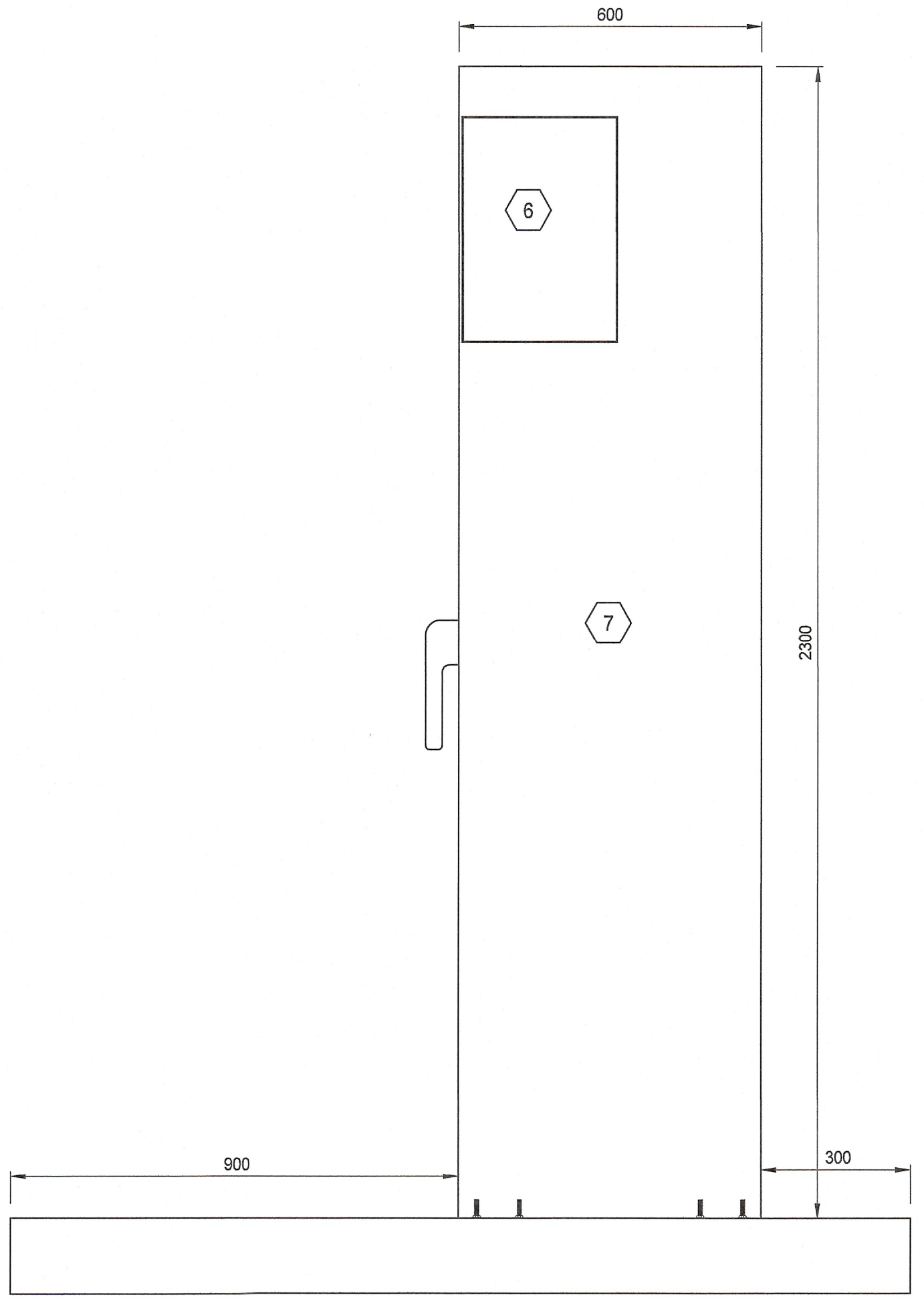


FRONT PANEL (FRONT DOOR CLOSED)

KEYNOTES:

1	PANEL BOARD 'A' 1M7600VAC BOTTOM ENTRY MAIN 100A-3P COMPLETE WITH CIRCUIT BRANCH BREAKERS.
2	600VAC, 145 KA SPD, SURGE PURE MACH 2.
3	SPD 240VAC 145 KA BY SURGE PURE MACH 2.
4	PANEL BOARD 'A' 240/120 CAV 60A MAIN BREAKER AND BRANCH CIRCUIT BREAKERS.
5	30 A SLUICE GATE ACTUATOR LOCKABLE DISCONNECT SWITCH BY ALLEN BRADLEY 134E-GA22.
6	7.5 KVA 600-240/120VAC OUTDOOR RATED NEMA 4X, ENCAPSULATED TRANSFORMER BY HAMMOND.
7	NEMA 3R CUSTOM MADE POWER AND CONTROL (P&C) FREE STANDING ENCLOSURE C/W BACKPAN AND SOLID BARRIER. APPROXIMATE SIZE 2300mmH x 2500mm (W) x 600mmD WITH DRIP SHIELD.
8	ROXTEC GLAND RG M33 COMPLETE WITH ROXTEC GLAND M33 CONDUIT ADAPTER. SIZE AS REQUIRED.
9	RTU CONTROL PANEL. REFER TO DRAWING I01 TO I18 FOR DETAILS.
10	GFCI DUPLEX RECEPTACLE
11	SP-01 SUMP PUMP CONTROL PANEL
12	400W PANEL HEATER BY HOFFMAN DAH-4001B



RIGHT SIDE PANEL VIEW

ELECTRICAL & INSTRUMENTATION GENERAL NOTES

- 1 GENERAL
- 1.1 ALL WORK SHALL CONFORM WITH WINNIPEG ELECTRICAL BYLAW AND TO LOCAL ORDINANCES HAVING JURISDICTION
- 1.2 OBTAIN ELECTRICAL PERMIT AND PAY ALL FEES LEVIED.
- 1.3 PROVIDE CERTIFICATION AT COMPLETION OF WORK.
- 1.4 ALL EQUIPMENT SHALL BE NEW AND BEAR CSA APPROVAL STICKER UNLESS NOTED OTHERWISE.
- 1.5 EXAMINE THE SITE THOROUGHLY FOR SERVICE POINT LOCATIONS.
- 1.6 CARRY OUT THE WORK IN ACCORDANCE WITH DRAWINGS, SPECIFICATIONS AND CONTRACTOR REQUIREMENTS
- 1.7 COMPLY WITH REGULATIONS AND REQUIREMENTS OF LOCAL INSPECTION AUTHORITY HAVING JURISDICTION.
- 1.8 COORDINATE THE WORK WITH ALL TRADES. KEEP CLEAR OF ALL MECHANICAL, ARCHITECTURAL AND STRUCTURAL FEATURES.
- 1.9 REFER TO OTHER DESIGN DISCIPLINE DRAWINGS AND VERIFY ALL DIMENSIONS PRIOR TO INSTALLATION.
- 1.10 CONFIRM EXACT LOCATION OF ELECTRICAL EQUIPMENT AND REPORT ANY CONFLICT TO CONTRACT ADMINISTRATOR
- 1.11 PROVIDE SHOP DWGS OF ALL ELECTRICAL AND INSTRUMENTATION PRODUCTS FOR REVIEW BY CONTRACT ADMINISTRATOR.
- 1.12 THERE ARE EXISTING ELECTRICAL SERVICES AT THE PUMPING STATION, WW TREATMENT PLANT AND LAGOON SITES. THE SERVICES SHALL BE LOCATED AND PROTECTED, AS THEY WILL CONTINUE TO BE USED DURING INTERIM OPERATION OF THE PUMPING STATION.
- 2 SCOPE OF WORK
- 2.1 PROVIDE ALL LABOUR, MATERIAL AND TOOLS REQUIRED TO COMPLETE ELECTRICAL WORKS IN THE SPECIFICATION.
- 2.2 GENERALLY, THE EXTENT OF WORK SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING:
 - a. PROVIDE POWER AND CONTROL (P&C) NEMA 3R FREE STANDING PANEL, C/W INTERIOR LIGHTING, HEATER/THERMOSTAT, POWER PANELS, LV TRANSFORMER, RTU SYSTEM, DISTRIBUTION PANELS, MOTOR STARTERS AND CONTROLLER. ARRANGE WITH THE MANUFACTURERS TO PROVIDE SHOP DWGS AND FAT RESULTS.
 - b. CAREFULLY DIG TO EXPOSE EXISTING 100A FEEDER TECK CABLE AND PROVIDE TRENCHING TO THE NEW P&C PANEL MAIN BREAKER WIRE AND CONNECT.
 - c. INSTALL FREE STANDING P&C PANEL ON CONCRETE PAD. COORDINATE FINAL SIZE OF CONCRETE PAD WITH STRUCTURAL.
 - d. PROVIDE ALL POWER AND CONTROL WIRING IN P&C PANEL, BETWEEN P&C PANEL, ACTUATOR CHAMBER AND PUMP CHAMBER.
 - e. PROVIDE GROUNDING WITH CONFORMANCE TO WINNIPEG ELECTRICAL BYLAW.
 - f. PROVIDE RTU CONTROL PANEL.
- 3 WIRING SYSTEM
- 3.1 ALL WIRING SHALL BE:
 - a. WIRES IN RIGID CONDUITS, ARMORED TECK 90 AND INSTRUMENTATION TECK THROUGHOUT.
 - b. RGS CONDUITS WITH ROXTEC RG M33 SEALS, POWER AND/OR CONTROL WIRES FOR WIRING IN HAZARDOUS AREAS AND AREAS SUBJECT TO MECHANICAL DAMAGE SUCH AS ABOVE GROUND.
 - c. EMT CONDUITS WITH RAIN/TIGHT FITTINGS, POWER AND/OR CONTROL WIRES FOR WIRING IN P&C PANEL.
- 3.2 UNDERGROUND (UG) PORTION OF THE WIRING MAY BE PVC CONDUITS.
- 3.3 THE PUMP AND ACTUATOR SUPPLIER MAY PROVIDE SEALED POWER AND CONTROL CABLES THE CONTRACTOR SHALL VERIFY AND INSTALL THESE AND REMAINING CABLES W/O ANY SPLICE IN CONDUITS AS REQUIRED.
- 3.4 PROVIDE ALL SUPPORTS AND MOUNTING HARDWARE FOR WIRING AND EQUIPMENT TO GENERAL AND STANDARD PRACTICES.
- 3.5 ALL UNDERGROUND WIRES IN CONDUIT SHALL BE COPPER WITH RWM90 XLPE INSULATION AND COLOUR-CODED TO MATCH PHASES.
- 3.6 RWM90 XLPE WIRES IN CONDUIT WILL BE ACCEPTED ONLY IN ABOVE GROUND APPLICATION.
- 3.7 PROVIDE A SEPARATE GREEN INSULATED GROUND WIRE IN EVERY RACEWAY.
- 3.8 FOR CLARITY, THE SKETCHES DO NOT SHOW ANY WIRING AND THOSE SHOWN ARE DIAGRAMMATIC ONLY.
- 3.9 RUN WIRING IN PARALLEL OR PERPENDICULAR TO BUILDING AXIS.
- 4 INCOMING POWER SERVICE
- 4.1 RE-USE THE EXISTING 100A FEEDER 3C3S AWG TECK 90, DISCONNECT EXISTING CABLE FROM THE BREAKER IN THE EXISTING BUILDING DURING CONSTRUCTION, CAREFULLY DIG OR PROVIDE SOFT DIG AS REQUIRED TO EXPOSED CABLE. EXISTING CABLE SHALL BE PROTECTED AGAINST ANY MECHANICAL DAMAGE DURING CONSTRUCTION.
- 5 POWER & CONTROL PANEL (P&C)
- 5.1 THE P&C PANEL SHALL BE MADE FROM CODE GAUGE STAINLESS STEEL SHEETS WITH STIFFENERS, DOUBLE LEAF LOCKABLE DOORS.
- 5.2 THE P&C PANEL SHALL BE SIZED WITH ALL EQUIPMENT AS INDICATED + 20% SPARE CAPACITY. PROVIDE SHOP DWGS FOR REVIEW.
- 6 POWER PANELS
- 6.1 PROVIDE 600VAC PANEL.
- 6.2 PROVIDE 240VAC PANEL
- 6.3 ALL PANELS SHALL BE FULLY RATED C/W MOLDED CASE BOLT-ON BREAKERS, COPPER BUS, NEUTRAL BAR AND GROUND LUG IN SURFACE MOUNTED, FULLY ENCLOSED CSA 1 ENCLOSURE WITH HINGED COVER AND DIRECTORY.
- 7 TRANSFORMER
- 7.1 PROVIDE LOW VOLTAGE TRANSFORMER WITH RESIN ENCAPSULATED WINDINGS AND RATING IN CSA OUTDOOR RATED NEMA 4X TO BE WALL MOUNTED OUTSIDE OF THE WEATHER ENCLOSURE P&C PANEL. TRANSFORMER SHALL BE FACTORY INSTALLED.
- 8 LEVEL TRANSDUCER SWITCHES AND ISB RELAYS.
- 8.1 PROVIDE LEVEL TRANSDUCER WITH CABLES, JB, MOUNTING RAIL, ETC MANUFACTURED BY ITT.
- 8.2 PROVIDE INTRINSICALLY SAFE BARRIER RELAYS.
- 8.3 PROVIDE WIRING FOR LEVEL TRANSDUCER IN PUMP AND ACTUATOR CHAMBERS AND ISB RELAYS IN DEDICATED JB INSIDE P&C PANEL.
- 8.4 CONFIRM EXACT LENGTH OF CONTROL CABLE PRIOR TO PURCHASE. NO CABLE SPLICE BETWEEN. FACTORY INSTALLED.
- 9 REMOTE TERMINAL UNIT
- 9.1 PROVIDE RTU PANEL C/W PLC CONTROLLER, EXPANSION MODULES, PANEL HEATERS, TERMINAL BLOCKS AND ETC. REFER SPECIFICATION AND DRAWING 5516047-01 TO I18 FOR DETAILS.
- 9.2 THE ELECTRICAL TRADE WILL COORDINATE SHOP DWGS AND FAT OF AND INFORM THE OWNER OF THE SCHEDULE.
- 9.3 PROVIDE ALL COMPONENTS, CONTROL WIRING AND MAKE CONNECTIONS.
- 9.4 CITY OF WINNIPEG TO PROVIDE ANTENNA AND MODEM. CONTRACTOR TO INSTALL.
- 10 LIGHTING AND HEATER
- 10.1 PROVIDE LIGHTING, HEATER AND RELATED CONTROLS INSIDE P&C PANEL, GATE AND CHAMBERS.
- 10.2 PROVIDE 26W, 120VAC, TUBE TYPED LIGHTING IN RTU PANEL AND P&C PANEL AS MANUFACTURED BY OMNILUMEN HUBBELL.
- 11 GROUNDING
- 11.1 PROVIDE A SEPARATE AND CONTINUOUS GROUND WIRE SYSTEM THROUGHOUT.
- 11.2 BOND ALL NON-CURRENT CARRYING EQUIPMENT ADEQUATELY TO SATISFACTION OF INSPECTION AUTHORITY AND MANUFACTURER.
- 11.3 PROVIDE 3 X 20MM X 3M GROUND RODS OUTSIDE P&C PANEL AND INTERCONNECTING GROUND WIRE.
- 12 SHOP DRAWINGS - ELECTRICAL
- 12.1 PROVIDE SHOP DRAWINGS OF ALL ELECTRICAL PRODUCTS SUCH AS CSTE PANEL, METER, POWER PANELS, TRANSFORMER, SWITCHES, POWER & CONTROL PANEL, ETC FOR REVIEW AND APPROVAL PRIOR TO ANY PURCHASE.
- 13 AS BUILT DRAWING
- 13.1 RECORD ACCURATELY ALL AS-BUILT REVISIONS TO ELECTRICAL SYSTEMS AS JOB PROGRESS.
- 13.2 HAND OVER A SET TO CONTRACTOR AT THE COMPLETION OF PROJECT.
- 14 SHOP DRAWINGS - INSTRUMENTATION
- 14.1 PROVIDE SHOP DRAWINGS OF ALL INSTRUMENTATION PRODUCTS SUCH AS RTU, MODEM, FLOAT, PUMP CONTROLLER ACTUATOR CONTROLLER AND RTU CONTROL PANEL COMPLETE WITH WIRING DIAGRAM AND LOOP DIAGRAM. ETC FOR REVIEW AND APPROVAL PRIOR TO ANY PURCHASE.
- 15 EMERGENCY PUSHBUTTON
- 15.1 SUPPLY AND INSTALL EMERGENCY PUSHBUTTON INSTALLED IN CHAMBER. EMERGENCY PUSHBUTTON SHALL BE ALLEN-BRADLEY BULLETIN 800F TYPE 7 & 9 WITH MAINTAINED CONTACT 2-POSITIONS PUSH AND PULL NON-ILLUMINATED.
- 16 COMMISSIONING AND HANDOVER
- 16.1 IDENTIFY ALL EQUIPMENT USING LAMACOID NAMEPLATE WITH NAME, NUMBER, VOLTAGE, AMPS, SOURCE (FED FROM), ETC
- 16.2 AT THE END OF THE CONSTRUCTION AND IN COOPERATION WITH THE MECHANICAL TRADE, COMMISSION THE ALL SYSTEMS IN ACCORDANCE WITH SPEC#1500 AND AS FOLLOWS:
 - a. JOG EVERY EQUIPMENT THAT HAS MOTOR, ONE AT A TIME, FOR CORRECT ROTATION AND OPERATION.
 - b. START-UP THE PUMP AND ACTUATOR MANUALLY FROM FROM THE CONTROLLERS AND RTU. ENSURE THAT THEY OPERATE PER MANUFACTURER'S REQUIREMENTS.
 - c. SIMULATE THE OPERATION OF LEVEL FLOATS AND CHECK IF THE PUMPS START CORRECTLY.
 - d. SIMULATE THE OPERATION OF CONTROLLING DEVICE AND CHECK IF THEY SEND/RECEIVE SIGNALS SATISFACTORY.
 - e. ENSURE THAT REMOTE ALARMS AND STATUS ARE WELL RECEIVED AT THE RTU AND AT REMOTE LOCATION.
 - f. FINALLY STARTUP THE ENTIRE ELECTRICAL AND INSTRUMENTATION SYSTEMS.
- 16.3 CLEAN THE AREA AND REMOVE DEBRIS OFF SITE.

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NOTE:
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**ENGINEERS
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 Certificate of Authorization
 WSP Canada Inc.
 No. 5750

DESIGNED BY	AE	CHECKED BY	ES
DRAWN BY	AE	APPROVED BY	ES
HOR. SCALE	AS NOTED	RELEASED FOR CONSTRUCTION	Signed by KZ September 14, 2018
VERTICAL	AS NOTED	DATE	
NO.	REVISIONS	DATE	BY
3	ISSUED FOR TENDER	14/09/18	ES
2	ISSUED FOR REVIEW	15/08/18	ES
1	ISSUED FOR REVIEW	12/12/16	HP

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ENGINEER'S SEAL
 E.N.
 MEMBER 2295
 10/09/2018

BID OPPORTUNITY: 865-2018
 PLOT DATE: 10/09/2018

THE CITY OF WINNIPEG
 WATER AND WASTE DEPARTMENT

OUTFALL GATE CHAMBER UPGRADES
 AUBREY STREET
 SRS OUTFALL GATE CHAMBER

CONTROL PANEL DETAIL
 GENERAL NOTES

CONSULTANT DRAWING NUMBER	5516047 - E01
SHEET OF	12 33
CITY DRAWING NUMBER	LD-8024