

# STATE OF OHIO DEPARTMENT OF TRANSPORTATION

## FAY-435-1.52 WATER/SEWER RELOCATIONS (BU-2)

### VILLAGE OF OCTA JEFFERSON TOWNSHIP JASPER TOWNSHIP FAYETTE COUNTY

FEDERAL PROJECT NUMBER  
NONE

RAILROAD INVOLVEMENT  
NONE

PROJECT DESCRIPTION  
THE PROJECT WILL MAKE IMPROVEMENTS TO SR-435, I-71 INTERCHANGE RAMPS AT SR-435, AND THE US-35 EXIT RAMP AT SR-435 IN FAYETTE COUNTY WITH PAVEMENT WIDENING, RESURFACING, AND OTHER WORK AS REQUIRED.

AS A RESULT OF THE ROAD IMPROVEMENTS, RELOCATE THE 6" AND 12" SANITARY FORCEMAINS AS WELL AS 12" WATER LINE ALONG SR-435

EARTH DISTURBED AREAS

PROJECT EARTH DISTURBED AREA: \_\_\_\_\_ ACRES  
ESTIMATED CONTRACTOR EARTH DISTURBED AREA: \_\_\_\_\_ ACRES  
NOTICE OF INTENT EARTH DISTURBED AREA: \_\_\_\_\_ ACRES

LIMITED ACCESS

THIS IMPROVEMENT IS ESPECIALLY DESIGNED FOR THROUGH TRAFFIC AND HAS BEEN DECLARED A LIMITED ACCESS HIGHWAY OR FREEWAY BY ACTION OF THE DIRECTOR IN ACCORDANCE WITH THE PROVISIONS OF SECTION 5511.02 OF THE OHIO REVISED CODE.

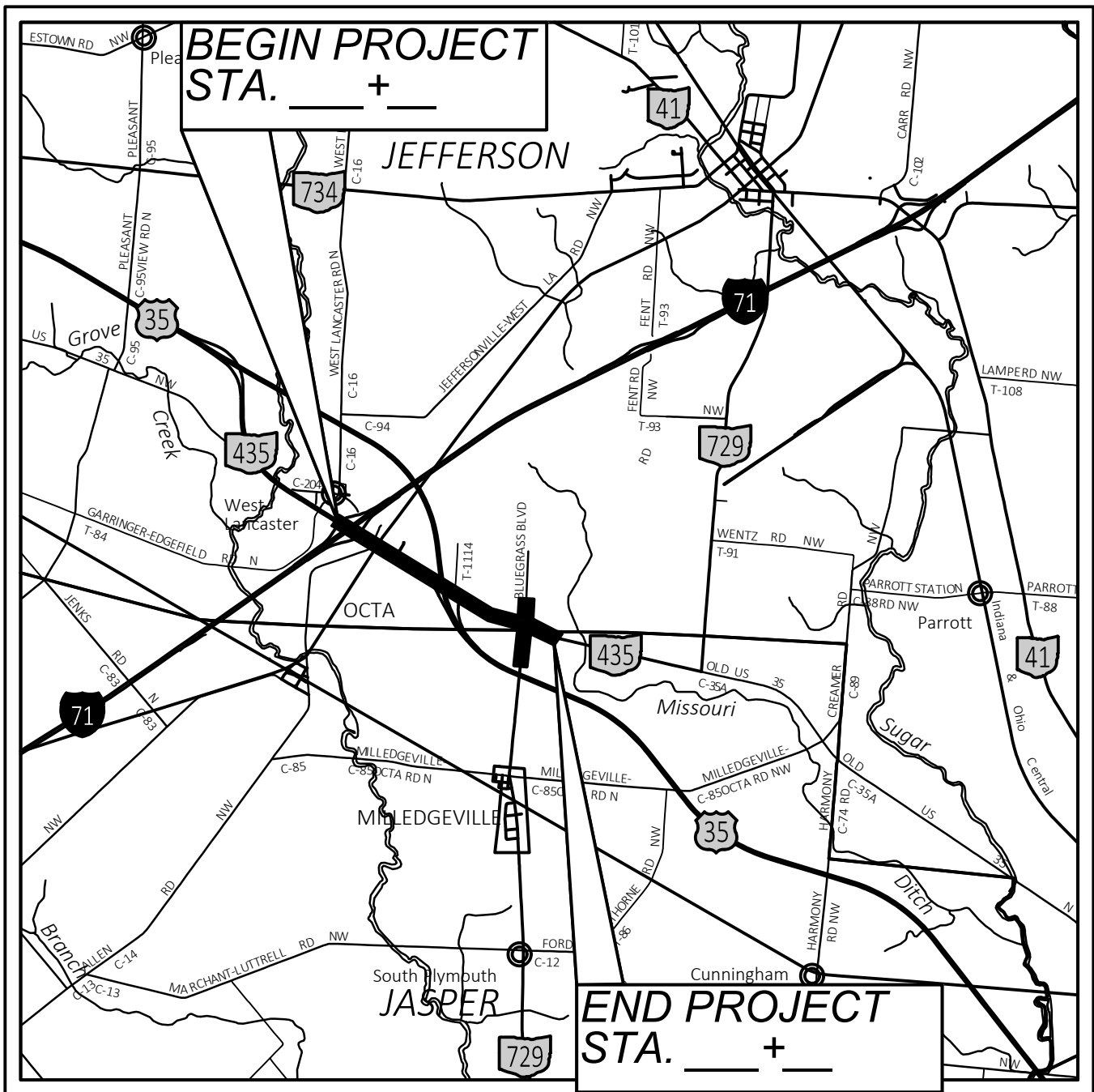
2023 SPECIFICATIONS

THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PLANS AND CHANGES LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.

*Anthony C. Turowski*  
Anthony C. Turowski, P.E.  
District 06 Deputy Director

*Jack Marchbanks*  
Jack Marchbanks, PhD  
Director, Department of Transportation

\_\_\_\_\_   
Fayette County Engineer



LOCATION MAP  
LATITUDE: 39°36'52" N LONGITUDE: 83°35'50" W

PORTION TO BE IMPROVED \_\_\_\_\_  
INTERSTATE HIGHWAY \_\_\_\_\_  
FEDERAL ROUTES \_\_\_\_\_  
STATE ROUTES \_\_\_\_\_  
COUNTY & TOWNSHIP ROADS \_\_\_\_\_  
OTHER ROADS \_\_\_\_\_

**DESIGN DESIGNATION**

FOR DESIGN DESIGNATIONS, REFER TO SHEET P.02

**DESIGN EXCEPTIONS**

DESIGN FEATURE	APPROVAL DATE	SHEET NUMBERS
DESIGN LOADING STRUCTURAL CAPACITY	01/05/2023	—
STOPPING SIGHT DISTANCE	___/___/2023	—

**ADA DESIGN WAIVERS**

NONE REQUIRED

UNDERGROUND UTILITIES  
Contact Two Working Days  
Before You Dig

OHIO811, 8-1-1, or 1-800-362-2764  
(Non members must be called directly)

REVIEW COMPLETE
PM
OVERALL
ENVIRO
REAL ESTATE Dale Mead 01/08/2024
UTILITIES
STRUCTURES
GEOTECH
HYDRAULICS
MOT
PAVEMENT
GEOMETRICS
TRAFFIC
ITS
RAILROAD
CONST.
OTHER Andrew Holloway 12/26/2023 11:10:11 AM

**INDEX OF SHEETS:**

TITLE SHEET	P.01			
OVERALL SHEET	P.02			
SANITARY SEWER PLAN AND PROFILE	P.03 - P.07			
WATER LINE PLAN AND PROFILE	P.08 - P.12			
SANITARY NOTES AND DETAILS SHEET	P.13			
WATER NOTES AND DETAILS SHEET	P.14			
WATER DETAILS SHEET	P.15			

STANDARD CONSTRUCTION DRAWINGS				SUPPLEMENTAL SPECIFICATIONS	SPECIAL PROVISIONS

**BU-2  
PRELIMINARY  
REVIEW  
12/22/2023**

BU-2 - WATER SEWER RELOCATIONS		
NO.	DATE	DESCRIPTION

TITLE SHEET

FAY-435-1.52

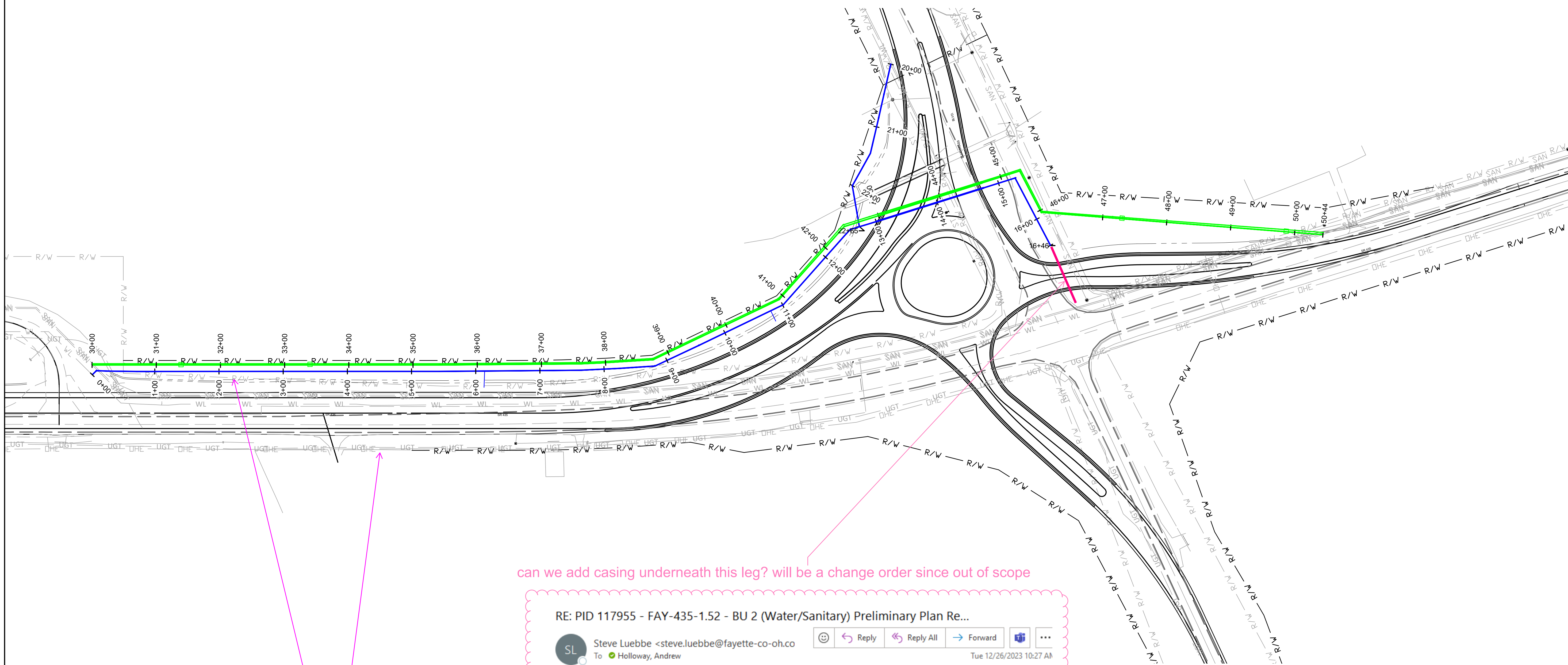
DESIGN AGENCY  
 PALMER ENGINEERING  
8350 EAST KEMPER ROAD, SUITE B  
CINCINNATI, OH 45249  
(513) 469-1600

DESIGNER  
EMR

REVIEWER  
SIB 12/22/23

PROJECT ID  
117955

SHEET	TOTAL
01	15



OVERALL SHEET  
UTILITY SHEETS

can we add casing underneath this leg? will be a change order since out of scope

RE: PID 117955 - FAY-435-1.52 - BU 2 (Water/Sanitary) Preliminary Plan Re...

SL Steve Luebbe <steve.luebbe@fayette-co-oh.com>  
To: Holloway, Andrew  
Tue 12/26/2023 10:27 AM

You replied to this message on 12/26/2023 11:06 AM.

Thank you!

We'll get you some comments on the Palmer submittal.

Also...  
There is no reason to think that the southeast corner of this intersection won't develop. **With that in mind it seems prudent to run that waterline across the east let of the roundabout? You guy think you can squeeze that in? At least the casing maybe so we don't have to jack and bore later?**

**LEGEND**

	PROPOSED 12" SANITARY FORCE MAIN
	PROPOSED 6" SANITARY FORCE MAIN
	PROPOSED 12" WATER LINE
	R/W PROPOSED RIGHT OF WAY
	PROPOSED DITCH
	SAN EXISTING SANITARY FORCE MAIN
	WL EXISTING WATER LINE
	> EXISTING DITCH
	ST EXISTING STORM SEWER
	OHT EXISTING TELECOM
	OHE EXISTING OVERHEAD ELECTRIC
	PROPOSED EDGE OF PAVEMENT
	R/W EXISTING RIGHT OF WAY
	PROPOSED FIRE HYDRANT

The existing RW Should be labeled as EX R/W.  
This comment applies to all applicable plan sheets

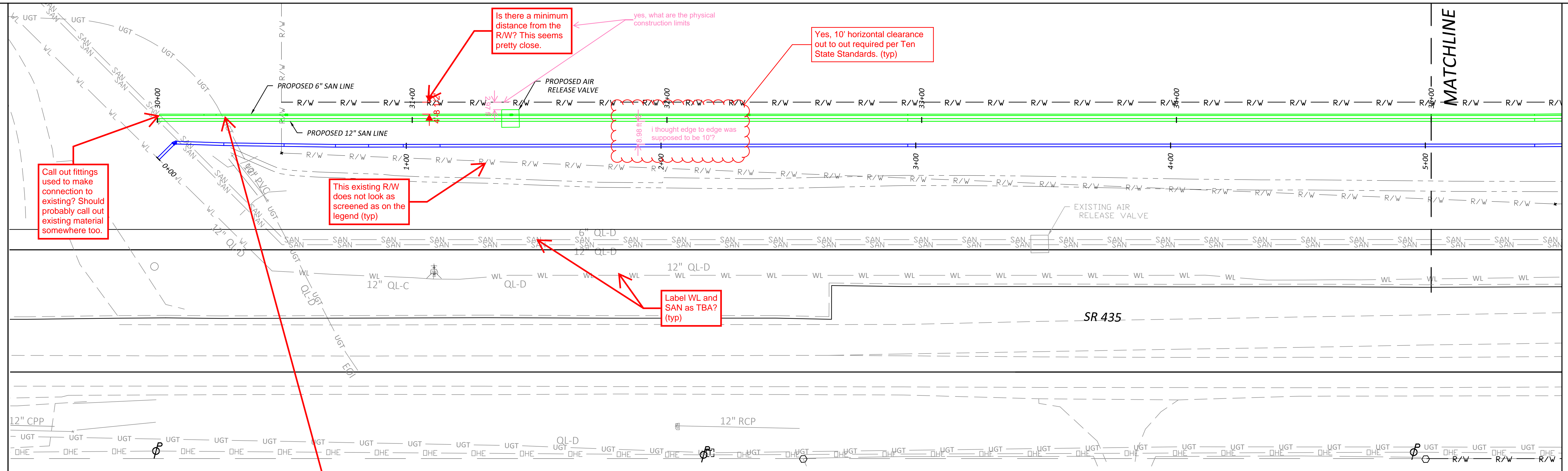
Right of Way Fee (Ex) ———— Ex R/W ————

Know what's below.  
Call before you dig.

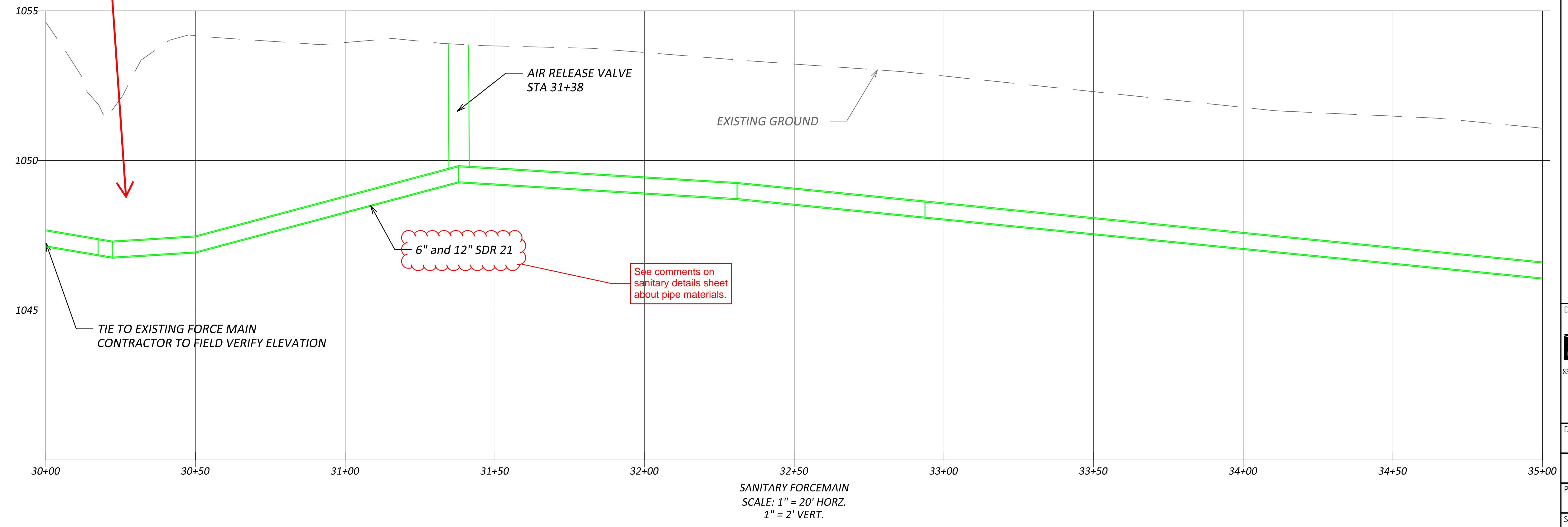
1"=80'-0"

DESIGN AGENCY	Palmer ENGINEERING
DESIGNER	EMR
REVIEWER	SIB
PROJECT ID	117955
SHEET	02
TOTAL	15

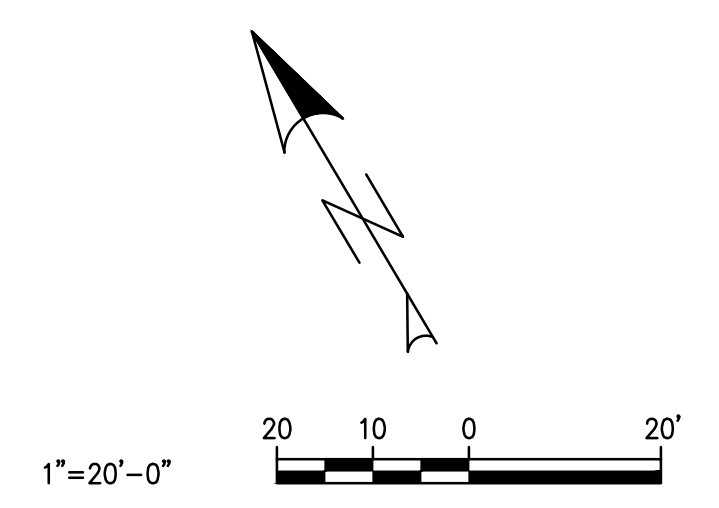
SANITARY SEWER PLAN AND PROFILE  
UTILITY SHEETS



LEGEND	
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	OHT EXISTING TELECOM
	OHE EXISTING OVERHEAD ELECTRIC
	PROPOSED EDGE OF PAVEMENT
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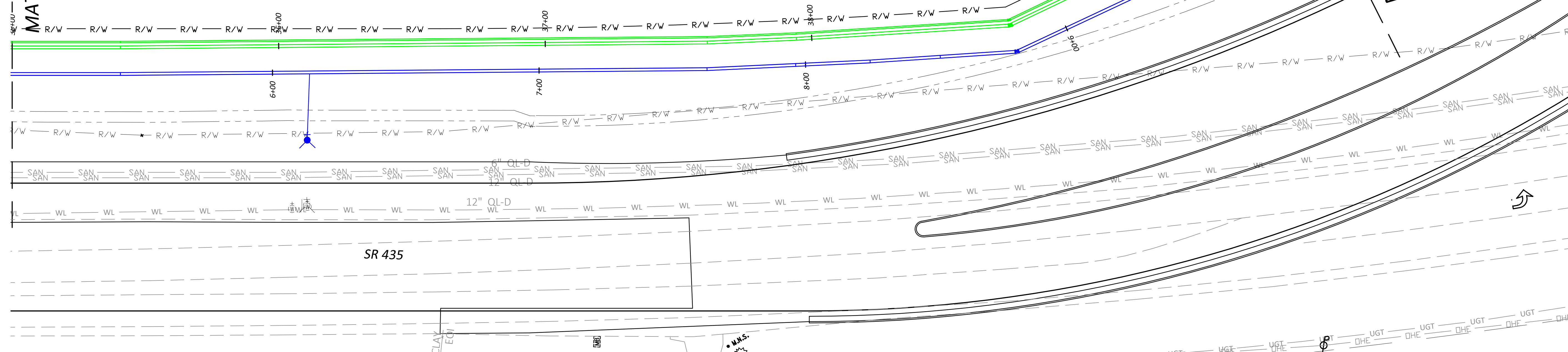
FAY-435-1.52



DESIGN AGENCY	<b>Palmer</b> ENGINEERING 8350 EAST KEMPER ROAD SUITE B CINCINNATI, OH 45249 (513) 469-1600
DESIGNER	EMR
REVIEWER	SIB 12/22/23
PROJECT ID	117955
SHEET	TOTAL
03	15

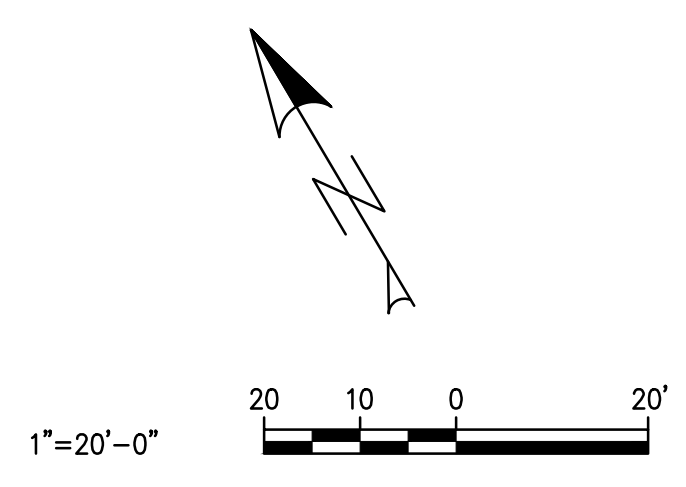
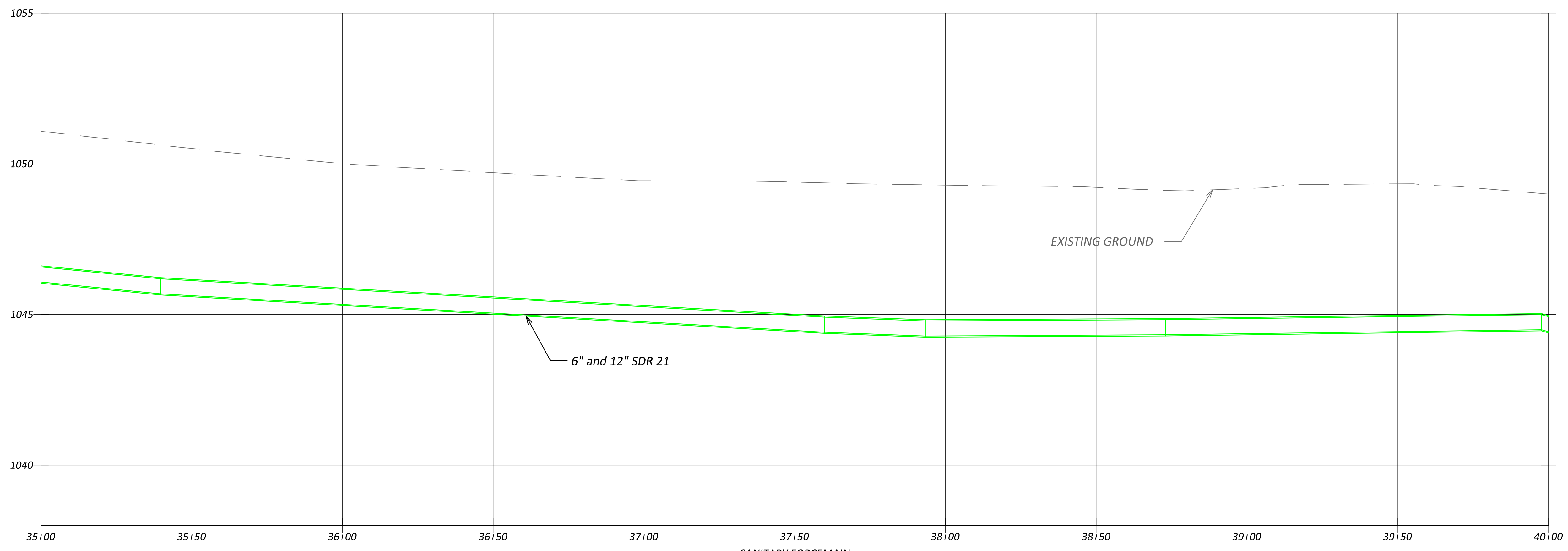
MATCHLINE

MATCHLINE



**LEGEND**

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	PROPOSED FIRE HYDRANT



Know what's below.  
Call before you dig.

SANITARY FORCEMAIN  
SCALE: 1" = 20' HORZ.  
1" = 2' VERT.

SANITARY SEWER PLAN AND PROFILE  
UTILITY SHEETS

DESIGN AGENCY

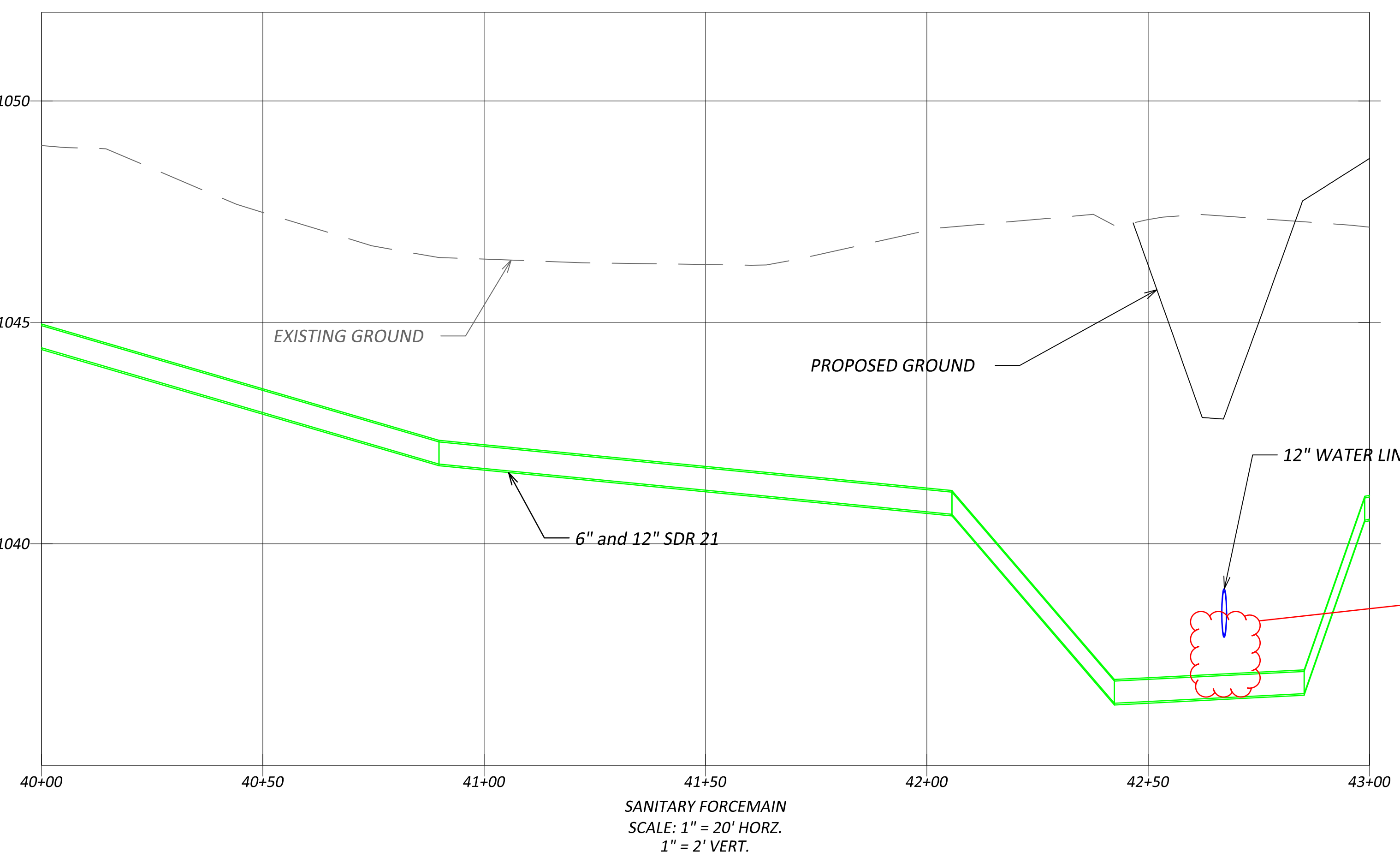
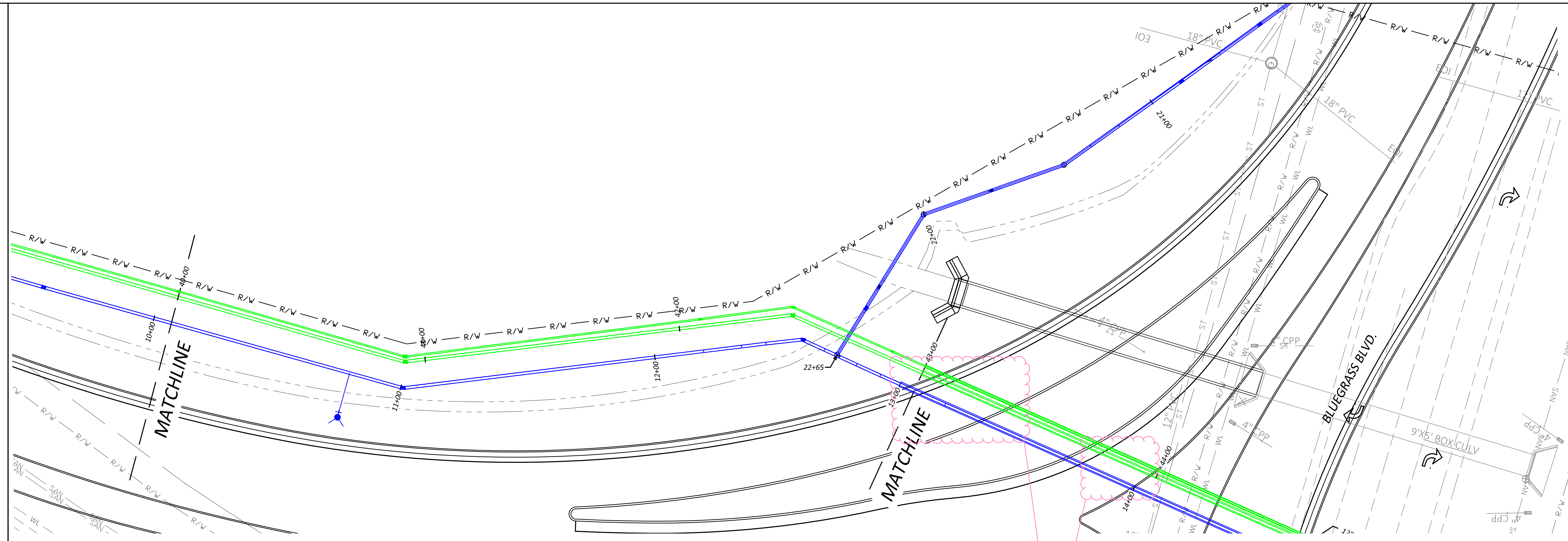


DESIGNER  
EMR

REVIEWER  
SIB 12/22/23

PROJECT ID  
117955

SHEET	TOTAL
04	15



need to cross perpendicular instead of skewed (DBSOS 10.3.1 "shall be designed to minimize the length of the facility under each respective roadway (perpendicular crossings)").

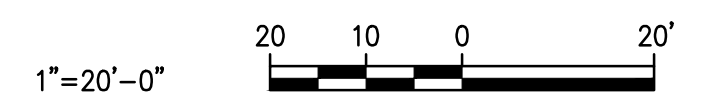
Label 18" minimum vertical clearance.

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	EXISTING OVERHEAD ELECTRIC
	PROPOSED EDGE OF PAVEMENT
	EXISTING RIGHT OF WAY
	PROPOSED FIRE HYDRANT



Know what's below.  
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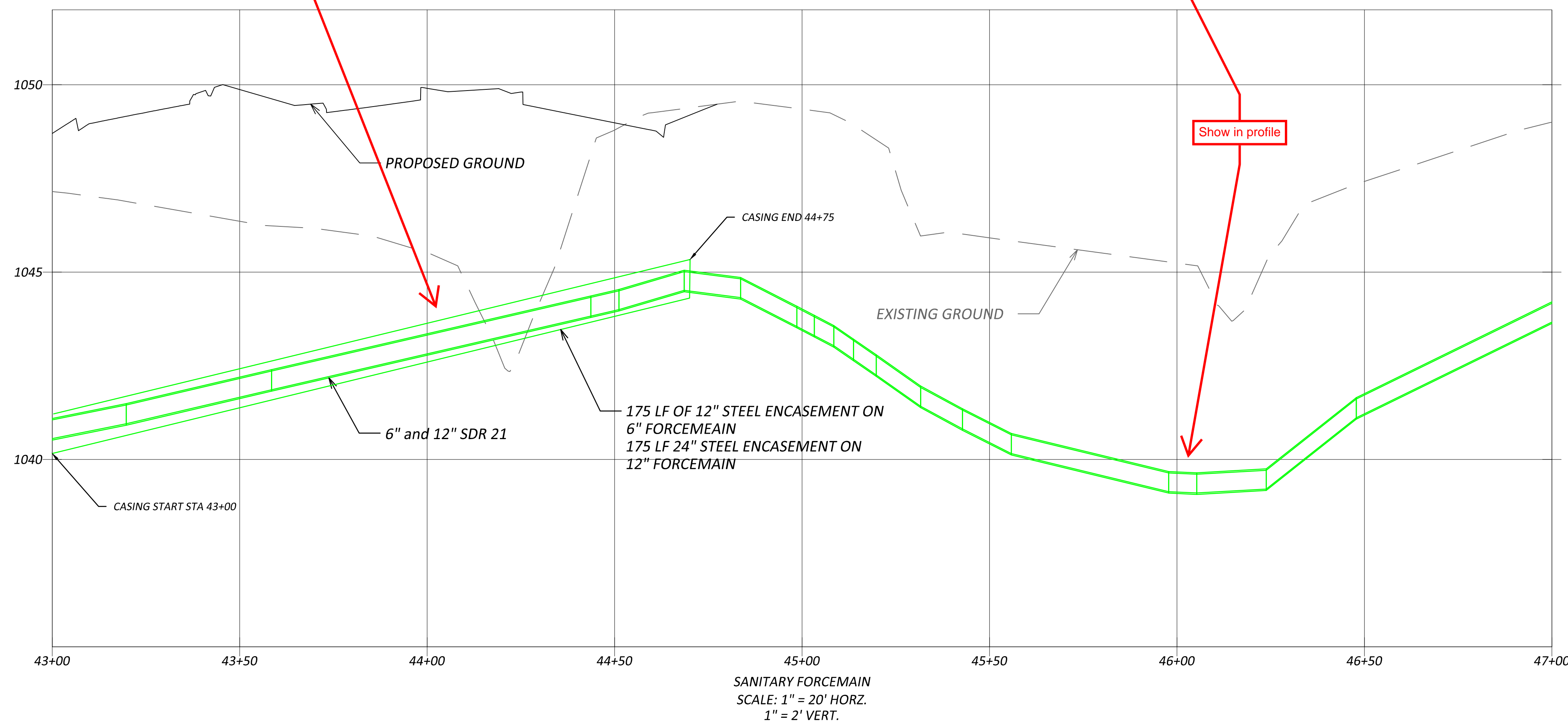
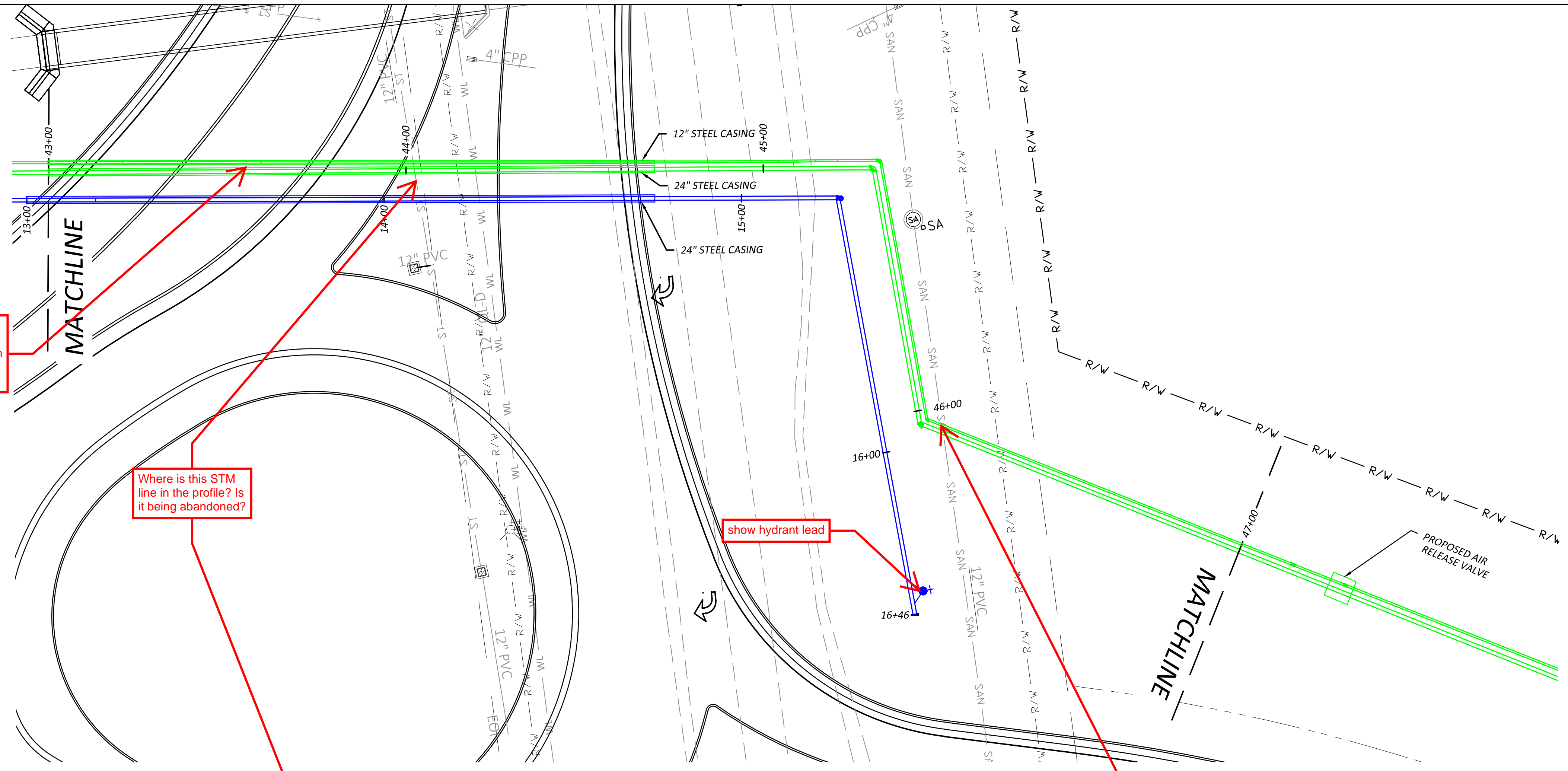


Has any thought been put into using one casing pipe with both carrier pipes here?

Where is this STM line in the profile? Is it being abandoned?

show hydrant lead

Show in profile

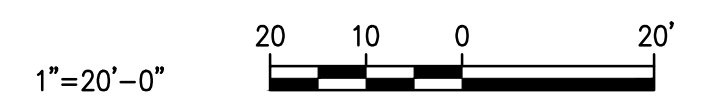


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DESIGN AGENCY

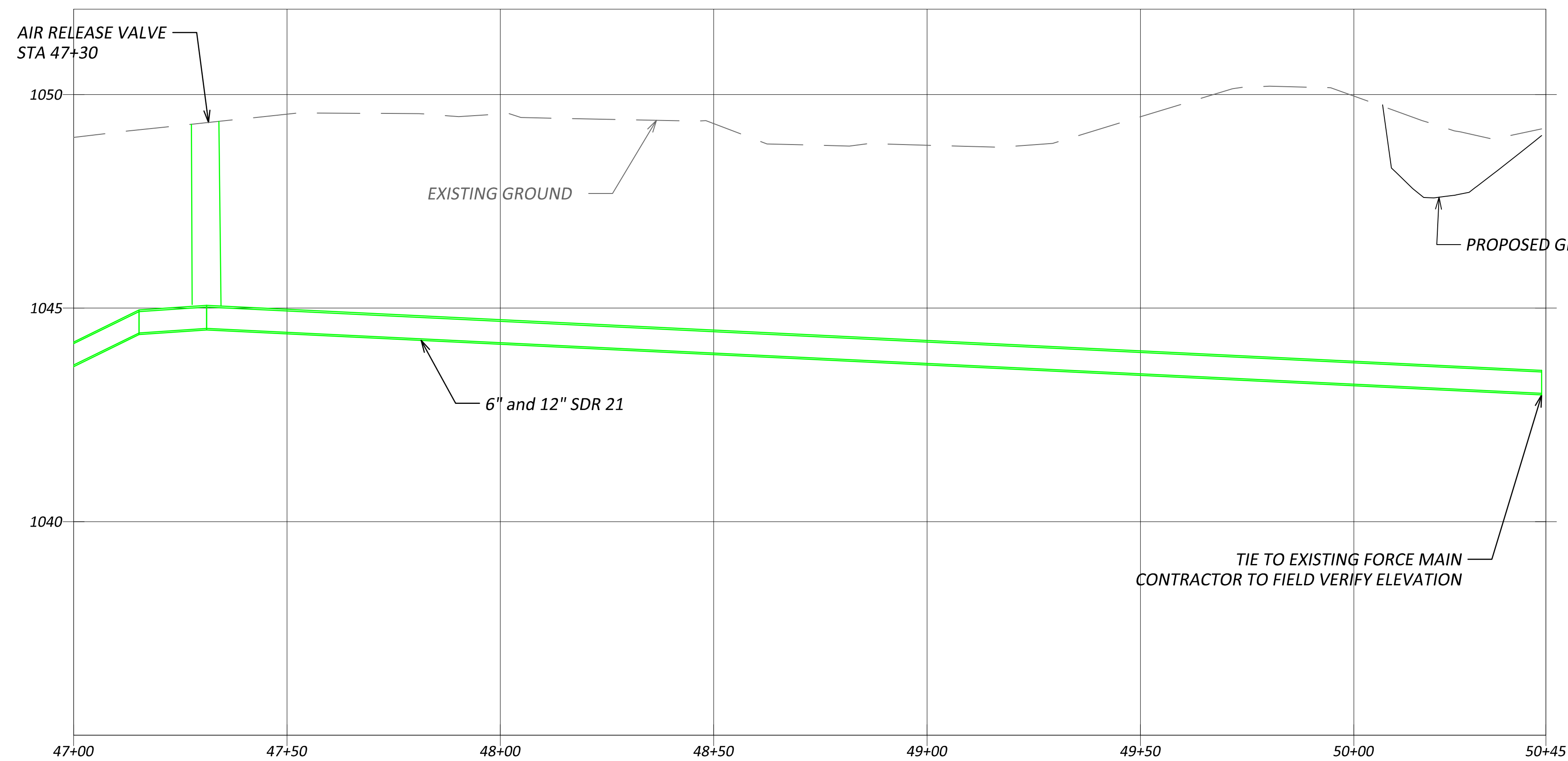
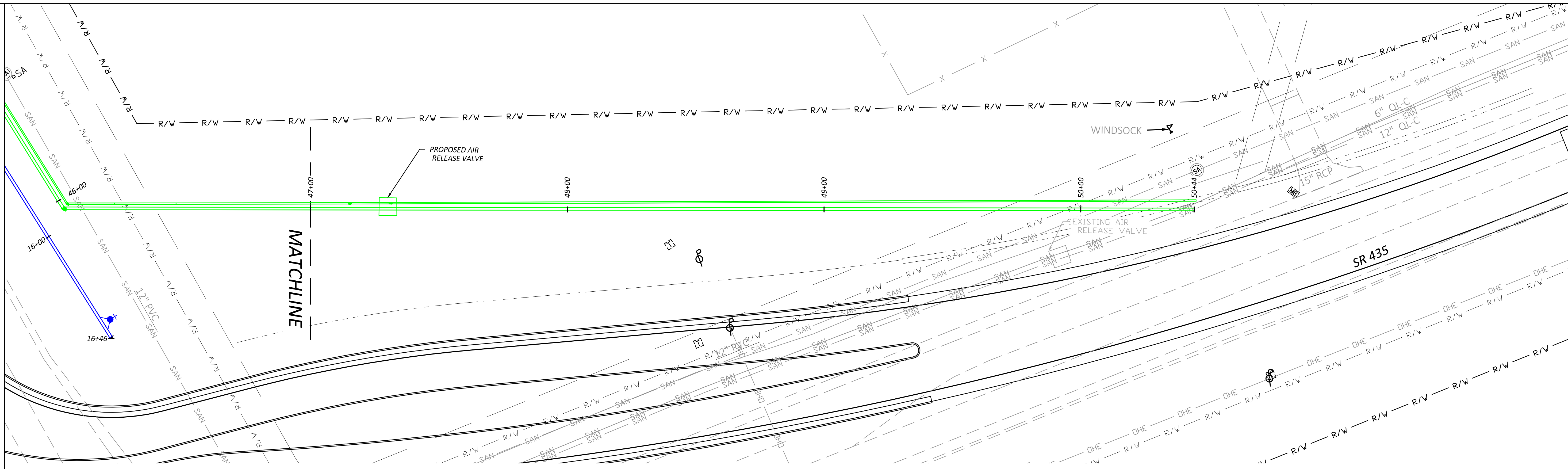


DESIGNER  
EMR

REVIEWER  
SIB 12/22/23

PROJECT ID  
117955

SHEET TOTAL  
06 15



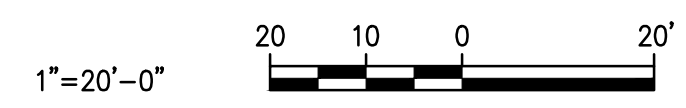
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SANITARY FORCEMAIN  
SCALE: 1" = 20' HORIZ.  
1" = 2' VERT.



Know what's below.  
Call before you dig.



SANITARY SEWER PLAN AND PROFILE  
UTILITY SHEETS

DESIGN AGENCY

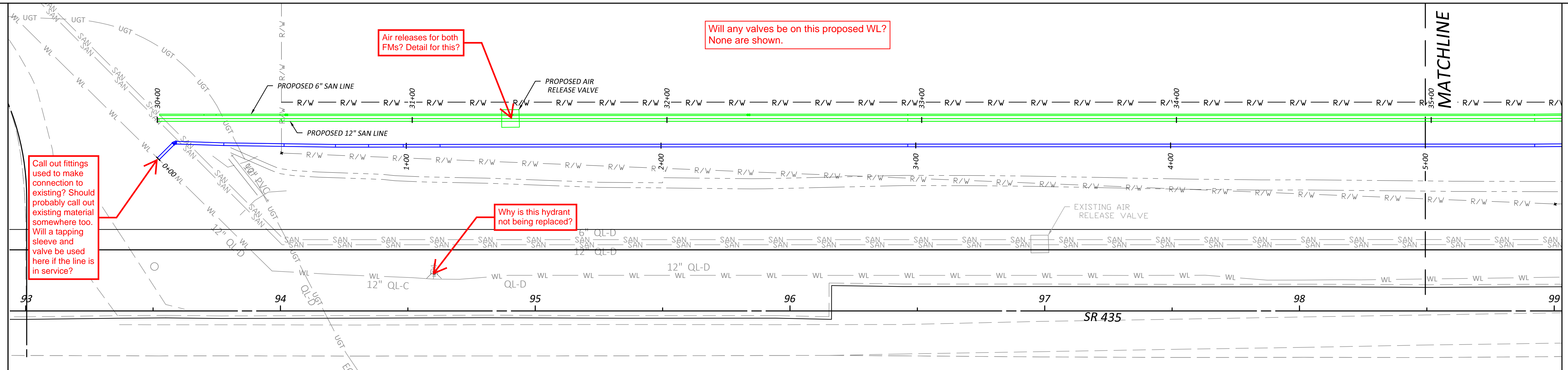
**Palmer**  
ENGINEERING  
8350 EAST KEMPER ROAD  
SUITE B  
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(513) 469-1600

DESIGNER  
**EMR**

REVIEWER  
**SIB 12/22/23**

PROJECT ID  
**117955**

SHEET TOTAL  
**07 15**

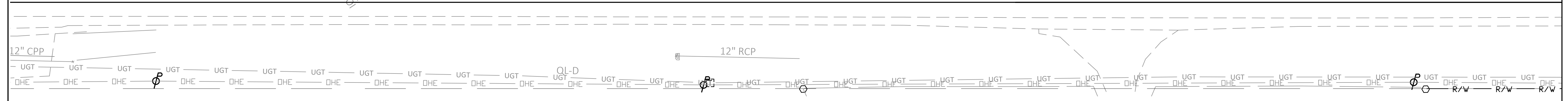


Call out fittings used to make connection to existing? Should probably call out existing material somewhere too. Will a tapping sleeve and valve be used here if the line is in service?

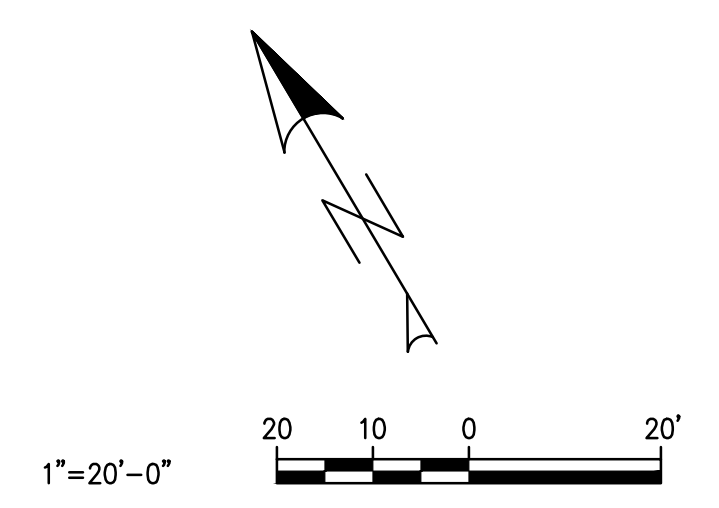
Air releases for both FMs? Detail for this?

Will any valves be on this proposed WL? None are shown.

Why is this hydrant not being replaced?



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	EXISTING RIGHT OF WAY
	PROPOSED FIRE HYDRANT



Know what's below.  
Call before you dig.

FAY-435-1.52

DESIGN AGENCY

**Palmer**  
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SUITE B  
CINCINNATI, OH 45249  
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DESIGNER  
**EMR**

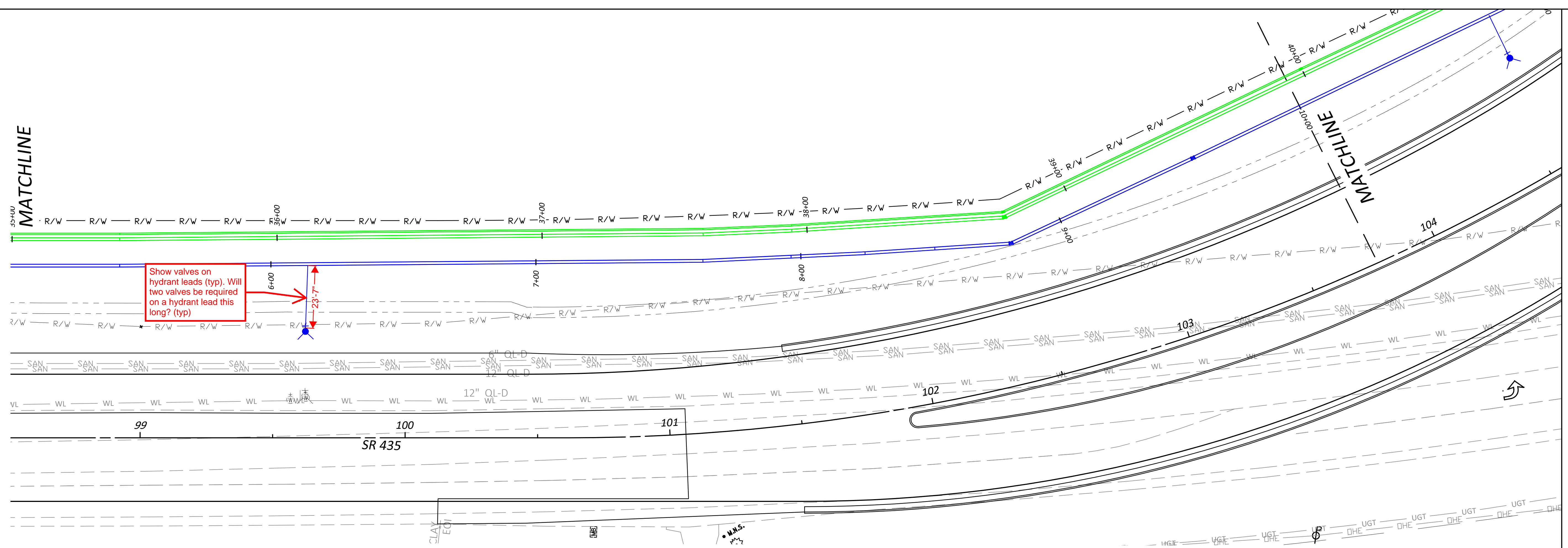
REVIEWER  
**SIB 12/22/23**

PROJECT ID  
**117955**

SHEET	TOTAL
08	15

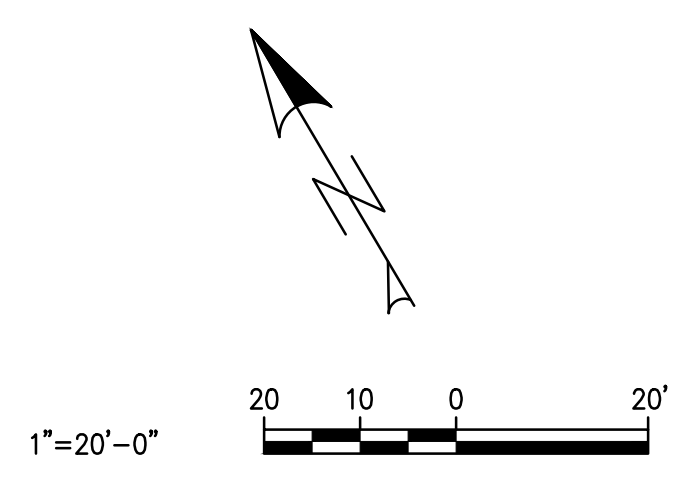
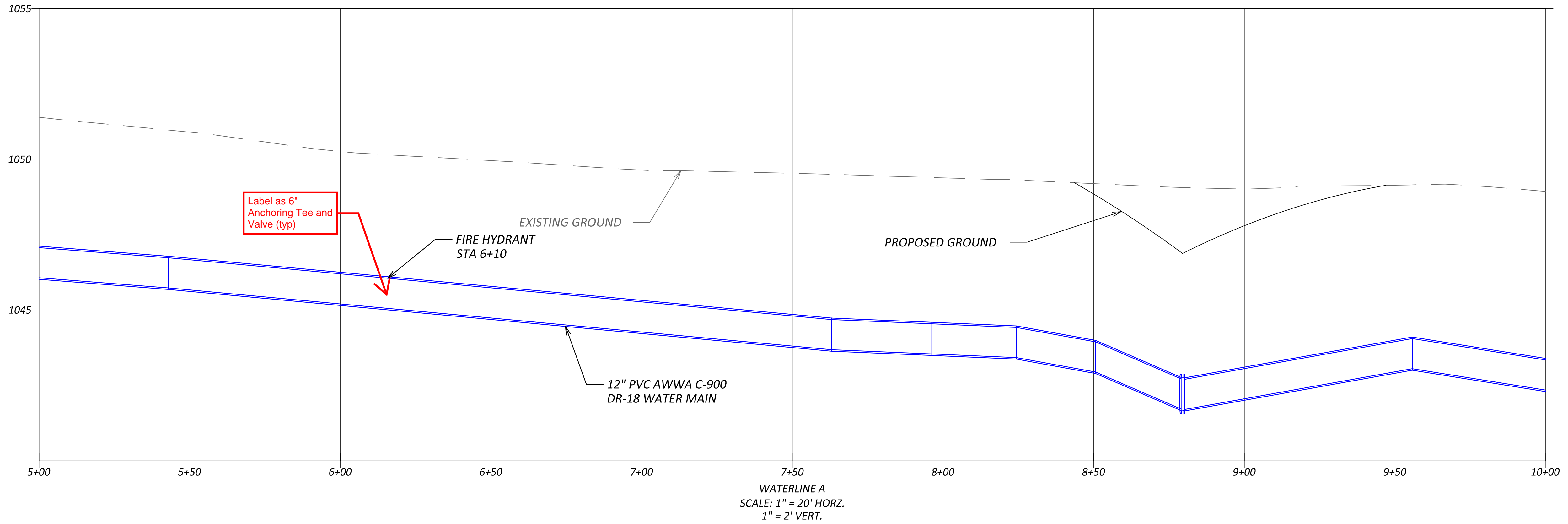
WATERLINE A  
SCALE: 1" = 20' HORZ.  
1" = 2' VERT.





**LEGEND**

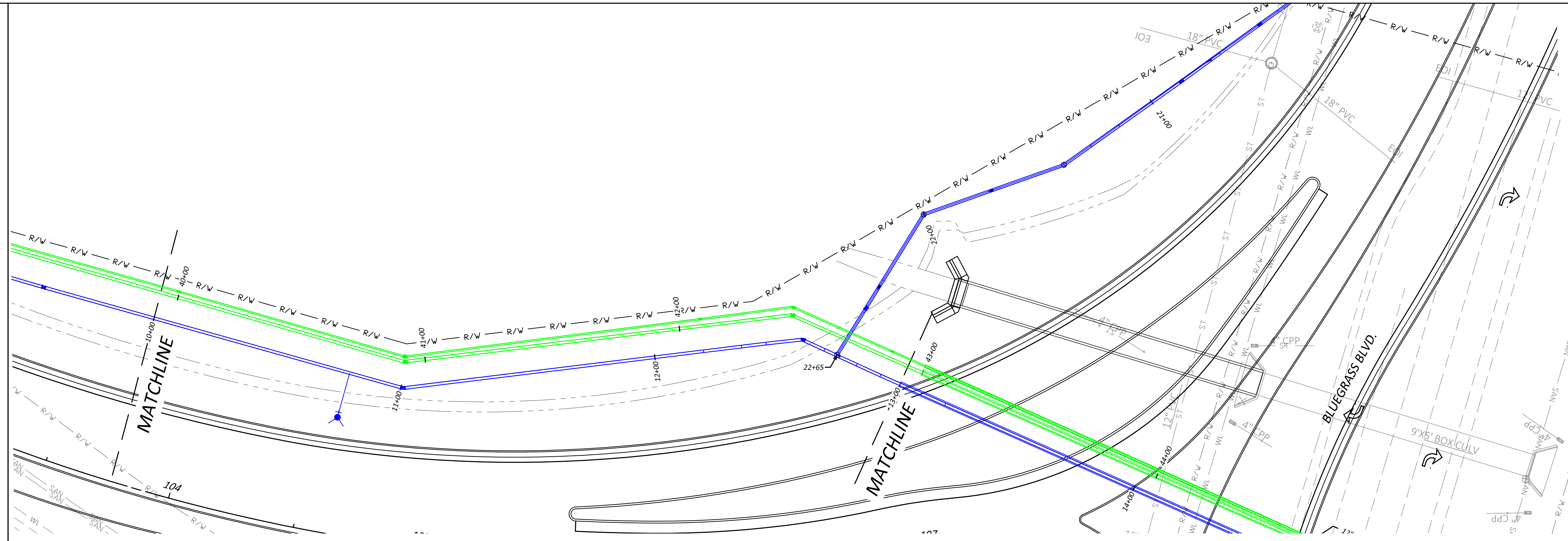
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Call before you dig.

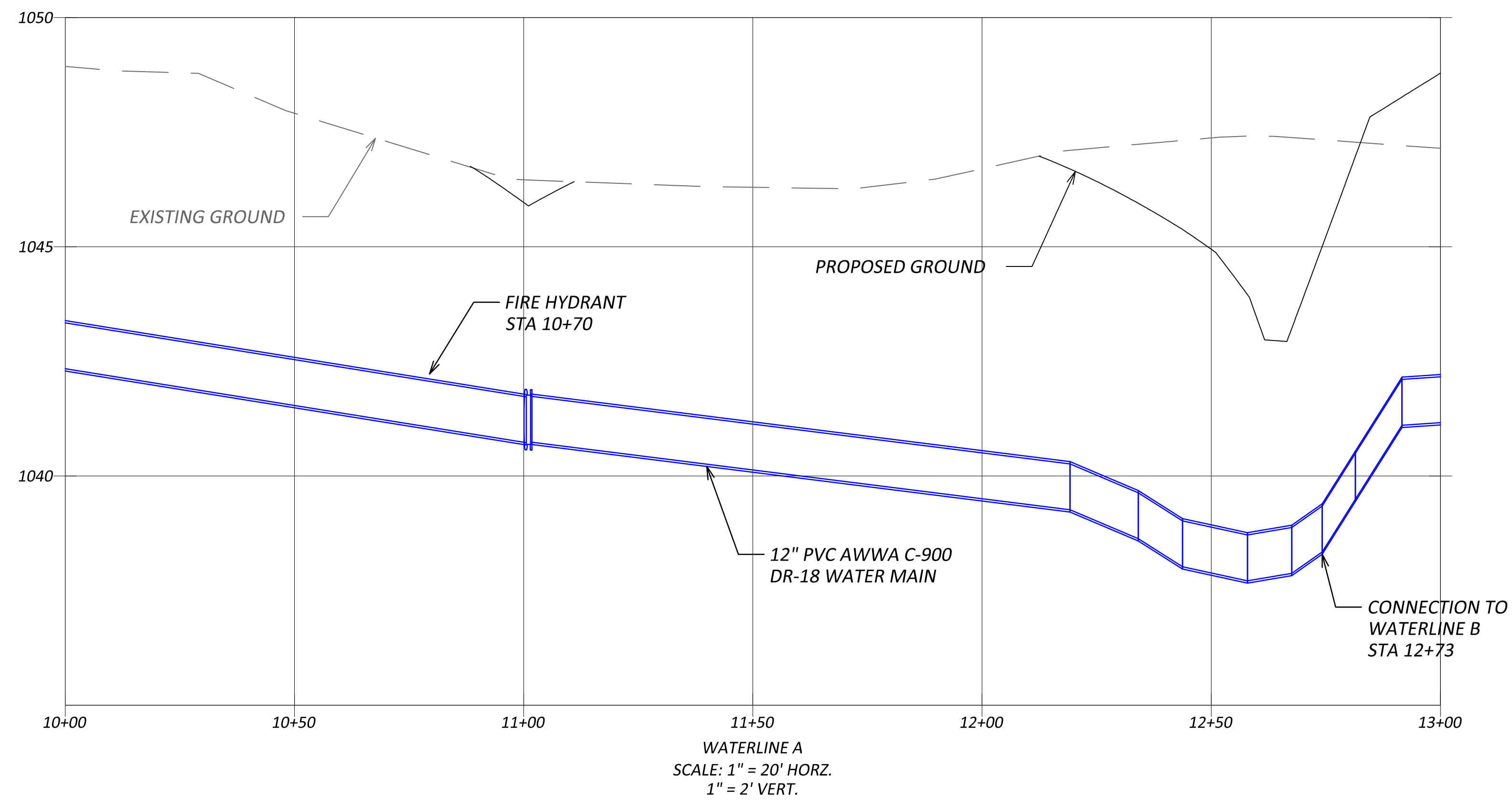
FAY-435-1.52

DESIGN AGENCY	
ENGINEERING 8350 EAST KEMPER ROAD SUITE B CINCINNATI, OH 45249 (513) 469-1600	
DESIGNER	EMR
REVIEWER	SIB 12/22/23
PROJECT ID	117955
SHEET	TOTAL
09	15



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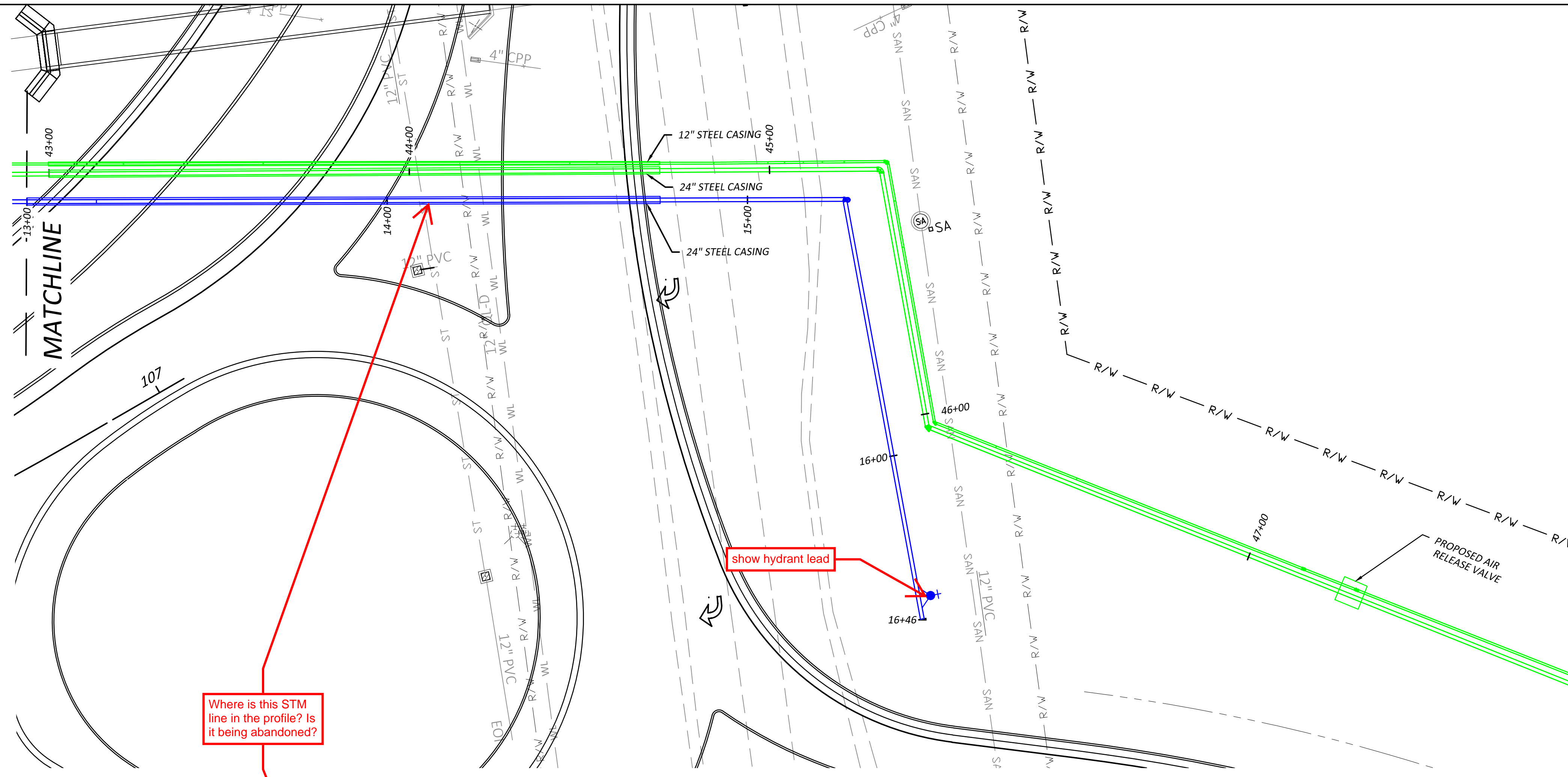
**811**

Know what's below.  
Call before you dig.

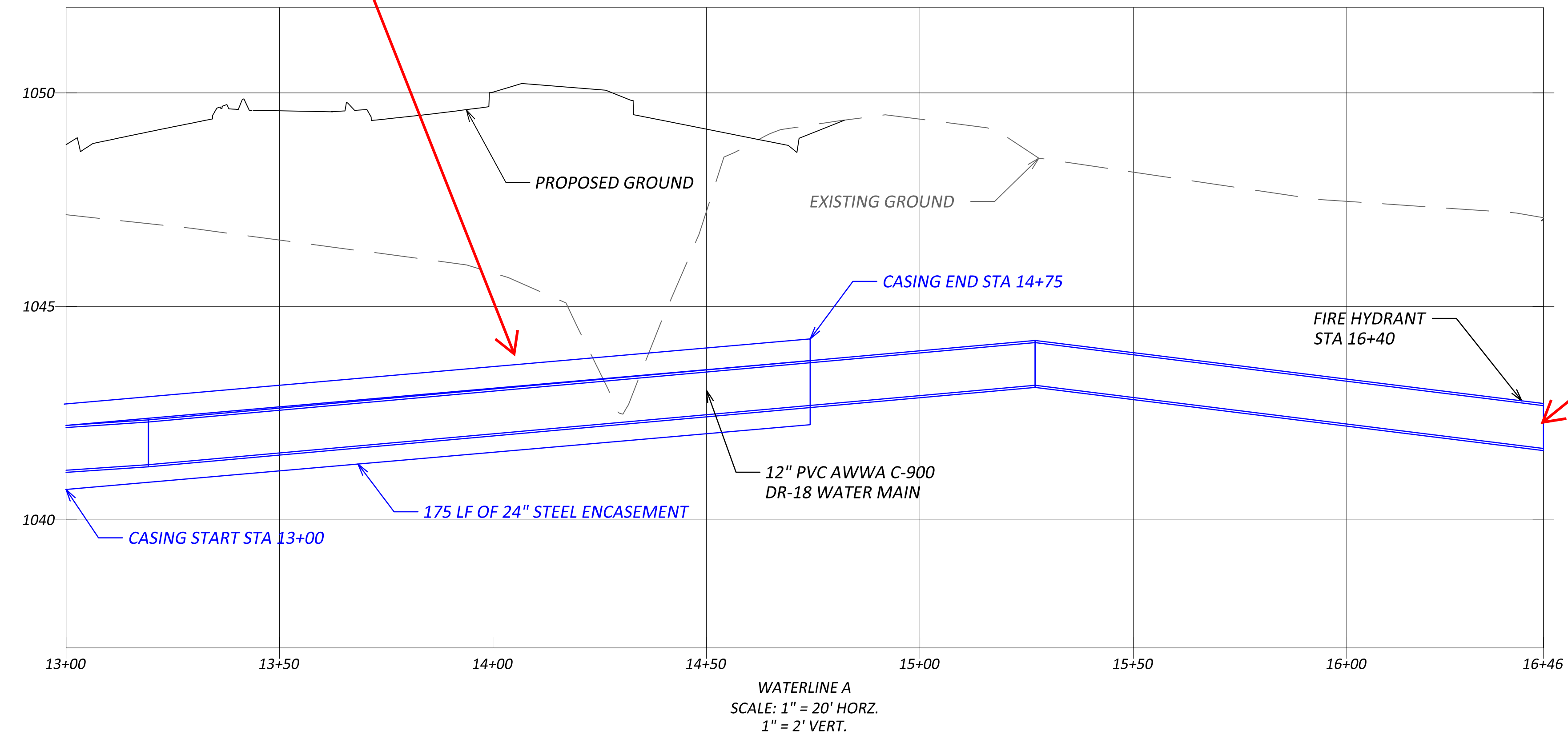
1"=20'-0"

**WATER LINE PLAN AND PROFILE  
UTILITY SHEETS**

DESIGN AGENCY	<b>Palmer</b> ENGINEERING 8350 EAST KEMPER ROAD SUITE B CINCINNATI, OH 45249 (513) 469-1600
DESIGNER	EMR
REVIEWER	SIB 12/22/23
PROJECT ID	117955
SHEET	TOTAL
10	15



Where is this STM line in the profile? Is it being abandoned?



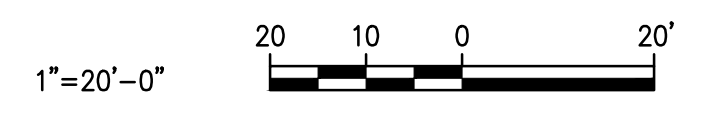
WATERLINE A  
SCALE: 1" = 20' HORZ.  
1" = 2' VERT.

Label dead end with thrust block?

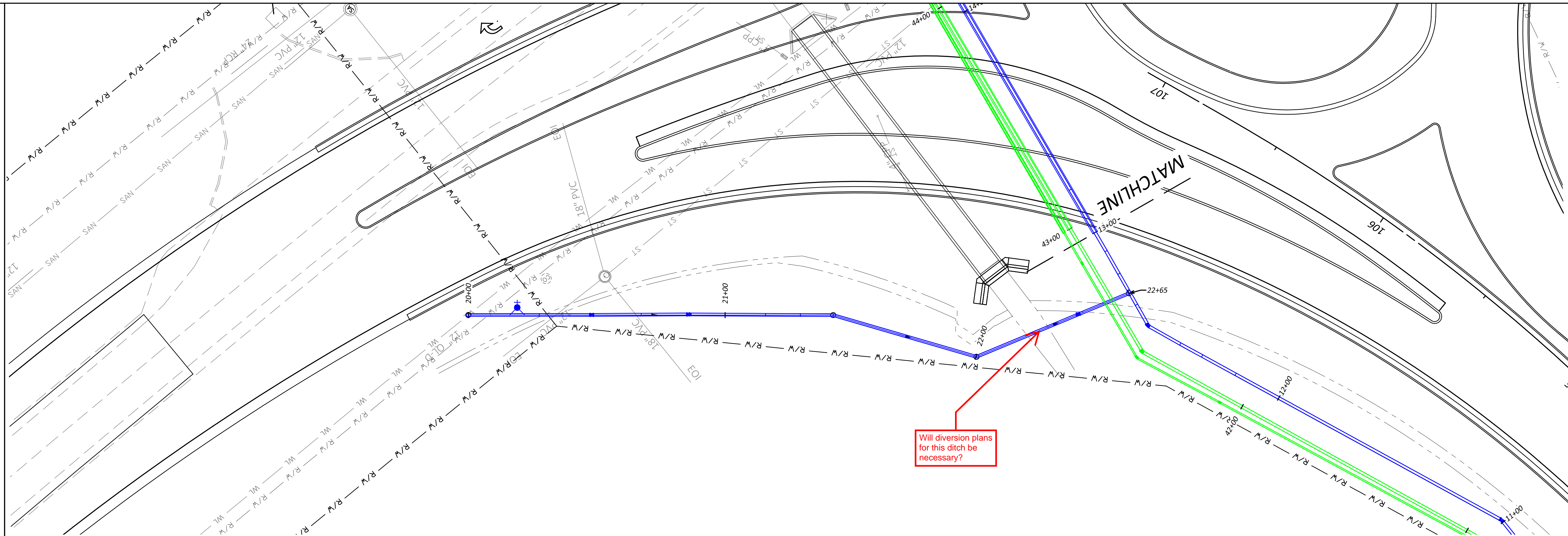
LEGEND	
	PROPOSED 12" SANITARY FORCE MAIN
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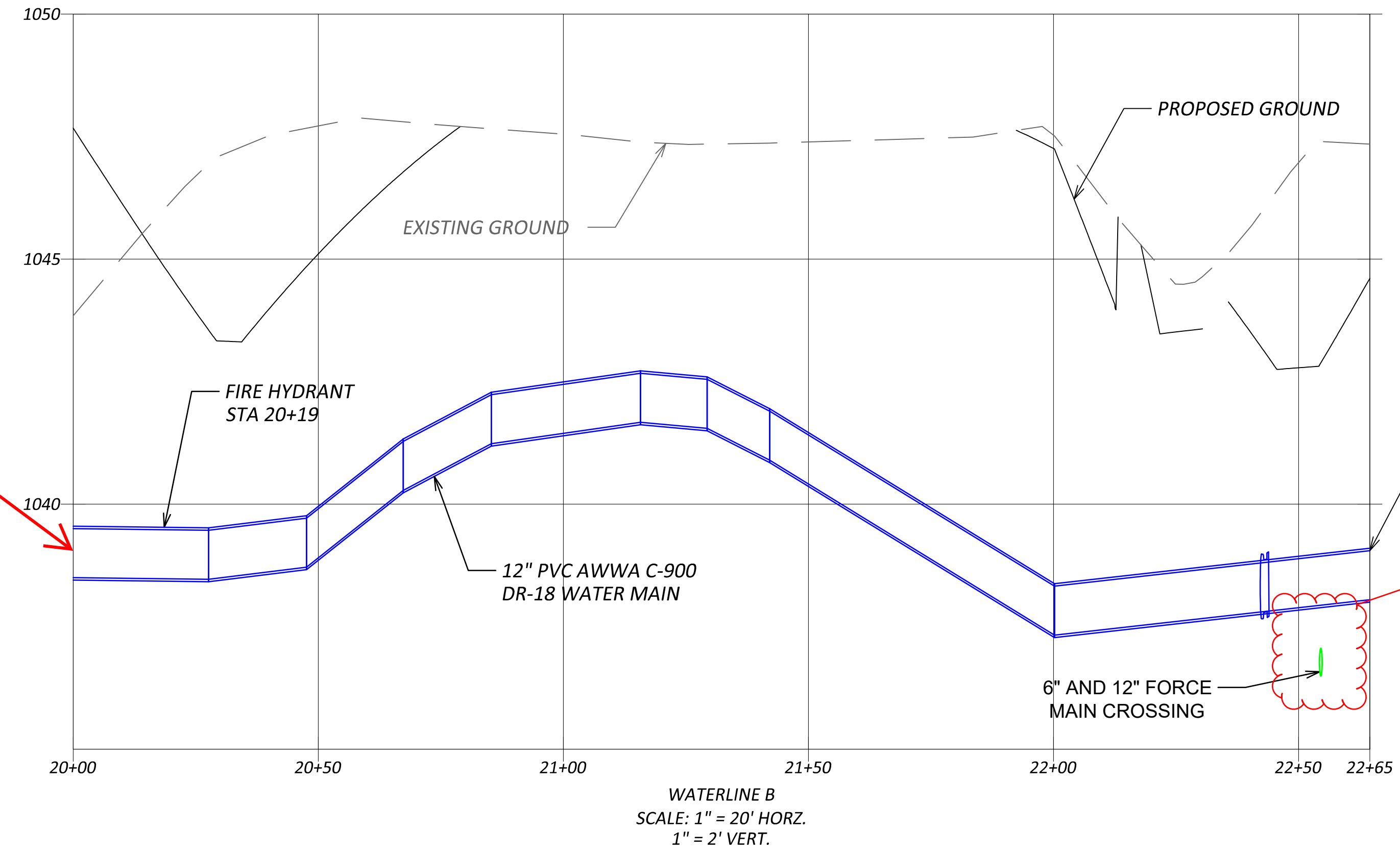
DESIGN AGENCY	<b>Palmer</b> ENGINEERING 8350 EAST KEMPER ROAD SUITE B CINCINNATI, OH 45249 (513) 469-1600
DESIGNER	EMR
REVIEWER	SIB
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	117955
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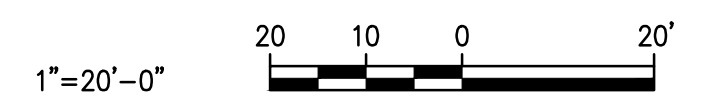
WATER LINE PLAN AND PROFILE  
UTILITY SHEETS

**LEGEND**

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Know what's below.  
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DESIGN AGENCY

**Palmer**  
ENGINEERING  
8350 EAST KEMPER ROAD  
SUITE B  
CINCINNATI, OH 45249  
(513) 469-1600

DESIGNER  
**EMR**

REVIEWER  
SIB 12/22/23

PROJECT ID  
117955

SHEET	TOTAL
12	15

**ELEVATION DATUM:**

ALL ELEVATIONS ARE BASED ON NAVD 88 (ODOT VRS GEOID 12B)

**GENERAL NOTES AND DETAILS:**

ALL CONSTRUCTION METHODS, MATERIALS, AND SPECIFICATIONS SHALL COMPLY WITH THE FAYETTE COUNTY ENGINEERING STANDARDS AND SPECIFICATIONS OR OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION STANDARDS AND SPECIFICATIONS, WHICHEVER IS MORE RESTRICTIVE AS DETERMINED BY THE COUNTY.

**MODIFICATIONS:**

ANY MODIFICATIONS TO THE SPECIFICATIONS OR CHANGES TO THE WORK AS SHOWN ON THE DRAWINGS MUST HAVE PROPER WRITTEN APPROVAL BY THE COUNTY.

**UTILITY OWNERSHIP:**

**TELEPHONE**  
AT&T  
7201 FAR HILLS AVENUE  
DAYTON, OHIO 45459  
ATTN: HOWARD LAUDERMILK II  
(937) 296-3588

**GAS**  
DOMINION TRANSMISSION  
518 EAST PITTSBURGH STREET  
GREENSBURG, PA 15601  
ATTN: ANGEL MARRERO  
(724) 468-7723

**ELECTRIC**  
XXXXXXXXXX  
XXXXXXXXXX  
ATTN: XXXXXXXXXX  
(XXX) XXX-XXXX

**SANITARY**  
FAYETTE COUNTY DEPARTMENT OF SANITARY SERVICES  
133 SOUTH MAIN STREET, SUITE L-22  
WASHINGTON COURT HOUSE, OH 431160  
ATTN: STEVE LUEBBE  
(740) 333-3538

OHIO UTILITIES PROTECTION SERVICES  
2 WORKING DAYS BEFORE YOUR DIG CALL TOLL FREE (1-800-362-2784)

**CLEAN WATER CONNECTIONS:**

ROOF DRAINS, FOUNDATION DRAINS, AND ALL OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SYSTEM ARE PROHIBITED.

**SUBCONTRACTOR SUPERVISION:**

THE CONTRACTOR IS REQUIRED TO HAVE A PROJECT SUPERVISOR ON-SITE TO SUPERVISE THE SUBCONTRACTOR FOR QUALITY CONTROL PURPOSES AND TO PROVIDE ANY NECESSARY ASSISTANCE TO THE SUBCONTRACTOR TO ENSURE QUALITY WORK.

**CROSSINGS AND CONNECTIONS TO EXISTING PIPES AND UTILITIES:**

WHERE PLANS PROVIDE FOR A PROPOSED CONDUIT TO BE CONNECTED TO, OR CROSS OVER OR UNDER AND EXISTING SEWER OR UNDERGROUND UTILITY, THE CONTRACTOR SHALL LOCATE THE EXISTING PIPES OR UTILITIES BOTH AS TO LINE AND GRADE BEFORE STARTING TO LAY THE PROPOSED CONDUIT.

IF IT IS DETERMINED THAT THE ELEVATION OF THE EXISTING CONDUIT, OR EXISTING APPURTENANCE TO BE CONNECTED, DIFFERS FROM THE PLAN ELEVATION, OR RESULTS IN A CHANGE IN THE PLAN CONDUIT SLOPE, THE COUNTY SHALL BE NOTIFIED BEFORE STARTING CONSTRUCTION OF ANY PORTION OF THE PROPOSED CONDUIT WHICH WILL BE AFFECTED BY THE VARIANCE IN THE EXISTING ELEVATIONS.

IF IT IS DETERMINED THAT THE PROPOSED CONDUIT WILL INTERSECT ANY EXISTING SEWER OR UNDERGROUND UTILITY IF CONSTRUCTED AS SHOWN ON THE PLAN, THE COUNTY SHALL BE NOTIFIED BEFORE STARTING CONSTRUCTION OF ANY PORTION OF THE PROPOSED CONDUIT WHICH WOULD BE AFFECTED BY THE INTERFERENCE WITH AN EXISTING FACILITY.

**WATER MAIN SEPARATION**

WHENEVER A SANITARY SEWER AND A WATER MAIN MUST CROSS, THE SEWER SHALL BE LAID BELOW THE WATER MAIN AT SUCH AN ELEVATION THAT THE CROWN OF THE SEWER IS AT LEAST 18" BELOW THE BOTTOM OF THE WATER MAIN PIPE. IF IT IS ABSOLUTELY IMPOSSIBLE TO MAINTAIN THE 18" VERTICAL SEPARATION, THE SEWER SHALL BE EITHER CONSTRUCTED OF EITHER SLIP-ON OR MECHANICAL JOINT WATER MAIN MATERIAL AND BE PRESSURE TESTED TO 150 PSI TO ENSURE WATER-TIGHTNESS OR BE ENCASED IN A 1/2" THICK CONTINUOUS STEEL, DUCTILE IRON OR PRESSURE RATED, DR 18 OR LESS PVC PIPE FOR A DISTANCE OF 10 FEET ON EITHER SIDE OF THE CROSSING. THE SEWER SHALL BE THE LONGEST STANDARD LENGTH AVAILABLE AND BE CENTERED AT THE POINT OF CROSSING SO THE JOINTS ARE AS FAR AS POSSIBLE FROM THE WATER MAIN.

WHENEVER A STORM SEWER AND A WATER MAIN MUST CROSS, THE PIPES SHALL BE LAID AT SUCH ELEVATIONS THAT THE CROWN OF ONE PIPE IS AT LEAST 18" BELOW THE BOTTOM OF THE OTHER.

WATER MAIN MUST BE INSTALLED WITH A MINIMUM OF 10' HORIZONTAL SEPARATION FROM ALL STORM AND SANITARY SEWERS, MEASURED FROM OUTSIDE OF PIPE TO OUTSIDE OF PIPE.

**NONRUBBER TIRE VEHICLES:**

NO NONRUBBER TIRE VEHICLES SHALL BE MOVED ON PUBLIC STREETS. EXCEPTIONS MAY BE GRANTED BY THE COUNTY WHERE SHORT DISTANCES AND SPECIAL CIRCUMSTANCES ARE INVOLVED. GRANTING OF EXCEPTIONS MUST BE IN WRITING AND ANY RESULTING DAMAGE MUST BE REPAIRED TO THE SATISFACTION OF THE COUNTY. THE CONTRACTOR SHALL USE EXTREME CARE WHEN OPERATING NONRUBBER TIRE VEHICLES ON STREETS OR DRIVEWAYS TO AVOID MARKING OR DAMAGING THE PAVEMENT. PROTECTION OF THE PAVEMENT FROM DAMAGE RESULTING FROM THE TRACK OF NONRUBBER TIRE VEHICLES UTILIZED IN TRENCH EXCAVATION SHALL BE REQUIRED. A WOOD PLANK SYSTEM, USED TIRES, RUBBER MATS, OR OTHER MEANS AS APPROVED THE COUNTY'S REPRESENTATIVE SHALL BE USED TO PROTECT THE PAVEMENT.

**WORK LIMITS:**

ALL WORK SHALL BE WITHIN EXISTING OR PROPOSED RIGHT-OF-WAY AND/OR CONSTRUCTION LIMITS UNLESS OTHERWISE INSTRUCTED BY THE COUNTY. THE WORK LIMITS SHOWN ON THESE PLANS ARE FOR PHYSICAL CONSTRUCTION ONLY. THE INSTALLATION AND OPERATION OF ALL TEMPORARY TRAFFIC CONTROL AND TEMPORARY TRAFFIC DEVICES REQUIRED BY THESE PLANS SHALL BE PROVIDED BY THE CONTRACTOR WHETHER INSIDE OF OUTSIDE THESE WORK LIMITS.

**SANITARY SEWER NOTES:**

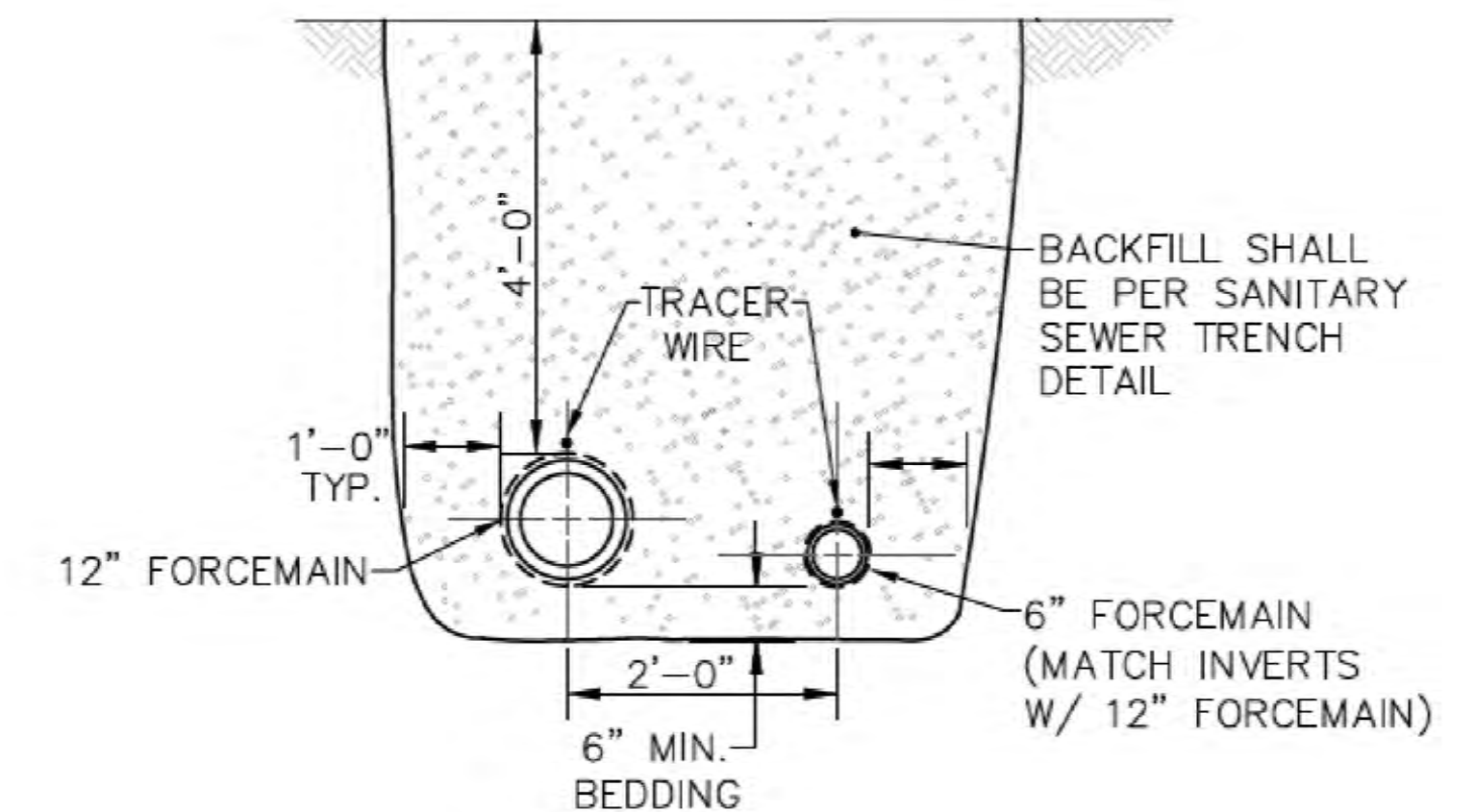
- A. SANITARY SEWERS SHALL CONFORM TO THE OEPA "TEN STATES STANDARDS" LATEST EDITION.
- B. POLYVINYL CHLORIDE PIPE (PVC) PIPE AND THE FITTINGS SHALL CONFORM TO ASTM D3034. PIPE JOINTS AND GASKETS SHALL CONFORM TO ASTM 3212 AND F477 RESPECTIVELY. A MANUFACTURER'S CERTIFICATION THAT THE PRODUCT WAS MANUFACTURED, TESTED, AND SUPPLIED IN ACCORDANCE WITH THIS SPECIFICATION SHALL BE FURNISHED UPON REQUEST TO THE PROJECT ENGINEER. PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH THE RECOMMENDATION FROM THE MANUFACTURER. THE SEWER PIPE INSTALLED UNDER PAVED AREAS SHALL BE BACKFILLED WITH ODOT 703.11, TYPE 3, (#57 OR #67) AGGREGATE.
- C. SANITARY LATERAL CONNECTIONS DASH ALL "WYE" BRANCHES SHALL BE OF THE SAME MATERIAL AS THE MAIN SEWER. THEY SHALL BE A MINIMUM OF 6" IN DIAMETER, PLUGGED, AND MARKED ACCORDING TO THE APPROPRIATE STANDARD DRAWING.
- D. CLEAN WATER CONNECTIONS- ROOF DRAINS, FOUNDATION, DRAINS, AND OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SEWER SYSTEM ARE PROHIBITED.
- E. ALL FORCEMAIN SHALL BE CONSTRUCTED OF SDR-21, IN ACCORDANCE WITH ASTM D1784.

This is gravity sewer but these plans show FM. What pipe will be used for the FM? C900?

Will the FM be HDPE?

**HYDROSTATIC TESTING OF FORCEMAIN:**

- A. AFTER THE PIPE HAS BEEN LAID AND BACKFILLED, ALL NEWLY LAID PIPE OR VALVED SECTION SHALL BE SUBJECTED TO A HYDROSTATIC PRESSURE AND LEAKAGE TEST. ALL HDPE FORCEMAINS MUST BE HYDROSTATICALLY TESTED FOLLOWING ASTM F - 2164, "STANDARD PRACTICE FOR FIELD LEAD TESTING OF POLYETHYLENE (PE) PRESSURE PIPING SYSTEM USING HYDROSTATIC PRESSURE." THE TEST MUST BE PERFORMED BY THE CONTRACTOR IN THE PRESENCE OF A REPRESENTATIVE OF THE SHELBY COUNTY SEWER DISTRICT. THE LEAKAGE TEST PRESSURE SHALL BE 1.5 TIMES THE OPERATING PRESSURE OR 150 PSI, WHICHEVER IS GREATER. THE DURATION OF THE LEAKAGE TEST PHASE SHOULD NOT BE LESS THAN 1 HOUR. HYDROSTATIC PRESSURE SHALL BE APPLIED BY MEANS OF A PUMP, TAKING WATER FROM AN AUXILIARY SUPPLY. ALL PIPING MUST BE PROPERLY FILLED AND FLUSHED TO DISPEL ALL AIR BEFORE THE TEST IS MADE USING POTABLE WATER.
- B. LEAKAGE IS DEFINED AS THE QUANTITY OF WATER TO BE SUPPLIED INTO THE NEWLY LAID PIPE, OR ANY VALVE SECTION THEREOF, NECESSARY TO MAINTAIN THE SPECIFIED LEAKAGE TEST PRESSURE AFTER THE PIPE HAS BEEN FILLED WITH WATER AND THE AIR EXPELLED.
- C. DURING THE HYDROSTATIC TEST, A THOROUGH EXAMINATION OF ALL PIPING, FITTINGS, VALVES, HYDRANTS, ETC. SHALL BE PERFORMED. LEAKING JOINTS SHALL BE TIGHTENED AND CRACKED OR OTHERWISE DEFECTIVE MATERIAL SHALL BE REMOVED AND REPLACED AND THE TEST SHOULD BE REPEATED UNTIL SATISFACTORY RESULTS ARE OBTAINED.
- D. THERE IS NO LEAKAGE ALLOWANCE FOR A SECTION OF HEAT - FUSION JOINT POLYETHYLENE PIPING, BECAUSE PROPERLY MADE HEAT FUSION JOINTS DO NOT LEAK.
- E. IF NO VISUAL LEAKAGES OBSERVED, AND THE PRESSURE DURING THE TESTING PHASE HOLD STEADY (WITHIN 5% OF THE TEST PHASE PRESSURE) FOR THE 1 HOUR TEST PHASE PERIOD, A PASSING TEST IS INDICATED.



**FORCEMAIN TRENCH DETAIL**

**NOTES**

**INSTALLATION:**

DIRECTIONAL DRILL CONSTRUCTION: TRACER WIRE SHALL BE COPPERHEAD SOLOSHOT EHS REINFORCED TRACER WIRE MANUFACTURED BY COPPERHEAD INDUSTRIES, LLC. OR APPROVED EQUIVALENT.

OPEN CUT CONSTRUCTION: TRACER WIRE SHALL BE COPPERHEAD HS REINFORCED TRACER WIRE MANUFACTURED BY COPPERHEAD INDUSTRIES, LLC OR APPROVED EQUIVALENT.

TRACER WIRE MUST BE RUN ON TOP OF THE FORCEMAIN CONTINUOUSLY FOR THE FULL LENGTH OF THE PIPE. TRACER WIRE SHALL BE TAPED TO THE PIPE USING 1-1/2" POLYETHYLENE TAPE WRAPPED TWICE AROUND THE PIPE. TRACER WIRE WILL COME TO THE SURFACE AT THE VALVE VAULT AND ANY AN AIR RELEASE VALVE STRUCTURE.

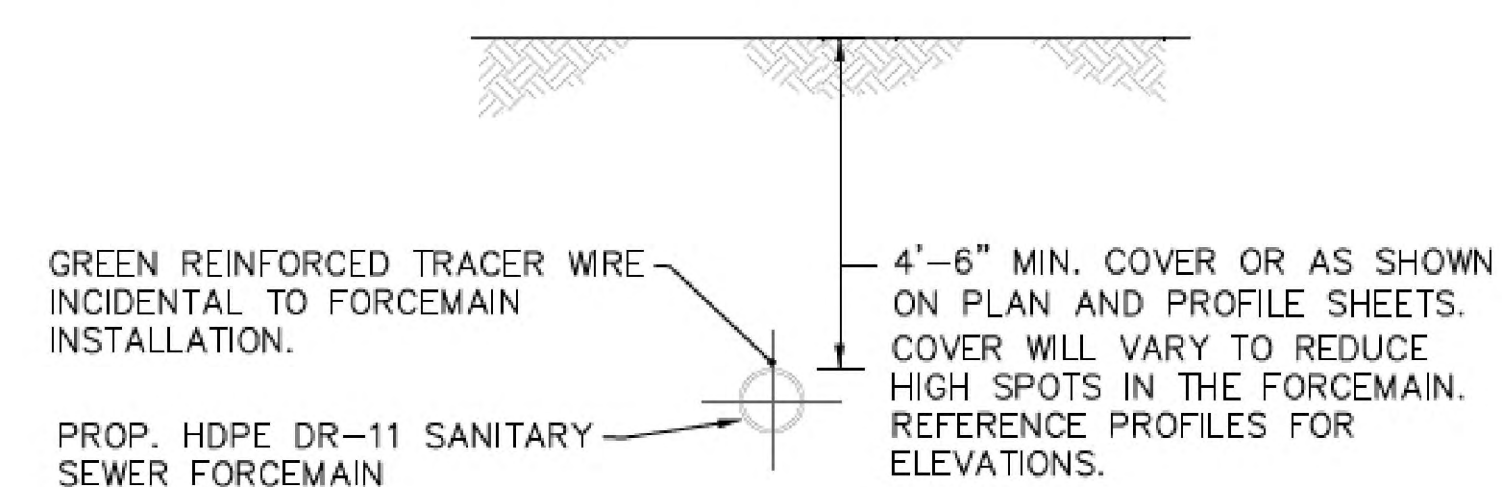
TRACER WIRE THAT MUST BE SPLICED SHALL USE SNAKEBITE TRACER WIRE CONNECTORS MANUFACTURED BY COPPERHEAD INDUSTRIES, LLC OR APPROVED EQUIVALENT.

ALL MATERIAL, LABOR, EQUIPMENT NEEDED FOR THE INSTALLATION OF THE TRACER WIRE SHALL BE INCIDENTAL TO THE FORCEMAIN INSTALLATION.



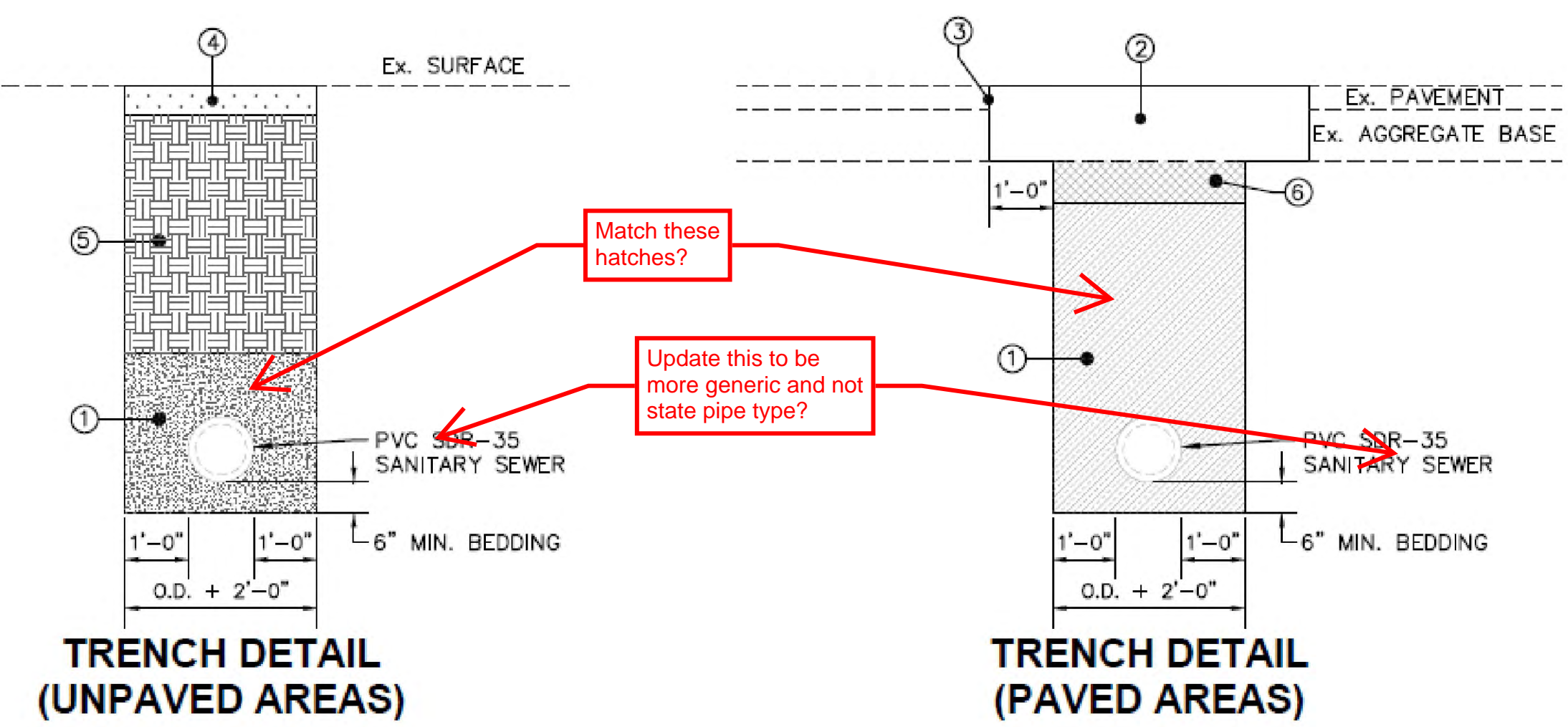
**FORCEMAIN UTILITY MARKER**

PROVIDE MARKERS INDICATING THE FORCEMAIN LOCATION AT APPROXIMATELY EVERY 500 FT. OR AT ANY SIGNIFICANT BENDS (WWW.RHINOMARKS.COM)



**SANITARY SEWER FORCEMAIN TRACER WIRE DETAILS**

- ① STRUCTURAL BEDDING/BACKFILL SHALL BE ODOT 703.11 TYPE 3, (#57 OR #67) OR AS APPROVED BY THE ENGINEER, COMPACTED IN 8" LAYERS, COST TO BE INCLUDED IN COST OF SEWER PIPE.
- ② 4" MIN. ODOT ITEM 441, ASPHALT CONCRETE (MIN. 2 LIFTS)
- ③ SAWCUT, 2" MINIMUM DEPTH
- ④ 2" MINIMUM TOPSOIL PER ODOT ITEM 653 AND SEEDING AND MULCHING PER ODOT ITEM 659
- ⑤ BACKFILL, PER ODOT ITEM 203
- ⑥ ODOT ITEM 304 AGGREGATE BASE (MIN. 6")



FAY-435-1.52

SANITARY DETAILS AND NOTES SHEET  
UTILITY SHEETS

DESIGN AGENCY
<b>Palmer</b> ENGINEERING 8350 EAST KEMPER ROAD SUITE B CINCINNATI, OH 45249 (513) 469-1600
DESIGNER
EMR
REVIEWER
SIB 12/22/23
PROJECT ID
117955
SHEET TOTAL
13 15

**WATER MAIN HYDROSTATIC TESTING NOTES:**

- A. AFTER THE PIPE HAS BEEN LAID AND BACKFILLED, ALL NEWLY LAID PIPE OR VALVED SECTION SHALL BE SUBJECTED TO HYDROSTATIC PRESSURE AND LEAKAGE TEST. ALL WATER MAINS MUST BE HYDROSTATICALLY TESTED IN ACCORDANCE WITH AWWA C-605. THE TESTS MUST BE PERFORMED IN THE PRESENCE OF A REPRESENTATIVE OF FAYETTE COUNTY.  
  
THE MINIMUM LEAKAGE TEST PRESSURE FOR ALL WATER MAIN SHALL BE 150 PSI, OR 1.5 TIMES THE ANTICIPATED AVERAGE STATIC PRESSURE, WHICHEVER IS GREATER. THE MINIMUM TEST PRESSURE SHALL BE HELD FOR A MINIMUM OF TWO (2) HOURS FOR ALL WATER MAIN. HYDROSTATIC PRESSURE SHALL BE APPLIED BY MEANS OF A PUMP TAKING WATER FROM AN AUXILIARY SUPPLY. ALL PIPING MUST BE PROPERLY FILLED AND FLUSHED TO DISPEL ALL AIR BEFORE THE TEST IS MADE USING POTABLE WATER.
- B. HYDROSTATIC TESTING MUST BE PERFORMED ON ALL NEW WATER MAIN, WITH THE EXCEPTION OF CONNECTION POINTS, AS APPROVED BY FAYETTE COUNTY.
- C. LEAKAGE IS DEFINED AS THE QUANTITY OF WATER TO BE SUPPLIED INTO THE NEWLY LAID PIPE, OR ANY VALVED SECTION THEREOF, NECESSARY TO MAINTAIN THE SPECIFIED LEAKAGE TEST PRESSURE AFTER THE PIPE HAS BEEN FILLED WITH WATER AND THE AIR EXPELLED.
- D. NO PIPE INSTALLATION WILL BE ACCEPTED IF THE LEAKAGE EXCEEDS THE LEAKAGE DETERMINED BY THE FORMULA BELOW:

$$Q = \frac{L \cdot D \cdot \sqrt{P}}{148,000}$$

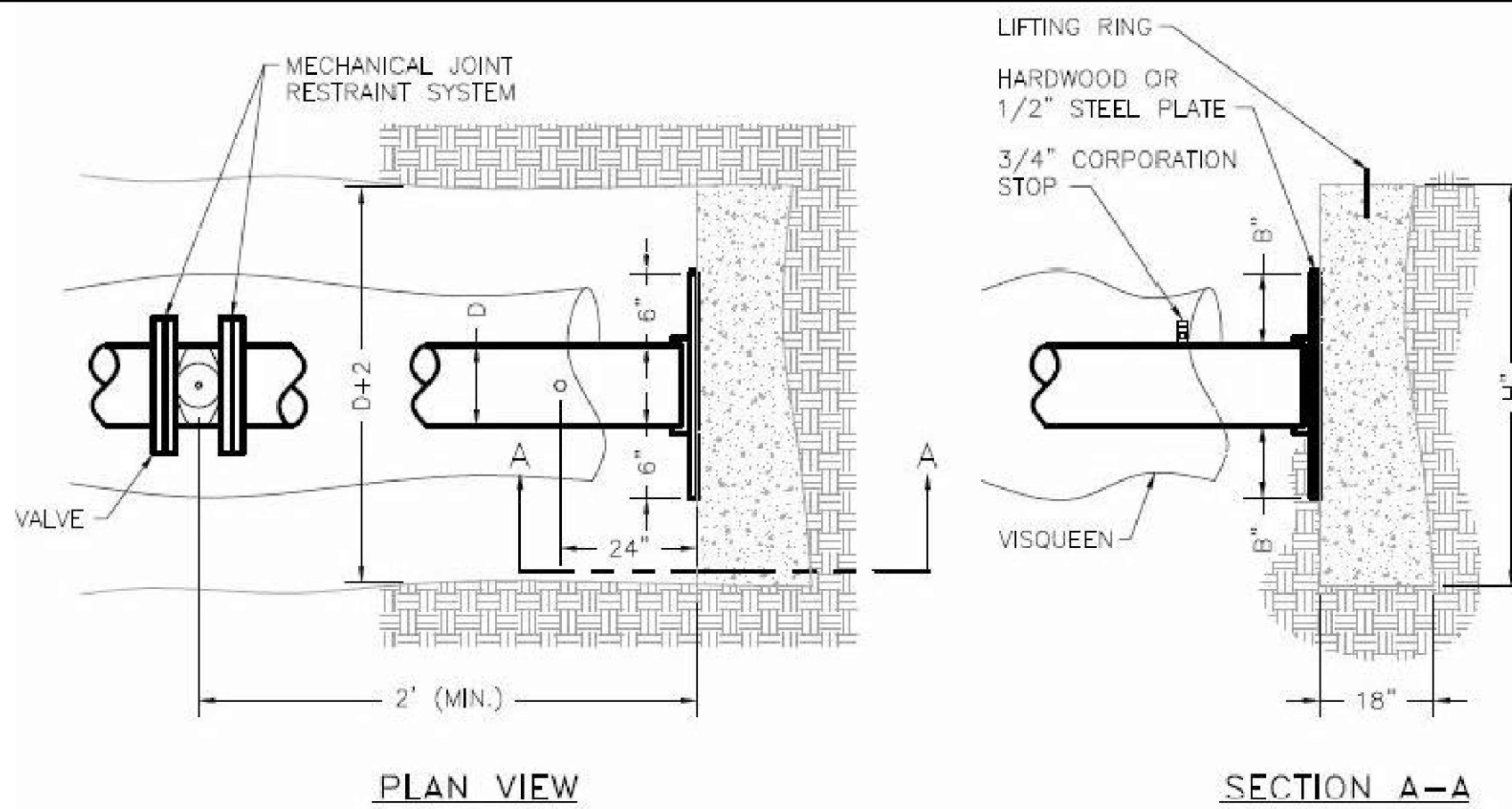
WHERE: L = LENGTH OF PIPE TESTED, IN FT.  
D = PIPE DIAMETER, IN INCHES  
P = AVERAGE TEST PRESSURE  
Q = ALLOWABLE LEAKAGE PER HOUR

DURING THE HYDROSTATIC TEST, A THOROUGH EXAMINATION OF ALL PIPING, FITTINGS, VALVES, HYDRANTS, ETC. SHALL BE PERFORMED. LEAKING JOINTS SHALL BE TIGHTENED AND CRACKED OR OTHERWISE DEFECTIVE MATERIAL SHALL BE REMOVED AND REPLACED AND THE TEST SHALL BE REPEATED UNTIL SATISFACTORY RESULTS ARE OBTAINED.

BELOW IS A TABLE WHICH REPRESENTS THE ALLOWABLE LEAKAGE IN GALLONS PER HOUR.

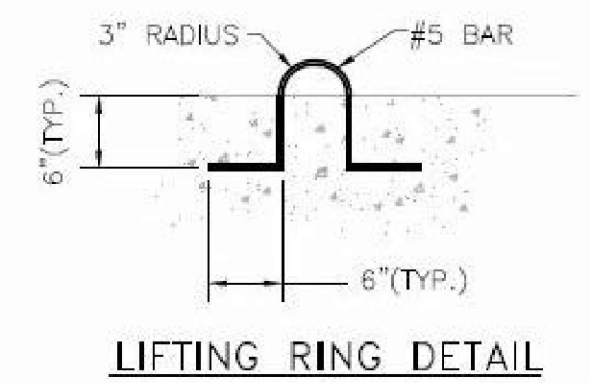
**ALLOWABLE LEAKAGE PER 1000FT. OF PIPELINE (GALLONS PER HOUR)**

AVG. TEST PRESSURE (PSI) BAR	NOMINAL PIPE DIAMETER - INCHES							
	3	4	6	8	10	12	14	16
450(31)	0.43	0.57	0.86	1.15	1.43	1.72	2.01	2.29
400(28)	0.41	0.54	0.81	1.08	1.35	1.62	1.89	2.16
350(24)	0.38	0.51	0.76	1.01	1.26	1.52	1.77	2.02
300(21)	0.35	0.47	0.70	0.94	1.17	1.40	1.64	1.87
275(19)	0.34	0.45	0.67	0.90	1.12	1.34	1.57	1.79
250(17)	0.32	0.43	0.64	0.85	1.07	1.28	1.50	1.71
225(16)	0.30	0.41	0.61	0.81	1.01	1.22	1.42	1.62
200(14)	0.29	0.38	0.57	0.76	0.96	1.15	1.34	1.53
175(12)	0.27	0.36	0.54	0.72	0.89	1.07	1.25	1.43
150(10)	0.25	0.33	0.50	0.66	0.83	0.99	1.16	1.32



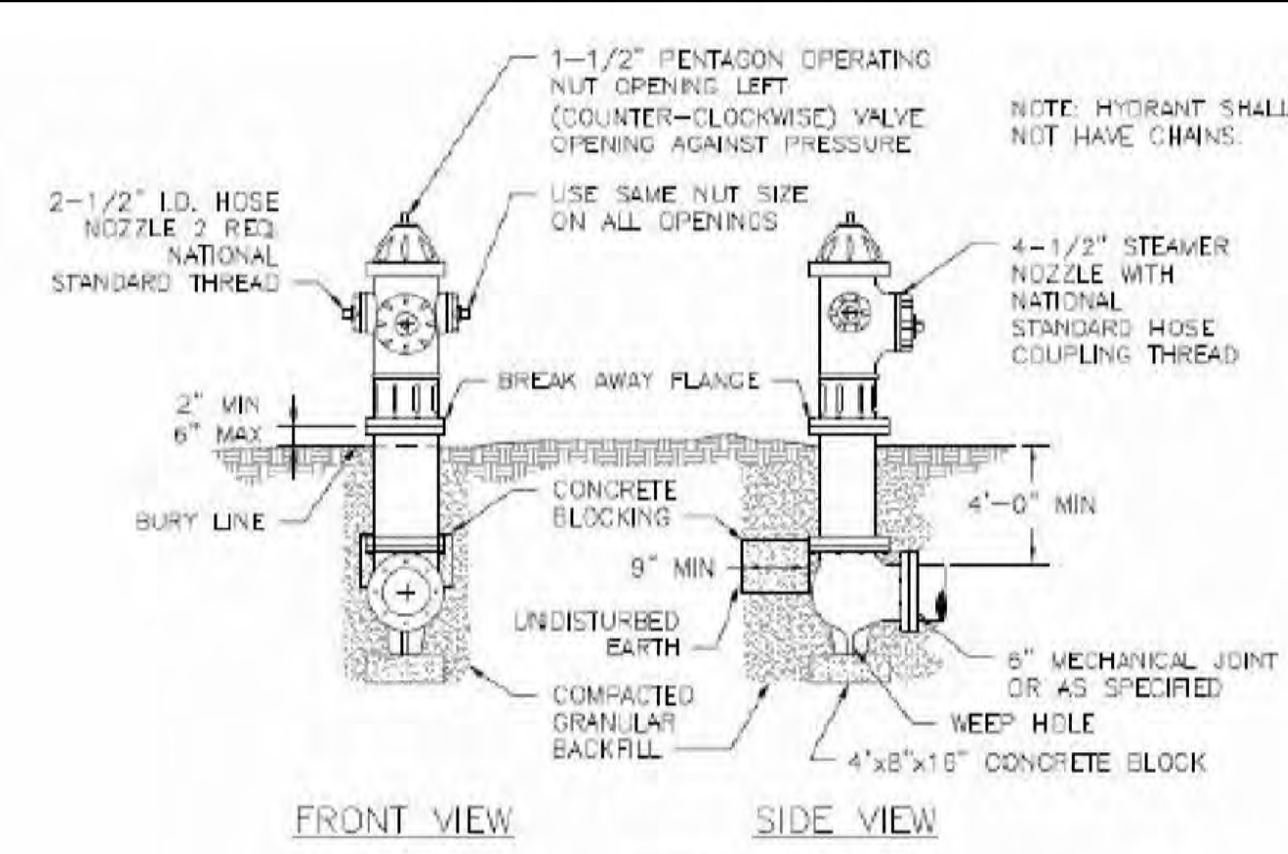
**NOTES:**

1. CONCRETE FOR BACKING SHALL BE ODOT CLASS "OC1".
2. BACKING SHALL BE DESIGNED FOR 3000 PSF SOIL BEARING.
3. CONCRETE SHALL BE PLACED AGAINST UNDISTURBED EARTH.
4. PROVIDE CLEARANCE FOR REMOVAL OF BOLTS.
5. VISQUEEN SHALL BE PLACED IN A MANNER SUCH THAT CONCRETE BLOCKING DOES NOT HAVE DIRECT CONTACT WITH TEE AND/OR FITTINGS.
6. END OF PIPE SHALL BE CAPPED OR PLUGGED.
7. STEEL PLATE SHALL BE GREASED WHERE IN CONTACT WITH CONCRETE BLOCKING.
8. PLUG POLES SHALL BE INSTALLED AT ALL END-OF-LINE STUBS AT THE THRUST BLOCK.



SIZE OF PIPE	H	B	L (PVC)	L (DIP)	V
6"	8	1	20	18	2.52
8"	12	1	20	18	4.00
12"	23	3	20	18	8.64
16"	37	3	20	18	15.39

**THRUST BLOCK**  
NOT TO SCALE

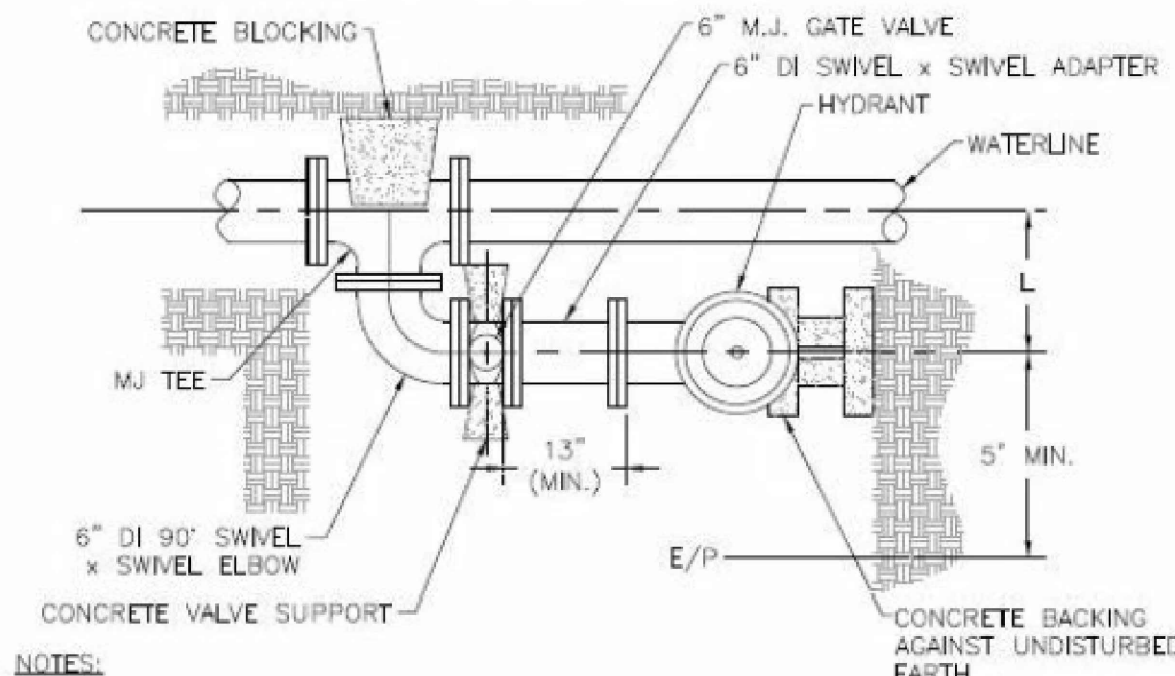


**NOTES:**

1. BACKFILL SHALL BE GRANULAR MATERIAL CONFORMING TO ODOT #57 STONE, ITEM 703.11 TYPE 2, GRADE A, OR APPROVED SUITABLE EXCAVATED MATERIAL POWER TAMPED IN LAYERS NOT EXCEEDING 4" IN THICKNESS. LOOSE MEASUREMENT BACKFILL SHALL EXTEND FROM THE BOTTOM OF THE PIT OR TRENCH TO 6" BELOW THE EXISTING OR PROPOSED SURFACE. COST OF FURNISHING AND PLACING BACKFILL SHALL BE INCLUDED IN THE PRICE BID FOR EACH HYDRANT.
2. ALL HYDRANTS SHALL BE INSTALLED WITH HARDWOOD OR CONCRETE BLOCKING AGAINST UNDISTURBED EARTH.
3. DRAIN ROCK AROUND AND ABOVE HYDRANT SHALL BE 2" OR LARGER, CLOTH FILTER MATERIAL SHALL BE PLACED BETWEEN DRAIN AND RILL.

**TYPICAL 6" HYDRANT SETTING-TYPE "A"**  
NOT TO SCALE

MAIN LINE	MINIMUM L	
	TYPE B	TYPE B MODIFIED
6"	24"	19"
8"	25"	20"
10"	26"	21"
12"	28"	23"
16"	31"	26"



**NOTES:**

1. TYPE B: LONG SIDE OF BEND TO TEE.  
TYPE B MODIFIED: SHORT SIDE OF BEND TO TEE.
2. HYDRANTS SHALL HAVE A MAXIMUM BURY OF 7"-9", MODIFICATION OF THE HYDRANT LEAD TO MEET THIS REQUIREMENT SHALL BE IN THE SECTION FROM THE VALVE TO THE HYDRANT.
3. BACKFILL SHALL BE GRANULAR MATERIAL CONFORMING TO ODOT #57 STONE, ITEM 703.11 TYPE 2, GRADE A, OR APPROVED SUITABLE EXCAVATED MATERIAL POWER TAMPED IN LAYERS NOT EXCEEDING 4" IN THICKNESS, LOOSE MEASUREMENT. BACKFILL SHALL EXTEND FROM THE BOTTOM OF THE PIT OR TRENCH TO 6" BELOW THE EXISTING OR PROPOSED SURFACE. COST OF FURNISHING AND PLACING BACKFILL SHALL BE INCLUDED IN THE PRICE BID FOR EACH HYDRANT.
4. ALL HYDRANTS SHALL BE INSTALLED WITH HARDWOOD OR CONCRETE BLOCKING AGAINST UNDISTURBED EARTH.
5. DRAIN ROCK AROUND AND ABOVE HYDRANT SHALL BE 2" OR LARGER, CLOTH FILTER MATERIAL SHALL BE PLACED BETWEEN DRAIN AND RILL.
6. TYPE B OR TYPE B MODIFIED SETTING SHALL ONLY BE UTILIZED WHEN TYPICAL 6" HYDRANT SETTING IS NOT APPLICABLE.
7. REFER TO TYPICAL 6" HYDRANT SETTING TYPE A DETAIL FOR ELEVATION AT HYDRANT.

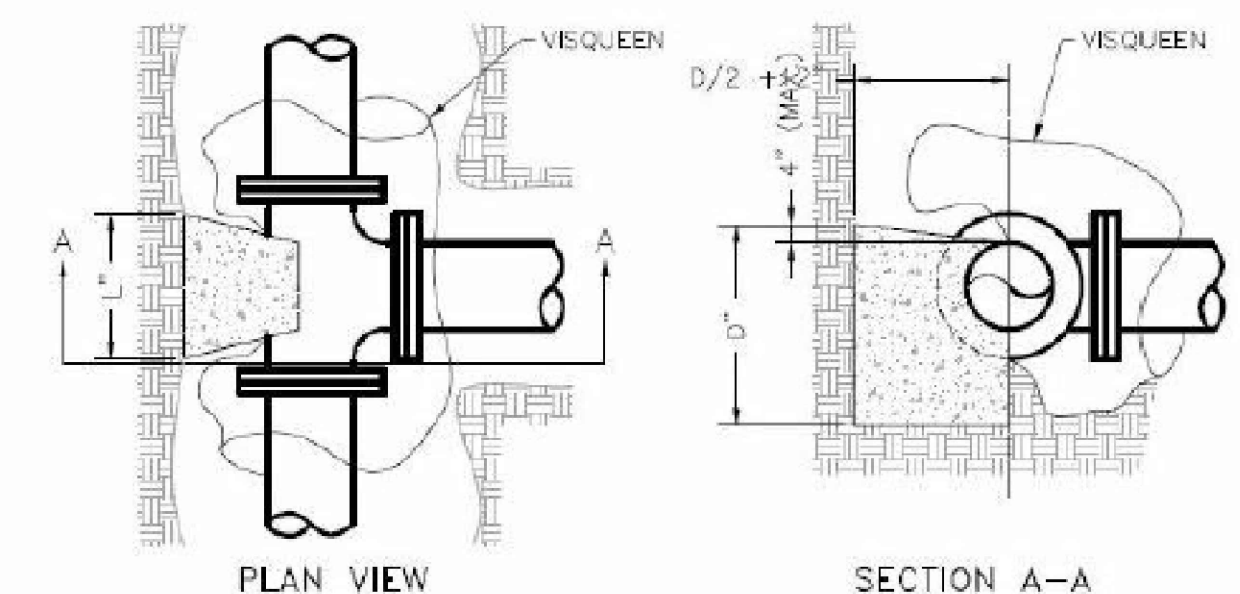
**TYPICAL 6" HYDRANT SETTING-TYPE "B"**  
NOT TO SCALE

**WATER MAIN DISINFECTION NOTES:**

- A. DISINFECTION OR STERILIZATION OF NEW MAINS AND SERVICES, AS REQUIRED BY THE OEPA, SHALL BE COORDINATED THROUGH THE COUNTY SANITARY ENGINEER'S REPRESENTATIVE. THE VILLAGE'S REPRESENTATIVE RESERVES THE RIGHT TO REQUIRE STRICTER CHLORINE RESIDUAL REQUIREMENTS ON A CASE-BY-CASE BASIS.
- B. MAINTAIN PIPES FREE OF DIRT AND FOREIGN MATTER DURING CONSTRUCTION BY DEWATERING TRENCH AND SEALING OPEN PIPE BARRELS. SWAB EACH LENGTH OF PIPE AS IT IS INSTALLED.
- C. DISINFECTION TESTING SHALL BE PERFORMED PRIOR TO HYDROSTATIC TESTING. DISINFECTION SHALL BE COMPLETED IN ACCORDANCE WITH AWWA C-651. SAMPLE WATER AT EACH HYDRANT OR IF NO HYDRANT IS AVAILABLE, A SAMPLE TAP SHALL BE INSTALLED BY CONTRACTOR EVERY 1200 FT. ANALYZE SAMPLE USING ORTHOTOLIDINE REAGENT TO VERIFY FREE CHLORINE CONCENTRATION. MAINTAIN CONCENTRATION IN MAIN FOR 24 HOURS. SAMPLE HYDRANTS AT COMPLETION OF STERILIZATION VERIFYING MINIMUM CHLORINE RESIDUAL OF 20 MG PER LITER.
- D. CONTRACTOR SHALL ACCOMMODATE FLUSHING AND SAMPLE LOCATIONS WITH FAYETTE COUNTY.
- E. THE CONTRACTOR SHALL DISINFECT ALL WATER MAIN AND WATER SERVICE LINES IN ACCORDANCE WITH AWWA C-651, LATEST REVISION. THE DISINFECTION MAY BE PERFORMED BY USING EITHER THE CONTINUOUS FEED METHOD OR THE TABLET METHOD.
- F. THE PROCEDURES FOR DISINFECTION SHALL BE IN ACCORDANCE WITH AWWA C-651. THE VILLAGE SHALL APPROVE OF THE METHOD AND PROCEDURES USED.
- G. PERFORM BACTERIOLOGICAL TESTING, PER AWWA C-651, FOLLOWING HYDROSTATIC TESTING. SAMPLE THE MAIN FROM HYDRANTS OR TEST TAB IN THE PROPOSED LINE. PICKED UP ON PHONE THE SAMPLE IS TO BE DELIVERED TO A STATE CERTIFIED LABORATORY. DELIVER COPIES OF THE LABORATORY REPORT TO THE VILLAGE IN THE EVENT OF DETECTION OF COLIFORM ORGANISM, REPEAT, FLUSHINGS, STERILIZATION, AND SAMPLING OF MAINS UNTIL ACCEPTABLE TEST RESULTS ARE ACHIEVED ON TWO (2) CONSECUTIVE DAYS. THIS IS TO BE PERFORMED PRIOR TO TRANSFER OF SERVICES TO THE NEW MAIN.

R/W	BRANCH												BRANCH												
	3"			4"			6"			8"			12"			16"			20"			24"			
	L	D	V	L	D	V	L	D	V	L	D	V	L	D	V	L	D	V	L	D	V	L	D	V	
3"	12	5	0.5																						
4"	10	6	0.5	11	8	0.8																			
6"	8	7	0.5	11	8	0.8	18	12	1.9																
8"	8	8	0.5	10	9	0.7	18	12	1.9	23	16	3.5													
12"	6	12	0.6	8	12	0.8	18	12	1.9	23	16	3.5	38	22	8.7										
16"	6	16	0.8	6	16	0.8	14	16	2.0	20	18	3.3	36	23	8.7	49	30	13.6							
20"	6	20	1.0	6	20	1.0	11	20	1.9	18	20	3.3	35	24	8.7	46	32	13.6	60	38	26.6				
24"	6	24	1.2	6	24	1.2	9	24	1.9	15	24	3.3	30	28	8.7	42	38	14.0	54	42	26.3	68	48	45.4	

V = VOLUME OF CONCRETE IN CUBIC FEET



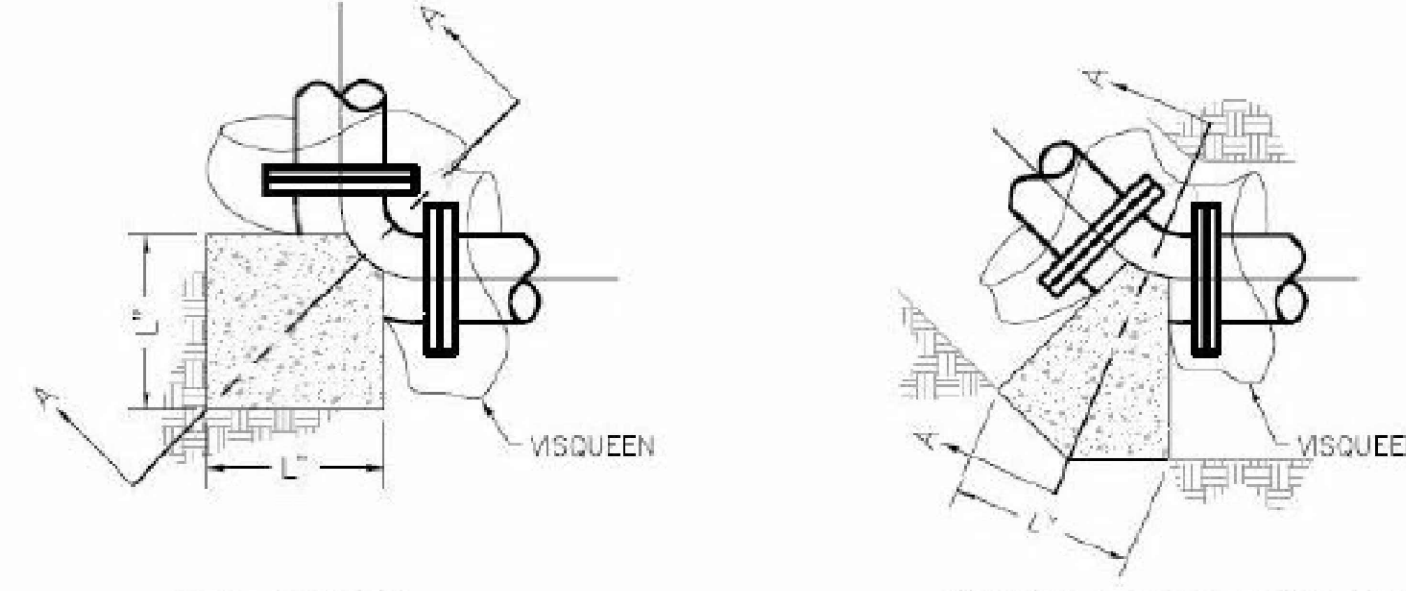
**NOTES:**

1. CONCRETE FOR BACKING SHALL BE ODOT CLASS "OC1".
2. BACKING SHALL BE DESIGNED FOR 3000 PSF SOIL BEARING.
3. REINFORCING STEEL SHALL BE USED AS DIRECTED BY THE CONTRACT ADMINISTRATOR.
4. CONCRETE SHALL BE PLACED AGAINST UNDISTURBED EARTH.
5. PROVIDE CLEARANCE FOR REMOVAL OF BOLTS.
6. VISQUEEN SHALL BE PLACED IN A MANNER SUCH THAT CONCRETE BLOCKING DOES NOT HAVE DIRECT CONTACT WITH TEE AND/OR FITTINGS.

**BACKING FOR TEES**  
NOT TO SCALE

R/W	DEGREE OF BEND											
	11 1/4"			22 1/2"			45"			90"		
	L	D	V	L	D	V	L	D	V	L	D	V
3"	4	3	0.1	6	4	0.2	10	4	0.3	10	4	0.3
4"	5	4	0.2	9	5	0.4	14	5	0.6	14	5	0.6
6"	8	6	0.5	12	7	0.7	20	8	1.4	18	9	1.7
8"	9	8	0.7	16	9	1.4	24	12	2.7	25	11	4.0
12"	14	12	1.8	24	14	3.6	36	18	6.8	32	18	10.7
16"	18	16	3.4	32	18	6.7	36	32	13.4	41	26	25.4
20"	25	20	8.4	30	30	11.5	49	38	20.8	50	32	46.5
24"	27	24	9.0	39	34	18.4	60	42	35.0	58	40	77.7

V = VOLUME OF CONCRETE IN CUBIC FEET



**NOTES:**

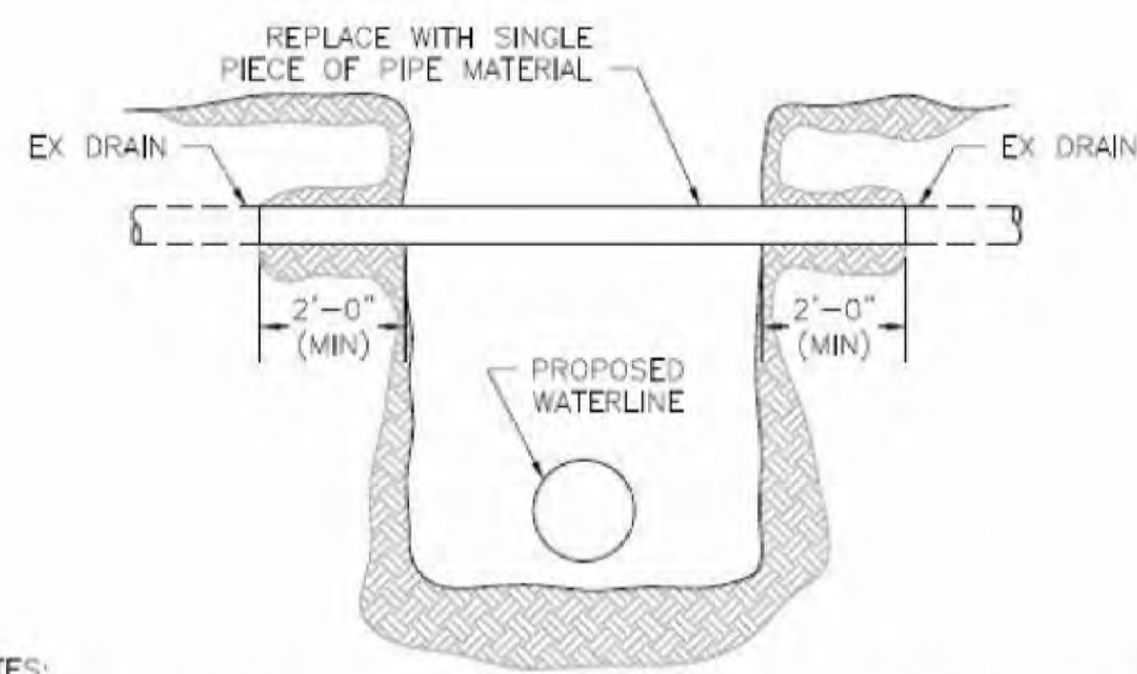
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5. PROVIDE CLEARANCE FOR REMOVAL OF BOLTS.
6. VISQUEEN SHALL BE PLACED IN A MANNER SUCH THAT CONCRETE BLOCKING DOES NOT HAVE DIRECT CONTACT WITH TEE AND/OR FITTINGS.

**BACKING FOR BENDS**  
NOT TO SCALE

FAY-435-1.52

WATER DETAILS AND NOTES SHEET  
UTILITY SHEETS

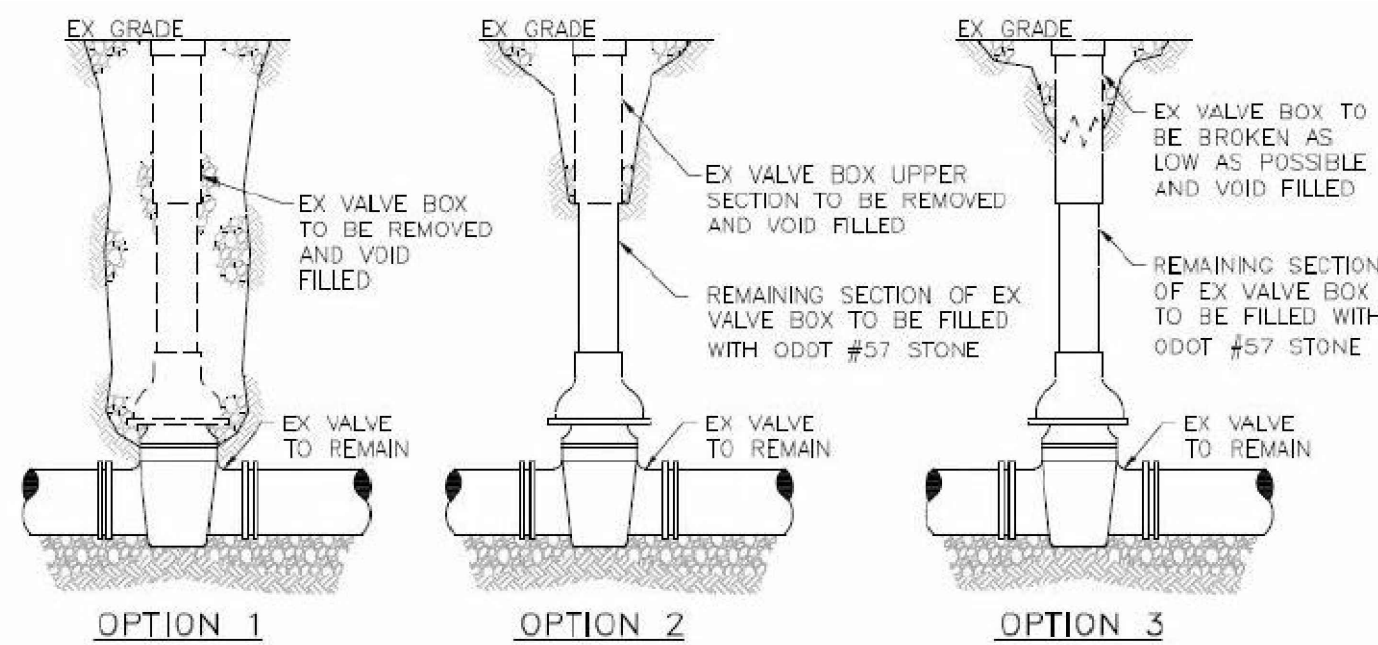
DESIGN AGENCY	Palmer ENGINEERING
DESIGNER	EMR
REVIEWER	SIB 12/22/23
PROJECT ID	117955
SHEET	TOTAL
14	15



**NOTES:**

- INSIDE DIAMETER OF REPLACEMENT PIPE SHALL BE EQUAL TO OR GREATER THAN INSIDE DIAMETER OF EXISTING PIPE.
- REPLACEMENT MATERIAL USED SHALL BE EQUAL TO OR BETTER THAN THE EXISTING MATERIAL AS DIRECTED BY THE ENGINEER OR HIS REPRESENTATIVE.
- PROVIDE RUBBER FLEXIBLE PIPE COUPLING WHERE EXISTING TILE OR UNDERDRAIN HAS WATERTIGHT JOINTS. PROVIDE 30# FELT OR CONCRETE MORTAR OVER THE UPPER HALF OF THE JOINT WHERE OPEN JOINTS ARE ENCOUNTERED.
- BACKFILL BETWEEN WATERLINE AND REPLACEMENT TILE OR UNDERDRAIN SHALL BE COMPACTED GRANULAR.
- MINIMUM ROAD AND CURB UNDERDRAIN REPLACEMENT MATERIAL SHALL BE:
  - PERFORATED CONCRETE: ODOT ITEM 706.06
  - CONCRETE DRAIN TILE: ODOT ITEM 706.07
  - VITRIFIED CLAY: ODOT ITEM 706.08
  - PERFORATED PVC: ODOT ITEM 707.41
  - POLYETHYLENE DRAINAGE TUBING (PERFORATED): ODOT ITEM 707.31
- MINIMUM DRAIN TILE REPLACEMENT MATERIAL SHALL BE:
  - PVC: ASTM-D 2241, SDR 26
  - DUCTILE IRON: AWWA C151, PC 350
  - STEEL PIPE: ASTM-A 139 GRADE B
  - CONCRETE: ODOT ITEM 706.02

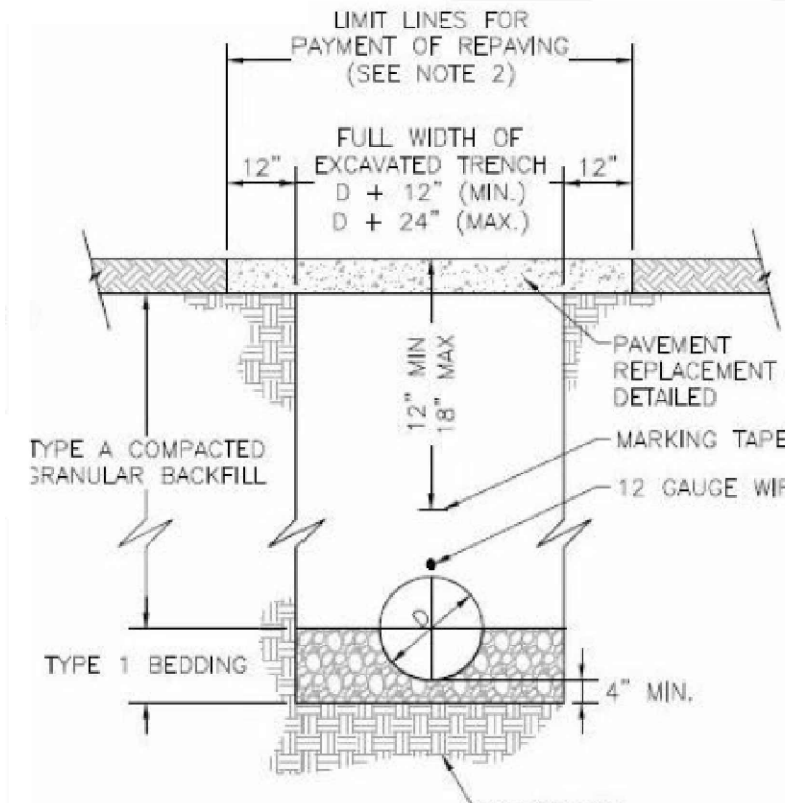
**DRAIN TILE AND UNDERDRAIN REPLACEMENT**  
NOT TO SCALE



**NOTES:**

- EXISTING VALVES TO BE ABANDONED IN PLACE AND SHALL BE LEFT IN THE "CLOSED" OR "OPEN" POSITION AS DESIGNATED BY THE OWNER OR AS OUTLINED IN THE DRAWINGS. PRIOR TO REMOVAL OF THE VALVE BOX THE VALVE SHALL BE ACTUATED TO A FULLY OPEN OR FULLY CLOSED POSITION AND THE POSITION VERIFIED BY THE OWNER OR THE OWNER'S REPRESENTATIVE BEFORE FURTHER ACTION IS TAKEN.
- FOLLOWING VERIFICATION OF VALVE POSITION THE VALVE BOX SHALL BE REMOVED UTILIZING ONE OF THE THREE OPTIONS SHOWN. OPTION 1 IS THE PREFERRED ALTERNATIVE FOR REMOVAL OF THE VALVE BOX. HOWEVER, WHERE THE VALVE IS LOCATED IN AN AREA OF PAVEMENT THAT IS NOT TO BE DISTURBED OR ACCESS FOR EXCAVATION OF THE VALVE BOX AREA IS LIMITED, OPTION 2 OR OPTION 3 MAY BE APPLIED AS AN ALTERNATE. CONTRACTOR SHALL COORDINATE WITH THE OWNER AND/OR THE OWNER'S REPRESENTATIVE ON THE OPTION TO BE UTILIZED PRIOR TO INITIATING THE WORK.
- ONCE THE VALVE BOX HAS BEEN REMOVED, THE REMAINING VOID IS TO BE FILLED WITH COMPACTED GRANULAR MATERIAL AND THE SURFACE RESTORED TO MATCH ADJACENT IN ACCORDANCE WITH DRAWINGS.
- WHERE EXISTING VALVE BOX IS LOCATED IN PAVEMENT THE PAVEMENT SURFACE REMOVED FOR ACCESS TO THE VALVE SHALL BE SAW CUT.

**ABANDONMENT OF EXISTING VALVE**  
NOT TO SCALE



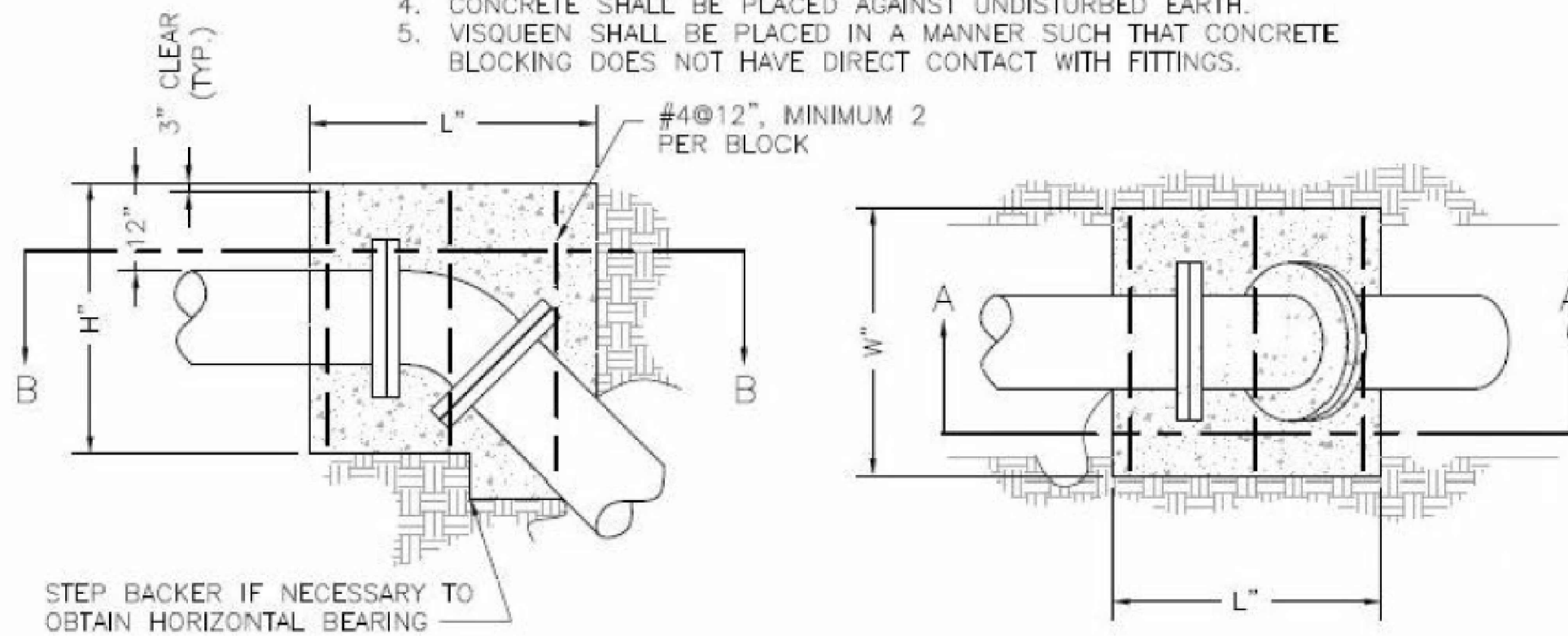
**TRENCH DETAIL FOR WATERLINE INSTALLED UNDER OR WITHIN 5' OF PAVED AREAS**  
NOT TO SCALE

PIPE SIZE	DEGREE OF BEND															
	11 1/4'				22 1/2'				45'				90'			
	L	W	H	V	L	W	H	V	L	W	H	V	L	W	H	V
3"	12	18	12	1.5	13	25	16	3.0	18	30	19	5.9	25	30	24	10.4
4"	12	24	16	2.6	16	30	18	5.0	22	36	24	11.0	27	48	25	18.7
6"	12	48	18	6.0	15	43	36	13.4	30	55	24	22.9	37	54	36	41.6
8"	12	63	24	10.5	18	57	34	20.2	36	57	33	39.2	47	60	46	75.0
12"	20	54	36	22.6	37	62	37	49.0	48	62	51	87.9	66	66	66	166.4
16"	31	65	38	44.3	60	65	39	88.1	65	65	65	159.2	72	96	72	288.0
20"	45	70	40	72.8	56	70	60	136.2	72	76	78	247.0	86	108	84	451.8
24"	41	72	54	92.3	67	74	69	198.0	88	84	84	359.1	96	120	96	640.0

V = VOLUME OF CONCRETE IN CUBIC FEET

**NOTES:**

- CONCRETE FOR BACKING SHALL BE ODOT CLASS "OC1".
- BACKING SHALL BE DESIGNED FOR 3000 PSF SOIL BEARING.
- REINFORCING STEEL SHALL BE USED AS SHOWN.
- CONCRETE SHALL BE PLACED AGAINST UNDISTURBED EARTH.
- VISQUEEN SHALL BE PLACED IN A MANNER SUCH THAT CONCRETE BLOCKING DOES NOT HAVE DIRECT CONTACT WITH FITTINGS.

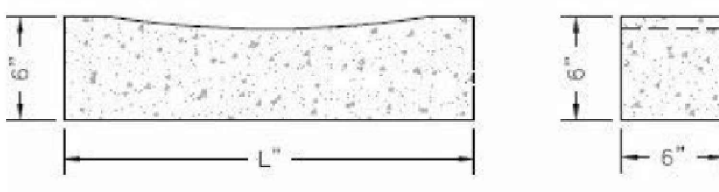


**BACKING FOR VERTICAL BENDS**  
NOT TO SCALE

	SIZE	L	V
GATE VALVES	3"	15	0.31
	4"	16	0.33
	6"	17	0.36
	8"	20	0.42
BUTTERFLY VALVES	12"	24	0.50
	14"	28	0.58
	16"	30	0.63
	20"	36	0.75
	24"	42	0.88
	30"	48	1.00

**NOTES:**

- CONCRETE FOR SUPPORTS SHALL BE ODOT CLASS "OC1".
- BACKING SHALL BE DESIGNED FOR 300 PSF SOIL BEARING.
- CONCRETE SHALL BE PLACED AGAINST UNDISTURBED EARTH.
- PROVIDE CLEARANCE FOR REMOVAL BOLTS.



**CONCRETE VALVE SUPPORTS**  
NOT TO SCALE

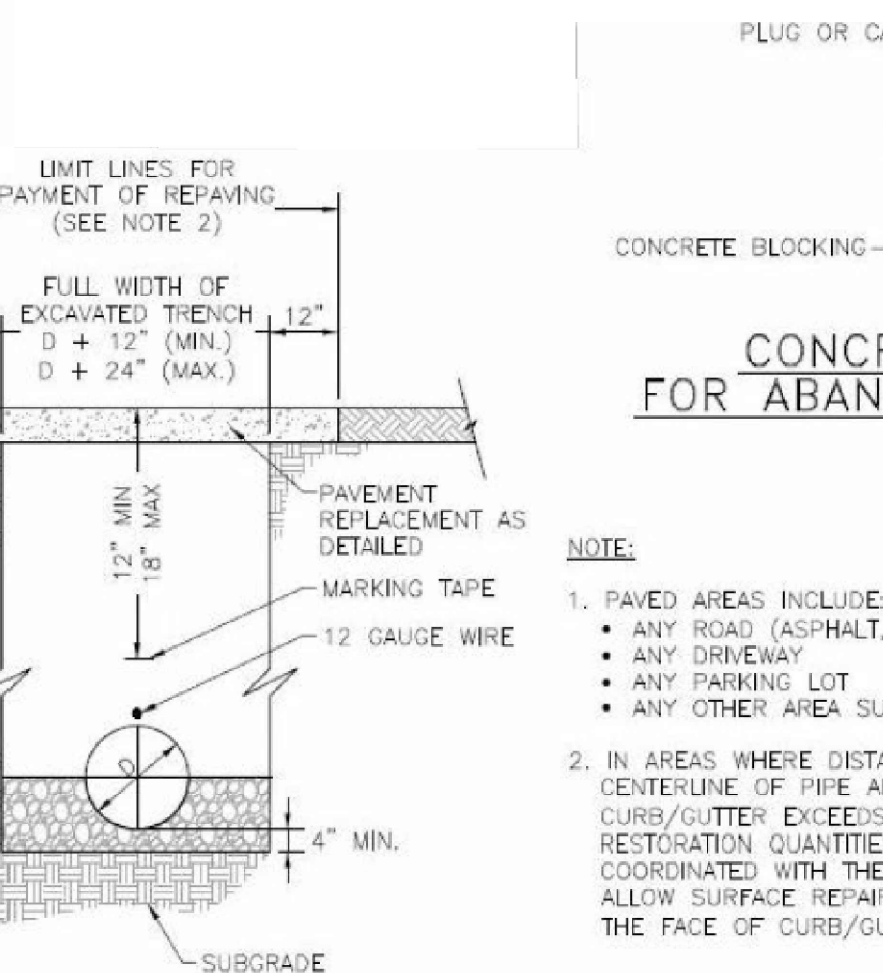
**BACKFILL:**

- TYPE A SHALL BE COMPACTED GRANULAR MATERIAL AS SPECIFIED IN ODOT CMS ITEM 304.
- TYPE B SHALL BE NATURAL SOIL FREE FROM STONES LARGER THAN 2 INCHES ACROSS THEIR GREATEST DIMENSION, TOPSOIL, VEGETATION, DEBRIS, RUBBISH OR FROZEN MATERIAL.
- TYPE C SHALL BE LOW STRENGTH MORTAR BACKFILL, TYPE 1 AS SPECIFIED IN ODOT CMS ITEM 613.

**BEDDING:**

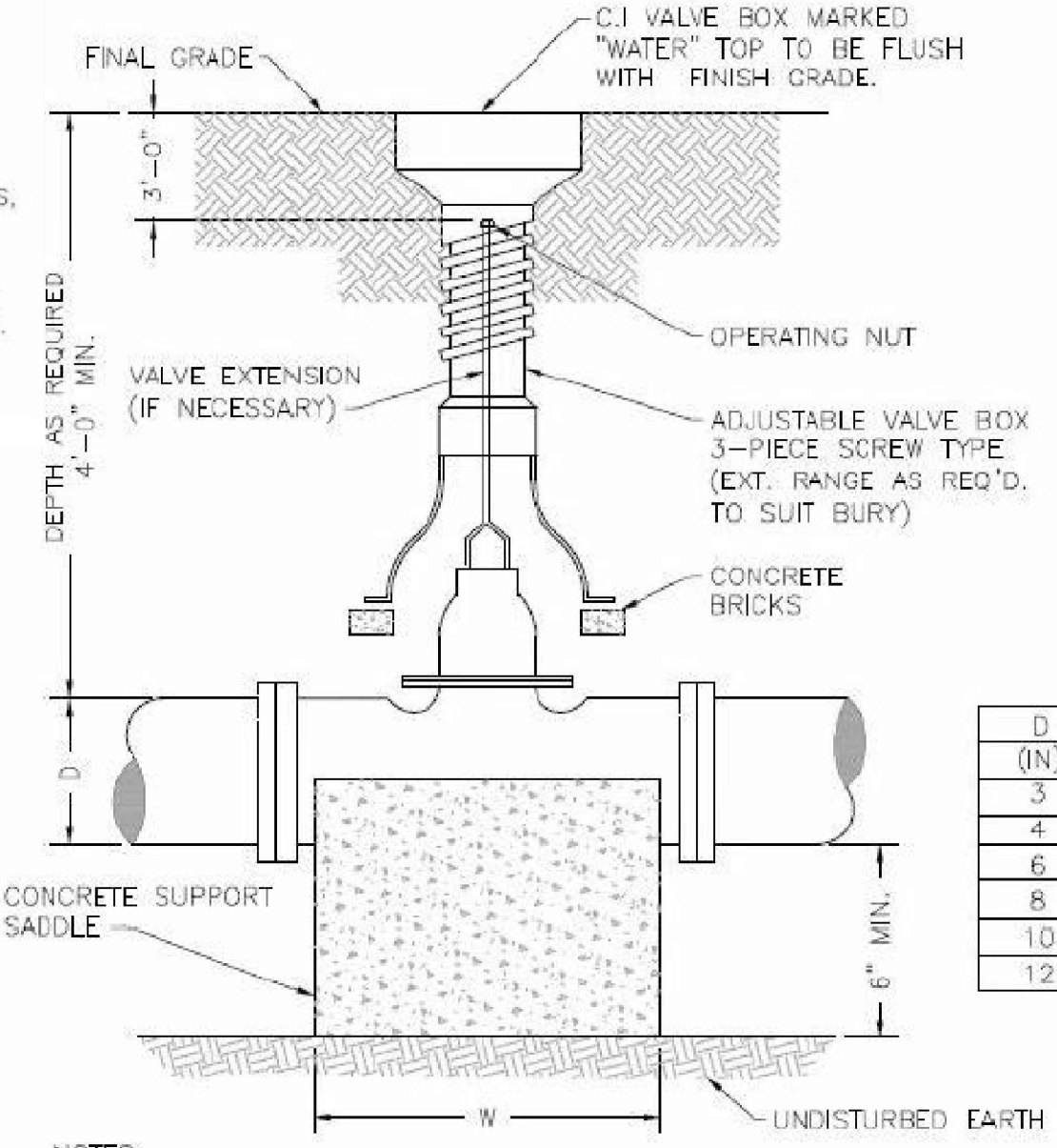
- TYPE 1—GRANULAR MATERIAL No. 57, 6, 67, 68 OR 7 PER ODOT CMS TABLE 703.01-1.
- TYPE 2—NATIVE SOIL FREE FROM STONES LARGER THAN 2 INCHES ACROSS THEIR GREATEST DIMENSIONS, TOP SOIL, VEGETATION, DEBRIS OR FROZEN MATERIAL.
- TYPE 3—CONCRETE BEDDING, CLASS OC1 CONCRETE PER ODOT CMS 499.

**TRENCH DETAIL FOR WATERLINE INSTALLED IN NON-PAVED AREAS**  
NOT TO SCALE



**CONCRETE BLOCKING FOR ABANDONED WATERLINES**  
NOT TO SCALE

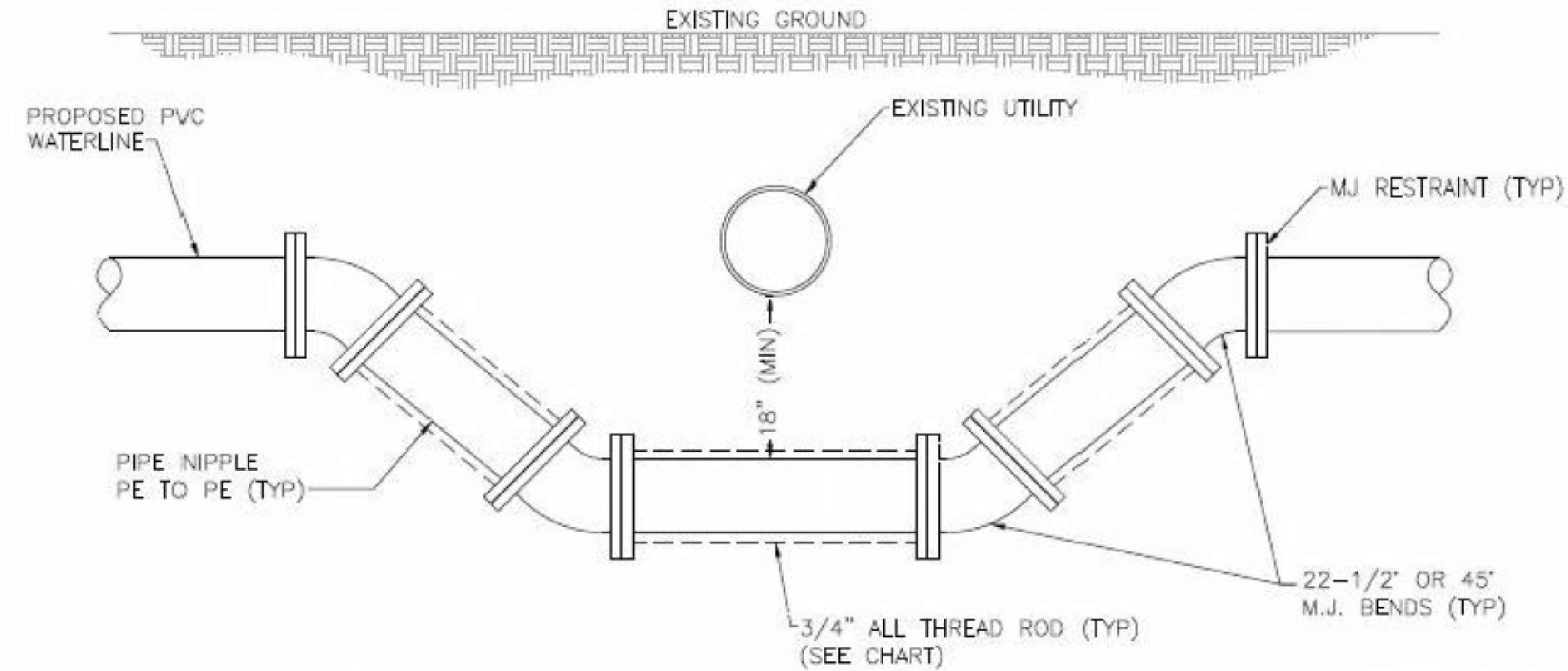
- NOTE:**
- PAVED AREAS INCLUDE:
    - ANY ROAD (ASPHALT, CONCRETE, GRAVEL)
    - ANY DRIVEWAY
    - ANY PARKING LOT
    - ANY OTHER AREA SUBJECT TO TRAFFIC
  - IN AREAS WHERE DISTANCE BETWEEN CENTERLINE OF PIPE AND FACE OF CURB/GUTTER EXCEEDS "D"+2", PAVEMENT RESTORATION QUANTITIES SHALL BE COORDINATED WITH THE ENGINEER TO ALLOW SURFACE REPAIR TO EXTEND TO THE FACE OF CURB/GUTTER.



**NOTES:**

- VISQUEEN SHALL BE PLACED IN A MANNER SUCH THAT CONCRETE BLOCKING DOES NOT HAVE DIRECT CONTACT WITH VALVE.

**STANDARD VALVE BOX**  
NOT TO SCALE

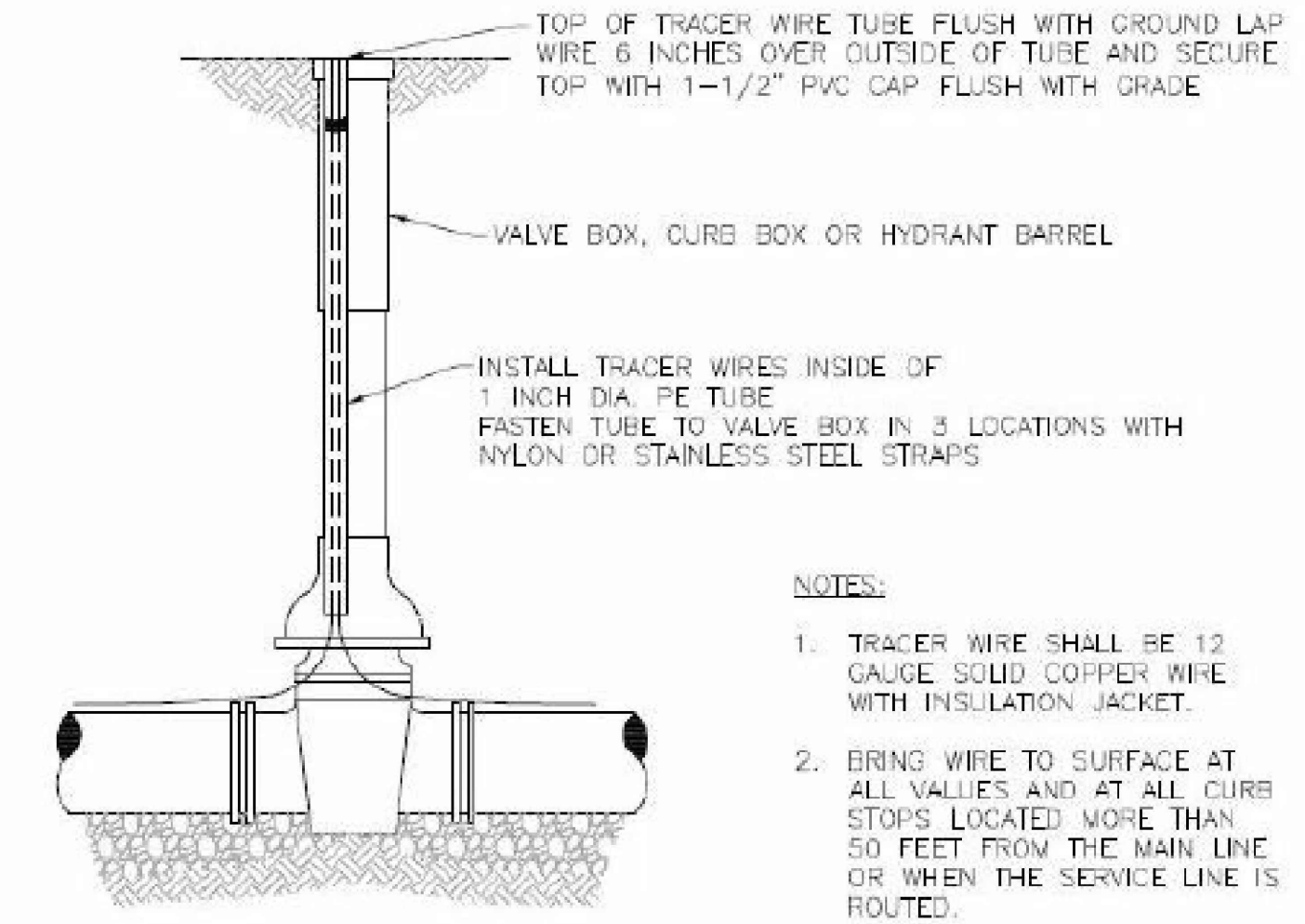


**NOTES:**

- WHERE EXISTING UTILITY GRADE CONFLICTS WITH GRADE OF PROPOSED WATERLINE, PROPOSED WATERLINE SHALL BE ADJUSTED IN GRADE TO PROVIDE A MINIMUM SEPARATION DISTANCE OF 18" BETWEEN UTILITIES.
- ALL JOINTS INVOLVED IN GRADE ADJUSTMENT SHALL INCORPORATE MECHANICAL JOINTS AND SHALL BE RESTRAINED.

PIPE DIAMETER	NO OF RODS
4" & 6"	2
8"	3
10" & UP	4

**TYPICAL WATERLINE GRADE ADJUSTMENT**  
NOT TO SCALE



**NOTES:**

- TRACER WIRE SHALL BE 12 GAUGE SOLID COPPER WIRE WITH INSULATION JACKET.
- BRING WIRE TO SURFACE AT ALL VALVES AND AT ALL CURB STOPS LOCATED MORE THAN 50 FEET FROM THE MAIN LINE OR WHEN THE SERVICE LINE IS ROUTED.
- INSTALL TRACER WIRE ON FIRE HYDRANT LATERAL PIPE WHERE THE FIRE HYDRANT IS MORE THAN 50 FEET FROM THE MAIN LINE, OR WHEN THE LATERAL CHANGES DIRECTION.

**TRACER WIRE DETAIL**  
NOT TO SCALE