

WATER & WASTEWATER IMPROVEMENTS

MONTAUK STATE PARK

Salem, Missouri

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OWNER: STATE OF MISSOURI
 MICHAEL L. PARSON,
 GOVERNOR

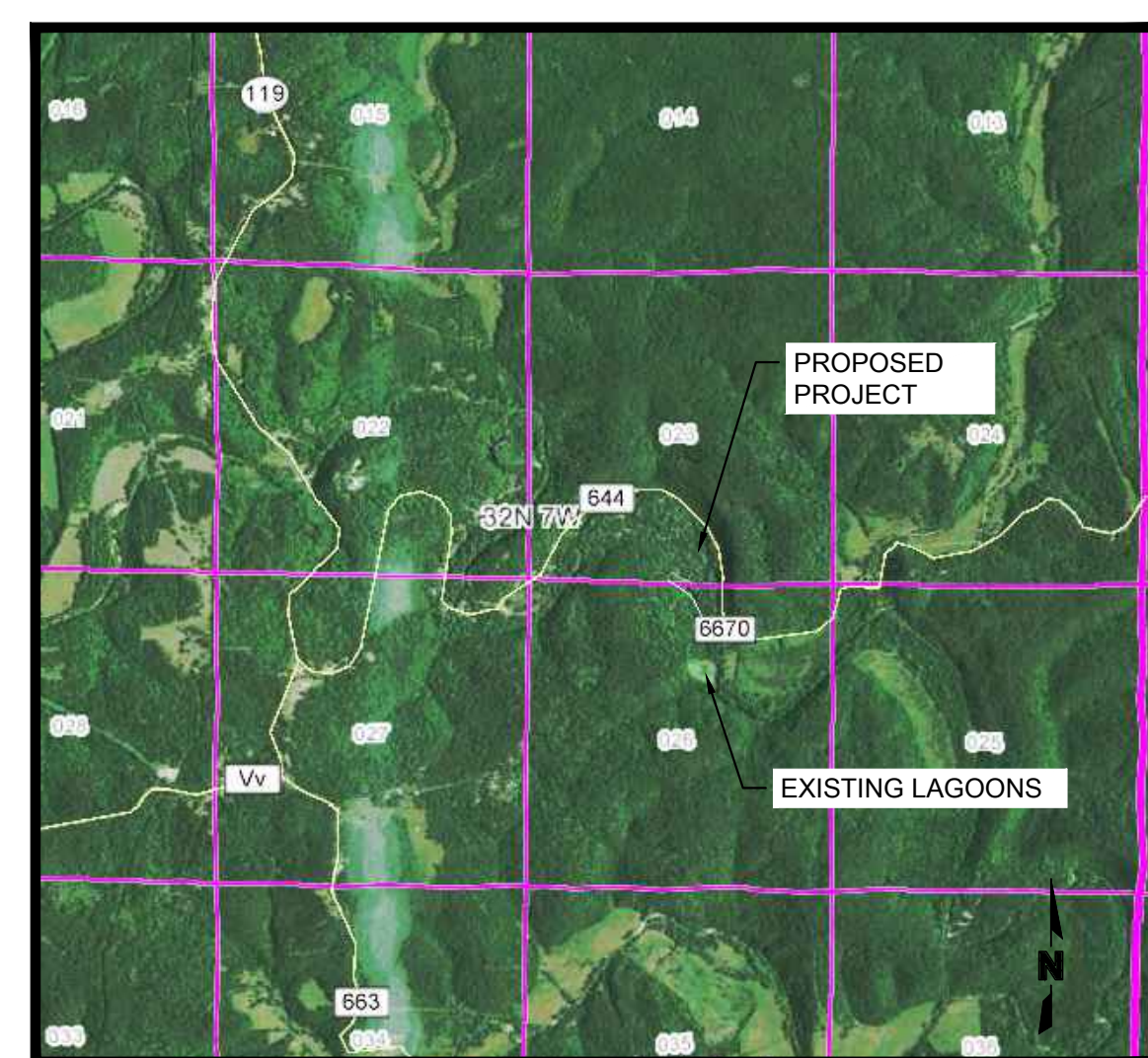
DEPARTMENT OF NATURAL RESOURCES
 DIVISION OF STATE PARKS

PROJECT MANAGEMENT: OFFICE OF ADMINISTRATION
 DIVISION OF FACILITIES MANAGEMENT,
 DESIGN AND CONSTRUCTION

DESIGNER: OLSSON
 550 E. St. Louis Street
 Springfield, MO 65806

PROJECT NUMBER: X230403

SITE NUMBER: 5307
 ASSET NUMBER: 7815307048



UNDERGROUND UTILITY NOTE

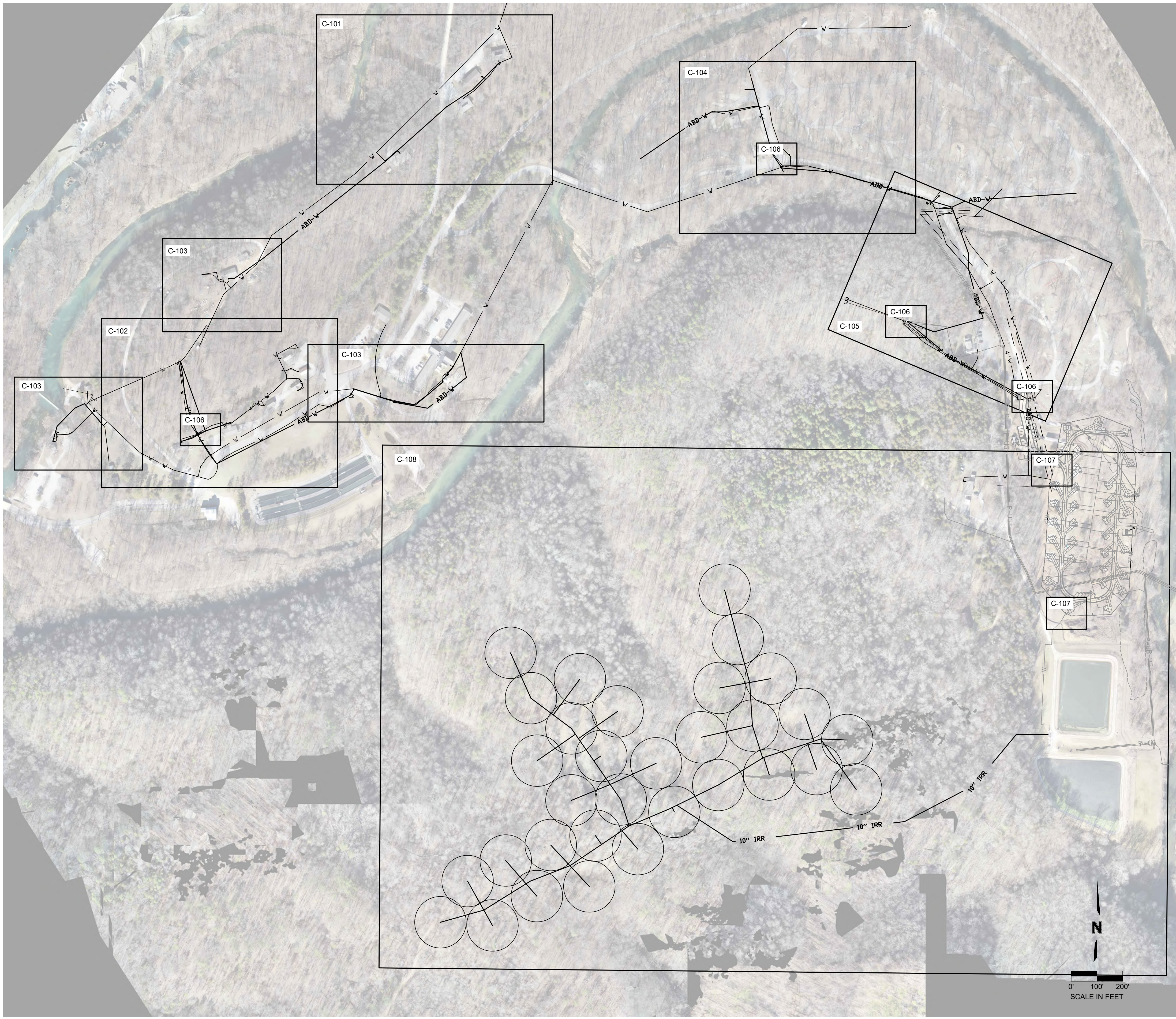
ANY UNDERGROUND FACILITIES, STRUCTURES, OR UTILITIES THAT HAVE BEEN SHOWN ARE FROM AVAILABLE RECORDS. THEREFORE, THE RELATIONSHIP BETWEEN THE NEW WORK AND THE EXISTING FACILITIES, STRUCTURES, OR UTILITIES MUST BE CONSIDERED APPROXIMATE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY ALL THE LOCAL, AND/OR GOVERNING UTILITY COMPANIES PRIOR TO CONSTRUCTION TO DETERMINE THEIR EXACT LOCATIONS AND THE EXISTENCE OF ANY NOT SHOWN. CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANIES AND THE OWNER AS TO THE RELOCATION OR REMOVAL OF ANY UTILITIES SHOWN OR NOT SHOWN.

CONSTRUCTION DOCUMENTS

SHEET NUMBER:

G-001

1 OF 13 SHEETS
05.01.2024



GENERAL NOTES:

1. THE EXISTING UTILITY LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND MAY NOT INCLUDE ALL LINES PRESENT. THE CONTRACTOR SHALL BE RESPONSIBLE TO CALL "1-800-DIG-RITE", AND COORDINATE FIELD LOCATION OF EXISTING UNDERGROUND UTILITIES PRIOR TO BEGINNING GRADING ACTIVITIES. !!STOP!! CALL BEFORE YOU DIG!!
2. THE CONTRACTOR SHALL NOT CHANGE OR DEVIATE FROM THE PLANS WITHOUT FIRST OBTAINING WRITTEN APPROVAL FROM THE OWNER AND ENGINEER.
3. THE CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN ALL PERMITS AND PAY ALL FEES AS REQUIRED BY THE CONSTRUCTION COVERED IN THESE PLANS.
4. ALL WORK AND MATERIALS SHALL BE SUBJECT TO INSPECTION AND APPROVAL BY THE OWNER OR THE OWNER'S REPRESENTATIVE.
5. ANY ESTIMATES OF QUANTITIES ARE FOR INFORMATIONAL PURPOSES ONLY. CONTRACTOR AND SUBCONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING ALL QUANTITIES. CONTRACTOR SHALL PROVIDE ALL WORK AND MATERIALS AS SHOWN ON PLANS.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING THE PUBLIC AND CAMPGROUND ROADS IN THE VICINITY OF THE JOB SITE CLEAN AND FREE OF ROCKS, SOIL AND DEBRIS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE RESTORATION OF THE TURF AREAS AND FOR DAMAGED IMPROVEMENTS SUCH AS PAVEMENT AND UTILITIES. DAMAGED IMPROVEMENTS SHALL BE REPAIRED IN CONFORMANCE WITH THE LATEST STATE STANDARDS AND THE STATES SATISFACTION.
8. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING BERMS, SILT FENCES, OR OTHER MEANS TO PREVENT ERODED MATERIALS FROM REACHING THE PUBLIC RIGHT-OF-WAY AND ADJACENT PROPERTIES. IN THE EVENT THE PREVENTION MEASURES ARE NOT EFFECTIVE, THE CONTRACTOR SHALL REMOVE ANY DEBRIS, SILT, OR MUD AND RESTORE THE RIGHT-OF-WAY TO ORIGINAL OR BETTER CONDITION.
9. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTROL DOWNSTREAM EROSION AND SILTATION DURING ALL PHASES OF CONSTRUCTION. EROSION CONTROL PROCEDURES SHALL BE IN PLACE PRIOR TO BEGINNING GRADING ACTIVITIES.
10. ALL EXTERIOR CONCRETE SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4000 PSI AND BE AIR ENTRAINED. FLY ASH IS NOT A SUITABLE REPLACEMENT FOR PORTLAND CEMENT.
11. ALL BACK FILL SHALL BE TAMPED. BACK FILL WITHIN THE RIGHT-OF-WAY SHALL BE COMPACTED TO 95% MAX. DENSITY AS PER ASTM-D698 (STANDARD PROCTOR COMPACTION).
12. THE CONTRACTOR SHALL HAVE ONE (1) SIGNED COPY OF THE PLANS (APPROVED BY THE STATE OF MISSOURI) AND ONE (1) COPY OF THE APPROPRIATE DESIGN AND CONSTRUCTION STANDARDS AND SPECIFICATIONS AT THE SITE AT ALL TIMES.
13. ALL REFERENCES CONTAINED WITHIN THESE PLANS ARE HEREBY REFERENCED TO THE OWNER'S ENGINEER, OLSSON, INC.
14. KEEP THE ROCK, MUD AND DIRT OFF OF PUBLIC STREETS DURING CONSTRUCTION.
15. THE CONTRACTOR IS TO RETAIN FLOATABLE WIND BLOWN MATERIALS ON SITE BY STORING ALL TRASH AND BUILDING MATERIAL WASTE IN ENCLOSURES UNTIL PROPER DISPOSAL AT AN OFF-SITE FACILITY. CONTRACTOR TO CHECK ADJACENT AREAS DAILY AND PICK UP CONSTRUCTION WASTE MATERIALS AND DEBRIS THAT HAVE BLOWN OR WASHED OFF-SITE.
16. EROSION CONTROL DEVICES SHALL BE MAINTAINED DURING THE WHOLE CONSTRUCTION PERIOD BY THE CONTRACTOR.
17. THE CONTRACTOR SHALL TAKE CARE NOT TO DAMAGE ANY EXISTING STREET, CURB AND GUTTER, SIDEWALK AND DRIVEWAYS UNLESS SHOWN TO BE REMOVED.
18. ALL DISTURBED AREAS SHALL BE STABILIZED IN ACCORDANCE WITH THE APPROVED SEDIMENT AND EROSION CONTROL PLAN (SECP).
19. CONTRACTOR SHALL UTILIZE PRIVATE UTILITY LOCATOR TO LOCATE AND MARK EXISTING UTILITIES WITHIN THE PROJECT AREA. CONTRACTOR IS RESPONSIBLE FOR ALL COSTS AND COORDINATION ASSOCIATED WITH THIS.

UTILITY COMPANIES:

ELECTRIC:
 INTERCOUNTY ELECTRIC CO-OP:
 TELEPHONE: (866) 621-3679

SANITARY SEWER, WATER, AND COMMUNICATIONS:
 DOUGLAS RUSK
 NATURAL RESOURCE MANAGER
 MISSOURI STATE PARKS
 MONTAUK STATE PARK
 OFFICE: (573)-548-2201
 FAX: (573)548-2206

OWNER/DEVELOPER:

MISSOURI DEPARTMENT OF NATURAL RESOURCES
 P.O. BOX 176
 1101 RIVER SIDE DRIVE
 JEFFERSON CITY, MISSOURI 65102-0176
 TELEPHONE: (573) 5751-3443

PREPARED BY:

OLSSON, INC.
 CONTACT: KERRY SCOTT
 550 ST. LOUIS STREET
 SPRINGFIELD, MO 65806
 TELEPHONE: (417) 890-1728
 FAX: (417) 890-8805

BENCHMARKS:

- #1. EXISTING SANITARY SEWER MANHOLE
RIM ELEV. = 909.44
- #2. EXISTING SANITARY SEWER MANHOLE
RIM ELEV. = 907.40

ABBREVIATION:

100 YEAR WSE =
 100 YEAR WATER SURFACE ELEVATION

FLOOD MAP

COUNTY OF DENT, MISSOURI
 COMMUNITY PANEL NUMBER
 290118 0175 A
 EFFECTIVE DATE:
 JANUARY 5,1984

LEGEND	
□ Found Iron Monument (As Noted)	⊙ Telephone Manhole
● Set 1/2" Rebar w/Plastic Cap	⊙ Traffic Signal Pole
▲ Benchmark	⊙ Water Meter
⊙ Air Conditioner	⊙ Water Valve
⊙ Bollard	⊙ Sprinkler Control Valve
⊙ Cable Box	⊙ Bush
⊙ Cable Vault	⊙ Deciduous Tree
⊙ Electric Box	⊙ Ex. Sanitary Sewer Line
⊙ Electric Box	⊙ Ex. Storm Sewer Line
⊙ Electric Meter	⊙ Ex. Underground Electric
⊙ Electric Vault	⊙ Ex. Fiber Optic Line
⊙ Fire Hydrant	⊙ Ex. Telephone Line
⊙ Fiber Optic Box	⊙ Ex. Water Line
⊙ Fiber Optic Pedestal	⊙ Ex. Overhead Power Line
⊙ Gas Meter	⊙ Ex. Gas Line
⊙ Gas Valve	⊙ Barbed Wire Fence
⊙ Grate Inlet	⊙ Iron Fence
⊙ Gas Vault	⊙ Wood Fence
⊙ Guy Wire	⊙ Abandoned Water Line
⊙ Light Pole	⊙ Prop. 4" Water Line
⊙ Mail Box	⊙ Prop. 3" Water Line
⊙ Parking Meter	⊙ Prop. 2" Water Line
⊙ Power Pole	⊙ Prop. 1" Water Line
⊙ Power Pole w/Light	⊙ Ex. Contour
⊙ Sanitary Cleanout	⊙ Prop. Contour
⊙ Sanitary Manhole	⊙ Top of Pavement
⊙ Sign	⊙ Finished Ground
⊙ Telephone Cabinet	⊙ Flow Line
⊙ Telephone Pedestal	
⊙ Telephone Riser	
	SS Ex. Sanitary Sewer Line
	SD Ex. Storm Sewer Line
	P-UG Ex. Underground Electric
	FO Ex. Fiber Optic Line
	TEL Ex. Telephone Line
	W Ex. Water Line
	P-OH Ex. Overhead Power Line
	GAS Ex. Gas Line
	X Barbed Wire Fence
	○ Iron Fence
	□ Wood Fence
	ABB-W Abandoned Water Line
	4"W Prop. 4" Water Line
	3"W Prop. 3" Water Line
	2"W Prop. 2" Water Line
	1"W Prop. 1" Water Line
	900 Ex. Contour
	900 Prop. Contour
	TP=900.00 Top of Pavement
	OR=900.00 Finished Ground
	FL=900.00 Flow Line

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MONTAUK
 STATE PARK
 345 COUNTY ROAD 6670
 SALEM, MO 65560

PROJECT # X2304-03
 SITE # 5307
 ASSET # 7815307048

REVISION: _____
 DATE: _____
 REVISION: _____
 DATE: _____
 REVISION: _____
 DATE: _____
 ISSUE DATE: 05.01.2024

CAD DWG FILE: C-100
 DRAWN BY: TMH
 CHECKED BY: KGS
 DESIGNED BY: KGS

SHEET TITLE:

SITE LAYOUT

SHEET NUMBER:

C-100

2 OF 13 SHEETS
 05.01.2024



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REVISION: _____
DATE: _____

ISSUE DATE: 05.01.2024

CAD DWG FILE: C-101
DRAWN BY: TMH
CHECKED BY: KGS
DESIGNED BY: KGS

SHEET TITLE:

WATERLINE
PLAN

SHEET NUMBER:

C-101

3 OF 13 SHEETS
05.01.2024

- NOTE:
1. MAXIMUM JOINT DEFLECTION ON C900 PVC PIPE IS 1 DEGREE OR PER MANUFACTURER'S RECOMMENDATIONS.
2. 2"Ø AND SMALLER PIPE TO BE HDPE DR9 CTS WITH MINIMUM BENDING RADIUS AS PER MANUFACTURER.





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ISSUE DATE: 05.01.2024

CAD DWG FILE: C-102
DRAWN BY: TMH
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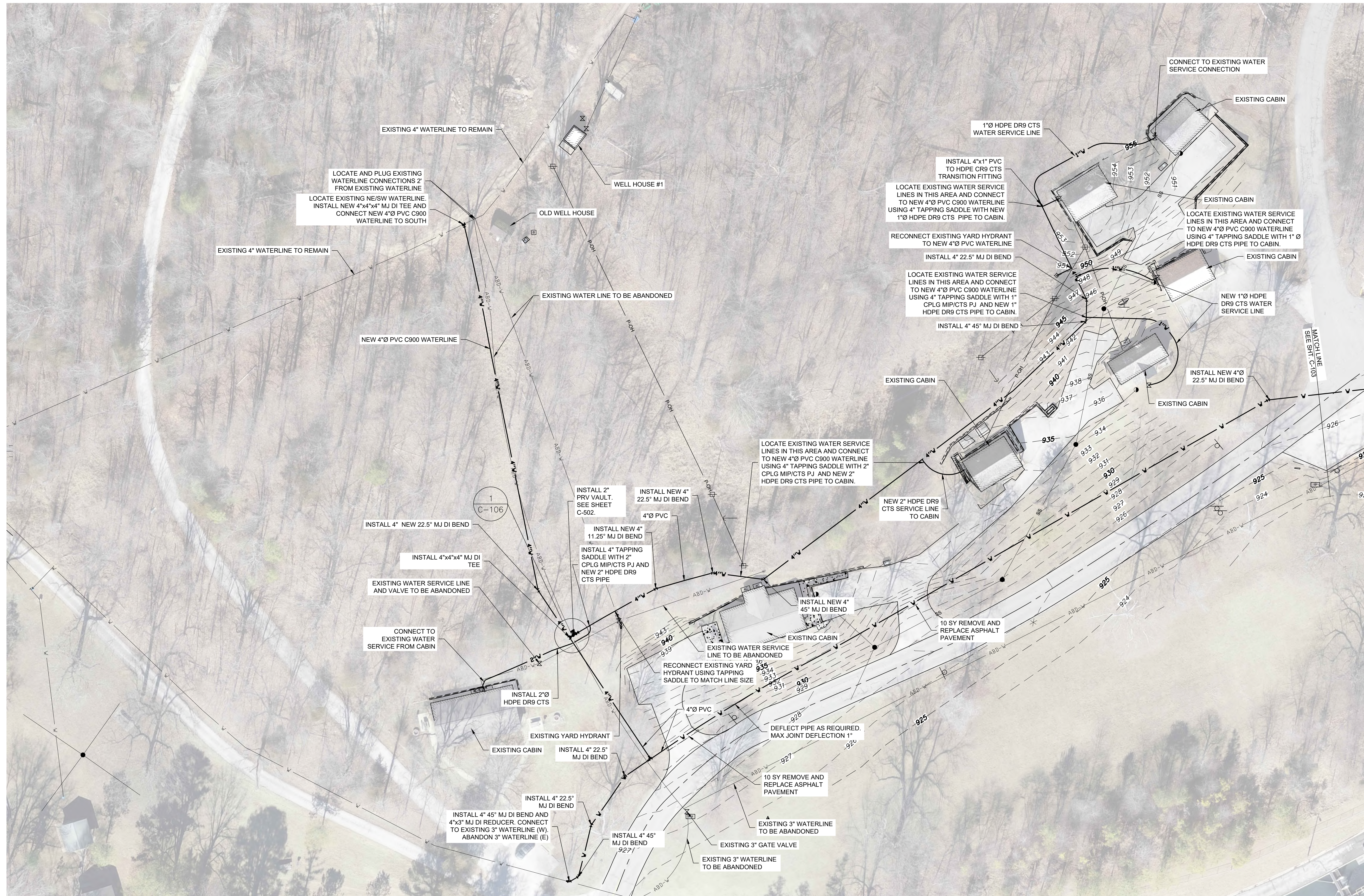
WATERLINE
PLAN

SHEET NUMBER:

C-102

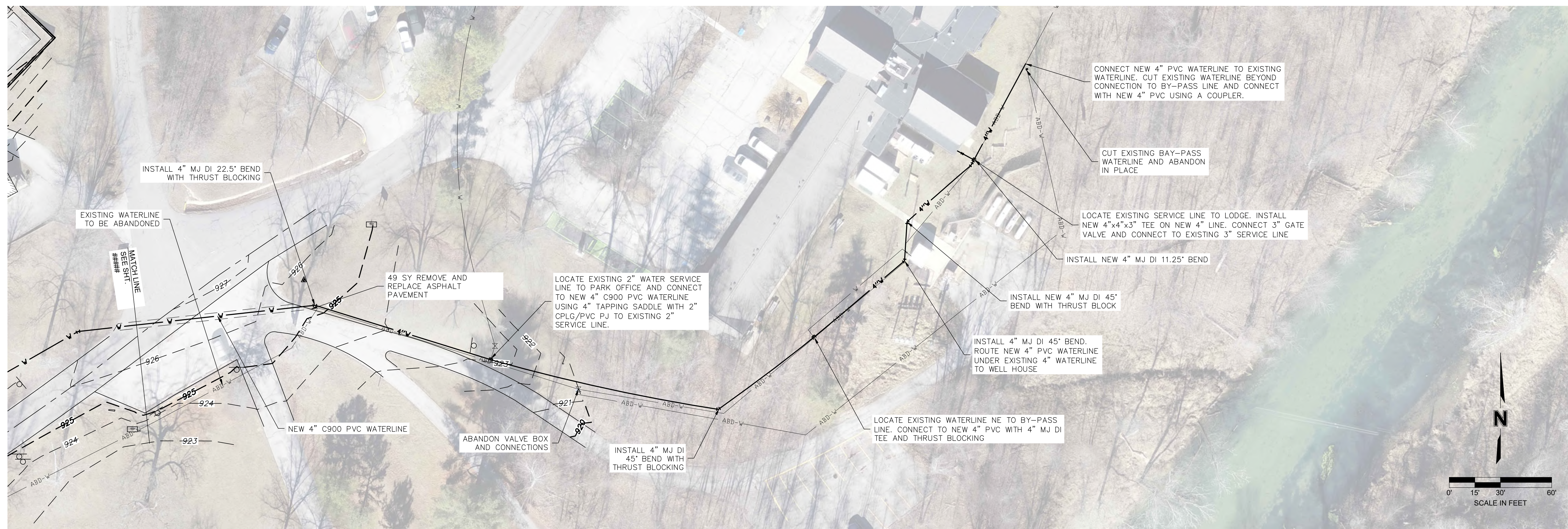
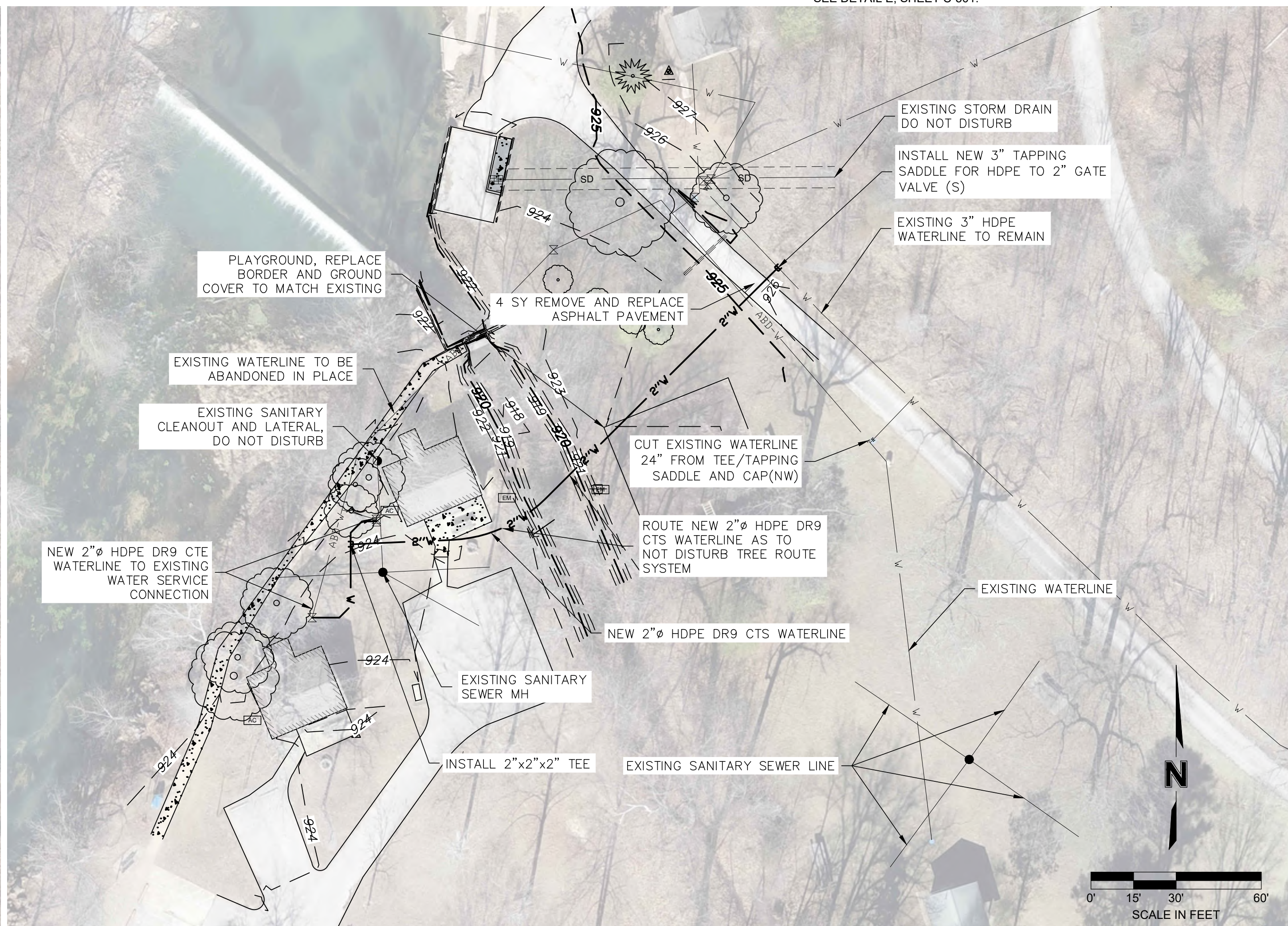
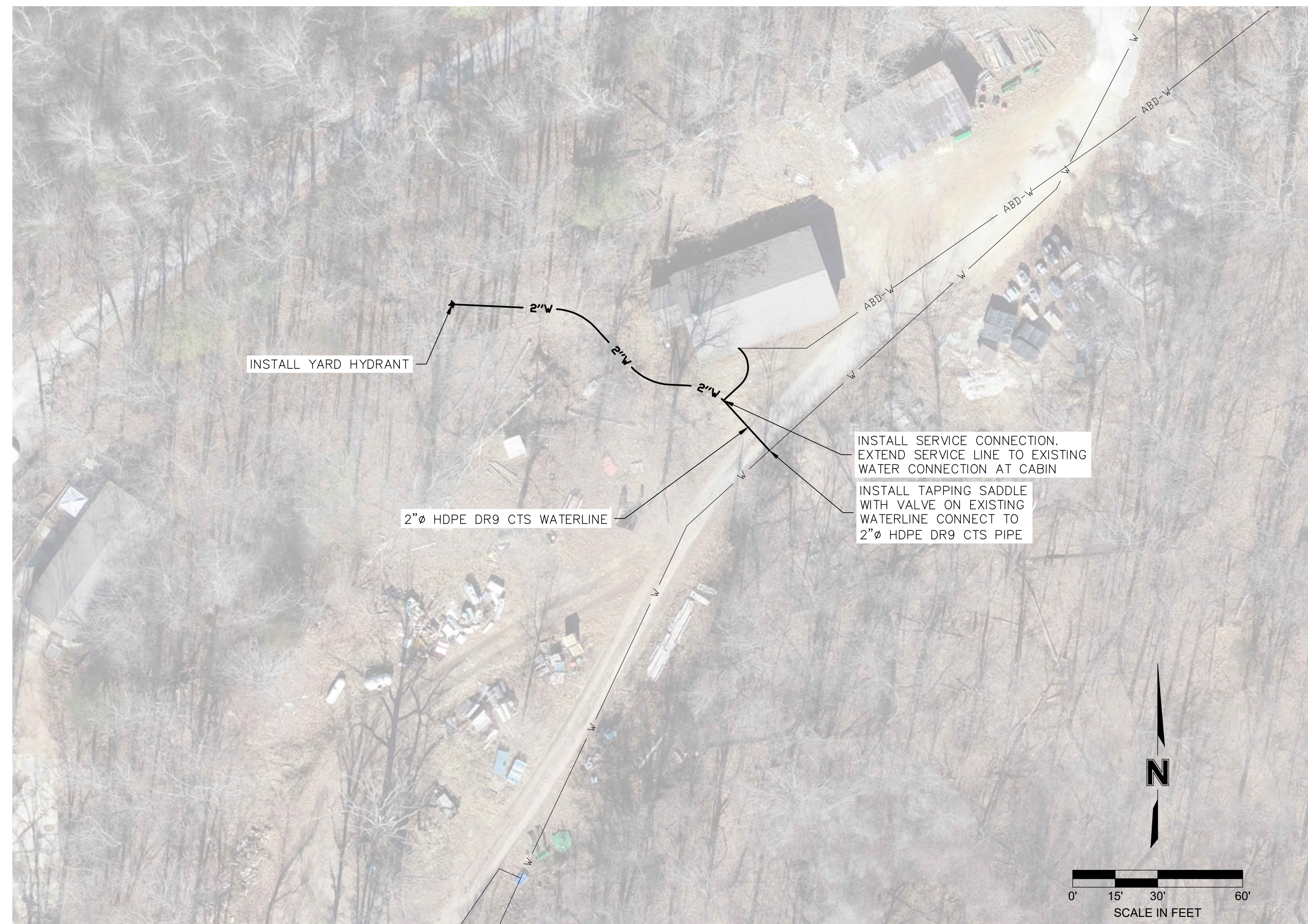
4 OF 13 SHEETS
05.01.2024

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 3. REPLACE ASPHALT PAVEMENT FOR ROAD CROSSINGS WITH CONCRETE. SEE DETAIL E, SHEET C-501.





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ISSUE DATE: 05.01.2024

CAD DWG FILE: C-103
DRAWN BY: TMH
CHECKED BY: KGS
DESIGNED BY: KGS

SHEET TITLE:

WATERLINE
PLAN

SHEET NUMBER:

C-103

5 OF 13 SHEETS
05.01.2024

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STATE OF MISSOURI
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ISSUE DATE: 05.01.2024

CAD DWG FILE: C-104
DRAWN BY: TMH
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SHEET TITLE:

WATERLINE
PLAN

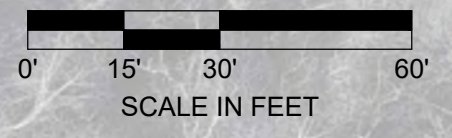
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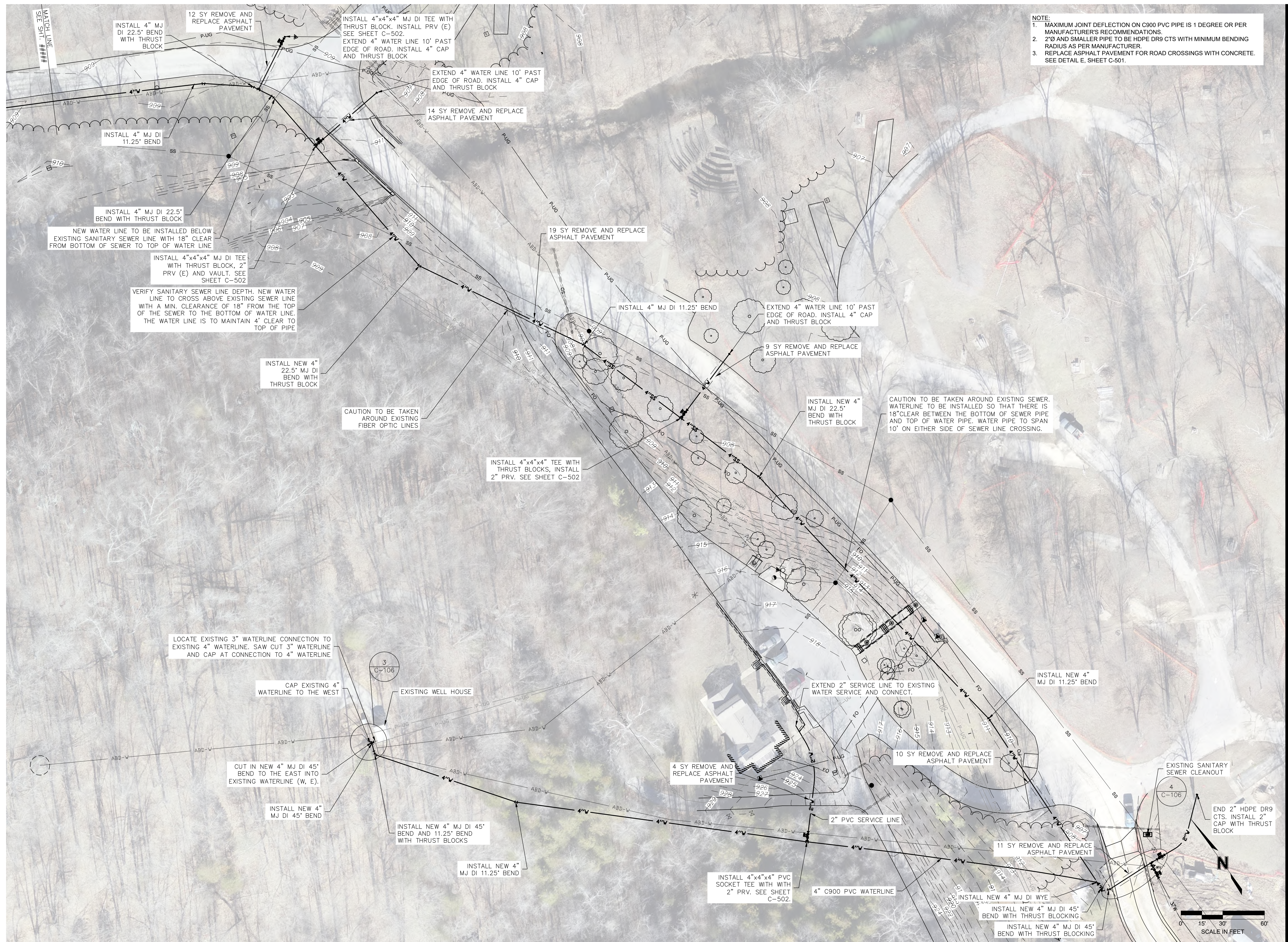
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05.01.2024



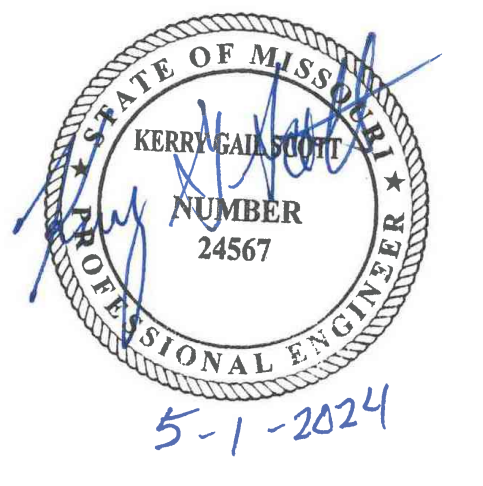
MATCH LINE
SEE SHT. C-105





NOTE:
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CAD DWG FILE: C-105
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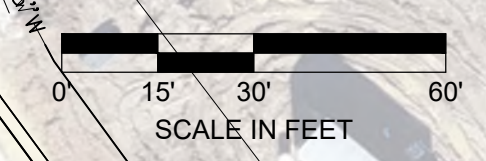
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WATERLINE
 PLAN

SHEET NUMBER:

C-105

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REVISION:	
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REVISION:	
DATE:	
ISSUE DATE:	05.01.2024

CAD DWG FILE: C-106
DRAWN BY: TMH
CHECKED BY: KGS
DESIGNED BY: KGS

SHEET TITLE:

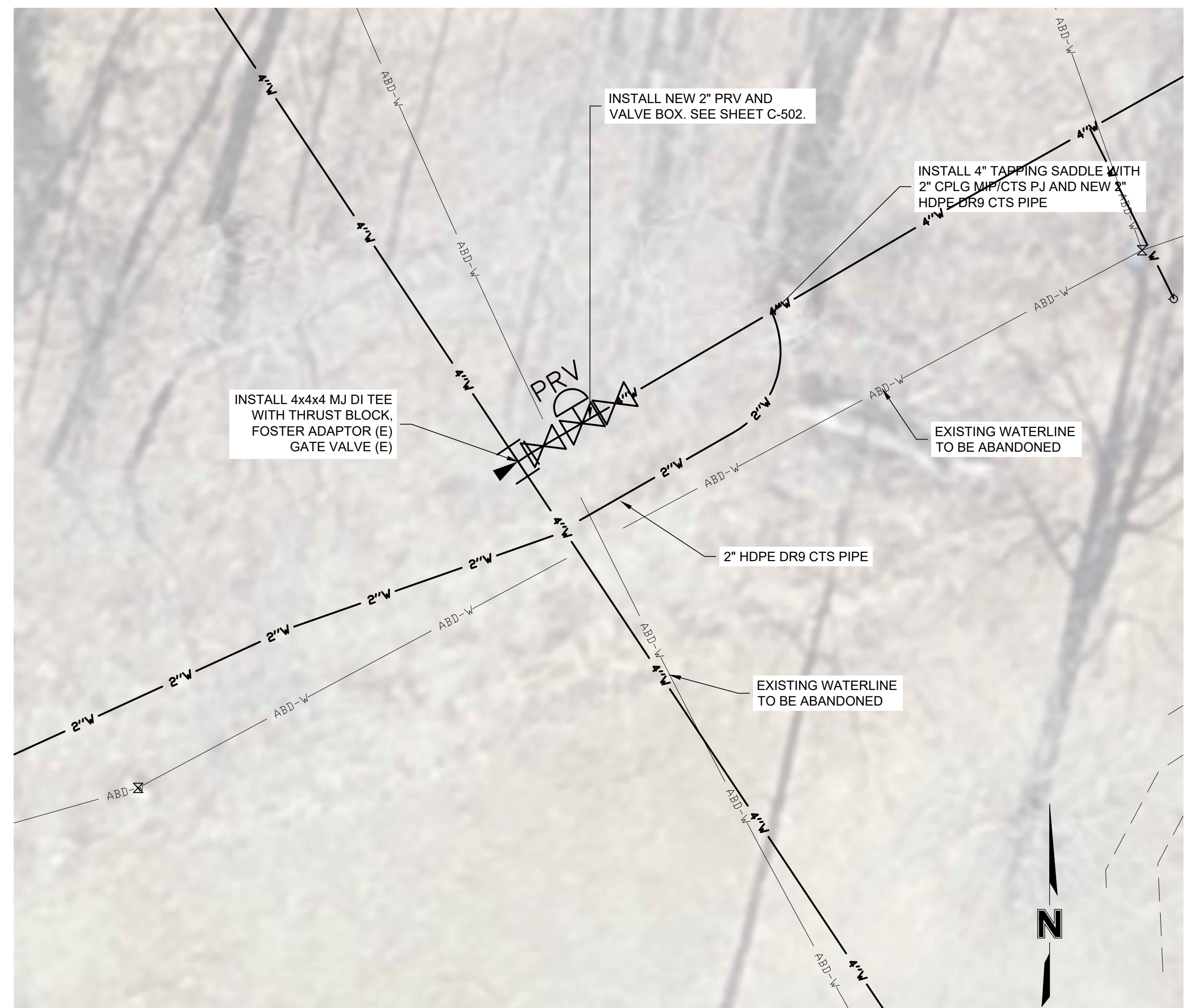
WATERLINE
PLAN

SHEET NUMBER:

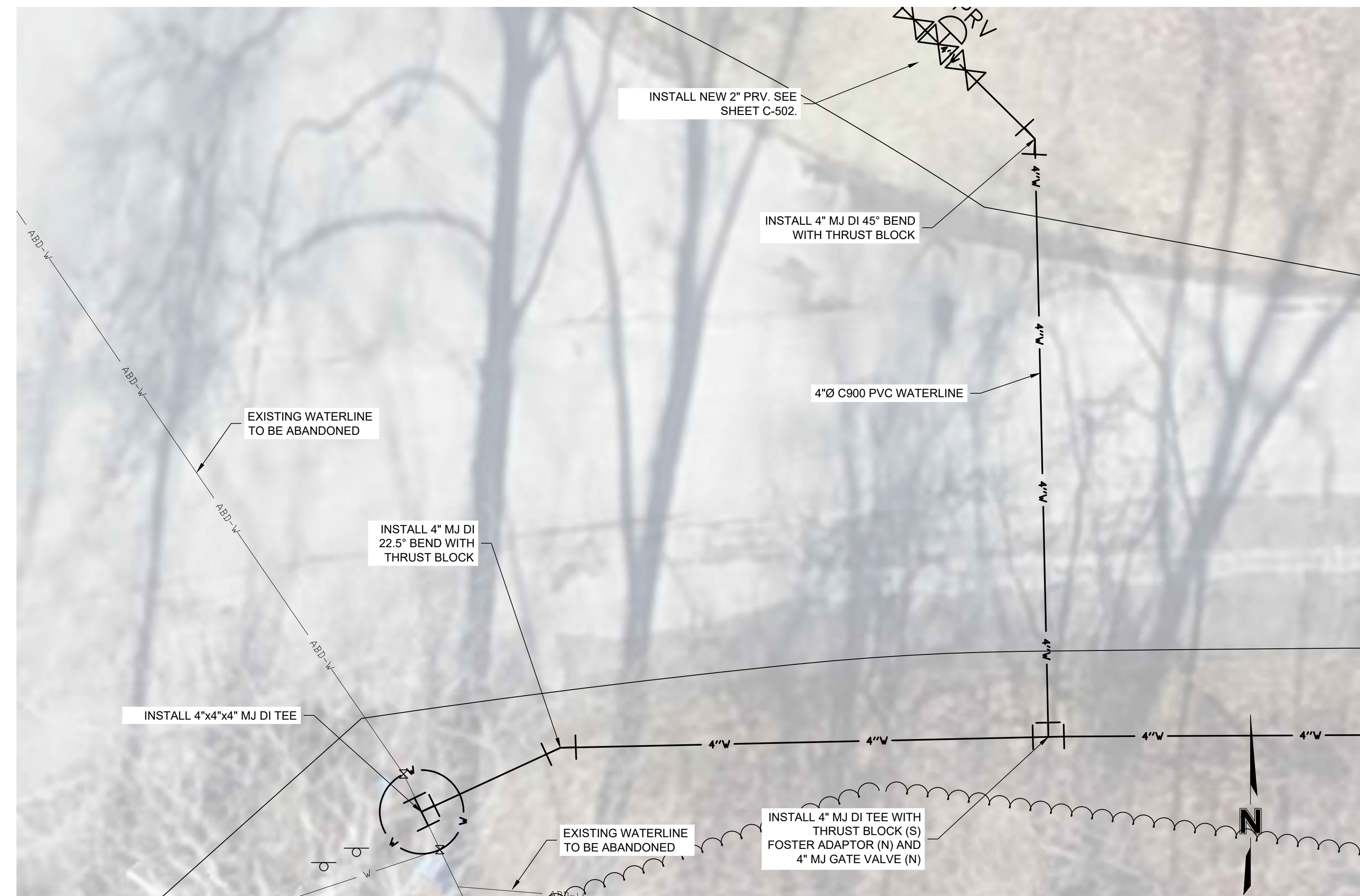
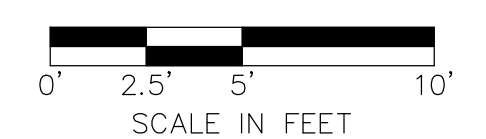
C-106

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05.01.2024

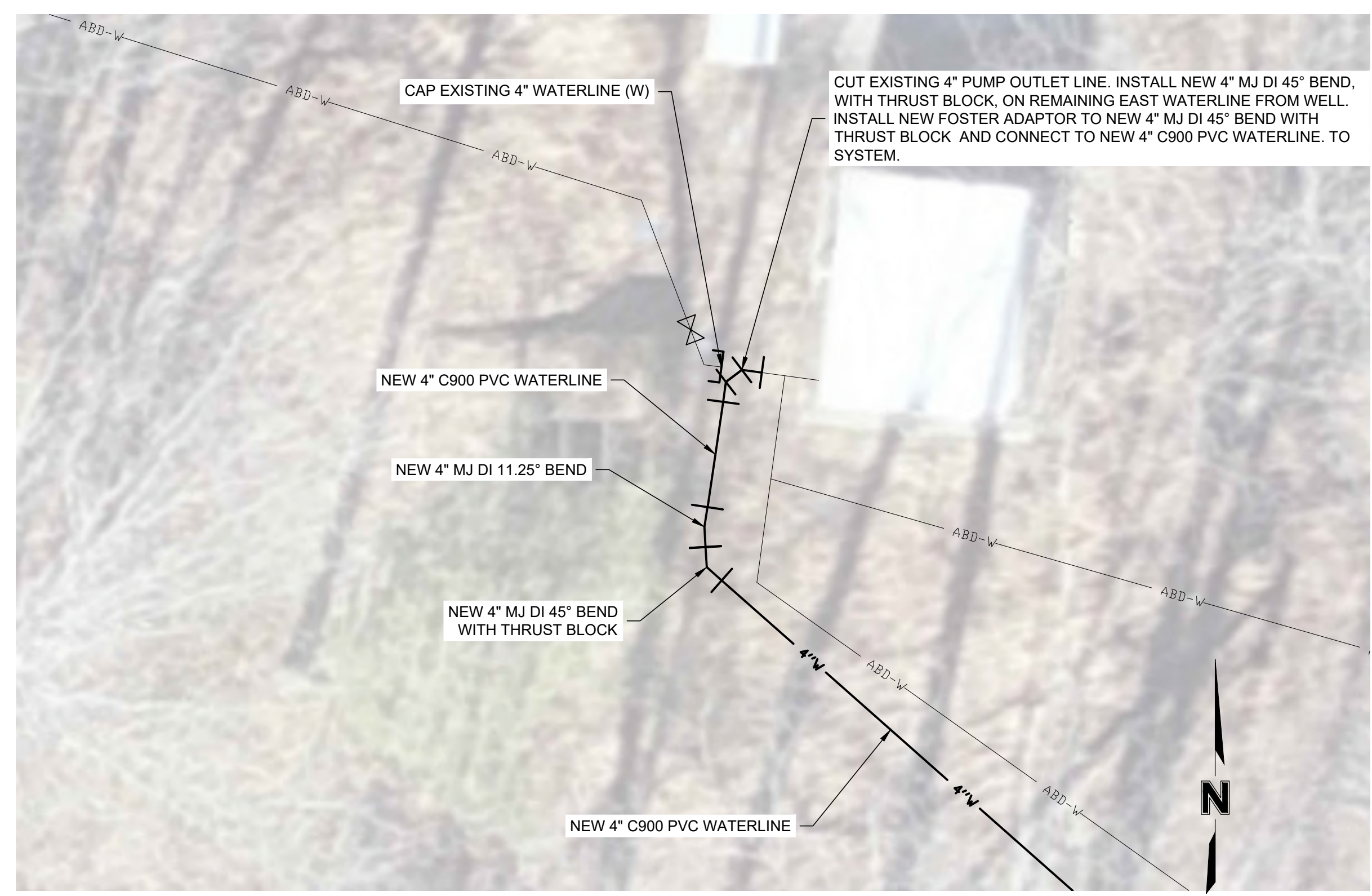
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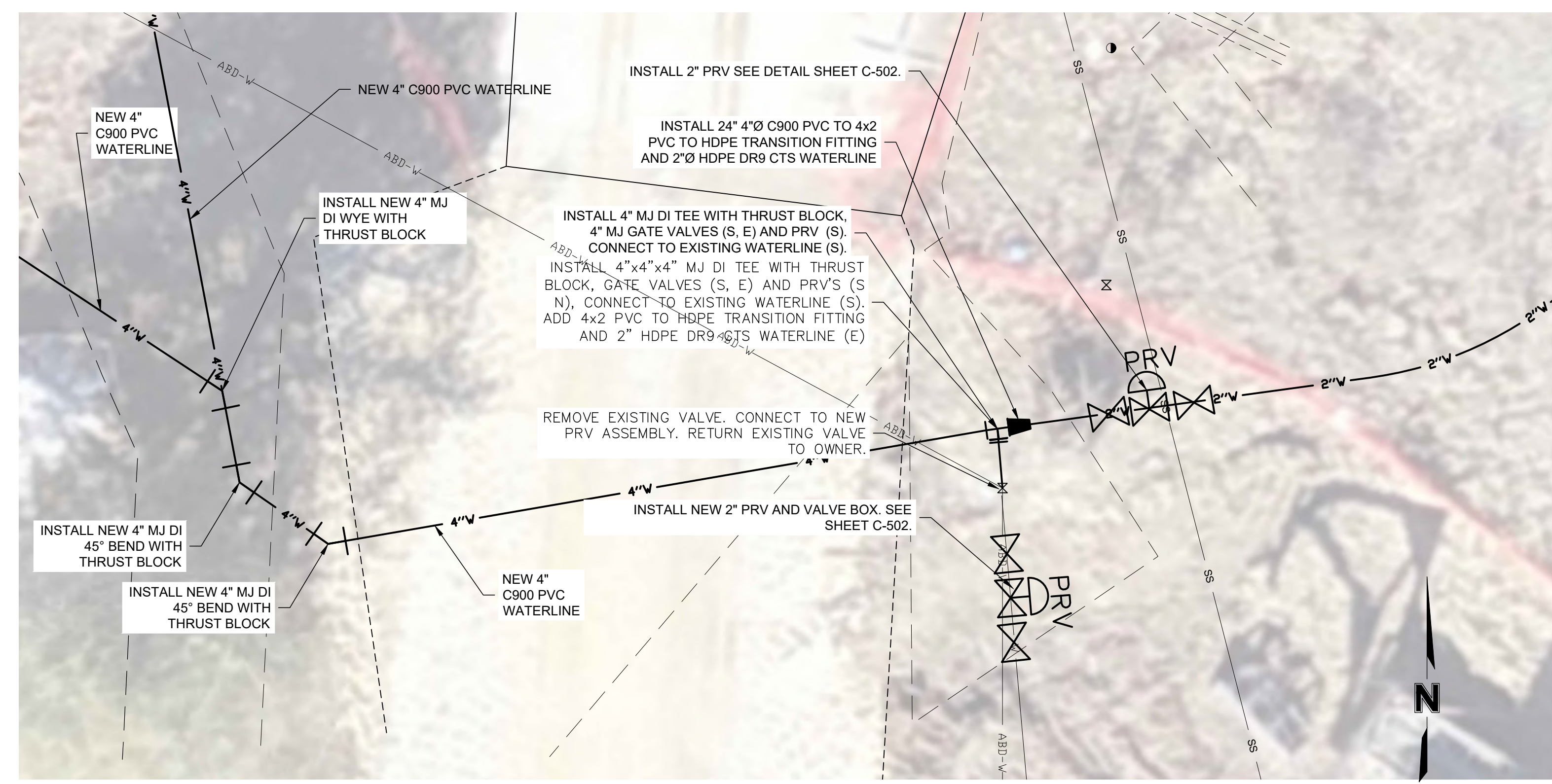
1 DETAIL
Scale: 1" = 5'



2 DETAIL
Scale: 1" = 5'

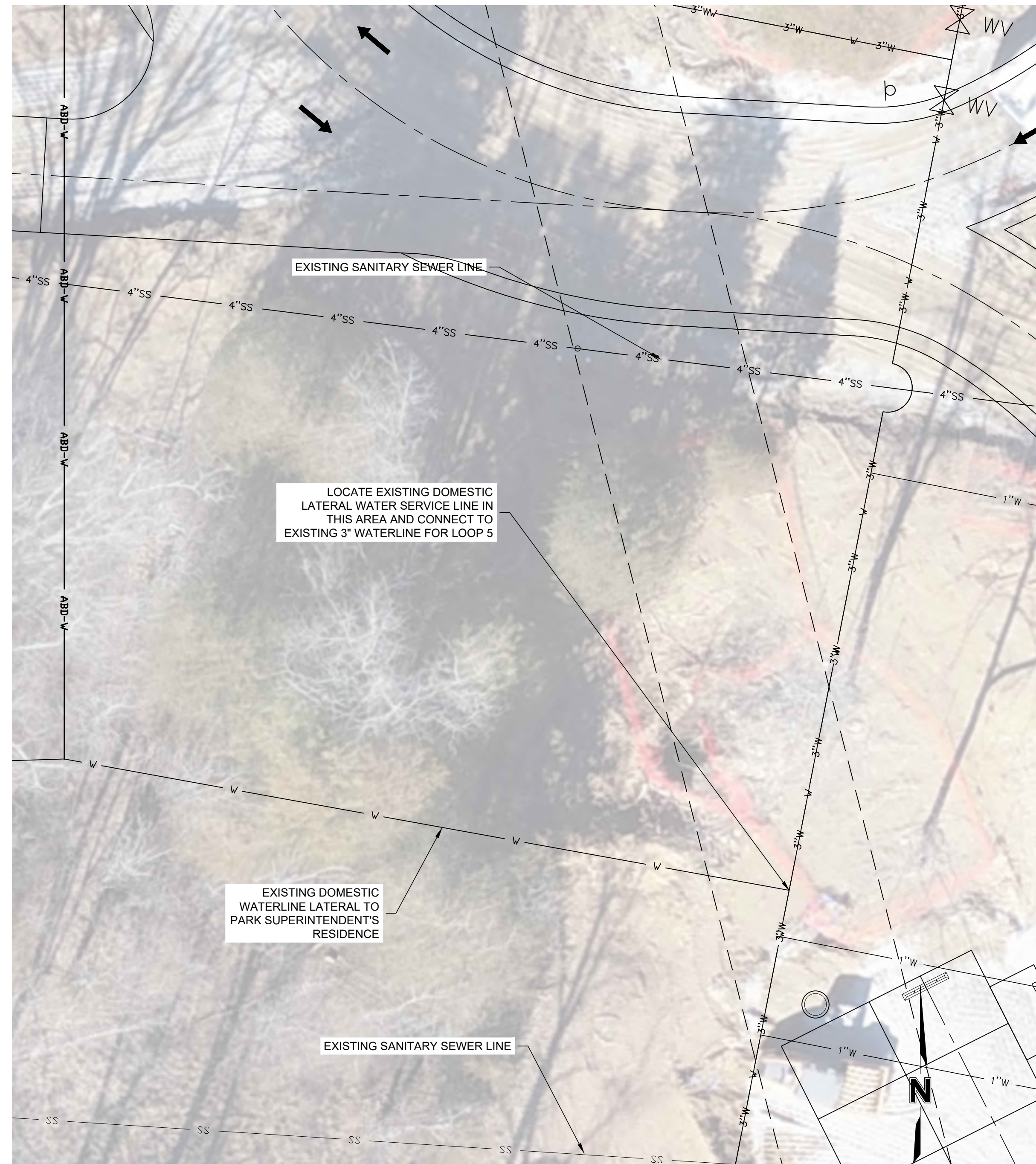


3 DETAIL
Scale: 1" = 5'

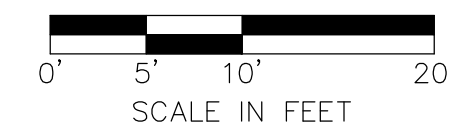


4 DETAIL
Scale: 1" = 5'





1
-
DETAIL
Scale: 1" = 10'



2
-
DETAIL
Scale: 1" = 5'



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DATE: _____

ISSUE DATE: 05.01.2024

CAD DWG FILE: C-107
DRAWN BY: TMH
CHECKED BY: KGS
DESIGNED BY: KGS

SHEET TITLE:

WATERLINE
PLAN

SHEET NUMBER:

C-107

9 OF 13 SHEETS
05.01.2024



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ISSUE DATE: 05.01.2024

CAD DWG FILE: C-108
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SHEET TITLE:

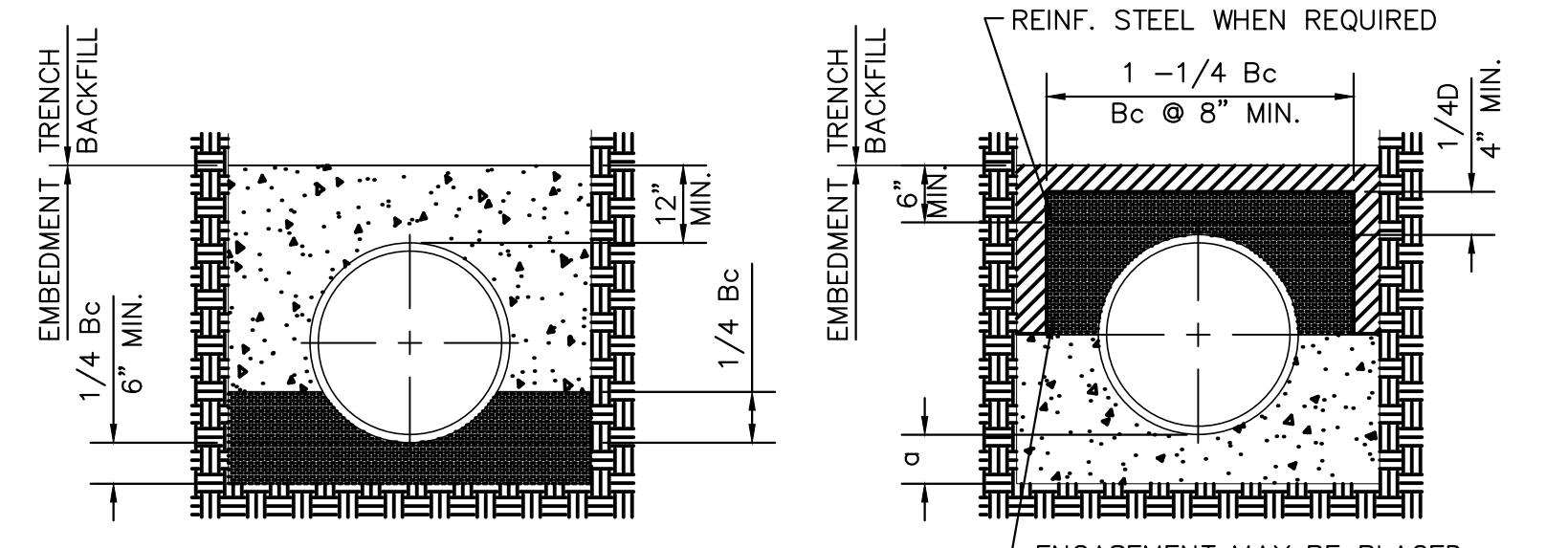
SEWER
PLAN

SHEET NUMBER:

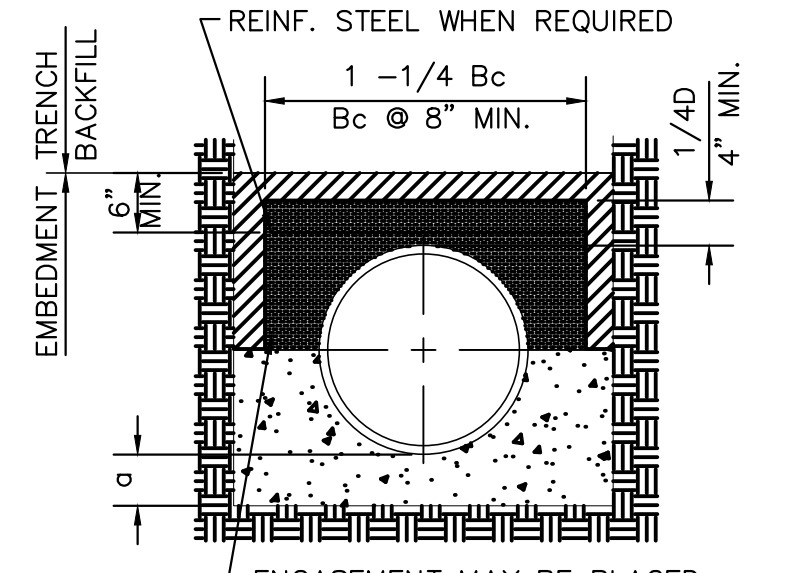
C-108

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05.01.2024

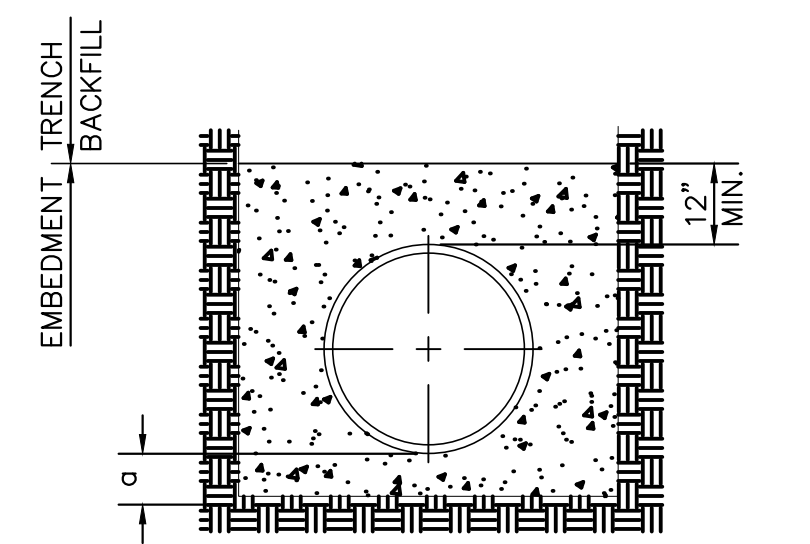




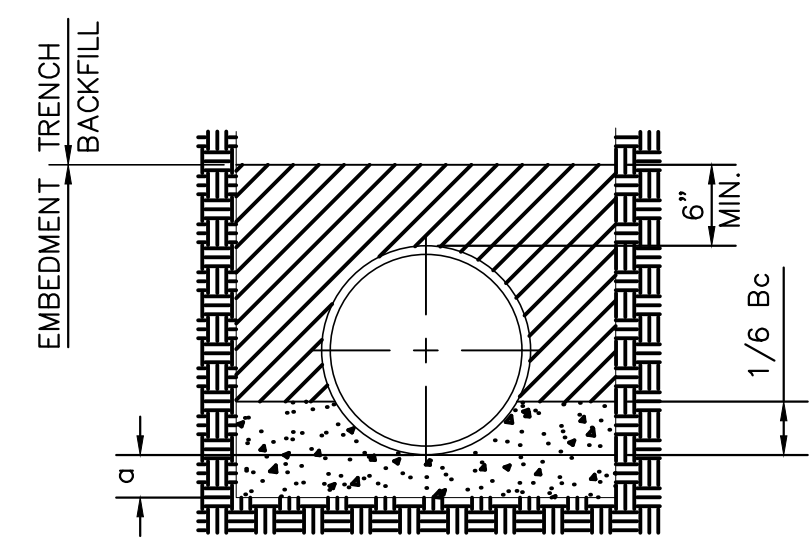
**CLASS A
CONCRETE CRADLE**



**CLASS A
CONCRETE ARCH**



**CLASS B
FIRST CLASS BEDDING**



**CLASS C
ORDINARY BEDDING**

TABLE OF EMBEDMENT DEPTHS BELOW PIPE

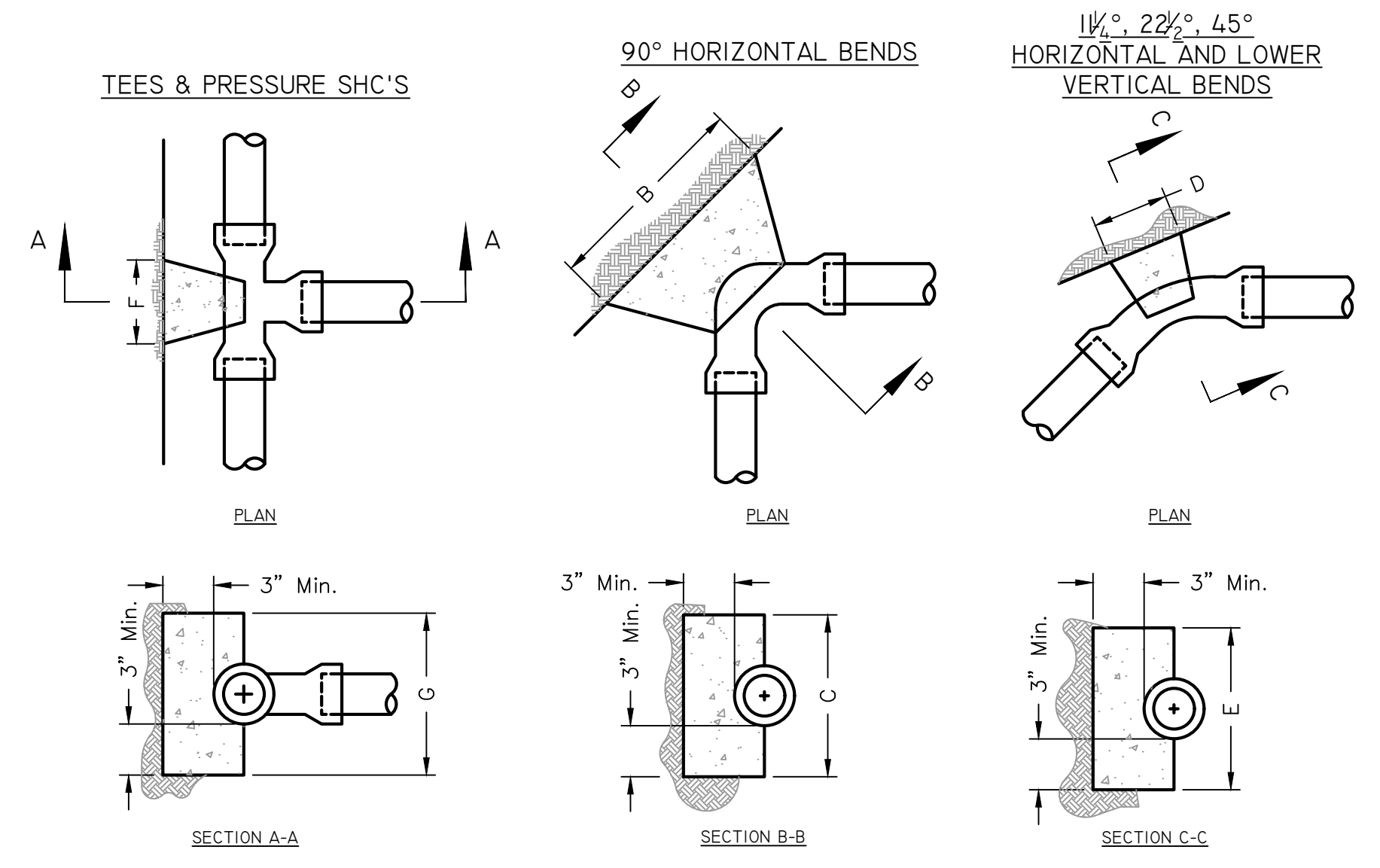
SOIL TRENCH		
BEDDING CLASS	PIPE O.D.	a MIN.
A AND B	16" AND SMALLER	4"
A AND B	LARGER THAN 16"	1/4 O.D.
C	32" AND SMALLER	4"
C	LARGER THAN 32"	1/8 O.D.

ROCK TRENCH		
BEDDING CLASS	PIPE O.D.	a MIN.
A AND B	24" AND SMALLER	6"
A AND B	LARGER THAN 24"	1/4 O.D.
C	48" AND SMALLER	6"
C	LARGER THAN 48"	1/8 O.D.

LEGEND

- Bc OUTSIDE DIA. OF PIPE
- d NOMINAL PIPE SIZE
- a EMBEDMENT BELOW PIPE
- Hand Placed Embedment
- Granular Embedment
- Concrete
- Undisturbed Earth

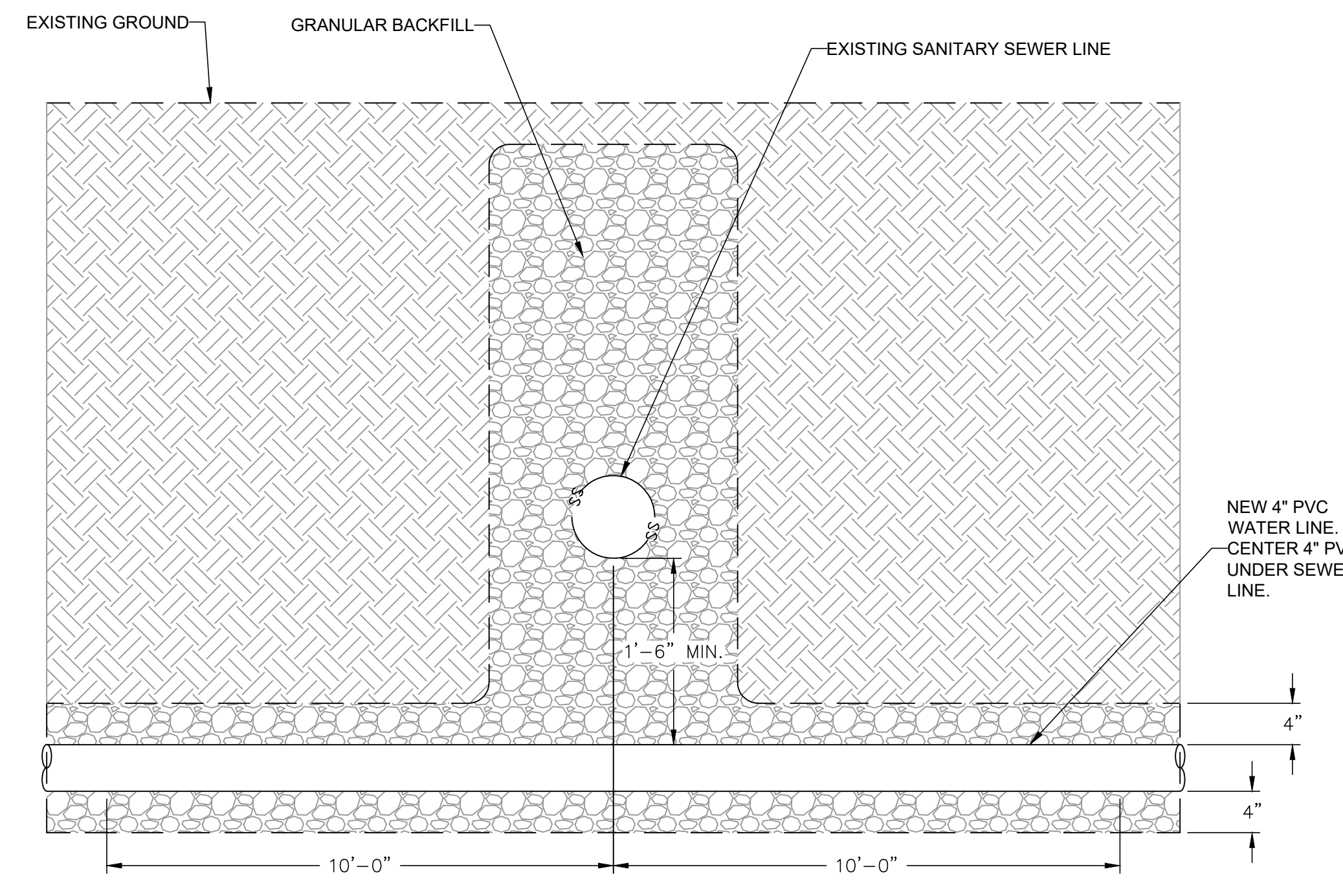
(A) EMBEDMENT OF PIPE - TYPICAL
Not To Scale



BLOCKING SCHEDULE

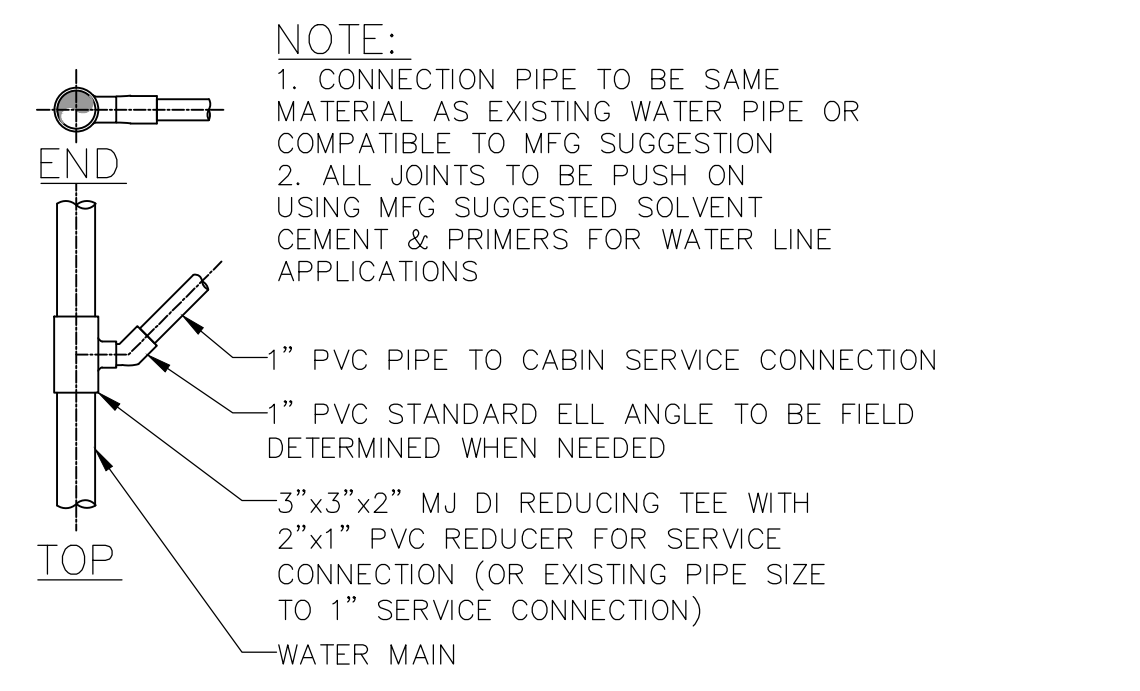
PIPE SIZE	B	C	D	E	F	G
1" THRU 1 1/2"	8"	10"	10"	5"	6"	6"
2"	10"	10"	14"	7"	10"	10"
2 1/2"	10"	10"	14"	7"	10"	10"
3"	12"	12"	18"	9"	12"	12"
4"	13"	12"	24"	12"	16"	16"

- NOTES:**
- USE TYPE 1 CONCRETE
 - CARRY ALL BEARING SURFACES TO UNDISTURBED GROUND OR FIRM SUBGRADE.
 - BUTTRESS SIZED FOR 160 PSI
 - DO NOT ENCASE JOINTS
 - ONLY MIX WITH POTABLE WATER

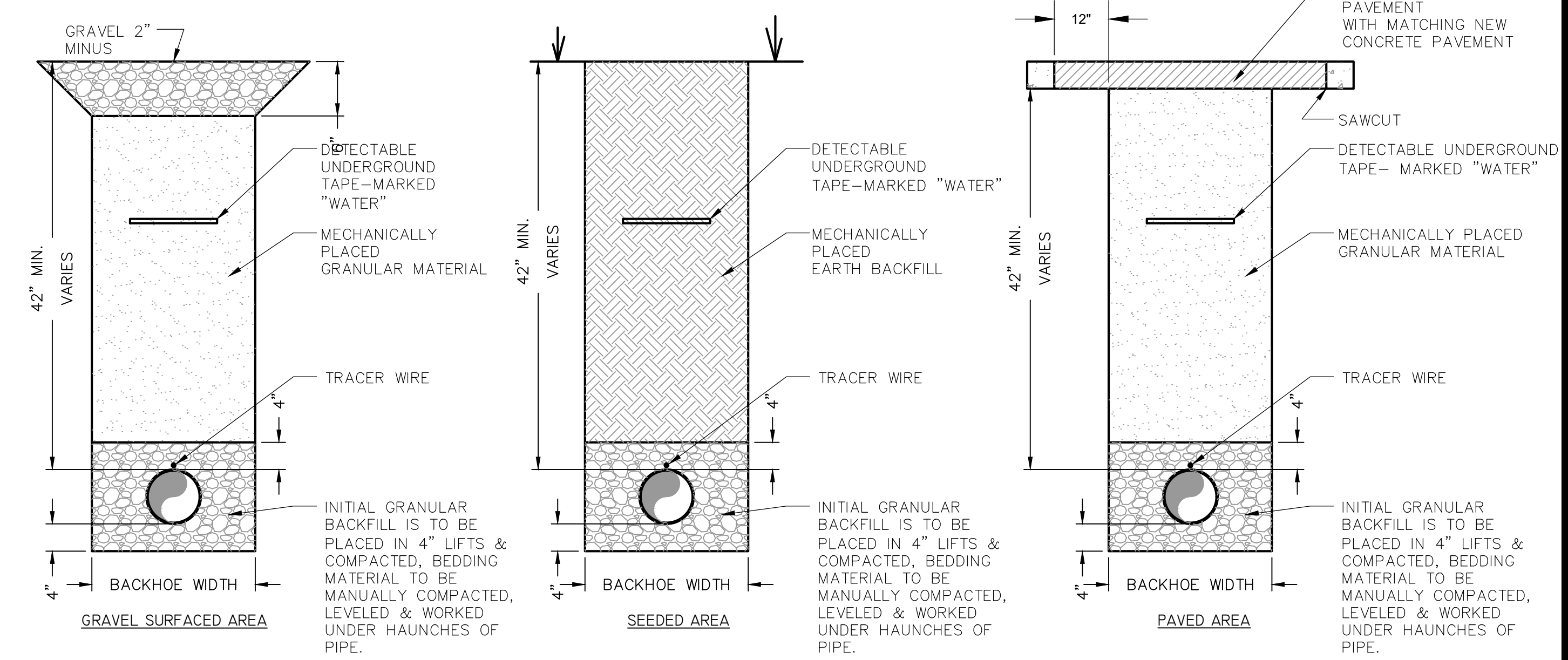


(D) WATER/SEWER CROSSING DETAIL
Not To Scale

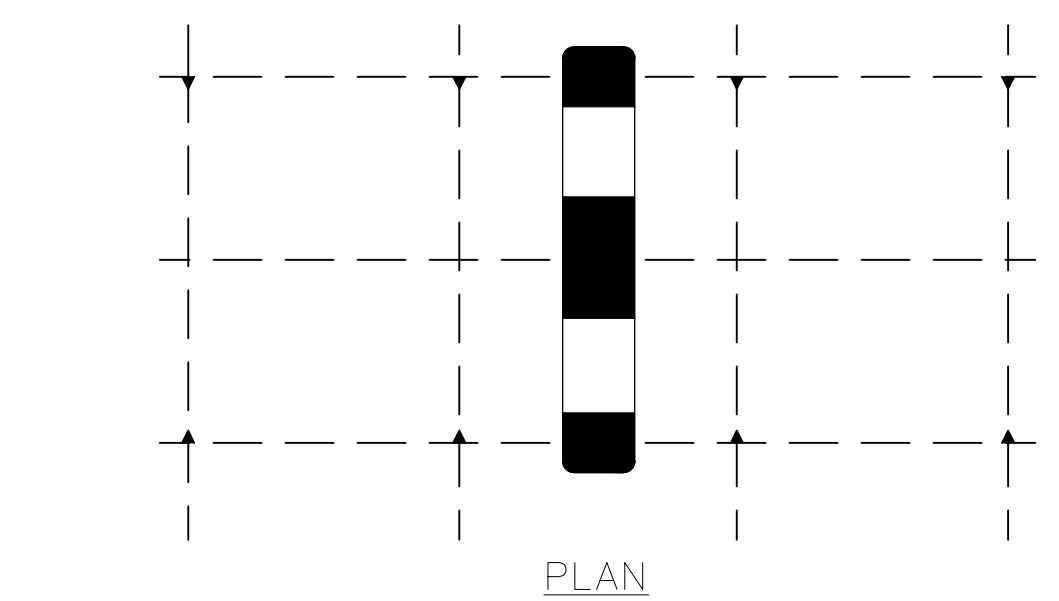
(B) CONCRETE THRUST BLOCKS
Not To Scale



(C) TYPICAL SERVICE CONNECTION
Not To Scale

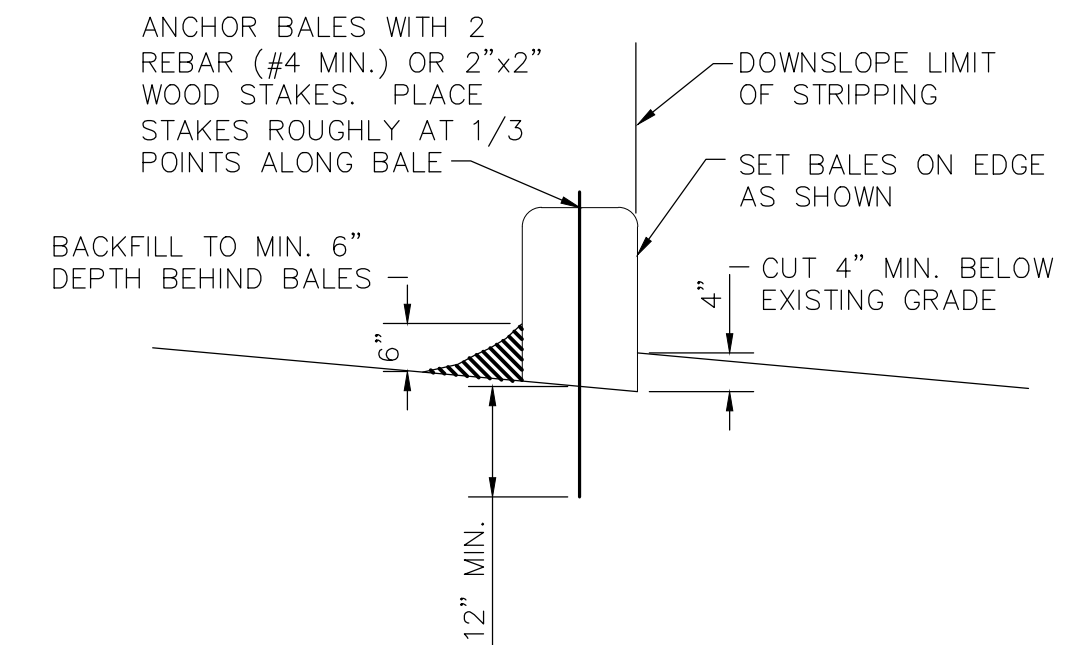


(E) TRENCHING DETAILS
Not To Scale



(F) SEDIMENT BARRIER DETAIL
Not To Scale

- SEDIMENT BARRIER NOTES:**
- PLACE SEDIMENT BARRIER AT DOWNSLOPE LIMIT OF AREA TO BE GRADED AS NECESSARY.
 - FASTEN SEDIMENT BARRIER AS RECOMMENDED BY MANUFACTURER.
 - INSPECTION SHALL BE FREQUENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
 - SEDIMENT BARRIER SHALL BE REMOVED WHEN IT HAS SERVED ITS USEFULNESS, SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
 - SEDIMENT TRAPPED BY THIS PRACTICE SHALL BE DISPOSED OF IN AN APPROVED SITE IN A MANNER THAT WILL NOT CONTRIBUTE TO ADDITIONAL SILTATION.
 - ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH RECOMMENDED BY MANUFACTURER AND DISPOSED OF IN AN APPROVED SPOIL SITE OR AS IN NO. 5 ABOVE.
 - AT EACH END OF SEDIMENT BARRIER, TURN UPSLOPE AND EXTEND UNTIL GROUND SURFACE RISES 18".
 - LIMITS OF EROSION AND SEDIMENT CONTROL STRUCTURES SHOWN ARE SCHEMATIC. ANY ADDITIONAL STRUCTURES NOT SHOWN ON THIS PLAN THAT ARE NECESSARY TO PREVENT SEDIMENT FROM LEAVING THE SITE ARE THE CONTRACTOR'S RESPONSIBILITY.
 - CONSTRUCT EROSION CONTROL IMPROVEMENTS PRIOR TO BEGINNING OF ANY OTHER WORK, UNLESS OTHERWISE NOTED.



(G) STRAW BALE DIKE
Not To Scale

- NOTES:**
- BALES SHALL BE PLACED IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT BALES.
 - BALE SHALL BE EMBEDDED IN THE SOIL A MINIMUM OF FOUR INCHES, WHERE POSSIBLE.
 - BALES SHALL BE SECURELY ANCHORED IN PLACE BY STAKES OR REBAR DRIVEN THROUGH THE BALES. THE FIRST STAKE IN EACH BALE SHALL BE ANGLED TOWARD PREVIOUSLY LAID BALE TO FORCE BALES TOGETHER.
 - INSPECTION SHALL BE FREQUENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED BY CONTRACTOR. INSPECT WITHIN 72 HOURS FOLLOWING RAINFALL.
 - BALES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
 - ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF 6 INCHES.
 - AT EACH END OF DIKE, TURN DIKE UPSLOPE AND EXTEND UNTIL GROUND SURFACE RISES 18".



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OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES
MANAGEMENT,
DESIGN AND CONSTRUCTION

DEPARTMENT OF NATURAL
RESOURCES

WATER & WASTEWATER
IMPROVEMENTS

MONTAUK
STATE PARK
345 COUNTY ROAD 6670
SALEM, MO 65560

PROJECT # X2304-03
SITE # 5307
ASSET # 7815307048

REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
REVISION: _____
DATE: _____
ISSUE DATE: 05.01.2024

CAD DWG FILE: C-501
DRAWN BY: TMH
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SHEET TITLE:

WATERLINE
DETAILS

SHEET NUMBER:

C-501

11 OF 13 SHEETS
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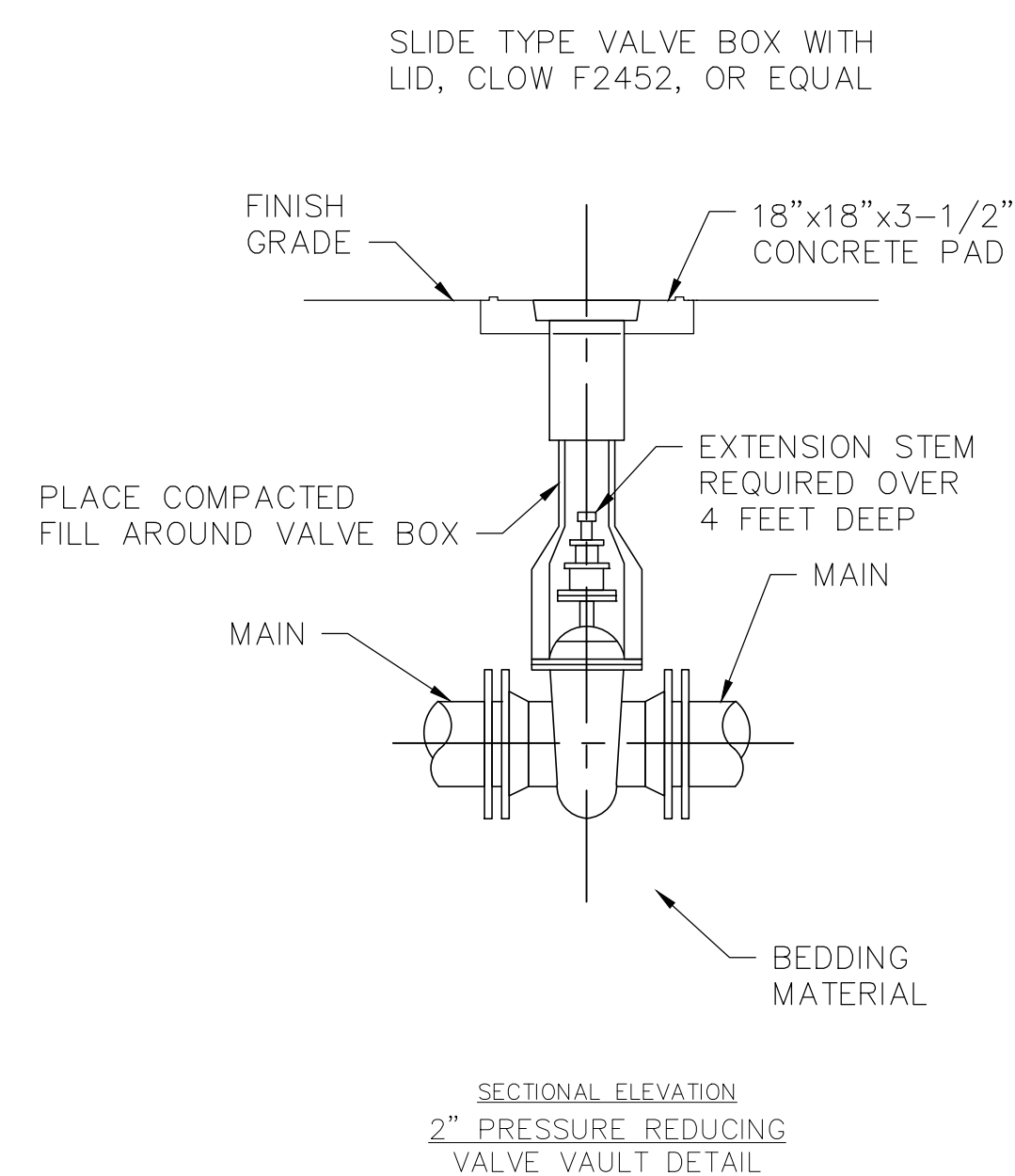
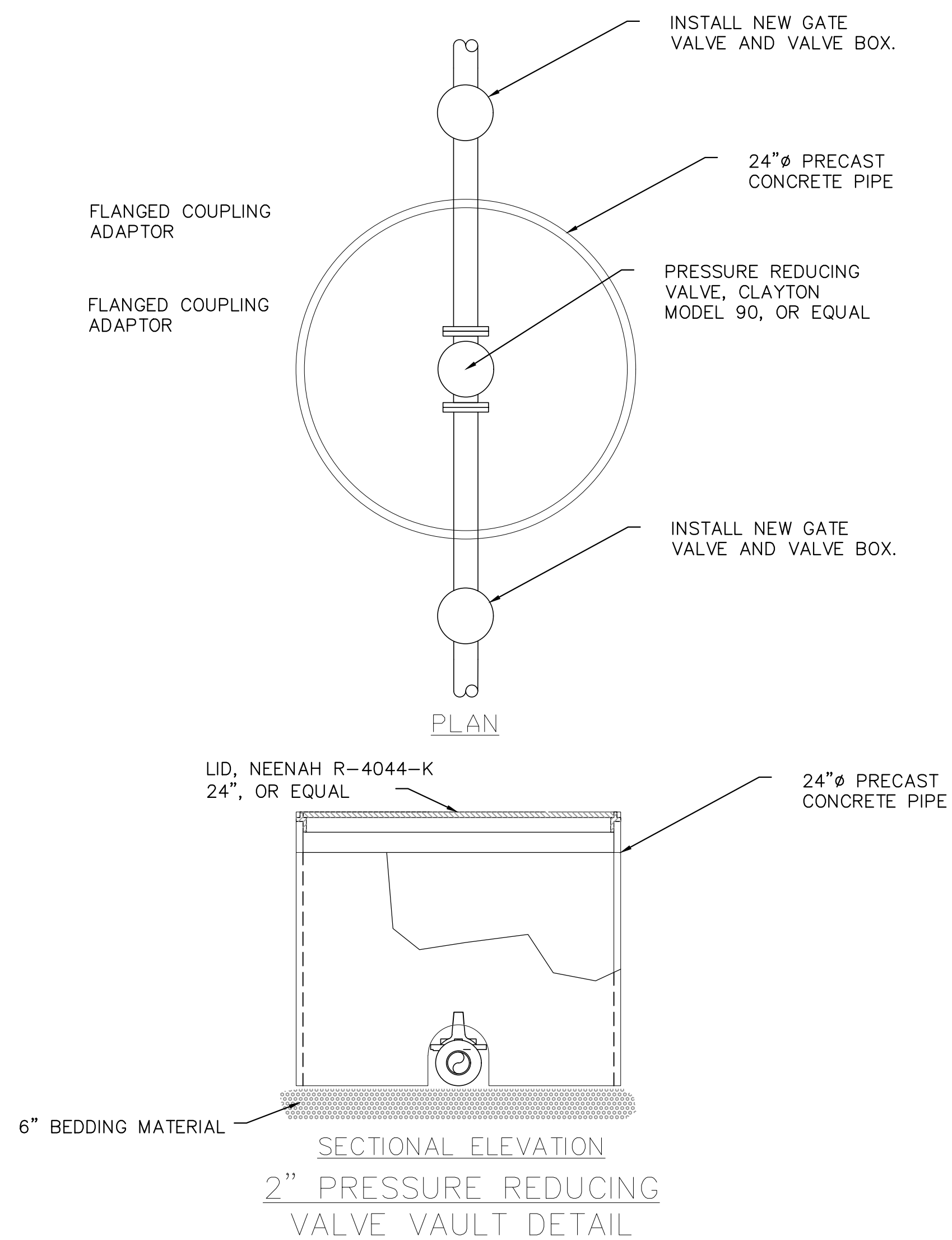
SHEET TITLE:

WATERLINE
DETAILS

SHEET NUMBER:

C-502

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05.01.2024





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CAD DWG FILE: C-503
DRAWN BY: TMH
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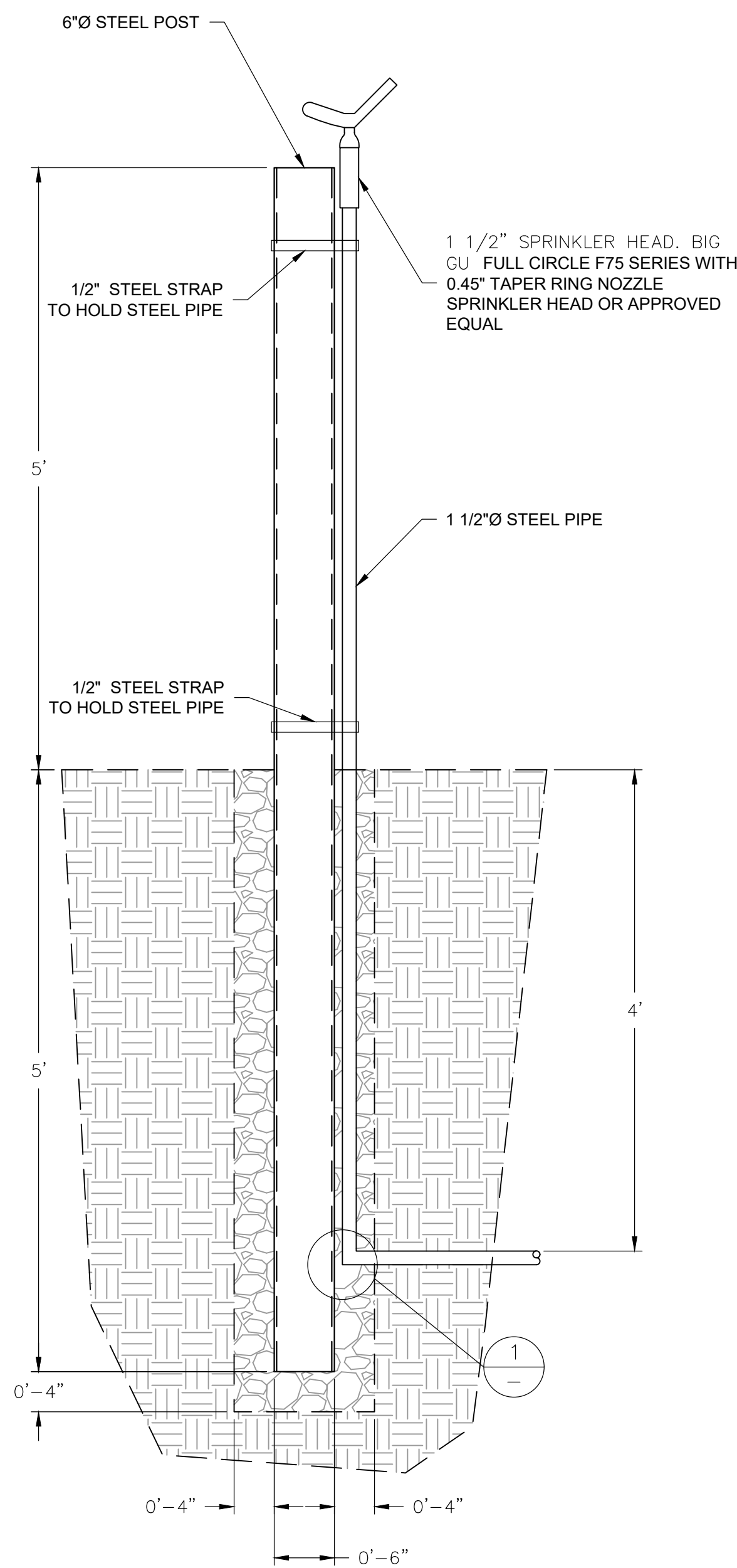
SHEET TITLE:

SEWER LINE
DETAILS

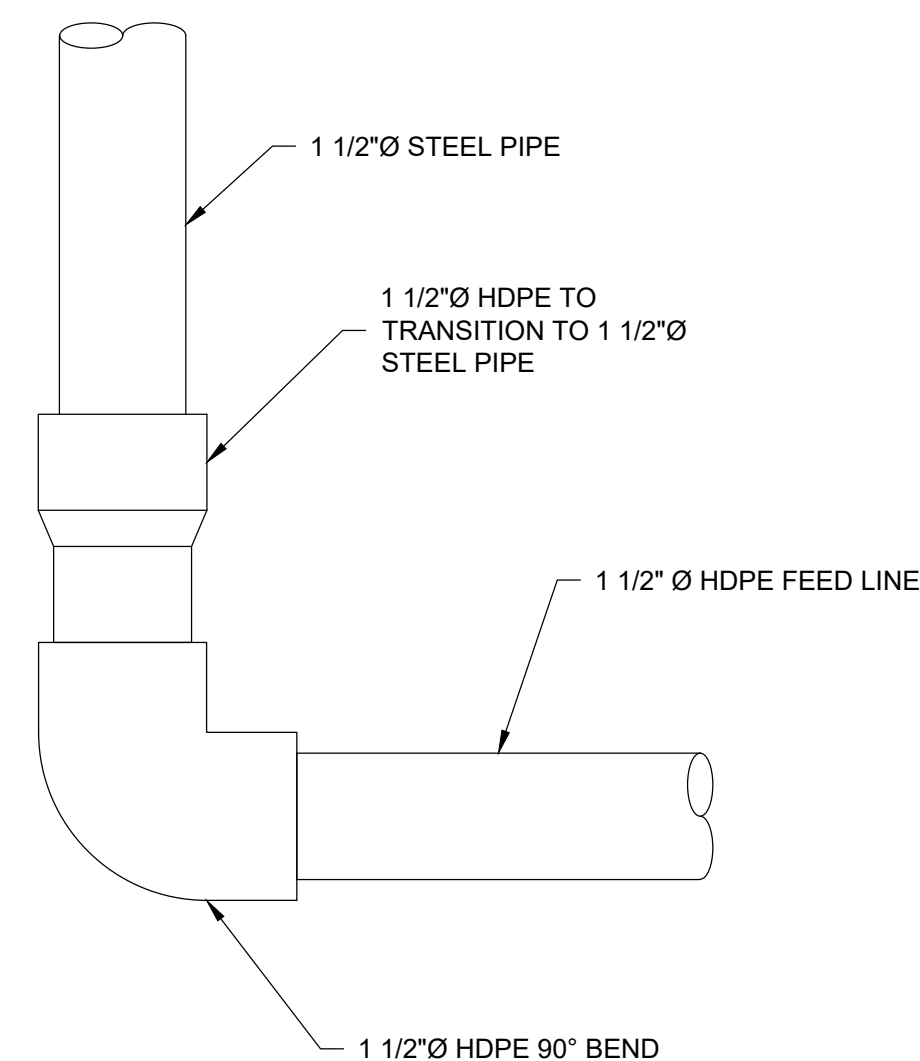
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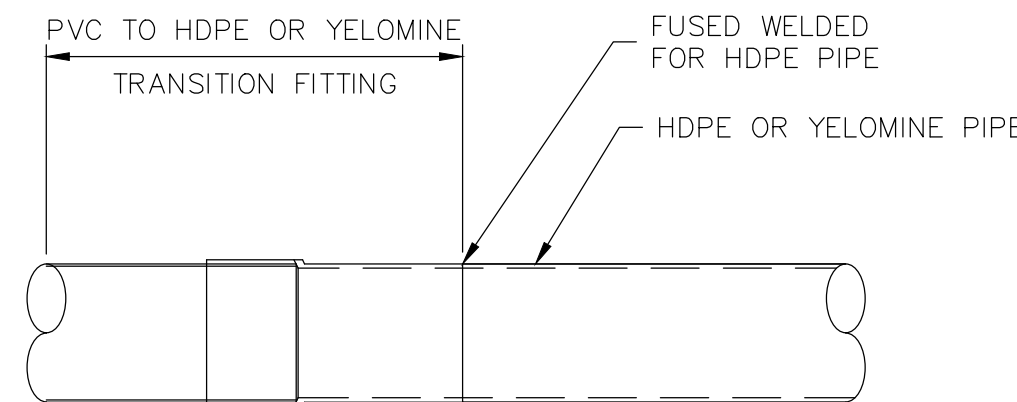
13 OF 13 SHEETS
05.01.2024



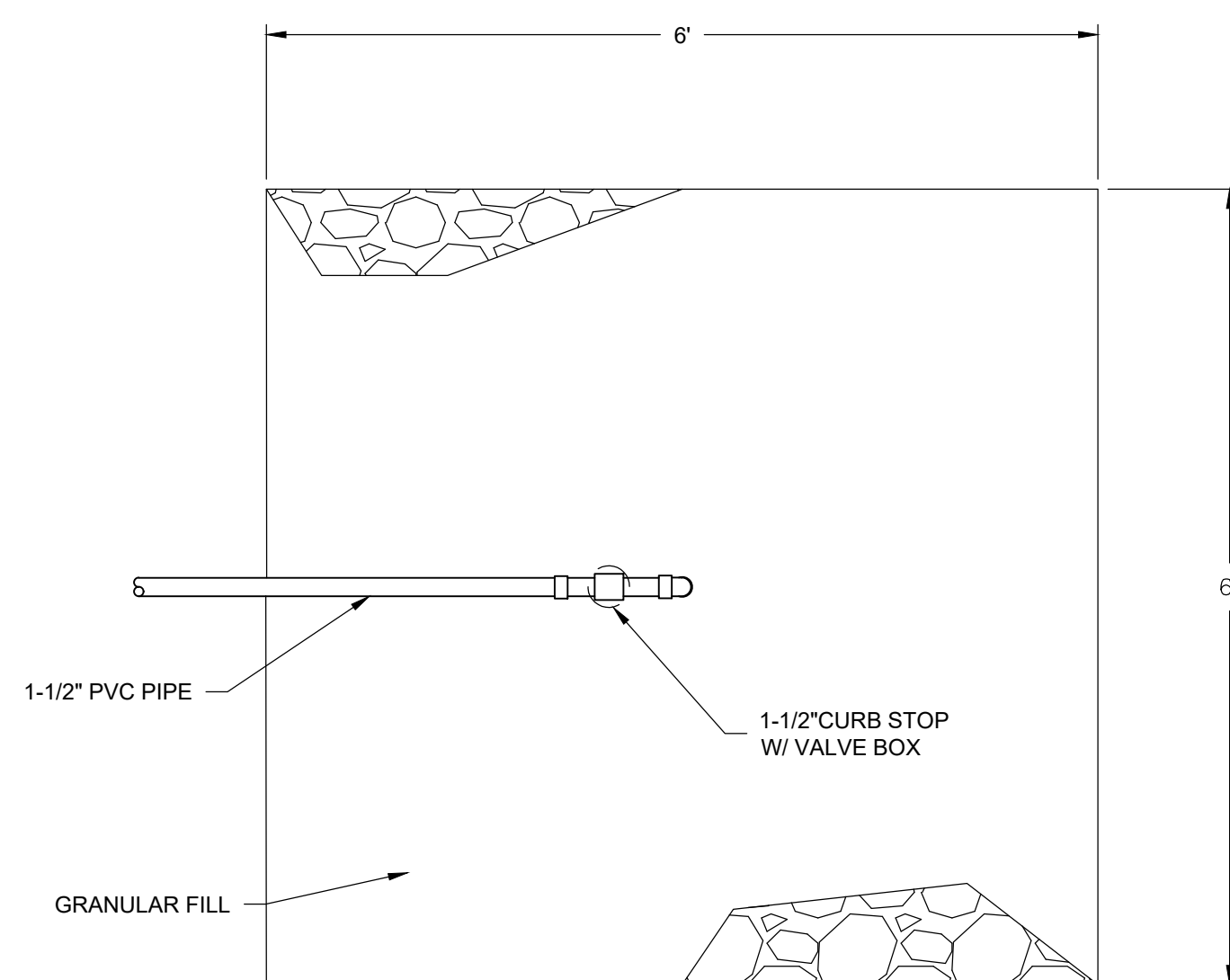
1 SPRINKLER DETAIL
Scale: 1" = 1'-0"



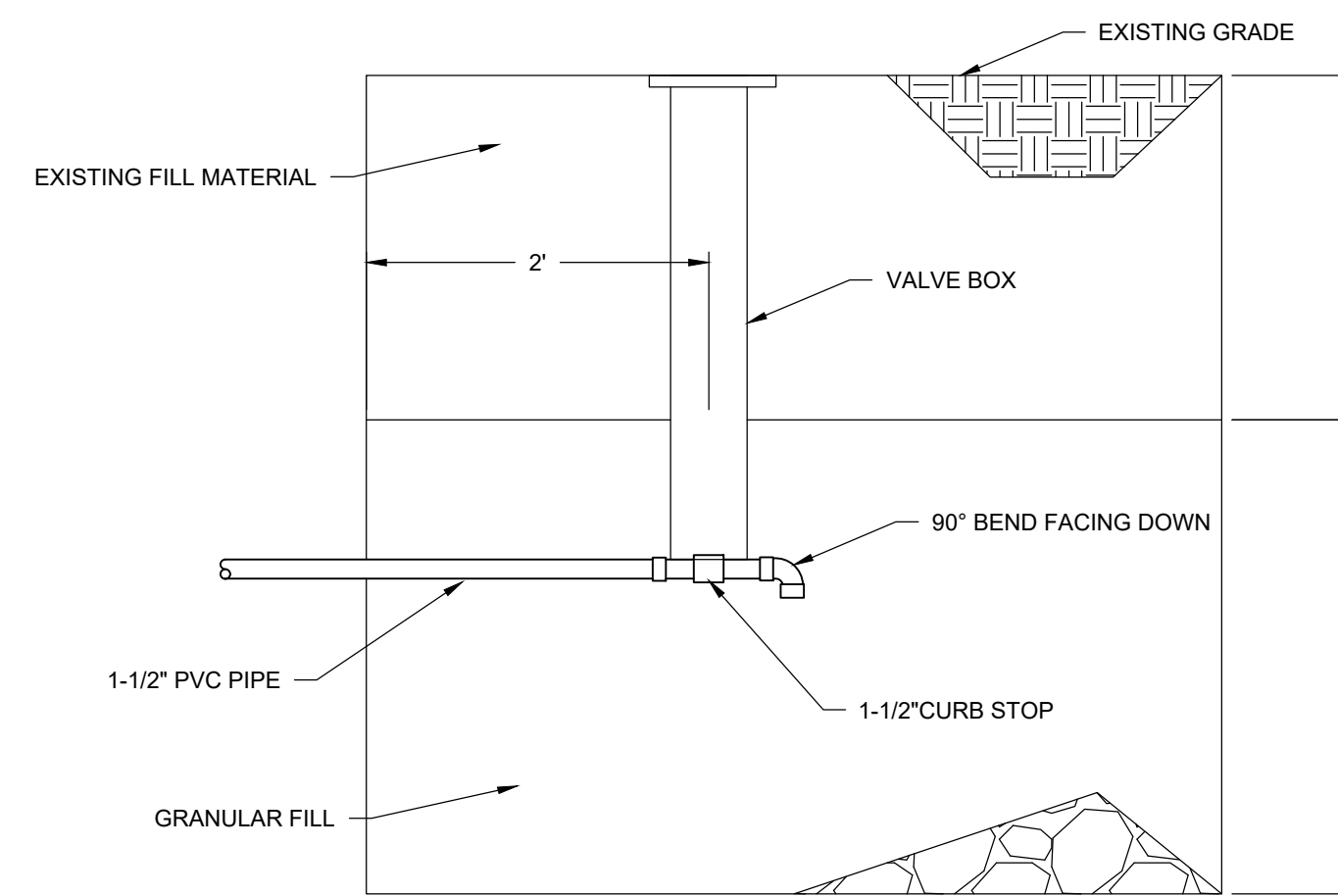
2 HDPE TO STEEL DETAIL
Scale: NTS



3 HDPE TO PVC TRANSITION FITTING
Scale: 1" = 1'-0"



4 DRAIN PLAN
NTS



5 DRAIN SECTION
NTS