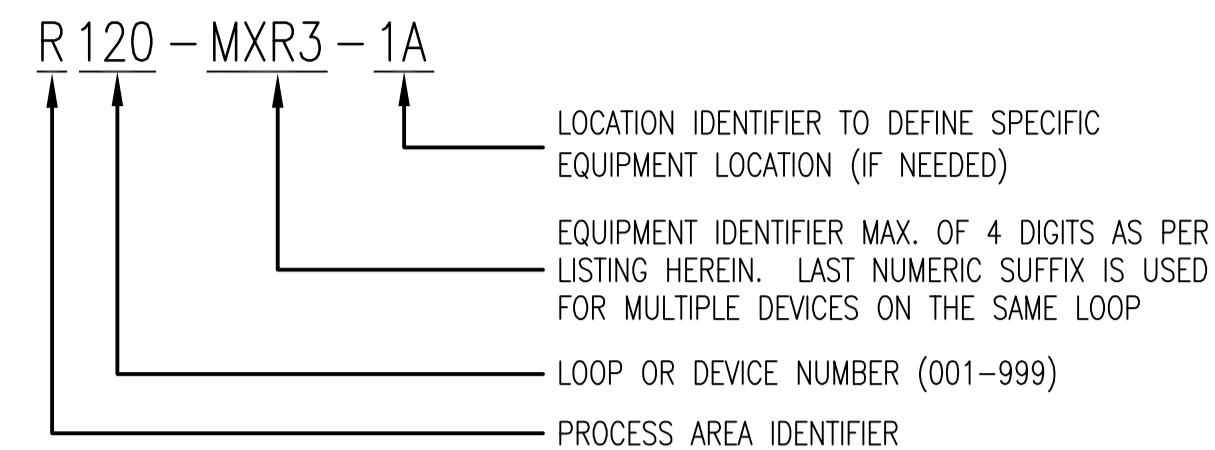


| INSTRUMENT SIGNAL IDENTIFIERS | | |
|-------------------------------|---|------------------------------|
| IDENTIFIER | DEFINITION | SIGNAL TYPE |
| AA | ANALYSIS ALARM (1ST STAGE) | DIGITAL INPUT |
| AF | ANALYSIS (SAMPLER) FAIL | DIGITAL INPUT |
| AH | ANALYSIS HIGH ALARM (1ST OR 2ND STAGE) | DIGITAL INPUT |
| AM | ANALYSIS (SAMPLER) ON/OFF STATUS | DIGITAL INPUT |
| AN | ANALYSIS (SAMPLER) START | DIGITAL OUTPUT |
| AT | ANALYSIS TRANSMIT (APPLIED TO ALL TYPES OF ANALYTICAL MEASUREMENTS) | ANALOG INPUT |
| AU | ANALYSIS MULTIFUNCTION (USED FOR COMMON ANALYTICAL POINT) | DIGITAL INPUT |
| BF | BURNER FLAME FAILURE | DIGITAL INPUT |
| BL | BOILER LOW FIRE | DIGITAL INPUT |
| BH | BOILER HIGH FIRE | DIGITAL INPUT |
| BM | BURNER FLAME STATUS ON | DIGITAL INPUT |
| BS | BOILER SAFETY (BOILER FIRE ENABLED) | DIGITAL INPUT |
| DT | DENSITY TRANSMIT | ANALOG INPUT |
| ET | VOLTAGE TRANSMIT | ANALOG INPUT |
| FL | FLOW RATE LOW | DIGITAL INPUT |
| FT | FLOW TRANSMIT | ANALOG INPUT |
| GA | GAS ALARM | DIGITAL INPUT |
| HM | MANUAL STATUS ON | DIGITAL INPUT |
| LH | LEVEL HIGH | DIGITAL INPUT |
| LL | LEVEL LOW | DIGITAL INPUT |
| LT | LEVEL TRANSMIT | ANALOG INPUT |
| MF | MOTOR FAILURE | DIGITAL READOUT |
| MM | MOTOR ON/OFF STATUS | DIGITAL INPUT |
| MN | MOTOR START | DIGITAL OUTPUT |
| MO | MOTOR STOP | DIGITAL OUTPUT |
| MX | MOTOR UNCLASSIFIED (X = RESET) | DIGITAL OUTPUT |
| NA | HUMIDITY ALARM | DIGITAL INPUT |
| PA | PRESSURE ALARM (1ST STAGE) | DIGITAL INPUT |
| PH | PRESSURE HIGH ALARM (1ST OR 2ND STAGE) | DIGITAL INPUT |
| PL | PRESSURE LOW | DIGITAL INPUT |
| PT | PRESSURE TRANSMIT | ANALOG INPUT |
| QA | COMMON ALARM (OR TROUBLE) | DIGITAL INPUT |
| QF | COMMON FAIL ALARM | DIGITAL INPUT |
| SB | SPEED DECREASE | MODULATING OUTPUT |
| SD | SPEED INCREASE | MODULATING OUTPUT |
| SM | SPEED CONTROLLER STATUS | DIGITAL INPUT |
| ST | SPEED TRANSMIT | ANALOG INPUT |
| TH | TEMPERATURE HIGH | DIGITAL INPUT |
| TT | TEMPERATURE TRANSMIT | ANALOG INPUT |
| UA | MULTIFUNCTION ALARM (MULTIPLE SYSTEM ALARM-ALTERNATE SYMBOL = QA) | DIGITAL INPUT |
| VB | VALVE CLOSE (OR DECREASE) | DIGITAL OR MODULATING OUTPUT |
| VD | VALVE OPEN (OR INCREASE) | DIGITAL OR MODULATING OUTPUT |
| XA | UNCLASSIFIED ALARM (X = FIRE) | DIGITAL INPUT |
| XT | UNCLASSIFIED TRANSMIT (X = POWER FACTOR) | ANALOG INPUT |
| YK | COMPUTER/LOCAL STATION | DIGITAL INPUT |
| YM | COMPUTER OPERATIONAL | DIGITAL INPUT |
| YS | COMPUTER SWITCH STATUS | DIGITAL INPUT |
| YX | COMPUTER UNCLASSIFIED (STATUS ON) | DIGITAL INPUT |
| ZB | POSITION CLOSED (LIMIT SWITCH) | ANALOG INPUT |
| ZD | POSITION OPEN (LIMIT SWITCH) | DIGITAL INPUT |
| ZL | POSITION LOW (BELT TENSION) | DIGITAL INPUT |
| ZT | POSITION TRANSMIT | ANALOG INPUT |

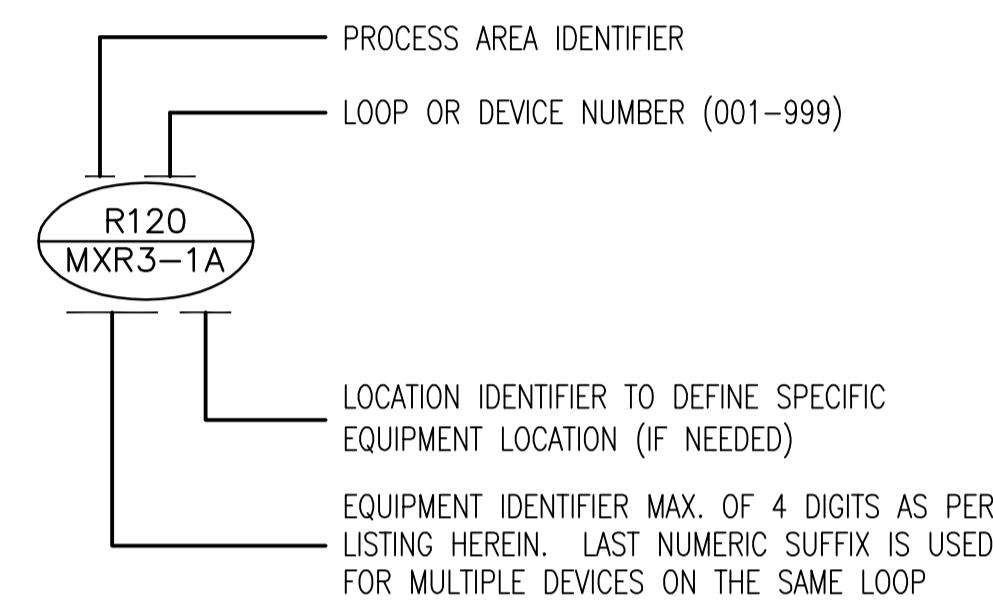
| EQUIPMENT IDENTIFIERS | |
|-----------------------|--|
| IDENTIFIER | DEFINITION |
| AB | AIR BLOWER |
| AC | AIR COMPRESSOR |
| ACU | AIR CONDITIONING UNIT |
| AD | AIR DRYER |
| AF | AERATION FAN (EXISTING OR NEW) |
| AHU | AIR HANDLING UNIT |
| BD | BACK DRIVE |
| BF | BOILER FAN (EXISTING OR NEW) |
| BP | BOILER PUMP (EXISTING OR NEW) |
| CA | CAKE AGITATOR |
| CAP | CAKE PUMP |
| CC | COOLING COIL |
| CE | CENTRIFUGE |
| CM | CLARIFIER MECHANISM |
| CMP | COMPRESSOR |
| CON | CONVEYOR |
| CP | CIRCULATING PUMP |
| CU | CONDENSING UNIT |
| DAF | DISSOLVED AIR FLOTATION |
| DC | DRAG CONVEYOR |
| DF | DIGESTER FAN (EXISTING OR NEW) |
| DP | DIGESTER PUMP (EXISTING OR NEW) |
| DR | DIGESTER COMPRESSOR (EXISTING OR NEW) |
| DU | DIGESTER UNIT HEATER (EXISTING OR NEW) |
| DWP | DEWATERING PUMP |
| EF | EXHAUST FAN |
| EW | EYE WASH |
| EXH | HEATER EXCHANGER |
| F OR FN | FAN |
| FG | FLAP GATE |
| GB | GRIT BLOWER |
| GP | GLYCOL PUMP |
| HC | HEAT COIL |
| HRC | HEAT RECOVERY COIL |
| HWP | HOT WATER PUMP |
| HWT | HOT WATER TANK |
| LOP | LUBE OIL PUMP |
| MAU | MAKE-UP AIR UNIT |
| M | MOTOR |
| MXR | MIXER MOTOR |
| P | PUMP |
| PB | PURGE BLOWER |
| PF | PRIMARY FAN (EXISTING OR NEW) |
| PM | PRIMARY MOTOR |
| PO | PROCESS OVERFLOW |
| POD | POLYMER BLOWER |
| POF | POLYMER FEED PUMP |
| POM | POLYMER MIXER |
| PP | PRIMARY PUMP (EXISTING OR NEW) |
| PR | PRIMARY AIR COMPRESSOR |
| PSF | POLYMER SCREW FEEDER |
| PU | PRIMARY UNIT HEATER (EXISTING OR NEW) |
| R | COMPRESSOR (REFRIGERANT) |
| RAP | RAS PUMP |
| RH | RADIANT HEATER |
| SAT | SATURATOR |
| SC | SLUDGE COLLECTOR |
| SCA | SLUDGE CAKE AUGER |
| SE | SAMPLER ELEMENT |
| SFP | SLUDGE FEED PUMP |
| SG | SLUICE GATE |
| SL | STOP LOG |
| SLP | PRIMARY SLUDGE PUMP |
| SMP | SUMP PUMP |
| SP | SCUM PUMP |
| STP | SLUDGE TRANSFER PUMP |
| SWP | SWASH PLATE |
| T | TANK |
| TD | TRUCK DOOR |
| UPS | UNINTERRUPTIBLE POWER SUPPLY |
| UH | UNIT HEATER |
| UV | ULTRAVIOLET LAMP ASSEMBLY |
| VFD | VARIABLE FREQUENCY DRIVE |
| WAP | WAS PUMP |
| WP | WELL PUMP |
| W | WEIR |
| WG | WEIR GATE |

EQUIPMENT IDENTIFICATION

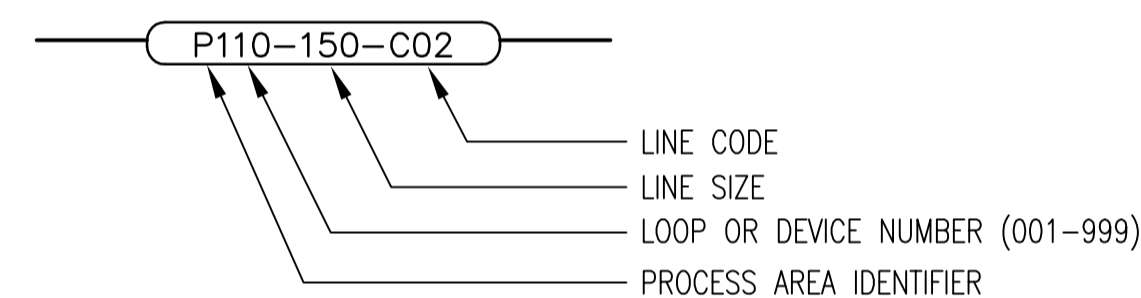
THE EQUIPMENT IDENTIFICATION MAY BE IN EITHER TEXT OR EQUIPMENT TAG FORMAT.



OR



PROCESS LINE DESIGNATION



| PROCESS AREA IDENTIFIERS | |
|--------------------------|--------------------------------------|
| IDENTIFIER | DEFINITION |
| L | GENERAL AND SITE WORKS |
| H | HEADWORKS |
| F | FERMENTERS |
| P | PRIMARY CLARIFIERS |
| S | SECONDARY CLARIFIERS AND BIOREACTORS |
| T | DAF THICKENERS |
| U | UTILITY BUILDING |
| Z | ULTRA VIOLET DISINFECTION |

IMPERIAL PIPE SIZE CHART (METRIC EQUIVALENT)

| IN | MM | IN | MM |
|-------|-------|-------|--------|
| 1/8 | = 3 | 1/4 | = 350 |
| 1/4 | = 6 | 3/8 | = 400 |
| 3/8 | = 10 | 1/2 | = 450 |
| 1/2 | = 12 | 3/4 | = 500 |
| 3/4 | = 20 | 1 | = 550 |
| 1 | = 25 | 1 1/4 | = 600 |
| 1 1/4 | = 32 | 1 1/2 | = 650 |
| 1 1/2 | = 38 | 2 | = 700 |
| 2 | = 50 | 2 1/2 | = 750 |
| 2 1/2 | = 65 | 3 | = 800 |
| 3 | = 75 | 3 1/2 | = 850 |
| 3 1/2 | = 90 | 4 | = 900 |
| 4 | = 100 | 4 1/2 | = 950 |
| 4 1/2 | = 112 | 5 | = 1000 |
| 5 | = 125 | 5 1/2 | = 1050 |
| 6 | = 150 | 6 | = 1100 |
| 7 | = 175 | 6 1/2 | = 1150 |
| 8 | = 200 | 7 | = 1200 |
| 9 | = 225 | 7 1/2 | = 1250 |
| 10 | = 250 | 8 | = 1300 |
| 11 | = 275 | 8 1/2 | = 1350 |
| 12 | = 300 | | |

| PROCESS LINE CODES | |
|--------------------|----------------------------------|
| IDENTIFIER | DEFINITION |
| AC | ALTERNATING CURRENT (ELECTRICAL) |
| CCW | CIRCULATING COOLING WATER |
| CE | CENTRATE |
| CL | CHLORINE |
| CLR | COMPRESSED LIQUEFIED REFRIGERANT |
| CO2 | CARBON DIOXIDE |
| CON | CONDENSATE |
| CS | SLUDGE CAKE |
| CWR | COLD WATER RETURN |
| CWS | COLD WATER SUPPLY |
| DG | DIGESTER GAS |
| DGH | HIGH PRESSURE DIGESTER GAS |
| DL | DECANT LIQUOR |
| DS | DIGESTED SLUDGE |
| DP | DRY POLYMER |
| EDR | EVAPORATED REFRIGERANT |
| ES | ELECTROLYTE SOLUTION |
| FC | FERRIC CHLORIDE |
| FE | FINAL EFFLUENT |
| FGA | FILTER GALLERY AIR |
| FOA | FOUL AIR |
| FSL | FERMENTER SLUDGE |
| FSU | FERMENTER SUPERNATANT |
| FW | FLUSHING WATER |
| GE | GRIT EFFLUENT |
| GR | GLYCOL RETURN |
| GS | GLYCOL SUPPLY |
| HCO | HYDRAULIC OIL |
| HWR | HOT WATER RETURN |
| HWS | HOT WATER SUPPLY |
| HYD | HYDROGEN |
| IAS | INSTRUMENT AIR SUPPLY |
| LCP | LIQUID CONCENTRATED POLYMER |
| LGO | LUBRICATING OIL |
| ML | MIXED LIQUOR |
| MP | MIXED POLYMER |
| N2 | NITROGEN |
| NLG | NATURAL GAS |
| O2 | OXYGEN |
| PA | PROCESS AIR |
| PD | PROCESS DRAIN |
| PE | PRIMARY EFFLUENT |
| PO | PROCESS OVERFLOW |
| PS | PRIMARY SLUDGE |
| PV | PROCESS VENT |
| PW | POTABLE WATER |
| RAS | RETURN ACTIVATED SLUDGE |
| RW | RECIRCULATED WATER |
| RS | RAW SEWAGE |
| SE | SECONDARY EFFLUENT |
| SEA | SERVICE AIR |
| SC | SCUM |
| SUB | DAF SUBNATANT |
| SW | SEAL WATER |
| TBS | THICKENED BOTTOM SLUDGE |
| TO | THERMAL OXIDIZER |
| TS | THIN SLUDGE |
| TWAS | THICKENED WASTE ACTIVATED SLUDGE |
| VMA | VACUUM AIR |
| VTA | VENT TO ATMOSPHERE |
| W | WATER |
| WAS | WASTE ACTIVATED SLUDGE |



| | | | | | | | |
|------------|---------------------------------------|--|--------------------------------------|--|------|------------------|---------------------|
| B.M. ELEV. | A Tyco International Ltd. Company | | ENGINEER'S SEAL | THE CITY OF WINNIPEG WATER AND WASTE DEPARTMENT ENGINEERING DIVISION | | | |
| | | | ORIGINAL SIGNED BY J.E. HUTCHISON | | | | |
| | DESIGNED BY CGL | CHECKED BY PRB | 2006/04/26 | WEWPC BIOLOGICAL NUTRIENT REMOVAL UPGRADE CONTRACT 3 | | | |
| | DRAWN BY LAE | APPROVED BY JEH | CONSULTANT DRAWING NO. LP0.03 | | | CITY FILE NUMBER | |
| | HOR. SCALE: NTS | RELEASED FOR CONSTRUCTION BY: J. VEILLEUX | | GENERAL AREA L - GENERAL AND SITEWORKS LEGEND AND ABBREVIATIONS | | | |
| 00 | ISSUED FOR TENDER | 06/04/26 | DATE | | | 2006/04/21 | DATE |
| NO. | REVISIONS | DATE | BY | DATE | DATE | DATE | CITY DRAWING NUMBER |