

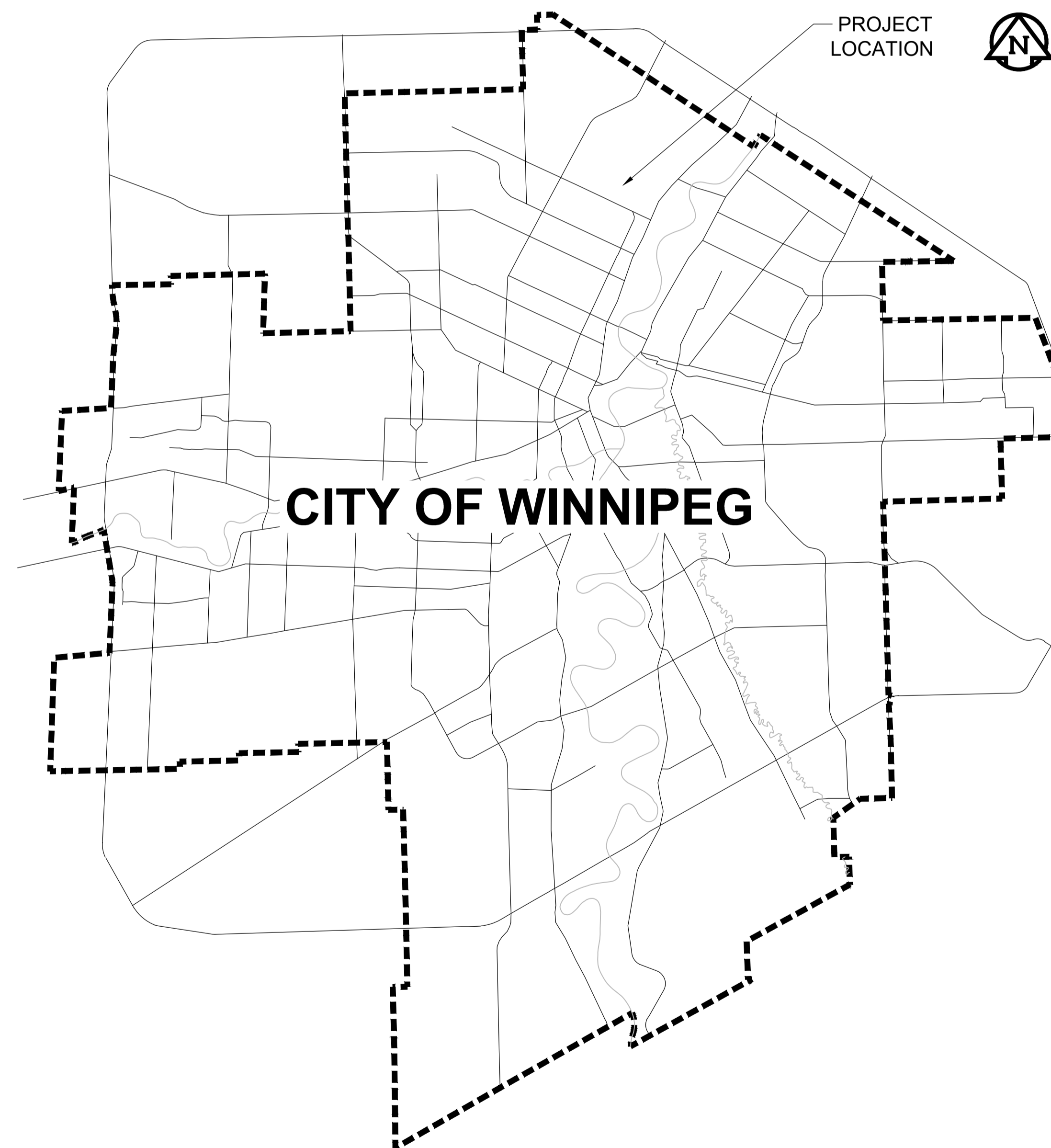


THE CITY OF WINNIPEG

WATER AND WASTE DEPARTMENT

NORTH END SEWAGE TREATMENT PLANT NEWPCC UV UPGRADES

TENDER NO. 30-2025



PROJECT
LOCATION



CITY OF WINNIPEG

DRAWING INDEX

GENERAL	CITY DWG No.	CONSULTANT DWG No.	DISCIPLINE	SHEET TITLE
001		A0-G001	GENERAL	COVER PAGE
002		A0-G002	GENERAL	DRAWING INDEX
003		A0-D001	GENERAL	PROCESS FLOW DIAGRAM
004		A0-D002	GENERAL	LEGEND - PROCESS & INSTRUMENTATION
005		A0-D003	GENERAL	LEGEND - PROCESS & INSTRUMENTATION
006		A0-D004	GENERAL	LEGEND - PROCESS & INSTRUMENTATION
007		A0-E001	GENERAL	SYMBOL LEGEND
SITE - GENERAL				
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009		Y0-C101	CIVIL	SITE GRADING PLAN
010		Y0-C102	CIVIL	UNDERGROUND UTILITIES PLAN
011		Y0-C501	CIVIL	FENCE DETAILS
012	1-0101U-C0001-001-02D	Y0-C010	SITE WORKS	SEWER AND WATER SERVICING, PAVING AND GRADING
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013		U2-B001	ARCHITECTURAL	NEW UV STORAGE ROOM - INDEX PAGE
014		U2-B002	ARCHITECTURAL	NEW UV STORAGE ROOM - BUILDING CODE ANALYSIS
015		UD-B101	ARCHITECTURAL	NEW UV STORAGE ROOM PARTIAL EXISTING BUILDING PLAN - DEMOLITION
016		U2-B101	ARCHITECTURAL	EXISTING UV BUILDING & NEW STORAGE ROOM - ROOF PLANS
017		U2-B102	ARCHITECTURAL	NEW UV STORAGE ROOM - MAIN FLOOR PLAN
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019		U2-B201	ARCHITECTURAL	EXISTING BUILDING & NEW UV STORAGE ROOM - BUILDING ELEVATIONS AND SECTIONS
020		U2-B301	ARCHITECTURAL	NEW UV STORAGE ROOM - WALL SECTIONS
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022		U2-B502	ARCHITECTURAL	NEW UV STORAGE ROOM - SECTION DETAILS
023		U2-B503	ARCHITECTURAL	NEW UV STORAGE ROOM - EXIT DOOR PORCH DETAILS
024		U2-B504	ARCHITECTURAL	UV EXISTING BUILDING - SECTION DETAILS & ACCESS LADDER DETAILS
025		U2-B601	ARCHITECTURAL	NEW UV STORAGE ROOM - DOOR & FRAME SCHEDULE
026		U2-S001	STRUCTURAL	NEW UV STORAGE ROOM - GENERAL NOTES
027		U2-S002	STRUCTURAL	NEW UV STORAGE ROOM - GENERAL NOTES
028		U2-S101	STRUCTURAL	NEW UV STORAGE ROOM - PILING PLAN
029		U2-S102	STRUCTURAL	NEW UV STORAGE ROOM - MAIN FLOOR PLAN
030		U2-S103	STRUCTURAL	NEW UV STORAGE ROOM - ROOF FRAMING PLAN
031		U2-S104	STRUCTURAL	NEW MONORAIL/SUPPORT STRUCTURE - ENLARGED PLAN, SECTION AND DETAIL
032		U2-S201	STRUCTURAL	NEW UV STORAGE ROOM - SECTIONS AND ELEVATIONS
033	1-0101U-S0004-001-03	66303D-S2.03	STRUCTURAL	PLAN ABOVE ELEVATION 231.620
034	1-0101U-S0005-001-03	66303D-S2.04	STRUCTURAL	PLAN ABOVE ELEVATION 233.520
035	1-0101U-S0012-001-03	66303D-S5.03	STRUCTURAL	UV CHAMBER ACCESS COVERS - PLAN, SECTIONS AND DETAILS
036	1-0101U-S0013-001-02	66303D-S5.04	STRUCTURAL	MASONRY WALL ELEVATIONS
037		U2-S501	STRUCTURAL	NEW UV STORAGE ROOM - CONCRETE DETAILS
038		U2-S502	STRUCTURAL	NEW UV STORAGE ROOM - MASONRY DETAILS
039		U2-S503	STRUCTURAL	DUCT SUPPORT - PLANS, SECTIONS AND DETAILS
040	1-0101U-P0002-001-02	66303D-CP1.02	PROCESS	HYDRAULIC PROFILE @380 ML / d
041	1-0101U-P0007-001-03	66303D-CP1.07	PROCESS	UV CHANNEL 1 - MODULES 110/ 120
042	1-0101U-P0008-001-02	66303D-CP1.08	PROCESS	UV CHANNEL 2 - MODULES 210/ 220
043	1-0101U-P0009-001-02	66303D-CP1.09	PROCESS	UV CHANNEL 3 - MODULES 310/ 320
044	1-0101U-P0010-001-03	66303D-CP1.10	PROCESS	UV EFFLUENT CHANNEL
045		U1-X601	P&ID	UV DISINFECTION FACILITY - UV INFLUENT CHANNEL
046		U1-X602	P&ID	UV DISINFECTION FACILITY - UV CHANNEL 1
047		U1-X603	P&ID	UV DISINFECTION FACILITY - UV CHANNEL 2
048		U1-X604	P&ID	UV DISINFECTION FACILITY - UV CHANNEL 3
049		UD-P101	PROCESS MECHANICAL	EXISTING UV DISINFECTION FACILITY - CHANNELS 1 TO 3 - DEMOLITION
050		UD-P102	PROCESS MECHANICAL	EXISTING UV DISINFECTION FACILITY - MAIN LEVEL PLAN - DEMOLITION
051		UD-P301	PROCESS MECHANICAL	EXISTING UV DISINFECTION FACILITY - OVERALL SECTION - DEMOLITION
052		UD-P302	PROCESS MECHANICAL	EXISTING UV DISINFECTION FACILITY - OVERALL SECTIONS - DEMOLITION
053	1-0101U-P0022-001-02	66303D-CP2.01	PROCESS	PUMP STATION & UV PLAN
054	1-0101U-P0023-001-04	66303D-CP2.02	PROCESS	PUMP STATION & UV PLAN
055	1-0101U-P0025-001-02	66303D-CP2.04	PROCESS	UV CHANNEL DETAILS
056	1-0101U-P0026-001-02	66303D-CP2.05	PROCESS	UV CHANNEL DETAILS
057	1-0101U-P0027-001-02	66303D-CP2.06	PROCESS	FLAP GATE DETAILS
058		U1-D401	PROCESS MECHANICAL	EXISTING UV DISINFECTION FACILITY - ENLARGED PLAN
059	1-0101U-M0003-001-02	66303D-CM2.01	MECHANICAL	MAIN FLOOR PLUMBING PLAN - MECHANICAL MEZZANINE PLUMBING PLAN
060	1-0101U-M0005-001-03	66303D-CM4.01	MECHANICAL	MAIN FLOOR VENTILATION PLAN
061	1-0101U-M0008-002-02	66303D-CM6.02	MECHANICAL	SECTIONS
062		U2-M101	BUILDING MECHANICAL	NEW UV STORAGE ROOM - MAIN FLOOR - PLUMBING & HVAC PLANS
063		U2-M301	BUILDING MECHANICAL	NEW UV STORAGE ROOM - SECTIONS - PLUMBING
064		U2-M302	BUILDING MECHANICAL	NEW UV STORAGE ROOM - SECTIONS - HVAC

CONSULTANT DRAWING NUMBERING CONVENTION

99 - A 8 00

PLANT AREA / WBS	
A0	GENERAL
YD	SITE - DEMOLITION
Y0	SITE - GENERAL
YE	SITE - ELECTRICAL
UD	DEMOLITION - EXISTING UV DISINFECTION FACILITY
U0	OVERALL - UV DISINFECTION FACILITY & NEW STORAGE ROOM
U1	EXISTING UV DISINFECTION FACILITY
U2	NEW UV STORAGE ROOM

DISCIPLINE	
A	AUTOMATION
B	BUILDING
C	CIVIL
P	PROCESS MECHANICAL
E	ELECTRICAL
G	GENERAL
I	INSTRUMENTATION
M	BUILDING MECHANICAL
S	STRUCTURAL

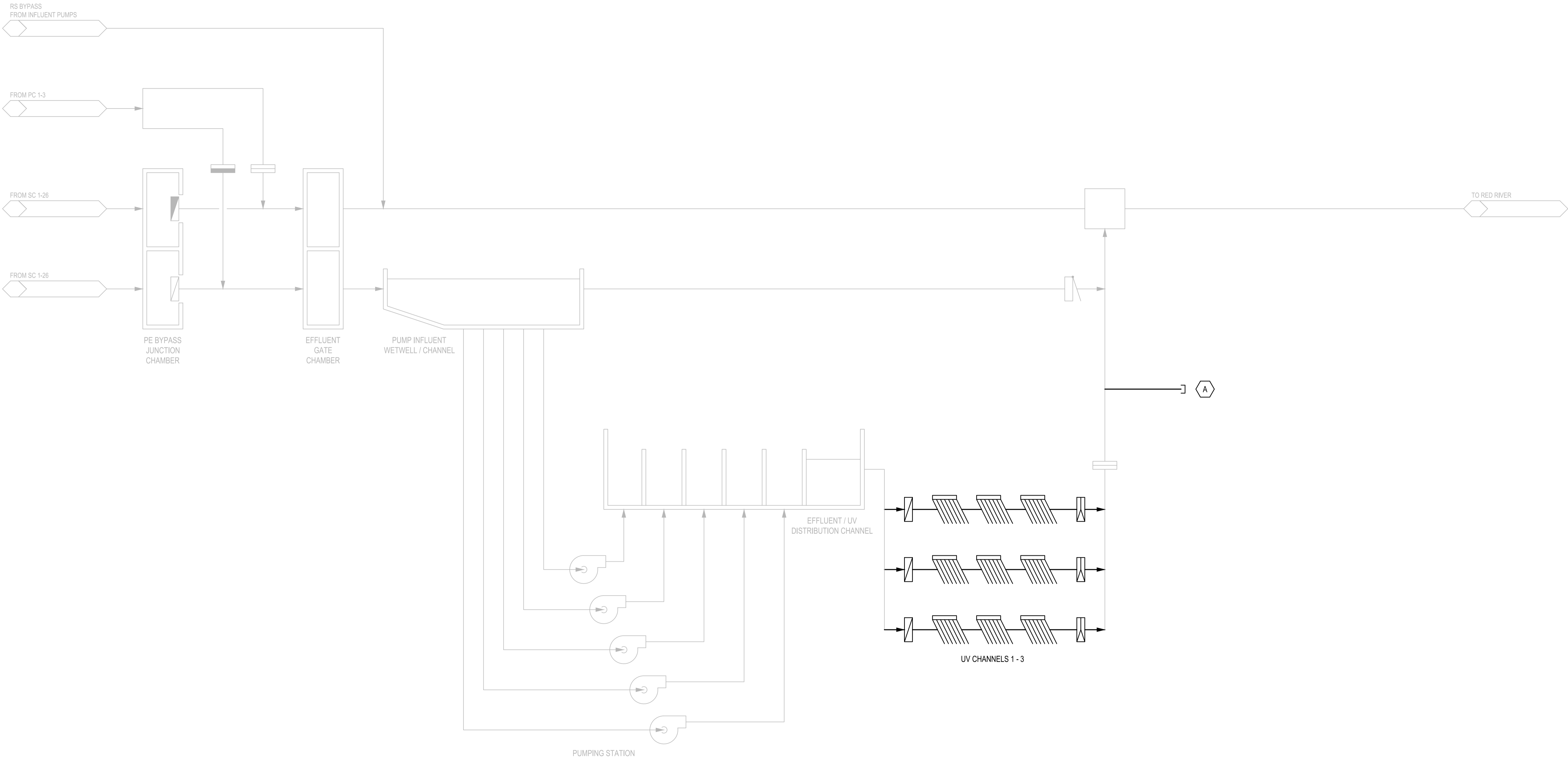
DRAWING TYPE	
0	GENERAL NOTES, SCHEMATICS & DIAGRAMS
1	PLANS
2	ELEVATIONS
3	SECTIONS
4	ENLARGED PLANS
5	DETAILS
6	DIAGRAMS & SCHEDULES

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				<div><div>AECOM</div></div>				ENGINEER'S SEAL					
								DESIGNED BY:		CHECKED BY:		<div><div>PROVINCE OF MANITOBA P. R. BARSALOU REGISTERED PROFESSIONAL ENGINEER</div><div>2025-02-28</div></div>	
								ES		PB			
								DRAWN BY:		APPROVED BY:			
								JP		NW			
								SCALE:		RELEASED FOR CONSTRUCTION BY:			
				NONE				2025-02-28					
				DATE:		2023-07-24		DATE:					
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NO. REVISIONS		DATE		DESIGN		CHECK		CONSULTANT NO.: A0-G002					


<div><div>Winnipeg</div><div>THE CITY OF WINNIPEG</div><div>WATER AND WASTE DEPARTMENT</div></div>				
NORTH END SEWAGE TREATMENT PLANT NEWPCC UV UPGRADES GENERAL DRAWING INDEX				
CITY DRAWING NUMBER		SHEET	REV.	SIZE
		001	00	A1

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KEYNOTES:
A. FINAL EFFLUENT PIPING INSTALLED FOR FUTURE CONNECTION TO FUTURE FLUSHING WATER FACILITY.



					AECOM		ENGINEER'S SEAL		<div></div> <div>THE CITY OF WINNIPEG WATER AND WASTE DEPARTMENT NORTH END SEWAGE TREATMENT PLANT NEWPCC UV UPGRADES GENERAL PROCESS FLOW DIAGRAM</div>				
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					DRAWN BY: DRW	APPROVED BY: NW							
					SCALE: NTS	RELEASED FOR CONSTRUCTION BY:							
					DATE: 2023-07-24	DATE:							
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NO.		REVISIONS			DATE		DESIGN	CHECK					
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VALVE SYMBOLS

GENERIC GATE / VALVE

BALL VALVE

BUTTERFLY VALVE

KNIFE GATE VALVE

PLUG VALVE

ECCENTRIC PLUG VALVE

GLOBE VALVE

NEEDLE VALVE

MUD VALVE

CHECK

STOP CHECK

AIR ASSISTED CHECK

SPRING OPERATED CHECK

ECCENTRIC ROTARY DISC VALVE

ANGLE VALVE

THREE-WAY VALVE

FOUR WAY VALVE
(ARROWS INDICATE FAILURE OR UNACTUATED FLOW PATH)

DIVERTER VALVE

COCK VALVE

QUICK CONNECT COUPLING

AUTOMATIC FLOW CONTROL VALVE

DIAPHRAGM VALVE

PINCH VALVE

BALANCING VALVE

TRIPLE DUTY VALVE

BACKFLOW PREVENTER

RPZ
REDUCED PRESSURE BACKFLOW PREVENTER

ACTUATOR SYMBOLS

DIAPHRAGM OPERATED

DIAPHRAGM OPERATED WITH POSITIONER, FAIL OPEN

PRESSURE REGULATOR, SELF-CONTAINED

PRESSURE REGULATOR, EXTERNAL TAP

CYLINDER OPERATED

PRESSURE RELIEF OR SAFETY VALVE

SOLENOID OPERATED

BALANCED DIAPHRAGM

DIAPHRAGM OPERATED WITH POSITIONER, FAIL CLOSED

BACK PRESSURE REGULATOR, SELF-CONTAINED

BACK PRESSURE REGULATOR, EXTERNAL TAP

CYLINDER OPERATED WITH POSITIONER

VACUUM RELIEF

FLOAT LEVEL VALVE

DIAPHRAGM OPERATED WITH POSITIONER

DIAPHRAGM OPERATED WITH HAND ADJUSTMENT, FAIL CLOSED

PRESSURE REGULATOR, SELF-CONTAINED WITH HAND ADJUSTMENT

MOTORIZED

CYLINDER, DOUBLE ACTING

TEMPERATURE SAFETY VALVE

HAND OPERATED

MINIMUM 1000mm LONG PLANT SYSTEM COLOUR CODE BAND
PAINT PIPE (COVERING) O.D. ALL AROUND
(PAINT ALL UNINSULATED STEEL PIPING
INDOORS AND OUTDOORS)

HAZARDOUS SUBSTANCE PICTOGRAM (WHERE REQUIRED)

LEGEND TEXT

BAND OF FLOW ARROWS (OF SECONDARY COLOUR WHERE SPECIFIED)

PRIMARY (BACKGROUND) COLOUR

PIPE MARKER
(ADHERED TO PIPE (COVERING) O.D. IN MOST VISIBLE ORIENTATION)

PIPE MARKER WIDTH

PIPE DROP

PIPE RISE

PIPE TEE DOWN

PIPE TEE UP

FLOW DIRECTION

HEIGHT OF LEGEND LETTERS AND NUMBERS	
OUTSIDE DIAMETER OF PIPE OR COVERING	HEIGHT OF LETTERS AND NUMBERS
mm	mm
20 TO 30	15
40 TO 50	20
65 TO 150	40
200 TO 250	65
OVER 250	90

ACCESSORY & DEVICE SYMBOLS

HOSE REEL

FLANGE

BLIND FLANGE

CAP

HOSE CONNECTION

QUICK CONNECT COUPLING

FLEX PIPE

DRAIN

TRAP

HORN

INTAKE, RETURN OR EXHAUST DUCT (SECTION)

SUPPLY OR OUTDOOR AIR DUCT (SECTION)

SPRAY NOZZLE

STRAINER

FLAME ARRESTER

AIR INTAKE

SINGLE DIFFUSER

DIFFUSER HEADER

HEAT TRACE

SCREEN OR FILTER

AIR VENT

VENT TO ATMOSPHERE

CAMERA

AIR SEPARATOR

CONCENTRIC REDUCER

UNION

SILOENCER

EXPANSION JOINT

VENTURI

MAGNETIC FLOW METER

THERMAL MASS FLOW METER

TURBINE FLOW METER

ULTRASONIC TRANSIT TIME FLOW METER

INLINE PRESSURE SENSOR

DENSITY TRANSMITTER

DIAPHRAGM SEAL

AIR FLOW DIRECTION

ECCENTRIC REDUCER

FLANGE

DAMPER / LOUVRE SYMBOLS

OPPOSED BLADE DAMPER / LOUVRE

GENERIC DAMPER / LOUVRE

PARALLEL BLADE DAMPER / LOUVRE

GATE SYMBOLS

WEIR GATE

FIXED WEIR

SLIDE GATE (N.C.)

SLIDE GATE (N.O.)

STOP LOG (N.C.)

STOP LOG (N.O.)

FLAP GATE

EQUIPMENT SYMBOLS

MOTOR

BLOWER / FAN

SCREEN

SCREENINGS WASHER / COMPACTOR

GRIT CLASSIFIER & DEWATERING UNIT

ULTRAVIOLET (UV) REACTOR

CONVEYOR, SCREW

CONVEYOR, BELT

SKIMMER

CENTRIFUGE

HOPPER

PLATE SETTLER

STATIC MIXER

HEATER

MIXER

SEDIMENT TRAP

HYDROCYCLONE

ROTARY DRUM THICKENER

WASTE GAS BURNER

HEAT EXCHANGER

BASKET STRAINER

CALIBRATION COLUMN

IMMERSION HEATER

FIRE PROTECTION EQUIPMENT

FIRE EXTINGUISHER

PLUMBING & DRAINAGE

TPD TRAP PRIMING DEVICE

PUMP SYMBOLS

CENTRIFUGAL

SUBMERSIBLE

SUBMERSIBLE PROPELLER

POSITIVE DISPLACEMENT

METERING

VERTICAL TURBINE

PROCESS LINES

EXISTING ELEMENTS

MAJOR PROCESS LINE

MINOR PROCESS LINE

FUTURE ELEMENTS

EXISTING STRUCTURE

STRUCTURE

VENDOR SUPPLY BOUNDARY

EQUIPMENT BOUNDARY OR ENCLOSURE AS INDICATED

DOUBLE-WALLED OR INSULATED LINES AS INDICATED

ELEMENTS TO BE REMOVED

TENDER NO. 30-2025

Certificate of Authorization
AECOM Canada ULC
No. 4671

REVISIONS				
NO.	REVISIONS	DATE	DESIGN	CHECK
00	ISSUED FOR TENDER	2025-02-26	IG	PB

DESIGNED BY: IG
DRAWN BY: MM
SCALE: NTS
DATE: 2023-07-24

CHECKED BY: PB
APPROVED BY: NW
RELEASED FOR CONSTRUCTION BY:
DATE:

CONSULTANT NO.: A0-D002

ENGINEER'S SEAL

WATER AND WASTE DEPARTMENT

NORTH END SEWAGE TREATMENT PLANT
NEWPCC UV UPGRADES
GENERAL
LEGEND
PROCESS & INSTRUMENTATION

CITY DRAWING NUMBER	SHEET	REV.	SIZE
	-	00	A1

MECHANICAL DRAWING TAGS

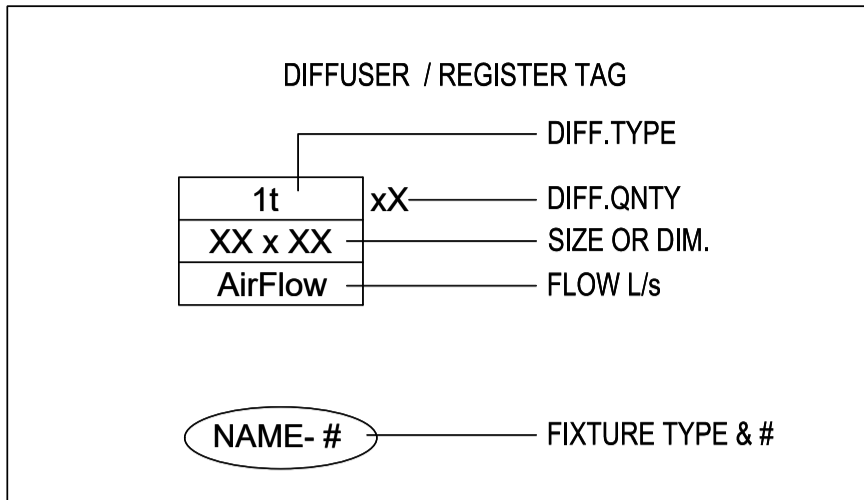
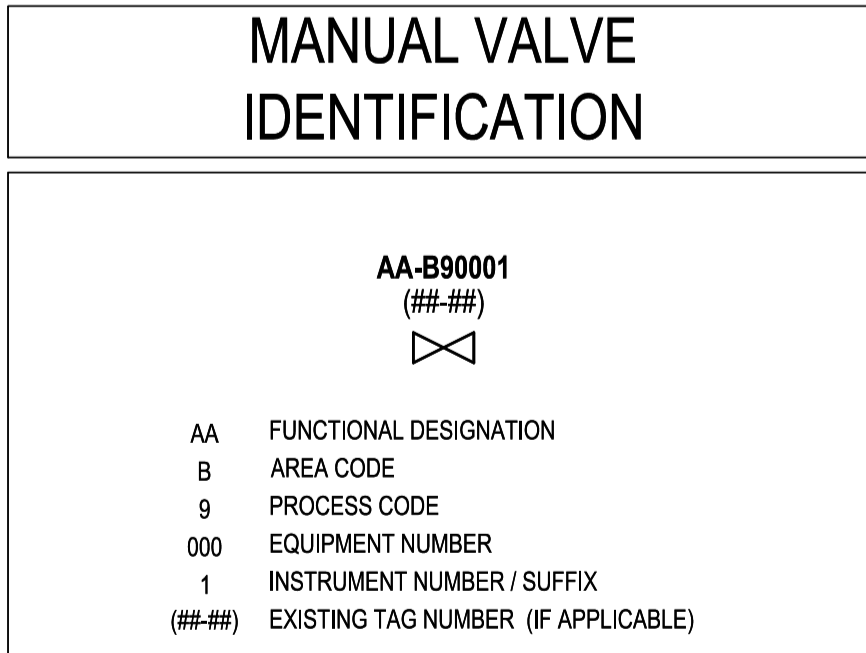
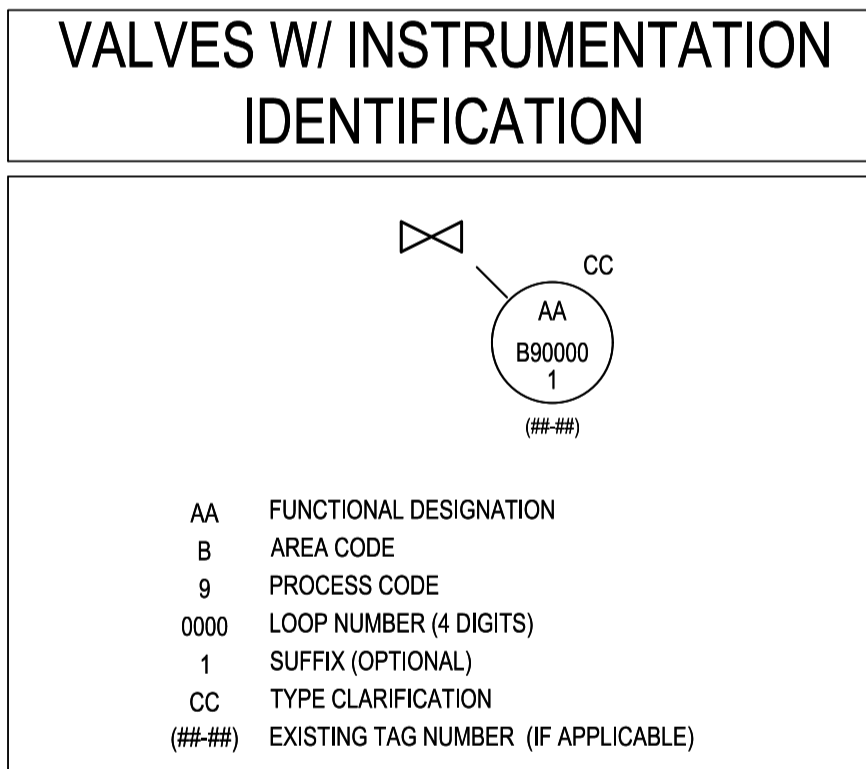
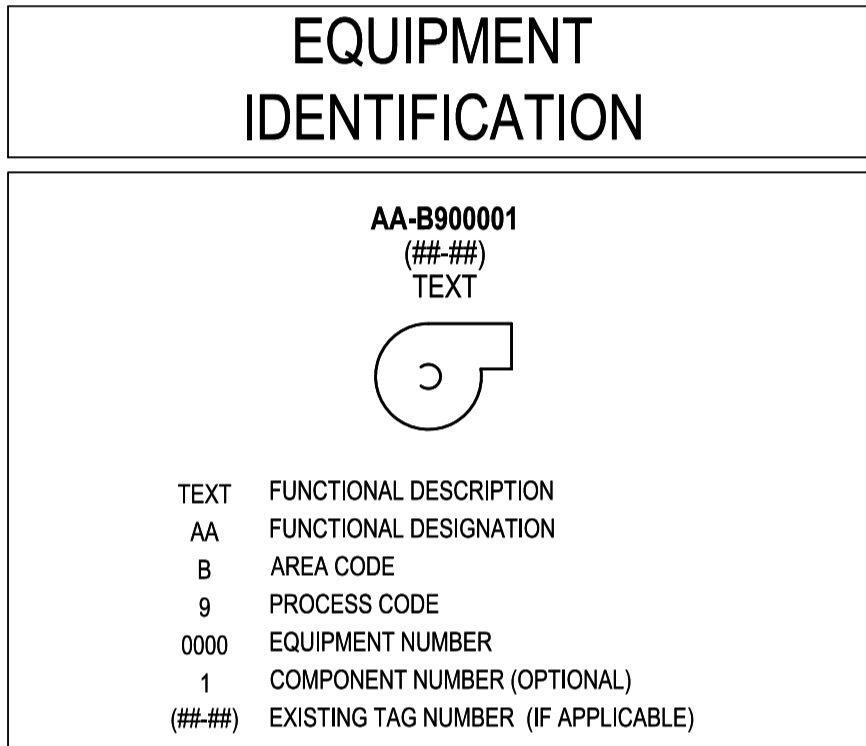
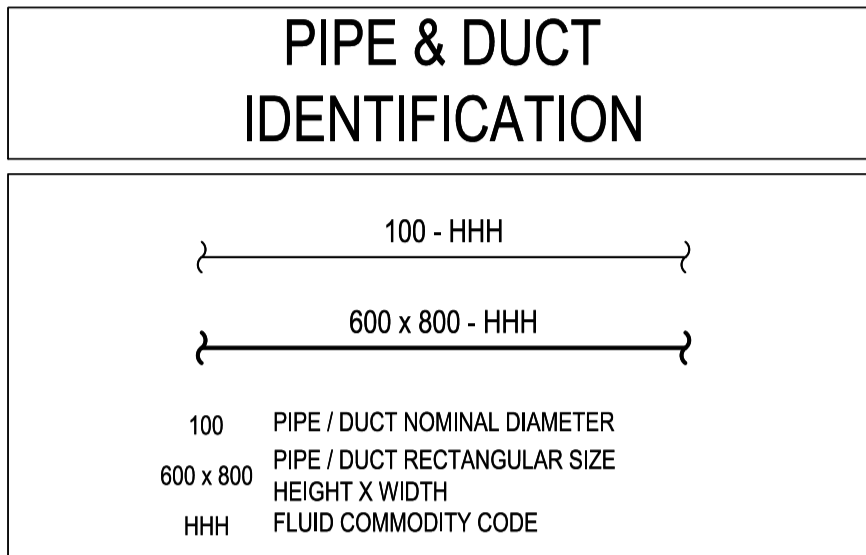
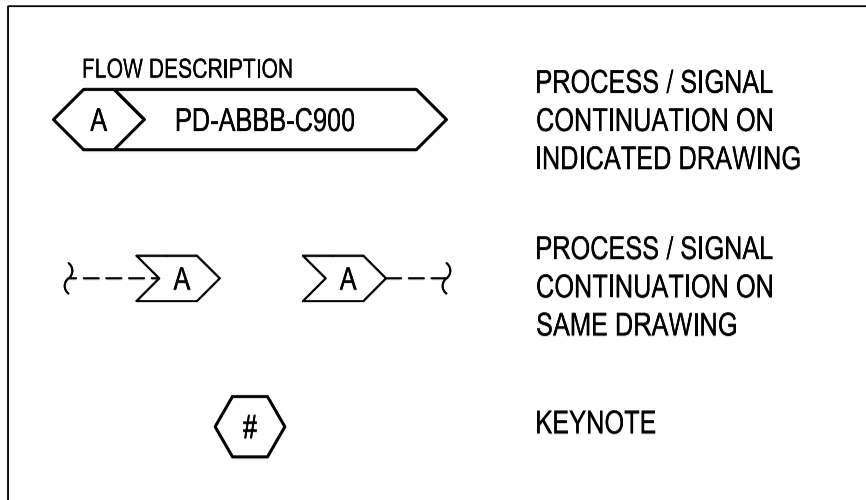
GENERAL NOTES:

1. '0' IS RESERVED IN EACH AREA FOR GENERAL PURPOSES

CODE	DEFINITION	CODE	DEFINITION	CODE	DEFINITION
AD	AIR DRYER	FIL	FILTER	TK	TANK
AF	AERATION FAN	FVNR	FULL VOLTAGE NON-REVERSING DRIVE	TU	TERMINAL UNIT (HVAC)
AG	AGITATOR	FVR	FULL VOLTAGE REVERSING DRIVE	U	MISCELLANEOUS EQUIPMENT NOT IN LIST
AHU	AIR HANDLING UNIT	GR	GRILLE - GENERAL	UH	UNIT HEATER
AR	AIR RECEIVER	GRD	GRILLE - DIFFUSER	UVR	ULTRAVIOLET (UV) REACTOR
B	BLOWER	HB	HOSE BIB	V	VESSEL, PRESSURE VESSEL
BD	BALANCE DAMPER	HC	HEATING COIL	VFD	VARIABLE FREQUENCY DRIVE
BDD	BACKDRAFT DAMPER	HCE	HEATING COIL, ELECTRIC	VSD	VARIABLE SPEED DRIVE
BF	BULK BAG FILTER	HE	HEAT EXCHANGER	WCP	WASHER / COMPACTOR
BFP	BACK FLOW PREVENTER	HO	HOIST	W	WEIR
BLR	BOILER	HOP	HOPPER	WGB	WASTE GAS BURNER
BV	BALANCING VALVE	HP	HEAT PUMP		
BVA	AUTOMATIC BALANCING VALVE	HRC	HEAT RECOVERY COIL		
CAL	CALIBRATING COLUMN	HRV	HEAT RECOVERY VENT		
CC	COOLING COIL	HR	HOSE REEL		
CDR	CONDENSER	HTR	HEATER		
CE	CENTRIFUGE	HUM	HUMIDIFIER		
CHLR	CHILLER	HV	HAND/ MANUAL VALVE		
CM	CLARIFIER MECHANISM	IJ	INJECTOR		
COMP	COMPRESSOR	LCP	LOCAL CONTROL PANEL		
CNV	CONVEYOR	LOP	LUBE OIL PUMP		
CRN	CRANE	MAU	MAKE-UP AIR UNIT		
CT	COOLING TOWER	MD	MOTORIZED DAMPER		
CU	CONDENSING UNIT	MTR	MOTER		
CV	CHECK VALVE	MXR	MIXER		
CYC	CYCLONE	NFHB	NON-FREEZE HOSE BIB		
D	DECANTER	OD	OVERHEAD DOOR		
DAF	DISSOLVED AIR FLOTATION	P	PUMP		
DF	DRAIN, FLOOR	PCV	PRESSURE CONTROL VALVE (PRESSURE REGULATOR)		
DIS	DISPERSER	PSV	PRESSURE SAFETY / RELIEF VALVE		
EDU	EDUCTOR	R	REACTOR (VARIOUS PROCESSES)		
EF	EXHAUST FAN	ROD	ROTARY DRUM THICKENER		
EEW	EMERGENCY EYE WASH	RES	RESERVOIR		
EEWS	EMERGENCY EYE WASH/ SHOWER	S	SKID PACKAGE		
ERV	ENERGY RECOVERY VENTILATOR	SA	SAMPLER		
F	FAN - GENERAL	SAT	SATURATION TANK		
FA	FLAME ARRESTOR	SCBR	SCRUBBER		
FC	FAN COIL	SCR	SCREEN		
FD	FIRE DAMPER	SF	SUPPLY FAN		
FDR	FEEDER	SL	STOP LOGS		
FEX	FIRE EXTINGUISHER	SMXR	STATIC MIXER		
FG	FLAP GATE	STR	STRAINER		

CODE	DEFINITION	CODE	DEFINITION	CODE	DEFINITION	CODE	DEFINITION
AHP	AIR HIGH PRESSURE	GR	GLYCOL - RETURN	RA	RETURN AIR	TWAS	THICKENED WASTE ACTIVATED SLUDGE
ALP	AIR LOW PRESSURE	GRS	GRIT, SLURRY	RAA	RETURN ACTIVATED SLUDGE	VAC	VACUUM
BLS	SLUDGE, BALLASTED	GRT	GRIT, DEWATERED	RS	RAW SEWAGE	V	SANITARY VENT
BSD	BIO-SOLIDS, DEWATERED	GS	GLYCOL - SUPPLY	RW	RAIN / ROOF WATER	VTA	VENT TO ATMOSPHERE
BSL	BIO-SOLIDS, LIQUID	H2	HYDROGEN GAS	RL	REFRIGERATION LIQUID	WA	WASTE AIR
CA	CITRIC ACID	HCO	HYDRAULIC OIL	RS	REFRIGERATION SUCTION	WAS	WASTE ACTIVATED SLUDGE
CDA	CONDENSER WATER RETURN	HFV	FLUSHING WATER, HOT	SAM	SAMPLE	W2-NP	NON-POTABLE COLD WATER
CDS	CONDENSER WATER SUPPLY	HLW	HAULED LIQUID WASTE	SAN	SANITARY	W2-NP	NON-POTABLE HOT WATER
CE	CENTRATE	HRE	HIGH RATE CLARIFICATION EFFLUENT	SBS	SODIUM BISULPHITE	OW	
CEF	CENTRATE, FINAL	HRS	SLUDGE, HIGH RATE CLARIFICATION	SC	SCUM	W3	NON-POTABLE SEMI TREATED WATER
CEI	CENTRATE, INTERMEDIATE	HWR	HOT WATER, RETURN	SCB	SODIUM CARBONATE (SODA ASH)		
TCE	CENTRATE, TREATED	HWS	HOT WATER, SUPPLY	SCD	SCUM, DEWATERED		
CG	CALIBRATION GAS	IAS	AIR INSTRUMENT SUPPLY	SCP	SCUM, PRIMARY		
CL2	CHLORINE	LCP	POLYMER, LIQUID CONCENTRATED	SCRS	RAW SEWAGE, SCREENED		
CS	COMBINED SEWER	LDS	LAND DRAINAGE SEWER	SCS	SCREENINGS		
CTE	COMBINED TREATED EFFLUENT	LE	LEACHATE	SE	SECONDARY EFFLUENT		
CWR	COOLING WATER RETURN	LOG	LUBRICATING OIL	SEA	SERVICE AIR		
CWS	COOLING WATER SUPPLY	LOX	LIQUID OXYGEN	SHC	SODIUM HYPOCHLORIDE		
D	DRAIN (NON-PROCESS)	LPS	STEAM, LOW PRESSURE	SHD	SODIUM HYDROXIDE		
DCW	DOMESTIC COLD WATER	MA	AIR MIXED	SLC	SLUDGE, CONDITIONED		
DHW	DOMESTIC HOT WATER	MC	MAGNESIUM CHLORIDE	SLH	SLUDGE, HAULED		
DHWR	DOMESTIC HOT WATER RETURN	MET	METHANOL	SLI	SLUDGE, DEWATERED		
		ML	MIXED LIQUOR	SLP	SLUDGE, PHOSPHORUS RELEASED		
DFR	DIESEL FUEL RETURN	MSM	MICRO-SAND MAKEUP	SLS	SLUDGE, SCREENED		
DFS	DIESEL FUEL SUPPLY	MP	POLYMER, MIXED	SLT	SLUDGE, THICKENED		
DG	DIGESTER GAS	N2	NITROGEN GAS	SND	SAND, SOLID		
DGC	DIGESTER GAS, CONDITIONED	N2L	NITROGEN LIQUID	SNS	SAND, SLURRY		
DGH	DIGESTER GAS, HIGH PRESSURE	NG	NATURAL GAS	SPD	SUMP PUMP DISCHARGE		
DL	DECANT LIQUOR	NPH	NON-POTABLE WATER - HOT	SRS	STORM RELIEF SEWER		
DP	POLYMER, DRY	NPT	NON-POTABLE WATER - TEMPERED	SSC	SCUM, SECONDARY		
EA	EXHAUST AIR	NPW	NON-POTABLE WATER	STE	STEAM		
ES	ELECTRIC SUPPLY	O2	OXYGEN GAS	STS	SLUDGE, SOUTH END THICKENED		
FC	FERRIC CHLORIDE	OA	OUTDOOR AIR	SUB	SUBNATANT, DAF		
FE	FINAL EFFLUENT	PA	AIR PROCESS	SVT	STRUVITE		
FLT	FILTRATE	PD	PROCESS DRAIN	SW	SEAL WATER		
FOA	FOUL AIR	PE	PRIMARY EFFLUENT	TBS	SLUDGE, THICKENED BOTTOM		
FSL	SLUDGE, FERMENTED	PO	PROCESS OVERFLOW	TCE	CENTRATE, TREATED		
FSW	FLUSHING WATER	PRE	PHOSPHORUS RECOVERY EFFLUENT	TDW	POTABLE WATER, TEMPERED		
FSU	SUPERNATANT, FERMENTER	PS	SLUDGE, PRIMARY	TFS	SLUDGE, FERMENTED - THICKENED		
FPW	FIRE PROTECTION WATER	PV	PROCESS VENT	TO	THERMAL OXIDIZER		
HFV	FLUSHING WATER, HOT	PW	POTABLE WATER	TS	SLUDGE, THIN		
GE	GRIT EFFLUENT	R	REFRIGERANT	TW	TEMPERED WATER		

IN	mm	IN	mm
1/8	3	50	1250
1/4	6	52	1300
3/8	10	54	1350
1/2	12		
3/4	20		
1	25		
1 1/4	32		
1 1/2	38		
2	50		
2 1/2	65		
3	75		
3 1/2	90		
4	100		
4 1/2	112		
5	125		
6	150		
7	175		
8	200		
9	225		
10	250		
11	275		
12	300		
14	350		
16	400		
18	450		
20	500		
22	550		
24	600		
26	650		
28	700		
30	750		
32	800		
34	850		
36	900		
38	950		
40	1000		
42	1050		
44	1100		
46	1150		
48	1200		

[illegible]





















COMMON INSTRUMENT FIELD DEVICE IDENTIFIERS


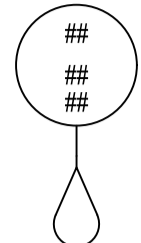

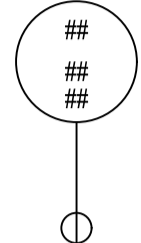

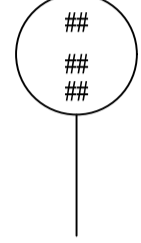

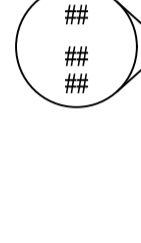




CODE	DEFINITION	CODE	DEFINITION	CODE	DEFINITION
AA	ANALYSIS ALARM	GE	GAS ELEMENT	PS	PRESSURE SWITCH
AAH	ANALYSIS ALARM - HIGH	GS	GAS SWITCH MODULE	PSH	PRESSURE SWITCH - HIGH
AAHH	ANALYSIS ALARM - HIGH HIGH	HK	HAND CONTROL STATION	PSHH	PRESSURE SWITCH - HIGH HIGH
AE	ANALYSIS ELEMENT	HS	HAND SWITCH	PSL	PRESSURE SWITCH - LOW
AIT	ANALYSIS INDICATING TRANSMITTER	HSR	HAND SWITCH - START / RUN	PSV	PRESSURE SAFETY VALVE (RELIEF)
AK	ANALYSIS CONTROL STATION	HSS	HAND SWITCH - STOP	PT	PRESSURE TRANSMITTER
ASH	ANALYSIS SWITCH HIGH	HV	HAND VALVE	PI	PRESSURE RELAY (I / I CONVERTER)
ASHH	ANALYSIS SWITCH - HIGH HIGH	IS	CURRENT SWITCH	SI	SPEED INDICATOR
AT	ANALYSIS TRANSMITTER	IE	CURRENT ELEMENT / TRANSFORMER	SK	SPEED CONTROL STATION
BCS	BURNER FLAME SWITCH	II	CURRENT INDICATOR	ST	SPEED / VELOCITY TRANSMITTER
BE	BURNER ELEMENT	IY	CURRENT RELAY	TE	TEMPERATURE ELEMENT
BK	BURNER CONTROL STATION	JIT	POWER INDICATING TRANSMITTER	TG	TEMPERATURE GAUGE
BS	BURNER SWITCH	KS	TIME SWITCH	TI	TEMPERATURE INDICATOR
DE	DENSITY ELEMENT	KY	TIMER RELAY	TIC	TEMPERATURE INDICATING CONTROLLER
DR	DENSITY RECORDER	LCV	LEVEL CONTROL VALVE	TIT	TEMPERATURE INDICATING TRANSMITTER
DT	DENSITY TRANSMITTER	LE	LEVEL SENSOR	TR	TEMPERATURE RECORDER
DX	DENSITY SOURCE (X = SOURCE)	LI	LEVEL INDICATOR	TS	TEMPERATURE SWITCH
EE	VOLTAGE ELEMENT / TRANSFORMER	LIC	LEVEL INDICATING CONTROLLER	TSH	TEMPERATURE SWITCH - HIGH
EG	VOLTAGE VIEWING DEVICE (CAPACITOR VOLTAGE INDICATOR)	LIT	LEVEL INDICATING TRANSMITTER	TSL	TEMPERATURE SWITCH - LOW
EI	VOLTAGE INDICATOR	LR	LEVEL RECORDER	TSLL	TEMPERATURE SWITCH - LOW - LOW
EL	VOLTAGE LIGHT	LSL	LEVEL SWITCH - LOW	TT	TEMPERATURE TRANSMITTER
ES	VOLTAGE SWITCH	LSH	LEVEL SWITCH - HIGH	TV	TEMPERATURE VALVE
ESL	VOLTAGE SWITCH - LOW	LSHH	LEVEL SWITCH - HIGH HIGH	TW	TEMPERATURE THERMOWELL
ET	VOLTAGE TRANSMITTER	LSHL	LEVEL SWITCH - HIGH / LOW	TY	TEMPERATURE RELAY (SOLENOID VALVE OR M / P)
FAL	FLOW ALARM - LOW	LT	LEVEL TRANSMITTER	VE	VIBRATION SENSOR
FV	FLOW CONTROL VALVE	LV	LEVEL VALVE	VI	VIBRATION INDICATOR
FE	FLOW ELEMENT	LY	LEVEL RELAY (I / I CONVERTER)	VIT	VIBRATION INDICATING TRANSMITTER
FI	FLOW INDICATOR	ME	MOISTURE SENSOR	VT	VIBRATION TRANSMITTER
FIC	FLOW INDICATING CONTROLLER	MT	MOISTURE TRANSMITTER	XV	UNCLASSIFIED VALVE
FIT	FLOW INDICATING TRANSMITTER	OSH	TORQUE SWITCH - HIGH	YL	STATE INDICATOR
FOI	FLOW TOTALIZING INDICATOR	OSH	TORQUE SWITCH - HIGH HIGH	ZC	POSITION CONTROL
FOY	FLOW TOTALIZING / INTEGRATING RELAY	PCV	PRESSURE CONTROL VALVE	ZI	POSITION INDICATOR
FR	FLOW RECORDER	PE	PRESSURE ELEMENT	ZS	POSITION SWITCH
FSL	FLOW SWITCH - LOW	PG	PRESSURE GAUGE	ZSC	POSITION SWITCH - CLOSED
FT	FLOW TRANSMITTER	PI	PRESSURE INDICATOR	ZSO	POSITION SWITCH - OPEN
FV	FLOW VALVE	PII	PRESSURE INDICATING CONTROLLER	ZT	POSITION TRANSMITTER
FZ	FLOW METER ULTRASONIC GENERATOR	PIT	PRESSURE INDICATING TRANSMITTER		
		PR	PRESSURE RECORDER		



GENERAL NOTES:

- THE LAST IDENTIFIER IS IN SOME CASES OPTIONAL (EG, FSL).
- THIS TABLE IS DERIVED FROM THE INSTRUMENT & DEVICE IDENTIFICATION TABLE, AND IS NOT EXHAUSTIVE.

DI SIGNALS		AI SIGNALS	
CODE	DEFINITION	CODE	DEFINITION
Cmd SF	COMMAND START FORWARD	DiffPress	DIFFERENTIAL PRESSURE
Cmd SR	COMMAND START REVERSE	Lvl	LEVEL
Flt	FAULT	MET	METHANOL
LvlHi	HIGH LEVEL	Press	PRESSURE
Hi Temp	HIGH TEMPERATURE	Temp	TEMPERATURE
LvlLo	LOW LEVEL	Total	TOTALIZE
OiL	OVERLOAD		
OSH	HIGH TORQUE		
OSHH	HIGH HIGH TORQUE		
Rem	REMOTE		
RunF	RUN FORWARD		
RunR	RUN REVERSE		
Total	TOTALIZE		
ZSC	CLOSED POSITION		
ZSO	OPEN POSITION		
DO SIGNALS		AO SIGNALS	
CODE	DEFINITION	CODE	DEFINITION
CmdCls	CLOSE COMMAND	CmdSpd	COMMAND SPEED
CmdOpn	OPEN COMMAND	Pos	POSITION
CmdSS	START / STOP COMMAND	CmdPos	COMMAND POSITION
NETWORK CONNECTIONS			
CODE	DEFINITION		
E	ETHERNET		
E-MB	ETHERNET MODBUS, TCP / IP		
PB	PROFIBUS		

INSTRUMENT & CONTROL SYMBOLS		
	DISCRETE INSTRUMENTS FIELD MOUNTED	
	DISCRETE INSTRUMENTS PRIMARY LOCATION (CONTROL ROOM) FRONT PANEL MOUNTED	
	DISCRETE INSTRUMENTS PRIMARY LOCATION (CONTROL ROOM) REAR PANEL MOUNTED	
	DISCRETE INSTRUMENTS SECONDARY LOCATION (NORMALLY ACCESSIBLE) FRONT PANEL MOUNTED	
	DISCRETE INSTRUMENTS SECONDARY LOCATION (NORMALLY ACCESSIBLE) REAR PANEL MOUNTED	
	PRIMARY CONTROL SYSTEM FUNCTION	
	SECONDARY / SAFETY CONTROL SYSTEM FUNCTION PRIMARY LOCATION DATA ACCESSIBLE TO OPERATOR	
	SECONDARY / SAFETY CONTROL SYSTEM FUNCTION AUXILIARY LOCATION DATA NOT ACCESSIBLE TO OPERATOR	
	SECONDARY / SAFETY CONTROL SYSTEM FUNCTION AUXILIARY LOCATION DATA NOT ACCESSIBLE TO OPERATOR	
	OTHER COMPUTER FUNCTION	
	SUBCOMPONENT OR DISCRETE INSTRUMENTS FIELD MOUNTED NO LOOP IDENTIFIER	
	PILOT LIGHT (FIELD)	
	PILOT LIGHT (FIELD PANEL)	
	PILOT LIGHT (CONTROL ROOM)	
	PILOT LIGHT (FIELD PANEL, REAR MOUNTED)	
	INTERLOCK	
	MOTOR STARTING EQUIPMENT	

INSTRUMENT LINES		PRIMARY ELEMENT SYMBOLS	
	INSTRUMENT SUPPLY OR CONNECTION TO PROCESS		FLOAT LEVEL ELEMENT
	PNEUMATIC SIGNAL		THERMAL ELEMENT WITH WELL
	ELECTRIC SIGNAL		CAPACITANCE / POINT LEVEL ELEMENT
	HYDRAULIC SIGNAL		ROTAMETER
	CAPILLARY TUBE		
	ELECTROMAGNETIC OR SONIC SIGNAL, GUIDED		
	ELECTROMAGNETIC OR SONIC SIGNAL, UNGUIDED		
	DATA / SERIAL LINK		

INSTRUMENT IDENTIFICATION		SIGNAL IDENTIFICATION	
	OR		
AA	FUNCTIONAL DESIGNATION	LLL	SIGNAL
B	AREA CODE	AA	INPUT / OUTPUT DESIGNATION
9	PROCESS CODE	DDDD	SIGNAL DESCRIPTION
0000	LOOP NUMBER (4 DIGITS)	CCC	NETWORK CONNECTION DESIGNATION (IF APPLICABLE)
1	SUFFIX (OPTIONAL)		
CC	TYPE CLARIFICATION		
(##-##)	EXISTING TAG NUMBER (IF APPLICABLE)		

EQUIPMENT AND OTHER DEVICES:

GAS INSULATED MEDIUM VOLTAGE VACUUM CIRCUIT BREAKER
MODIFIERS: 1600AT - TRIP
 2000AF - FRAME
 N.C. - NORMALLY CLOSED
 N.O. - NORMALLY OPEN

MEDIUM VOLTAGE CIRCUIT BREAKER
MODIFIERS: 1600AT - TRIP
 2000AF - FRAME
 N.C. - NORMALLY CLOSED
 N.O. - NORMALLY OPEN

LOW VOLTAGE POWER CIRCUIT BREAKER (LVPCB)
ELECTRICALLY OPERATED
MODIFIERS: 2000AF - FRAME
 1600AT - TRIP
 LSI - TRIP FUNCTIONS ALARM
 100% - 100% RATED
 3P,4P - # OF POLES

LOW VOLTAGE THERMAL/MAGNETIC BREAKER
MODIFIERS: 600A - TRIP
 3P - # OF POLES
 LSI - TRIP FUNCTIONS
 100% - 100% RATED

MOTOR CIRCUIT PROTECTOR, MAGNETIC ONLY
MODIFIERS: 7A CONTINUOUS RATING. 3 POLE UNLESS OTHERWISE NOTED

INTELLIGENT MICROPROCESSOR BASED RELAY WITH ANSWI/E FUNCTIONS AS INDICATED.

FUNCTION:

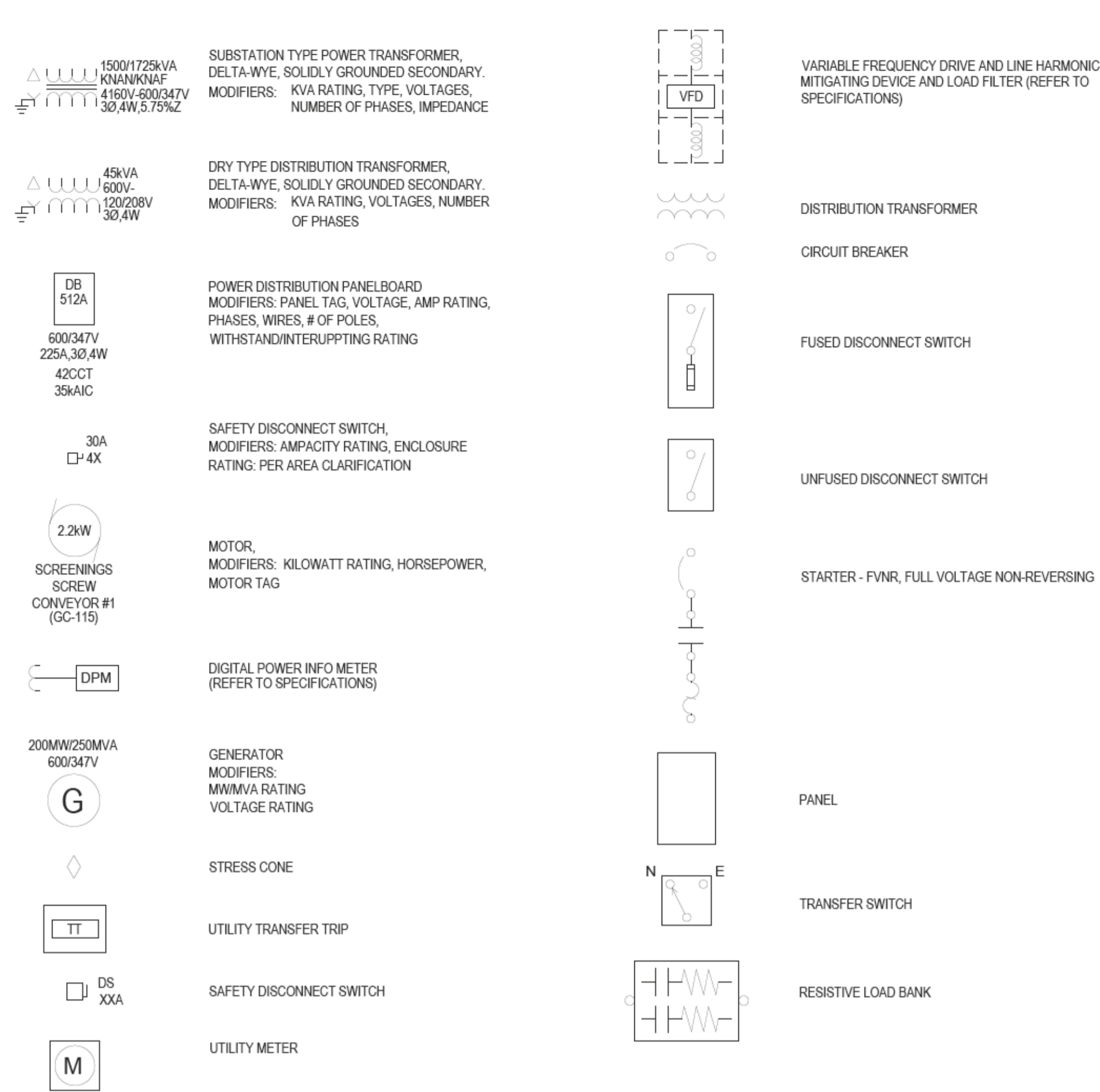
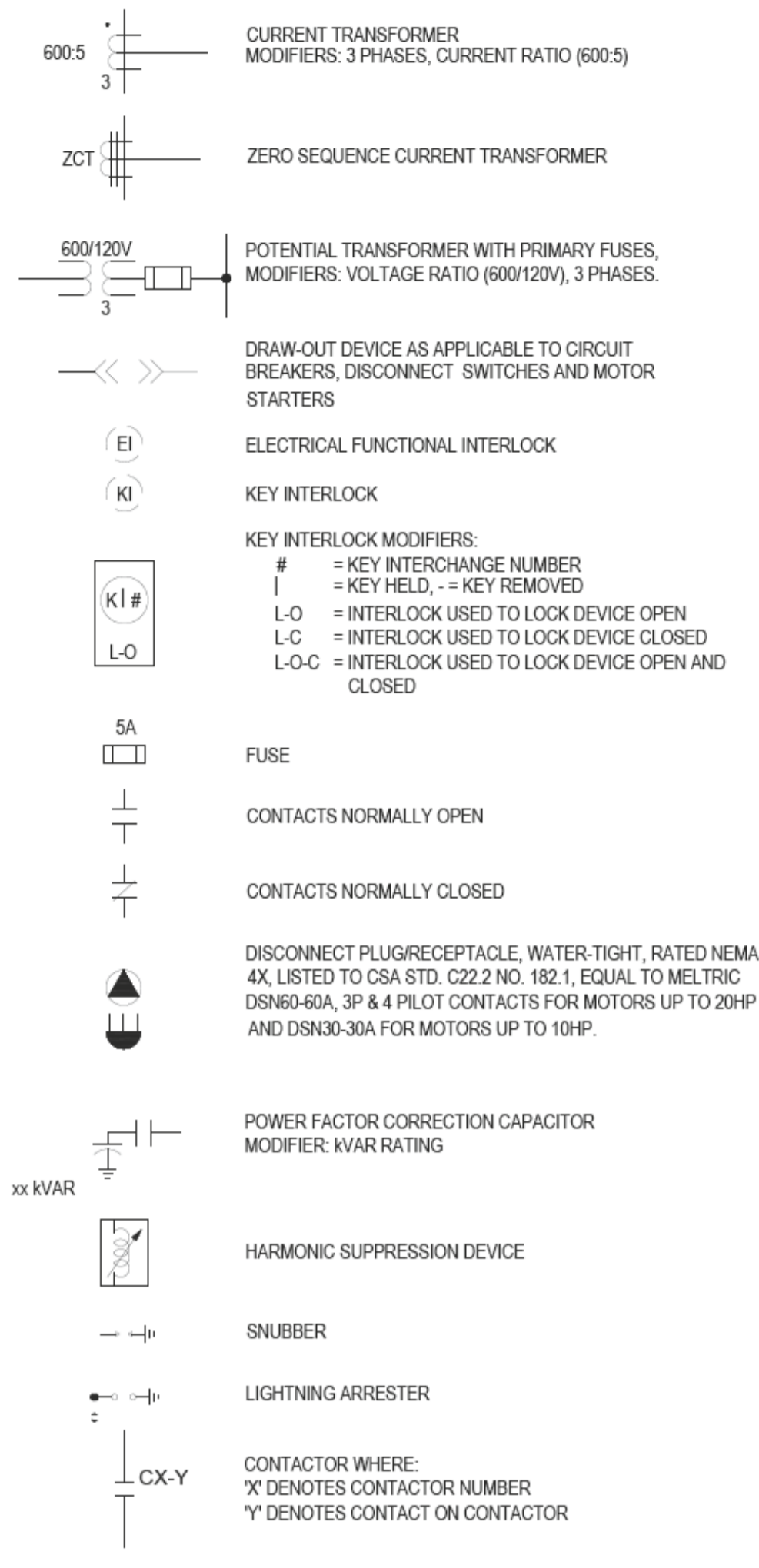
50	51G	27	59
S1			

- 24 - VOLTS PER HERTZ RELAY
- 25 - SYNCHRONIZING OR SYNCHRONISM CHECK DEVICE
- 25A - AUTOMATIC SYNCHRONIZER
- 27 - UNDERVOLTAGE
- 27R - REMNANT UNDERVOLTAGE
- 32 - REVERSE POWER RELAY OR DIRECTIONAL POWER RELAY
- 38 - BEARING PROTECTIVE DEVICE
- 40 - FIELD (OVER/UNDER EXCITATION) RELAY
- 46 - REVERSE PHASE OR PHASE BALANCE CURRENT RELAY
- 49 - MACHINE OR TRANSFORMER, THERMAL RELAY
- 50 - INSTANTANEOUS OVERCURRENT RELAY
- 51 - AC INVERSE TIME OVERCURRENT RELAY
- 59 - OVERVOLTAGE RELAY
- 63 - PRESSURE SWITCH
- 67 - DIRECTIONAL OVERCURRENT RELAY
- 810IU - OVER / UNDER FREQUENCY RELAY
- 86 - LOCKOUT RELAY
- 87 - DIFFERENTIAL PROTECTIVE RELAY

SUFFIXES:

- N NEUTRAL
- G GROUND, OR GENERATOR
- T TRANSFORMER
- F FIELD, OR FUSE

NOTE: DEVICE NUMBERS MAY BE COMBINED IF THE DEVICE PROVIDES MULTIPLE FUNCTIONS. FOR EXAMPLE: 50S1



The diagram shows two components. The top component is a rectangular box labeled "DISTRIBUTION PANEL" containing a vertical line with four horizontal branches, each ending in a semi-circular arc. The bottom component is a rectangular box labeled "GENERATOR" containing two overlapping circles.

	STARTER TERMINAL
	RTU TERMINAL
	FIELD DEVICE TERMINAL
	PANEL WIRING
	FIELD WIRING
	WIRE CONNECTION
	PILOT LIGHT
	OUTPUT PLC OUTPUT
	INPUT PLC INPUT
	MULTI-POSITION TOGGLE SWITCH
	PUSH BUTTON

	EQUIPMENT BOUNDARY OUTLINE
	WIRE/CABLE
	CONTROL SIGNAL (I/O) WIRING
	INCOMING LINE
	OUTGOING LINE
	BUSBAR
	DEVICE INTERLOCK
	FIBRE OPTIC MULTI-MODE CONNECTION
	FIBRE OPTIC SINGLE MODE CONNECTION
	FENCE
	ETHERNET CONNECTION
	NEW DUCT BANK
	EXISTING DUCT BANK
	CONNECTION
	GROUND
	SIGNAL, ELECTRICAL
	INTERLOCKING LOGIC

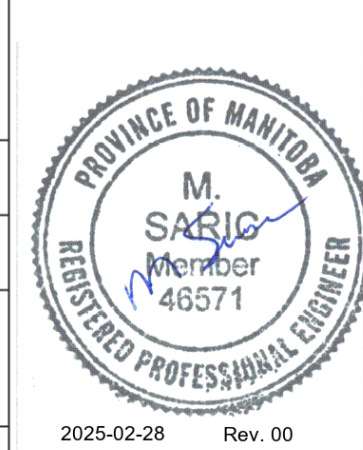
MODIFIERS: C = CONTROL UNIT I = SYSTEM LOGIC
OR INTERLOCK, R = MANUAL RESET,
E = EMERGENCY SHUTDOWN LOGIC,
P = PURGE OR FLUSHING DEVICE

SG511A-P1, SG511A-P4
SG511A-P2, SG511A-P5
SG511A-P3, SG511A-P6

CABLE TAG (SHORT FORM).
SEE 'CABLE IDENTIFICATION SYSTEM'
FOR MORE INFORMATION

TENDER NO. 30-2025

ENGINEER'S SEAL



 **THE CITY OF WINNIPEG**
WATER AND WASTE DEPARTMENT

NEWPCC - SECONDARY EFFLUENT
UV DISINFECTION FACILITY
ELECTRICAL
GENERAL
SYMBOL LEGEND

CITY DRAWING NUMBER	SHEET	REV.	SIZE
		00	A1

	TRANSFORMER
	PANEL BOARD - SURFACE MOUNTED
	THERMOSTAT
	UNIT HEATER
	FORCE FLOW HEATER
	SINGLE RECEPTACLE
	DUPLEX RECEPTACLE
	WHERE 'X' DENOTES: WP: WEATHERPROOF 4X: NEMA 4X MW: MILLWORK / COUNTER MOUNT
	ABOVE COUNTER DUPLEX RECEPTACLE
	WHERE 'X' DENOTES: WP: WEATHERPROOF 4X: NEMA 4X MW: MILLWORK / COUNTER MOUNT
	QUADPLEX RECEPTACLE
	WHERE 'X' DENOTES: WP: WEATHERPROOF 4X: NEMA 4X
	GROUND-FAULT CIRCUIT INTERRUPTER RECEPTACLE
	WHERE 'X' DENOTES: WP: WEATHERPROOF 4X: NEMA 4X
	ABOVE COUNTER GROUND-FAULT CIRCUIT INTERRUPTER RECEPTACLE
	WHERE 'X' DENOTES: WP: WEATHERPROOF 4X: NEMA 4X
	SPECIALTY RECEPTACLE
	CONDUIT UP
	CONDUIT DOWN
	MH
	HYDRO POLE
	SPLIT RECEPTACLE
	WHERE 'X' DENOTES: WP: WEATHERPROOF 4X: NEMA 4X GFCI: GROUND FAULT CURRENT INTERRUPTER


 LIGHTING SWITCH
 Y = 3 : THREE WAY
 Y = 4 : FOUR WAY
 Y = D : DIMMER
 Y = OC : OCCUPANCY


 LED LUMINAIRE


 LED LUMINAIRE, NIGHT


 EXTERIOR WALL MOUNT


 LUMINAIRE TYPE


 PHOTO CELL




EMERGENCY EXIT WITH
EMERGENCY LIGHTING

	BATTERY BANK
	BATTERY BANK: ILLUMINATED
	REMOTE HEAD: SINGLE
	REMOTE HEAD: DUAL

	SMOKE DETECTOR
	ALARM INPUT DEVICE
	FAULT ISOLATION MODULE
	END OF LINE DEVICE
	MANUAL PULL STATION
	WALL MOUNTED HORN/STROBE
	FIRE ALARM BELL

	COMPRESSION CONNECTION
	#4/0AWG BARE COPPER CABLE UNDERGROUND SYSTEM CONDUCTOR
	GROUND ROD
	GROUND ROD WITH INSPECTION TEST WELL
	EQUIPMENT RISER SOFT DRAWN 4/0 AWG COPPER
	BURIED COPPER ELECTRODE PLATE
	HORIZONTAL CABLE TAP TO HORIZONTAL CABLE RUN
	PARALLEL CONDUCTOR CONNECTION
	PARALLEL CONNECTION



					
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NO.	REVISIONS	DATE	DESIGN	CHECK	