

# ST. JOHNS RIVER WATER MANAGEMENT DISTRICT BLACK CREEK WATER RESOURCE DEVELOPMENT PROJECT AQUIFER RECHARGE AREA

## DISTRICT IFB 38732, EXHIBIT 2

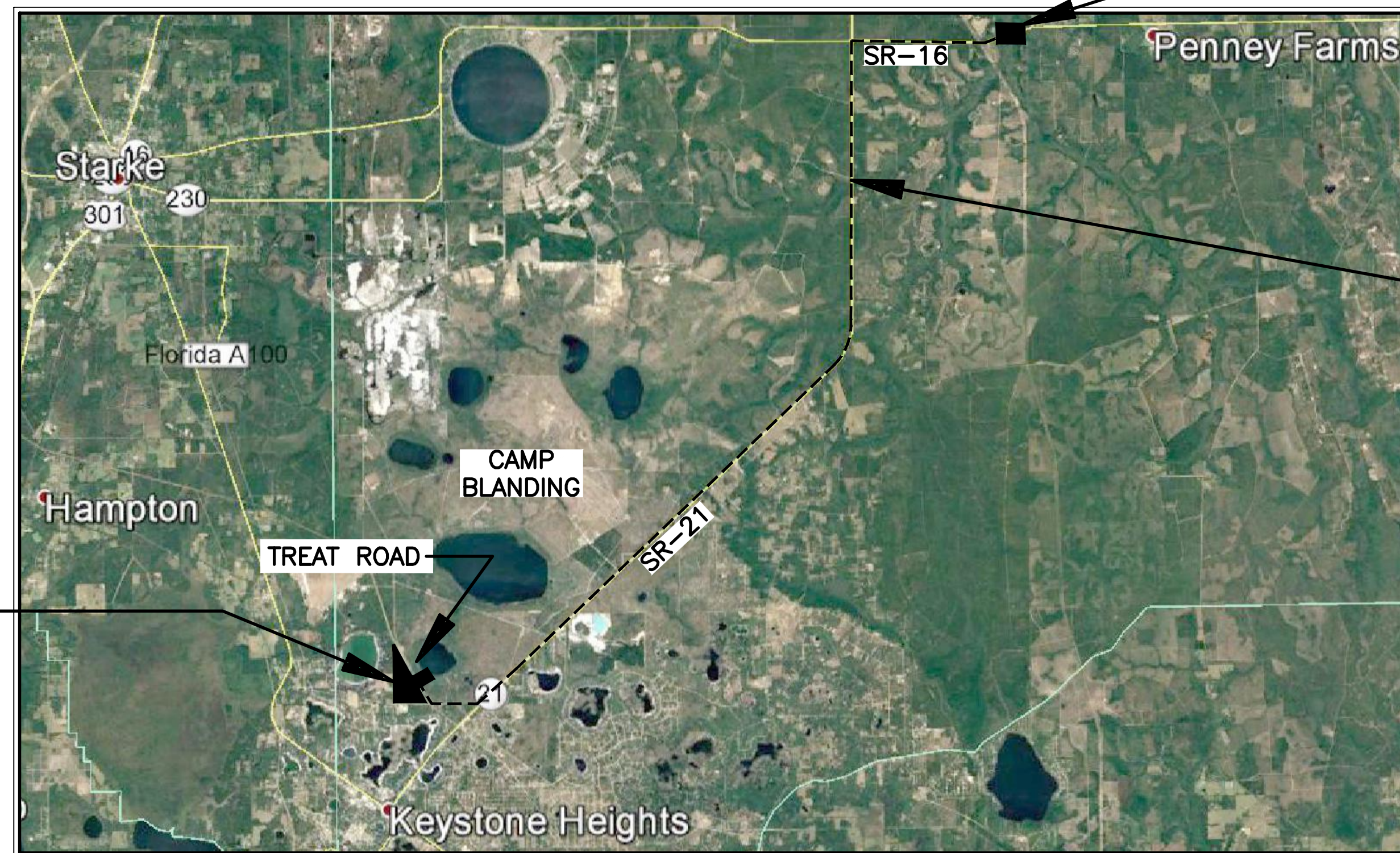
ST. JOHNS RIVER WATER  
MANAGEMENT DISTRICT BOARD

CONTRACT NO. 30593

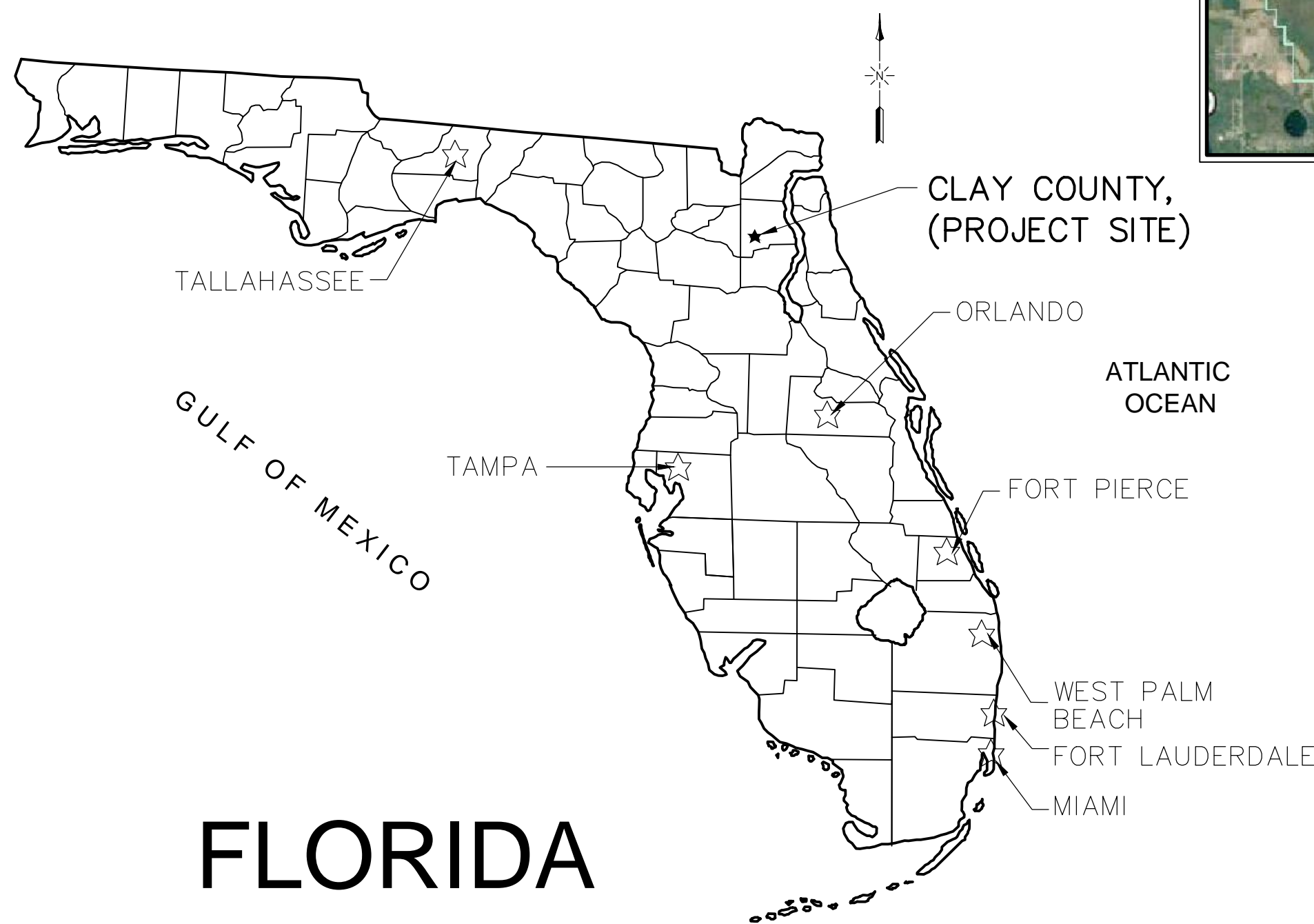
BLACK CREEK PUMP STATION  
AND INTAKE STRUCTURE  
(NOT IN THIS CONTRACT)

RAW WATER TRANSMISSION MAIN  
(NOT IN THIS CONTRACT)

ROB BRADLEY, CHAIRMAN, AREA 2  
MARYAM H. GHYABI-WHITE, VICE CHAIRMAN, AT LARGE  
RON HOWSE, TREASURER, AT LARGE  
J. CHRIS PETERSON, SECRETARY, AREA 4  
RYAN ATWOOD, AREA 3  
DOUG BOURNIQUE, AREA 5  
DOUGLAS BURNETT, AT LARGE  
COLE OLIVER, AT LARGE  
JANET PRICE, AREA 1



AQUIFER RECHARGE AREA  
PROJECT LOCATION



FLORIDA

VICINITY PLAN  
N.T.S.

SCALE IN FEET  
5000 2500 0 5000 10000

LOCATION PLAN

MAY 2023

**CDM  
Smith**

4651 Salisbury Road, Suite 420  
Jacksonville, FL 32256  
Tel: (904) 731-7109  
COA No. EB-0000020

ISSUED FOR BID

*Water*

*Environment*

*Transportation*

*Energy*

*Facilities*

XREFs: [ Images: (GoogleEarth\_Image) Last saved by: SCOTTVC Time: 4/29/2023 2:48:29 AM pw:\cdmsmith-a202-pw.bentley.com\pw\_p11924721208\_PHASE 2 INTAKE P5104 Design Services NML\_100%01 General\10 CADD\05 2022\_AQUIFER RECHARGE AREA DESIGN\000PSCV.dwg

**INDEX OF SHEETS**

DRAWING	SHEET TITLE
<b>GENERAL</b>	
	COVER SHEET
G-1	SHEET INDEX AND ABBREVIATIONS
G-2	GENERAL NOTES
G-3	OVERALL SITE PLAN AND SHEET KEY
<b>CIVIL</b>	
C-1	TREATMENT CELL AREA GRADING AND DRAINAGE PLAN 1
C-2	TREATMENT CELL AREA GRADING AND DRAINAGE PLAN 2
C-3	TREATMENT CELL AREA YARD PIPING PLAN 1
C-4	TREATMENT CELL AREA YARD PIPING PLAN 2
C-5	TANK AREA AND 30" RAW WATER MAIN PLAN
C-6	OUTFALL PIPING PLAN AND PROFILE
C-7	SOIL BORINGS, GOPHER TORTOISE AND GAS LINE LOCATIONS TREATMENT CELL AREA
C-8	TREATMENT CELL AREA GRADING SECTIONS 1
C-9	TREATMENT CELL AREA GRADING SECTIONS 2
C-10	CELL #1 DISTRIBUTION AND COLLECTION LATERALS PLAN
C-11	CELL #2 DISTRIBUTION AND COLLECTION LATERALS PLAN
C-12	CELL #3 DISTRIBUTION AND COLLECTION LATERALS PLAN
C-13	CELL #4 DISTRIBUTION AND COLLECTION LATERALS PLAN
C-14	CELL #5 DISTRIBUTION AND COLLECTION LATERALS PLAN
C-15	CELL #6 DISTRIBUTION AND COLLECTION LATERALS PLAN
C-16	CELL INITIAL OPERATION PLAN
C-17	PLANTING PLAN
C-18	BLENDING AREA SITE PLAN
C-19	BLENDING AREA GRADING ENLARGEMENT
<b>CD-1</b>	
CD-1	CIVIL DETAILS
CD-2	SEDIMENTATION AND EROSION CONTROL DETAILS
CD-3	DISCHARGE STRUCTURE DETAILS
CD-4	OUTFALL DRAIN BOX AND MANIFOLD DETAILS
CD-5	BLENDING AREA SECTIONS
CD-6	BLENDING AREA DETAILS
CD-7	CELL SECTIONS AND DISTRIBUTION LATERAL PROFILE
CD-8	CELL SECTIONS AND DETAILS
<b>STRUCTURAL</b>	
S-1	STRUCTURAL NOTES
S-2	MISCELLANEOUS SLAB PLANS AND SECTIONS
<b>MECHANICAL</b>	
M-1	PROCESS MECHANICAL NOTES, LEGEND AND ABBREVIATIONS
M-2	STORAGE TANK PLANS
M-3	STORAGE TANK SECTIONS
M-4	FLOW CONTROL ASSEMBLY PLAN AND SECTION
M-5	INFLUENT METERING ASSEMBLY PLAN AND SECTION
<b>MD-1</b>	
MD-1	STORAGE TANK DETAILS
MD-2	MISCELLANEOUS MECHANICAL DETAILS
<b>ELECTRICAL</b>	
E-1	ELECTRICAL LEGEND I
E-2	ELECTRICAL LEGEND II
E-3	ELECTRICAL SITE PLAN
E-4	PANELBOARD PP (SECTION 1 OF 2) ONE-LINE POWER DIAGRAM
E-5	PANELBOARD PP (SECTION 2 OF 2) ONE-LINE POWER DIAGRAM
E-6	PANELBOARD SCHEDULES AND INSTRUMENTATION AND CONTROL RISER DIAGRAMS
E-7	ELECTRICAL EQUIPMENT PAD AND GROUND STORAGE TANK PLANS
E-8	LIGHT FIXTURE SCHEDULE AND DETAILS
<b>ED-1</b>	
ED-1	ELECTRICAL DETAILS I
ED-2	ELECTRICAL DETAILS II
<b>INSTRUMENTATION</b>	
I-1	INSTRUMENTATION LEGEND (SHEET 1 OF 2)
I-2	INSTRUMENTATION LEGEND (SHEET 2 OF 2)
I-3	PROCESS & INSTRUMENTATION DIAGRAM CONTROL BLOCK DIAGRAM
I-4	PROCESS & INSTRUMENTATION DIAGRAM TREATMENT CELL SYSTEM
I-5	INSTRUMENTATION INSTALLATION DETAILS

**ABBREVIATIONS**

ADJUSTABLE	ADJ	MECHANICAL	MECH
ALUMINUM	AL, ALUM	METAL	MET
ANGLE	<	MECHANICAL JOINT	MJ
BARE ROOT	BR	METAL REINFORCED PLASTIC PIPE	MRPP
BASELINE	BL	MINIMUM	MIN
BELOW	BEL	MOUNTED	MTD
BENCHMARK	BM	NOMINAL	NOM
BETWEEN	BTWN	NOT IN CONTRACT	NIC
BURIED TV LINE	BTV	NOT TO SCALE	NTS
BUTTERFLY VALVE	BFV	NUMBER	NO
CENTER LINE	CL	ON CENTER	OC
CENTER TO CENTER	CC	OPTION	OPT
CONCRETE	CONC	OPPOSITE	OPP
CORRUGATED METAL PIPE	CMP	OPENING	OPNG
CENTER (ED)	CTR	OR EQUAL	O/E
CURVE DATA (HORIZONTAL)	CH - CHORD R - RADIUS Δ - DELTA L - ARC LENGTH PRC - POINT OF REVERSE CURVE	OUTSIDE CLEARANCE	OC
DEMOLITION	DEMO	OVERHEAD ELECTRIC	OHE
DIAMETER	DIA, DIAM	PERFORATED	PERF
DIAGONAL	DIAG	PIECE	PC
DIMENSION	DIM	POINT	PT
DISCHARGE	DISCH	POLYETHYLENE	PE
DRAWING	DWG	POLYVINYLCHLORIDE	PVC
DUCTILE IRON PIPE	DIP	POTABLE WATER	PW
DUCTILE IRON PIPE STANDARDS	DIPS	POUND(S)	LB(S)
DUCTILE IRON	DI	PLATE	PL
EACH	EA	PRECAST	PRCST
ELECTRICAL CONTROL BOX	ECB	RADIUS	RAD, R
ELEVATION	EL, ELEV	RAW WATER	RW
EDGE OF PAVEMENT	EOP	REINFORCED CONCRETE PIPE	RCP
EXISTING	EXIST	REQUIRED	REQ'D
FIBERGLASS REINFORCED PIPE	FRP	RESTRAINED JOINT	RJ
FIBER OPTIC CABLE	FOC	RIGHT OF WAY	R/W
FINISH	FIN	ROOM	RM
FLANGE	FLG	SCHEDULE	SCH
FLOOR	FL	SECTION	SEC
FORCE MAIN	FM	SHEET	SH, SHT
FURNISHED BY OTHERS	FBO	SIDEWALK	SDWK
FEET/FOOT	FT	SLIP-ON JOINT	SJ
GALVANIZED STEEL PIPE	GSP	SQUARE	SQ
GATE VALVE	GV	STAINLESS STEEL	SS
UNDERGROUND GAS LINE	GAS	STANDARD	STD
HIGH	H	STEEL	STL
HIGH POINT	HP	STEEL PIPE	SP
HEIGHT	HT	SYMMETRICAL	SYMM
HIGH-DENSITY POLYETHYLENE	HDPE	THICK	THK
HORIZONTAL DIRECTIONAL DRILL	HDD	TIED JOINT	TJ
IRRIGATION LINE	IRR	TYPICAL	TYP
JACK AND BORE	J&B	TEMPORARY	TEMP
LONG	LG	TRAFFIC SIGNAL LINE	TSL
LOW POINT	LP	UNDERGROUND ELECTRIC	UE
MATERIAL	MTL	UNDERGROUND TELEPHONE	UT
MANUFACTURING	MFG	VERTICAL	VERT
MANUFACTURER	MFR	WATER	WTR
MAXIMUM	MAX	WATER LINE	WL
		WATER MAIN	WM
		WATER RESOURCES DEVELOPMENT	WRD
		WEATHERPROOF	WPF
		WEST	W
		WITH	W/

XREFS: [CDMS\_2234] Images: [ ]  
 Last saved by: AUSTOJ Time: 5/3/2023 2:20:52 PM  
 pw:\cdm\smith-0202-pw\_bentley.com\pw\_r119247\221208\_PHASE 2 INTAKE PS\04 Design Services NM\_100%01 General\10 CAD\05 2022 AQUIFER RECHARGE AREA DESIGN\0001PSIX.DWG  
 © 2023 CDM SMITH ALL RIGHTS RESERVED.  
 REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: C. MONTGOMERY  
 DRAWN BY: C. SCOTT  
 SHEET CHK'D BY: S. WOOD  
 CROSS CHK'D BY: L. WISEMAN  
 APPROVED BY: C. MONTGOMERY  
 DATE: MAY 2023



4651 Salisbury Road, Suite 420  
 Jacksonville, FL 32256  
 Tel: (904) 731-7109  
 FL COA No. EB-0000020

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT  
 BLACK CREEK WATER RESOURCE  
 DEVELOPMENT PROJECT  
 AQUIFER RECHARGE AREA

SHEET INDEX AND ABBREVIATIONS

DATE:  
 CRAIG C. MONTGOMERY  
 PE NO. 45953

PROJECT NO. 9247-221208  
 FILE NAME: G001PSIX.DWG

SHEET NO.  
**G-1**

**GENERAL NOTES**

- ALL ELEVATIONS REFER TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).
- LOCATIONS, ELEVATIONS, AND DIMENSIONS OF EXISTING UTILITIES, STRUCTURES, AND OTHER FEATURES ARE SHOWN ACCORDING TO THE BEST INFORMATION AVAILABLE AT THE TIME OF PREPARATION OF THESE PLANS, BUT DO NOT PURPORT TO BE ABSOLUTELY CORRECT. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL VERIFY AND AGREE TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL EXISTING UTILITIES, STRUCTURES, AND OTHER FEATURES AFFECTING HIS WORK.
- CONTRACTOR SHALL VERIFY ALL UTILITIES AND NOTIFY UTILITY OWNER, 48 HOURS PRIOR TO DIGGING IN ANY PORTION OF THE SITE.
- THE CONTRACTOR SHALL REPLACE ANY MONUMENTS, FENCES, ETC. WITH THE SAME TYPE OF MATERIAL THAT WAS REMOVED DURING CONSTRUCTION. COST TO BE INCIDENTAL TO OTHER CONSTRUCTION AND NO EXTRA COMPENSATION SHALL BE ALLOWED.
- THE CONTRACTOR SHALL CONTACT THE ENGINEER'S OFFICE IMMEDIATELY UPON FINDING ANY CONFLICTS DURING CONSTRUCTION OF ANY IMPROVEMENTS SHOWN ON THE DRAWINGS.
- MEASURES SHALL BE TAKEN BY THE CONTRACTOR TO ENSURE THAT ADEQUATE EROSION AND SEDIMENT CONTROL ARE MAINTAINED AT ALL TIMES DURING THE PROJECT (SEE EROSION CONTROL NOTES).
- ALL STATIONING AND OFFSET REFERS TO CONSTRUCTION BASELINE UNLESS OTHERWISE NOTED ON PLANS.
- PRIOR TO EXCAVATING IN THE VICINITY OF A GAS LINE, THE CONTRACTOR SHALL NOTIFY THE GAS UTILITY OWNER IN ACCORDANCE WITH THE REQUIREMENTS OF FLORIDA STATUTES, PROTECTION OF UNDERGROUND PIPELINES F.S. 553.851, CH 17-143.
- ALL BRUSH, STRIPPINGS OR UNSUITABLE MATERIAL SHALL BE DISPOSED OF OFF-SITE AT THE CONTRACTOR'S EXPENSE.
- ALL PRIVATE AND PUBLIC PROPERTY AFFECTED BY THIS WORK SHALL BE RESTORED TO A CONDITION EQUAL TO OR BETTER THAN THE CONDITION EXISTING PRIOR TO COMMENCING CONSTRUCTION UNLESS SPECIFICALLY EXEMPTED BY THE PLANS. COSTS TO BE INCIDENTAL TO OTHER CONSTRUCTION AND NO EXTRA COMPENSATION TO BE ALLOWED.
- THE LIMITS OF CONSTRUCTION SHOWN ON THE PLANS SHALL BE STRICTLY OBSERVED BY THE CONTRACTOR. ALL INGRESS, EGRESS AND TRAFFIC PATTERNS ON THE SITE SHALL BE WITHIN THE LIMITS OF CONSTRUCTION SHOWN ON THE DRAWINGS.
- IN AREAS REQUIRING FILL MATERIAL, THE CONTRACTOR WILL STRIP OR OTHERWISE REMOVE ALL VEGETATION SUCH AS BRUSH, HEAVY SODS, HEAVY GROWTH OF GRASS, DECAYED VEGETABLE MATTER, RUBBISH AND ANY OTHER DELETERIOUS MATERIAL BEFORE EMBANKMENT IS STARTED. IMMEDIATELY PRIOR TO THE PLACING OF FILL MATERIALS, THE ENTIRE AREA UPON WHICH FILL IS TO BE PLACED, SHALL BE SCARIFIED.
- ABSOLUTELY NO WORK WILL BE ALLOWED WITHIN ANY CONSERVATION AREA, BUFFER AREA, MITIGATION AREA, OR DESIGNATED WETLAND AREA UNLESS SO SPECIFICALLY DESCRIBED BY THE PLANS AND GRANTED BY REASON OF PERMIT FROM THE GOVERNMENTAL ENTITY HAVING JURISDICTION OVER SAID AREA.
- PRIOR TO CONSTRUCTION, THE DISTRICT WILL CONDUCT A PRE-CONSTRUCTION SURVEY OF ACTIVE AND INACTIVE GOPHER TORTOISE BURROWS AND WILL PERFORM RELOCATION OF TORTOISES LOCATED WITHIN THE LIMITS OF WORK. THE CONTRACTOR SHALL IMMEDIATELY THEREAFTER INSTALL A CONTINUOUS DOUBLE ROW OF SILT FENCES TO EXCLUDE GOPHER TORTOISES FROM WORK AREAS. THROUGHOUT CONSTRUCTION, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE DISTRICT IF ANY GOPHER TORTOISES ARE FOUND WITHIN THE LIMITS OF CONSTRUCTION.
- EXISTING TOPOGRAPHIC CONTOURS SHOWN ON THE DRAWINGS WERE OBTAINED FROM THE DISTRICT'S LIDAR DATABASE. AS DESCRIBED IN THE SPECIFICATIONS, THE CONTRACTOR SHALL PERFORM A LIMITED PRECONSTRUCTION TOPOGRAPHIC SURVEY OF THE SITE. BASED ON PRECONSTRUCTION SURVEY INFORMATION, THE ENGINEER MAY ADJUST THE FINISH GRADES SHOWN ON THE PLANS.
- AS PART OF THE ADJACENT 30" RAW WATER TRANSMISSION MAIN PROJECT, TEMPORARY HORIZONTAL AND VERTICAL CONTROL BENCHMARKS (PK NAILS) HAVE BEEN SET WITHIN STATE ROAD 21 WITHIN APPROXIMATELY 250 FEET SOUTHWEST OF THE INTERSEXTION WITH TREAT ROAD (TWO TEMPORARY BENCHMARKS) AND IN TREAT ROAD APPROXIMATELY 5,000 FEET WEST OF STATE ROAD 21. THESE TEMPORARY BENCHMARKS ARE DESIGNATED AS FOLLOWS:  
  
009AV, N 1993168.24, E 337467.71, EL. 156.04 (NAVD88)  
010AV, N 1993195.09, E 337462.16, EL. 156.05 (NAVD88)  
011AV, N 1993313.29, E 334989.88, EL. 146.55 (NAVD88)
- ALL MEASUREMENTS HEREON ARE REFERENCED TO THE US STANDARD SURVEY FOOT.
- THE CONTRACTOR MUST HAVE AT LEAST ONE UNEXPLODED ORDINANCE (UXO) TRAINED INDIVIDUAL ON SITE, DURING ALL ACTIVITY THAT OCCURS ON CAMP BLANDING PROPERTY (INCLUDES TREAT ROAD). UXO TRAINING WILL BE PROVIDED BY CAMP BLANDING STAFF AT NO COST TO THE CONTRACTOR. THE TRAINING SHALL BE SCHEDULED WITH CAMP BLANDING CONSERVATION MANAGER, MATT CORBY AT (904) 626-8572. THE TRAINING IS ONLY REQUIRED ONCE PER INDIVIDUAL. THE DISTRICT STRONGLY ENCOURAGES THE CONTRACTOR TO OBTAIN THE TRAINING FOR MULTIPLE MEMBERS OF ITS STAFF. IF ANY OF THE STAFF CHANGES DURING THE CONTRACT TERM, TRAINING FOR THE NEW INDIVIDUALS SHALL BE REQUIRED. THE CONTRACTOR WILL COORDINATE THE ADDITIONAL TRAINING WITH CAMP BLANDING'S CONSERVATION MANAGER.

**GENERAL NOTES**

**MAINTENANCE OF TRAFFIC**

- CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE OF TRAFFIC (MOT) THROUGHOUT THE PROJECT.
- TREAT ROAD SHALL BE KEPT OPEN FOR THROUGH TRAFFIC THROUGHOUT THE DURATION OF THE PROJECT
- THE CONTRACTOR SHALL BE REQUIRED TO STAFF THE TREAT ROAD ACCESS GATE AT ALL TIMES WHEN CONSTRUCTION PERSONNEL ARE PRESENT ON THE PROJECT SITE

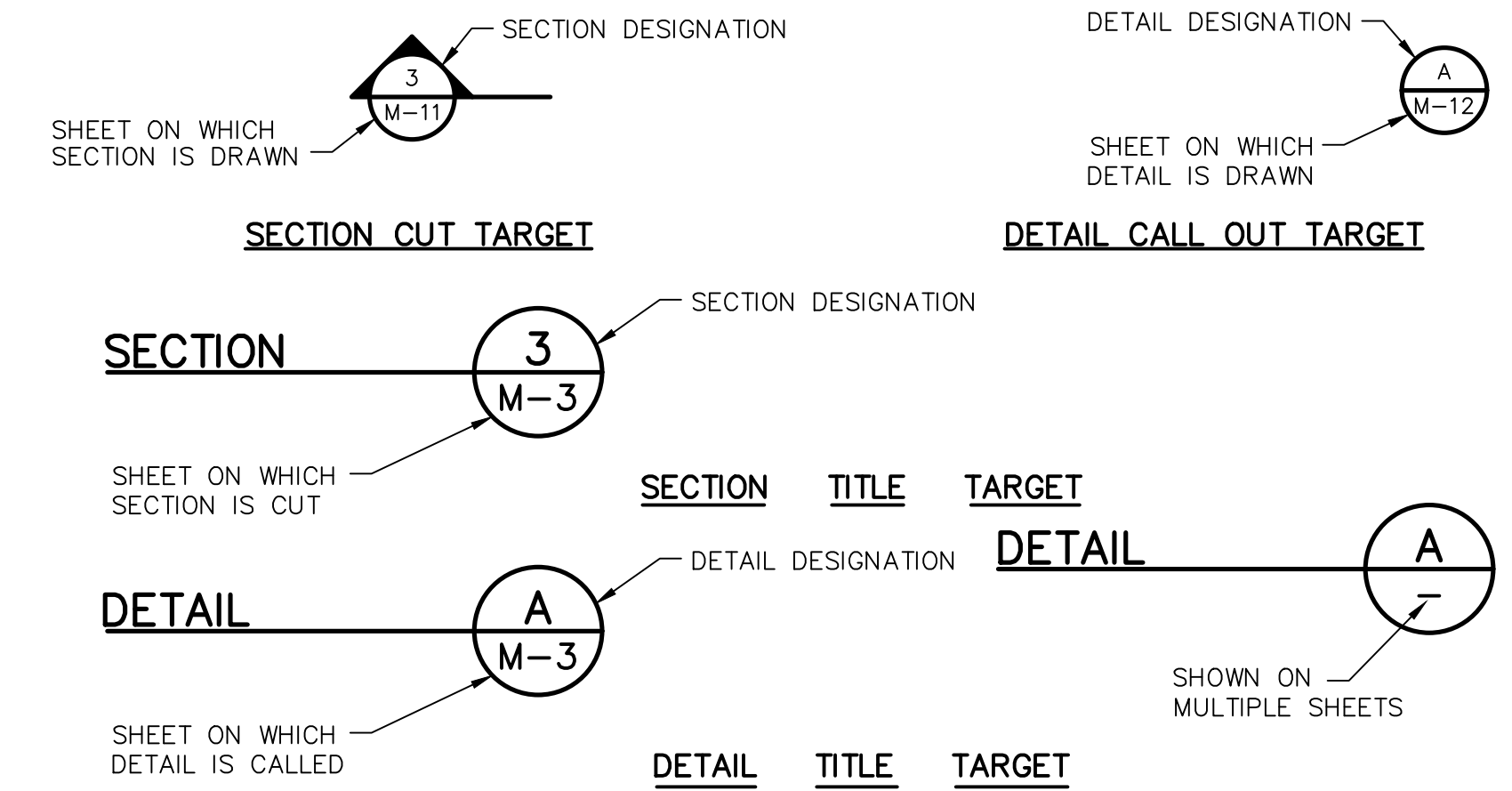
**UTILITY OWNERS & CONTACTS**

- THE LOCATION OF THE UTILITIES SHOWN IN THE PLANS ARE APPROXIMATE ONLY. THE EXACT LOCATION SHALL BE DETERMINED BY THE CONTRACTOR DURING CONSTRUCTION.
- THE CONTRACTOR SHALL USE THE SERVICES OF SUNSHINE-ONE CALL UTILITY LOCATOR A MINIMUM OF 48 HOURS PRIOR TO THE COMMENCEMENT OF WORK. (SUNSHINE-ONE CALL 1 (800) 423-4770 / 811)
- THE CONTRACTOR SHALL NOTIFY THE APPROPRIATE UTILITY COMPANY FORTY-EIGHT (48) HOURS IN ADVANCE OF ANY EXCAVATION INVOLVING ITS UTILITIES SO THAT A COMPANY REPRESENTATIVE CAN BE PRESENT.

**EROSION CONTROL**

- EROSION CONTROL AND SEDIMENTATION CONTROL DEVICES SHALL BE IN PLACE PRIOR TO BEGINNING ANY DEMOLITION OR CONSTRUCTION. THEY SHALL BE INSTALLED TO THE LIMITS SHOWN IN THE DRAWING, AS REQUIRED IN THE SPECIFICATIONS AND IN ACCORDANCE WITH ALL REGULATORY AGENCY REQUIREMENTS.
- IT IS THE CONTRACTORS RESPONSIBILITY TO IMPLEMENT THE EROSION AND TURBIDITY CONTROLS AS SHOWN ON THE PLANS. IT IS ALSO THE CONTRACTORS RESPONSIBILITY TO ENSURE THESE CONTROLS ARE PROPERLY INSTALLED, MAINTAINED AND FUNCTIONING PROPERLY TO PREVENT TURBID OR POLLUTED WATER FROM LEAVING THE PROJECT SITE. THE CONTRACTOR WILL ADJUST THE EROSION CONTROLS SHOWN ON THE PLANS AND ADD ADDITIONAL CONTROL MEASURES, AS REQUIRED, TO ENSURE THE SITE MEETS ALL FEDERAL, STATE AND LOCAL EROSION AND TURBIDITY CONTROL REQUIREMENTS.

**SECTION AND DETAIL NUMBERING SYSTEM**



**LEGEND**

	PROPOSED TURNOUT RESTORATION		WETLAND LIMITS
	EXIST ASPHALT ROADWAY		EDGE OF PAVEMENT
	AREA OF CLEARING AND GRUBBING		EDGE OF TRAVEL LANE
	WETLAND AREA		CENTERLINE OF ROAD
	EXISTING WATER MAIN		R - PROPERTY LINE
	EXISTING BURIED TELEPHONE		PROJECT BOUNDARY
	OVERHEAD ELECTRIC		EXISTING POWER POLE
	EXISTING CABLE TELEVISION		EXISTING LIGHT POLE
	EXISTING FIBER OPTIC		BORING
	R/W - RIGHT OF WAY		FENCE
	ARV (SEE PLAN FOR TYPE)		GUARDRAIL
	VALVE BOX		EXISTING CONTOUR
	BLOWOFF		PROPOSED CONTOUR
	DRAINAGE MANHOLE		EXISTING SPOT ELEVATION
			EXISTING STORM DRAIN
			EXISTING TORM TOISE LOCATION
			EXIST SIGN
			UP - UNKNOWN POST

**SURVEYOR'S LEGEND**

	EXISTING WATER MAIN
	EXISTING SANITARY SEWER
	EXISTING GAS LINE
	EXISTING DRAINAGE MANHOLE
	EXISTING SANITARY MANHOLE
	EXISTING CURB INLET
	EXISTING CATCH BASIN
	ACCESS MANHOLE
	PLUG VALVE
	90° BEND
	48" H.D.P.E SLIPLINE
	EXISTING VALVE
	AS BUILT ELEVATION
	EXISTING SEWER MH

XREFS: [CDMS\_2234] Images: [ ]  
 Last saved by: AUSTUDJ Time: 5/3/2023 1:07:08 PM  
 pw\\cdm-smith-0202-pw-bentley.com\pw\_r1\9247\221208\_PHASE 2 INTAKE PS\04 Design Services NM\_100%\01 General\10 CAD\05 2022 AQUIFER RECHARGE AREA DESIGN\002PSPGN.DWG  
 © 2023 CDM SMITH ALL RIGHTS RESERVED.  
 REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: C. MONTGOMERY  
 DRAWN BY: C. SCOTT  
 SHEET CHK'D BY: S. WOOD  
 CROSS CHK'D BY: J. WITIG  
 APPROVED BY: C. MONTGOMERY  
 DATE: MAY 2023



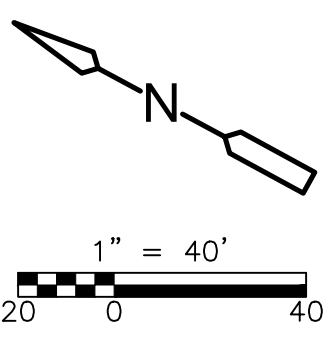
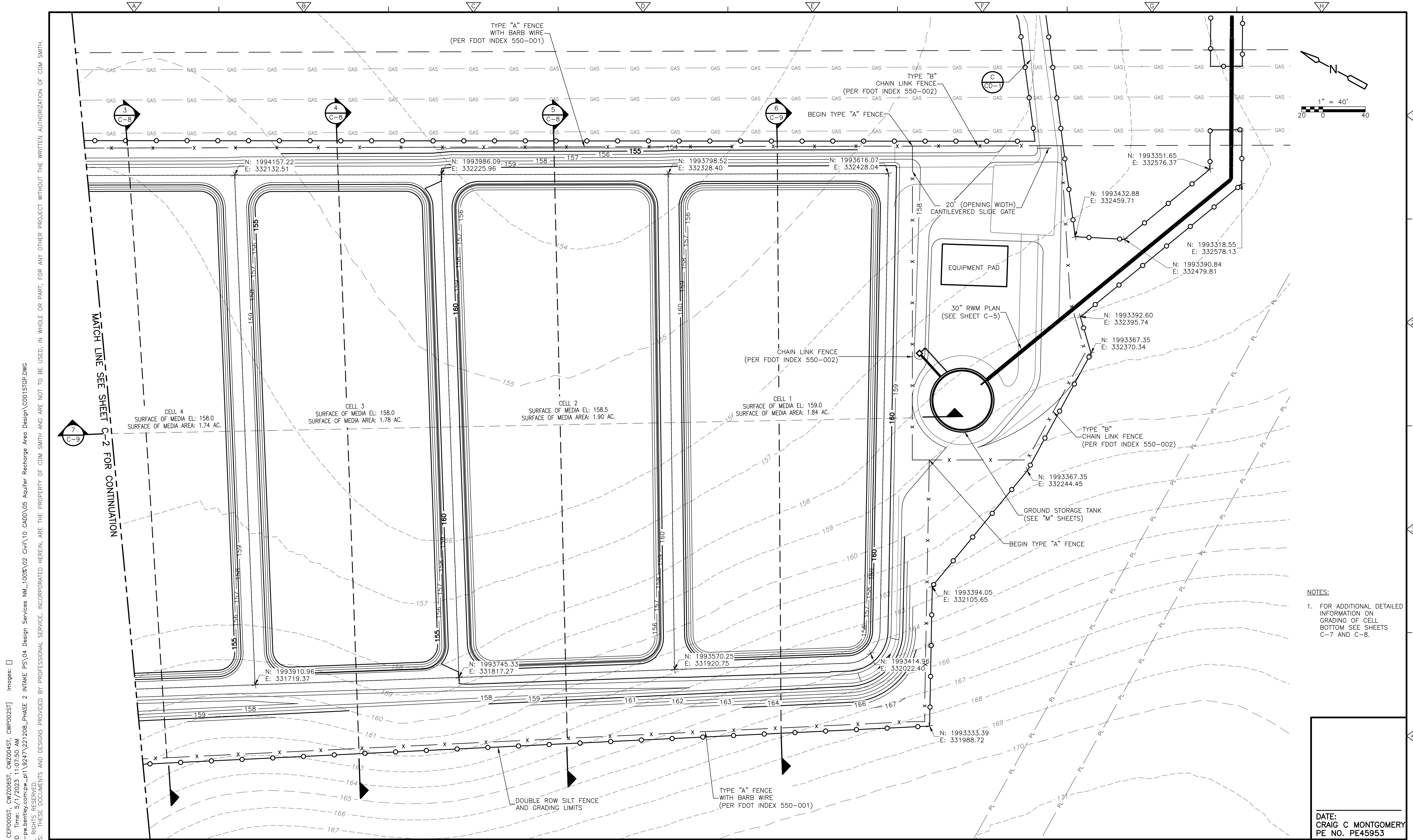
4651 Salisbury Road, Suite 420  
 Jacksonville, FL 32256  
 Tel: (904) 731-7109  
 FL COA No. EB-0000020

**ST. JOHNS RIVER WATER MANAGEMENT DISTRICT**  
**BLACK CREEK WATER RESOURCE**  
**DEVELOPMENT PROJECT**  
**AQUIFER RECHARGE AREA**

GENERAL NOTES

DATE: <b>CRAIG C. MONTGOMERY</b> PE NO. 45953
PROJECT NO. 9247-221208 FILE NAME: G002PSPGN.DWG
SHEET NO. <b>G-2</b>





NOTES:  
 1. FOR ADDITIONAL DETAILED INFORMATION ON GRADING OF CELL BOTTOM SEE SHEETS C-7 AND C-8.

DATE: CRAIG C MONTGOMERY  
 PE NO. PE45953

PROJECT NO. 9247-221208  
 FILE NAME: C001STGP.DWG  
 SHEET NO.

C-1

ISSUED FOR BID

REV. NO.	DATE	DRWN	CHKD	REMARKS

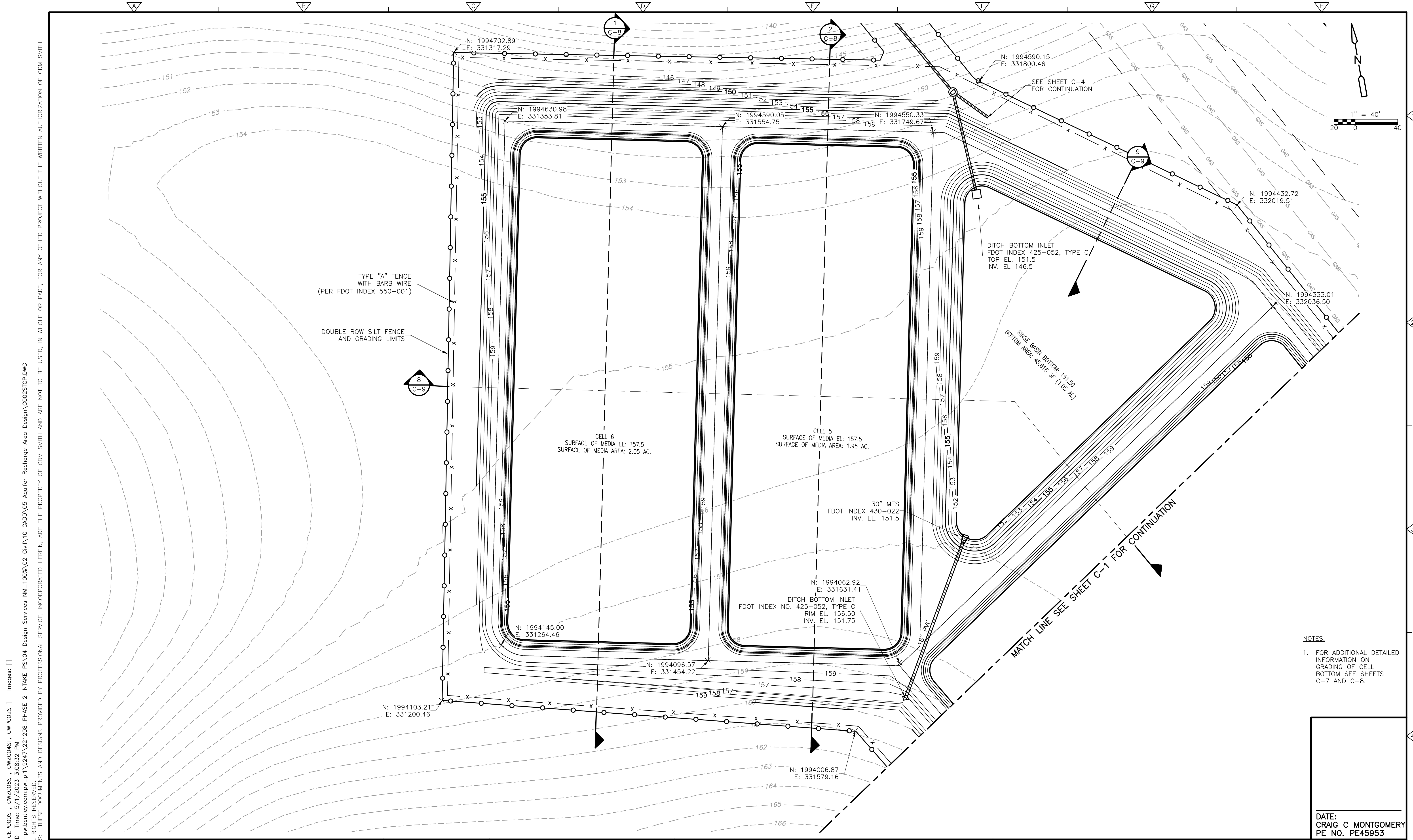
DESIGNED BY: J. THORESON  
 DRAWN BY: C. SCOTT  
 SHEET CHK'D BY: S. WOOD  
 CROSS CHK'D BY: J. WITIG  
 APPROVED BY: C. MONTGOMERY  
 DATE: MAY 2023



ST. JOHNS RIVER WATER MANAGEMENT DISTRICT  
 BLACK CREEK WATER RESOURCE DEVELOPMENT PROJECT  
 AQUIFER RECHARGE AREA

TREATMENT CELL AREA  
 GRADING AND DRAINAGE PLAN 1

XREFS: [CDMS\_2234\_CEP000ST\_CWZ006ST\_CWZ004ST\_CWP002ST] Images: [ ]  
 Last saved by: AUSTJUD Time: 5/17/2023 11:07:50 AM  
 pw:\cdm\smith-0202-pw.bentley.com\pw\_r119247\221208\_PHASE 2 INTAKE PS\04 Design Services NM\_100%\02 Civil\10 CADD\05 Aquifer Recharge Area Design\C001STGP.DWG  
 © 2023 CDM SMITH ALL RIGHTS RESERVED.  
 REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.



XREFS: [CDMS\_2234\_CEP000ST\_CWZ006ST\_CWZ004ST\_CWP002ST] Images: [ ]  
 Last saved by: AUSTUDJ Time: 5/17/2023 3:08:32 PM  
 pw:\cdm\smith-0202-pw.bentley.com\pw\_01\9247\221208\_PHASE 2 INTAKE PS\04 Design Services NM\_100%\02 Civil\10 CADD\05 Aquifer Recharge Area Design\C002STGP.DWG  
 © 2023 CDM SMITH ALL RIGHTS RESERVED.  
 REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.

**NOTES:**

- FOR ADDITIONAL DETAILED INFORMATION ON GRADING OF CELL BOTTOM SEE SHEETS C-7 AND C-8.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: J. THORESON  
 DRAWN BY: C. SCOTT  
 SHEET CHK'D BY: S. WOOD  
 CROSS CHK'D BY: J. WITIG  
 APPROVED BY: C. MONTGOMERY  
 DATE: MAY 2023

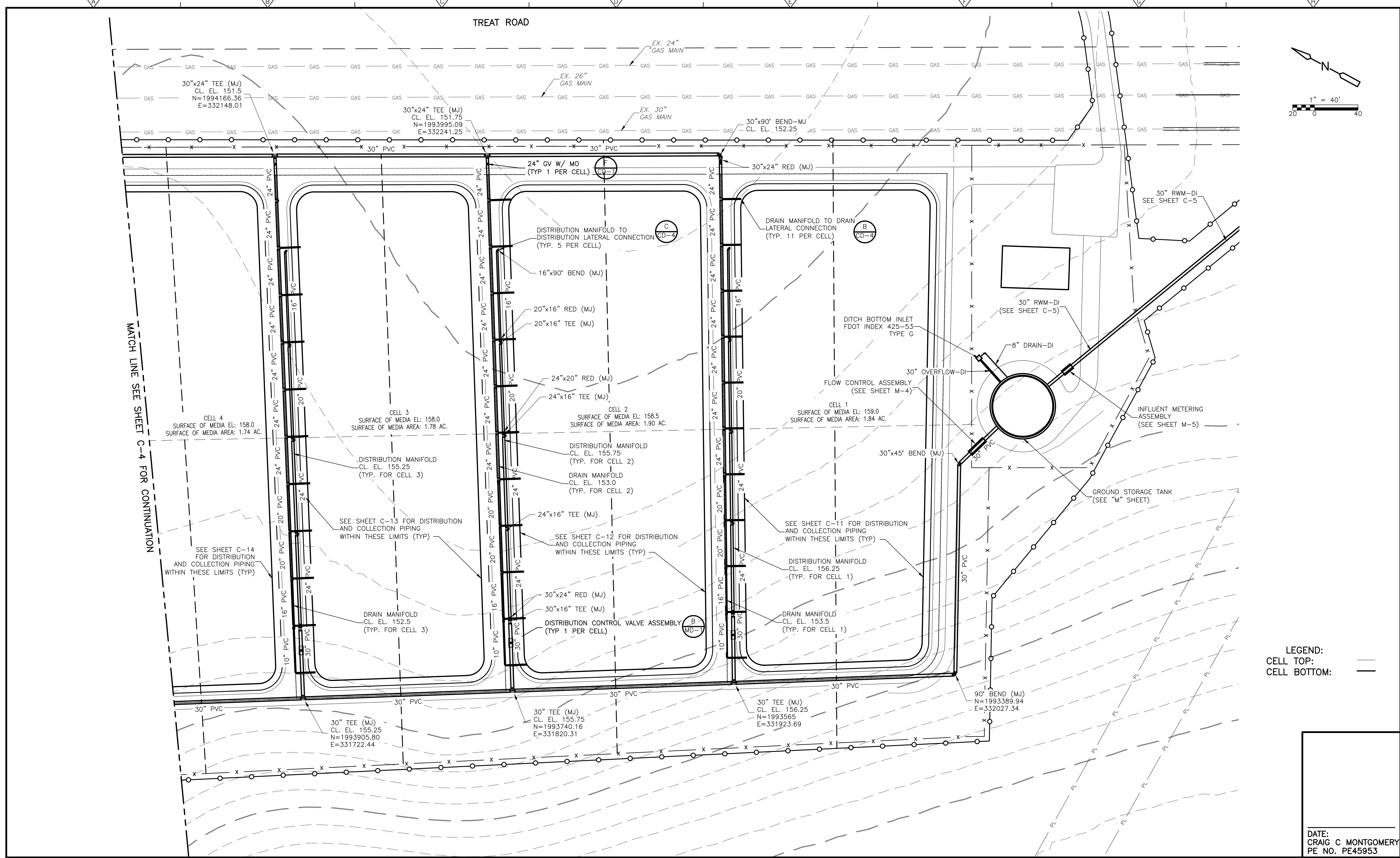


ST. JOHNS RIVER WATER MANAGEMENT DISTRICT  
 BLACK CREEK WATER RESOURCE  
 DEVELOPMENT PROJECT  
 AQUIFER RECHARGE AREA

TREATMENT CELL AREA  
 GRADING AND DRAINAGE PLAN 2

DATE: CRAIG C MONTGOMERY  
 PE NO. PE45953  
 PROJECT NO. 9247-221208  
 FILE NAME: C002STGP.DWG  
 SHEET NO. C-2

XREFS: [CDMS\_2234\_CW2006ST\_CEP000ST\_CWP002ST] Images: [ ]  
 Last saved by: AUSTUDJ Time: 5/4/2023 10:08:42 AM  
 pw\\cdm-smith-0202-pw-bentley.com\pw\_r1\9247\221208\_PHASE 2 INTAKE PS\04 Design Services NM\_100%\02 Civil\10 CADD\05 Aquifer Recharge Area Design\C003STYP.DWG  
 © 2023 CDM SMITH ALL RIGHTS RESERVED.  
 REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.



REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: C. MONTGOMERY  
 DRAWN BY: C. SCOTT  
 SHEET CHK'D BY: S. WOOD  
 CROSS CHK'D BY: J. WITIG  
 APPROVED BY: C. MONTGOMERY  
 DATE: MAY 2023

**CDM Smith**  
 4651 Salisbury Road, Suite 420  
 Jacksonville, FL 32256  
 Tel: (904) 731-7109  
 FL COA No. EB-0000020

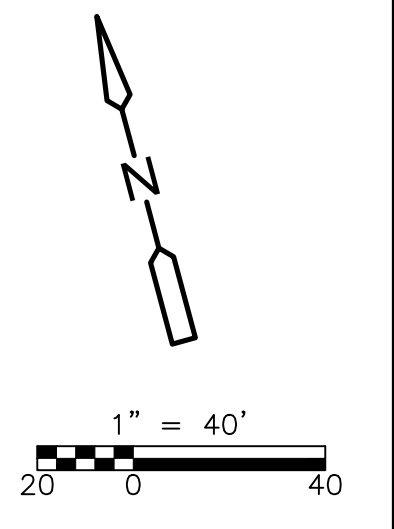
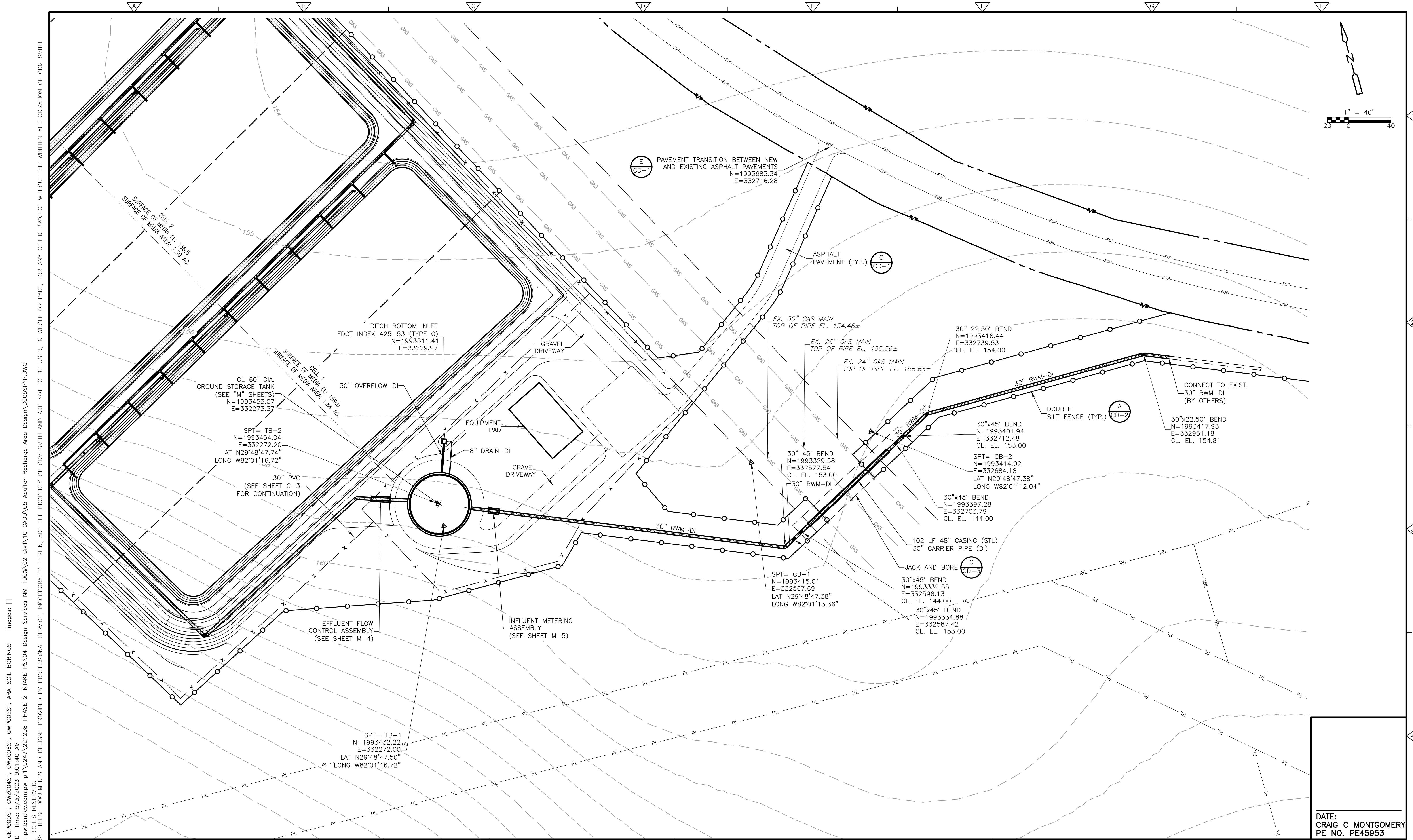
ST. JOHNS RIVER WATER MANAGEMENT DISTRICT  
 BLACK CREEK WATER RESOURCE  
 DEVELOPMENT PROJECT  
 AQUIFER RECHARGE AREA

TREATMENT CELL AREA  
 YARD PIPING PLAN 1

DATE:	CRAIG C MONTGOMERY
PROJECT NO.:	9247-221208
FILE NAME:	C003STYP.DWG
SHEET NO.:	C-3







XREFS: [CDMS\_2234\_CEP000ST\_CWZ004ST\_CWP002ST\_ARA\_SOIL BORINGS] Images: []  
 Last saved by: AUSTUDJ Time: 5/3/2023 9:01:40 AM  
 pw:\cdm\smith-0202-pw.bentley.com\pw\_r1\9247\221208\_PHASE 2 INTAKE PS\04 Design Services NM\_100%\02 Civil\10 CADD\05 Aquifer Recharge Area Design\CO05SPYP.DWG  
 © 2023 CDM SMITH ALL RIGHTS RESERVED.  
 REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: C. MONTGOMERY  
 DRAWN BY: C. SCOTT  
 SHEET CHK'D BY: S. WOOD  
 CROSS CHK'D BY: J. WITIG  
 APPROVED BY: C. MONTGOMERY  
 DATE: MAY 2023



ST. JOHNS RIVER WATER MANAGEMENT DISTRICT  
 BLACK CREEK WATER RESOURCE  
 DEVELOPMENT PROJECT  
 AQUIFER RECHARGE AREA

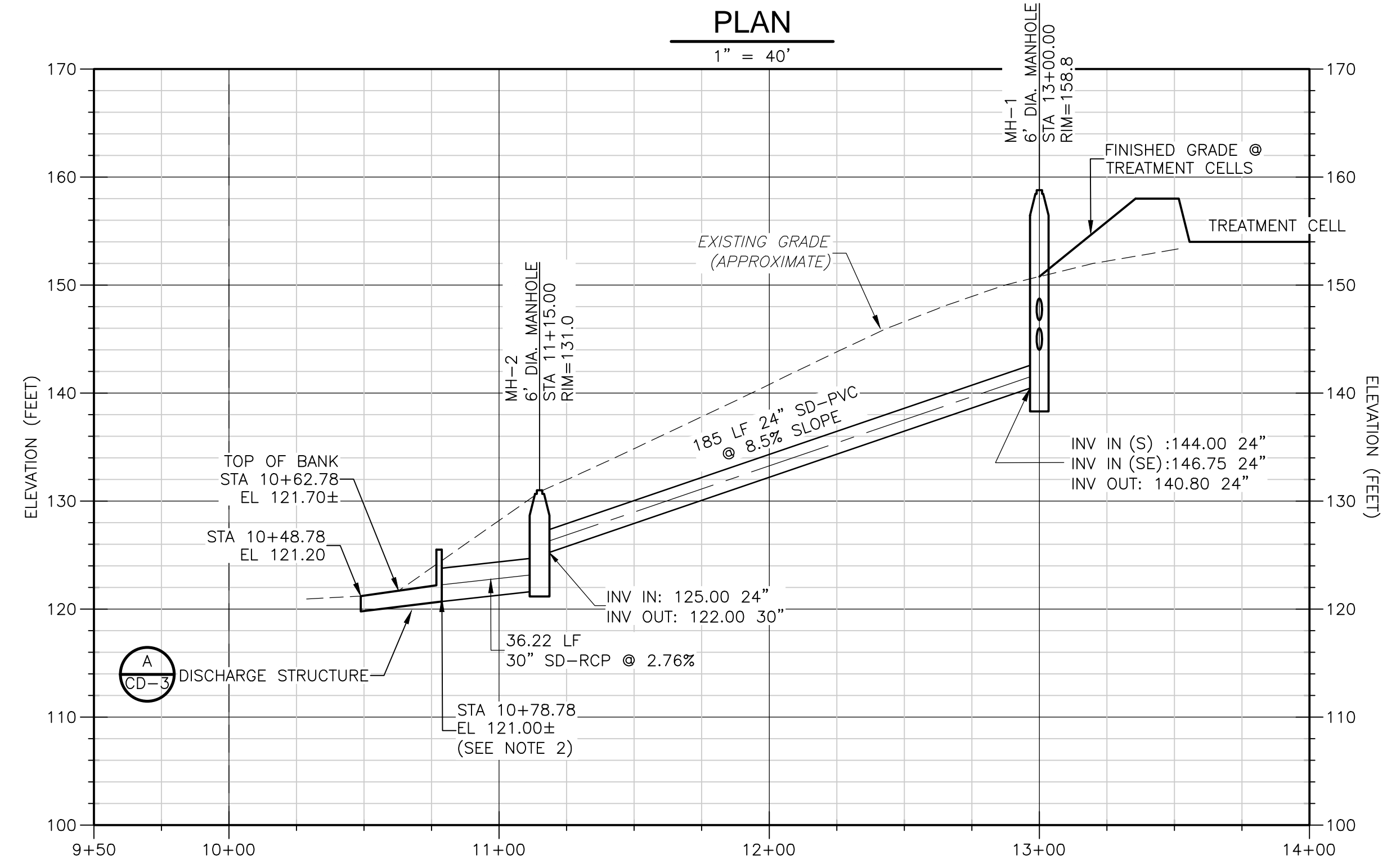
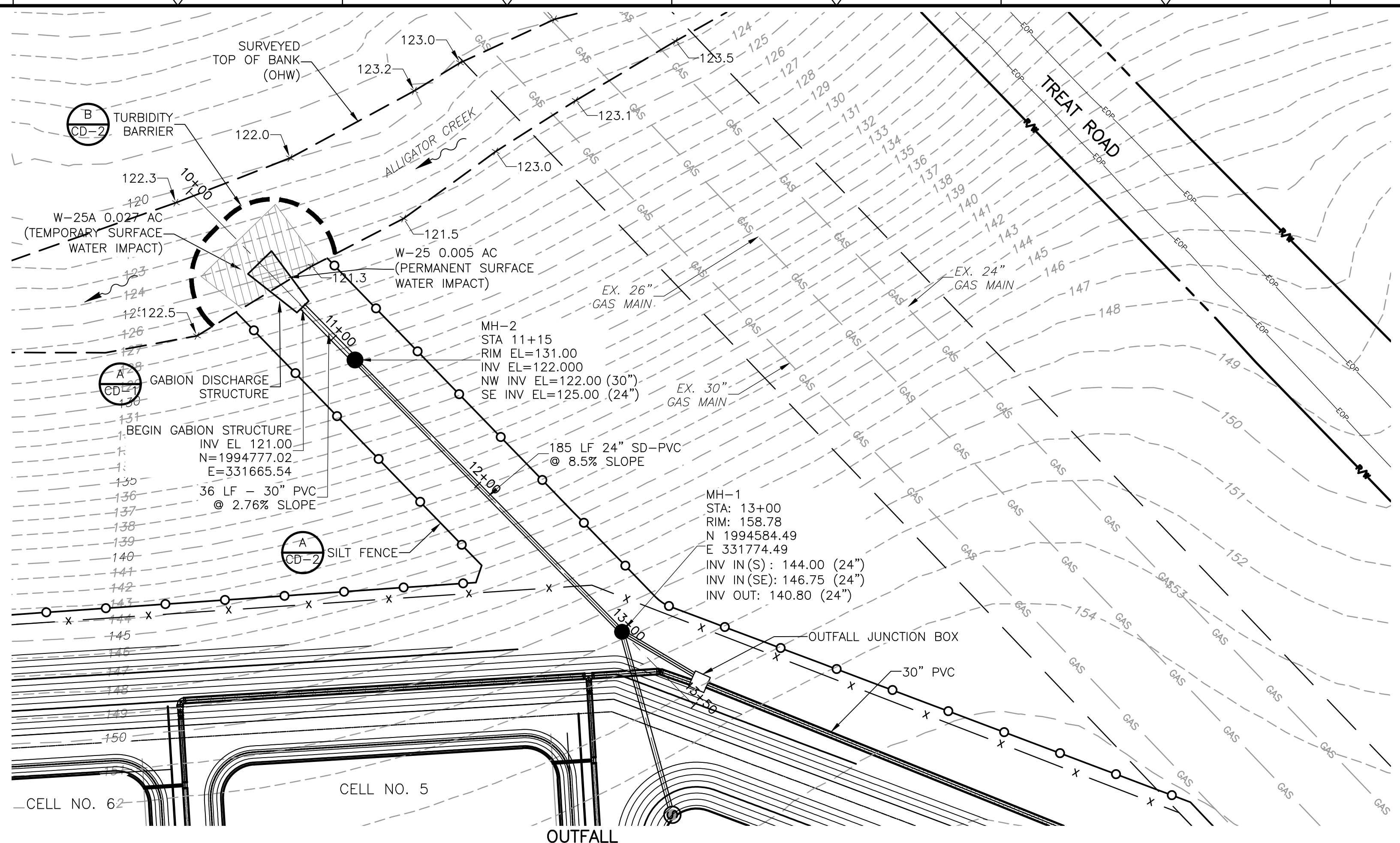
TANK AREA  
 AND 30" RWM PLAN AND  
 SOIL BORINGS LOCATIONS

DATE: CRAIG C MONTGOMERY  
 PE NO. PE45953

PROJECT NO. 9247-221208  
 FILE NAME: CO05SPYP.DWG  
 SHEET NO.

C-5

XREFS: [CDMS\_2234\_CEP000ST\_CWZ004ST\_CWP002ST\_77846BC\_SectionAllPoints] Images: []  
 Last saved by: SCOTTVC Time: 4/29/2023 3:55:46 AM  
 pw:\cdm\mth-0202-pw.bentley.com\pw\_01\9247\221208\_PHASE 2 INTAKE PS\04 Design Services NM\_100\02 Civil\10 CADD\05 Aquifer Recharge Area Design\C0060FPP.DWG  
 © 2023 CDM SMITH ALL RIGHTS RESERVED.  
 REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.



NOTES:  
 1. INV. EL. AT OUTFALL TO MATCH EXIST. CHANNEL BOTTOM ELEVATION.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: C. MONTGOMERY  
 DRAWN BY: C. SCOTT  
 SHEET CHK'D BY: S. WOOD  
 CROSS CHK'D BY: J. WITIG  
 APPROVED BY: C. MONTGOMERY  
 DATE: MAY 2023



4651 Salisbury Road, Suite 420  
 Jacksonville, FL 32256  
 Tel: (904) 731-7109  
 FL COA No. EB-0000020

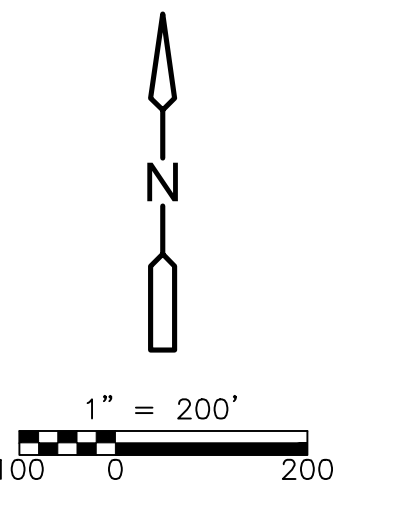
ST. JOHNS RIVER WATER MANAGEMENT DISTRICT  
 BLACK CREEK WATER RESOURCE  
 DEVELOPMENT PROJECT  
 AQUIFER RECHARGE AREA

OUTFALL PIPING  
 PLAN AND PROFILE  
 C-6

PROJECT NO.	9247-221208
FILE NAME:	C0060FPP.DWG
SHEET NO.	C-6

XREFS: [CWP0001P, CFP0001T, BC\_SOIL BORINGS, CFP004SS, CDM\_2234, CW2004ST, CWR000PR, CWZ006ST, CWP002ST] Images: [

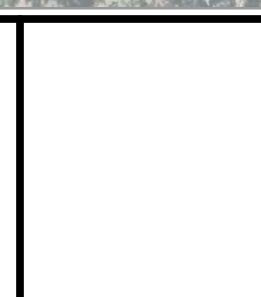
Let saved by: AUSTJJD Time: 5/2/2023 12:25:19 PM  
 pw:\csm\mth-0202-pw-bentley.com\pw\_p119247\221208\_PHASE 2 INTAKE PS\04 Design Services NM\_100%\02 Civil\10 CADD\05 Aquifer Recharge Area Design\c007SBGL.dwg  
 © 2023 CDM SMITH ALL RIGHTS RESERVED.  
 REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.



**NOTE:**  
 1. SEE SHEET C-5 FOR LOCATIONS OF SOIL BORINGS AT PROPOSED GAS LINE CROSSING AND AT PROPOSED GROUND STORAGE TANK.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: C. MONTGOMERY  
 DRAWN BY: C. SCOTT  
 SHEET CHK'D BY: S. WOOD  
 CROSS CHK'D BY: J. WITIG  
 APPROVED BY: C. MONTGOMERY  
 DATE: MAY 2023



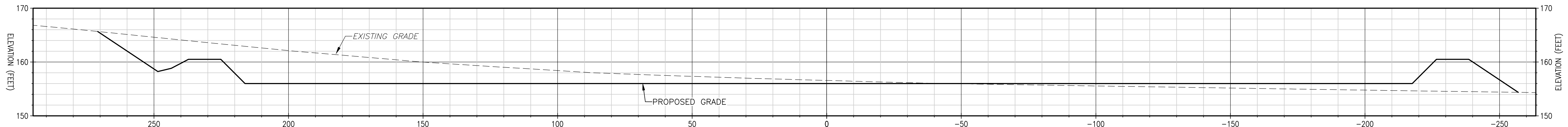
ST. JOHNS RIVER WATER MANAGEMENT DISTRICT  
 BLACK CREEK WATER RESOURCE  
 DEVELOPMENT PROJECT  
 AQUIFER RECHARGE AREA

SOIL BORINGS, GOPHER TORTOISE  
 AND GAS LINE LOCATIONS  
 TREATMENT CELL AREA

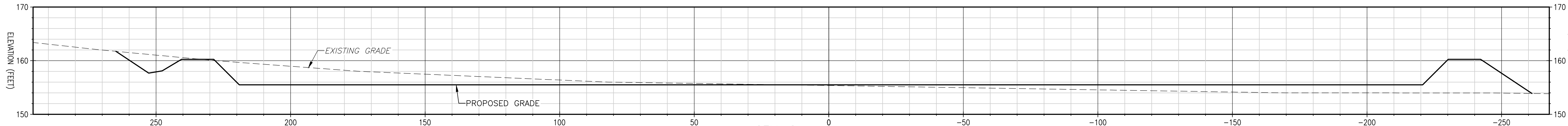
DATE: CRAIG C MONTGOMERY  
 PE NO. PE45953  
 PROJECT NO. 9247-221208  
 FILE NAME: C007SBGL.DWG  
 SHEET NO. C-7

ISSUED FOR BID

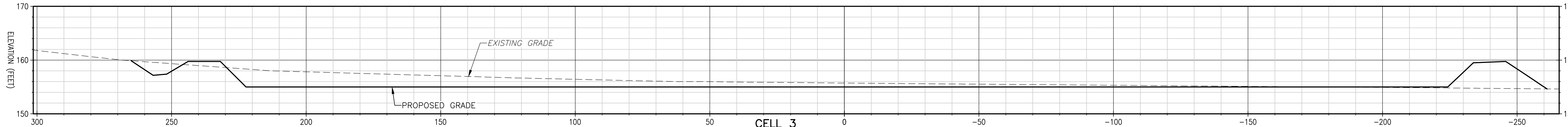
A B C D E F G H



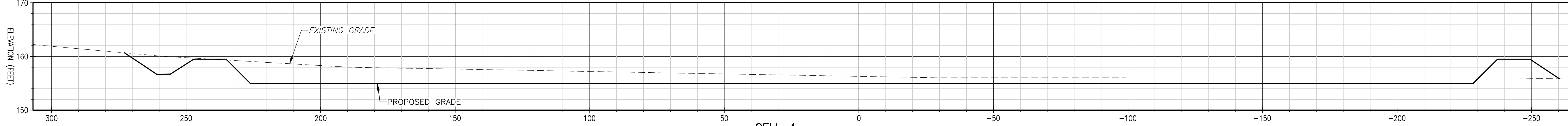
CELL 1  
SECTION 1  
VERT: 1" = 10'  
HORZ: 1" = 20'



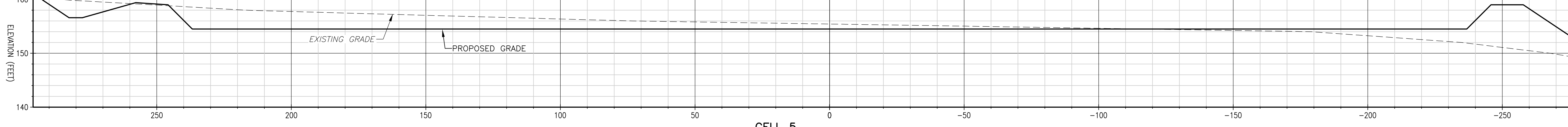
CELL 2  
SECTION 2  
VERT: 1" = 10'  
HORZ: 1" = 20'



CELL 3  
SECTION 3  
VERT: 1" = 10'  
HORZ: 1" = 20'



CELL 4  
SECTION 4  
VERT: 1" = 10'  
HORZ: 1" = 20'



CELL 5  
SECTION 5  
VERT: 1" = 10'  
HORZ: 1" = 20'

NOTES:  
1. CELL BOTTOM ELEVATIONS SHOWN ARE APPROXIMATE. SEE SHEET CD-7.

XREFS: [CDMS\_2234\_CW20065] Images: [ ]  
 Last saved by: AUSTUDJ Time: 5/1/2023 2:55:30 PM  
 pw:\cdm\smith-0202-pw.bentley.com\pw\_01\9247\221208\_PHASE 2 INTAKE PS\04 Design Services NM\_100%\02 Civil\10 CADD\05 Aquifer Recharge Area Design\CO08STGP.DWG  
 © 2023 CDM SMITH ALL RIGHTS RESERVED.  
 REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: J. THORESON  
 DRAWN BY: C. SCOTT  
 SHEET CHK'D BY: S. WOOD  
 CROSS CHK'D BY: J. WITIG  
 APPROVED BY: C. MONTGOMERY  
 DATE: MAY 2023



4651 Salisbury Road, Suite 420  
 Jacksonville, FL 32256  
 Tel: (904) 731-7109  
 FL COA No. EB-0000020

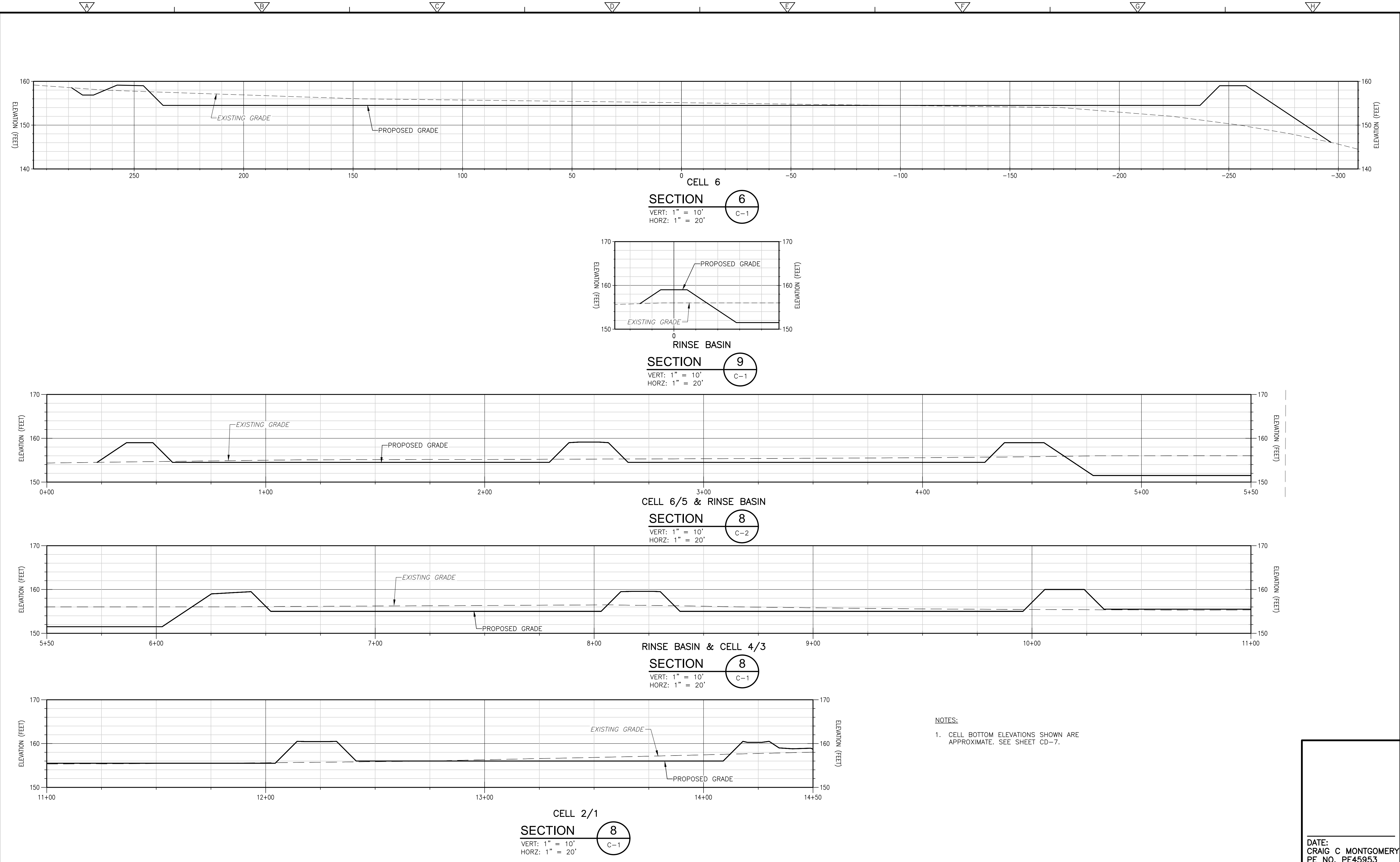
ST. JOHNS RIVER WATER MANAGEMENT DISTRICT  
 BLACK CREEK WATER RESOURCE  
 DEVELOPMENT PROJECT  
 AQUIFER RECHARGE AREA

TREATMENT CELL AREA  
 GRADING SECTIONS 1

DATE: CRAIG C MONTGOMERY  
 PE NO. PE45953  
 PROJECT NO. 9247-221208  
 FILE NAME: CO08STGP.DWG  
 SHEET NO. C-8

ISSUED FOR BID

XREFS: [CDMS\_2234\_CW20065] Images: [ ]  
 Last saved by: AUSTUDJ Time: 5/1/2023 3:14:31 PM  
 pw:\cdm\smith-0202-pw.bentley.com\pw\_01\9247\221208\_PHASE 2 INTAKE PS\04 Design Services NM\_100%\02 Civil\10 CADD\05 Aquifer Recharge Area Design\CO09STGP.DWG  
 © 2023 CDM SMITH ALL RIGHTS RESERVED.  
 REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.



**NOTES:**  
 1. CELL BOTTOM ELEVATIONS SHOWN ARE APPROXIMATE. SEE SHEET CD-7.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: J. THORESON  
 DRAWN BY: C. SCOTT  
 SHEET CHK'D BY: S. WOOD  
 CROSS CHK'D BY: J. WITIG  
 APPROVED BY: C. MONTGOMERY  
 DATE: MAY 2023



ST. JOHNS RIVER WATER MANAGEMENT DISTRICT  
 BLACK CREEK WATER RESOURCE  
 DEVELOPMENT PROJECT  
 AQUIFER RECHARGE AREA

TREATMENT CELL AREA  
 GRADING SECTIONS 2

DATE: CRAIG C MONTGOMERY  
 PE NO. PE45953  
 PROJECT NO. 9247-221208  
 FILE NAME: CO09STGP.DWG  
 SHEET NO. C-9

©2018 CDM SMITH ALL RIGHTS RESERVED. REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.

SEE SHEET CD-4, DETAIL C FOR CONTINUATION (TYP)

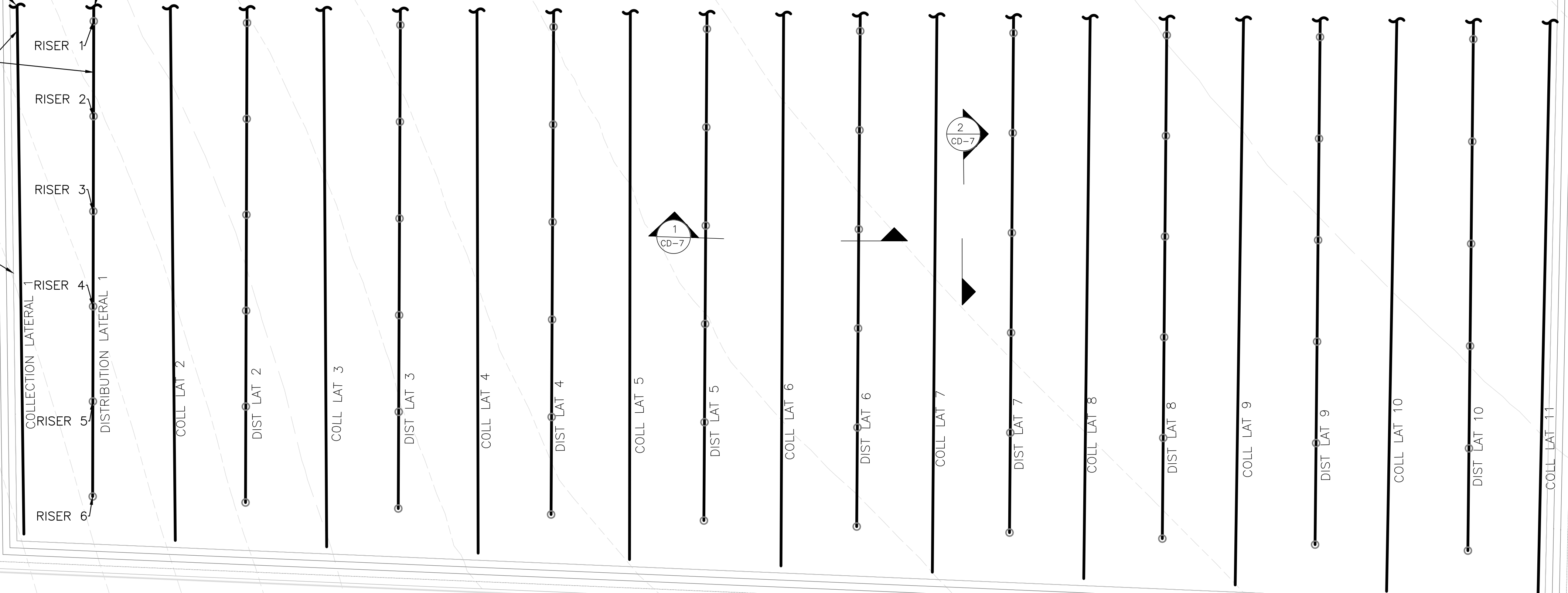
SEE SHEET CD-4, DETAIL B FOR CONTINUATION (TYP)

SEE TABLES. THIS SHEET FOR LATERAL DISTRIBUTION AND COLLECTION PIPE CONFIGURATION

TOP OF CELL

TOP OF MEDIA

BOTTOM OF CELL



NOTES:  
1. SITE GRADING PLAN PROVIDED IN SHEET C1, C2.

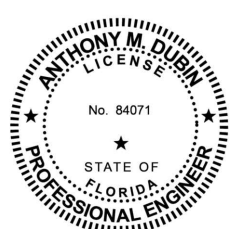
DISTRIBUTION LATERAL DATA TABLE									
LATERAL ID	LATERAL LENGTH (FT)	DISTANCE TO FIRST RISER (FT)	RISER SPACING (FT)	RISER ELEVATION (NAVD88)					
				RISER NO. 1	RISER NO. 2	RISER NO. 3	RISER NO. 4	RISER NO. 5	RISER NO. 6
1	147	13	27	159.25	159.25	159.20	159.25	159.20	159.20
2	149	14	27	159.25	159.25	159.20	159.25	159.20	159.20
3	150	14	27	159.25	159.25	159.20	159.25	159.20	159.20
4	152	14	28	159.25	159.25	159.20	159.25	159.20	159.20
5	153	14	28	159.25	159.25	159.20	159.25	159.20	159.20
6	154	14	28	159.25	159.25	159.20	159.25	159.20	159.20
7	156	14	28	159.25	159.25	159.20	159.25	159.20	159.20
8	157	14	29	159.25	159.25	159.20	159.25	159.20	159.20
9	159	14	29	159.25	159.25	159.20	159.25	159.20	159.20
10	160	15	29	159.25	159.25	159.20	159.25	159.20	159.20

COLLECTION LATERAL DATA TABLE	
LATERAL ID	LENGTH (FT)
1	159
2	160
3	162
4	163
5	164
6	166
7	167
8	168
9	170
10	171
11	172

FROM 90° BEND (SEE SHEET CD-4)

DESIGNED BY: WCL  
 DRAWN BY: JZ  
 SHEET CHK'D BY: TD  
 CROSS CHK'D BY: MRM  
 APPROVED BY: \_\_\_\_\_  
 DATE: MAY 2023

**SWIG**  
 ENVIRONMENTAL SCIENCE AND ENGINEERING  
 3201 1<sup>ST</sup> AVENUE S, SUITE 212,  
 SEATTLE, WA 98134  
 Tel: (206)276-9178  
 EMAIL: MMERKELBACK@GREENEARTHOPS.COM



ST. JOHNS RIVER WATER MANAGEMENT DISTRICT  
 BLACK CREEK WATER RESOURCE  
 DEVELOPMENT PROJECT  
 TREATMENT

CELL 1 DISTRIBUTION AND COLLECTION  
 LATERALS PLAN

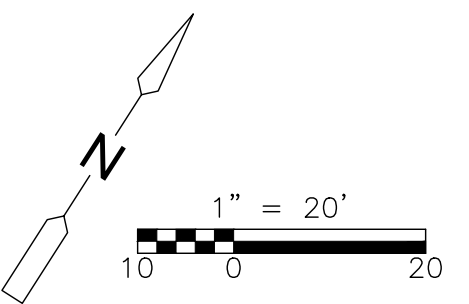
PROJECT NO. 9247-221208

FILE NAME:

SHEET NO.

C-10

ISSUED FOR BID



©2018 CDM SMITH ALL RIGHTS RESERVED. REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.



- PIPE NOTES:
1. ALL DISTRIBUTION LATERALS AND FITTINGS WILL BE 12" DIAMETER PVC SDR 35.
  2. COLLECTION LATERALS AND FITTINGS WILL BE 10" DIAMETER PVC SDR 35.
  3. DASHED DRAINAGE LINE INDICATES PERFORATED PIPE AND CONTINUOUS LINE INDICATES SOLID WALL PIPE.

DISTRIBUTION LATERAL DATA TABLE									
LATERAL ID	LATERAL LENGTH (FT)	DISTANCE TO FIRST RISER (FT)	RISER SPACING (FT)	RISER ELEVATION (NAVD88)					
				RISER NO. 1	RISER NO. 2	RISER NO. 3	RISER NO. 4	RISER NO. 5	RISER NO. 6
1	153	14	28	158.75	158.75	158.70	158.75	158.70	158.70
2	154	14	28	158.75	158.75	158.70	158.75	158.70	158.70
3	155	14	28	158.75	158.75	158.70	158.75	158.70	158.70
4	156	14	28	158.75	158.75	158.70	158.75	158.70	158.70
5	157	14	29	158.75	158.75	158.70	158.75	158.70	158.70
6	158	14	29	158.75	158.75	158.70	158.75	158.70	158.70
7	159	14	29	158.75	158.75	158.70	158.75	158.70	158.70
8	160	15	29	158.75	158.75	158.70	158.75	158.70	158.70
9	161	15	29	158.75	158.75	158.70	158.75	158.70	158.70
10	162	15	29	158.75	158.75	158.70	158.75	158.70	158.70

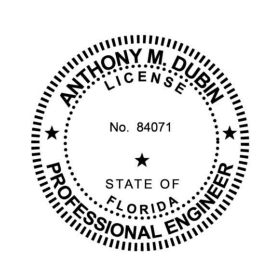
COLLECTION LATERAL DATA TABLE	
LATERAL ID	LENGTH (FT)
1	165
2	166
3	167
4	168
5	169
6	170
7	171
8	171
9	172
10	173
11	174

<sup>1</sup>FROM 90° BEND (SEE SHEET CD-4)

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: \_\_\_\_\_ WCL  
 DRAWN BY: \_\_\_\_\_ JZ  
 SHEET CHK'D BY: \_\_\_\_\_ TD  
 CROSS CHK'D BY: \_\_\_\_\_ MRM  
 APPROVED BY: \_\_\_\_\_  
 DATE: \_\_\_\_\_ MAY 2023

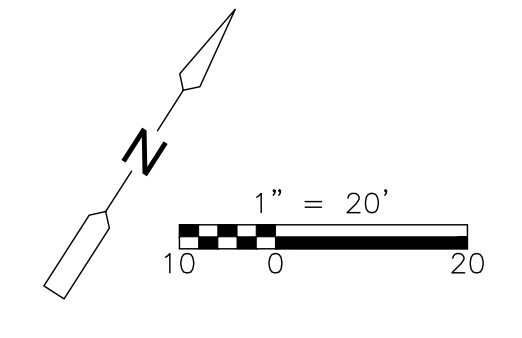
ENVIRONMENTAL SCIENCE AND ENGINEERING  
 3201 1<sup>ST</sup> AVENUE S, SUITE 212,  
 SEATTLE, WA 98134  
 Tel: (206)276-9178  
 EMAIL: MMERKELBACK@GREENEARTHOPS.COM



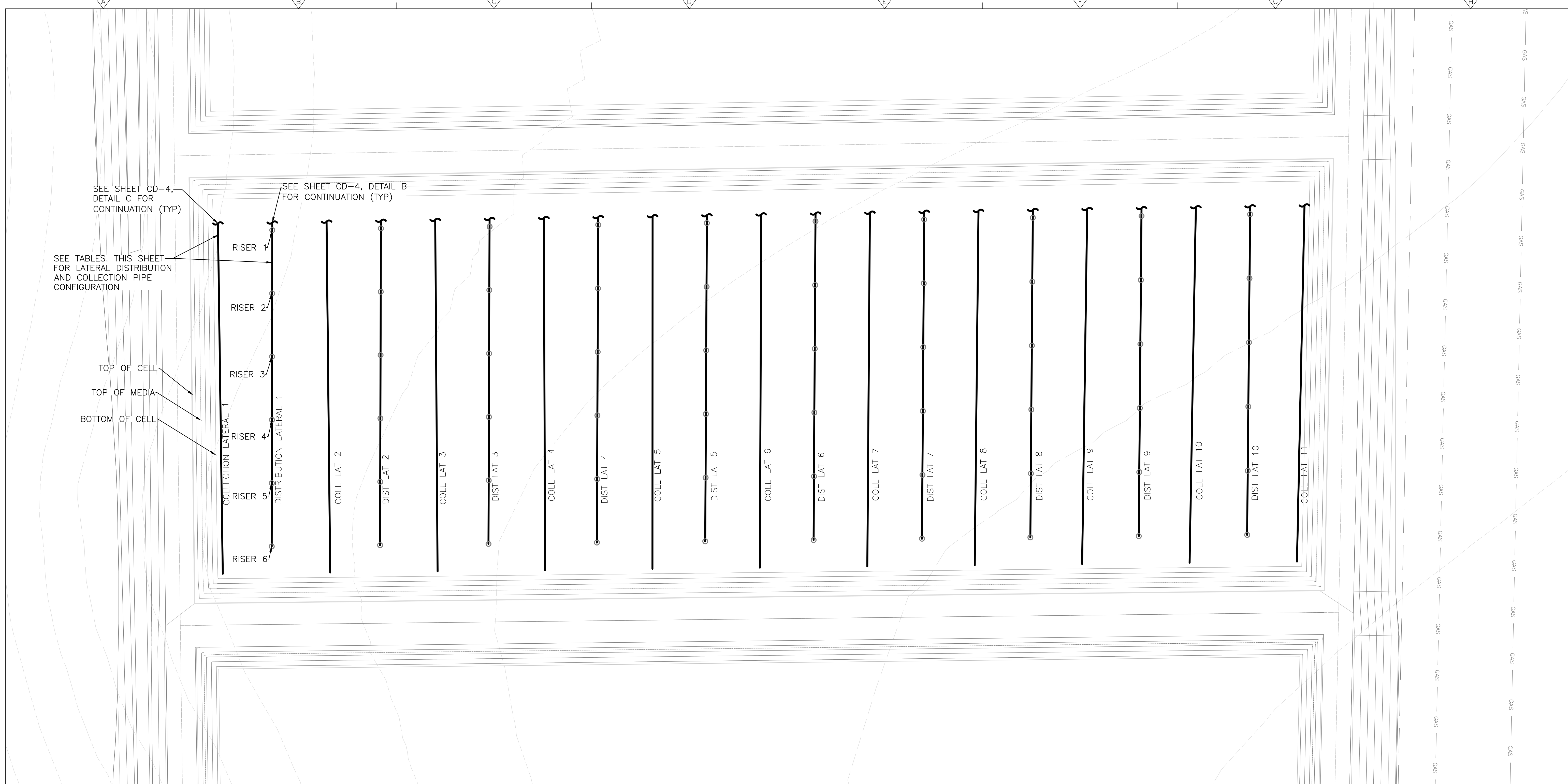
ST. JOHNS RIVER WATER MANAGEMENT DISTRICT  
 BLACK CREEK WATER RESOURCE  
 DEVELOPMENT PROJECT  
 TREATMENT

CELL 2 DISTRIBUTION AND COLLECTION  
 LATERALS PLAN

PROJECT NO. 9247-221208  
 FILE NAME:  
 SHEET NO.  
**C-11**



©2018 CDM SMITH ALL RIGHTS RESERVED. REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.



DISTRIBUTION LATERAL DATA TABLE									
LATERAL ID	LATERAL LENGTH (FT)	DISTANCE TO FIRST RISER (FT)	RISER SPACING (FT)	RISER ELEVATION (NAVD88)					
				RISER NO. 1	RISER NO. 2	RISER NO. 3	RISER NO. 4	RISER NO. 5	RISER NO. 6
1	142	13	26	158.25	158.25	158.20	158.25	158.20	158.20
2	143	13	26	158.25	158.25	158.20	158.25	158.20	158.20
3	143	13	26	158.25	158.25	158.20	158.25	158.20	158.20
4	143	13	26	158.25	158.25	158.20	158.25	158.20	158.20
5	143	13	26	158.25	158.25	158.20	158.25	158.20	158.20
6	144	13	26	158.25	158.25	158.20	158.25	158.20	158.20
7	144	13	26	158.25	158.25	158.20	158.25	158.20	158.20
8	144	13	26	158.25	158.25	158.20	158.25	158.20	158.20
9	144	13	26	158.25	158.25	158.20	158.25	158.20	158.20
10	145	13	26	158.25	158.25	158.20	158.25	158.20	158.20

COLLECTION LATERAL DATA TABLE	
LATERAL ID	LENGTH (FT)
1	153
2	154
3	154
4	154
5	154
6	155
7	155
8	155
9	155
10	156
11	156

FROM 90° BEND (SEE SHEET CD-4)

REV. NO.	DATE	DRWN	CHKD	REMARKS

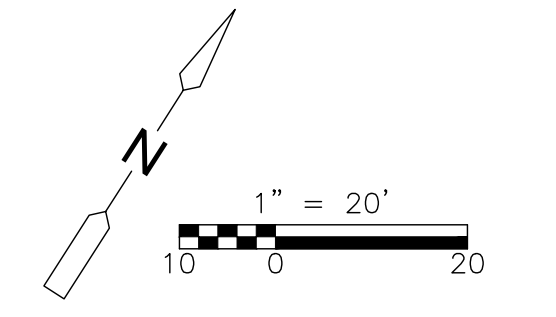
DESIGNED BY: \_\_\_\_\_ WCL  
 DRAWN BY: \_\_\_\_\_ JZ  
 SHEET CHK'D BY: \_\_\_\_\_ TD  
 CROSS CHK'D BY: \_\_\_\_\_ MRM  
 APPROVED BY: \_\_\_\_\_  
 DATE: \_\_\_\_\_ MAY 2023

ENVIRONMENTAL SCIENCE AND ENGINEERING  
 3201 1<sup>ST</sup> AVENUE S, SUITE 212,  
 SEATTLE, WA 98134  
 Tel: (206)276-9178  
 EMAIL: MMERKELBACK@GREENEARTHOPS.COM

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT  
 BLACK CREEK WATER RESOURCE  
 DEVELOPMENT PROJECT  
 TREATMENT

CELL 3 DISTRIBUTION AND COLLECTION  
 LATERALS PLAN

PROJECT NO.	9247-221208
FILE NAME:	
SHEET NO.	C-12



ISSUED FOR BID

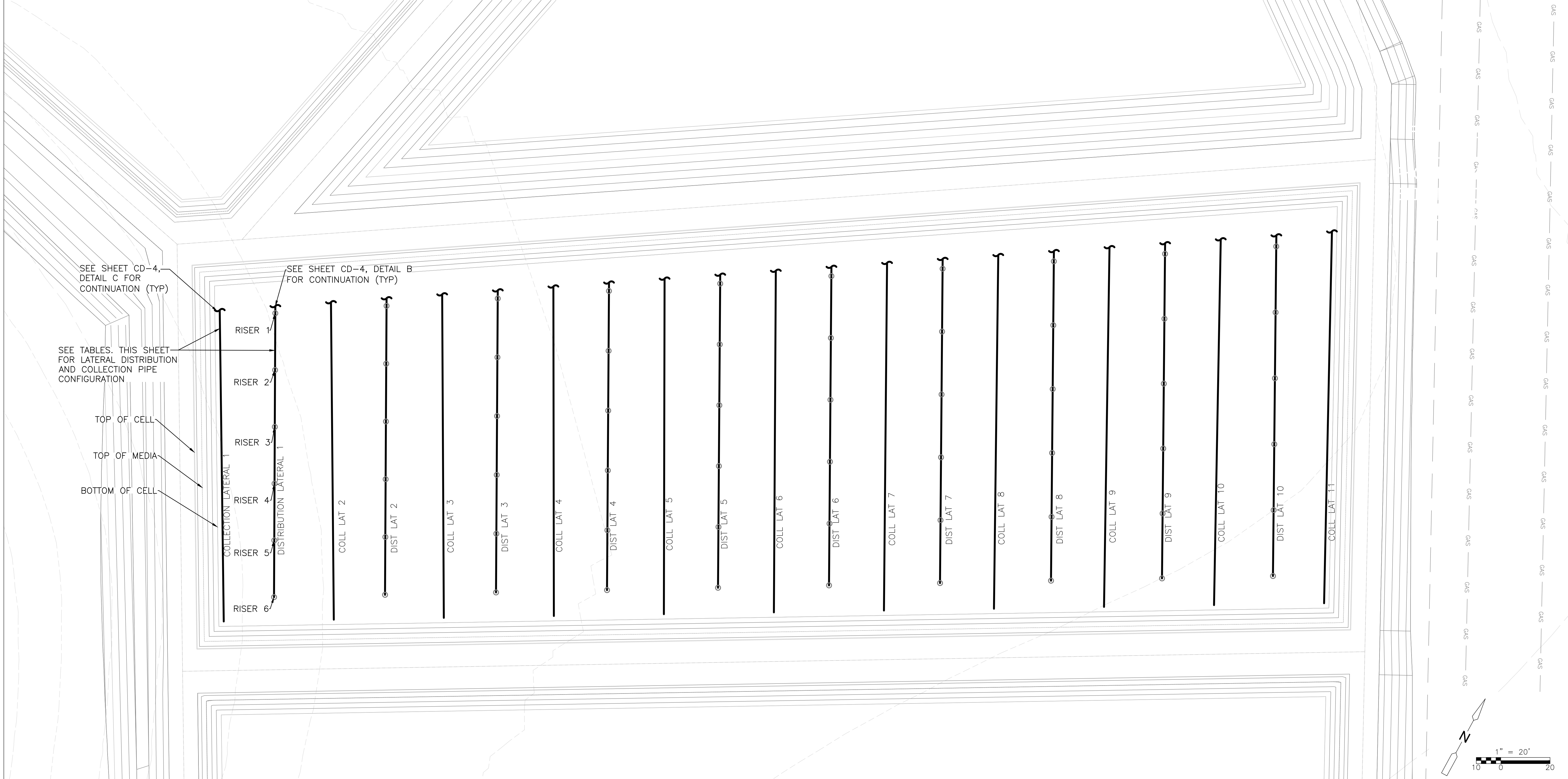


© 2018 CDM SMITH ALL RIGHTS RESERVED. REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.

LATERAL ID	LATERAL LENGTH (FT)	DISTANCE TO FIRST RISER (FT)	RISER SPACING (FT)	RISER ELEVATION (NAVD88)					
				RISER NO. 1	RISER NO. 2	RISER NO. 3	RISER NO. 4	RISER NO. 5	RISER NO. 6
1	127	12	23	158.25	158.25	158.20	158.25	158.20	158.20
2	130	12	24	158.25	158.25	158.20	158.25	158.20	158.20
3	132	12	24	158.25	158.25	158.20	158.25	158.20	158.20
4	135	12	24	158.25	158.25	158.20	158.25	158.20	158.20
5	137	12	25	158.25	158.25	158.20	158.25	158.20	158.20
6	140	13	25	158.25	158.25	158.20	158.25	158.20	158.20
7	142	13	26	158.25	158.25	158.20	158.25	158.20	158.20
8	145	13	26	158.25	158.25	158.20	158.25	158.20	158.20
9	147	13	27	158.25	158.25	158.20	158.25	158.20	158.20
10	150	14	27	158.25	158.25	158.20	158.25	158.20	158.20

LATERAL ID	LENGTH (FT)
1	137
2	139
3	142
4	144
5	147
6	149
7	151
8	154
9	156
10	159
11	161

FROM 90° BEND (SEE SHEET CD-4)



SEE SHEET CD-4, DETAIL C FOR CONTINUATION (TYP)

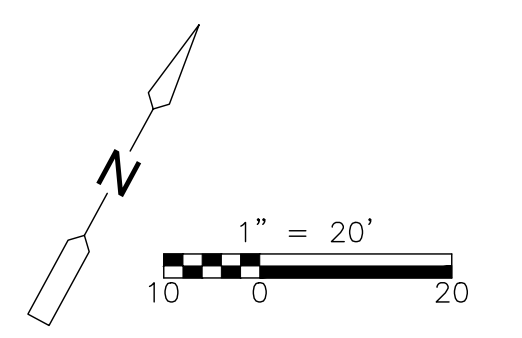
SEE TABLES. THIS SHEET FOR LATERAL DISTRIBUTION AND COLLECTION PIPE CONFIGURATION

TOP OF CELL

TOP OF MEDIA

BOTTOM OF CELL

SEE SHEET CD-4, DETAIL B FOR CONTINUATION (TYP)



REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: \_\_\_\_\_ WCL  
 DRAWN BY: \_\_\_\_\_ JZ  
 SHEET CHK'D BY: \_\_\_\_\_ TD  
 CROSS CHK'D BY: \_\_\_\_\_ MRM  
 APPROVED BY: \_\_\_\_\_  
 DATE: \_\_\_\_\_ MAY 2023

ENVIRONMENTAL SCIENCE AND ENGINEERING  
 3201 1<sup>ST</sup> AVENUE S, SUITE 212,  
 SEATTLE, WA 98134  
 Tel: (206)276-9178  
 EMAIL: MMERKELBACK@GREENEARTHOPS.COM

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT  
 BLACK CREEK WATER RESOURCE  
 DEVELOPMENT PROJECT  
 TREATMENT

CELL 4 DISTRIBUTION AND COLLECTION  
 LATERALS PLAN

PROJECT NO. 9247-221208  
 FILE NAME:  
 SHEET NO.  
**C-13**

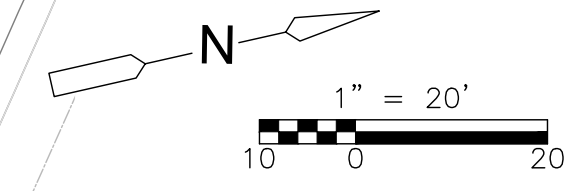
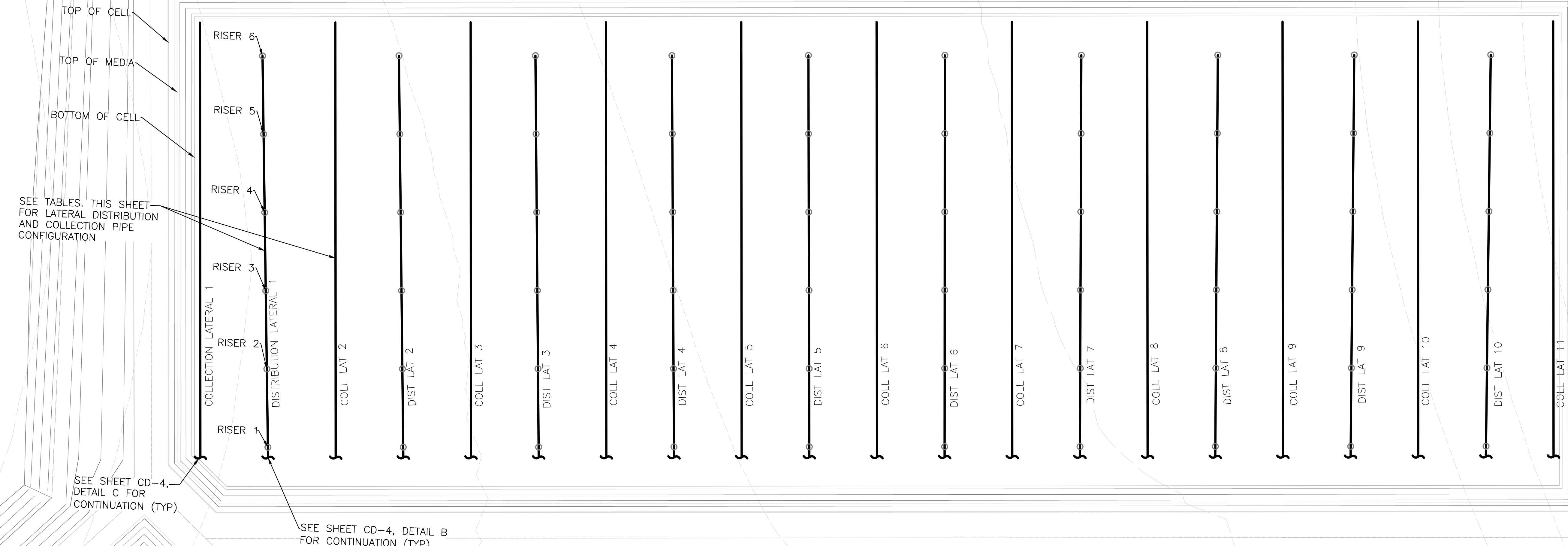
ISSUED FOR BID

©2018 CDM SMITH ALL RIGHTS RESERVED. REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.

DISTRIBUTION LATERAL DATA TABLE									
LATERAL ID	LATERAL LENGTH (FT)	DISTANCE TO FIRST RISER (FT)	RISER SPACING (FT)	RISER ELEVATION (NAVD88)					
				RISER NO. 1	RISER NO. 2	RISER NO. 3	RISER NO. 4	RISER NO. 5	RISER NO. 6
1	150	14	27	154.75	154.75	154.70	154.75	154.70	154.70
2	150	14	27	154.75	154.75	154.70	154.75	154.70	154.70
3	150	14	27	154.75	154.75	154.70	154.75	154.70	154.70
4	150	14	27	154.75	154.75	154.70	154.75	154.70	154.70
5	150	14	27	154.75	154.75	154.70	154.75	154.70	154.70
6	150	14	27	154.75	154.75	154.70	154.75	154.70	154.70
7	150	14	27	154.75	154.75	154.70	154.75	154.70	154.70
8	150	14	27	154.75	154.75	154.70	154.75	154.70	154.70
9	150	14	27	154.75	154.75	154.70	154.75	154.70	154.70
10	150	14	27	154.75	154.75	154.70	154.75	154.70	154.70

COLLECTION LATERAL DATA TABLE	
LATERAL ID	LENGTH (FT)
1	161
2	161
3	161
4	161
5	161
6	161
7	161
8	161
9	161
10	161
11	161

FROM 90° BEND (SEE SHEET CD-4)



REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: WCL  
 DRAWN BY: JZ  
 SHEET CHK'D BY: TD  
 CROSS CHK'D BY: MRM  
 APPROVED BY: \_\_\_\_\_  
 DATE: MAY 2023

**SWIG**  
 ENVIRONMENTAL SCIENCE AND ENGINEERING  
 3201 1<sup>ST</sup> AVENUE S, SUITE 212,  
 SEATTLE, WA 98134  
 Tel: (206)276-9178  
 EMAIL: MMERKELBACK@GREENEARTHOPS.COM

**ANTHONY M. DIORIO**  
 LICENSE  
 No. 94071  
 STATE OF FLORIDA  
 PROFESSIONAL ENGINEER

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT  
 BLACK CREEK WATER RESOURCE  
 DEVELOPMENT PROJECT  
 TREATMENT

CELL 5 DISTRIBUTION AND COLLECTION  
 LATERALS PLAN

PROJECT NO.	9247-221208
FILE NAME:	
SHEET NO.	C-14

ISSUED FOR BID

© 2018 CDM SMITH ALL RIGHTS RESERVED. REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.

LATERAL ID	LATERAL LENGTH (FT)	DISTANCE TO FIRST RISER (FT)	RISER SPACING (FT)	RISER ELEVATION (NAVD88)					
				RISER NO. 1	RISER NO. 2	RISER NO. 3	RISER NO. 4	RISER NO. 5	RISER NO. 6
1	158	14	29	154.75	154.75	154.70	154.75	154.70	154.70
2	158	14	29	154.75	154.75	154.70	154.75	154.70	154.70
3	158	14	29	154.75	154.75	154.70	154.75	154.70	154.70
4	158	14	29	154.75	154.75	154.70	154.75	154.70	154.70
5	158	14	29	154.75	154.75	154.70	154.75	154.70	154.70
6	158	14	29	154.75	154.75	154.70	154.75	154.70	154.70
7	158	14	29	154.75	154.75	154.70	154.75	154.70	154.70
8	158	14	29	154.75	154.75	154.70	154.75	154.70	154.70
9	158	14	29	154.75	154.75	154.70	154.75	154.70	154.70
10	158	14	29	154.75	154.75	154.70	154.75	154.70	154.70

LATERAL ID	LENGTH (FT)
1	170
2	170
3	170
4	170
5	170
6	170
7	170
8	170
9	170
10	170
11	170

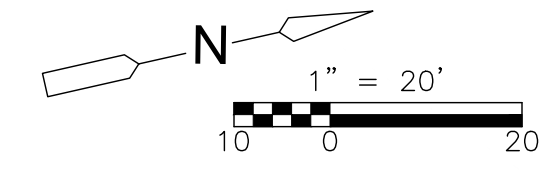
FROM 90° BEND (SEE SHEET CD-4)

SEE TABLES. THIS SHEET FOR LATERAL DISTRIBUTION AND COLLECTION PIPE CONFIGURATION

TOP OF CELL  
TOP OF MEDIA  
BOTTOM OF CELL



SEE SHEET CD-4, DETAIL B FOR CONTINUATION (TYP)  
SEE SHEET CD-4, DETAIL C FOR CONTINUATION (TYP)



REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: WCL  
 DRAWN BY: JZ  
 SHEET CHK'D BY: TD  
 CROSS CHK'D BY: MRM  
 APPROVED BY: \_\_\_\_\_  
 DATE: MAY 2023

ENVIRONMENTAL SCIENCE AND ENGINEERING  
 3201 1<sup>ST</sup> AVENUE S, SUITE 212,  
 SEATTLE, WA 98134  
 Tel: (206)276-9178  
 EMAIL: MMERKELBACK@GREENEARTHOPS.COM

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT  
 BLACK CREEK WATER RESOURCE  
 DEVELOPMENT PROJECT  
 TREATMENT

CELL 6 DISTRIBUTION AND COLLECTION  
 LATERALS PLAN

PROJECT NO.	9247-221208
FILE NAME:	
SHEET NO.	C-15

ISSUED FOR BID

**MEDIA INSTALLATION SPECIFICATIONS:**

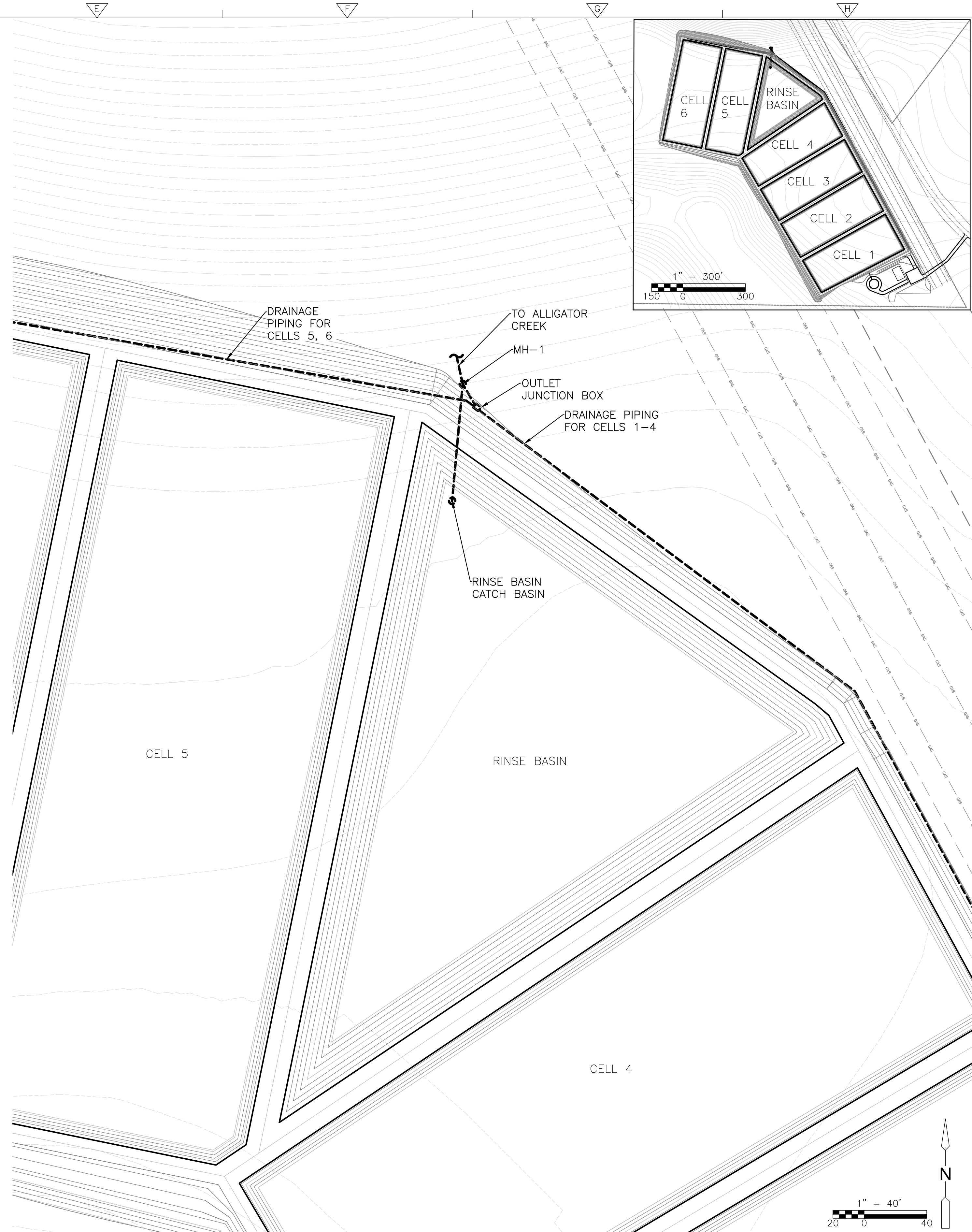
1. MEDIA INSTALLATION SHALL OCCUR IN TWO STAGES. CELLS 1 THROUGH 3 SHALL BE INSTALLED AND OPERATED UNDER THE INITIAL TREATMENT OPERATIONS MODE BY THE MEDIA MANUFACTURER UNTIL THE WATER QUALITY COMPLIANCE CRITERIA AND COLOR REMOVAL PERFORMANCE CRITERIA (PERFORMANCE CRITERIA) HAVE BEEN MET BY THE MEDIA MANUFACTURER. INITIAL TREATMENT OPERATIONS ARE EXPECTED TO LAST 3 TO 6 MONTHS BASED ON BLACK CREEK WATER AVAILABILITY. ONCE THE PERFORMANCE CRITERIA IS MET FOR CELLS 1 THROUGH 3, MEDIA INSTALLATION OF CELLS 4 THROUGH 6 WILL COMMENCE FOLLOWED BY OPERATING THE FULL TREATMENT SYSTEM UNTIL THE PERFORMANCE CRITERIA IS MET.
2. MEDIA INSTALLATION STEPS:
  - 2.a. THE CELL BERM, LINER, RINSE BASIN, COLLECTION STONE, UNDERDRAIN, WATER DISTRIBUTION PIPING, AND RISER PIPES SHALL BE CONSTRUCTED AND INSTALLED PRIOR TO MEDIA INSTALLATION.
  - 2.b. THE RISER PIPES SHALL BE CAPPED BY THE CONTRACTOR DURING INSTALLATION OF MEDIA TO AVOID CONTAMINATION OF THE LATERALS WITH MEDIA OR OTHER FOREIGN DEBRIS. THE CAPS SHALL BE REMOVED AND THE FINAL RISER ASSEMBLY SHALL BE INSTALLED AFTER FINE GRADING OF THE MEDIA IS COMPLETE.
  - 2.c. FINISHED MEDIA WILL BE TRUCKED FROM THE BLENDING AREA TO THE CELLS BY THE MEDIA MANUFACTURER.
  - 2.d. THE MEDIA MANUFACTURER WILL COORDINATE WITH THE CONTRACTOR ON THE METHOD, DIRECTION AND MANAGEMENT OF MEDIA INSTALLATION.
  - 2.e. THE CONTRACTOR SHALL USE LOW GROUND PRESSURE TRACKED EQUIPMENT SUFFICIENT TO SPREAD AT LEAST 500 CUBIC YARDS PER DAY (YD3//DAY) OF MEDIA. NO WHEELED EQUIPMENT SHALL DRIVE ON ANY MEDIA SURFACES TO AVOID ADDITIONAL COMPACTION.
  - 2.f. TO ALLOW FOR SETTLEMENT, INSTALLED MEDIA SHALL BE PLACED AND THEN LEVELLED TO BE 12% HIGHER THAN THE FINAL MEDIA DEPTH SPECIFIED IN THE PLANS.

**MEDIA FLUSHING SPECIFICATIONS:**

1. FLUSHING OF THE MEDIA AND THE UNDERDRAIN GRAVEL BY THE MEDIA MANUFACTURER IS REQUIRED TO REMOVE FINES AND PREVENT TURBIDITY FROM ENTERING ALLIGATOR CREEK. NO FLUSH WATER SHALL BE DISCHARGED TO ALLIGATOR CREEK UNTIL THIS PROCESS IS COMPLETE. ALL FLUSH WATER SHALL BE DISCHARGED TO THE RINSE BASIN AS SHOWN ON THE PLANS.
2. THE MEDIA MANUFACTURER SHALL PREPARE A MEDIA FLUSHING PLAN AND SUBMIT IT TO THE DISTRICT FOR REVIEW AND APPROVAL. THE PLAN SHALL STATE THE FLOW RATES NEEDED, TURBIDITY MONITORING METHODS, AND APPROVAL CRITERIA. THE WATER SOURCE SHALL COME FROM BLACK CREEK WATER, OR OTHER WATER PROVIDED BY THE DISTRICT, USING THE COMPLETED PUMP STATION, PIPELINE, AND STORAGE TANK.
3. PRIOR TO FLUSHING, THE CONTRACTOR SHALL CONSTRUCT THE RINSE BASIN DISCHARGE STRUCTURE AND PLUG THE DOWNSTREAM OUTLET AT MH-1 TO DIRECT FLOWS INTO THE RINSE BASIN.
4. THE MEDIA FLUSHING DURATION IS EXPECTED TO OCCUR OVER A TWO-WEEK PERIOD. PUMP OPERATIONS WILL OCCUR OVER 10 DAYS WITH TWO 4-HOUR FLUSH CYCLES PER DAY. THE NUMBER OF DAYS AND FLUSH CYCLE MAY BE SUBJECT TO CHANGE. THE MEDIA MANUFACTURER IN COORDINATION WITH THE CONTRACTOR AND DISTRICT WILL OVERSEE RINSING OF THE CELLS DURING THE PERIODIC RINSE DOSES.
5. TURBIDITY WILL BE MONITORED AT THE WATER TANK AND THE DISCHARGE LOCATION TO THE RINSE BASIN. RINSING SHALL CONTINUE UNTIL TURBIDITY DOES NOT EXCEED 20 NTUS PER PERMIT REQUIREMENTS. TURBIDITY TESTING SHALL BE PERFORMED THE MEDIA MANUFACTURER. MONITORING DATA SHALL BE REPORTED TO THE DISTRICT DAILY.
6. THE CONTRACTOR SHALL BE NOTIFIED WHEN THE TURBIDITY REQUIREMENTS ARE MET BY THE DISTRICT. FLUSHING SHALL THEN BE DISCONTINUED, AND THE PLUG BELOW MH-1 SHALL BE REMOVED.

**FINAL GRADING SPECIFICATIONS:**

1. DIFFERENTIAL MEDIA SETTLEMENT IS EXPECTED AFTER FLUSHING, SO MINOR RE-GRADING BY THE CONTRACTOR WILL BE REQUIRED TO LEVEL THE MEDIA PRIOR TO PLANT INSTALLATION.
2. THE FOLLOWING PROCEDURE SHALL BE FOLLOWED TO DETERMINE HIGH AND LOW POINTS IN THE SETTLED MEDIA:
  - 2.a. THE OUTLET CONTROL VALVE SHALL BE CLOSED WHILE THE MEDIA IS FILLED WITH WATER UNTIL THE ENTIRE BED IS FLOODED.
  - 2.b. OPEN THE OUTLET CONTROL VALVE AND DRAIN THE MEDIA UNTIL HALF THE MEDIA SURFACE IS EXPOSED.
  - 2.c. VARIATIONS (+/- 0.2 FEET) FROM THE PLAN ELEVATIONS ARE ACCEPTABLE. HOWEVER, THERE SHALL BE NO MORE VARIATION IN THE SETTLED MEDIA THAN +/-0.1 FEET AROUND FINAL SETTLED ELEVATION (0.2 FEET TOTAL DIFFERENCE).
  - 2.d. HIGH POINTS SHALL BE MARKED BY FLAGGING.
3. HIGH POINTS IN THE MEDIA SHALL BE LOWERED AND LOW POINTS FILLED AS FOLLOWS:
  - 3.a. RAKE THE MEDIA AT HIGH POINTS WITH THE TEETH OF A SKID STEER LOW GROUND PRESSURE TRACK LOADER BUCKET TO LEVEL AND LOOSEN ANY COMPACTION. DO NOT DIRECTLY SCRAPE THE MEDIA, SINCE THE BUCKET WILL SMEAR SOIL AND RESTRICT INFILTRATION RATE.
  - 3.b. MOVE HIGH POINTS AND PLACE RAKED MEDIA IN THE ADJACENT LOW POINT(S).
  - 3.c. THE CONTRACTOR SHALL USE ONLY LOW GROUND PRESSURE TRACKED EQUIPMENT. NO WHEELED OR HIGH GROUND PRESSURE TRACK LOADER EQUIPMENT SHALL DRIVE ON ANY MEDIA SURFACES TO AVOID ADDITIONAL COMPACTION.
  - 3.d. MEDIA LEVELING AROUND EACH OF THE RISER PIPES SHALL BY CONDUCTED BY HAND RAKE.
4. THE CONTRACTOR SHALL CONFIRM FINAL MEDIA ELEVATIONS USING A LASER LEVEL AND STAFF.
5. NO MORE THAN 0.2 FEET OF VARIATION FROM THE FINAL SETTLED ELEVATION SHALL BE CONSIDERED ACCEPTABLE.



©2018 CDM SMITH ALL RIGHTS RESERVED. REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: \_\_\_\_\_ WCL  
 DRAWN BY: \_\_\_\_\_ JZ  
 SHEET CHK'D BY: \_\_\_\_\_ TD  
 CROSS CHK'D BY: \_\_\_\_\_ MRM  
 APPROVED BY: \_\_\_\_\_  
 DATE: \_\_\_\_\_ MAY 2023

**ESWIG**  
 ENVIRONMENTAL SCIENCE AND ENGINEERING  
 3201 1<sup>ST</sup> AVENUE S, SUITE 212,  
 SEATTLE, WA 98134  
 Tel: (206)276-9178  
 EMAIL: MMERKELBACK@GREENEARTHOPS.COM

**ANTHONY M. DUBOIS**  
 LICENSE  
 No. 98071  
 STATE OF  
 FLORIDA  
 PROFESSIONAL ENGINEER

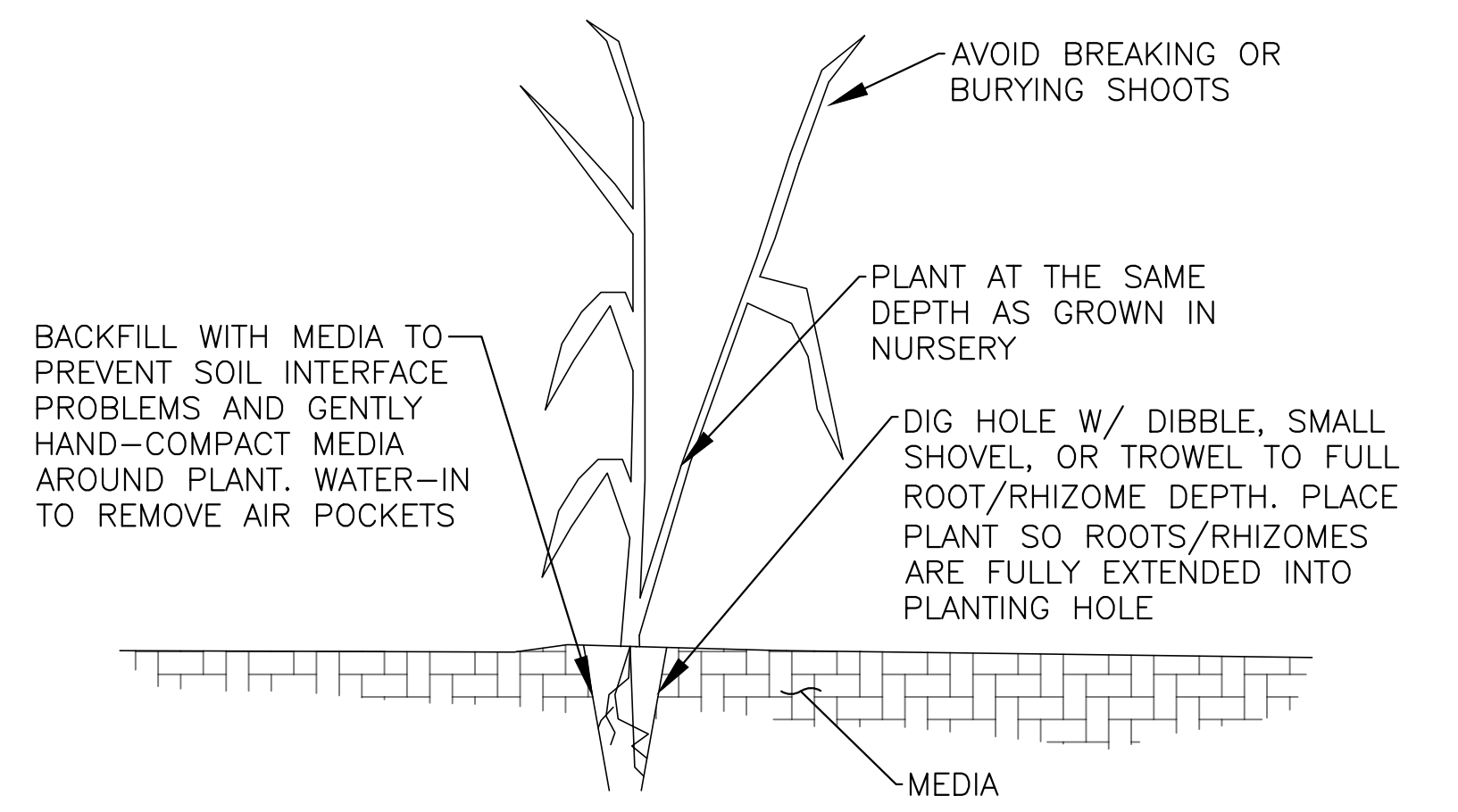
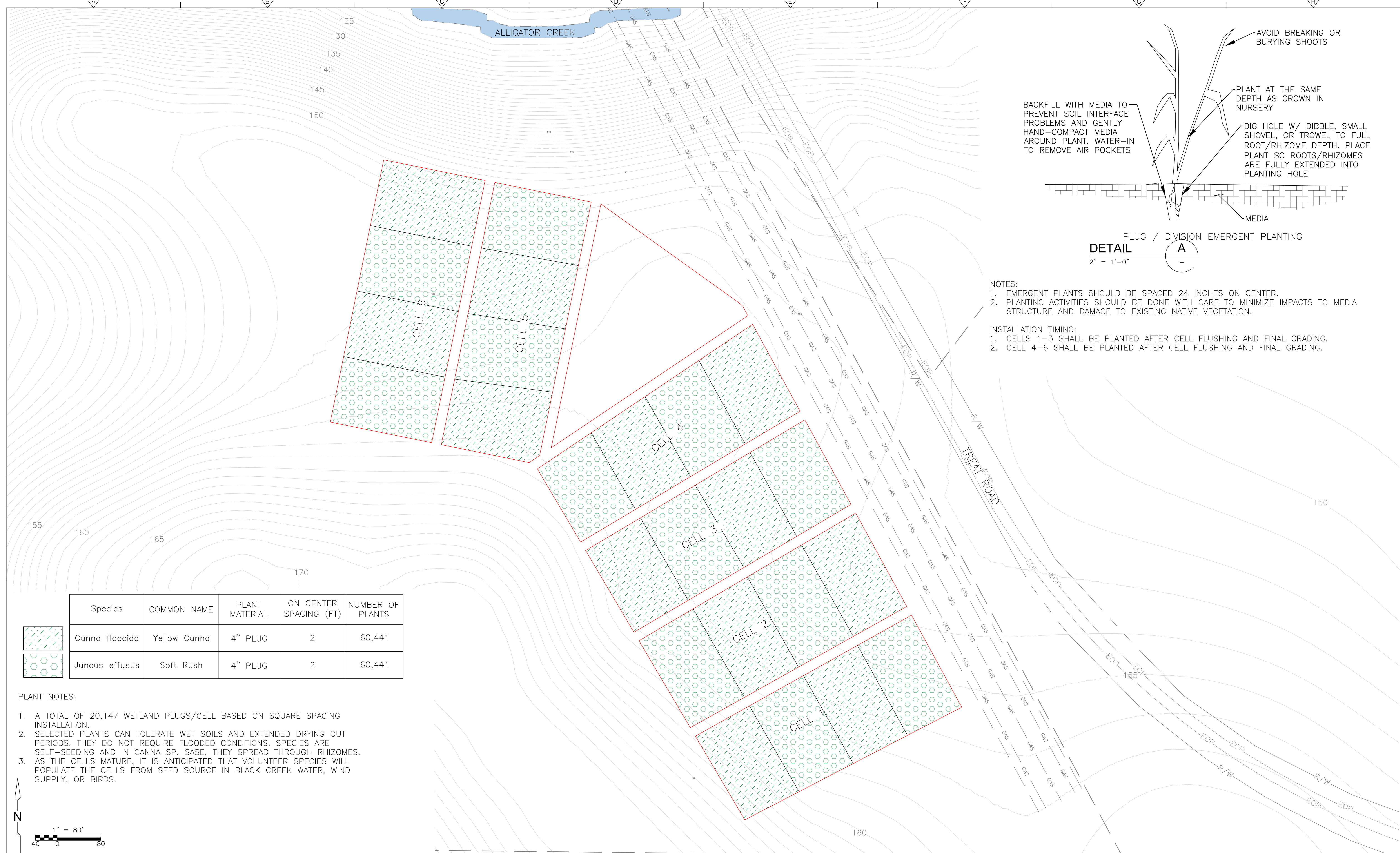
ST. JOHNS RIVER WATER MANAGEMENT DISTRICT  
**BLACK CREEK WATER RESOURCE  
 DEVELOPMENT PROJECT  
 TREATMENT**

**CELL INITIAL OPERATION PLAN**

PROJECT NO. 9247-221208
FILE NAME:
SHEET NO. <b>C-16</b>

ISSUED FOR BID

©2018 CDM SMITH ALL RIGHTS RESERVED. REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.

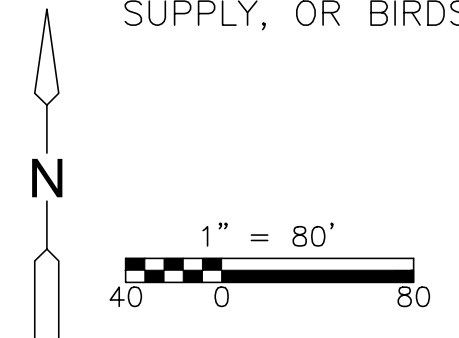


PLUG / DIVISION EMERGENT PLANTING  
**DETAIL A**  
 2" = 1'-0"

- NOTES:**
- EMERGENT PLANTS SHOULD BE SPACED 24 INCHES ON CENTER.
  - PLANTING ACTIVITIES SHOULD BE DONE WITH CARE TO MINIMIZE IMPACTS TO MEDIA STRUCTURE AND DAMAGE TO EXISTING NATIVE VEGETATION.
- INSTALLATION TIMING:**
- CELLS 1-3 SHALL BE PLANTED AFTER CELL FLUSHING AND FINAL GRADING.
  - CELL 4-6 SHALL BE PLANTED AFTER CELL FLUSHING AND FINAL GRADING.

Species	COMMON NAME	PLANT MATERIAL	ON CENTER SPACING (FT)	NUMBER OF PLANTS	
	Canna flaccida	Yellow Canna	4" PLUG	2	60,441
	Juncus effusus	Soft Rush	4" PLUG	2	60,441

- PLANT NOTES:**
- A TOTAL OF 20,147 WETLAND PLUGS/CELL BASED ON SQUARE SPACING INSTALLATION.
  - SELECTED PLANTS CAN TOLERATE WET SOILS AND EXTENDED DRYING OUT PERIODS. THEY DO NOT REQUIRE FLOODED CONDITIONS. SPECIES ARE SELF-SEEDING AND IN CANNA SP. SASE, THEY SPREAD THROUGH RHIZOMES.
  - AS THE CELLS MATURE, IT IS ANTICIPATED THAT VOLUNTEER SPECIES WILL POPULATE THE CELLS FROM SEED SOURCE IN BLACK CREEK WATER, WIND SUPPLY, OR BIRDS.



REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: \_\_\_\_\_ WCL  
 DRAWN BY: \_\_\_\_\_ JZ  
 SHEET CHK'D BY: \_\_\_\_\_ TD  
 CROSS CHK'D BY: \_\_\_\_\_ MRM  
 APPROVED BY: \_\_\_\_\_  
 DATE: \_\_\_\_\_ MAY 2023

ENVIRONMENTAL SCIENCE AND ENGINEERING  
 3201 1<sup>ST</sup> AVENUE S, SUITE 212,  
 SEATTLE, WA 98134  
 Tel: (206)276-9178  
 EMAIL: MMERKELBACK@GREENEARTHOPS.COM

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT  
 BLACK CREEK WATER RESOURCE  
 DEVELOPMENT PROJECT  
 TREATMENT

PROJECT NO. 9247-221208  
 FILE NAME:  
 SHEET NO.  
**C-17**

ISSUED FOR BID

© 2018 CDM SMITH ALL RIGHTS RESERVED. REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.



ROAD MATERIALS	
TYPE	CYD
FDOT NO.1 COARSE	74
FDOT BASE COARSE	63

**BLENDING AREA NOTES:**

1. THE BLENDING AREA WILL PROVIDE A FLAT, OPEN AREA FOR MATERIAL STORAGE, MEDIA BLENDING, AND TRUCK INGRESS AND EGRESS.
2. THE LAYOUT SHALL ALLOW FOR TRUCK CIRCULATION WITHIN THE 120' DIAMETER OPEN AREA.
3. GRAVEL FROM THE ACCESS ROAD SHALL NOT EXTEND INTO THE CENTRAL BLENDING AREA.
4. SEE SHEET C-9 FOR GRADING NOTES.
5. PRIOR TO CONSTRUCTION, THE DISTRICT SHALL CONDUCT A SURVEY OF GOPHER TORTOISE BURROW LOCATIONS. EXISTING BURROWS REQUIRE A 25' BUFFER FROM ANY DISTURBANCE WITH NO ISOLATION FROM ADJACENT HABITAT. THE DISTRICT SHALL BE RESPONSIBLE FOR ANY REQUIRED MITIGATION MEASURES, SUCH AS RELOCATING BURROWS, PER THE PROJECT ERP. THE EXISTING SURVEY SHOWS ONE BURROW IN THE PROPOSED BLENDING AREA. AT THE DIRECTION OF SWIG STAFF, THE CONSTRUCTION LIMITS MAY BE REVISED, BASED ON THE PRE-CONSTRUCTION GOPHER TORTOISE SURVEY RESULTS.
6. PRIOR TO CONSTRUCTION, COORDINATE WITH CAMP BLANDING STAFF TO DETERMINE IF ANY SANDS AND SOILS IN THE SOUTH PART OF THE BLENDING AREA SHOULD REMAIN TO SUPPORT BORROW ACTIVITIES. IF SO, GRADING MAY BE ADJUSTED SO LONG AS A) MINIMUM 60' RADIUS CIRCULATION AREA IS MAINTAINED, B) MINIMUM BERM ELEVATION IS 134' AND C) MAXIMUM BERM SIDE SLOPE IS 2:1 (H:V).

**EROSION AND SEDIMENT CONTROL NOTES:**

1. THE WATER DIVERSION BAR AT THE SITE ENTRANCE WILL PREVENT STORMWATER RUNOFF FROM TREAT ROAD FROM ENTERING THE BLENDING AREA.
2. THE BLENDING AREA IS IN A LOCALIZED LOW SPOT. THE BERMED PERIMETER AND SANDY SOILS WILL PREVENT RUNOFF FROM THE BLENDING AREA FROM FLOWING TOWARD ALLIGATOR CREEK.
3. THE CENTRAL WORK AREA WILL HAVE AN AVERAGE ELEVATION OF 131.7' AND THE MINIMUM PERIMETER BERM ELEVATION WILL BE 134'. THIS PROVIDES SUFFICIENT STORAGE VOLUME TO FULLY CONTAIN THE 25-YEAR, 24-HOUR STORM DEPTH OF 7.33 INCHES.
4. IN THE EVENT OF A LARGE STORM EVENT, WORK SHALL CEASE UNTIL ANY PONDED WATER HAS FULLY INFILTRATED.
5. INSTALL SILT FENCE ON THE SOUTH SIDE OF THE ACCESS DRIVE TO PROTECT ALLIGATOR CREEK. GRADE ACCESS DRIVE WITH 1% SLIDE SLOPE AWAY FROM ALLIGATOR CREEK.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: WCL  
 DRAWN BY: JZ  
 SHEET CHK'D BY: TD  
 CROSS CHK'D BY: MRM  
 APPROVED BY: \_\_\_\_\_  
 DATE: MAY 2023

**SWIG**  
 ENVIRONMENTAL SCIENCE AND ENGINEERING  
 3201 1<sup>ST</sup> AVENUE S, SUITE 212,  
 SEATTLE, WA 98134  
 Tel: (206)276-9178  
 EMAIL: MMERKELBACK@GREENEARTHOPS.COM

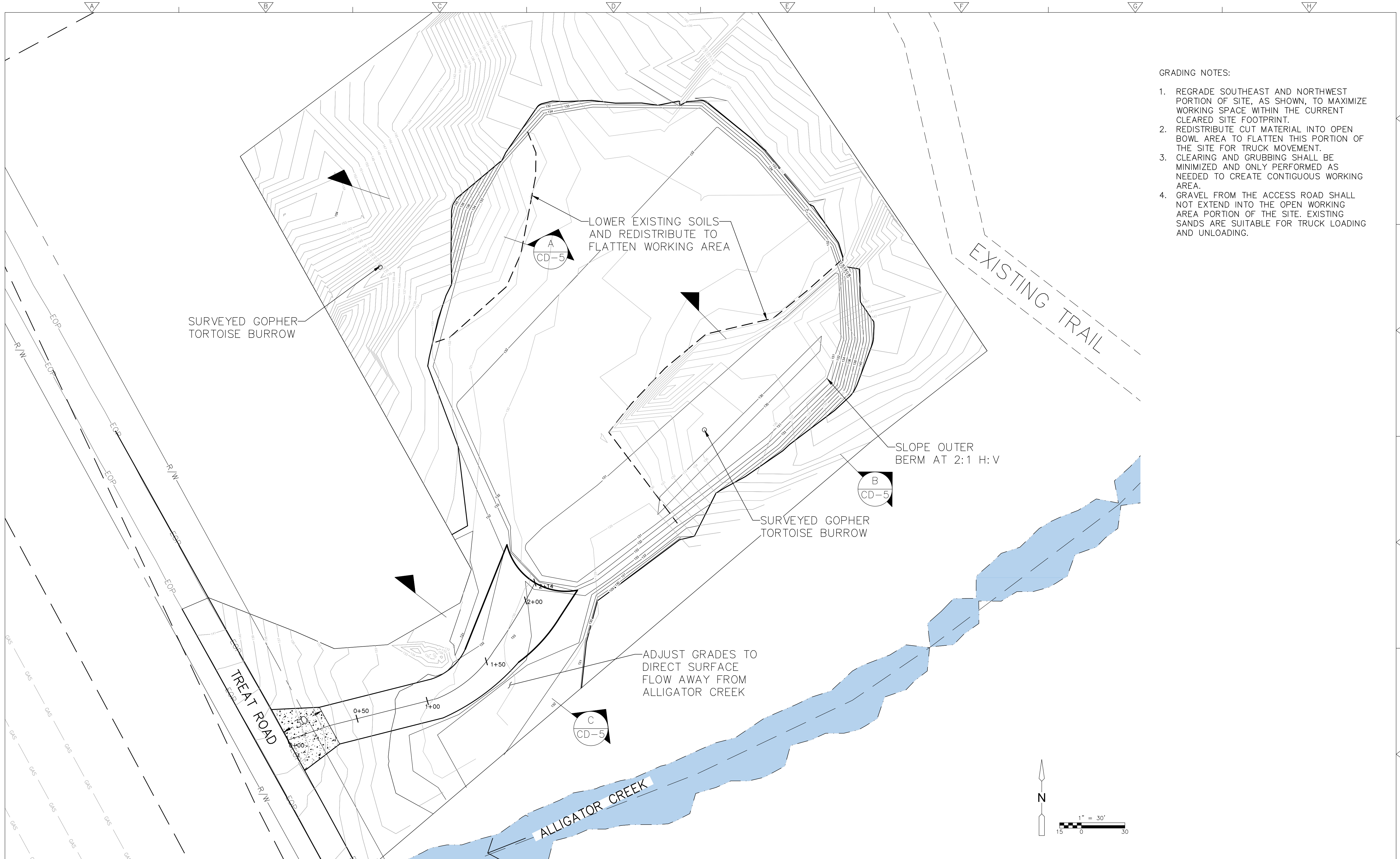
**ANTHONY M. DIVINE**  
 LICENSE  
 No. 94071  
 STATE OF FLORIDA  
 PROFESSIONAL ENGINEER

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT  
 BLACK CREEK WATER RESOURCE  
 DEVELOPMENT PROJECT  
 AQUIFER RECHARGE AREA

PROJECT NO. 9247-221208  
 FILE NAME:  
 SHEET NO.  
**C-18**

ISSUED FOR BID

©2018 CDM SMITH ALL RIGHTS RESERVED. REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.



- GRADING NOTES:
1. REGRADE SOUTHEAST AND NORTHWEST PORTION OF SITE, AS SHOWN, TO MAXIMIZE WORKING SPACE WITHIN THE CURRENT CLEARED SITE FOOTPRINT.
  2. REDISTRIBUTE CUT MATERIAL INTO OPEN BOWL AREA TO FLATTEN THIS PORTION OF THE SITE FOR TRUCK MOVEMENT.
  3. CLEARING AND GRUBBING SHALL BE MINIMIZED AND ONLY PERFORMED AS NEEDED TO CREATE CONTIGUOUS WORKING AREA.
  4. GRAVEL FROM THE ACCESS ROAD SHALL NOT EXTEND INTO THE OPEN WORKING AREA PORTION OF THE SITE. EXISTING SANDS ARE SUITABLE FOR TRUCK LOADING AND UNLOADING.

REV. NO.	DATE	DRWN	CHKD	REMARKS

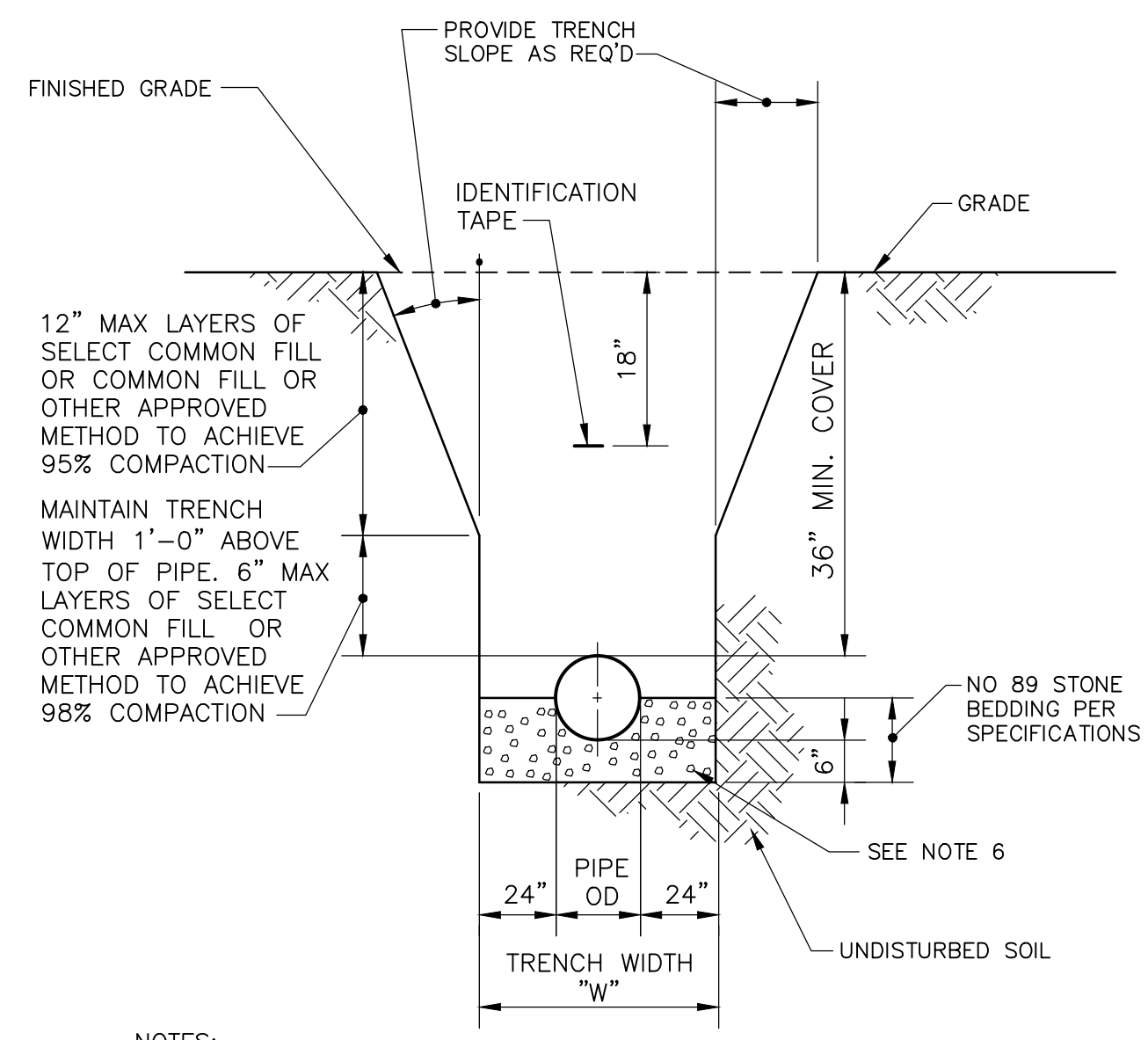
DESIGNED BY: WCL  
 DRAWN BY: JZ  
 SHEET CHK'D BY: TD  
 CROSS CHK'D BY: MRM  
 APPROVED BY: \_\_\_\_\_  
 DATE: MAY 2023

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT  
 BLACK CREEK WATER RESOURCE  
 DEVELOPMENT PROJECT  
 AQUIFER RECHARGE AREA

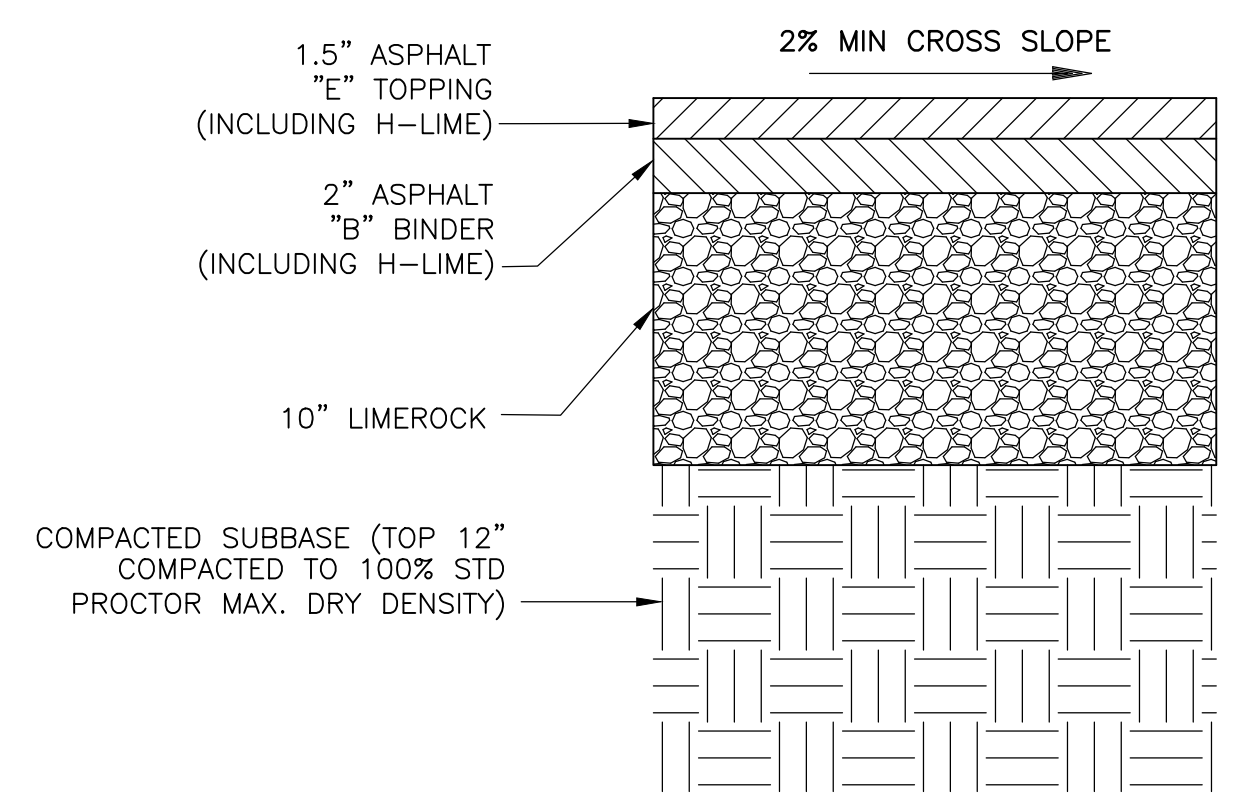
BLENDING AREA GRADING  
 ENLARGEMENT

PROJECT NO. 9247-221208  
 FILE NAME:  
 SHEET NO.  
**C-19**

XREFS: [CDMS\_2234] Images: [ ]  
 Last saved by: AUS/UD Time: 5/4/2023 8:35:11 AM  
 pw:\cdm\smith-0202-pw.bentley.com\pw\_r1\9247\221208\_PHASE 2 INTAKE PS\04 Design Services NM\_100%\_02 Civil\0 CADD\05 Aquifer Recharge Area Design\CD01NFDT.DWG  
 © 2023 CDM SMITH ALL RIGHTS RESERVED.  
 REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.



- NOTES:**
- WHERE SOIL CONDITIONS CAN NOT BE MAINTAINED AS SHOWN ABOVE, PROVIDE ALTERNATE METHOD OF CONSTRUCTION TO COMPLY WITH THE FLORIDA TRENCH SAFETY ACT, SEE SPECIFICATION SECTION 02311.
  - SHEETING WILL BE REQUIRED AS DETERMINED IN THE FIELD. SEE SPECIFICATIONS.
  - COMPACTION PERCENTAGES SHOWN REFER TO A.A.S.H.T.O. T-180.
  - WHEREVER POSSIBLE, USE IN - SITU MATERIAL FOR BACK FILL PER SPECIFICATIONS.
  - ALL PIPE SHALL BE BURIED WITH IDENTIFICATION TAPE ABOVE THE TOP OF THE PIPE.
  - NO. 89 STONE BEDDING 6 INCHES BELOW INVERT TO SPRINGLINE.
  - WHERE PIPE IS INSTALLED ON SLOPES EXCEEDING 5%, INSTALL IMPERMEABLE GROUNDWATER BARRIER AT 50-FOOT INTERVALS PER SPECIFICATIONS.
  - DEWATERING SHALL BE PER SPECIFICATION SECTION 02140.

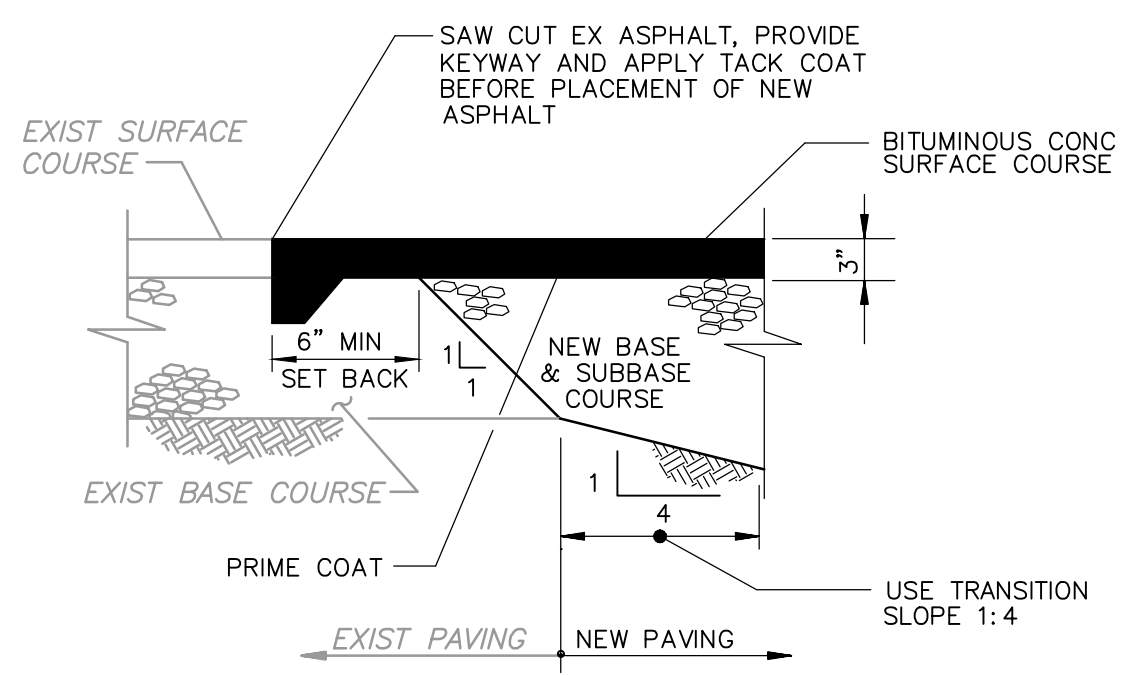


**TYPICAL ASPHALT PAVEMENT**  
**DETAIL C**  
 NTS C-5

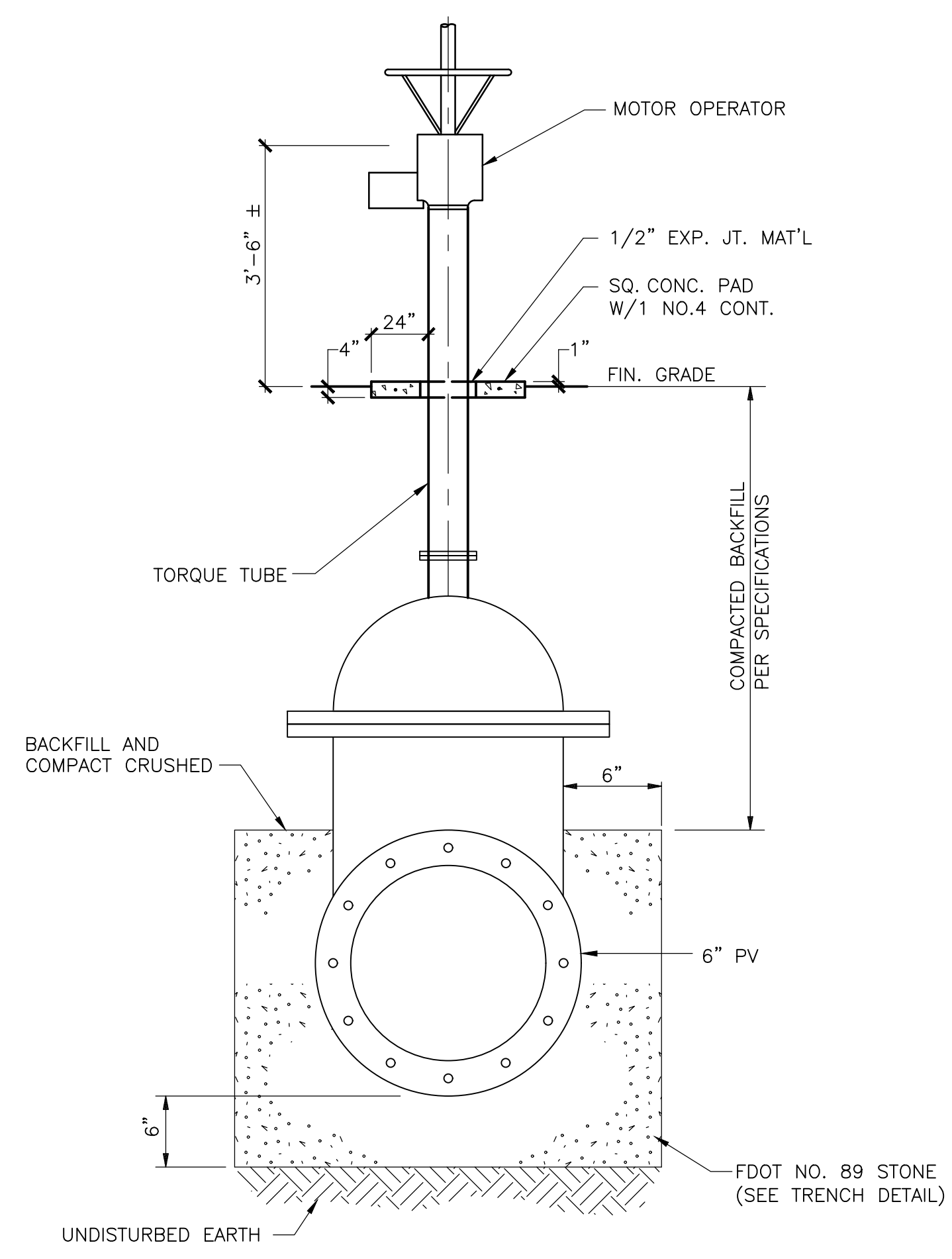
**NOT USED**  
**DETAIL A**  
 NTS

**TRENCH DETAIL**  
**DETAIL B**  
 NTS

**NOT USED**  
**DETAIL D**  
 NTS



**PAVEMENT TRANSITION BETWEEN NEW AND EXISTING ASPHALT PAVEMENTS**  
**DETAIL E**  
 NTS C-5



**MOTOR-OPERATED GATE VALVE**  
**DETAIL F**  
 NTS C-3 C-4

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: C. MONTGOMERY  
 DRAWN BY: C SCOTT  
 SHEET CHK'D BY: S. WOOD  
 CROSS CHK'D BY: J. WITIG  
 APPROVED BY: C. MONTGOMERY  
 DATE: MAY 2023



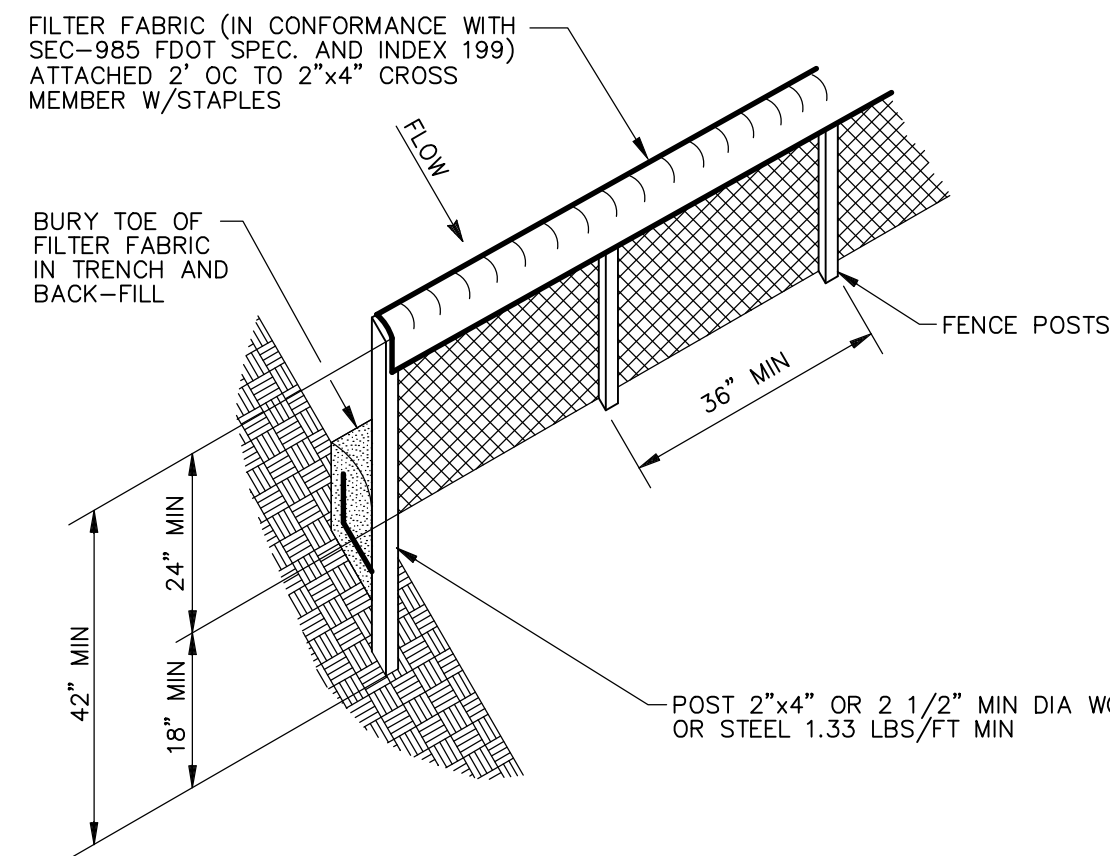
4651 Salisbury Road, Suite 420  
 Jacksonville, FL 32256  
 Tel: (904) 731-7109  
 FL COA No. EB-0000020

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT  
 BLACK CREEK WATER RESOURCE  
 DEVELOPMENT PROJECT  
 AQUIFER RECHARGE AREA

**CIVIL DETAILS**  
 SHEET NO.  
**CD-1**

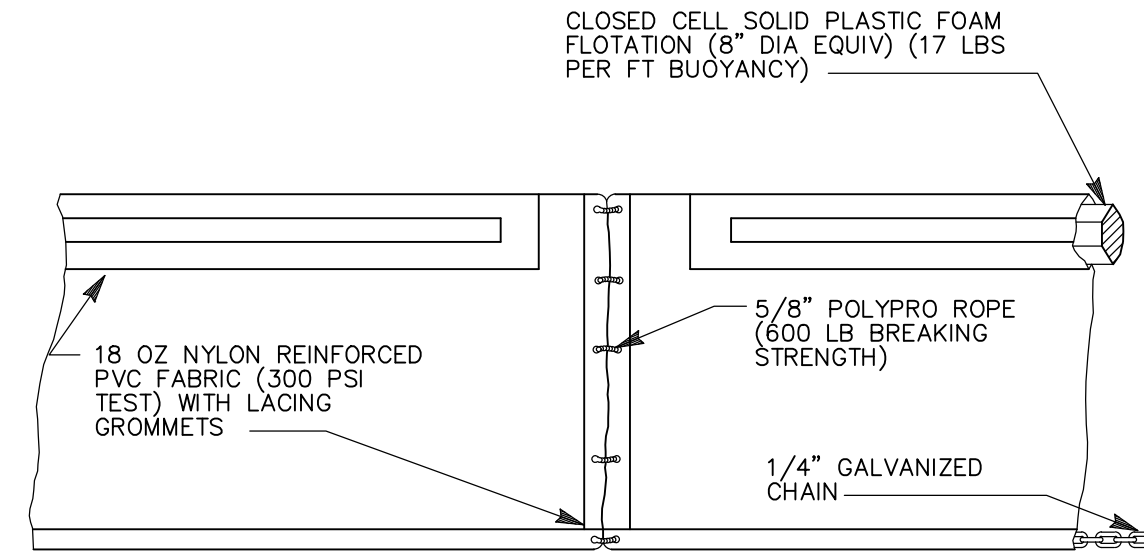
DATE:  
 CRAIG C MONTGOMERY  
 PE NO. 45953  
 PROJECT NO. 9247-221208  
 FILE NAME: CD01NFDT.DWG  
 SHEET NO.  
**CD-1**





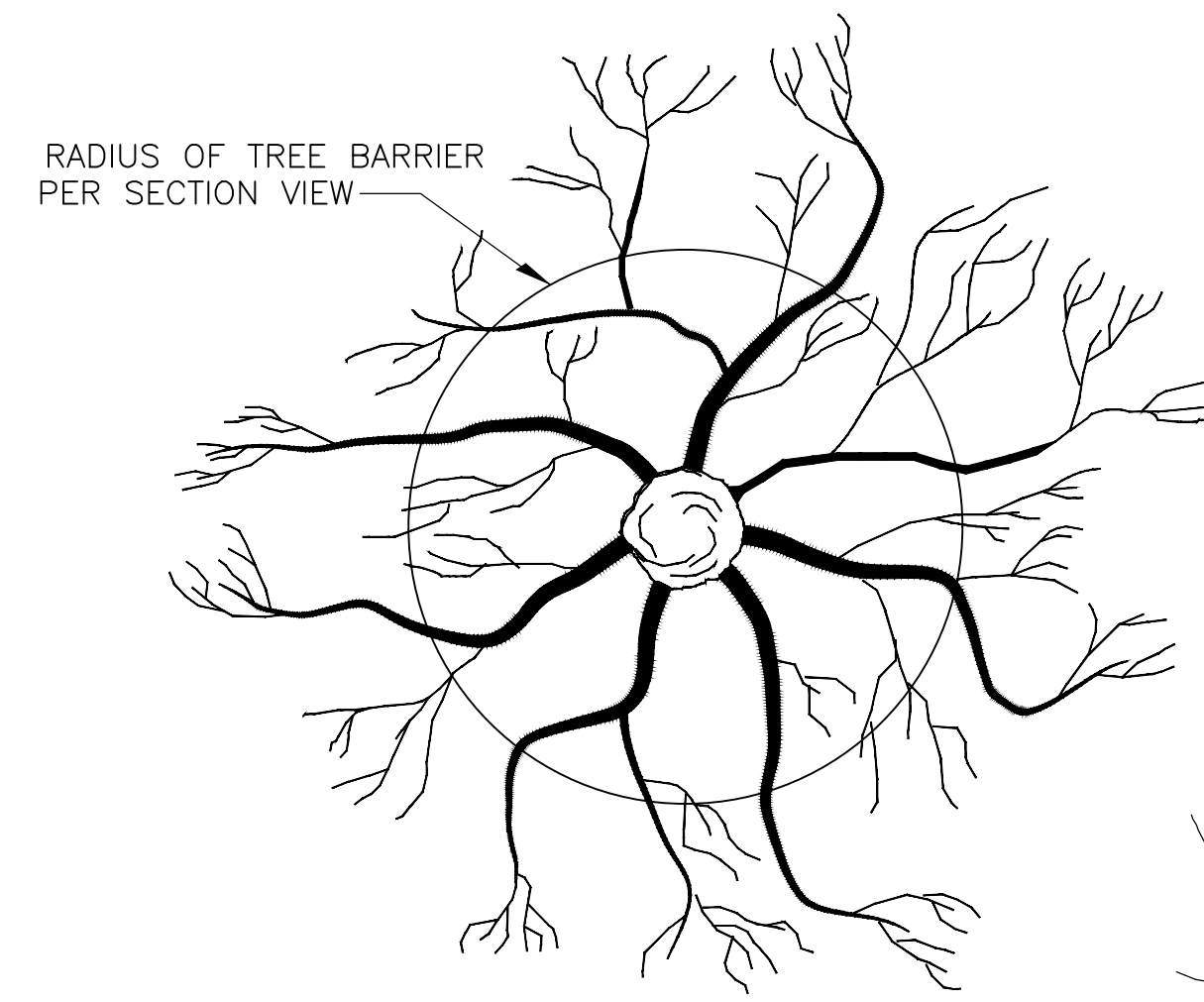
\* SINGLE SILT FENCE DEPICTED. CONTRACTOR TO INSTALL TWO PARALLEL SILT FENCES AT 12\"/>

STAKED SILT FENCE\*  
DETAIL A  
NTS

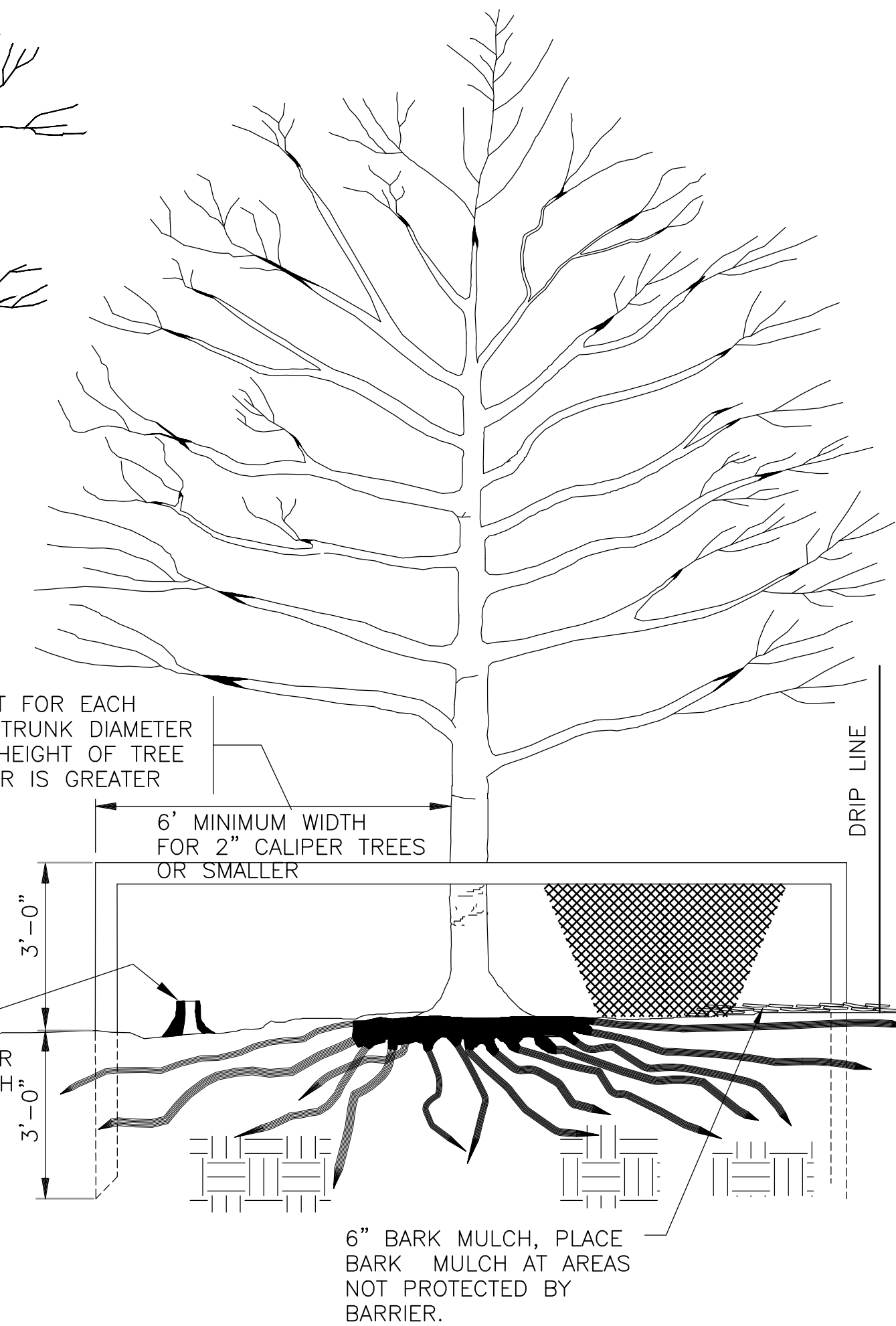


FLOATING TURBIDITY BARRIER

DETAIL B  
NTS



PLAN VIEW OF ROOT ZONE



ONE FOOT FOR EACH INCH OF TRUNK DIAMETER OR 1/2 HEIGHT OF TREE WHICHEVER IS GREATER

6\"/>

FOR PRUNING SEE NATIONAL ARBORIST ASSOCIATION SPECS.

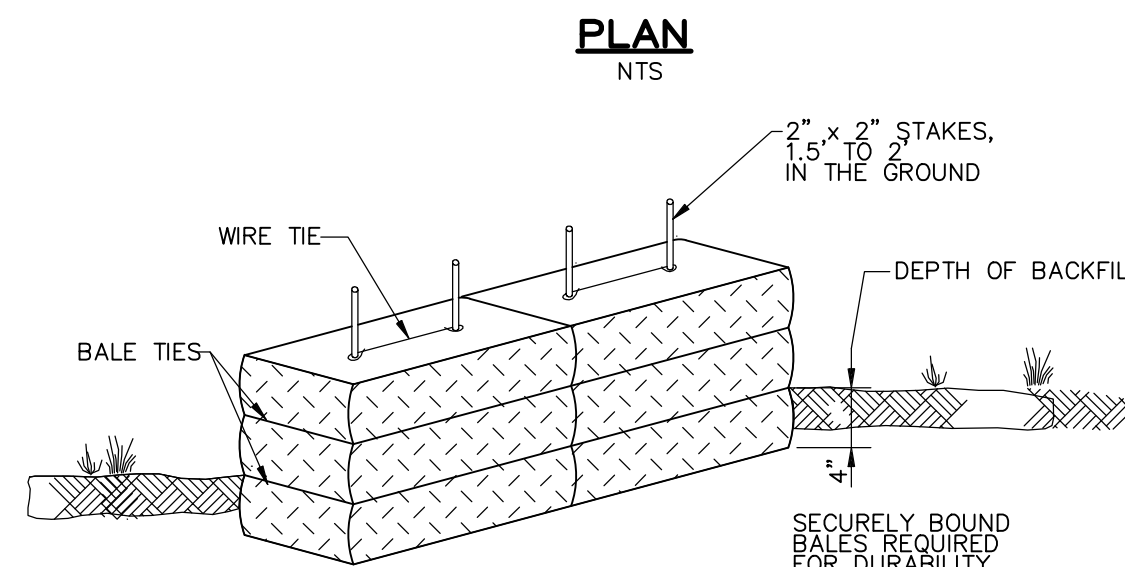
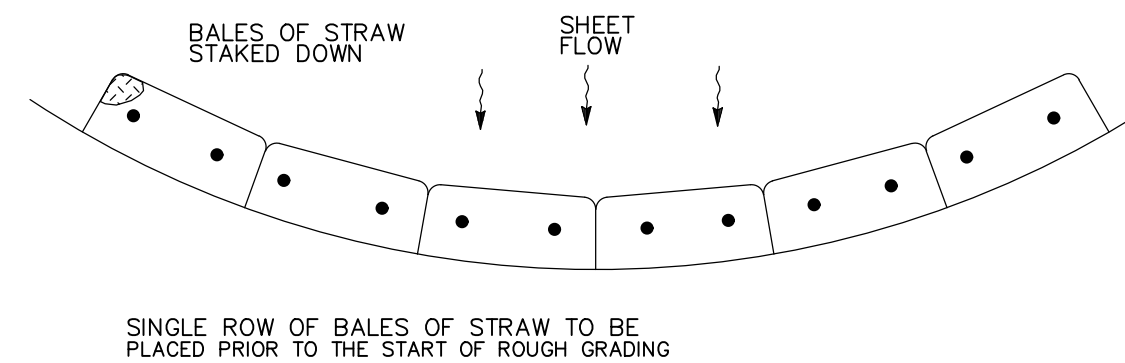
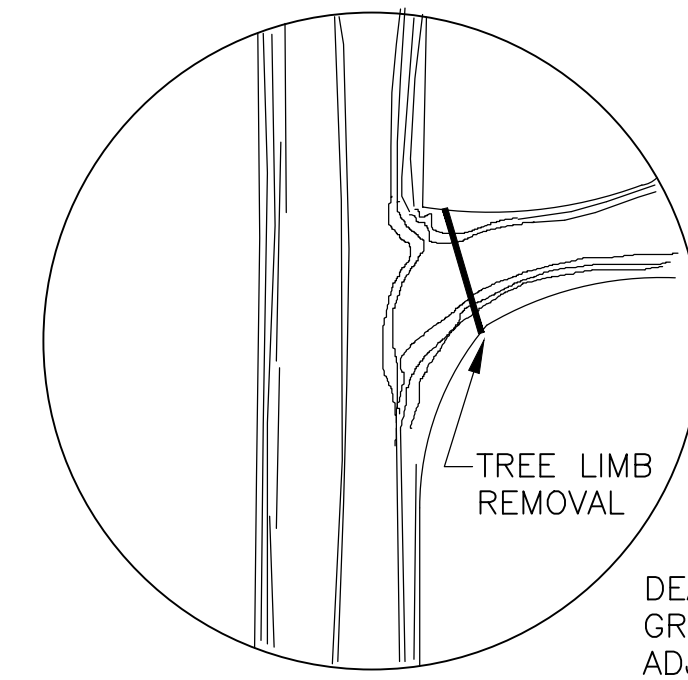
DEAD TREES AND SCRUB OF UNDER GROWTH SHALL BE CUT FLUSH WITH ADJACENT GRADE. NO GRUBBING ALLOWED UNDER DRIP LINE.

2x4\"/>

6\"/>

EROSION CONTROL NOTES

- IT IS THE CONTRACTORS RESPONSIBILITY TO IMPLEMENT THE EROSION AND TURBIDITY CONTROLS AS SHOWN ON THE PLANS. IT IS ALSO THE CONTRACTORS RESPONSIBILITY TO ENSURE THESE CONTROLS ARE PROPERLY INSTALLED, MAINTAINED AND FUNCTIONING PROPERLY TO PREVENT TURBID OR POLLUTED WATER FROM LEAVING THE PROJECT SITE. THE CONTRACTOR WILL ADJUST THE EROSION AND TURBIDITY CONTROLS SHOWN ON THE PLANS AND ADD ADDITIONAL CONTROL MEASURES, AS REQUIRED, TO ENSURE THE SITE MEETS ALL FEDERAL, STATE AND LOCAL EROSION AND TURBIDITY CONTROL REQUIREMENTS.
- SEDIMENT BASINS AND TRAPS, PERIMETER DITCHES, SEDIMENT BARRIERS AND OTHER MEASURES INTENDED TO TRAP SEDIMENT SHALL BE CONSTRUCTED AS A FIRST STEP BEFORE ANY LAND-DISTURBING TAKES PLACE. ALL SEDIMENT CONTROL MEASURES ARE TO BE ADJUSTED TO MEET FIELD CONDITIONS AT THE TIME OF CONSTRUCTION AND BE CONSTRUCTED PRIOR TO ANY GRADING OR DISTURBANCE OF EXISTING SURFACE MATERIAL ON BALANCE OF SITE. PERIMETER SEDIMENT BARRIERS SHALL BE CONSTRUCTED TO PREVENT SEDIMENT OR TRASH FROM FLOWING OR FLOATING ON TO ADJACENT PROPERTIES.
- DURING CONSTRUCTION OF THE PROJECT, SOIL STOCK PILES SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES. THE CONTRACTOR IS RESPONSIBLE FOR THE TEMPORARY PROTECTIONS AND PERMANENT STABILIZATION OF ALL SOIL STOCKPILES ON SITE AS WELL AS SOIL INTENTIONALLY TRANSPORTED FROM THE PROJECT SITE.
- AFTER ANY SIGNIFICANT RAINFALL SEDIMENT CONTROL STRUCTURES WILL BE INSPECTED FOR INTEGRITY. ANY DAMAGED DEVICES SHALL BE REPAIRED IMMEDIATELY.
- CONCENTRATED RUNOFF SHALL NOT FLOW DOWN CUT OR FILL SLOPES UNLESS CONTAINED WITHIN AN ADEQUATE TEMPORARY OR PERMANENT CHANNEL, FLUME OR SLOPE DRAIN STRUCTURE.
- WHENEVER WATER SEEPS FROM A SLOPE FACE ADEQUATE DRAINAGE OR OTHER PROTECTION SHALL BE PROVIDED.
- SEDIMENT WILL BE PREVENTED FROM ENTERING ANY STORM DRAIN SYSTEM, DITCH, OR CHANNEL. ALL STORM SEWER INLETS THAT ARE MADE OPERABLE DURING CONSTRUCTION SHALL BE PROTECTED SO THAT SEDIMENT-LADEN WATER CANNOT ENTER THE CONVEYANCE SYSTEM WITHOUT FIRST BEING FILTERED OR OTHERWISE TREATED TO REMOVE SEDIMENT.
- BEFORE TEMPORARY OR NEWLY CONSTRUCTED STORMWATER CONVEYANCE CHANNELS ARE MADE OPERATIONAL, ADEQUATE OUTLET PROTECTION AND ANY REQUIRED TEMPORARY OR PERMANENT CHANNEL LINING SHALL BE INSTALLED IN BOTH THE CONVEYANCE CHANNEL AND RECEIVING CHANNEL.
- WHEN WORK IN A LIVE WATERCOURSE IS PERFORMED, PRECAUTIONS SHALL BE TAKEN TO MINIMIZE ENRICHMENT. CONTROL SEDIMENT TRANSPORT AND STABILIZE THE WORK AREA TO THE GREATEST EXTENT POSSIBLE DURING CONSTRUCTION. NONERODIBLE MATERIAL SHALL BE USED FOR THE CONSTRUCTION OF CAUSEWAYS AND COFFERDAMS. EARTHEN FILL MAY BE USED FOR THESE STRUCTURES IF ARMORED WITH NONERODIBLE COVER MATERIALS.
- STOCKPILING MATERIAL: NO EXCAVATED MATERIAL SHALL BE STOCKPILED IN SUCH A MANNER AS TO DIRECT RUNOFF DIRECTLY OFF THE PROJECT SITE INTO ANY ADJACENT WATER BODY OR STORM WATER COLLECTION FACILITY.
- EXPOSED AREA LIMITATION: THE SURFACE AREA OF OPEN, RAW ERODIBLE SOIL EXPOSED BY CLEARING AND GRUBBING OPERATIONS OR EXCAVATION AND FILLING OPERATIONS SHALL NOT EXCEED 1 ACRE. IF THE TOTAL AREA TO BE CLEARED IS EQUAL TO, OR EXCEEDS ONE (1) ACRE, THEN THE CONTRACTOR WILL BE RESPONSIBLE FOR PREPARING A STORMWATER POLLUTION PREVENTION PLAN (SWPPP) IN ACCORDANCE WITH EPA'S NPDES REGULATIONS. THE CONTRACTOR WILL BE RESPONSIBLE FOR SUBMITTING A NOTICE ON INTENT (NOI) TO EPA FORTY-EIGHT (48) HOURS PRIOR TO COMMENCING CONSTRUCTION.
- TEMPORARY SEEDING: AREAS OPENED BY CONSTRUCTION OPERATIONS AND THAT ARE NOT ANTICIPATED TO BE RE-EXCAVATED OR DRESSED AND RECEIVE FINAL GRASSING TREATMENT WITHIN 30 DAYS SHALL BE SEEDED WITH A QUICK GROWING GRASS SPECIES WHICH WILL PROVIDE AN EARLY COVER DURING THE SEASON IN WHICH IT IS PLANTED AND WILL NOT LATER COMPETE WITH THE PERMANENT GRASSING.
- TEMPORARY SEEDING AND MULCHING: SLOPES STEEPER THAN 6:1 THAT FALL WITHIN THE CATEGORY ESTABLISHED IN PARAGRAPH 12 ABOVE LOOSE MEASURE OF MULCH MATERIAL CUT INTO THE SOIL OF THE SEEDED AREA ADEQUATE TO PREVENT MOVEMENT OF SEED AND MULCH.
- TEMPORARY GRASSING: THE SEEDED OR SEEDED AND MULCHED AREA(S) SHALL BE ROLLED AND WATERED OR HYDROMULCHED OR OTHER SUITABLE METHODS IF REQUIRED TO ASSURE OPTIMUM GROWING CONDITIONS FOR THE ESTABLISHMENT OF A GOOD GRASS COVER. TEMPORARY GRASSING SHALL BE THE SAME MIX & AMOUNT REQUIRED FOR PERMANENT GRASSING IN THE CONTRACT SPECIFICATIONS.
- TEMPORARY REGRASSING : IF, AFTER 14 DAYS FROM SEEDING, THE TEMPORARY GRASSED AREAS HAVE NOT ATTAINED A MINIMUM OF 75 PERCENT GOOD GRASS COVER, THE AREA WILL BE REWORKED AND ADDITIONAL SEED APPLIED SUFFICIENT TO ESTABLISH THE DESIRED VEGETATIVE COVER.
- MAINTENANCE: ALL FEATURES OF THE PROJECT DESIGNED AND CONSTRUCTED TO PREVENT EROSION AND SEDIMENT SHALL BE MAINTAINED DURING THE LIFE OF THE CONSTRUCTION SO AS TO FUNCTION AS THEY WERE ORIGINALLY DESIGNED AND CONSTRUCTED.
- PERMANENT EROSION CONTROL: THE EROSION CONTROL FACILITIES OF THE PROJECT SHOULD BE DESIGNED TO MINIMIZE THE IMPACT ON THE OFFSITE FACILITIES.
- PERMANENT SEEDING: ALL AREAS WHICH HAVE BEEN DISTURBED BY CONSTRUCTION WILL, AS A MINIMUM, BE SEEDED. THE SEEDING MIX MUST PROVIDE BOTH LONG-TERM VEGETATION AND RAPID GROWTH SEASONAL VEGETATION. SLOPES STEEPER THAN 4:1 SHALL BE SEEDED AND MULCHED OR SODDED.
- ALL SLOPES STEEPER THAN 3:1 SHALL BE SODDED.



TEMPORARY STRAW BALE SEDIMENT BARRIER

DETAIL C  
NTS

TREE PROTECTION BARRICADE SPECIFICATIONS:

- CONTRACTOR TO COMPLY WITH ALL LOCAL TREE ORDINANCES IN ADDITION TO THE SPECIFICATIONS NOTED BELOW.
- FOUR CORNER UPRIGHT STAKES OF NO LESS THAN 2\"/>

TREE PROTECTION BARRICADE

DETAIL D  
NTS

XREFS: [CDMS\_2234] Images: [ ]  
Last saved by: SCOTTVC Time: 4/29/2023 4:43:15 AM  
pw:\\cdmsmith-0202-pw.bentley.com\pw\_r119247\221208\_PHASE 2 INTAKE PS\04 Design Services NM\_100%\_02 Civil\10 CADD\05 Aquifer Recharge Area Design\CD02ECDT.DWG  
© 2023 CDM SMITH ALL RIGHTS RESERVED.  
REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY:	C. MONTGOMERY
DRAWN BY:	C. SCOTT
SHEET CHK'D BY:	S. WOOD
CROSS CHK'D BY:	J. WITIG
APPROVED BY:	C. MONTGOMERY
DATE:	MAY 2023

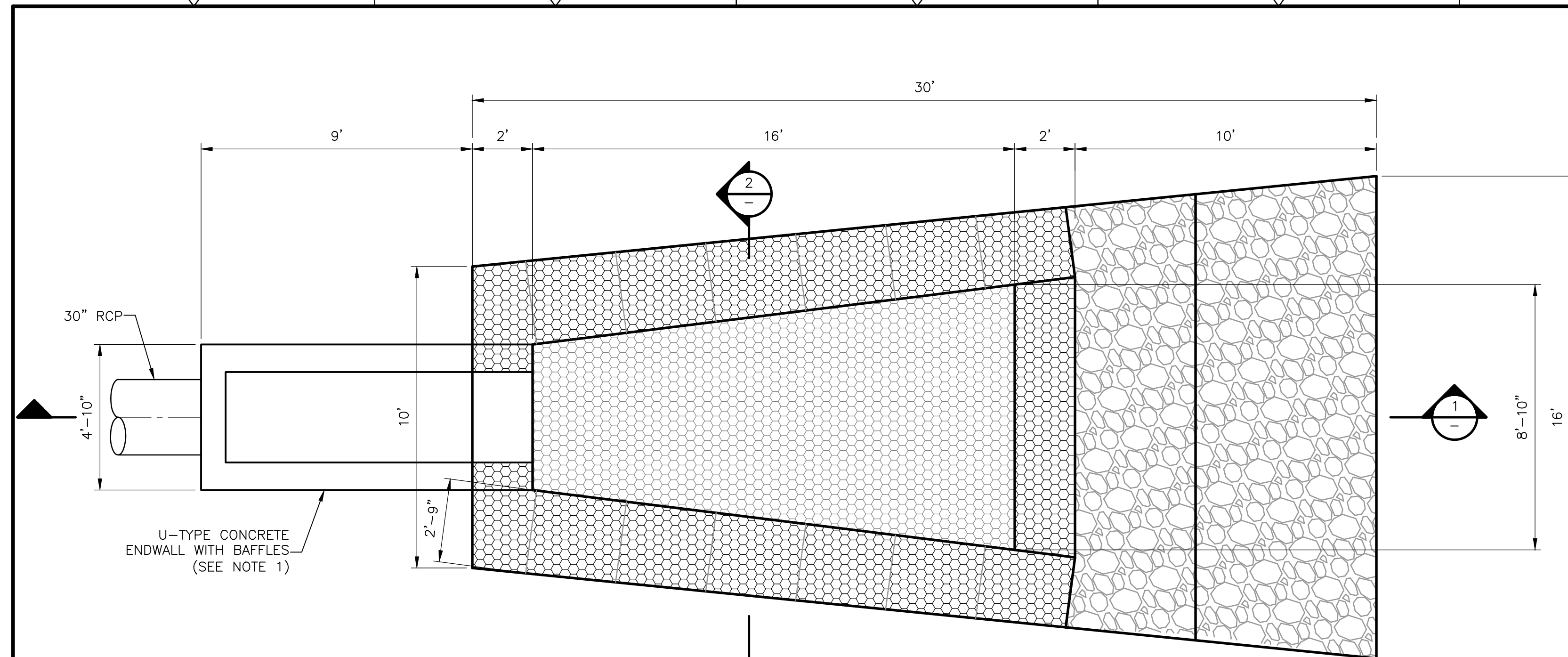
**CDM Smith**  
4651 Salisbury Road, Suite 420  
Jacksonville, FL 32256  
Tel: (904) 731-7109  
FL COA No. EB-0000020

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT  
BLACK CREEK WATER RESOURCE  
DEVELOPMENT PROJECT  
AQUIFER RECHARGE AREA

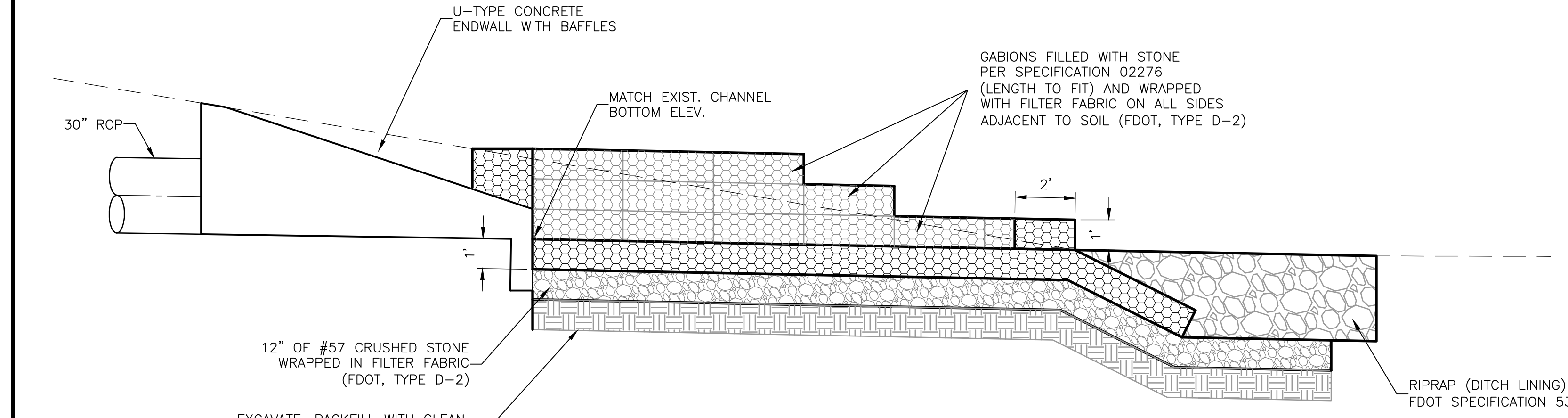
SEDIMENTATION AND EROSION CONTROL  
DETAILS

DATE:	CRAIG C. MONTGOMERY PE NO. 45953
PROJECT NO.	9247-221208
FILE NAME:	CD02ECDT.DWG
SHEET NO.	CD-2

XREFS: [CDMS\_2234] Images: [ ]  
 Last saved by: SCOTTVC Time: 4/29/2023 4:43:03 AM  
 pw:\cdm\smith-0202-pw.bentley.com\pw\_r1\9247\221208\_PHASE 2 INTAKE PS\04 Design Services NM\_100%\_02 Civil\10 CADD\05 Aquifer Recharge Area Design\CD03Dtls.DWG  
 © 2023 CDM SMITH ALL RIGHTS RESERVED.  
 REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.



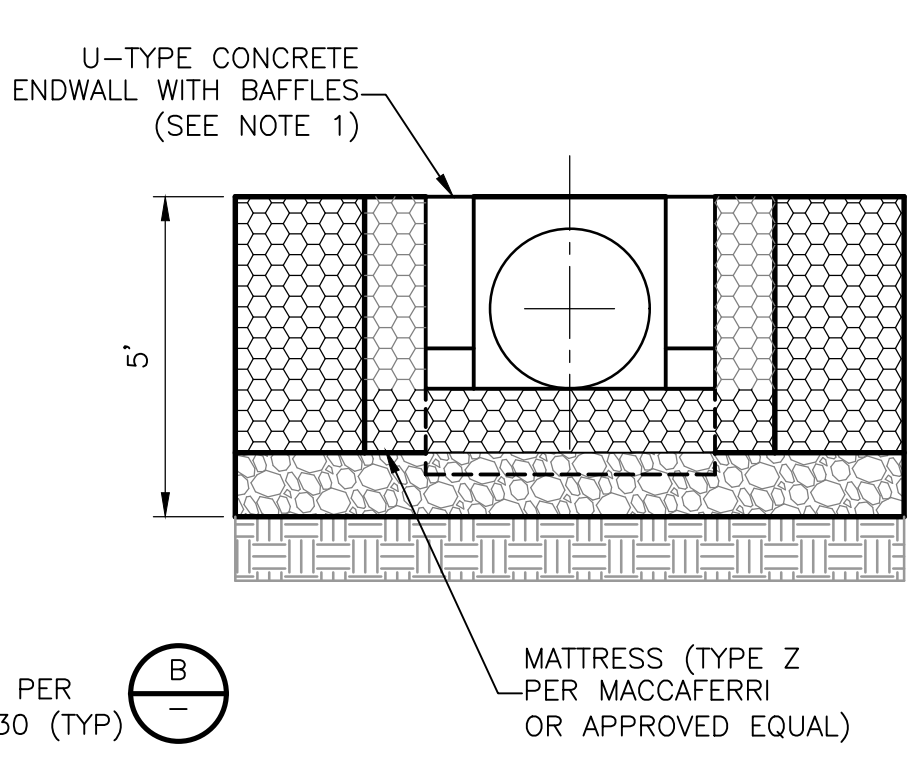
**PLAN**  
1/3" = 1'-0"



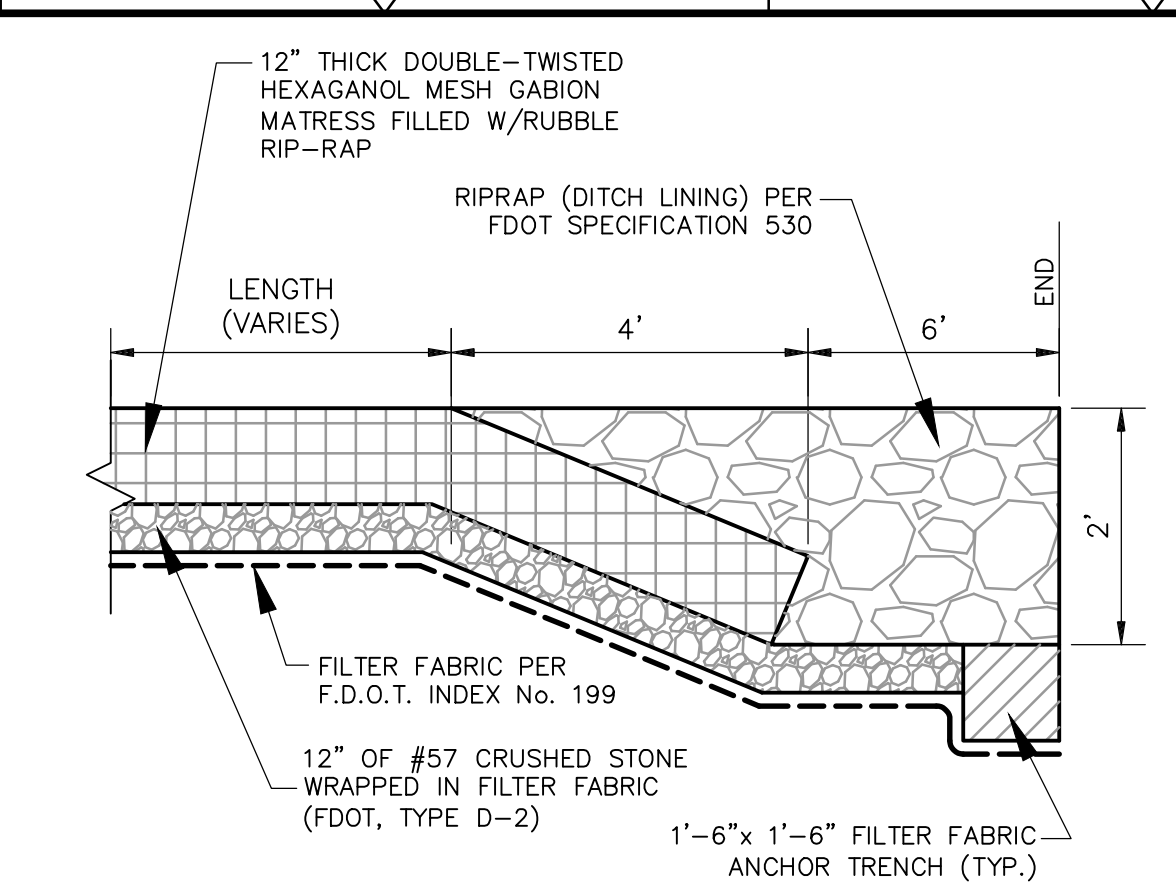
**SECTION 1**  
1/3" = 1'-0"

- NOTES:**
- U-TYPE CONCRETE ENDWALL WITH BAFFLES SHALL BE IN ACCORDANCE WITH FDOT INDEX 430-011

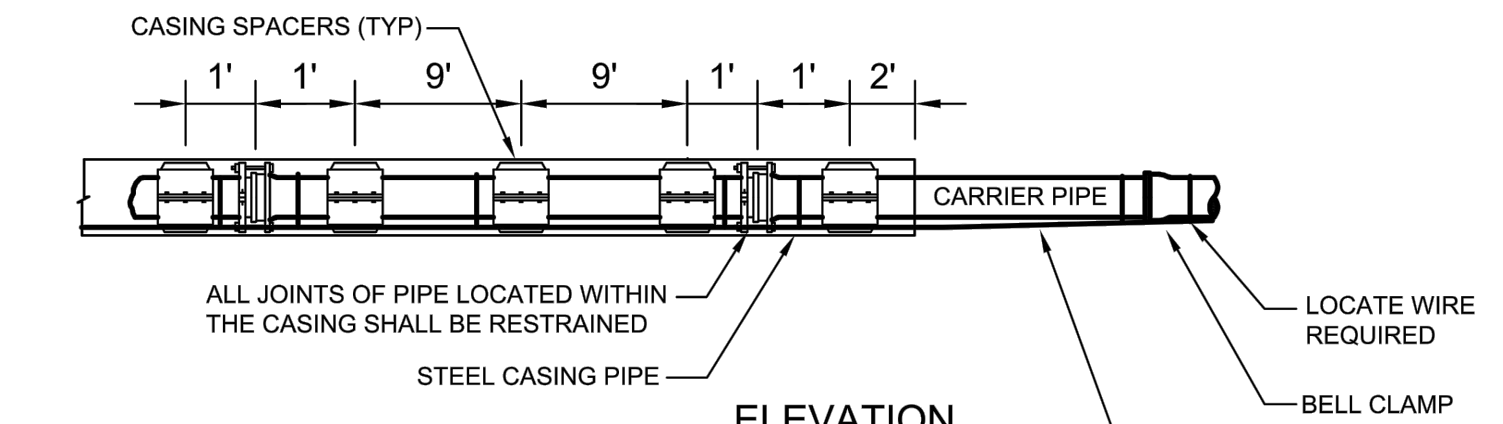
**GABION DISCHARGE STRUCTURE**  
**DETAIL A**  
1/2" = 1'-0"



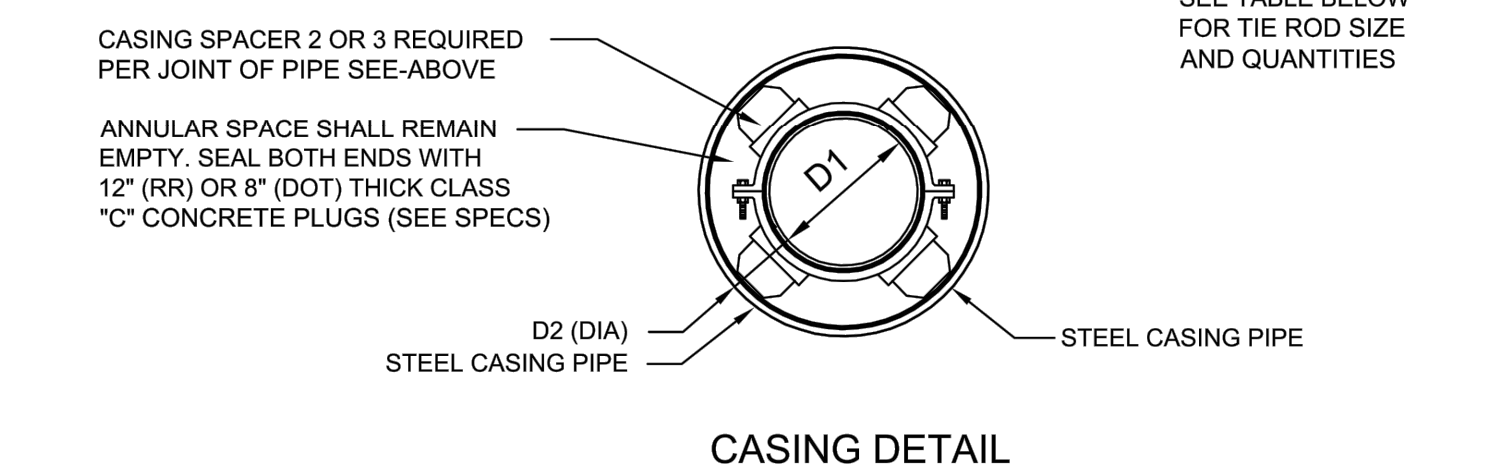
**SECTION 2**  
1/3" = 1'-0"



**DETAIL B**  
NTS



**ELEVATION**



**CASING DETAIL**

CARRIER TYPE AND CASING PIPE SIZES (MIN) IN INCHES												
CARRIER PIPE NO. DIA. (D1)	4	6	8	10	12	14	16	18	20	24	30	36
CASING PIPE NOM. DIA. (D2)	14	16	20	20	24	30	30	30	36	42	48	54
WALL THICKNESS RAILROAD (CSX)	0.25	0.281	0.375	0.375	0.375	0.469	0.469	0.469	0.562	0.625	0.688	0.781
WALL THICKNESS DOT	0.25	0.25	0.25	0.25	0.25	0.312	0.312	0.312	0.375	0.50	0.50	0.50
NUMBER OF TIE RODS (EACH END)	2	2	2	4	4	6	6	8	8	12	14	14
TIE ROD SIZE (DIA.)	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	1"	1"

**CASING SIZE SCHEDULE**

- NOTES**
- MIN. COVER TO TOP OF CASING; a) FDOT-3.0' b) RAILROAD-5.5' TO BASE OF RAIL, 4.5' FOR SECONDARY OR INDUSTRIAL TRACKS.
  - ALL JOINTS WITHIN CARRIER PIPE SHALL BE MECHANICAL RESTRAINED JOINTS.
  - FOR STREET USES WHICH ARE NOT DOT OR RAILROAD, USE DOT CASING THICKNESS UNLESS OTHERWISE INDICATED BY ENGINEER.
  - CASING PIPE SHALL BE FURNISHED IN NOMINAL 8 FOOT LENGTHS (MIN.) UNLESS OTHERWISE INDICATED ON THE DRAWING
  - PIPE TO BE USED AS A CASING SHALL CONFORM TO EITHER ASTM STANDARD A139 FOR "ELECTRIC FUSION (ARC) WELDED STEEL PIPE" WITH A MINIMUM YIELD STRENGTH OF 35,000 PSI OR "API SPECIFICATION API-5LX, GRADE X-42 WELDED STEEL PIPE".

**TYPICAL CASING DETAIL - WATER (NTS)**

**CASING PIPE**  
**DETAIL C**  
NTS

REV. NO.	DATE	DRWN	CHKD	REMARKS

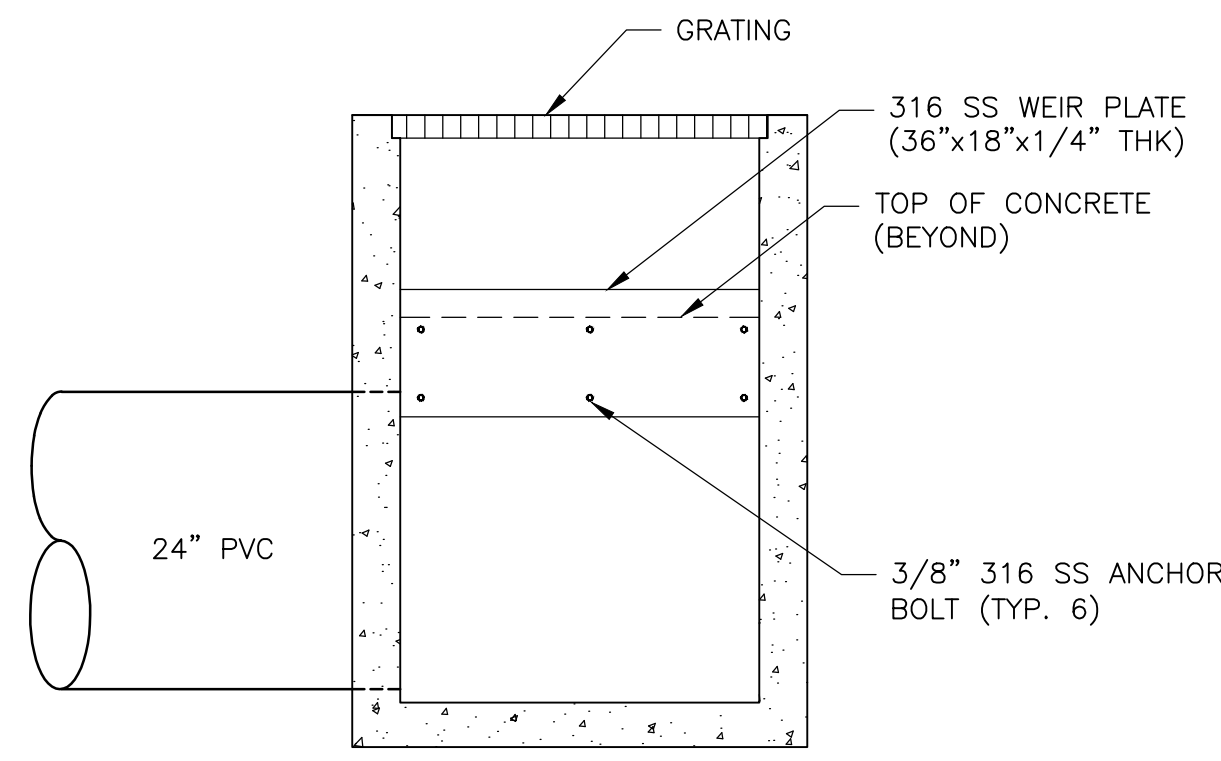
DESIGNED BY: C. MONTGOMERY	 4651 Salisbury Road, Suite 420 Jacksonville, FL 32256 Tel: (904) 731-7109 FL COA No. EB-0000020
DRAWN BY: C. SCOTT	
SHEET CHK'D BY: S. WOOD	
CROSS CHK'D BY: J. WILLITG	
APPROVED BY: C. MONTGOMERY	
DATE: MAY 2023	

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT  
 BLACK CREEK WATER RESOURCE  
 DEVELOPMENT PROJECT  
 AQUIFER RECHARGE AREA

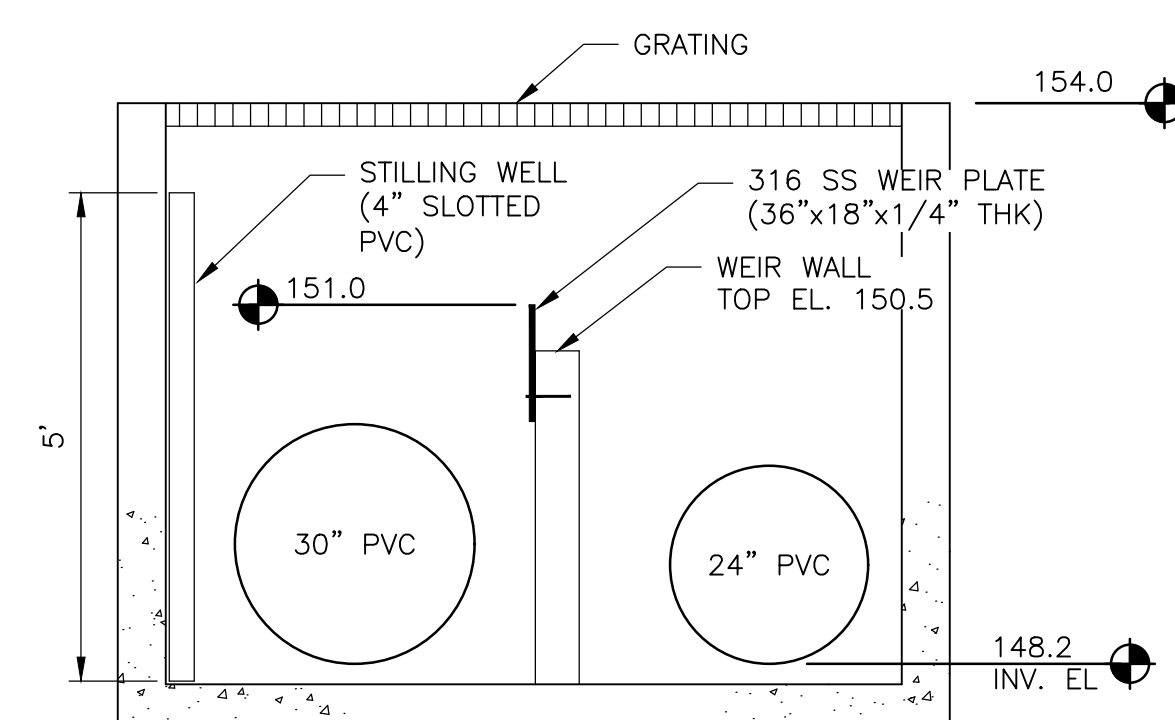
DISCHARGE STRUCTURE DETAILS

DATE: CRAIG C MONTGOMERY PE NO. PE45953
PROJECT NO. 9247-221208 FILE NAME: CD03Dtls.DWG
SHEET NO. <b>CD-3</b>

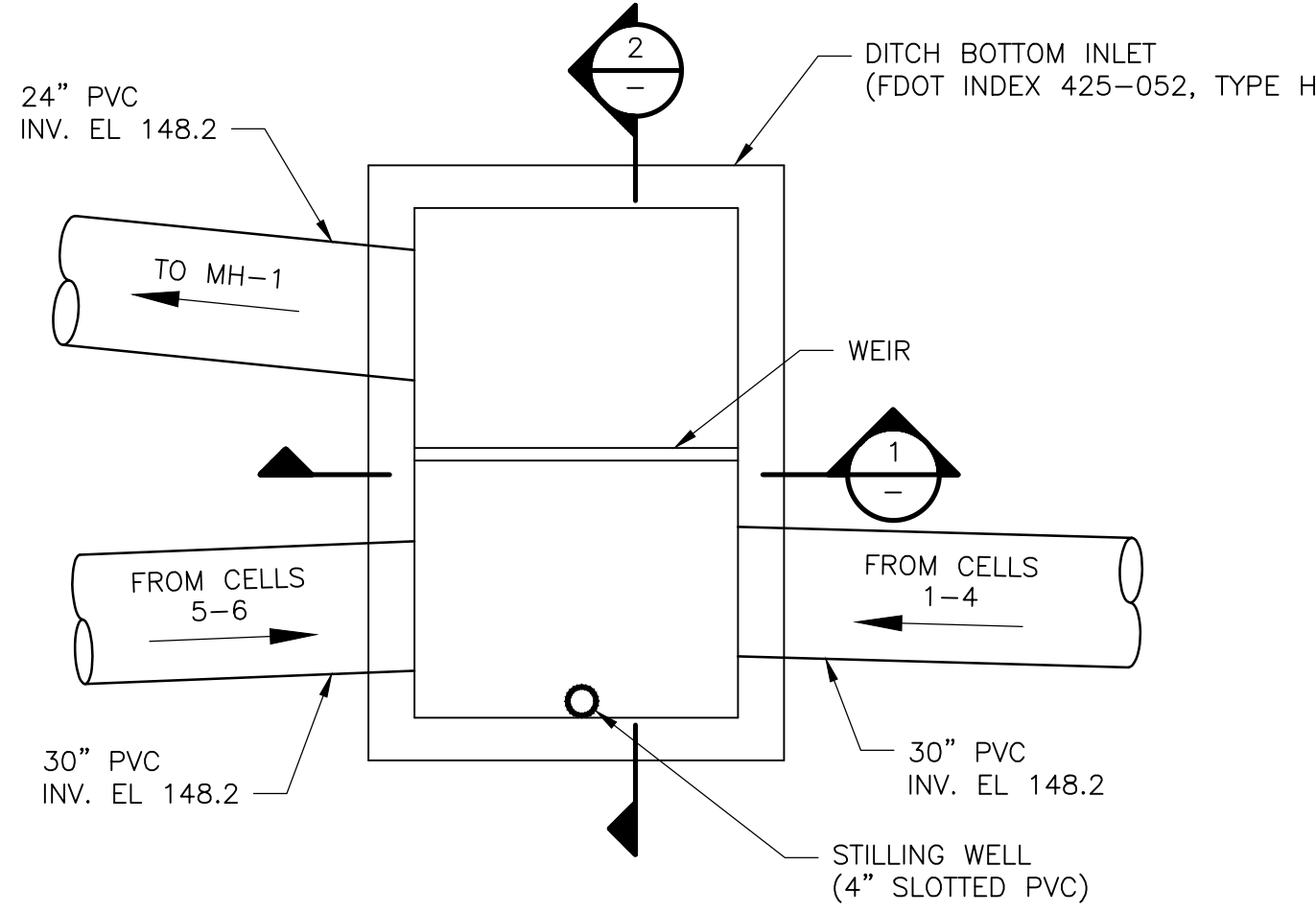
XREFS: [CDMS\_2234] Images: [ ]  
 Last saved by: AUSTUDJ Time: 5/4/2023 9:42:50 AM  
 pw:\cdm\smith-0202-pw\benley.com\pw\_r1\9247\221208\_PHASE 2 INTAKE PS\04 Design Services NM\_100%\_02 Civil\10 CADD\05 Aquifer Recharge Area Design\CD04DTLS.DWG  
 © 2023 CDM SMITH ALL RIGHTS RESERVED.  
 REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.



**SECTION 1**  
NOT TO SCALE

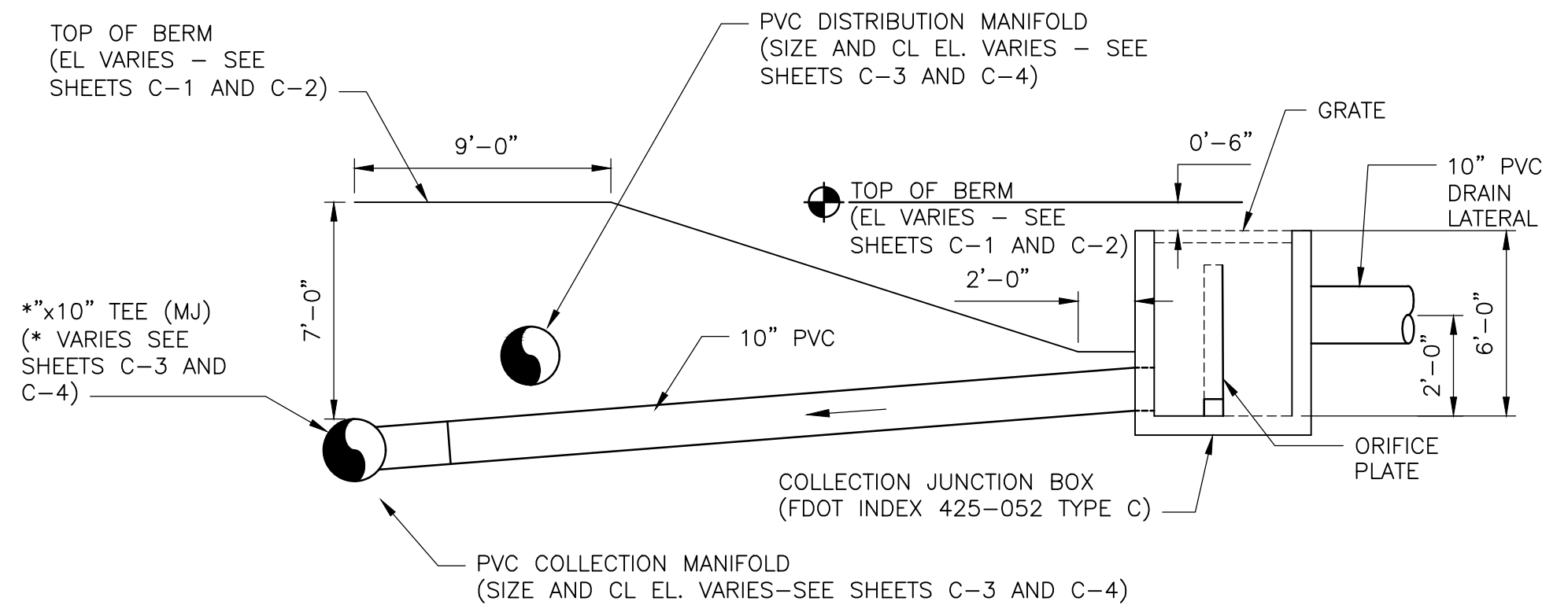


**SECTION 2**  
NOT TO SCALE

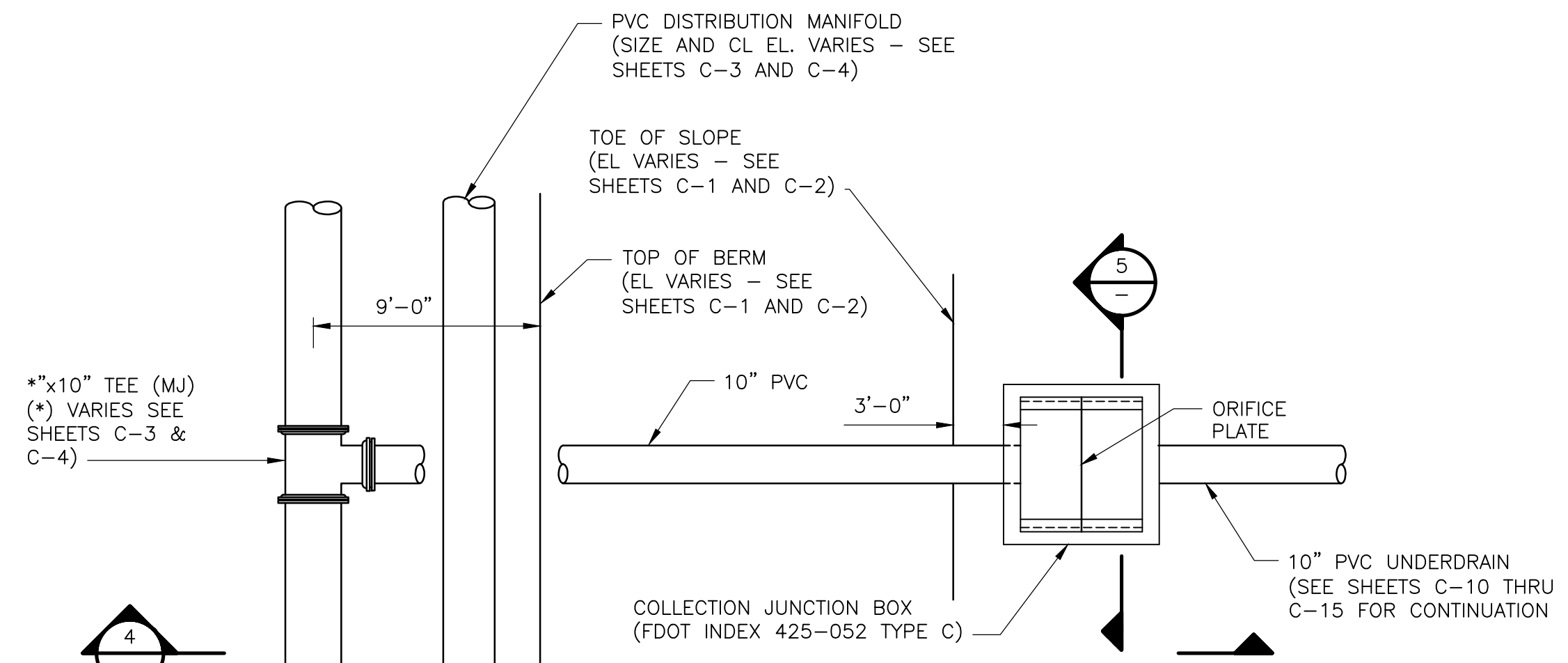


**PLAN**  
NOT TO SCALE

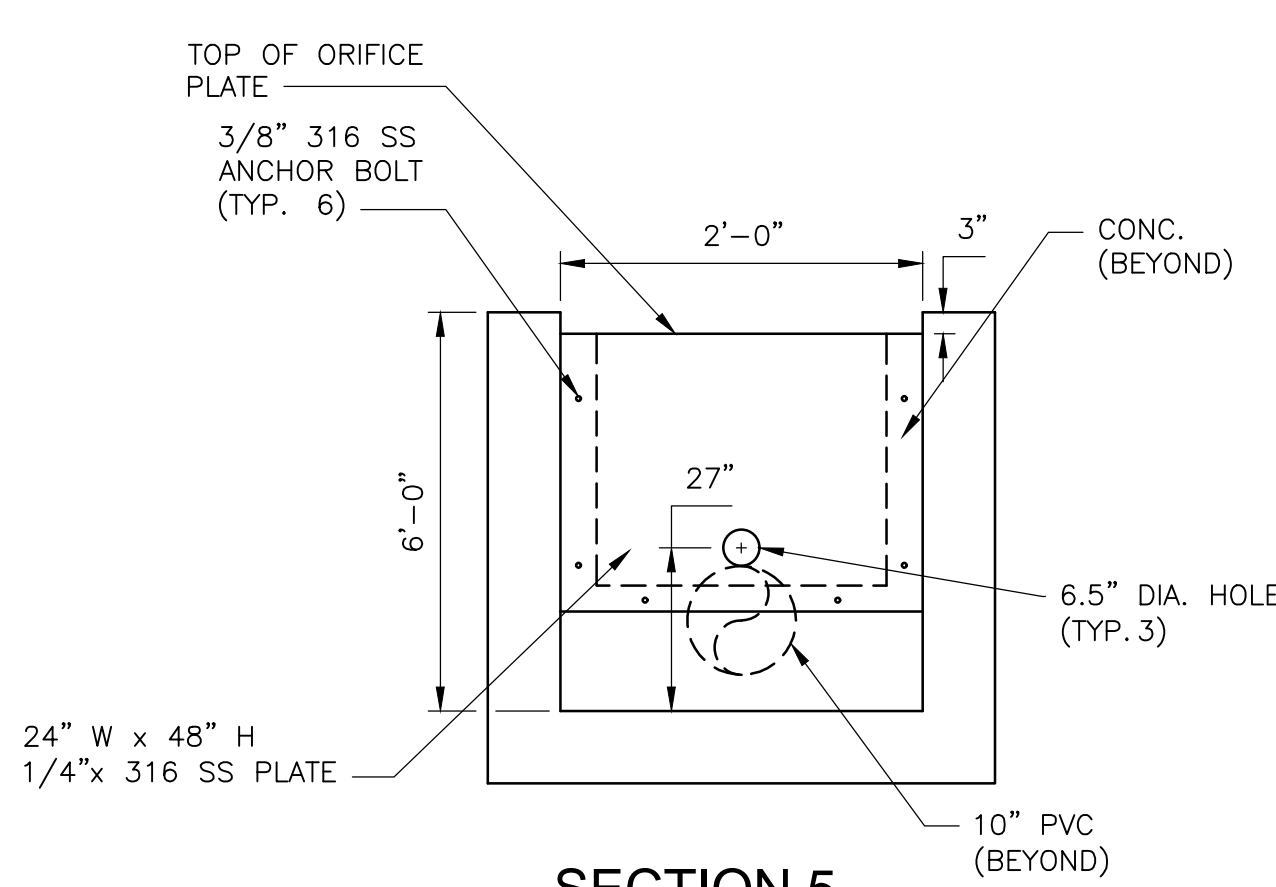
**OUTFALL JUNCTION BOX  
DETAIL A**  
NOT TO SCALE  
C-4



**SECTION 4**  
NOT TO SCALE

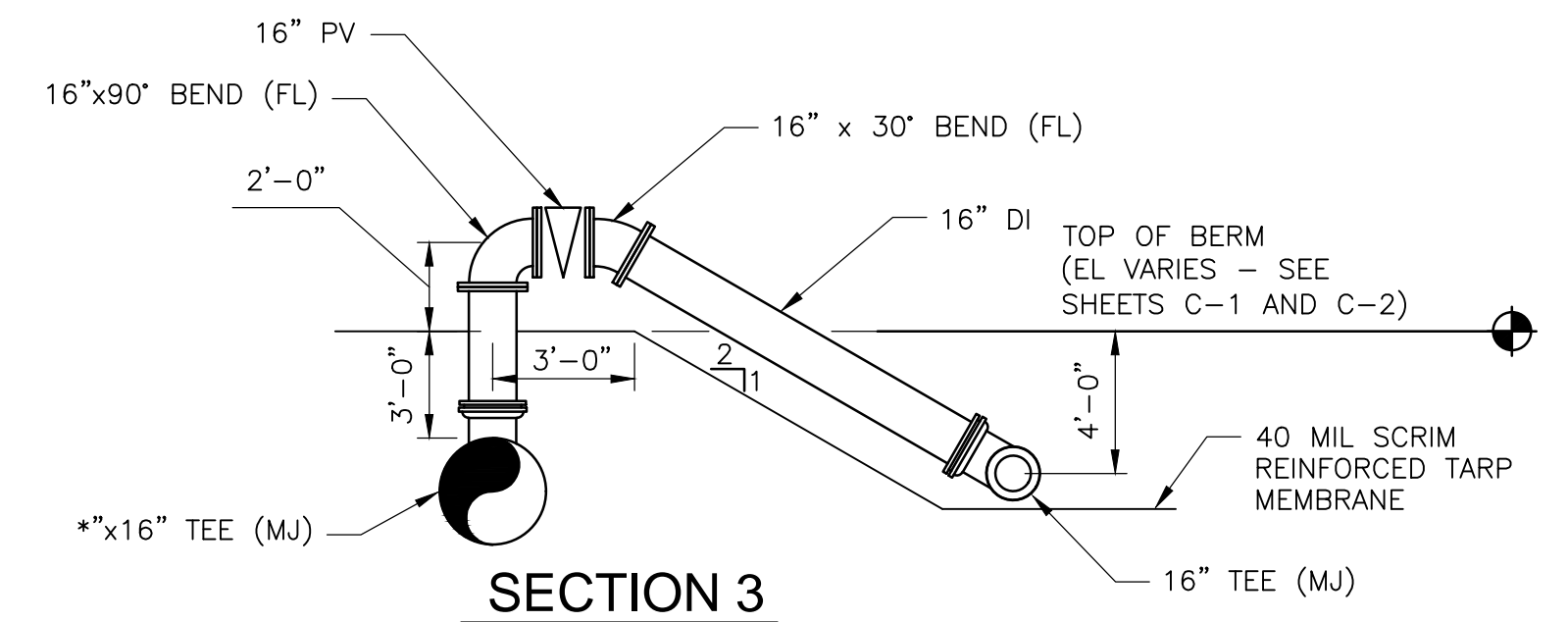


**PLAN**  
NOT TO SCALE

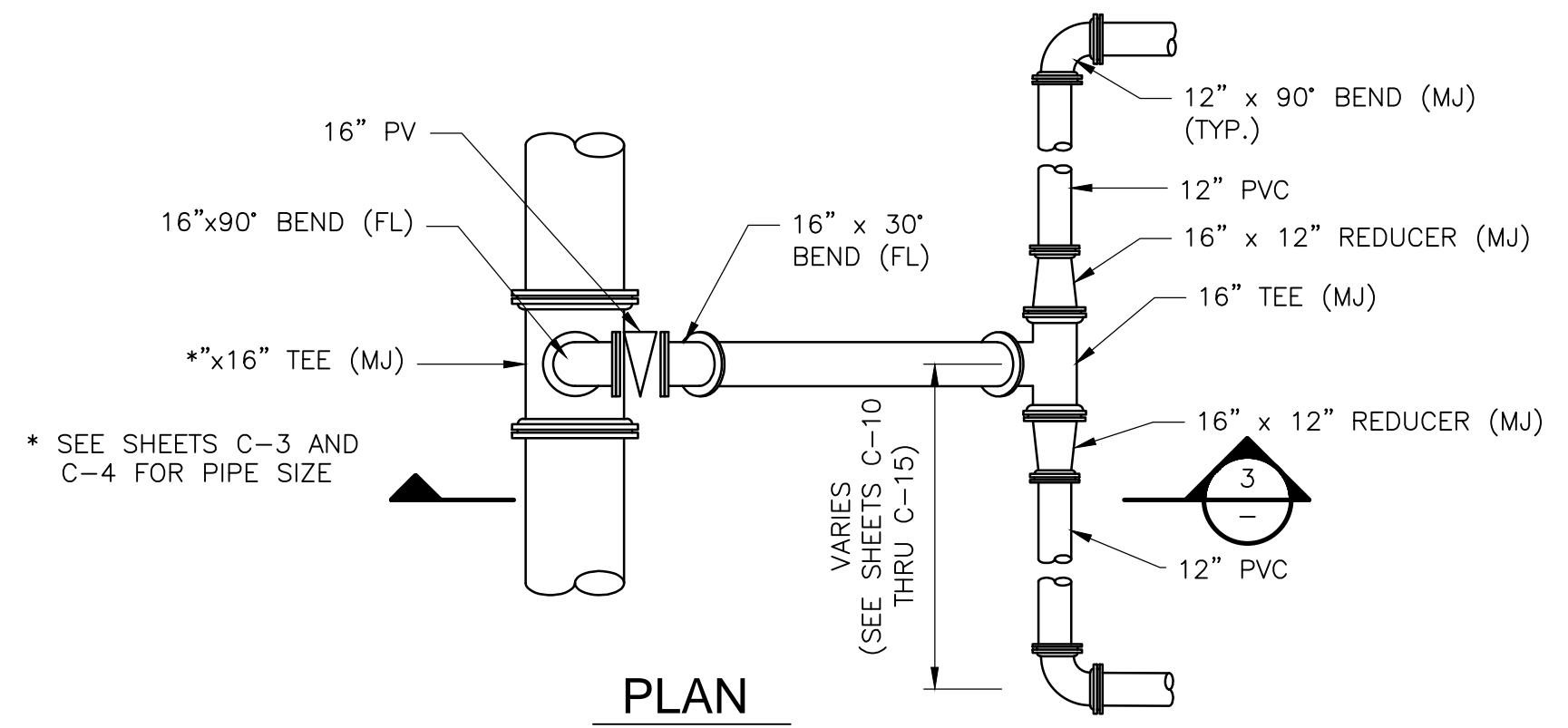


**SECTION 5**  
NOT TO SCALE

**DRAIN MANIFOLD TO LATERAL CONNECTION  
DETAIL B**  
NOT TO SCALE  
C-3  
C-4

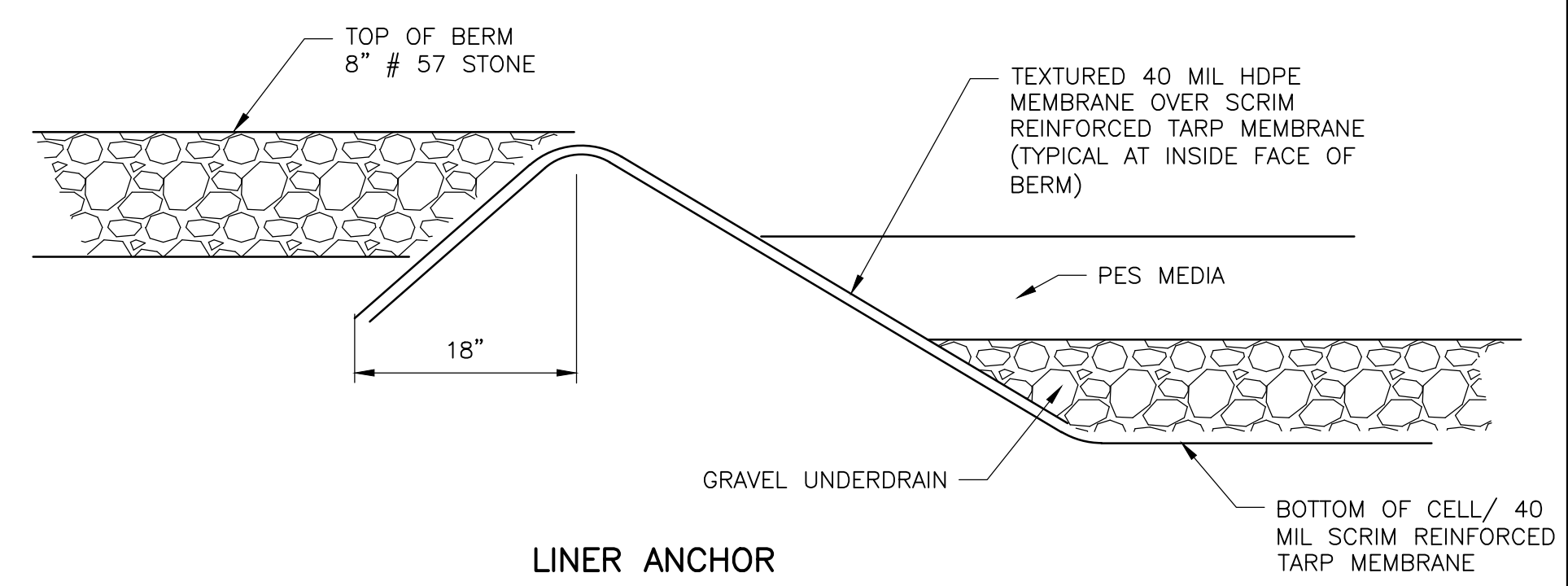


**SECTION 3**  
NOT TO SCALE



**PLAN**  
NOT TO SCALE

**DISTRIBUTION MANIFOLD TO LATERAL CONNECTION  
DETAIL C**  
NOT TO SCALE  
C-3  
C-4



**LINER ANCHOR  
DETAIL D**  
NOT TO SCALE

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: C. MONTGOMERY
DRAWN BY: C. SCOTT
SHEET CHK'D BY: S. WOOD
CROSS CHK'D BY: J. WITIG
APPROVED BY: C. MONTGOMERY
DATE: MAY 2023



4651 Salisbury Road, Suite 420  
 Jacksonville, FL 32256  
 Tel: (904) 731-7109  
 FL COA No. EB-0000020

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT  
 BLACK CREEK WATER RESOURCE  
 DEVELOPMENT PROJECT  
 AQUIFER RECHARGE AREA

OUTFALL DRAIN BOX,  
 AND MANIFOLD DETAILS

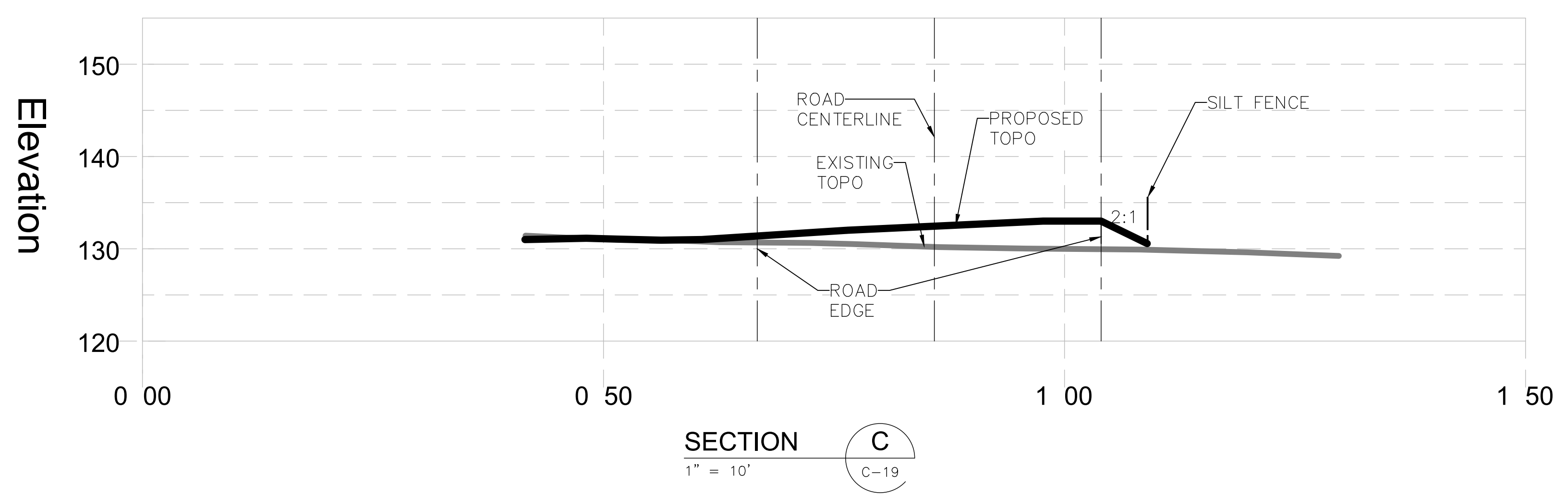
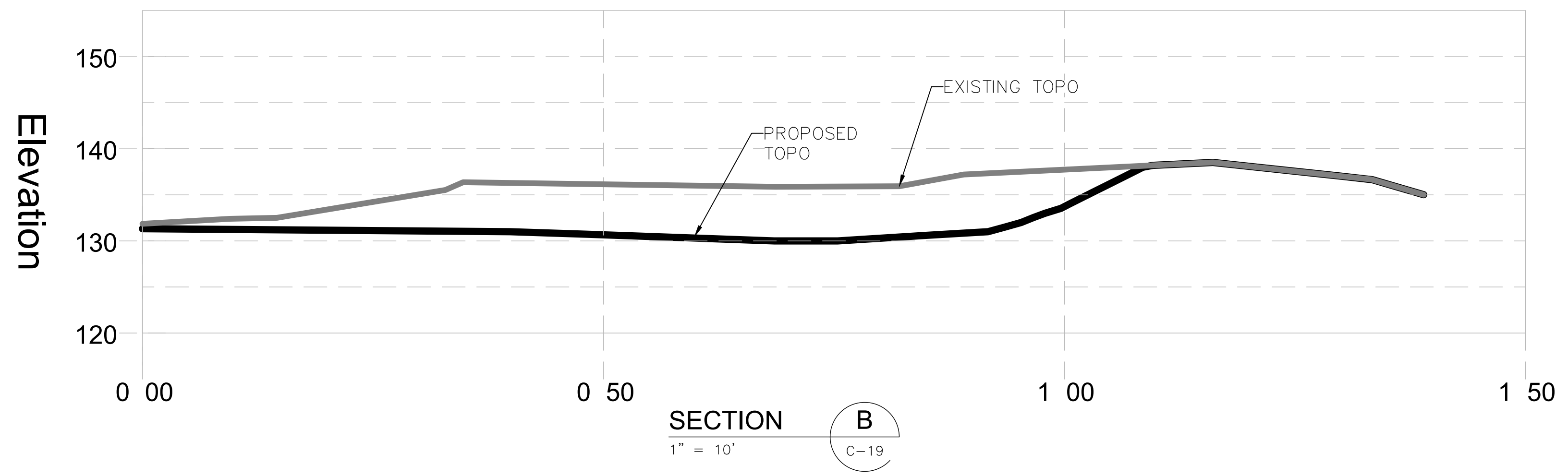
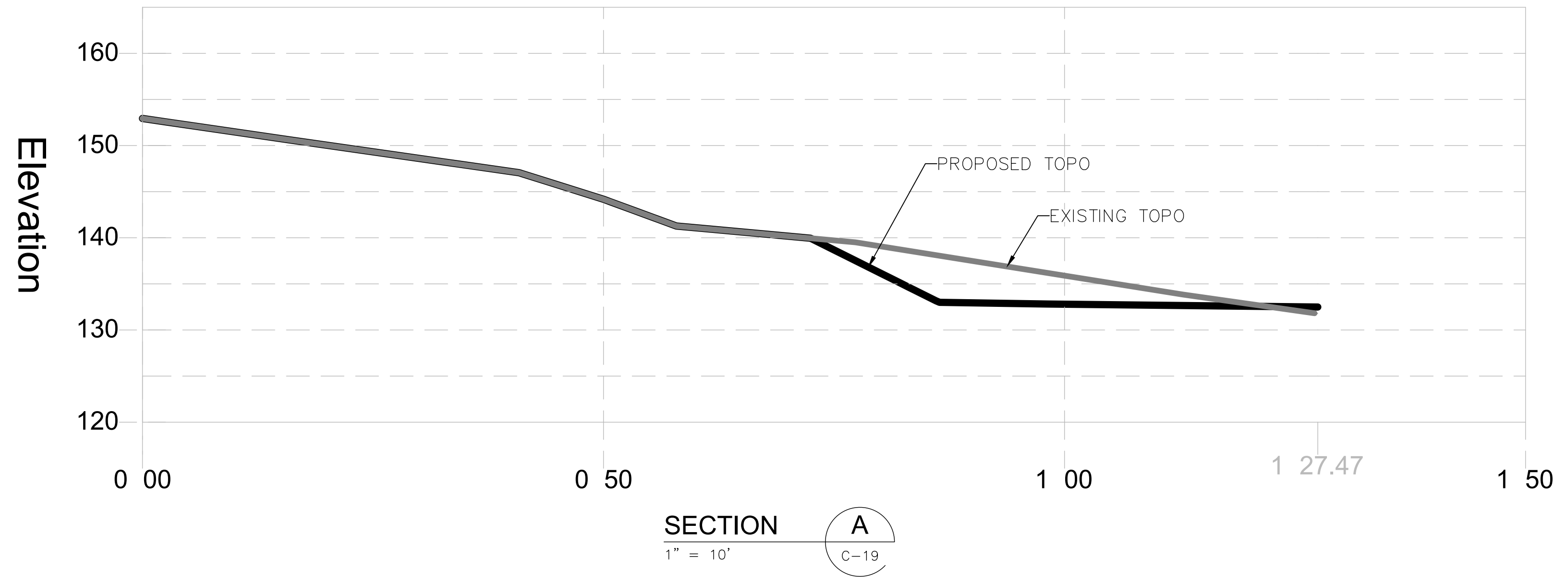
DATE: CRAIG C. MONTGOMERY  
 PE NO. 45953

PROJECT NO. 9247-221208  
 FILE NAME: CD04DTLS.DWG

SHEET NO.  
**CD-4**

ISSUED FOR BID

©2018 CDM SMITH ALL RIGHTS RESERVED. REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.



REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: WCL  
 DRAWN BY: JZ  
 SHEET CHK'D BY: TD  
 CROSS CHK'D BY: MRM  
 APPROVED BY: \_\_\_\_\_  
 DATE: MAY 2023

**SWIG**  
 ENVIRONMENTAL SCIENCE AND ENGINEERING  
 3201 1<sup>ST</sup> AVENUE S, SUITE 212,  
 SEATTLE, WA 98134  
 Tel: (206)276-9178  
 EMAIL: MMERKELBACK@GREENEARTHOPS.COM

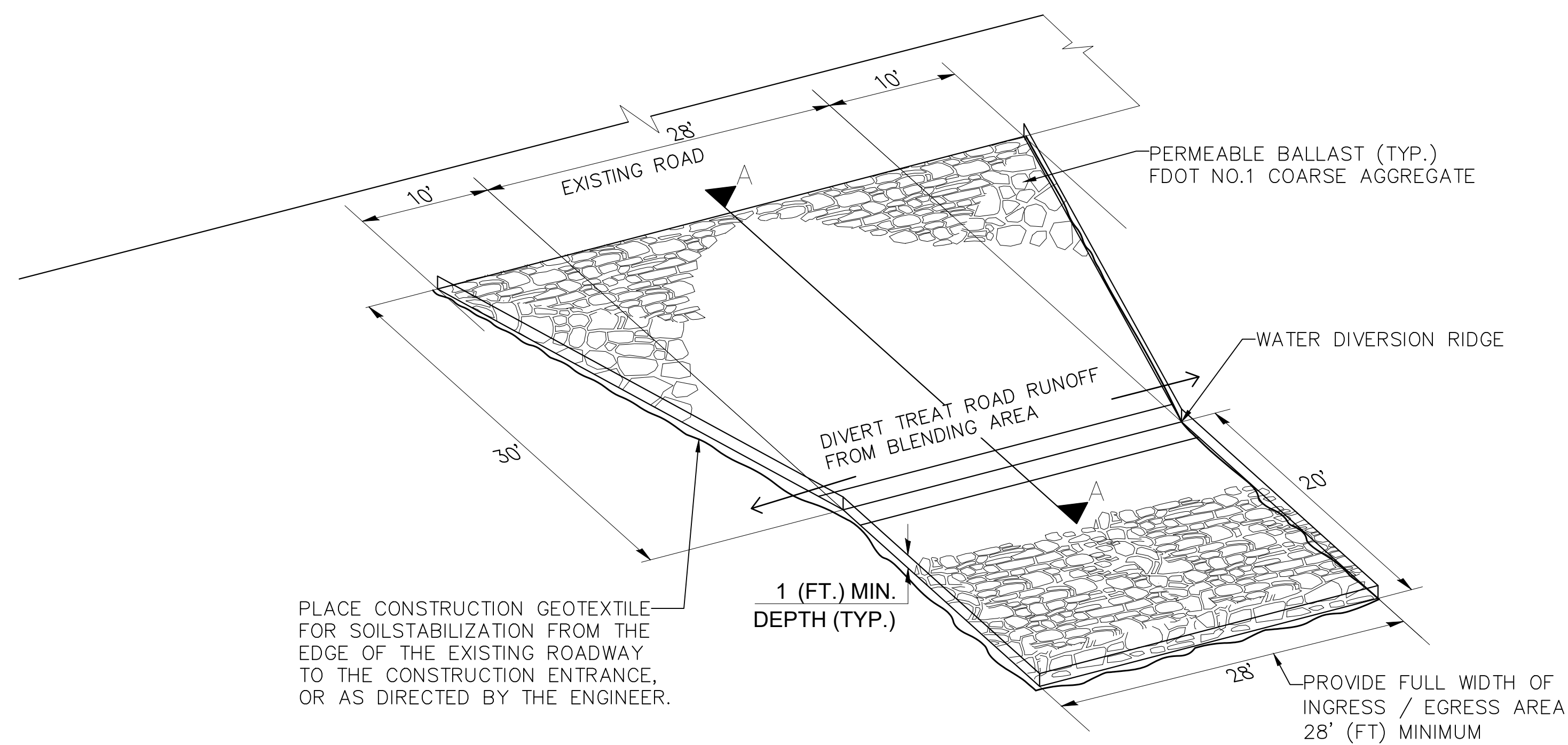
ST. JOHNS RIVER WATER MANAGEMENT DISTRICT  
 BLACK CREEK WATER RESOURCE  
 DEVELOPMENT PROJECT  
 AQUIFER RECHARGE AREA

BLENDING AREA SECTIONS

CD-5

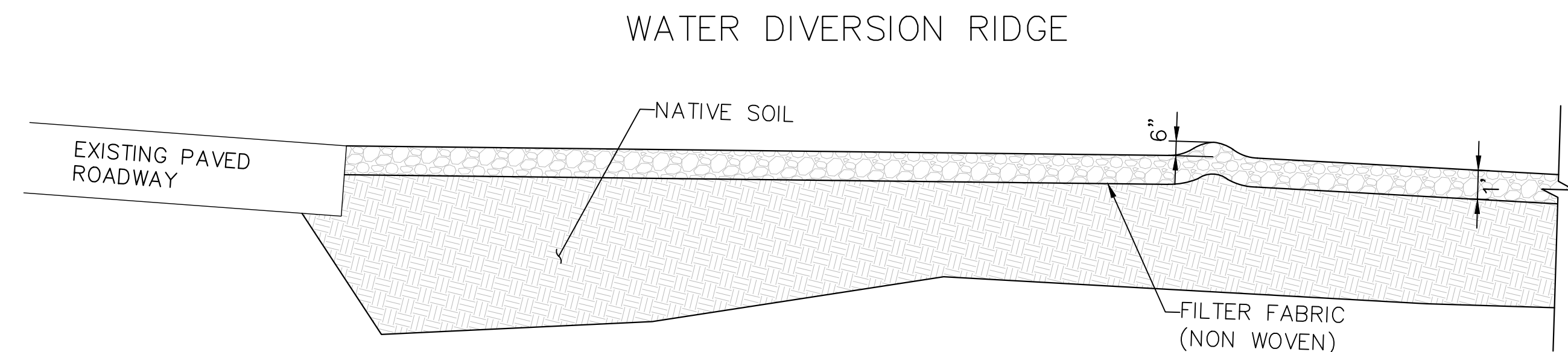
PROJECT NO. 9247-221208
FILE NAME:
SHEET NO.
<b>CD-5</b>

©2018 CDM SMITH ALL RIGHTS RESERVED. REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.



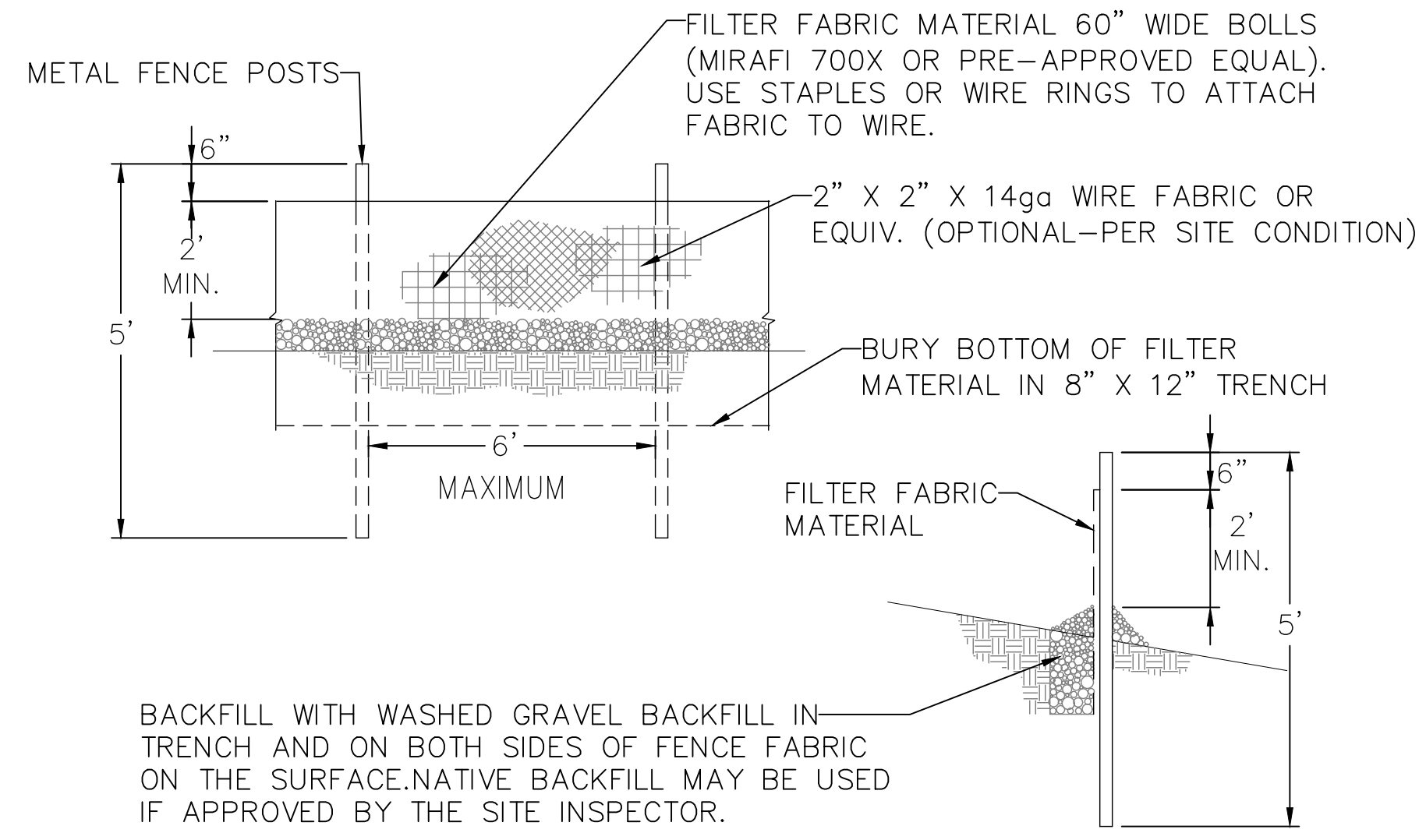
STABILIZED CONSTRUCTION ENTRANCE

**DETAIL 1**  
1" = 8'  
C-18



**SECTION A**  
1" = 4'  
C-18

SILT FENCE



NOTE: ANGLE SILT FENCE BACK UP THE SLOPE AT THE END OF RUN.

SILT FENCE  
**DETAIL 2**  
1" = 2'  
C-18

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: WCL  
 DRAWN BY: JZ  
 SHEET CHK'D BY: TD  
 CROSS CHK'D BY: MRM  
 APPROVED BY: \_\_\_\_\_  
 DATE: MAY 2023

**SWIG**  
 ENVIRONMENTAL SCIENCE AND ENGINEERING  
 3201 1<sup>ST</sup> AVENUE S, SUITE 212,  
 SEATTLE, WA 98134  
 Tel: (206)276-9178  
 EMAIL: MMERKELBACK@GREENEARTHOPS.COM

ANTHONY M. DIORIO  
 LICENSE  
 NO. 94071  
 STATE OF FLORIDA  
 PROFESSIONAL ENGINEER

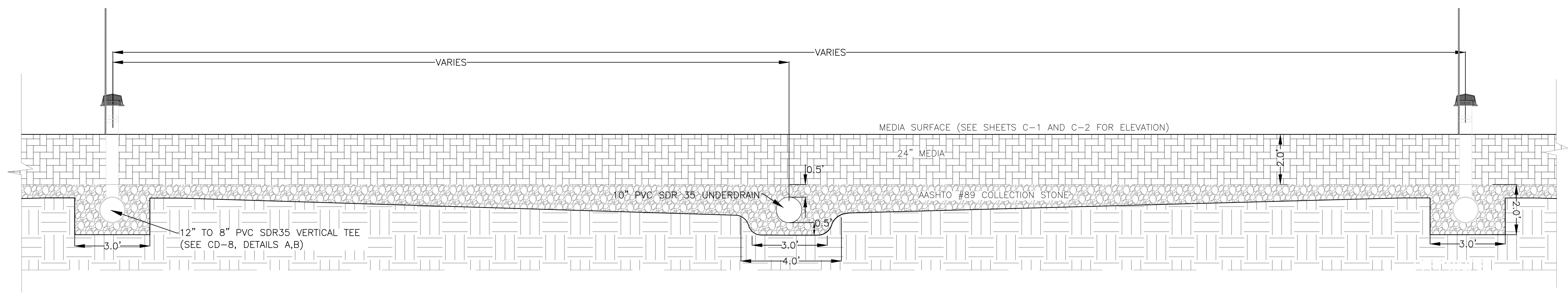
ST. JOHNS RIVER WATER MANAGEMENT DISTRICT  
 BLACK CREEK WATER RESOURCE  
 DEVELOPMENT PROJECT  
 AQUIFER RECHARGE AREA

**BLENDING AREA DETAILS**

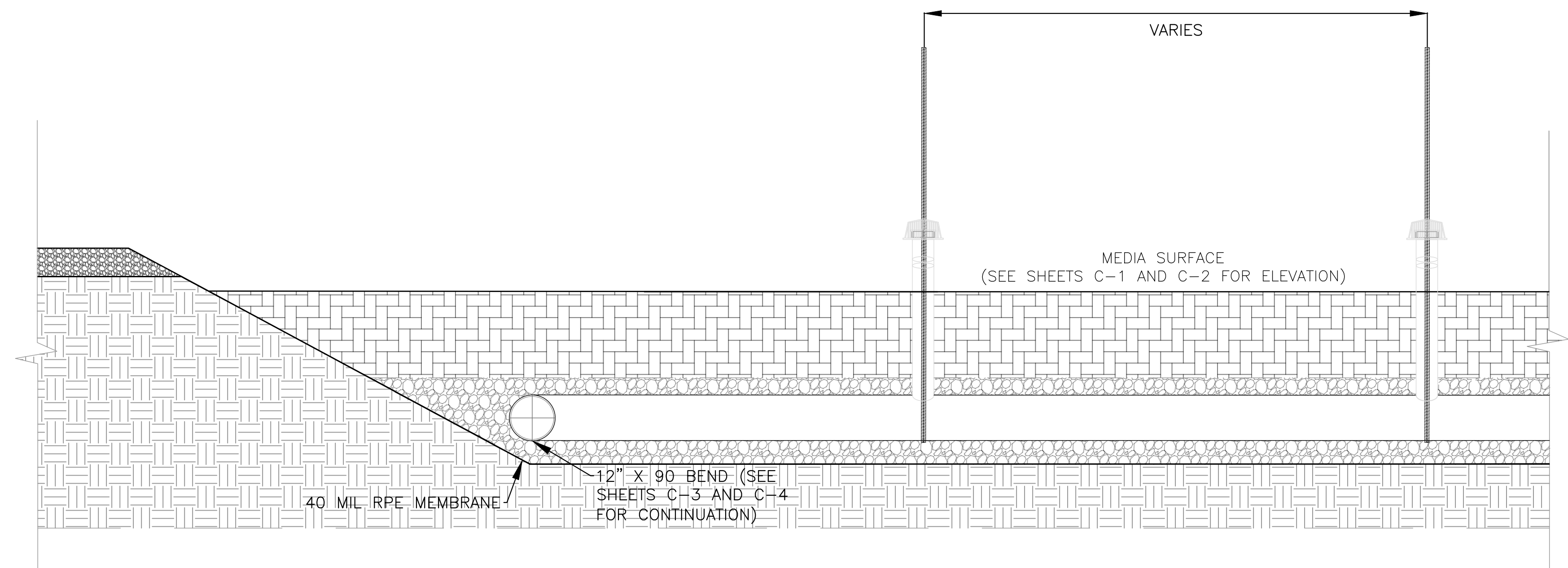
PROJECT NO. 9247-221208  
 FILE NAME:  
 SHEET NO.  
**CD-6**

ISSUED FOR BID

©2018 CDM SMITH ALL RIGHTS RESERVED. REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.



TYPICAL CELL SECTION  
**SECTION 1**  
 1/2" = 1" (C-10)



TYPICAL DISTRIBUTION LATERAL PROFILE  
**SECTION 2**  
 1/2" = 1" (C-10)

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: WCL  
 DRAWN BY: JZ  
 SHEET CHK'D BY: TD  
 CROSS CHK'D BY: MRM  
 APPROVED BY: \_\_\_\_\_  
 DATE: MAY 2023

ENVIRONMENTAL SCIENCE AND ENGINEERING  
 3201 1<sup>ST</sup> AVENUE S, SUITE 212,  
 SEATTLE, WA 98134  
 Tel: (206)276-9178  
 EMAIL: MMERKELBACK@GREENEARTHOPS.COM

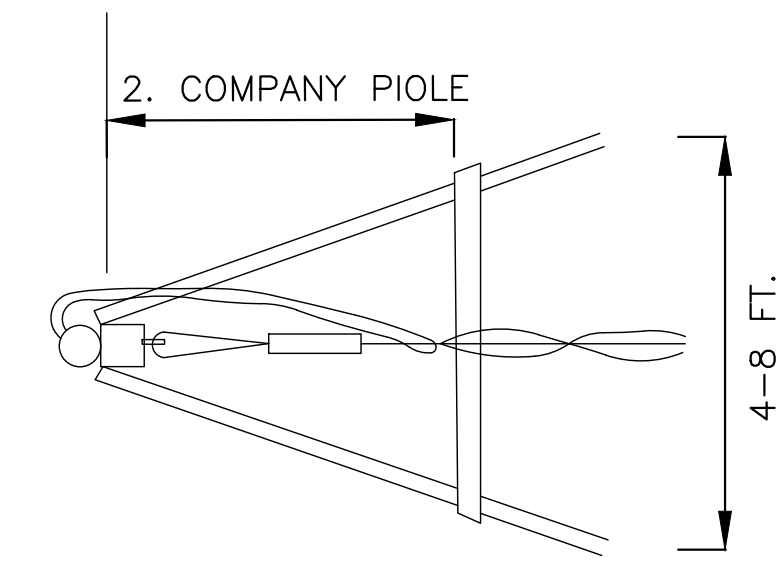
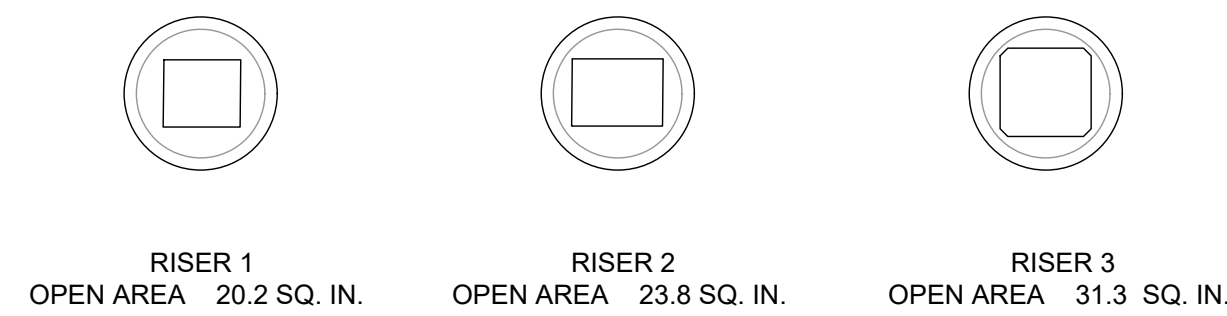
ST. JOHNS RIVER WATER MANAGEMENT DISTRICT  
 BLACK CREEK WATER RESOURCE  
 DEVELOPMENT PROJECT  
 TREATMENT

CELL SECTIONS AND DISTRIBUTION  
 LATERAL PROFILE

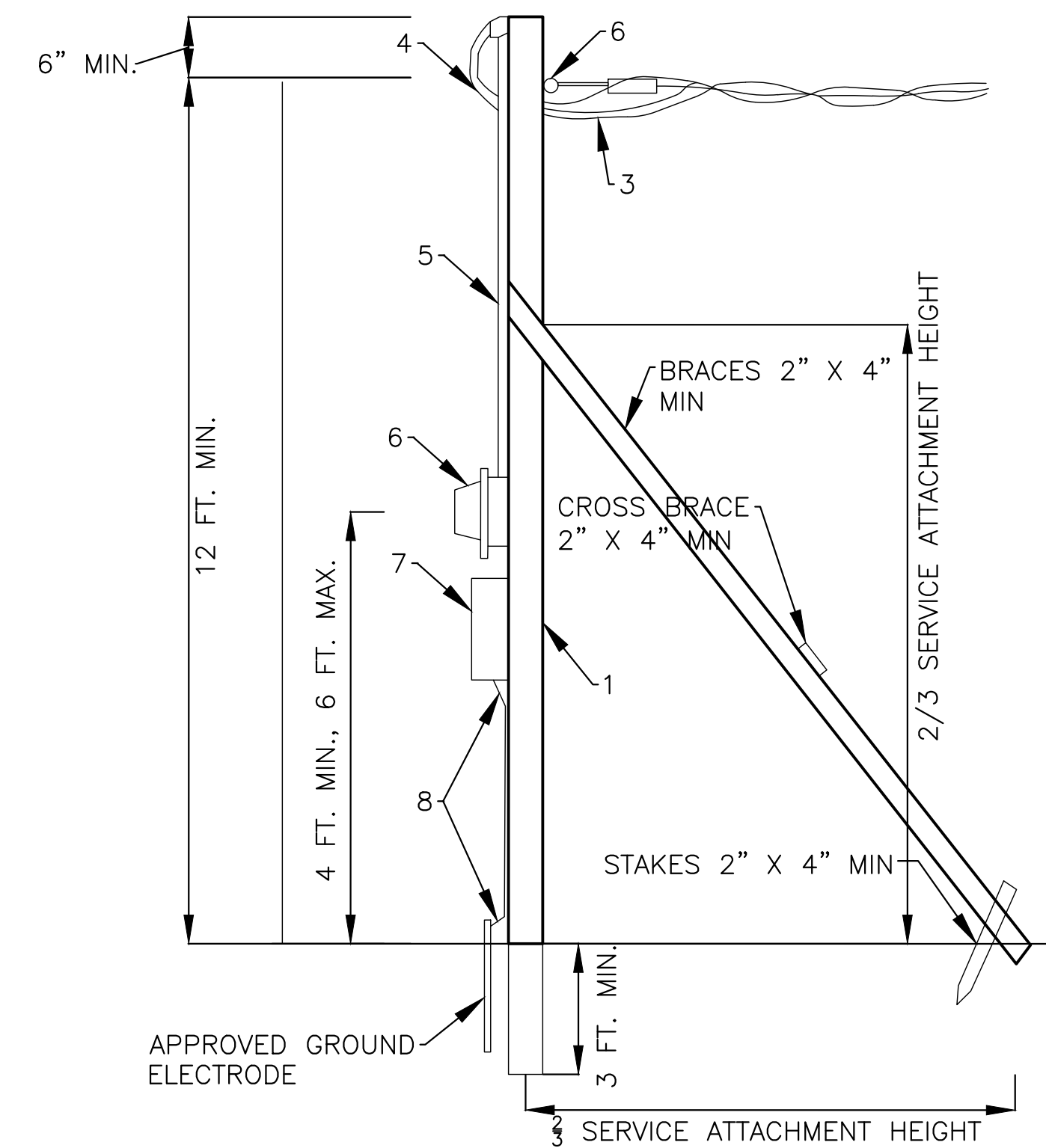
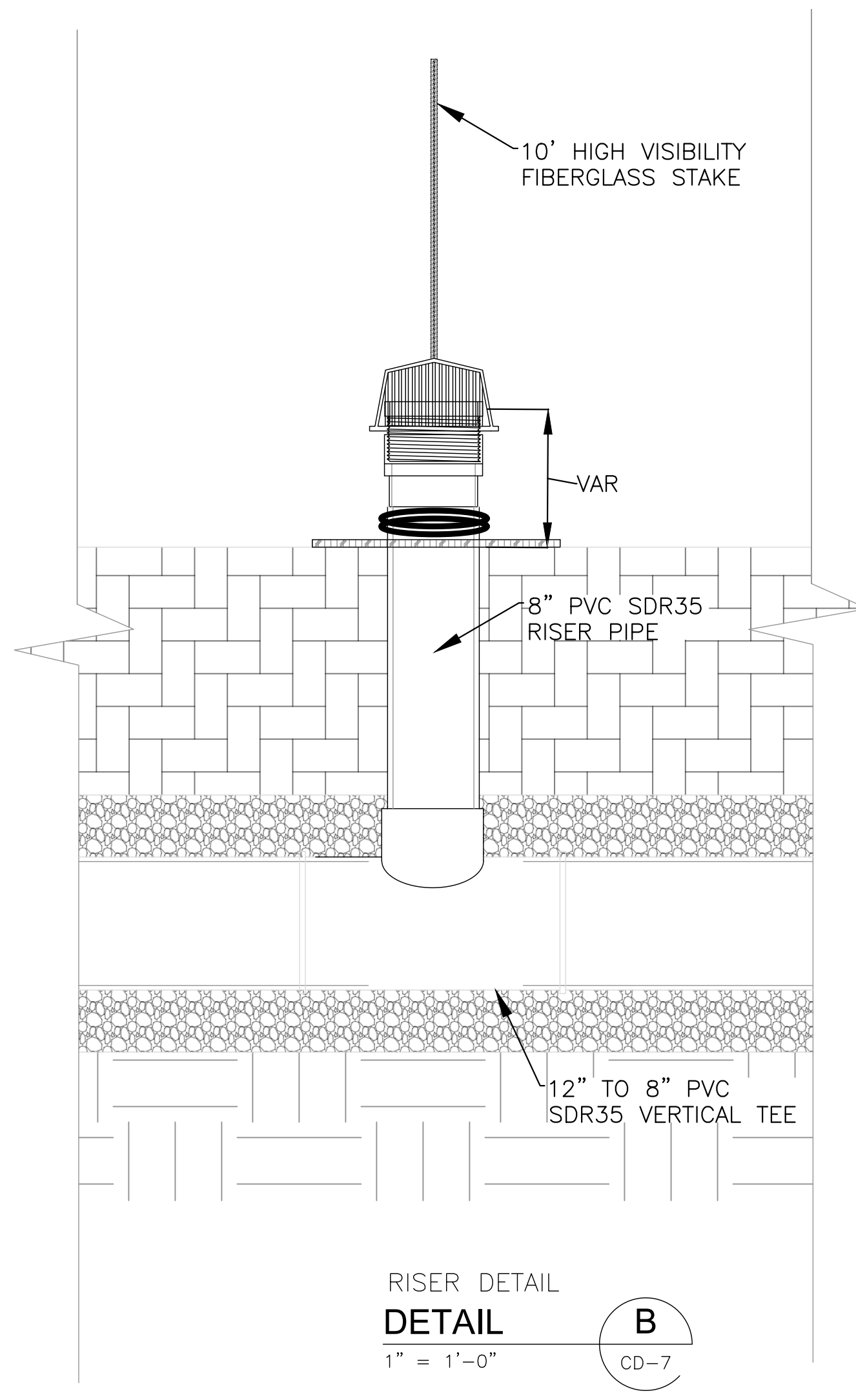
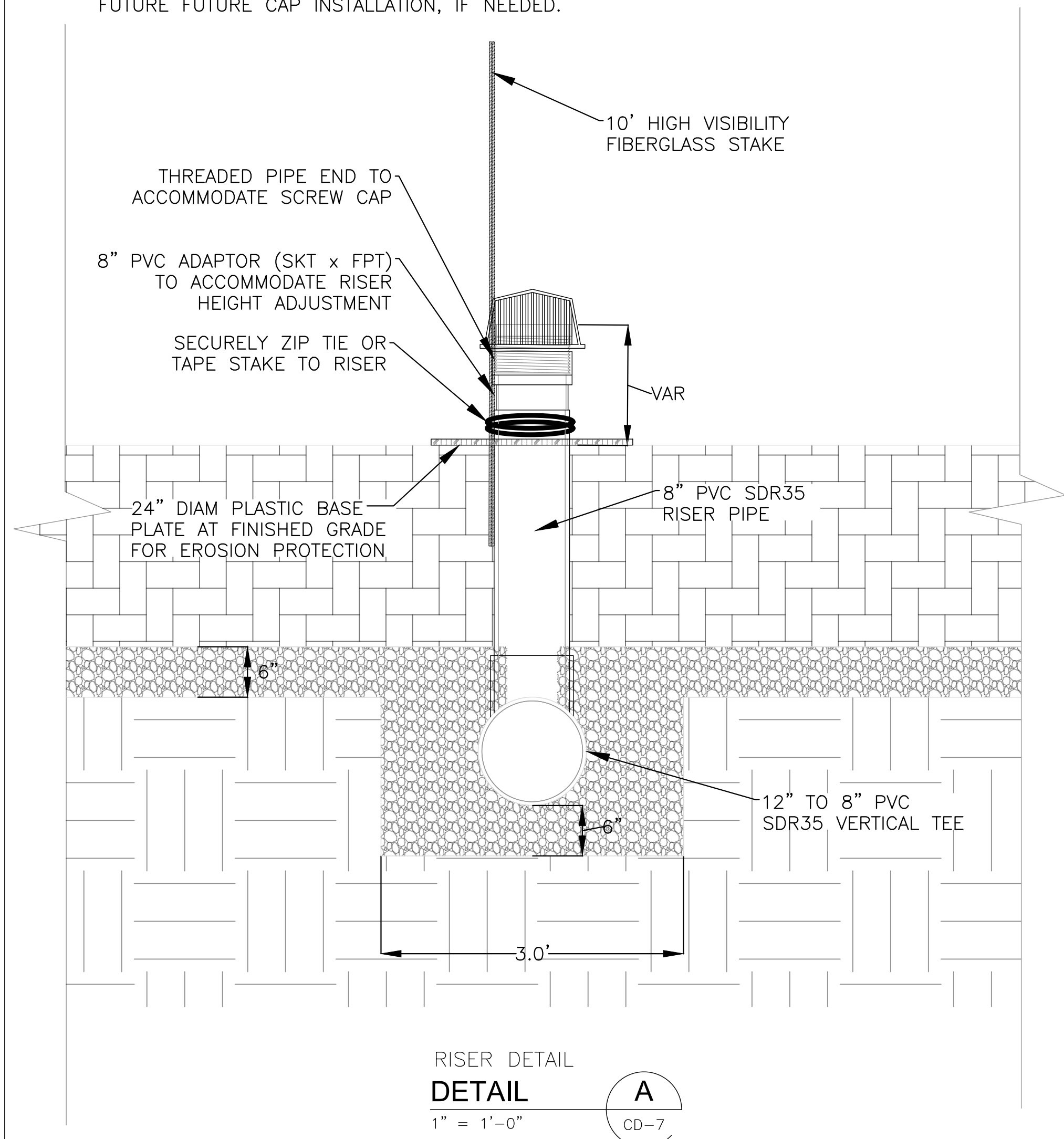
PROJECT NO. 9247-221208  
 FILE NAME:  
 SHEET NO.  
**CD-7**  
 ISSUED FOR BID

©2018 CDM SMITH ALL RIGHTS RESERVED. REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.

- RISER NOTES:**
1. THE RISER ASSEMBLY SHALL BE ADJUSTABLE VIA A PVC ADAPTOR (SHOWN) OR EQUIVALENT. OUTLET ELEVATIONS SHALL BE ADJUSTABLE TO A 6-INCH RANGE WITH 1/4-INCH TOLERANCE
  2. SEE SHEETS C-10 TO C-15 FOR INITIAL RISER OUTLET ELEVATIONS.
  3. RISERS 1, 2, 3 SHALL BE EQUIPPED WITH SCREW CAPS WITH OPEN AREAS FOR ORIFICE CONTROL. OPEN AREAS ARE SHOWN IN THIS DETAIL AND MAY BE CIRCULAR OR RECTANGULAR. RISERS 4, 5, 6 WILL NOT HAVE SCREW CAPS BUT SHALL INCLUDE PIPE THREADS (AS SHOWN) TO ACCOMMODATE FUTURE FUTURE CAP INSTALLATION, IF NEEDED.



TEMPORARY SERVICE POLE TOP VIEW  
**DETAIL A**  
1" = 2'-0" C-8



**TEMPORARY SERVICE POLE NOTES:**

1. TEMPORARY SERVICE POLE PROVIDED AND INSTALLED BY THE CUSTOMER. POLE MUST PROVIDE SUFFICIENT HEIGHT FOR THE SERVICE DROP TO MEET MINIMUM CLEARANCES OF 12 FT. POLE TO BE A MINIMUM 4" X 4" X 16 FT. UNSPLICED OR 5" MINIMUM DIAMETER CREOSOTE POLE.
2. CUSTOMER SHALL CHECK WITH ELECTRICAL COMPANY FOR MAXIMUM DISTANCE. REDUCED DISTANCE MAY BE REQUIRED FOR LARGER SERVICES TO MAINTAIN MINIMUM CLEARANCES.
3. SERVICE DROP CONDUCTORS, SERVICE GRIPS AND SERVICE CONNECTORS OWNED AND INSTALLED BY CUSTOMER.
4. SERVICE ENTRANCE CONDUCTORS (MINIMUM # 8 CU OR # 6AL), PROVIDED AND INSTALLED BY CUSTOMER, SHALL EXTEND 24 INCHES OR THE MINIMUM LENGTH REQUIRED BY LOCAL ORDINANCE OUTSIDE OF THE SERVICE HEAD FOR CONNECTION TO COMPANY SERVICE DROP. PHASE CONDUCTORS TO HAVE BLACK INSULATION AND NEUTRAL CONDUCTOR TO BE MARKED WHITE OR BARE.
5. SERVICE HEAD AND RACEWAY PROVIDED AND INSTALLED BY CUSTOMER TO PROTECT SERVICE ENTRANCE CONDUCTORS. TWO OR MORE CONDUIT STRAPS SHALL BE PROVIDED TO SUPPORT CONDUIT.
6. SERVICE ATTACHMENT AND METER SOCKET PROVIDED, INSTALLED AND MAINTAINED BY CUSTOMER. CUSTOMER INSTALLS SERVICE DROP ATTACHMENT OF ADEQUATE STRENGTH FOR ATTACHMENT OF COMPANY'S SERVICE DROP CONDUCTORS.
7. WEATHERPROOF SERVICE SWITCH OR BREAKER PANEL PROVIDED AND INSTALLED BY CUSTOMER.
8. CUSTOMER'S GROUNDING ELECTRODE CONDUCTOR (#6 CU MINIMUM) SHALL ORIGINATE IN THE SERVICE ENTRANCE EQUIPMENT AND EXTEND TO AN APPROVED GROUND ELECTRODE. THE GROUNDING ELECTRODE CONDUCTOR SHALL NOT TERMINATE WITHIN THE METER SOCKET. COMPANY RESERVES THE RIGHT TO REFUSE INSTALLATION OF SERVICE CONTINGENT UPON OBSERVING AN UNSAFE CUSTOMER CONNECTION.
9. ALL OTHER MATERIALS PROVIDED AND INSTALLED BY THE CUSTOMER.
10. CUSTOMER SHALL NOT ALLOW POLE TO BE MOVED OR TAMPERED WITH AS LONG AS COMPANY'S SERVICE CONDUCTORS ARE ATTACHED.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: WCL  
 DRAWN BY: JZ  
 SHEET CHK'D BY: TD  
 CROSS CHK'D BY: MRM  
 APPROVED BY: \_\_\_\_\_  
 DATE: MAY 2023

**SWIG**  
 ENVIRONMENTAL SCIENCE AND ENGINEERING  
 3201 1<sup>ST</sup> AVENUE S, SUITE 212,  
 SEATTLE, WA 98134  
 Tel: (206)276-9178  
 EMAIL: MMERKELBACK@GREENEARTHOPS.COM

PROFESSIONAL ENGINEER  
 No. 9071  
 STATE OF FLORIDA  
 PROFESSIONAL ENGINEERING

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT  
 BLACK CREEK WATER RESOURCE  
 DEVELOPMENT PROJECT  
 TREATMENT

CELL SECTIONS AND DETAILS  
 CD-8

PROJECT NO. 9247-221208  
 FILE NAME:  
 SHEET NO.  
 CD-8

**GENERAL NOTES**

**DESIGN CRITERIA:**

**CODES:**

- FLORIDA BUILDING CODE SEVENTH EDITION (2020)
- ACI 318-14 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE"

**DESIGN LOADS:**

**LIVE LOADS:**

- SLABS ON GRADE 200 PSF

**SUPERIMPOSED LOADS:**

- ROOF LIVE 20 PSF
- ROOF DEAD 5 PSF
- ROOF COLLATERAL 5 PSF

**WIND DESIGN DATA:**

ASCE 7-16

- ULTIMATE DESIGN WIND SPEED,  $V_{ult}$  (3-SECOND GUST): 133 MPH
- NOMINAL DESIGN WIND SPEED,  $V_{nom}$ : 104 MPH
- RISK CATEGORY: III
- WIND EXPOSURE CATEGORY: C
- ENCLOSURE CLASSIFICATION: OPEN
- INTERNAL PRESSURE COEFFICIENT: 0.00

**FLOOD DESIGN DATA:**

- PER NFIP FIRM MAP NO. 12019C0335E, PANEL 335 OF 500, DATED MARCH 17, 2014, NOT IN A FLOOD ZONE.

**CONCRETE 28-DAY STRENGTH:**

- SLABS 4500 PSI
- PRESTRESSED ELEMENTS 4000 PSI
- SITE CIVIL 3000 PSI
- DUCTBANK 2500 PSI

**REINFORCING STEEL:**

- ALL BARS ASTM A615, GRADE 60
- WELDED WIRE FABRIC ASTM A1064

**FOUNDATIONS:**

- ALLOWABLE BEARING PRESSURE FOR SPREAD FOOTINGS OVER SUBSURFACE PREPARED AS PER SPECIFICATIONS:

- SLABS 2000 PSF
- TANK 2000 PSF

**GENERAL CONDITIONS:**

ALL STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE MECHANICAL, CIVIL, ELECTRICAL AND SHOP DRAWINGS AND SPECIFICATIONS.

THE CONTRACTOR SHALL REVIEW AND VERIFY DIMENSIONS SHOWN IN ALL PLANS AND REVIEW ALL FIELD CONDITIONS THAT MAY AFFECT THE INSTALLATION OF THE FACILITY, SHOULD DISCREPANCIES APPEAR, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING TO OBTAIN ENGINEER'S CLARIFICATION BEFORE COMMENCING WITH THE WORK.

FOR ALL ITEMS EMBEDDED IN OR PASSED THROUGH CONCRETE, THE CONTRACTOR SHALL INITIALLY REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR TYPE, SIZE, LOCATION AND SPECIAL INSTALLATION REQUIREMENTS FOR THESE ITEMS.

THE CONTRACTOR SHALL TAKE ANY AND ALL NECESSARY MEASURES TO PROTECT EXISTING STRUCTURES FROM DAMAGE WHEN WORKING IN AND AROUND EXISTING STRUCTURES PERFORMING WORK SUCH AS DEMOLITION, FOUNDATION EXCAVATION AND OTHERS.

SIZE AND LOCATION OF EQUIPMENT PADS AND ANCHOR BOLTS SHALL BE PER EQUIPMENT MANUFACTURER'S REQUIREMENTS.

ANY EQUIPMENT THAT MAY INDUCE VIBRATION TO THE STRUCTURE SHALL BE ADEQUATELY ISOLATED FROM THE STRUCTURES.

ALL DETAILS AND SECTIONS SHOWN ON THE DRAWINGS ARE INTENDED TO BE TYPICAL AND SHALL BE CONSTRUED TO APPLY TO ANY SIMILAR SITUATION ELSEWHERE ON THE PROJECT, EXCEPT WHERE A DIFFERENT DETAIL IS SHOWN.

UNLESS OTHERWISE NOTED, ALL PIPES UNDER SOIL SUPPORTED STRUCTURAL SLABS AND FOOTINGS SHALL BE ENCASED IN REINFORCED CONCRETE AS SHOWN ON THE STRUCTURAL DRAWINGS. PIPES SHALL BE PRESSURE TESTED BEFORE ENCASED. NOT ALL PIPING SHOWN ON STRUCTURAL DRAWINGS. REFER TO CIVIL AND PROCESS MECHANICAL FOR PIPING SIZE AND LOCATIONS.

**CONCRETE:**

ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH ACI 318 REQUIREMENTS.

ALL CONCRETE SHALL BE AIR-ENTRAINED AT 28 DAYS UNLESS OTHERWISE NOTED.

WATER REDUCING AGENT SHALL BE IN ACCORDANCE WITH ASTM C494.

ALL CONCRETE SURFACES EXPOSED TO AIR, UNLESS OTHERWISE NOTED IN SPECIFICATIONS, SHALL BE CURED AS SOON AS CEMENT FINISHING IS COMPLETED OR FORMS ARE REMOVED.

ALL EXPOSED CORNERS OF CONCRETE SHALL HAVE A MINIMUM CHAMFER OF 3/4" UNLESS OTHERWISE NOTED.

THE CONTRACTOR SHALL OBTAIN ENGINEER'S APPROVAL FOR THE LOCATION OF CONSTRUCTION JOINTS THAT ARE NOT SHOWN ON THE DRAWING.

**REINFORCING STEEL:**

REINFORCEMENT SHALL CONFORM TO ASTM A615, GRADE 60 REQUIREMENTS.

ALL ACCESSORIES SHALL BE IN CONFORMANCE WITH ACI 315 REQUIREMENTS. REINFORCING STEEL SHALL HAVE THE FOLLOWING CLEAR COVER UNLESS OTHERWISE NOTED:

- CONCRETE CAST AGAINST EARTH 3"
- FORMED SURFACES IN CONTACT WITH SOIL, SEWAGE, WATER OR EXPOSED TO WEATHER 2"

LAP SPLICES SHALL BE AS SHOWN ON THE DRAWINGS. FOR LAP SPLICES NOT SHOWN ON THE DRAWINGS, THE CONTRACTOR SHALL OBTAIN ENGINEER'S APPROVAL.

THE CONTRACTOR SHALL PREPARE PLACING DRAWINGS AND SCHEDULES IN CONFORMANCE WITH ACI 315 REQUIREMENTS.

**FLOTATION CONSIDERATION:**

STRUCTURES WERE DESIGNED TO BE NON-BUOYANT AFTER THE STRUCTURE IS PLACED INTO SERVICE. THEREFORE, THE STRUCTURE MAY BE BUOYANT DURING CONSTRUCTION. THE GENERAL CONTRACTOR SHALL PROTECT ALL STRUCTURES (NEW AND EXISTING) FROM FLOTATION DURING CONSTRUCTION, REGARDLESS OF GROUNDWATER LEVELS, UNTIL STRUCTURES ARE PLACED IN OPERATION.

**GEOTECHNICAL REPORT:**

GEOTECHNICAL MEMORANDUM TITLED "SUMMARY OF GEOTECHNICAL INVESTIGATIONS AND PRELIMINARY EVALUATIONS BLACK CREEK WATER RESOURCE DEVELOPMENT PROJECT IN CLAY COUNTY, FLORIDA" PREPARED BY CDM SMITH, DATED FEBRUARY 27, 2023.

**DELEGATED SUBMITTALS**

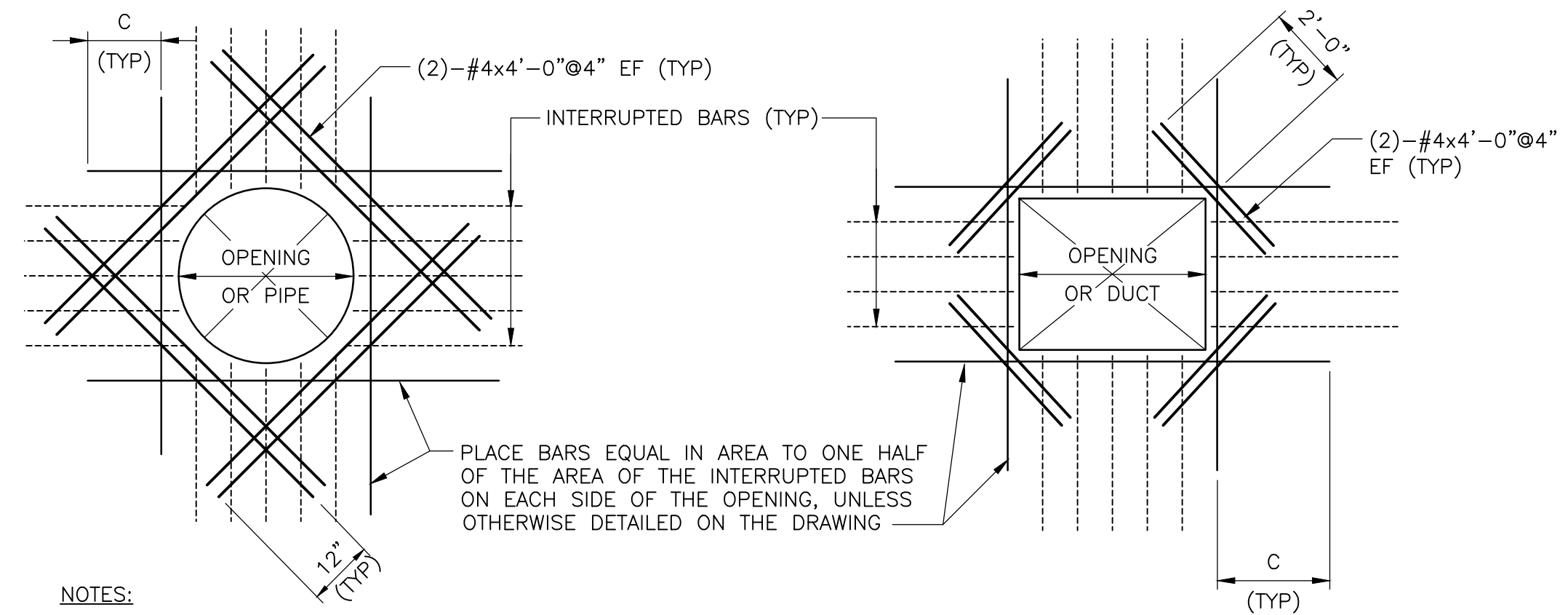
- THE FOLLOWING PORTIONS OF THE PROJECT ARE DELEGATED SUBMITTAL ITEMS AND HAVE NOT BEEN DESIGNED BY THE ENGINEER OF RECORD:
  - EQUIPMENT AND PIPE SUPPORT ANCHORAGE
  - PRE-STRESSED WIREWRAPPED TANKS
  - PRE-ENGINEERED METAL CANOPY
  - PRECAST MANHOLES/HANDHOLES

- SIGNED AND SEALED DRAWINGS AND DESIGN CALCULATIONS FOR DELEGATED SUBMITTAL ITEMS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW DURING THE CONSTRUCTION PHASE OF THE PROJECT.
- DELEGATED SUBMITTAL ITEMS SHALL BE SIGNED AND SEALED BY A CIVIL OR STRUCTURAL ENGINEER REGISTERED IN THE STATE OF FLORIDA.
- DELEGATED SUBMITTAL ITEMS SHALL NOT BE ERECTED OR INSTALLED UNTIL THE ENGINEER OF RECORD HAS REVIEWED THE SUBMITTAL DOCUMENTS AND INDICATED THAT THEY HAVE BEEN REVIEWED AND FOUND TO BE IN CONFORMANCE WITH THE SPECIFICATIONS AND DESIGN CRITERIA.

**ABBREVIATIONS:**

AL	ALUMINUM	MIN	MINIMUM
CJ	CONTROL JOINT	MISC	MISCELLANEOUS
CMU	CONCRETE MASONRY UNIT	NTS	NOT TO SCALE
CONC	CONCRETE	OC	ON CENTER
CONST JT	CONSTRUCTION JOINT	PROJ	PROJECTION
CONT	CONTINUOUS	PSI	POUNDS PER SQUARE INCH
DIA	DIAMETER	REINF	REINFORCEMENT
DWG	DRAWING	SPECS	SPECIFICATIONS
EF	EACH FACE	SS	STAINLESS STEEL
EJ	EXPANSION JOINT	T&B	TOP AND BOTTOM
EL	ELEVATION	TYP	TYPICAL
EW	EACH WAY	UNO	UNLESS NOTED OTHERWISE
HORIZ	HORIZONTAL	VERT	VERTICAL
HP	HIGH POINT	WSTP	WATERSTOP
LP	LOW POINT		
MAX	MAXIMUM		

**NOTE:** THESE ABBREVIATIONS ARE FOR USE ON STRUCTURAL DRAWINGS ONLY.

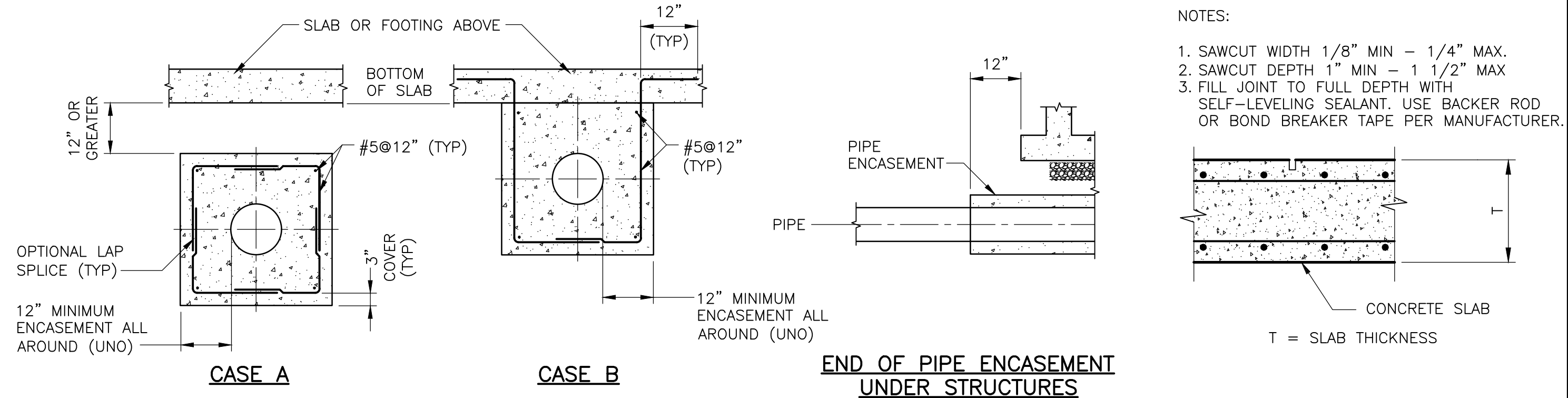


**NOTES:**

- DETAIL IS TYPICAL FOR ALL OPENINGS 12" AND GREATER IN CONCRETE WALLS AND SLABS UNLESS OTHERWISE NOTED. SPREAD REINFORCING AT SMALLER OPENINGS.
- BARS ARE NOT REQUIRED AT AN OPENING EDGE PARALLEL TO AND WITHIN 6 INCHES OF A WALL OR BEAM.
- C=CLASS "B" CASE 1 TENSION LAP.
- REINFORCING STEEL IS TO BE CARRIED ACROSS ALL CONSTRUCTION JOINTS.
- WHERE OPENING IS WITHIN 4'-0" OF BASE SLAB, PROVIDE MATCHING DOWELS FOR ADDITIONAL BARS.

**REINFORCING AT OPENINGS**

**DETAIL A**  
NTS



**PIPE ENCASEMENT NOTES:**

- MINIMUM ENCASEMENT  
PIPES LESS THAN 12"Ø - 6"  
PIPES 12"Ø AND GREATER - 12"
- ALL PIPES SHALL BE PRESSURE TESTED BEFORE CONCRETE PLACEMENT.
- ALL BELOW GRADE PIPES SHALL BE SUPPORTED ON CONCRETE BLOCKS PRIOR TO CASTING OF CONCRETE BEDDING. SIZE AND SPACING OF CONCRETE BLOCK SUPPORTS SHALL BE PER PIPE MANUFACTURER.
- FOR ALL PIPES 12"Ø AND LARGER, ENCASEMENT SHALL BE CAST IN TWO POURS. INITIAL CAST SHALL BE CURED FOR 12 HOURS BEFORE CASTING THE SECOND POUR.
- THE DEPTH OF THE INITIAL POUR SHALL BE SELECTED TO PREVENT PROJECTION OF THE PIPE. CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO PREVENT FLOTATION OF THE PIPE DURING CONCRETING.
- ENCASE ALL PIPES BELOW SLABS AND FOOTINGS. EXTEND ENCASEMENT AS SHOWN IN DETAIL.
- MAINTAIN MINIMUM COVER FOR LAPS FOR PIPES SMALLER THAN 6"Ø.
- FOR CASE "B", PROVIDE A JOINT IN THE PIPE AT EACH JOINT IN STRUCTURE. PROVIDE CONSTRUCTION JOINTS IN ENCASEMENT AT LOCATIONS OF CONSTRUCTION JOINTS IN STRUCTURE. PROVIDE PARTIAL CONTRACTION JOINTS IN ENCASEMENT AT LOCATIONS OF CONTROL JOINTS AND EXPANSION JOINTS IN STRUCTURE.

**CONCRETE PIPE ENCASEMENT**

**DETAIL B**  
NTS

**END OF PIPE ENCASEMENT UNDER STRUCTURES**

**CONTROL JOINT**

**DETAIL C**  
NTS

**CLASS B TENSION LAP SPlice LENGTHS IN WALLS AND SLABS (INCHES)**

BAR SIZE	BLACK STEEL	
	TOP BARS	OTHER BARS
3	15	12
4	20	15
5	29	23
6	40	31
7	65	50
8	81	62
8*	49	37
9*	60	46
10*	74	57

**TENSION DEVELOPMENT LENGTHS IN WALLS AND SLABS (INCHES)**

BAR SIZE	BLACK STEEL	
	TOP BARS	OTHER BARS
3	12	12
4	15	12
5	22	17
6	31	24
7	50	38
8	62	48
8*	37	29
9*	46	36
10*	57	44

**NOTES:**

- MINIMUM BAR SPACING = 6" INCHES ON CENTER.
- MINIMUM CONCRETE COVER = 1", EXCEPT AS NOTED BY \*.  
\* INDICATES MINIMUM CONCRETE COVER= 2".
- A TOP BAR IS A HORIZONTAL BAR WHERE MORE THAN 12" OF FRESH CONCRETE IS CAST DIRECTLY BELOW THE BAR. WHERE HORIZONTAL WALL REINFORCEMENT IS UNIFORMLY SPACED IN A VERTICAL PLANE AT 12" MAXIMUM SPACING, LENGTHS MAY BE AS FOR "OTHER BARS".

**LAP SPlice AND DEVELOPMENT LENGTHS BLACK REINFORCING STEEL**

DATE: POOJA HARISH KALARIA  
PE NO. 80421

PROJECT NO. 9247-221208  
FILE NAME: S001STNT.DWG

SHEET NO.

S-1

ISSUED FOR BID

XREFS: [CDMS\_2234] Images: [ ]  
Last saved by: BENNETTBA Time: 5/3/2023 7:44:46 AM  
pw:\cdm\smith-0202-pw\benley.com\pw\_p11\9247\221208\_PHASE 2 INTAKE PS\04 Design Services NM\_100%\_04 Structural\10 CAD\Treatment Cells\S001STNT.dwg  
© 2023 CDM SMITH ALL RIGHTS RESERVED.  
REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: M. TRAPP
DRAWN BY: P. SCHIAVO
SHEET CHK'D BY: P. KALARIA
CROSS CHK'D BY: C. MONTGOMERY
APPROVED BY: P. KALARIA
DATE: MAY 2023

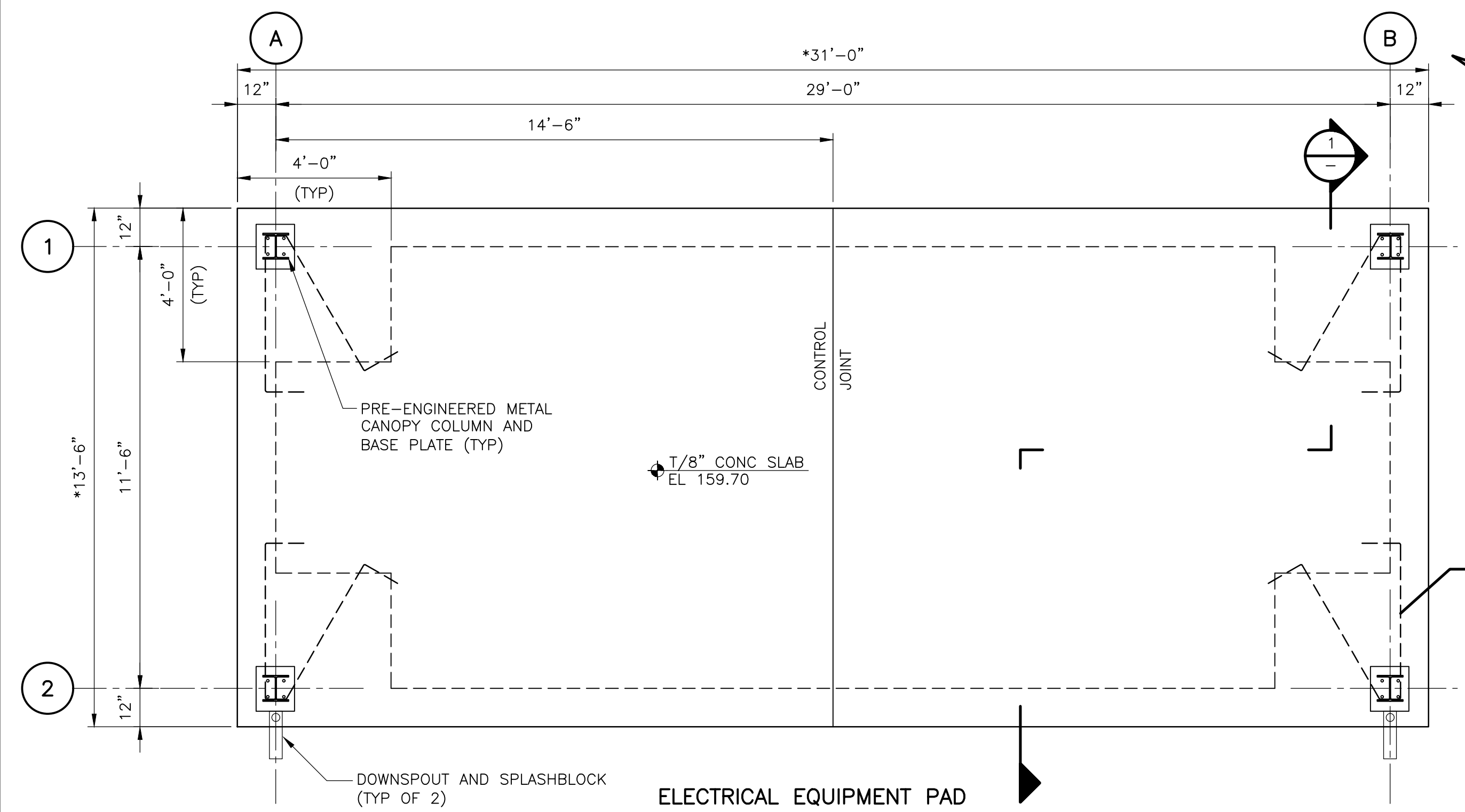
**CDM Smith**  
4651 Salisbury Road, Suite 420  
Jacksonville, FL 32256  
Tel: (904) 731-7109  
FL COA No. EB-0000020

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT  
BLACK CREEK WATER RESOURCE  
DEVELOPMENT PROJECT  
AQUIFER RECHARGE AREA

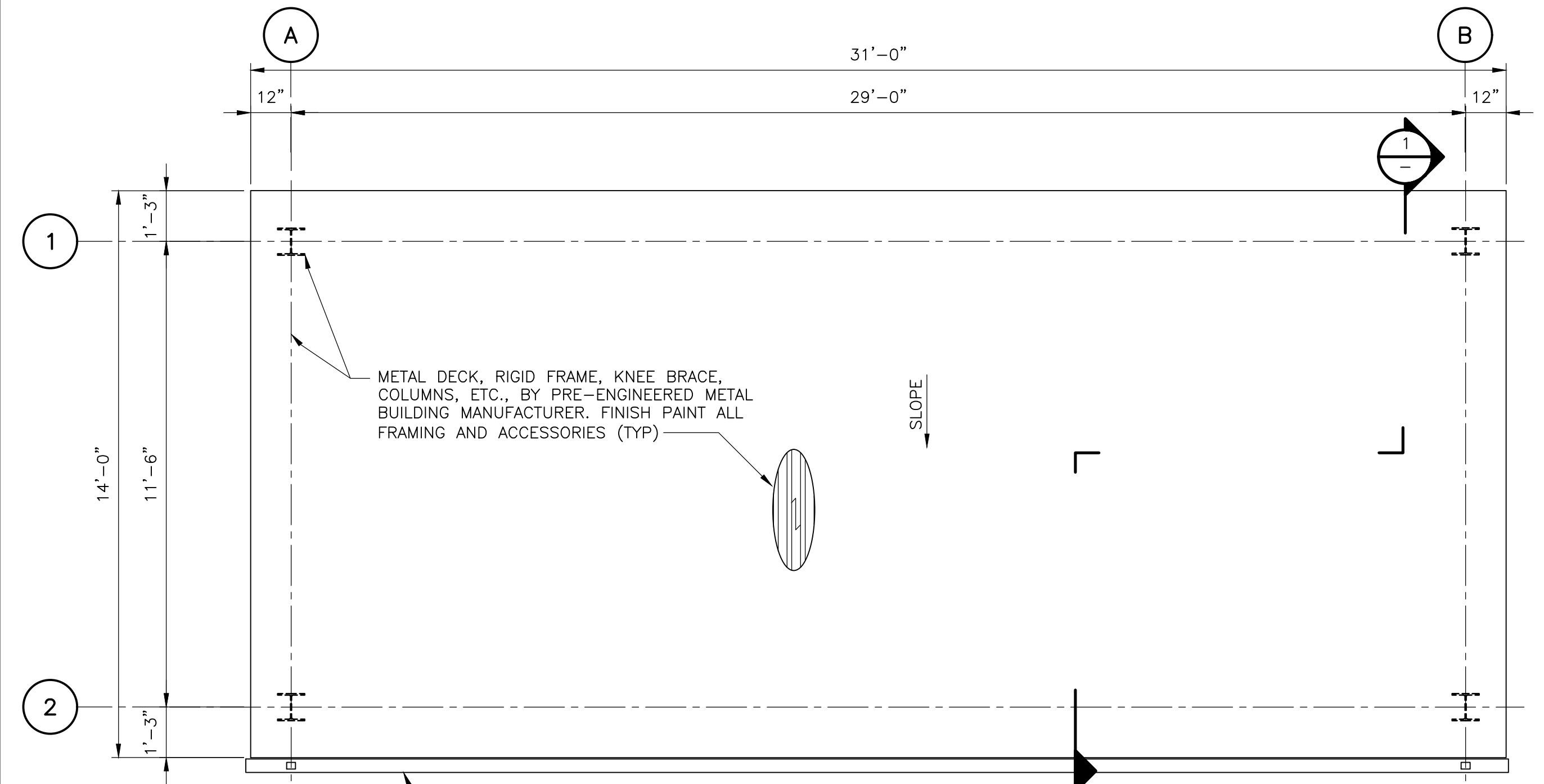
STRUCTURAL NOTES



XREFS: [CDMS\_2234\_SWP000PL] Images: [ ]  
 Last saved by: BENNETTBA Time: 5/3/2023 7:45:54 AM  
 pw:\cdm\smith-0202-pw\benley.com\pw\_01\9247\221208\_PHASE 2 INTAKE PS\04 Design Services NM\_100%\_04 Structural\10 CADD\Treatment Cells\S002MSPL.dwg  
 © 2023 CDM SMITH ALL RIGHTS RESERVED.  
 REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.



**ELECTRICAL EQUIPMENT PAD**  
**PLAN**  
 3/8" = 1'-0"

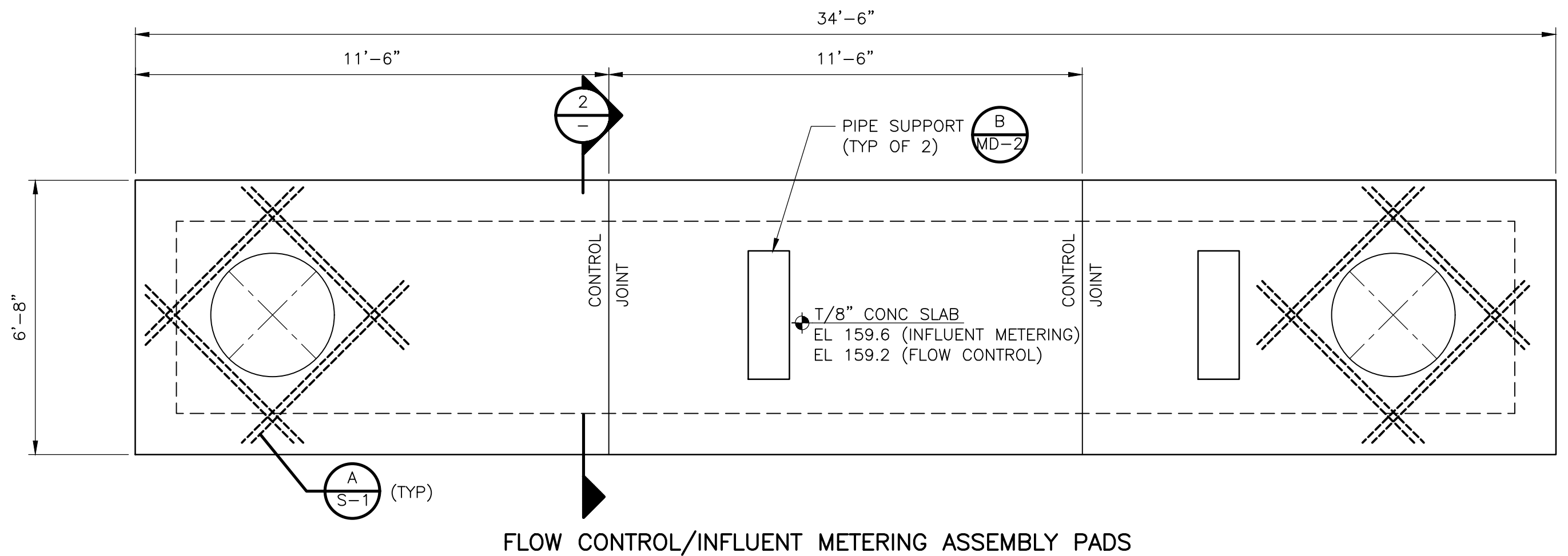


**CANOPY ROOF**  
**PLAN**  
 3/8" = 1'-0"

DESIGN LOAD DATA - CANOPY	
WIND DESIGN DATA:	
ENCLOSURE CLASSIFICATION:	OPEN CLEAR
INTERNAL PRESSURE COEFFICIENT:	±0.00
REFER TO SHEET S-1 FOR DESIGN LOAD DATA THAT IS THE SAME FOR ALL STRUCTURES.	

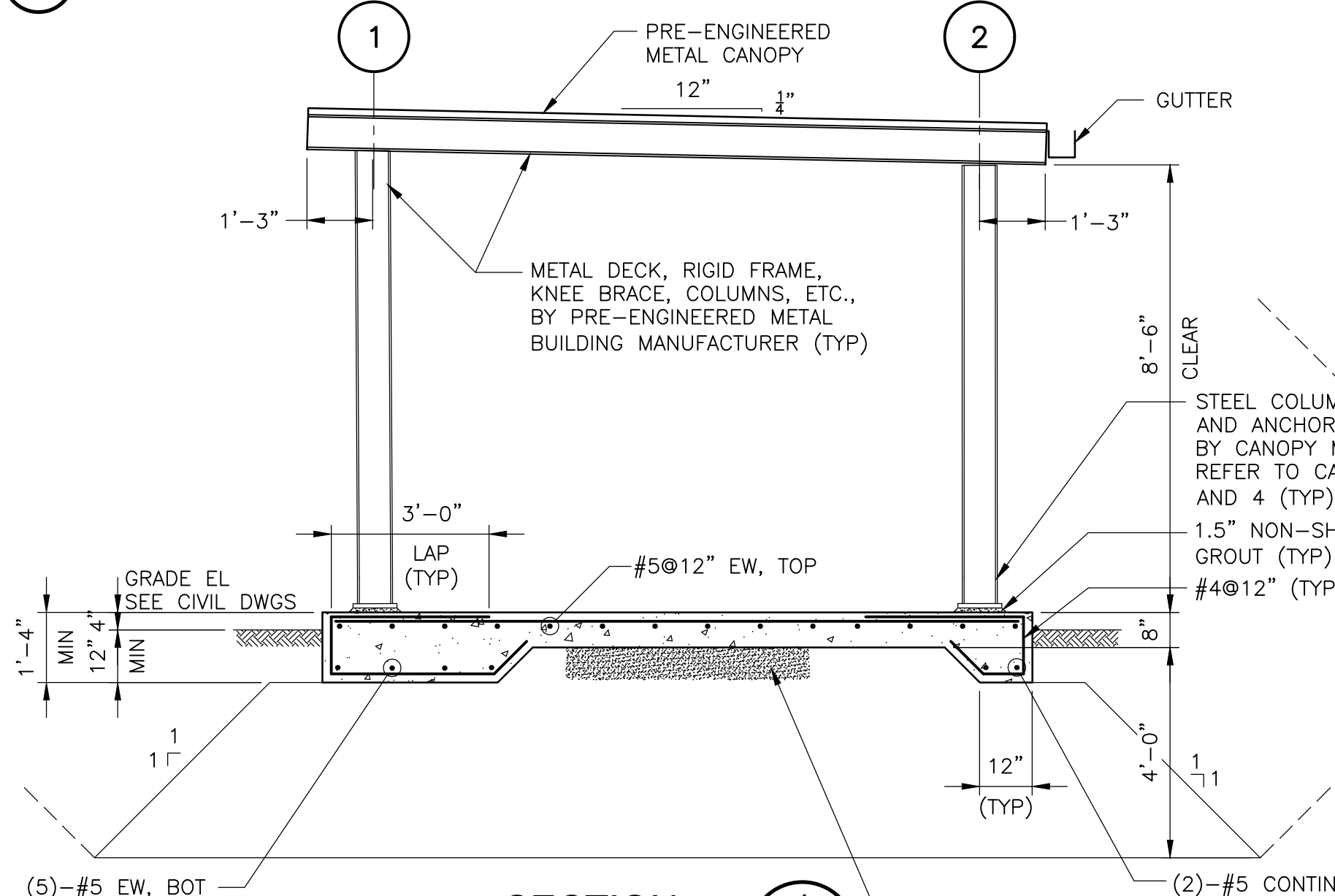
EFFECTIVE WIND AREA (SQ. FT.)	PRESSURE (+) / SUCTION (-)					
	ROOF (PSF)					
	ZONE 1	ZONE 2	ZONE 3	ZONE 1	ZONE 2	ZONE 3
≤ 10.00	37.7	-34.3	56.6	-52.7	75.3	-103
10 TO 20	37.7	-34.3	56.6	-52.7	56.6	-52.7
20 TO 50	37.7	-34.3	56.6	-52.7	56.6	-52.7
50 TO 100	37.7	-34.3	37.7	-34.3	37.7	-34.3
≥ 100	37.7	-34.3	37.7	-34.3	37.7	-34.3

**NOTES:**  
 1. FOR NOMINAL ASD WIND PRESSURES, APPLY A FACTOR OF 0.6 TO THE LISTED PRESSURES CORRESPONDING TO  $V_{ULT}$ .  
 2. DIMENSION  $a = 3'-0"$ .



**FLOW CONTROL/INFLUENT METERING ASSEMBLY PADS**

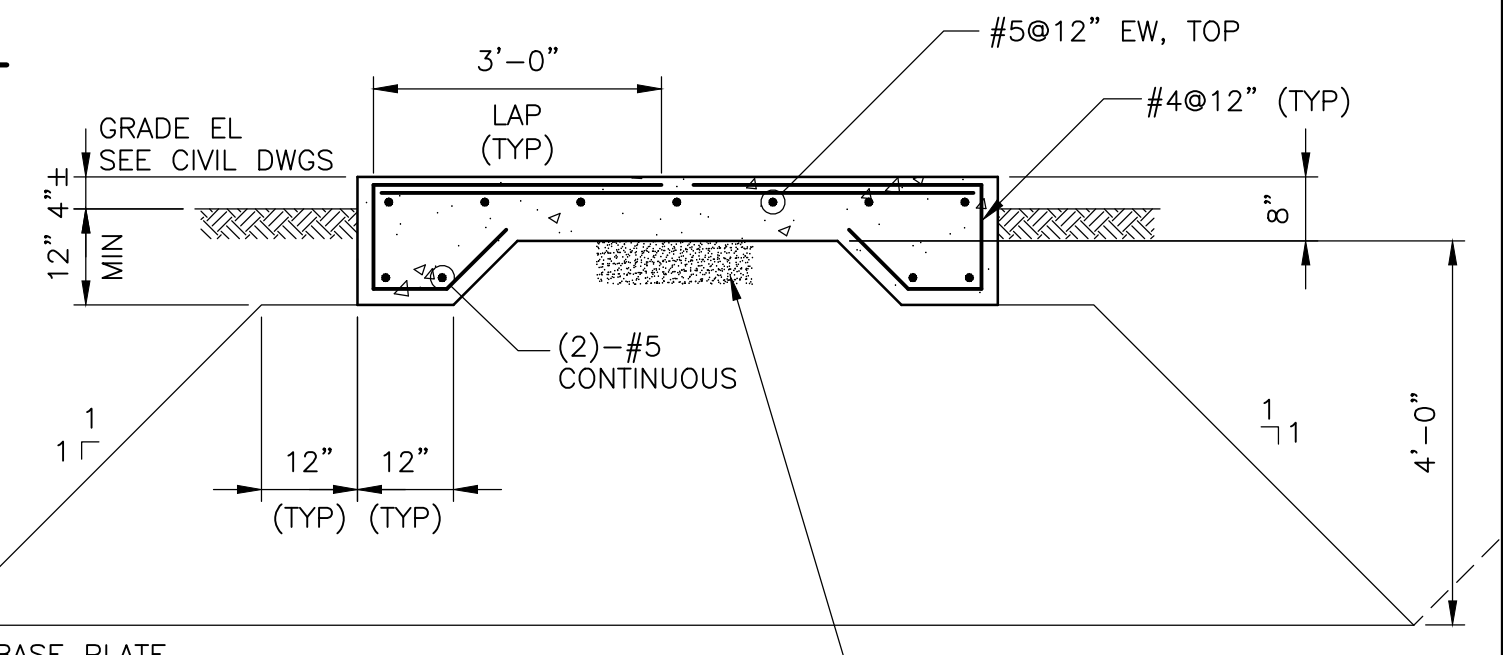
**PLAN**  
 3/8" = 1'-0"



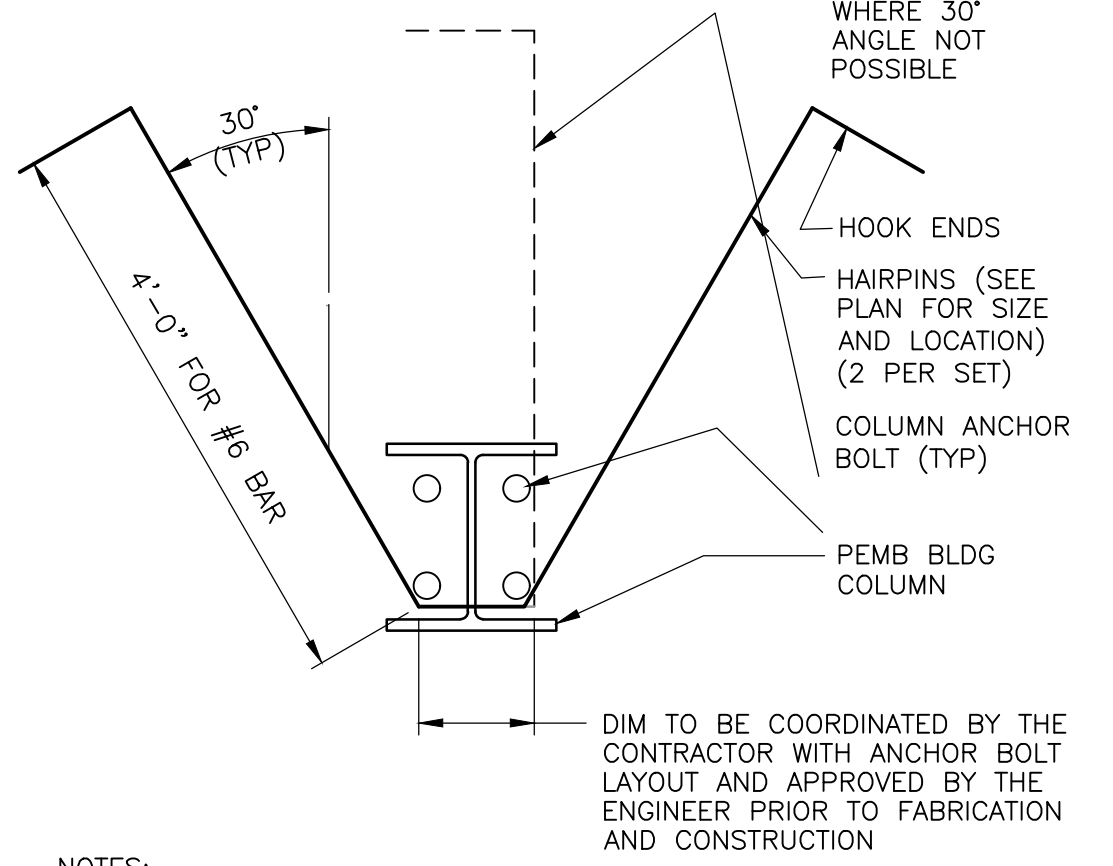
**SECTION 1**  
 3/8" = 1'-0"

**CANOPY NOTES:**

- SEE S-1 FOR STRUCTURAL GENERAL NOTES.
- \* STRUCTURE SHALL NOT BE FABRICATED OR CONSTRUCTED UNTIL THE SUBMITTAL OF THE PRE-ENGINEERED BUILDING ANCHOR BOLT LOCATION AND FOUNDATION REACTIONS HAVE BEEN REVIEWED AND ADJUSTMENTS TO THE STRUCTURE HAVE BEEN COMPLETED. IF REQUIRED BY THE ENGINEER, CHANGES TO FOUNDATION DESIGN SHALL BE AT NO ADDITIONAL COST TO THE OWNER. THE FOUNDATION DIMENSIONS SHOWN ARE PRELIMINARY.
- THE STEEL CANOPY COMPONENTS SHALL BE DESIGNED BY A DELEGATE ENGINEER. FOUNDATION ENGINEER SHALL PROVIDE ANCHOR EMBEDMENT DEPTH TO THE CONTRACTOR AFTER REACTIONS ARE RECEIVED IN FINAL APPROVED CANOPY SUBMITTAL. SEE SPECIFICATION 13125.
- COLUMN TO FOUNDATION CONNECTIONS SHALL BE DESIGNED AS PINNED RESTRAINTS BY PRE-ENGINEERED CANOPY MANUFACTURER'S DELEGATE ENGINEER.
- COLUMN LINE 2 SHALL REMAIN CLEAR OF CROSS-BRACING FOR ACCESS. PROVIDE KNEE BRACES, IF REQUIRED, ALONG COLUMN LINES A, B AND 1 ONLY.

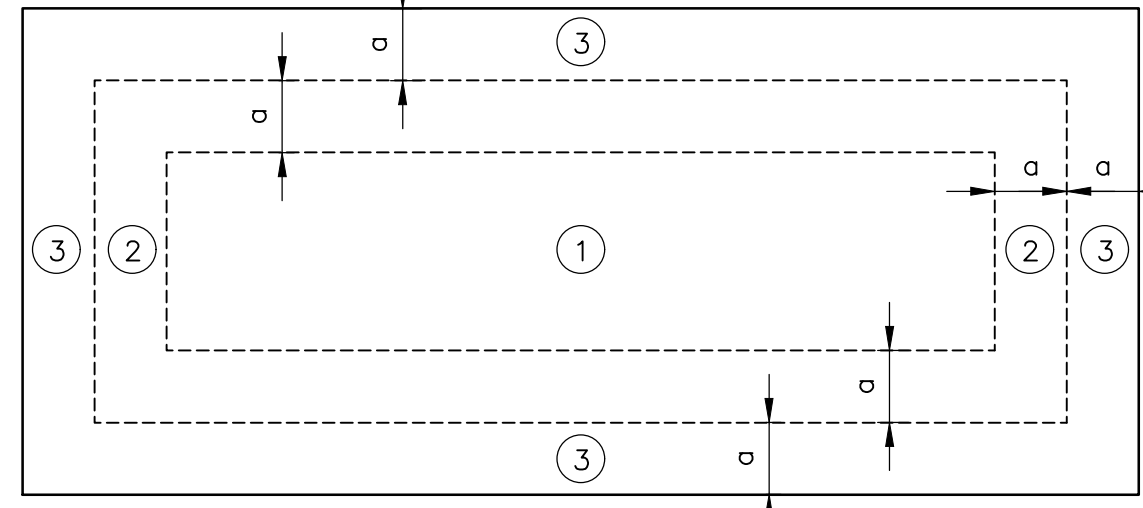


**SECTION 2**  
 1/2" = 1'-0"



**DETAIL A**  
 NTS

- NOTES:**
- LOCATE HAIRPIN BEHIND ALL COLUMN ANCHOR BOLTS.
  - LOCATE FIRST SET HAIRPIN 3" BELOW TOP OF CONCRETE AND THE SECOND ONE 5" BELOW TOP OF CONCRETE.



**COMPONENTS AND CLADDING**  
**WIND PRESSURE ONE DIAGRAM**  
 NTS

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: M. TRAPP	 4651 Salisbury Road, Suite 420 Jacksonville, FL 32256 Tel: (904) 731-7109 FL COA No. EB-0000020
DRAWN BY: P. SCHIARO	
SHEET CHK'D BY: P. KALARIA	
CROSS CHK'D BY: C. MONTGOMERY	
APPROVED BY: P. KALARIA	
DATE: MAY 2023	

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT  
 BLACK CREEK WATER RESOURCE  
 DEVELOPMENT PROJECT  
 AQUIFER RECHARGE AREA

MISCELLANEOUS SLABS  
 PLANS AND SECTIONS

PROJECT NO. 9247-221208
FILE NAME: S002MSPL.DWG
SHEET NO. S-2

XREFS: [CDMS\_2234] Images: [ ]  
 Last saved by: EDWARDSAF Time: 5/3/2023 11:12:45 AM  
 pw:\cdm\smith-0202-pw\entley.com\pw\_01\9247\221208\_PHASE 2 INTAKE PS\04 Design Services NM\_100%\05 Process Mechanical\10 CADD\03 Aquifer Recharge Area\M001NFNA.dwg  
 © 2023 CDM SMITH ALL RIGHTS RESERVED.  
 REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.

### SYMBOLS (ABBREVIATIONS)

	UNCLASSIFIED. TYPE AS SHOWN ON THE DRAWINGS ADJACENT TO SYMBOL	
	GATE VALVE (GV)	
	KNIFE GATE VALVE (KG)	
	GLOBE VALVE (GLV)	
	BALL VALVE (BV)	
	3-WAY BALL VALVE (BV3)	
	4-WAY BALL VALVE (BV4)	
	RECYCLE CONTROL VALVE (RCV)	
	CONE VALVE (CNV)	
	NEEDLE VALVE (NV)	
	PINCH VALVE (PV)	
	DIAPHRAGM VALVE (DV)	
	BUTTERFLY VALVE (BFV)	
	PLUG VALVE (PV)	
	3-WAY PLUG VALVE (PV3)	
	4-WAY PLUG VALVE (PV4)	
	CHECK VALVE, GENERAL SYMBOL (CV)	
	BALL CHECK VALVE (BCV)	
	DOUBLE DOOR CHECK VALVE (DDCV)	
	SOLENOID VALVE (SV)	
	MOTOR OPERATED VALVE (MOV)	
	3-WAY SOLENOID VALVE (SV3)	
	4-WAY SOLENOID VALVE (SV4)	
	ANGLE VALVE (AV)	
	QUICK CONNECT COUPLING (QCC)	
	SLUICE GATE (SLG)	
	BULKHEAD GATE (BHG)	
	SLIDE GATE (SG)	
	WEIR SLIDE GATE (WG)	
	STOP PLATE GUIDES (SPG)	
	FLAP VALVE (FLV)	
	SHEAR GATE (SHG)	
	MUD VALVE (MV)	
	ROTOMETER (RM)	

### SYMBOLS

	PRESSURE REDUCING REGULATOR SELF CONTAINED (PCV)
	PRESSURE REDUCING REGULATOR WITH EXTERNAL PRESSURE TAP (PCV)
	DIFFERENTIAL PRESSURE REDUCING REGULATOR WITH INTERNAL AND EXTERNAL PRESSURE TAPS (PDCV)
	PRESSURE RELIEF OR SAFETY VALVE, STRAIGHT-THROUGH PATTERN, SPRING OR WEIGHT-LOADED, OR WITH INTEGRAL PILOT (PSV)
	PRESSURE RELIEF OR SAFETY VALVE, GENERAL SYMBOL (PSV)
	VACUUM RELIEF VALVE, GENERAL SYMBOL (VRV)
	PRESSURE AND VACUUM RELIEF VALVE, SPRING OR WEIGHT-LOADED, OR WITH INTEGRAL PILOT (PSV)
	RUPTURE DISK OR SAFETY HEAD FOR PRESSURE RELIEF (PSE)
	RUPTURE DISK OR SAFETY HEAD FOR VACUUM RELIEF (PSE)
	PRESSURE AND VACUUM RELIEF MANHOLE COVER (PSE)
	SLIDE PLATE (SP)
	MANUAL VOLUME DAMPER (VD)
	BACKDRAFT DAMPER (BDD)
	FOOT VALVE

### VALVE ACTUATORS

	DIAPHRAGM, SPRING OPPOSED
	DIAPHRAGM, SPRING OPPOSED WITH POSITIONER
	DIAPHRAGM, PRESSURE-BALANCED
	ROTARY MOTOR. (SHOWN TYPICALLY WITH ELECTRIC SIGNAL. MAY BE HYDRAULIC OR PNEUMATIC)
	SOLENOID
	CYLINDER, SINGLE-ACTING, SPRING OPPOSED WITHOUT POSITIONER OR PILOT.
	CYLINDER, DOUBLE ACTING, WITHOUT POSITIONER OR PILOT
	EXAMPLE OF CYLINDER WITH POSITIONER
	FLOAT ACTUATOR
	FLOAT ACTUATOR WITH PILOT VALVE

### PIPE AND FITTING SYMBOLS

DOUBLE LINE PIPING	SINGLE LINE PIPING	DESCRIPTION
		PROCESS PIPING:
		EXISTING PROCESS PIPING
		FUTURE PROCESS PIPING
		WELDED JOINT
		FLANGED JOINT SIMPLIFIED REPRESENTATION. (SEE NOTE 1)
		COUPLING FOR GROOVED END JOINTS: (F) FLEXIBLE (R) RIGID
		MECHANICAL JOINT (SEE NOTE 1)
		PUSH ON JOINT OR CAULKED BELL & SPIGOT JOINT (SEE NOTE 1)
		FLANGE x PLAIN END PIPE COUPLING (FLANGE ADAPTOR)
		PIPE COUPLING (SLEEVE-TYPE)
		FLEXIBLE COUPLING OR EXPANSION JOINT (SLEEVE-TYPE)
		FLANGE GUARD
		VALVE IN VERTICAL PIPE SHOWN IN PLAN VIEW
		RESTRAINED JOINT PIPE (STAINLESS STEEL)
		HARNESS FLANGE ADAPTER COUPLING (HFAC) (DUCTILE IRON)

### EXISTING FACILITIES SYMBOLOLOGY AND ANNOTATION

REMOVE EXISTING 12" PW-DI

### EXISTING FACILITIES DEMOLITION SYMBOLOLOGY AND ANNOTATION

### PIPE AND FITTING SYMBOLS NOTES:

- GENERIC JOINT SYMBOL IS USED FOR ALL SINGLE LINE PIPING SHOWN ON THE INTERIOR AND EXTERIOR PIPING DRAWINGS.
- BOTH, DETAILED AND SIMPLIFIED FLANGE REPRESENTATION SYMBOLS MAY BE SHOWN ON THE DRAWINGS.
- UNLESS MODIFIED BY THE GENERAL PROJECT NOTES OR DETAILED ON THE LAYOUT AND SCHEMATIC DRAWINGS PIPE AND FITTING JOINT REQUIREMENTS FOR THE VARIOUS PIPE MATERIALS ARE DEFINED IN THE SPECIFICATIONS AND ARE INDICATED ON THE PROCESS PIPE SCHEDULES.

### PROCESS PIPE IDENTIFICATION

#### PROCESS FLOW STREAMS

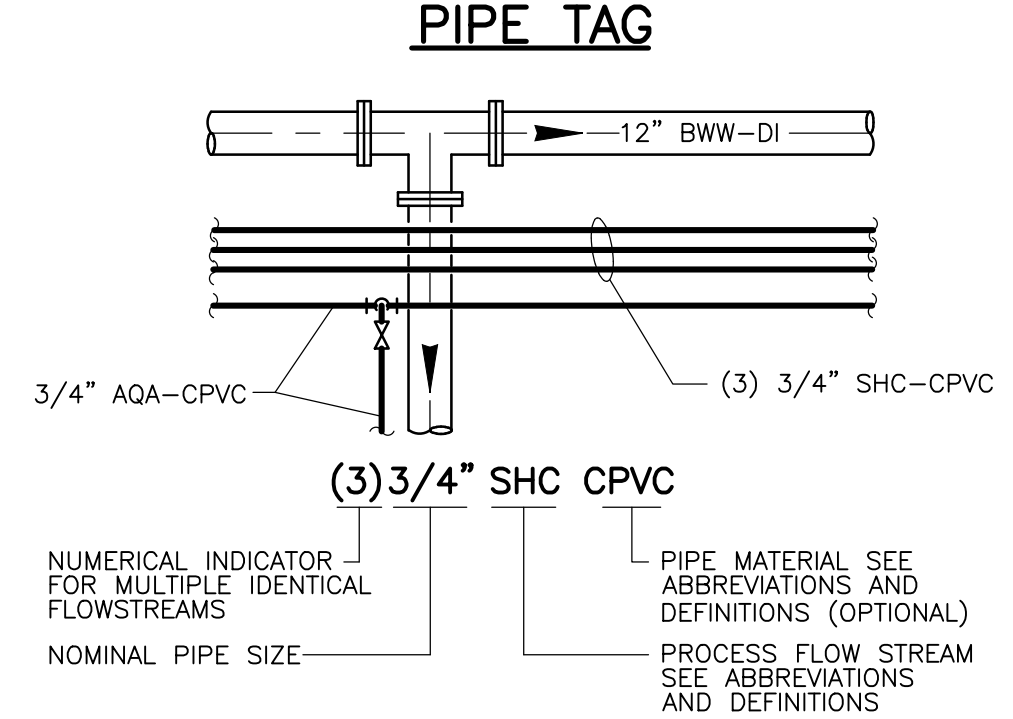
AFW	ACIDIFIED FEED WATER
AIR	PROCESS AIR
ANTS	ANTISCALANT
AQA	AQUA AMMONIA
BWW	BACKWASH WATER SUPPLY
C	COAGULANT
CA	PLANT AIR (COMPRESSED)
CAP	POLYMER
CW	CHEMICAL CARRIER WATER
CIT	CITRIC ACID
CONC	CONCENTRATE
COR	CORROSION INHIBITOR
CT	COOLANT
CWR	COOLING WATER RETURN
CWS	COOLING WATER SUPPLY
D	DRAIN
DF	DIESEL FUEL
DS	DIGESTER SLUDGE
EFF	EFFLUENT
EX	EXHAUST
FILL	CHEMICAL FILL LINE
FINW	FINISHED WATER (POST STORAGE TANK)
FL	HYDROFLUOSILICIC ACID
FLW	FILTERED WATER
FR	FLOATED RESIDUALS
FTW	FILTER TO WASTE
GOX	GASEOUS OXYGEN
HFL	HYDROFLUOSILICIC ACID
IAS	INSTRUMENT AIR SUPPLY
LOX	LIQUID OXYGEN
LPA	LOW PRESSURE AIR (FROM BLOWERS)
NPW	NON POTABLE WATER
OG	OFF GAS
OV	OVERFLOW
PERM	PERMATE
POL	POLYMER
PW	POTABLE WATER
RAS	RETURN ACTIVATED SLUDGE
RS	RAW SEWAGE
RW	RAW WATER
SA	SUPPLEMENTAL AIR
SAN	SANITARY SEWER
SAS	SODA ASH SOLUTION
SHC	SODIUM HYPOCHLORITE
SHD	SODIUM HYDROXIDE
SLD	SLUDGE DRAIN
SMM	SOLUTION MAKE-UP WATER
SPL	SAMPLE LINE
SSR	SAND SLURRY RETURN
SUC	SUCTION
SW	STORM WATER
TDW	THICKENER DILUTION WATER
TKD	TANK DRAIN
TPS	THICKENER PRIMARY SLUDGE
UF	ULTRAFILTRATION
ULP	ULTRA LOW PRESSURE
V	VENT
WBW	WASTE BACKWASH
WS	WASTE SLUDGE

#### PIPE MATERIALS

CI	CAST IRON
CS	CARBON STEEL
STL	STEEL
CU	COPPER
CPVC	CHLORINATED POLYVINYL CHLORIDE
DI	DUCTILE IRON
DIEL	DUCTILE IRON EPOXY LINED
DIGL	DUCTILE IRON GLASS LINED
FRP	FIBERGLASS REINFORCED PLASTIC
GS	GALVANIZED STEEL
HDPE	HIGH DENSITY POLYETHYLENE
PCCP	PRESTRESSED CONCRETE CYLINDER PIPE
PVC	POLYVINYL CHLORIDE PRESSURE PIPE
POLYP	POLYPROPYLENE
PPSTL	POLYPROPYLENE LINED STEEL PIPE
RC	REINFORCED CONCRETE SEWER PIPE
RUB	RUBBER
SST	STAINLESS STEEL
BS	BLACK STEEL PIPE

#### PIPE JOINTS

FLG	- FLANGE
PE	- PLAIN END
MJ	- MECHANICAL JOINT
REST	- RESTRAINED
RJ	- RESTRAINED JOINT
TRD	- THREADED



### SECTION CUT SYMBOLS

SECTION NUMBER

SHEET WHERE SECTION IS LOCATED IF THE SECTION IS SHOWN ON THE SAME SHEET IT IS CUT, THE SHEET NUMBER SHOULD BE REPLACED WITH A DASH.

TEXT FOR THE SECTION NUMBER AND THE SHEET NUMBER MUST ALWAYS BE PARALLEL TO THE SHEET BORDER.

WHEN REFERENCING A SECTION IN A NOTE, USE 1/M-1 FORMAT INSTEAD OF THE BUBBLE.

### DRAWING, SECTION AND DETAIL TITLES

SUBTITLE OR DESCRIPTION (AS REQ'D)

PLAN  
1/4" = 1'-0"

SUBTITLE OR DESCRIPTION (AS REQ'D)

ELEVATION  
1/4" = 1'-0"

SECTION  
3/4" = 1'-0"

DETAIL  
3/4" = 1'-0"

SCHEMATIC  
3/4" = 1'-0"

DIAGRAM  
3/4" = 1'-0"

WHERE A NOTE IS REQUIRED FOR CLARITY, USE A/M-12 FORMAT IN THE NOTE INSTEAD OF BUBBLE. IF MULTIPLE DETAILS REFER TO THE SAME AREA OF THE DRAWING, THE BUBBLES SHOULD BE STACKED SIDE BY SIDE.

\* IF SECTION, DETAIL, SCHEMATIC OR DIAGRAM IS DRAWN ON THE SAME SHEET THAT IT IS TAKEN FROM, REPLACE THE SHEET NUMBER WITH A HYPHEN. IF THE SECTION IS REFERENCED ON MULTIPLE SHEETS, THE SHEET NUMBER SHOWN SHOULD INDICATE THE FIRST SHEET THE SECTION IS TAKEN FROM.

### MECHANICAL PIPING GENERAL NOTES

- ALL FLOOR MOUNTED EQUIPMENT SHALL BE SET ON CONCRETE PADS CONFORMING TO DETAILS SHOWN ON THE STRUCTURAL AND/OR MECHANICAL DRAWINGS.
- DIELECTRIC COUPLINGS, FLANGES OR UNIONS SHALL BE INSTALLED AT ALL CONNECTIONS OF STAINLESS STEEL TO OTHER TYPES OF METALLIC PIPING.
- MECHANICAL PLANS AND SECTIONS DO NOT SHOW ALL VALVES, GAUGES, SWITCHES, OPERATORS, DRAINS, VENTS, ETC. REQUIRED FOR THE COMPLETE SYSTEM. CERTAIN SMALL DIAMETER PROCESS PIPING RUNS MAY NOT BE SHOWN IN THEIR ENTIRETY. FIELD ROUTE TO AVOID INTERFERENCES, SUBJECT TO THE APPROVAL OF THE ENGINEER.
- THE CONTRACTOR SHALL FURNISH, INSTALL AND TEST ALL PIPING SYSTEMS IN ACCORDANCE WITH DIVISION 1 AND 15.
- UNLESS OTHERWISE SHOWN ON THE MECHANICAL DRAWINGS ALL FLOOR SLAB, WALL AND TANK PENETRATIONS SHALL BE AS SHOWN ON THE PENETRATION DETAILS INCLUDED IN THE MECHANICAL CONSTRUCTION DETAILS. ABOVE GROUND EXTERIOR WALL AND ROOF PENETRATIONS SHALL BE AS SHOWN ON THE DRAWINGS. IF APPROVED BY ENGINEER, THE CONTRACTOR MAY SUBSTITUTE ALTERNATE METHODS PROVIDING THEY MEET INTENDED DESIGN REQUIREMENTS.
- ALL PIPE SUPPORTS SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR AS SPECIFIED. VALVES, COUPLINGS, INSTRUMENT DEVICES AND OTHER APPURTENANCES SHALL BE PROPERLY SUPPORTED AND/OR ANCHORED ACCORDING TO MANUFACTURERS RECOMMENDATIONS.
- ALL EQUIPMENT BASES AND PIPING HAVING DRAIN OUTLETS SHALL BE PIPED TO THE NEAREST OPEN END DRAIN (OED) OR TRENCH DRAIN USING GALVANIZED STEEL PIPE OF APPROPRIATE DIAMETER AS INDICATED ON THE DRAWINGS OR AS RECOMMENDED BY THE EQUIPMENT MANUFACTURER.
- UNLESS OTHERWISE SHOWN ALL PIPES UNDER CONCRETE SLABS SHALL BE ENCASED IN CONCRETE AS SHOWN ON THE STRUCTURAL DRAWINGS.
- NOT ALL VALVE AND GATE OPERATORS ARE SHOWN (i.e. HANDWHEELS, CRANKS, CHAINWHEELS, MOTORS OR LEVERS). OPERATORS SHALL BE LOCATED TO ALLOW CONVENIENT OPENING AND CLOSING OF VALVES OR GATES. ORIENTATION OF OPERATORS SHALL BE TO APPROVAL OF ENGINEER. NO VALVE SHALL BE INSTALLED WITH THE OPERATING STEM IN THE VERTICAL DOWNWARD POSITION.
- PIPING SHALL BE INSTALLED SO THAT ANY PIPE, LAYER OF PIPING OR EQUIPMENT CAN BE REMOVED WITHOUT DISTURBING REMAINING PIPES AND SUPPORTS.
- THE NUMBER OF UNIONS AND OTHER TYPES OF DISMANTLING COUPLINGS SHOWN IS APPROXIMATE. THE CONTRACTOR SHALL PROVIDE UNIONS OR DISMANTLING COUPLINGS WHETHER THEY ARE SHOWN ON THE DRAWINGS OR NOT ON ALL PIPELINES WITH WELDED OR FLANGED JOINTS: AT ALL EQUIPMENT CONNECTIONS, AT A MINIMUM EVERY 50 FEET AND IN BRANCH LINES TO ALLOW CONVENIENT REMOVAL OF PIPING, EQUIPMENT AND APPURTENANCES.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD LOCATING AND TAGGING ALL PROCESS PIPING VALVES AND EQUIPMENT. PROCESS IDENTIFICATION SYSTEM SHALL BE AS DETAILED IN THE SPECIFICATIONS AND AS INSTRUCTED.
- PORTIONS OF NON-PROCESS PIPING (HVAC & PLUMBING) ARE SHOWN FOR CLARITY AND FOR COORDINATION BETWEEN DISCIPLINES. REFER TO APPROPRIATE DRAWINGS AND SPECIFICATIONS.
- WHERE PIPES CHANGE DIRECTION FROM HORIZONTAL TO VERTICAL VIA A BEND, A WELDED OR CAST BASE ELBOW SUPPORT SHALL BE INSTALLED.
- ALL DIMENSIONS AND GRADES SHOWN ON THE PLANS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY THE ENGINEER IF ANY DISCREPANCIES EXIST PRIOR TO PROCEEDING WITH CONSTRUCTION FOR NECESSARY PLAN OR GRADE CHANGES. NO EXTRA COMPENSATION SHALL BE PAID TO THE CONTRACTOR FOR WORK HAVING TO BE REDONE DUE TO DIMENSIONS OR GRADES SHOWN INCORRECTLY ON THESE PLANS IF SUCH NOTIFICATION HAS NOT BEEN GIVEN.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: C. MONTGOMERY
DRAWN BY: A. EDWARDS
SHEET CHK'D BY: C. MONTGOMERY
CROSS CHK'D BY: X
APPROVED BY: C. MONTGOMERY
DATE: MAY 2023

**CDM Smith**  
 4651 Salisbury Road, Suite 420  
 Jacksonville, FL 32256  
 Tel: (904) 731-7109  
 FL COA No. EB-0000020

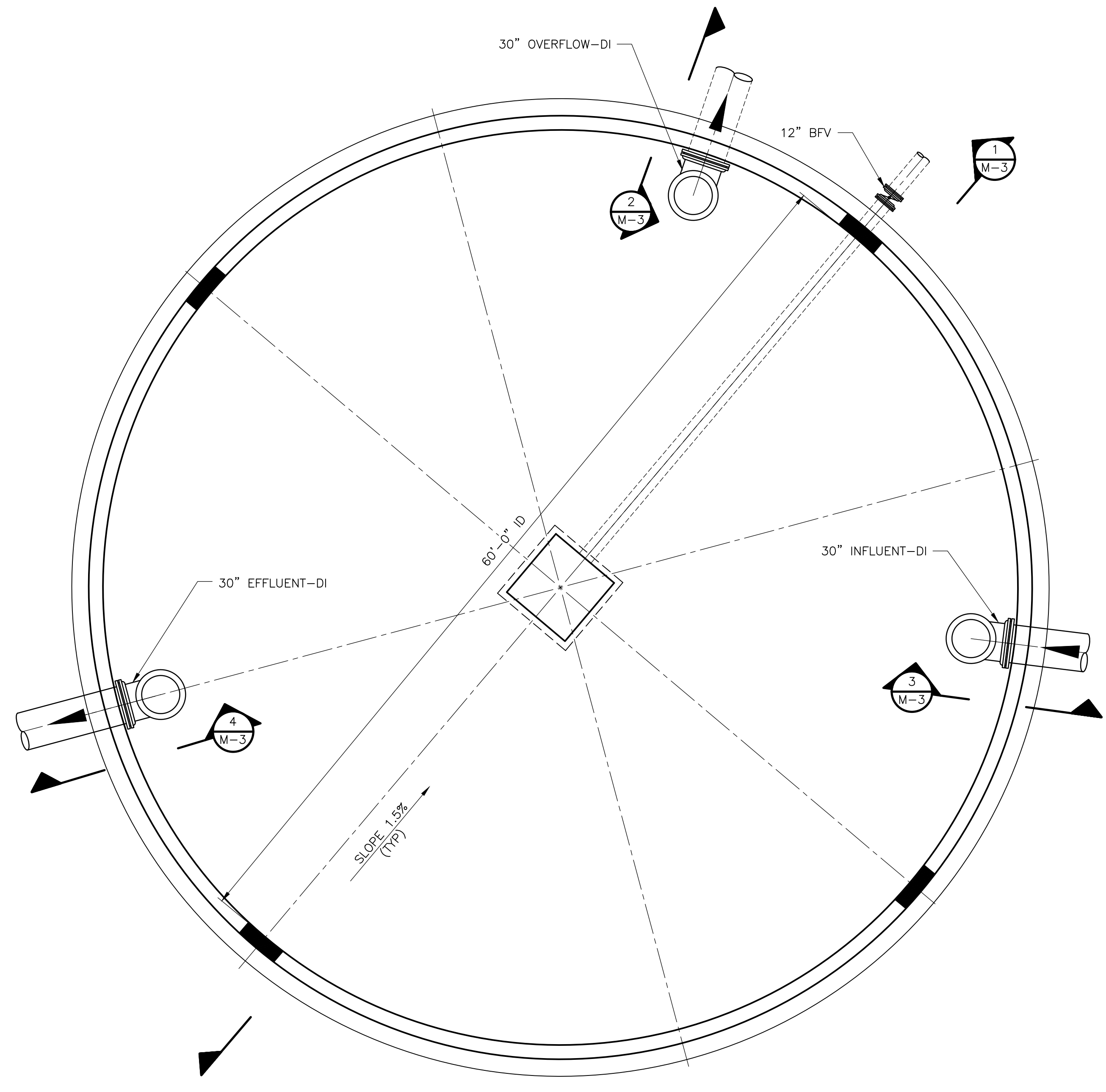
ST. JOHNS RIVER WATER MANAGEMENT DISTRICT  
 BLACK CREEK WATER RESOURCE  
 DEVELOPMENT PROJECT  
 AQUIFER RECHARGE AREA

**PROCESS MECHANICAL  
 NOTES, LEGEND AND ABBREVIATIONS**

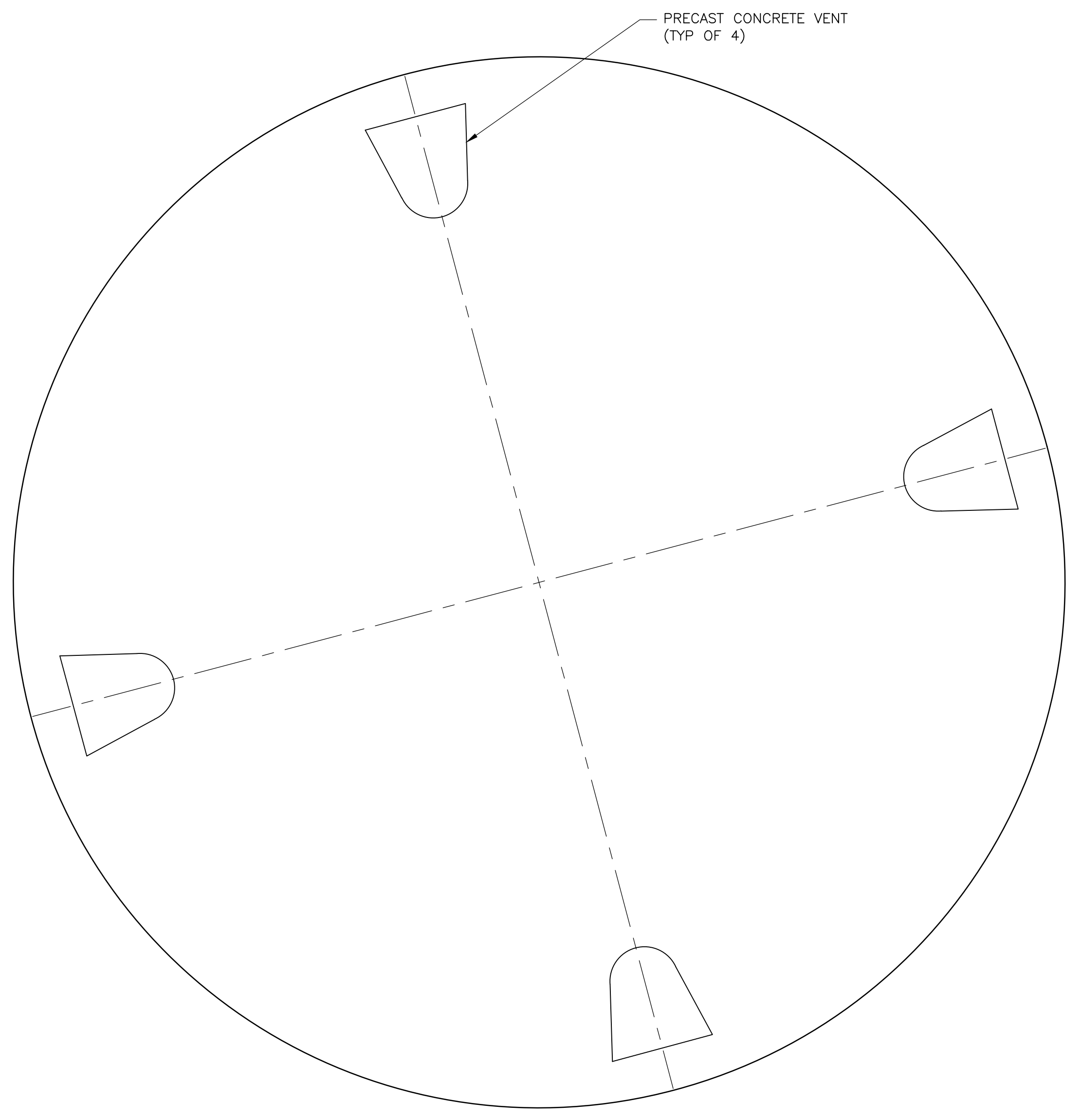
DATE:  
**CRAIG G. MONTGOMERY**  
 PROJ. NO. 9247-221208  
 FILE NAME: M001NFNA.DWG  
 SHEET NO.  
**M-1**

ISSUED FOR BID

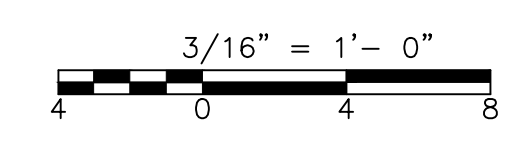
XREFS: [CDMS\_2234; MWPOSTPL] Images: [ ]  
 Last saved by: EDWARDSAF Time: 5/3/2023 11:12:28 AM  
 pw:\\cdm-smith-0202-pw-bentley.com\pw\_r11\9247\221208\_PHASE 2 INTAKE PS\04 Design Services NM\_100%\05 Process Mechanical\10 CAD\03 Aquifer Recharge Area\M002STPL.dwg  
 © 2023 CDM SMITH ALL RIGHTS RESERVED.  
 REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.



STORAGE TANK FLOOR PLAN  
 PLAN  
 3/16" = 1'-0"



STORAGE TANK DOME PLAN  
 PLAN  
 3/16" = 1'-0"



REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: C. MONTGOMERY  
 DRAWN BY: A. EDWARDS  
 SHEET CHK'D BY: C. MONTGOMERY  
 CROSS CHK'D BY: X  
 APPROVED BY: C. MONTGOMERY  
 DATE: MAY 2023



ST. JOHNS RIVER WATER MANAGEMENT DISTRICT  
 BLACK CREEK WATER RESOURCE  
 DEVELOPMENT PROJECT  
 AQUIFER RECHARGE AREA

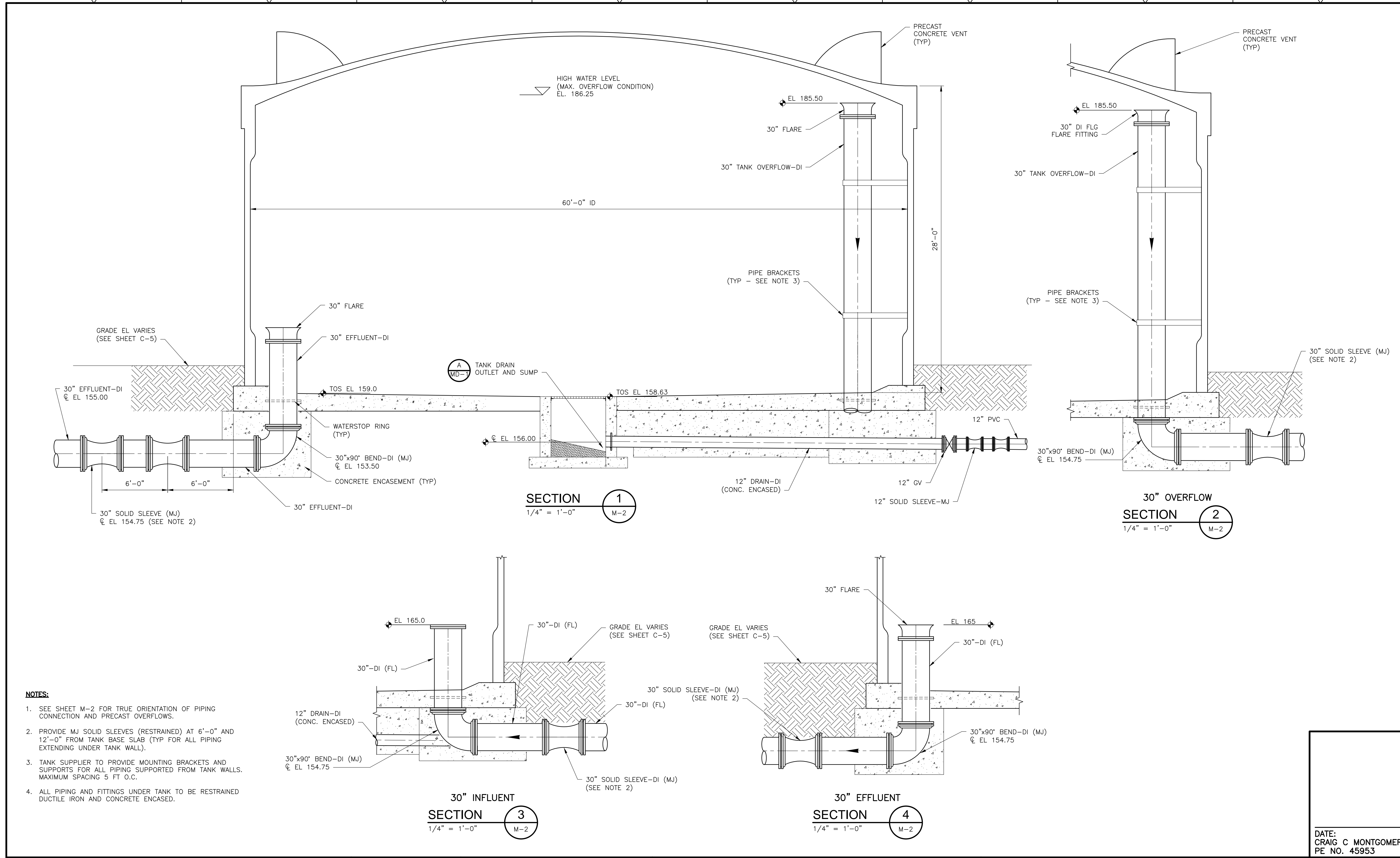
STORAGE TANK PLANS

DATE:  
 CRAIG C MONTGOMERY  
 PE NO. 45953

PROJECT NO. 9247-221208  
 FILE NAME: M002STPL.DWG

SHEET NO.  
**M-2**

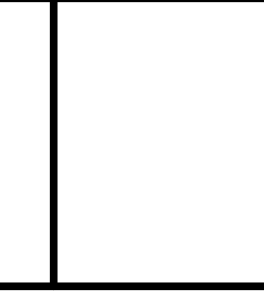
XREFS: [CDMS\_2234; MWS03TSC] Images: [ ]  
 Last saved by: EDWARDSA Time: 5/3/2023 11:04:23 AM  
 pw:\\cdm-smith-0202-pw-bentley.com\pw\_01\9247\221208\_PHASE 2 INTAKE PS\04 Design Services NM\_100%\05 Process Mechanical\10 CAD\03 Aquifer Recharge Area\M003TSC.dwg  
 © 2023 CDM SMITH ALL RIGHTS RESERVED.  
 REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.



- NOTES:**
- SEE SHEET M-2 FOR TRUE ORIENTATION OF PIPING CONNECTION AND PRECAST OVERFLOWS.
  - PROVIDE MJ SOLID SLEEVES (RESTRAINED) AT 6'-0" AND 12'-0" FROM TANK BASE SLAB (TYP FOR ALL PIPING EXTENDING UNDER TANK WALL).
  - TANK SUPPLIER TO PROVIDE MOUNTING BRACKETS AND SUPPORTS FOR ALL PIPING SUPPORTED FROM TANK WALLS. MAXIMUM SPACING 5 FT O.C.
  - ALL PIPING AND FITTINGS UNDER TANK TO BE RESTRAINED DUCTILE IRON AND CONCRETE ENCASED.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: C. MONTGOMERY  
 DRAWN BY: A. EDWARDS  
 SHEET CHK'D BY: C. MONTGOMERY  
 CROSS CHK'D BY: X  
 APPROVED BY: C. MONTGOMERY  
 DATE: MAY 2023



4651 Salisbury Road, Suite 420  
 Jacksonville, FL 32256  
 Tel: (904) 731-7109  
 FL COA No. EB-0000020

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT  
 BLACK CREEK WATER RESOURCE  
 DEVELOPMENT PROJECT  
 AQUIFER RECHARGE AREA

**STORAGE TANK SECTIONS**

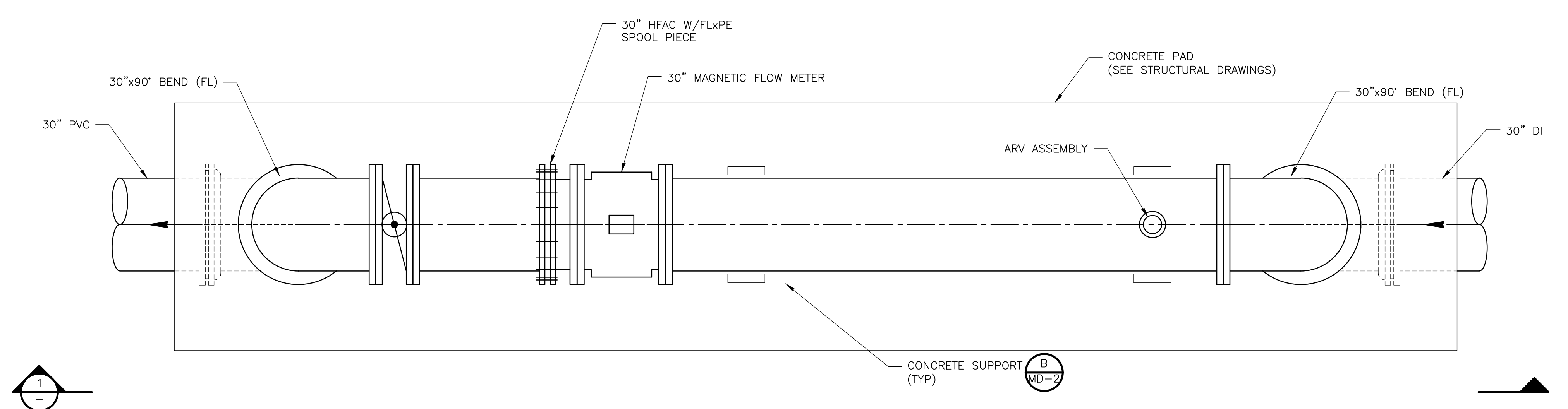
DATE: CRAIG C MONTGOMERY  
 PE NO. 45953

PROJECT NO. 9247-221208  
 FILE NAME: M003TSC.DWG

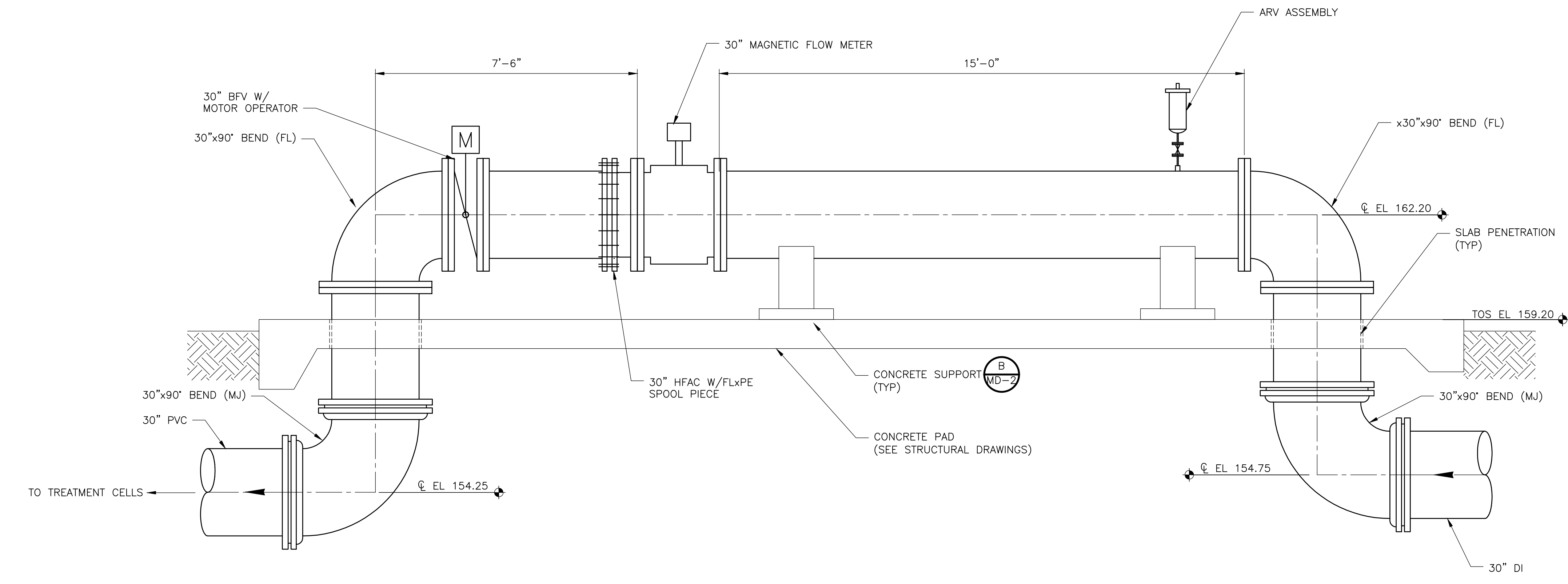
SHEET NO.  
**M-3**

ISSUED FOR BID

XREF: [CDMS\_2234; MWPO00PS; SWP000PL] Images: [ ]  
 Last saved by: EDWARDSA Time: 5/3/2023 11:12:02 AM  
 pw:\cdm\smith-0202-pw.bentley.com\pw\_r1\9247\221208\_PHASE 2 INTAKE PS\04 Design Services NM\_100\05 Process Mechanical\10 CADD\03 Aquifer Recharge Area\M004FMPL.dwg  
 © 2023 CDM SMITH ALL RIGHTS RESERVED.  
 REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.



**FLOW CONTROL ASSEMBLY**  
**PLAN**  
 1/2" = 1'-0"



**FLOW CONTROL ASSEMBLY**  
**SECTION**  
 1/2" = 1'-0"

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: C. MONTGOMERY  
 DRAWN BY: A. EDWARDS  
 SHEET CHK'D BY: C. MONTGOMERY  
 CROSS CHK'D BY: X  
 APPROVED BY: C. MONTGOMERY  
 DATE: MAY 2023



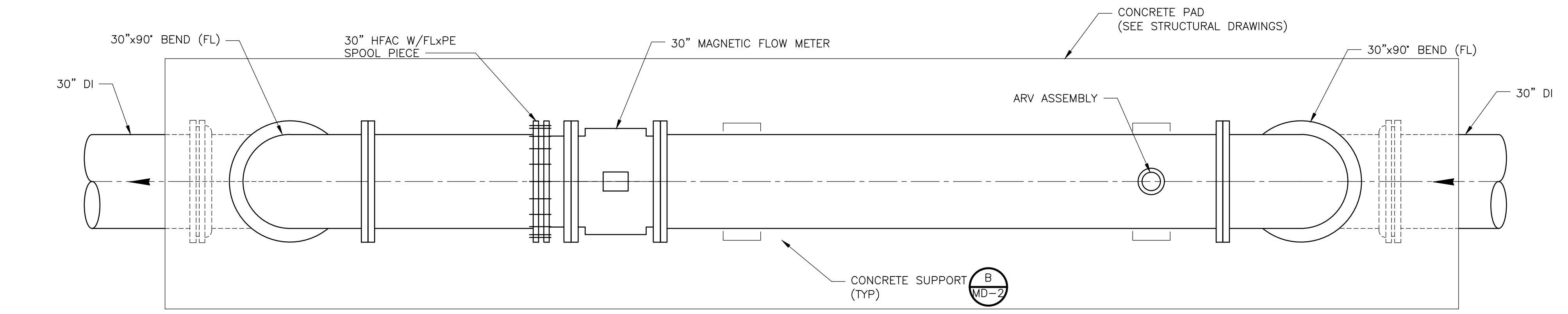
4651 Salisbury Road, Suite 420  
 Jacksonville, FL 32256  
 Tel: (904) 731-7109  
 FL COA No. EB-0000020

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT  
 BLACK CREEK WATER RESOURCE  
 DEVELOPMENT PROJECT  
 AQUIFER RECHARGE AREA

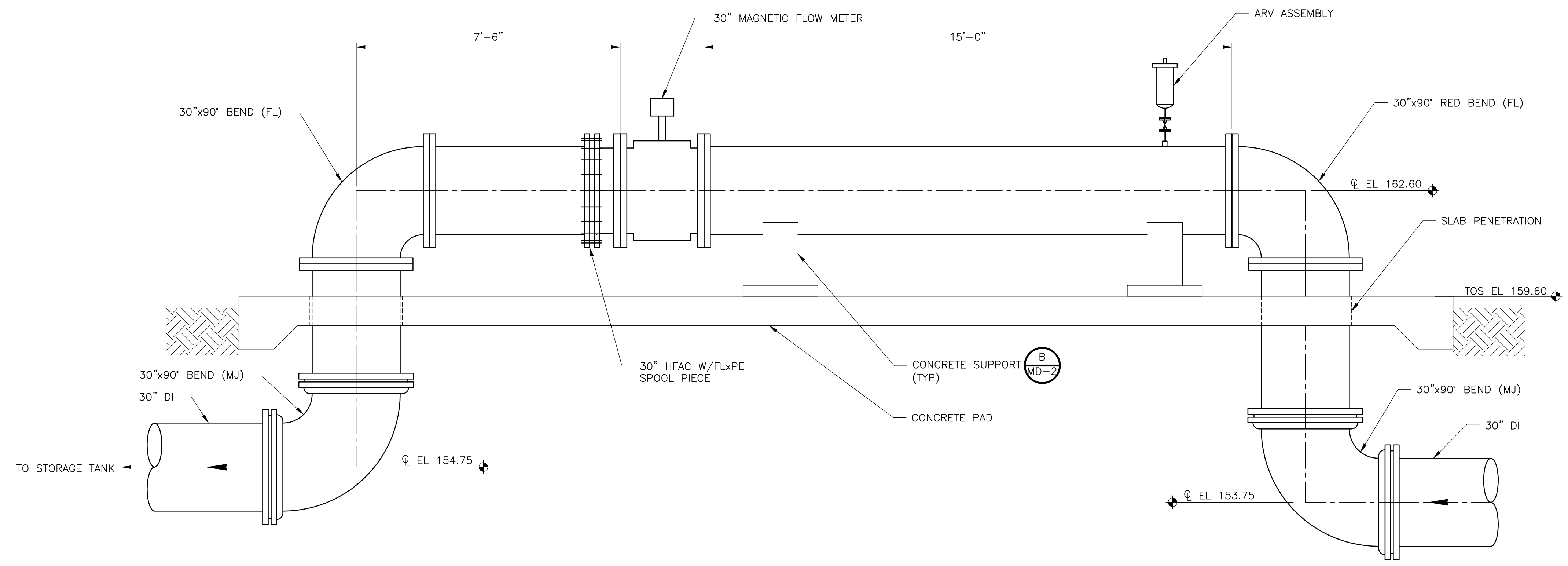
**FLOW CONTROL ASSEMBLY**  
**PLAN AND SECTION**

PROJECT NO. 9247-221208  
 FILE NAME: M004FMPL.DWG  
 SHEET NO.  
**M-4**

XREFS: [CDMS\_2234\_MWP000PS\_SWP000PL] Images: [ ]  
 Last saved by: EDWARDSA Time: 5/3/2023 11:11:12 AM  
 pw:\cdm\smith-0202-pw.bentley.com\pw\_01\9247\221208\_PHASE 2 INTAKE PS\04 Design Services NM\_100\05 Process Mechanical\10 CADD\03 Aquifer Recharge Area\M005FMPL.dwg  
 © 2023 CDM SMITH ALL RIGHTS RESERVED.  
 REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.



**INFLUENT METERING ASSEMBLY**  
**PLAN**  
 1/2" = 1'-0"



**INFLUENT METERING ASSEMBLY**  
**SECTION 1**  
 1/2" = 1'-0"

REV. NO.	DATE	DRWN	CHKD	REMARKS

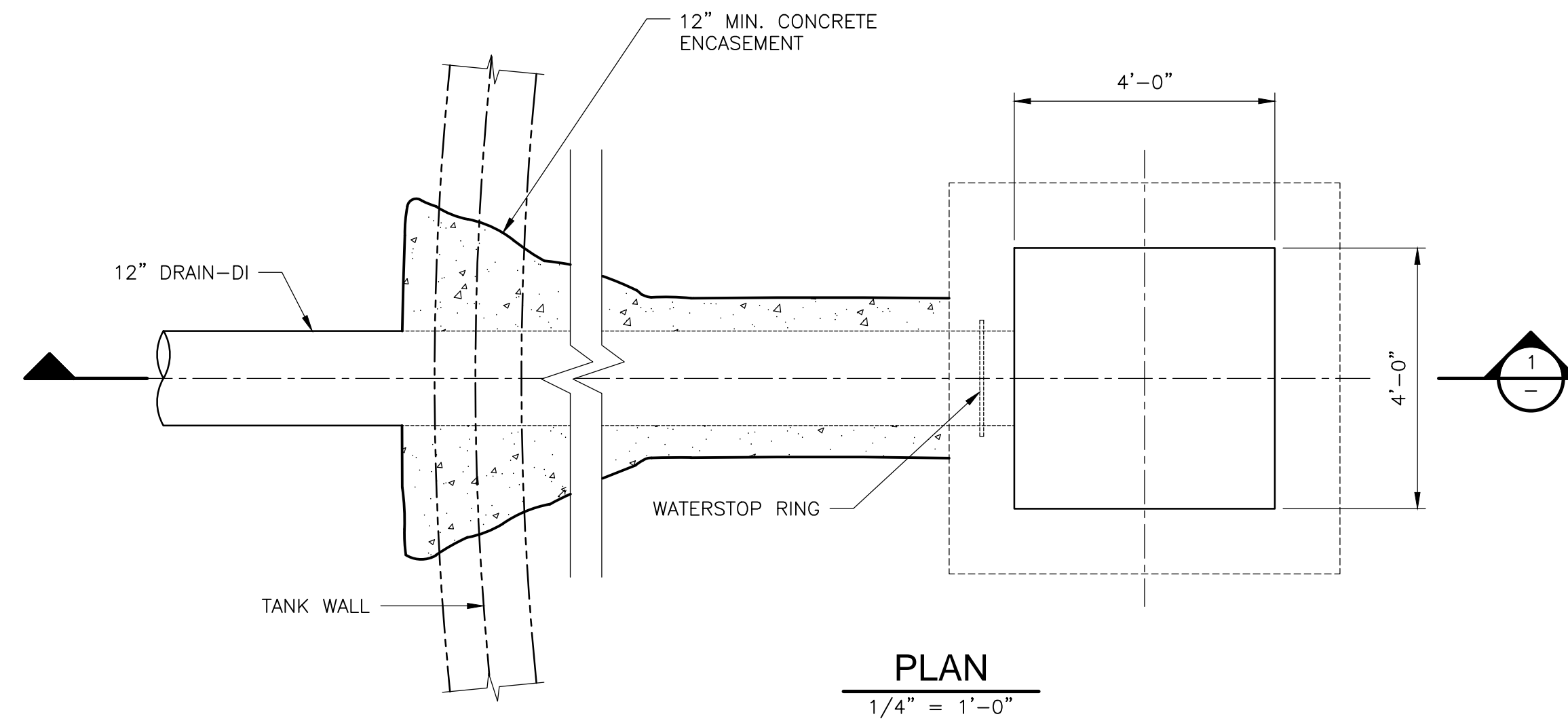
DESIGNED BY: C. MONTGOMERY	 <small>4651 Salisbury Road, Suite 420          Jacksonville, FL 32256          Tel: (904) 731-7109          FL COA No. EB-0000020</small>
DRAWN BY: A. EDWARDS	
SHEET CHK'D BY: C. MONTGOMERY	
CROSS CHK'D BY: X	
APPROVED BY: C. MONTGOMERY	
DATE: MAY 2023	

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT  
 BLACK CREEK WATER RESOURCE  
 DEVELOPMENT PROJECT  
 AQUIFER RECHARGE AREA

**INFLUENT METERING ASSEMBLY**  
**PLAN AND SECTION**

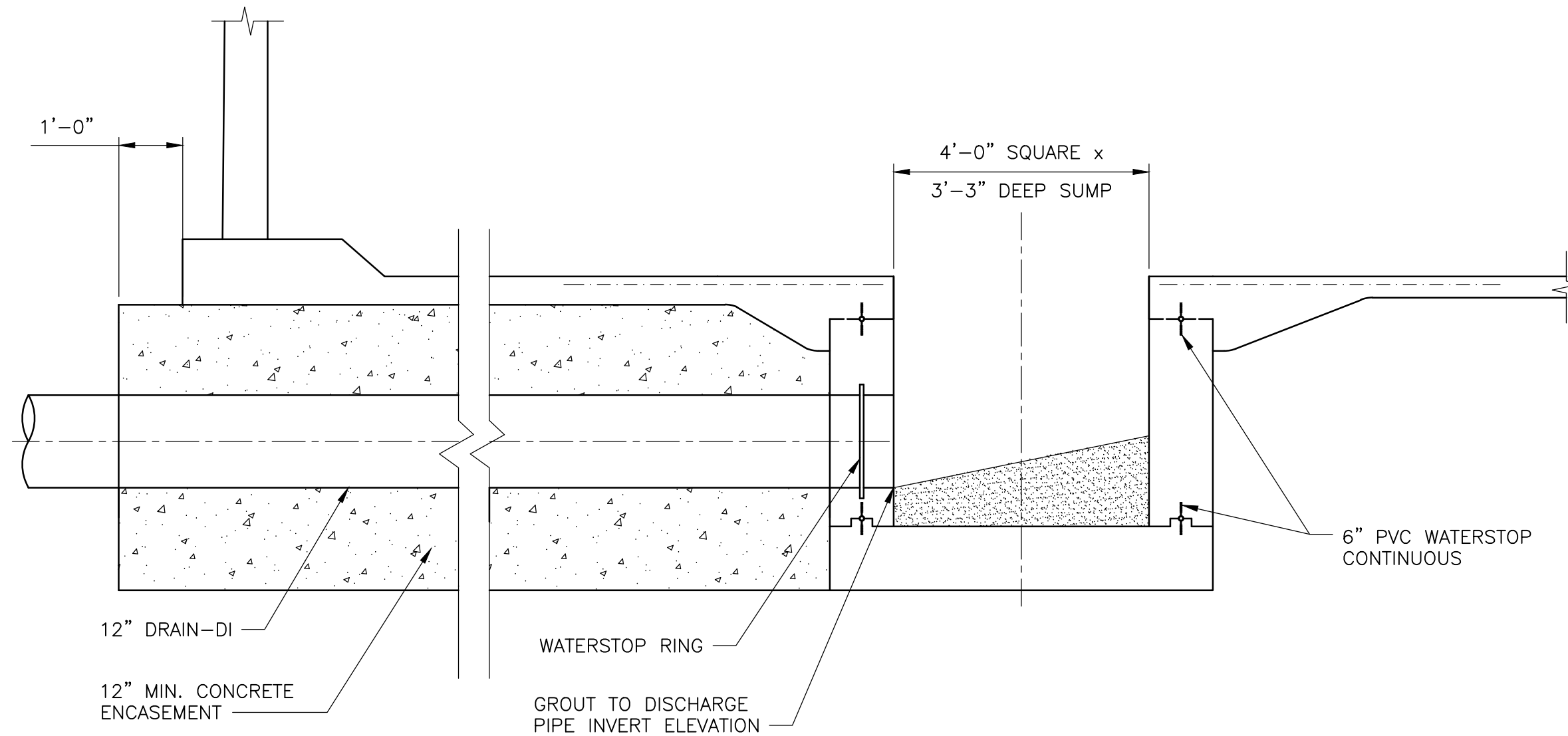
PROJECT NO. 9247-221208
FILE NAME: M005FMPL.DWG
SHEET NO. M-5

XREFS: [CDMS\_2234] Images: [ ]  
 Last saved by: EDWARDSAF Time: 5/3/2023 11:10:54 AM  
 pw:\cdm\smith-0202-pw.bentley.com\pw\_01\9247\221208\_PHASE 2 INTAKE PS\04 Design Services NM\_100\05 Process Mechanical\10 CAD\03 Aquifer Recharge Area\M001STD1.dwg  
 © 2023 CDM SMITH ALL RIGHTS RESERVED.  
 REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.



**PLAN**

1/4" = 1'-0"



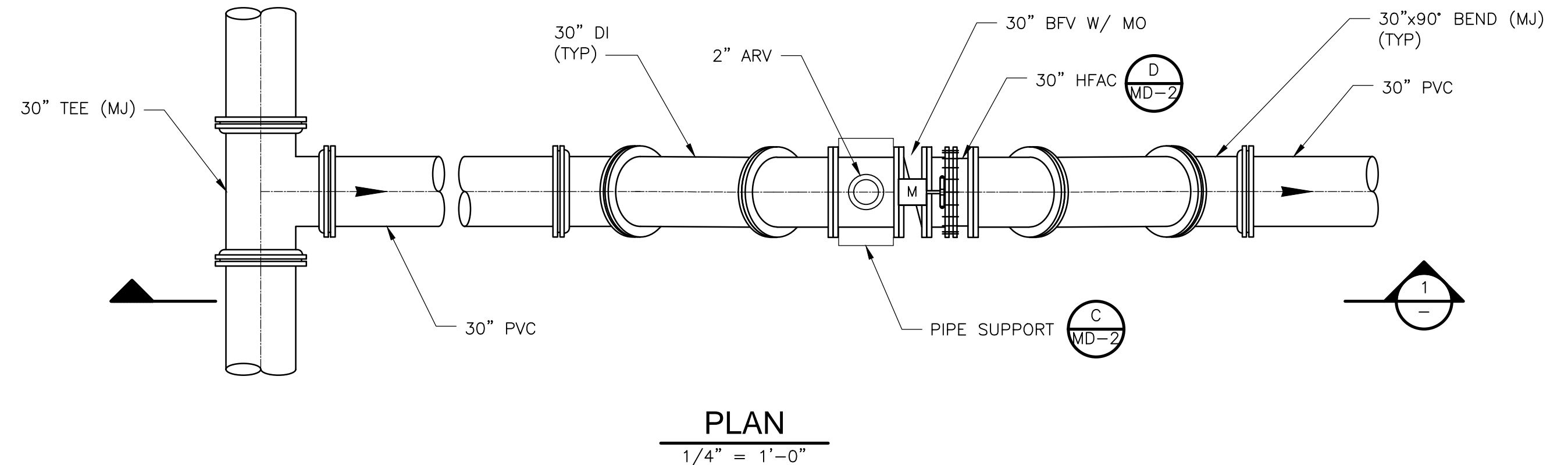
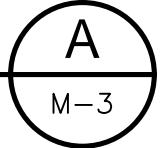
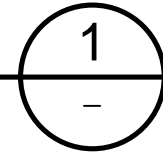
**SECTION 1**

1/4" = 1'-0"

**TANK DRAIN OUTLET AND SUMP**

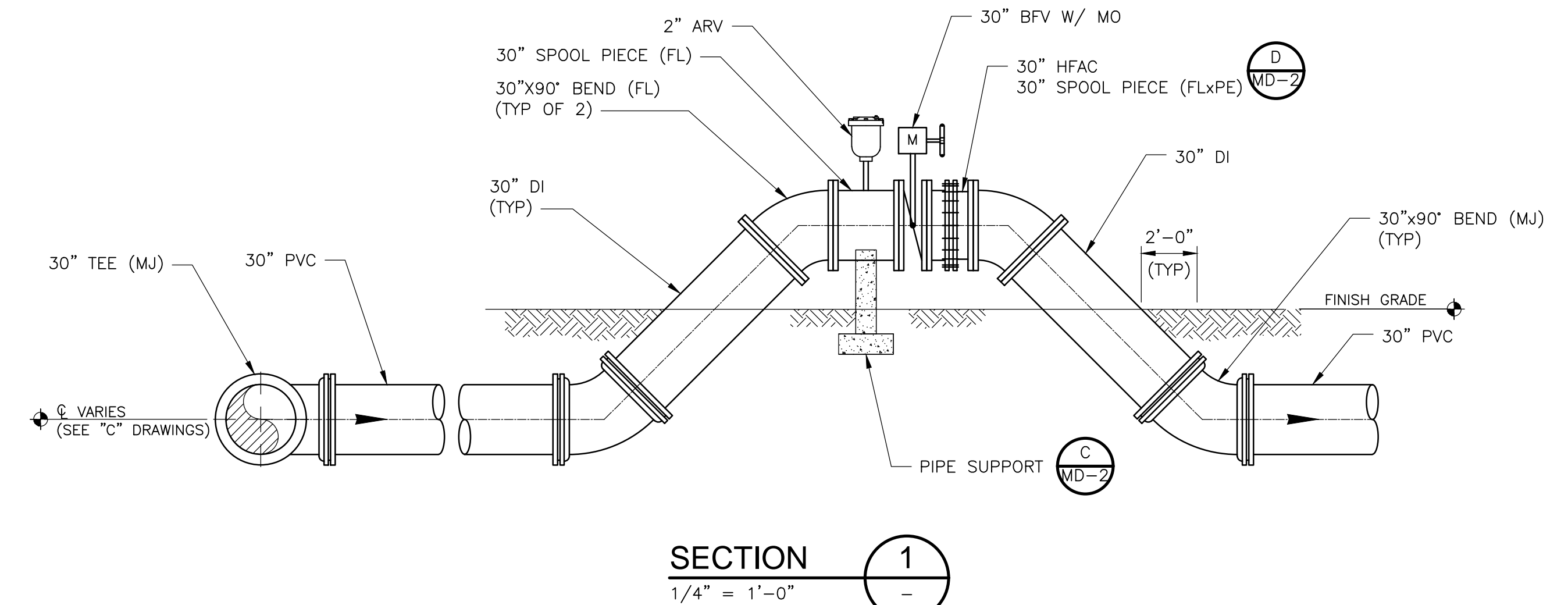
**DETAIL A**

1/4" = 1'-0"



**PLAN**

1/4" = 1'-0"



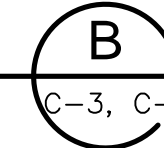
**SECTION 1**

1/4" = 1'-0"

**DISTRIBUTION CONTROL VALVE ASSEMBLY**

**DETAIL B**

1/4" = 1'-0"



REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: C. MONTGOMERY  
 DRAWN BY: A. EDWARDS  
 SHEET CHK'D BY: C. MONTGOMERY  
 CROSS CHK'D BY: X  
 APPROVED BY: C. MONTGOMERY  
 DATE: MAY 2023

**CDM Smith**  
 4651 Salisbury Road, Suite 420  
 Jacksonville, FL 32256  
 Tel: (904) 731-7109  
 FL COA No. EB-0000020

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT  
 BLACK CREEK WATER RESOURCE  
 DEVELOPMENT PROJECT  
 AQUIFER RECHARGE AREA

**STORAGE TANK DETAILS**

DATE: CRAIG C. MONTGOMERY  
 PE NO. 45953

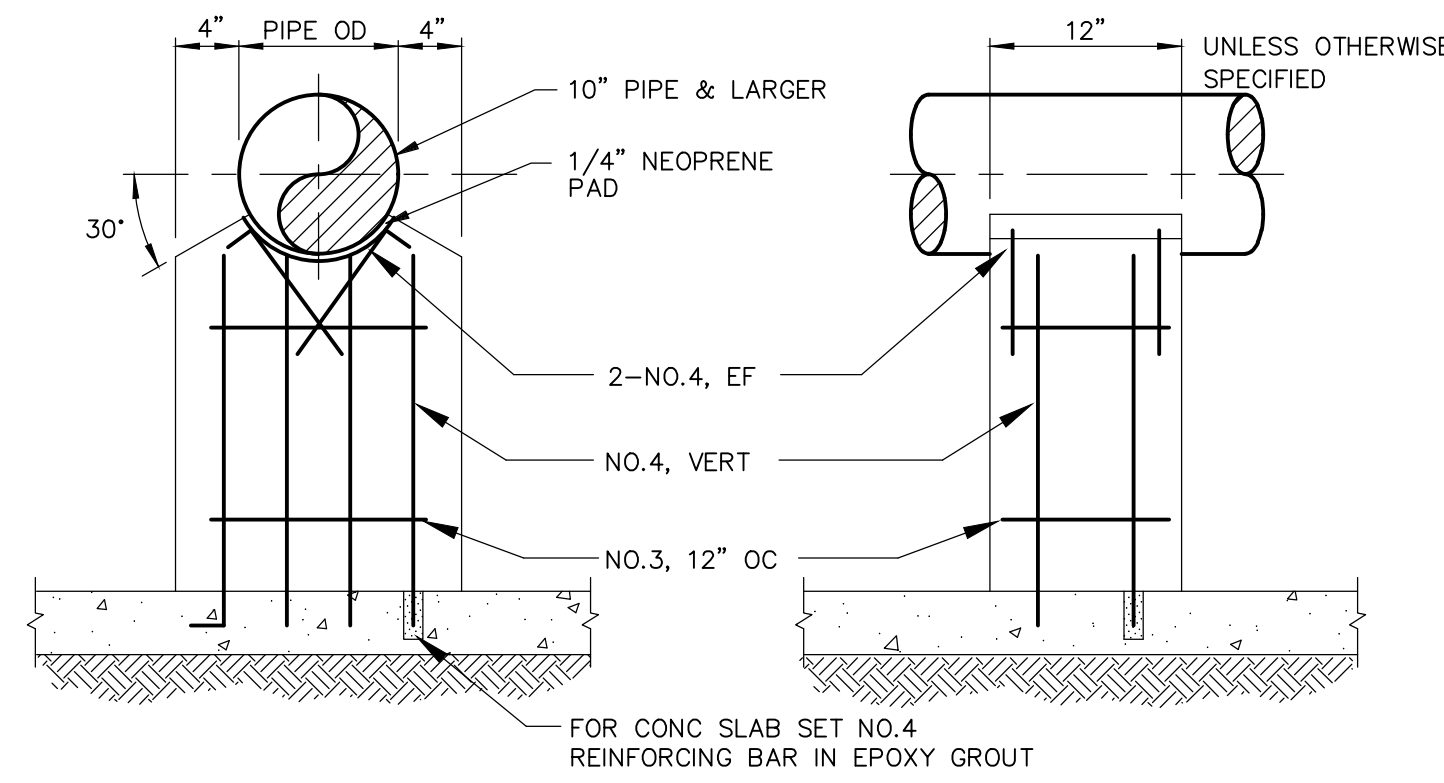
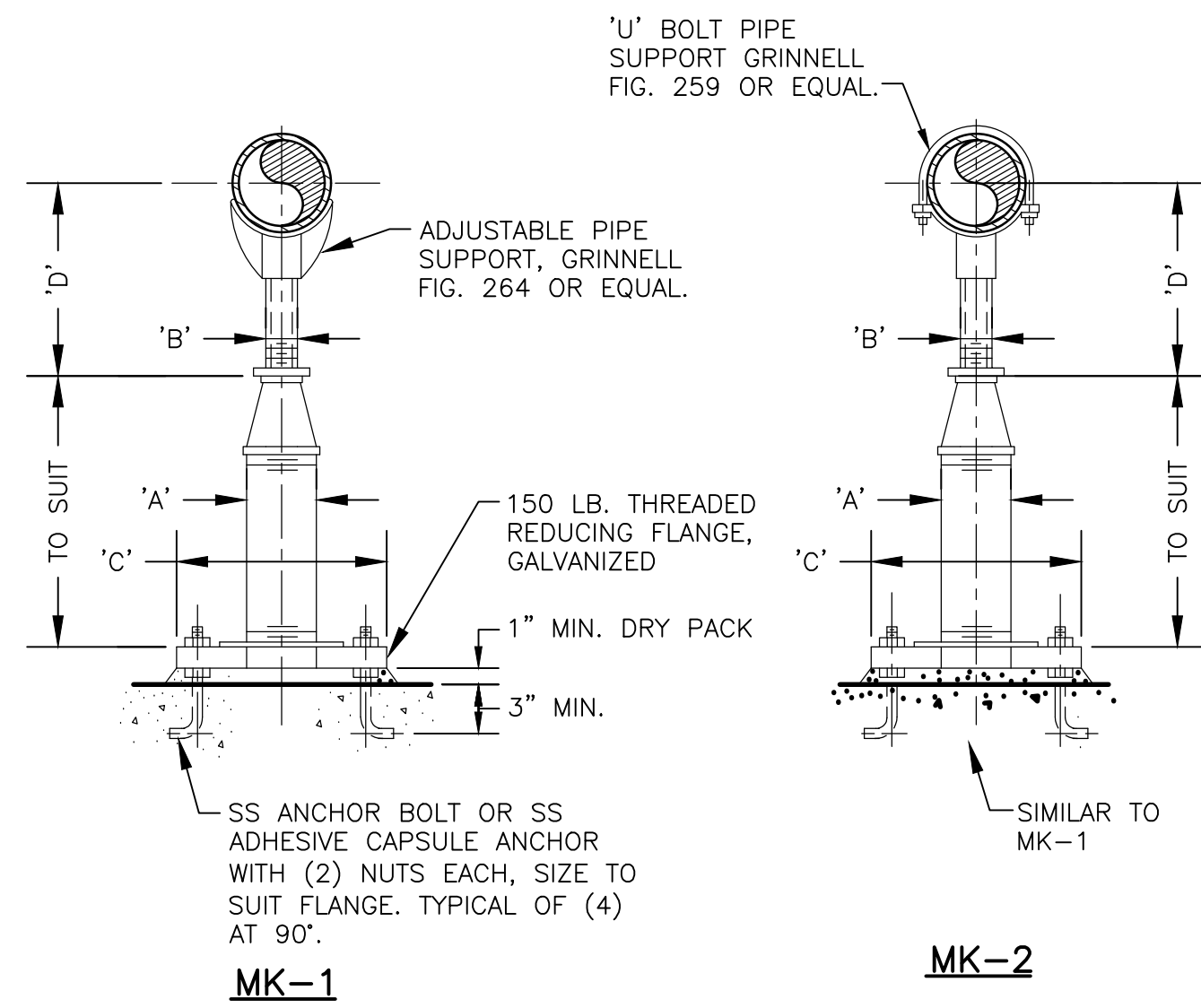
PROJECT NO. 9247-221208  
 FILE NAME: M01STD1.DWG

SHEET NO.

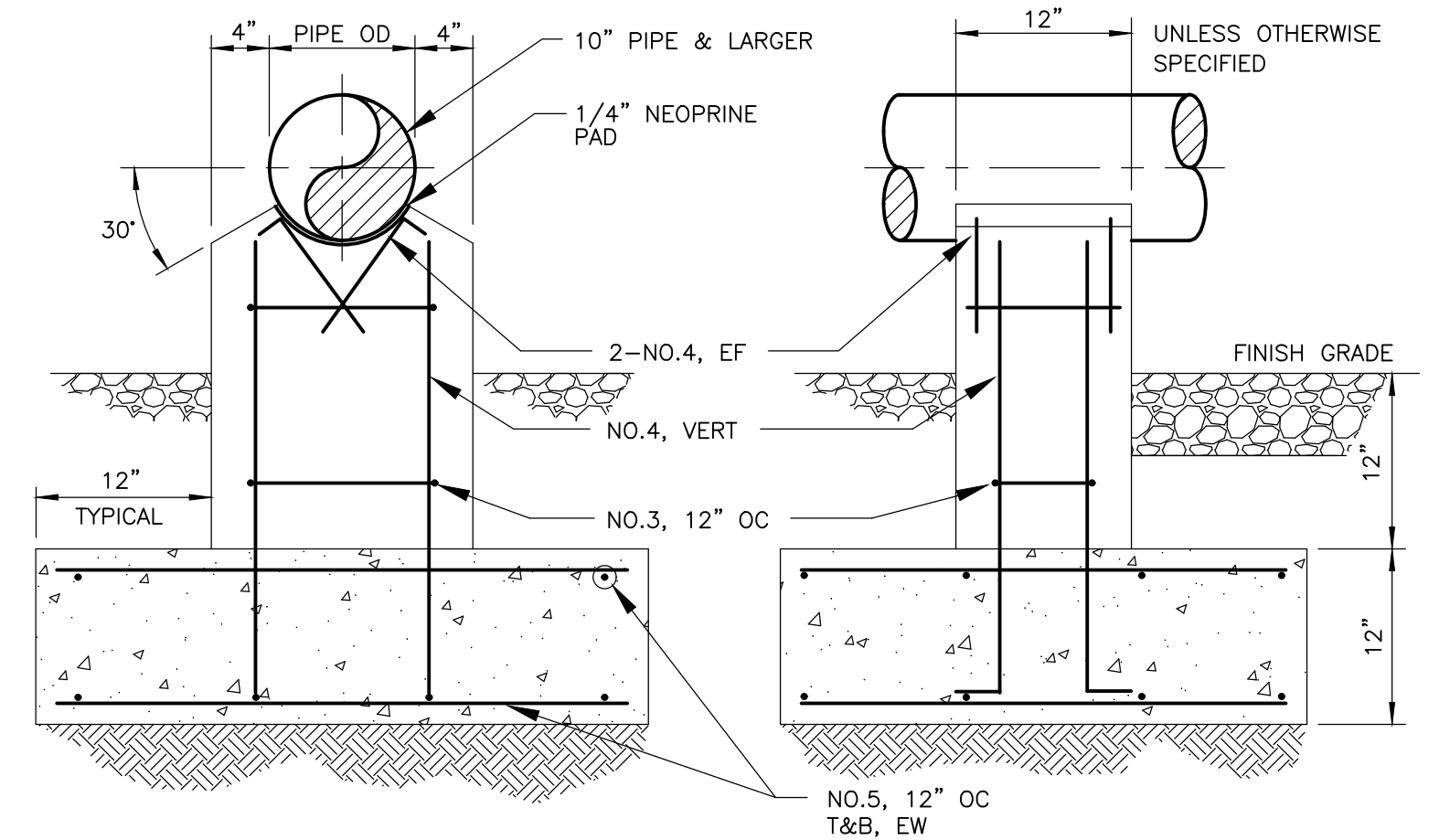
**MD-1**

ISSUED FOR BID

ADJUSTABLE PIPE SUPPORT APPROX DIMENSIONS IN INCHES					
PIPE SIZE	A	B	C	D MIN.	D MAX.
2 1/2	2 1/2	1 1/2	9	8	11 1/2
3	2 1/2	1 1/2	9	8 1/4	11 3/4
3 1/2	2 1/2	1 1/2	9	8 1/2	12
4	3	2 1/2	9	10 1/4	14
6	3	2 1/2	9	11 5/8	15 1/4
8	3	2 1/2	9	13 5/8	16 1/2
10	3	2 1/2	9	14 5/8	18 1/4
12	3	2 1/2	9	15 5/8	19 3/4
14	4	3	11	18 5/8	20 3/4
16	4	3	11	19 7/8	22 1/4
18	6	3 1/2	13 1/2	21 1/4	24
20	6	3 1/2	13 1/2	23 1/4	25 1/2
24	6	4	13 1/2	26 1/2	28 1/4
30	6	4	13 1/2	29 5/8	31 1/2
32	6	4	13 1/2	30 5/8	32 3/4
36	6	4	13 1/2	32 5/8	34 3/4



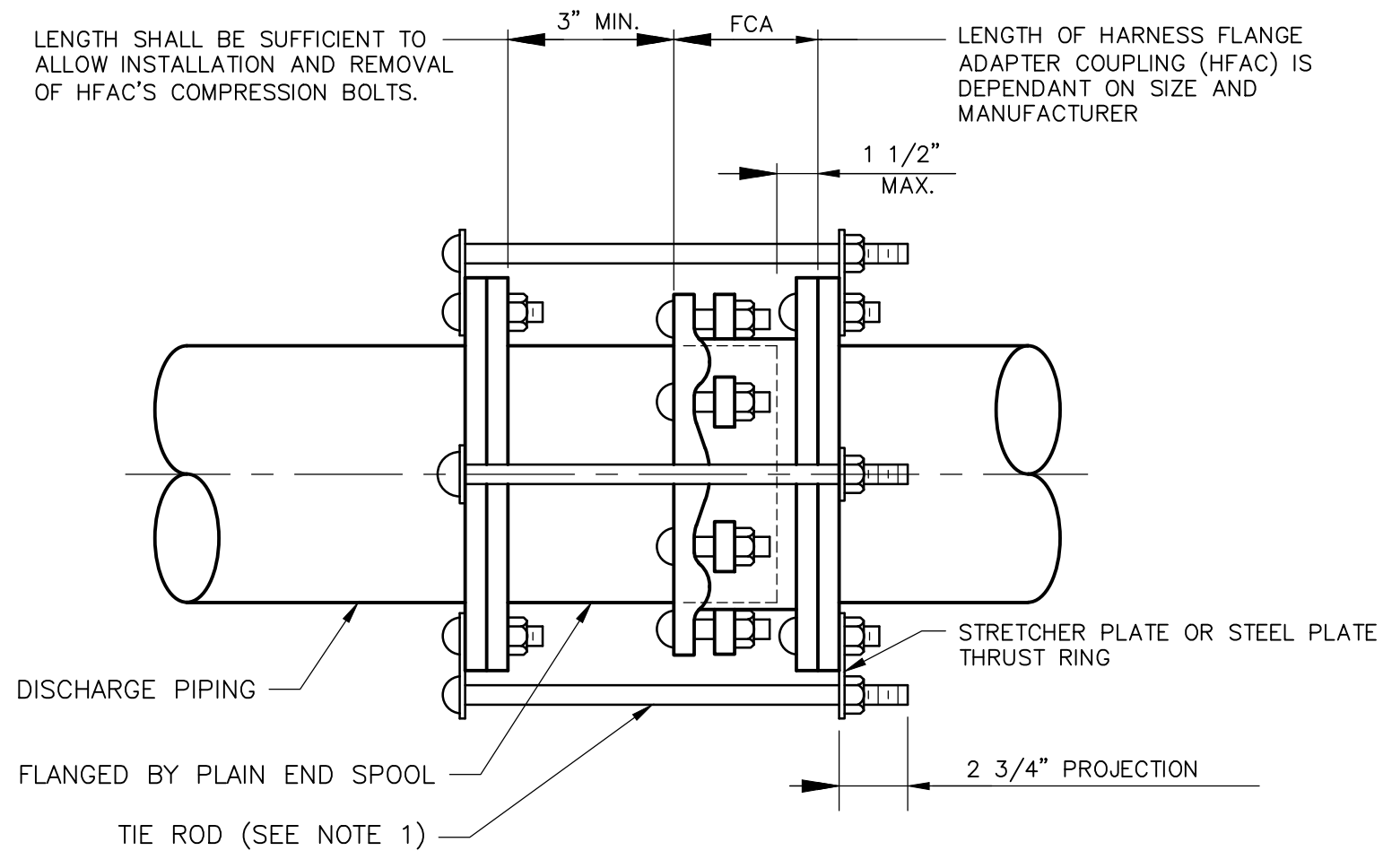
10" PIPE AND LARGER  
DETAIL B



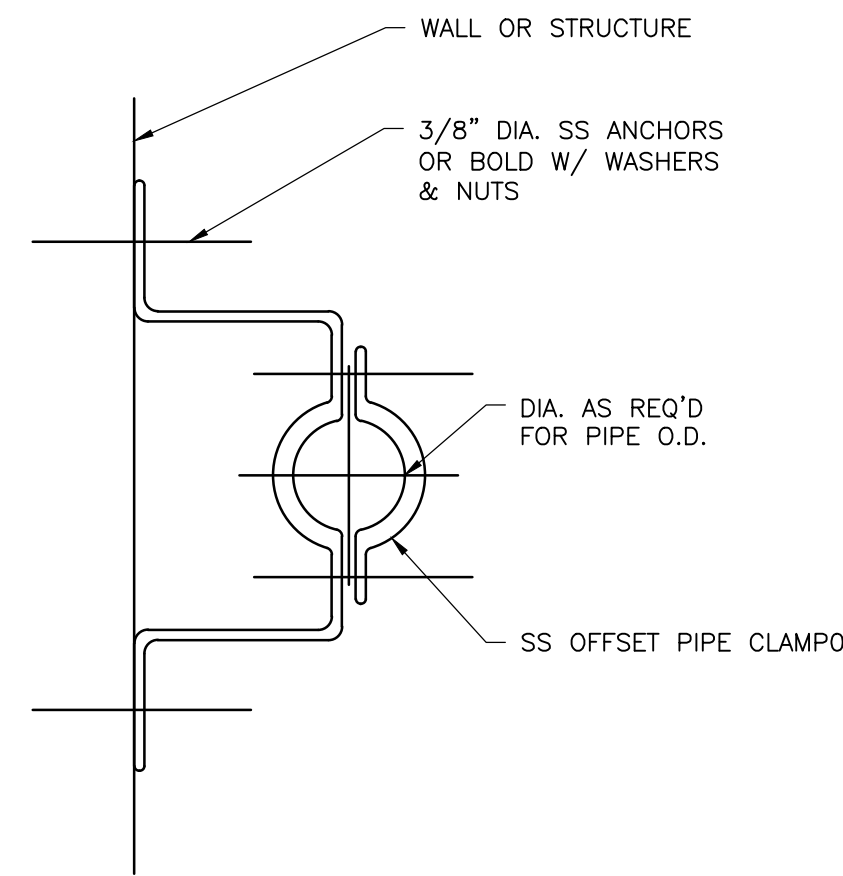
10" PIPE AND LARGER  
DETAIL C

NOTE:  
UNDER VALVES, METERS, OR OTHER SPECIAL APPURTENANCES A FABRICATED SUPPORT PIECE MAY BE UTILIZED AS ACCEPTABLE TO ENGINEER.

ADJUSTABLE PIPE SUPPORT  
DETAIL A



HARNES FLANGE ADAPTER COUPLING  
DETAIL D



PIPE MOUNTING BRACKET  
DETAIL E

NOTES:

1. PROVIDE NUMBER OF TIE RODS PER SCHEDULE. EVENLY SPACE INSTALLATION OF THE TIE RODS. LENGTH OF TIE RODS TO BE DETERMINED BY CONTRACTOR BASED ON SIZE AND FLANGED COUPLING ADAPTOR AND FINAL LENGTH OF SPOOL PIECE.
2. PROVIDE STRETCHER PLATE OR STEEL PLATE THRUST RING FOR ATTACHMENT OF TIE RODS. FOR SIZE SEE TABLE.
3. MATERIALS - TIE RODS: ASTM A-307 HOT DIP GALVANIZED. STRETCHER PLATE: ASTM A36 STEEL HOT DIP GALVANIZED. HARNES FLANGE ADAPTER COUPLING OR GROOVED COUPLING: PER SPECIFICATIONS
4. WRAP ALL COUPLING BURIED BELOW GRADE IN PROTECTIVE TAPE.

XREF: [CDMS\_2234] Images: [ ]  
 Last saved by: EDWARDSAF Time: 5/3/2023 11:09:59 AM  
 pw:\cdm\smith-0202-pw.bentley.com\pw\_01\9247\221208\_PHASE 2 INTAKE PS\04 Design Services NM\_100%\05 Process Mechanical\10 CAD\03 Aquifer Recharge Area\MD02DTLS.dwg  
 © 2023 CDM SMITH ALL RIGHTS RESERVED.  
 REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: C. MONTGOMERY  
 DRAWN BY: A. EDWARDS  
 SHEET CHK'D BY: C. MONTGOMERY  
 CROSS CHK'D BY: X  
 APPROVED BY: C. MONTGOMERY  
 DATE: MAY 2023



ST. JOHNS RIVER WATER MANAGEMENT DISTRICT  
 BLACK CREEK WATER RESOURCE  
 DEVELOPMENT PROJECT  
 AQUIFER RECHARGE AREA

MISCELLANEOUS MECHANICAL DETAILS

DATE:  
 CRAIG C. MONTGOMERY  
 PE NO. 45953

PROJECT NO. 9247-221208  
 FILE NAME: MD02DTLS.DWG

SHEET NO.

MD-2

ISSUED FOR BID



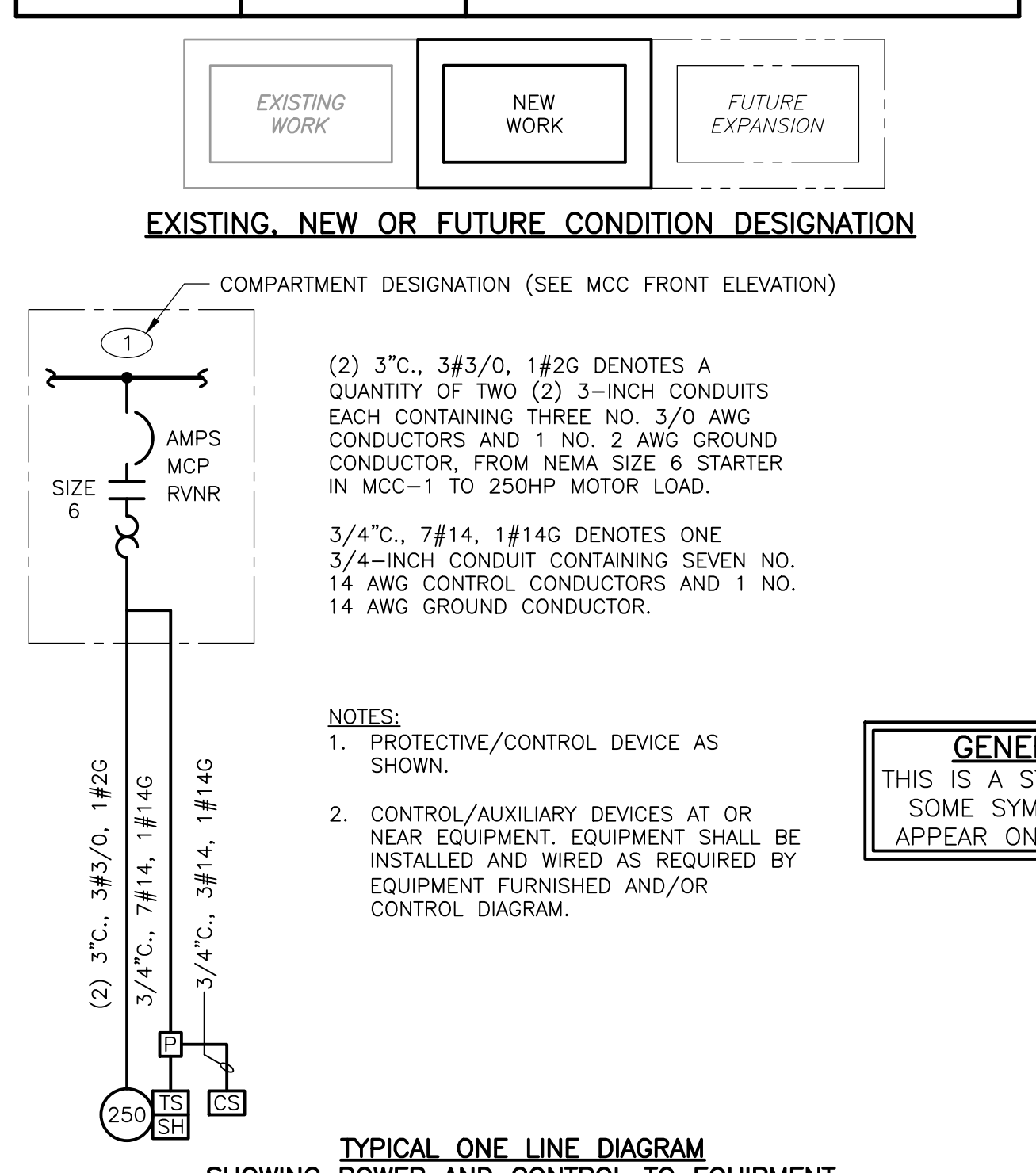
XREFS: [CDMS\_2234] Images: [ ]  
 Last saved by: CARTERRH Time: 3/29/2023 11:18:11 AM  
 pw:\cdm\smith-0202-pw\benley.com\p1\9247\221208\_PHASE 2 INTAKE PS\04 Design Services NM\_100%\_09 Electrical\10 CADD\05 AQUIFER RECHARGE AREA\001NFLG.dwg  
 © 2023 CDM SMITH ALL RIGHTS RESERVED.  
 REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.

ONE LINE OR CONTROL DIAGRAM	PLAN	DESCRIPTION
	—	MEDIUM VOLTAGE DRAWOUT TYPE POWER CIRCUIT BREAKER CS=CONTROL SWITCH
	CB	LOW VOLTAGE AIR OR MOLDED CASE CIRCUIT BREAKER, 3 POLE UNLESS OTHERWISE NOTED.
	—	COMBINATION MOTOR CIRCUIT PROTECTOR AND MAGNETIC MOTOR STARTER, FULL VOLTAGE NON-REVERSING UNLESS OTHERWISE NOTED: * FVR - FULL VOLTAGE REVERSING RVNR - REDUCED VOLTAGE NON-REVERSING RVAT - REDUCED VOLTAGE AUTOTRANSFORMER RVSS - REDUCED VOLTAGE SOLID STATE 2S1W - TWO SPEED, ONE WINDING 2S2W - TWO SPEED, TWO WINDING (DIAGRAMMATICALLY SHOWN, CONTRACTOR SHALL FIELD LOCATE)
	—	NON-FUSIBLE DISCONNECT SWITCH, 600 VOLT, 3 POLE * AMPERE RATING NOTED IF OTHER THAN 30A (DIAGRAMMATICALLY SHOWN, CONTRACTOR SHALL FIELD LOCATE)
	—	FUSIBLE DISCONNECT SWITCH, 600 VOLT, 3 POLE. * AMPERE RATING AND FUSE SIZE AS NOTED * AMPERE RATING NOTED IF OTHER THAN 30A FUSE RATING (DIAGRAMMATICALLY SHOWN, CONTRACTOR SHALL FIELD LOCATE)
	P 2	MANUAL MOTOR STARTER WITH THERMAL OVERLOAD HEATER, 1 POLE UNLESS OTHERWISE NOTED "P" INDICATES WITH PILOT LIGHT "2" INDICATES TWO POLE (DIAGRAMMATICALLY SHOWN, CONTRACTOR SHALL FIELD LOCATE)
	—	DRAWOUT TYPE EQUIPMENT OR DEVICE
	—	MEDIUM VOLTAGE CABLE TERMINATION
	—	MEDIUM VOLTAGE AIR INTERRUPTER SWITCH
	—	MEDIUM VOLTAGE FUSED AIR INTERRUPTER SWITCH * FUSE RATING
	—	MEDIUM VOLTAGE FUSED MOTOR CONTROLLER
	T	TRANSFORMER, RATINGS AND CONNECTIONS AS NOTED. UNLESS OTHERWISE NOTED ON THE SINGLE LINE DIAGRAMS, ALL DRY TYPE TRANSFORMERS SERVICING ADMINISTRATIVE AND LABORATORY SPACES SHALL HAVE A K FACTOR OF 4. ISOLATION TRANSFORMERS SHALL HAVE A K-20 RATING
	—	CURRENT TRANSFORMER * QUANTITY A = PRIMARY AMPERES
	—	POTENTIAL TRANSFORMER * QUANTITY V = PRIMARY VOLTAGE
	G	GENERATOR, RATINGS AND CONNECTIONS AS NOTED
	—	AUTOMATIC OR MANUAL TRANSFER SWITCH NO.1 (ATS-1), (MTS-1) "N" INDICATES NORMAL OR PREFERRED SOURCE "S" INDICATES STANDBY OR ALTERNATE SOURCE 100A INDICATES CONTINUOUS CURRENT RATING
	—	VARIABLE SPEED DRIVE CONTROLLER * D.C. = D.C. DRIVE CONTROLLER SCR = SILICON CONTROLLED RECTIFIER VFD = VARIABLE FREQUENCY DRIVE
	E	UNIT HEATER - ELECTRIC HEATING COIL AND FAN # - RATING
	U	UNIT HEATER - GAS FIRED, STEAM OR WATER HEATING COIL AND FAN
	M	MOTOR, NUMERAL INDICATES HORSEPOWER
	—	VOLTMETER WITH SWITCH, 3 PHASE
	—	AMMETER WITH SWITCH, 3 PHASE

ONE LINE OR CONTROL DIAGRAM	PLAN	DESCRIPTION
	—	METER * WM - WATTMETER WHM - WATTHOUR METER WHDM - WATTHOUR DEMAND METER WHDR - WATTHOUR DEMAND RECORDER PF - POWER FACTOR METER DMU - DIGITAL METERING UNIT
	—	TRANSDUCER AX - CURRENT TRANSDUCER WX - WATT TRANSDUCER WHX - WATTHOUR TRANSDUCER
	—	RELAY, NO. AS INDICATED 25 - SYNCHRONISM CHECK RELAY 27 - UNDERVOLTAGE RELAY 32 - DIRECTIONAL POWER RELAY 38 - BEARING PROTECTIVE DEVICE 40 - LOSS OF EXCITATION RELAY 42 - RUNNING CONTACTOR/PILOT RELAY 46 - REVERSE PHASE/PHASE BALANCE/CURRENT RELAY 47 - PHASE SEQUENCE VOLTAGE RELAY 49 - MACHINE OR TRANSFORMER THERMAL RELAY 50/51 - INSTANTANEOUS/TIME OVERCURRENT RELAY 50G - INSTANTANEOUS GROUND 51 - TIME OVERCURRENT RELAY 51G - TIME OVERCURRENT RELAY, GROUNDING RESISTOR TYPE 51N - TIME OVERCURRENT RELAY, RESIDUAL TYPE 51V - TIME OVERCURRENT RELAY WITH VOLTAGE RESTRAINT 51X - AUXILIARY RELAY (TRIPS CB AND ALARMS) 59 - OVERVOLTAGE RELAY 60 - NEGATIVE SEQUENCE VOLTAGE RELAY 62 - TIME DELAY RELAY 63 - OVERPRESSURE RELAY 64 - GENERATOR FIELD GROUND RELAY 67 - AC DIRECTIONAL OVERCURRENT RELAY 74 - ALARM LATCHING RELAY 83 - AUTOMATIC SELECTIVE CONTROL OR TRANSFER RELAY 86 - LOCKING-OUT RELAY 87 - DIFFERENTIAL PROTECTIVE RELAY B - SUFFIX INDICATES "BUS" G - SUFFIX INDICATES "GENERATOR" GF - GROUND FAULT ST - SHUNT TRIP T - SUFFIX INDICATES "TRANSFORMER" X - SUFFIX INDICATES "AUXILIARY"
	—	SPECIAL CAPACITOR * SC - SURGE CAPACITOR PF - POWER FACTOR CORRECTION CAPACITOR
	—	TUNED POWER FACTOR CORRECTION CAPACITOR
	—	PUSHBUTTON, MOMENTARY CONTACT, SPRING RETURN, NORMALLY CLOSED
	—	PUSHBUTTON, MOMENTARY CONTACT, SPRING RETURN, NORMALLY OPEN
	ES	EMERGENCY STOP PUSHBUTTON WITH RED MUSHROOM HEAD OPERATOR (MAINTAINED CONTACT)
	PBL	START-STOP PUSHBUTTON CONTROL STATION (MOMENTARY CONTACT) WITH LOCKOUT DEVICE ON STOP
	PBM	START-STOP PUSHBUTTON CONTROL STATION, MAINTAINED CONTACT WITH LOCKOUT DEVICE ON STOP
	S/S	OFF/ON SELECTOR SWITCH
	LR	LOCAL/REMOTE SELECTOR SWITCH
	—	3 POSITION SELECTOR SWITCH, MAINTAINED CONTACT O-OPEN X-CLOSED POSITION TOP MIDDLE BOTTOM CONTACT CONTACT CONTACT CONTACT A X O O B O X O C O O X
	—	NAMEPLATE (A/B/C) HOA - HAND/OFF/AUTO HOR - HAND/OFF/REMOTE LOR - LOCAL/OFF/REMOTE RSL - RAISE/STOP/LOWER TOA - TEST/OFF/AUTO
	GD/VF	GAS DETECTOR / VENTILATION FAILURE ALARM # INDICATES TYPE OF UNIT 1=MASTER, 2=REMOTE
	—	MOTOR STARTER COIL, NUMBER AS INDICATED TO DENOTE INTERLOCKING ONLY
	—	CONTROL RELAY COIL, NUMBER AS INDICATED

ONE LINE OR CONTROL DIAGRAM	PLAN	DESCRIPTION
	—	PILOT LIGHT, COLOR AS NOTED * R - RED G - GREEN B - BLUE W - WHITE A - AMBER
	—	PILOT LIGHT, PUSH-TO-TEST TYPE, COLOR AS NOTED ABOVE.
	—	TIME DELAY RELAY RANGE AS NOTED SETPOINT AS NOTED # NUMBER AS INDICATED * TDE - TIME DELAY AFTER ENERGIZATION ON DELAY TDD - TIME DELAY AFTER DE-ENERGIZATION OFF DELAY NOTC - NORMALLY OPEN, TIMED CLOSING WHEN ENERGIZED NCTO - NORMALLY CLOSED, TIMED OPENING WHEN ENERGIZED NOTO - NORMALLY OPEN, TIMED OPENING WHEN DE-ENERGIZED NCTC - NORMALLY CLOSED, TIMED CLOSING WHEN DE-ENERGIZED
	—	FIELD INSTRUMENT, TAG NO. AS INDICATED * INDICATES INSTRUMENT TYPE DEFINED ON LOOP SHEETS OR P & ID ## INDICATES LOOP NO.
	LS OR ■	LIQUID LEVEL (FLOAT) SWITCH NORMALLY OPEN, CLOSSES ON RISING LEVEL NORMALLY CLOSED, OPENS ON RISING LEVEL
	PS OR ■	PRESSURE OR VACUUM SWITCH NORMALLY OPEN, CLOSSES ON RISING PRESSURE NORMALLY CLOSED, OPENS ON RISING PRESSURE NORMALLY CLOSED, OPENS ON DROPPING PRESSURE
	TS OR T OR ■	TEMPERATURE SWITCH OR THERMOSTAT NORMALLY OPEN, CLOSSES ON RISING TEMPERATURE NORMALLY OPEN, CLOSSES ON DROPPING TEMPERATURE NORMALLY CLOSED, OPENS ON RISING TEMPERATURE NORMALLY CLOSED, OPENS ON DROPPING TEMPERATURE
	FS OR ■	FLOW SWITCH (AIR, WATER, ETC.) NORMALLY OPEN, CLOSSES ON INCREASED FLOW NORMALLY CLOSED, OPENS ON INCREASED FLOW
	ZS OR ■	POSITION (LIMIT) SWITCH NORMALLY OPEN NORMALLY OPEN - HELD CLOSED NORMALLY CLOSED NORMALLY CLOSED - HELD OPEN
	WS OR ■	TORQUE SWITCH NORMALLY OPEN, CLOSSES ON HIGH TORQUE NORMALLY CLOSED, OPENS ON HIGH TORQUE
	—	UTILIZED IN CONJUNCTION WITH OTHER CONTROL SCHEMATIC SYMBOLS TO DEPICT THE PHYSICAL LOCATION OF THE DEVICE # REPRESENTS LOCATION SEE LOCATION LEGEND ON DRAWING
	—	CONDUCTORS OR CONDUITS CROSSING PATHS BUT NOT CONNECTED
	—	CONDUCTORS ELECTRICALLY CONNECTED
	S	SOLENOID VALVE

ONE LINE OR CONTROL DIAGRAM	PLAN	DESCRIPTION
	—	LIGHTNING ARRESTER
	—	GROUND OR GROUND ROD
	—	FUSE, AMPERE RATING AS NOTED
	HTR	STRIP HEATER OR HEATING ELEMENT
	—	INDUCTOR
	TG	TACHOMETER GENERATOR
	—	CONTACT, NORMALLY OPEN (NO)
	—	CONTACT, NORMALLY CLOSED (NC)
	—	OVERLOAD RELAY HEATER
	—	TERMINAL OR TEST BLOCK
	—	RESISTANCE TEMPERATURE DETECTOR
	—	VIBRATION DETECTOR
	DM	DAMPER MOTOR
	—	ELAPSED TIME METER
	—	MOTOR OPERATED VALVE OR GATE
	—	INDICATES LIMITS OF ELECTRICAL EQUIPMENT OR WIRING ENCLOSURE



**NOTES:**

- IN GENERAL CONDUIT ROUTING FOR EQUIPMENT AND DEVICES IS NOT SHOWN ON THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ROUTING ALL CONDUITS WHICH SHALL INCLUDE CONDUITS SHOWN ON ONE-LINE AND RISER DIAGRAMS AND HOME-RUNS SHOWN ON PLAN DRAWINGS. REFER TO SPECIFICATIONS FOR MATERIALS AND INSTALLATION REQUIREMENTS.
- THE WIRING DIAGRAMS, QUANTITY AND SIZE OF WIRES AND CONDUITS REPRESENT A SUGGESTED ARRANGEMENT BASED UPON SELECTED STANDARD COMPONENTS OF ELECTRICAL EQUIPMENT. MODIFICATIONS ACCEPTABLE TO THE ENGINEER MAY BE MADE BY THE CONTRACTOR TO ACCOMMODATE EQUIPMENT ACTUALLY PURCHASED. THE BASIC SEQUENCE AND METHOD OF CONTROL MUST BE MAINTAINED AS INDICATED ON THE DRAWINGS AND/OR SPECIFICATIONS.
- SWITCHGEAR AND MOTOR CONTROL CENTER COMPARTMENT DESIGNATIONS AS INDICATED BELOW:  
BLANK: NOT INTENDED FOR USE. PLATE ONLY  
SPACE: EQUIPPED WITH REQUIRED BUS AND HARDWARE FOR THE FUTURE ADDITION OF BREAKERS AND/OR STARTERS WITHIN THE SIZE AND RANGE SHOWN  
SPARE: CONTAINS A COMPLETELY INSTALLED BREAKER AND/OR STARTER OF SIZE AND TYPE INDICATED FOR FUTURE USE.
- INTERPRETATION OF ELECTRICAL DRAWINGS: CIRCUIT IDENTIFICATION, ROUTING, AND SIZES OF CONDUITS AND WIRES ARE SHOWN ON THE FOLLOWING DRAWINGS:  
A. ONE LINE POWER DIAGRAMS: POWER, CONTROL AND SIGNAL WIRING REQUIREMENTS FOR ELECTRICAL DISTRIBUTION EQUIPMENT AND UTILIZATION EQUIPMENT POWERED FROM SWITCHGEAR, SWITCHBOARDS, MOTOR CONTROL CENTERS AND MAJOR POWER DISTRIBUTION PANELBOARDS ARE TYPICALLY SHOWN ON THE ONE LINE DIAGRAMS. THE PARAMETERS IDENTIFIED ON THE ONE LINE DIAGRAMS ARE: CIRCUIT IDENTIFICATION, CIRCUIT ORIGIN AND DESTINATION, CONDUIT SIZE, WIRE SIZE AND QUANTITY FOR COMPLETE CIRCUIT LENGTH, AND AUXILIARY DEVICES ASSOCIATED WITH THE CONTROL/PROTECTION OF THE POWERED EQUIPMENT, AND SIZE OF THE GROUNDING ELECTRODE CONDUCTORS.  
B. INSTRUMENTATION AND CONTROL RISER DIAGRAMS: POWER, CONTROL, SIGNAL AND DATA HIGHWAY WIRING REQUIREMENTS FOR INSTRUMENTS AND CONTROL DEVICES CONTROLLED/MONITORED FROM INSTRUMENTATION AND CONTROL PANELS SUCH AS RTUS, PLCs, TERMINAL CABINETS, AND REMOTE I/O PANELS ARE TYPICALLY SHOWN ON THE INSTRUMENTATION AND CONTROL ONE LINE DIAGRAMS. THE PARAMETERS IDENTIFIED ON THE ONE LINE DIAGRAMS ARE: CIRCUIT IDENTIFICATION, CIRCUIT ORIGIN AND DESTINATION, CONDUIT SIZE, WIRE SIZE, QUANTITY AND TYPE FOR COMPLETE CIRCUIT LENGTH, AND AUXILIARY DEVICES ASSOCIATED WITH THE CONTROL/PROTECTION OF THE POWERED EQUIPMENT.  
C. FLOOR PLANS: FOR DETERMINING THE LENGTH OF CIRCUITS LOCATED WITHIN STRUCTURES, FLOOR PLANS SHOW THE LOCATION OF ELECTRICAL DISTRIBUTION EQUIPMENT, CONTROL PANELS, UTILIZATION EQUIPMENT, INSTRUMENTS, ANCILLARY EQUIPMENT AND DEVICES AND THE ANTICIPATED PENETRATION LOCATIONS WHERE CONDUITS EXIT/ENTER THE STRUCTURE. HOMERUNS MAY ALSO BE SHOWN FROM MISCELLANEOUS EQUIPMENT NOT SHOWN ON A ONE LINE OR RISER DIAGRAM.  
D. SITE PLANS: FOR DETERMINING THE LENGTH OF CIRCUITS EXTERIOR TO STRUCTURES AND TO IDENTIFY THE SPECIFIC REQUIREMENTS OF THE UNDERGROUND CONDUITS OR DUCT BANKS, SITE PLANS SHOW THE GENERAL ROUTING OF UNDERGROUND CONDUITS AND DUCT BANKS WITH SECTIONS INDICATING THE CONDUIT SIZE, ARRANGEMENT AND CIRCUIT ROUTING.  
E. NOTE THAT CONDUIT SIZE WITHIN THE STRUCTURE IS INDICATED ON ONE-LINE DIAGRAM AND UNDERGROUND SIZE IS INDICATED ON DUCT BANK SECTIONS.

**DATE:** SPENCER J. PERRY JR  
**PE NO. 62587**

**PROJECT NO. 9247-221208**  
**FILE NAME: E001NFLG.DWG**

**SHEET NO. E-1**

DESIGNED BY: J. SANCHEZ	<p>4651 Salisbury Road, Suite 420 Jacksonville, FL 32256 Tel: (904) 731-7109 FL COA No. EB-0000020</p>
DRAWN BY: A. TORRES	
SHEET CHK'D BY: S. PERRY	
CROSS CHK'D BY: P. LEFAVE	
APPROVED BY: S. PERRY	
DATE: MAY 2023	

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT  
BLACK CREEK WATER RESOURCE  
DEVELOPMENT PROJECT  
AQUIFER RECHARGE AREA

**ELECTRICAL LEGEND I**

ISSUED FOR BID

XREFS: [CDMS\_2234] Images: [ ]  
 Last saved by: CARTERRH Time: 3/29/2023 11:18:02 AM  
 pw:\cdm\smith-0202-pw\benley.com\p119247\221208\_PHASE 2 INTAKE PS\04 Design Services\NM\_100%\_09 Electrical\10 CADD\05 AQUIFER RECHARGE AREA\E002NFLG.dwg  
 ©2023 CDM SMITH ALL RIGHTS RESERVED.  
 REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.

SYMBOL	DESCRIPTION
	LIGHTING FIXTURE "a" - FIXTURE TYPE (SEE LIGHTING FIXTURE SCHEDULE) "b" - CONTROLLED BY SWITCH "b" "3" - CIRCUIT NUMBER
	LIGHTING FIXTURE, NOTATIONS SAME AS ABOVE
	WALL MOUNTED TYPE LIGHTING FIXTURE, NOTATIONS SAME AS ABOVE
	CROSS HATCH INDICATES LIGHTING FIXTURE THAT IS UNSWITCHED AND SHALL REMAIN ON AT ALL TIMES. NOTATIONS SAME AS ABOVE.
	SHADED AREA INDICATES LIGHTING FIXTURE THAT IS EQUIPPED WITH EMERGENCY BACKUP POWER SOURCE. NOTATIONS SAME AS ABOVE.
	POLE MOUNTED AREA TYPE LIGHTING FIXTURE, NOTATIONS SAME AS ABOVE
	POLE MOUNTED ROADWAY TYPE LIGHTING FIXTURE, NOTATIONS SAME AS ABOVE
	EMERGENCY LIGHTING BATTERY UNIT WITH TWO LAMP HEADS "EM" - FIXTURE TYPE (SEE LIGHTING FIXTURE SCHEDULE) "3" - SUPERVISORY CIRCUIT * - FIXTURE TAG #
	REMOTE EMERGENCY ADJUSTABLE WALL LIGHTING FIXTURE WITH TWO LAMP HEADS "R-2" - FIXTURE TYPE (SEE LIGHTING FIXTURE SCHEDULE) "BU-1" - HOME RUN TO BATTERY UNIT INDICATED. CONDUIT SHALL BE 3/4" AND CONTAIN (2) NO. 12 AWG BRANCH CIRCUIT CONDUCTORS AND (1) NO. 12 AWG GROUND CONDUCTOR UNLESS OTHERWISE INDICATED.
	COMBINATION BATTERY UNIT AND EXIT SIGN. FILLED QUADRANT REPRESENTS FACE SIDE OF SIGN.
	CEILING MOUNTED EXIT SIGN, NOTATIONS SAME AS ABOVE. WHEN USED, ARROW INDICATES DIRECTION OF EGRESS. FILLED QUADRANT REPRESENTS FACE SIDE OF SIGN. (DOUBLE FACE DOUBLE CHEVRONS SHOWN)
	WALL MOUNTED EXIT SIGN, NOTATIONS SAME AS ABOVE. WHEN USED, ARROW INDICATES DIRECTION OF EGRESS. FILLED QUADRANT REPRESENTS FACE SIDE OF SIGN.
	REMOTE EMERGENCY CEILING LIGHTING FIXTURE. "RH-3" - FIXTURE TYPE (SEE LIGHTING FIXTURE SCHEDULE) "3" - SUPERVISORY CIRCUIT * - HOME RUN TO BATTERY UNIT INDICATED. CONDUIT SHALL BE 3/4" AND CONTAIN 2 NO. 12 AWG BRANCH CIRCUIT CONDUCTORS AND 1 NO. 12 AWG GROUND CONDUCTOR UNLESS OTHERWISE INDICATED.
	HOME RUN TO DESIGNATED EQUIPMENT. BRANCH CIRCUIT CONDUIT WITH 2 NO. 12 AWG BRANCH CIRCUIT CONDUCTORS AND 1 NO. 12 AWG GROUND CONDUCTOR UNLESS OTHERWISE NOTED. NUMBER OF ARROWS INDICATE NUMBER OF CIRCUITS. FOR MINIMUM SIZE CONDUIT PERMITTED REFER TO THE SPECIFICATIONS.
	CONDUIT CONCEALED IN WALL, IN SLAB ABOVE, OR ABOVE CEILING.
	CONDUIT CONCEALED IN OR BELOW FLOOR OR UNDERGROUND.
	CONDUIT RUN EXPOSED. RUN PARALLEL OR PERPENDICULAR TO STRUCTURE OR WALL.
	"X" INDICATES EXPLOSION PROOF CONDUIT SEAL FITTING.
	CONCRETE ENCASED DUCTBANK. WIDTH VARIES, SEE DUCTBANK SECTION/DETAILS FOR REQUIREMENTS AND WIDTH
	CONDUIT STUBBED OUT AND CAPPED
	DENOTES A QUANTITY OF TWO (2) 3-INCH CONDUITS EACH CONTAINING THREE NO. 3/0 AWG CONDUCTORS AND 1 NO. 2 AWG GROUND CONDUCTOR.
	DENOTES A QUANTITY OF TWO INSTRUMENT CABLES. EACH CABLE TO CONSIST OF TWO NO. 16 AWG CONDUCTORS TWISTED TOGETHER AND COVERED WITH A METALLIC SHIELD AND AN OVERALL PROTECTIVE JACKET. REFER TO THE SPECIFICATIONS FOR THE EXACT CABLE TO BE PROVIDED.
	SAME AS ABOVE EXCEPT CABLE TO CONSIST OF THREE NO. 16 AWG CONDUCTORS TWISTED, SHIELDED AND COVERED WITH AN OVERALL PROTECTIVE JACKET. REFER TO THE SPECIFICATIONS FOR THE EXACT CABLE TO BE PROVIDED.
	THREE 4-INCH CONDUITS
	FLEXIBLE METAL CONDUIT "WHIP" (3/4", #12, 1#12G UNLESS OTHERWISE NOTED) FOR LIQUID TIGHT MOTOR CONNECTIONS
	"X" INDICATES CONDUIT SEAL FITTING IN OTHER THAN CODE REQUIRED LOCATIONS.
	INDICATES MOTOR STARTER AND/OR MOTOR CONTROL EQUIPMENT WITHIN THE ENCLOSURE.

SYMBOL	DESCRIPTION
	SINGLE POLE SWITCH "a" INDICATES FIXTURES CONTROLLED.
	DOUBLE POLE SWITCH "a" INDICATES FIXTURES CONTROLLED.
	THREE WAY SWITCH "c" INDICATES FIXTURES CONTROLLED.
	FOUR WAY SWITCH "a" INDICATES FIXTURES CONTROLLED.
	DIMMER SWITCH "a" INDICATES FIXTURES CONTROLLED
	SINGLE POLE SWITCH "OS" INDICATES A PASSIVE INFRARED OCCUPANCY SENSOR
	DOUBLE POLE SWITCH "OS" INDICATES PROGRAMMABLE OCCUPANCY SENSOR CAPABLE OF INBOARD/OUTBOARD SWITCHING
	SINGLE POLE SWITCH "DT" INDICATES DUAL TECHNOLOGY PROGRAMMABLE OCCUPANCY SENSOR CAPABLE OF SENSING MOTION AND SOUND
	LIGHTING CONTACTOR WITH NUMBER OF POLES AS INDICATED
	TIME SWITCH
	PUSH BUTTON STATION
	INDICATES ALL LIGHTING FIXTURES WITHIN THE ROOM OR AREA IN WHICH THIS NOTATION APPEARS SHALL BE TYPE "A" UNLESS OTHERWISE NOTED. SEE LIGHTING FIXTURE SCHEDULE FOR TYPES
	LIGHTING PANELBOARD (LP-#) SHOWN ON PLAN PER ACTUAL PANEL DIMENSIONS
	POWER PANELBOARD (PP-#) OR DISTRIBUTION PANELBOARD (DP-#) SHOWN ON PLAN PER ACTUAL PANEL DIMENSIONS
	LIGHTING CONTACTOR PANELBOARD (LCP-#) SHOWN ON PLAN PER ACTUAL PANEL DIMENSIONS
	DUPLEX RECEPTACLE, 20A, 120V, 2P, 3W * GFCI - GROUND FAULT CIRCUIT INTERRUPTER TYPE WP - WEATHERPROOF NEMA 3R EXTRA DUTY WHILE-IN-USE COVER XP - EXPLOSION PROOF T - TRANSIENT VOLTAGE SURGE SUPPRESSOR IC - ISOLATED GROUND 4 - CIRCUIT NUMBER
	DUPLEX RECEPTACLE, 20A, 120V, 2P, 3W MOUNTED ABOVE COUNTER-TOP OR 42" AFF * NOTATIONS SAME AS ABOVE
	SPECIAL PURPOSE RECEPTACLE * - VOLT RATING "3" - NUMBER OF POLES "60" - AMPERE RATING "4W" - 4 WIRES IN ADDITION TO GROUND
	MULTI-OUTLET ASSEMBLY, SYMBOL DENOTES RECEPTACLE TYPE
	FLUSH FLOOR OUTLET BOX WITH TYPE OUTLET INDICATED
	UNDER FLOOR DUCT SYSTEM WITH TYPE OUTLETS INDICATED
	THREE CELL UNDER FLOOR DUCT SYSTEM JUNCTION BOX
	JUNCTION BOX
	PULL BOX
	TERMINAL CABINET
	OCCUPANCY SENSOR
	PHOTOCELL
	EMERGENCY EYEWASH/SHOWER ALARM STATION WITH FLOW SWITCH(ES)
	INDICATED EQUIPMENT AND MATERIALS TO BE DEMOLISHED
	INDICATES THAT ALL ELECTRICAL EQUIPMENT AND MATERIALS INSTALLED WITHIN THE ROOM OR AREA IN WHICH THIS NOTATION APPEARS SHALL BE OF NEMA 12 CONSTRUCTION (OR GASKETED AND SUITABLE FOR USE IN A WET LOCATION WHERE NEMA STANDARDS DO NOT APPLY) UNLESS OTHERWISE NOTED.
	INDICATES THAT ALL ELECTRICAL EQUIPMENT AND MATERIALS INSTALLED WITHIN THE ROOM OR AREA IN WHICH THIS NOTATION APPEARS SHALL BE OF NEMA 4X CONSTRUCTION (OR GASKETED AND SUITABLE FOR USE IN A WET LOCATION WHERE NEMA STANDARDS DO NOT APPLY) UNLESS OTHERWISE NOTED.
	INDICATES THAT ALL ELECTRICAL EQUIPMENT AND MATERIALS INSTALLED WITHIN THE ROOM OR AREA IN WHICH THIS NOTATION APPEARS SHALL BE OF NEMA 4X CONSTRUCTION (OR GASKETED AND SUITABLE FOR USE IN A WET LOCATION WHERE NEMA STANDARDS DO NOT APPLY) UNLESS OTHERWISE NOTED.
	INDICATES THAT ALL ELECTRICAL EQUIPMENT AND MATERIALS INSTALLED WITHIN THE ROOM OR AREA IN WHICH THIS NOTATION APPEARS SHALL BE OF NEMA 4X CONSTRUCTION (OR CORROSION RESISTANT CONSTRUCTION SUITABLE FOR USE IN A WET LOCATION WHERE NEMA STANDARDS DO NOT APPLY) UNLESS OTHERWISE NOTED.
	INDICATES THAT ALL ELECTRICAL EQUIPMENT AND MATERIALS INSTALLED WITHIN THE ROOM OR AREA IN WHICH THIS NOTATION APPEARS SHALL CONFORM TO N.E.C. REQUIREMENTS FOR THE HAZARDOUS AREA CLASSIFICATION SHOWN.

SYMBOL	DESCRIPTION
	GROUND SYSTEM GRID OR LOOP, 36" BELOW FINISHED GRADE UNLESS OTHERWISE NOTED.
	EXOTHERMIC WELD CONNECTION
	3/4" x 10'-0" GROUND ROD, UNLESS SPECIFIED OTHERWISE.
	GROUND ROD TEST WELL STATION (SEE DETAIL SHEET FOR REQUIREMENTS)
COMMUNICATION SYSTEMS	
	TELEPHONE OUTLET FOR DESK TYPE HANDSET K = KEY SYSTEM
	TELEPHONE OUTLET FOR WALL TYPE HANDSET (MOUNT UP 4'-6") K = KEY SYSTEM
	PAGE/PARTY TELEPHONE OUTLET FOR DESK TYPE HANDSET
	PAGE/PARTY TELEPHONE OUTLET FOR WALL TYPE HANDSET, MOUNT UP 4'-6"
	PAGING SPEAKER, WALL MOUNTED H = HORN TYPE W = WIDE ANGLE TYPE
	PAGING SPEAKER, WALL MOUNTED, BI-DIRECTIONAL, HORN TYPE W = WIDE ANGLE TYPE
	PAGING SPEAKER, FLUSH MOUNTED CEILING TYPE
	PAGING SPEAKER, SURFACE MOUNTED CEILING TYPE
	REMOTE WALL MOUNTED VOLUME CONTROL FOR CEILING SPEAKER, MOUNT UP 5'-0"
	PAGING SPEAKER AMPLIFIER ASSEMBLY
	TELEPHONE CABINET OR BACKBOARD AS NOTED
	"C" - DATA INPUT/OUTPUT CABLE OUTLET "P" - PROCESS COMPUTER SYSTEM (CAT6 RJ-45 JACK)
	GAS DETECTOR/VENTILATION FAILURE ALARM, # INDICATES TYPE OF UNIT. 1 = MASTER, 2 = REMOTE
	GAS DETECTOR/VENTILATION FAILURE HORN/STROBE MOUNT TOP OF DEVICE UP 6'-8" A.F.F.
	GAS DETECTOR/VENTILATION FAILURE HORN, MOUNT TOP OF DEVICE UP 6'-8" A.F.F.
	GAS DETECTOR/VENTILATION FAILURE STROBE, MOUNT TOP OF DEVICE UP 6'-8" A.F.F.
SECURITY SYSTEMS	
	SECURITY ALARM CONTROL PANEL
	SECURITY ALARM DOOR SWITCH
	SECURITY ALARM KEY PAD
	SECURITY SYSTEM CARD ACCESS READER
	SECURITY ALARM WINDOW SWITCH
	SECURITY ALARM MOTION DETECTOR
	CLOSED CIRCUIT TV CAMERA
	PAN, TILT, ZOOM CAMERA LENS CONTROLS
	GLASS BREAK DETECTOR
FIRE ALARM SYSTEMS	
	FIRE ALARM HEAT DETECTOR 135 FIXED TEMPERATURE UNLESS OTHERWISE NOTED. "200" - 200 FIXED TEMPERATURE "R" - FIXED TEMPERATURE RATE-OF-RISE TYPE
	FIRE ALARM SMOKE DETECTOR PHOTOELECTRIC TYPE UNLESS OTHERWISE NOTED
	FIRE ALARM DUCT SMOKE DETECTOR
	FIRE ALARM CONTROL PANEL
	FIRE ALARM VENTILATION PANEL WITH GRAPHIC PANEL
	REMOTE FIRE ALARM ANNUNCIATOR PANEL

SYMBOL	DESCRIPTION
	FIRE ALARM MASTER BOX
	FIRE ALARM HORN, MOUNT UP 7'-6"
	FIRE ALARM STROBE, MOUNT UP 6'-8" 15 = CANDELA RATING
	FIRE ALARM HORN AND STROBE LIGHT COMBINATION, MOUNT UP 6'-8" 15 = CANDELA RATING
	FIRE ALARM MANUAL PULL STATION, MOUNT UP 4'-0"
	SPRINKLER VALVE SUPERVISORY SWITCH
	SPRINKLER FLOW ALARM SWITCH
	FIRE ALARM BELL
	WEATHERPROOF HI-INTENSITY FIRE ALARM STROBE LIGHT WITH HORN
	PASSIVE INFRARED DETECTOR
	SMOKE BEAM DETECTOR (RECEIVER)
	SMOKE BEAM DETECTOR (TRANSMITTER)
	FIRE ALARM SMOKE DETECTOR REMOTE INDICATOR AND TEST SWITCH

ABBREVIATIONS	
A	AMPS
AC	ALTERNATING CURRENT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AL	ALUMINUM
AIC	AMPERE INTERRUPTING CAPACITY
AMP	AMPERE
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AUX	AUXILIARY
AWG	AMERICAN WIRE GAUGE
BKR	BREAKER
BLDG	BUILDING
CB	CONDUIT
CB	CIRCUIT BREAKER
CGD	COMBUSTIBLE GAS DETECTOR
CIRCUIT	CIRCUIT
CLB	CURRENT LIMITING BREAKER
CLF	CURRENT LIMITING FUSE
CP	CONTROL PANEL
CPT	CONTROL POWER TRANSFORMER
CR	CONTROL RELAY
CS	CONTROL SWITCH/CONTROL STATION
CT	CURRENT TRANSFORMER
CU	COPPER
CWS	CONDUIT WALL SEAL
DC	DIRECT CURRENT
DIA	DIAMETER
DMU	DIGITAL METERING UNIT
DN	DOWN
EC	EMPTY CONDUIT
ELEC	ELECTRICAL

SHEET NO. WHERE DETAIL IS DRAWN

**SYMBOL WHERE THERE IS A DETAIL**

**DETAIL**  
1/4" = 1'-0"

SHEET NO. WHERE THERE IS A DETAIL

**SYMBOL WHERE DETAIL IS DRAWN**

**DETAIL SYMBOL**

SHEET NO. WHERE SECTION IS DRAWN

**SYMBOL WHERE THERE IS A SECTION**

**SECTION**  
1/4" = 1'-0"

SHEET NO. WHERE SECTION IS TAKEN

**SYMBOL WHERE SECTION IS DRAWN**

**SECTION SYMBOL**

**GENERAL NOTE**

THIS IS A STANDARD LEGEND.  
SOME SYMBOLS MAY NOT  
APPEAR ON THE DRAWINGS.

DESIGNED BY: J. SANCHEZ  
 DRAWN BY: A. TORRES  
 SHEET CHK'D BY: S. PERRY  
 CROSS CHK'D BY: P. LEFAVE  
 APPROVED BY: S. PERRY  
 DATE: MAY 2023



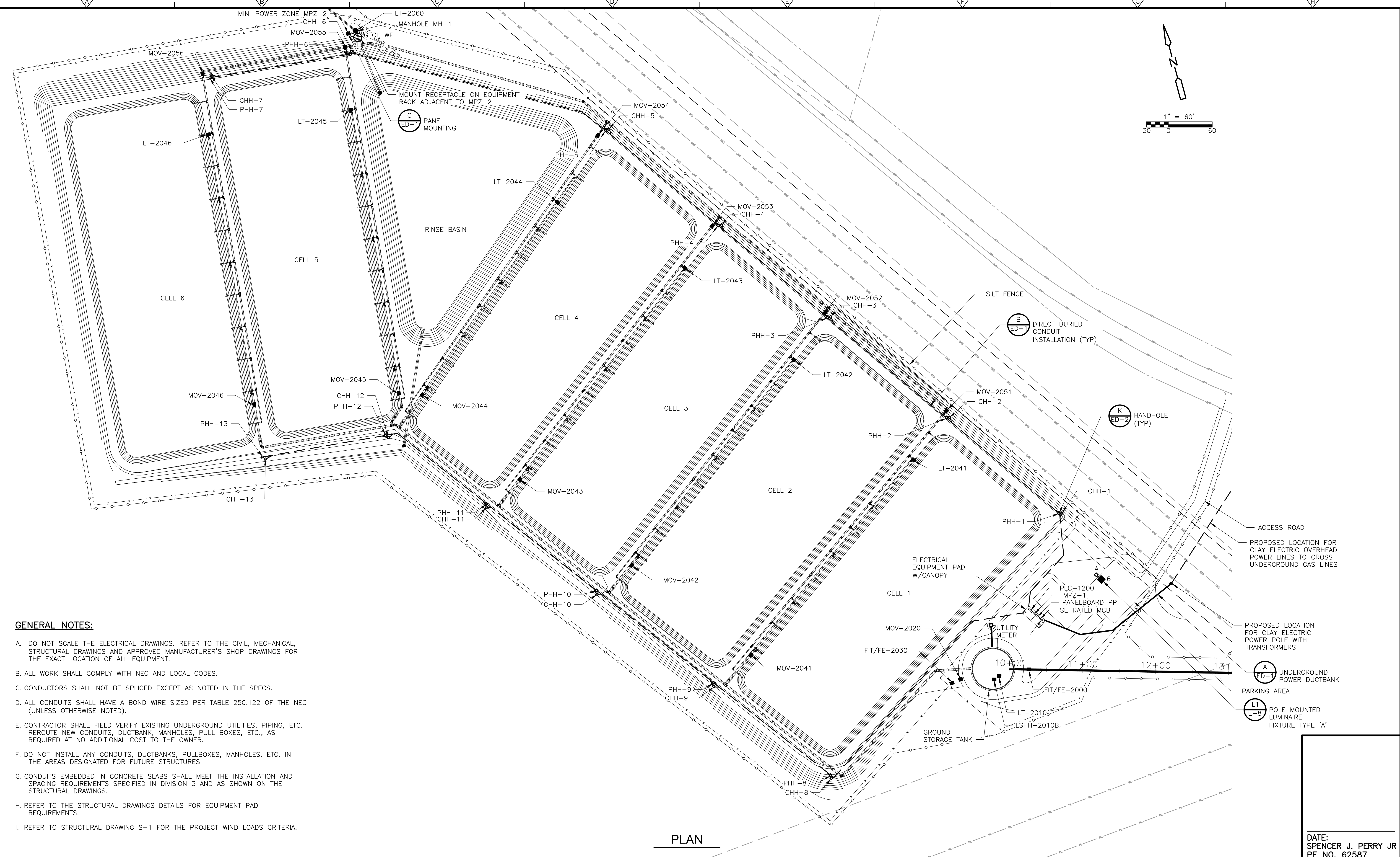
ST. JOHNS RIVER WATER MANAGEMENT DISTRICT  
 BLACK CREEK WATER RESOURCE  
 DEVELOPMENT PROJECT  
 AQUIFER RECHARGE AREA

ELECTRICAL LEGEND II

DATE: SPENCER J. PERRY JR  
 PE NO. 62587

PROJECT NO. 9247-221208  
 FILE NAME: E002NFLG.DWG  
 SHEET NO.

XREFS: [CDMS\_2234\_CEP000ST\_CWZ004ST\_CWZ006ST\_EWP000PL\_EWP000ST\_SWP000PL\_EWP000ST] Images: []  
 Last saved by: RUCKRM Time: 5/17/2023 3:53:13 PM  
 C:\pw\_r1\yuckrm\43376794\E003STPL.dwg  
 © 2023 CDM SMITH ALL RIGHTS RESERVED.  
 REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.



**GENERAL NOTES:**

- A. DO NOT SCALE THE ELECTRICAL DRAWINGS. REFER TO THE CIVIL, MECHANICAL, STRUCTURAL DRAWINGS AND APPROVED MANUFACTURER'S SHOP DRAWINGS FOR THE EXACT LOCATION OF ALL EQUIPMENT.
- B. ALL WORK SHALL COMPLY WITH NEC AND LOCAL CODES.
- C. CONDUCTORS SHALL NOT BE SPLICED EXCEPT AS NOTED IN THE SPECS.
- D. ALL CONDUITS SHALL HAVE A BOND WIRE SIZED PER TABLE 250.122 OF THE NEC (UNLESS OTHERWISE NOTED).
- E. CONTRACTOR SHALL FIELD VERIFY EXISTING UNDERGROUND UTILITIES, PIPING, ETC. REROUTE NEW CONDUITS, DUCTBANK, MANHOLES, PULL BOXES, ETC., AS REQUIRED AT NO ADDITIONAL COST TO THE OWNER.
- F. DO NOT INSTALL ANY CONDUITS, DUCTBANKS, PULLBOXES, MANHOLES, ETC. IN THE AREAS DESIGNATED FOR FUTURE STRUCTURES.
- G. CONDUITS EMBEDDED IN CONCRETE SLABS SHALL MEET THE INSTALLATION AND SPACING REQUIREMENTS SPECIFIED IN DIVISION 3 AND AS SHOWN ON THE STRUCTURAL DRAWINGS.
- H. REFER TO THE STRUCTURAL DRAWINGS DETAILS FOR EQUIPMENT PAD REQUIREMENTS.
- I. REFER TO STRUCTURAL DRAWING S-1 FOR THE PROJECT WIND LOADS CRITERIA.

PLAN

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY:	J. SANCHEZ
DRAWN BY:	A. TORRES
SHEET CHK'D BY:	S. PERRY
CROSS CHK'D BY:	P. LEFAVE
APPROVED BY:	S. PERRY
DATE:	MAY 2023

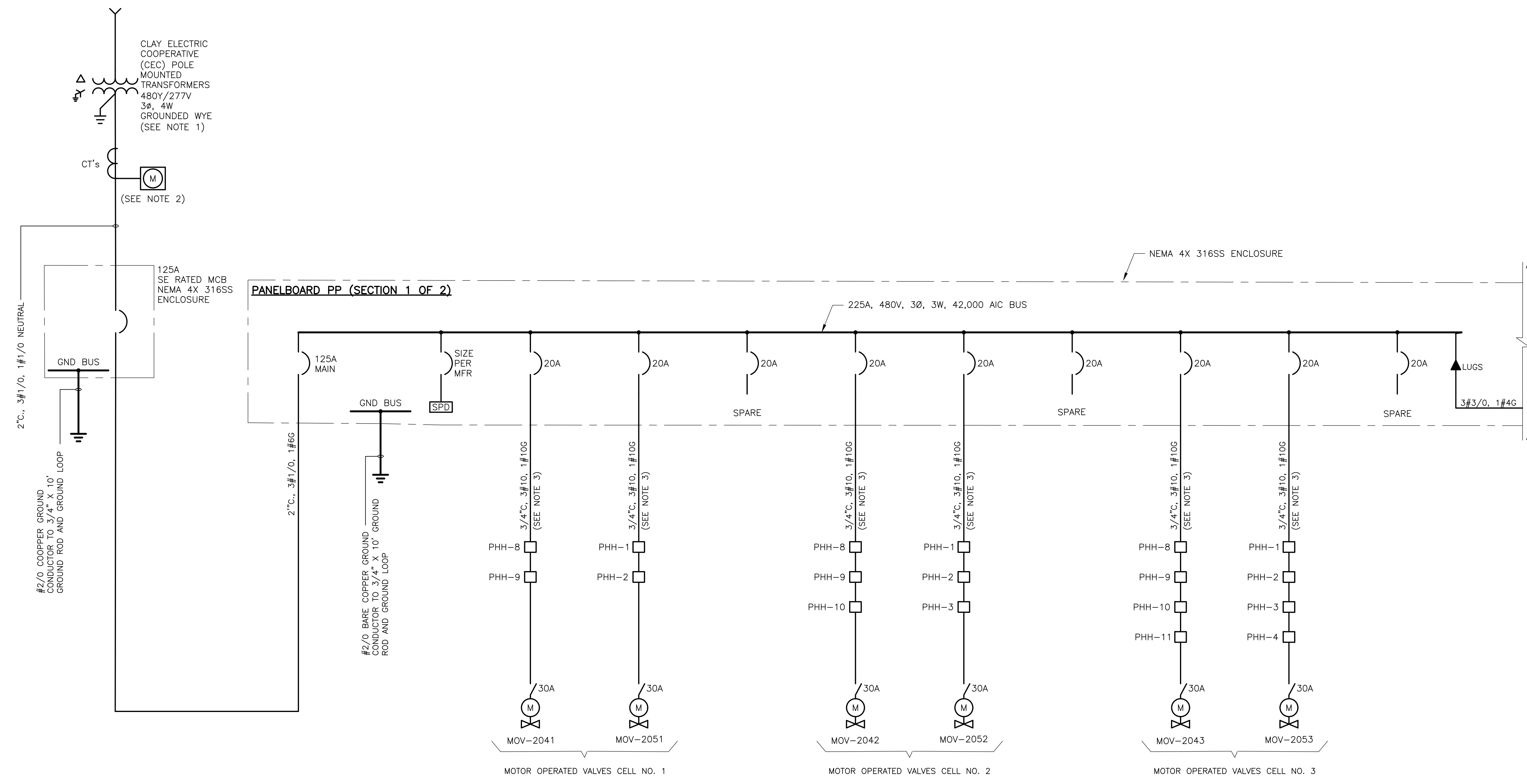


ST. JOHNS RIVER WATER MANAGEMENT DISTRICT  
 BLACK CREEK WATER RESOURCE  
 DEVELOPMENT PROJECT  
 AQUIFER RECHARGE AREA

<b>ELECTRICAL SITE PLAN</b>	
DATE:	SPENCER J. PERRY JR
PE NO.	62587
PROJECT NO.	9247-221208
FILE NAME:	E003STPL.DWG
SHEET NO.	E-3

ISSUED FOR BID

XREF: [CDMS\_2234] Images: [ ]  
 Last saved by: RUCKRM Time: 4/27/2023 3:28:23 PM  
 pw\\cdm-smith-0202-pw.bentley.com\pw\_p1\9247\221208\_PHASE 2 INTAKE PS\04 Design Services NM\_100\09 Electrical\10 CADD\05 AQUIFER RECHARGE AREA\E004NFOL.dwg  
 © 2023 CDM SMITH ALL RIGHTS RESERVED.  
 REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.



- NOTES:**
1. THE ESTIMATED MAXIMUM AVAILABLE FAULT CURRENT AT THE SECONDARY TERMINALS OF THE TRANSFORMER IS 3,341 AMPS. BASED ON 75 KVA, 2.7% Z TRANSFORMER.
  2. PROVIDE METER SOCKET AND PEDESTAL PER CLAY ELECTRIC COOPERATIVE (CEC) REQUIREMENTS FOR ELECTRIC SERVICE.
  3. SAME SIZE FEEDER FROM PHH TO PHH TO MOV.

**ONE LINE POWER DIAGRAM**

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: J. SANCHEZ  
 DRAWN BY: A. TORRES  
 SHEET CHK'D BY: S. PERRY  
 CROSS CHK'D BY: P. LEFAVE  
 APPROVED BY: S. PERRY  
 DATE: MAY 2023



4651 Salisbury Road, Suite 420  
 Jacksonville, FL 32256  
 Tel: (904) 731-7109  
 FL COA No. EB-0000020

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT  
 BLACK CREEK WATER RESOURCE  
 DEVELOPMENT PROJECT  
 AQUIFER RECHARGE AREA

PANELBOARD PP (SECTION 1 OF 2)  
 ONE LINE POWER DIAGRAM

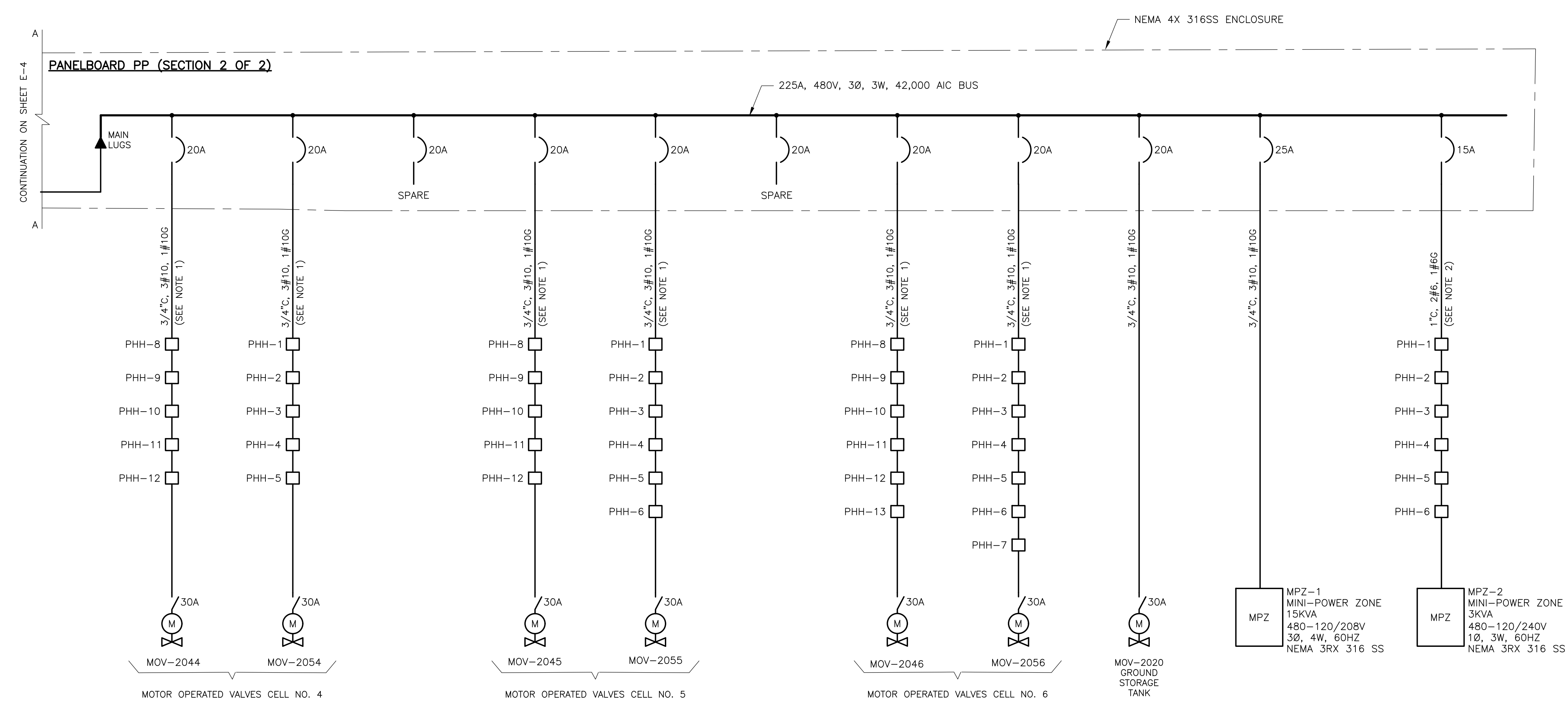
DATE:  
 SPENCER J. PERRY JR  
 PE NO. 62587

PROJECT NO. 9247-221208  
 FILE NAME: E004NFOL.DWG

SHEET NO.  
 E-4

XREFS: [CDMS\_2234] Images: [ ]  
 Last saved by: RUCKRM Time: 4/27/2023 3:27:28 PM  
 pw:\\cdm-smith-0202-pw.bentley.com\pw\_p1\9247\221208\_PHASE 2 INTAKE PS\04 Design Services NM\_100%\09 Electrical\10 CADD\05 AQUIFER RECHARGE AREA\E005NFOL.dwg  
 © 2023 CDM SMITH ALL RIGHTS RESERVED.  
 REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.

- NOTES:**
1. SAME SIZE FEEDER FROM PHH TO PHH TO MOV.
  2. SAME SIZE FEEDER FROM PHH TO PHH TO MPZ.



**ONE LINE POWER DIAGRAM**

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: J. SANCHEZ  
 DRAWN BY: A. TORRES  
 SHEET CHK'D BY: S. PERRY  
 CROSS CHK'D BY: P. LEFAVE  
 APPROVED BY: S. PERRY  
 DATE: MAY 2023



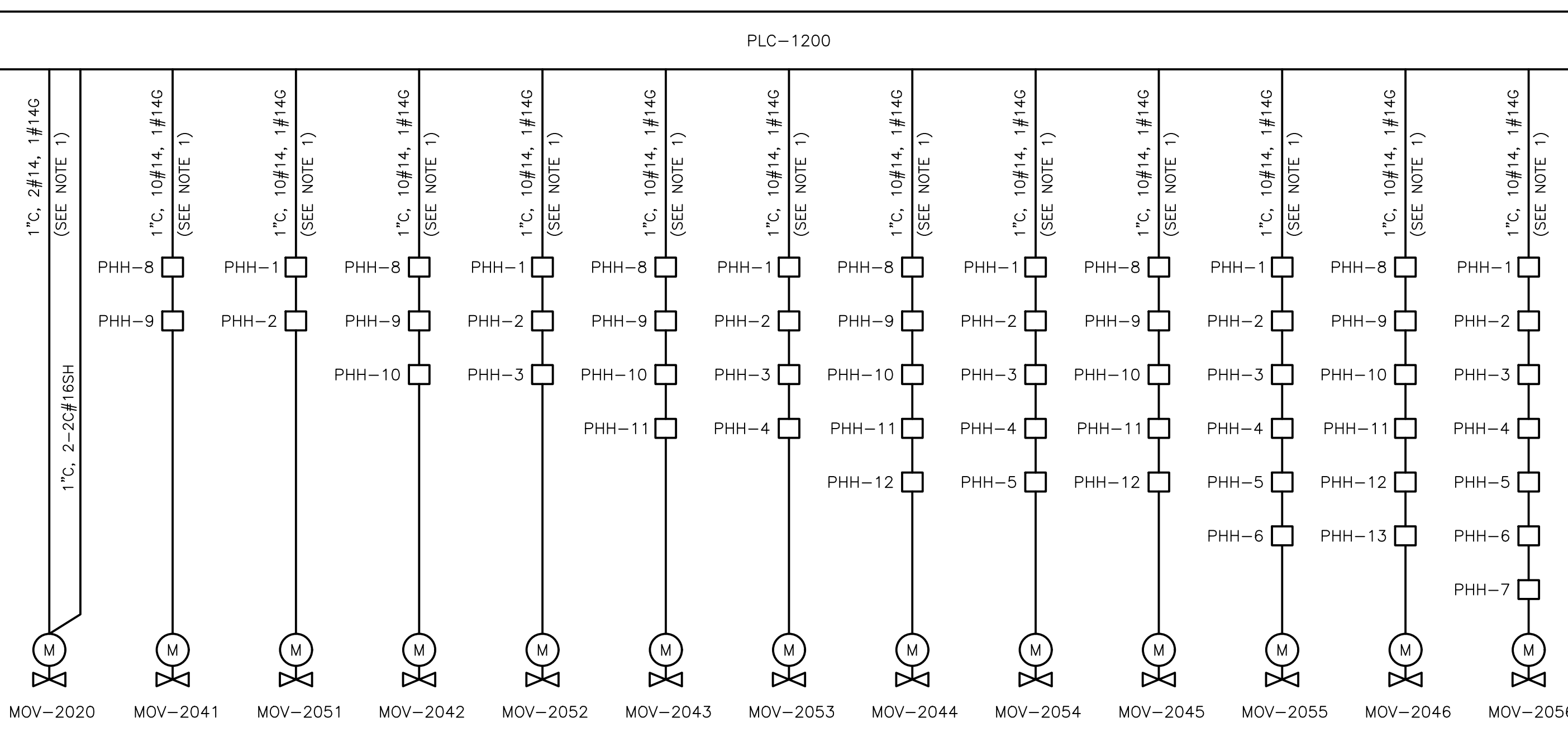
ST. JOHNS RIVER WATER MANAGEMENT DISTRICT  
 BLACK CREEK WATER RESOURCE  
 DEVELOPMENT PROJECT  
 AQUIFER RECHARGE AREA

PANELBOARD PP (SECTION 2 OF 2)  
 ONE LINE POWER DIAGRAM

DATE: SPENCER J. PERRY JR  
 PE NO. 62587  
 PROJECT NO. 9247-221208  
 FILE NAME: E005NFOL.DWG  
 SHEET NO. E-5

XREFS: [CDMS\_2234] Images: [ ]  
 Last saved by: RUCKRM Time: 4/27/2023 3:25:27 PM  
 pw:\cdm\smith-0202-pw.bentley.com\pw\_01\9247\221208\_PHASE 2 INTAKE PS\04 Design Services NM\_100%\09 Electrical\10 CADD\05 AQUIFER RECHARGE AREA\EO06PLSH.dwg  
 © 2023 CDM SMITH ALL RIGHTS RESERVED.  
 REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.

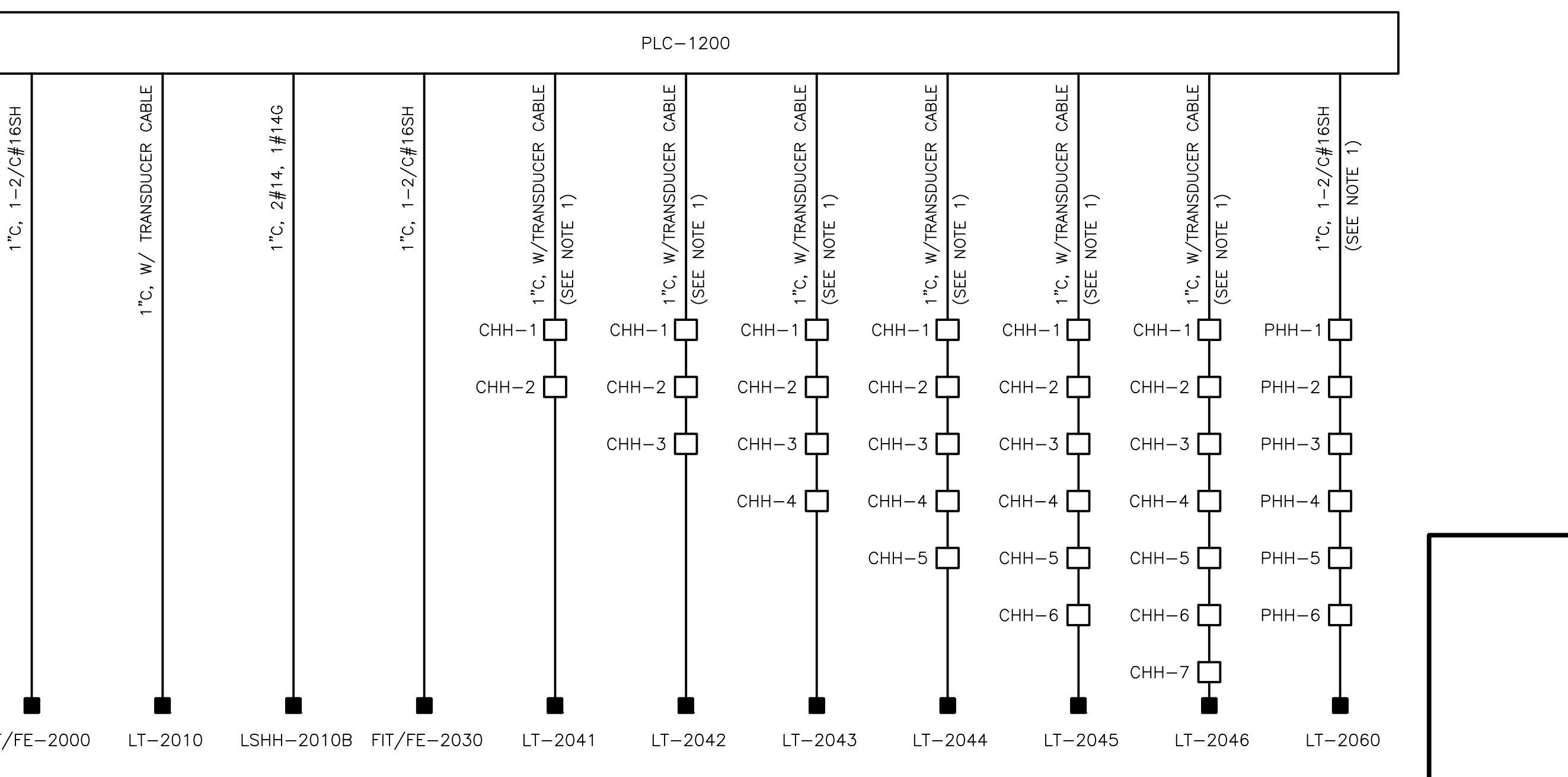
125 AMP MAIN BREAKER 225 AMP BUS RATING 84 POLES 480 VOLTS 3 PHASE 3 WIRE 60 Hz.										PANELBOARD PP (2 SECTIONS)					LOCATION: ELECTRICAL EQUIPMENT PAD ENCLOSURE RATING: NEMA 4X ,316SS MOUNTING: SURFACE				
CIRCUIT NO.	DESCRIPTION	LOAD KVA			BREAKER AMPS/ POLES	NOTES	CIRCUIT NO.	DESCRIPTION	LOAD KVA			BREAKER AMPS/ POLES	NOTES						
		PHASE A	PHASE B	PHASE C					PHASE A	PHASE B	PHASE C								
1		0.83				2		0.83											
3	CELL 1 MOV-2041		0.83		20 /3	4	CELL 3 MOV-2043		0.83		20 /3								
5				0.83		6				0.83									
7		0.83				8		0.83											
9	CELL 1 MOV-2051		0.83		20 /3	10	CELL 3 MOV-2053		0.83		20 /3								
11				0.83		12				0.83									
13		0.83				14													
15	CELL 1 MOV-2042		0.83		20 /3	16	SPARE				20 /3								
17				0.83		18													
19		0.83				20													
21	CELL 2 MOV-2052		0.83		20 /3	22	SPARE				20 /3								
23				0.83		24													
25		0.83				26													
27	SPARE				20 /3	28	SPACE				/3								
29						30													
31		0.83				32													
33	SPACE				/3	34	SPACE				/3								
35						36													
37		0.83				38													
39	SPACE				/3	40	SPD				20 /3								
41						42													
43		0.83				44		0.83											
45	CELL 4 MOV-2044		0.83		20 /3	46	CELL 6 MOV-2046		0.83		20 /3								
47				0.83		48				0.83									
49		0.83				50		0.83											
51	CELL 4 MOV-2054		0.83		20 /3	52	CELL 6 MOV-2056		0.83		20 /3								
53				0.83		54				0.83									
55		0.83				56		0.83											
57	CELL 5 MOV-2045		0.83		20 /3	58	GST MOV-2020		0.83		20 /3								
59				0.83		60				0.83									
61		0.83				62													
63	CELL 5 MOV-2055		0.83		20 /3	64	SPARE				20 /3								
65				0.83		66													
67		0.83				68													
69	SPARE				20 /3	70	SPACE				/3								
71						72													
73		0.83				74		5											
75	SPACE				/3	76	MPZ-1		5		25 /3								
77						78				5									
79		0.83				80	MPZ-2		1.5		15 /2								
81	SPACE				/3	82				1.5									
83						84	SPACE												
TOTAL PHASE KVA THIS SIDE		6.64	6.64	6.64		TOTAL PHASE KVA THIS SIDE		10.65	10.65	9.15									
						TOTAL KVA PER PHASE		17.29	17.29	15.79									
						TOTAL THREE PHASE KVA		50.37											



CONTROL RISER DIAGRAM

15 KVA 3-PHASE TRANSFORMER 60 AMP 3 POLE SECONDARY MAIN BREAKER 208/120 VOLTS 3 PHASE 4 WIRE 60 HZ										PANELBOARD MPZ-1					480 VOLT PRIMARY 25 AMP 3 POLE PRIMARY MAIN BREAKER 42 KAIC				
CIRCUIT NO.	DESCRIPTION	LOAD KVA			BREAKER AMPS/ POLES	NOTES	CIRCUIT NO.	DESCRIPTION	LOAD KVA			BREAKER AMPS/ POLES	NOTES						
		PHASE A	PHASE B	PHASE C					PHASE A	PHASE B	PHASE C								
1	PLC-1200	0.5			20 /1	1	2	LIGHTING - ELEC EQUIP PAD	0.3			20 /1	1						
3	FIT-2000		0.05		20 /1	1	4	RECEPTACLE - ELEC EQUIP PAD		0.18		20 /1	1						
5	FIT-2030			0.05	20 /1	1	6	LIGHTING - PARKING AREA			0.1	20 /1	1						
7	SPARE				20 /1		8	SPARE				20 /1							
9	SPARE				20 /1		10	SPARE				20 /1							
11	SPARE				20 /1		12	SPARE				20 /1							
13	SPARE				20 /1		14	SPARE				20 /1							
TOTAL PHASE KVA THIS SIDE		0.5	0.05	0.05		TOTAL PHASE KVA THIS SIDE		0.3	0.18	0.1									
						TOTAL KVA PER PHASE		0.8	0.23	0.15									
						TOTAL THREE PHASE KVA		1.18											

3 KVA 1-PHASE TRANSFORMER 20 AMP 2 POLE SECONDARY MAIN BREAKER 240/120 VOLTS 1 PHASE 3 WIRE 60 HZ										PANELBOARD MPZ-2					480 VOLT PRIMARY 15 AMP 2 POLE PRIMARY MAIN BREAKER 42 KAIC				
CIRCUIT NO.	DESCRIPTION	LOAD KVA			BREAKER AMPS/ POLES	NOTES	CIRCUIT NO.	DESCRIPTION	LOAD KVA			BREAKER AMPS/ POLES	NOTES						
		PHASE A	PHASE B	PHASE C					PHASE A	PHASE B	PHASE C								
1	RECEPTACLE	0.5			20 /1	1	2	SPACE				20 /1							
3	SPACE				/1		4	SPACE				/1							
5	SPACE				/1		6	SPACE				/1							
TOTAL PHASE KVA THIS SIDE		0.5	0	0		TOTAL PHASE KVA THIS SIDE		0	0	0									
						TOTAL KVA PER PHASE		0.5	0	0									
						TOTAL THREE PHASE KVA		0.5											



INSTRUMENTATION RISER DIAGRAM

**RISER DIAGRAM NOTE:**

- SAME SIZE CONDUIT/WIRE FROM CHH TO CHH TO INSTRUMENTATION DEVICE.

REV. NO.	DATE	DRWN	CHKD	REMARKS

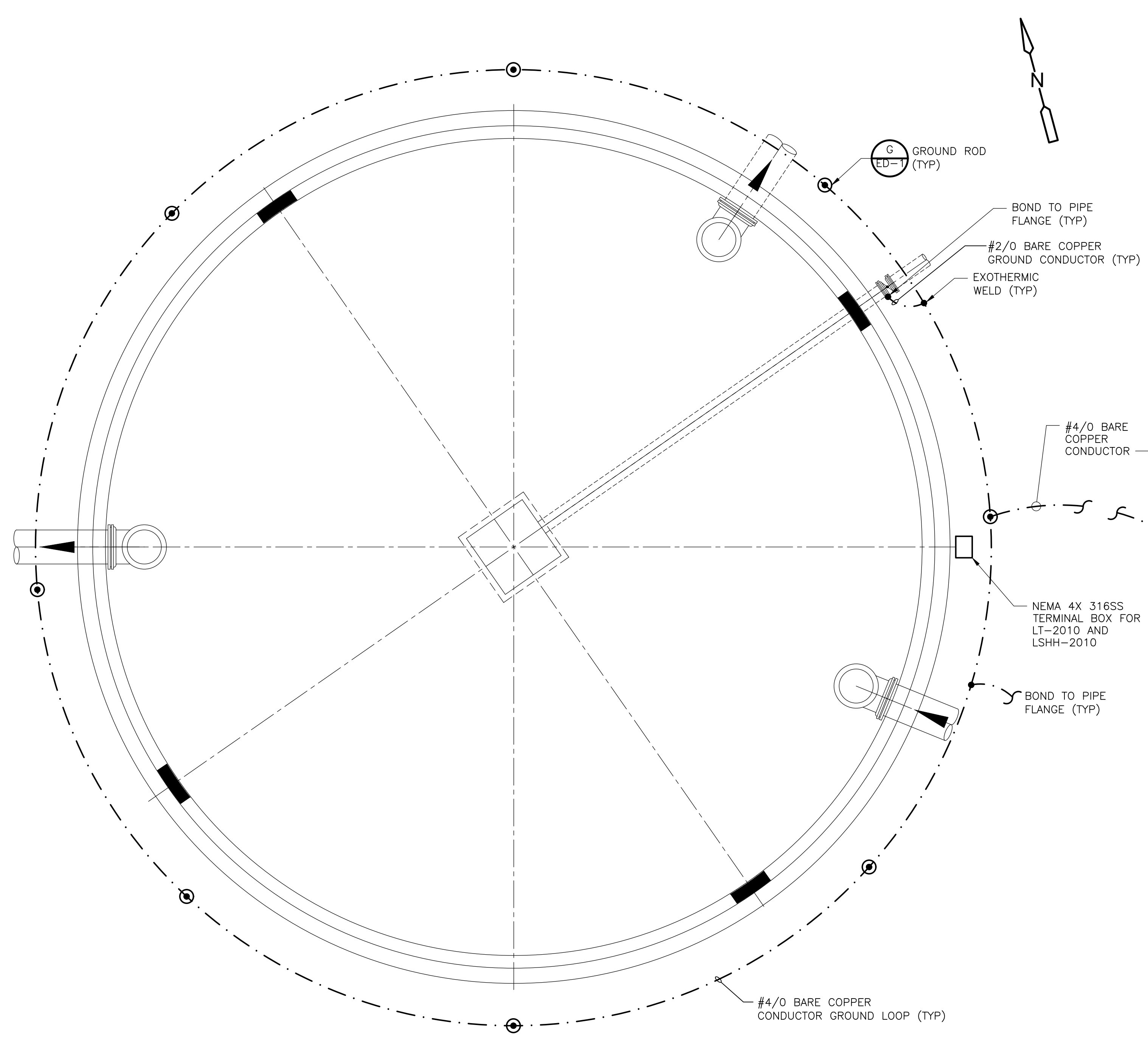
DESIGNED BY: J. SANCHEZ	<p>4651 Salisbury Road, Suite 420 Jacksonville, FL 32256 Tel: (904) 731-7109 FL COA No. EB-0000020</p>
DRAWN BY: A. TORRES	
SHEET CHK'D BY: S. PERRY	
CROSS CHK'D BY: P. LEFAVE	
APPROVED BY: S. PERRY	
DATE: MAY 2023	

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT  
 BLACK CREEK WATER RESOURCE  
 DEVELOPMENT PROJECT  
 AQUIFER RECHARGE AREA

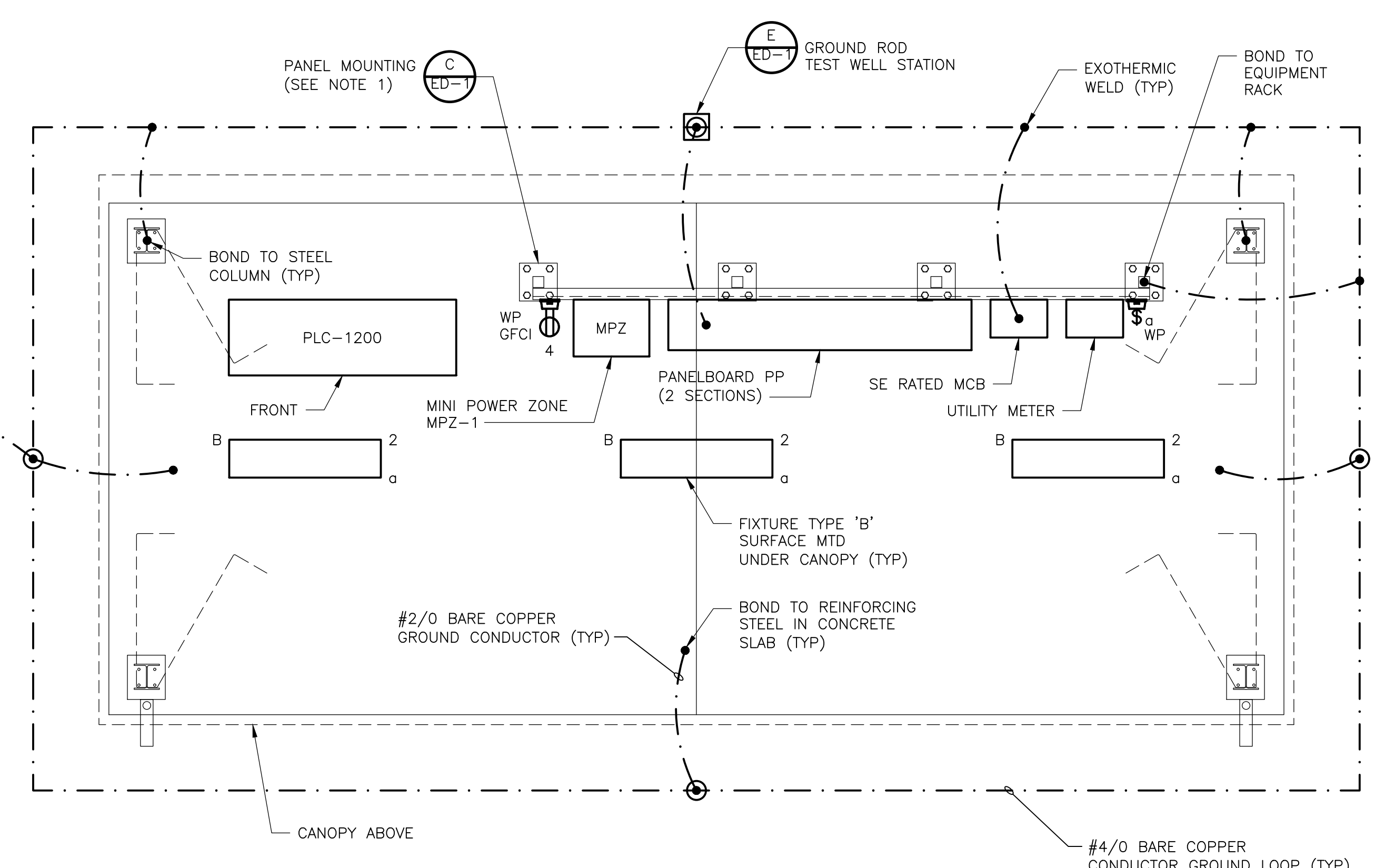
PANELBOARD SCHEDULES AND  
 INSTRUMENTATION AND CONTROL RISER DIAGRAMS

DATE: SPENCER J. PERRY JR	PROJECT NO. 9247-221208
PE NO. 62587	FILE NAME: EO06PLSH.DWG
	SHEET NO. E-6

XREFS: [CDMS\_2234\_MWPOSTPL\_SWP000PL\_EWP001GS] Images: [ ]  
 Last saved by: CARTERRH Time: 3/29/2023 3:03:40 PM  
 pw:\\cdm-smith-0202-pw.bentley.com\pw\_r1\9247\221208\_PHASE 2 INTAKE PS\04 Design Services NM\_100%\09 Electrical\10 CADD\05 Aquifer Recharge Area\E007GSPL.dwg  
 © 2023 CDM SMITH ALL RIGHTS RESERVED.  
 REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.



GROUND STORAGE TANK  
 PLAN  
 3/16" = 1'-0"



ELECTRICAL EQUIPMENT PAD  
 PLAN  
 3/8" = 1'-0"

**NOTE:**  
 1. FOR EXTERIOR PANEL MOUNTED EQUIPMENT AND RACK CONSTRUCTION, REFER TO STRUCTURAL DRAWING S-1 FOR WIND DESIGN REQUIREMENTS AND PROVIDE ANCHORAGE TO CONCRETE ACCORDINGLY.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: J. SANCHEZ  
 DRAWN BY: A. TORRES  
 SHEET CHK'D BY: S. PERRY  
 CROSS CHK'D BY: P. LEFAVE  
 APPROVED BY: S. PERRY  
 DATE: MAY 2023



ST. JOHNS RIVER WATER MANAGEMENT DISTRICT  
 BLACK CREEK WATER RESOURCE  
 DEVELOPMENT PROJECT  
 AQUIFER RECHARGE AREA

ELECTRICAL EQUIPMENT PAD AND  
 GROUND STORAGE TANK PLANS

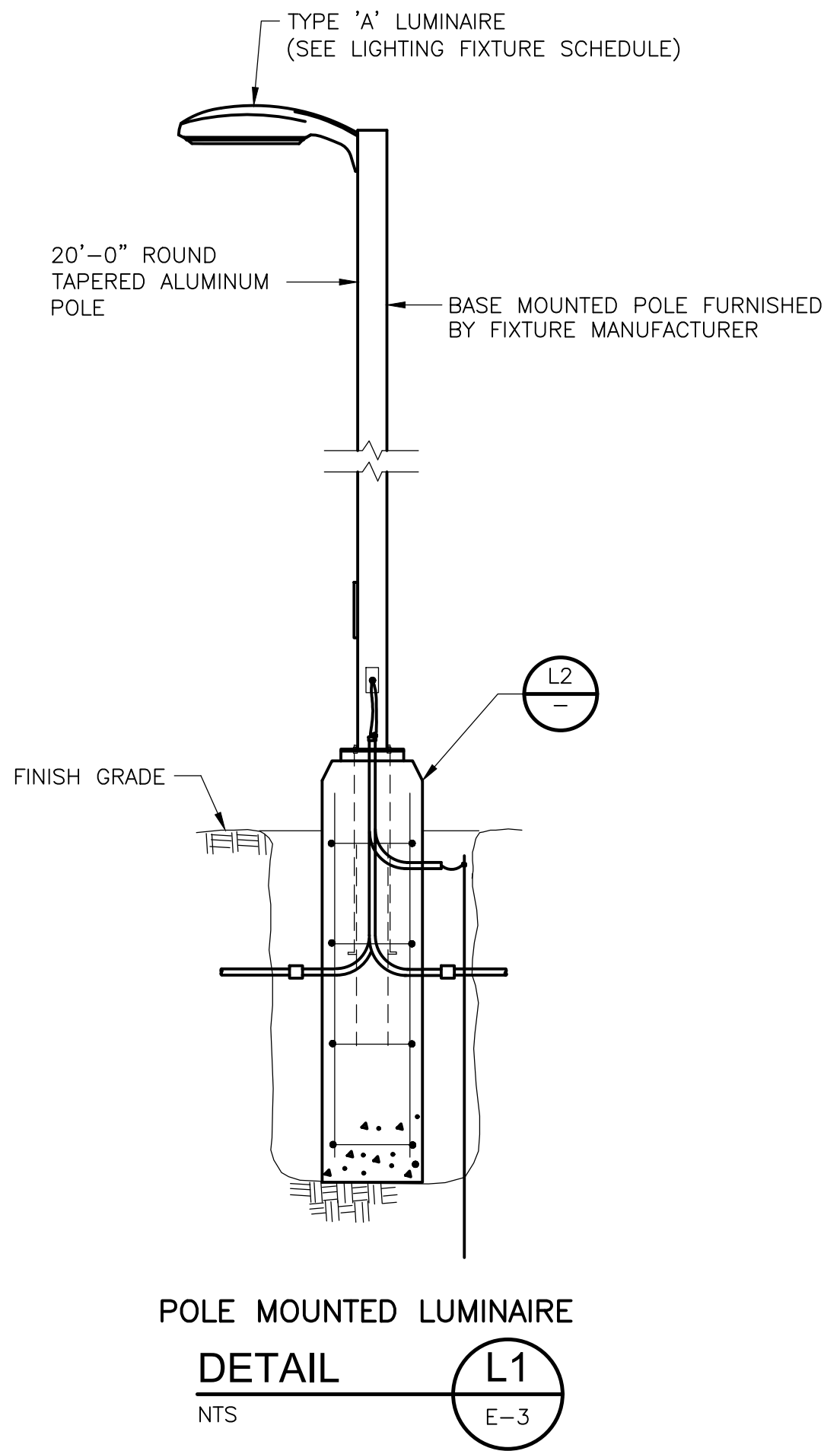
DATE: SPENCER J. PERRY JR PE NO. 62587
PROJECT NO. 9247-221208 FILE NAME: E007GSPL.DWG
SHEET NO. E-7

XREFS: [CDMS\_2234] Images: [ ]  
 Last saved by: CARTERRH Time: 3/29/2023 3:39:43 PM  
 pw:\cdm\smith-0202-pw\entley.com\pw\_01\9247\221208\_PHASE 2 INTAKE PS\04 Design Services NM\_100%\09 Electrical\10 CADD\05 AQUIFER RECHARGE AREA\E008NFDI.dwg  
 ©2023 CDM SMITH ALL RIGHTS RESERVED.  
 REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.

LIGHTING FIXTURE SCHEDULE			
TYPE	WATT	DESCRIPTION	MFR (OR APPROVED EQUAL)
A	74	POLE MOUNTED LED LIGHT FIXTURE; 48 LED's (10,401 LUMENS, 140 LUMENS PER WATT); 4000K; 500mA DRIVE CURRENT; CRI OF 70; DIE CAST ALUMINUM HOUSING; LED LIGHT ENGINE IS RATED IP66; TYPE 3 DISTRIBUTION; STANDARD ARM MOUNTING; ROUND POLE ADAPTER (FITS TO 3"-3.9" O.D. POLE); 120V; AUTOMATIC PROFILE DIMMING CM50, 50% OF TOTAL LUMEN OUTPUT FOR 8 HOURS NIGHT DURATION (Ex., 10 PM - 6 AM); TWIST LOCK RECEPTACLE W/PHOTOCELL WITH 5 PINS ENABLING DIMMING; WET LOCATION LISTED; POLYESTER POWDERCOAT MEDIUM GRAY FINISH; 5-YEAR LIMITED WARRANTY	GARDCO BY SIGNIFY PUREFORM P26 MEDIUM AREA LIGHT: PART NO. P26-48L-500-NW-G2-AR-3-120-CM50- TLRPC-RPA-MGY SEE NOTE 1 SEE DETAIL 'L1' ON THIS SHEET
B	48	1'x4' FULLY ENCLOSED, GASKETED INDUSTRIAL LED LUMINAIRE; 6,434 NOMINAL LUMENS; 80 CRI, 4,000K; 5VA (F1) FIBERGLASS ENCLOSURE, RATED FOR FLAME AND WEATHER RESISTANCE; .050" ALUMINUM INTERNAL HOUSING; STAINLESS STEEL LATCHES; REFLECTIVE WHITE POLYESTER POWDER COAT FINISH; WATERTIGHT HUBS; FROSTED, RIBBED, IMPACT-RESISTANT ACRYLIC SHIELDING; HIGH-QUALITY MID-POWER LED BOARD; SURFACE OR SUSPENDED MOUNTING; UNIVERSAL VOLTAGE (120-277V); ETL CONFORMS TO UL STD 1598 AND UL STD 8750; LISTED AS SUITABLE FOR WET LOCATIONS CERTIFIED, IP65, IP66, AND IP67 CERTIFIED, AND RATED FOR NEMA 4X; 5 YEAR WARRANTY	HE WILLIAMS: 96 SERIES LED 96-4-L62-840-PCFR-WET/2-DIM-UNV

**NOTE:**

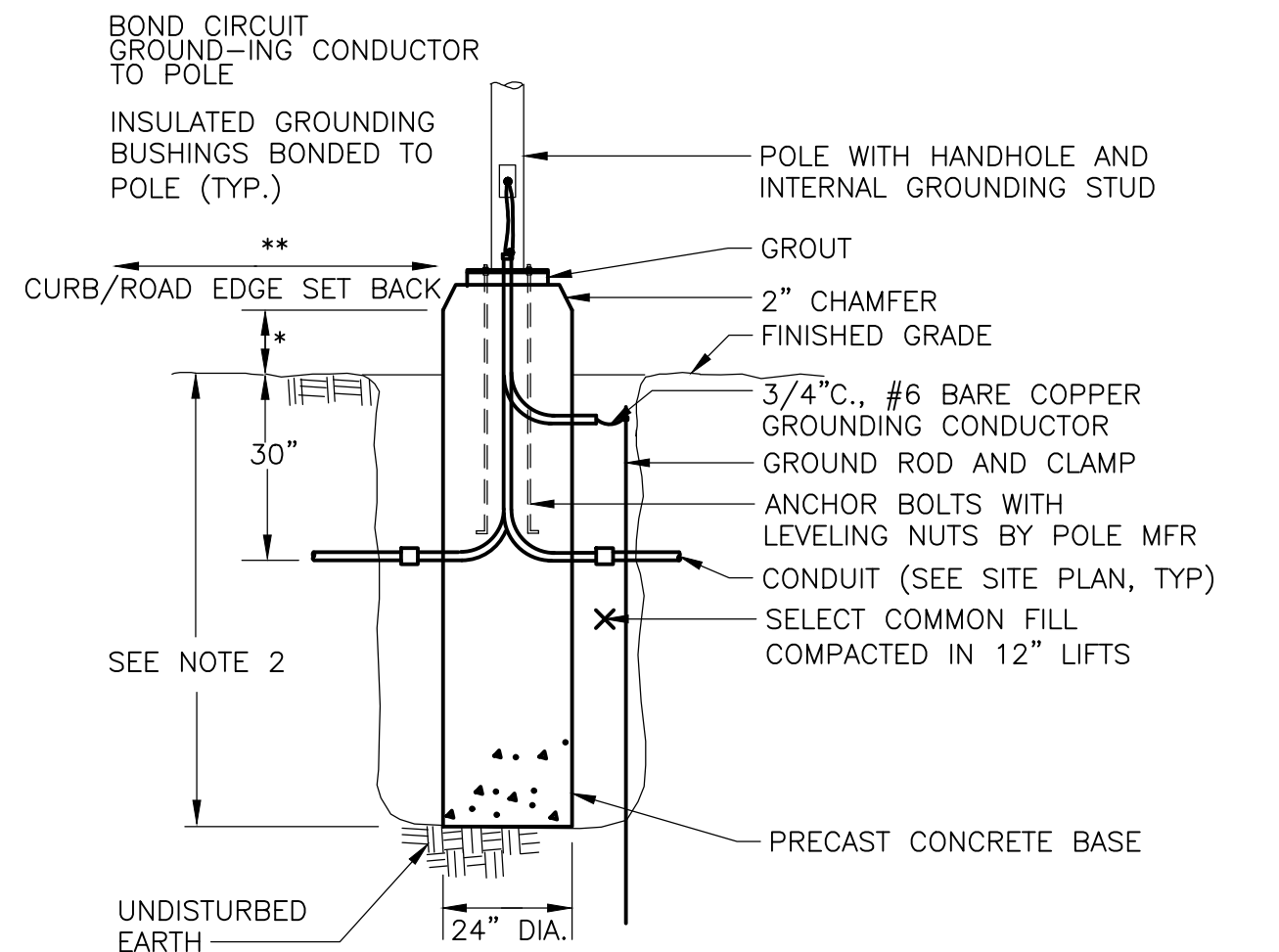
1. FIXTURE MANUFACTURER SHALL FURNISH A 20' ROUND TAPERED ALUMINUM POLE. POLE SHALL HAVE A CLEAR NATURAL ANODIZED FINISH AND MEET WIND LOADS AND GUST FACTOR FOR RELATED PROJECT LOCATION. POLE SHALL BE MOUNTED TO A CONCRETE BASE PER DETAIL 'L2'. SUITABLE ANCHOR BOLTS, BASE COVER, GROUND LUG, AND VIBRATION PAD FURNISHED WITH POLE.



**NOTES:**

1. LIGHT POLE FOUNDATION SHALL BE A PRECAST CONCRETE FOUNDATION DESIGNED BY A FLORIDA REGISTERED PROFESSIONAL ENGINEER ENGAGED AT THE EXPENSE OF THE CONTRACTOR. DESIGN SPEED SHALL BE IN ACCORDANCE WITH ASCE 7-16 FOR THE PROJECT SPECIFIC SITE. REFER TO STRUCTURAL DRAWING S-1 FOR WIND DESIGN REQUIREMENTS. CONTRACTOR SHALL CONFIRM SOIL CONDITIONS WITH A FLORIDA REGISTERED PROFESSIONAL GEOTECHNICAL ENGINEER. DESIGN SHALL BE SIGNED & SEALED BY A REGISTERED PROFESSIONAL ENGINEER, REGISTERED IN THE STATE OF FLORIDA.
2. EMBEDMENT DEPTH AS REQUIRED PER DELEGATE ENGINEER. MIN. EMBEDMENT IN CLAYEY SOILS 6'-6", MIN EMBEDMENT IN SANDY SOILS 4'-6".
3. REFER TO SPECIFICATIONS FOR MATERIALS.

- \* =2" AT WALKWAYS;  
18" AT ROADWAYS  
& PARKING AREAS
- \*\* =48" AT WALKWAYS;  
24" AT ROADWAYS



REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: J. SANCHEZ  
 DRAWN BY: A. TORRES  
 SHEET CHK'D BY: S. PERRY  
 CROSS CHK'D BY: P. LEFAVE  
 APPROVED BY: S. PERRY  
 DATE: MAY 2023

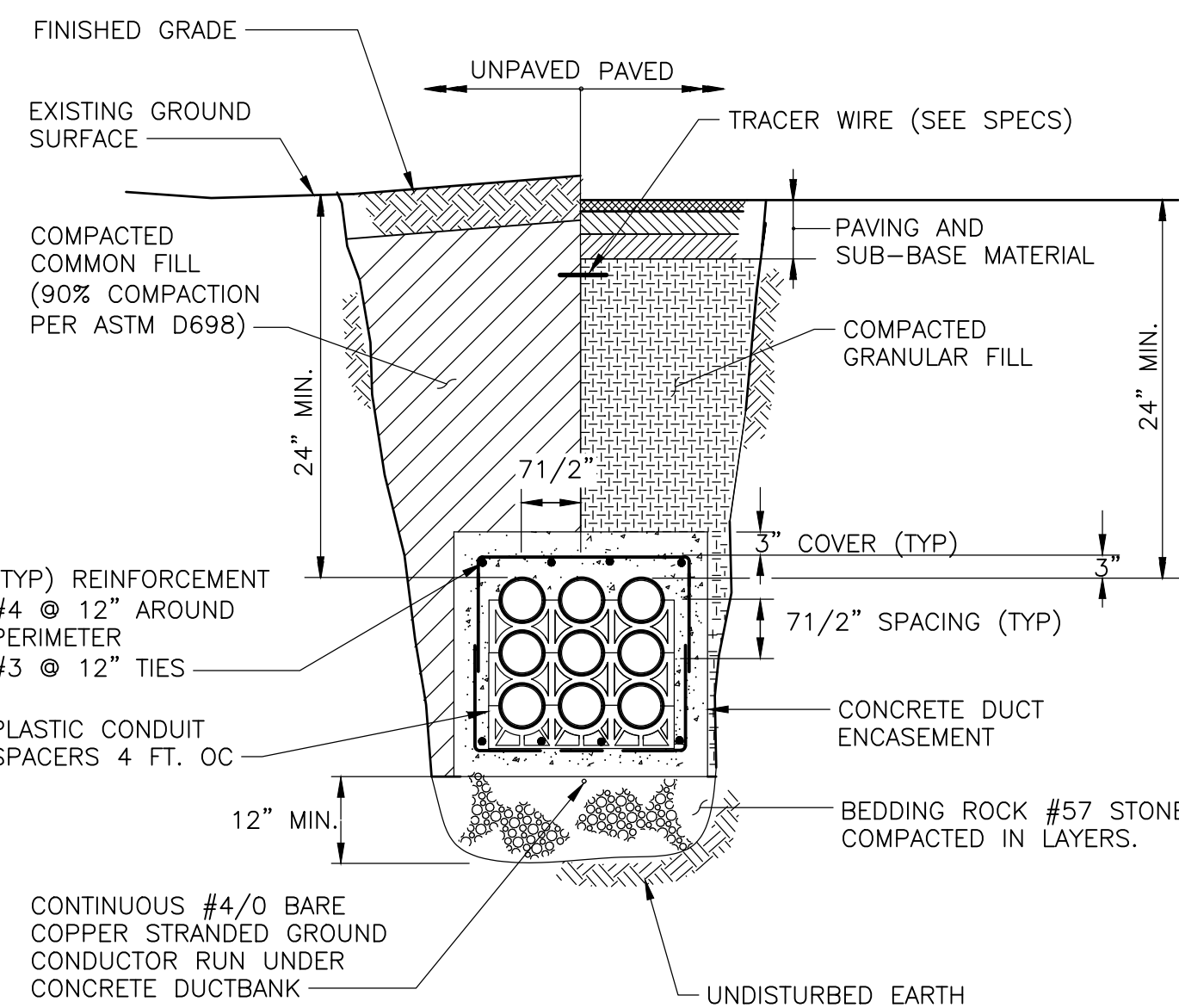
**CDM Smith**  
 4651 Salisbury Road, Suite 420  
 Jacksonville, FL 32256  
 Tel: (904) 731-7109  
 FL COA No. EB-0000020

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT  
 BLACK CREEK WATER RESOURCE  
 DEVELOPMENT PROJECT  
 AQUIFER RECHARGE AREA

LIGHT FIXTURE SCHEDULE  
 AND DETAILS

DATE:	SPENCER J. PERRY JR
PROJECT NO.	9247-221208
FILE NAME:	E008NFDI.DWG
SHEET NO.	E-8



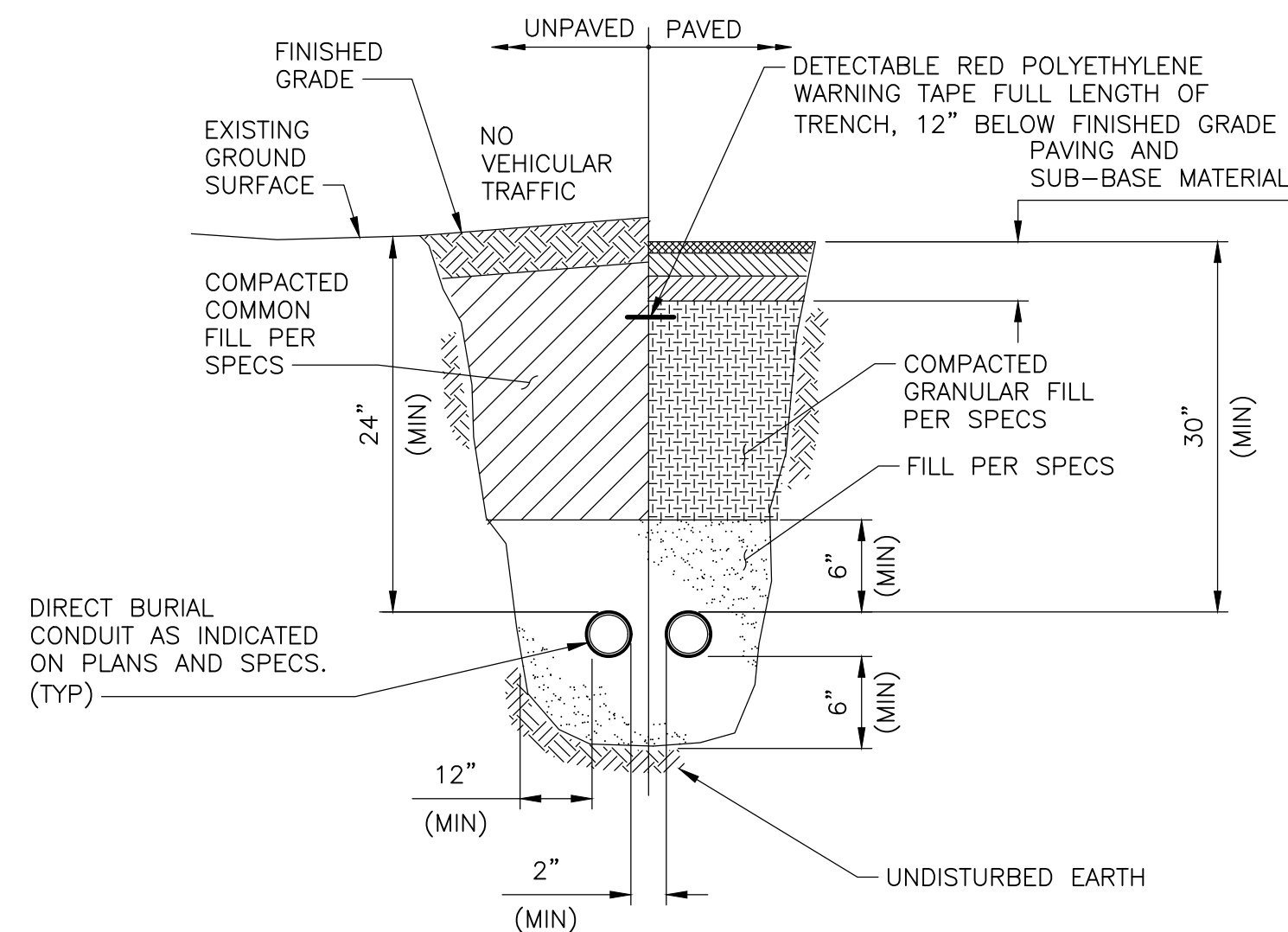


**NOTE:**

1. DUCT BANKS SHALL BE REINFORCED WHEN INSTALLED OVER NEW PIPELINES OR UNDER ROADWAYS, PARKING LOTS OR ANY AREA SUBJECT TO VEHICULAR TRAFFIC. INSTALL REINFORCING BARS AS SHOWN ON THE DRAWINGS, EXTENDING 10-FT. BEYOND AREA NEEDING PROTECTION.

UNDERGROUND POWER DUCT BANK

DETAIL A  
NTS

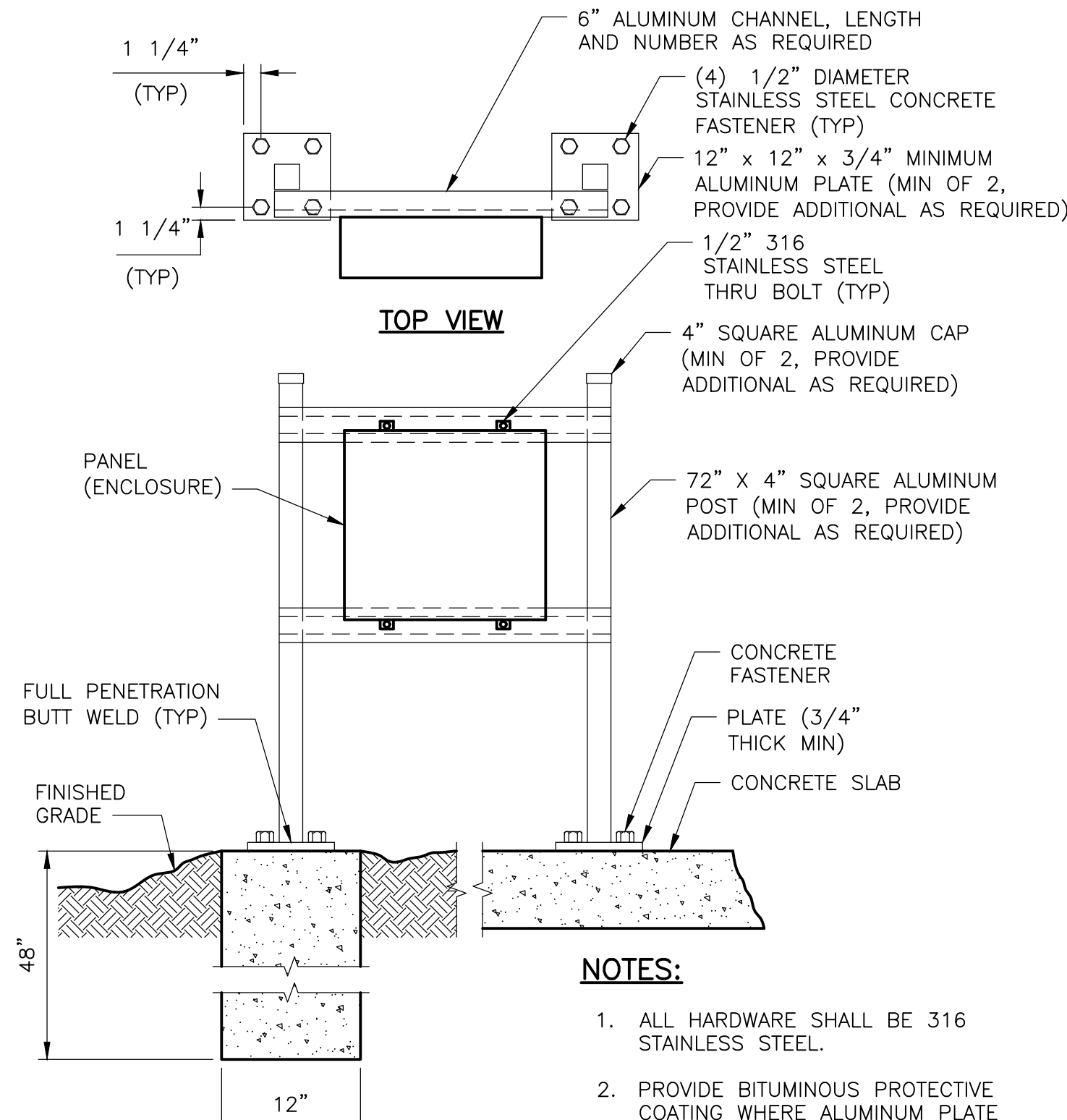


**NOTE:**

1. CONTROL AND INSTRUMENTATION CONDUITS SHALL BE SEPARATED FROM POWER CONDUITS BY A MINIMUM OF 12 INCHES..

TYPICAL DIRECT BURIED CONDUIT INSTALLATION

DETAIL B  
NTS

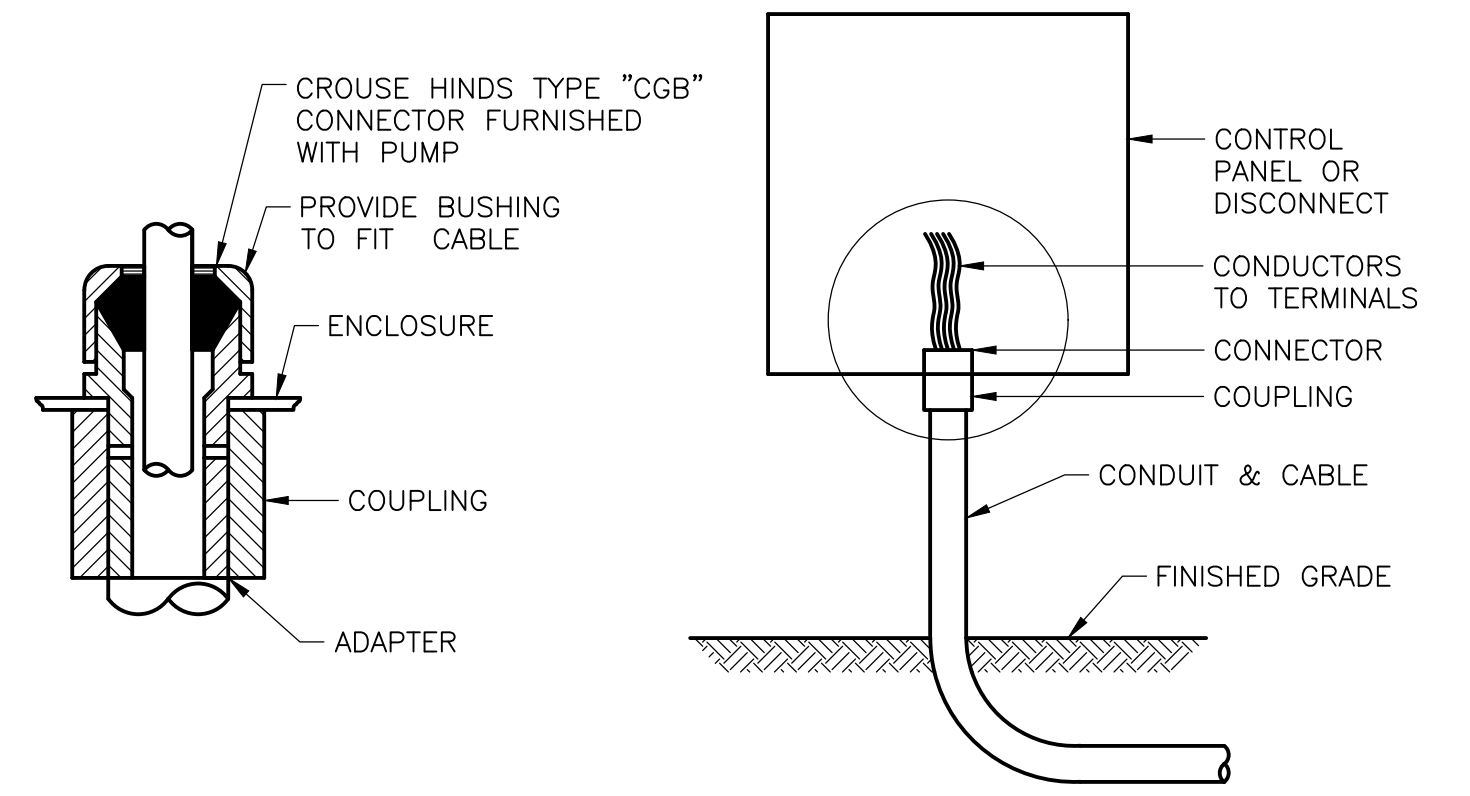


**NOTES:**

1. ALL HARDWARE SHALL BE 316 STAINLESS STEEL.
2. PROVIDE BITUMINOUS PROTECTIVE COATING WHERE ALUMINUM PLATE COMES IN CONTACT WITH CONCRETE.
3. FOR EXTERIOR PANEL MOUNTED EQUIPMENT AND RACK CONSTRUCTION, REFER TO STRUCTURAL DRAWING S-1 FOR WIND DESIGN REQUIREMENTS AND PROVIDE ANCHORAGE TO CONCRETE ACCORDINGLY.

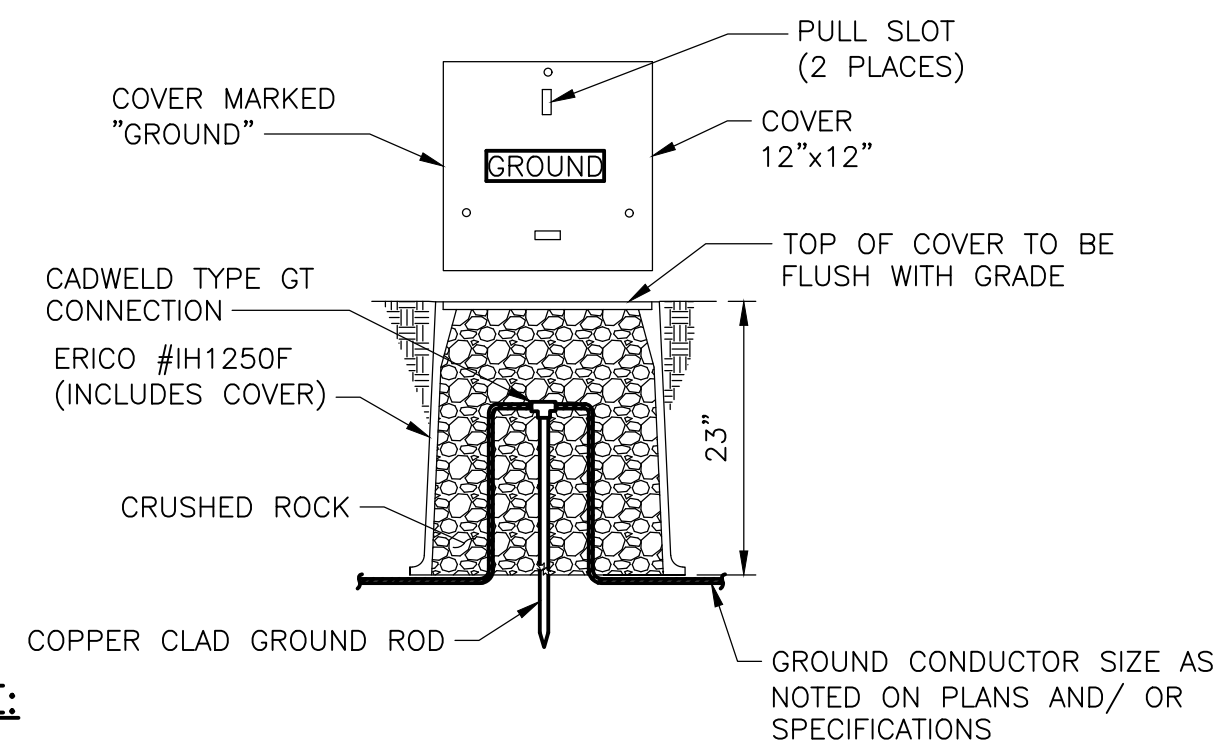
PANEL MOUNTING

DETAIL C  
NTS



WATER-TIGHT CONNECTION

DETAIL D  
N.T.S.

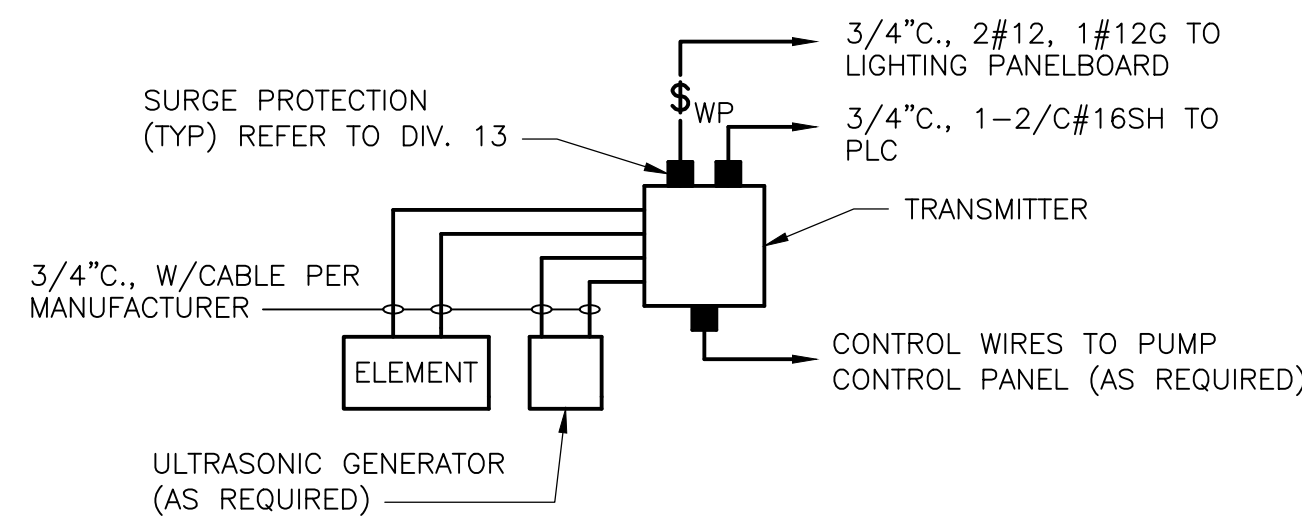


**NOTE:**

1. TO IMPROVE SYSTEM RESISTANCE, ERICO GEM MAY BE USED AS A BACKFILL MATERIAL IN AN AUGERED HOLE.

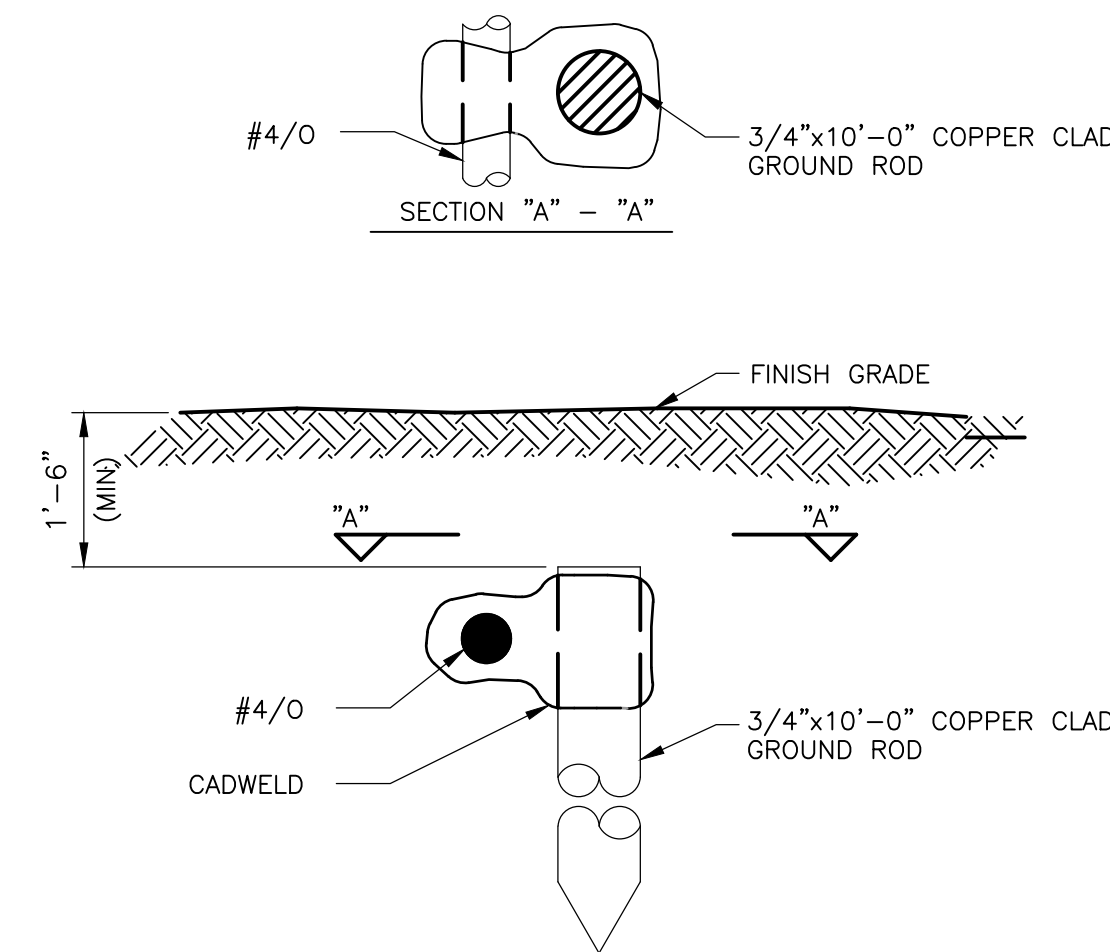
GROUND ROD TEST WELL STATION

DETAIL E  
NTS



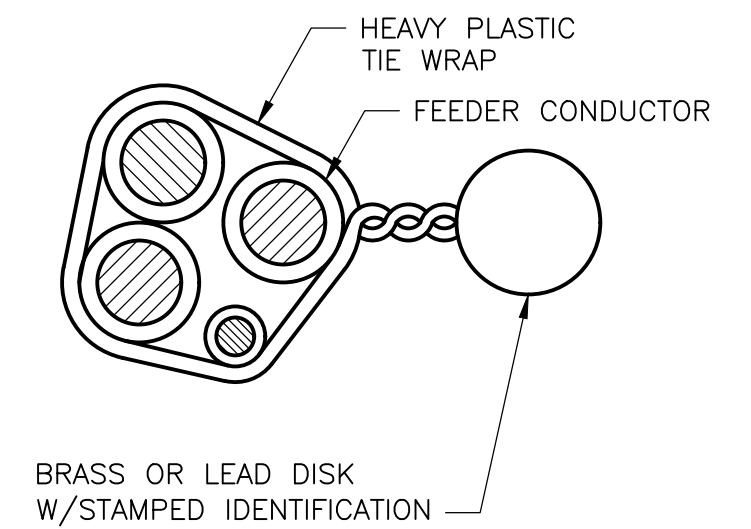
TYPICAL TRANSMITTER

DETAIL F  
NTS



GROUND ROD

DETAIL G  
NTS



U.G. CABLE TAG

DETAIL H  
NTS

XREF: [CDMS\_2234] Images: [ ]  
 Last saved by: RUCKRM Time: 4/27/2023 3:21:48 PM  
 pw:\\cdm-smith-0202-pw-bentley.com\pw\_r1\9247\221208\_PHASE 2 INTAKE PS\04 Design Services NM\_100%\_09 Electrical\10 CADD\05 AQUIFER RECHARGE AREA\ED01NFDT.dwg  
 © 2023 CDM SMITH ALL RIGHTS RESERVED.  
 REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.

DESIGNED BY: J. SANCHEZ  
 DRAWN BY: A. TORRES  
 SHEET CHK'D BY: S. PERRY  
 CROSS CHK'D BY: P. LEFAVE  
 APPROVED BY: S. PERRY  
 DATE: MAY 2023



ST. JOHNS RIVER WATER MANAGEMENT DISTRICT  
 BLACK CREEK WATER RESOURCE  
 DEVELOPMENT PROJECT  
 AQUIFER RECHARGE AREA

ELECTRICAL DETAILS I

DATE: SPENCER J. PERRY JR  
 PE NO. 62587

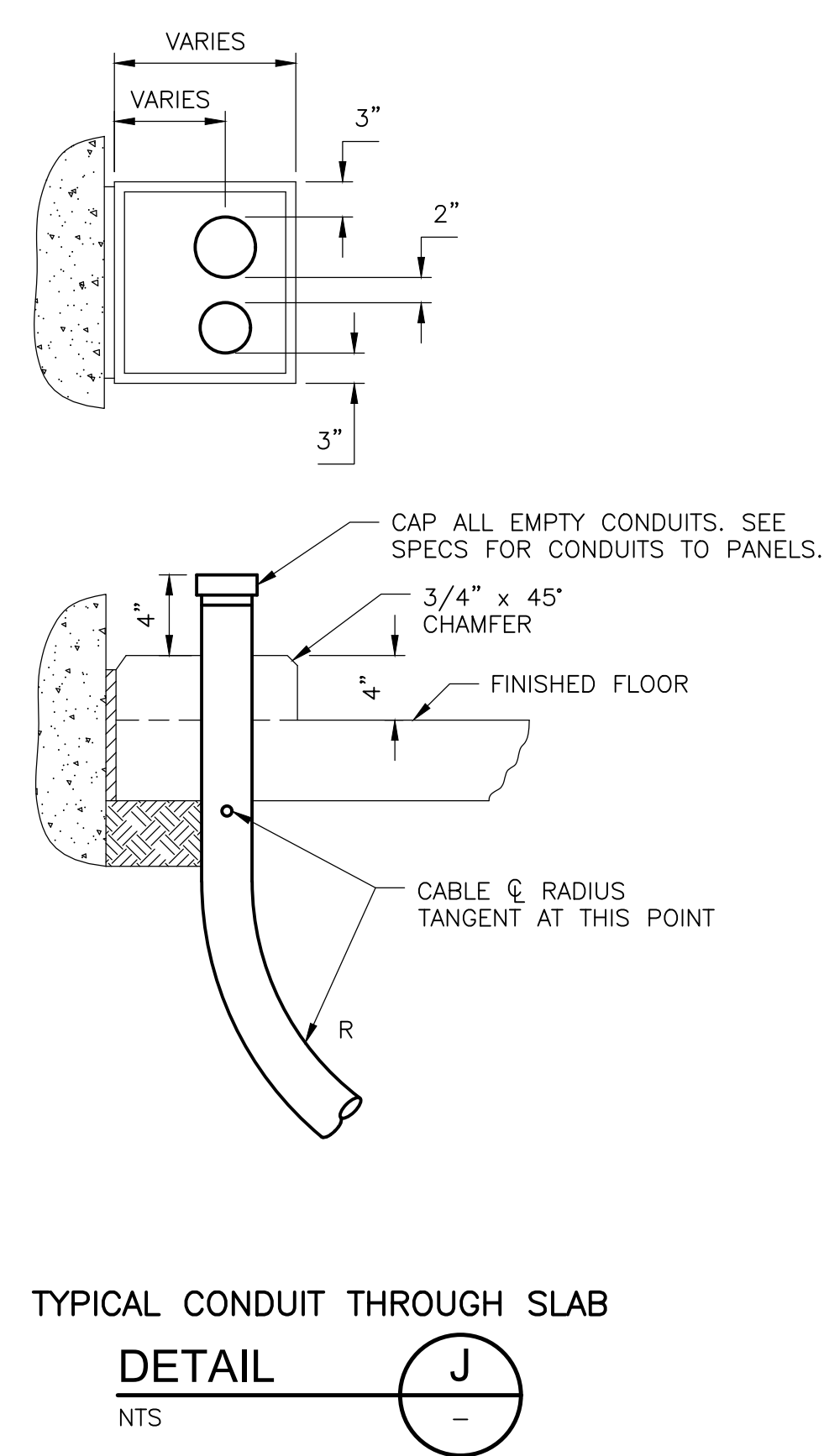
PROJECT NO. 9247-221208  
 FILE NAME: ED01NFDT.DWG

SHEET NO.

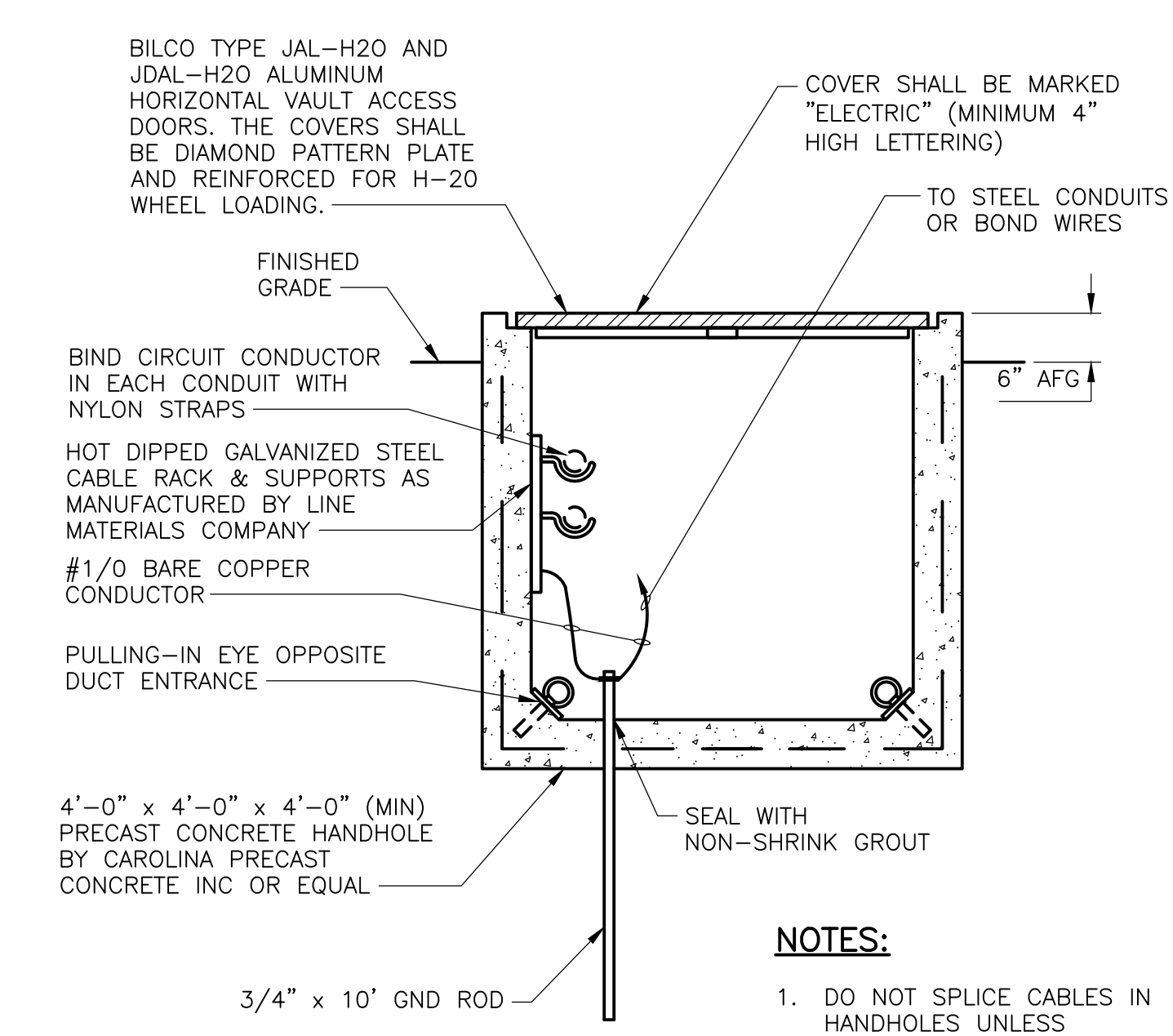
ED-1

ISSUED FOR BID

XREFS: [CDMS\_2234] Images: [ ]  
 Last saved by: RUCKRM Time: 4/27/2023 3:21:19 PM  
 pw\\cdm-smith-0202-pw.bentley.com\pw\_p1\9247\221208\_PHASE 2 INTAKE PS\04 Design Services NM\_100%\09 Electrical\10 CADD\05 AQUIFER RECHARGE AREA\ED02NFDT.dwg  
 © 2023 CDM SMITH ALL RIGHTS RESERVED.  
 REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.



TYPICAL CONDUIT THROUGH SLAB  
 DETAIL J  
 NTS



HANDHOLE  
 DETAIL K  
 NTS

- NOTES:**
- DO NOT SPLICE CABLES IN HANDHOLES UNLESS OTHERWISE NOTED.
  - ALL MOUNTING HARDWARE SHALL BE 316 SS.
  - HANDHOLES TO BE PLACED ON 6" BASE OF NO. 57 STONE.
  - PROVIDE SIGNED AND SEALED DESIGN CALCULATIONS BY A FLORIDA PROFESSIONAL ENGINEER. INCLUDE BUOYANCY CALCULATIONS. HANDHOLE SHALL BE NON-BUOYANT IN FINAL INSTALLED CONDITION.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: J. SANCHEZ  
 DRAWN BY: A. TORRES  
 SHEET CHK'D BY: S. PERRY  
 CROSS CHK'D BY: P. LEFAVE  
 APPROVED BY: S. PERRY  
 DATE: MAY 2023



ST. JOHNS RIVER WATER MANAGEMENT DISTRICT  
 BLACK CREEK WATER RESOURCE  
 DEVELOPMENT PROJECT  
 AQUIFER RECHARGE AREA

ELECTRICAL DETAILS II  
 ED-2

DATE:  
 SPENCER J. PERRY JR  
 PE NO. 62587  
 PROJECT NO. 9247-221208  
 FILE NAME: ED02NFDT.DWG  
 SHEET NO.  
 ED-2

**GENERAL INSTRUMENT OR FUNCTION SYMBOLS**

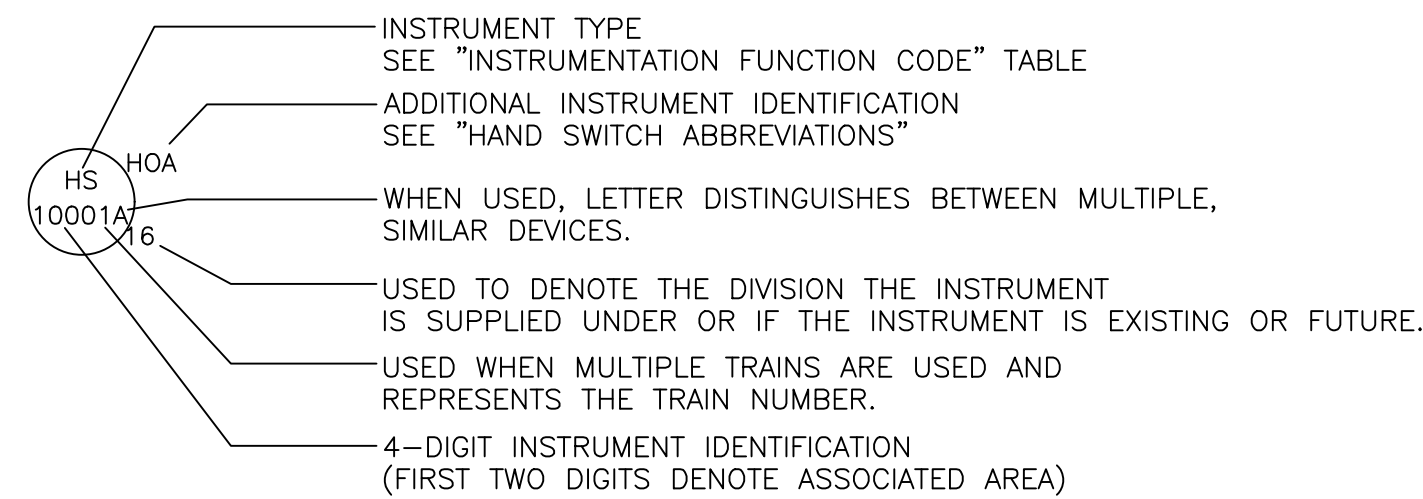
SHARED DISPLAY/ SHARED CONTROL				
PRIMARY CHOICE	SECONDARY CHOICE	COMPUTER SOFTWARE	DISCRETE	LOCATION AND ACCESSIBILITY
				FIELD MOUNTED AND NORMALLY OPERATOR ACCESSIBLE
				PRIMARY CONTROL PANEL MOUNTED AND NORMALLY OPERATOR ACCESSIBLE
				PRIMARY CONTROL PANEL MOUNTED AND NOT NORMALLY OPERATOR ACCESSIBLE
				SECONDARY CONTROL PANEL MOUNTED AND NORMALLY OPERATOR ACCESSIBLE
				SECONDARY CONTROL PANEL MOUNTED AND NOT NORMALLY OPERATOR ACCESSIBLE

- INSTRUMENTS SHARING COMMON HOUSING
- PILOT LIGHT

**MISCELLANEOUS SYMBOLS**

- MOTOR
- INDICATES INTERLOCK OR LOGIC IN A MOTOR CONTROL CENTER
- INDICATES GENERAL OR MISCELLANEOUS HARDWIRED INTERLOCK
- MOTOR STARTER
- SILICONE CONTROL RECTIFIER
- VARIABLE FREQUENCY DRIVE
- PURGE OR FLUSHING DEVICE

**TYPICAL TAG NUMBERS & DESIGNATION**



**HAND SWITCH ABBREVIATIONS**

- AO = AUTO/OFF
- AM = AUTO/MANUAL
- CM = COMPUTER/MANUAL
- CL = COMPUTER/LOCAL
- E-STOP = EMERGENCY STOP
- FR = FORWARD/REVERSE
- FOR = FORWARD/OFF/REVERSE
- FS = FAST SLOW
- FOS = FAST/OFF/SLOW
- HOA = HAND/OFF/AUTO
- LLS = LEAD/LAG/STANDBY
- LOC = LOCAL/OFF/COMPUTER
- LOR = LOCAL/OFF/REMOTE
- LOS = LOCKOUT/STOP
- LA = LOCAL/AUTO
- LR = LOCAL/REMOTE
- OC = OPEN/CLOSE
- OCA = OPEN/CLOSE/AUTO
- OO = ON/OFF
- OOA = ON/OFF/AUTO
- OSC = OPEN/STOP/CLOSE
- RSL = RAISE/STOP/LOWER
- SS = START/STOP
- SOR = START/OFF/RESET

**INSTRUMENTATION FUNCTION CODE**

FIRST LETTERS		SUCCEEDING LETTERS		
COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4	COLUMN 5
MEASURED/INITIATING VARIABLE	VARIABLE MODIFIER	READOUT/PASSIVE FUNCTION	OUTPUT/ACTIVE FUNCTION	FUNCTION MODIFIER
A ANALYSIS		ALARM		
B BURNER, COMBUSTION		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
C USER'S CHOICE			CONTROL	CLOSED
D USER'S CHOICE	DIFFERENCE, DIFFERENTIAL			DEVIATION
E VOLTAGE		SENSOR, PRIMARY ELEMENT		
F FLOW, FLOW RATE	RATIO			
G USER'S CHOICE		GLASS, GAUGE, VIEWING DEVICE		
H HAND				HIGH
I CURRENT		INDICATE		
J POWER		SCAN		
K TIME, SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L LEVEL		LIGHT		LOW
M MOISTURE				MIDDLE, INTERMEDIATE
N USER'S CHOICE		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
O USER'S CHOICE		ORIFICE, RESTRICTION		OPEN
P PRESSURE		POINT (TEST CONNECTION)		
Q QUANTITY	INTEGRATE, TOTALIZE	INTEGRATE, TOTALIZE		
R RADIATION		RECORD		RUN
S SPEED, FREQUENCY	SAFETY		SWITCH	STOP
T TEMPERATURE			TRANSMIT	
U MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	
V VIBRATION, MECHANICAL, ANALYSIS			VALVE, DAMPER, LOUVER	
W WEIGHT, FORCE		WELL, PROBE		
X UNCLASSIFIED (1)	X-AXIS	ACCESSORY DEVICES, UNCLASSIFIED (1)	UNCLASSIFIED (1)	UNCLASSIFIED (1)
Y EVENT, STATE, PRESENCE	Y-AXIS		AUXILIARY DEVICES	
Z POSITION, DIMENSION	Z-AXIS, SAFETY INSTRUMENT SYSTEM		DRIVER, ACTUATOR, UNCLASSIFIED, FINAL CONTROL ELEMENT	

TABLE NOTES:  
(1) WHEN USED SYMBOL OR SIGNAL LINE IS ANNOTATED.

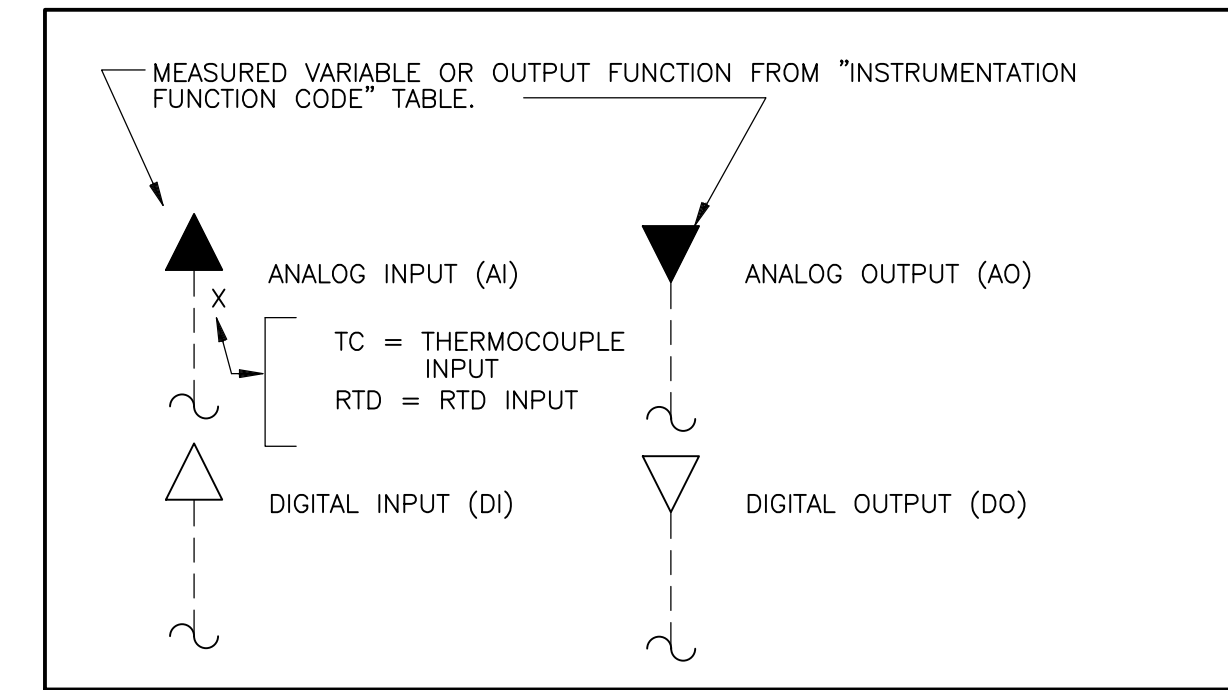
**INSTRUMENT LINE SYMBOLS**

- ELECTRICAL SIGNAL
- TELEPHONE SIGNAL
- ELECTROMAGNETIC OR SONIC SIGNAL (GUIDED)
- ELECTROMAGNETIC OR SONIC SIGNAL (UNGUIDED)
- PNEUMATIC SIGNAL
- CAPILLARY TUBE
- HYDRAULIC SUPPLY
- VENDOR SUPPLIED CABLE
- COMMUNICATION LINK - COPPER (HARDWIRED)
- COMMUNICATION LINK - FIBER OPTICS

**ELECTRICAL / AIR SOURCES**

- UPS- UPS POWERED ELECTRICAL SOURCE
- ES- ELECTRICAL SOURCE
- IA- INSTRUMENT AIR SOURCE

**I/O SIGNALS**



**PRIMARY ELEMENTS**

- MAGNETIC FLOW METER
- TURBINE OR PROPELLER FLOW METER
- AVERAGING PITOT TUBE
- ULTRASONIC FLOW METER
- ROTAMETER
- WEIR
- ORIFICE PLATE
- VENTURI TUBE
- FLUME
- GENERAL INSERTION FLOW METER
- THERMAL MASS FLOW METER
- FLOAT SWITCH
- ULTRASONIC LEVEL SENSOR
- RADAR LEVEL SENSOR
- CAPACITANCE LEVEL SENSOR
- PRESSURE GAUGE
- DIFFERENTIAL PRESSURE GAUGE
- TEMPERATURE GAUGE
- GENERAL ANALYZER

**GENERAL NOTES**

- THIS LEGEND APPLIES TO P&IDS ONLY AND MAY DIFFER FROM LEGENDS FOR OTHER SHEETS.
- IN GENERAL THIS LEGEND SHEET AND THE P&IDS ARE BASED ON THE INTERNATIONAL SOCIETY OF AUTOMATION (ISA) STANDARDS AND RECOMMENDED PRACTICES FOR INSTRUMENTATION AND CONTROL. SOME MODIFICATIONS, ADDITIONS AND ALTERATIONS HAVE BEEN MADE AS REQUIRED TO ACCOMMODATE PROJECT REQUIREMENTS.
- SOME PROCESS ITEMS SUCH AS EQUIPMENT ISOLATION VALVES, BYPASS LINES, ETC., WHICH ARE NOT CRITICAL FOR AN UNDERSTANDING OF THE INSTRUMENTATION FUNCTIONS ARE NOT SHOWN ON THE P&IDS.
- SEE ELECTRICAL AND MECHANICAL SHEETS AND SPECIFICATIONS FOR ADDITIONAL CONTROL AND INTERLOCK REQUIREMENTS.
- LIGHTER WEIGHT LINES, SHOWN AS \_\_\_\_\_, INDICATE EQUIPMENT, INSTRUMENTS OR PIPING THAT ARE EXISTING. WEIGHTED LINES, SHOWN AS \_\_\_\_\_ OR HEAVIER \_\_\_\_\_, INDICATE EQUIPMENT, INSTRUMENTS OR PIPING THAT ARE NEW. DASHED WEIGHTED LINES, SHOWN AS \_\_\_\_\_, INDICATED EQUIPMENT, INSTRUMENTS OR PIPING THAT ARE GROUPED AS A PACKAGE.

**GENERAL ABBREVIATIONS**

- AI ANALOG IN
- AO ANALOG OUT
- CPU CENTRAL PROCESSOR UNIT
- DI DIGITAL OR DISCRETE INPUT
- DO DIGITAL OUTPUT
- FC FAIL CLOSED
- FO FAIL OPEN OR FIBER OPTIC
- HMI HUMAN MACHINE INTERFACE
- MCC MOTOR CONTROL CENTER
- NC NORMALLY CLOSED
- NPW NON-POTABLE WATER
- NO NORMALLY OPEN
- PLC PROGRAMMABLE LOGIC CONTROLLER
- PW PLANT WATER
- RIO REMOTE INPUT/OUTPUT
- UPS UNINTERRUPTIBLE POWER SUPPLY
- VFD VARIABLE FREQUENCY DRIVE

XREFS: [CDMS\_2234] Images: [ ]  
 Last saved by: CHARITYRW Time: 3/23/2023 4:50:38 PM  
 C:\Users\charityr\AppData\Local\Autodesk\AutoCAD Plant 3D\CollaborationCache\9247\_221208\PID DWG\1001SYMB.dwg  
 © 2023 CDM SMITH ALL RIGHTS RESERVED.  
 REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.

REV. NO.	DATE	DRWN	CHKD	REMARKS

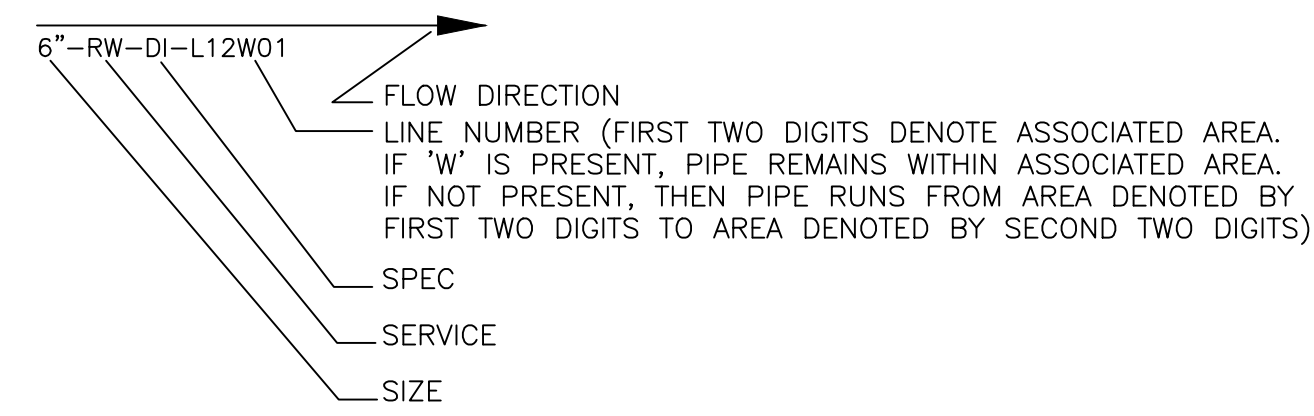
DESIGNED BY: F. ALCALA	 4651 Salisbury Road, Suite 420 Jacksonville, FL 32256 Tel: (904) 731-7109 FL COA No. EB-0000020
DRAWN BY: R. CHARITY	
SHEET CHK'D BY: F. ALCALA	
CROSS CHK'D BY: G. CZERNIEJEWSKI	
APPROVED BY: F. ALCALA	
DATE: MAY 2023	

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT  
 BLACK CREEK WATER RESOURCE  
 DEVELOPMENT PROJECT  
 AQUIFER RECHARGE AREA

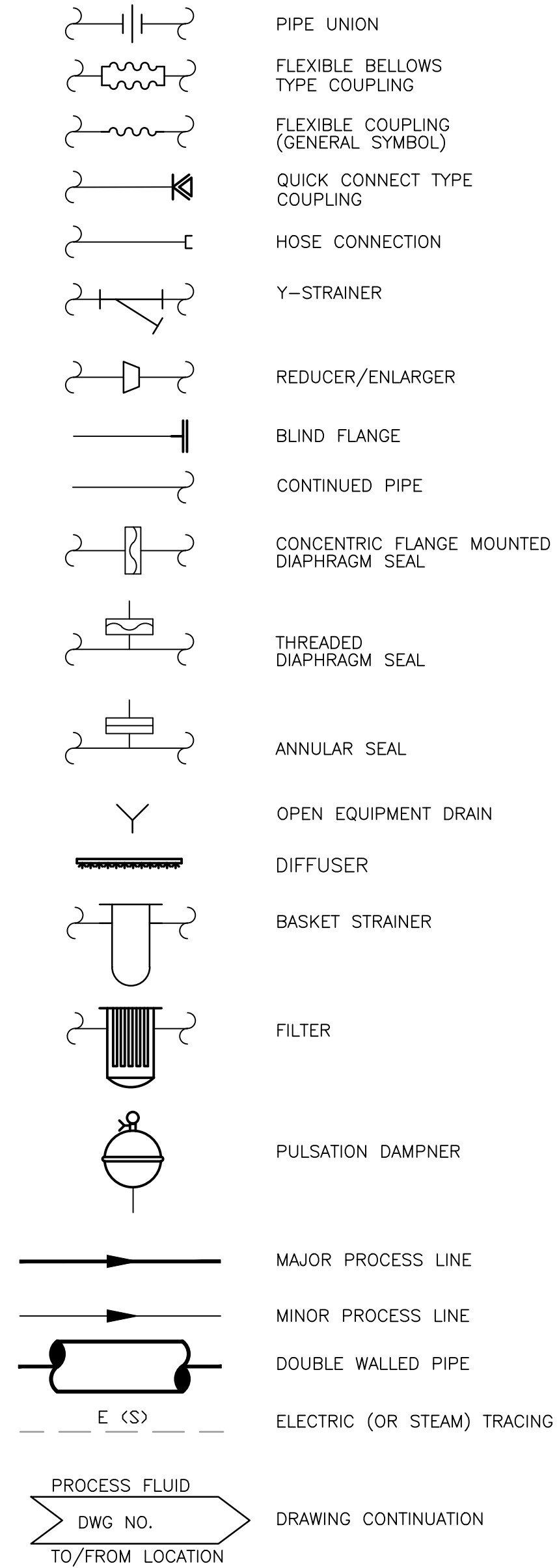
INSTRUMENTATION LEGEND  
 (SHEET 1 OF 2)

DATE: FRANCISCO ALCALA	PROJECT NO. 9247-221208
PE NO. 78454	FILE NAME: 1001SYMB.DWG
	SHEET NO. I-1

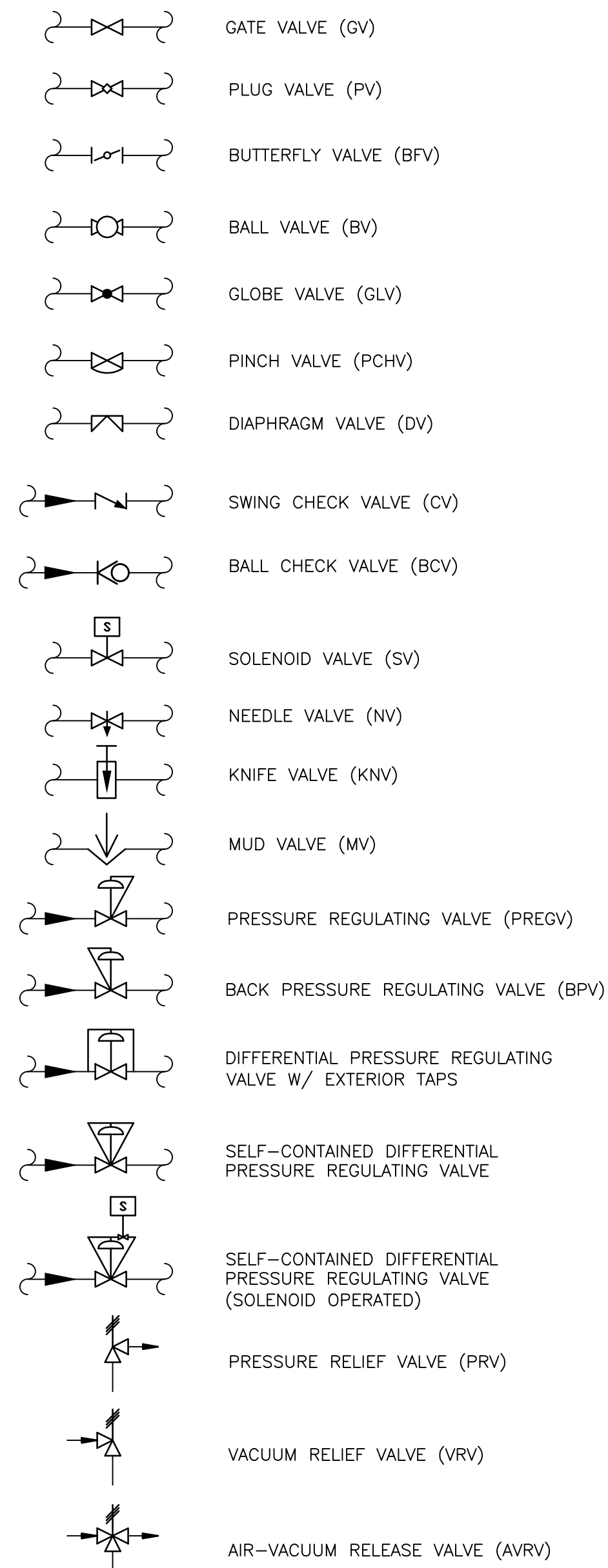
**TYPICAL PIPE TAG NUMBERS & DESIGNATION**



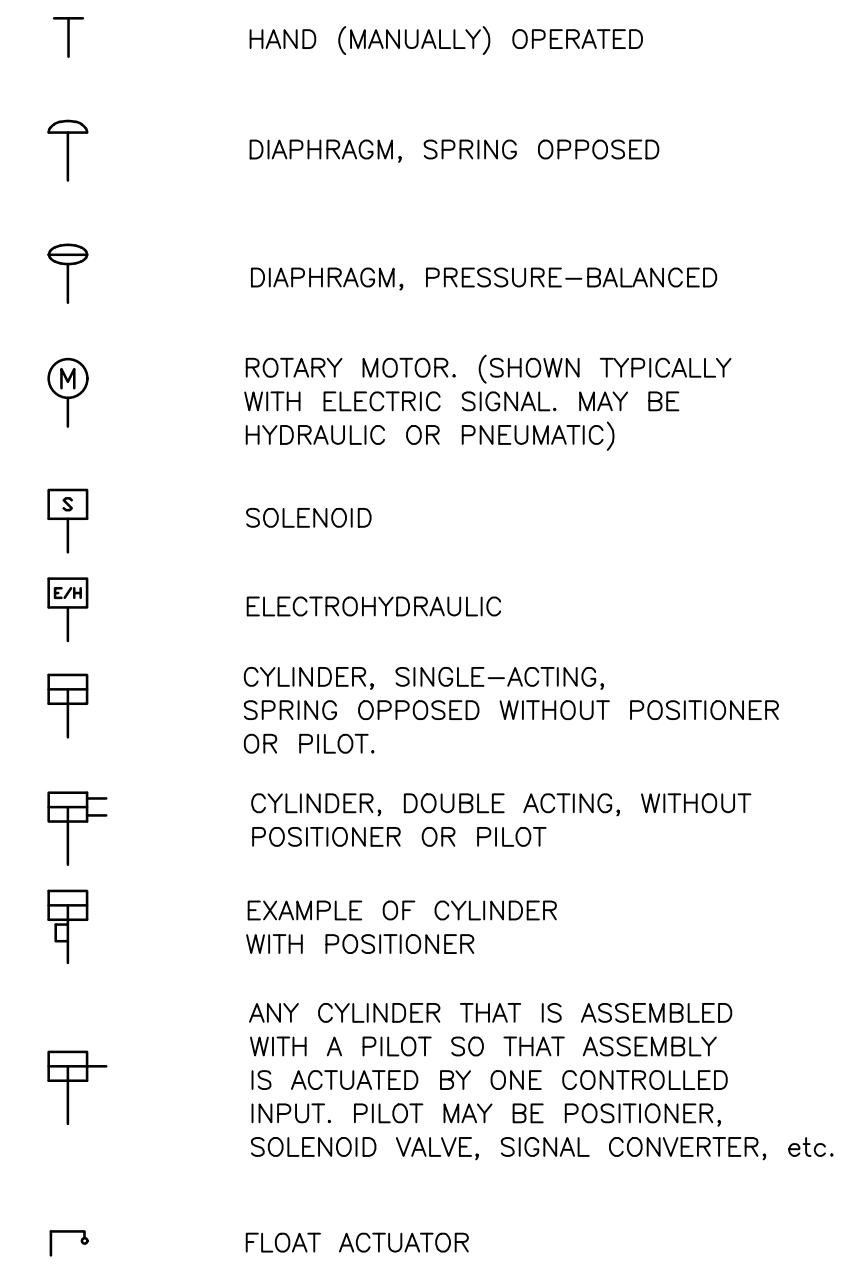
**PIPE LINE SYMBOLS**



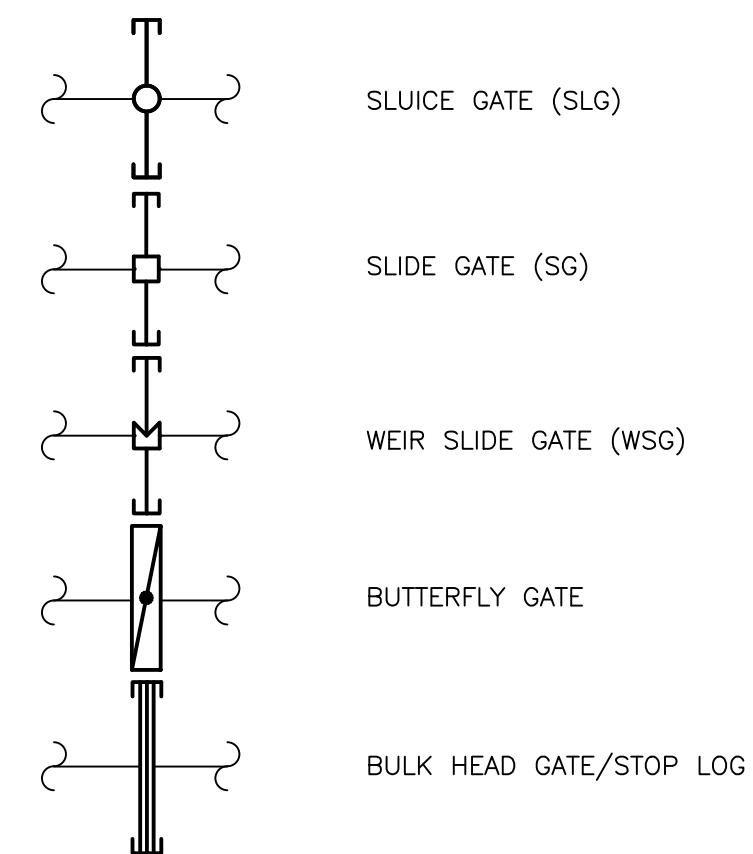
**VALVE SYMBOLS**



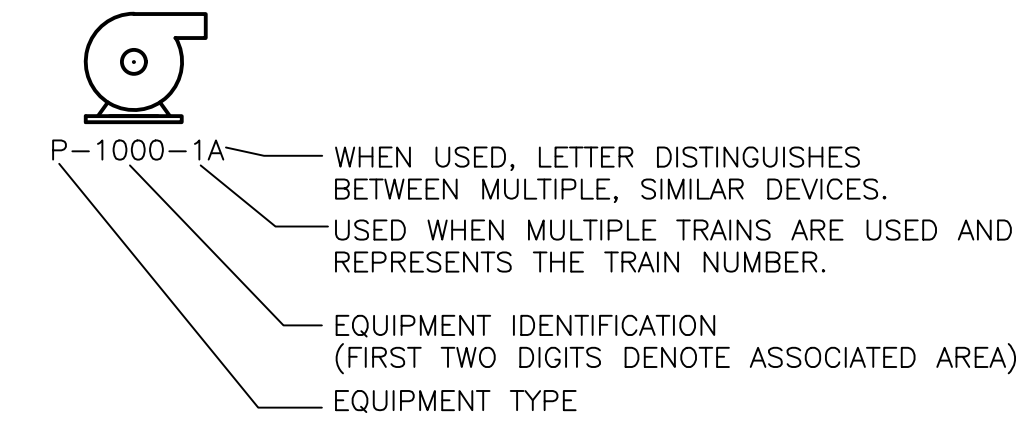
**VALVE ACTUATORS**



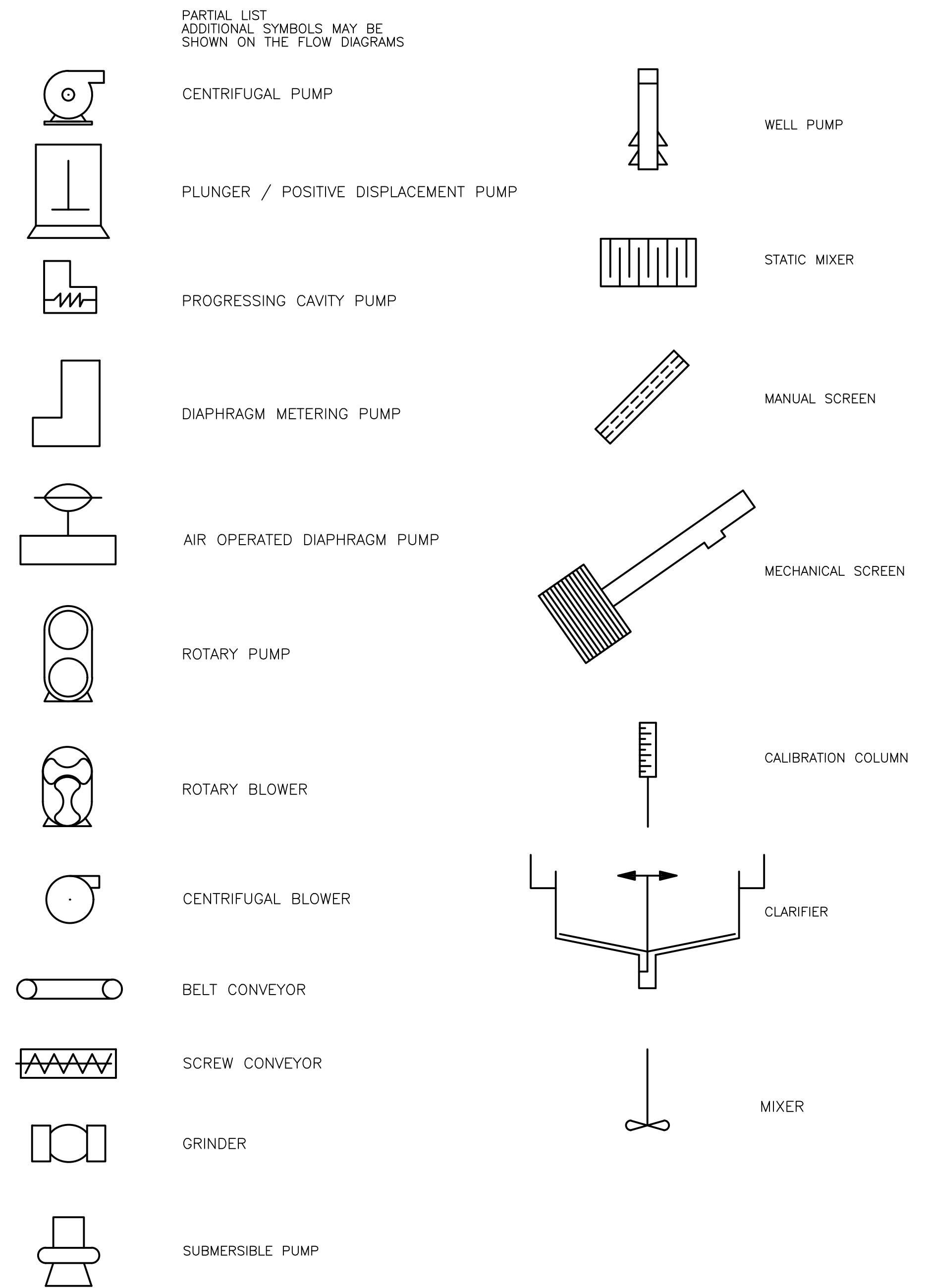
**GATE SYMBOLS**



**TYPICAL EQUIPMENT TAG NUMBERS & DESIGNATION**



**PROCESS EQUIPMENT**



**GENERAL NOTES**

1. REFER TO SHEET I-1 FOR ADDITIONAL NOTES

XREFS: [CDMS\_2234] Images: [ ]  
 Last saved by: CHARITYRW Time: 3/23/2023 4:50:23 PM  
 C:\Users\charityrw\AppData\Local\Autodesk\AutoCAD Plant 3D\CollaborationCache\9247\_221208\PID DWG\1002SYMB.dwg  
 © 2023 CDM SMITH ALL RIGHTS RESERVED.  
 REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.

REV. NO.	DATE	DRWN	CHKD	REMARKS

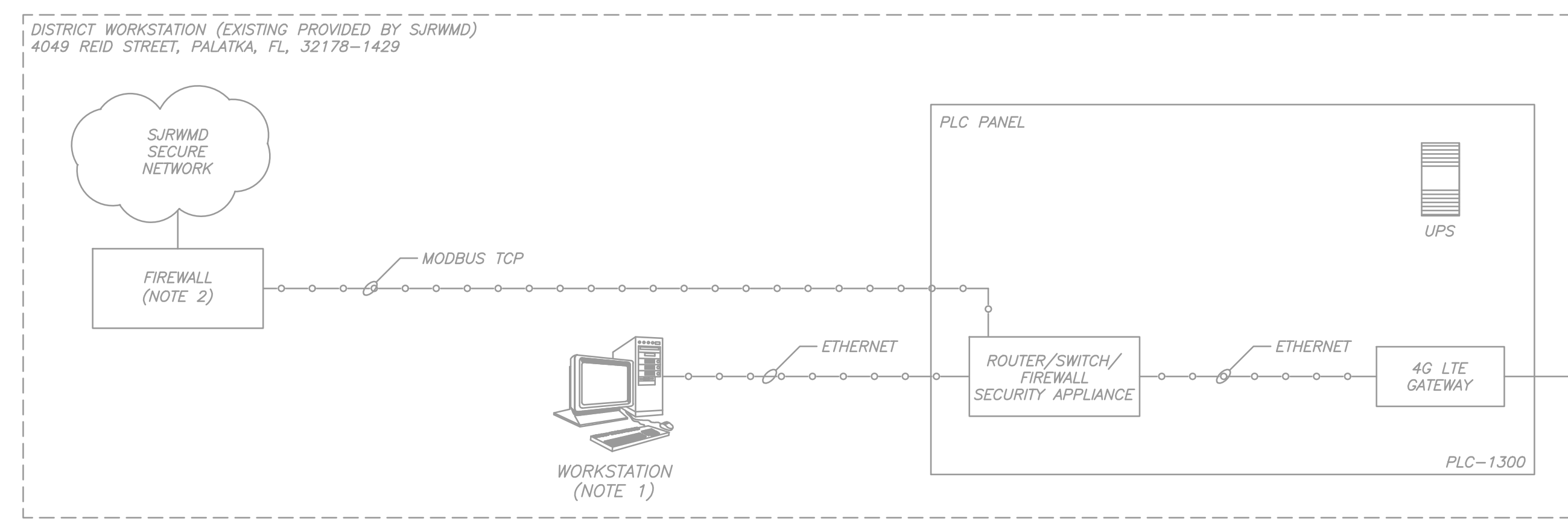
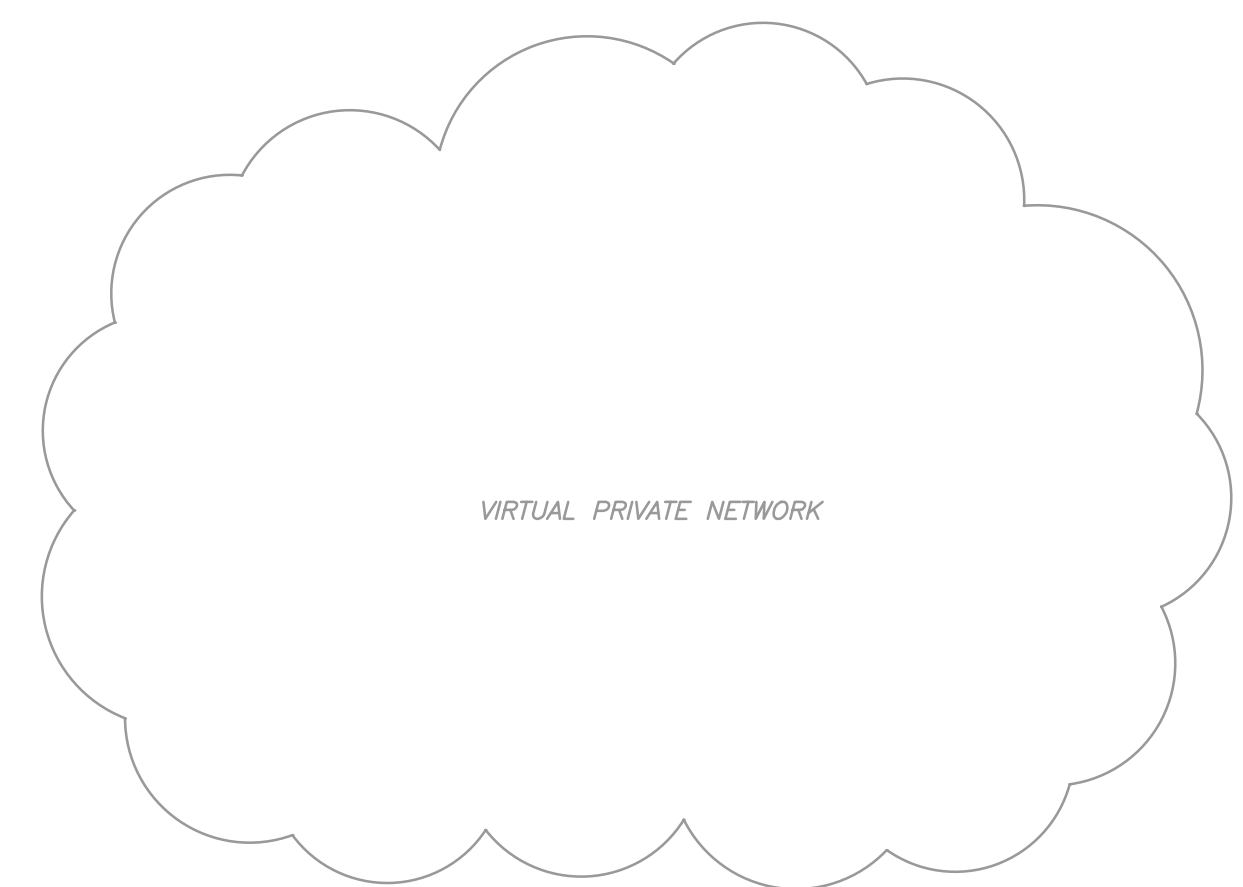
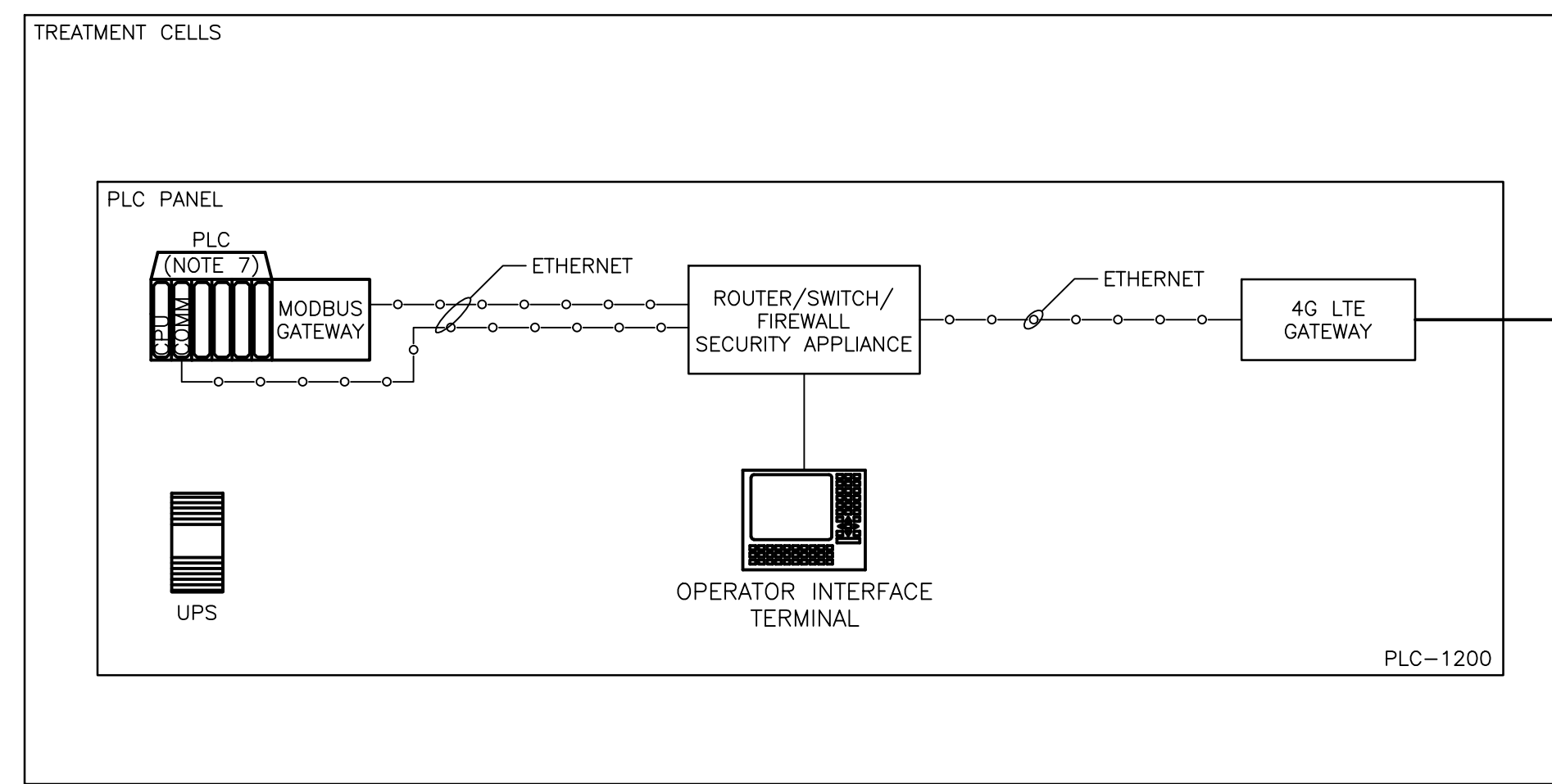
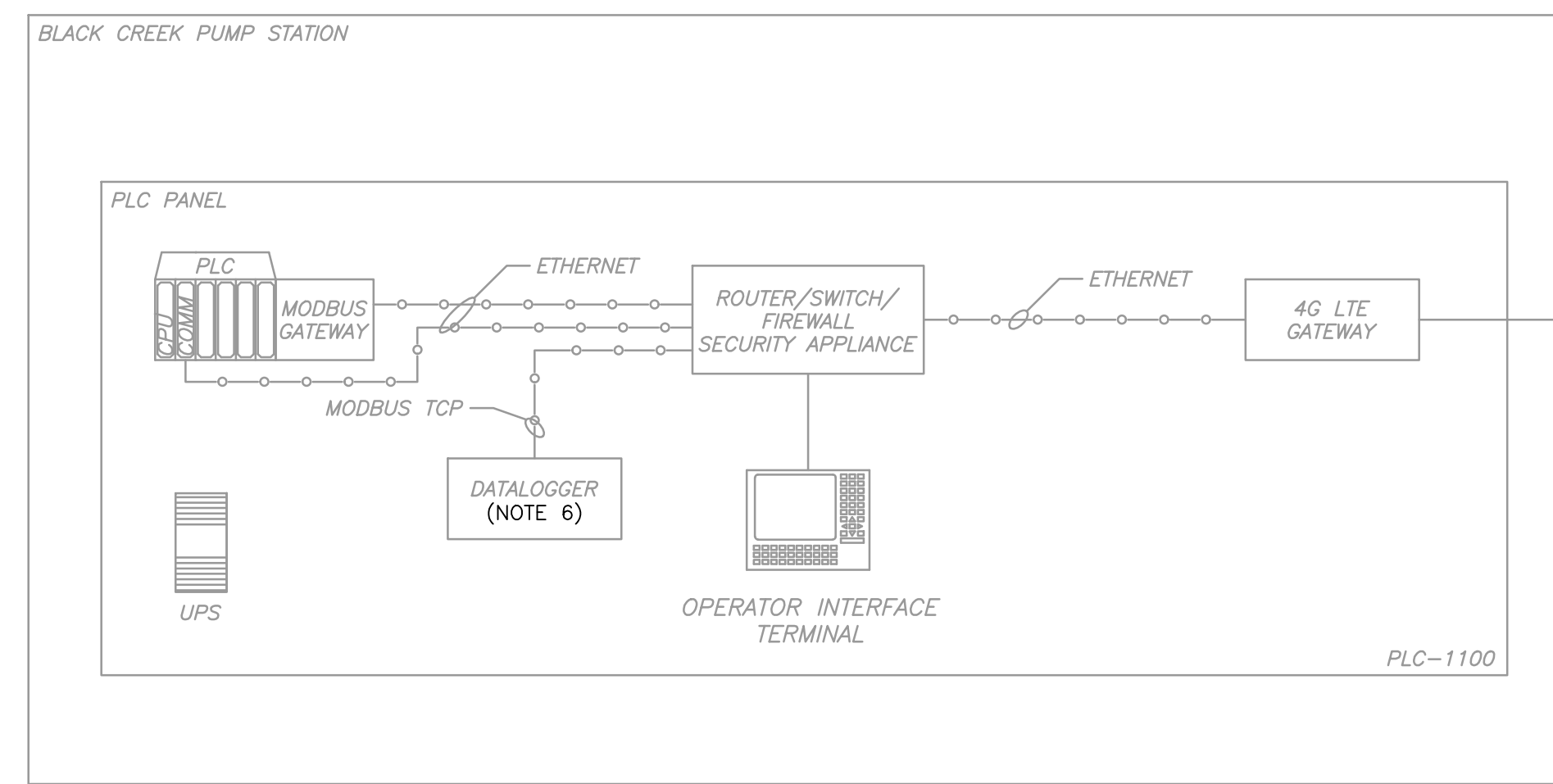
DESIGNED BY: F. ALCALA	 4651 Salisbury Road, Suite 420 Jacksonville, FL 32256 Tel: (904) 731-7109 FL COA No. EB-0000020
DRAWN BY: R. CHARITY	
SHEET CHK'D BY: F. ALCALA	
CROSS CHK'D BY: G. CZERNIEJEWSKI	
APPROVED BY: F. ALCALA	
DATE: MAY 2023	

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT  
 BLACK CREEK WATER RESOURCE  
 DEVELOPMENT PROJECT  
 AQUIFER RECHARGE AREA

INSTRUMENTATION LEGEND  
 (SHEET 2 OF 2)

PROJECT NO. 9247-221208
FILE NAME: 1002SYMB.DWG
SHEET NO. I-2

XREFS: [CDMS\_2234] Images: [ ]  
 Last saved by: CHARITYR Time: 3/23/2023 4:50:08 PM  
 C:\Users\charityr\AppData\Local\Autodesk\AutoCAD Plant 3D\CollaborationCache\9247\_221208\PID DWG\1003PIDT.dwg  
 © 2023 CDM SMITH ALL RIGHTS RESERVED.  
 REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.



- NOTES:
- LOADED WITH VTSCADA SOFTWARE.
  - COORDINATE WITH OWNER ACCESS TO SJRWMD INSTRUMENTS AND TELEMETRY SYSTEMS THROUGH SECURE NETWORK TO:
    - SJRWMD FACILITY TO ALLOW VTSCADA TO INTEGRATE PRETREATMENT TO BLACK CREEK PS HMI APPLICATION.
    - INTEGRATE PRETREATMENT INFORMATION INTO DATA LOGGER IN PLC-1100
  - COORDINATE WITH SJRWMD DATA INTEGRATION TO RECEIVE HIGH LEVEL TANK ALARM.
  - COORDINATE WITH SJRWMD INTERCONNECTION TO SECURE NETWORK.
  - PROVIDE CELLULAR SURVEY TO DETERMINE MOUNTING ANTENNA INSIDE OR OUTSIDE OF THE PANEL.
  - REMOTE DATALOGGER IN PLC-1100.
  - INTEGRATE DATA FROM PLC-1200 TO REMOTE DATALOGGER.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: F. ALCALA  
 DRAWN BY: R. CHARITY  
 SHEET CHK'D BY: F. ALCALA  
 CROSS CHK'D BY: G. CZERNIEJEWSKI  
 APPROVED BY: F. ALCALA  
 DATE: MAY 2023



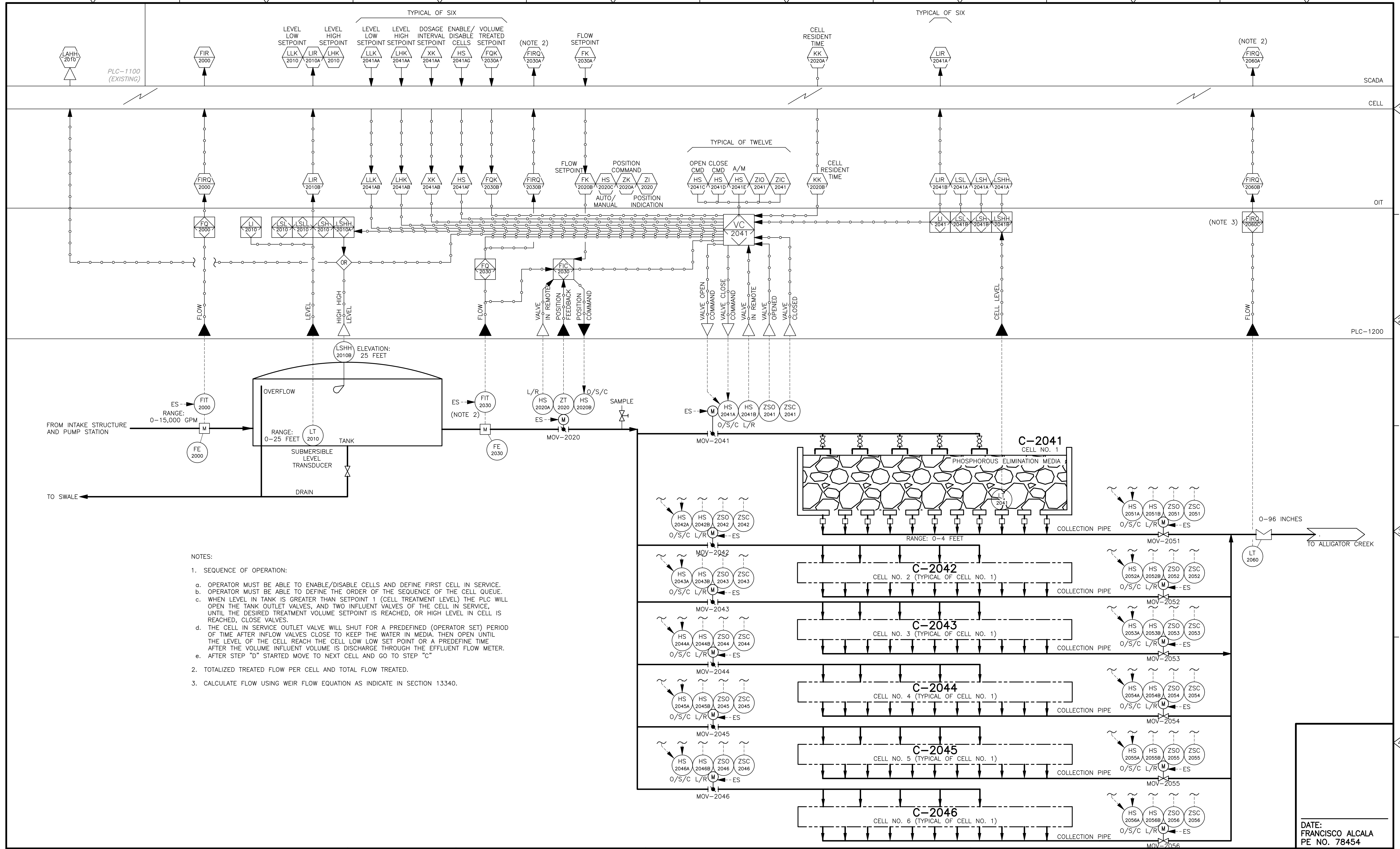
4651 Salisbury Road, Suite 420  
 Jacksonville, FL 32256  
 Tel: (904) 731-7109  
 FL COA No. EB-0000020

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT  
 BLACK CREEK WATER RESOURCE  
 DEVELOPMENT PROJECT  
 AQUIFER RECHARGE AREA

PROCESS & INSTRUMENTATION DIAGRAM  
 CONTROL BLOCK DIAGRAM

DATE:  
 FRANCISCO ALCALA  
 PE NO. 78454  
 PROJECT NO. 9247-221208  
 FILE NAME: 1003PIDT.DWG  
 SHEET NO.  
 I-3

XREFS: [CDMS\_2234] Images: [ ]  
 Last saved by: CHARITRW Time: 3/31/2023 7:05:34 AM  
 C:\Users\charitryw\AppData\Local\Autodesk\AutoCAD Plant 3D\CollaborationCache\9247\_221208\PID DWG\I004PID.DWG  
 © 2023 CDM SMITH ALL RIGHTS RESERVED.  
 REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.



- NOTES:
- SEQUENCE OF OPERATION:
    - OPERATOR MUST BE ABLE TO ENABLE/DISABLE CELLS AND DEFINE FIRST CELL IN SERVICE.
    - OPERATOR MUST BE ABLE TO DEFINE THE ORDER OF THE SEQUENCE OF THE CELL QUEUE.
    - WHEN LEVEL IN TANK IS GREATER THAN SETPOINT 1 (CELL TREATMENT LEVEL) THE PLC WILL OPEN THE TANK OUTLET VALVES, AND TWO INFLUENT VALVES OF THE CELL IN SERVICE, UNTIL THE DESIRED TREATMENT VOLUME SETPOINT IS REACHED, OR HIGH LEVEL IN CELL IS REACHED, CLOSE VALVES.
    - THE CELL IN SERVICE OUTLET VALVE WILL SHUT FOR A PREDEFINED (OPERATOR SET) PERIOD OF TIME AFTER INFLOW VALVES CLOSE TO KEEP THE WATER IN MEDIA, THEN OPEN UNTIL THE LEVEL OF THE CELL REACH THE CELL LOW SET POINT OR A PREDEFIN TIME. AFTER THE VOLUME INFLUENT VOLUME IS DISCHARGE THROUGH THE EFFLUENT FLOW METER.
    - AFTER STEP "D" STARTED MOVE TO NEXT CELL AND GO TO STEP "C"
  - TOTALIZED TREATED FLOW PER CELL AND TOTAL FLOW TREATED.
  - CALCULATE FLOW USING WEIR FLOW EQUATION AS INDICATE IN SECTION 13340.

REV. NO.	DATE	DRWN	CHKD	REMARKS

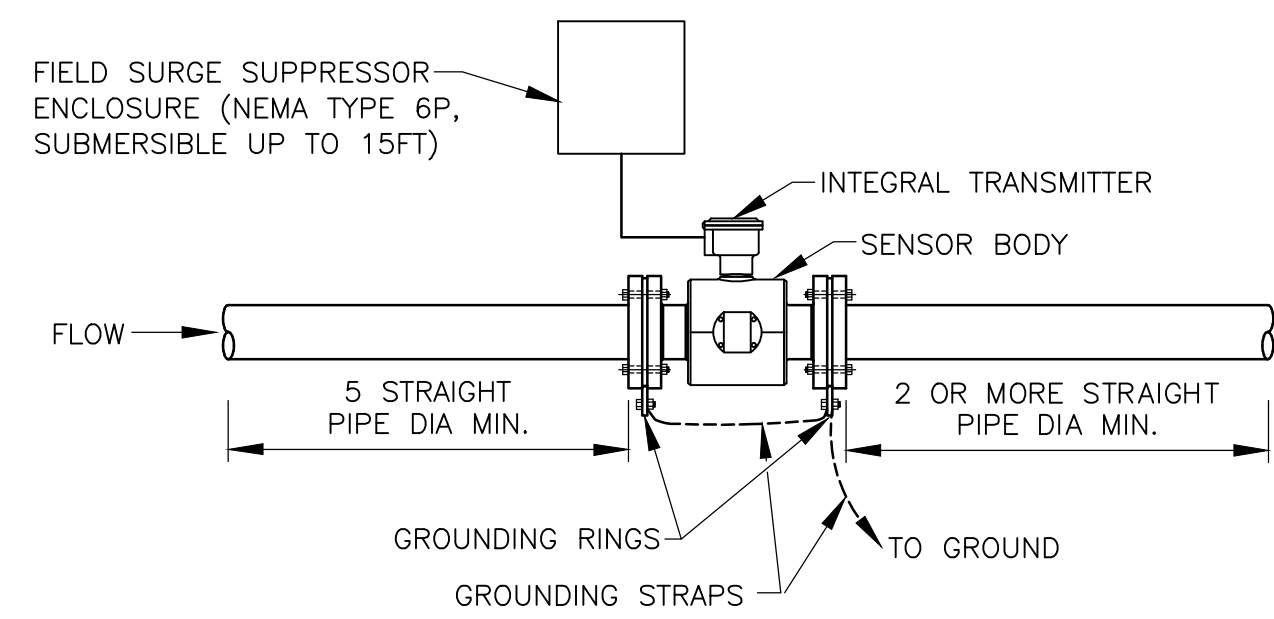
DESIGNED BY: F. ALCALA  
 DRAWN BY: A. CARTER  
 SHEET CHK'D BY: F. ALCALA  
 CROSS CHK'D BY: G. CZERNIEJEWSKI  
 APPROVED BY: F. ALCALA  
 DATE: MAY 2023



ST. JOHNS RIVER WATER MANAGEMENT DISTRICT  
 BLACK CREEK WATER RESOURCE  
 DEVELOPMENT PROJECT  
 AQUIFER RECHARGE AREA

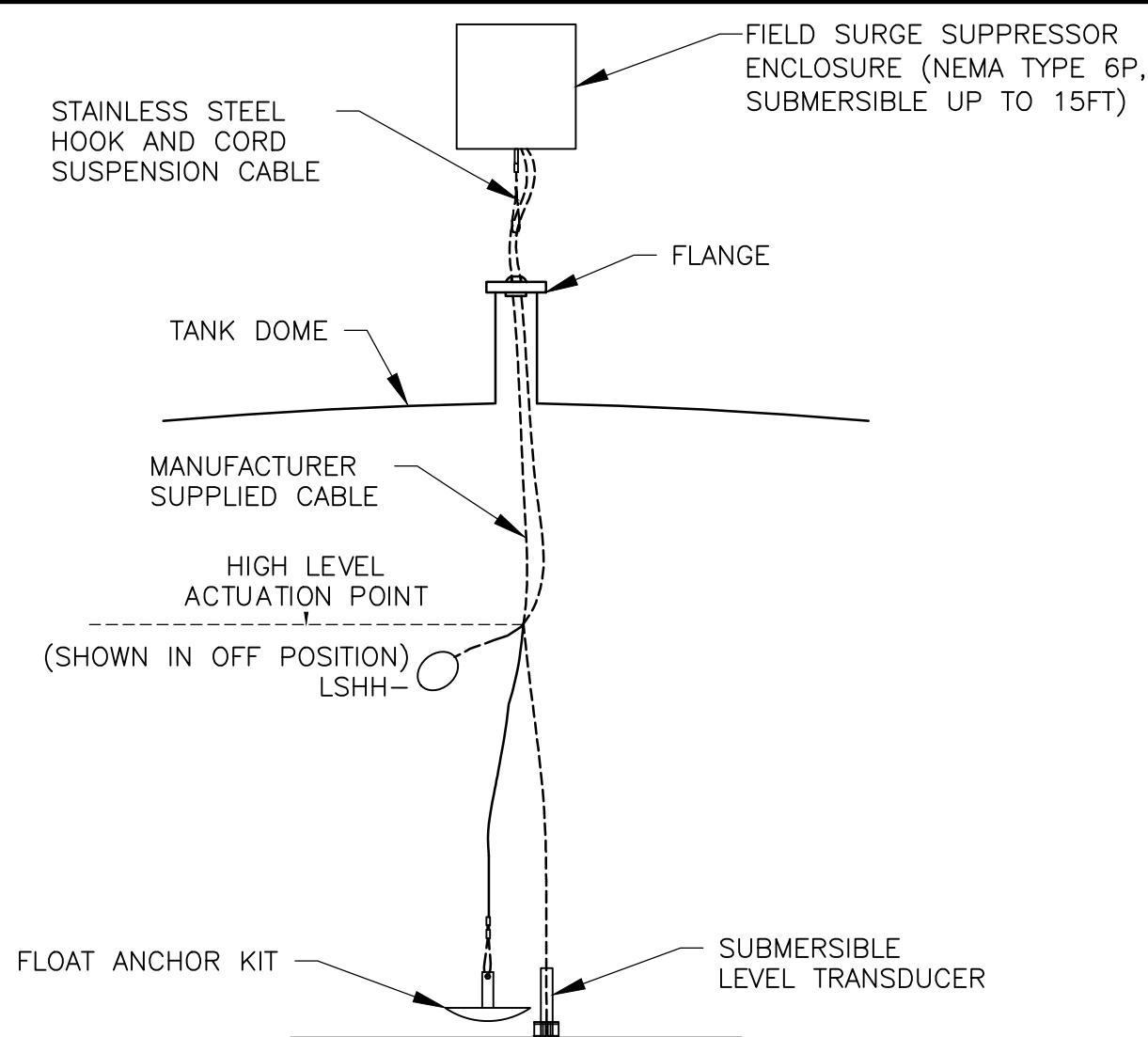
PROCESS & INSTRUMENTATION DIAGRAM  
 TREATMENT CELL SYSTEM

DATE: FRANCISCO ALCALA  
 PE NO. 78454  
 PROJECT NO. 9247-221208  
 FILE NAME: I004PID.DWG  
 SHEET NO. I-4  
 ISSUED FOR BID



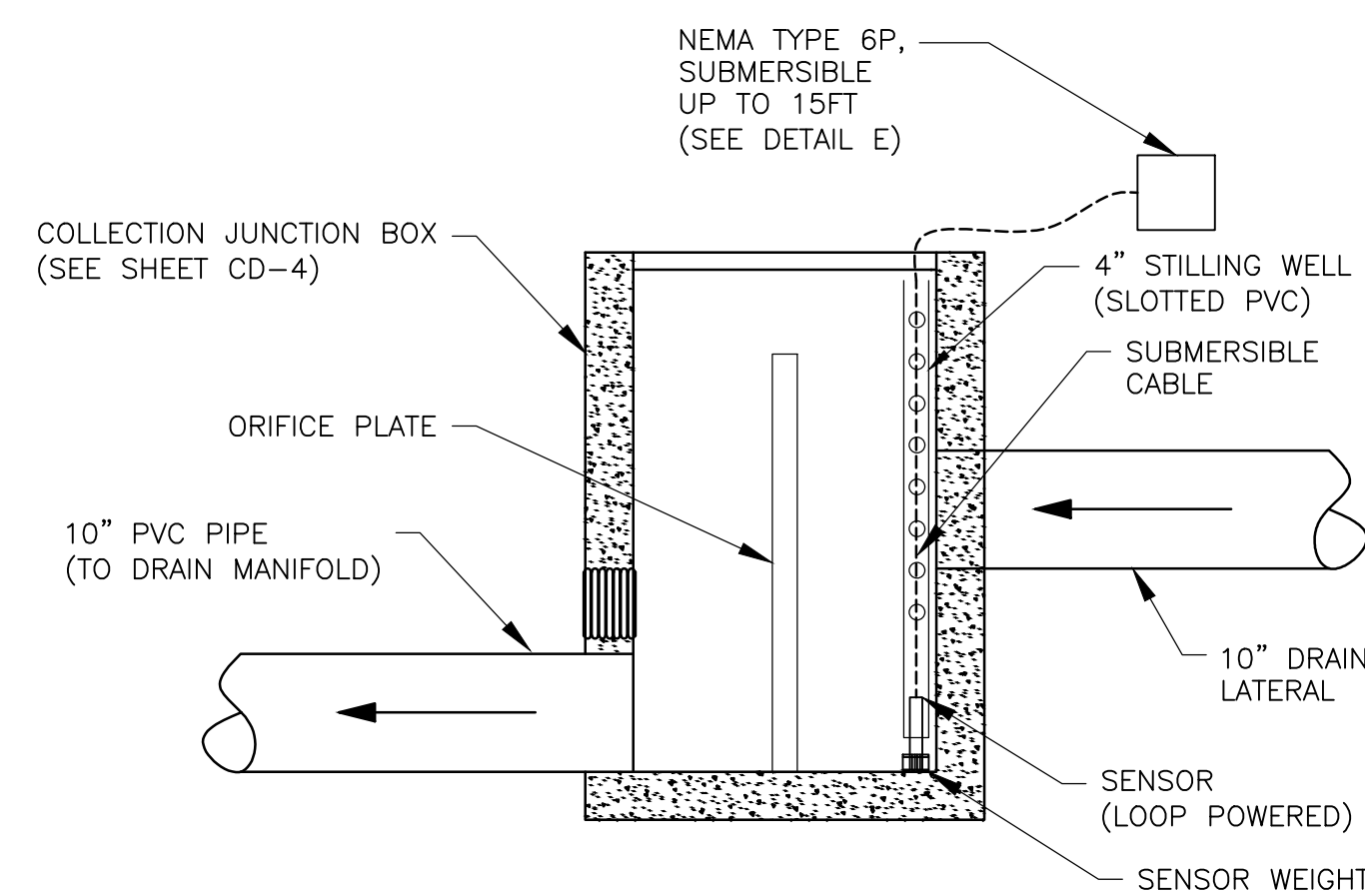
- NOTES:
1. PROVIDE GROUNDING RING(S) AS RECOMMENDED BY MANUFACTURER.
  2. PROVIDE SENSOR LINING TO PREVENT BUILDUP ON METER.

MAGNETIC FLOW METER  
**DETAIL A**  
 NTS

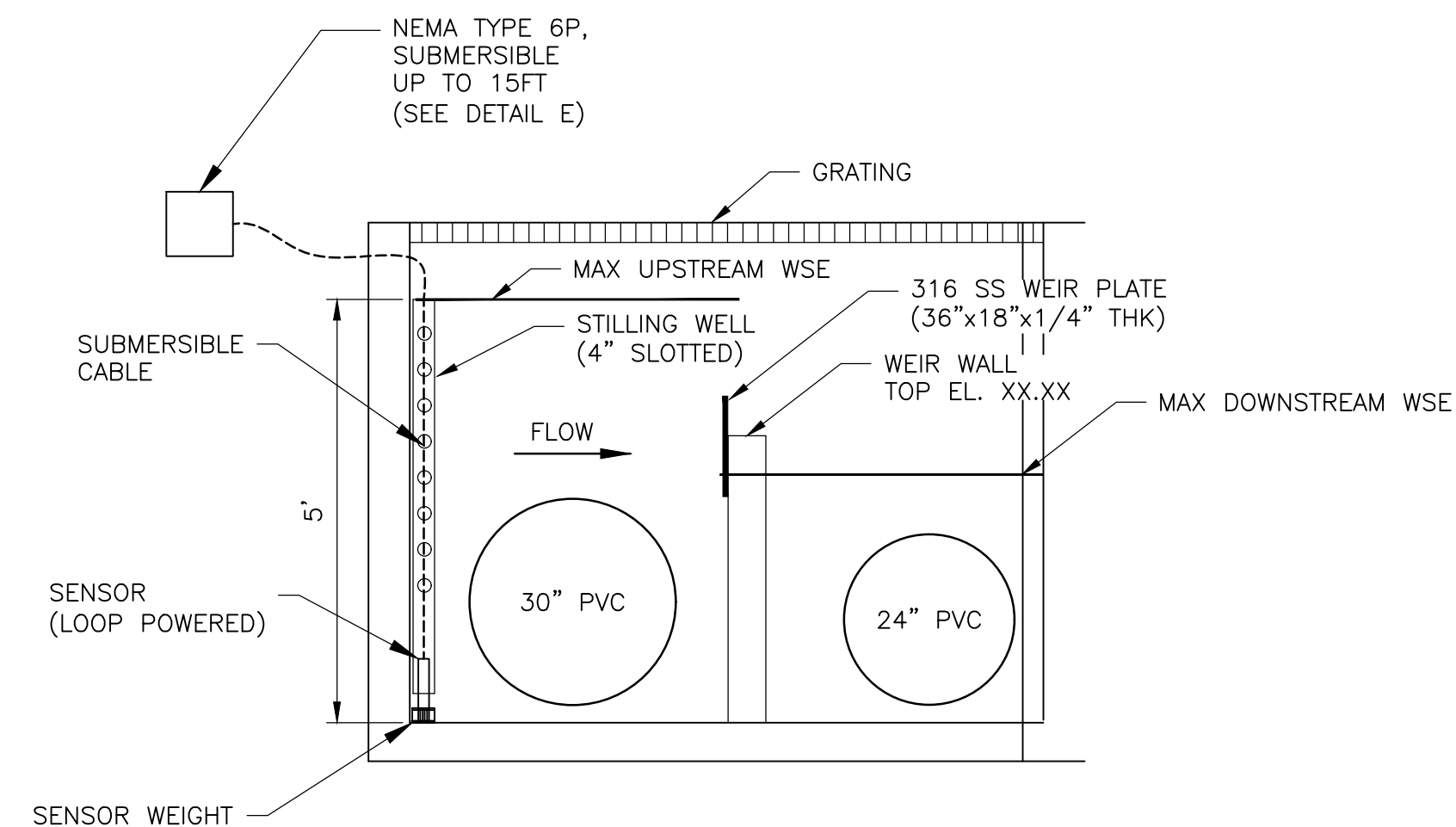


- NOTES:
1. PROVIDE 15" X 15" MINIMUM SIZED FLOAT TERMINATION PANEL. PROVIDE J-HOOK INSIDE PANEL TO COIL EXTRA CABLE. PROVIDE TERMINATION BLOCKS. ALL CABLES AND WIRES SHALL BE LABELED.

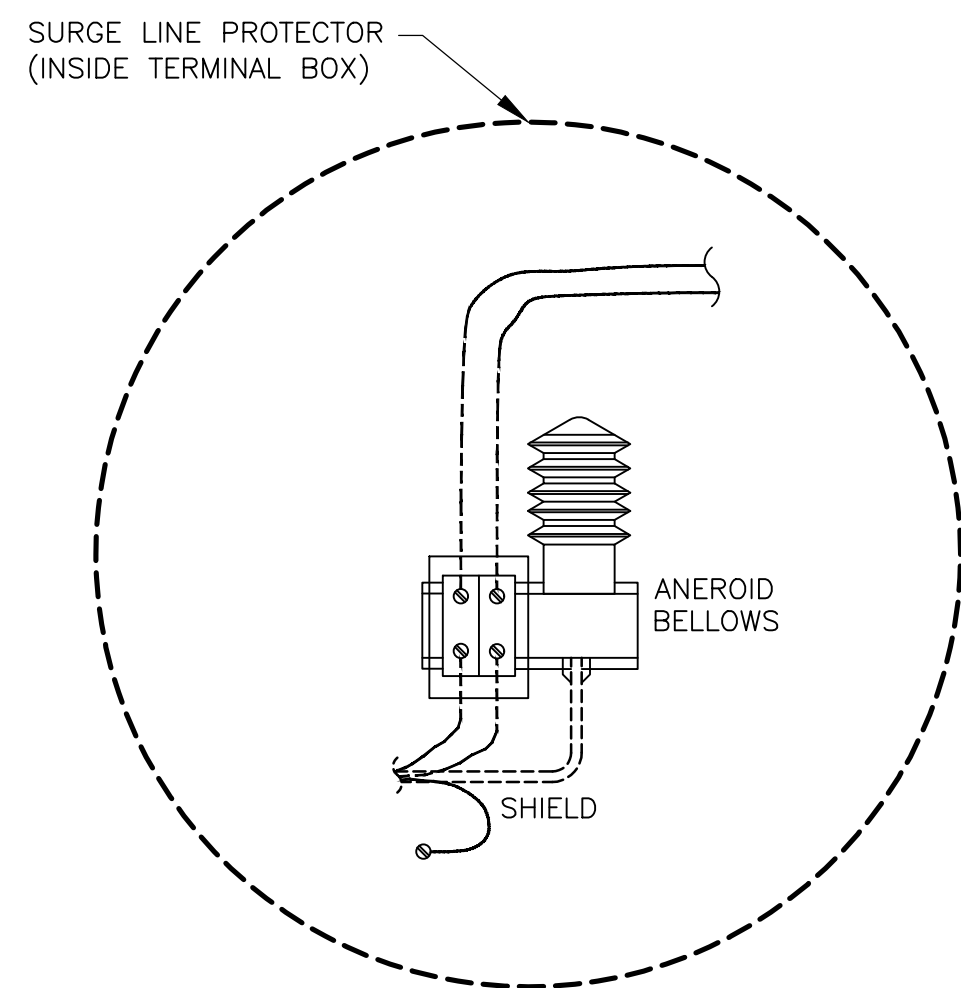
FLOAT SWITCH  
 (CABLE SUSPENSION)  
**DETAIL B**  
 NTS



HYDROSTATIC LEVEL SENSOR  
 (CELL LEVEL-ONE PER CELL)  
**DETAIL C**  
 NTS

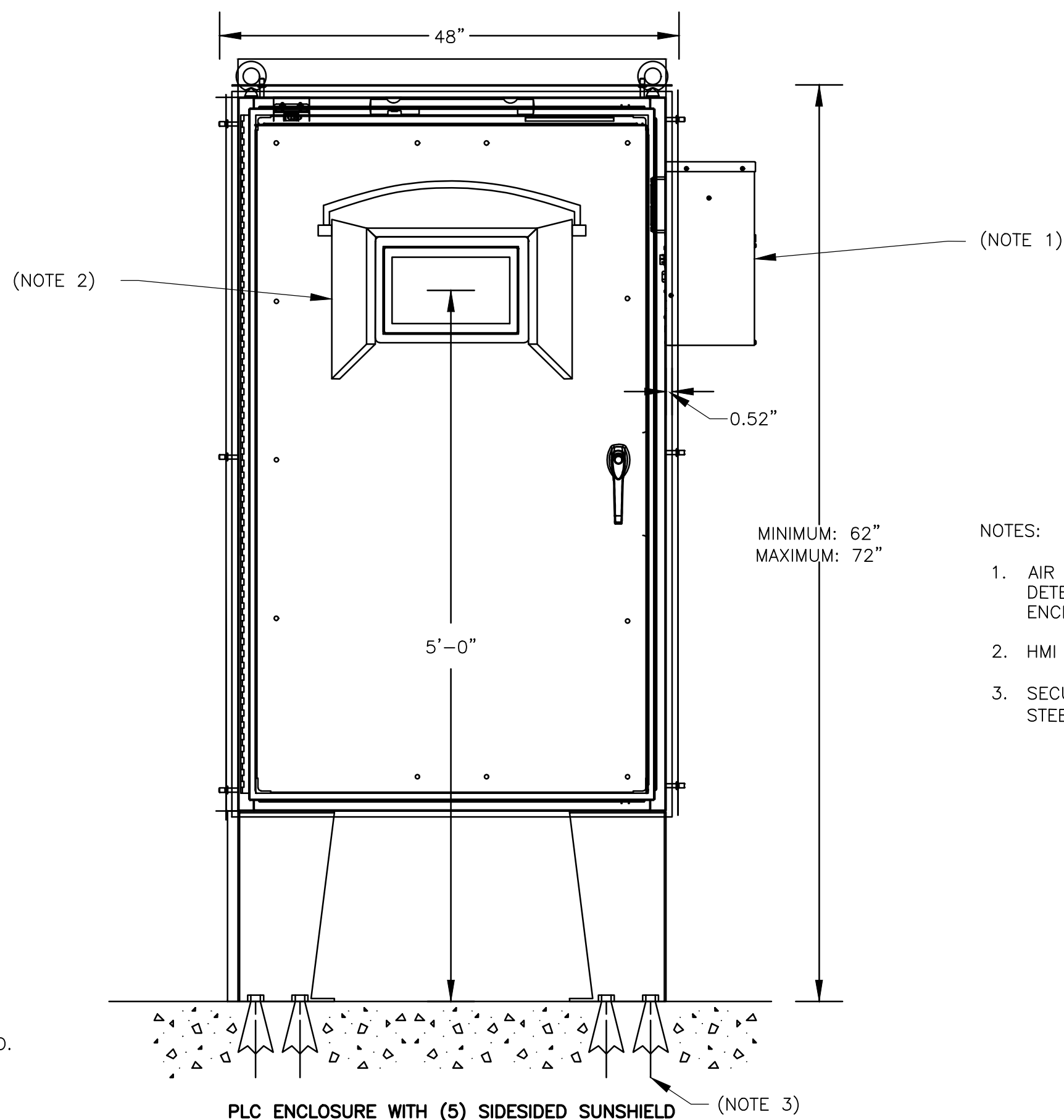


WEIR LEVEL  
**DETAIL D**  
 NTS



- NOTES:
1. PROVIDE 10" X 10" MINIMUM TERMINATION PANEL. PROVIDE J-HOOK INSIDE PANEL TO COIL EXTRA CABLE. PROVIDE TERMINATION BLOCKS. INSTALL ANEROÏD BELLOWS WITHIN THE JUNCTION BOX. ALL CABLES AND WIRES SHALL BE LABELED.

LT CONNECTION WITH ANEROÏD BELLOWS  
**DETAIL E**  
 NTS



- NOTES:
1. AIR CONDITIONER SIZE/DIMENSIONS SHALL BE DETERMINED BY THE HEAT CALCULATIONS OF THE PLC ENCLOSURE AT FINAL DESIGN AND ASSEMBLY.
  2. HMI SHADE PROTECTIVE RETRACTABLE COVER.
  3. SECURE TO SLAB WITH (4)-3/4" DIAMETER STAINLESS STEEL HILTI KWIK BOLT TZ, 4-3/4" EMBEDMENT.

PLC ENCLOSURE WITH (5) SIDESIDED SUNSHIELD  
**DETAIL F**  
 NTS

XREFS: [CDMS\_2234] Images: [BLACK CREEK PES RECHARGE\_SUNFIELD\_EXAMPLE 23d12cc04, SHADE AIDE? HMI Screen Protector ? Comes in Many Sizes & Colors#7e0b26]  
 Last saved by: CHARITRW Time: 3/24/2023 2:05:10 PM  
 C:\Users\charitryw\AppData\Local\Autodesk\AutoCAD Plant 3D\CollaborationCache\9247\_221208\PID DWG\1005PIDT.dwg  
 © 2023 CDM SMITH ALL RIGHTS RESERVED.  
 REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: F. ALCALA	 4651 Salisbury Road, Suite 420 Jacksonville, FL 32256 Tel: (904) 731-7109 FL COA No. EB-0000020
DRAWN BY: A. CARTER	
SHEET CHK'D BY: F. ALCALA	
CROSS CHK'D BY: G. CZERNIEJEWSKI	
APPROVED BY: F. ALCALA	
DATE: MAY 2023	

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT  
 BLACK CREEK WATER RESOURCE  
 DEVELOPMENT PROJECT  
 AQUIFER RECHARGE AREA

INSTRUMENTATION INSTALLATION DETAILS

DATE: FRANCISCO ALCALA PE NO. 78454
PROJECT NO. 9247-221208 FILE NAME: 1005PIDT.DWG
SHEET NO. I-5