

PROJECT# 23-09  
POND AND DRAINAGE SYSTEM  
CONSTRUCTION

CITY OF DE PERE



ENGINEER DIVISION  
925 S. SIXTH ST  
DE PERE, WI 54115



SITE LOCATION MAP  
N.T.S.

SHEET NO.	DESCRIPTION
G001	TITLE SHEET
G002	STANDARD ABBREVIATION & SYMBOLS
G003	EXISTING CONDITIONS SITE DEMOLITION PLAN
G004	TYPICAL SECTIONS
C101 - C102	FRONT/FRANKLIN/FULTO PLAN AND PROFILE SHEETS
C301 - C305	CROSS SECTIONS
C401	BENCH MARKS & ALIGNMENT
C402	EROSION CONTROL
C403	SITE RESTORATION
C501 - C504	CONSTRUCTION DETAILS

CITY OF DE PERE  
BOARD OF PUBLIC WORKS

3/7/2023	E.P. Rakers
DATE	CITY ENGINEER
3/7/23	[Signature]
DATE	CITY ADMINISTRATOR
3/7/23	[Signature]
DATE	MAYOR



LIST OF STANDARD ABBREVIATIONS

ADT	AVERAGE DAILY TRAFFIC	N	NORTH
AGGR	AGGREGATE	NB	NORTHBOUND
AH	AHEAD	NC	NORMAL CROWN
ASPH	ASPHALT	NE	NORTHEAST
B/B	BACK TO BACK	NO	NUMBER
BARR	BARRICADE	NTS	NOT TO SCALE
BC	BACK OF CURB	NW	NORTHWEST
BK	BACK	O	OIL
BL	BASELINE	O&C	OIL AND CHIP
BLDG	BUILDING	OBLIT	OBLITERATE
BM	BENCHMARK	OD	OUTSIDE DIAMETER
BOW	BACK OF SIDEWALK	PC	POINT OF CURVATURE
BSMT	BASEMENT	PCC	POINT OF COMPOUND CURVE
C	CUT	PCC	PORTLAND CEMENT CONCRETE
C&G	CURB AND GUTTER	PED	PEDESTAL
C/C	CENTER TO CENTER	PLE	PERMANENT LIMITED EASEMENT
CABC	CRUSHED AGGREGATE BASE COURSE	PVMT	PAVEMENT
CB	CATCH BASIN	PE	PRIVATE ENTRANCE
CE	CONSTRUCTION ENTRANCE	PI	POINT OF INTERSECTION
CI	CAST IRON PIPE	PJF	PRE-FORMED JOINT FILLER
CL	CENTERLINE	PL	PROPERTY LINE
CMP	CORRUGATED METAL PIPE	POC	POINT OF CURVE
CNTY	COUNTY	POT	POINT ON TANGENT
CO	CLEANOUT	PP	POLYETHYLENE
CONC	CONCRETE	PRC	POINT OF REVERSE CURVATURE
CONSTR	CONSTRUCTION	PROJ	PROJECT
CONSTR JT	CONSTRUCTION JOINT	PROP	PROPOSED
CORP	CORPORATION	PSI	POUND PER SQUARE INCH
CP	CONTROL POINT	PT	POINT OF TANGENCY
CTH	COUNTY TRUNK HIGHWAY	PVC	POLYVINYL CHLORIDE
CTRL JT	CONTROL JOINT	R	RANGE OR RADIUS
CTV	CABLE TV	RCP	REINFORCED CONCRETE PIPE
CY	CUBIC YARD	REBAR	REINFORCEMENT BAR
D	DEPTH	REL	RELOCATE
DIA	DIAMETER	REM	REMAINING
DI	DUCTILE IRON PIPE	REQD	REQUIRED
DISCH	DISCHARGE	RL	REFERENCE LINE
DW	DRIVEWAY	ROW	RIGHT OF WAY
E	EAST (SEE ELEC BELOW)	RP	REFERENCE POINT
EA	EACH	RR	RAILROAD
EB	EASTBOUND	RT	RIGHT
EBS	EXCAVATION BELOW SUBGRADE	RW	RETAINING WALL
ECS	EXTERNAL CHIMNEY SEAL	S	SOUTH
EL	ELEVATION	SALV	SALVAGE
ELEC	ELECTRIC (E WHEN USED IN LINE STYLE)	SAN	SANITARY
EMB	EMBANKMENT	SB	SOUTHBOUND
ENTR	ENTRANCE	SDWK	SIDEWALK
EP	EDGE OF PAVEMENT	SE	SOUTHEAST
EW	ENDWALL	SF	SQUARE FEET
EXC	EXCAVATION	SHLDR	SHOULDER
EXIST	EXISTING	SY	SQUARE YARD
F	FILL	SS	STORM SEWER
F/F	FACE TO FACE	SSD	STOPPING SIGHT DISTANCE
FDN	FOUNDATION	ST	STREET
FE	FIELD ENTRANCE	STA	STATION
FERT	FERTILIZER	STD	STANDARD
FIN GR	FINISHED GRADE	STH	STATE HIGHWAY TRUNK
FL	FLOWLINE	STM	STORM
FO	FIBER OPTIC	STP	SEWAGE TREATMENT PLANT
FOW	FRONT OF SIDEWALK	STRUCT	STRUCTURE OR STRUCTURAL
FT	FOOT	SW	SOUTHWEST
FTG	FOOTING	TAN	TANGENT
G	GAS	T	TOWN (T WHEN USED FOR TELEPHONE LINE)
GV	GAS VALVE	TEL	TELEPHONE
GW	GUY WIRE	TEMP	TEMPORARY
HDPE	HIGH DENSITY POLYETHYLENE	TLE	TEMPORARY LIMITED EASEMENT
HR	HANDICAP RAMP	TOC	TOP OF CURB
HSE	HOUSE	TOW	TOP OF WATER
HT	HEIGHT	TRANS	TRANSITION
HYD	HYDRANT	TYP	TYPICAL
I	INTERSECTION ANGLE	UG	UNDERGROUND
ICS	INTERNAL CHIMNEY SEAL	USH	US HIGHWAY
ID	INSIDE DIAMETER	VC	VERTICAL CURVE
IN	INCH	VERT	VERTICAL
INL	INLET	VOL	VOLUME
INTERS	INTERSECTION	VPC	VERTICAL POINT OF CURVATURE
INV	INVERT	VPI	VERTICAL POINT OF INTERSECTION
IP	IRON PIPE OR PIN	VPRC	VERTICAL POINT OF REVERSE CURVE
JCT	JUNCTION	VPT	VERTICAL POINT OF TANGENCY
L	LENGTH (OF CURVE)	W	WEST
LC	LONG CHORD OF CURVE	WB	WESTBOUND
LP	LIGHTPOLE	WM	WATERMAIN
LS	LIFT STATION OR LUMP SUM	WSO	WATER SHUTOFF VALVE
LT	LEFT	WTP	WATER TREATMENT PLANT
MAINT	MAINTENANCE	WV	WATER VALVE
MATL	MATERIAL	WWTP	WASTE WATER TREATMENT PLANT
MB	MAILBOX	YD	YARD
MH	MANHOLE		
MP	MARKER POST		


MAPPING & TOPOGRAPHY SYMBOLOGY

DESCRIPTION	SYMBOL	
	EXISTING	PROPOSED
BENCHMARK		
BUSH		
CATCH BASIN		
CABLE TV BOX		
CONTROL POINT		
ELECTRICAL BOX		
EROSION CONTROL - INELT		
FIELD INLET		
GAS VALVE		
HEDGE		
HYDRANT		
IRON PIPE		
LIGHTPOLE		
MAILBOX		
MANHOLE ELECTRIC		
MANHOLE SANITARY		
MANHOLE STORM		
MONITORING WELL		
POWER POLE		
LIGHT POLE		
SIGN		
SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE		
SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE		
SOIL BORING		
STUMP		
TELEPHONE MANHOLE		
TELEPHONE PEDESTAL		
TREE		
WELL		
WATER SERVICE VALVE		
BUTTERFLY WATER VALVE		
WATER VALVE		

GENERAL CONSTRUCTION NOTES:

- ALL ELEVATIONS ARE REFERENCED TO NAVD 88.
- THE WORK UNDER THIS CONTRACT SHALL BE IN ACCORDANCE WITH THE CITY OF DE PERE, CURRENT CONSTRUCTION SPECIFICATIONS AND THESE SPECIAL PROVISIONS AND PLANS, AND THE LATEST ADDITION OF THE WISCONSIN DEPARTMENT OF TRANSPORTATION STANDARDS SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION SPECIFICATIONS, LATEST EDITION, WHERE REFERENCED IN THE CITY SPECIFICATIONS.
- ALL EROSION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO CONSTRUCTION AND SHALL CONFIRM TO THE WISCONSIN DEPARTMENT OF NATURAL RESOURCES CONSTRUCTION SITE EROSION CONTROL AND TECHNICAL STANDARDS.
- EXISTING UTILITIES SHOWN ON THE PLANS ARE APPROXIMATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING EXACT LOCATIONS AND ELEVATIONS OF ALL UTILITIES. WHETHER SHOWN OR NOT, FROM THE OWNERS OF THE RESPECTIVE UTILITIES. ALL UTILITIES OWNERS SHALL BE NOTIFIED BY THE CONTRACTOR 72 HOURS PRIOR TO EXCAVATION.

MAPPING & TOPOGRAPHY SYMBOLOGY

DESCRIPTION	SYMBOL
PLAN	
	(SIZE AND MATERIAL)
EXISTING SANITARY SEWER LINE	San
PROPOSED SANITARY SEWER LINE	100'–8" PVC SAN San
	(SIZE AND MATERIAL)
EXISTING STORM SEWER LINE	ST
PROPOSED STORM SEWER LINE	100'–8" PVC STM ST
	(SIZE AND MATERIAL)
EXISTING WATER MAIN LINE	W
PROPOSED WATER MAIN LINE	100'–8" PVC WM (TEE–BEND) W
EXISTING ELECTRICAL LINE	E
EXISTING GAS MAIN LINE	G
EXISTING TELEPHONE LINE	T
EXISTING CABLE TV LINE	TV
EXISTING SANITARY LATERAL	San
EXISTING WATER SERVICE	W
RIGHT OF WAY	ROW
PROPERTY LINE	PL
EASEMENT	Esm
SILT FENCE EROSION CONTROL	
EXISTING FIBER OPTIC	FO
EXISTING MAJOR CONTOUR	615
EXISTING MINOR CONTOUR	612
PROPOSED MAJOR CONTOUR	615
PROPOSED MINOR CONTOUR	612
PROFILE	
	(SIZE AND MATERIAL)
EXISTING SANITARY SEWER LINE	
PROPOSED SANITARY SEWER LINE	100'–8" PVC SAN @ 0.40%
	(SIZE AND MATERIAL)
EXISTING STORM SEWER LINE	
PROPOSED STORM SEWER LINE	100'–8" PVC STM @ 1.0%
	(SIZE AND MATERIAL)
EXISTING WATER MAIN LINE	
PROPOSED WATER MAIN LINE	PROPOSE 8" PVC WM

PATCH SYMBOLS

ASPHALTIC CONCRETE PAVEMENT		CRUSHED AGGREGATE BASE COURSE	
PORTLAND CEMENT CONCRETE			



CITY OF DE PERE

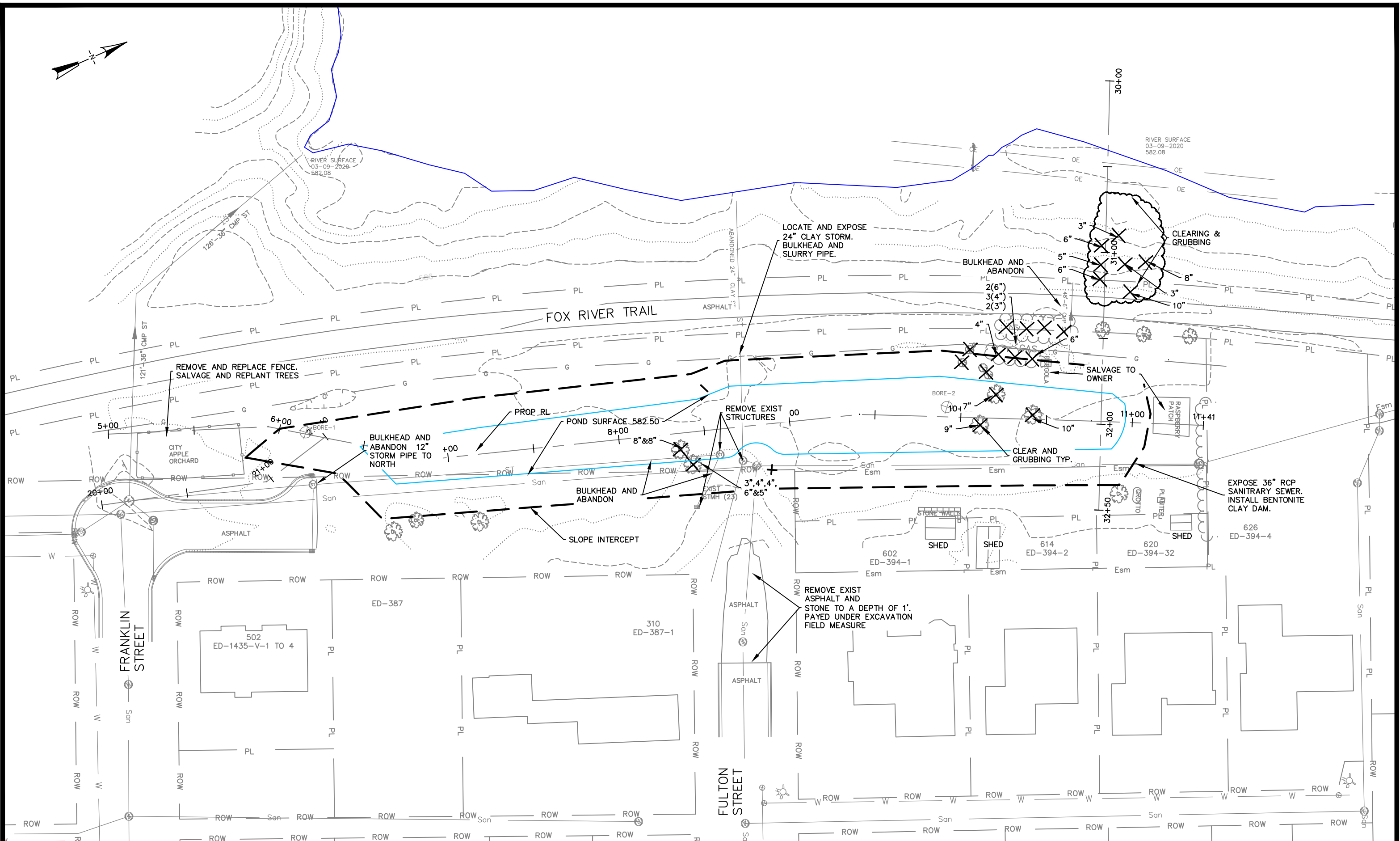
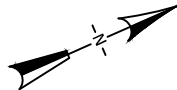
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OFFICE 920-339-4060 FAX 920-339-4071

STANDARD ABBREVIATIONS  
AND SYMBOLS

NAME: POND AND DRAINAGE SYSTEM  
CONSTRUCTION  
PROJECT # 23-09

NO.	DATE	REVISIONS / ISSUES		REMARKS
		BY		
SURVEYED		BK	6-2021	
DRAWN		BK	12-2021	
DESIGNED				
CHECKED				





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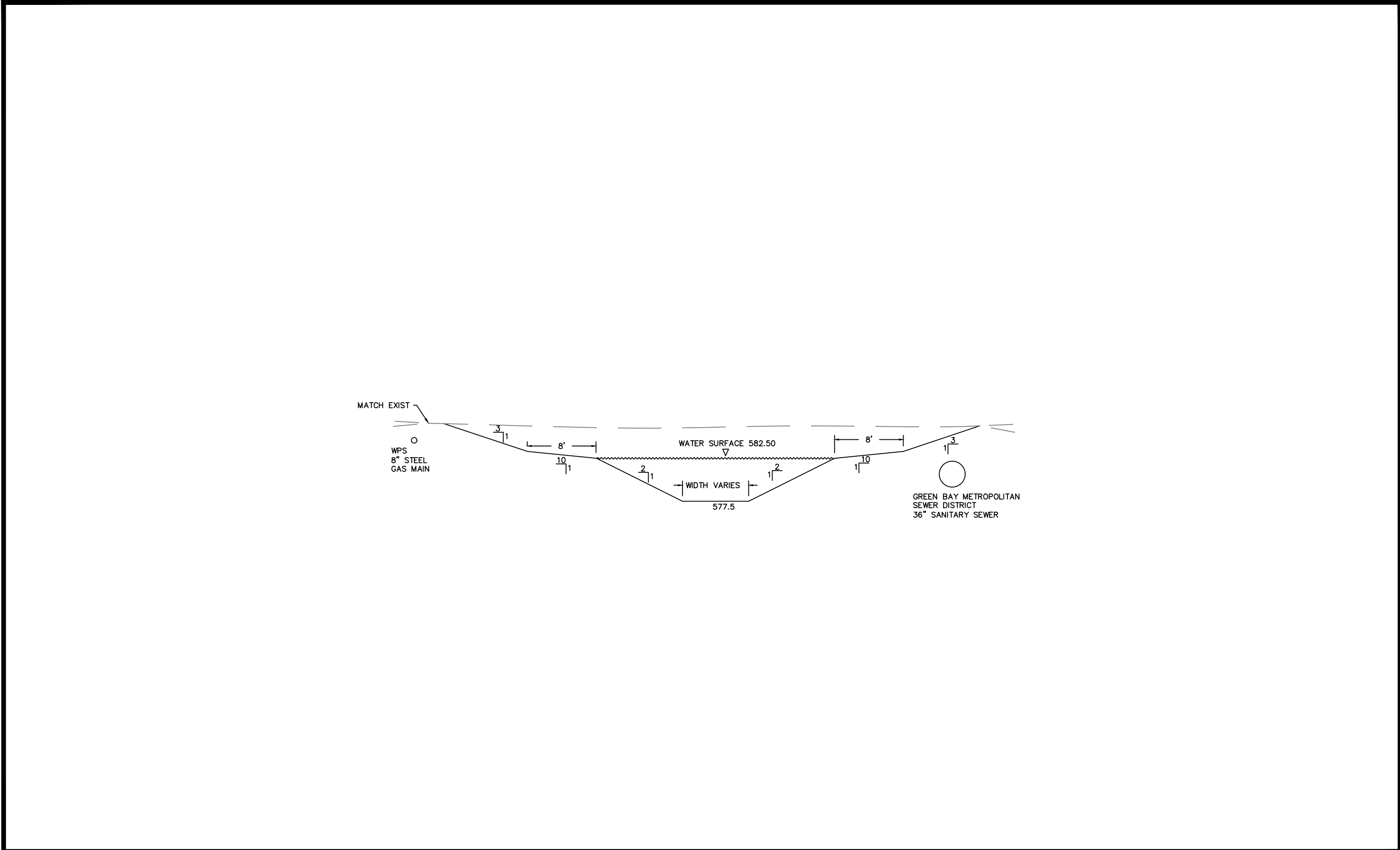
**FRONT / FRANKLIN / FULTON  
STORMSEWER AND POND  
EXISTING CONDITIONS & SITE DEMOLITION**

NAME:  
POND AND DRAINAGE SYSTEM  
CONSTRUCTION  
PROJECT # 23-09

	BY	DATE
SURVEYED	BK	6-2021
DRAWN	BK	12-2021
DESIGNED	REL	01-2022
CHECKED	EPR	01-2022

REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

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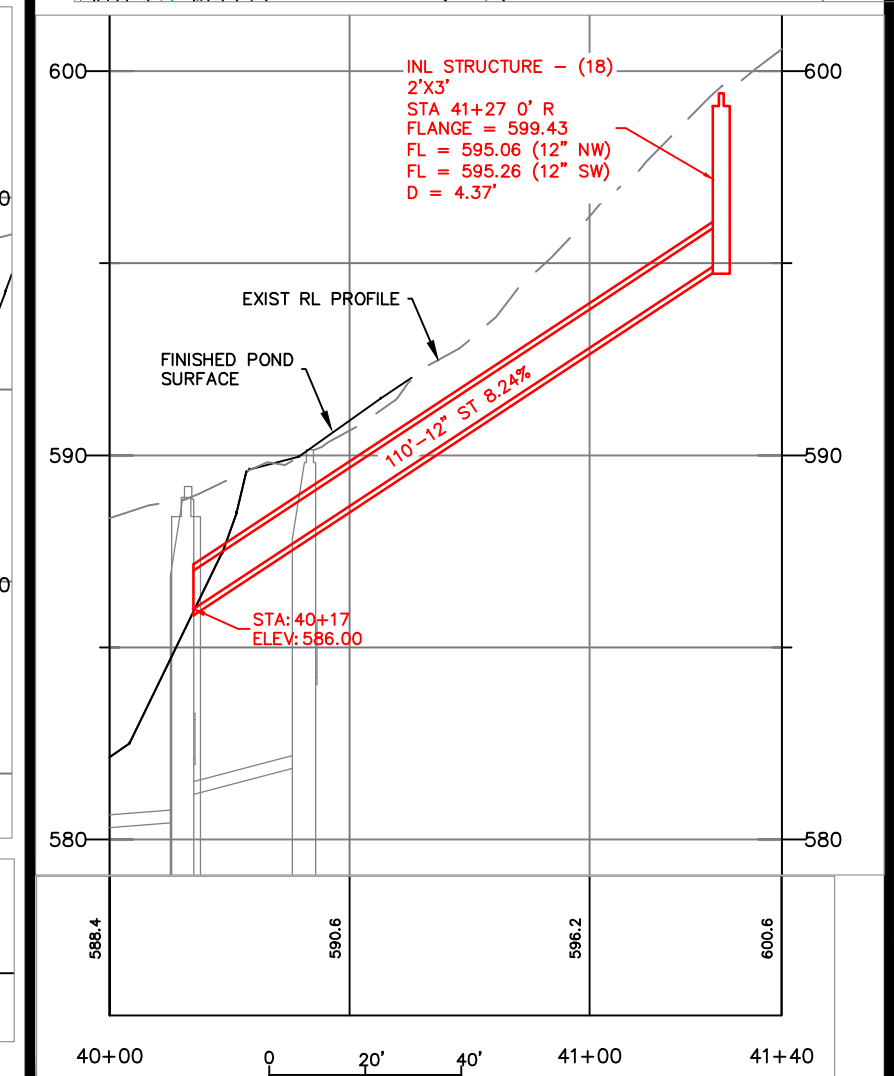
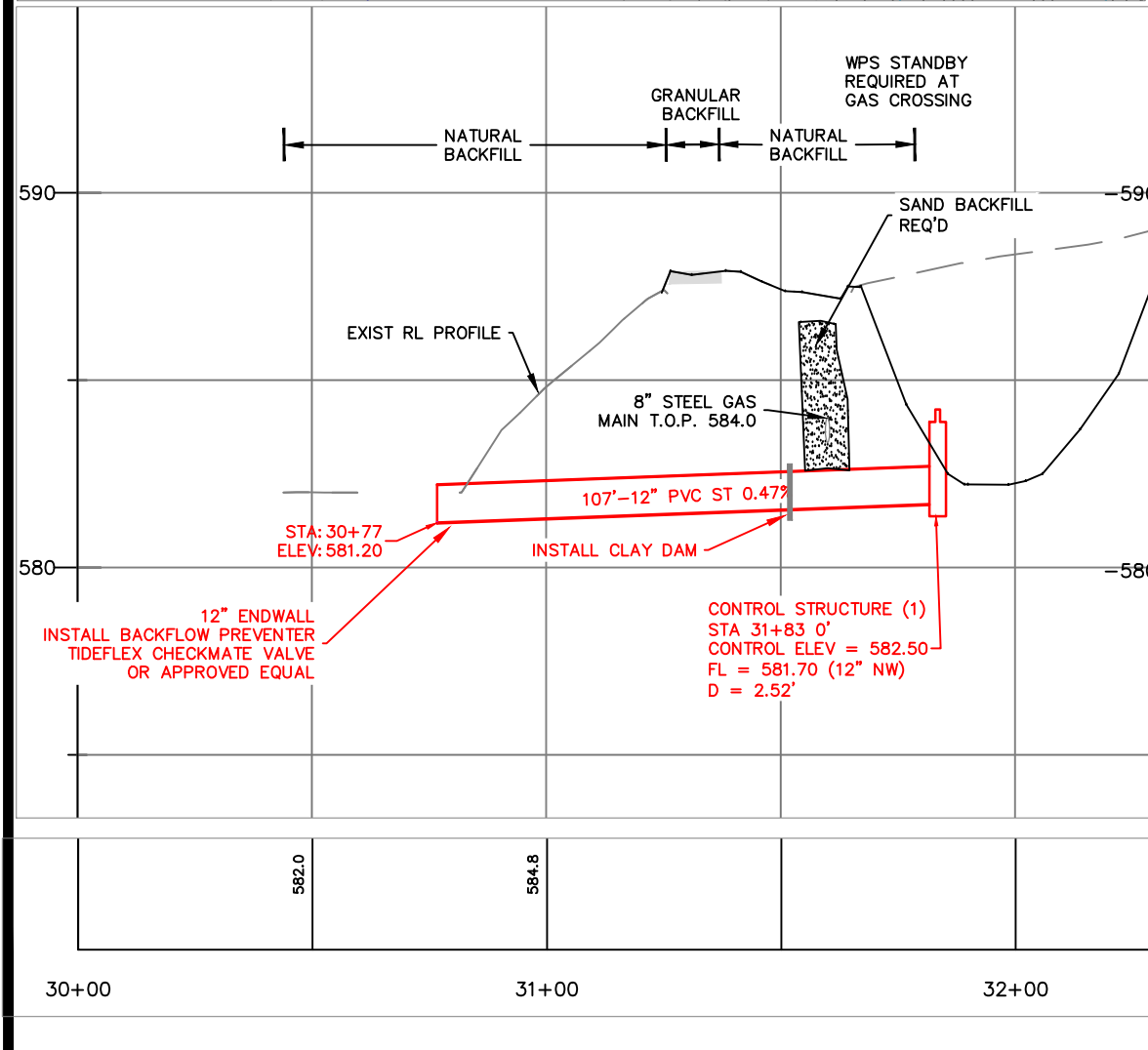
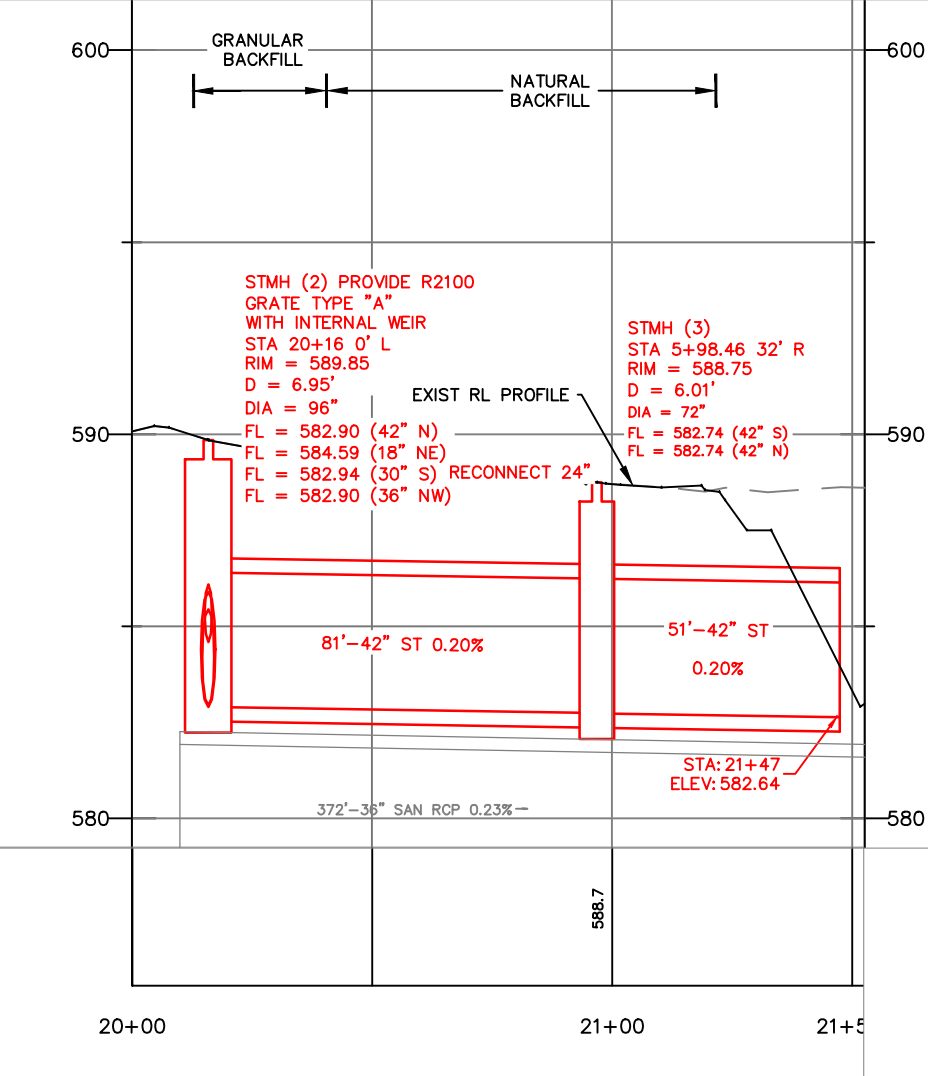
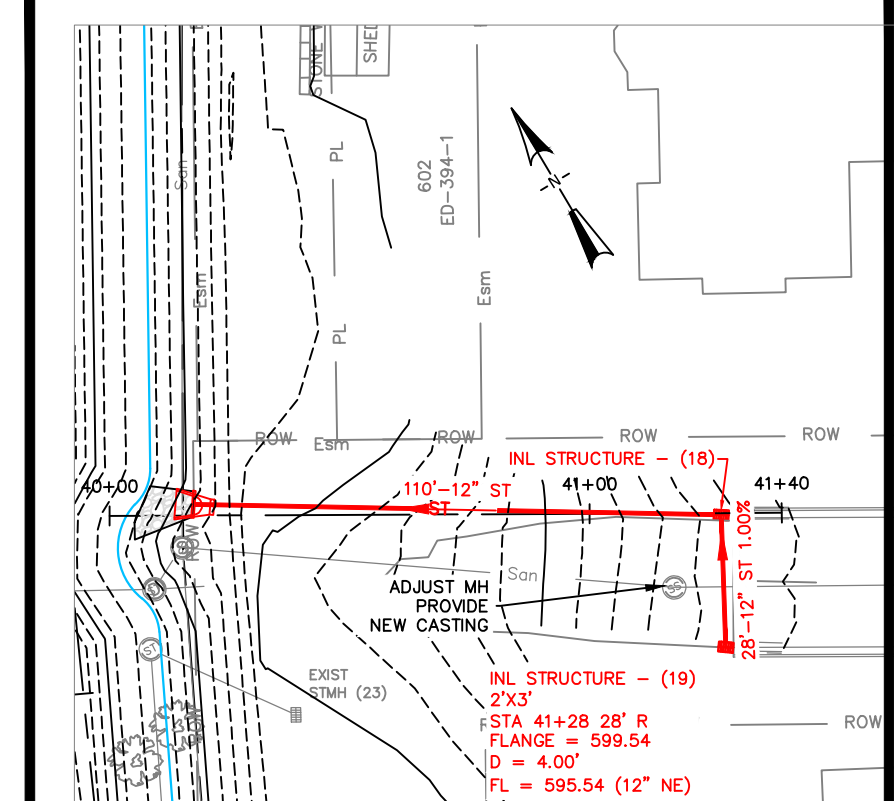
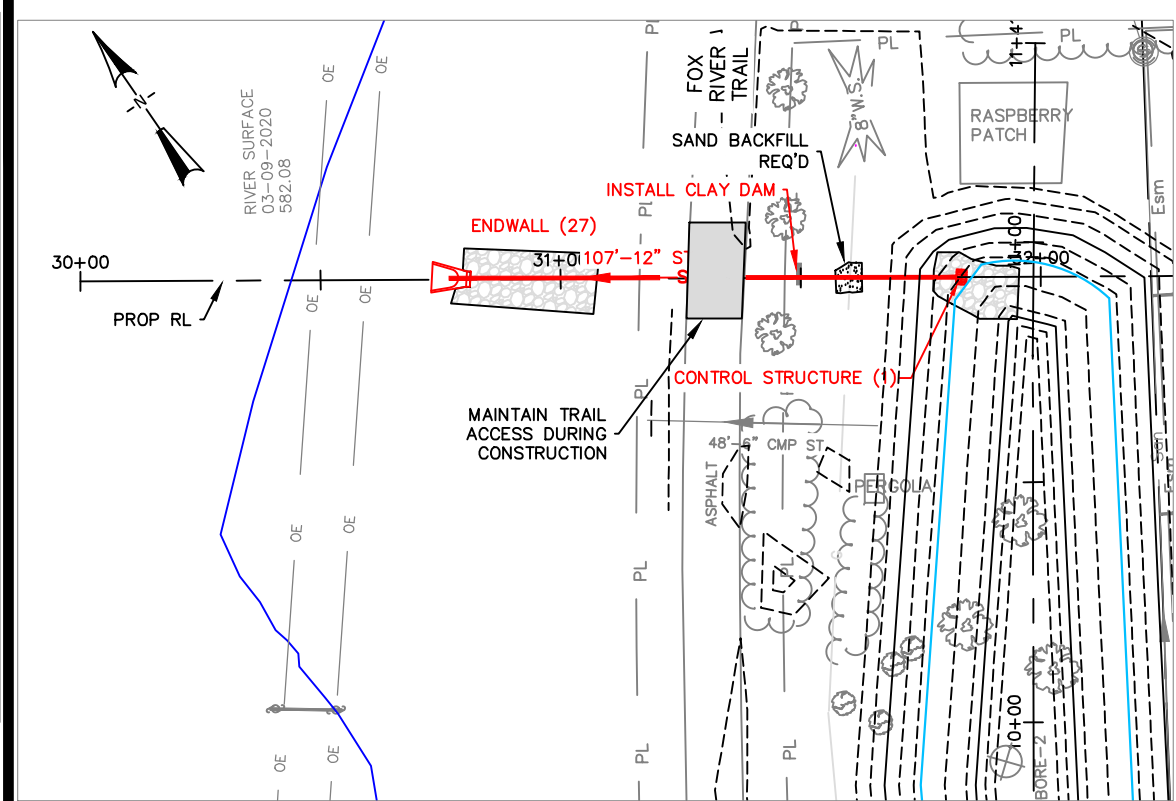
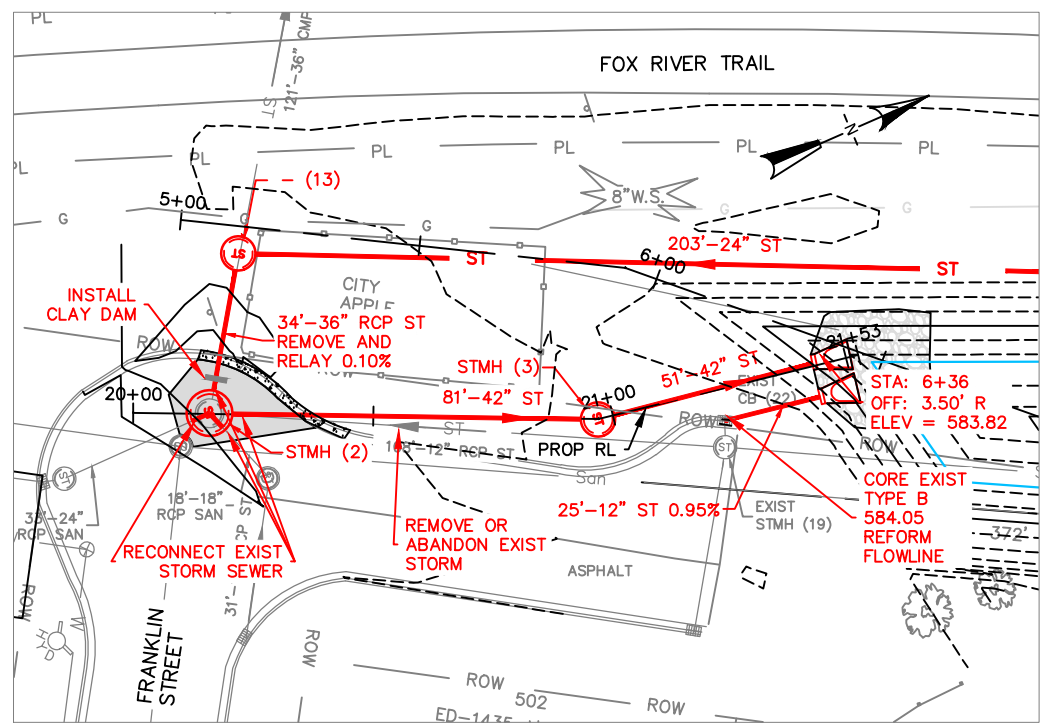
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STORM SEWER AND POND  
TYPICAL SECTION**

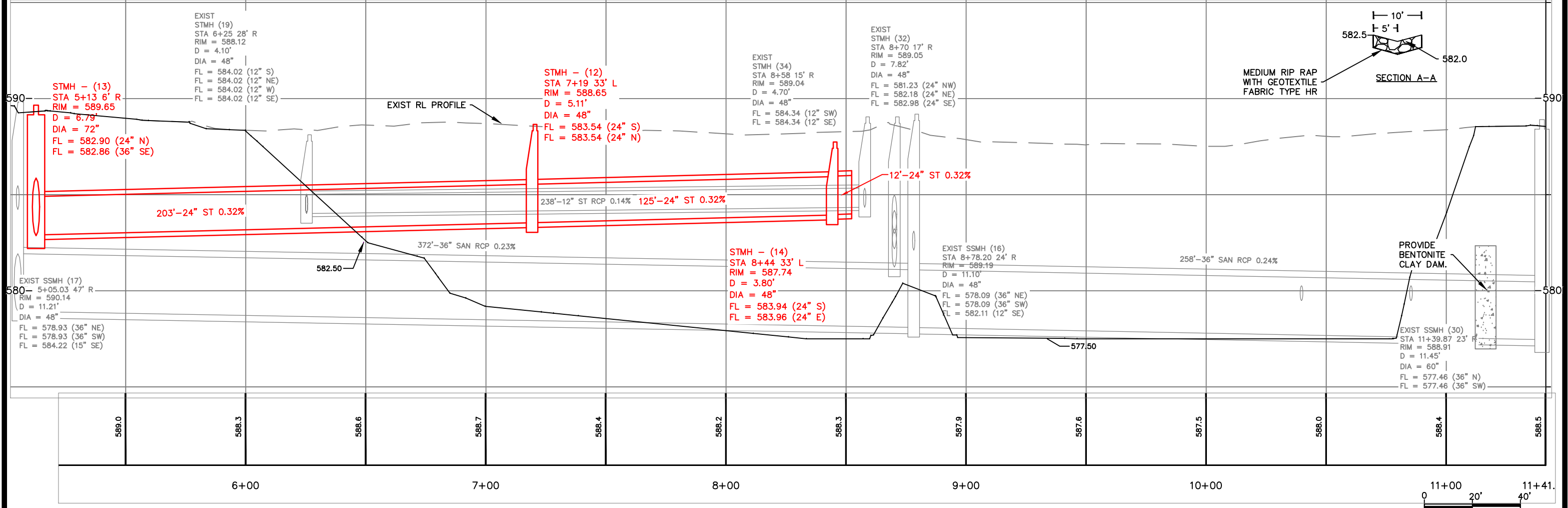
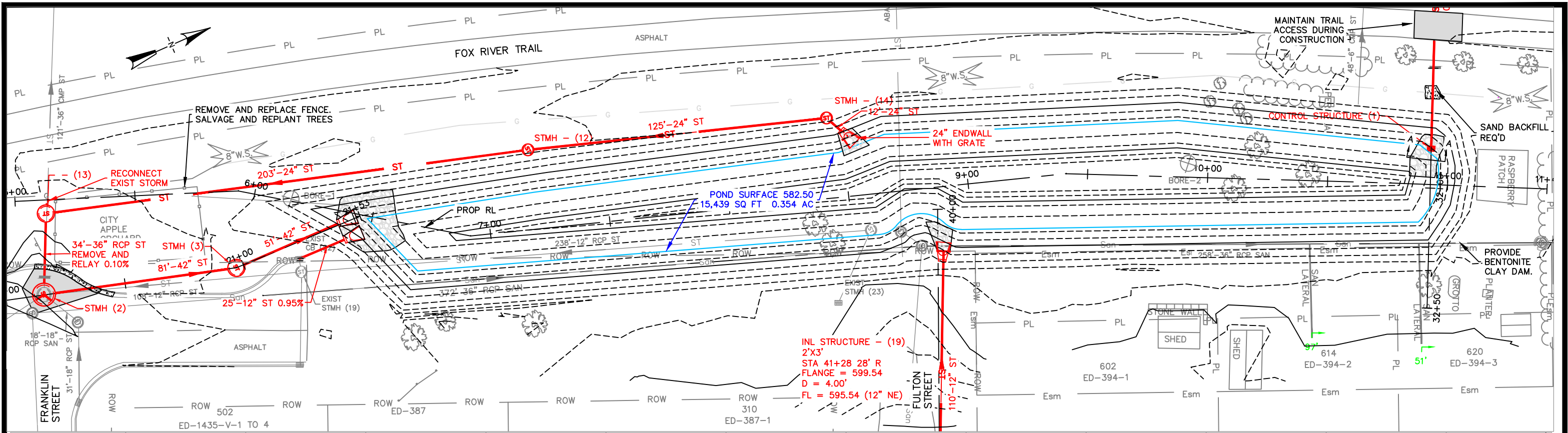
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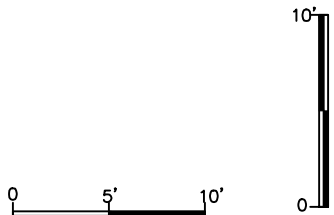
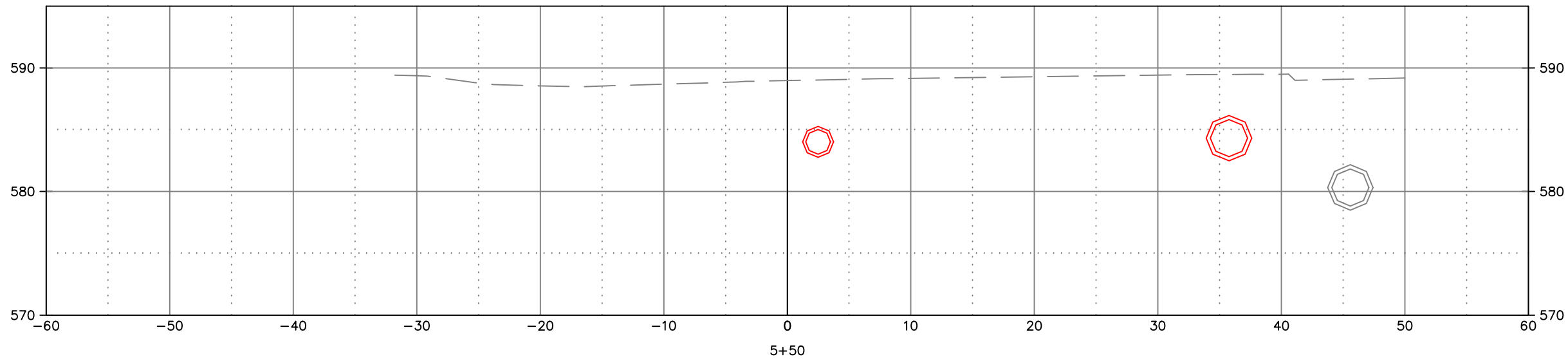
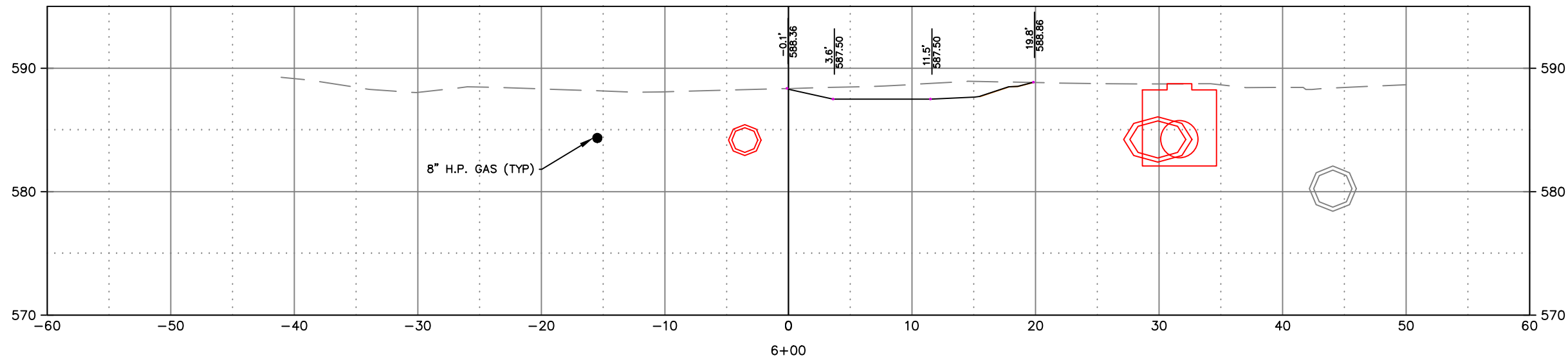
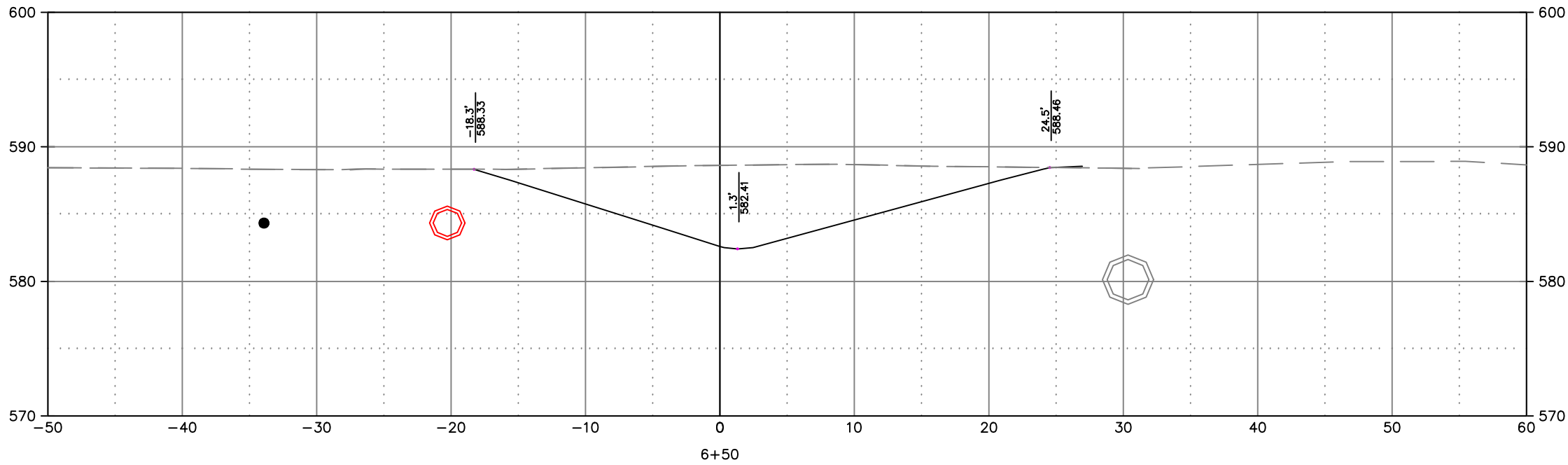
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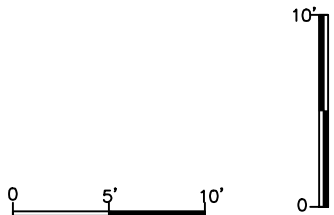
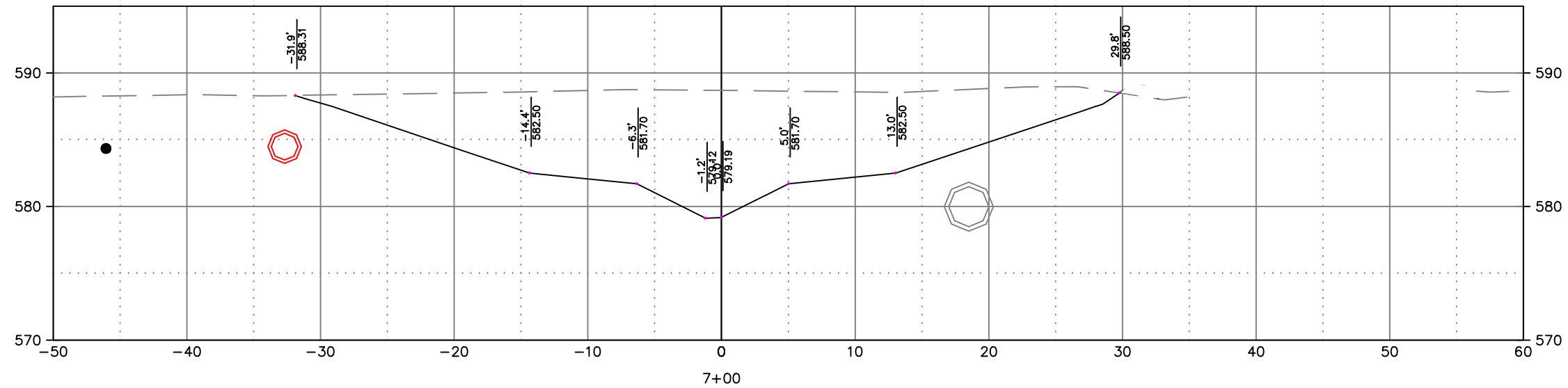
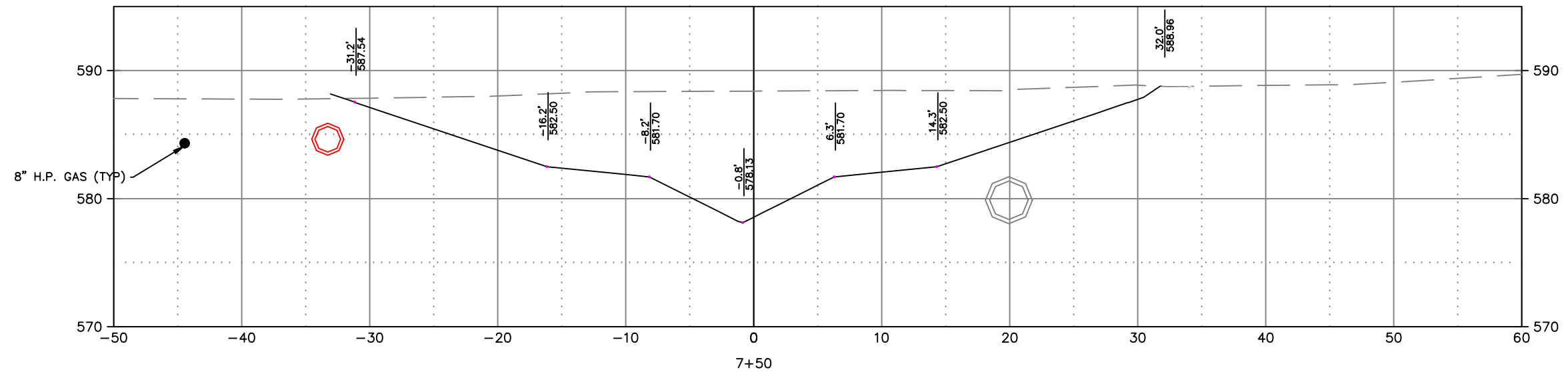
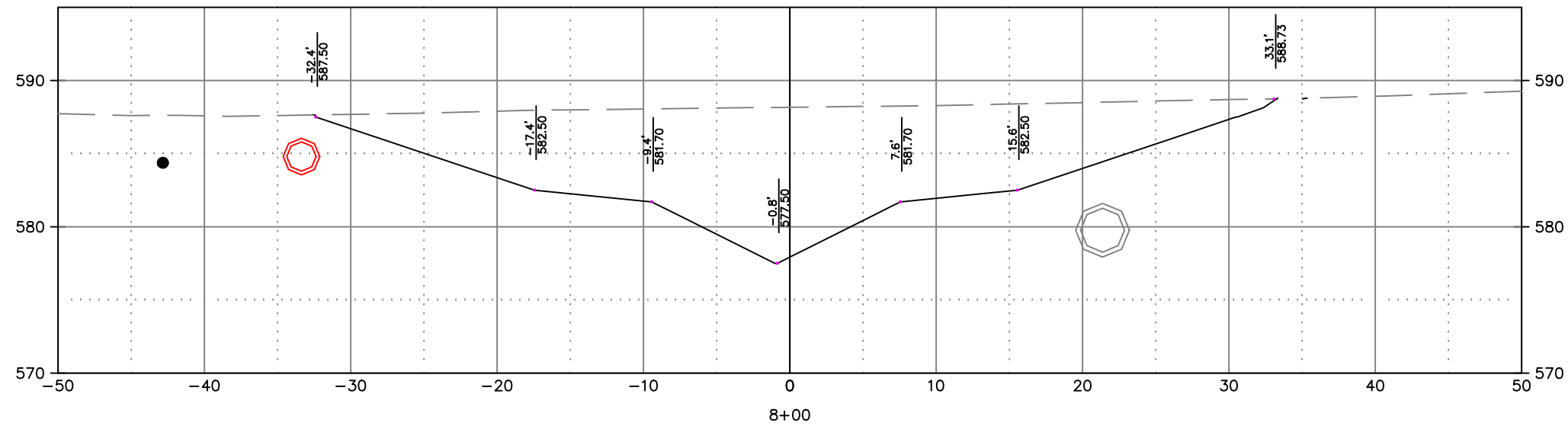
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**STORM SEWER AND POND**  
**CROSS SECTIONS**

NAME:  
POND AND DRAINAGE SYSTEM  
CONSTRUCTION  
PROJECT # 23-09

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STORM SEWER AND POND  
CROSS SECTIONS

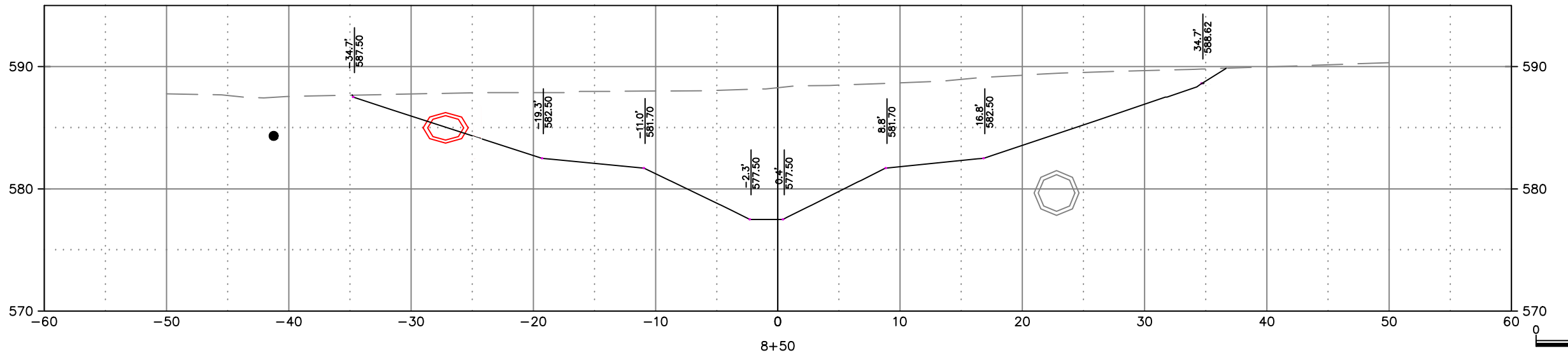
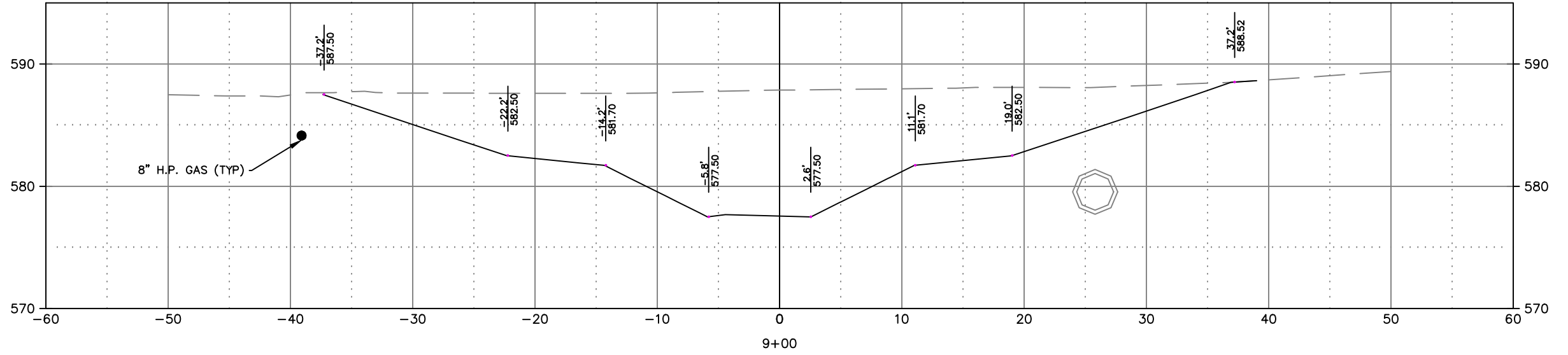
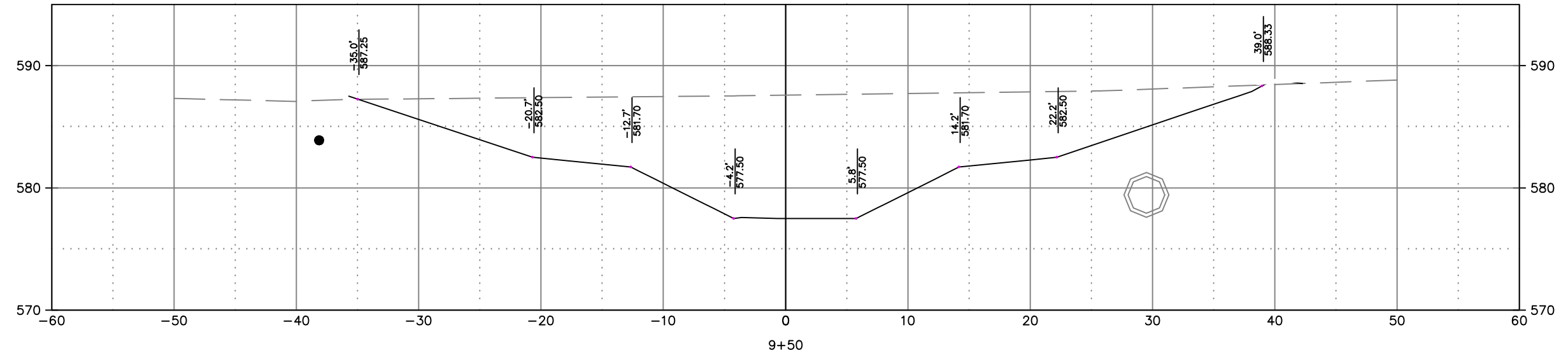
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PROJECT # 23-09

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**FRONT / FRANKLIN / FULTON  
STORM SEWER AND POND  
CROSS SECTIONS**

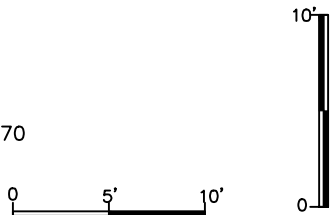
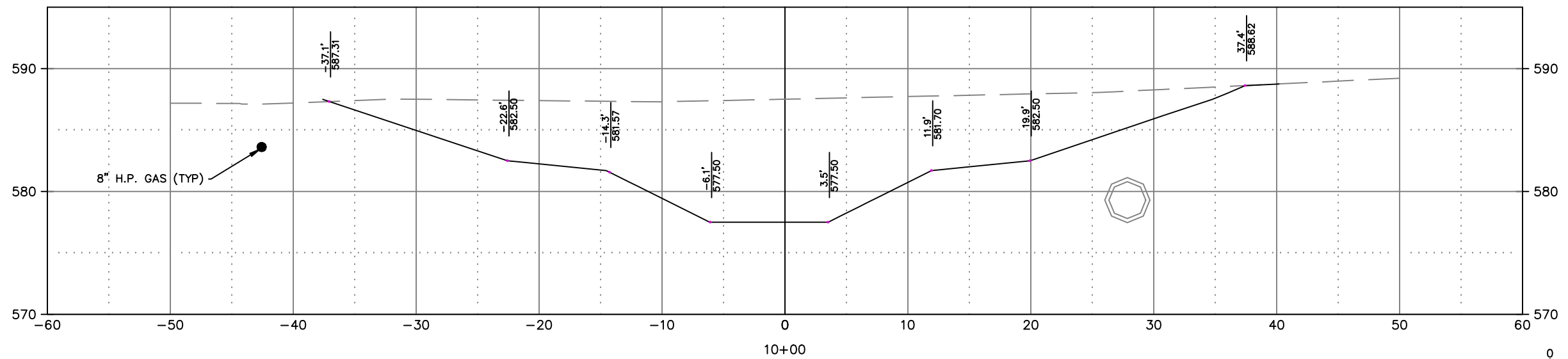
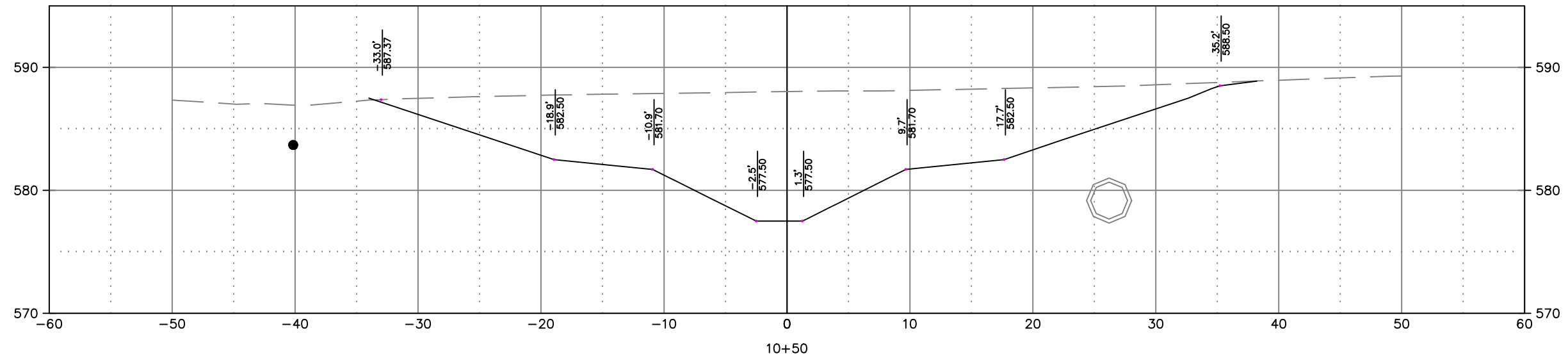
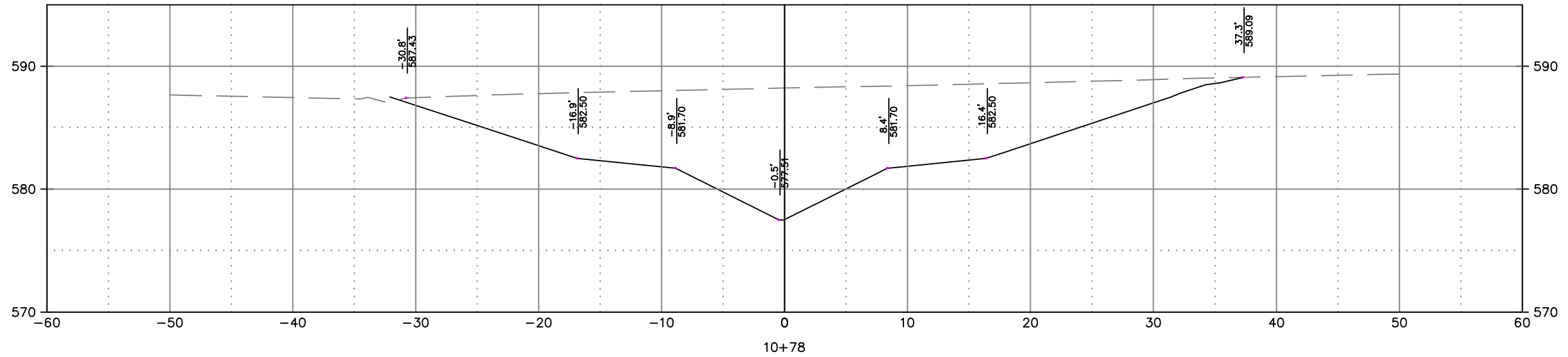
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POND AND DRAINAGE SYSTEM  
CONSTRUCTION  
PROJECT # 23-09

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# CITY OF DE PERE

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## FRONT / FRANKLIN / FULTON STORM SEWER AND POND CROSS SECTIONS

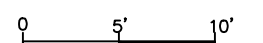
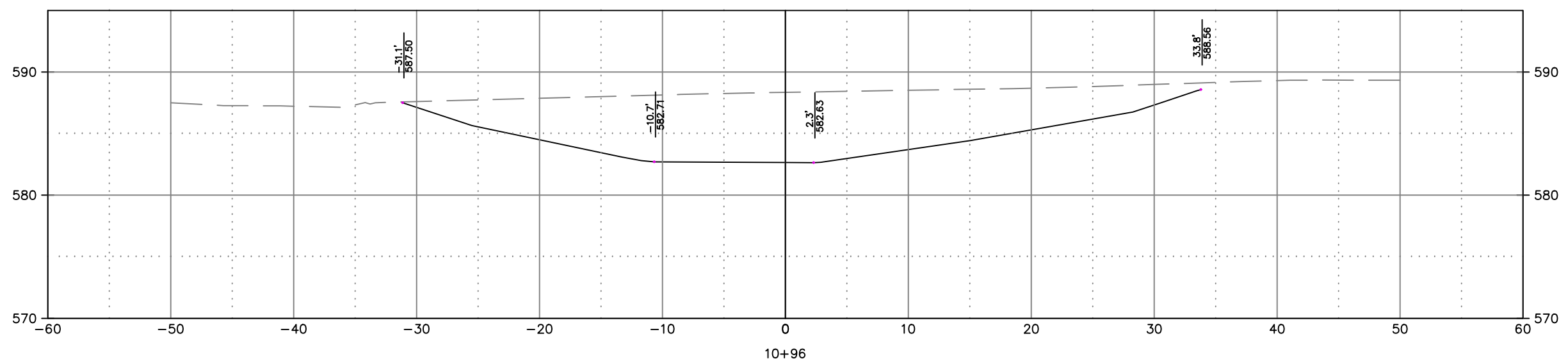
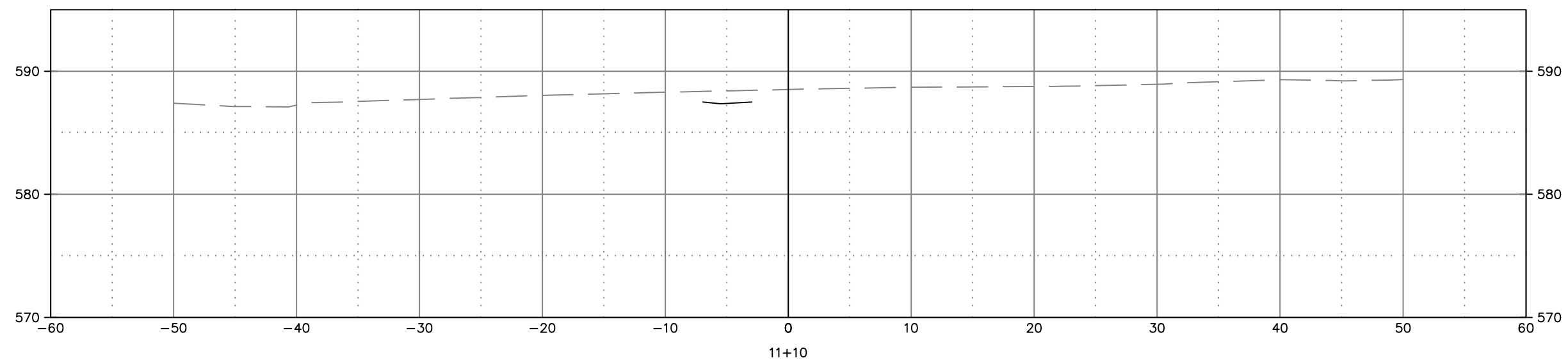
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POND AND DRAINAGE SYSTEM  
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PROJECT # 23-09

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SURVEYED	BK	6-2021				
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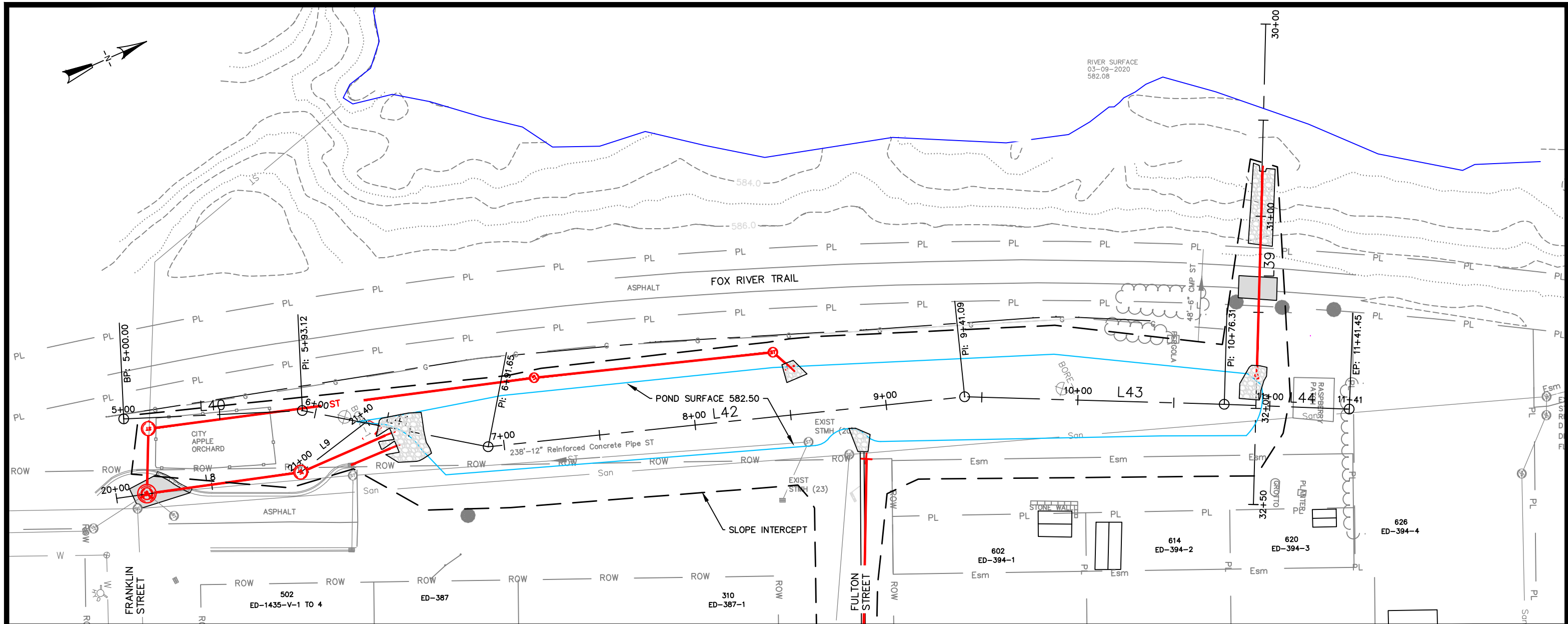
**FRONT / FRANKLIN / FULTON  
STORM SEWER AND POND  
CROSS SECTIONS**

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SURVEYED	BK	6-2021				
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**C305**

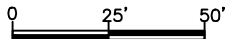


Line Table: Alignments

Line #	Length	Direction	Start Point	End Point
L40	93.122	N24° 26' 36.21"E	N 545086.9454), E 87635.4503	N 545171.7205, E (87673.9834
L41	98.526	N38° 06' 09.03"E	N 545171.7205), E 87673.9834	N 545249.2514, E (87734.7809
L42	249.444	N21° 08' 03.17"E	N 545249.2514), E 87734.7809	N 545481.9170, E (87824.7187
L43	135.214	N28° 45' 37.38"E	N 545481.9170), E 87824.7187	N 545600.4514, E (87889.7768

Line Table: Alignments

Line #	Length	Direction	Start Point	End Point
L39	250.000	S61° 24' 33.04"E	N 545709.8110), E 87723.5733	N 545590.1731, E (87943.0883



CITY OF DE PERE

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FRONT / FRANKLIN / FULTON  
STORM SEWER AND POND  
BENCHMARKS AND ALIGNMENTS

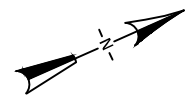
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POND AND DRAINAGE SYSTEM  
CONSTRUCTION  
PROJECT # 23-09

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				NO.	DATE	REMARKS
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DRAWN	BK		12-2021			
DESIGNED	REL		01-2022			
CHECKED	EPR		01-2022			

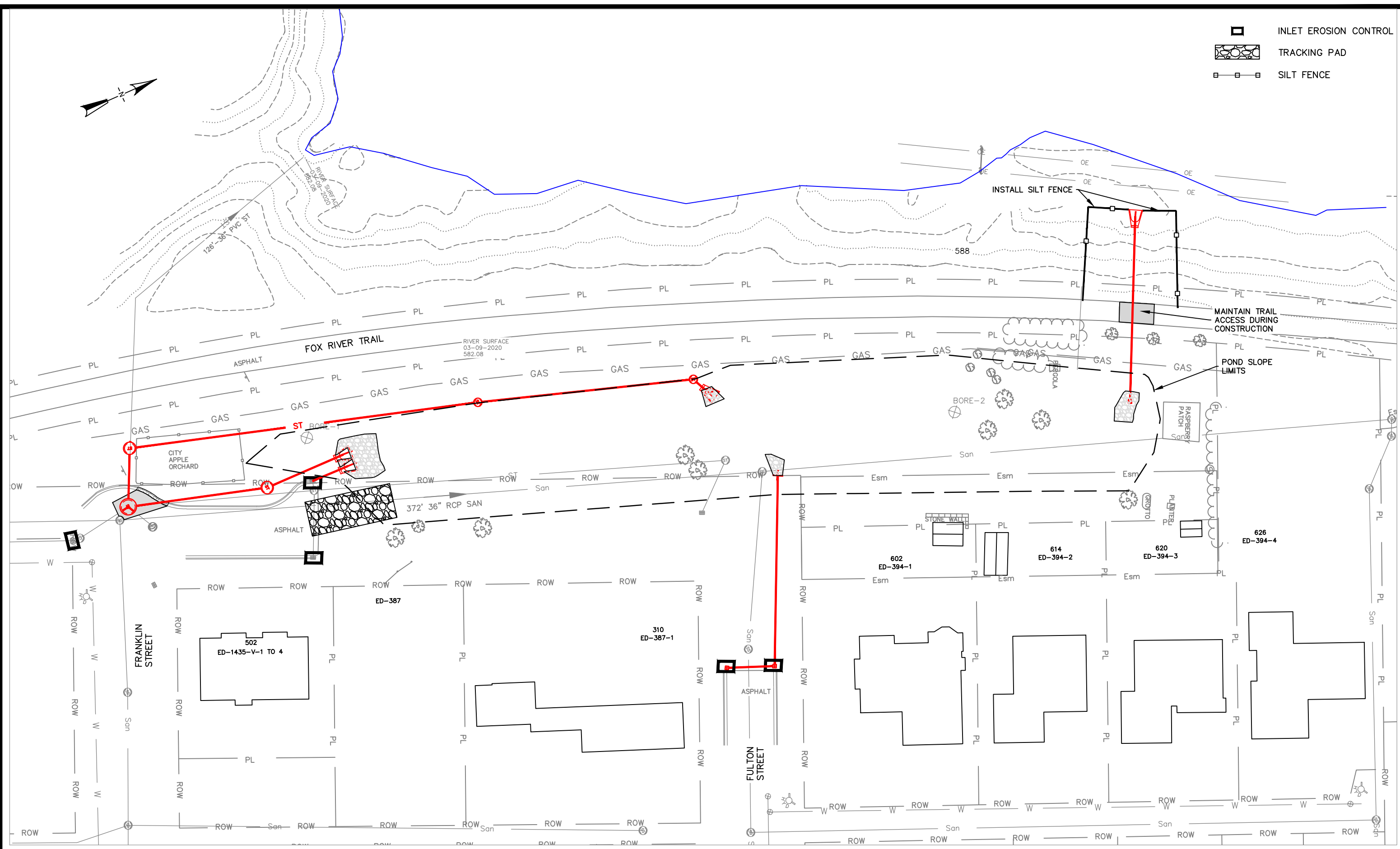
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C401





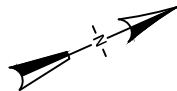
- INLET EROSION CONTROL
- TRACKING PAD
- SILT FENCE



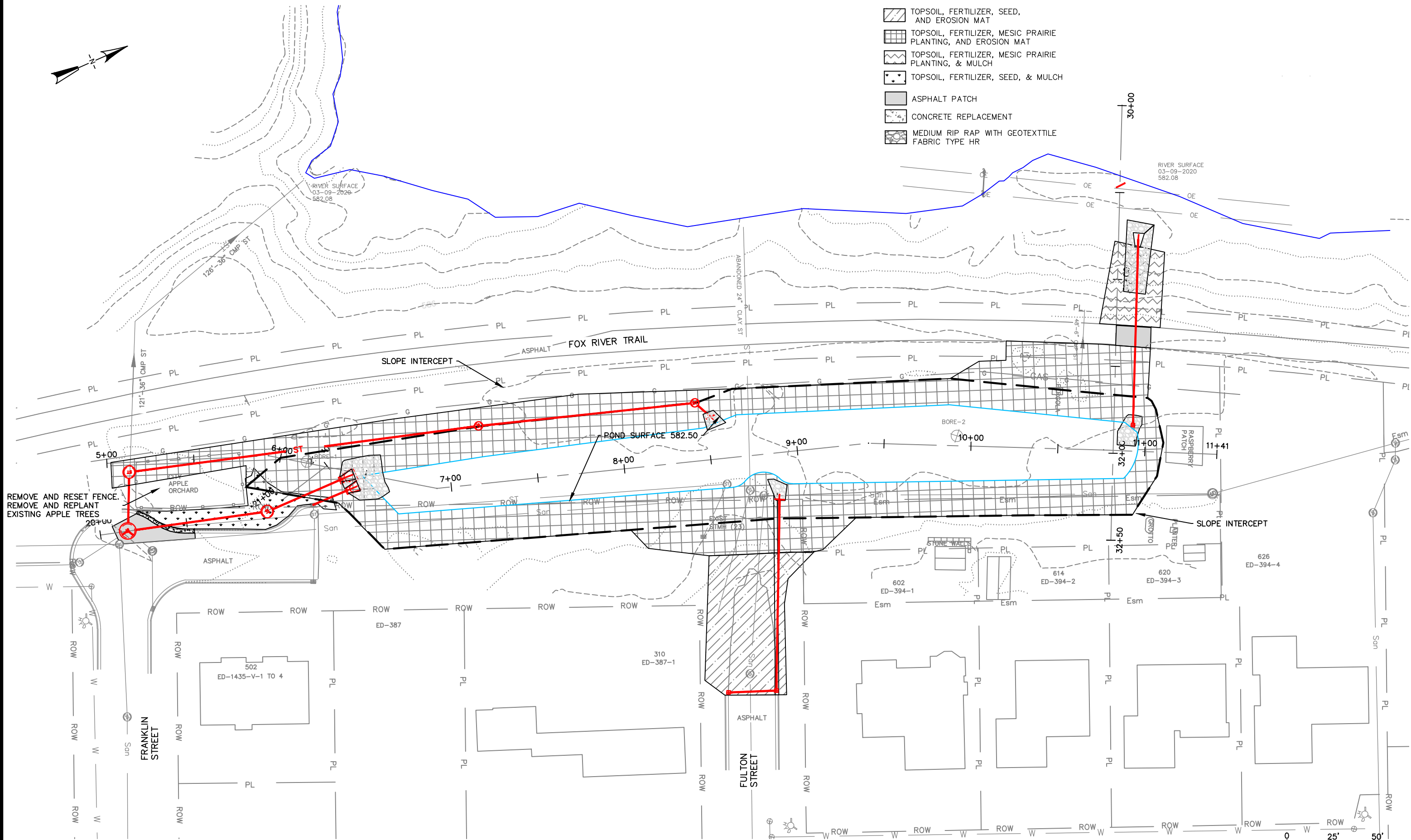
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**FRONT / FRANKLIN / FULTON  
STORM SEWER POND  
EROSION CONTROL**

NAME: POND AND DRAINAGE SYSTEM CONSTRUCTION PROJECT # 23-09		BY BK	DATE 6-2021	REVISIONS / ISSUES		PAGE NO.
SURVEYED		BK	04-2022	NO.	DATE	BY
DRAWN		BK				REMARKS
DESIGNED						
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- TOPSOIL, FERTILIZER, SEED, AND EROSION MAT
- TOPSOIL, FERTILIZER, MESIC PRAIRIE PLANTING, AND EROSION MAT
- TOPSOIL, FERTILIZER, MESIC PRAIRIE PLANTING, & MULCH
- TOPSOIL, FERTILIZER, SEED, & MULCH
- ASPHALT PATCH
- CONCRETE REPLACEMENT
- MEDIUM RIP RAP WITH GEOTEXTILE FABRIC TYPE HR



**CITY OF DE PERE**

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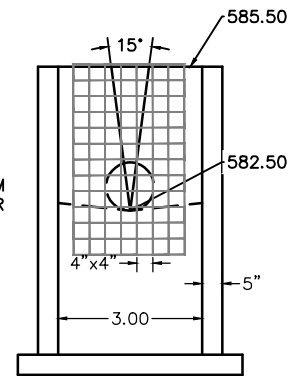
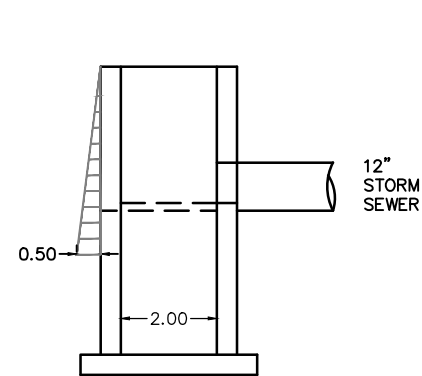
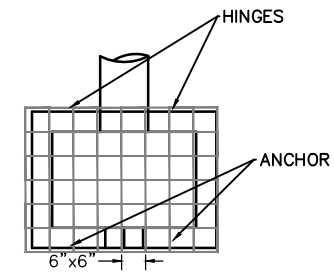
**FRONT / FRANKLIN / FULTON  
STORM SEWER AND POND  
SITE RESTORATION**

NAME:  
POND AND DRAINAGE SYSTEM  
CONSTRUCTION  
PROJECT # 23-09

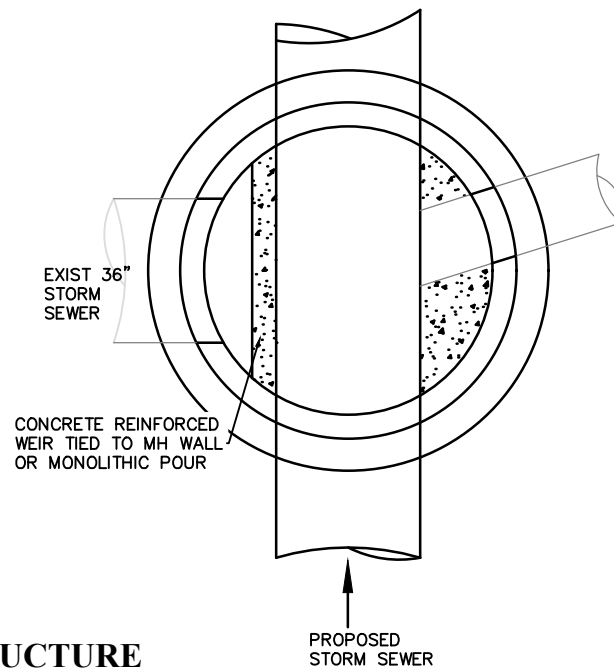
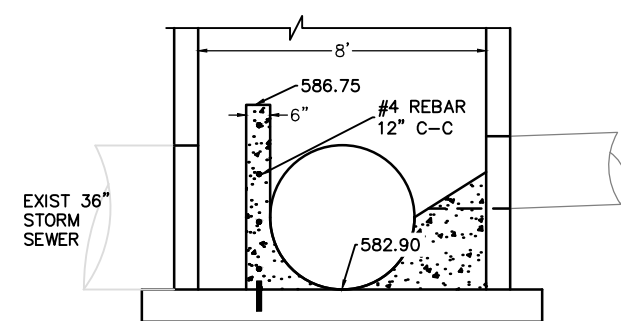
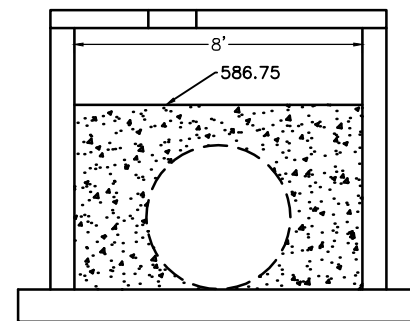
	BY	DATE
SURVEYED	BK	6-2021
DRAWN	BK	12-2021
DESIGNED	REL	01-2022
CHECKED	EPR	01-2022

REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

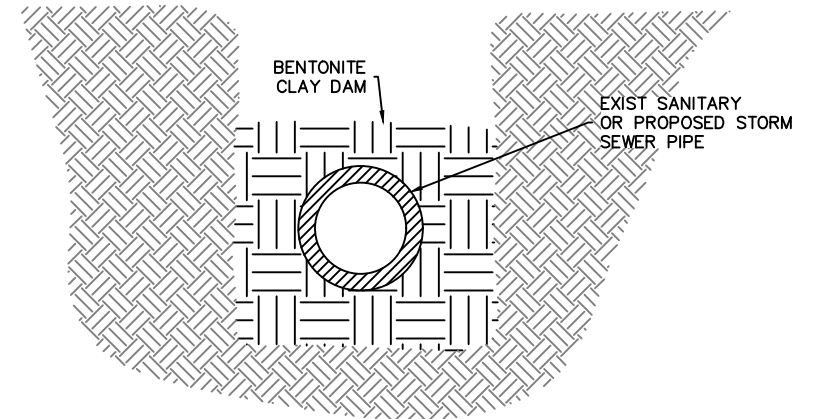
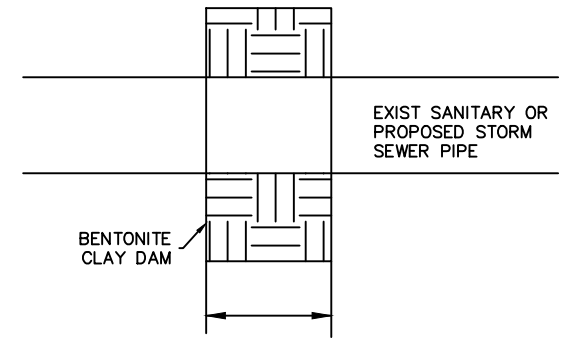
PROPOSED ORIFICE GRATE NO.4  
GALVANIZED OR STAINLESS STEEL  
6" O/C. 4" FOR FACE OF STRUCTURE  
ATTACH TO STRUCTURE USING  
STAINLESS STEEL (TYPE 304 OR 316)  
ANCHOR STRAPS. DROP-IN ANCHORS  
AND HINGE TOP ACCESS.



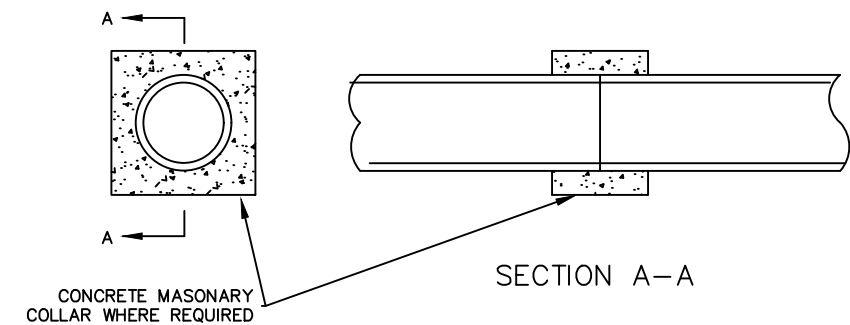
**POND OUTLET STRUCTURE**



**OVERFLOW CONTROL STRUCTURE**



**BENTONITE CLAY DAM DETAIL**  
N.T.S.



**CONCRETE COLLAR DETAIL**



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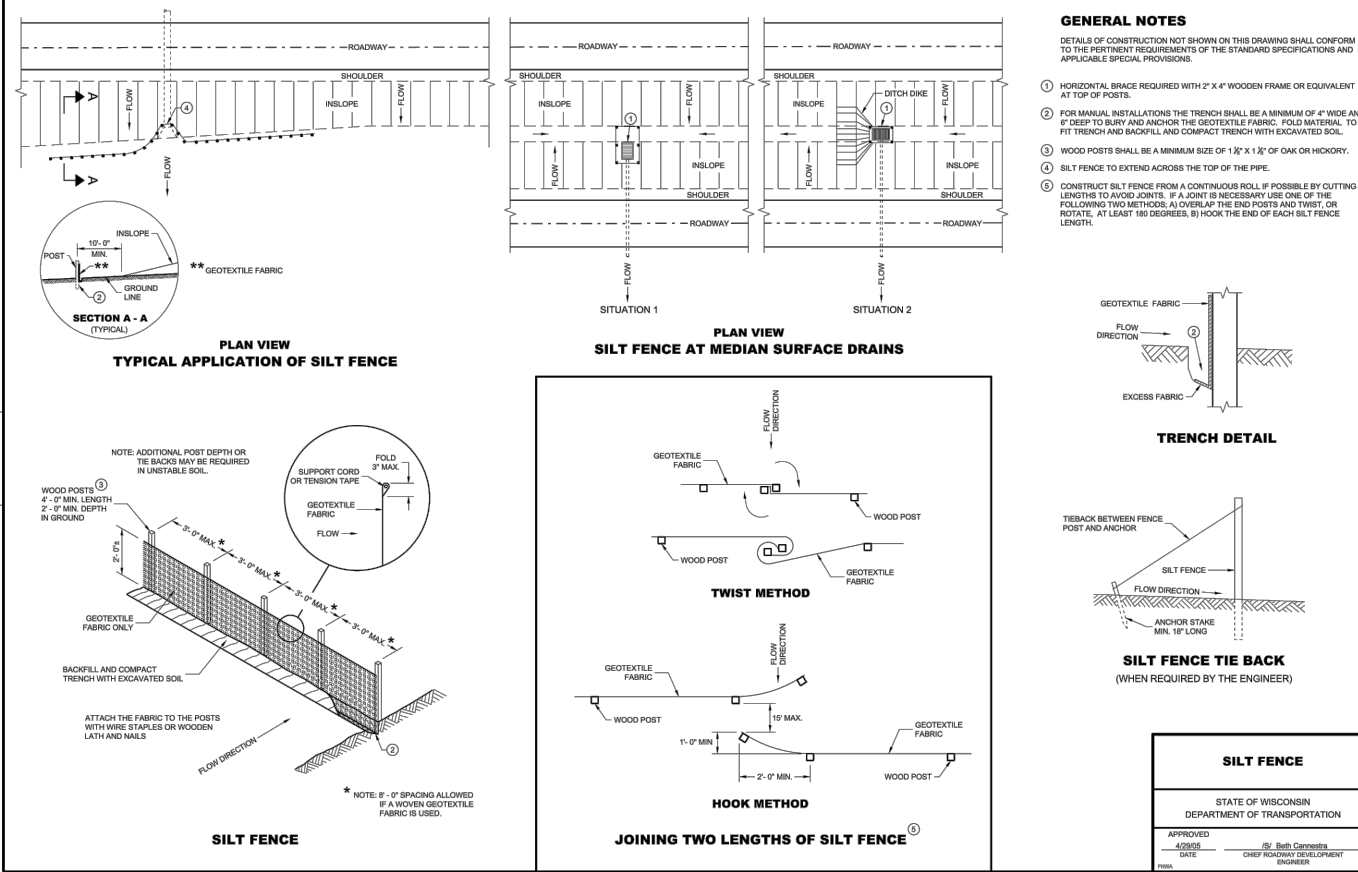
**CONSTRUCTION DETAIL  
STORM SEWER CONTROL STRUCTURES,  
CLAY DAM AND CONCRETE COLLAR**

NAME:  
POND AND DRAINAGE SYSTEM  
CONSTRUCTION  
PROJECT # 23-09

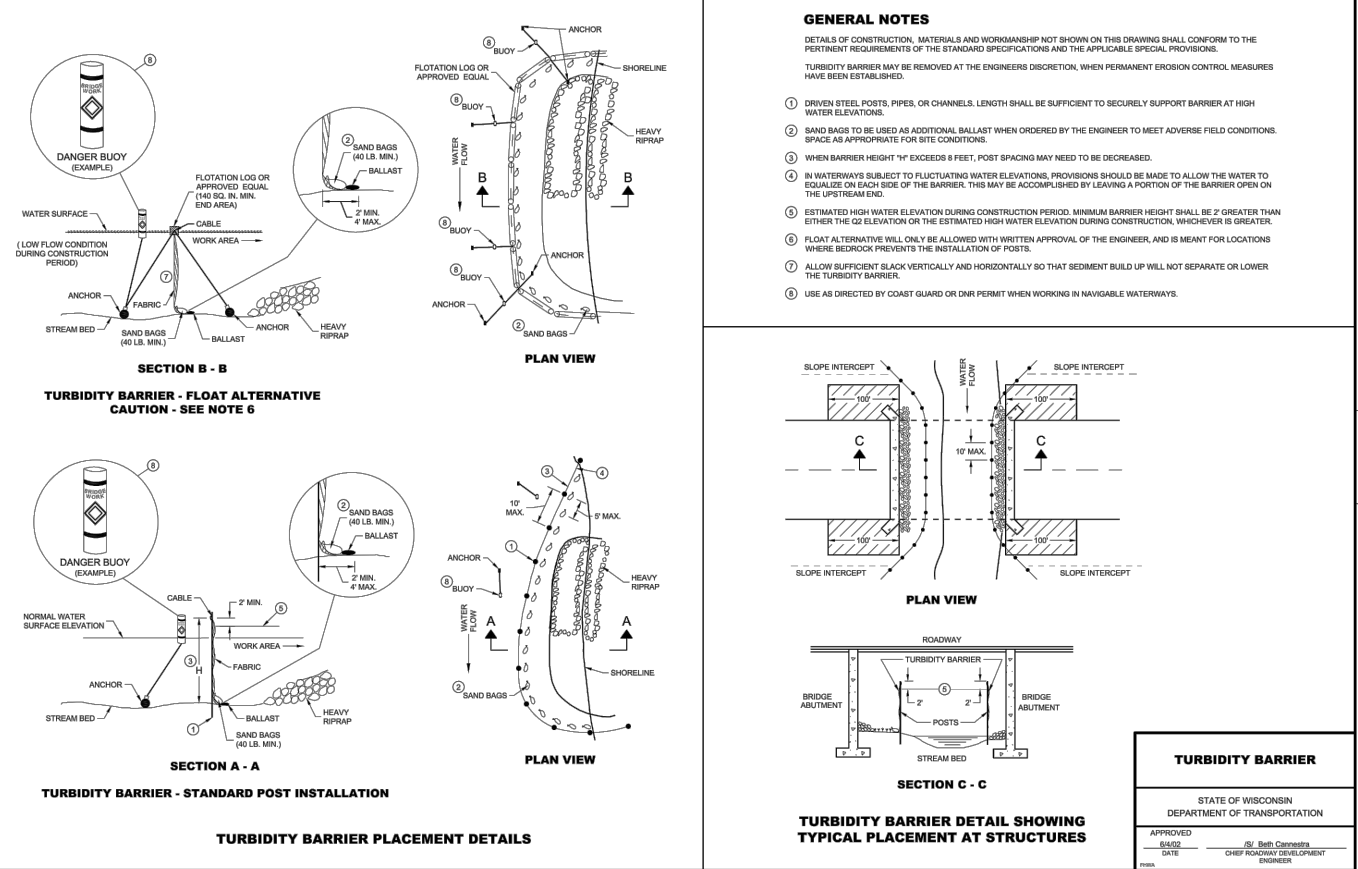
REVISIONS / ISSUES				SHEET NO. <b>C501</b>
NO.	DATE	BY	REMARKS	
SURVEYED				
DRAWN	BK	12-2021		
DESIGNED				
CHECKED				



SDD 08E09 Silt Fence



SDD 08E11 Turbidity Barrier



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FRANKLIN AND FULTON  
EROSION CONTROL

NAME:  
POND AND DRAINAGE SYSTEM  
CONSTRUCTION  
PROJECT # 23-09

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PAGE NO.  
C502

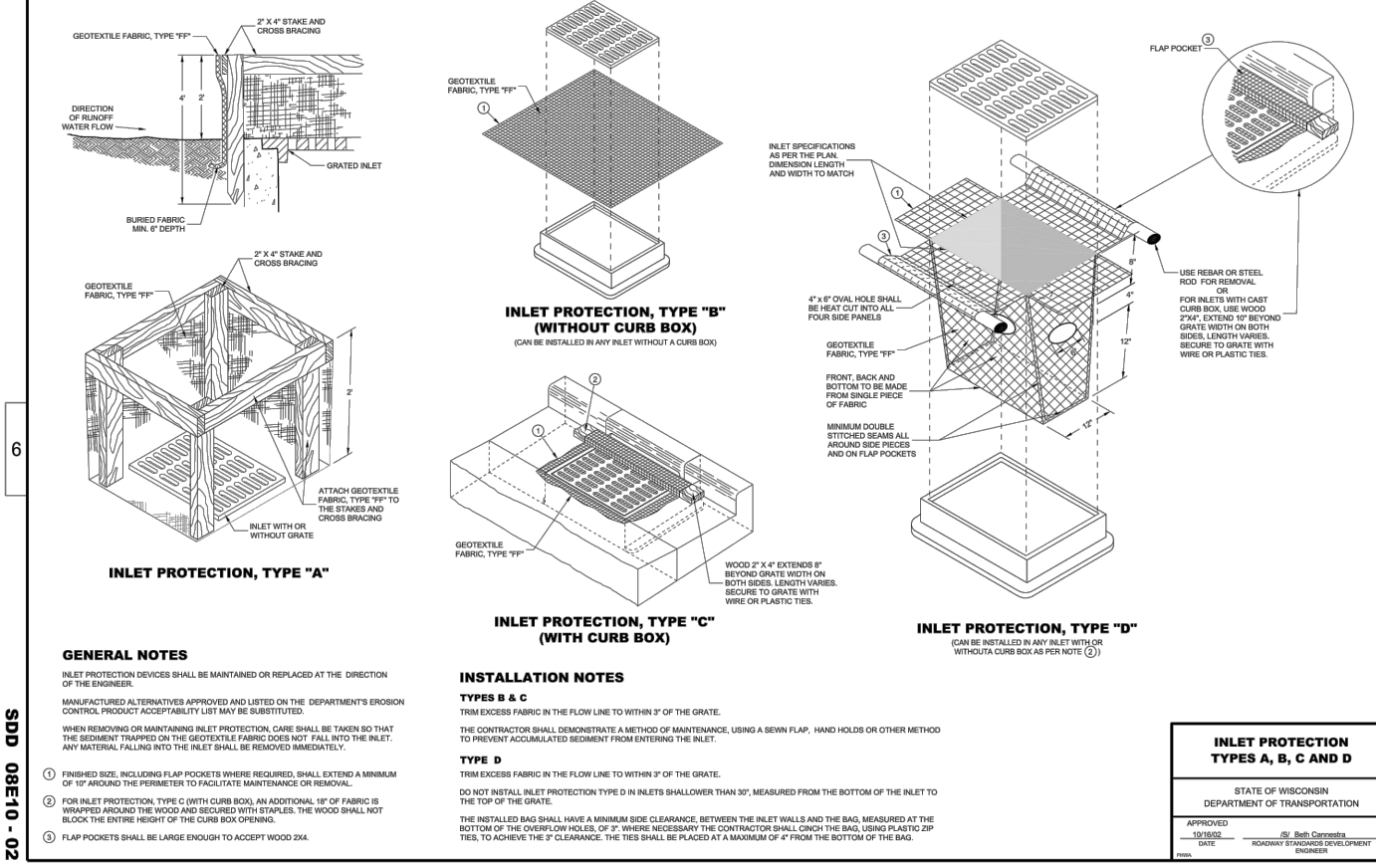
SDD 08E09 - 06

SDD 08E11 - 02

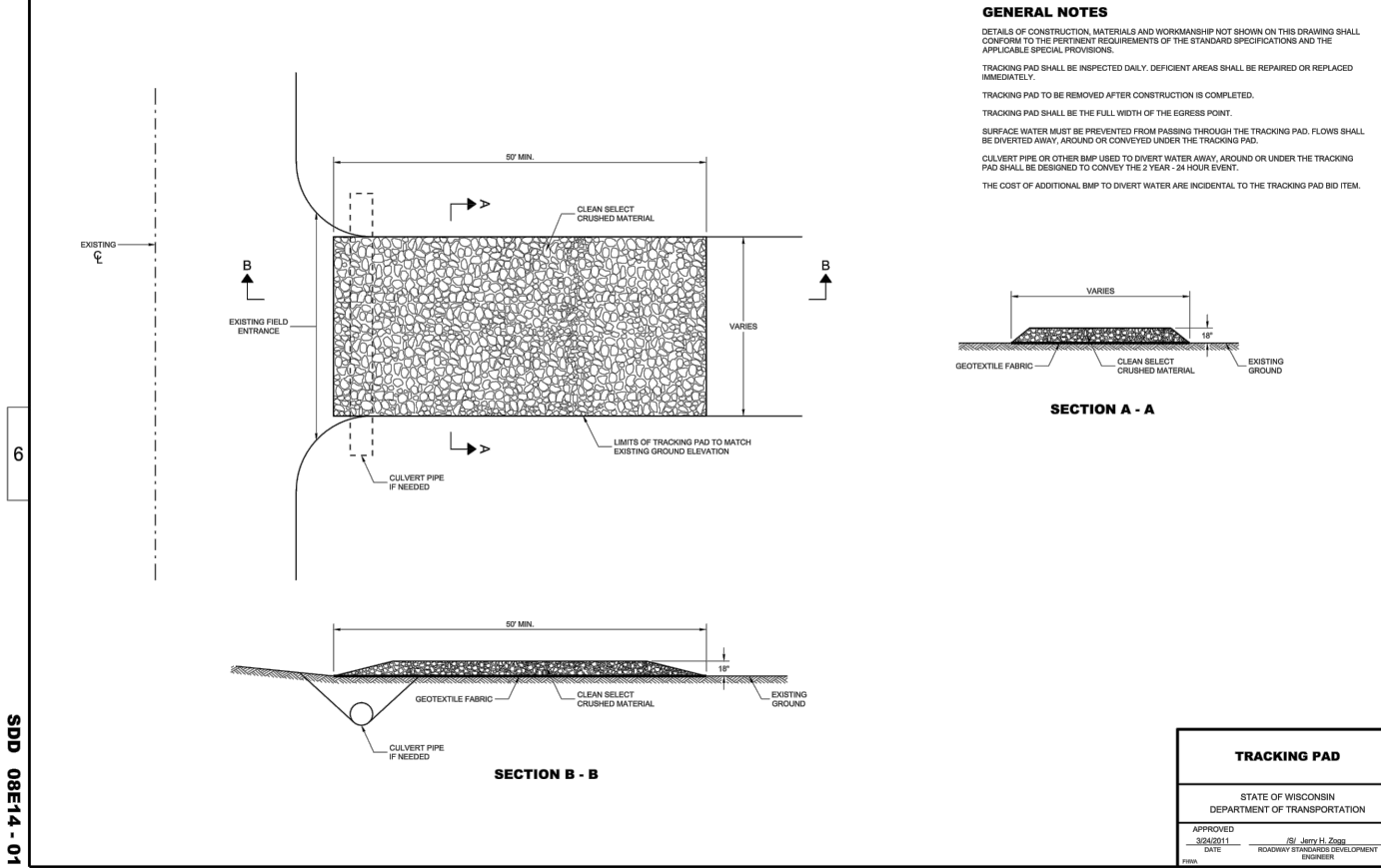
6

6

SDD 08E10 Inlet Protection, Types A, B, C and D



SDD 08E14 Tracking Pad



SDD 08E14 - 01

6

SDD 08E10 - 02

6

SDD 08E09 - 06

SDD 08E11 - 02

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SDD 08E10 - 02

SDD 08E14 - 01

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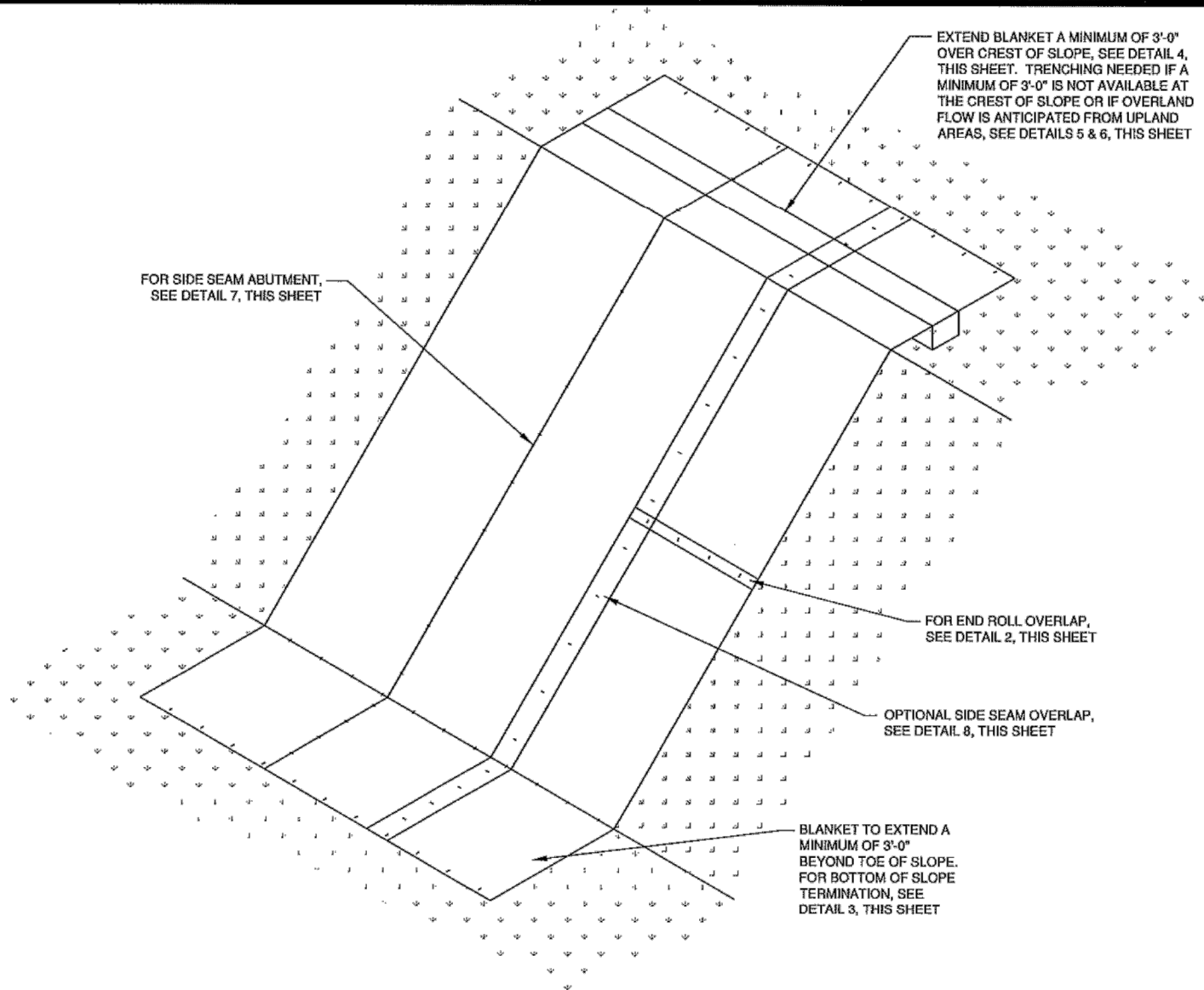
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SDD 08E10 - 02





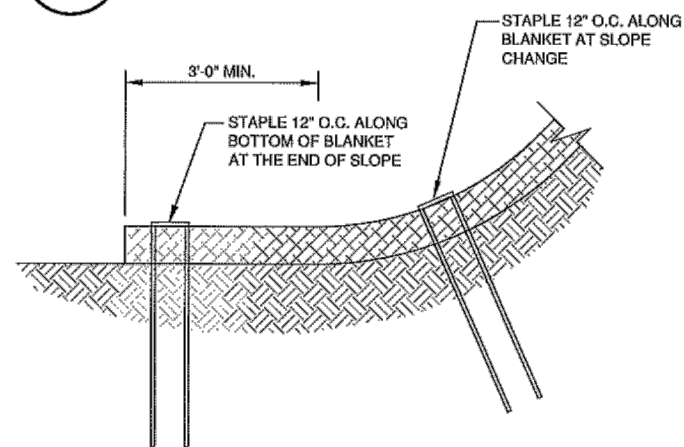
SLOPE DETAIL

1  
XX

END SEAM OF BLANKETS OVERLAP 2'-4". PLACE STAPLES, ONE ON EACH CORNER OF BLANKET, 12" O.C. ALONG BLANKET END THROUGH BOTH BLANKETS. UPSLOPE BLANKET LAPS OVER DOWNSLOPE BLANKETS IN A SHINGLE AFFECT.

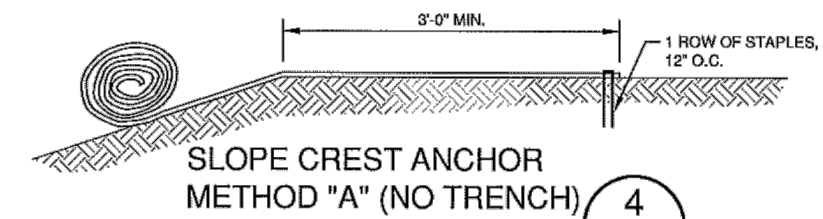
END ROLL OVERLAP

2  
XX

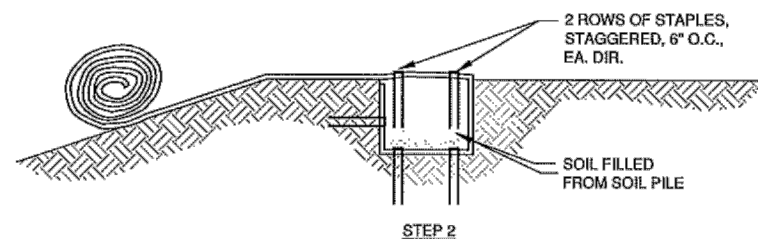
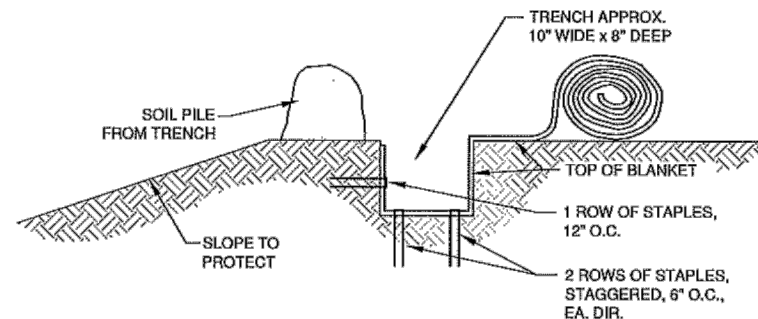


BOTTOM OF SLOPE TERMINATION

3  
XX

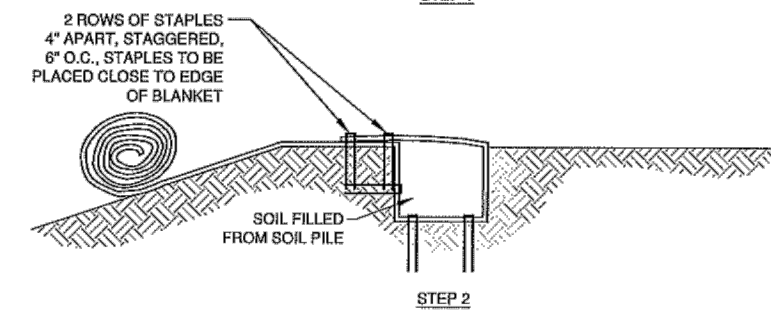
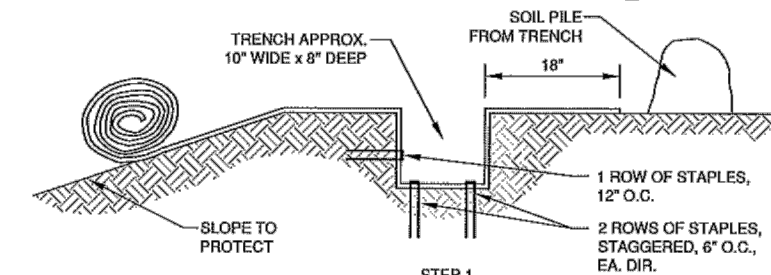


DO NOT NEED TO TRENCH BLANKET IN IF IT CAN BE EXTENDED A MINIMUM OF 3'-0" OVER THE CREST OF THE SLOPE.



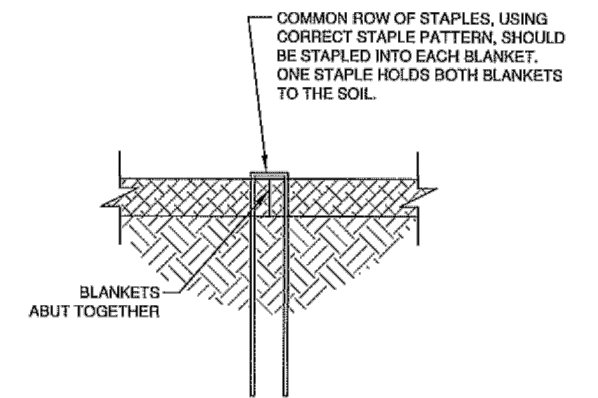
SLOPE TRENCHING METHOD "B"

5  
XX



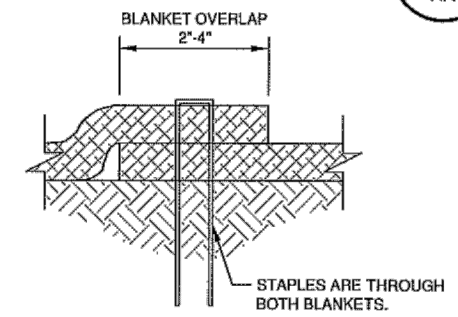
SLOPE TRENCHING METHOD "C"

6  
XX



SIDE SEAM ABUT STAPLE DETAIL

7  
XX

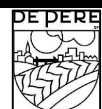


SIDE SEAM OVERLAP STAPLE DETAIL

8  
XX

NOTES:  
1. STAPLE PATTERNS ARE DEPENDENT ON SITE CONDITIONS. SEE MANUFACTURER STAPLE PATTERN GUIDE FOR DETAILS.

**Robert E. Lee & Associates, Inc.**  
ENGINEERING, SURVEYING, ENVIRONMENTAL SERVICES  
1250 CENTENNIAL CENTRE BOULEVARD HOBART, WI 54155  
920-662-9641 www.releinc.com



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FRANKLIN AND FULTON  
EROSION CONTROL

NAME:  
POND AND DRAINAGE SYSTEM  
CONSTRUCTION  
PROJECT # 23-09

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BK	6-2021
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NO.	DATE	BY	REMARKS

PAGE NO.  
**C503**

SDD 08F04 Joint Ties for Concrete Pipe and Concrete Collar Detail

**EYE BOLTS AND TIE ROD**

**LONGITUDINAL SECTIONS**  
**EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 1)**

**EYE BOLT**

**EYE BOLT AND TIE ROD**

**LONGITUDINAL SECTION**  
(JOINT TIES FOR 18" TO 66" DIA. CONCRETE PIPE)

**EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 2)**

PIPE DIAMETER	TIE ROD DIAMETER	D	L <sub>1</sub>	N
12 - 60	5/8	5/8	5	5/8
66 - 84	3/4	3/4	5	3/4
90 - 144	1	1	7	1 1/4

DIMENSIONS SHOWN ARE IN INCHES

**RIGHT AND LEFT THREADS SLEEVE NUTS**

**LONGITUDINAL SECTION**  
**ADJUSTABLE TIE ROD (ALTERNATE NO. 3)**

**GENERAL NOTES**

DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

CONCRETE CULVERT AND STORM SEWER PIPE SHALL BE TIED TOGETHER IN THE MANNER ILLUSTRATED BY THIS DETAIL AT LOCATIONS DESIGNATED IN THE STANDARD SPECIFICATIONS AND THE PLAN. THE CONTRACTOR MAY USE EITHER ALTERNATE 1, 2 OR 3 FOR DRAINAGE STRUCTURES. ONLY ALTERNATE 1 AND 3 MAY BE USED FOR CATTLE PASSES. UNLESS OTHERWISE STATED IN THE CONTRACT, THE MATERIALS, FABRICATION AND WORK NECESSARY TO TIE THE PIPE BY THIS DETAIL WILL BE CONSIDERED INCIDENTAL TO THE PIPE AND APRON ENDWALLS IF REQUIRED.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR JOINT TIES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

JOINT TIES TO BE HOT-DIP GALVANIZED PER ASTM A 153.

① CENTER LINE OF TONGUE AND GROOVE OR BELL AND SPOOT JOINTS.

② THE INSIDE OF THE THREADED INSERTS SHALL BE CLEAN TO ALLOW THE INSERTION OF THREADED EYE BOLTS.

③ HOLES SHALL BE CAST-IN-PLACE OR DRILLED PER THE APPLICABLE DETAIL, AND EQUAL DISTANCE FROM THE CENTERLINE OF THE JOINT.

④ BOLT PROJECTION INSIDE OF PIPE SHALL NOT EXCEED 2 INCHES.

⑤ OPENING TO BE ROD DIAMETER PLUS 1 INCH.

⑥ LENGTH ADEQUATE TO EXTEND TO WITHIN 1/2 INCH OF THE INNER SURFACE OF THE PIPE.

⑦ EYE BOLT LENGTH DETERMINED BY WALL THICKNESS, BELL THICKNESS AND BOLT PROJECTION INSIDE PIPE.

**TRANSVERSE SECTION**

**SECTION A - A**  
**CONCRETE COLLAR DETAIL**

**JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
November 2021  
DATE: \_\_\_\_\_  
BY: \_\_\_\_\_  
ROADWAY IMPROVEMENT ENGINEER

CITY OF DE PERE  
ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115  
OFFICE 920-339-4061 FAX 920-339-4071

CONSTRUCTION DETAIL  
PIPE TIES

NAME:  
POND AND DRAINAGE SYSTEM  
CONSTRUCTION  
PROJECT #  
23-09

	BY	DATE	REVISIONS / ISSUES		
			NO.	DATE	REMARKS
SURVEYED					
DRAWN	SRL	4-2016			
DESIGNED					
CHECKED					

SHEET NO.  
C504