

NOM. PIPE SIZE (IN.)	RESTRAINT JOINT TABLE									
	MINIMUM LENGTH TO BE RESTRAINED ON EACH SIDE OF FITTINGS (FEET)									
	ELBOWS (DEG.)			PLUG VALVE		VERTICAL BENDS (DEG.)				
	11.25'	22.5'	45'	90'		11.25'	22.5'	45'		
4	3	7	13	31	70	7	14	29		
6	5	9	18	43	99	10	20	41		
8	6	12	23	56	129	13	26	54		
10	7	14	28	66	154	16	31	64		
12	8	16	32	78	182	18	37	76		
14	9	18	37	88	207	21	42	86		
16	10	20	41	99	233	23	47	97		
18	11	22	45	109	258	25	52	107		
20	12	24	49	118	282	28	56	117		

NOM. PIPE SIZE (IN.)	RESTRAINT JOINT TABLE																
	MINIMUM LENGTH TO BE RESTRAINED ON EACH SIDE OF FITTINGS (FEET)																
	TEES (*) (BRANCH SIDE ONLY)								REDUCERS (**)(REDUCED SIDE)								
	4	6	8	10	12	14	16	18	20	4	6	8	10	12	14	16	18
4	25																
6	25	25								51							
8	25	25	35							93	54						
10	25	25	25	54						126	95	52					
12	25	25	25	40	75					158	132	97	54				
14	25	25	25	25	62	94				187	165	135	98	53			
16	25	25	25	25	49	84	114			215	196	170	138	99	53		
18	25	25	25	25	36	72	104	133		242	225	202	174	140	99	53	
20	25	25	25	25	25	60	94	124	151	268	253	232	207	177	141	99	53

- NOTES:
- (*) 25' MIN. EACH RUN SIDE OF TEES.
 - (**) LENGTH SHOWN IS FOR LARGE SIDE OF REDUCER, 25' MIN. ON SMALL SIDE.
 - RESTRAINED LENGTHS DETERMINED USING EBAA IRON - RESTRAINT LENGTH CALCULATOR 6.3 WITH THE FOLLOWING CONSTANTS AS INPUT / ASSUMPTIONS:
 - PIPE MATERIAL = PVC
 - TEST PRESSURE = 150 PSI
 - SAFETY FACTOR = 2:1
 - TRENCH TYPE = 3
 - DEPTH OF BURY = 3'
 - GATE VALVES = DEAD ENDS
 - SOIL TYPE = ML
 - IF ANY OF THE ASSUMPTIONS / INPUTS STATED IN NOTE 3 NEED TO BE REVISED TO FIT PROJECT CONDITIONS, THE ENGINEER OF RECORD SHALL SUBMIT A REVISED MECHANICAL JOINT TABLE TO BE USED ON THE PROJECT. HOWEVER, THE ENGINEER OF RECORD MUST SUBMIT SIGNED AND SEALED CALCULATIONS TO SJUCD FOR REVIEW AND APPROVAL.

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GATE VALVE & BOX FOR UNPAVED LOCATIONS
SCALE: N.T.S.

PLATE: G-1

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GATE VALVE & BOX FOR PAVED LOCATIONS
SCALE: N.T.S.

PLATE: G-2

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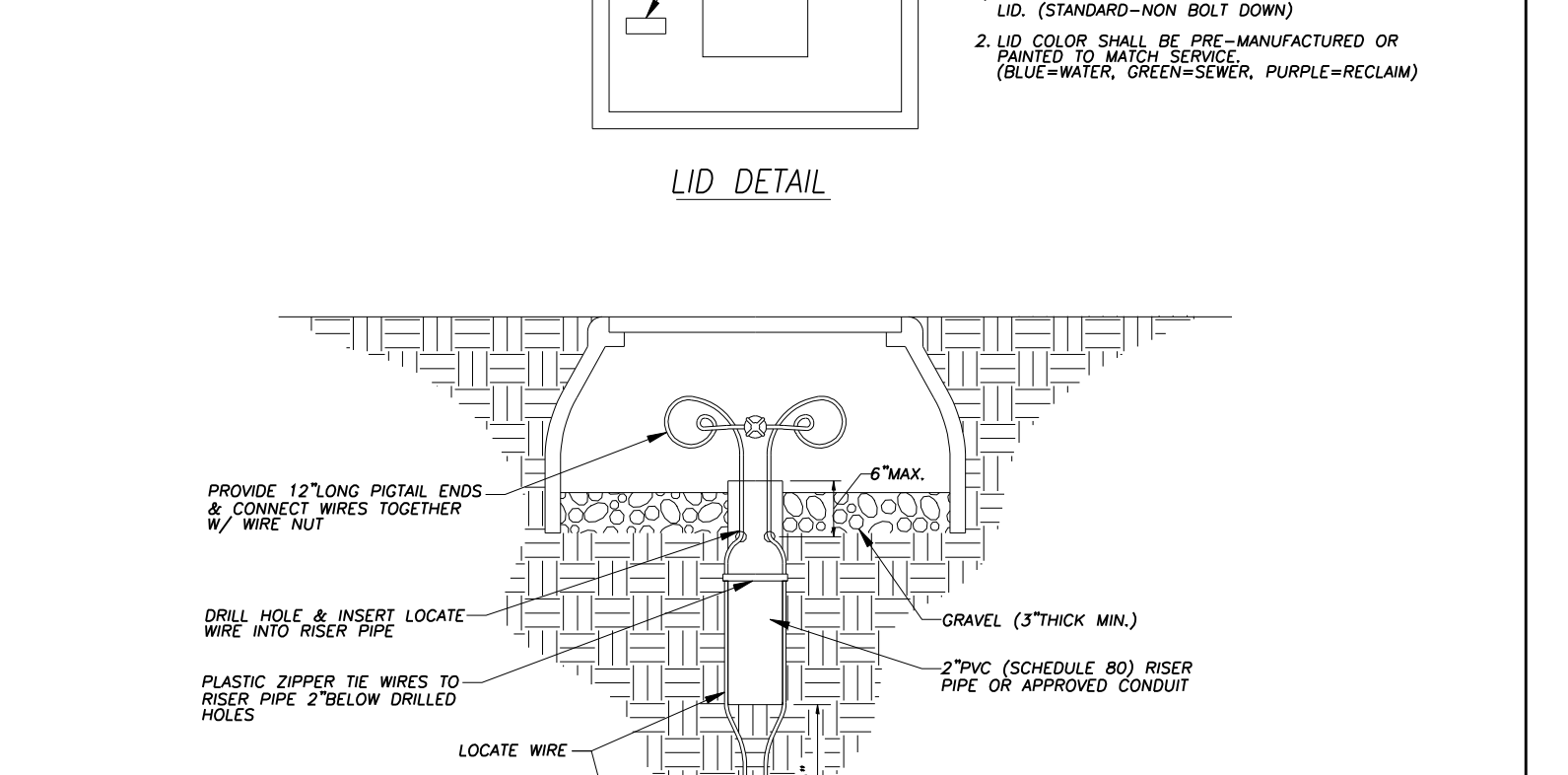
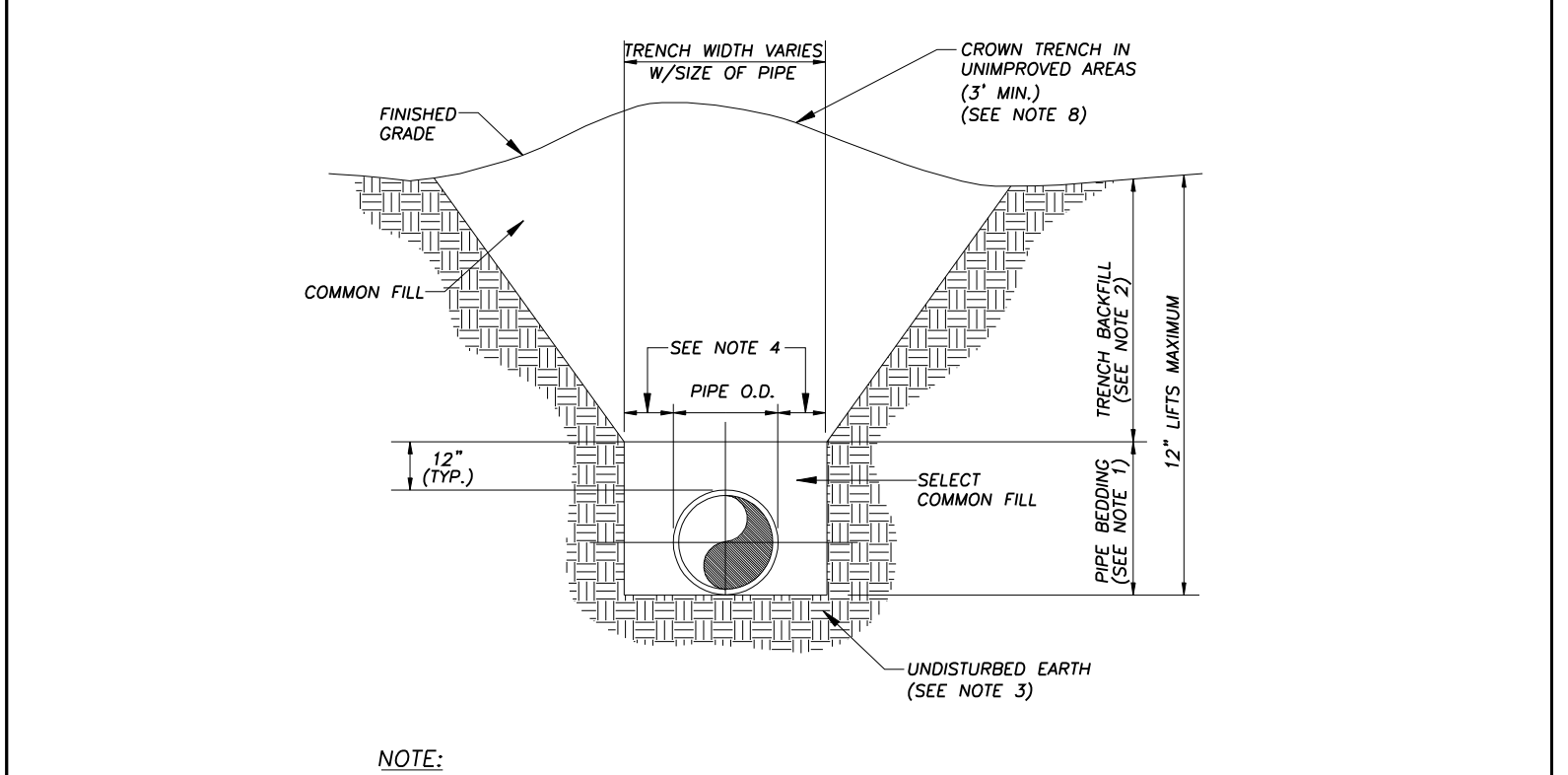
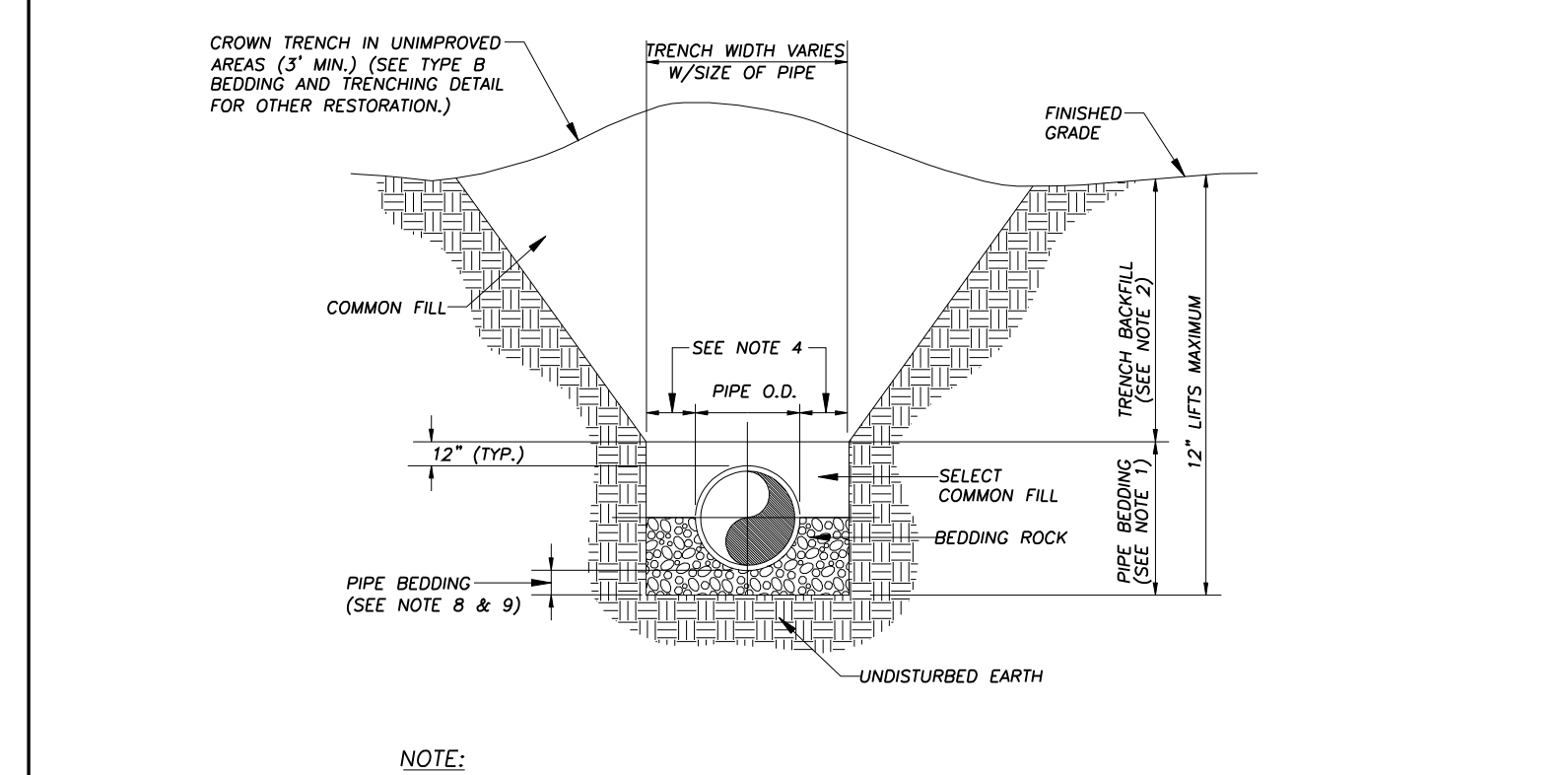
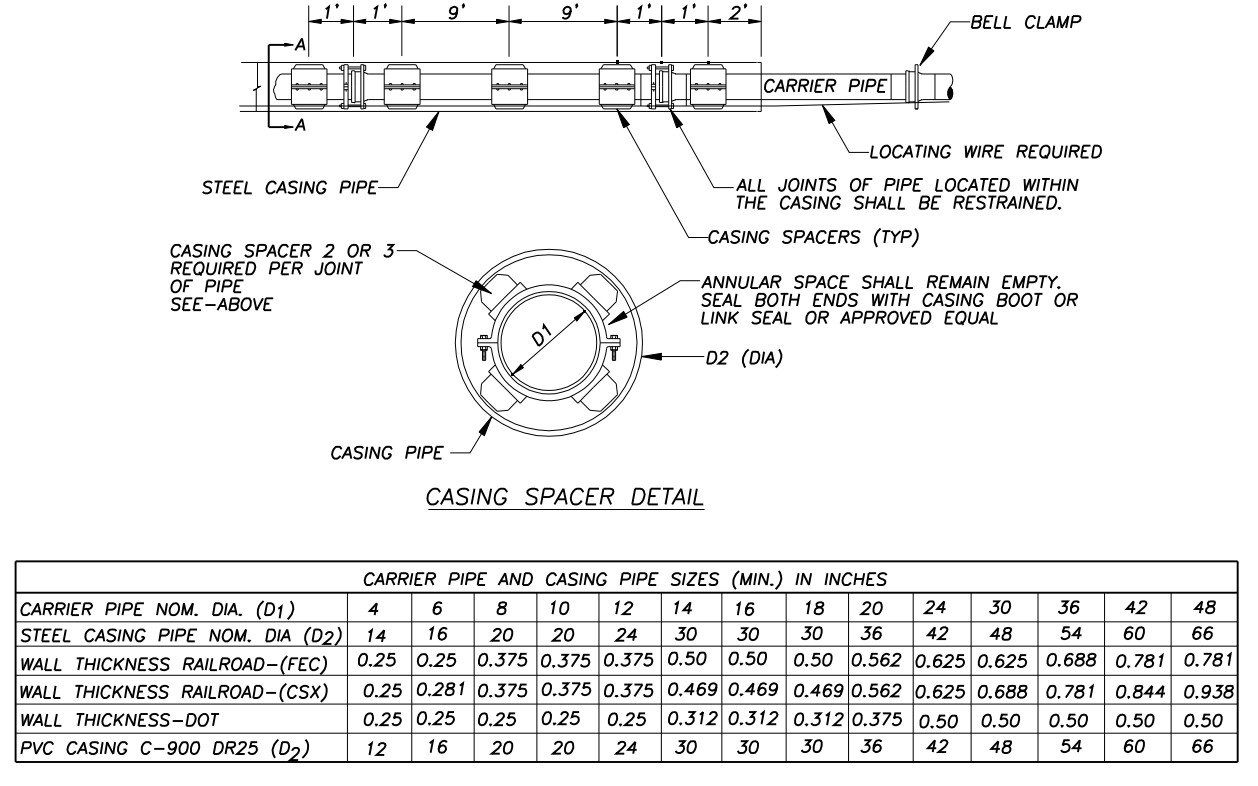
PLUGGED DEAD END MECHANICAL RESTRAINTS
SCALE: N.T.S.

PLATE: G-3

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RESTRAINED JOINT TABLE
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PLATE: G-4



- 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, EXCEPT FOR F.E.C. (SEE NOTE 3)
 - THE INSIDE DIAMETER OF THE CASING PIPE SHALL BE A MINIMUM OF 4 INCHES GREATER THAN THE OUTSIDE DIAMETER OF THE CARRIER PIPE BELL OR COUPLING. HOWEVER, A MINIMUM OF 6 INCHES IS REQUIRED FOR FLORIDA EAST COAST R.R. CROSSINGS.
 - THE MINIMUM COVER FOR CASING UNDER FLORIDA EAST COAST RAILROAD SHALL BE 5.0 FEET BELOW THE BOTTOM OF TIES FOR ALL TRACKS.
 - ALL CARRIER PIPE JOINTS SHALL BE MECHANICAL RESTRAINED.
 - FOR STREET USES WHICH ARE NOT DOT OR RAILROAD, CONTRACTOR CAN USE STEEL OR PVC CASING UNLESS OTHERWISE INDICATED BY ENGINEER.
 - JOINTS OF C-900 PVC CASING PIPE SHALL BE RESTRAINED.
 - CASING SHALL EXTEND A MINIMUM OF 3' BEYOND EDGE OF PAVEMENT AND AN ADDITIONAL 1' LENGTH PER 1' OF DEPTH.
 - FUSED HOPE OR FUSED PVC CAN BE USED FOR STREET CROSSINGS IN LIEU OF CASINGS.
 - LEAK DETECTOR REQUIRED.

- NOTES:
- PIPE BEDDING: SELECT COMMON FILL COMPACTED TO 95% OF THE MAXIMUM DENSITY AS PER AASHTO T-190.
 - TRENCH BACKFILL: COMMON FILL COMPACTED TO 95% OF THE MAXIMUM DENSITY AS PER AASHTO T-190.
 - USE TYPE A BEDDING TO BE DETERMINED IN THE FIELD AS DIRECTED BY THE COUNTY.
 - 12" MINIMUM, 15" MAXIMUM FOR PIPE DIAMETER LESS THAN 24", AND 24" MAXIMUM FOR PIPE DIAMETER 24" AND LARGER.
 - WATER SHALL NOT BE PERMITTED IN THE TRENCH DURING CONSTRUCTION.
 - ALL PIPE TO BE INSTALLED WITH BELL FACING UPSTREAM TO THE DIRECTION OF THE FLOW.
 - REFER TO SECTION 3.3 OF THE MANUAL FOR SHEETING AND BRACING IN EXCAVATIONS.
 - GRAVITY SEWERS SHALL UTILIZE TYPE A BEDDING, IF REQUIRED BY THE COUNTY. BEDDING DEPTH SHALL BE 6" MINIMUM FOR PIPE DIAMETER LESS THAN 15", AND 6" MINIMUM DEPTH FOR PIPE DIAMETER 15" AND LARGER.
 - DEPTH FOR REMOVAL OF UNSUITABLE MATERIAL SHALL COVER DEPTH OF BEDDING ROCK BELOW THE PIPE. COUNTY SHALL DETERMINE IN THE FIELD REQUIRED REMOVAL OF UNSUITABLE MATERIAL TO REACH SUITABLE FOUNDATION.
 - ALL TRENCHING SHALL BE IN ACCORDANCE WITH FLORIDA TRENCH SAFETY ACT.

- NOTES:
- PIPE BEDDING: SELECT COMMON FILL COMPACTED TO 95% OF THE MAXIMUM DENSITY AS PER AASHTO T-190.
 - TRENCH BACKFILL: COMMON FILL COMPACTED TO 95% OF THE MAXIMUM DENSITY AS PER AASHTO T-190.
 - PIPE BEDDING UTILIZING SELECT COMMON FILL OR BEDDING ROCK IN ACCORDANCE WITH TYPE A BEDDING AND TRENCHING DETAIL MAY BE REQUIRED AS DIRECTED BY THE COUNTY.
 - 12" MINIMUM, 15" MAXIMUM FOR PIPE DIAMETER LESS THAN 24", AND 24" MAXIMUM FOR PIPE DIAMETER 24" AND LARGER.
 - WATER SHALL NOT BE PERMITTED IN THE TRENCH DURING CONSTRUCTION.
 - ALL PIPE TO BE INSTALLED WITH BELL FACING UPSTREAM TO THE DIRECTION OF THE FLOW.
 - REFER TO SECTION 3.3 OF THE MANUAL FOR SHEETING AND BRACING IN EXCAVATIONS.
 - FINAL RESTORATION IN IMPROVED AREAS SHALL BE IN COMPLIANCE WITH ALL APPLICABLE REGULATIONS OF GOVERNING AGENCIES SURFACE RESTORATION WITHIN COUNTY RIGHT-OF-WAY SHALL COMPLY WITH REQUIREMENTS OF RIGHT-OF-WAY UTILIZATION REGULATIONS AND ROAD CONSTRUCTION SPECIFICATIONS.
 - ALL TRENCHING SHALL BE IN ACCORDANCE WITH FLORIDA TRENCH SAFETY ACT.

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CASING DETAIL
SCALE: N.T.S.

PLATE: G-5

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TYPE A BEDDING & TRENCHING
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PLATE: G-6

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TYPE B BEDDING & TRENCHING
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PLATE: G-7

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LOCATE WIRE STATION DETAIL
SCALE: N.T.S.

PLATE: G-8

NO. BY DATE SYMBOL REVISIONS DESIGNER: DESIGN ENGINEER: SHEET NO. D-1 DRAWING NO. D-01.dwg

ST. JOHNS COUNTY UTILITY DEPARTMENT
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GENERAL DETAILS

NO. SHEETS: SHEET NO. D-1 DRAWING NO. D-01.dwg