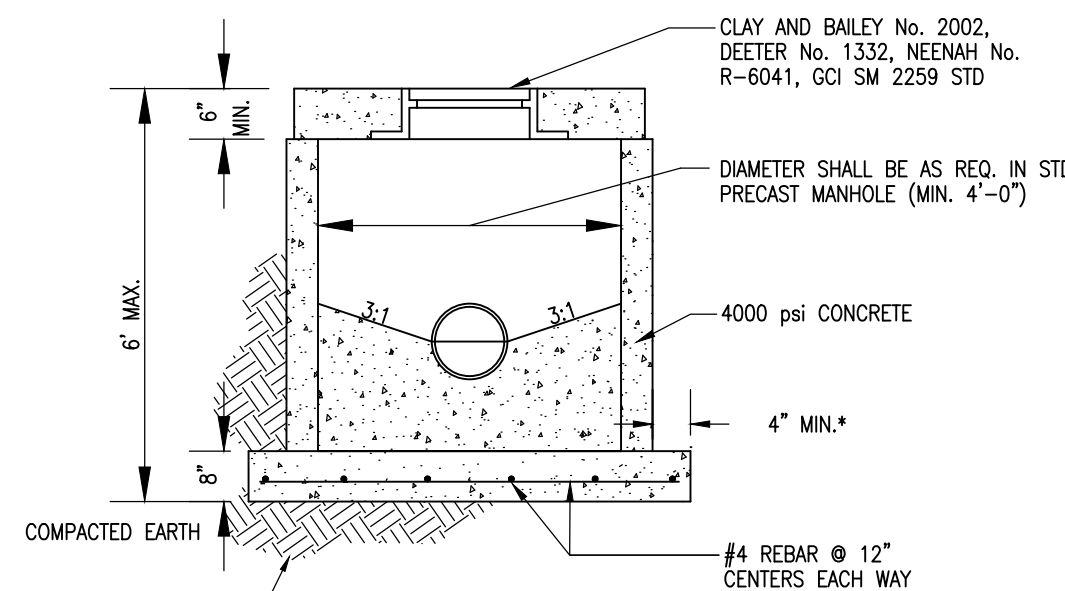
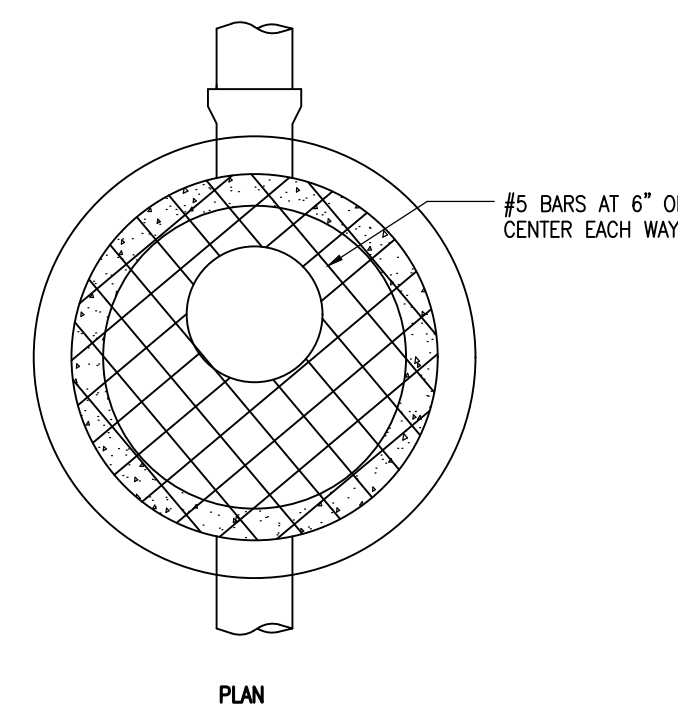
OUTSIDE DROP MANHOLE



ELECTRICAL CONDUIT AND COLLECTION LINE

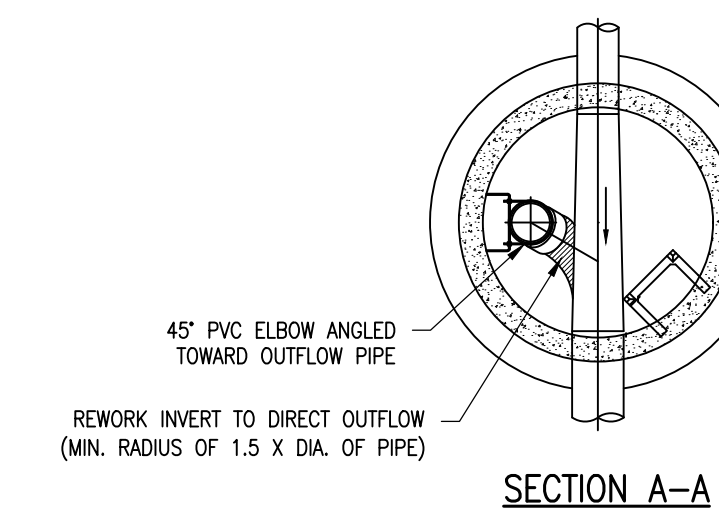


2" OR 3" FORCE MAIN TIE-IN TO EXISTING 8" FORCE MAIN

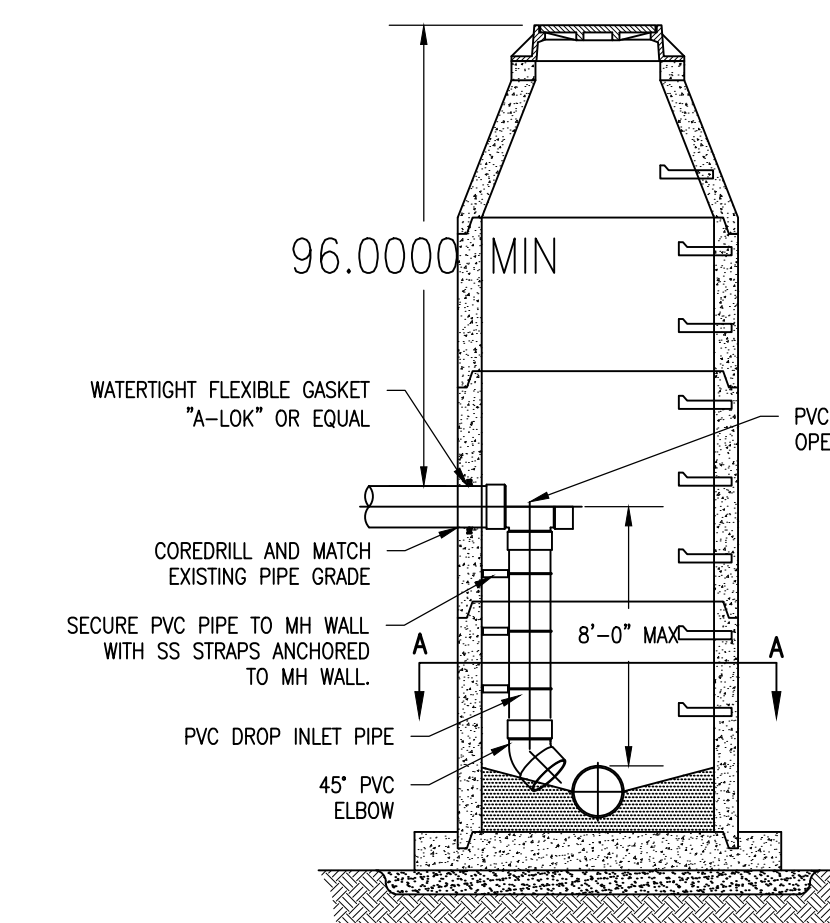


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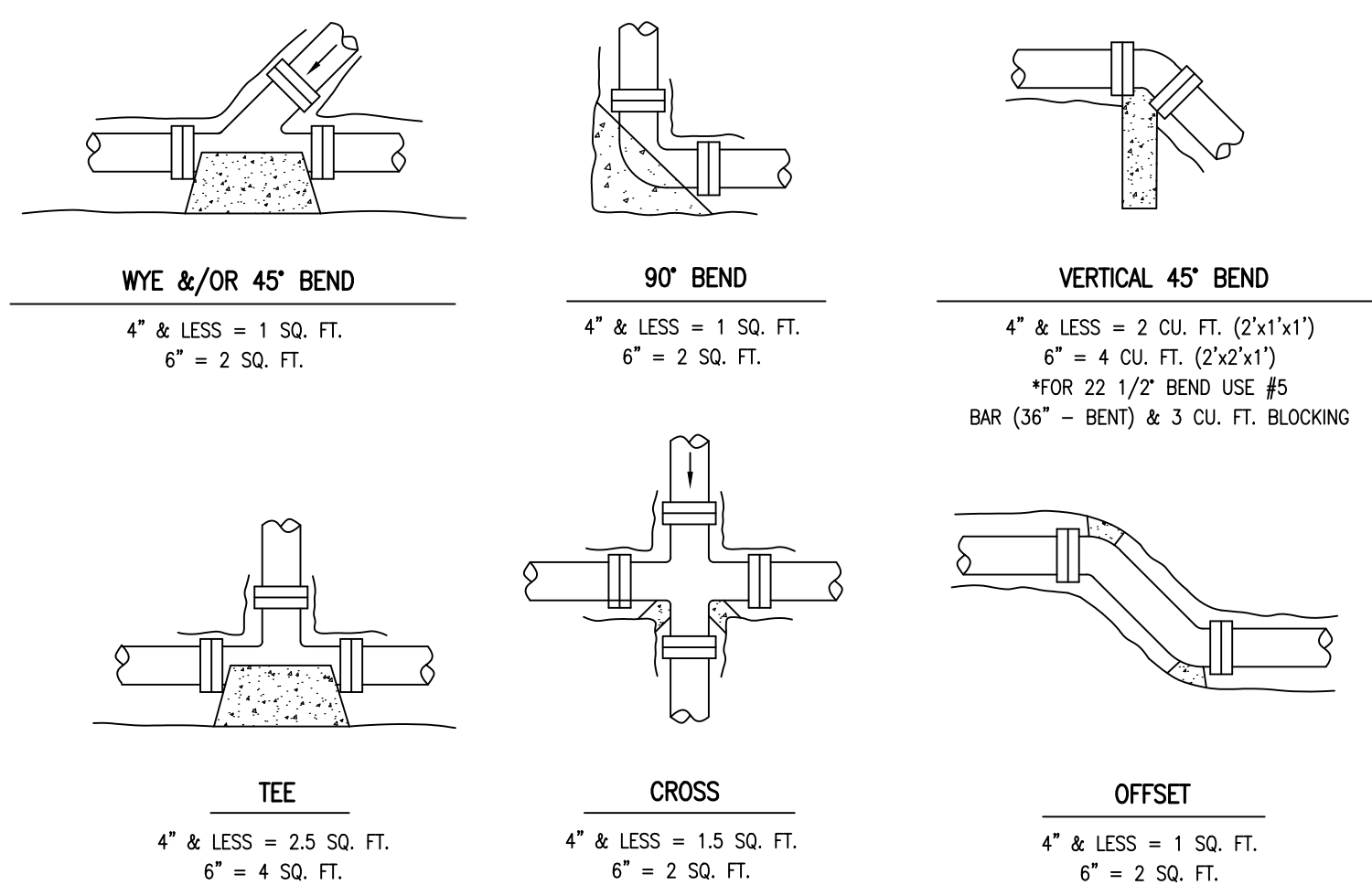
SHALLOW MANHOLE



- NOTES:**
- INSIDE DROP CONNECTION ONLY ALLOWED WITH ENGINEER'S APPROVAL WHEN IT DEEMS UNFEASIBLE, UNPRACTICAL OR DANGEROUS TO PROVIDE OUTSIDE DROP.
 - DROP INLET PIPE TO BE SAME SIZE AND MATERIAL AS SEWER LINE.
 - ALIGNMENT OF TEE: DROP INLET PIPE MAY BE ADJUSTED TO A MAXIMUM OF 5% DEFLECTION.
 - ANNULAR SPACE AROUND NEW PIPE TO BE SEALED WITH NON-SHRINK GROUT, LINK SEAL, OR WATERTIGHT AND FLEXIBLE GASKET.

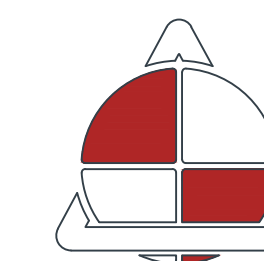


INSIDE DROP MANHOLE



TYPICAL THRUST BLOCKS

(THRUST BLOCKS SHOWN ARE BASED UPON SOIL PRESSURE - 3000 POUNDS/SQUARE FOOT.) FITTINGS TO BE POLYETHYLENE WRAPPED PRIOR TO PLACEMENT OF CONCRETE. (CONCRETE: 5 BAG MIX, MIN. YIELD = 3000 PSI.)



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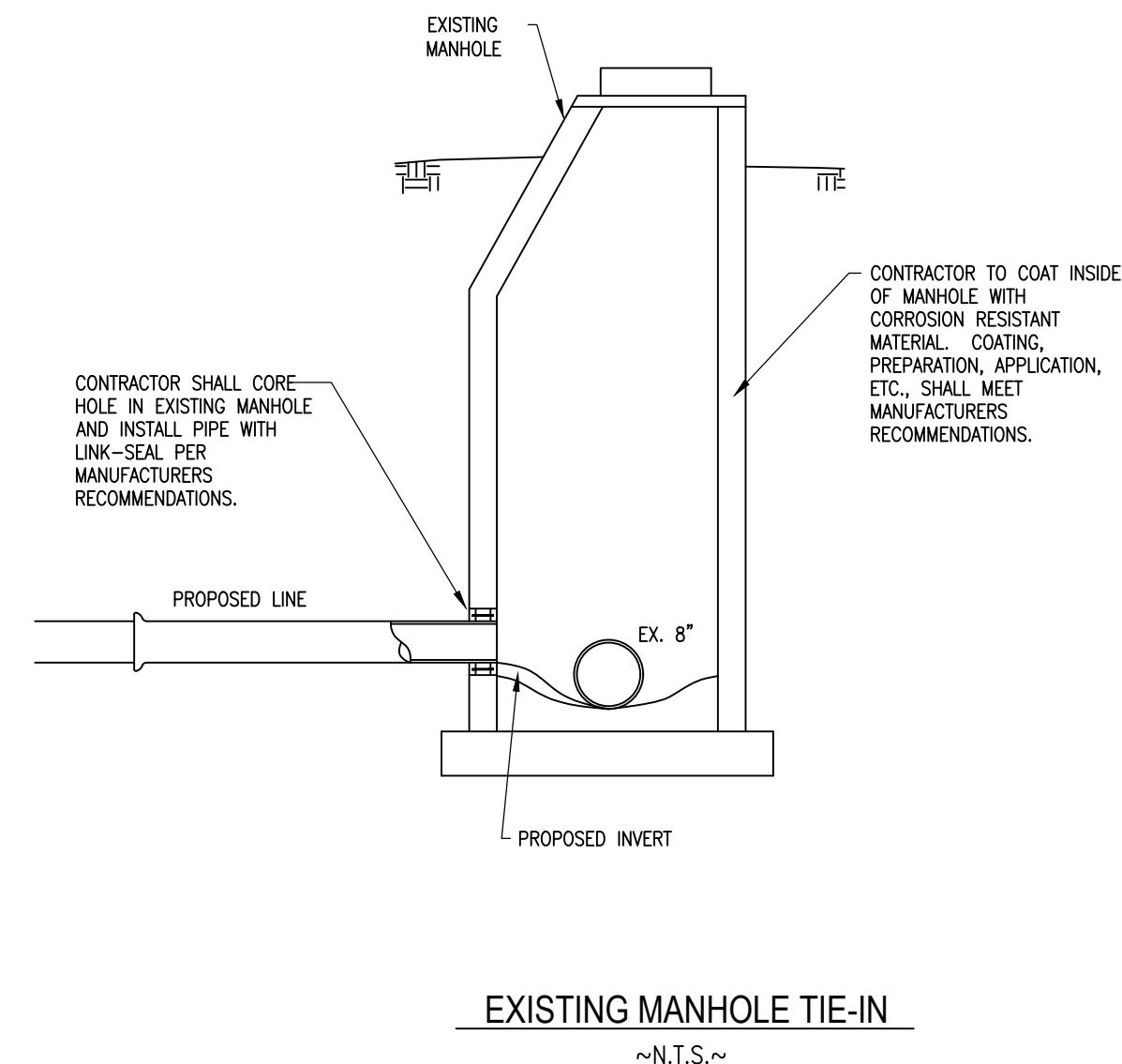
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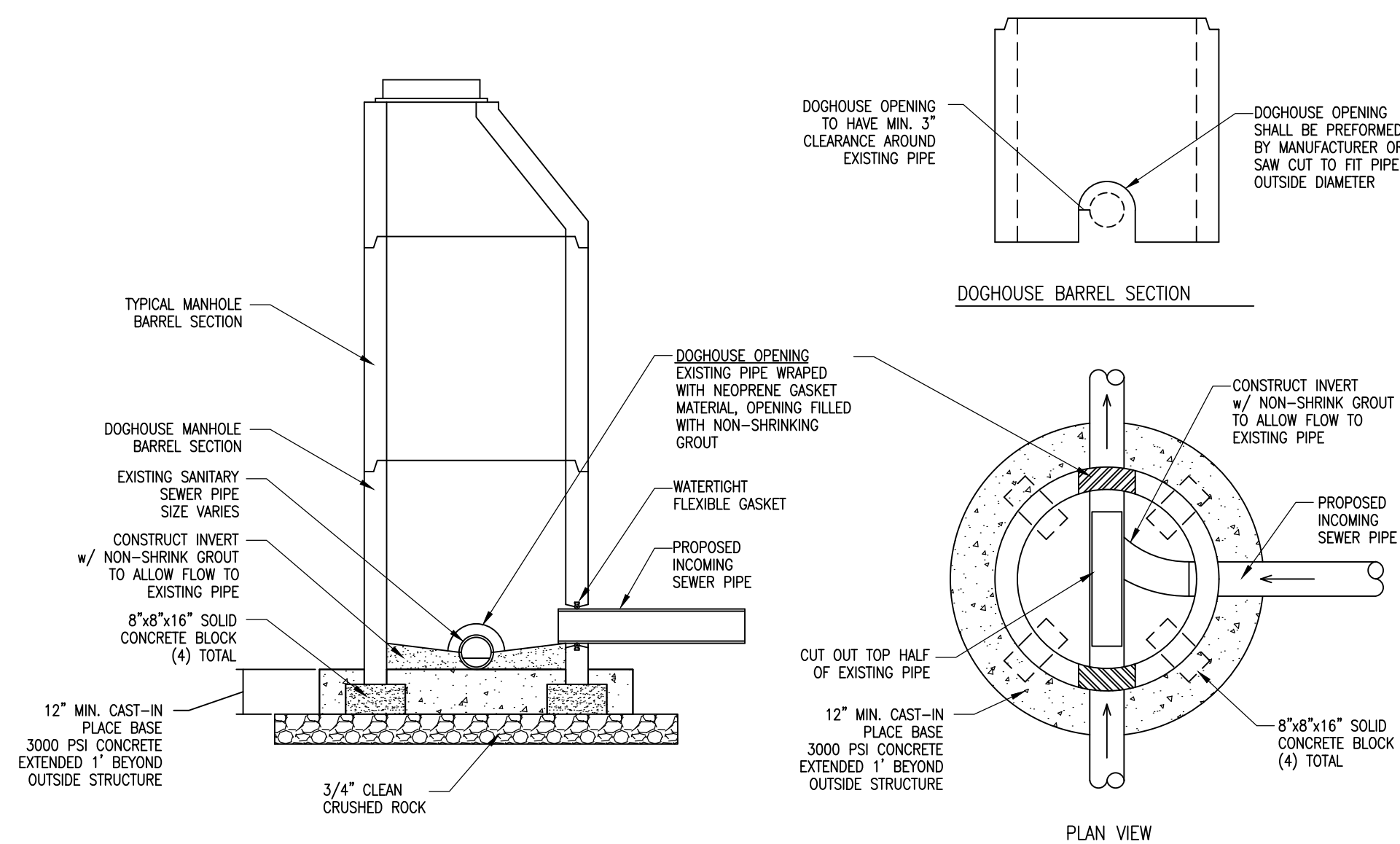
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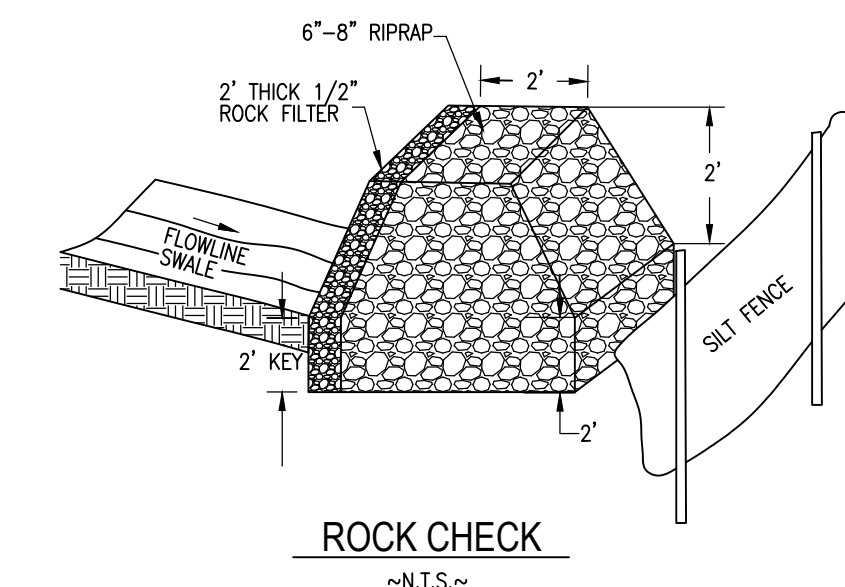
SHEET 48 OF 48
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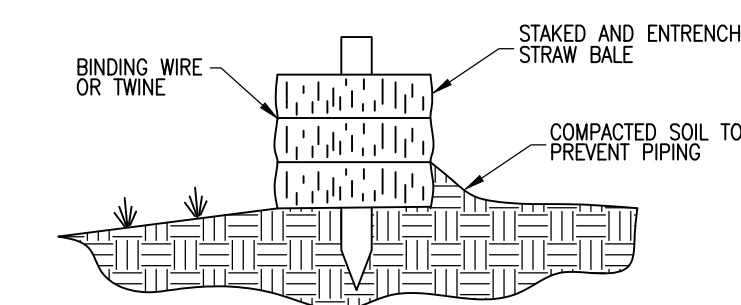
EXISTING MANHOLE TIE-IN
~N.T.S.~



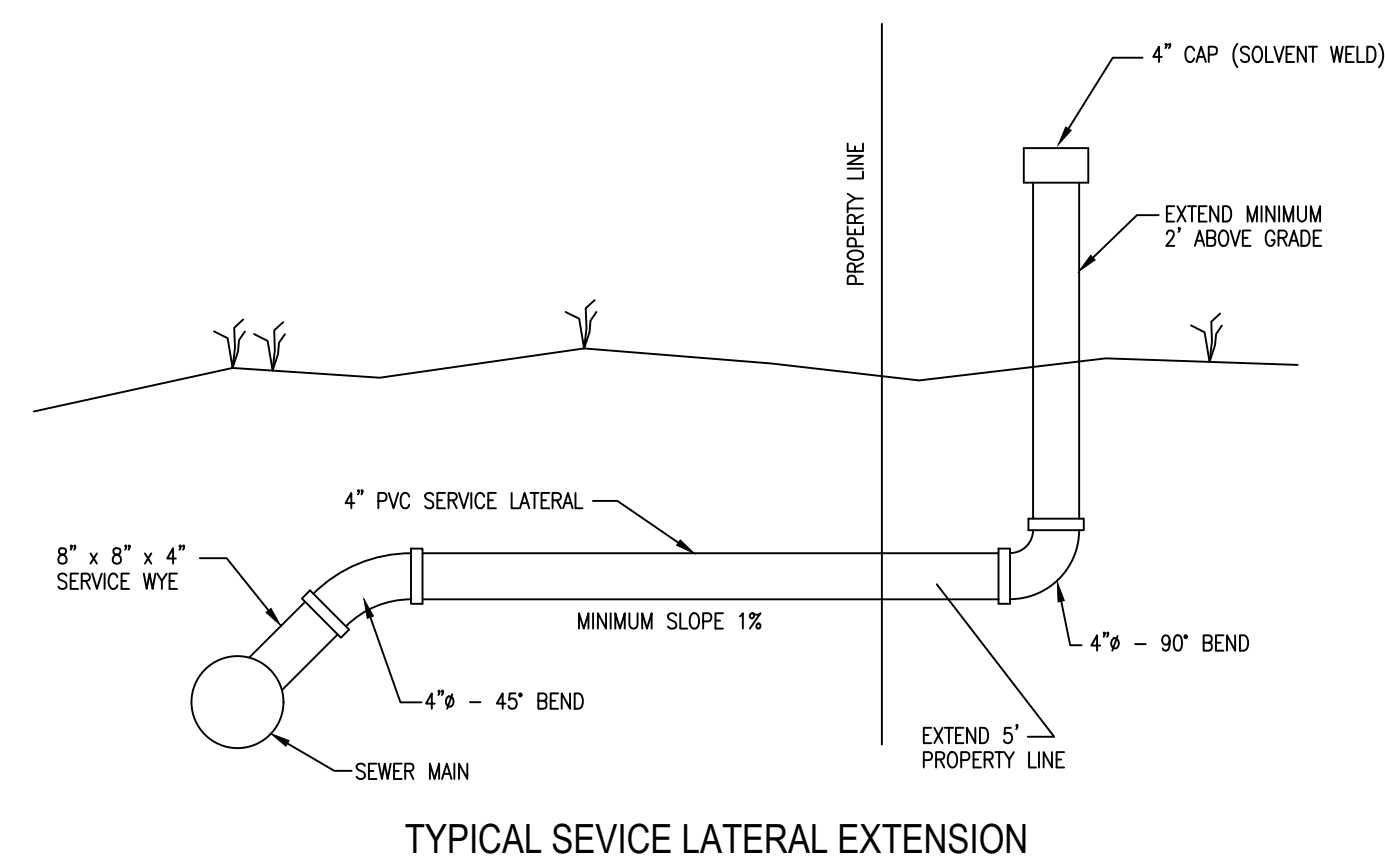
DOGHOUSE MANHOLE
~N.T.S.~



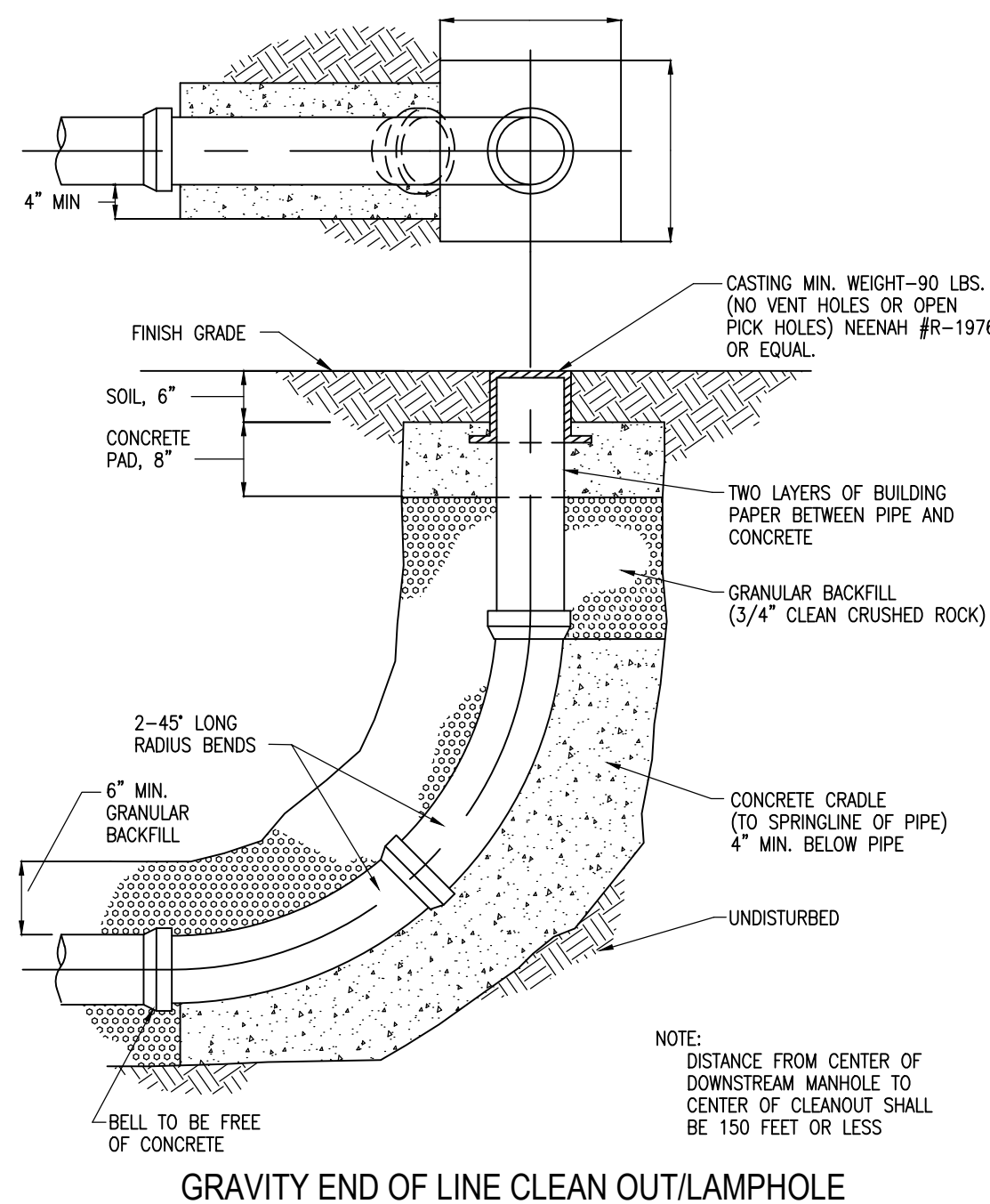
ROCK CHECK
~N.T.S.~



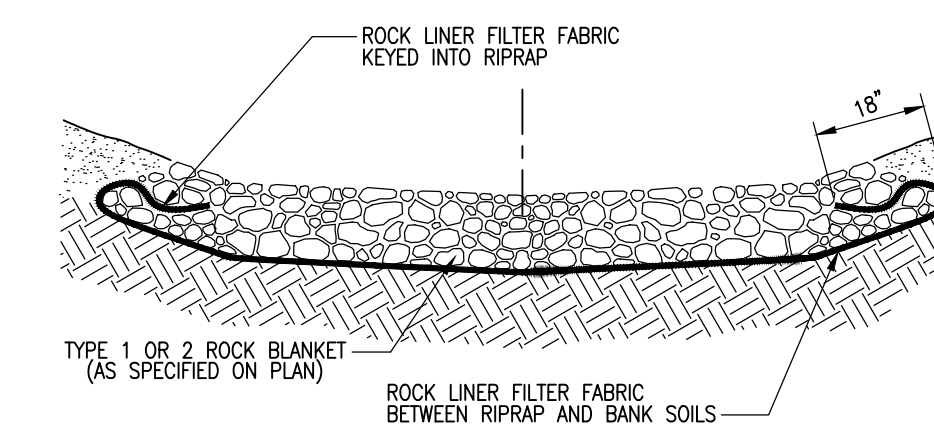
STRAW BALE CHECK
~N.T.S.~



TYPICAL SERVICE LATERAL EXTENSION

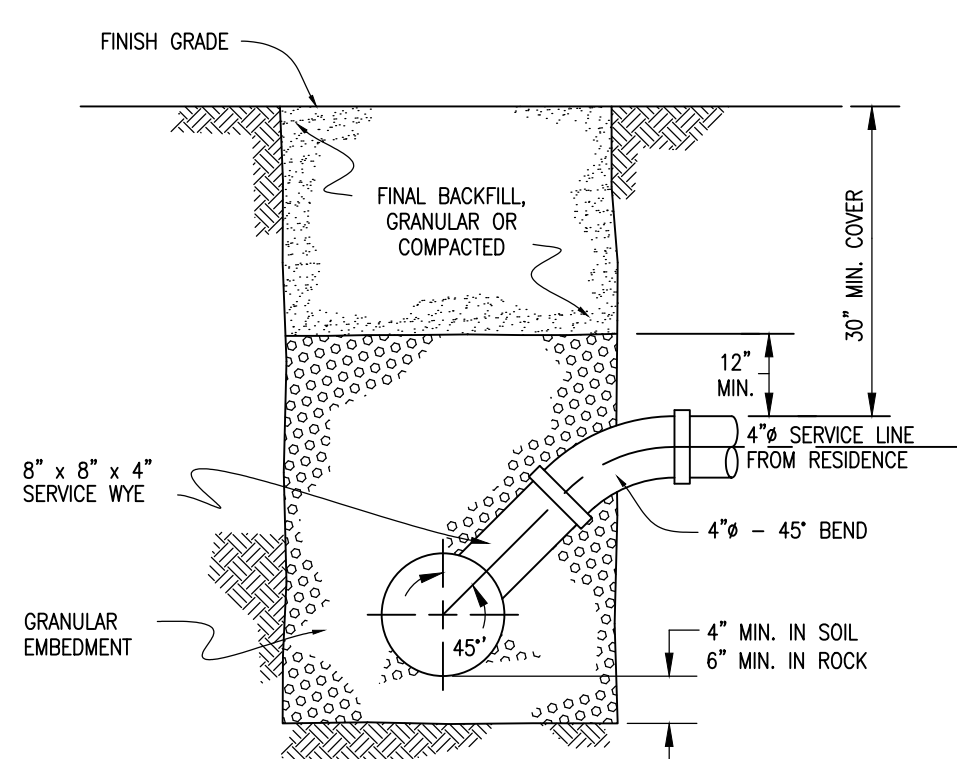


GRAVITY END OF LINE CLEAN OUT/LAMP HOLE

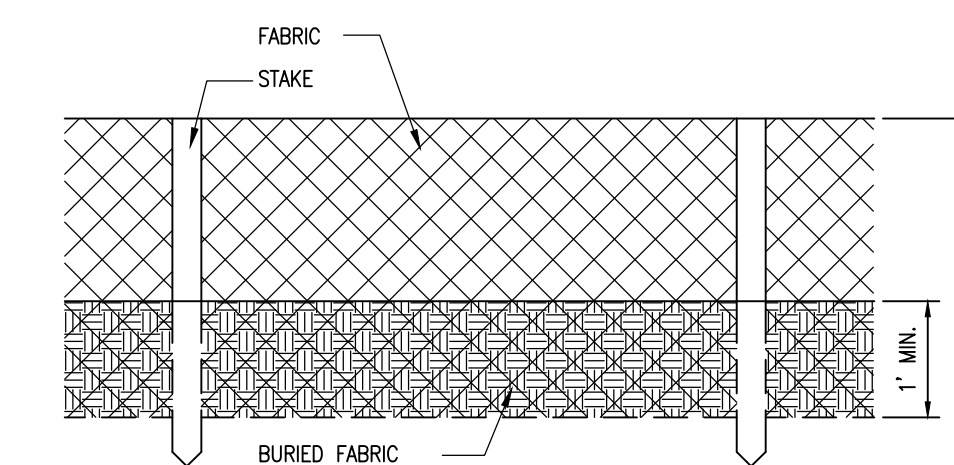


NOTE:
1. ROCK LINER FILTER FABRIC SHALL CONSIST OF A NON-WOVEN, POLYPROPYLENE TYPE FABRIC SUCH AS: AMOCO 4553 NON-WOVEN GEOTEXTILE FABRIC OR APPROVED EQUAL.

RIP RAP W / FILTER FABRIC
~N.T.S.~



STANDARD SERVICE CONNECTION



SILT FENCE INSTALLATION
~N.T.S.~