

IF NOT SHOWN, ASSUME SCALES

SCALES: SHOWN ARE INTENDED FOR ASPECT RATIO DRAWINGS. TAILOR (11/11/17) SIZE DRAWINGS ARE TO OF SCALES. SHOWN UNLESS NOTED OTHERWISE.

RAW SEWAGE

FROM TOWN LIFT STATION

SCREEN SPLITTER BOX

FINE SCREEN

GRIT CHAMBER

PLANT LIFT STATION

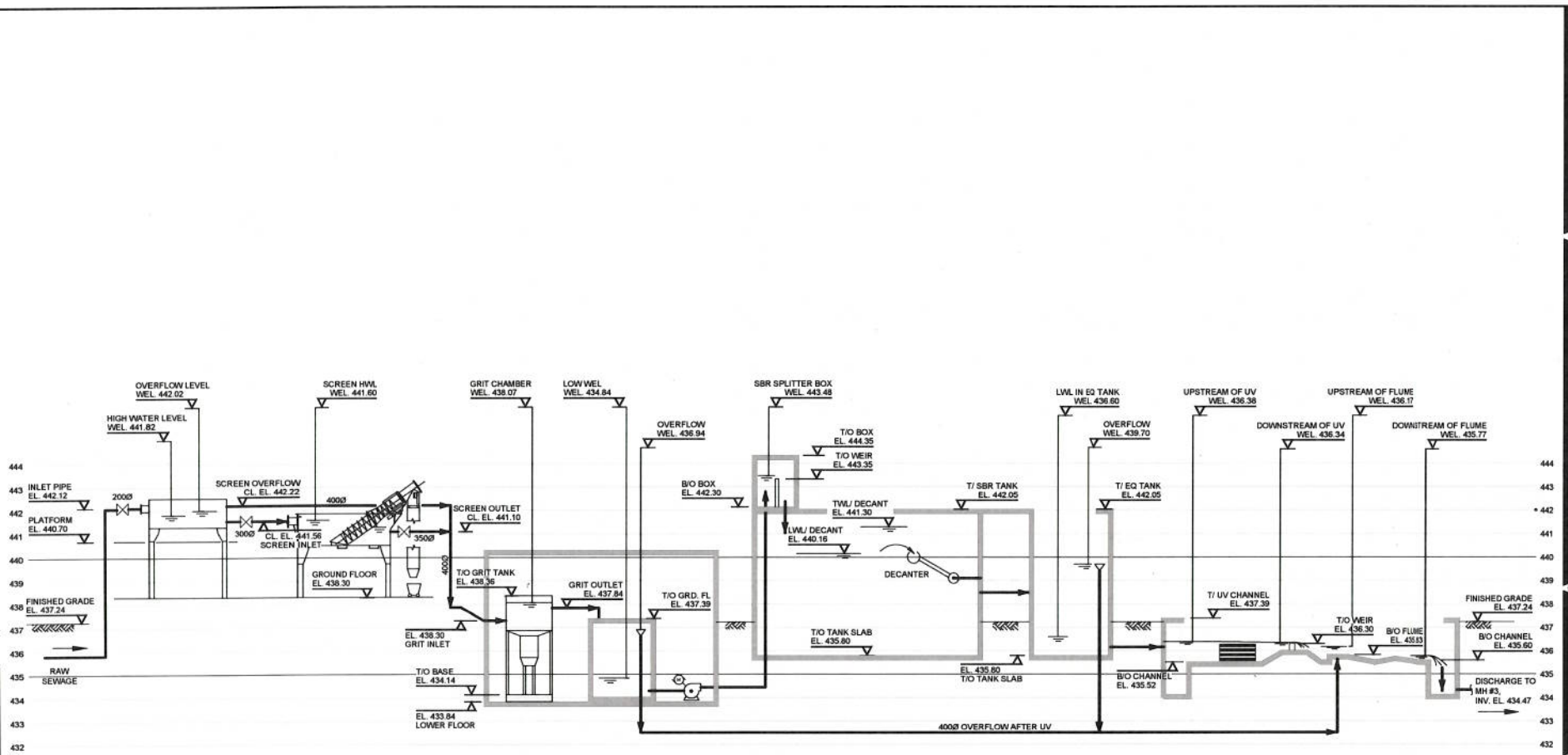
SBR TANKS

EQUALIZATION TANKS

UV CHANNEL

PARSHALL FLUME (229 mm, 9")

EFFLUENT CHAMBER



1 PROFILE NTS  
 PLANT HYDRAULIC  
 (Q<sub>Peak Wet Weather Flow</sub> = 8640 m<sup>3</sup>/d)

| REV | DATE        | DESIGN | DRAWN    | DESCRIPTION       |
|-----|-------------|--------|----------|-------------------|
| 0   | 2017 JAN 11 | K. YU  | W. ZHANG | ISSUED FOR TENDER |



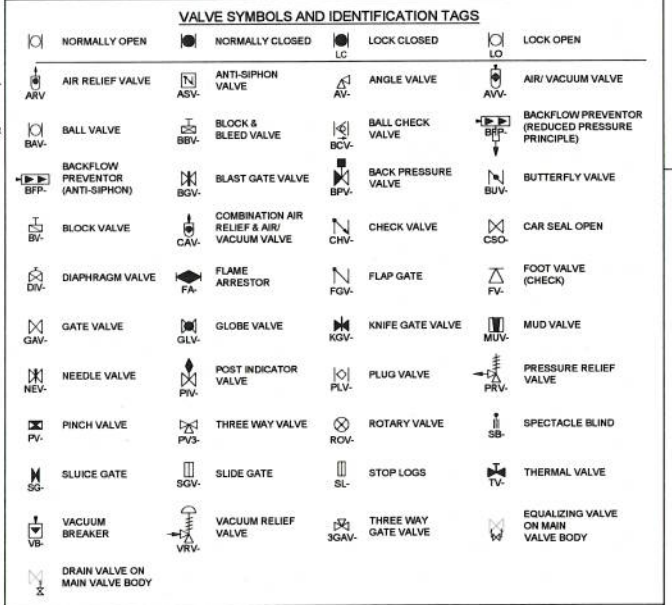
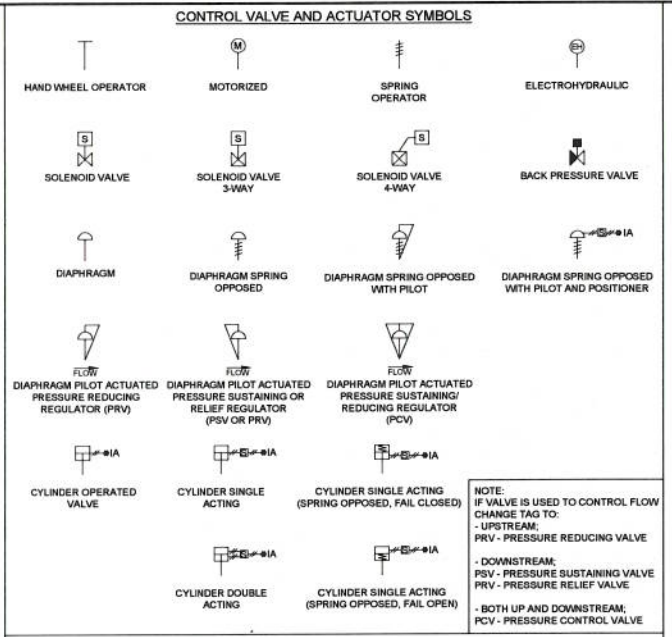
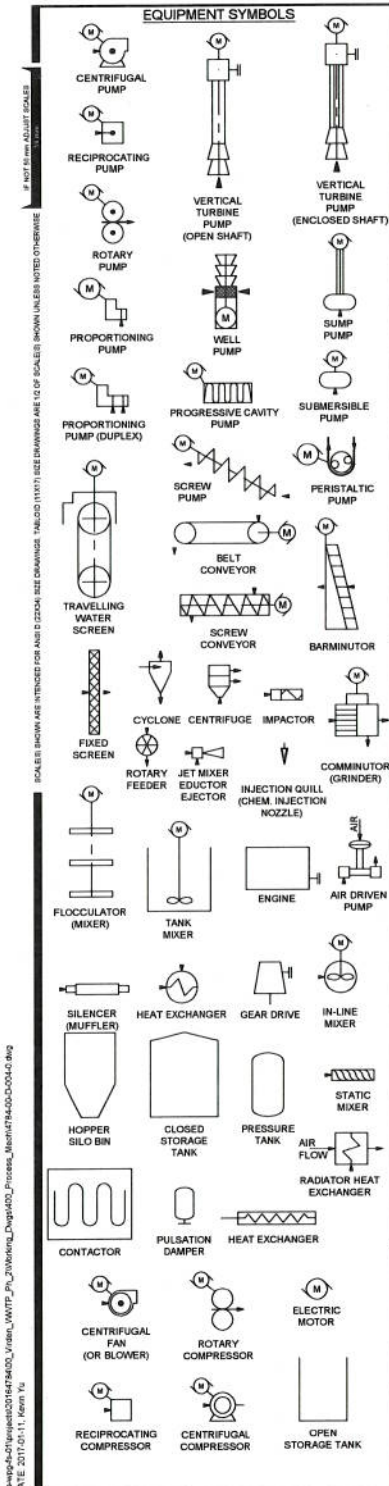
TOWN OF VIRDEN & MANITOBA WATER SERVICES BOARD

PHASE 2: WASTEWATER TREATMENT FACILITY UPGRADES

M.W.S.B. # 1302 / 2016-4784-00

SCALE: N/A  
 PROCESS HYDRAULIC PROFILE  
 GENERAL

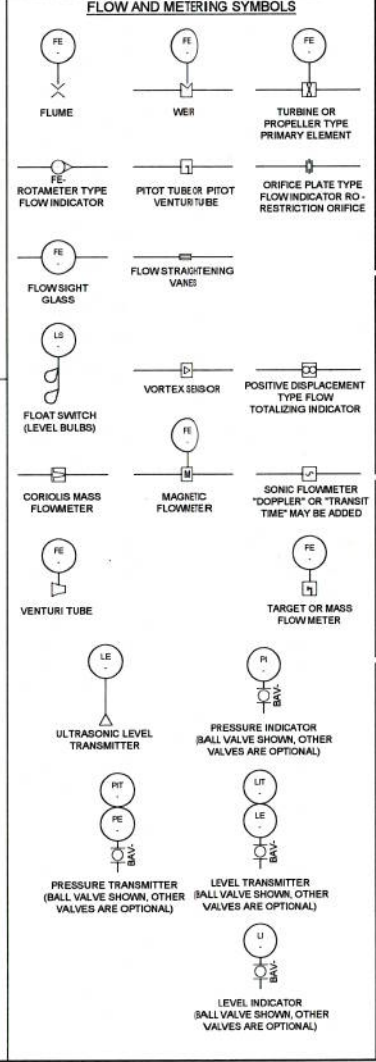
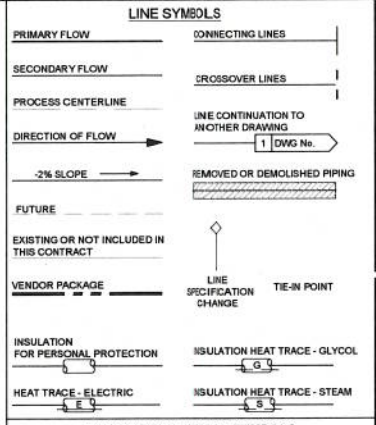
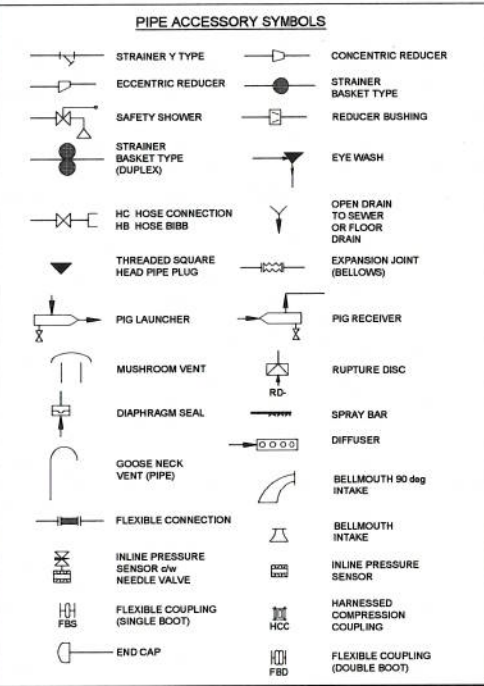
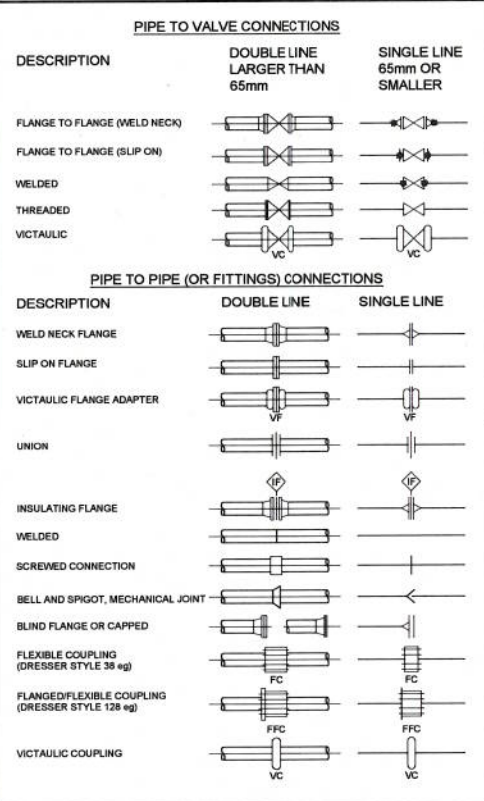
| DRAWING | REVISION | SHEET    |
|---------|----------|----------|
| D-003-0 | 0        | 59 / 143 |



### PIPE CONVERSION CHART

| NOMINAL PIPE DIAMETER INCHES | NOMINAL PIPE DIAMETER MILLIMETRES | NOMINAL PIPE DIAMETER INCHES | NOMINAL PIPE DIAMETER MILLIMETRES | NOMINAL PIPE DIAMETER INCHES | NOMINAL PIPE DIAMETER MILLIMETRES |
|------------------------------|-----------------------------------|------------------------------|-----------------------------------|------------------------------|-----------------------------------|
| 1/8                          | 5                                 | 14                           | 353                               | 54                           | 1350                              |
| 1/4                          | 8                                 | 15                           | 375                               | 60                           | 1500                              |
| 3/8                          | 10                                | 16                           | 400                               | 65                           | 1650                              |
| 1/2                          | 12                                | 18                           | 450                               | 72                           | 1800                              |
| 3/4                          | 20                                | 20                           | 500                               | 78                           | 1950                              |
| 1                            | 25                                | 22                           | 550                               | 84                           | 2100                              |
| 1 1/4                        | 32                                | 24                           | 600                               | 90                           | 2250                              |
| 1 1/2                        | 38                                | 27                           | 675                               | 98                           | 2450                              |
| 2                            | 45                                | 30                           | 750                               | 102                          | 2550                              |
| 2 1/2                        | 60                                | 36                           | 900                               | 108                          | 2700                              |
| 3                            | 75                                | 42                           | 1050                              | 114                          | 2850                              |
| 3 1/2                        | 90                                | 48                           | 1200                              | 120                          | 3000                              |
| 4                            | 100                               |                              |                                   |                              |                                   |
| 4 1/2                        | 110                               |                              |                                   |                              |                                   |
| 5                            | 125                               |                              |                                   |                              |                                   |
| 6                            | 150                               |                              |                                   |                              |                                   |
| 8                            | 200                               |                              |                                   |                              |                                   |
| 10                           | 250                               |                              |                                   |                              |                                   |
| 12                           | 300                               |                              |                                   |                              |                                   |

NOTE: PIPE SIZE FROM 2" THROUGH TO 60" - CONVERSION BASED ON CSA STANDARD Z245.1 PIPE SIZE 2" AND SMALLER - CONVERSION BASED ON EUROPEAN ISO STANDARD OTHER PIPE SIZES ARE U.S. CONVERSIONS TO THE METRIC SYSTEM



| REV | DATE      | DESIGN         | DRAWN         | DESCRIPTION       |
|-----|-----------|----------------|---------------|-------------------|
| 0   | 2017JAN11 | K. YU/M. GABOS | W. J. / M. G. | ISSUED FOR TENDER |



**TOWN OF VIRDEN & MANITOBA WATER SERVICES BOARD**  
**PHASE 2: WASTEWATER TREATMENT FACILITY UPGRADES**

M.W.S.B. # 1302 / 2016-4784-00

SCALE: N/A  
 PROCESS LEGEND AND SYMBOLS GENERAL

| DRAWING | REVISION | SHEET    |
|---------|----------|----------|
| D-004-0 | 0        | 60 / 143 |

SCALE: SHOWN ARE INTENDED FOR AND TO SHOW SIZE DRAWINGS. TALLIED (T) SIZE DRAWINGS ARE 1/2 OF SCALE(S) SHOWN UNLESS NOTED OTHERWISE.  
 SCALE: SHOWN ARE INTENDED FOR AND TO SHOW SIZE DRAWINGS. TALLIED (T) SIZE DRAWINGS ARE 1/2 OF SCALE(S) SHOWN UNLESS NOTED OTHERWISE.  
 DATE: 2012-11-11 10:41:11 AM

**COMMODITY CODES**

| CODE | COMMODITY                           |
|------|-------------------------------------|
| AA   | AQUEOUS AMMONIA                     |
| AAS  | AERATION AIR SUPPLY                 |
| ACS  | ACTIVATED CARBON SOLUTION           |
| AL   | ALUM LIQUID                         |
| ALS  | ALUM SLUDGE                         |
| AMG  | AMMONIA GAS (ANHYDROUS)             |
| AML  | AMMONIA LIQUID (ANHYDROUS)          |
| AMS  | AMMONIA SOLUTION                    |
| AP   | ALUM POWDER (DRY)                   |
| AQAS | AQUEOUS AMMONIA SOLUTION            |
| ARL  | AIR RELIEF LINE                     |
| AS   | AIR SCOUR                           |
| ASC  | ANTISCALEANT                        |
| ASS  | ACTIVATED SLUDGE                    |
| ASW  | ALUM SOLUTION WASTE                 |
| AVL  | AIR VACUUM LINE                     |
| AW   | AIR WASH SUPPLY                     |
| BPE  | BACK WASH - PLANT EFFLUENT (SEWAGE) |
| BPW  | BACK PULSE WATER                    |
| BWR  | BACK WASH RECIRCULATION             |
| BWS  | BACK WASH SUPPLY                    |
| BWW  | BACK WASH WASTE                     |
| CD   | CENTRIFUGE DECANT                   |
| CDG  | CHLORINE DIOXIDE GAS                |
| CG   | CHLORINE DIOXIDE SOLUTION           |
| CGS  | CARBON DIOXIDE GAS                  |
| CHW  | CHEMICAL WASTE                      |
| CIP  | CLEAN IN PLACE                      |
| CLG  | CHLORINE GAS                        |
| CLL  | CHLORINE LIQUID                     |
| CLS  | CHLORINE SOLUTION                   |
| COA  | COAGULANT AID                       |
| CON  | CONCENTRATE                         |
| CR   | CITRIC ACID                         |
| CRS  | CITRIC ACID SOLUTION                |
| CWR  | COOLING WATER RETURN                |
| CWS  | COOLING WATER SUPPLY                |
| CWW  | COOLING WATER WASTE                 |
| DBS  | DIGESTED BIOSOLIDS                  |
| DCW  | DOMESTIC COLD WATER                 |
| DDT  | DIGESTER DECANT                     |
| DFR  | DIESEL FUEL RETURN                  |
| DFW  | DIESEL FUEL SUPPLY                  |
| DHW  | DOMESTIC HOT WATER                  |
| DHWR | DOMESTIC HOT WATER RECIRCULATION    |
| DIS  | DIGESTED SLUDGE                     |
| DR   | DRAIN                               |
| DS   | PHOSPHATE SODIUM SULPHITE           |
| DWB  | DEWATERED BIOSOLIDS                 |
| EAS  | EXCESS ACTIVATED SLUDGE             |
| EE   | ENGINE EXHAUST                      |
| EFF  | EFFLUENT                            |
| FA   | FLUOSILICIC ACID (FLUORIDE)         |
| FIL  | FILTERED WATER                      |
| FLO  | FLUSHING OIL                        |
| FLT  | FILTRATE                            |
| FLW  | FLUSHING WATER                      |
| FOR  | FUEL OIL RETURN                     |
| FOS  | FUEL OIL SUPPLY                     |
| FTW  | FILTER TO WASTE DRAIN               |
| FW   | FIRE WATER                          |
| GRE  | GREASE                              |
| GR   | GRIT LINE                           |
| GRR  | GLYCOL RETURN                       |
| GRS  | GLYCOL SUPPLY                       |
| HCA  | HYDROCHLORIC ACID                   |
| HL   | HYDRATED LIME (DRY)                 |
| HLS  | HYDRATED LIME SLURRY                |
| HPW  | HEATED POTABLE WATER                |
| HRWR | HEATED RAW WATER RETURN             |
| HRWS | HEATED RAW WATER SUPPLY             |
| HWR  | HOT WATER RETURN                    |
| HWS  | HOT WATER SUPPLY                    |
| IA   | INSTRUMENT AIR (FILTERED & DRIED)   |
| LO   | LUBRICATING OIL                     |
| LPG  | LIQUID PROPANE GAS                  |
| LS   | LIME SOLUTION                       |
| MET  | METHANOL                            |
| ML   | MIXED LIQUOR                        |
| MLSS | MIXED LIQUOR SUSPENDED SOLIDS       |
| NGH  | NATURAL GAS HIGH PRESSURE           |
| NGL  | NATURAL GAS LOW PRESSURE            |
| NGM  | NATURAL GAS MEDIUM PRESSURE         |
| OF   | OUTFALL PIPE                        |
| OG   | OXYGEN GAS                          |
| OV   | OVERFLOW PIPE                       |
| PAC  | POWDER ACTIVATED CARBON (DRY)       |
| PACS | POWDER ACTIVATED CARBON (SOLUTION)  |

| CODE | COMMODITY                                 |
|------|---|
| PE   | PLANT EFFLUENT (WASTE WATER)              |
| PERW | PERMEATE WATER                            |
| PET  | GASOLINE (PETROLEUM)                      |
| PFW  | FLUSHING LINE (USUALLY PW)                |
| PHWR | POTABLE HOT WATER RETURN                  |
| PHWS | POTABLE HOT WATER SUPPLY                  |
| PLS  | PRIMARY LIME SLUDGE                       |
| PLY  | POLYELECTROLYTE SOLUTION                  |
| PLYS | POLYMER SOLUTION                          |
| PPE  | PRIMARY PLANT EFFLUENT                    |
| PPS  | POTASSIUM PERMANGANATE SOLUTION           |
| PPSW | PLANT SERVICE WATER (USUALLY PW)          |
| PRF  | PRESSURE RELIEF LINE                      |
| PS   | PRIMARY SLUDGE                            |
| PSW  | PLANT SERVICE WATER                       |
| ASC  | AIR RECEIVER TANK                         |
| ASC  | AIR SCRUBBER                              |
| ASP  | ALUM SOLUTION PUMP                        |
| AT   | ALUM TANK                                 |
| BAR  | BARMINUTOR                                |
| BC   | BELT CONVEYOR                             |
| BF   | BYPASS FILTER                             |
| BFP  | BACK FLOW PREVENTER                       |
| BN   | BN / DUMPSTER                             |
| BLO  | BLOWER                                    |
| BRP  | BACKWASH WATER RECYCLE PUMP               |
| BRT  | BRINE TANK                                |
| BSP  | BACKWASH SUPPLY PUMP                      |
| BWP  | BACKWASH WASTE PUMP                       |
| CAC  | CALIBRATION CHAMBER                       |
| CB   | CATCH BASIN                               |
| CC   | CHLORINE CONTACT CHAMBER                  |
| CDG  | CHLORINE DIOXIDE GENERATOR                |
| CEC  | CHLORINE EXPANSION CHAMBER                |
| CEF  | CENTRIFUGE                                |
| CGA  | CHLORINE GAS ANALYZER                     |
| CGC  | CHLORINE GAS CYLINDER                     |
| CGD  | CHLORINE GAS DETECTOR                     |
| CGE  | CHLORINE GAS EVAPORATOR                   |
| CGF  | CHLORINATOR (FEEDER)                      |
| CL   | CLARIFIER                                 |
| CLS  | CLARIFIER (SECONDARY)                     |
| CDM  | CLARIFIER DRIVE MOTOR                     |
| CRDM | CLARIFIER RAKE DRIVE MOTOR                |
| CLST | CHLORINE SOLUTION TANK                    |
| CO   | CLEAN OUT                                 |
| COAP | COAGULANT AID PUMP                        |
| COAT | COAGULANT AID TANK                        |
| COF  | COMBINATION CARBON DIOXIDE FEEDER (CO2)   |
| COM  | COMMUNITOR                                |
| COMP | COMPRESSOR (INSTRUMENT AIR)               |
| CR   | CRANE                                     |
| CRSP | CITRIC ACID PUMP                          |
| CRST | CITRIC ACID TANK                          |
| CSP  | CAUSTIC SODA PUMP                         |
| CTF  | CUT THROAT FLUME                          |
| CUSP | CAUSTIC SODA SOLUTION PUMP                |
| DCT  | DECANTER                                  |
| DEC  | DECLORINATOR                              |
| DL   | DOCK LEVELER                              |
| DLT  | DILUTION TANK (UNSPECIFIED SERVICE)       |
| DRS  | DRIVE SHAFT                               |
| DT   | DAY TANK                                  |
| DWM  | DOMESTIC WATER HEATER                     |
| E    | ELEVATOR                                  |
| ED   | EJECTOR OR EJECTOR                        |
| ENG  | ENGINE                                    |
| ES   | EXHAUST SILENCER (MUFFLER)                |
| ESH  | EMERGENCY SHOWER UNIT                     |
| EV   | EVAPORATOR                                |
| FAP  | FLUOSILICIC ACID (FLUORIDE) PUMP          |
| FASP | FLUOSILICIC ACID (FLUORIDE) SOLUTION PUMP |
| FAST | FLUOSILICIC ACID (FLUORIDE) SOLUTION TANK |
| FAT  | FLUOSILICIC ACID (FLUORIDE) TANK          |
| FB   | FLOOR BOX (VALVE)                         |
| FBP  | FILTERED BLEND PUMP                       |
| FD   | FLOOR DRAIN                               |
| FEX  | FIRE EXTINGUISHER                         |
| FF   | FLUORIDE FEEDER                           |
| FH   | FIRE HYDRANT                              |
| FHC  | FIRE HOSE CONNECTION                      |
| FIL  | FILTER (PROCESS WATER)                    |
| FIL  | FUEL OIL FILTER                           |
| FS   | FIXED SCREEN (BAR OR MESH)                |
| FSP  | FUEL SUPPLY PUMP                          |
| FT   | FUEL TANK                                 |
| FUD  | FUNNEL DRAIN                              |
| FWP  | FIRE WATER PUMP                           |
| OCB  | GRIT CHAMBER                              |
| OCL  | GRASS CLASSIFIER                          |
| GEN  | GENERATOR                                 |
| GRD  | GRINDER                                   |
| GTP  | GRIT PUMP                                 |

**EQUIPMENT CODES**

| CODE | EQUIPMENT                      |
|------|--------------------------------|
| AA   | AMMONIA ANALYZER               |
| AAP  | AQUEOUS AMMONIA PUMP           |
| AASP | AQUEOUS AMMONIA SOLUTION PUMP  |
| AAST | AQUEOUS AMMONIA SOLUTION TANK  |
| AAT  | AQUEOUS AMMONIA TANK           |
| AC   | AIR COMPRESSOR                 |
| ACF  | ACTIVATED CARBON FEEDER        |
| ACSP | ACTIVATED CARBON SOLUTION PUMP |

| CODE | COMMODITY                                 |
|------|---|
| ACST | ACTIVATED CARBON SOLUTION TANK            |
| AD   | AIR DRAIN                                 |
| AER  | AERATOR                                   |
| AET  | AERATION TANK                             |
| AF   | AIR FILTER                                |
| AGC  | AIR GAS COMPRESSOR (RECARBONATION UNIT)   |
| AGD  | AMMONIA GAS DETECTOR                      |
| AH   | ALUMINIUM HOPPER                          |
| AID  | AIR DIFFUSER                              |
| ALF  | ALUM FEEDER                               |
| ALP  | AIR LIFT PUMP                             |
| AMF  | AMMONIATOR (FEEDER)                       |
| ANP  | ANAEROBIC POND (TANK)                     |
| AP   | AEROBIC POND (TANK)                       |
| AP   | ANALYSIS POINT                            |
| ART  | AIR RECEIVER TANK                         |
| ASC  | AIR SCRUBBER                              |
| ASP  | ALUM SOLUTION PUMP                        |
| AT   | ALUM TANK                                 |
| BAR  | BARMINUTOR                                |
| BC   | BELT CONVEYOR                             |
| BF   | BYPASS FILTER                             |
| BFP  | BACK FLOW PREVENTER                       |
| BN   | BN / DUMPSTER                             |
| BLO  | BLOWER                                    |
| BRP  | BACKWASH WATER RECYCLE PUMP               |
| BRT  | BRINE TANK                                |
| BSP  | BACKWASH SUPPLY PUMP                      |
| BWP  | BACKWASH WASTE PUMP                       |
| CAC  | CALIBRATION CHAMBER                       |
| CB   | CATCH BASIN                               |
| CC   | CHLORINE CONTACT CHAMBER                  |
| CDG  | CHLORINE DIOXIDE GENERATOR                |
| CEC  | CHLORINE EXPANSION CHAMBER                |
| CEF  | CENTRIFUGE                                |
| CGA  | CHLORINE GAS ANALYZER                     |
| CGC  | CHLORINE GAS CYLINDER                     |
| CGD  | CHLORINE GAS DETECTOR                     |
| CGE  | CHLORINE GAS EVAPORATOR                   |
| CGF  | CHLORINATOR (FEEDER)                      |
| CL   | CLARIFIER                                 |
| CLS  | CLARIFIER (SECONDARY)                     |
| CDM  | CLARIFIER DRIVE MOTOR                     |
| CRDM | CLARIFIER RAKE DRIVE MOTOR                |
| CLST | CHLORINE SOLUTION TANK                    |
| CO   | CLEAN OUT                                 |
| COAP | COAGULANT AID PUMP                        |
| COAT | COAGULANT AID TANK                        |
| COF  | COMBINATION CARBON DIOXIDE FEEDER (CO2)   |
| COM  | COMMUNITOR                                |
| COMP | COMPRESSOR (INSTRUMENT AIR)               |
| CR   | CRANE                                     |
| CRSP | CITRIC ACID PUMP                          |
| CRST | CITRIC ACID TANK                          |
| CSP  | CAUSTIC SODA PUMP                         |
| CTF  | CUT THROAT FLUME                          |
| CUSP | CAUSTIC SODA SOLUTION PUMP                |
| DCT  | DECANTER                                  |
| DEC  | DECLORINATOR                              |
| DL   | DOCK LEVELER                              |
| DLT  | DILUTION TANK (UNSPECIFIED SERVICE)       |
| DRS  | DRIVE SHAFT                               |
| DT   | DAY TANK                                  |
| DWM  | DOMESTIC WATER HEATER                     |
| E    | ELEVATOR                                  |
| ED   | EJECTOR OR EJECTOR                        |
| ENG  | ENGINE                                    |
| ES   | EXHAUST SILENCER (MUFFLER)                |
| ESH  | EMERGENCY SHOWER UNIT                     |
| EV   | EVAPORATOR                                |
| FAP  | FLUOSILICIC ACID (FLUORIDE) PUMP          |
| FASP | FLUOSILICIC ACID (FLUORIDE) SOLUTION PUMP |
| FAST | FLUOSILICIC ACID (FLUORIDE) SOLUTION TANK |
| FAT  | FLUOSILICIC ACID (FLUORIDE) TANK          |
| FB   | FLOOR BOX (VALVE)                         |
| FBP  | FILTERED BLEND PUMP                       |
| FD   | FLOOR DRAIN                               |
| FEX  | FIRE EXTINGUISHER                         |
| FF   | FLUORIDE FEEDER                           |
| FH   | FIRE HYDRANT                              |
| FHC  | FIRE HOSE CONNECTION                      |
| FIL  | FILTER (PROCESS WATER)                    |
| FIL  | FUEL OIL FILTER                           |
| FS   | FIXED SCREEN (BAR OR MESH)                |
| FSP  | FUEL SUPPLY PUMP                          |
| FT   | FUEL TANK                                 |
| FUD  | FUNNEL DRAIN                              |
| FWP  | FIRE WATER PUMP                           |
| OCB  | GRIT CHAMBER                              |
| OCL  | GRASS CLASSIFIER                          |
| GEN  | GENERATOR                                 |
| GRD  | GRINDER                                   |
| GTP  | GRIT PUMP                                 |

| CODE  | EQUIPMENT                            |
|-------|--------------------------------------|
| H     | HOIST (ELECTRIC OR MANUAL)           |
| HB    | HOSE BIBB                            |
| HC    | HOSE CONNECTION                      |
| HD    | HUB DRAIN                            |
| HEX   | HEAT EXCHANGER                       |
| HPC   | HYPOCHLORINATOR                      |
| HR    | HOSE REEL                            |
| HRGT  | HIGH RATE GRAVITY THICKENER          |
| HWT   | HOT WATER TANK                       |
| IMP   | IMPACTOR                             |
| L     | LAGOON                               |
| LE    | LEVEL ELEMENT                        |
| LF    | LIME FEEDER                          |
| LH    | LIME HOPPER                          |
| LS    | LIME SILO                            |
| LSK   | LIME SLAKER                          |
| LSP   | LIME SOLUTION (SLURRY) PUMP          |
| LST   | LIME SOLUTION (SLURRY) TANK          |
| M     | MOTOR (ELECTRIC)                     |
| MFP   | MEMBRANE FEED PUMP                   |
| MH    | MANHOLE                              |
| MV    | METER VAULT                          |
| MWA   | MANWAY ACCESS                        |
| MX    | MIXER (MECHANICAL)                   |
| ORP   | OXYGEN REDUCTION POTENTIAL           |
| P     | PUMP (UNSPECIFIED SERVICE)           |
| PCF   | POWDER CARBON FEEDER                 |
| PUL   | PULSATATION DAMPER                   |
| PE    | POLYELECTROLYTE FEEDER               |
| POT   | PROPANE GAS TANK                     |
| PLP   | POLYMER PUMP                         |
| PMU   | POLYELECTROLYTE MIX UNIT             |
| PP    | POLYELECTROLYTE PUMP                 |
| PPF   | POTASSIUM PERMANGANATE FEEDER        |
| PPH   | POTASSIUM PERMANGANATE HOPPER        |
| PPSP  | POTASSIUM PERMANGANATE SOLUTION PUMP |
| PPST  | POTASSIUM PERMANGANATE SOLUTION TANK |
| PSD   | PRIMARY SLUDGE DIGESTER              |
| PSF   | PARSHALL FLUME                       |
| PSWP  | PLANT SERVICE WATER PUMP             |
| PT    | POLYELECTROLYTE TANK                 |
| PWP   | POTABLE WATER PUMP                   |
| PYSP  | POLYELECTROLYTE SOLUTION PUMP        |
| PYST  | POLYELECTROLYTE SOLUTION TANK        |
| RCC   | RECARBONATION CHAMBER                |
| RD    | ROOF DRAIN                           |
| RES   | RESERVOIR                            |
| RS    | ROTARY SCREEN                        |
| RT    | ROCK TRAP                            |
| RWP   | RAW WATER PUMP                       |
| SACP  | SULPHURIC ACID PUMP                  |
| SACSP | SULPHURIC ACID SOLUTION PUMP         |
| SACST | SULPHURIC ACID SOLUTION TANK         |
| SACT  | SULPHURIC ACID TANK                  |
| SB    | SPLITTER BOX (CHAMBER)               |
| SBR   | SBR TANK                             |
| SCC   | SCREW CONVEYOR                       |
| SCR   | SCREEN                               |
| SCP   | SCREW PUMP / PRESS                   |
| SDT   | SEDIMENTATION TANK                   |
| SEP   | SEWAGE PUMP                          |
| SP    | SERVICE PUMP                         |
| SEP   | SEPTAGE PUMP                         |
| SG    | SIGHT GLASS                          |
| SHSP  | SODIUM HYPOCHLORITE SOLUTION PUMP    |
| SHST  | SODIUM HYPOCHLORITE SOLUTION TANK    |
| SIF   | SILICATOR (FEEDER)                   |
| SIL   | SILENCER                             |
| SL    | STOP LOGS                            |
| SLP   | SLUDGE PUMP                          |
| SMP   | SAMPLER                              |
| SOF   | SODA ASH FEEDER                      |
| SOH   | SODA ASH HOPPER                      |
| SOSP  | SODA ASH SOLUTION PUMP               |
| SPST  | SODA ASH SOLUTION TANK               |
| SP    | SEWAGE PUMP                          |
| SRS   | SEPTAGE RECEIVING SYSTEM             |
| SS    | SERVICE SINK                         |
| SSD   | SECONDARY SLUDGE DIGESTER            |
| STR   | STRAINER (Y OR BASKET)               |
| SUP   | SUMP PUMP                            |
| SUP   | SUPERNATANT PUMP                     |
| SWC   | SCREENING WASHER COMPACTOR           |
| TFP   | TRUCK FILL PUMP                      |
| TH    | THICKENER                            |
| TK    | TANK (UNSPECIFIED SERVICE)           |
| TWS   | TRAVELING WATER SCREEN               |
| TP    | TRANSFER PUMP                        |
| UV    | ULTRAVIOLET                          |
| UV    | ULTRAVIOLET DISINFECTION LAMP BANK   |
| UVG   | ULTRAVIOLET GENERATOR                |

**PIPE TREATMENT CODES**

| CODE | DESCRIPTION                             |
|------|---|
| A    | CEMENT MORTAR LINING                    |
| B    | INTERNAL HOT APPLIED COAL TAR LINING    |
| C    | INTERNAL GLASS LINING                   |
| D    | YELLOW JACKET COATED                    |
| E    | EXTERNAL HOT APPLIED COAL TAR COATING   |
| F    | EXTERNAL EPOXY COATED                   |
| G    | INSULATED                               |
| H    | FLEXIBLE ELASTOMERIC INSULATION         |
| I    | INSULATION ON JACKET (HIGH TEMPERATURE) |

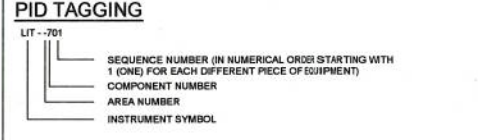
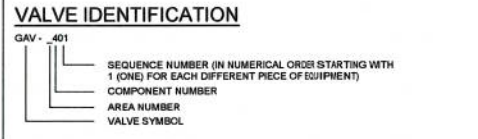
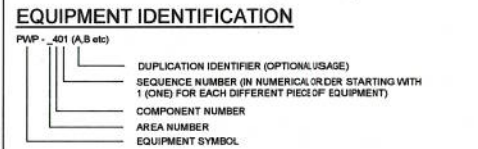
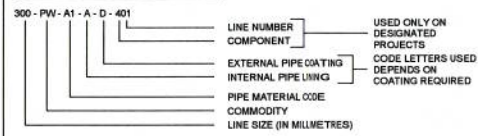
**VALVE CODES**

| CODE | VALVE                                     |
|------|---|
| ARV  | AIR RELIEF VALVE                          |
| ASV  | ANTI-SYPHON VALVE                         |
| AVV  | AIR/VACUUM VALVE                          |
| BAV  | BALL VALVE                                |
| BBV  | BLOCK & BLEED VALVE                       |
| BCV  | BALL CHECK VALVE                          |
| BFP  | BACK FLOW PREVENTER                       |
| BPV  | BACK PRESSURE VALVE                       |
| BUV  | BUTTERFLY VALVE                           |
| BV   | BLOCK VALVE                               |
| CAV  | COMBINATION AIR RELIEF & AIR/VACUUM VALVE |
| CHV  | CHECK VALVE                               |
| CSO  | CARBON OPEN                               |
| DIV  | DIAPHRAGM VALVE                           |
| FC   | FLEXIBLE DRESSER COUPLING                 |
| FCC  | FLANGED/FLEXIBLE DRESSER COUPLING         |
| FCV  | FLOW CONTROL VALVE                        |
| FGV  | FLAP GATE VALVE                           |
| FV   | FOOT VALVE                                |
| GAV  | GATE VALVE                                |
| GLV  | GLOBE VALVE                               |
| KNV  | KNIFE GATE VALVE                          |
| MUV  | MUD VALVE                                 |
| NEV  | NEEDLE VALVE                              |
| PIV  | POST INDICATOR VALVE                      |
| PLV  | PLUG VALVE                                |
| PRV  | PRESSURE RELIEF VALVE                     |
| PV   | PINCH VALVE                               |
| RCV  | ROTARY VALVE                              |
| SG   | SLUICE GATE VALVE                         |
| SGV  | SLIDE GATE VALVE                          |
| SNV  | SOLENOID VALVE                            |
| TWV  | THREE (3) WAY VALVE                       |
| WG   | WEIR GATE                                 |
| VB   | VACUUM BREAKER                            |
| VC   | VICTAULIC COUPLING                        |

**PIPE MATERIAL CODES**

| CODE | MATERIAL AND FLANGE RATING   |
|------|--|
| A1   | STEEL PIPE 900mm Dia AND SMALLER 150 POUND FLANGE RATING                       |
| A1A  | STEEL PIPE 200mm Dia AND SMALLER 150 POUND FLANGE RATING GAS SERVICE ONLY      |
| A1G  | GALVANIZED STEEL PIPE 100mm Dia AND SMALLER 150 POUND FLANGE RATING            |
| A2   | STEEL PIPE 900mm Dia AND SMALLER 300 POUND FLANGE RATING                       |
| A3   | STEEL PIPE 1050mm Dia AND LARGER 150 POUND FLANGE RATING                       |
| A4   | STEEL PIPE 1050mm Dia AND LARGER 300 POUND FLANGE RATING                       |
| A5   | STEEL PIPE 600mm Dia AND SMALLER 150 POUND FLANGE RATING                       |
| A6   | STEEL PIPE 600mm Dia AND SMALLER 300 POUND FLANGE RATING                       |
| A7   | STEEL PIPE 300mm Dia AND SMALLER A1 PIPE CODE VICTAULIC COUPLED                |
| A8   | STEEL PIPE 100mm Dia AND SMALLER A2 PIPE CODE CHLORINE GAS, CARBON DIOXIDE GAS |
| D1   | CONCRETE PIPE - PRESSURE PIPE  |
| D2   | CONCRETE PIPE - REINFORCED   |
| D3   | CONCRETE PIPE - NON REINFORCED   |
| D1   | PVC PIPE (PRESSURE PIPE)   |
| E1   | PVC PIPE - GRAVITY SERVICE   |
| E2   | POLYETHYLENE PIPE  |
| E4   | CPVC PIPE (PRESSURE PIPE)  |

**LINE IDENTIFICATION**



**PIPE MATERIAL CODES**

| CODE | MATERIAL AND FLANGE RATING                              |
|------|---|
| E5   | PLASTIC FLEXIBLE TUBING                                 |
| E6   | RUBBER HOSE   |
| E7   | PVD PIPE (PRESSURE PIPE)                                |
| F1   | CAST IRON PRESSURE PIPE                                 |
| F2   | CAST IRON DRAINAGE PIPE                                 |
| F3   | DUCTILE IRON PIPE - PRESSURE SERVICE                    |
| G1   | COPPER PIPE - TYPE K                                    |
| G2   | COPPER PIPE - TYPE L                                    |
| H1   | STAINLESS STEEL PIPE                                    |
| H2   | STAINLESS STEEL TUBING                                  |
| H3   | STEEL TUBING  |
| J1   | CORRUGATED METAL PIPE - GALVANIZED                      |
| J2   | CORRUGATED METAL PIPE (WEAVING TILES)                   |
| P1   | PLASTIC DWV, COPPER DWV, CAST IRON DWV PLUMBING SERVICE |



|     |      |        |       |             |
|-----|------|--------|-------|-------------|
| REV | DATE | DESIGN | DRAWN | DESCRIPTION |
|-----|------|--------|-------|-------------|

**TOWN OF VIRDEN & MANITOBA WATER SERVICES BOARD**  
**PHASE 2: WASTEWATER TREATMENT FACILITY UPGRADES**

M.W.S.B. # 1302 / 2016-4784-00

SCALE: N/A  
 PROCESS ABBREVIATIONS GENERAL

|         |          |          |
|---------|----------|----------|
| DRAWING | REVISION | SHEET    |
| D-005-0 | 0        | 61 / 143 |

**MISCELLANEOUS**

|     |   |
|-----|---|
| AAH | ANALYZING ALARM - HIGH SET POINT                                      |
| AE  | ANALYZING ELEMENT (REFER TO LEGEND)                                   |
| AIT | ANALYZING INDICATING TRANSMITTER                                      |
| AP  | ANALYSIS POINT  |
| AT  | ANALYZING TRANSMITTER   |
| CI  | CONDUCTIVITY INDICATOR  |
| CR  | CONDUCTIVITY RECORDER   |
| CDH | CONDUCTIVITY SWITCH - HIGH SET POINT                                  |
| CDL | CONDUCTIVITY SWITCH - LOW SET POINT                                   |
| GD  | GAS DETECTOR  |
| GS  | EVENT SWITCH  |
| HC  | HAND CONTROLLER (MANUAL LOADING STATION)                              |
| HC  | HAND INDICATING CONTROLLER (MANUAL LOADING STATION WITH OUTPUT GAUGE) |
| HLS | MANUAL SELECTOR SWITCH  |
| HS  | HAND SWITCH   |
| JP  | LOSS OF POWER SWITCH  |
| KC  | TIME SEQUENCING PROGRAMMER  |
| KS  | TIMER OR COUNTER  |
| MCV | MOTORIZED OPERATING VALVE (OPEN/CLOSE)                                |
| SC  | SPEED CONTROL (SCR DRIVE)   |
| VAH | ALARM - HIGH SET POINT  |
| VS  | VIBRATION SWITCH  |
| VSH | VIBRATION SWITCH HIGH   |
| VSL | VIBRATION SWITCH LOW  |
| WAH | WEIGHT ALARM - HIGH   |
| WAL | WEIGHT ALARM - LOW  |
| WT  | WEIGHT INDICATING TRANSMITTER   |
| WR  | WEIGHT RECORDER   |
| XS  | MOTOR START/CONTROL   |
| XSC | MOTOR CLOSE COMMAND   |
| XSO | MOTOR OPEN COMMAND  |
| YAH | TORQUE ALARM - HIGH SET POINT   |
| YAH | TORQUE ALARM VERY HIGH  |
| YS  | TORQUE SWITCH   |
| ZC  | VALVE POSITION CONTROLLER   |
| ZS  | LIMIT SWITCH  |
| ZT  | VALVE POSITION TRANSMITTER  |

**PRESSURE**

|      |  |
|------|--|
| PAH  | PRESSURE ALARM - HIGH  |
| PAHH | PRESSURE ALARM - VERY HIGH                                   |
| PAL  | PRESSURE ALARM - LOW   |
| PALL | PRESSURE ALARM - VERY LOW                                    |
| PC   | PRESSURE CONTROLLER  |
| PCV  | PRESSURE CONTROL VALVE (REFER TO LEGEND)                     |
| PDI  | PRESSURE DIFFERENTIAL INDICATOR                              |
| PDH  | PRESSURE DIFFERENTIAL SWITCH - HIGH                          |
| PSL  | PRESSURE DIFFERENTIAL SWITCH - LOW                           |
| PDT  | PRESSURE DIFFERENTIAL TRANSMITTER                            |
| PI   | PRESSURE INDICATOR   |
| PIC  | PRESSURE INDICATING CONTROLLER                               |
| PIT  | PRESSURE INDICATING TRANSMITTER                              |
| PP   | PRESSURE TEST POINT  |
| PR   | PRESSURE RECORDER  |
| PRC  | PRESSURE RECORDING CONTROLLER                                |
| PS   | PRESSURE SWITCH  |
| PSE  | PRESSURE RUPTURE DISK  |
| PSH  | PRESSURE SWITCH - HIGH SET POINT                             |
| PSL  | PRESSURE SWITCH - LOW SET POINT                              |
| PT   | PRESSURE TRANSMITTER   |
| PY   | PRESSURE SIGNAL CONVERTER (CURRENT INPUT / PNEUMATIC OUTPUT) |
| LF   | LINE FILTER  |
| PF   | PRE FILTER   |
| RD   | REFRIGERATED DRYER   |
| SD   | DESICCANT DRYER  |
| WC   | WATER COOLER   |
| CR   | COMBINATION REGULATOR LINE FILTER                            |
| CLF  | COMBINATION LINE FILTER REGULATOR, LUBRICATOR                |

**FLOW**

|     |  |
|-----|--|
| FAH | HIGH - FLOW ALARM  |
| FAL | LOW - FLOW ALARM   |
| FC  | FLOW SIGNAL CONVERTER (CURRENT INPUT / PNEUMATIC OUTPUT) |
| FCV | FLOW SQUARE ROOT EXTRACTOR                               |
| FCV | FLOW CONTROL VALVE                                       |
| FE  | FLOW ELEMENT (PRIMARY ELEMENT WITHOUT TRANSMITTER)       |
| FG  | FLOW SIGHT GLASS   |
| FI  | FLOW INDICATOR   |
| FC  | FLOW INDICATING CONTROLLER                               |
| FIT | FLOW INDICATING TRANSMITTER                              |
| FO  | FLOW RESTRICTION ORIFICE                                 |
| FQ  | FLOW SIGNAL INTEGRATOR                                   |
| FQI | FLOW TOTALIZING INDICATOR                                |
| FQS | FLOW TOTALIZER SWITCH (PREDETERMINING COUNTER)           |
| FR  | FLOW RECORDER  |
| FRC | FLOW RECORDING CONTROLLER                                |
| FS  | FLOW SWITCH  |
| FSH | FLOW SWITCH - HIGH SET POINT                             |
| FSL | FLOW SWITCH - LOW SET POINT                              |
| FT  | FLOW TRANSMITTER   |
| FX  | FLOW STRAIGHTENING VANES                                 |
| FX  | FLOW SIGNAL SUMMATION                                    |
| FY  | FLOW SOLENOID VALVE                                      |
| LI  | LOCALLY MOUNTED INSTRUMENT                               |
| PI  | PANEL MOUNTED INSTRUMENT                                 |
| BP  | BACK OF PANEL MOUNTED INSTRUMENT                         |
| PL  | PILOT LIGHT  |
| SI  | SIGNAL INTERLOCK LOGIC                                   |
| CP  | CONTROL PANEL  |

**LEVEL**

|      |   |
|------|---|
| LH   | LEVEL ALARM - HIGH  |
| LHH  | LEVEL ALARM - VERY HIGH                                   |
| LAL  | LEVEL ALARM - LOW   |
| LALL | LEVEL ALARM - VERY LOW                                    |
| LC   | LEVEL SIGNAL CONVERTER (CURRENT INPUT / PNEUMATIC OUTPUT) |
| LC   | LEVEL CONTROLLER  |
| LCV  | LEVEL CONTROL VALVE                                       |
| LE   | LEVEL ELEMENT   |
| LG   | LEVEL GAUGE GLASS   |
| LI   | LEVEL INDICATOR   |
| LIC  | LEVEL INDICATING CONTROLLER                               |
| LS   | LEVEL INDICATING SWITCH                                   |
| LIT  | LEVEL INDICATING TRANSMITTER                              |
| LR   | LEVEL RECORDER  |
| LS   | LEVEL SWITCH  |
| LH   | LEVEL SWITCH - HIGH SET POINT                             |
| LSL  | LEVEL SWITCH - LOW SET POINT                              |
| LT   | LEVEL TRANSMITTER   |
| LX   | LEVEL POTENTIOMETER 10,000 OHMS RESISTANCE                |
| LY   | LEVEL - LOW SELECT RELAY                                  |
| LY   | LEVEL - HIGH SELECT RELAY                                 |

**TEMPERATURE**

|     |   |
|-----|---|
| TAH | TEMPERATURE ALARM - HIGH SET POINT                                |
| TAL | TEMPERATURE ALARM - LOW SET POINT                                 |
| TCR | TEMPERATURE RECORDING CONTROLLER                                  |
| TCV | TEMPERATURE CONTROL VALVE   |
| TE  | TEMPERATURE ELEMENT (PRIMARY ELEMENT WITHOUT TRANSMITTER)         |
| TI  | TEMPERATURE INDICATOR   |
| TIC | TEMPERATURE INDICATING CONTROLLER                                 |
| TJ  | MULTIPOINT TEMPERATURE INDICATOR (SCANNING TEMPERATURE INDICATOR) |
| TJR | MULTIPOINT TEMPERATURE RECORDER (SCANNING TEMPERATURE RECORDER)   |
| TP  | TEMPERATURE TEST POINT  |
| TR  | TEMPERATURE RECORDER  |
| TS  | TEMPERATURE SWITCH  |
| TSH | TEMPERATURE SWITCH - HIGH SET POINT                               |
| TSL | TEMPERATURE SWITCH - LOW SET POINT                                |
| TT  | TEMPERATURE TRANSMITTER   |
| TW  | THERMOWELL (WITHOUT THERMOCOUPLE)                                 |
| TZ  | TEMPERATURE FINAL CONTROL ELEMENT (DAMPER OPERATOR FOR LOUVERS)   |

**ANALYZING ELEMENT / ALARM LEGEND**

|           |                               |
|-----------|-------------------------------|
| AMM(FREE) | FREE AMMONIA                  |
| CL(FREE)  | FREE CHLORINE                 |
| CL(MONO)  | MONOCHLORAMINES               |
| CL(TOTAL) | TOTAL CHLORINE                |
| CON       | CONDUCTIVITY                  |
| DO        | DISSOLVED OXYGEN              |
| IP        | CURRENT TO PNEUMATIC          |
| ORP       | OXIDATION-REDUCTION POTENTIAL |
| PC        | PARTICLE COUNTER              |
| pH        | POTENTIAL HYDROGEN            |
| TSS       | TOTAL SUSPENDED SOLIDS        |
| TUR       | TURBIDITY                     |

**PLC EQUIPMENT OPERATIONS STATUS LEGEND**

|     |                                 |
|-----|---------------------------------|
| HSI | HAND SWITCH POSITION INDICATION |
| SC  | SPEED CONTROL                   |
| SI  | SPEED INDICATION                |
| SI  | START/STOP                      |
| XA  | TRIP / UNDEFINED ALARM          |
| XI  | START/STOP                      |
| ZI  | VALVE POSITION INDICATION       |
| ZC  | VALVE POSITION CONTROL          |

**PRESSURE CONTROL VALVE LEGEND**

|    |                    |
|----|--------------------|
| RD | REDUCING           |
| RF | RATE OF FLOW       |
| RL | RELIEVING          |
| SA | SURGE ANTICIPATING |
| SU | SUSTAINING         |
| VR | VACUUM RELIEF      |

**PROGRAMMABLE LOGIC CONTROL TAG IDENTIFICATION FOR PUMPS**

|          |                                     |
|----------|-------------------------------------|
| XXX-XXXX | EQUIPMENT TAG                       |
| XXXX     | PLC EQUIPMENT OPERATIONS STATUS TAG |
| XXXX     | SEQUENCE NUMBER                     |

PLC TAG NUMBER  
 EXAMPLE XI-RWP-3401

|                               | PRIMARY LOCATION<br>*** NORMALLY ACCESSIBLE TO OPERATOR | FIELD MOUNTED | AUXILIARY LOCATION<br>** NORMALLY ACCESSIBLE TO OPERATOR |
|-------------------------------|---|---------------|--|
| DISCRETE INSTRUMENTS          | 1.  | 2.            | 3.   |
| SHARED DISPLAY SHARED CONTROL | 4.  | 5.            | 6.   |
| COMPUTER FUNCTION             | 7.  | 8.            | 9.   |
| PROGRAMMABLE LOGIC CONTROL    | 10.   | 11.           | 12.  |

\* SYMBOL SIZE MAY VARY ACCORDING TO THE USER'S NEEDS AND THE TYPE OF DOCUMENT. A SUGGESTED SQUARE AND CIRCLE SIZE FOR LARGER DIAGRAMS IS SHOWN ABOVE. CONSISTENCY IS RECOMMENDED.  
 \*\* ABBREVIATION OF THE USER'S CHOICE SUCH AS #1 (INSTRUMENT PANEL #1), #2 (INSTRUMENT CONSOLE #2), #3 (COMPUTER CONSOLE #3), ECT. MAY BE USED WHEN IT IS NECESSARY TO SPECIFY INSTRUMENT OR FUNCTION LOCATION.  
 \*\*\* NORMALLY INACCESSIBLE OR BEHIND-THE-PANEL DEVICES OR FUNCTIONS MAY BE DEPICTED BY USING THE SAME SYMBOLS BUT WITH DASHED HORIZONTAL BARS, I.E.

|  |  |
|--|--|
|  | CONNECTION TO PROCESS, MECHANICAL LINK, OR INSTRUMENT SUPPLY           |
|  | AIR SUPPLY (PLANT AIR, HEADER SUPPLY REGULATED eg ADJUSTED TO 552 kPa) |
|  | FILTERED AIR SUPPLY (REGULATED eg ADJUSTED TO 138 kPa)                 |
|  | ELECTRIC SUPPLY  |
|  | GAS SUPPLY   |
|  | STEAM SUPPLY   |
|  | WATER SUPPLY 1 PSI = 6.894 kPa   |
|  | UNDEFINED SIGNAL   |
|  | PNEUMATIC SIGNAL **  |
|  | ELECTRICAL CONTROL SIGNAL  |
|  | DEVICENET  |
|  | ETHERNET   |
|  | FIELDBUS (FF)  |
|  | MODBUS   |
|  | PROFIBUS   |
|  | HYDRAULIC SIGNAL   |
|  | CAPILLARY TUBING (FILLED SYSTEM)                                       |
|  | ELECTROMAGNETIC OR SONIC SIGNAL *** (GUIDED)                           |
|  | ELECTROMAGNETIC OR SONIC SIGNAL *** (NOT GUIDED)                       |
|  | INTERNAL SYSTEM LINK (SOFTWARE OR DATA LINK)                           |
|  | MECHANICAL LINK  |
|  | PNEUMATIC BINARY SIGNAL  |
|  | ELECTRIC BINARY SIGNAL   |

**OPTIONAL BINARY (ON-OFF) SYMBOLS**

|  |                         |
|--|-------------------------|
|  | PNEUMATIC BINARY SIGNAL |
|  | ELECTRIC BINARY SIGNAL  |

NOTE: 'OR' MEANS USER'S CHOICE. CONSISTENCY IS RECOMMENDED. THE FOLLOWING ABBREVIATIONS ARE SUGGESTED TO DENOTE THE TYPES OF POWER SUPPLY. THESE DESIGNATIONS MAY ALSO BE APPLIED TO PURGE FLUID SUPPLIES.

|    |                   |    |                  |
|----|-------------------|----|------------------|
| AS | AIR SUPPLY        | HS | HYDRAULIC SUPPLY |
| IA | INSTRUMENT AIR    | NS | NITROGEN SUPPLY  |
| PA | PLANT AIR         | SS | STEAM SUPPLY     |
| ES | ELECTRICAL SUPPLY | WS | WATER SUPPLY     |
| GS | GAS SUPPLY        |    |                  |

\* THE SUPPLY LEVEL MAY BE ADDED TO THE INSTRUMENT SUPPLY LINE, E.G., AS-100, A 100-PSIG AIR SUPPLY; ES-24DC, A 24 VOLT DIRECT CURRENT POWER SUPPLY.  
 \*\* THE PNEUMATIC SIGNAL SYMBOL APPLIES TO A SIGNAL USING ANY GAS AS THE MEDIUM. IF A GAS OTHER THAN AIR IS USED, THE GAS MAY BE IDENTIFIED BY A NOTE ON THE SIGNAL SYMBOL OR OTHERWISE.  
 \*\*\* ELECTROMAGNETIC PHENOMENA INCLUDE HEAT, RADIO WAVES, NUCLEAR RADIATION, AND LIGHT.

|     |           |              |           |                   |
|-----|-----------|--------------|-----------|-------------------|
| 0   | 2017JAN11 | K.YU/M.GABOS | W.Z./M.G. | SIGNED FOR TENDER |
| REV | DATE      | DESIGN       | DRAWN     | DESCRIPTION       |



**TOWN OF VIRDEN & MANITOBA WATER SERVICES BOARD**

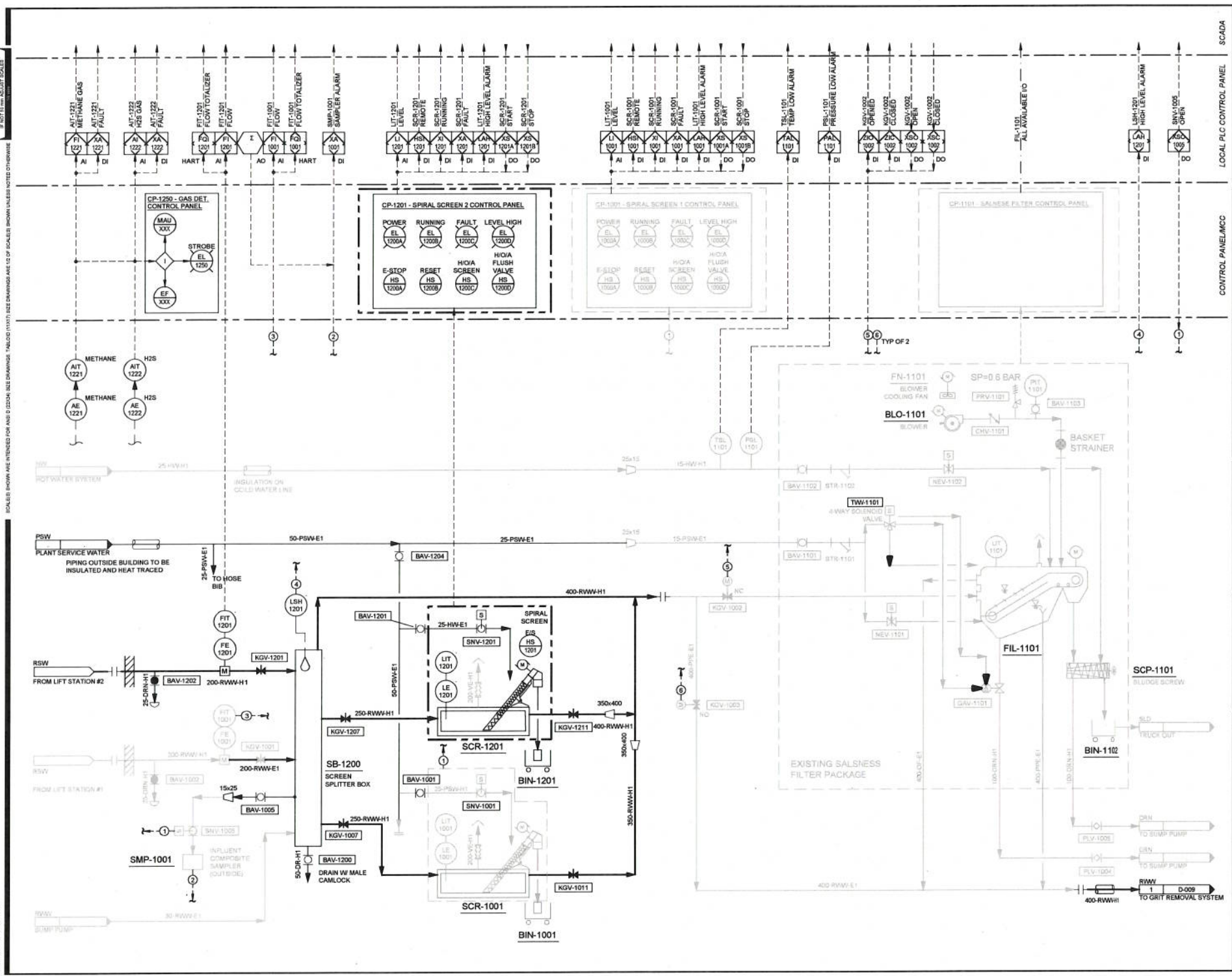
**PHASE 2: WASTEWATER TREATMENT FACILITY UPGRADES**

M.W.S.B. # 1302 / 2016-4784-00

SCALE: N/A  
 PROCESS INSTRUMENTATION SYMBOLS GENERAL

|         |          |          |
|---------|----------|----------|
| DRAWING | REVISION | SHEET    |
| D-006-0 | 0        | 62 / 143 |

IF NOT FROM ADJUST DOABLES  
 SCALE: SHOW ARE INTENSE FOR AND D DIMS, SIZE DRAWINGS, FACED (1/16") SIZE DRAWINGS ARE 1/8" SCALE, UNLESS NOTED OTHERWISE  
 SCALE: SHOW ARE INTENSE FOR AND D DIMS, SIZE DRAWINGS, FACED (1/16") SIZE DRAWINGS ARE 1/8" SCALE, UNLESS NOTED OTHERWISE  
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 DATE: 2011-01-10, Rev'n 10



SCADA  
 LOCAL PLC CONTROL PANEL  
 CONTROL PANEL/MCC

| REV | DATE       | DESIGN        | DRAWN       | DESCRIPTION       |
|-----|------------|---------------|-------------|-------------------|
| 0   | 2011/01/11 | K.YU / M.GARD | W.Z. / M.G. | ISSUED FOR TENDER |

**THE MANITOBA WATER SERVICES BOARD**

**TOWN OF VIRDEN & MANITOBA WATER SERVICES BOARD**

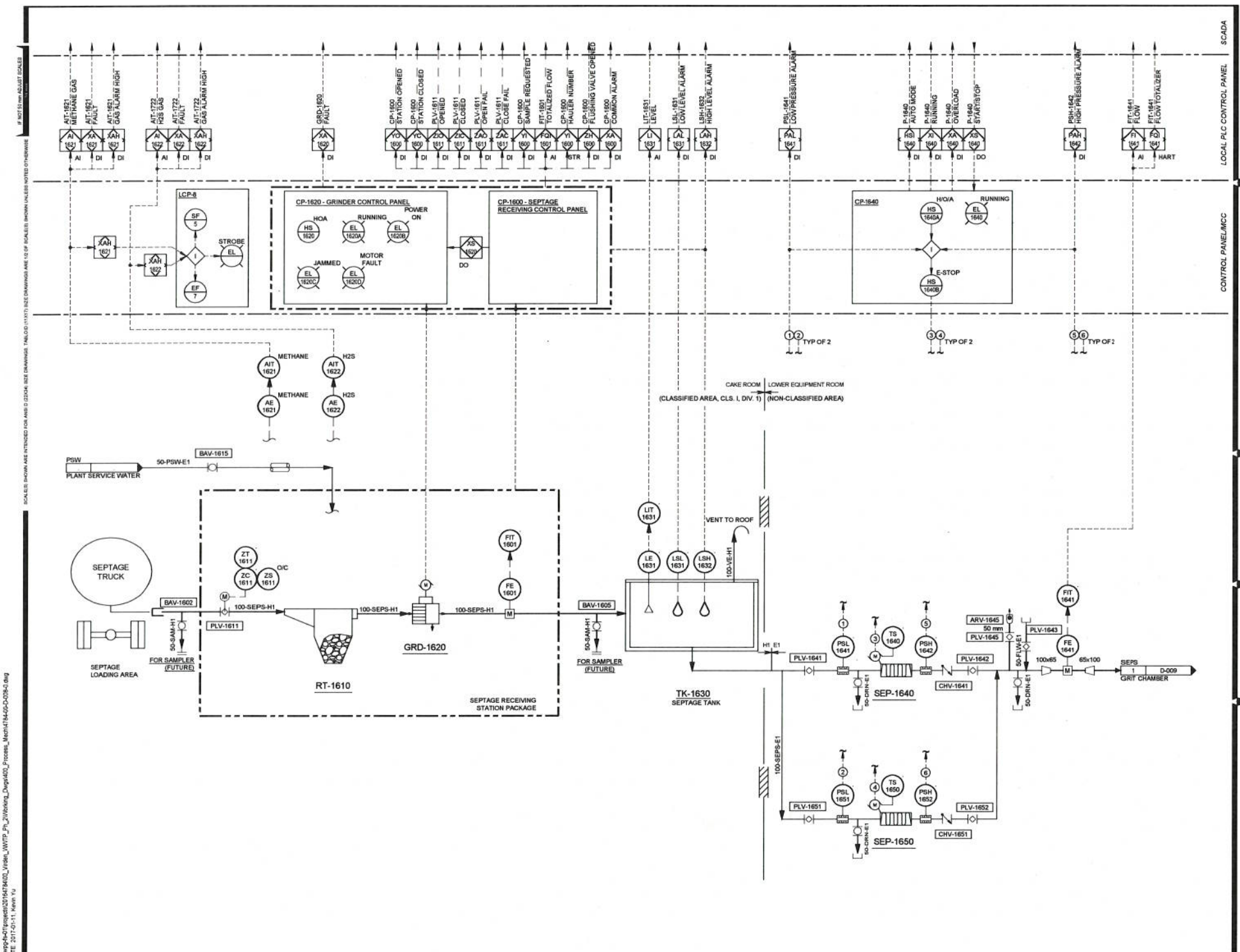
**PHASE 2: WASTEWATER TREATMENT FACILITY UPGRADES**

M.W.S.B. # 1302 / 2016-4784-00

SCALE: N/A

PROCESS HEADWORKS P&ID

| DRAWING | REVISION | SHEET    |
|---------|----------|----------|
| D-007-0 | 0        | 63 / 143 |



| REV | DATE       | DESIGN       | DRAWN     | DESCRIPTION       |
|-----|------------|--------------|-----------|-------------------|
| 0   | 2017/01/11 | K.YU/M.GABOS | W.Z./M.G. | ISSUED FOR TENDER |



**TOWN OF VIRDEN & MANITOBA WATER SERVICES BOARD**

**PHASE 2: WASTEWATER TREATMENT FACILITY UPGRADES**

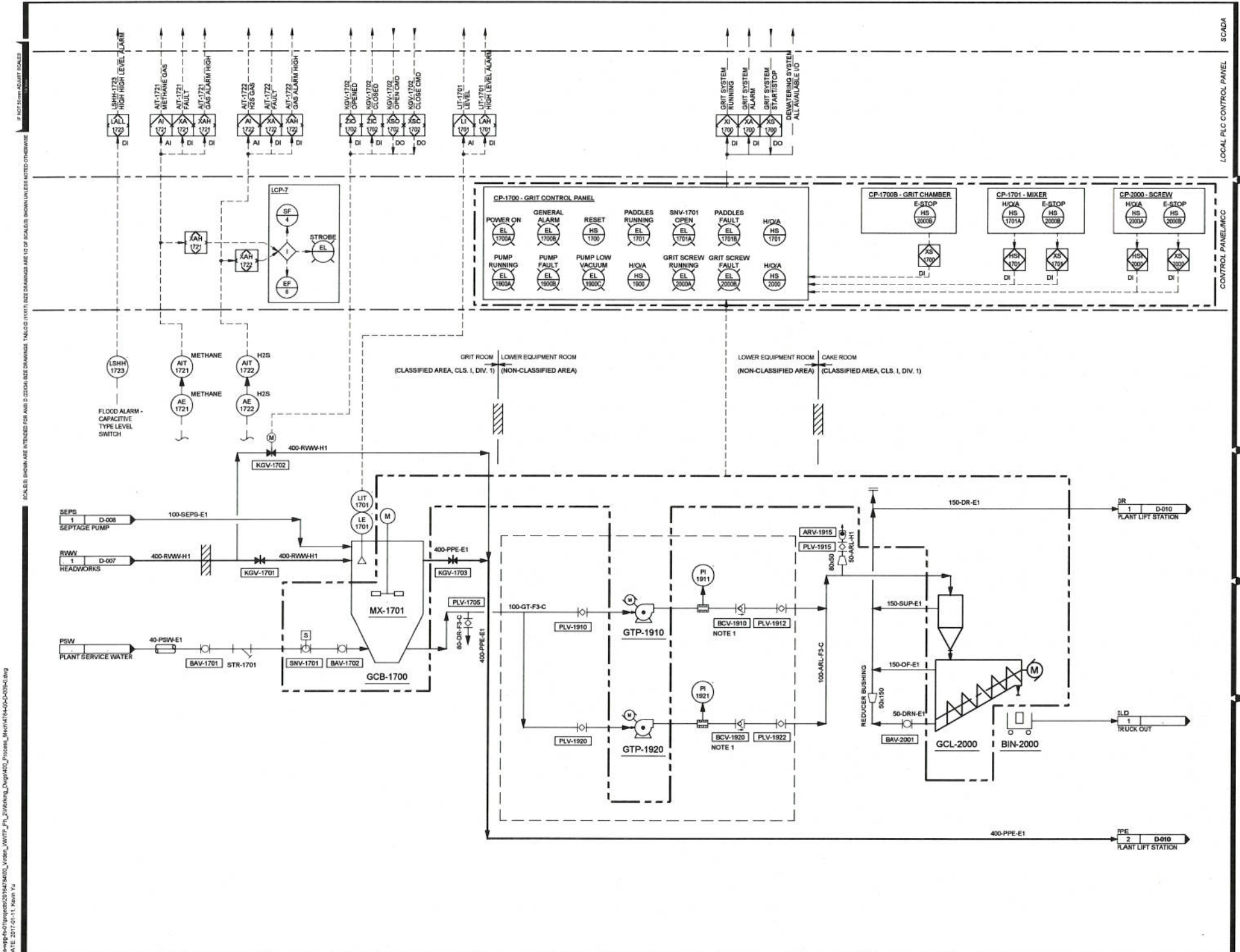
M.W.S.B. # 1302 / 2016-4784-00

SCALE: N/A  
 PROCESS  
 SEPTAGE RECEIVING STATION  
 P&ID

| DRAWING | REVISION | SHEET    |
|---------|----------|----------|
| D-008-0 | 0        | 64 / 143 |

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 Date: 2017-05-11, 11:11 AM  
 User: K.Yu



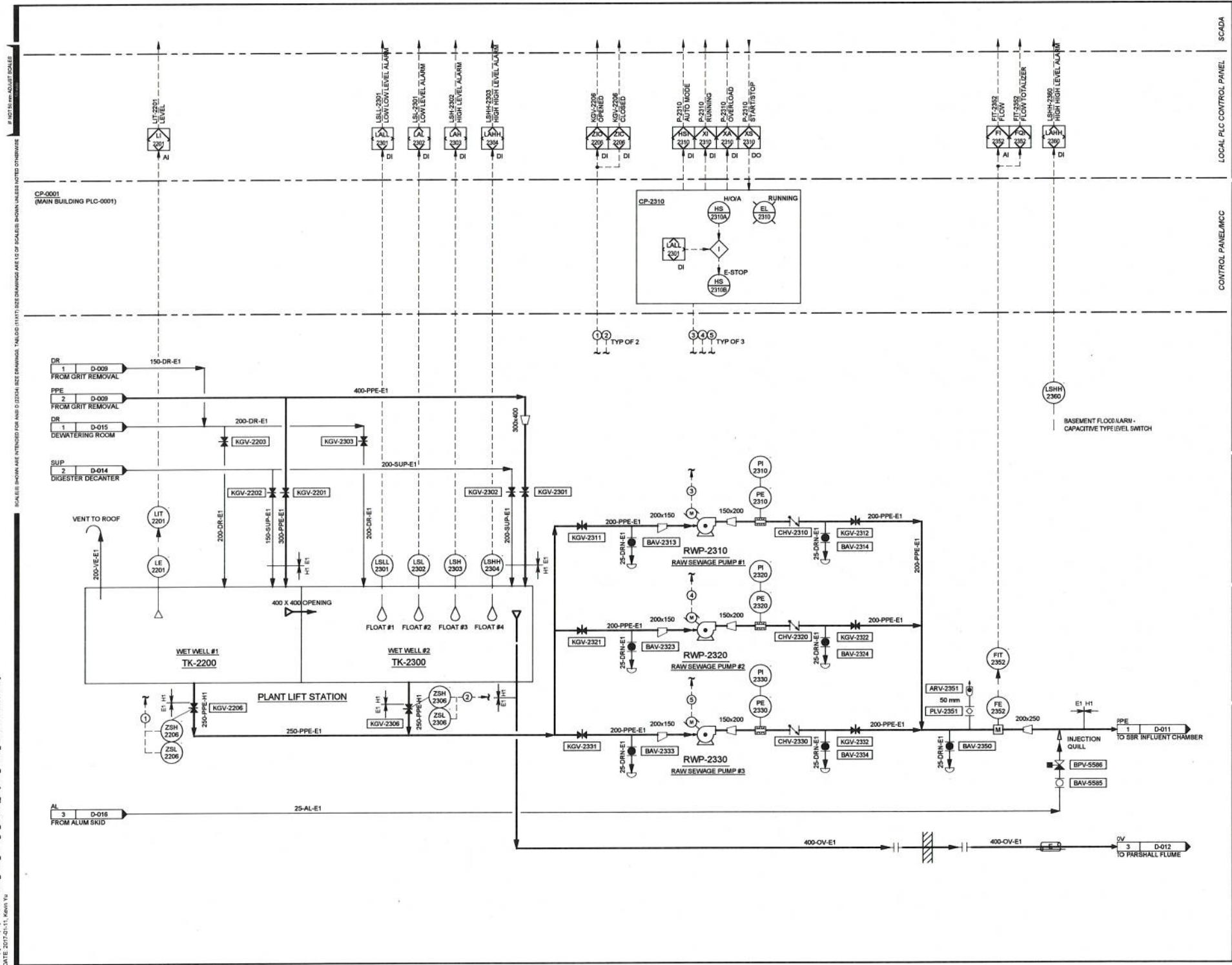
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| 0   | 2017/05/11 | K. YU / M. GARDNER | W. Z. / M. G. | ISSUED FOR TENDER |



**TOWN OF VIRDEN & MANITOBA WATER SERVICES BOARD**  
**PHASE 2: WASTEWATER TREATMENT FACILITY UPGRADES**

M.W.S.B. # 1302 / 2016-4784-00  
 SCALE: N/A  
 PROCESS  
 GRIT REMOVAL  
 P&ID

| DRAWING | REVISION | SHEET    |
|---------|----------|----------|
| D-009-0 | 0        | 65 / 143 |



| REV | DATE       | DESIGN             | DRAWN         | DESCRIPTION       |
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| 0   | 2017/01/11 | K. YU / M. GARDNER | W. Z. / M. G. | ISSUED FOR TENDER |



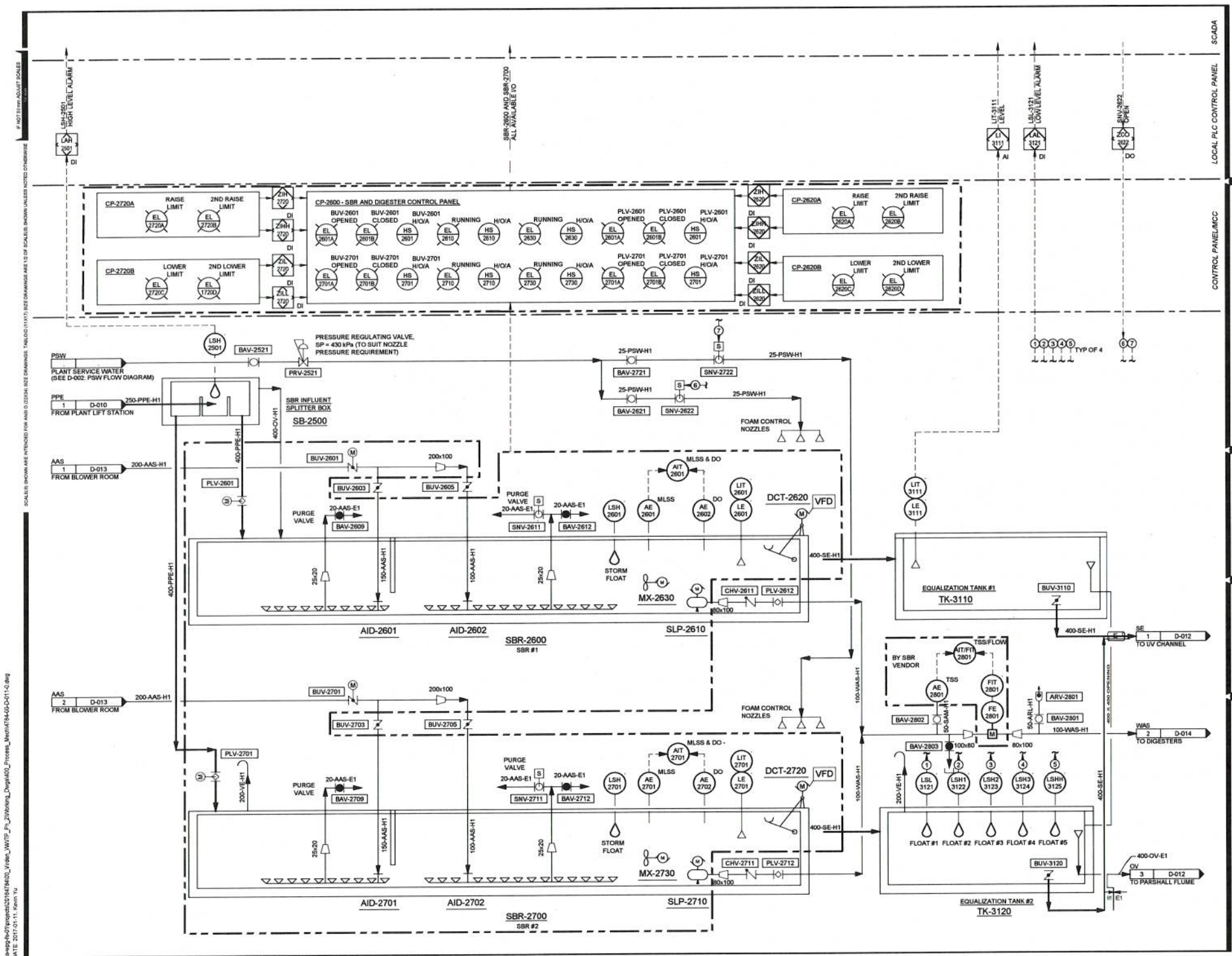
**TOWN OF VIRDEN & MANITOBA WATER SERVICES BOARD**  
**PHASE 2: WASTEWATER TREATMENT FACILITY UPGRADES**

M.W.S.B. # 1302 / 2016-4784-00  
 SCALE: N/A  
 PROCESS  
 PLANT LIFT STATION  
 P&ID

| DRAWING | REVISION | SHEET    |
|---------|----------|----------|
| D-010-0 | 0        | 66 / 143 |

I:\Projects\2016\1302\1302-00\Drawings\Process\_Mech\TK-2200-D-010-0.dwg  
 DATE: 2017-01-11, Kevin Yu





PHOTOMETRY ADJUST VALUES  
 SCALAR VALUES ARE INTENDED FOR AND TO BE USED IN THE CHANGING TABLE (HATCH) SEE CHANGING TABLE FOR SCALAR VALUES NOTED OTHERWISE

DRAWING NO: 2017-011-1000  
 DATE: 2017-01-11 10:00 AM

| REV | DATE       | DESIGN       | DRAWN     | DESCRIPTION       |
|-----|------------|--------------|-----------|-------------------|
| 0   | 2017/01/11 | K.YU/M.GAROS | W.Z./M.G. | ISSUED FOR TENDER |



**TOWN OF VIRIDEN & MANITOBA WATER SERVICES BOARD**

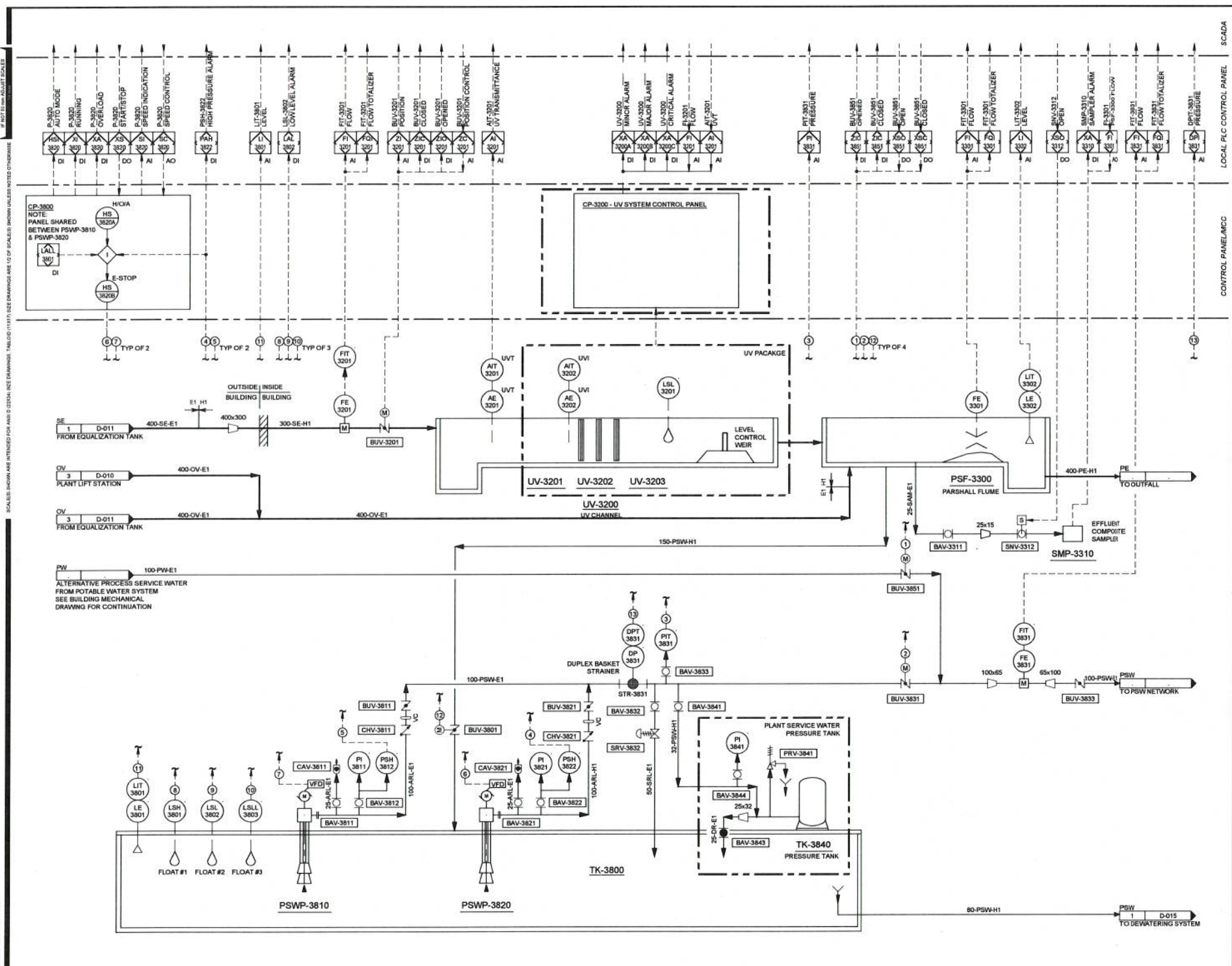
**PHASE 2: WASTEWATER TREATMENT FACILITY UPGRADES**

M.W.S.B. # 1302 / 2016-4784-00

SCALE: N/A  
 PROCESS  
 SBR AND EQUALIZATION TANK  
 P&ID

| DRAWING | REVISION | SHEET    |
|---------|----------|----------|
| D-011-0 | 0        | 67 / 143 |

P: 2017-01-11  
 SCALES SHOWN ARE INTENDED FOR USE AS GENERAL REFERENCE ONLY. ALL DIMENSIONS SHALL BE TO FACE UNLESS NOTED OTHERWISE.  
 SCALES SHOWN ARE INTENDED FOR USE AS GENERAL REFERENCE ONLY. ALL DIMENSIONS SHALL BE TO FACE UNLESS NOTED OTHERWISE.  
 DATE: 2017-01-11, Kevin Yu



SCADA  
 CONTROL PANEL/MCC  
 LOCAL PLC CONTROL PANEL

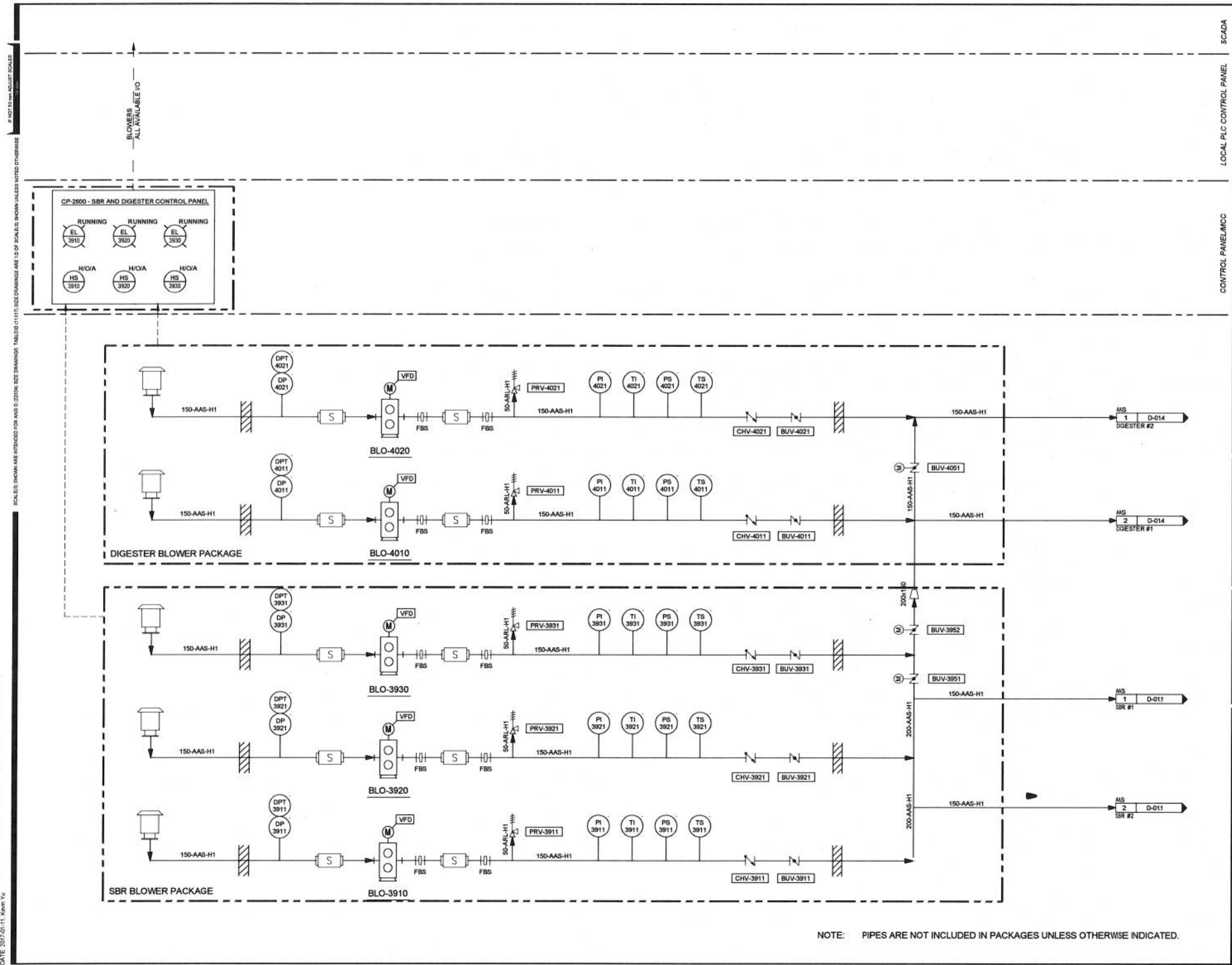
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| 0   | 2017/01/11 | K. YU / M. GARDNER | W. Z. / M. G. | ISSUED FOR TENDER |



**TOWN OF VIRDEN & MANITOBA WATER SERVICES BOARD**  
**PHASE 2: WASTEWATER TREATMENT FACILITY UPGRADES**

M.W.S.B. # 1302 / 2016-4784-00  
 SCALE: N/A  
 PROCESS  
 UV AND PLANT SERVICE WATER STATION  
 P&ID

| DRAWING | REVISION | SHEET    |
|---------|----------|----------|
| D-012-0 | 0        | 68 / 143 |



P&ID IS NOT TO SCALE. ALL DIMENSIONS ARE TO BE TAKEN FROM THE DRAWING. TABLES (IF ANY) SIZE DIMENSIONS ARE TO BE TAKEN FROM THE DRAWING UNLESS NOTED OTHERWISE. SCALLES SHOWN ARE INTENDED FOR AND TO BE USED IN THE DRAWING. TABLES (IF ANY) SIZE DIMENSIONS ARE TO BE TAKEN FROM THE DRAWING UNLESS NOTED OTHERWISE.

NOTE: PIPES ARE NOT INCLUDED IN PACKAGES UNLESS OTHERWISE INDICATED.

SCADA  
 LOCAL PLC CONTROL PANEL  
 CONTROL PANEL/MCC

| REV | DATE        | DESIGN          | DRAWN       | DESCRIPTION       |
|-----|-------------|-----------------|-------------|-------------------|
| 0   | 2017/JAN/11 | K.YU / M.GARDIS | W.Z. / M.G. | ISSUED FOR TENDER |



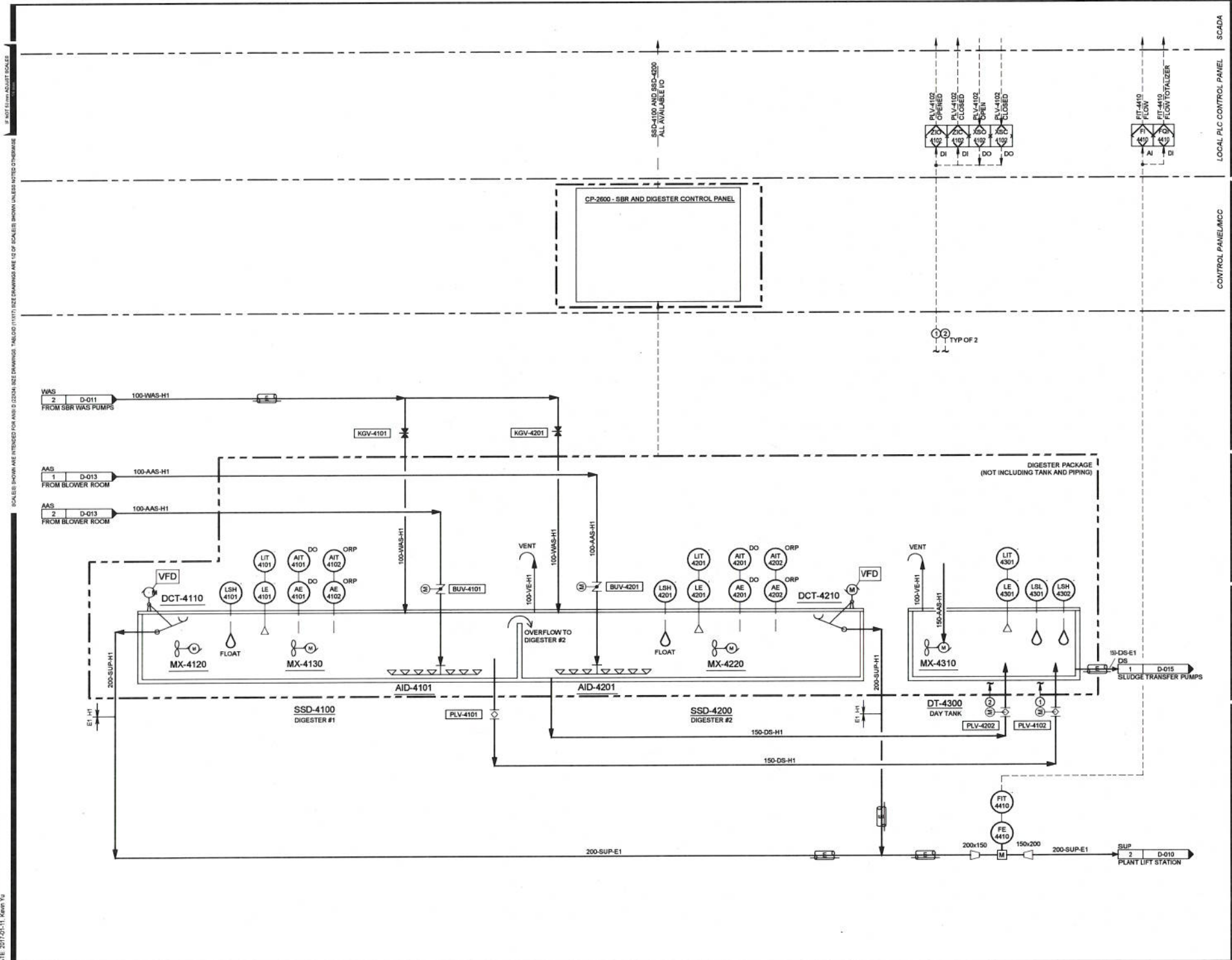
TOWN OF VIRDEN & MANITOBA WATER SERVICES BOARD

PHASE 2: WASTEWATER TREATMENT FACILITY UPGRADES

M.W.S.B. # 1302 / 2016-4784-00

SCALE: N/A  
 PROCESS  
 BLOWERS  
 P&ID

| DRAWING | REVISION | SHEET    |
|---------|----------|----------|
| D-013-0 | 0        | 69 / 143 |



IFC NOT TO BE USED AS PART OF SCALE. SCALE: 1:100. ALL DIMENSIONS ARE IN METERS UNLESS NOTED OTHERWISE. SCALE: 1:100. ALL DIMENSIONS ARE IN METERS UNLESS NOTED OTHERWISE. DATE: 2017-01-11, 11:00 AM '17.

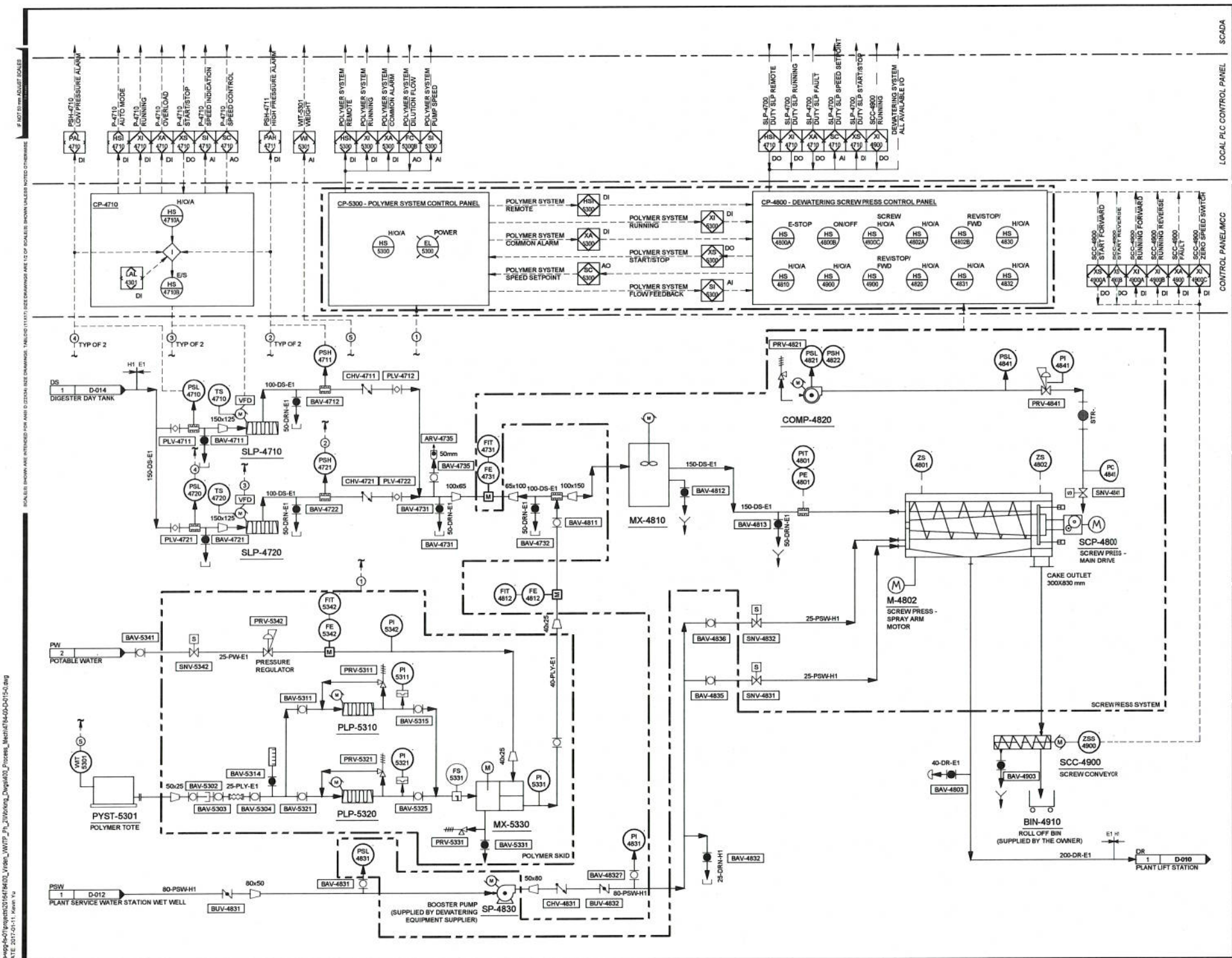
| REV | DATE       | DESIGN           | DRAWN         | DESCRIPTION       |
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| 0   | 2017/01/11 | K. YU / M. GARBO | W. Z. / M. G. | ISSUED FOR TENDER |



**TOWN OF VIRDEN & MANITOBA WATER SERVICES BOARD**  
**PHASE 2: WASTEWATER TREATMENT FACILITY UPGRADES**

M.W.S.B. # 1302 / 2016-4784-00  
 SCALE: N/A  
 PROCESS  
 DIGESTERS  
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| DRAWING | REVISION | SHEET    |
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| D-014-0 | 0        | 70 / 143 |



| REV | DATE        | DESIGN             | DRAWN         | DESCRIPTION       |
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| 0   | 2017 JAN 11 | K. YU / M. GARDNER | W. Z. / M. G. | ISSUED FOR TENDER |

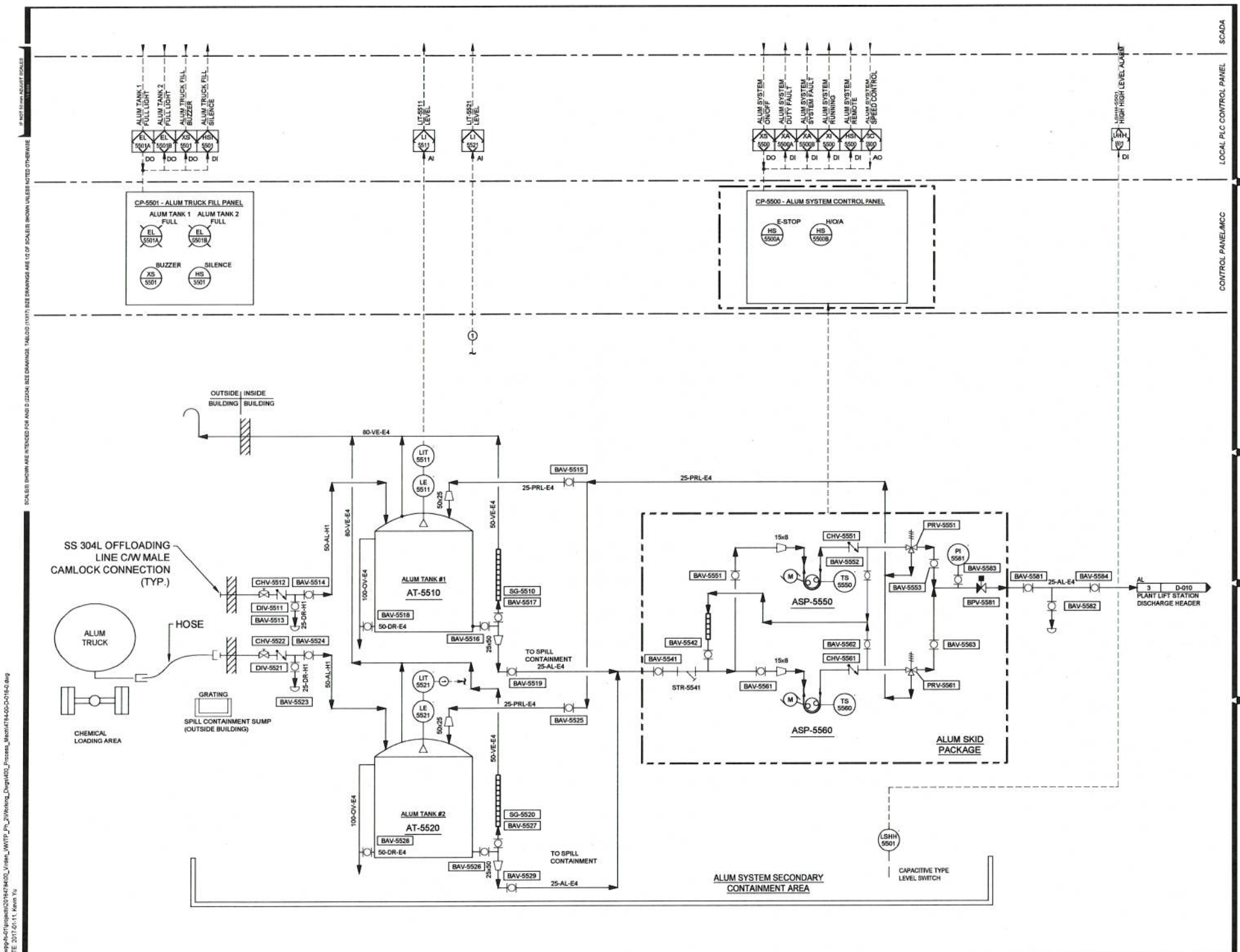


**TOWN OF VIRDEN & MANITOBA WATER SERVICES BOARD**  
**PHASE 2: WASTEWATER TREATMENT FACILITY UPGRADES**

M.W.S.B. # 1302 / 2016-4784-00

SCALE: N/A  
 PROCESS  
 SLUDGE DEWATERING  
 P&ID

| DRAWING | REVISION | SHEET    |
|---------|----------|----------|
| D-015-0 | 0        | 71 / 143 |



IF NOT FROM ASSOCIATED ENGINEERS  
 SCALES SHOWN ARE INTENDED FOR INFO ONLY. SEE DIMENSIONS. TAGS (11/17) SEE DRAWING ARE LIST OF SCALES SHOWN UNLESS NOTED OTHERWISE  
 SCALES SHOWN ARE INTENDED FOR INFO ONLY. SEE DIMENSIONS. TAGS (11/17) SEE DRAWING ARE LIST OF SCALES SHOWN UNLESS NOTED OTHERWISE  
 DATE: 2017.01.11 Rev: 1A

SCADA  
 LOCAL PLC CONTROL PANEL  
 CONTROL PANEL/MCC

| REV | DATE      | DESIGN         | DRAWN     | DESCRIPTION       |
|-----|-----------|----------------|-----------|-------------------|
| 0   | 2017JAN11 | K. YU/M. GARDI | W.Z./M.G. | ISSUED FOR TENDER |



**TOWN OF VIRDEN & MANITOBA WATER SERVICES BOARD**

**PHASE 2: WASTEWATER TREATMENT FACILITY UPGRADES**

M.W.S.B. # 1302 / 2016-4784-00

SCALE: N/A  
 PROCESS  
 ALUM  
 P&ID

| DRAWING | REVISION | SHEET    |
|---------|----------|----------|
| D-016-0 | 0        | 72 / 143 |