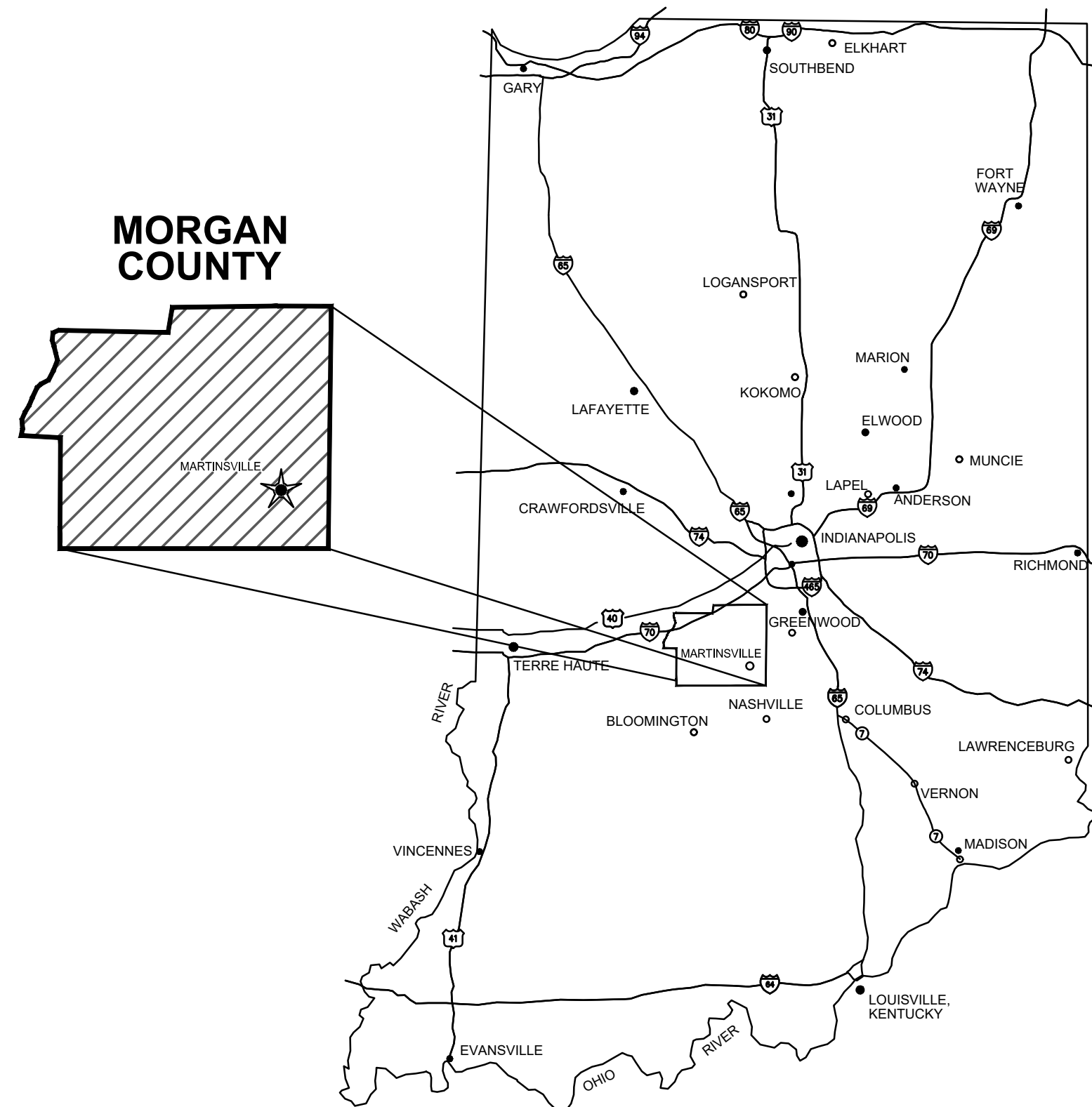


INDIANA DEPARTMENT OF ADMINISTRATION PUBLIC WORKS DIVISION MORGAN COUNTY, INDIANA

CIKANA STATE FISH HATCHERY WATER LINE AND DRAIN PIPE IMPROVEMENTS APRIL, 2020




GENERAL LOCATION MAP




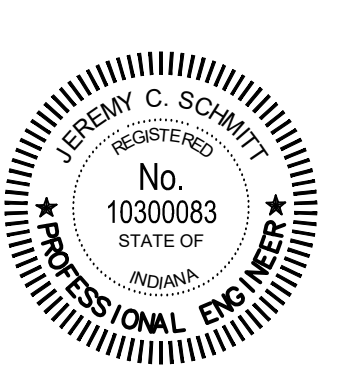
Indiana Department of Administration



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APPROVED BY:  _____ 04/03/2020
ALBERT C. STONG
INDIANA P.E. NO. 10201336 DATE :

CERTIFIED BY:  _____ 04/03/2020
JEREMY C. SCHMITT
INDIANA P.E. NO. 10300083 DATE :



CONTRACT NO. : J19105

ABBREVIATIONS

AB	ANCHOR BOLT	R	RADIUS OR RISER
AFF	ABOVE FINISH FLOOR	RAD	RADIUS
ALT	ALTERNATE	RCP	REINFORCED CONCRETE PIPE
ALUM	ALUMINUM	RD	ROOF DRAIN
@	AT	REINF	REINFORCING
ATT	AERATION TANK TRANSFER	REQ'D	REQUIRED
AUTO	AUTOMATIC	R/W	RIGHT-OF-WAY
AVG	AVERAGE		
BLDG	BUILDING	SAN	SANITARY
BM	BENCH MARK	SAS	SANITARY SEWER
BOT	BOTTOM	SCH	SCHEDULE
BRG	BEARING	SECT	SECTION
		SF	SQUARE FEET
CFM	CUBIC FEET PER MINUTE	SHT	SHEET
CL	CENTERLINE	SL	SAMPLE LINE
CO	CLEAN OUT	SQ	SQUARE
COL/C	COLUMN	STD	STANDARD
CONC	CONCRETE	S STL, SS	STAINLESS STEEL
COP	COPPER	STL	STEEL
CJ	CONSTRUCTION JOINT	SUP	SUPERNATANT
CY	CUBIC YARD	SY	SQUARE YARD
		TOS	TOP OF SLAB
DIA	DIAMETER	TOW	TOP OF WALL
DIM	DIMENSION	TW	TERTIARY WATER
DI	DUCTILE IRON PIPE	TYP	TYPICAL
DL	DEAD LOAD		
DS	DOWN SPOUT	V	VACUUM OR VALVE
DWG	DRAWING	VAR	VARIES
		VERT	VERTICAL
EA	EACH	W/	WITH
EF	EACH FACE	W/O	WITHOUT
EFFL	EFFLUENT	WC	WATER CLOSET
EL	ELEVATION	WH	WATER HEATER
EW	EACH WAY	WWF	WELDED WIRE FABRIC
EXF	EXHAUST FAN		
EX,EXIST	EXISTING	YH	YARD HYDRANT
EXP JP	EXPANSION JOINT		

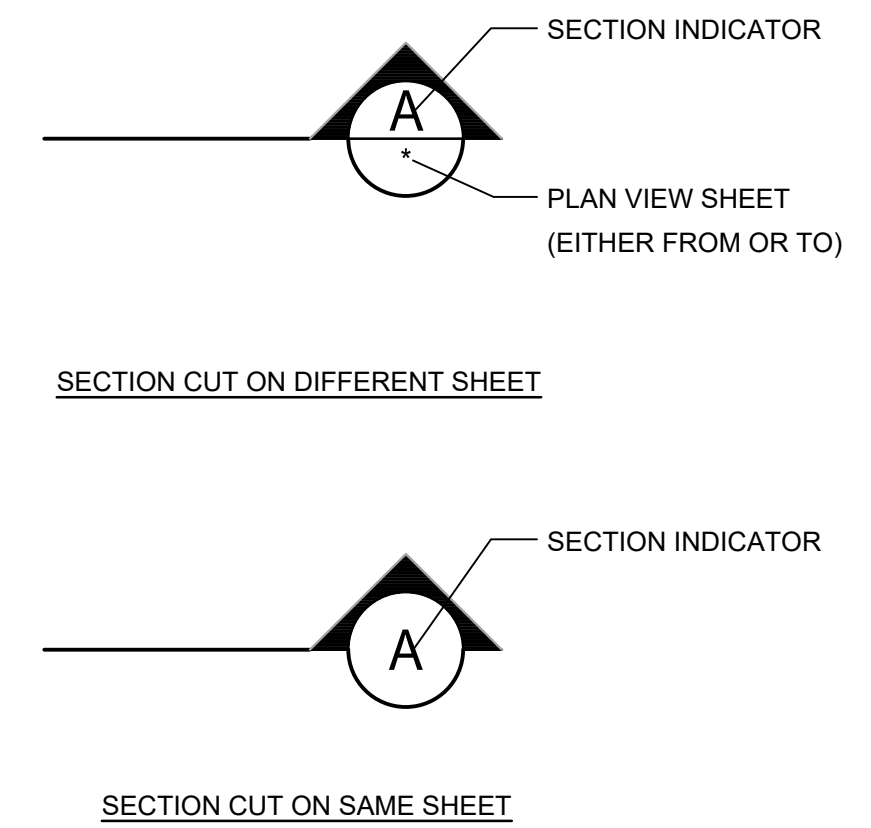
GENERAL SCHEMATIC LEGEND, ABBREVIATIONS, AND SYMBOLS

	QUICK DISCONNECT		BOOSTER PUMP
	FLANGED SPOOL SECTION		AIR RELIEF VALVE
	PRESSURE REDUCER VALVE		FLOW METER
	FLANGED COUPLING ADAPTER		GATE VALVE
	BALL CHECK VALVE		FLOW CONTROL VALVE
	MOTOR ACTUATOR		VALVE
	FLEXIBLE CONNECTION		ECCENTRIC PLUG VALVE
	FLANGE FILLER & S.S. MESH SCREEN		CHECK VALVE
	90° V-NOTCH WEIR		INCREASER / REDUCER
	MAGNETIC FLOW METER		BUTTERFLY VALVE
	ULTRASONIC SENSOR		PIPE THROUGH FLOOR / WALL
	SUBMERSIBLE PUMP		BALL VALVE
			BLIND FLANGE OR PLUG
			HOSE BIBB
			STOP PLATE
			WEIR

HATCHING SYMBOLS

	-GRANULAR BACKFILL (PROFILE VIEW)
	-DEMOLITION (CONTRACTOR SHALL REFER TO DETAILED SPECIFICATIONS FOR DEMOLITION REQUIREMENTS AND SCHEDULES.)
	-GROUT
	-CONCRETE
	-STEEL
	-COMPACTED GRANULAR BACKFILL OR COMPACTED FOUNDATION
	-ABANDONED IN PLACE

TYPICAL SECTION CUTS



SITE PLAN LEGEND

	EXISTING TELEPHONE LINE		MONUMENT
	EXISTING GAS LINE		CONTROL POINT
	EXISTING GAS VALVE		FLAG POLE
	EXISTING WATER LINE		POST
	EXISTING WATER VALVE		STUMP
	EXISTING FIBER OPTIC LINE		BUSH / HEDGE
	EXISTING OVERHEAD ELECTRIC LINE		DECIDUOUS TREE
	EXISTING BURIED ELECTRIC		CONIFEROUS TREE
	EXISTING NON-POTABLE WATER LINE		SIGN
	EXISTING POTABLE WATER LINE		LARGE ROCK
	EXISTING BURIED TELEPHONE LINE		UTILITY LOCATE FLAG
	EXISTING FENCE		GAS METER
	APPARENT RIGHT-OF-WAY		GAS LINE MARKER
	APPARENT PROPERTY LINE		POWER/LIGHT POLE
	EDGE OF DRIVE		ELECTRIC METER
	EDGE OF DRIVE WITH CURB		GUY WIRE
	EXISTING MAJOR CONTOUR LINE		ELECTRIC PANEL
	EXISTING MINOR CONTOUR LINE		TEL/TV PEDESTAL
	NEW CONCRETE SIDEWALK		WATER METER
	NEW WATER LINE		VALVE
	PROPOSED MAJOR CONTOUR LINE		FIRE HYDRANT
	PROPOSED MINOR CONTOUR LINE		FLUSH HYDRANT
			EXISTING STORM MANHOLE/INLET
			EXISTING SANITARY MH
			TOP OF PIPE
			CURB INLET
			STORM INLET SQUARE
			STORM INLET ROUND
			NEW VALVE
			NEW FIRE HYDRANT
			NEW FLUSH HYDRANT
			NEW WET SADDLE AND VALVE BODY
			NEW PLUG
			NEW LINE STOP
			NEW SANITARY MH

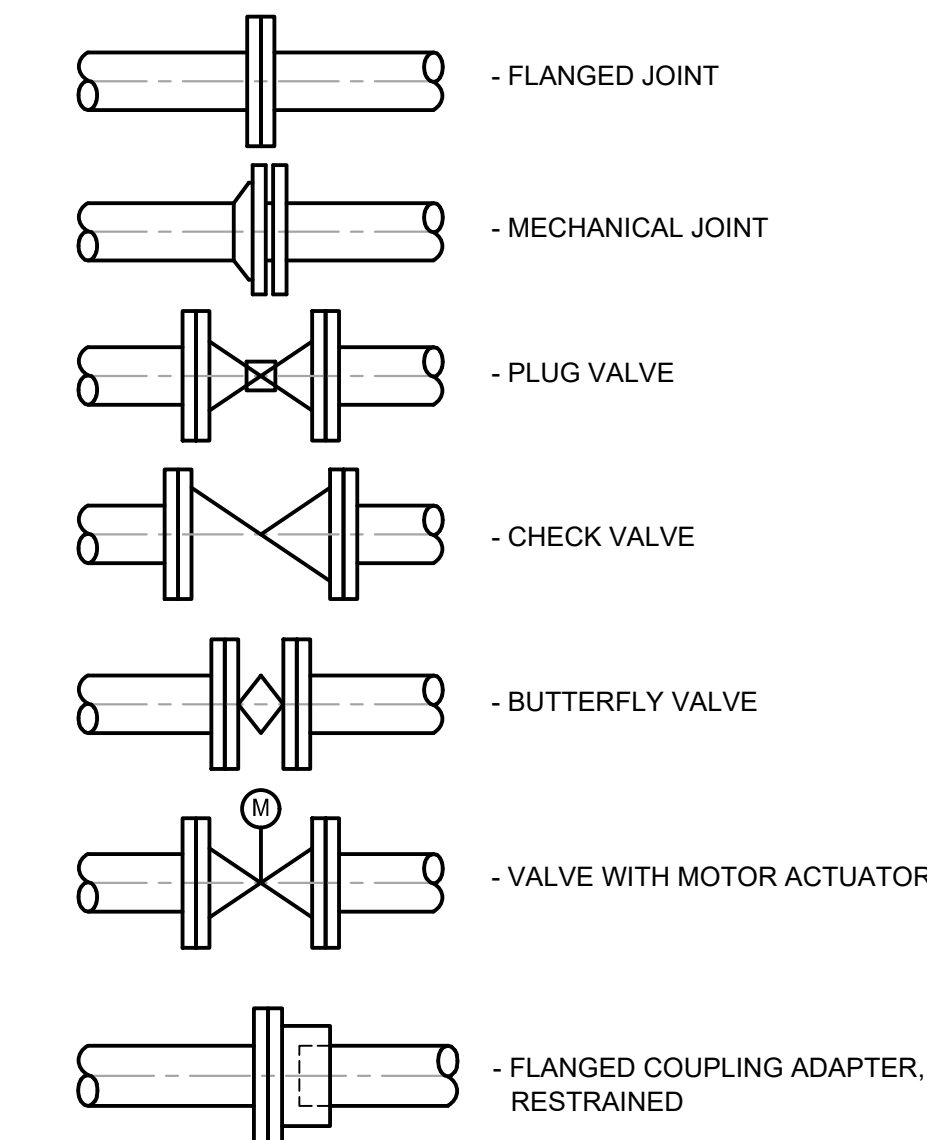
PROCESS PIPE AND EQUIPMENT ABBREVIATIONS

A	AIR	NPW	NON-POTABLE WATER
AV	AIR VENTS	PD	PUMP DISCHARGE
B	BAFFLE	PPE	PACKAGE PLANT EFFLUENT
BW	BACKWASH	PP	POLYPHOSPHATE
CS	CHLORINE SOLUTION	PW	POTABLE WATER
CW	COLD WATER	R	RECIRCULATION
D OR DL	DRAIN LINE	RD	ROOF DRAIN
DEC	DECANT	RW	RAW WATER
DSPT	DOWN SPOUT	SAS	SANITARY SEWER
E	ELECTRICAL CONDUIT	SEW	SEAL WATER
EA	EXHAUST AIR	SL	SAMPLE LINE
EAL	EXISTING / ABANDONED LINE	SOS	STORM SEWER
F	FILTER	SP	STOP PLATE
FCAR	FLANGED COUPLING ADAPTER RESTRAINED	SPD	SUMP PUMP DISCHARGE
FDL	FILTRATE DRAIN LINE	SR	SURGE RETURN
FL	FLUSHING LINE	SS	SLUDGE SUCTION
FM	FORCE MAIN	SUP	SUPERNATANT
FW	FINISHED WATER	SV	SOLENOID VALVE
V	VENTS	SWM	SUBMERGED WITHDRAWAL MANIFOLD
GL	GAS LINE (NATURAL)	W	WEIR
HW	HOT WATER	WL	WATER LINE

PIPING SCHEMATIC LINE TYPES

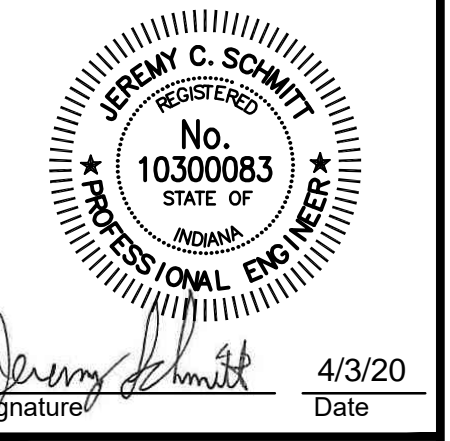
	NEW PIPING AND EQUIPMENT
	EXISTING PIPING AND EQUIPMENT
	FUTURE PIPING AND EQUIPMENT

TWO LINE PIPING SYMBOLS



DISCLAIMER NOTE:
THIS DRAWING REFLECTS TYPICAL INFORMATION,
SOME MAY NOT BE APPLICABLE TO THIS PROJECT.

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Issue Date:	Project No:	Scale:
---	J19105	AS SHOWN

ABBREVIATIONS, LEGENDS, AND SYMBOLS

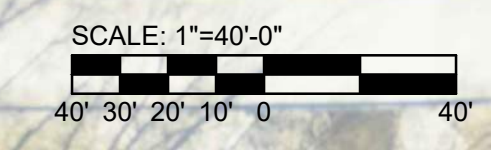
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Sheet: 03 OF 38

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SURVEY CONTROL COORDINATES:

Project coordinates are based on the following:
HORIZONTAL-US State plane coordinates: NAD83 (North American Datum) Indiana West Zone (1302)
VERTICAL- USGS 1988 NAVD (North American Vertical Datum)-per GPS observations (not verified by physical location of published USGS monuments)

SURVEY INFORMATION				
IDENTIFIER	NORTH COORDINATE	EAST COORDINATE	ELEVATION	DESCRIPTION
CP #10	1530714.786	3150346.565		CAPPED REBAR
CP #11	1530272.801	3150452.461		CAPPED REBAR
TBM #5001			662.18	SPIKE IN NORTH SIDE OF POWER POLE #232860
TBM #5002			663.99	CUT NORTHWEST CORNER SLAB



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 (260) 494-5223

1419 N. West Esby,
 State 40
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 (812) 474-1177

Professional Engineer Seal for Jeremy C. Schmit, No. 10300083, State of Indiana. Includes signature and date 4/3/20.

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SURVEY NORTH

Drawing No: **G4**
 Sheet: 04 OF 38

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 Lat/Long: 44.856267, -86.999999



SCALE: 1"=60'-0"

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JEFFREY C. SCHMITZ
 REGISTERED PROFESSIONAL ENGINEER
 No. 10300083
 STATE OF INDIANA

Jeffrey C. Schmitz
 Signature

4/3/20
 Date

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SURVEY CONTROL COORDINATES:
 Project coordinates are based on the following:
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 VERTICAL- USGS 1988 NAVD (North American Vertical Datum)-per GPS observations (not verified by physical location of published USGS monuments)

SURVEY INFORMATION				
IDENTIFIER	NORTH COORDINATE	EAST COORDINATE	ELEVATION	DESCRIPTION
CP #1	1526160.3	3151711.4890		CAPPED REBAR
CP #2	1526291.4130	3151079.2390		CAPPED REBAR
CP #3	1526513.9490	3150510.2910		CAPPED REBAR
TBM #101			681.07	SPIKE IN WEST SIDE OF POWER POLE #82197
TBM #1032			694.61	CUT NORTHEAST CORNER GENERATOR SLAB

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Issue Date: J19105
 Project No: J19105
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SURVEY EAST

Drawing No:
G5

Sheet: 05 OF 38

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 Suite 203
 Fort Wayne, IN 46825
 (260) 494-5223

Professional Engineer
 No. 10300083
 STATE OF INDIANA
 JEREMY C. SCHMIT
 Signature: *Jeremy C. Schmit* Date: 4/3/20

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 Project No: J19105
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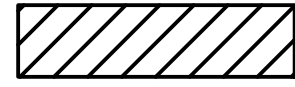
NORTH UNIT DRAIN PLAN

Drawing No:
PS1
 Sheet: 06 OF 38

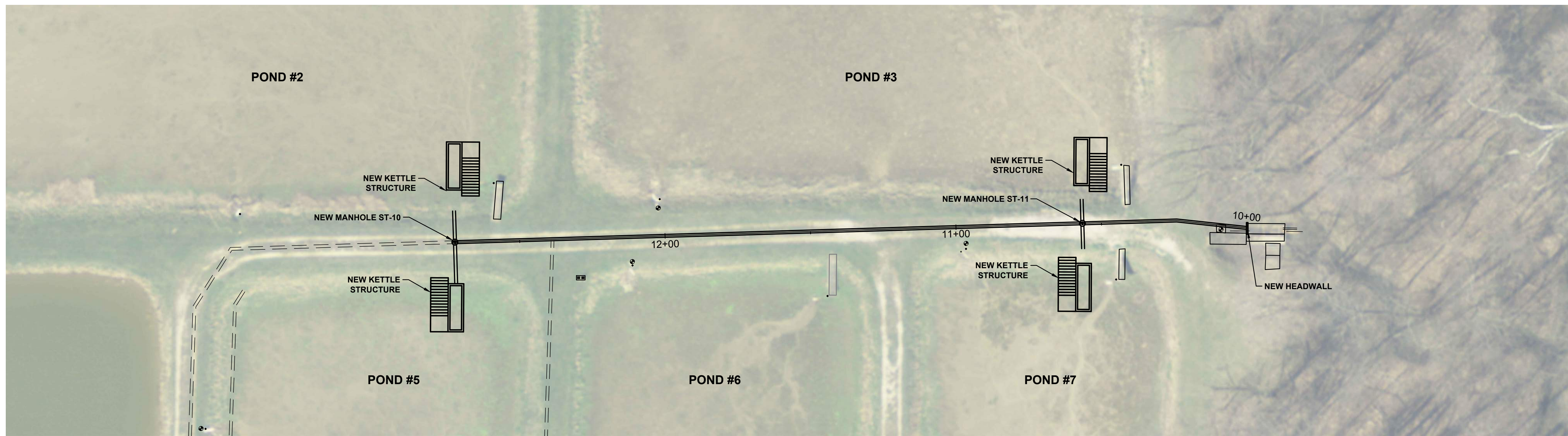
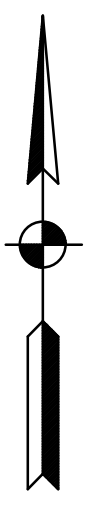
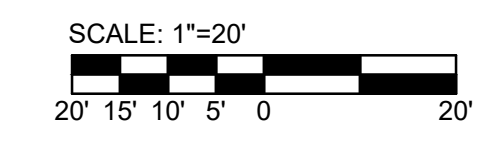
- GENERAL NOTES:**
- SEE GRADING PLANS FOR POND CHANGES.
 - PONDS #4 AND #5 TO BE CHANGED TO ONE POND. (#4-5).
 - PONDS #6 AND #7 TO BE CHANGED TO ONE POND. (#6-7).
 - CONTRACTOR SHALL BE RESPONSIBLE FOR LINING THE LATERALS WHERE CIPP IMPROVEMENTS ARE TAKING PLACE AS INDICATED ON THIS SHEET.

LEGEND

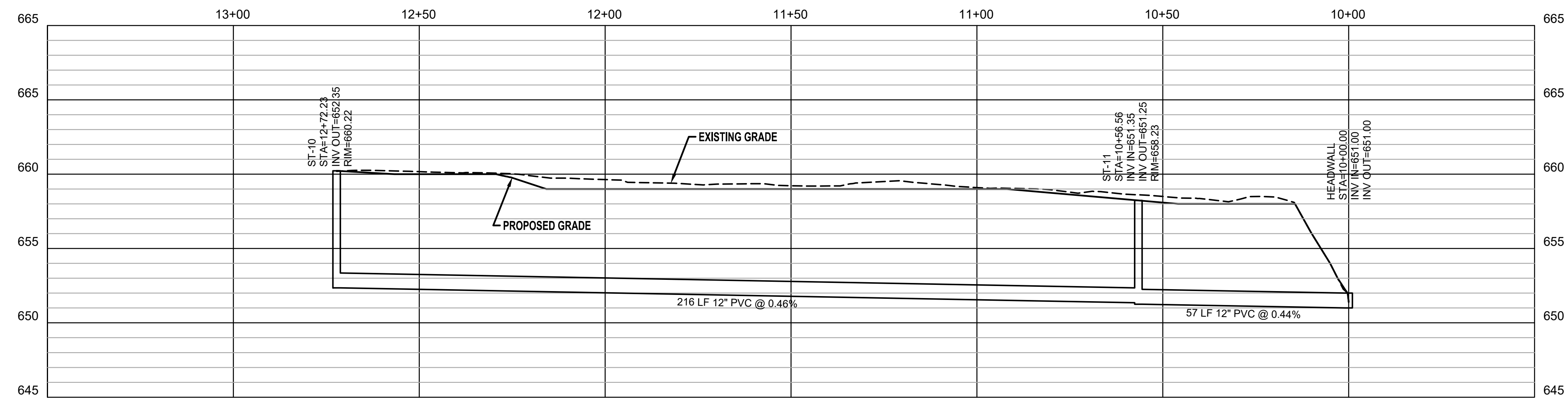
 REPLACE PIPE

 CIPP LINING





PLAN LINE "A"



PROFILE LINE "A"
Horizontal Scale = 1 : 20
Vertical Scale = 1 : 5

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Ellettsville, IN 47710
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JEFFREY C. SCHMIT
REGISTERED
No. 10300083
STATE OF INDIANA
PROFESSIONAL ENGINEER

Jeffrey C. Schmit
Signature

4/3/20
Date

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NORTH UNIT SEWER PROFILE

Drawing No:
PS2
Sheet: 07 OF 38

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SCALE: 1"=60'-0"
 60' 40' 20' 0'

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JEFFREY C. SCHMITZ
 REGISTERED PROFESSIONAL ENGINEER
 No. 10300083
 STATE OF INDIANA
 Signature: *Jeffrey C. Schmitz* Date: 4/3/20

GENERAL NOTES:
 1. CONTRACTOR SHALL BE RESPONSIBLE FOR LINING THE LATERALS WHERE CIPP IMPROVEMENTS ARE TAKING PLACE AS INDICATED ON THIS SHEET.

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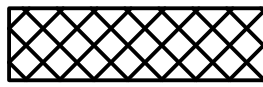
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 Issue Date: J19105 Project No: J19105 Scale: AS SHOWN

EAST UNIT DRAIN PLAN ALTERNATES

Drawing No:
PS4
 Sheet: 09 OF 38

LEGEND
 LINE WITH CIPP
 REPLACE PIPE

STRUCTURE DATA TABLE										
Structure No.	Unit	Status	TOC (ft)	Upstream Str.	Downstream Str.	Drain Line	Invert (ft)	Down Stream Pipe Length (ft.)	Pipe Diam. (in)	Pipe Material
1	East	Existing	694.93	N/A	2	G	N- 681.19 SE- 681.67	170	15	CMP
2	East	Existing	Unknown	1	Outlet	G	N - Unknown S - Unknown W- Unknown	290	15	CMP
3	East	Existing	684.25	4	6	H, I	E- 670.85 S- 670.83 W- 671.29	310	15	CMP
4	East	Existing	686.62	N/A	3	H	N- 673.77 W- 674.20	510	15	CMP
5	East	Existing	680.54	N/A	6	J	N- 667.84 W- 668.70	510	15	CMP
6	East	Existing	679.02	3, 5	Outlet	I, J, K	N- 665.57 S- 665.56 W- 665.59	275	15	CMP
7	East	Existing	678.48	8	Outlet	L	N- 665.36 E- 665.91 S- 665.35 W- 666.09	305	15	CMP
8	East	Existing	679.96	9	7	L, M, N	N- 666.56 E- 666.63 S- 666.78 W- 666.52	430	15	CMP
9	East	Existing	682.18	N/A	8	N	N- 669.43 SW- 670.53	295	15	CMP
10	North	New	660.22	N/A	11	A	N- 652.52 E- 652.35 S- 654.52	220	12	PVC
11	North	New	658.23	10	Outlet	A	N- 651.57 E- 651.25 S- 652.57 W- 651.35	60	12	PVC

JEFFREY C. SCHMITZ
 REGISTERED PROFESSIONAL ENGINEER
 No. 10300083
 STATE OF INDIANA

Jeffrey C. Schmitz
 Signature

4/3/20
 Date

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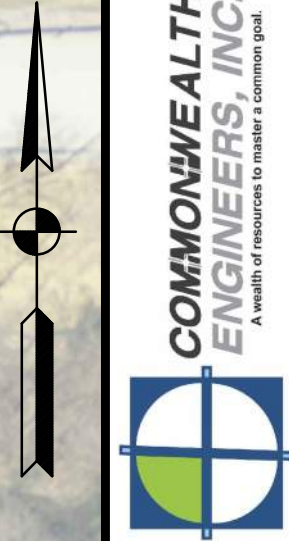
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Issue Date: ---	Project No: J19105	Scale: AS SHOWN

DRAINAGE STRUCTURE DATA TABLE

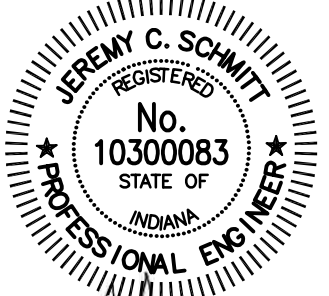
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SCALE: 1"=40'-0"
40' 30' 20' 10' 0' 40'







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Evansville, IN 47710
(812) 474-1177



Signature: *Jeremy C. Schmit* Date: 4/3/20

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LEGEND

-  LEVEE TYP "A"
-  LEVEE TYP "B"
-  LEVEE TYP "C"
-  LEVEE TYP "D"

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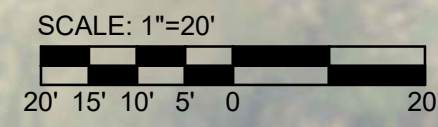
NORTH UNIT LEVEE PLAN

Drawing No:
PS6
Sheet: 11 OF 38

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 Sheet: 4/8/2020 2:18:25 PM Project: 4/8/2020 2:25:48 PM Current User: Mark Wagner LastSavedBy: mmagrar



GENERAL NOTES:
 1. THIS SHEET PROVIDED FOR USE AS POTENTIAL LOCATION FOR EXCESS POND SOIL STOCKPILE.



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 REGISTERED PROFESSIONAL ENGINEER
 No. 10300083
 STATE OF INDIANA

Jeffrey C. Schmitz
 Signature

4/3/20
 Date

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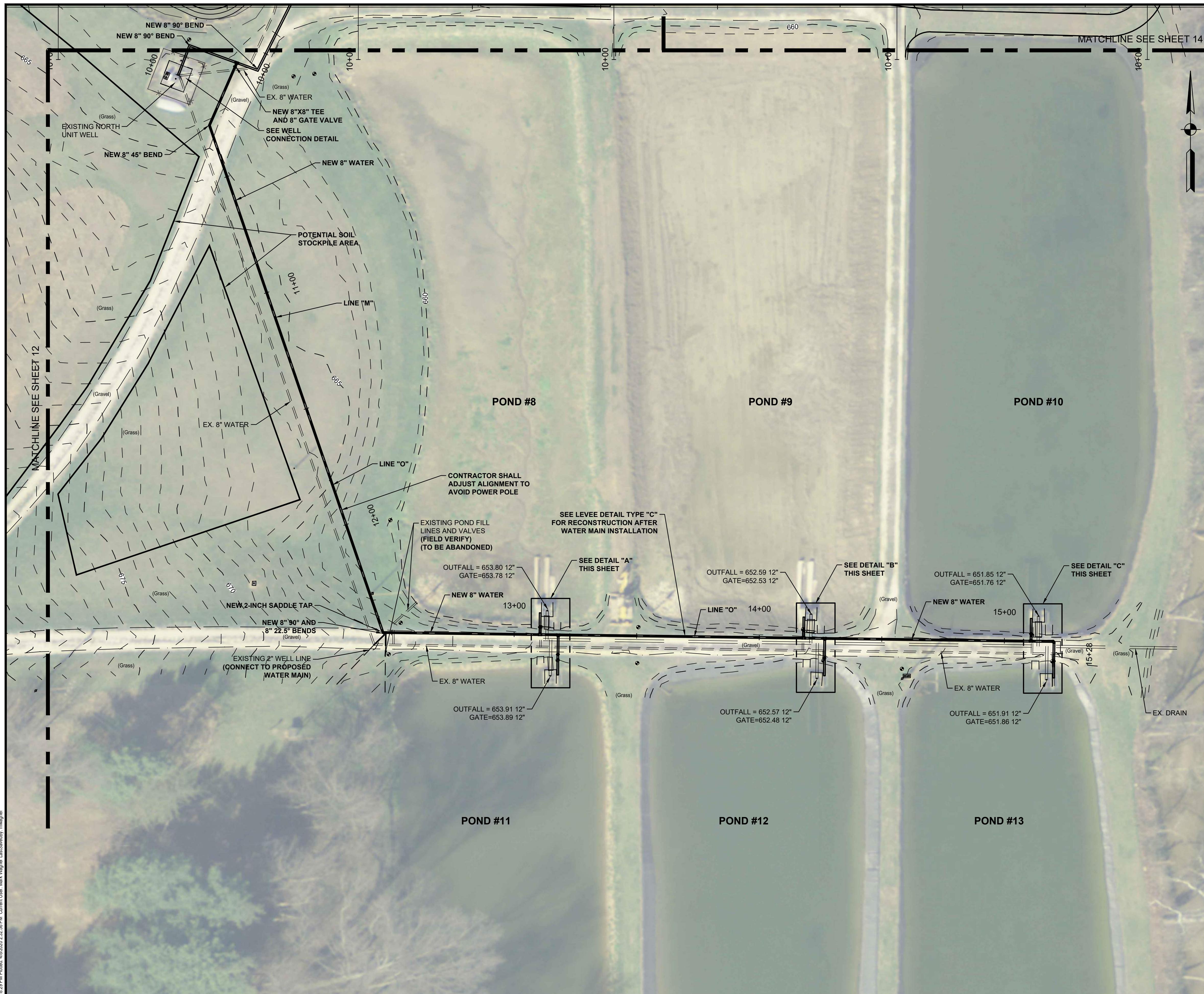
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Issue Date: ---	Project No: J19105	Scale: AS SHOWN

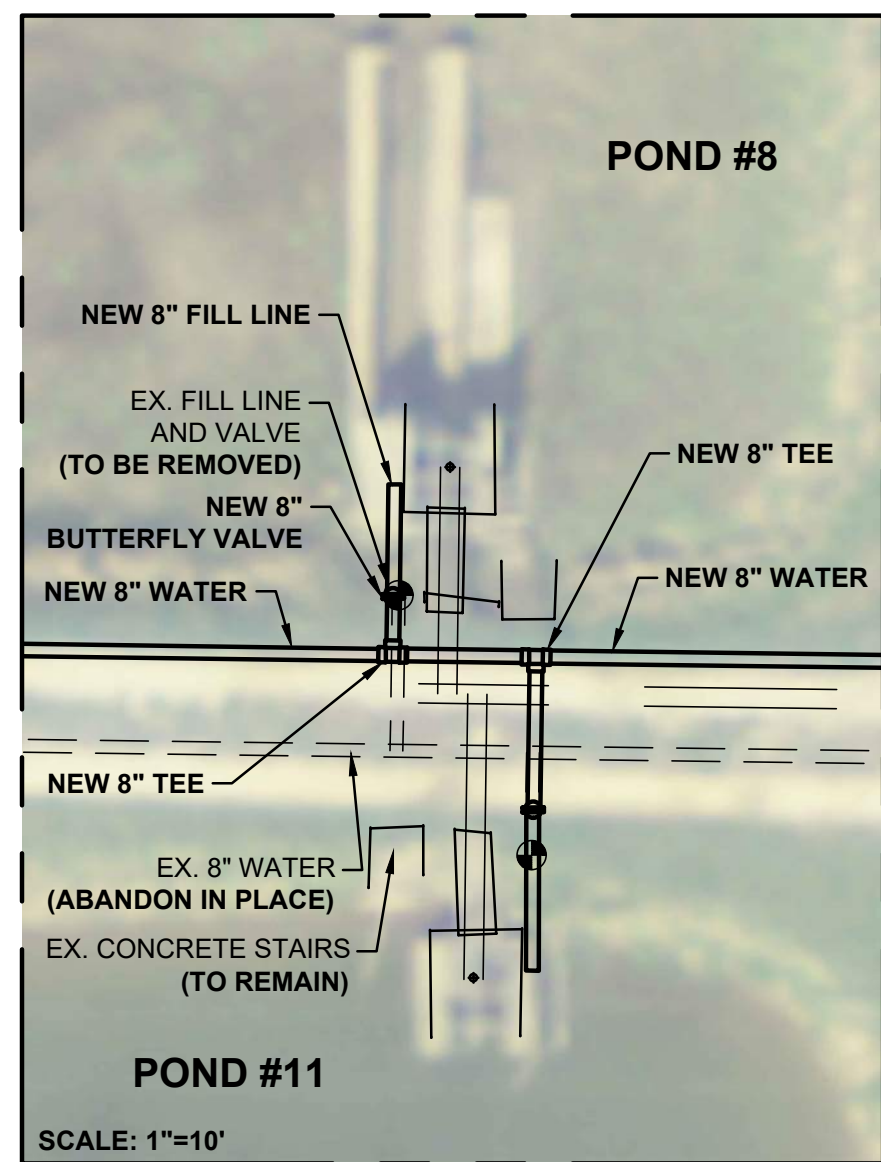
NORTH UNIT WATER PLAN

Drawing No:
PS7
 Sheet: 12 OF 38

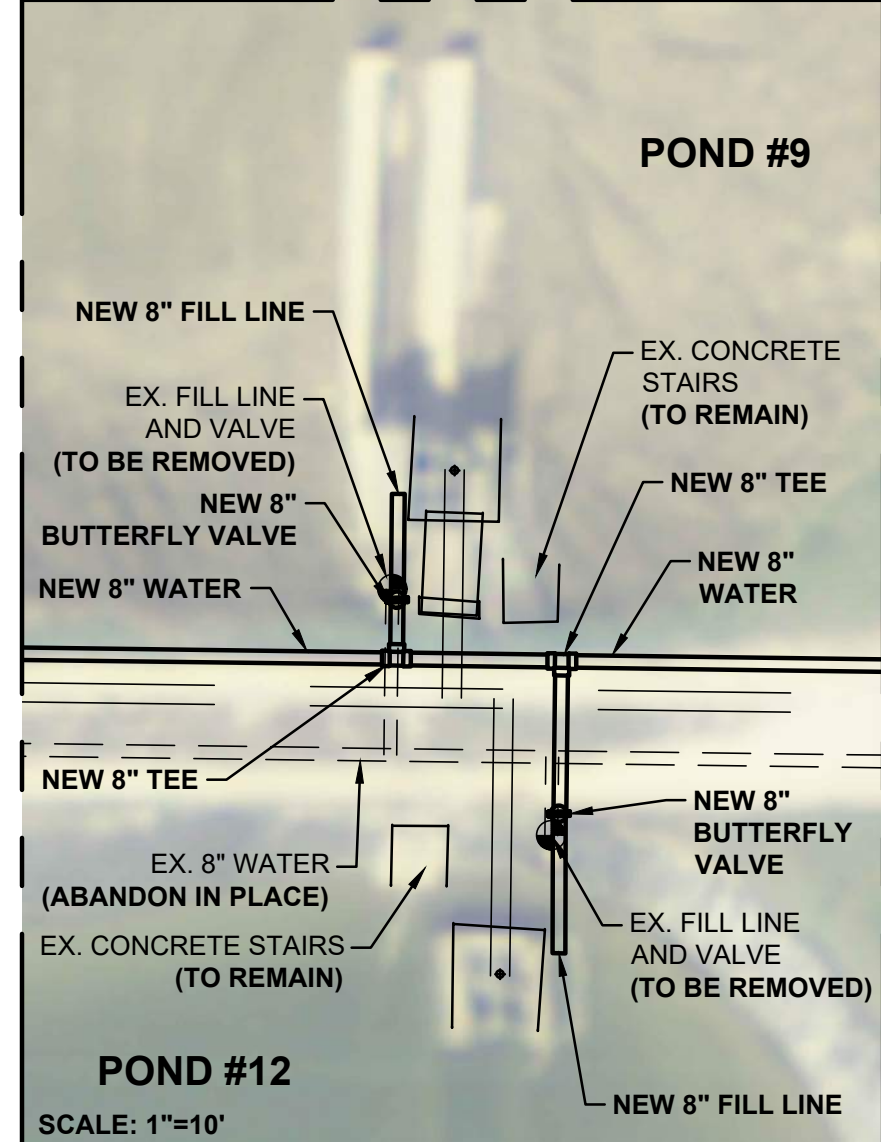
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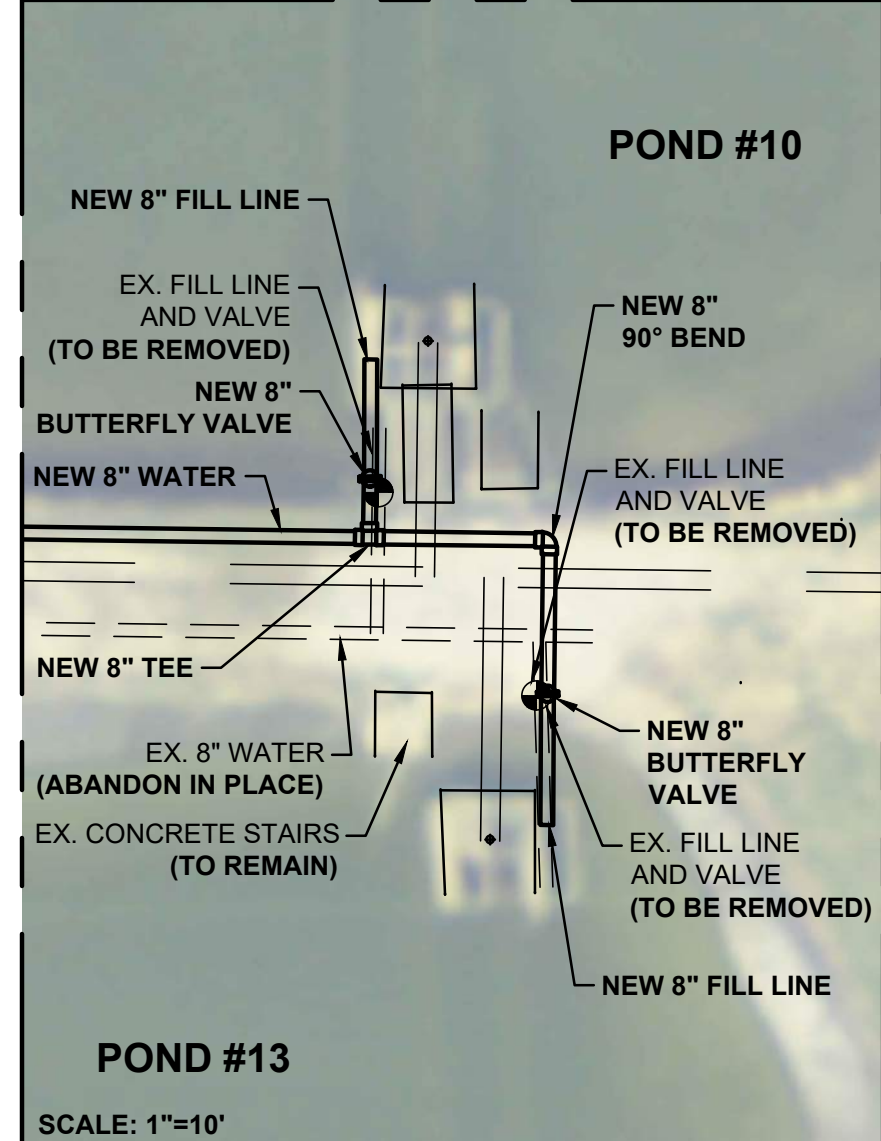
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20' 15' 10' 5' 0' 20'



DETAIL "A"
NO SCALE



DETAIL "B"
NO SCALE



DETAIL "C"
NO SCALE

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PROFESSIONAL ENGINEER

Jeffrey C. Schmitz 4/3/20
Signature Date

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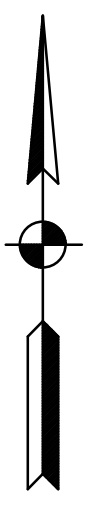
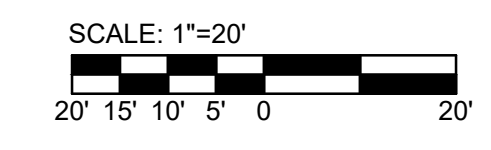
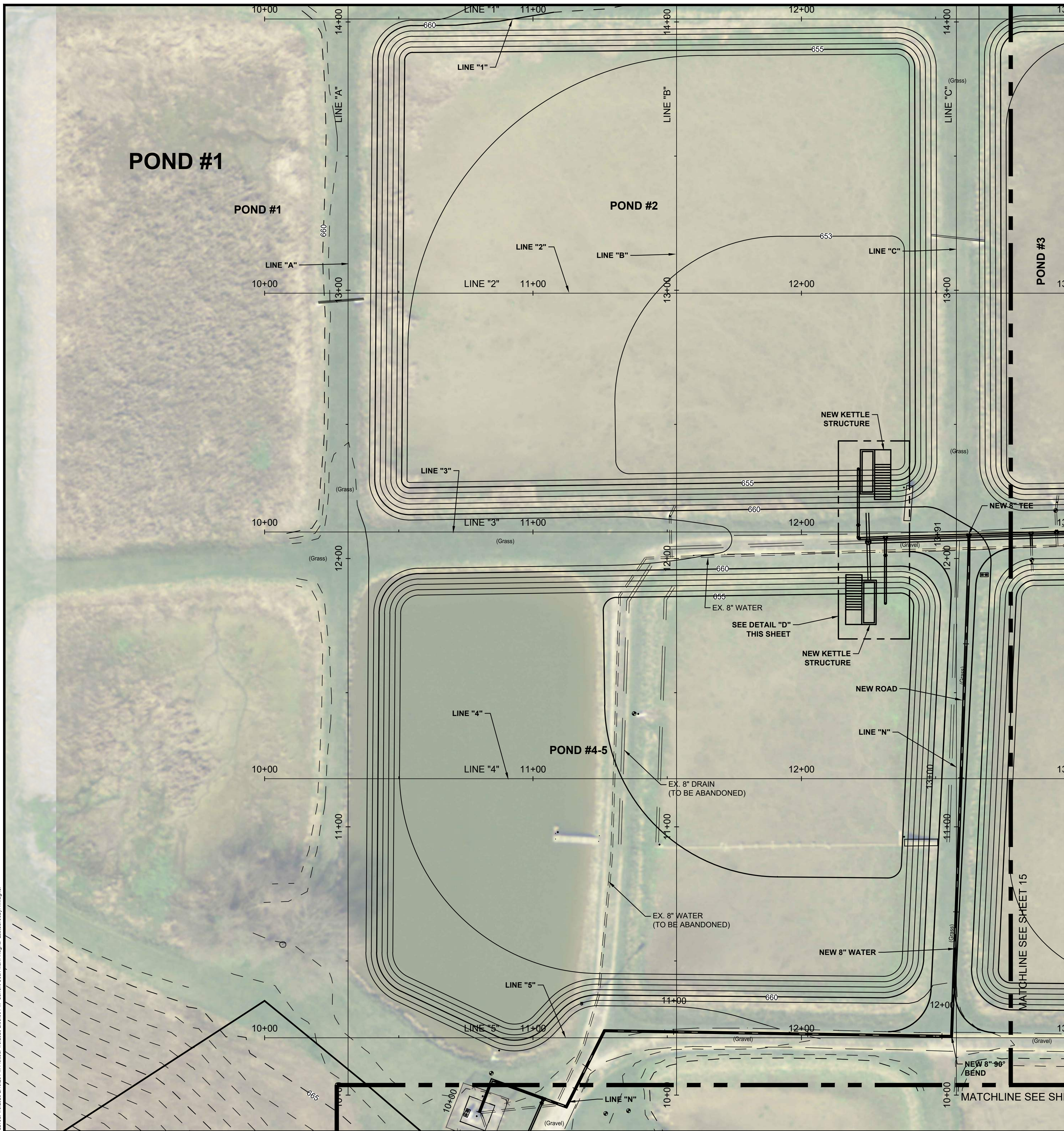
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 No. 10300083
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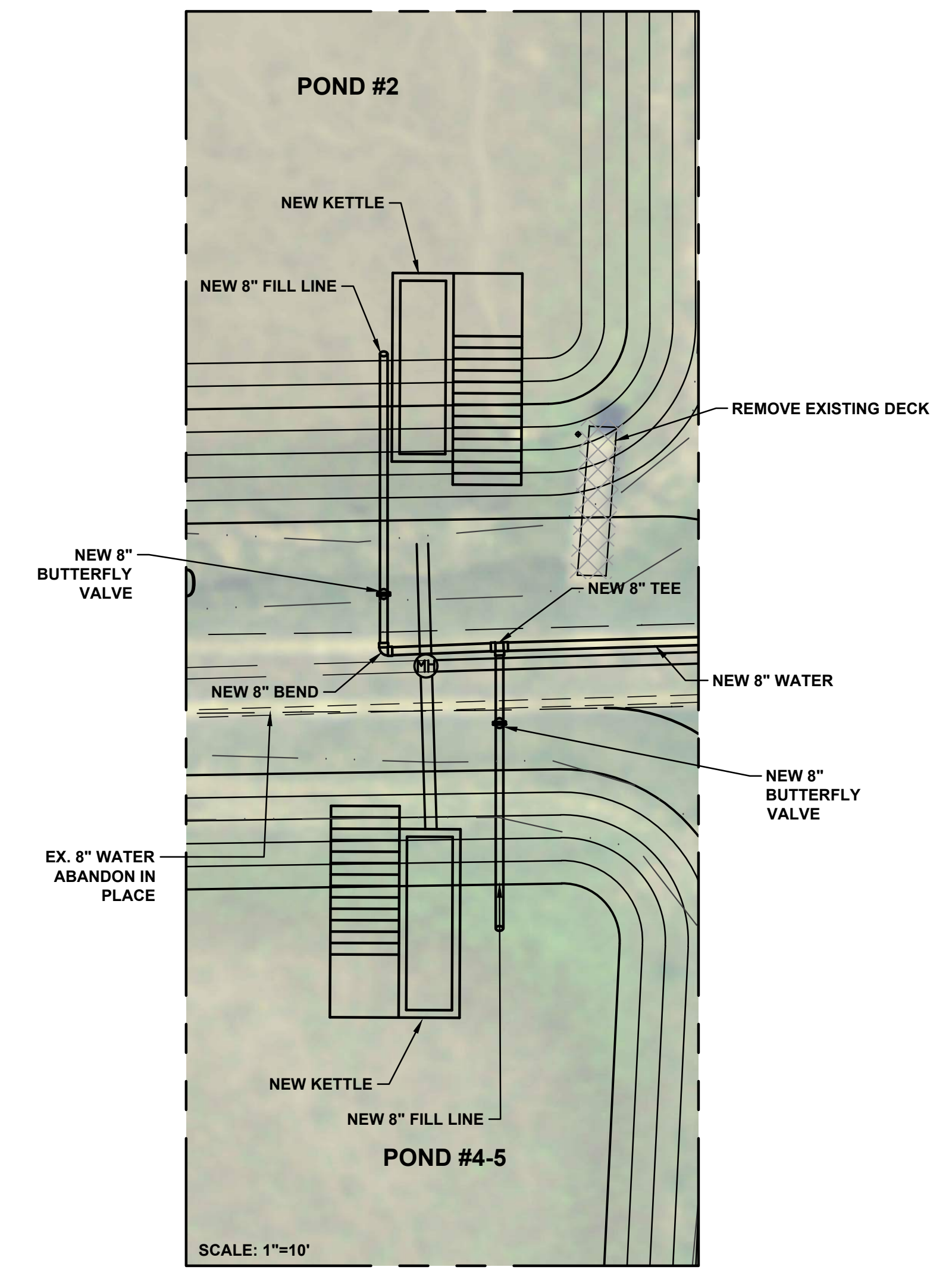
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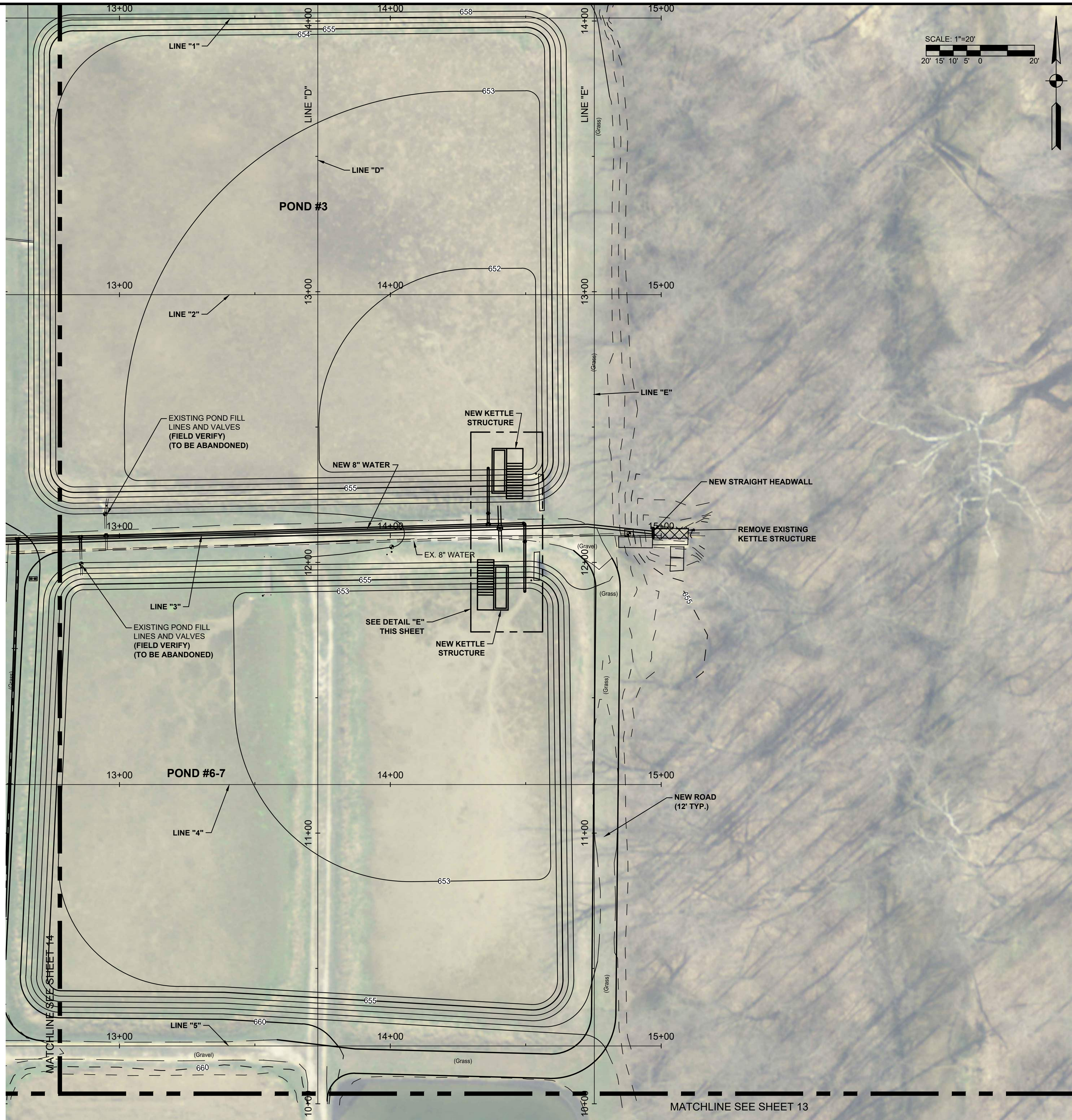
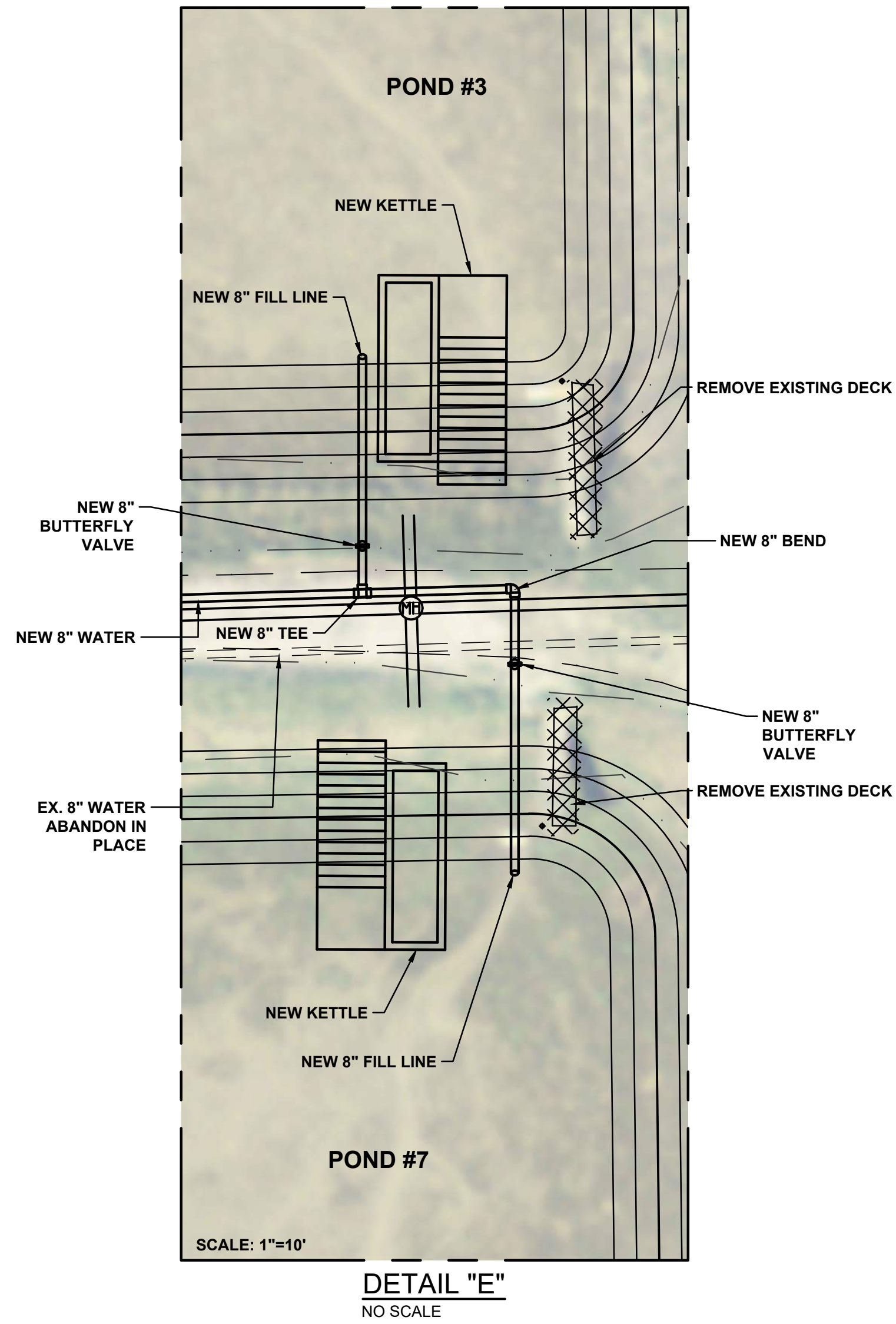
NORTH UNIT WATER MAIN, GRADING AND SITE PLAN

Drawing No:
PS9
 Sheet: 14 OF 38



DETAIL "D"
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PROFESSIONAL ENGINEER

Signature: *Jeffrey C. Schmitz* Date: 4/3/20

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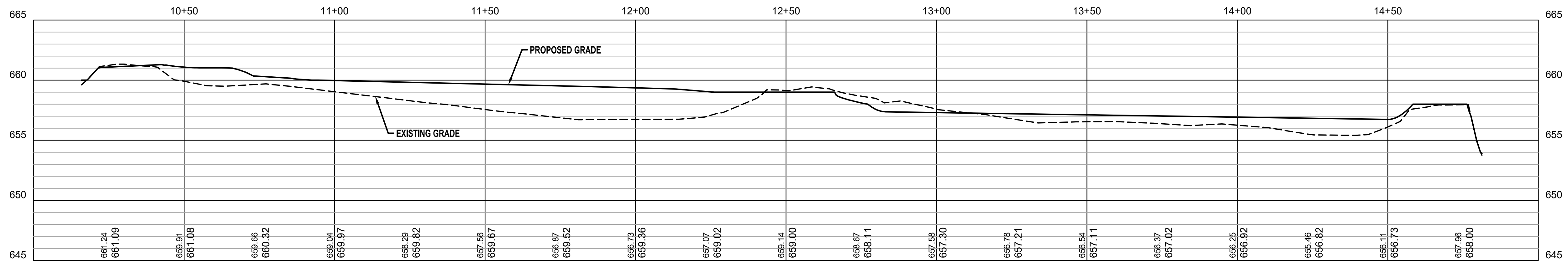
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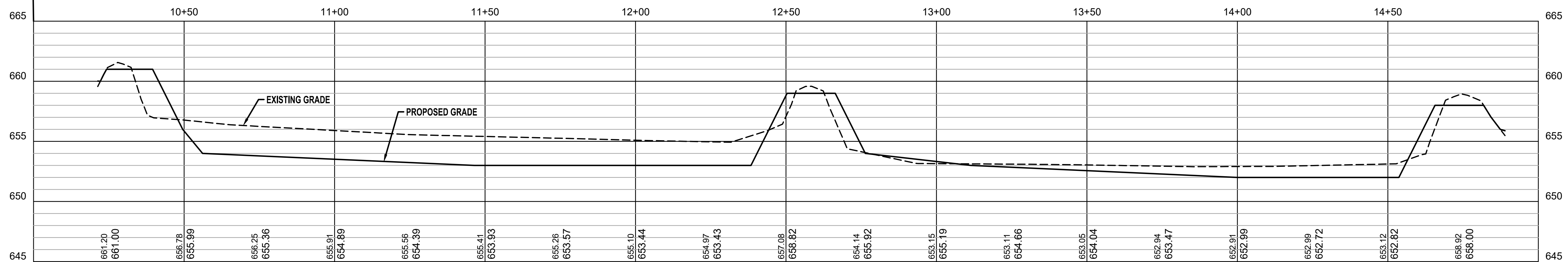
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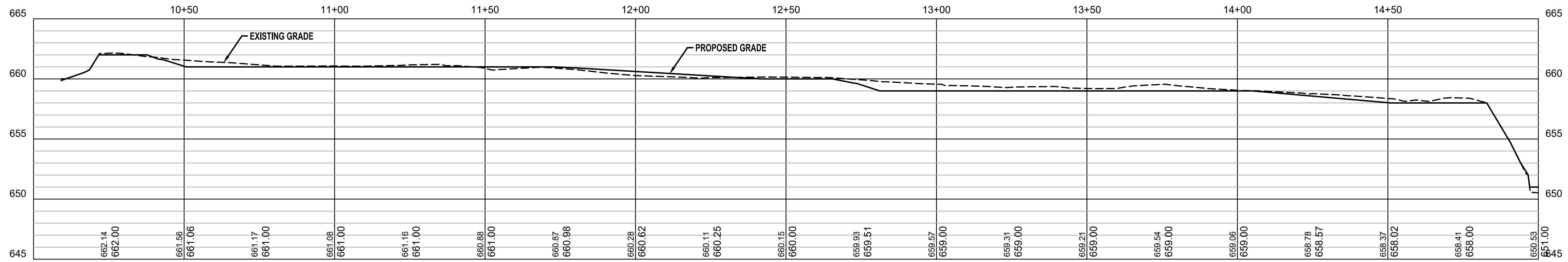
**NORTH UNIT WATER
MAIN, GRADING AND
SITE PLAN**



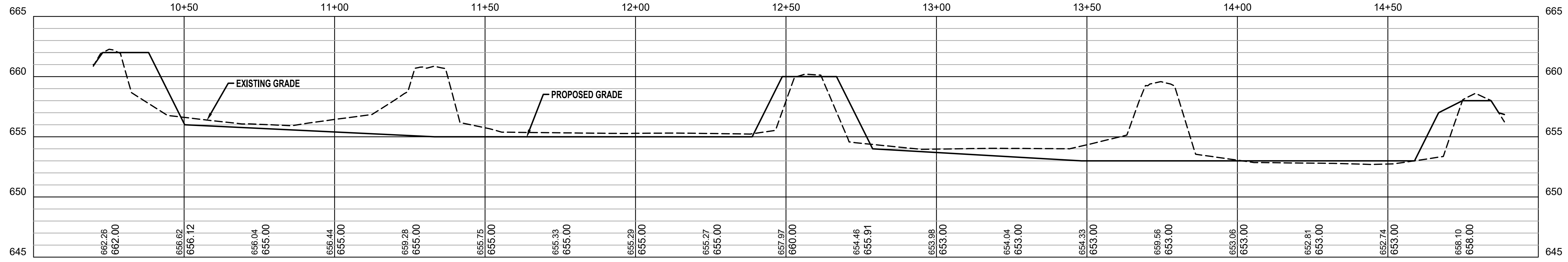
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Vertical Scale = 1 : 5



LINE "2"
Horizontal Scale = 1 : 20
Vertical Scale = 1 : 5



LINE "3"
Horizontal Scale = 1 : 20
Vertical Scale = 1 : 5



LINE "4"
Horizontal Scale = 1 : 20
Vertical Scale = 1 : 5

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No. 10300083
STATE OF INDIANA

Jeffrey C. Schmit
Signature

4/3/20
Date

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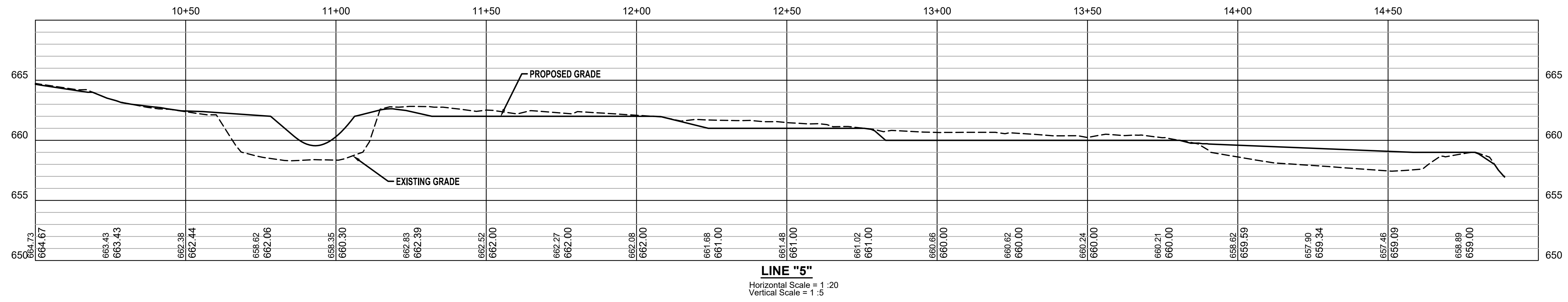
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LINE "5"
 Horizontal Scale = 1 :20
 Vertical Scale = 1 :5

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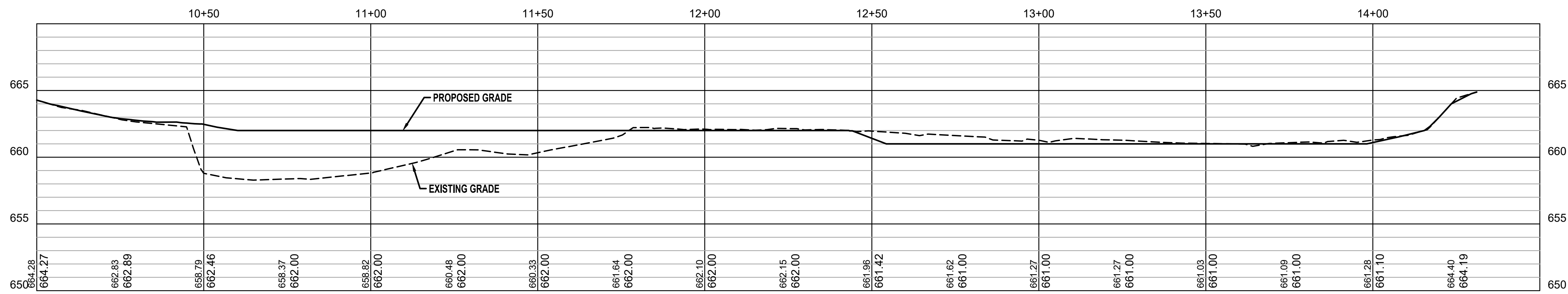
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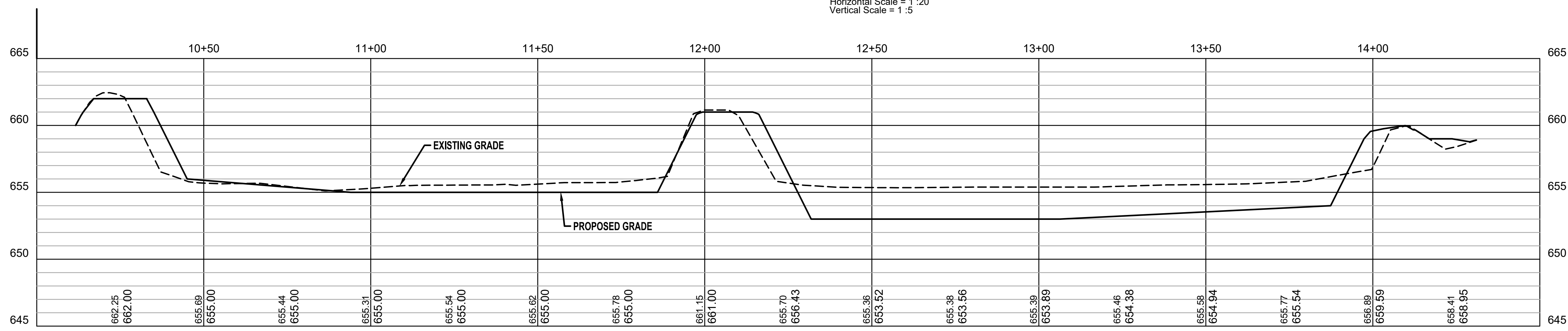
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NORTH UNIT CROSS SECTIONS

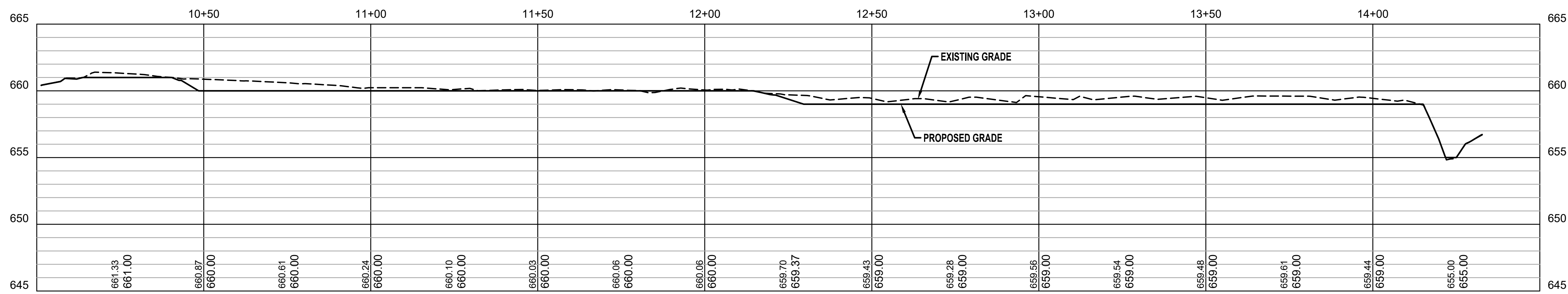
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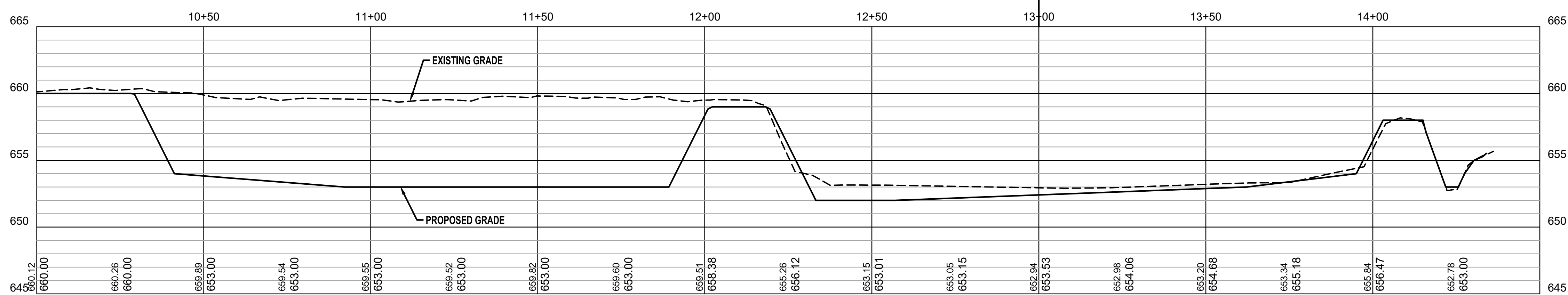
LINE "A"
 Horizontal Scale = 1 : 20
 Vertical Scale = 1 : 5



LINE "B"
 Horizontal Scale = 1 : 20
 Vertical Scale = 1 : 5



LINE "C"
 Horizontal Scale = 1 : 20
 Vertical Scale = 1 : 5



LINE "D"
 Horizontal Scale = 1 : 20
 Vertical Scale = 1 : 5

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Jeffrey C. Schmit
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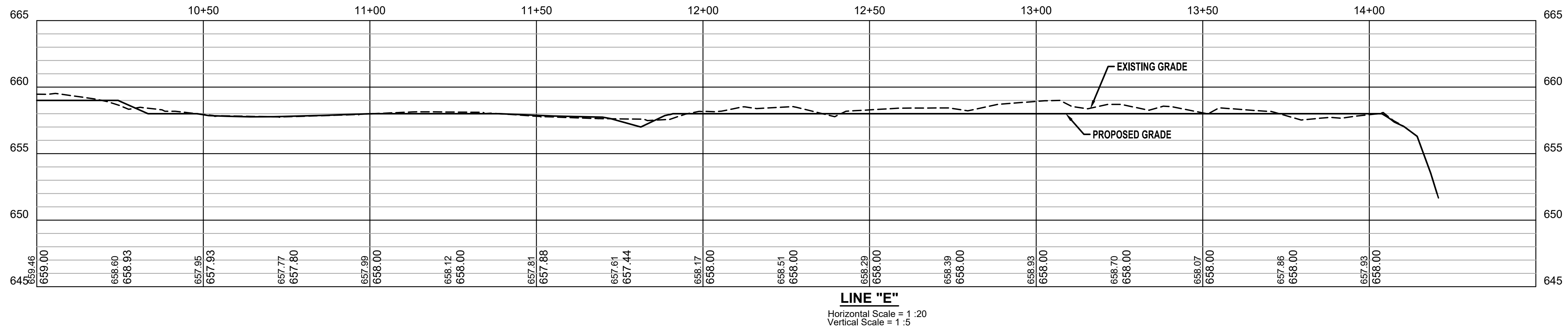
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NORTH UNIT CROSS SECTIONS



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JEREMY C. SCHMITZ
 REGISTERED PROFESSIONAL ENGINEER

No. 10300083
 STATE OF INDIANA

Jeremy C. Schmitz 4/3/20
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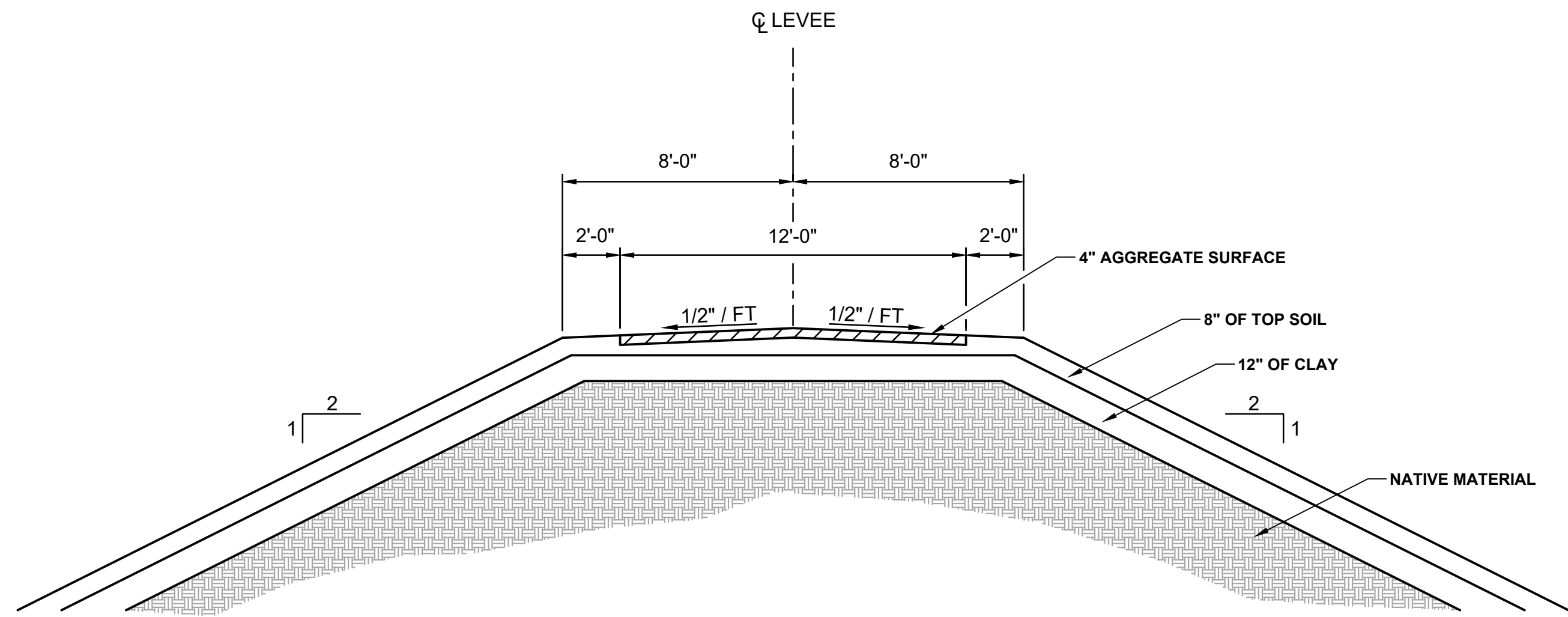
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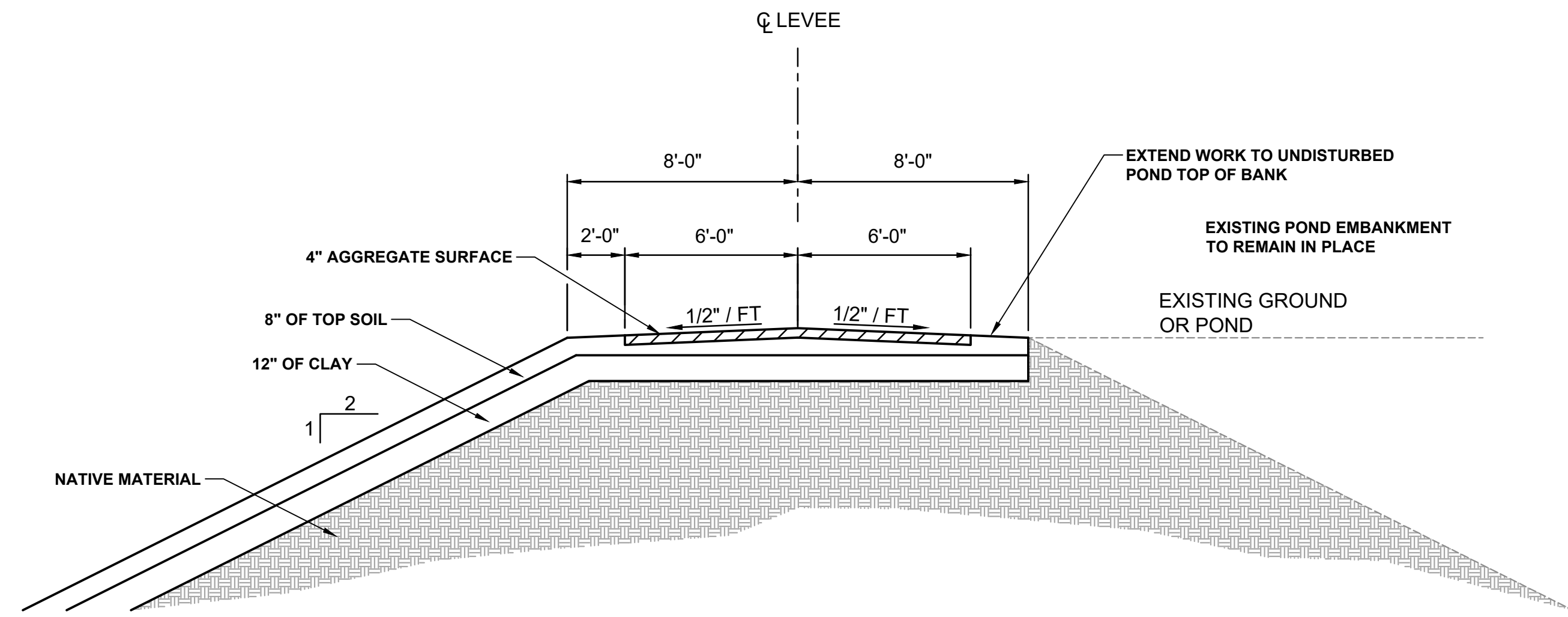
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**NORTH UNIT CROSS
 SECTIONS**



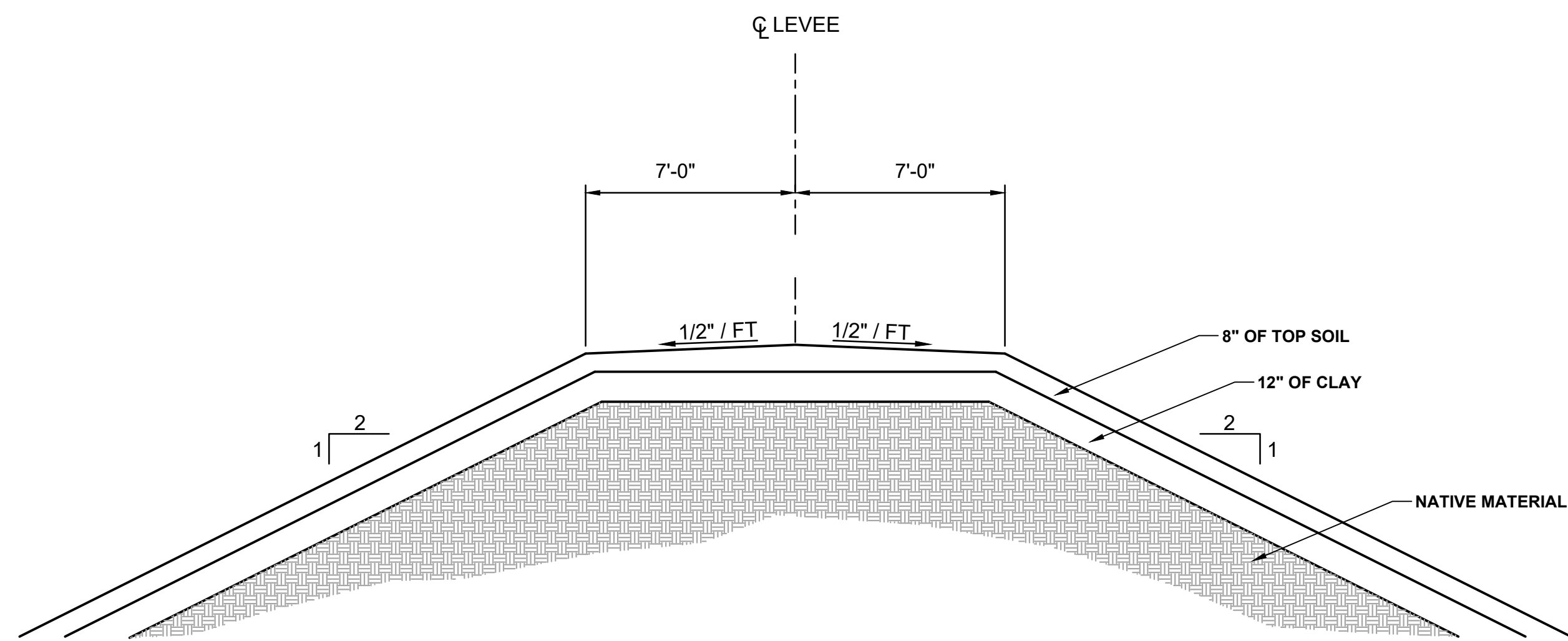
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LINE "C" FROM Sta. 10+35 TO STA. 11+90
 LINE "3" FROM Sta. 12+00 TO STA. 14+50
 Scale: 1/4"=1'-0"



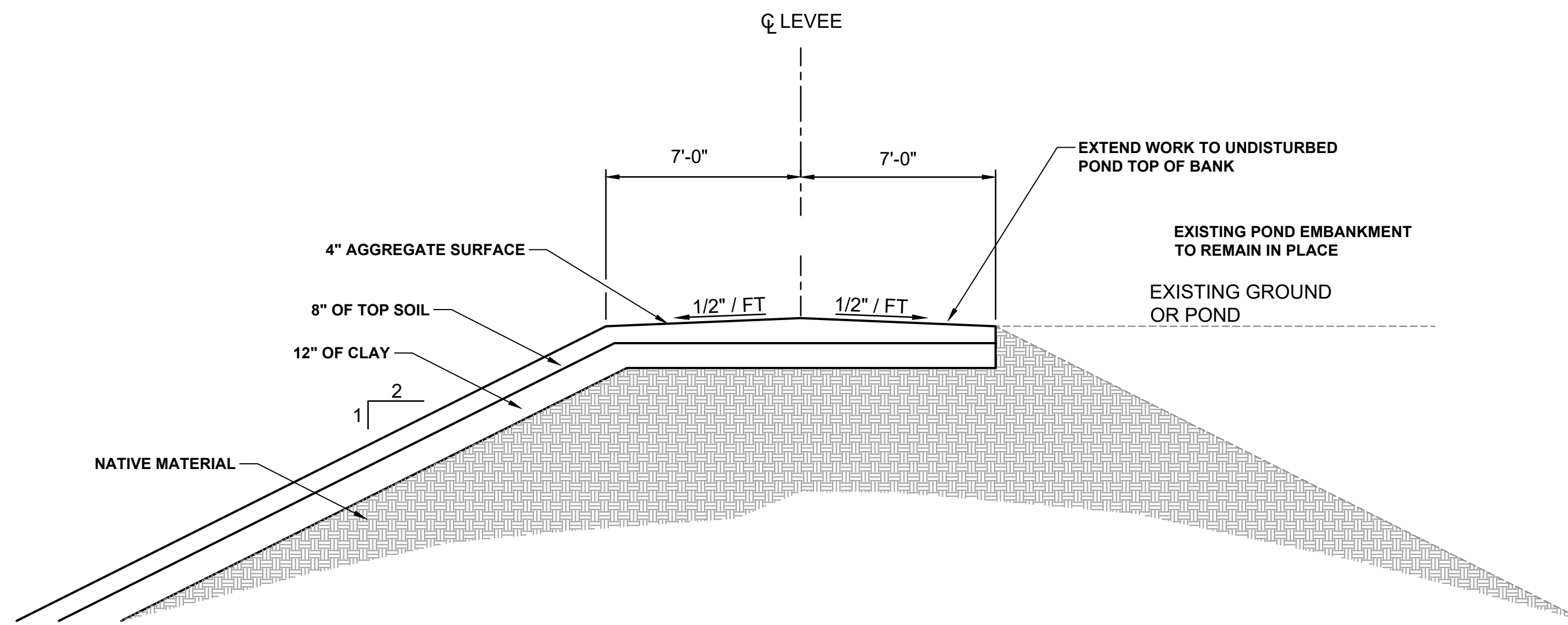
LEVEE TYPE "C" CROSS SECTION

LINE "E" FROM Sta. 10+10 TO STA. 12+25
 LINE "5" FROM Sta. 11+20 TO STA. 14+80
 Scale: 1/4"=1'-0"



LEVEE TYPE "B" CROSS SECTION

LINE "C" FROM Sta. 12+20 TO STA. 14+00
 LINE "3" FROM Sta. 10+30 TO STA. 12+00
 Scale: 1/4"=1'-0"



LEVEE TYPE "D" CROSS SECTION

LINE "A" FROM Sta. 10+30 TO STA. 14+25
 LINE "E" FROM Sta. 12+25 TO STA. 14+25
 LINE "4" FROM Sta. 10+30 TO STA. 14+70
 LINE "5" FROM Sta. 10+25 TO STA. 11+20
 Scale: 1/4"=1'-0"

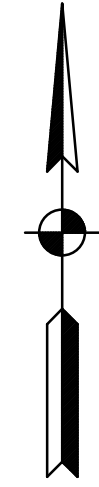
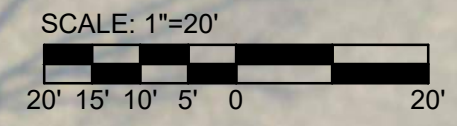
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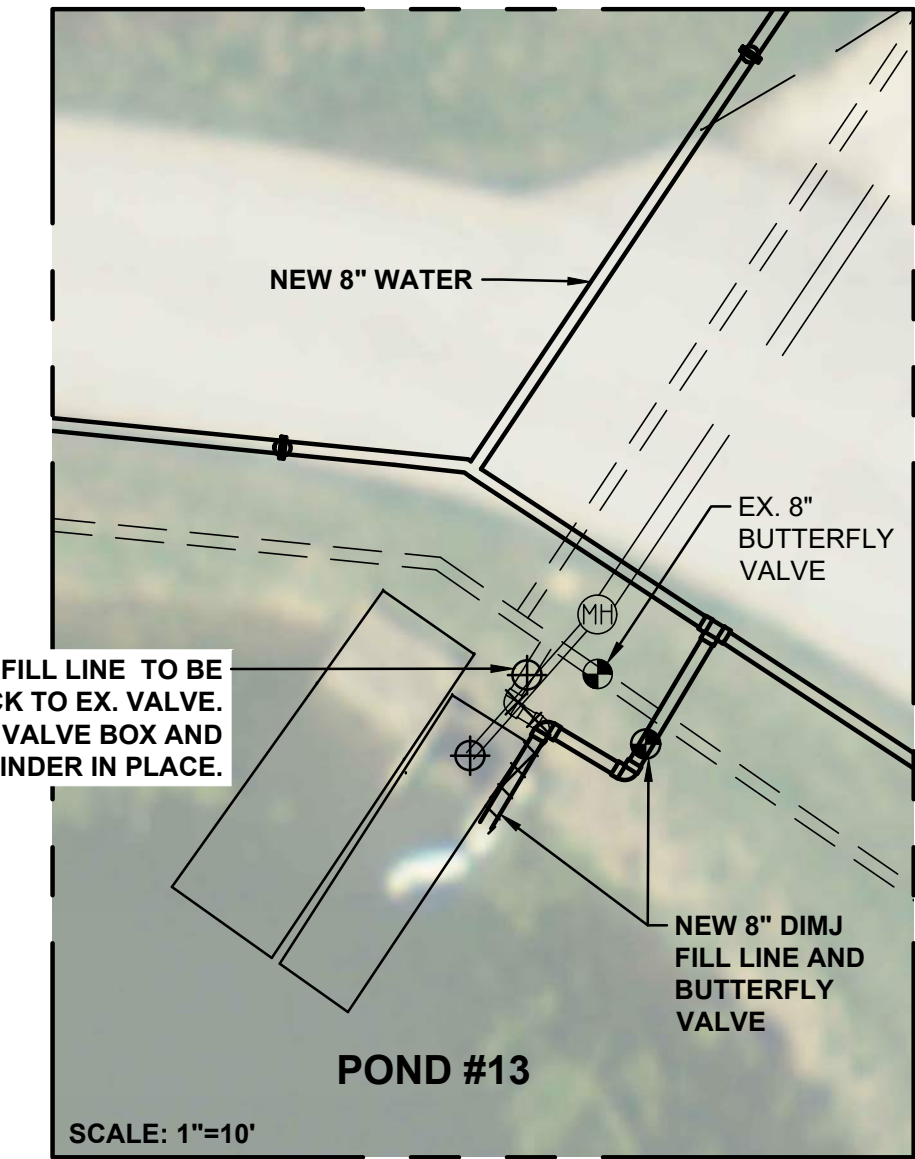
LEVEE CROSS SECTIONS

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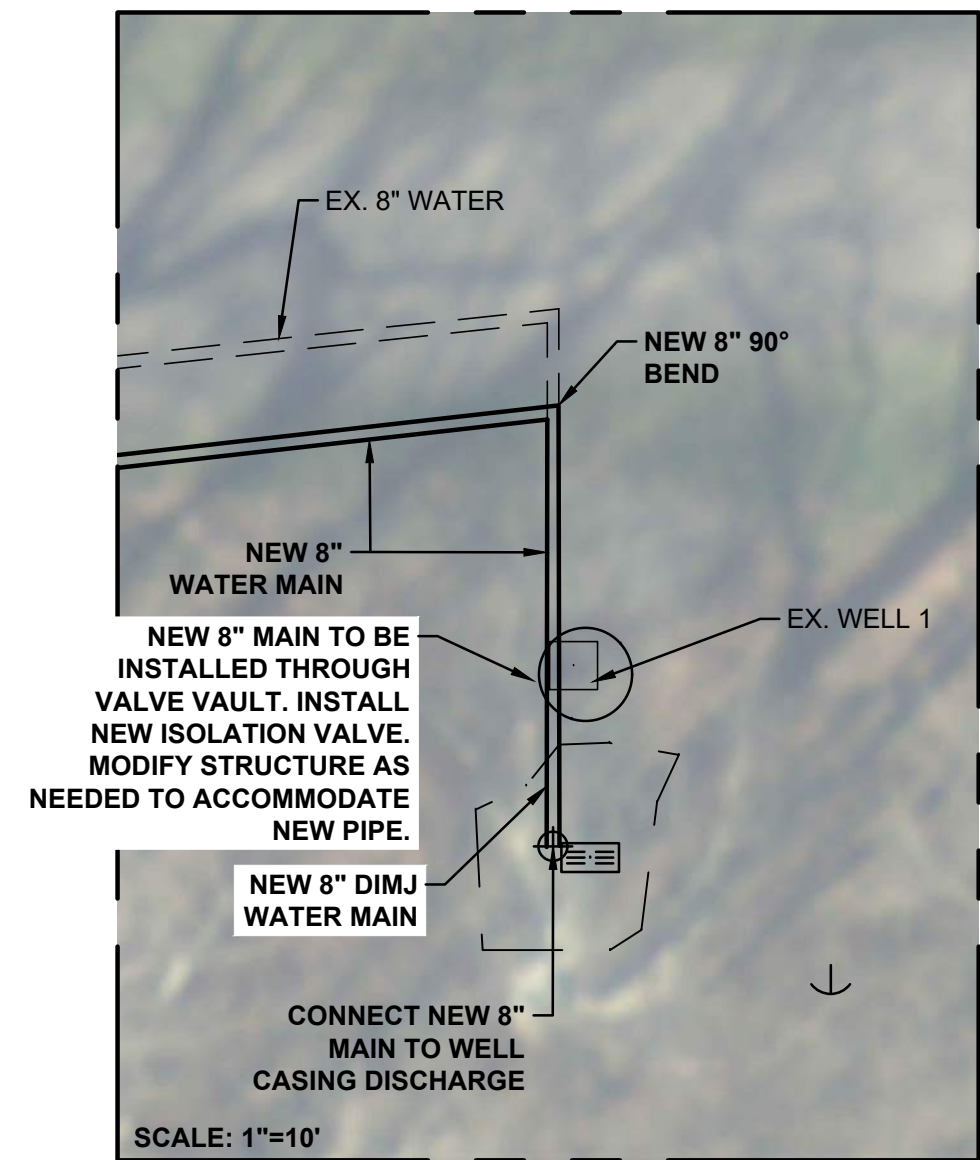
MATCHLINE SEE SHEET 22



EXISTING FILL LINE TO BE REMOVED BACK TO EX. VALVE. REMOVE VALVE BOX AND ABANDON REMAINDER IN PLACE.



DETAIL "F"
NO SCALE



DETAIL "G"
NO SCALE

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JEFFERY C. SCHMIT
REGISTERED PROFESSIONAL ENGINEER
No. 10300083
STATE OF INDIANA

Jeffery C. Schmit 4/3/20
Signature Date

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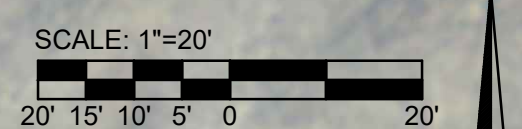
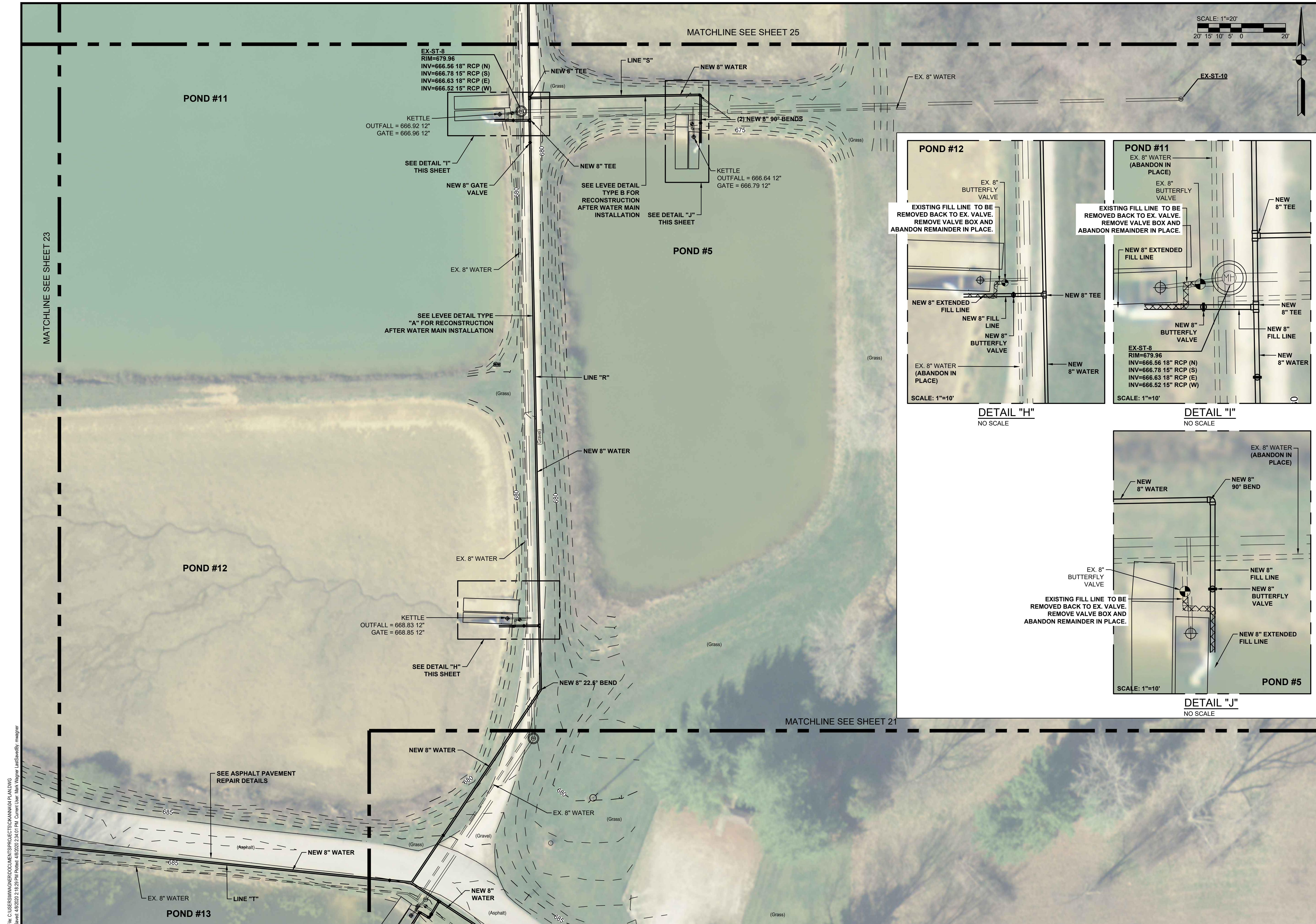
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EAST UNIT WATER PLAN

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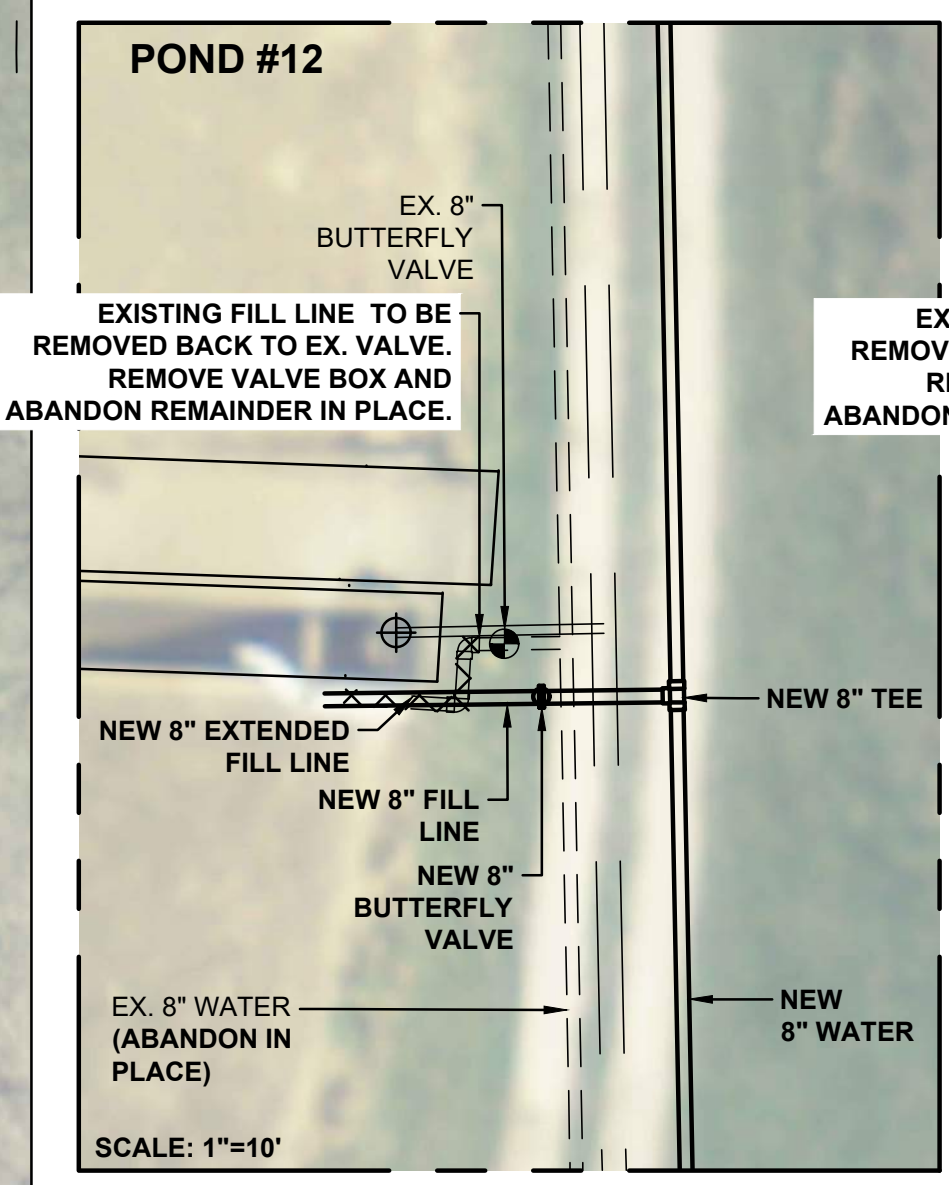
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 Ellettsville, IN 47710
 (812) 474-1177

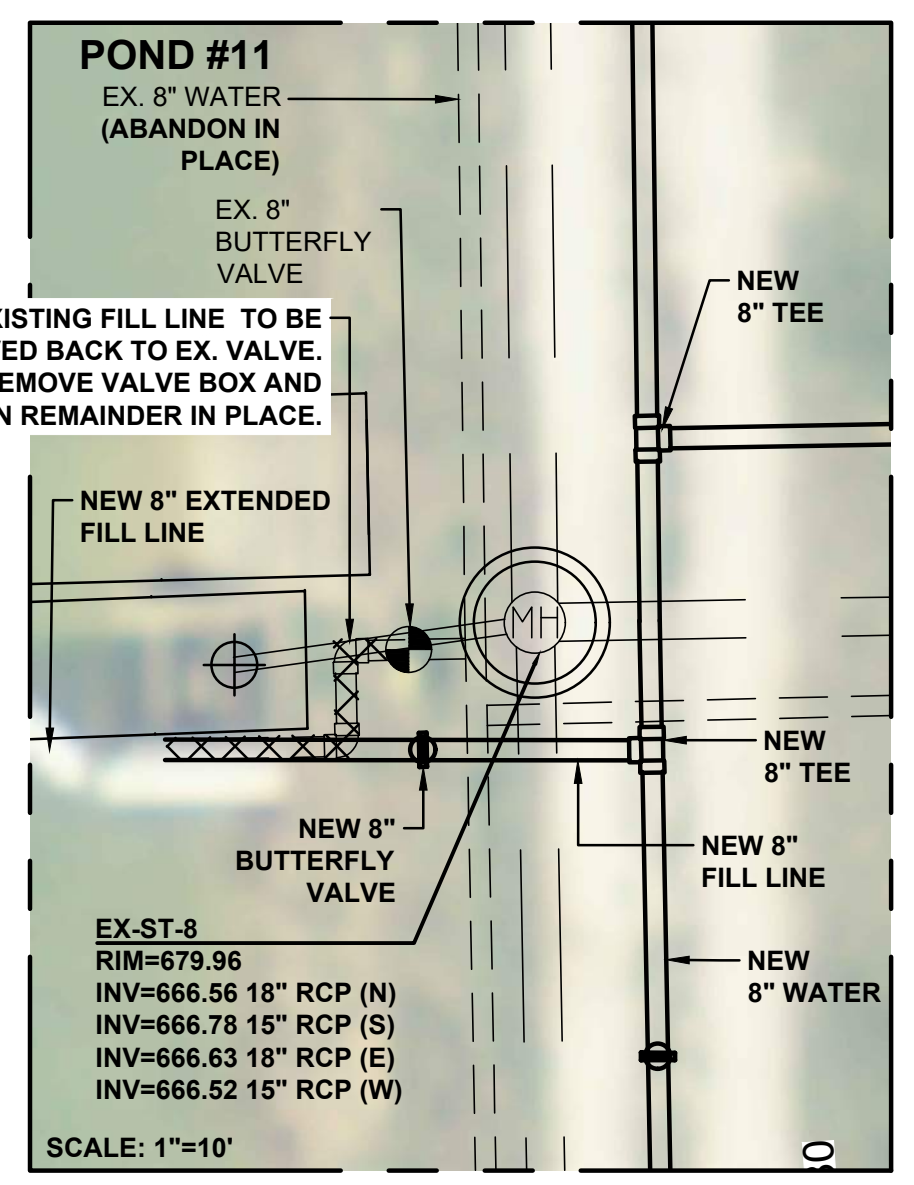
JOSEPH C. SCHMITZ
 REGISTERED PROFESSIONAL ENGINEER
 No. 10300083
 STATE OF INDIANA

Joseph C. Schmitz
 Signature

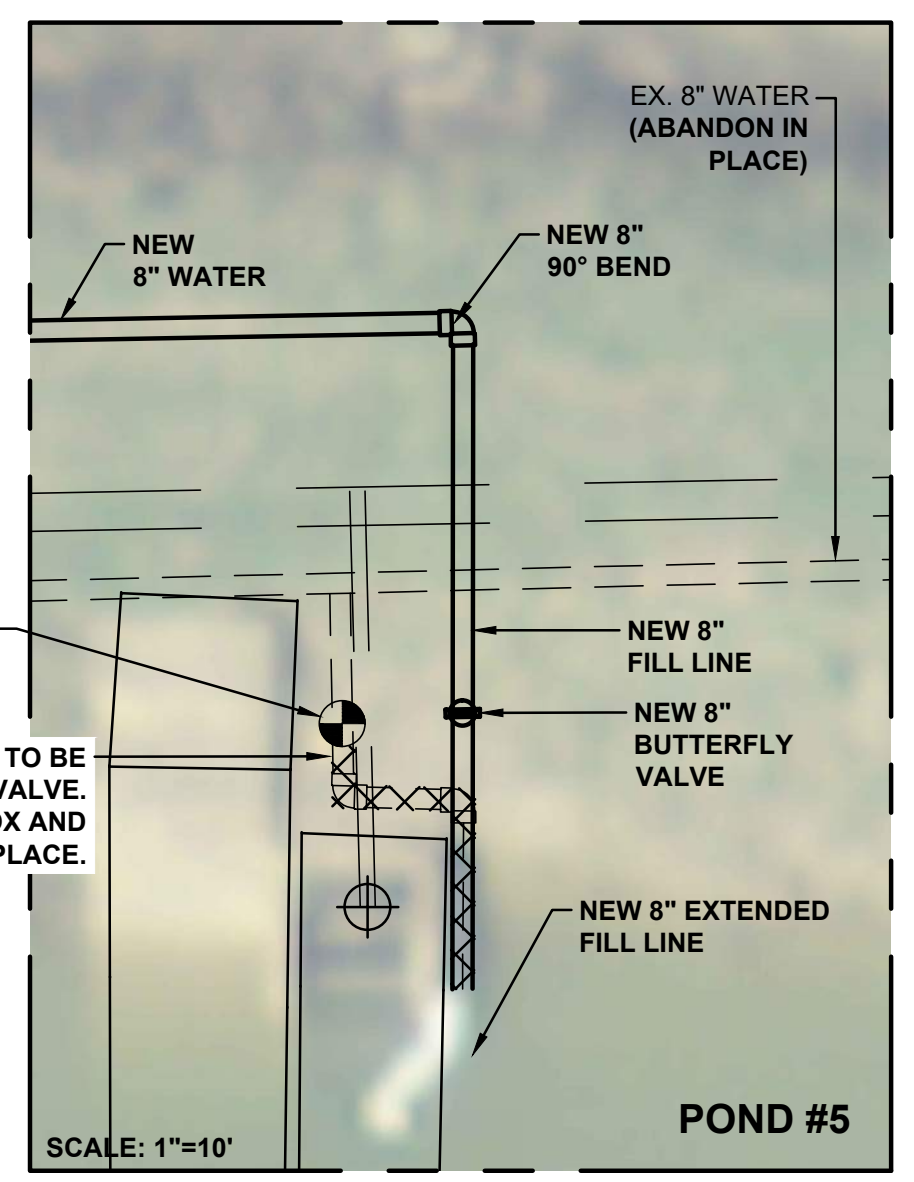
4/3/20
 Date



DETAIL "H"
 NO SCALE



DETAIL "I"
 NO SCALE



DETAIL "J"
 NO SCALE

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EAST UNIT WATER PLAN

File: C:\USERS\MWCHEN\DOCUMENTS\PROJECTS\CIKANA\PLAN.DWG
 Sheet: 48/20/2022 2:16:25 PM
 Plot: 4/8/2023 2:24:01 PM
 Current User: Mark Wagner
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MATCHLINE SEE SHEET 26

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 No. 10300083
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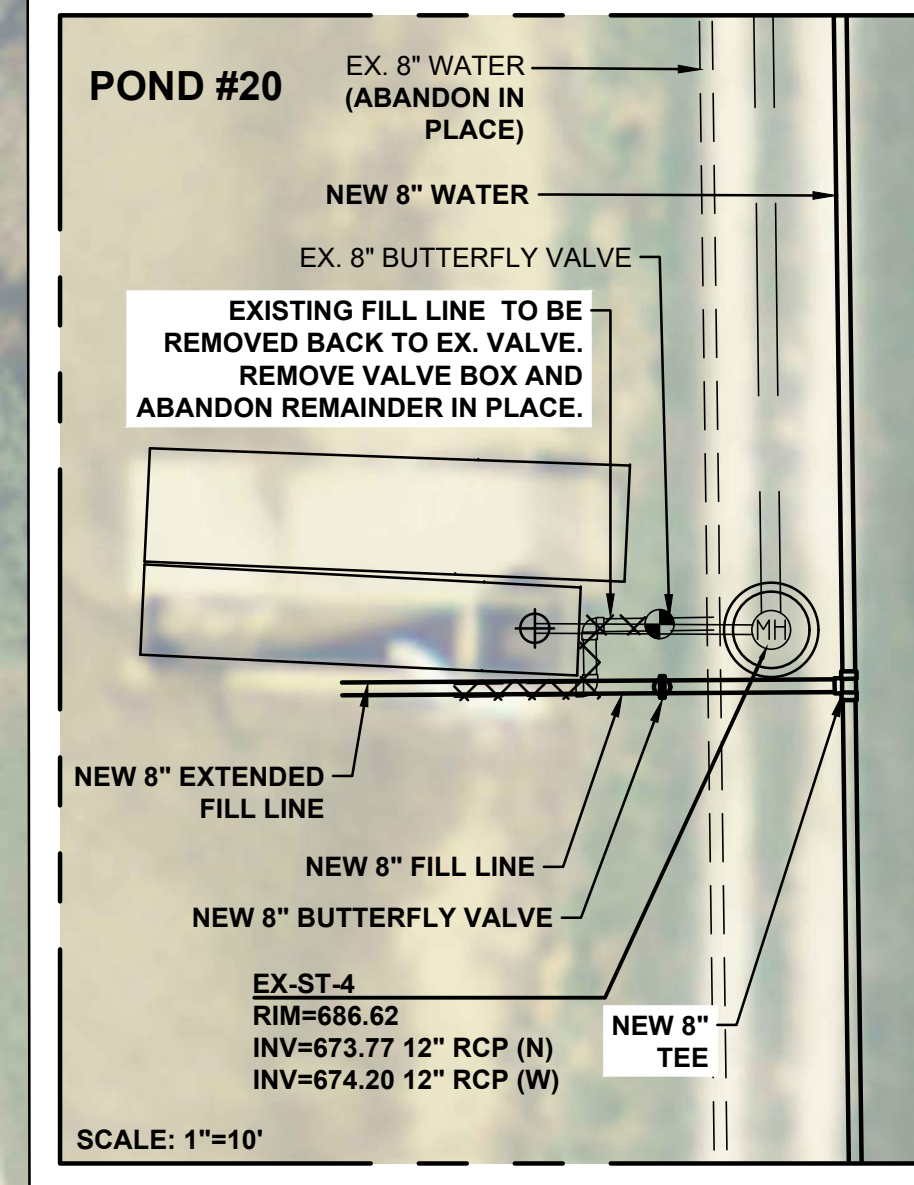
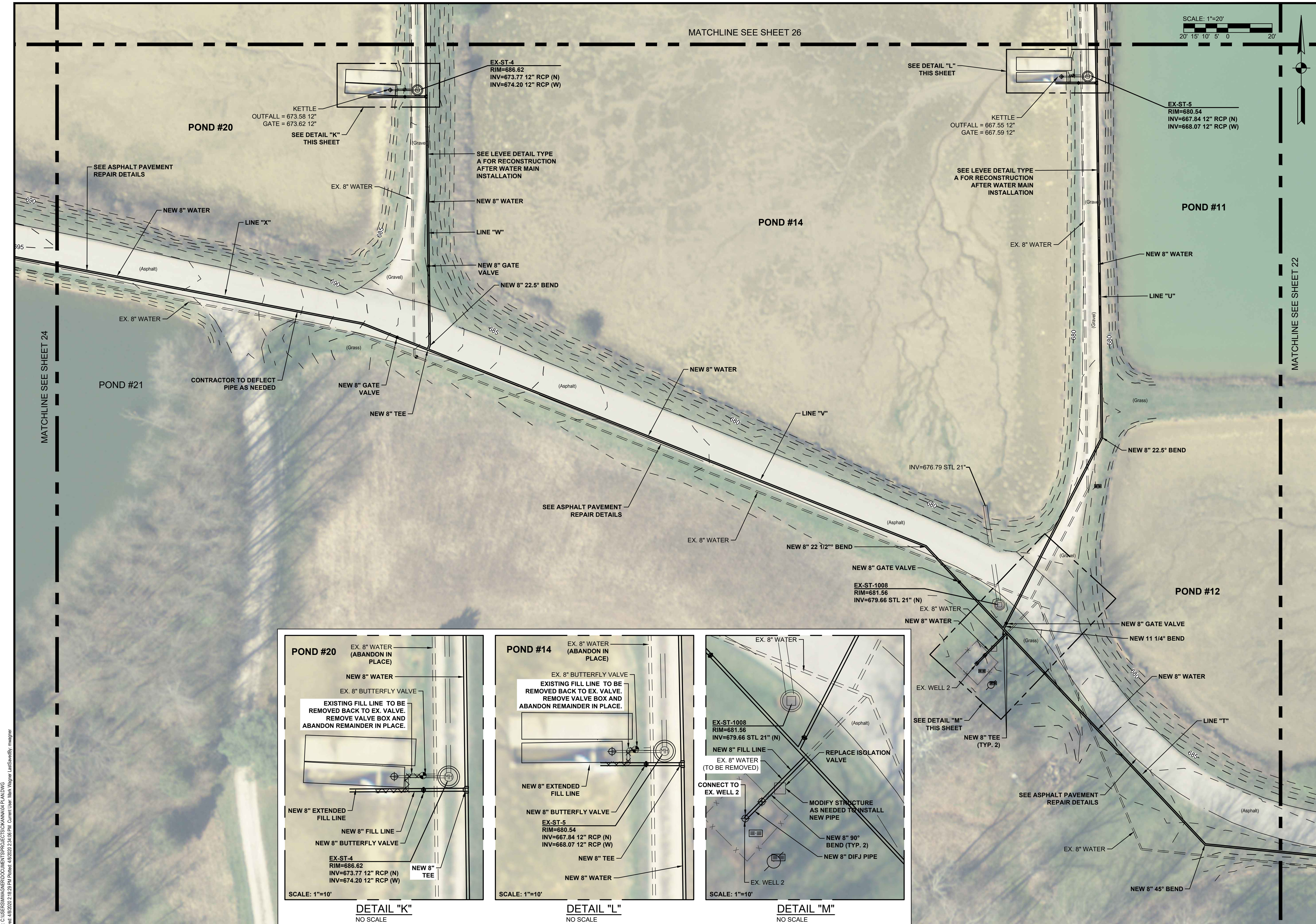
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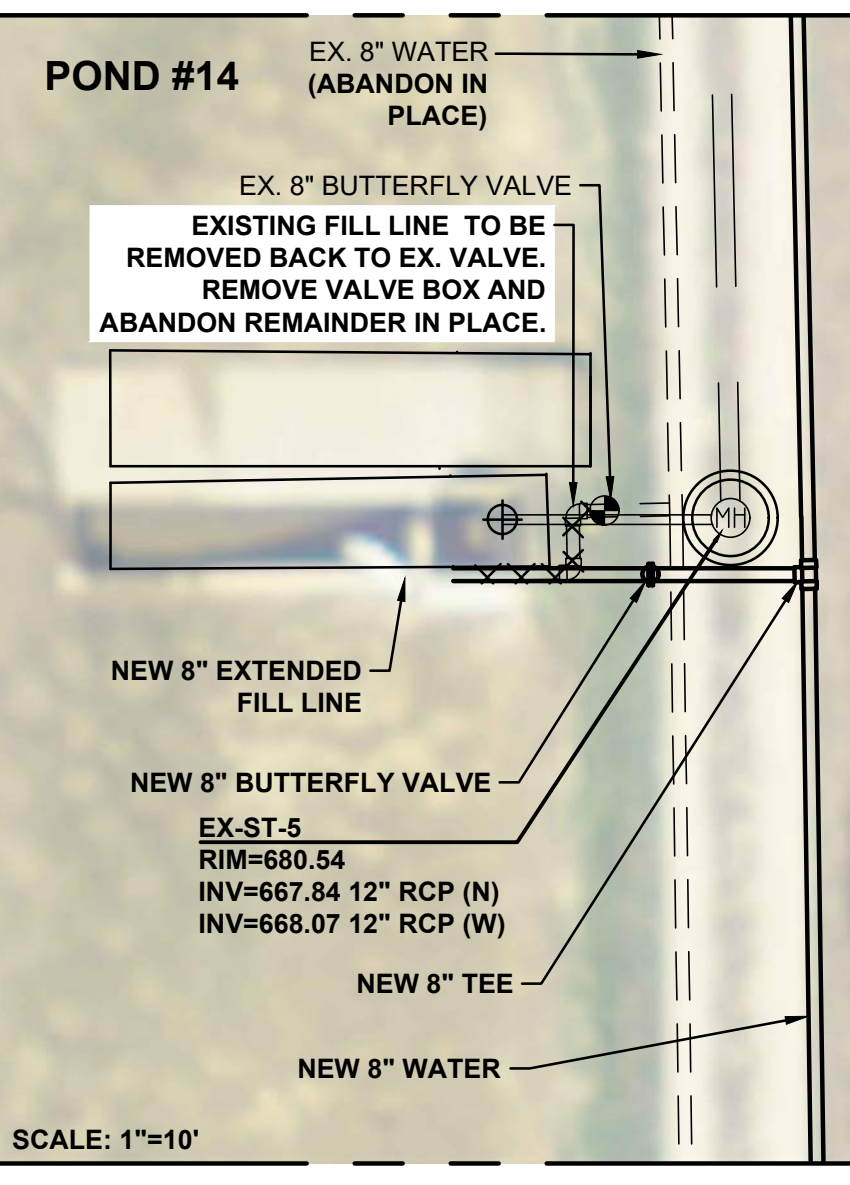
Designed By: _____ Drawn By: MAW Checked By: _____
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EAST UNIT WATER PLAN

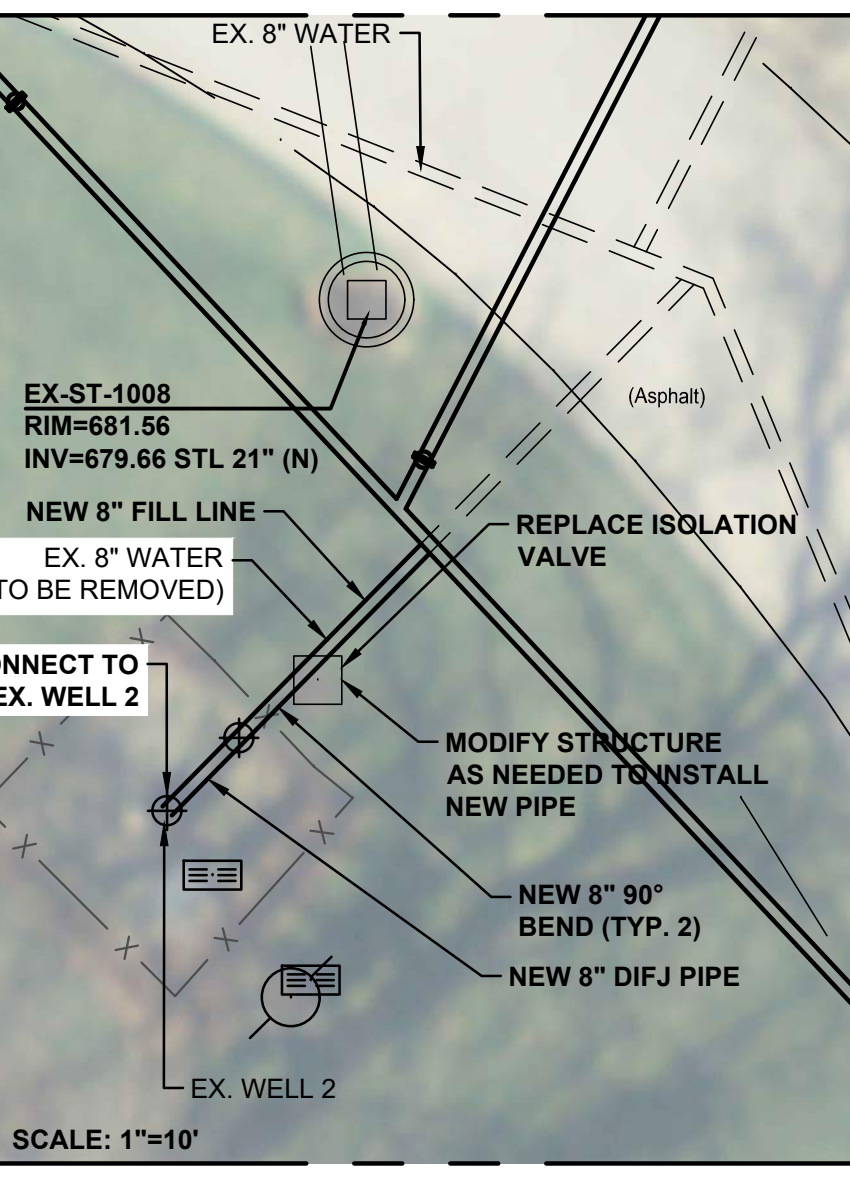
Drawing No: **PS18**
 Sheet: 23 OF 38



DETAIL "K"
NO SCALE



DETAIL "L"
NO SCALE



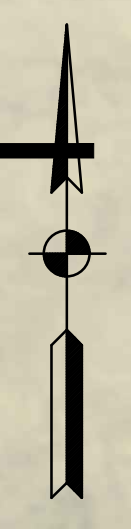
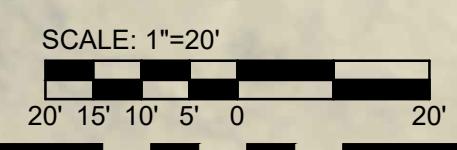
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 Sheet: 48/20/2 2:16:25 PM Ponds: 4/8/2023 2:24:17 PM Current User: Mark Wagner LastSavedBy: mmagrar



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 (260) 494-5223

JEFFREY C. SCHMIT
 REGISTERED PROFESSIONAL ENGINEER
 No. 10300083
 STATE OF INDIANA

Jeffrey C. Schmit 4/3/20
 Signature Date

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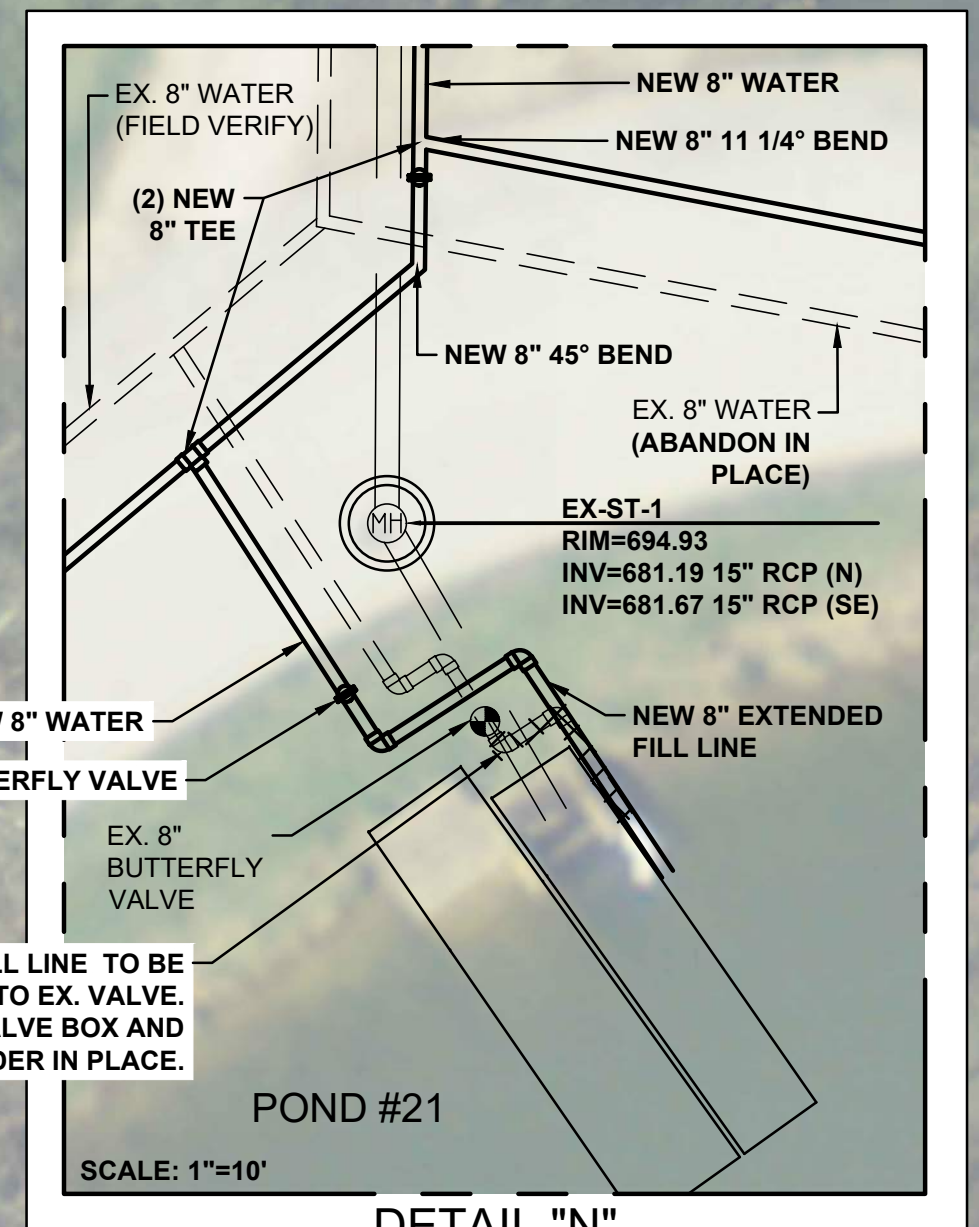
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EAST UNIT WATER PLAN

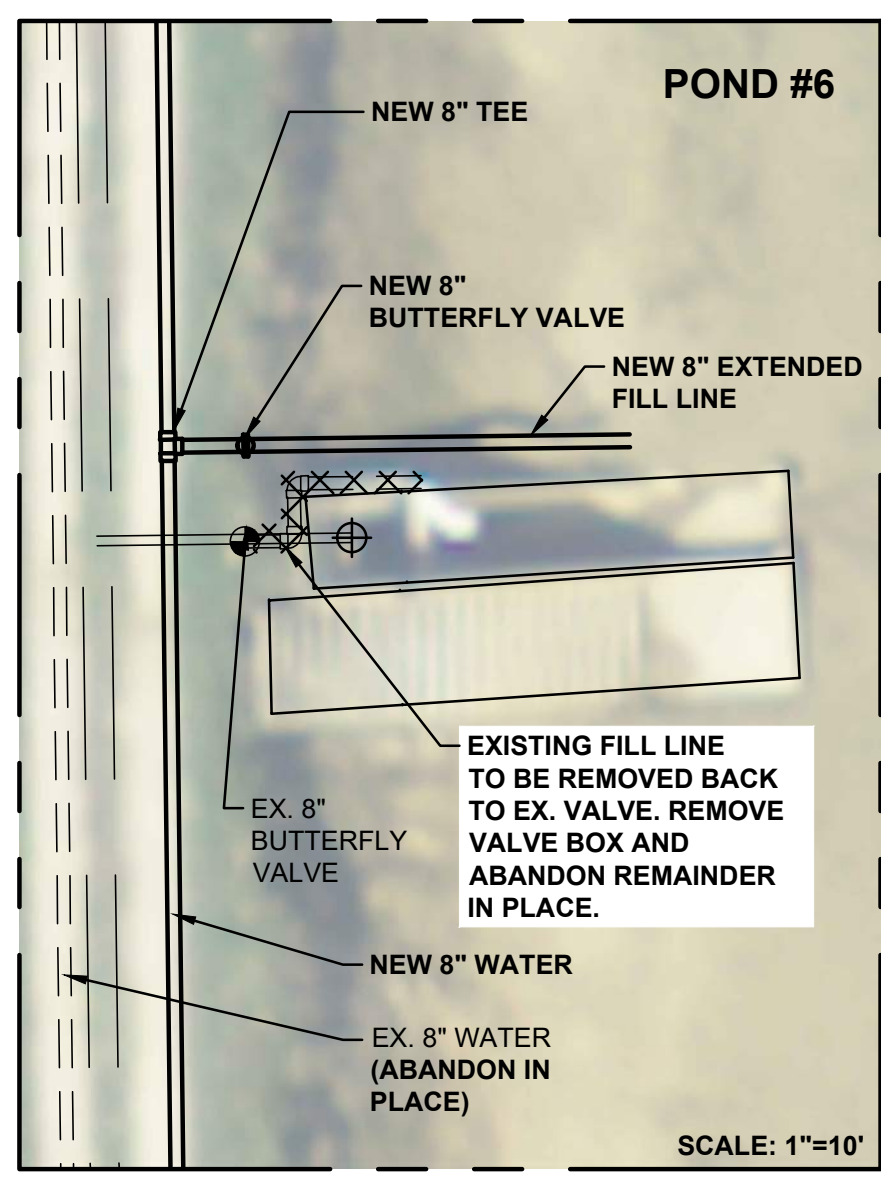
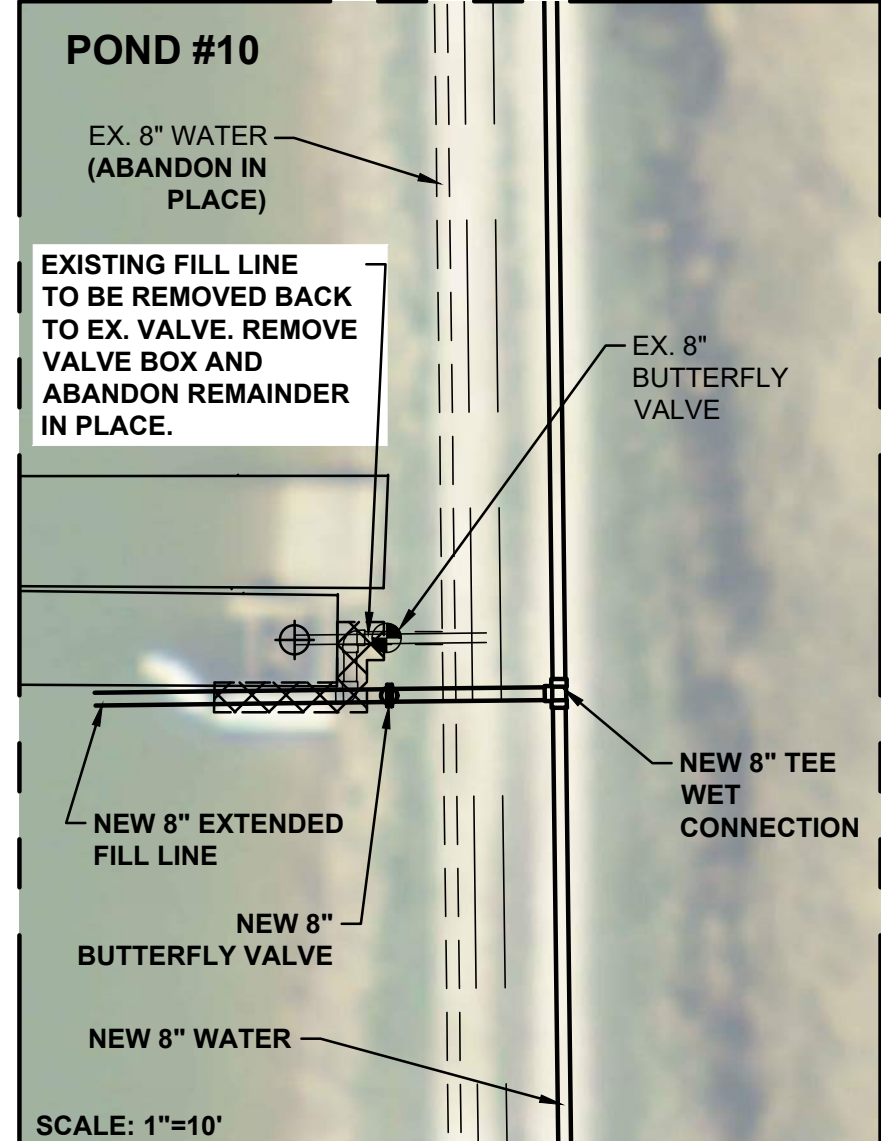
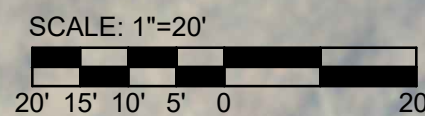
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 Sheet: 24 OF 38



DETAIL "N"
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MATCHLINE SEE SHEET 23

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JEFFREY C. SCHMITZ
 REGISTERED PROFESSIONAL ENGINEER
 No. 10300083
 STATE OF INDIANA
 Signature: *Jeffrey C. Schmitz* Date: 4/3/20

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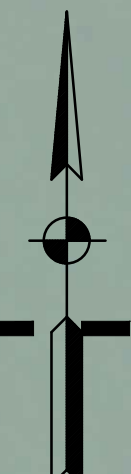
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EAST UNIT WATER PLAN



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REGISTERED PROFESSIONAL ENGINEER
No. 10300083
STATE OF INDIANA

Signature: *Jeffrey C. Schmit*
Date: 4/3/20

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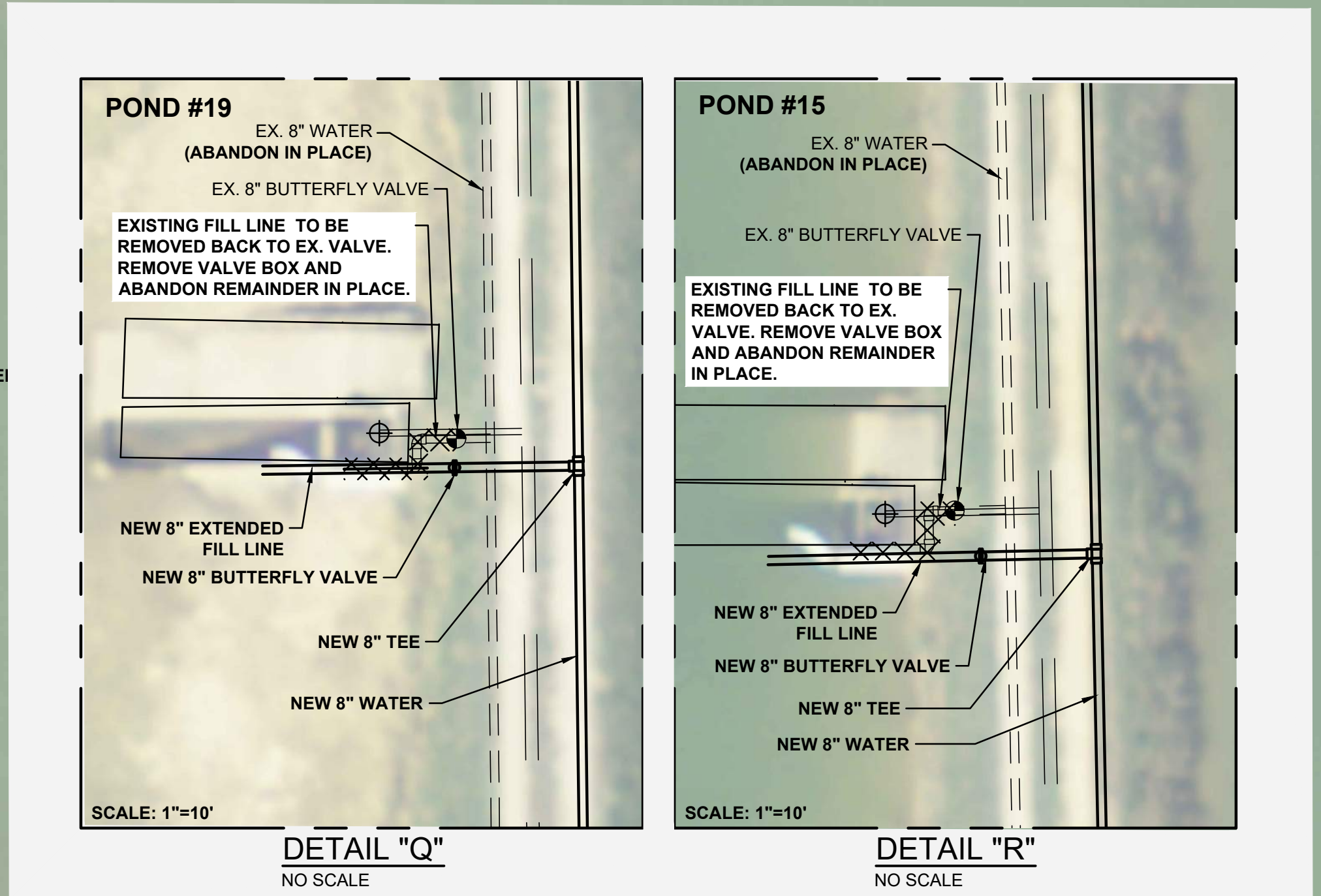
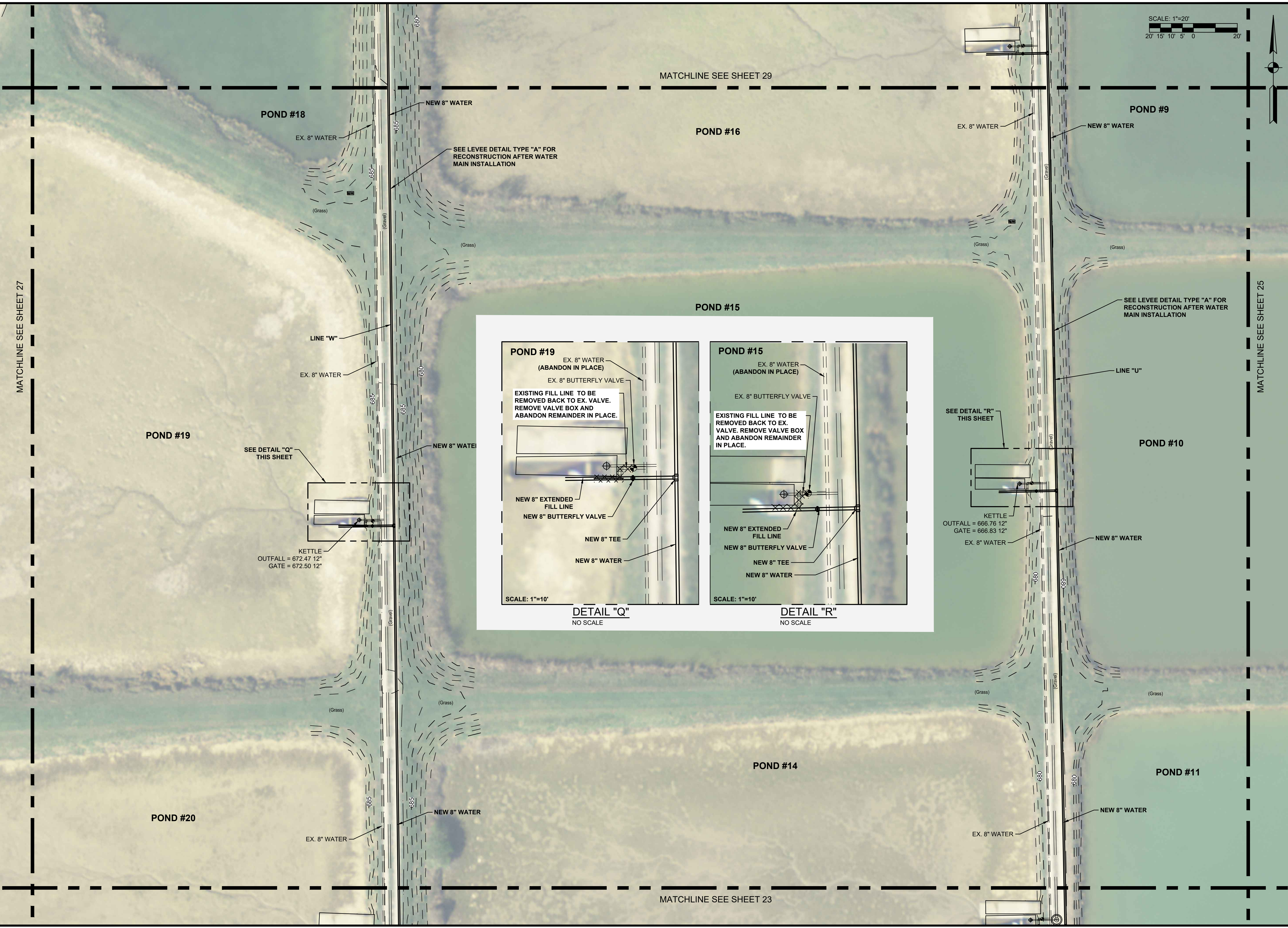
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EAST UNIT WATER PLAN

Drawing No:
PS21
Sheet: 26 OF 38



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SCALE: 1"=20'
20' 15' 10' 5' 0' 20'



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STATE OF INDIANA
REGISTERED PROFESSIONAL ENGINEER
No. 1030083
JERRY C. SCHMITZ
Signature: *Jerry C. Schmitz* Date: 4/3/20

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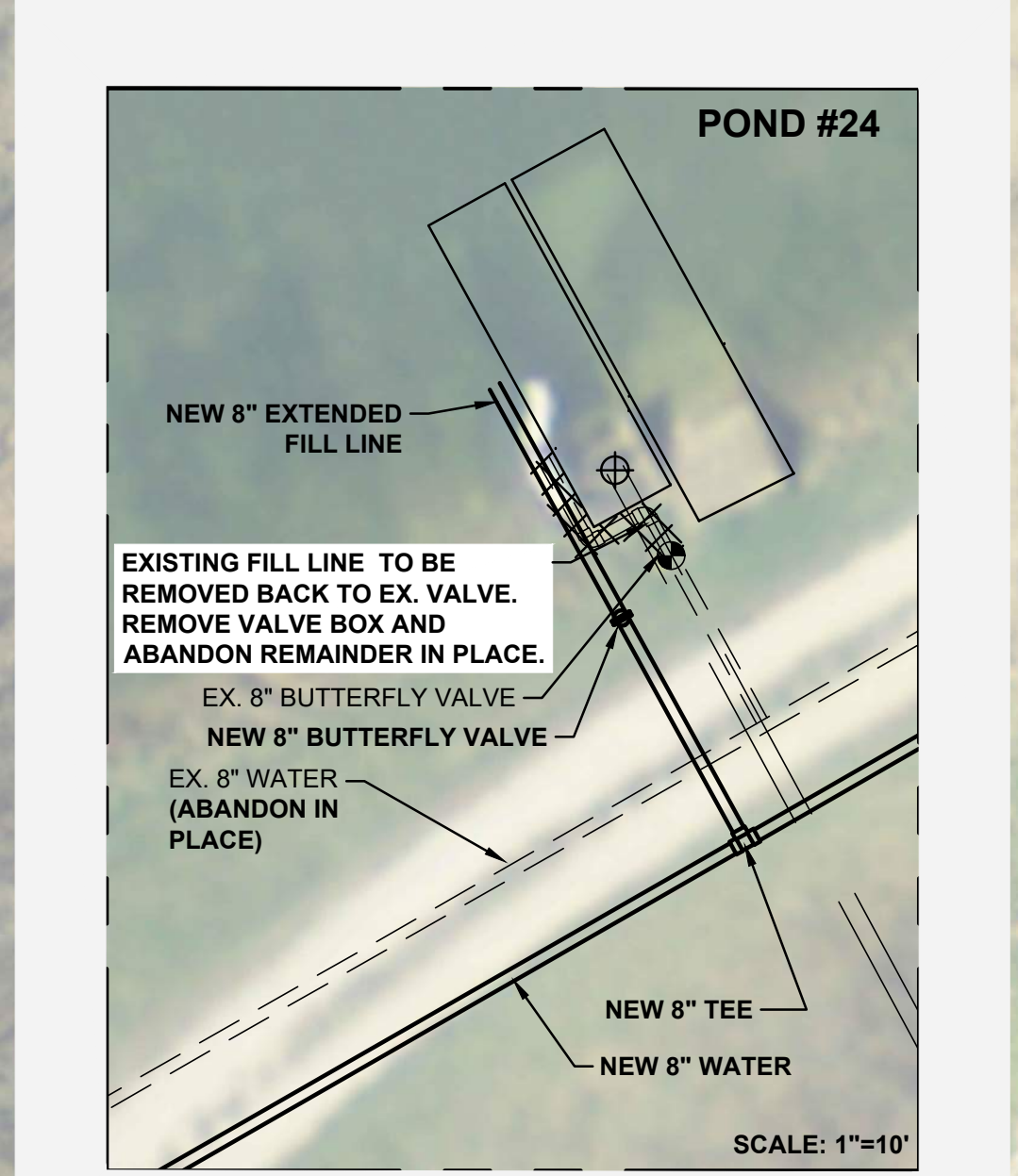
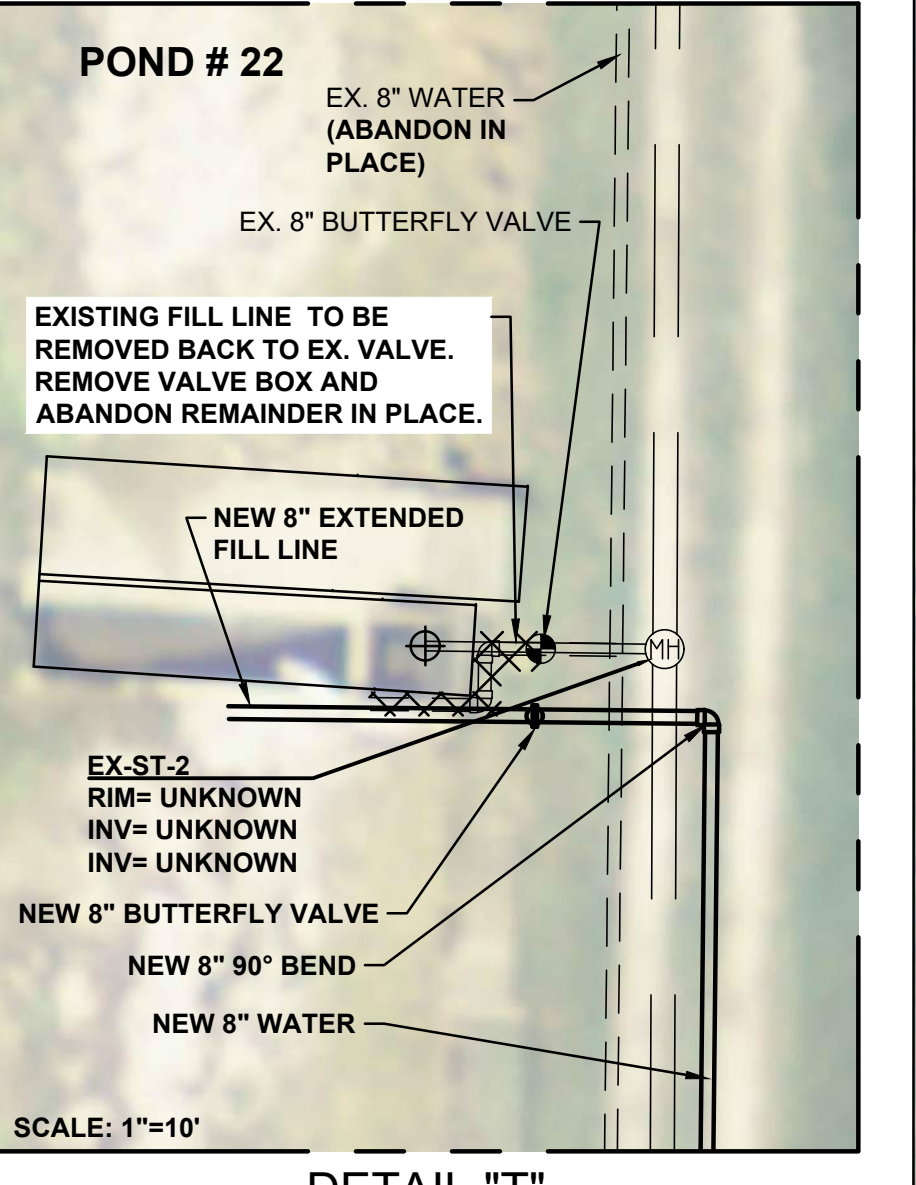
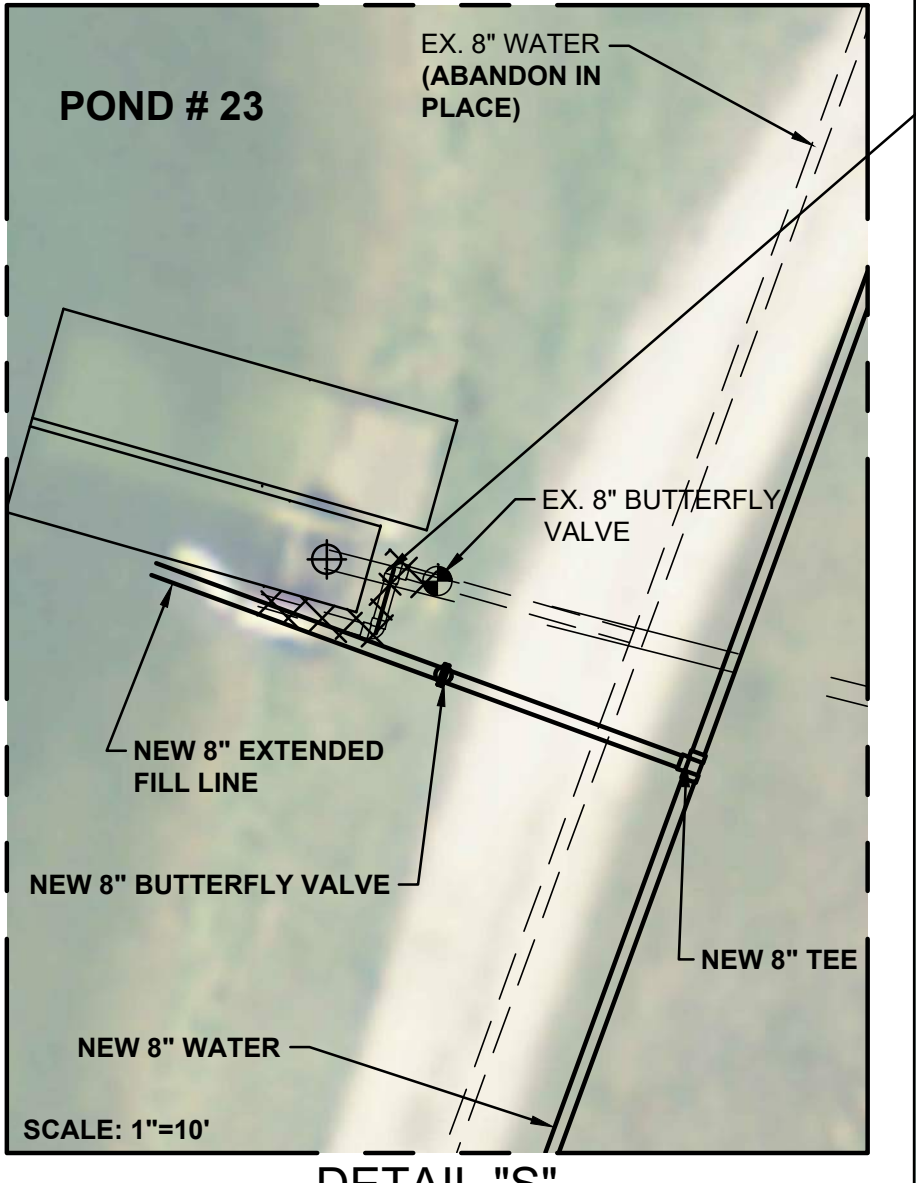
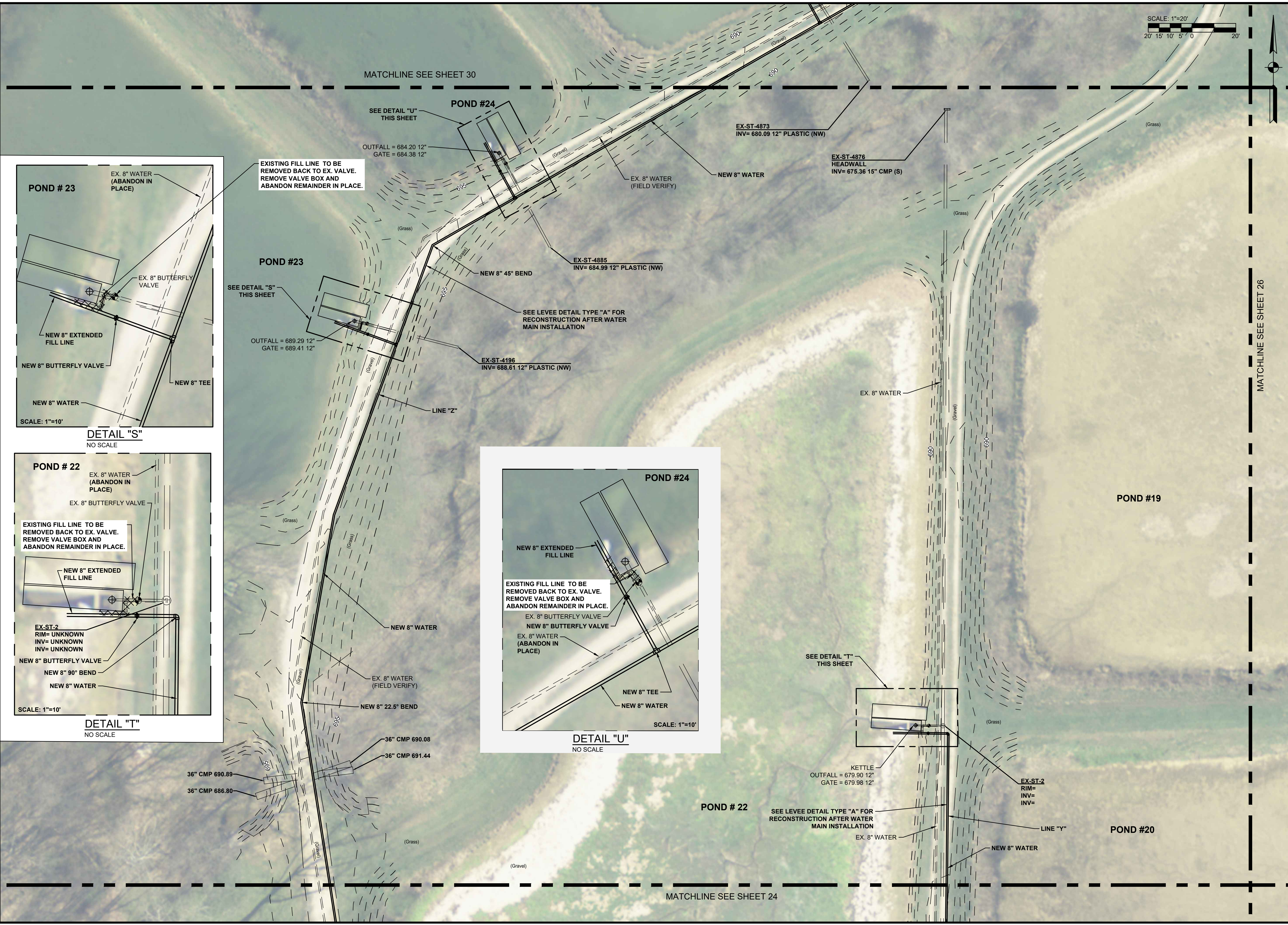
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Scale: AS SHOWN

EAST UNIT WATER PLAN

Drawing No:
PS22
Sheet: 27 OF 38



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 LastSavedBy: mmagrar

SCALE: 1"=20'
20' 15' 10' 5' 0' 20'



EX-ST-4882
HEADWALL
INV=664.26 18" CMP (S)

POND #8

POND #9

POND #7

SEE DETAIL "W"
THIS SHEET

KETTLE
OUTFALL = 664.52 12"
GATE = 664.58 12"

EX. 8" WATER

NEW 8" WATER

SEE LEVEE DETAIL TYPE "A" FOR
RECONSTRUCTION AFTER WATER
MAIN INSTALLATION

LINE "R"

(Grass)

NEW 8" WATER

SEE DETAIL "X"
THIS SHEET

KETTLE
OUTFALL = 665.44 12"
GATE = 665.48 12"

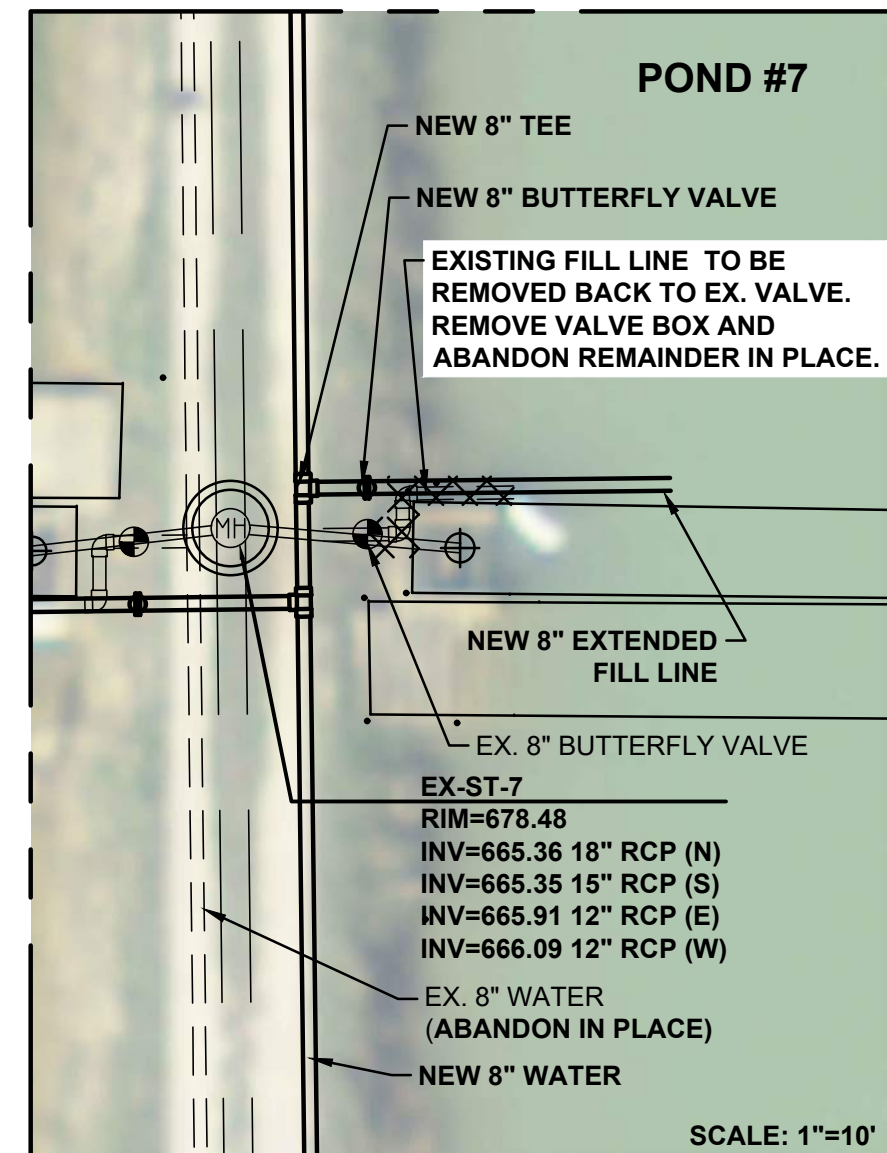
EX. 8" WATER

EX-ST-7
RIM=678.48
INV=665.36 18" RCP (N)
INV=665.35 15" RCP (S)
INV=665.91 12" RCP (E)
INV=666.09 12" RCP (W)

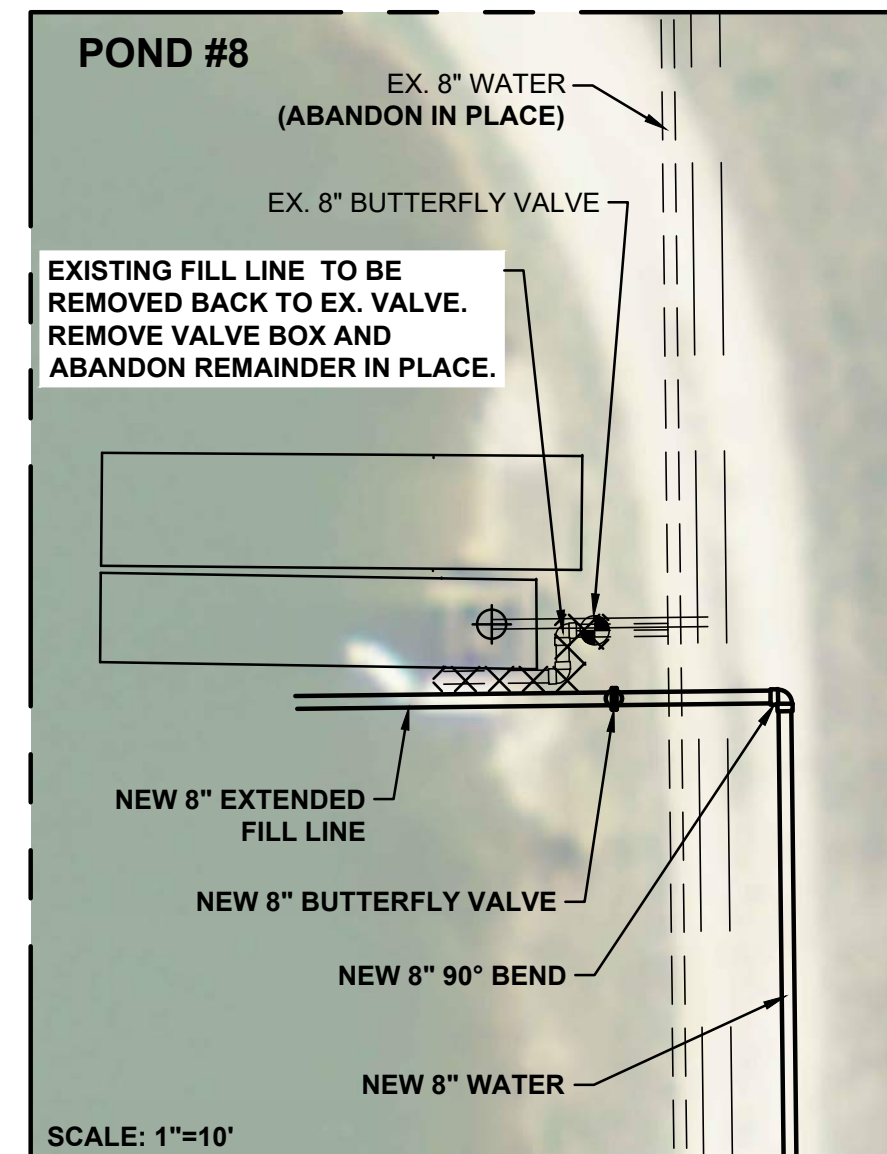
KETTLE
OUTFALL = 665.46 12"
GATE = 665.47 12"

SEE DETAIL "V"
THIS SHEET

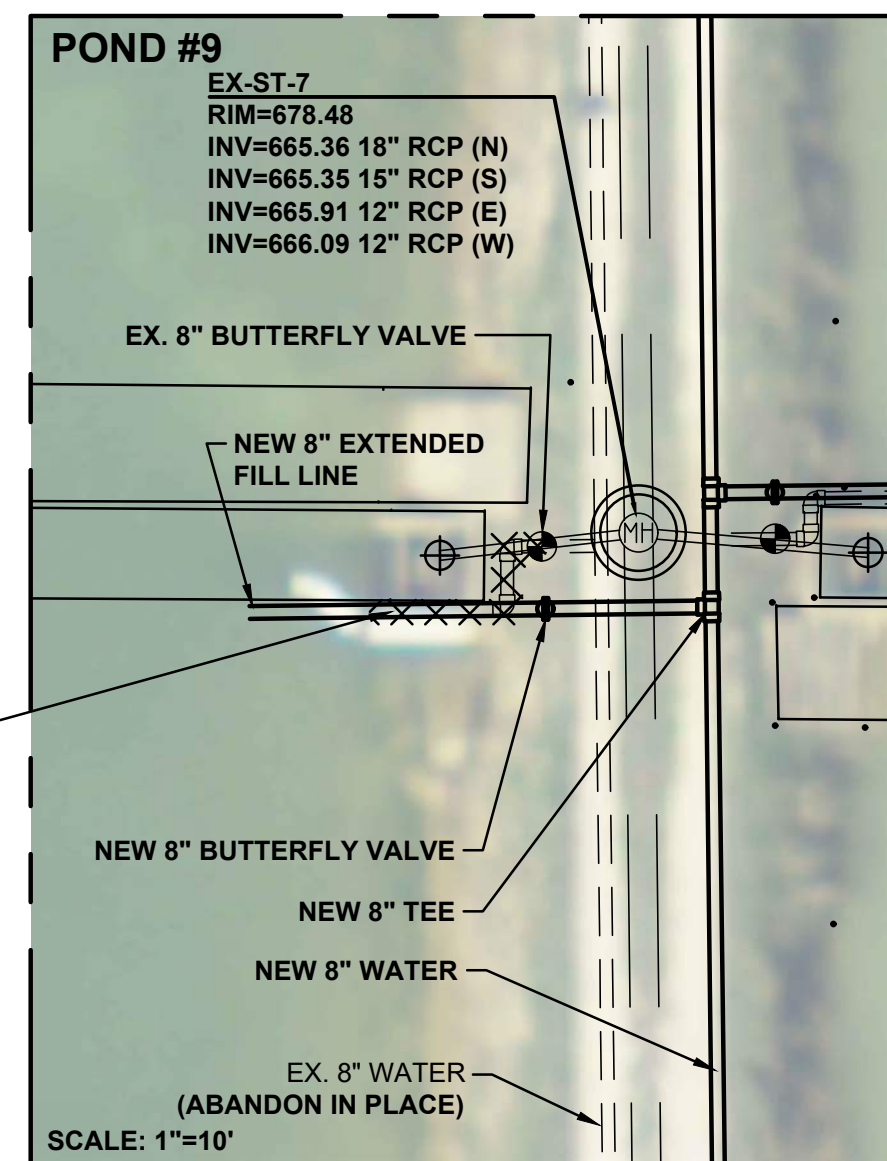
MATCHLINE SEE SHEET 25



DETAIL "V"
NO SCALE



DETAIL "W"
NO SCALE



DETAIL "X"
NO SCALE

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1419 W. Loop East, Espy,
Suite 40
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(812) 474-1177

Professional Engineer
No. 10300083
STATE OF INDIANA
Signature: *Jeremy C. Schmitt* Date: 4/3/20

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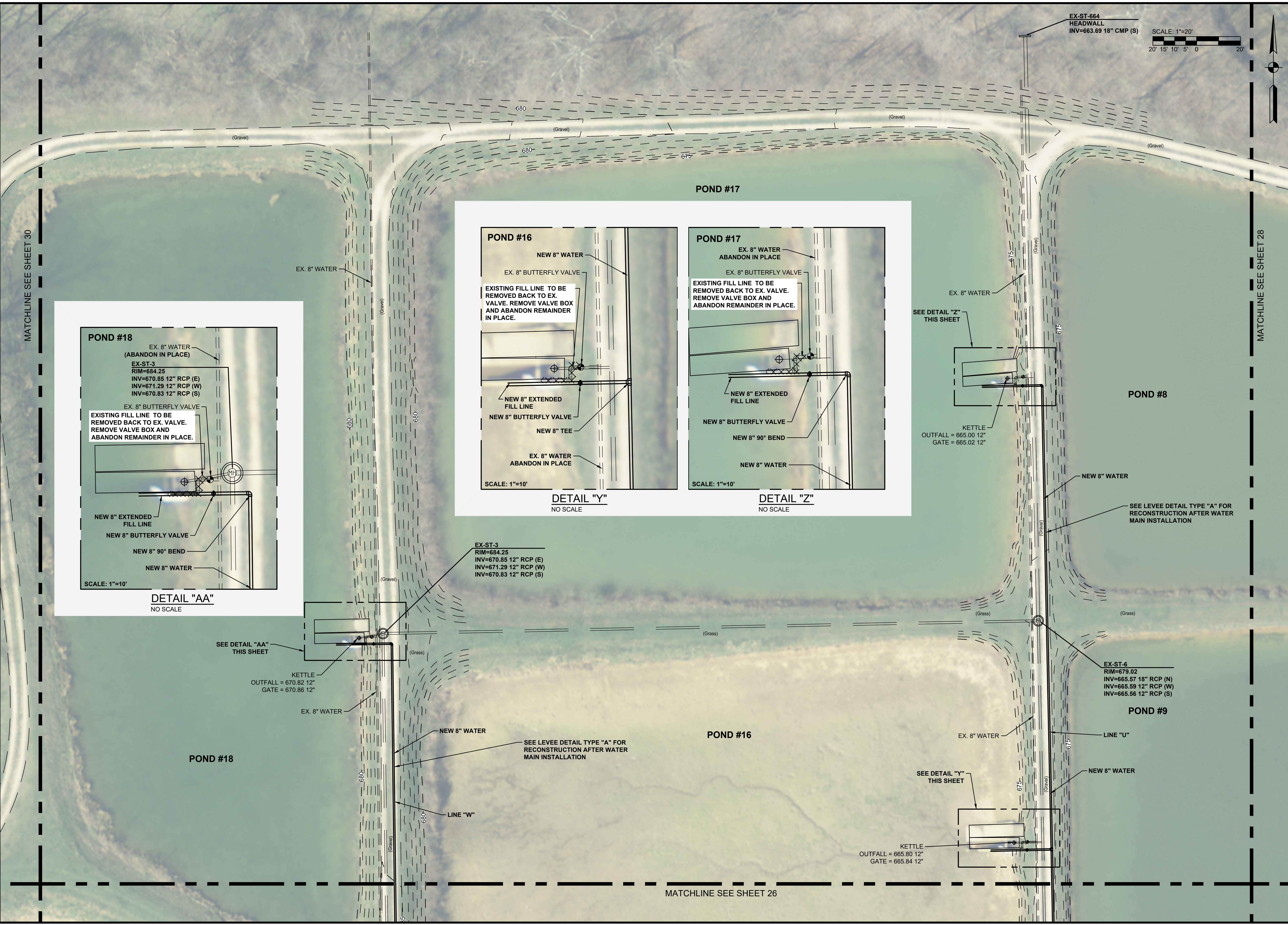
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Issue Date:	Project No:	Scale:
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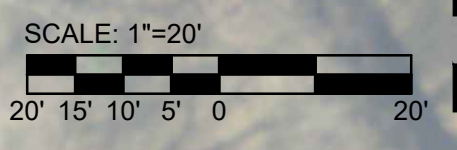
EAST UNIT WATER PLAN
Drawing No:
PS23
Sheet: 28 OF 38

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EX-ST-664
 HEADWALL
 INV=663.69 18" CMP (S)



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JEREMY C. SCHMITT
 REGISTERED PROFESSIONAL ENGINEER
 No. 10300083
 STATE OF INDIANA
 Signature: *Jeremy C. Schmitt* Date: 4/3/20

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EAST UNIT WATER PLAN

Drawing No:
PS24
 Sheet: 29 OF 38

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 Sheet: 48/20/2022 2:16:25 PM Project: 48/20/22 2:16:25 PM Current User: Max Wagner LastSavedBy: mmagrar

SCALE: 1"=20'
 20' 15' 10' 5' 0' 20'



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JEREMY C. SCHMITZ
 REGISTERED PROFESSIONAL ENGINEER
 No. 10300083
 STATE OF INDIANA

Jeremy C. Schmitz 4/3/20
 Signature Date

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EAST UNIT WATER PLAN

Drawing No: **PS25**
 Sheet: 30 OF 38

POND #25

EXISTING FILL LINE TO BE REMOVED BACK TO EX. VALVE. REMOVE VALVE BOX AND ABANDON REMAINDER IN PLACE.

NEW 8" EXTENDED FILL LINE

EX. 8" BUTTERFLY VALVE

NEW 8" BUTTERFLY VALVE

NEW 8" WATER

EX. 8" WATER (ABANDON IN PLACE)

SCALE: 1"=10'

DETAIL "BB"

POND #26

EX. 8" BUTTERFLY VALVE

EXISTING FILL LINE TO BE REMOVED BACK TO EX. VALVE. REMOVE VALVE BOX AND ABANDON REMAINDER IN PLACE.

NEW 8" EXTENDED FILL LINE

NEW 8" BUTTERFLY VALVE

NEW 8" TEE

NEW 8" WATER

EX. 8" WATER (ABANDON IN PLACE)

SCALE: 1"=10'

DETAIL "CC"

EX. WELL 3

NEW 8" DIFJ PIPE

CONNECT TO EX. WELL 3

(2) NEW 8" 90° BEND

NEW 8" WATER

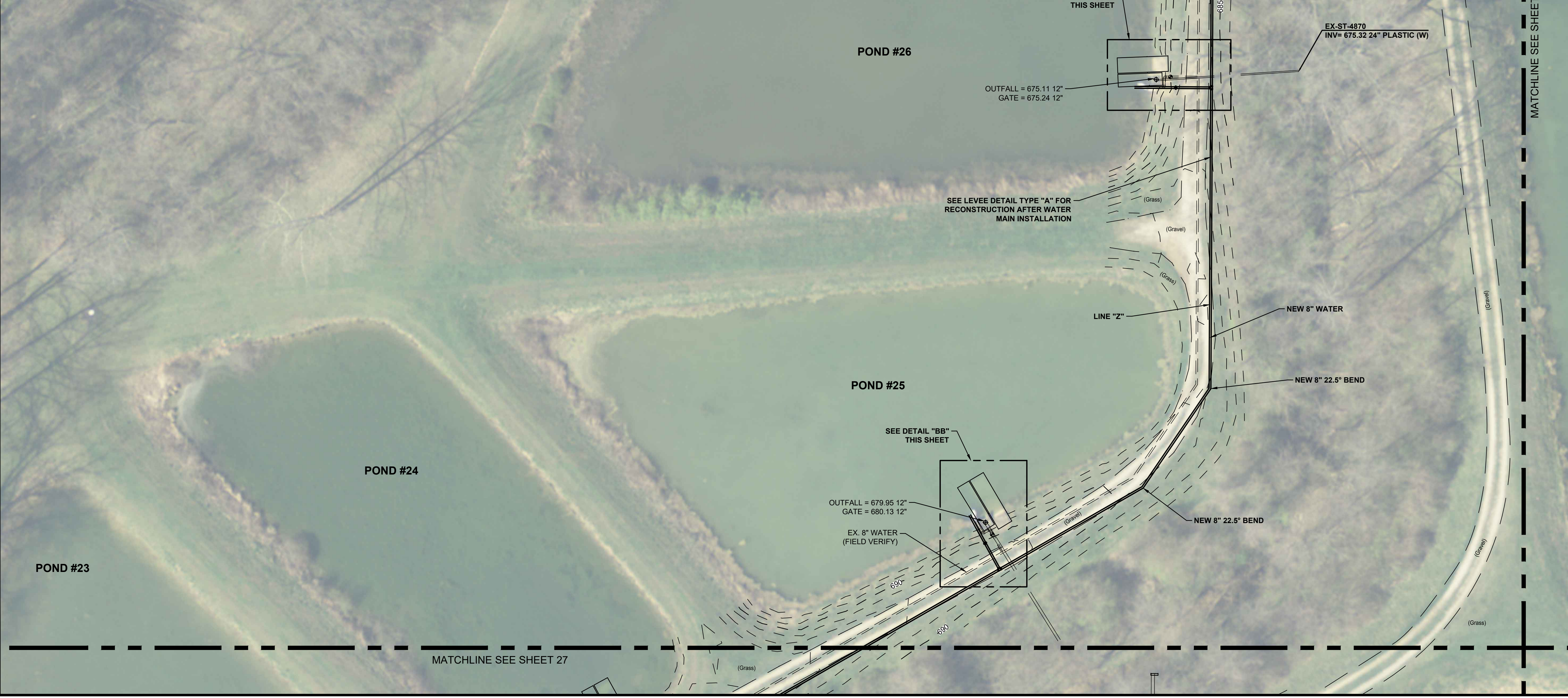
EX. 8" WATER (ABANDON IN PLACE)

REPLACE ISOLATION VALVE

MODIFY STRUCTURE AS NEEDED TO INSTALL NEW PIPE

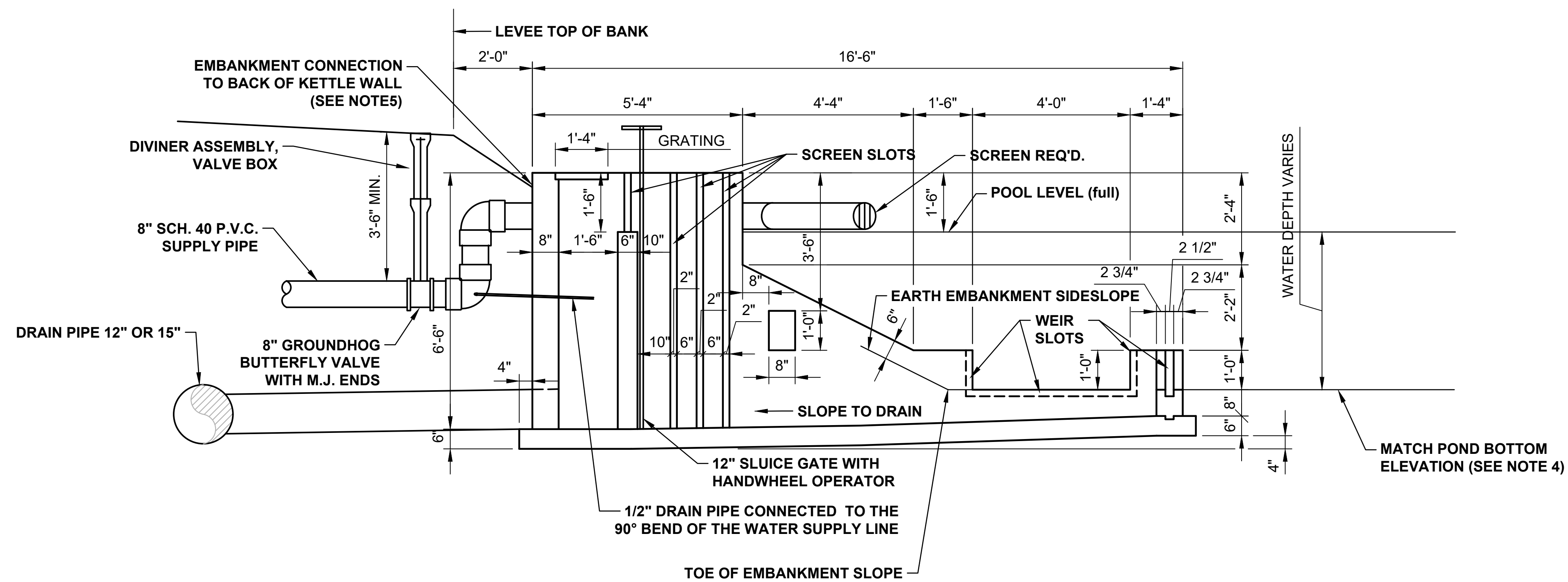
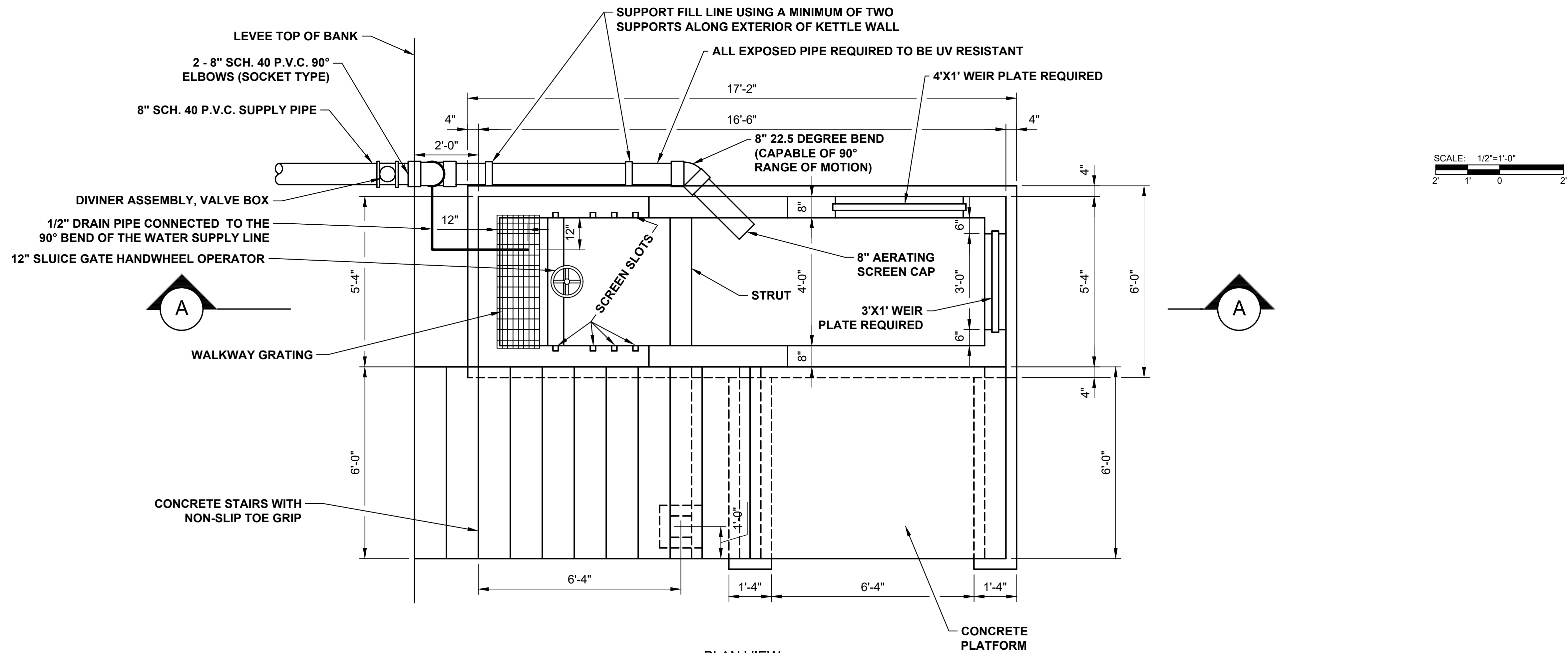
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DETAIL "DD"

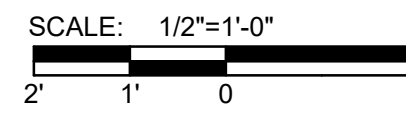


MATCHLINE SEE SHEET 29

MATCHLINE SEE SHEET 27



- NOTE:
1. ALL WATER PIPE TO BE RESTRAINED JOINT.
 2. GRADING ADJACENT TO CONCRETE STAIRS SHALL MATCH STAIR SLOPE TO PREVENT A FALL HAZARD.
 3. ALL WALL THICKNESSES SHOWN ARE APPROXIMATE. ACTUAL WALL AND SLAB THICKNESS SHALL MATCH STRUCTURAL DRAWINGS.
 4. THE WEIR SLOT INVERTS SHALL MATCH THE BOTTOM OF POND ELEVATION FOR EACH OF THE PONDS NEW KETTLES ARE PROPOSED.
 5. KETTLE SHALL BE SET INTO THE POND EMBANKMENT SUCH THAT APPROXIMATELY 4-6 INCHES OF WALL SHALL BE EXPOSED ABOVE GRADE.



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JEFFREY C. SCHMITZ
REGISTERED
No. 10300083
STATE OF INDIANA
PROFESSIONAL ENGINEER

Jeffrey C. Schmitz
Signature

4/3/20
Date

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KETTLE PLAN AND SECTION VIEWS - TYPICAL

Drawing No:
PS26
Sheet: 31 OF 38



PHOTO 1



PHOTO 2



PHOTO 3



PHOTO 4

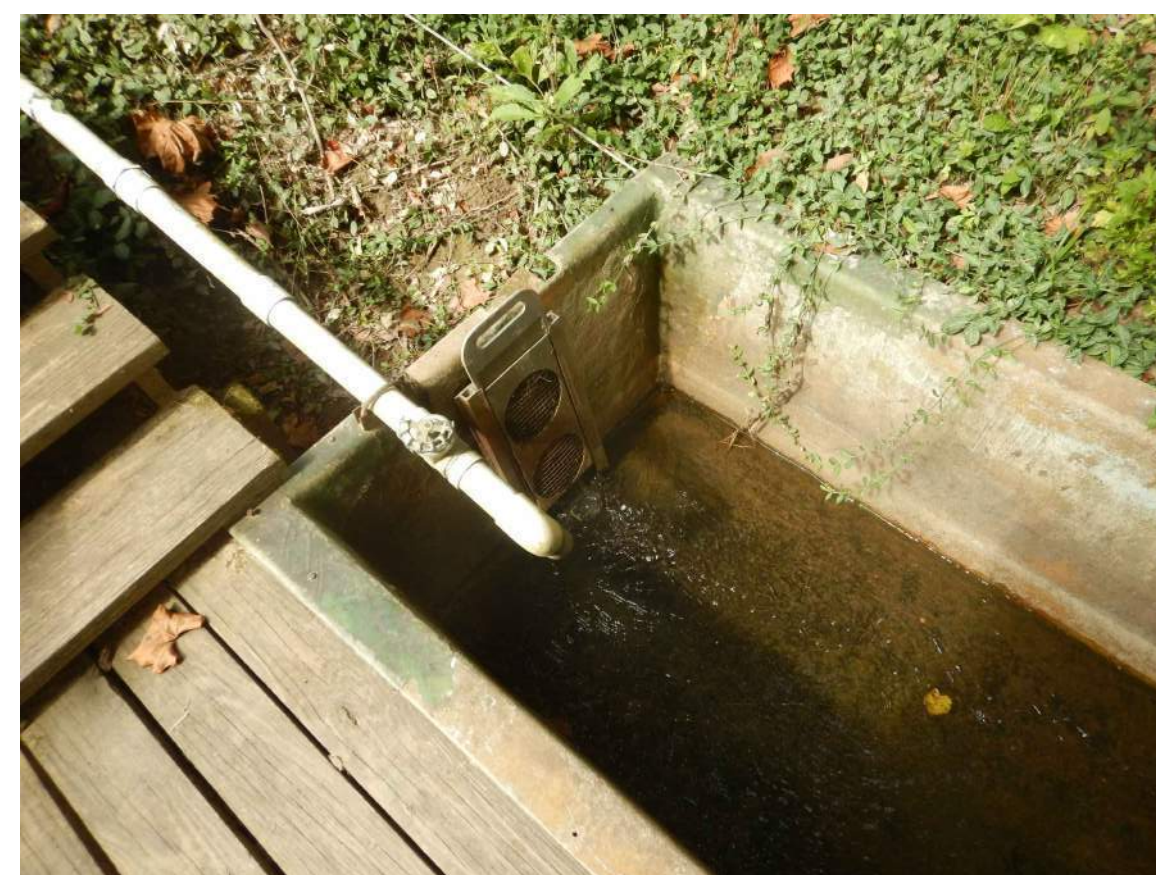


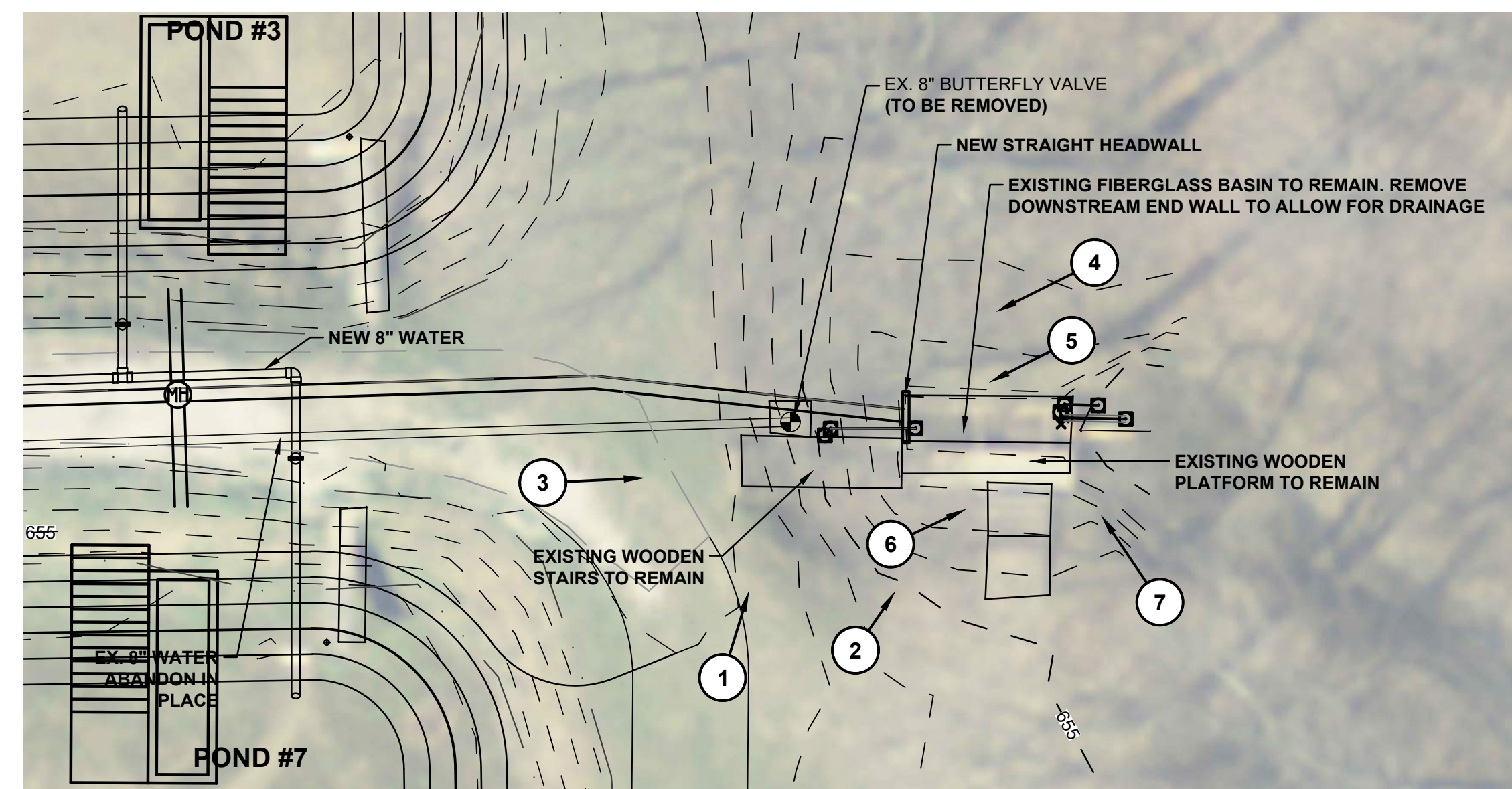
PHOTO 5



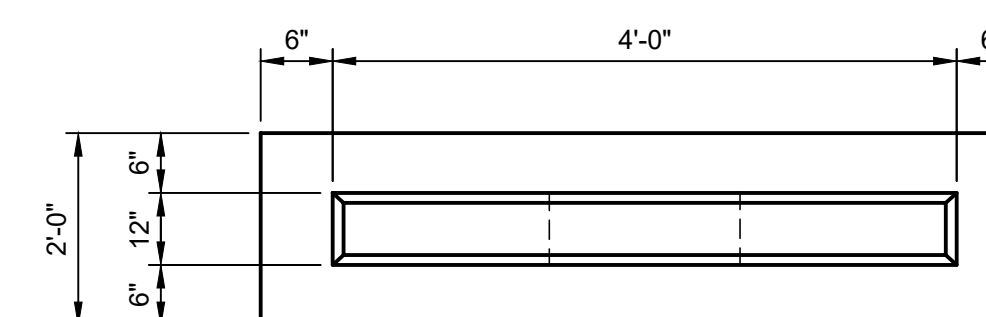
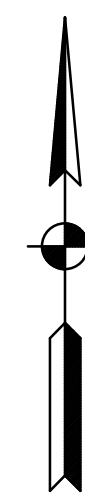
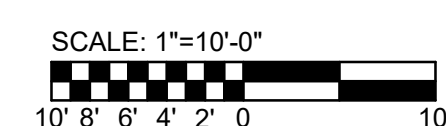
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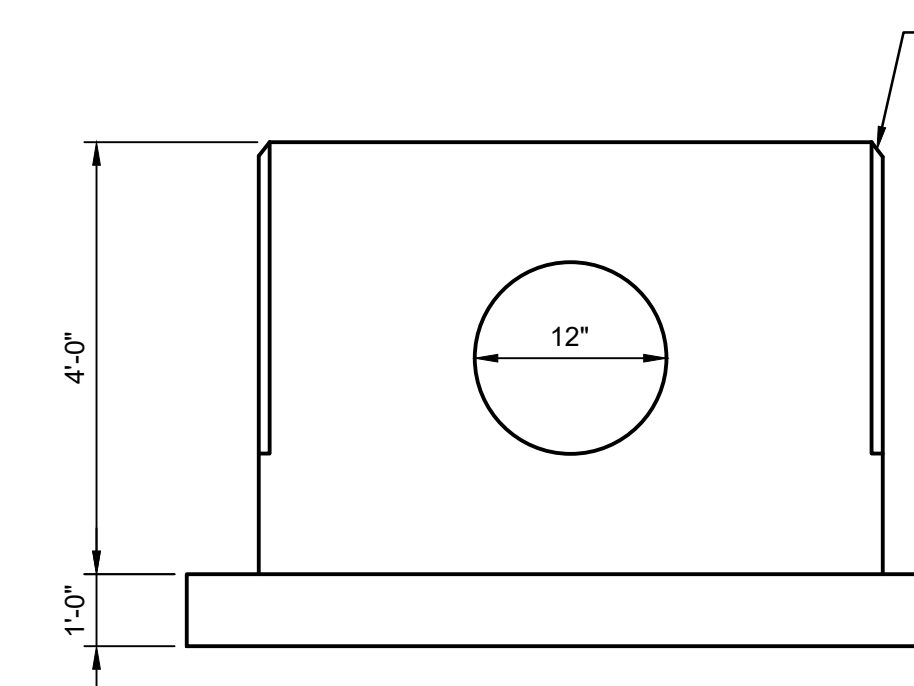
PHOTO 7



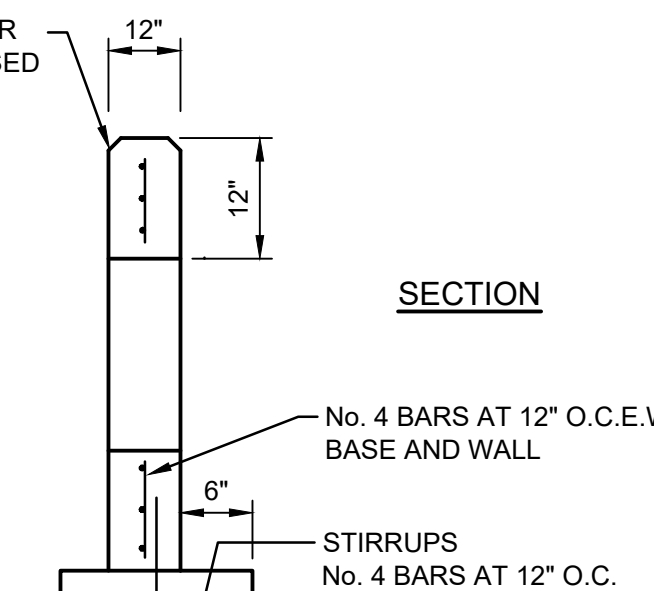
OUTFALL PLAN



PLAN VIEW



ELEVATION



SECTION

No. 4 BARS AT 12" O.C.E.W. BASE AND WALL
STIRRUPS No. 4 BARS AT 12" O.C.

Concrete To Test 4000 psi @ 28 Days

- NOTE:
1. HEADWALL FOOTER TO HAVE A MINIMUM OF ONE FOOT COVER.
 2. INSTALL HEADWALL ON A MINIMUM OF 6 INCHES OF STONE.

STRAIGHT HEADWALL WITH FOOTING
NO SCALE

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PROFESSIONAL ENGINEER

Jeffrey C. Schmitz
Signature

4/3/20
Date

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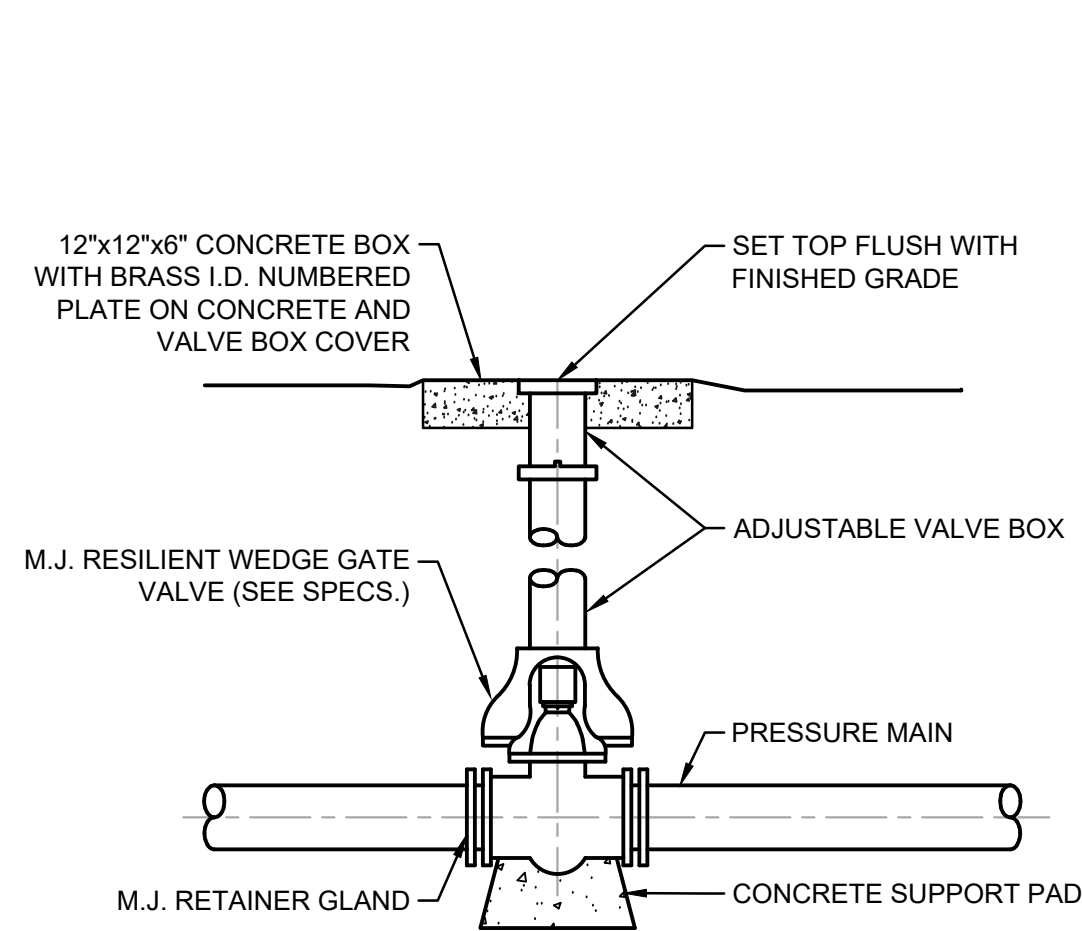
No.	Submitted / Revision	By	Date

Designed By: MAW	Drawn By: MAW	Checked By: ---
Issue Date: ---	Project No: J19105	Scale: AS SHOWN

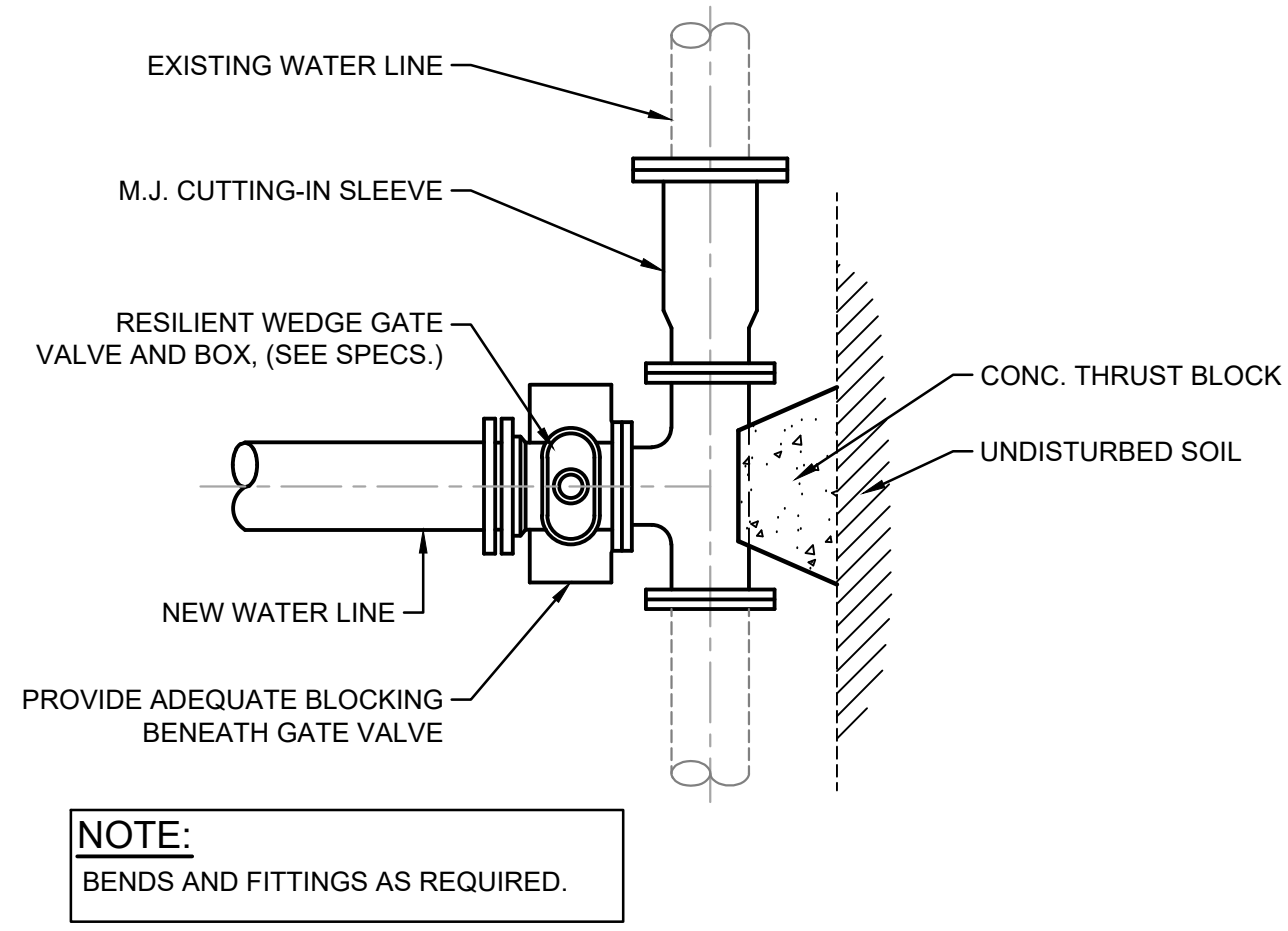
NORTH UNIT -
NORTH OUTFALL

Drawing No:
PS27
Sheet: 32 OF 38

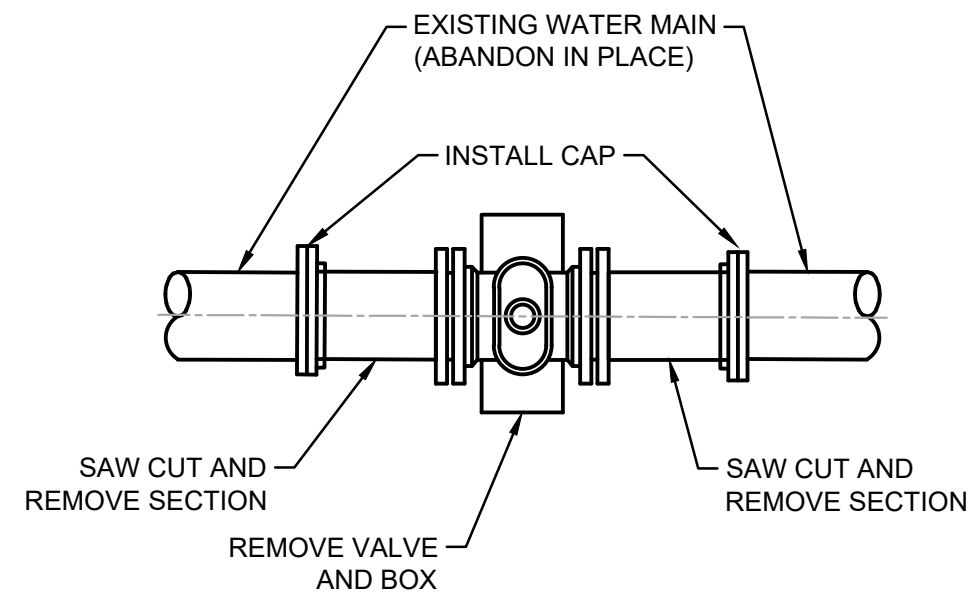
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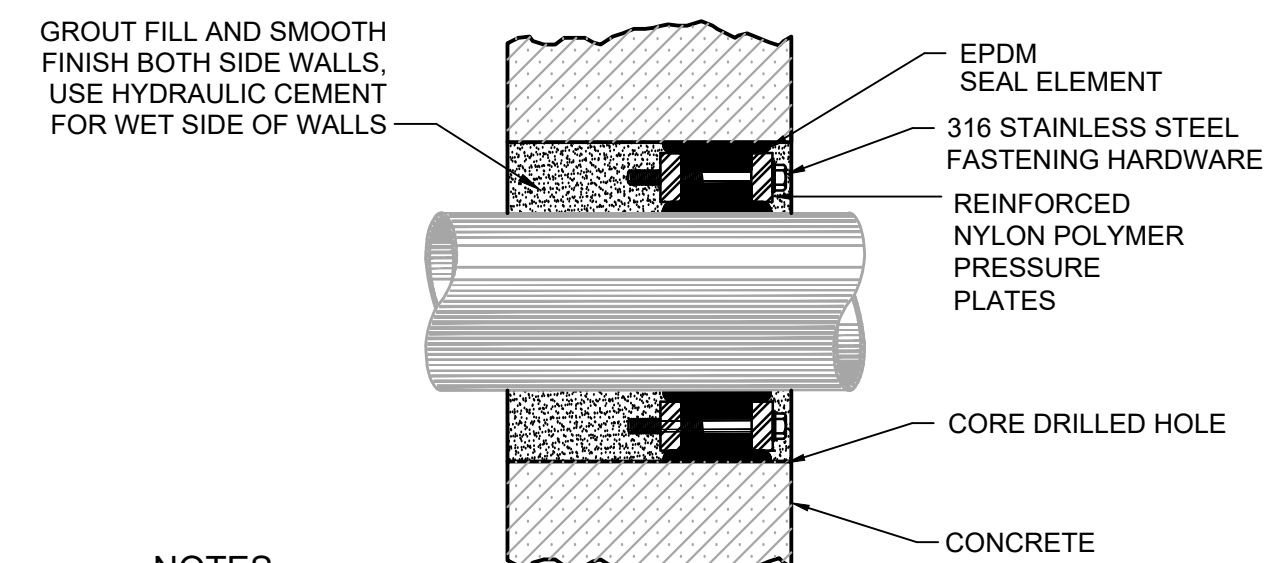
BURIED PLUG/GATE VALVE AND BOX DETAIL
NO SCALE



DRY CONNECTION TO EXISTING WATER MAIN
NO SCALE

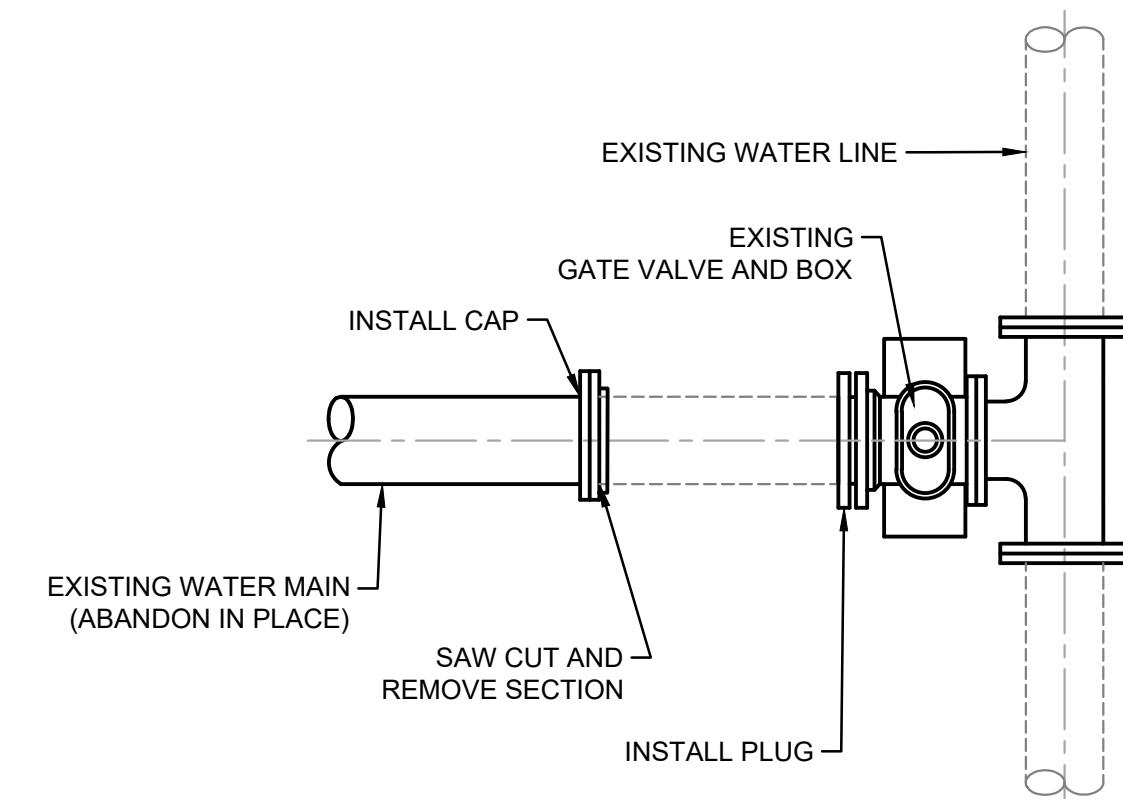


CUT AND CAP WITH VALVE REMOVED DETAIL
NO SCALE

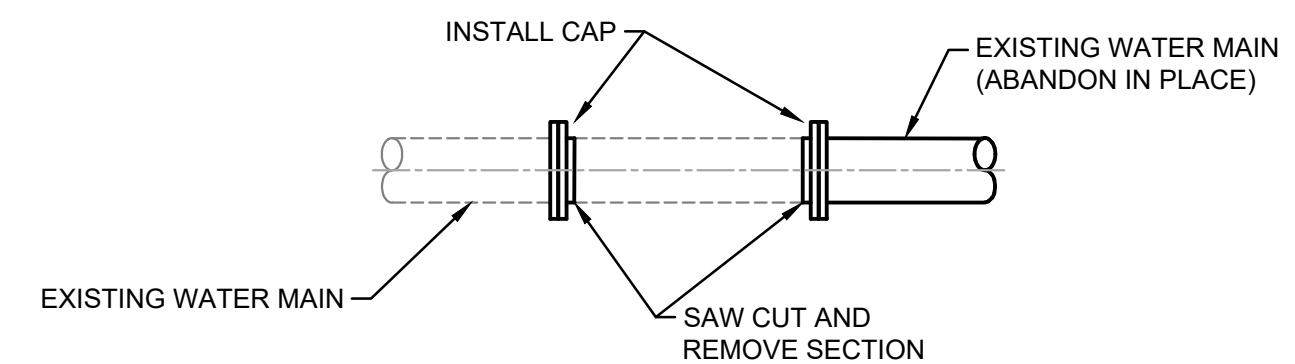


NOTES:
1. ELASTOMERIC ELEMENT AND LINK-SEAL APPARATUS REQUIRED COMPATIBLE FOR HIGH TEMPERATURE APPLICATIONS - FOR ALL LINES
2. ALL WALL PENETRATIONS (EXISTING WALLS) CONVEYING PIPE SHALL UTILIZE A LINK-SEAL EQUIVALENT, SHALL BE GROUTED SMOOTH, AND SHALL HAVE A BONDING AGENT APPLIED.

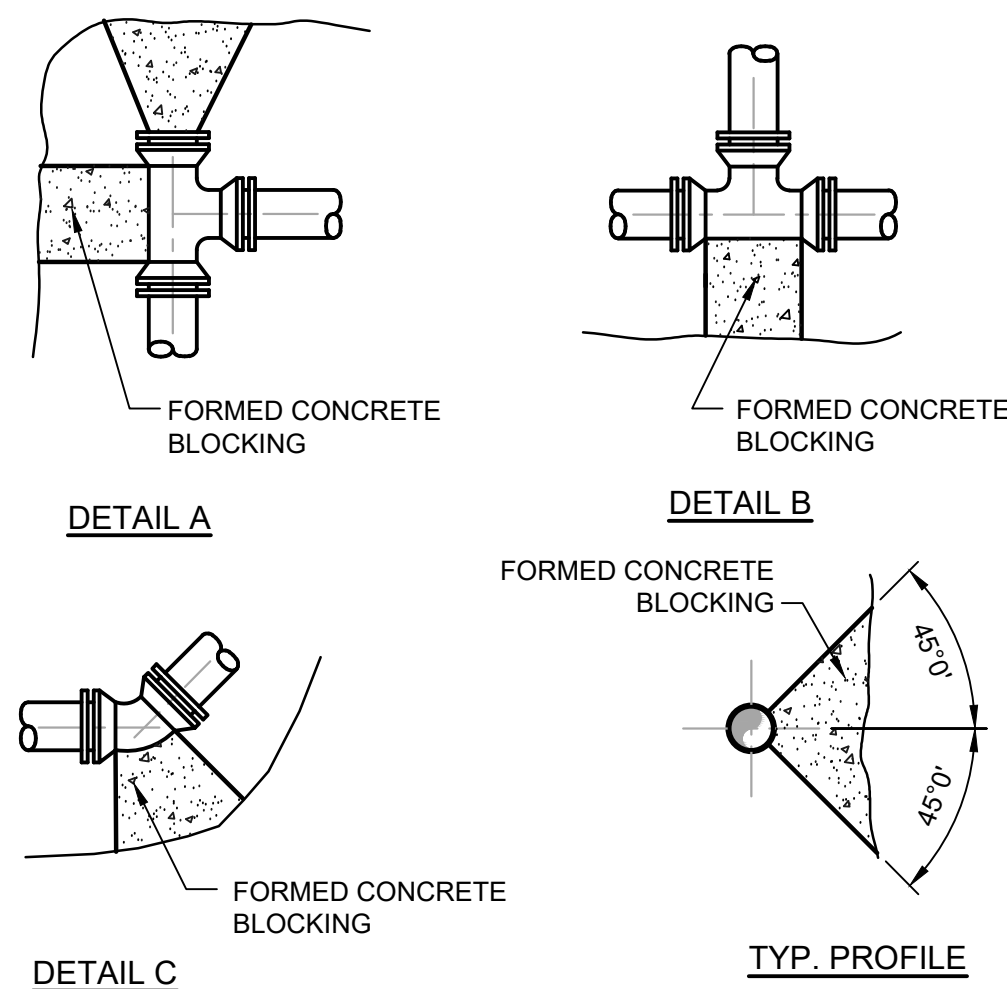
LINK-SEAL WITH CORE DRILLED HOLE DETAIL
NO SCALE



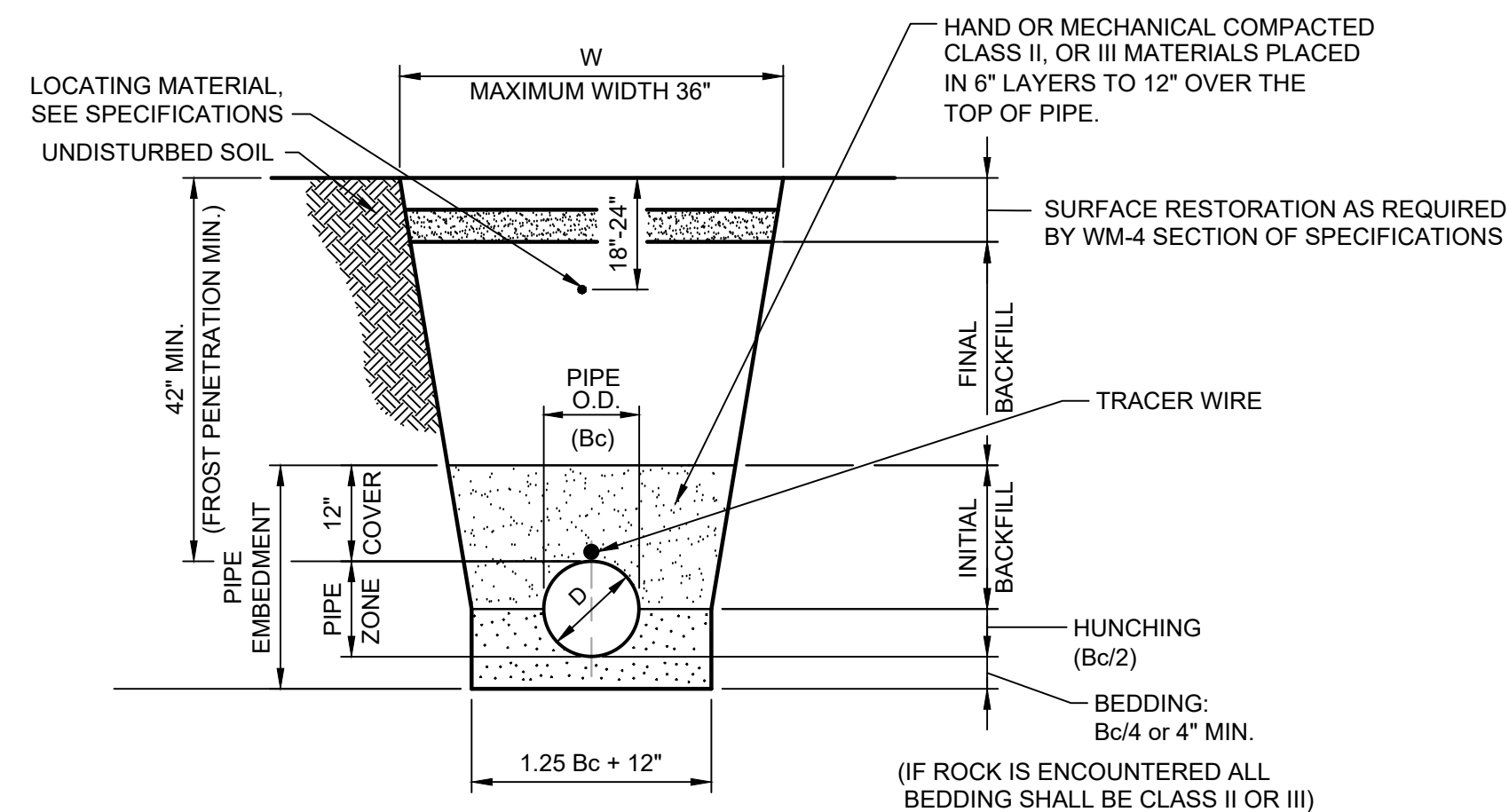
CUT AND CAP/PLUG DETAIL
NO SCALE



CUT AND CAP DETAIL
NO SCALE



THRUST BLOCKING DETAIL
NO SCALE



W = MAX. ALLOWABLE TRENCH WIDTH FOR PIPE SHALL NOT TO EXCEED 30 INCHES FOR 4\"/>

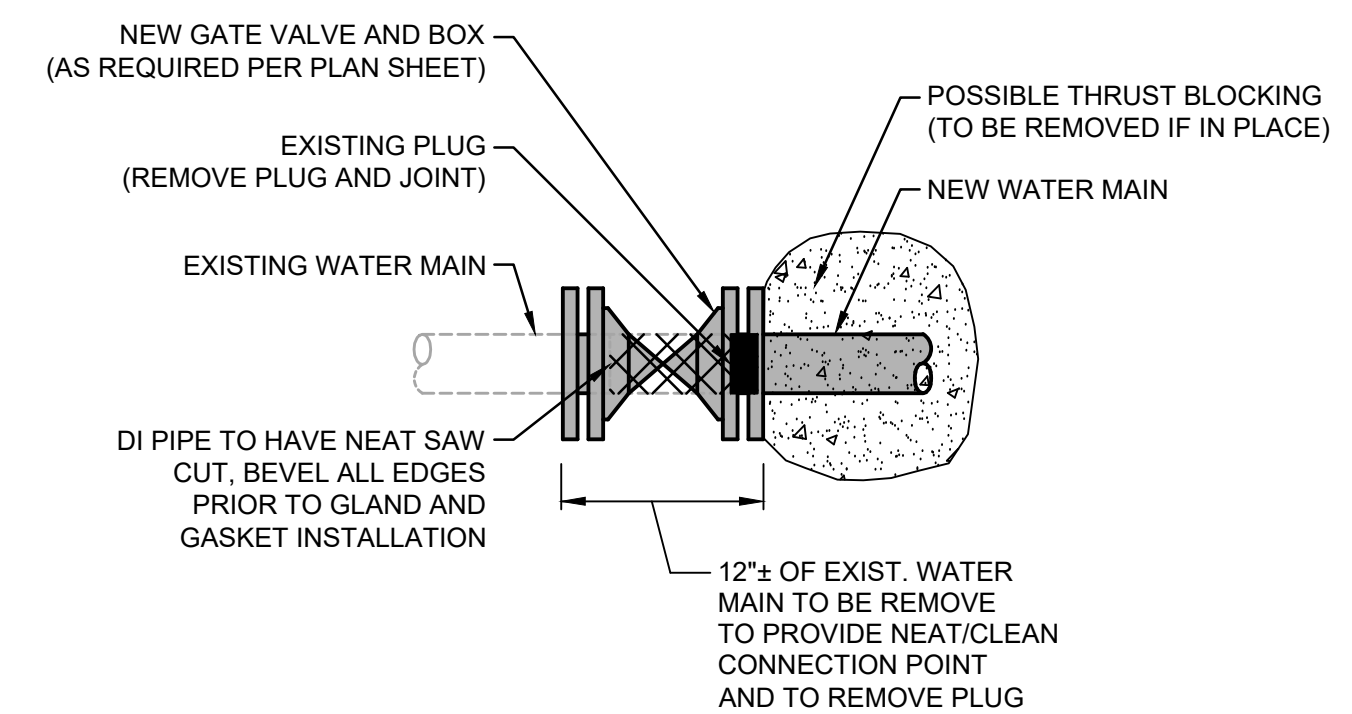
D = PIPE DIAMETER (INTERNAL)

Bc = PIPE DIAMETER (EXTERNAL)

APPLICATION	BEDDING & HUNCHING	FINAL BACKFILL
GRASSY AREA OR NEW PAVED AREAS	CLASS I, OR II MATERIAL (REFER TO WORKMANSHIP & MATERIALS SPECIFICATIONS)	SELECTED EXCAVATED MATERIAL
PAVEMENT AREA OR ANY AREA SUBJECT TO VEHICULAR TRAFFIC	CLASS I, II OR III MATERIAL (REFER TO WORKMANSHIP & MATERIALS SPECIFICATIONS)	COMPACTED GRANULAR MATERIAL

- NOTES:**
- INITIAL BACKFILL STOPS AT A POINT 12\"/>
 - BEDDING, HUNCHING AND INITIAL BACKFILL SHALL BE CLASS I, II, OR III MATERIALS ACCORDING TO THE WORKMANSHIP AND MATERIALS SPECIFICATIONS.
 - WORK FALLING UNDER THE JURISDICTION OF THE INDIANA DEPARTMENT OF TRANSPORTATION (INDOT) SHALL UTILIZE COMPACTED GRANULAR BACKFILL MATERIAL FOR INITIAL AND FINAL BACKFILL ANYWHERE WITHIN 12 FEET OF THE EDGE OF PAVEMENT.
 - WORK NOT FALLING UNDER THE JURISDICTION OF IN. DEPT. OF TRANSPORTATION SHALL UTILIZE COMPACTED GRANULAR BACKFILL MATERIAL FOR INITIAL AND FINAL BACKFILL ANYWHERE WITHIN 5 FEET OF THE EDGE OF PAVEMENT.

TRENCH DETAIL FOR WATER MAIN
NO SCALE



TYPE \"C\" CONNECTION TO EXISTING WATER MAIN
NO SCALE

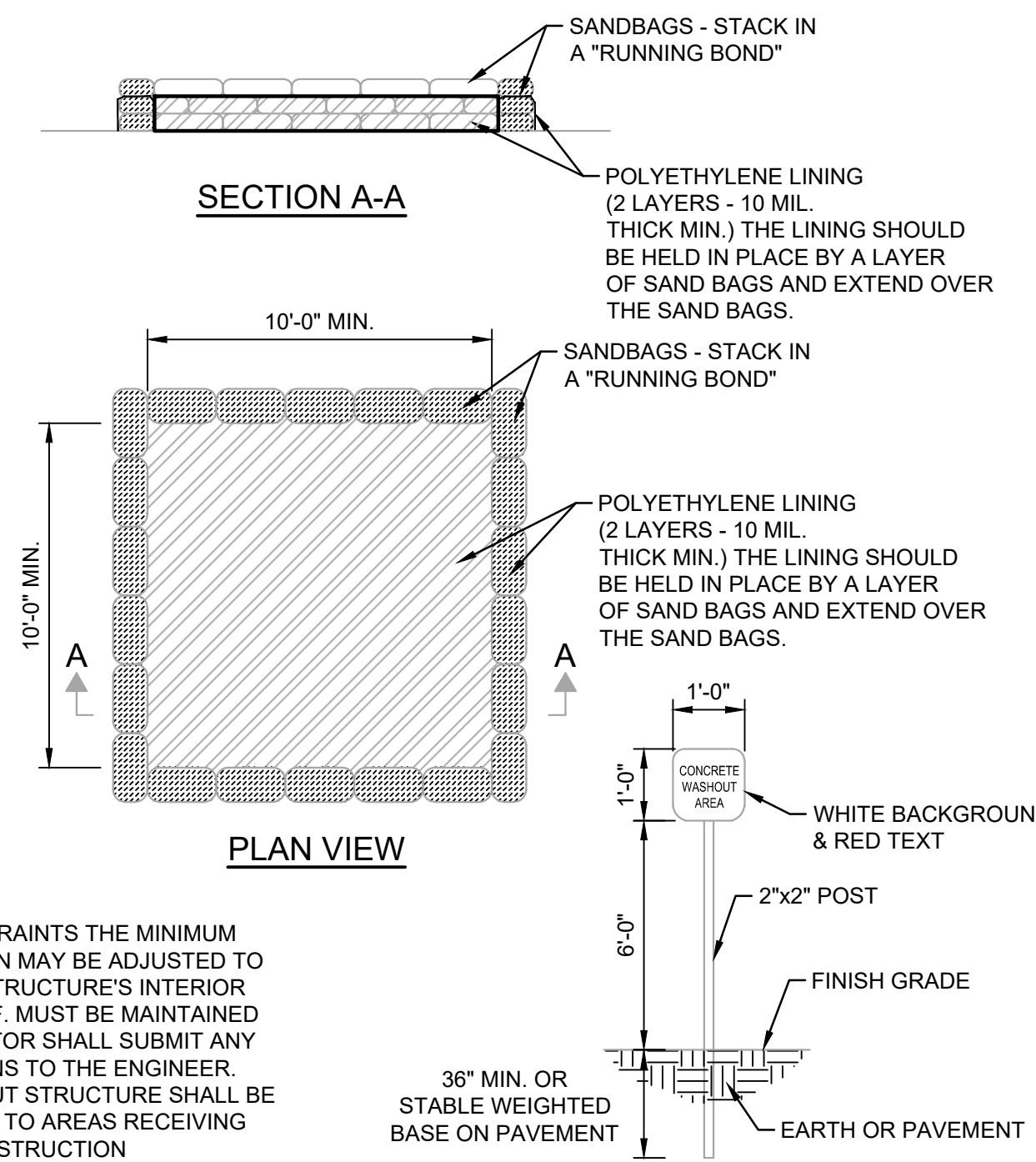
TABLE OF DIMENSION FOR CONCRETE BLOCKING																									
PIPE SIZE	TEE				PLUG				90° BEND				45° BEND				22° BEND				11° BEND				
	L	T	W	D	L	T	W	D	L	T	W	D	L	T	W	D	L	T	W	D	L	T	W	D	
4"	18"	12"	12"	8"	18"	12"	18"	18"	2"	24"	12"	24"	8"	18"	8"	12"	8"	18"	8"	12"	8"	15"	8"	12"	6"
6"	18"	12"	12"	8"	18"	12"	18"	18"	2"	24"	15"	24"	8"	18"	10"	12"	8"	18"	10"	12"	8"	18"	10"	18"	6"
8"	30"	12"	24"	8"	30"	18"	30"	24"	4"	36"	16"	30"	8"	24"	12"	18"	8"	24"	18"	18"	8"	24"	12"	18"	8"
10"	36"	18"	30"	10"	36"	18"	36"	24"	4"	48"	20"	36"	10"	30"	14"	24"	10"	30"	14"	24"	10"	24"	14"	18"	8"
12"	48"	18"	36"	10"	42"	18"	42"	24"	4"	54"	24"	48"	10"	36"	16"	30"	10"	36"	16"	30"	10"	30"	16"	24"	10"
14"	54"	24"	42"	12"	48"	18"	48"	30"	6"	60"	28"	60"	12"	42"	16"	42"	12"	42"	16"	42"	12"	33"	16"	27"	12"
16"	60"	24"	48"	12"	54"	18"	54"	30"	6"	66"	32"	63"	12"	48"	18"	48"	12"	48"	18"	48"	12"	36"	18"	30"	12"
18"	66"	30"	60"	14"	60"	24"	60"	36"	6"	66"	36"	66"	14"	54"	18"	54"	14"	54"	18"	54"	14"	39"	18"	33"	14"
20"	72"	30"	60"	14"	66"	24"	66"	36"	8"	72"	40"	69"	14"	60"	20"	60"	14"	60"	20"	60"	14"	42"	20"	36"	14"
24"	84"	36"	72"	18"	78"	30"	78"	42"	8"	84"	48"	75"	18"	72"	22"	72"	18"	72"	22"	72"	18"	48"	22"	42"	18"
30"	96"	42"	78"	24"	96"	36"	78"	48"	10"	108"	54"	96"	24"	84"	24"	72"	24"	72"	26"	72"	24"	54"	26"	48"	24"
42"	144"	48"	96"	36"	144"	42"	96"	60"	10"	180"	66"	144"	36"	120"	36"	96"	36"	84"	34"	72"	36"	60"	34"	48"	36"

- NOTES:**
- FOR TEE WITH BRANCH UNEQUAL TO RUN USE TEE TYPE KICKER WITH D, L, AND W DIMENSIONS THE SAME AS THOSE FOR PLUG WITH SAME DIAMETER AS BRANCH OF TEE, SELECT \"T\" DIMENSIONS FROM TEE TABLE UNDER COLUMN HEADED BY THE SIZE OF THE BRANCH
 - IF EXACT SIZE PIPE BLOCKING IS NOT SHOWN USE NEXT LARGER SIZE
 - DEPTH \"D\" MAY BE GREATER THAN SPECIFIED TO ALLOW WORKING SPACE BLOCKING MUST BE PLACED AGAINST UNDISTURBED EARTH OR ROCK CONCRETE BLOCKING SHALL BE CLASS \"B\"

No.	Submitted / Revision	By	Date

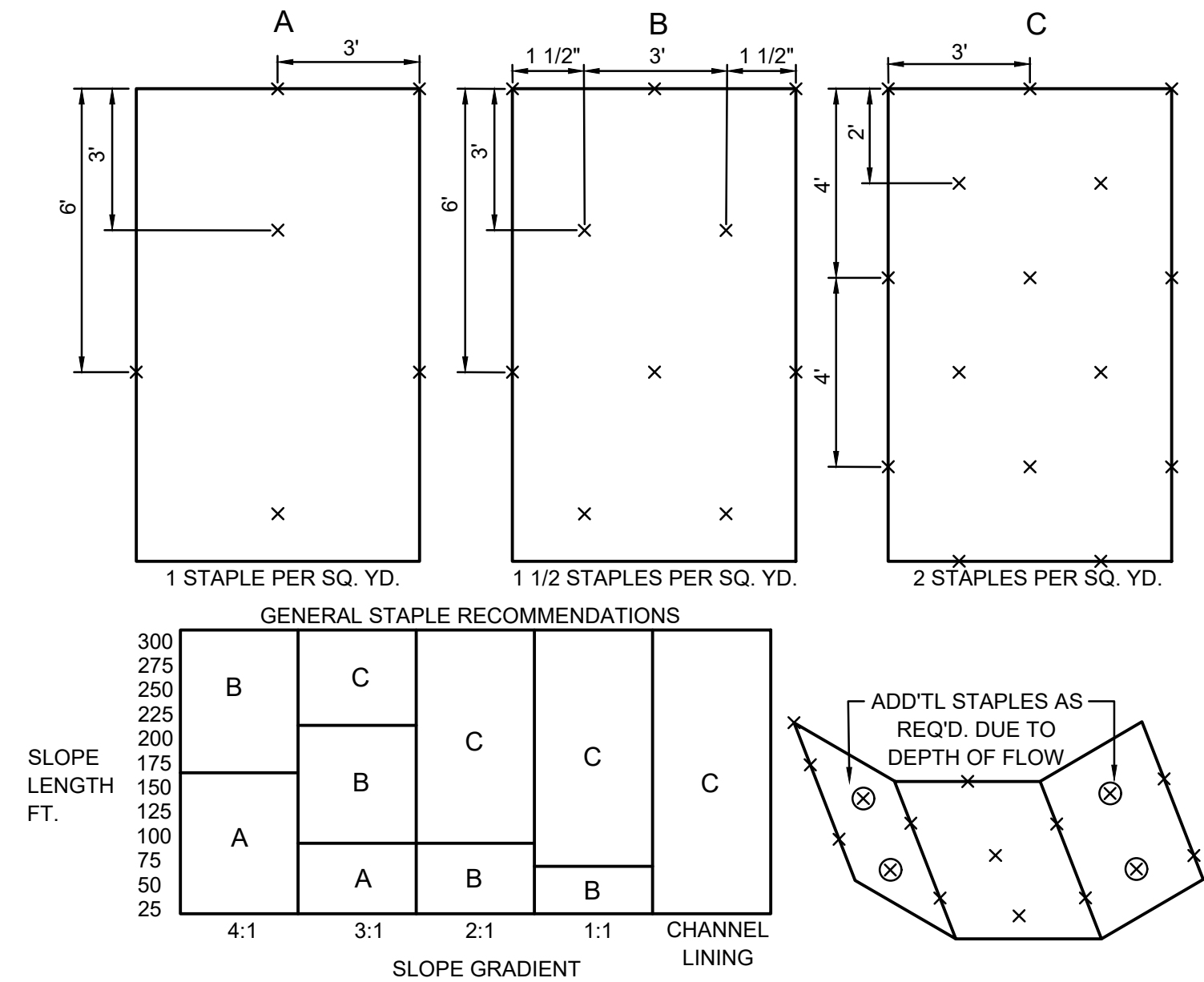
Designed By: ---	Drawn By: MAW	Checked By: ---
Issue Date: ---	Project No: J19105	Scale: AS SHOWN

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NOTE:
DUE TO SITE CONSTRAINTS THE MINIMUM INTERIOR DIMENSION MAY BE ADJUSTED TO FIT THE SITE. THE STRUCTURE'S INTERIOR FOOTAGE OF 100 S.F. MUST BE MAINTAINED AND THE CONTRACTOR SHALL SUBMIT ANY DESIGN ALTERATIONS TO THE ENGINEER. CONCRETE WASHOUT STRUCTURE SHALL BE RE-LOCATED CLOSE TO AREAS RECEIVING CONCRETE, AS CONSTRUCTION PROGRESSES.

CONCRETE WASHOUT DETAIL
NO SCALE



EROSION CONTROL BLANKET
NOT TO SCALE

SPECIFICATIONS

EFFECTIVE LIFE
• THE FUNCTIONAL LIFE OF AN EROSION CONTROL BLANKET IS DEPENDENT ON THE MATERIALS USED.

ANCHORING

• STAPLES, PINS OR STAKES USED TO PREVENT MOVEMENT OR DISPLACEMENT OF BLANKET.
(FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR SPECIFIC APPLICATIONS.)

MATERIALS

• ORGANIC (STRAW, EXCELSIOR, WOVEN PAPER, COCONUT FIBER, ETC.) OR SYNTHETIC MULCH INCORPORATED WITH A POLYPROPYLENE, NATURAL FIBER OR SIMILAR NETTING MATERIAL. (THE NETTING MAY BE BIODEGRADABLE, PHOTODEGRADABLE OR PERMANENT.)

NOTE: SOME EROSION CONTROL BLANKET NETTINGS MAY POSE A THREAT TO CERTAIN SPECIES OF WILDLIFE IF THEY BECOME ENTANGLED IN THE NETTING MATRIX.

• SIX TO 12-INCH STAPLES, PINS, OR STAKES.

INSTALLATION

1. SELECT THE TYPE AND WEIGHT OF EROSION CONTROL BLANKET TO FIT THE SITE CONDITIONS (E.G., SLOPE, CHANNEL, FLOW VELOCITY) PER THE MANUFACTURER'S RECOMMENDATIONS.
2. PREPARE THE SEEDBED, ADD SOIL AMENDMENTS, AND PERMANENTLY SEED THE AREA IMMEDIATELY FOLLOWING SEEDBED PREPARATION.
3. LAY EROSION CONTROL BLANKETS ON THE SEEDED AREA SO THAT THEY ARE IN CONTINUOUS CONTACT WITH THE SOIL WITH EACH UP-SLOPE OR UP-STREAM BLANKET OVERLAPPING THE DOWN-SLOPE OR DOWN-STREAM BLANKET BY AT LEAST EIGHT INCHES, OR FOLLOW MANUFACTURER'S RECOMMENDATIONS.
4. TUCK THE UPPERMOST EDGE OF THE UPPER BLANKETS INTO A CHECK SLOT (SLIT TRENCH), BACKFILL WITH SOIL AND TAMP DOWN. IN CERTAIN APPLICATIONS, THE MANUFACTURER MAY REQUIRE ADDITIONAL CHECK SLOTS AT SPECIFIC LOCATIONS DOWN SLOPE FROM THE UPPERMOST EDGE OF THE UPPER BLANKETS.
5. ANCHOR THE BLANKETS IN PLACE BY DRIVING STAPLES, PINS, OR STAKES THROUGH THE BLANKET AND INTO THE UNDERLYING SOIL. FOLLOW AN ANCHORING PATTERN APPROPRIATE FOR THE SITE CONDITIONS AND AS RECOMMENDED BY THE MANUFACTURER.

MAINTENANCE

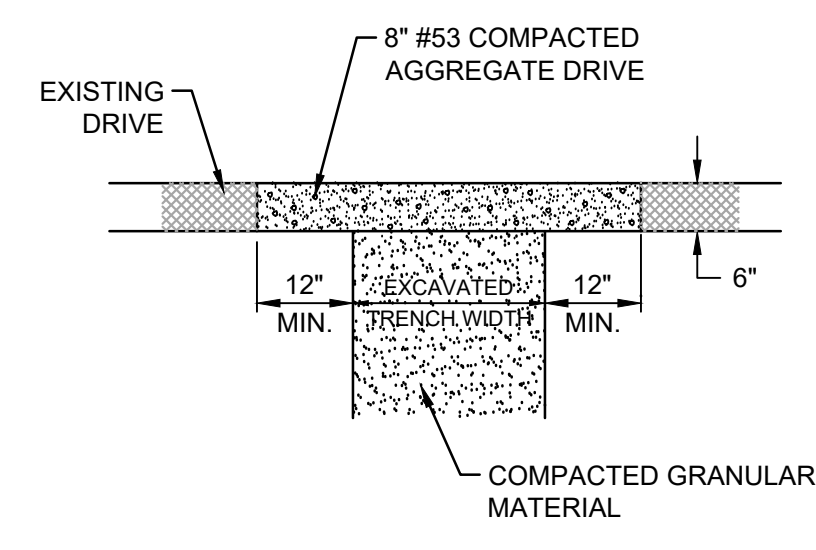
- INSPECT WITHIN 24 HOURS OF EACH RAIN EVENT AND AT LEAST ONCE EVERY SEVEN CALENDAR DAYS.
- CHECK FOR EROSION OR DISPLACEMENT OF THE BLANKET.
- IF ANY AREA SHOWS EROSION, PULL BACK THAT PORTION OF THE BLANKET COVERING THE ERODED AREA, ADD SOIL AND TAMP, RESEED THE AREA, REPLACE AND STAPLE THE BLANKET.

NOTES

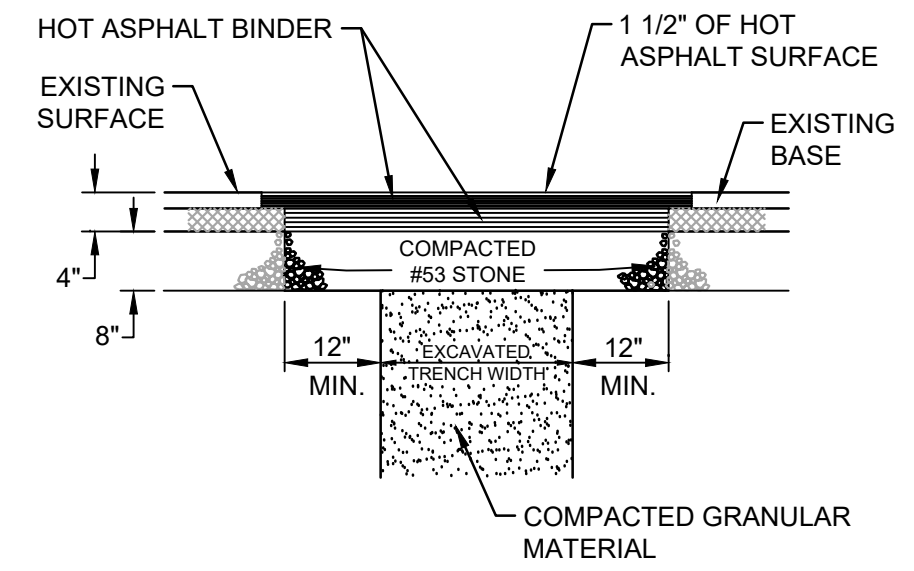
CHANNEL LININGS UTILIZE STAPLE PATTERN "C" WITH ADDITIONAL STAPLES ON SIDE SLOPES AT PROJECTED WATER LINE.

STAPLE PATTERNS APPLY TO ALL NORTH AMERICAN GREEN EROSION CONTROL BLANKETS. STAPLE PATTERNS MAY VARY DEPENDING UPON SOIL TYPE AND AVERAGE RAINFALL.

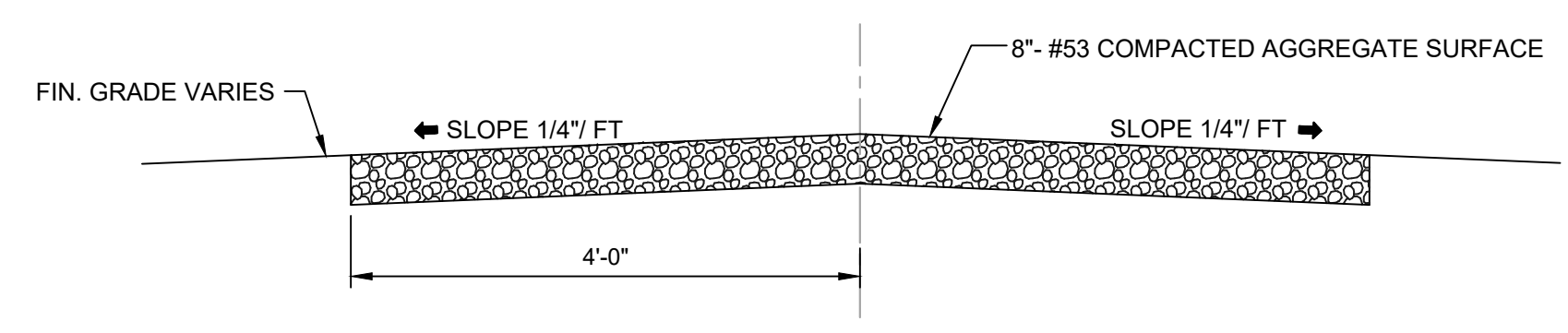
AT SLOPE LENGTHS GREATER THAN 300 FEET OR WHERE DRAINAGE OVER LARGE AREAS IS DIRECTED ONTO THE BLANKETS, STAPLE PATTERN "C" SHOULD BE UTILIZED.



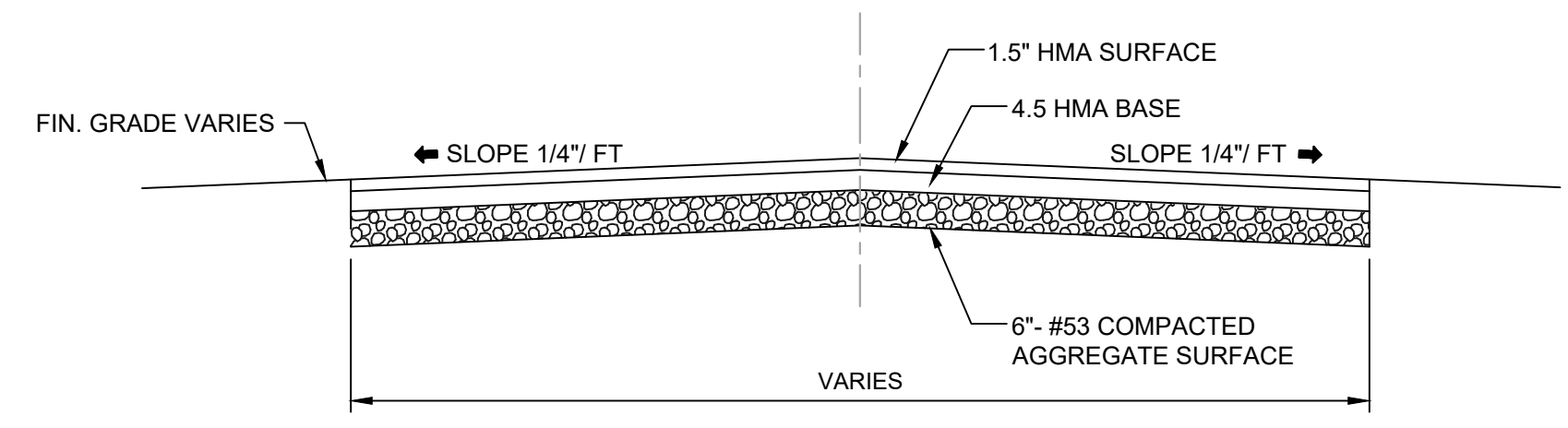
SURFACE RESTORATION DETAIL FOR GRAVEL PAVEMENT- ROAD
NO SCALE



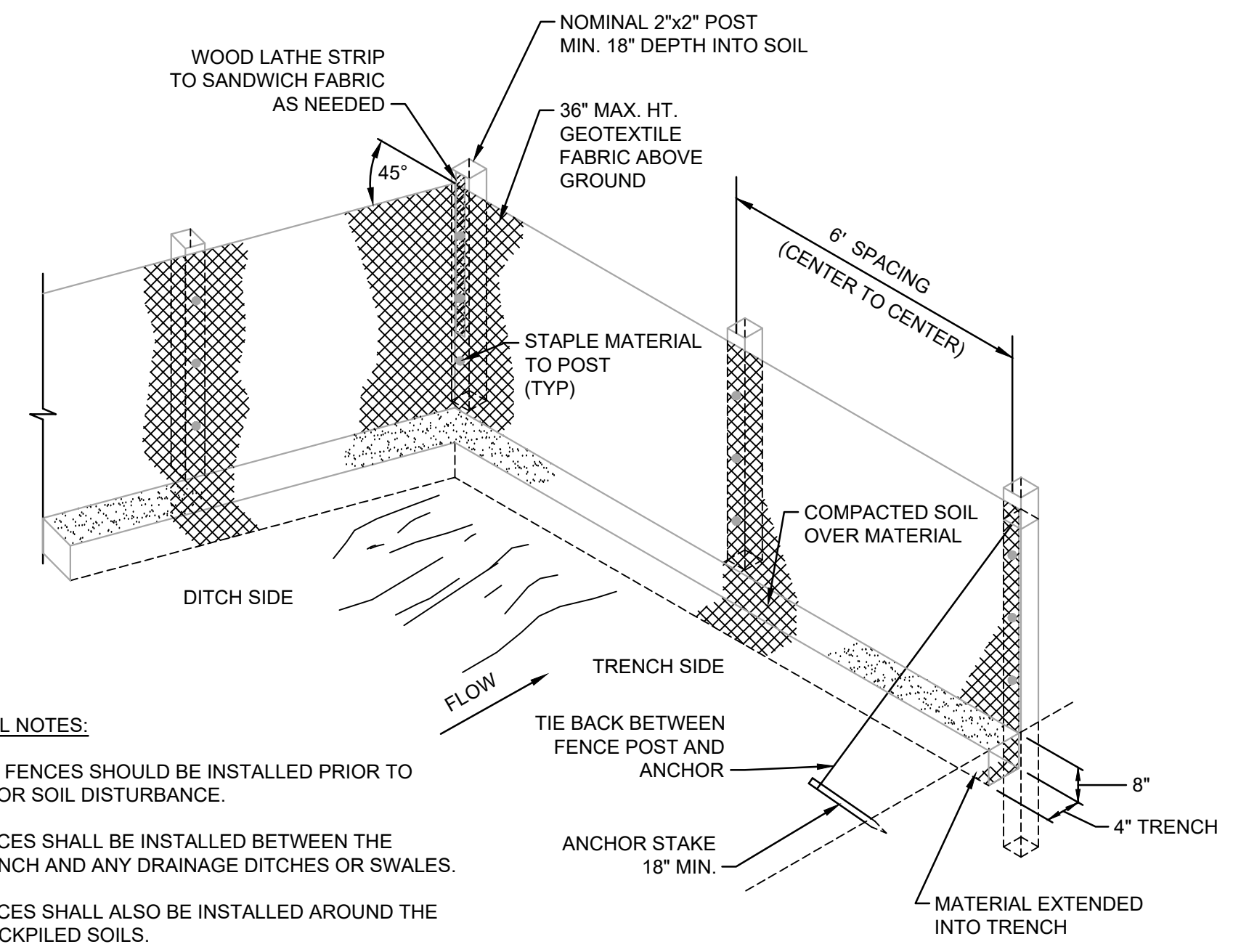
SURFACE RESTORATION DETAIL FOR ASPHALT PAVEMENT- ROAD
NO SCALE



NEW STONE ACCESS ROAD DETAIL
SCALE: N.T.S.



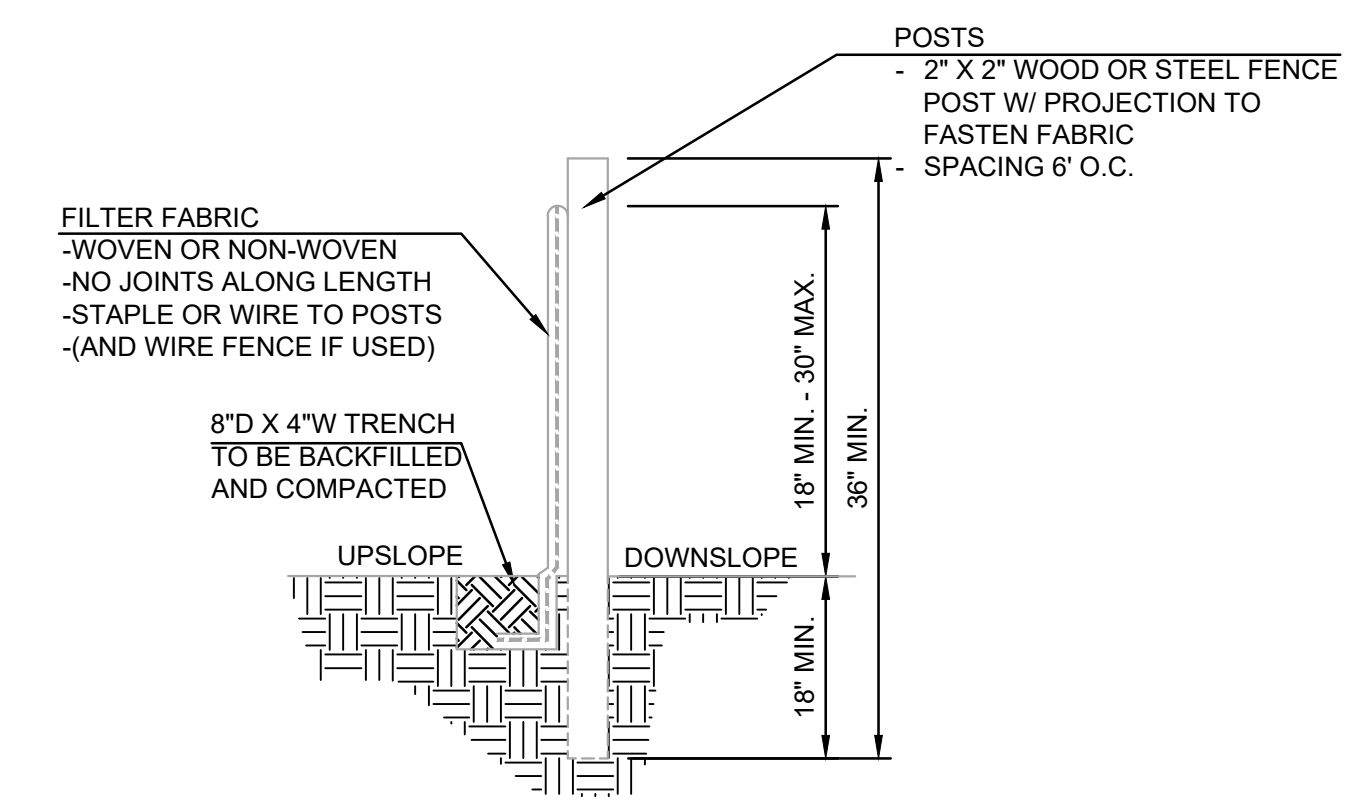
ASPHALT PAVEMENT RESTORATION - DETAIL
SCALE: N.T.S.



GENERAL NOTES:

1. SILT FENCES SHOULD BE INSTALLED PRIOR TO MAJOR SOIL DISTURBANCE.
2. FENCES SHALL BE INSTALLED BETWEEN THE TRENCH AND ANY DRAINAGE DITCHES OR SWALES.
3. FENCES SHALL ALSO BE INSTALLED AROUND THE STOCKPILED SOILS.
4. THE GEOTEXTILE SHALL BE FREE FROM DEFECTS, TEARS, PUNCTURES, FLAWS, DETERIORATION OR DAMAGE INCURRED DURING MANUFACTURE, TRANSPORTATION, STORAGE, OR INSTALLATION.
5. TIE BACKS SHALL BE PLACED AS REQUIRED.

SILT FENCE DETAIL
NOT TO SCALE



INSTALLATION:

1. THE BOTTOM 1' OF THE FENCE SHALL BE BURIED IN THE TRENCH ON THE UPSLOPE SIDE.
2. FENCE SHALL BE INSTALLED ALONG LEVEL GRADES, NOT ACROSS FLOW CHANNELS.
3. IF OPTIONAL SUPPORT WIRE FENCE IS USED, POST SPACING MAY BE EXTENDED TO 8' O.C.

MAINTENANCE:

1. INSPECT SILT FENCE PERIODICALLY (WEEKLY) AND AFTER EACH STORM EVENT.
2. IF FABRIC IS TORN OR DAMAGED OR IN ANY WAY BECOMES INEFFECTIVE, REPLACE THE AFFECTED PORTION IMMEDIATELY.
3. REMOVE DEPOSITED SEDIMENT WHEN IT REACHES HALF THE HEIGHT OF THE FENCE, OR IT IS CAUSING THE FABRIC TO BULGE.
4. TAKE CARE NOT TO UNDERMINE THE FENCE DURING SEDIMENT REMOVAL.
5. AFTER THE CONTRIBUTING AREA HAS BEEN STABILIZED, REMOVE THE FENCE AND REMAINING SEDIMENT, BRING THE DISTURBED AREA TO GRADE, AND STABILIZE.

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Professional Engineer
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STATE OF INDIANA

Signature: *Jeffrey C. Schmitt* Date: 4/3/20

INDIANA DEPARTMENT OF ADMINISTRATION PUBLIC WORKS DIVISION
MORGAN COUNTY, IN.
CIKANA STATE FISH HATCHERY

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Indiana
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No.	Submitted / Revision	By	Date

MISCELLANEOUS DETAILS

Designed By: _____ Drawn By: MAW Checked By: _____
Issue Date: _____ Project No: J19105 Scale: AS SHOWN

Drawing No: **MD2**
Sheet: 34 OF 38

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GENERAL

- The structure has been designed for the in-service loads only. The methods, procedures, and sequences of construction are the responsibility of the Contractor. Supporting formwork for the concrete construction shall not be removed before the concrete has gained sufficient strength to safely support the dead and superimposed loads which will be subsequently applied. The Contractor shall take all necessary precautions to maintain and ensure the integrity of the structure at all stages of construction.
- All work shall be performed in accordance with the Indiana Building Code, 2014 Edition (2012 International Building Code, first printing, with Indiana Amendments).
- Where new work is to be fitted to old work, the Contractor shall check all dimensions and conditions in the field, and report any errors or discrepancies to the Structural Engineer prior to the fabrication and erection of any new members.
- Do not determine dimensions by "scaling" off the plans. The Contractor shall accept all risk associated with "scaling" and shall be responsible for all inadequate work resulting therefrom. Questions regarding missing or conflicting dimensions shall be directed, in writing, to the Structural Engineer.
- Existing materials to be removed and reinstalled as part of this contract, but become damaged, shall be replaced with approved new material of equivalent quality and appearance at the Contractor's expense.
- All work shall be performed without damage to adjacent retained work. Adequate protection of areas nearby work against dust, dirt and debris accumulation shall be maintained at all times.
- Principal openings in the structure are indicated on the structural drawings. Refer to the architectural, mechanical, electrical, and plumbing drawings for sleeves, curbs, inserts, etc. not herein indicated. Openings in slabs with a maximum side dimension or diameter of 10 inches or less shall not require additional framing or reinforcement, unless noted otherwise. The location of sleeves or openings not shown in structural members shall be approved by the Structural Engineer.
- The location of sleeves or openings not shown in structural members shall be approved by the Structural Engineer.
- The Contractor shall relocate all mechanical piping, ducts, equipment, electrical conduits, wiring and plumbing that interfere with the proposed construction. Service shall be maintained to all equipment that is served by mechanical, electrical or plumbing conduit being relocated.
- The Contractor shall relocate all utilities which interfere with the proposed construction. Service shall be maintained at all times during utility relocation unless otherwise noted.

FOUNDATIONS

- Exterior footings shall bear 3'-0" minimum below finish grade and shall bear on undisturbed soil.
- Foundation and soils related work shall be performed under the direct supervision of a qualified Geotechnical Engineer.
- Foundation excavations shall be made to plan elevations. The Contractor shall have a qualified Geotechnical Engineer verify that the allowable soil bearing pressure meets or exceeds that assumed for the foundation design. If the underlying soils are found to be unacceptable, one of the following procedures shall be followed:
 - Remove the unacceptable soil and backfill with an engineered structural fill in accordance with the geotechnical engineering report or inspecting Geotechnical Engineer.
 - Lower the footing to an acceptable soil. Contact the Structural Engineer for potential modifications to the foundation system.
- Subgrade structural elements subjected to differential lateral soil pressure shall be adequately braced until the structural elements which provide lateral restraint have been placed and allowed to cure for a minimum of 7 days.
- Excavations for spread footings, combined footings, continuous footings and/or mat foundations shall be cleaned and hand tamped to a uniform surface. Foundation excavations shall be adequately protected against detrimental change in condition from disturbance, rain, freezing, etc. Surface runoff shall not be allowed to enter the excavation.
- Foundation conditions noted during construction, which differ from those described in the geotechnical report shall be reported to the Structural Engineer and Geotechnical Engineer before further construction is attempted.
- Center all column and wall footings under the column or wall above unless otherwise indicated.

CONCRETE

- Reinforced concrete has been designed in accordance with the latest editions of the Building Code Requirements for Reinforced Concrete (ACI 318) and Environmental Engineering Concrete Structures (ACI 308R) by the American Concrete Institute (ACI).
- Slabs-on-grade shall be constructed in accordance with the latest edition of the Guide for Concrete Floor and Slab Construction (ACI 302.1R).
- Mixing, transporting, and placing of concrete shall conform to the latest edition of the Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete (ACI 211.1) and the Standard Specifications for Structural Concrete (ACI 301). The special provisions of ACI 211.1 Appendix 5 (Mass Concrete Mix Proportioning) shall be used in proportioning the concrete mixture for the mat foundation to control temperature rise during hydration. In addition, the provisions of ACI 207.1R (Mass Concrete) shall apply. Concrete curing shall conform to the latest editions of the Standard Practice for Concrete Curing (ACI 308) and the Standard Specification for Curing Concrete (ACI 308.1). In case of a discrepancy, the plans and specifications shall govern.
- Unless noted otherwise, concrete shall have natural sand fine aggregate and normal weight coarse aggregates conforming to ASTM C33, and Type I or III Portland Cement conforming to ASTM C150. Type III Portland Cement shall not be used in mass concrete. The Contractor shall submit a mix design for each proposed class of concrete. Mix designs shall indicate proportions by weight, water-cement ratio, slump, air content, synthetic fiber size and quantity, sieve analyses of fine and coarse aggregates, standard deviation analysis, and required average strength and documentation of average strength verifying compliance with ACI 318. The Contractor shall not vary from the mix design without approval from the Structural Engineer.
- Unless noted otherwise, fly ash may be used as a pozzolan to replace a portion of the Portland Cement in a concrete mix. Fly ash, when used, shall conform to ASTM C618, Type C (except in mass concrete, ASTM C618, Type F shall be used). Concrete mixes using fly ash shall be proportioned to account for the properties of the specific fly ash used and to account for the specific properties of the fly ash concrete thus resulting. The ratio of the amount of the fly ash to the total amount of fly ash plus cement in the mix shall not exceed 25 percent.
- For mass concrete, ground granulated blast-furnace slag (GGBFS) may be used to replace a portion of the Type I Portland Cement in a concrete mix. Ground granulated blast-furnace slag, when used, shall conform to ASTM C989, Grade 100. Concrete mixes using GGBFS shall be proportioned to account for the properties of the specific GGBFS used and to account for the specific properties of the GGBFS concrete thus resulting. The ratio of the amount of the GGBFS to the total amount of GGBFS plus cement in the mix shall be between 65 and 70 percent (except for concrete exposed to deicing chemicals the maximum ratio shall be 50 percent).
- Water-reducing admixtures conforming to ASTM C494 may be used in the concrete mix design. Maximum slump shall be 5 inches for mixes containing water-reducing admixtures and 5 to 8 inches for mixes containing high range water-reducing admixtures.
- Concrete compressive strength tests shall be performed in accordance with ASTM C39. Copies of the test results shall be forwarded to the Structural Engineer. One set of specimens shall be taken for each day's pour of appreciable size and for each 50 cubic yards (100 cubic yards for mass concrete) in accordance with the latest edition of ASTM C31. Each set shall include one specimen tested at 7 days, 2 specimens tested at 28 days and one specimen retained in reserve. Two additional reserve specimens shall be retained for all mass concrete pours. These test cylinders shall be laboratory cured. For mass concrete pours, these test cylinders shall remain on-site for 48 hours before being transported to the testing lab.
- When the ambient temperature is expected to fall below 40 degrees during the course of a concrete pour or subsequent curing period, it shall be placed and cured in accordance with the latest edition of Cold Weather Concreting (ACI 306R) and an additional set of concrete test cylinders shall be made. For mass concrete, this set of additional test cylinders shall consist of four specimens for each 200 cubic yards of concrete placed. These cylinders shall be stored immediately adjacent to, and cured under the same conditions as the building concrete. Special curing boxes are not permitted for these test cylinders.

- Concrete mixed, transported, placed, and cured under conditions of high ambient temperature, low humidity, solar radiation, or high winds shall conform to the latest edition of Hot Weather Concreting (ACI 305R) and an additional set of concrete test cylinders shall be made. For mass concrete, this set of additional test cylinders shall consist of four specimens for each 200 cubic yards of concrete placed. These cylinders shall be stored immediately adjacent to, and cured under the same conditions as the building concrete. Special curing boxes are not permitted for these test cylinders.
- Slump tests shall be made prior to and following the addition of plasticizers. Where concrete is placed by pumping methods, concrete for test cylinders and slump tests shall be taken at the point of final placement.
- Water shall not be added to the concrete at the job site. The Contractor is responsible for coordinating a pumpable and workable mix without the addition of water at the job site. The use of plasticizers, retardants and other additives shall be at the option of the Contractor subject to the approval of the Structural Engineer. Follow the recommendations of the manufacturer for the proper use of additives. Use of calcium chloride or other chloride bearing salts is prohibited.
- Place concrete in a manner so as to prevent segregation of the mix. Delay floating and troweling operations until the concrete has lost surface water sheen or all free water. Do not sprinkle free cement on the slab surface. Finishing of slab surfaces shall conform to the latest editions of ACI 302.1R and ACI 304R (Guide for Measuring, Mixing, Transporting and Placing Concrete).
- Where an epoxy adhesive is specified for bonding plastic concrete to hardened concrete, it shall conform to the latest edition of the Standard Specification for Bonding Plastic Concrete to Hardened Concrete with a Multi-Component Epoxy Adhesive (ACI 503.2).
- Maintain concrete in a moist condition for at least 5 days at ambient temperatures above 70 degrees, and at least 7 days at ambient temperatures above 50 degrees. Curing compounds or moisture retention covers shall be used for all non-formed surfaces. Formed surfaces shall be cured by leaving forms in place. During hot, dry weather, keep forms moist by sprinkling. When forms are removed prior to the end of the curing period, apply curing compound to the exposed surfaces.
- All interior slabs shall receive a hard "troweled finish". Exterior slabs, sidewalks, and stoops shall receive a "broom (or other type of slip resistant) finish". All formed surfaces not exposed to public view shall receive a "rough form finish", exposed surfaces shall receive a "smooth form finish". Concrete finishes shall be as defined in ACI 301.
- Protect finished concrete surfaces from damage, rain, hail, running water, other injurious effects.
- Protect the concrete surface between finishing operations on hot, dry days or any time plastic shrinkage cracks could develop by using wet burlap, plastic membranes or fogging.
- Horizontal and vertical joints are not permitted in concrete construction except where indicated.
- Construction joints and/or contraction joints at locations other than where indicated shall be submitted to the Structural Engineer for approval.
- Construction joints shall be prepared by roughening the contact surface in an approved manner to a full amplitude of approximately 1/4 inch leaving the contact surface clean and free of laitance.
- Control joints shall be made in concrete slabs-on-grade at major column centerlines, at points of discontinuity, at reentrant corners, and at other locations shown on the plans.
- Provide 3/4 inch chamfers on all exposed corners of concrete except those abutting masonry.
- The Contractor shall verify the location of sleeves, openings, embedded items, etc. and shall ensure that they are in place prior to the placement of the concrete.
- Earth cuts shall not be used as forms ("bank forming") for vertical or sloping surfaces unless otherwise approved by the Structural Engineer. Where bank forming is permitted, the concrete element shall be increased at least 3 inches on all sides exposed to earth to account for possible soil contamination during concrete placement.

CONCRETE SCHEDULE

CONCRETE SCHEDULE						
CLASS	f' _c	AIR CONTENT	MIN. CEMENT: LB/CY (SACKS/CY)	MAX. WATER: CEMENT: RATIO	CONCRETE PLACEMENT	REMARKS
A	4,500 psi	6% ± 1.5%	611 (6.5)	0.45	all concrete	crystalline waterproofing admixture

REINFORCING STEEL

- Reinforcing bar detailing, fabricating, and placing shall conform to the latest edition of the following standards: Specifications for Structural Concrete for Buildings (ACI 301), ACI Detailing Manual (SP66). The latest editions of Concrete Reinforcing Steel Institute's Reinforcing Bar Detailing and Placing Reinforcing Bars may also be used.
- Provide standard bar chairs, slab bolsters, spacers, etc. as required to maintain concrete protection specified. Reinforcing steel shall be tied to prevent displacement during concrete placement.
- Reinforcement bars shall not be tack welded, welded, heated or cut unless otherwise indicated or approved by the Structural Engineer.
- Welding of reinforcement bars, when approved by the Structural Engineer, shall conform to the latest edition of American Welding Society Standard D1.4. Electrodes for shop and field welding of reinforcement bars shall conform to ASTM A233, Class E90XX.
- Synthetic fibers shall be used for temperature and shrinkage reinforcement in concrete slabs-on-grade. Synthetic fibers shall be virgin (non-recycled) nylon or polypropylene fibers conforming to ASTM C1116, Type III. Fibers shall be introduced into the mix at the plant in accordance with the manufacturer's recommendations. The Contractor shall submit the mix design, including the fiber size and quantity, to the Structural Engineer for approval prior to construction. The Contractor shall take adequate measures to manage any difficulty in concrete finishing associated with the use of the fibers.
- Concrete cover over reinforcement, unless otherwise noted, shall be as specified in the latest editions of ACI 318 and ACI 350 with the most stringent requirements governing.
- Unless noted otherwise, splicing of reinforcing bars shall conform to the latest edition of ACI 318.

CONCRETE REINFORCING STEEL LAP SPLICE SCHEDULE			
BAR SIZE	TENSION SPLICE		COMPRESSION SPLICE
	TOP BAR	OTHER	
#3	21"	16"	12"
#4	28"	24"	15"
#5	35"	30"	19"
#6	42"	36"	23"
#7	49"	42"	26"
#8	56"	48"	30"
#9	63"	57"	34"
#10	76"	66"	38"
#11	93"	72"	42"

- Horizontal bars in walls, masonry bond beams, and continuous wall footings shall be bent at corners and intersections in such a way that continuity is provided through the joint. Separate corner bars of the same size and spacing as the horizontal reinforcing may be substituted for the bent portion of the continuous bars.
- Unless noted otherwise, provide 2-#5 bars (one each face) around unframed openings and diagonally at reentrant corners of vertical height offsets in concrete walls. Place bars parallel to the sides of the opening and extend 24 inches beyond corners.
- The Contractor shall prepare detailed working or shop drawings to enable him to fabricate, erect and construct all parts of the work in accordance with the drawings and specifications and shall submit one reproducible copy and one blue line copy to the Structural Engineer for review prior to fabrication. These shop drawings will be reviewed for design concepts only. The Contractor shall be responsible for all dimensions, accuracy, and fit of work.

STRUCTURAL STEEL

- Structural steel detailing, fabrication and erection shall conform to the latest editions of the AISC Specification for Structural Steel Buildings, Allowable Stress Design and Plastic Design, and the AISC Code of Standard Practice for Steel Buildings and Bridges.
- Structural steel shall be hot-dip galvanized (G90 finish). All abrasions caused by handling after shop painting shall be touched-up after erection is complete.
- Welding procedures shall conform to the latest edition of the American Welding Society's (AWS) Structural Welding Codes for: Steel ANSI/AWS D1.1 and Sheet Steel ANSI/AWS D1.3, and Reinforcing Steel ANSI/AWS D1.4.
- Welded connections using ASTM A572 and A992 steel as a base metal shall be made with E70XX Low Hydrogen electrodes. Unless otherwise noted, other welded connections shall be made with regular E70XX electrodes. Welding shall be performed only where shown and to the extent indicated.
- Field drilled holes shall be reamed, cleaned and deburred prior to assembly of the connection.
- Thermal cutting shall preferably be done by machine. Hand thermally cut edges which will be subjected to substantial stress, or which are to have weld metal deposited on them, shall be reasonably free from notches or gouges. Notches or gouges greater than 3/16" that remain from cutting shall be removed by grinding. Re-entrant corners shall be shaped notch-free to a radius of at least 1/2".
- Paint on surfaces adjacent to joints to be field welded shall be wire brushed to reduce the paint film to a minimum.
- Surfaces within 2" of any field weld shall be free of materials that would prevent proper welding or produce toxic fumes while welding is being done.
- Splicing of structural steel members where not detailed is prohibited without the prior approval of the Structural Engineer as to location, type of splice and connection to be made.
- The Contractor shall prepare detailed working or shop drawings to enable him to fabricate, erect and construct all parts of the work in accordance with the drawings and specifications and shall submit one reproducible copy and one blue line copy to the Structural Engineer for review prior to fabrication. These shop drawings will be reviewed for design concepts only. The Contractor shall be responsible for all dimensions, accuracy, and fit of work.

COORDINATION WITH OTHER TRADES

- The Contractor shall coordinate and check all dimensions relating to architectural finishes, structural framing, mechanical openings, equipment, etc. The Structural Engineer shall be notified of any discrepancies before proceeding with work in an area under question.

DESIGN

- Building Code: Indiana Building Code, 2014 Edition (2012 International Building Code, first printing, with Indiana Amendments).
- Soil information:

Allowable net bearing pressure:	2000 psf (assumed)
Continuous Wall Footings	125 pcf (assumed)
Unit weight of soil	90 psf / ft (assumed)
Equivalent fluid pressure on tank walls	0.30 (assumed)
Coefficient of friction between soil and concrete footing	
- Concrete:

28 day compressive strength (f _c)	See Schedule
---	--------------
- Reinforcing steel (deformed bars of new billet steel):

Stirrup and tie	ASTM A615, Grade 60
Otherwise	ASTM A615, Grade 60
- Live loads:

Floor:	100 psf
--------	---------
- Live Load Deflection Limitation:

Floor	L/360
-------	-------
- Wind loads:

Basic wind speed (3-second gust)	115 mph
Importance factor, I _w	1.0
Exposure	B
- Seismic loads:

Seismic importance factor, I _e	1.0
Mapped Spectral Response Acceleration at Short Periods, S _s	19.1% g
Mapped Spectral Response Acceleration at 1 Second, S ₁	9.6% g
Site Class	D (assumed)
Design Spectral Response Acceleration at Short Periods, S _{ds}	20.4% g
Design Spectral Response Acceleration at 1 Second, S _{d1}	15.4% g
Seismic Design Category	C

SPECIAL NOTES TO THE OWNER

- Under normal conditions and for conventional buildings structures such as the subject structure, reinforced concrete will develop cracks. The cracks are due to inherent shrinkage of the concrete, creep, ambient temperature variation, and restraining effects of vertical and other structural elements.
- The cracks formed are normally cosmetic. The concrete maintains its serviceability and strength requirements. It is possible that a number of hairline cracks, which would normally spread over a wide area, will integrate into a single crack with a width exceeding 0.01 inch. It is emphasized that although special effort is made to reduce the potential causes and number of such cracks, it is not practical to provide total articulation and thereby achieve complete inhibition of all cracks.
- The majority of these cracks develop within the first three years of service. Cracks which are wider than 0.01 inch may require sealing or epoxy injection.
- The object of the joints provided in the structure is to allow movement. Movements due to creep and shrinkage may be noticeable at joints up to two years after construction, beyond which movements due to variations in temperature will persist.

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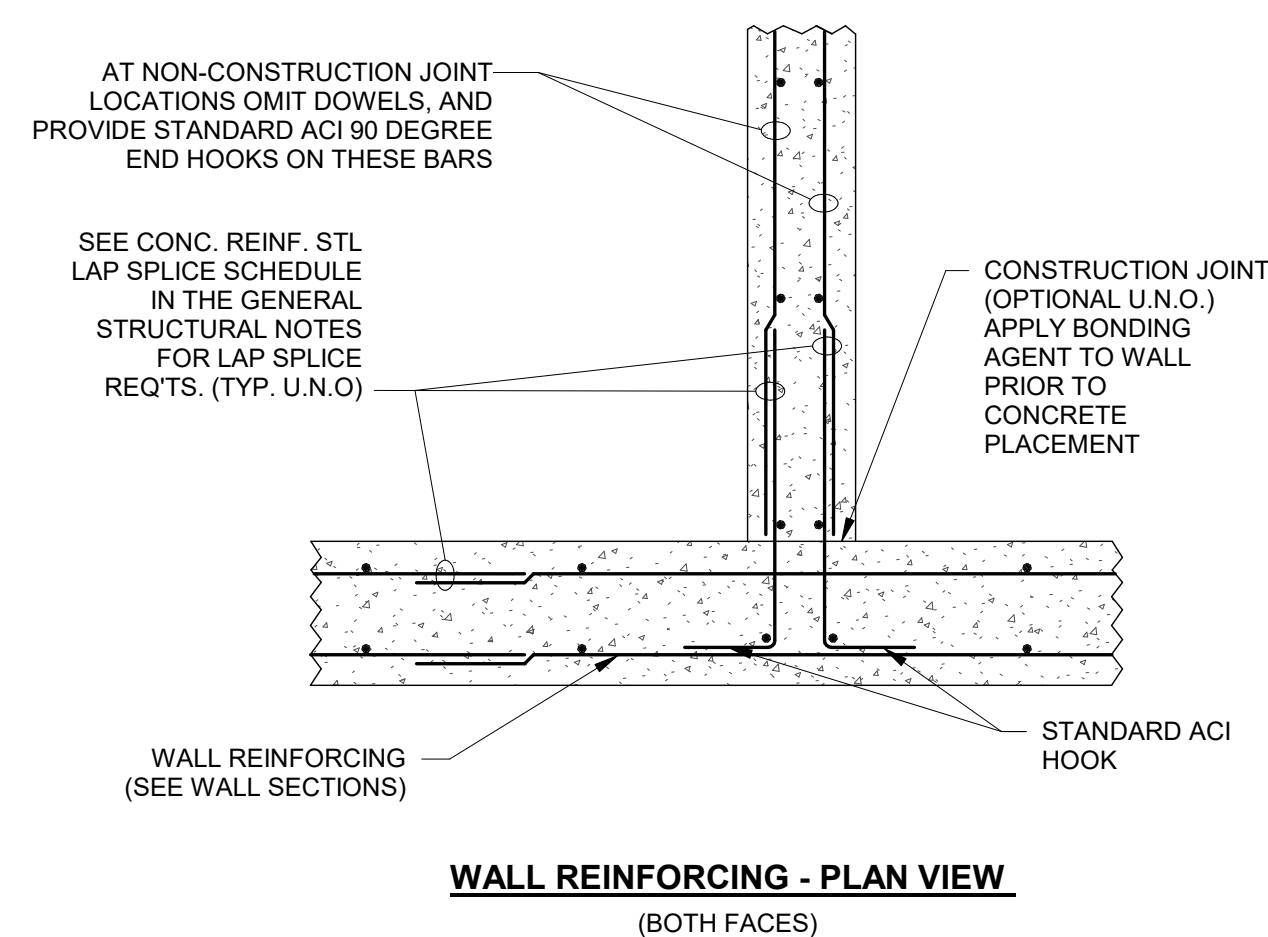
No.	Date	By

Designed By: RGM	Drawn By: RMS	Checked By: JDT
Issue Date: 04/03/2020	Project No: 20-122	Scale: AS SHOWN

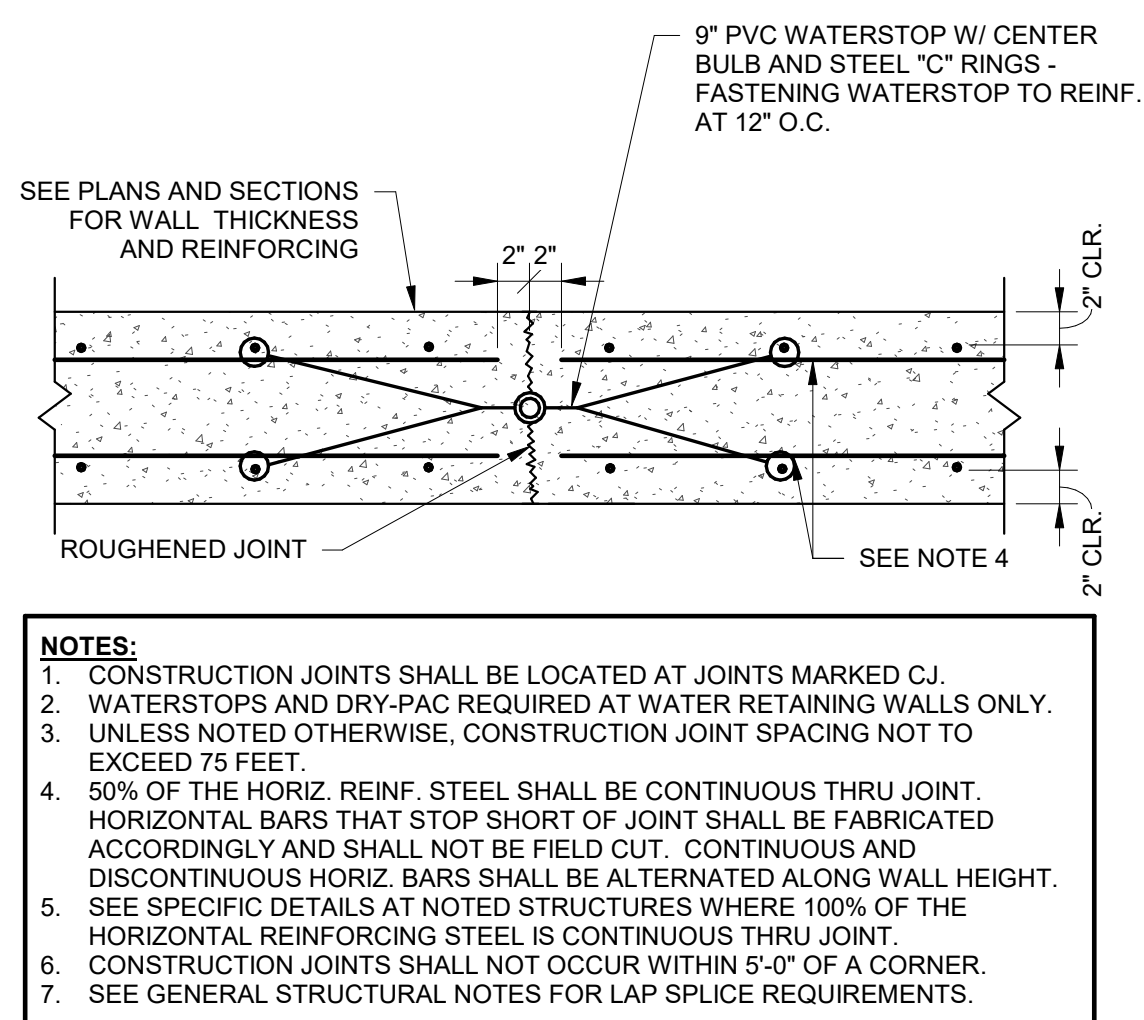
GENERAL
STRUCTURAL NOTES

Drawing No:
S1-1

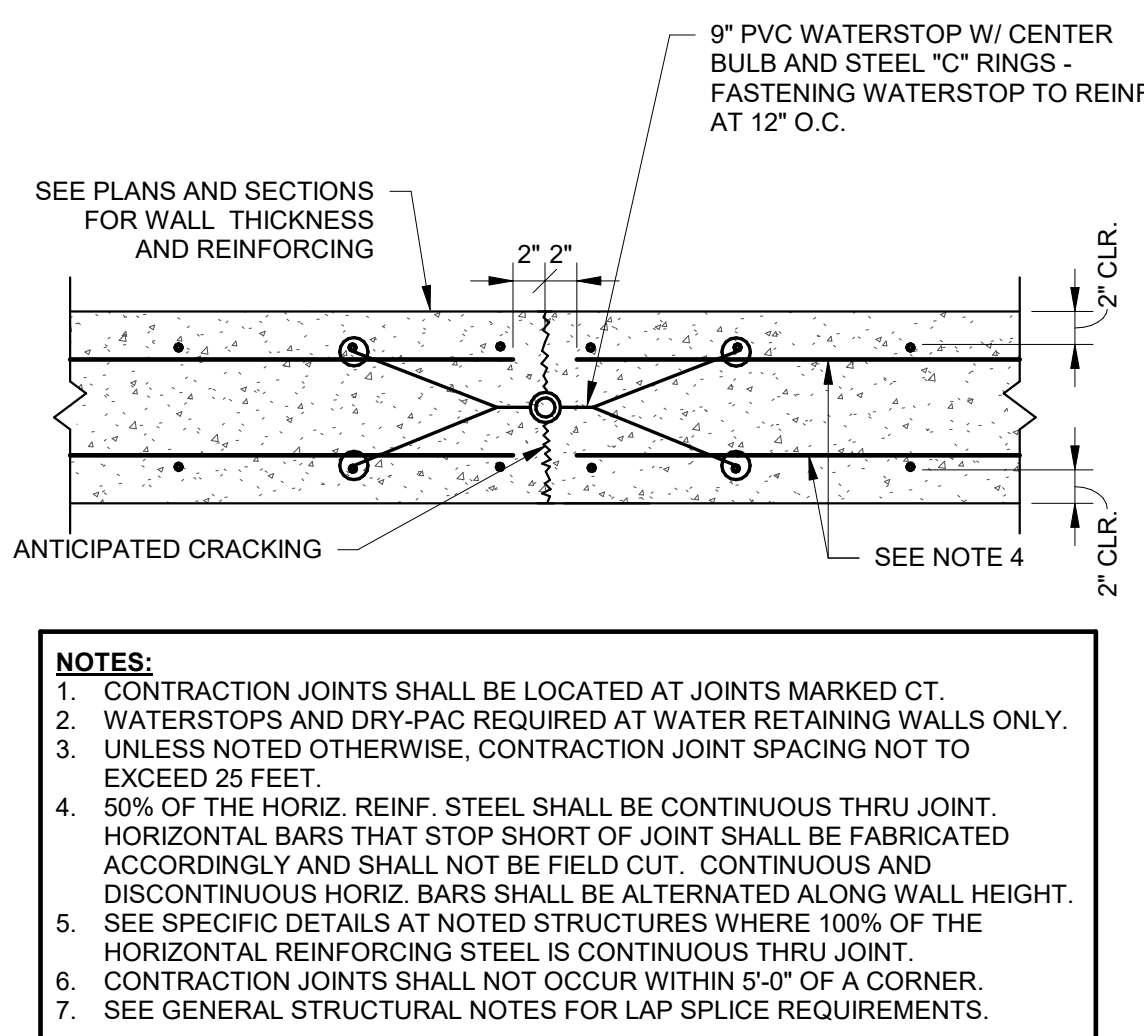
Sheet: 35 OF 38



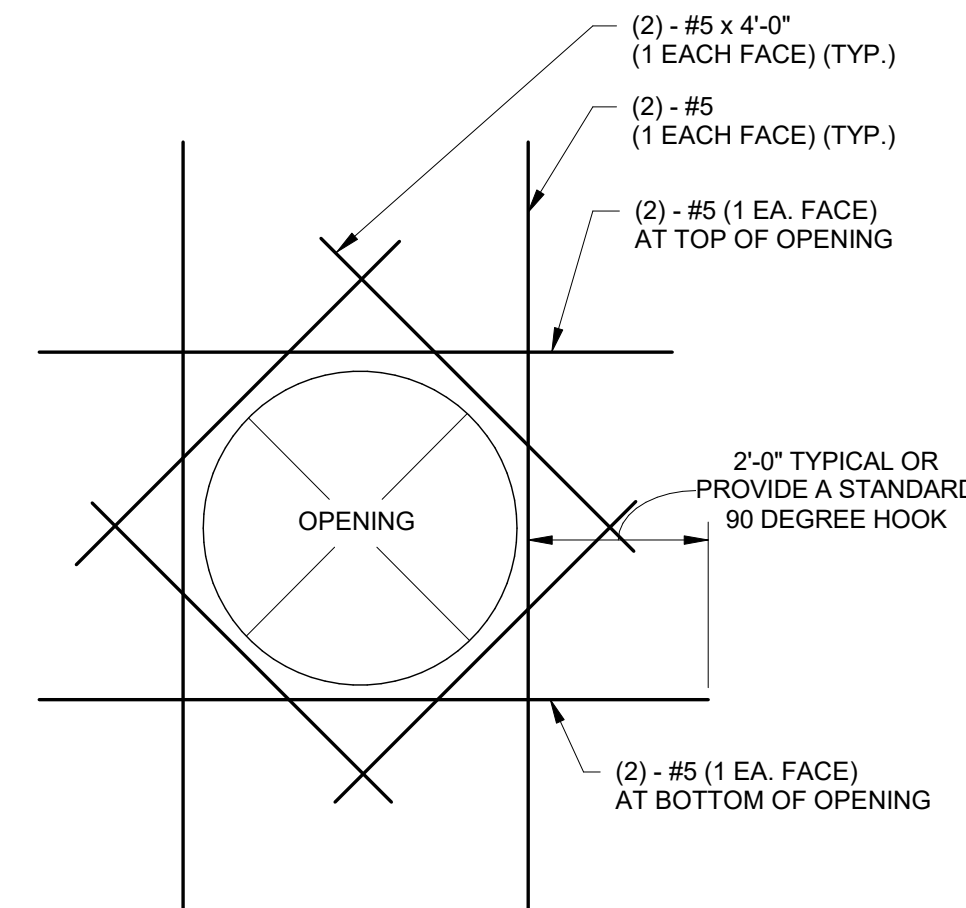
5 TYP. CONC. WALL INTERSECTION
1/8" = 1'-0"



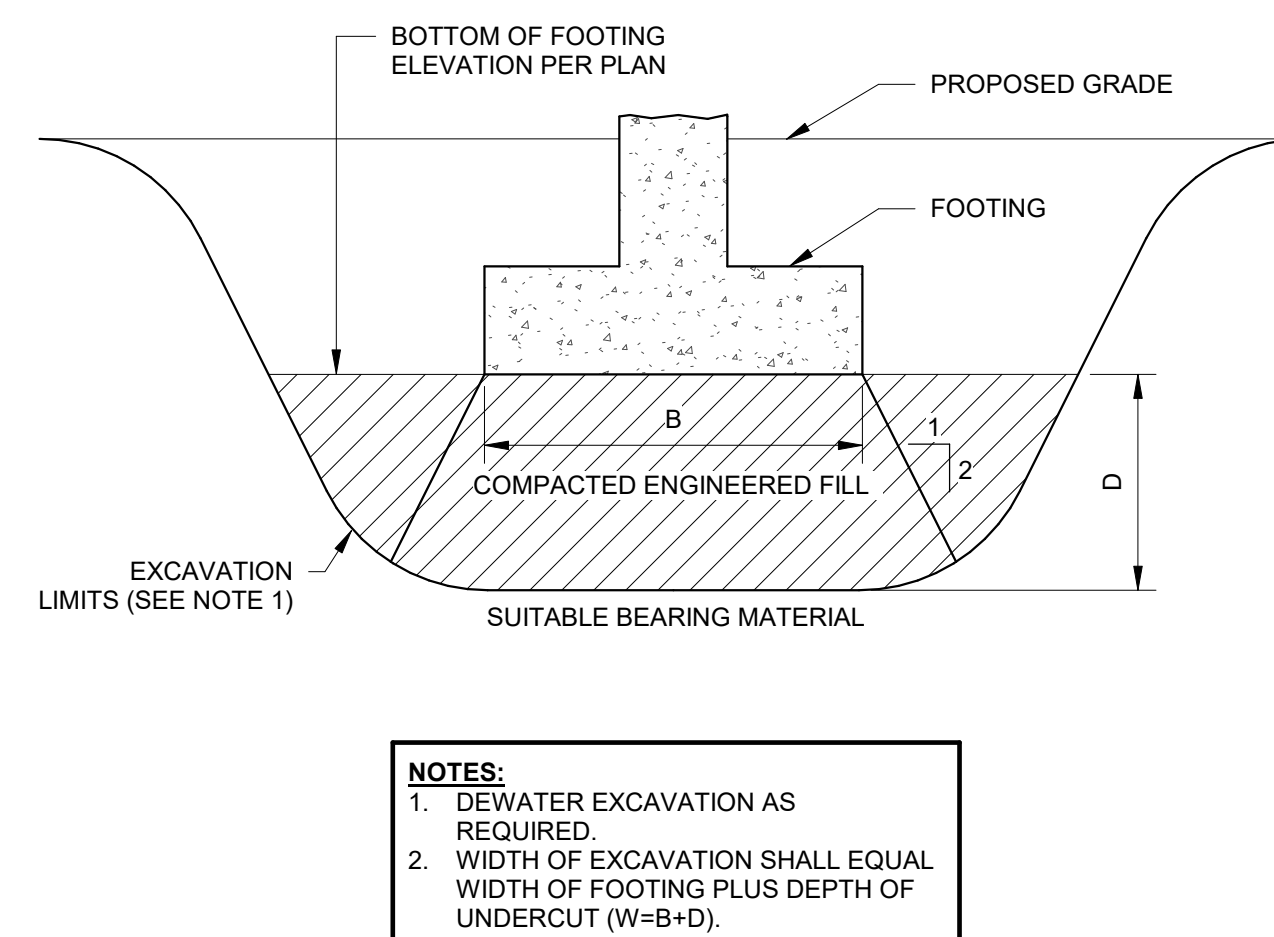
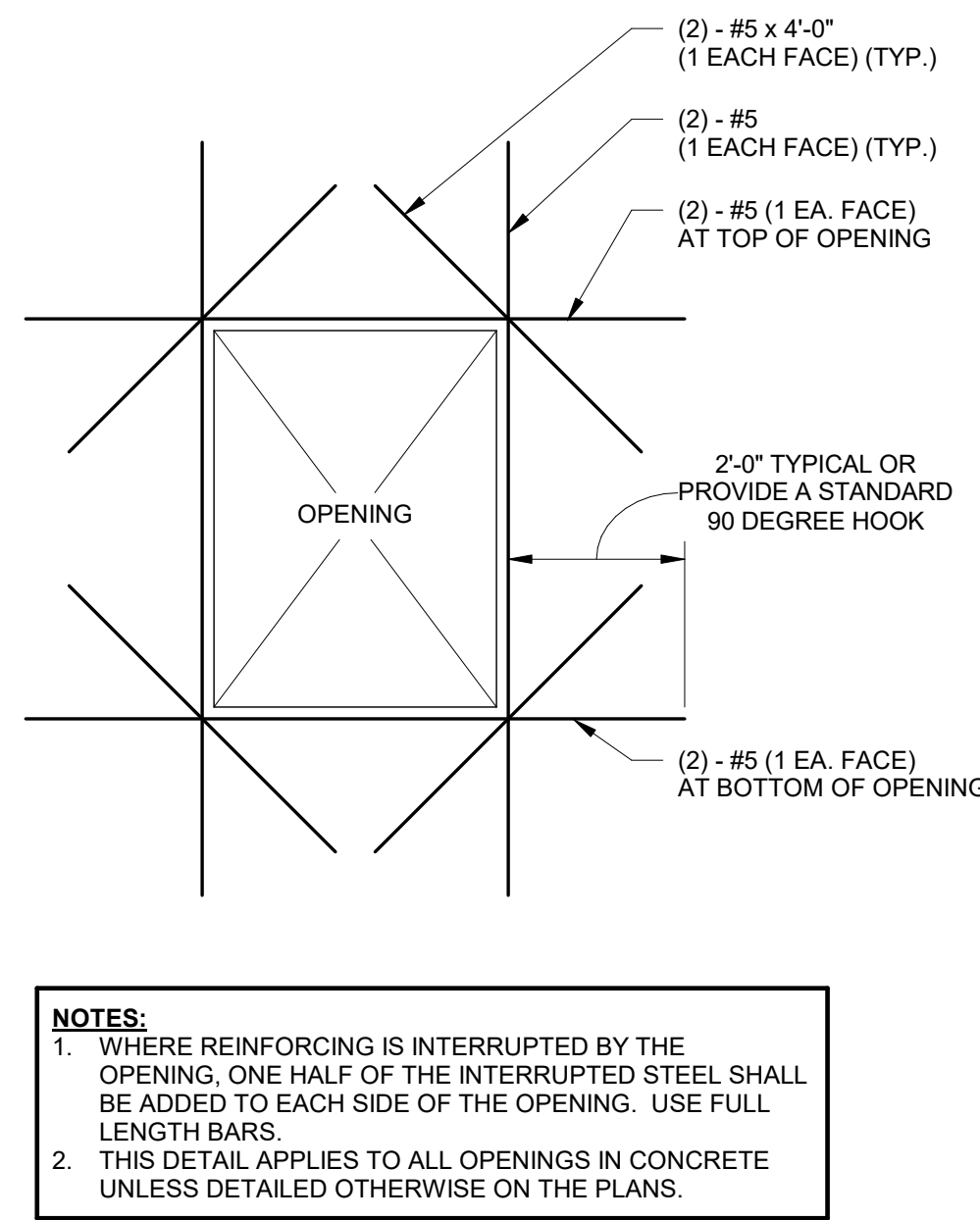
6 TYP. WALL CONSTRUCTION JOINT
1" = 1'-0"



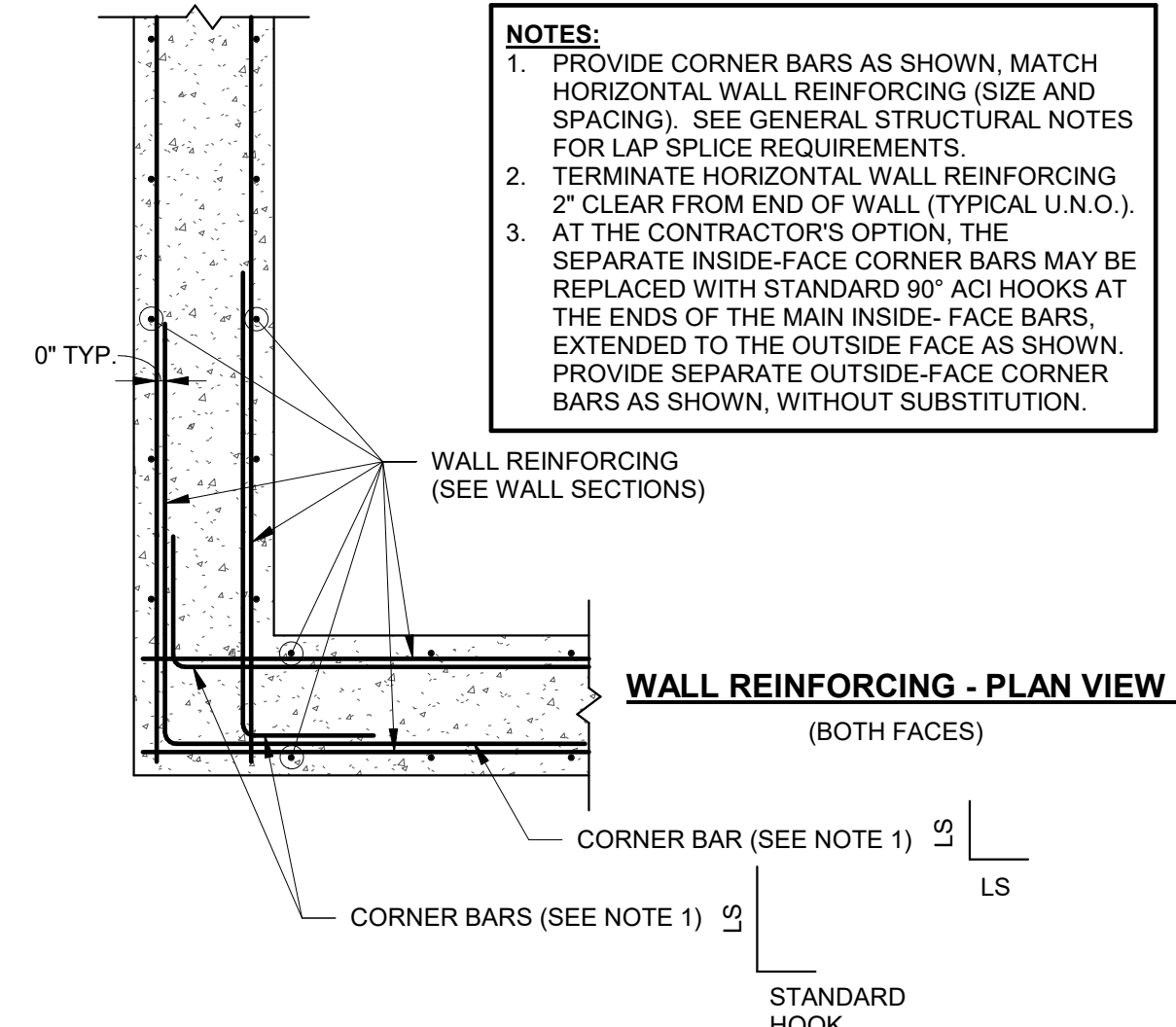
7 TYP. WALL CONTRACTION JOINT
1" = 1'-0"



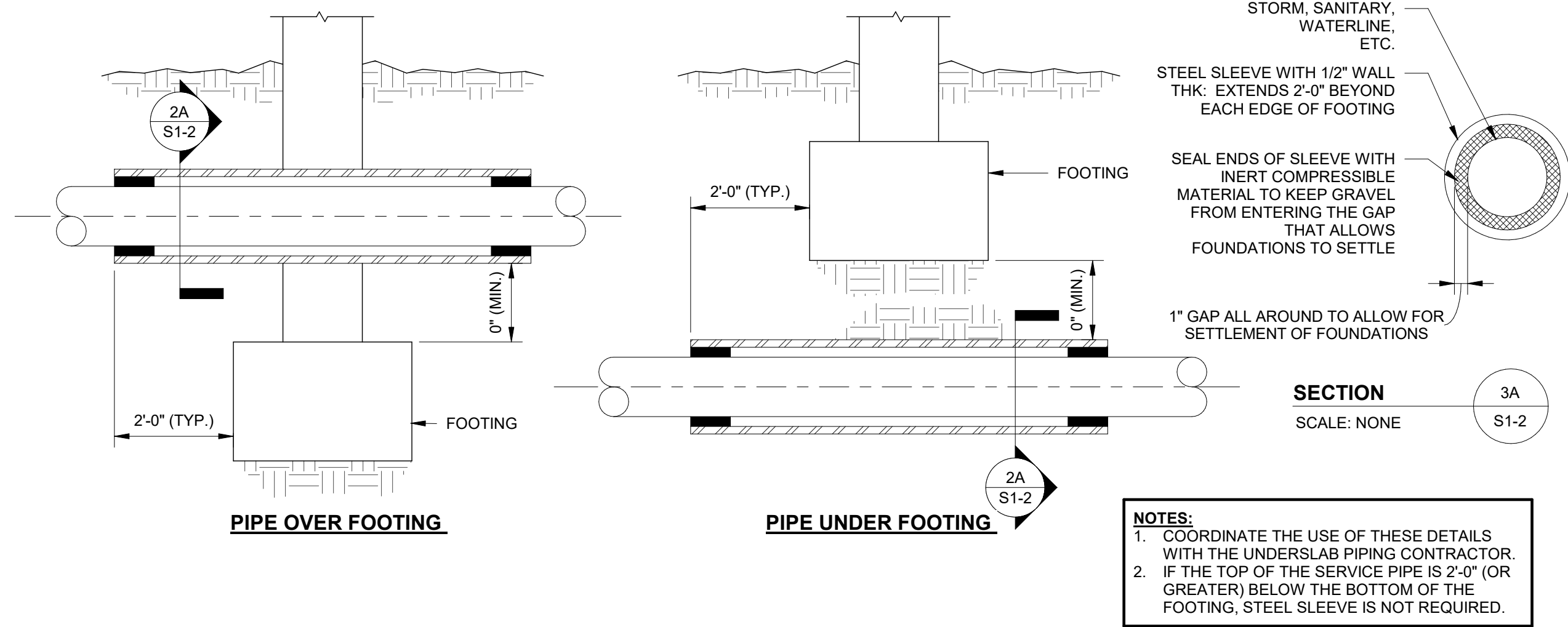
3 TYP. OPENING IN CONCRETE WALL OR SLAB
1/8" = 1'-0"



1 TYP. FOOTING IN UNDERCUT AREA
1" = 1'-0"



2 TYPICAL CONCRETE WALL CORNER REINFORCEMENT - PLAN VIEW
3/4" = 1'-0"



4 TYP. UNDERGROUND SERVICE PIPE DETAIL AT WALL FOUNDATION
1/8" = 1'-0"

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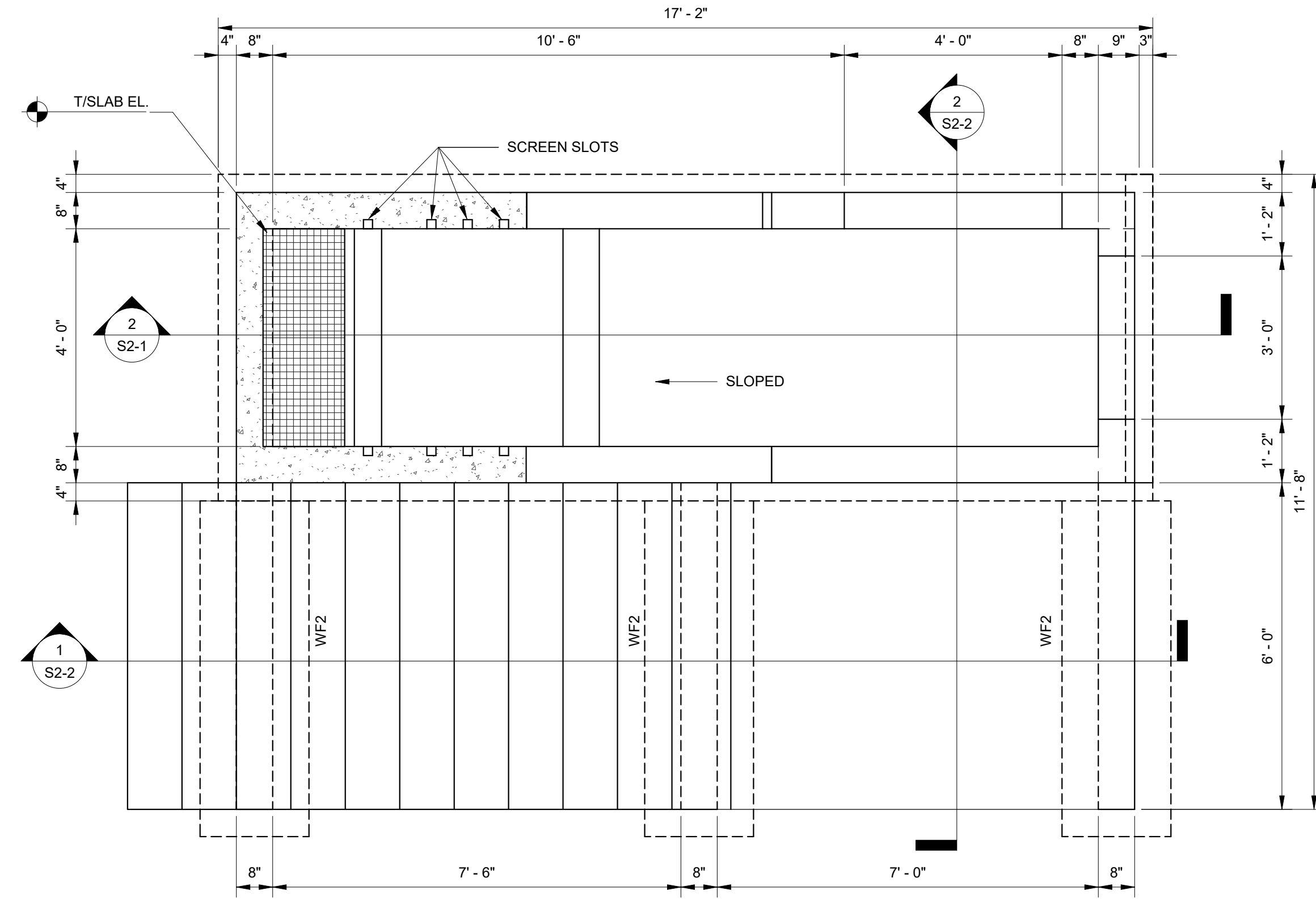
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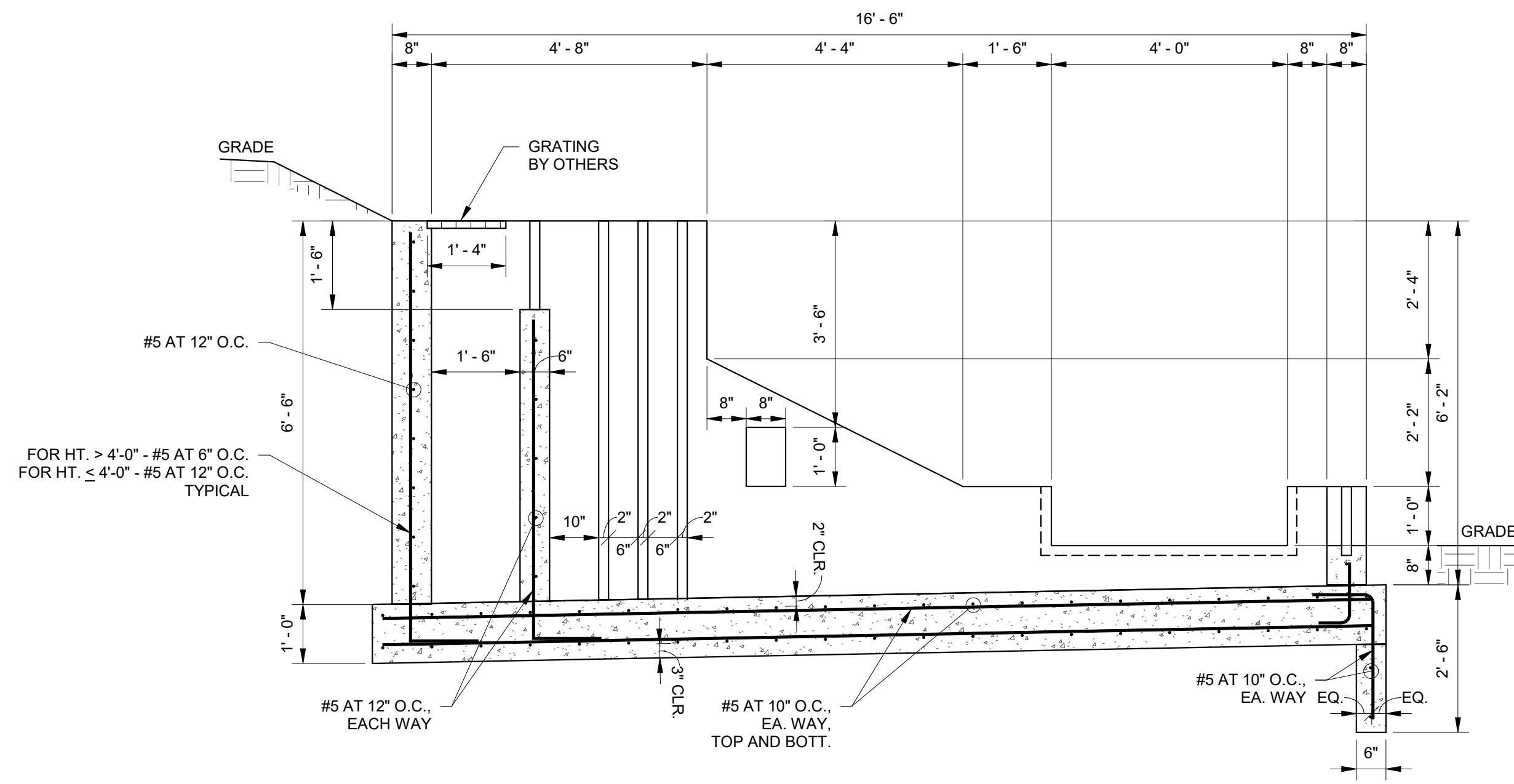
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TYPICAL STRUCTURAL DETAILS - CONCRETE - 01

Drawing No:
S1-2
Sheet: 36 OF 38



1 KETTLE PLAN
S2-1 1/2" = 1'-0"



2 SECTION
S2-1 1/2" = 1'-0"

FOUNDATION PLAN NOTES

- INDICATES NOTE REFERENCED IN PLAN
- 1. SEE THE S1-SERIES SHEETS FOR GENERAL STRUCTURAL NOTES AND TYPICAL STRUCTURAL DETAILS.
- 2. GENERAL CONTRACTOR TO COORDINATE ALL OPENING, PIPE SLEEVES, EMBEDDED ITEMS, HANDRAILS, GRATING, ETC. WITH THE PROCESS DRAWINGS.
- 3. ALL DIMENSIONS AND ELEVATIONS SHALL BE VERIFIED PRIOR TO FABRICATION, CONSTRUCTION OR ERECTION. THE GENERAL CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR ANY DISCREPANCIES.
- 4. SEE SITE PLAN FOR ALL FINAL GRADE ELEVATIONS.
- 5. MAINTAIN STRUCTURAL SLAB THICKNESSES AT ALL FLOOR SLOPES AND DEPRESSIONS.

WALL FOOTING SCHEDULE					
MARK	WIDTH	LENGTH	THICK.	BOTT. LONG. REINF.	BOTT. TRANS. REINF.
WF2	2'-0"	CONT.	1'-0"	3 - #5	#5 AT 12" O.C.

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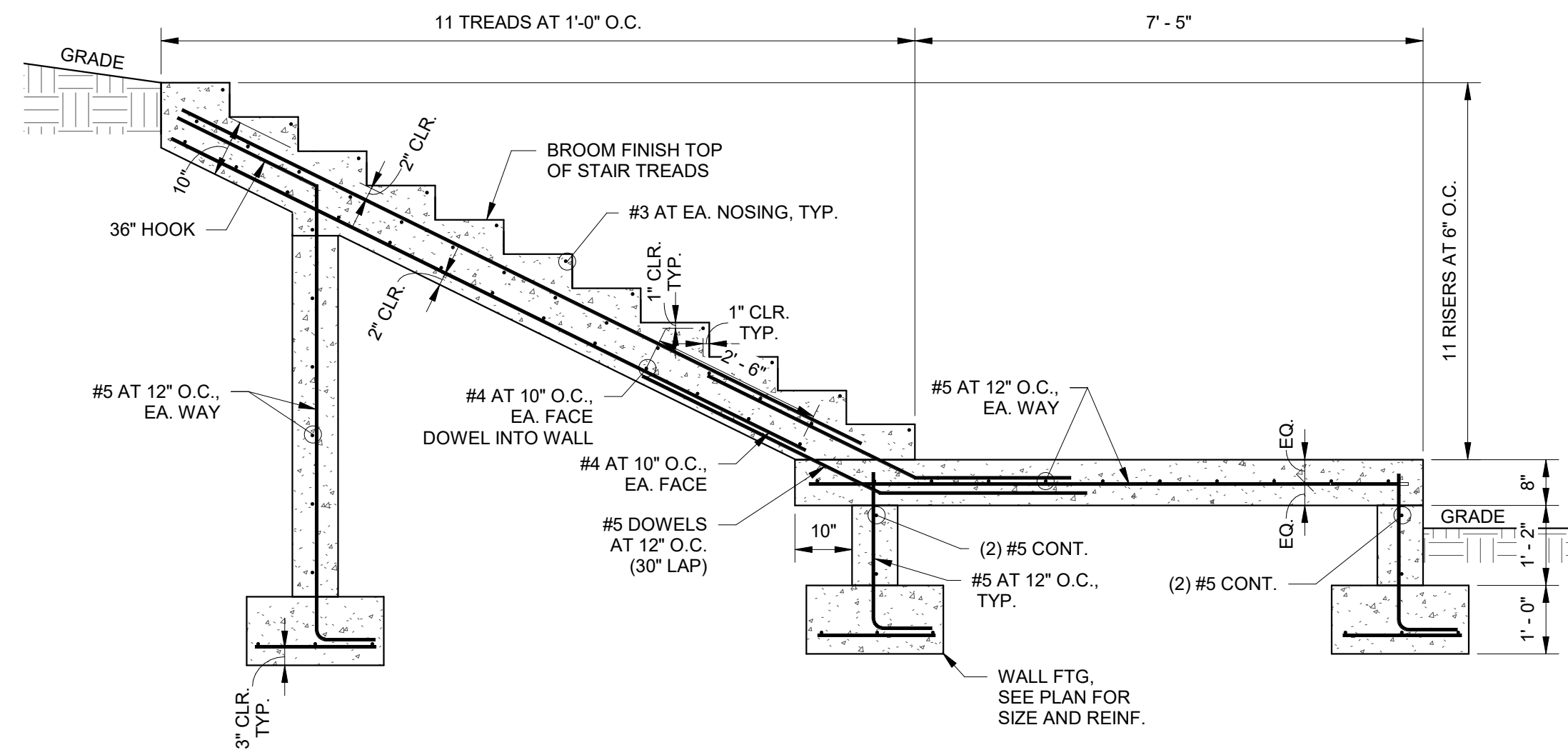
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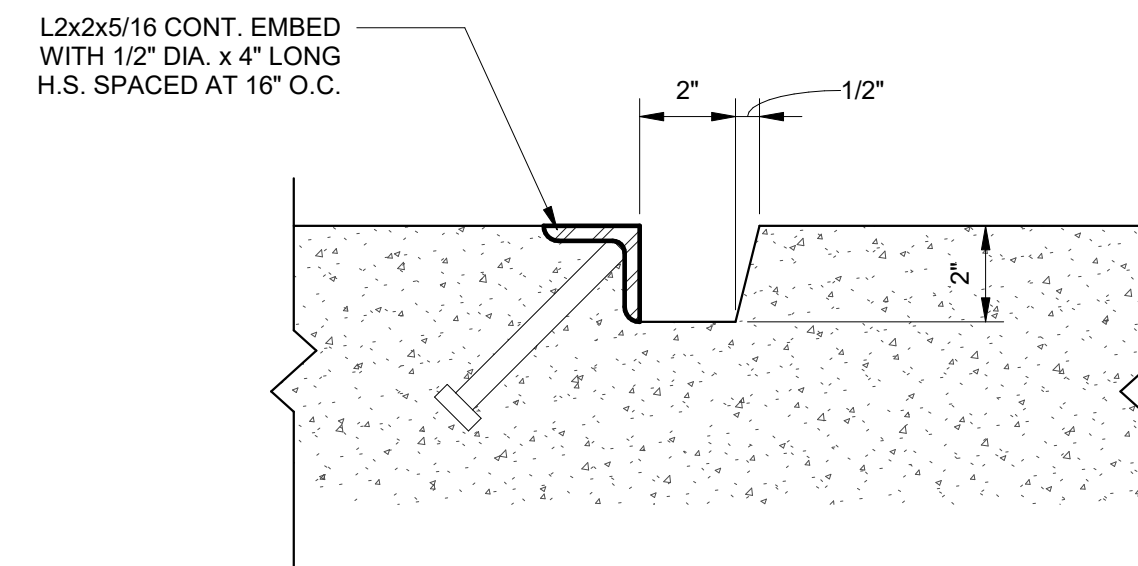
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KETTLE PLAN AND SECTIONS

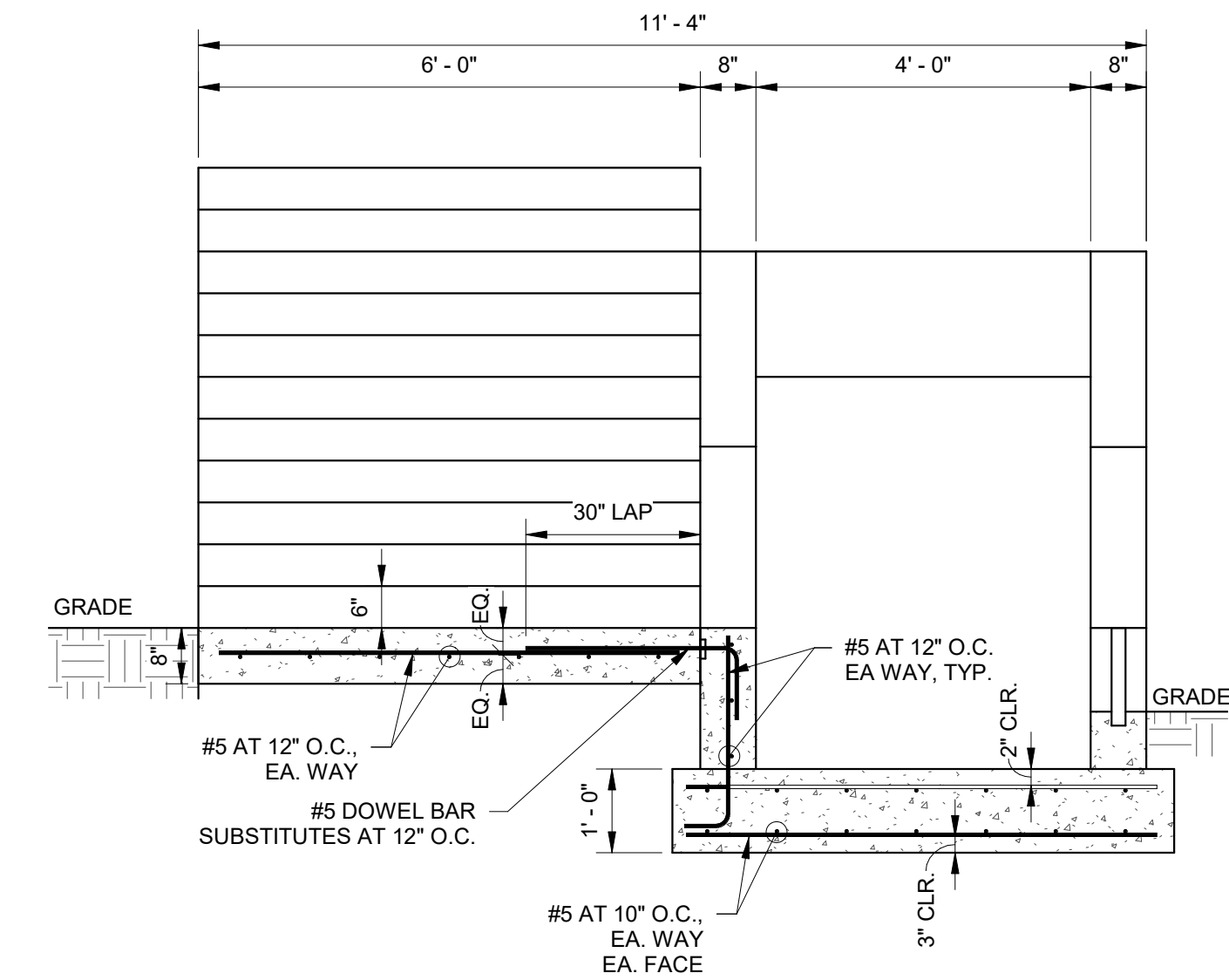
Drawing No:
S2-1
Sheet: 37 OF 38



1 SECTION
S2-2 1/2" = 1'-0"



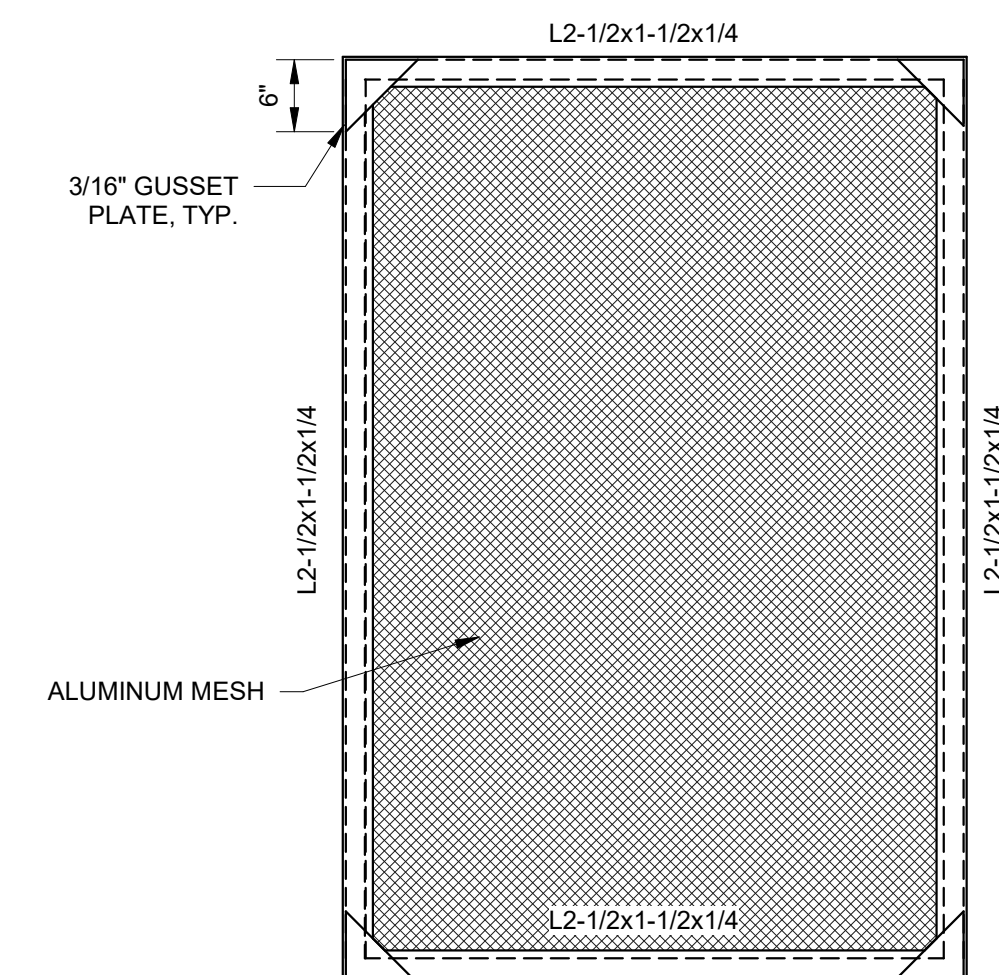
4 SCREEN SLOT ANGLES
S2-2 3" = 1'-0"



2 SECTION
S2-2 1/2" = 1'-0"

STRUCTURAL ALUMINUM:
ASTM-B 308 - WELD ALL JOINTS CONTINUOUS
FULL THICKNESS OF METAL WELD EXPANDED METAL
TO FRAME. UNEQUAL ANGLES TO BE 6061-T6

ALUMINUM MESH:
FLATTENED ALUMINUM ALLOY 3003-H14,
3/4" NO. .081 FLATTENED (LIGHT), 74% OPEN AREA
BY MCNICHOLS OR AN APPROVED EQUIVALENT



3 ALUMINUM SCREEN FRAME
S2-2 3/4" = 1'-0"

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SECTIONS AND DETAILS

Drawing No:
S2-2

Sheet: 38 OF 38