

D:\SIZE 22 x 34 (550mm x 860mm) PLOT: 24/01/2008 11:11:06 AM U:\A FILE NAME: D265-202-02\_01-M-0001\_RX.dwg Saved By: scjw@winn

**LEGEND**

	UNION		LOUVER TYPE
	CAP		LOUVER NECK SIZE
	GATE VALVE		AIR FLOW (L/S)
	CONTROL VALVE		DETAIL NUMBER (NUMBER/LETTER)
	BALL VALVE - NORMALLY OPEN		SHEET NO. WHERE ITEM ORIGINATED
	BALL VALVE - NORMALLY CLOSED		SECTION SYMBOL
	CHECK VALVE		FLOW SENSOR
	BUTTERFLY VALVE		THERMOSTAT
	FLEXIBLE PIPE CONNECTOR		PRESSURE TRANSDUCER/TRANSMITTER
	CONCENTRIC REDUCER		BALANCING DAMPER
	ECCENTRIC REDUCER		MOTORIZED DAMPER
	VENT		EXHAUST OR RETURN AIR DUCT IN SECTION
	FLOW ARROW		SUPPLY OR OUTSIDE AIR DUCT IN SECTION
	ELBOW TURNED UP		ROUND DUCT OR PIPE IN SECTION
	ELBOW TURNED DOWN		BLOWER OR FAN
	EQUIPMENT TYPE & NUMBER		
	EF = EXHAUST AIR FAN		
	LV = LOUVRE		
	GR = GRILLE		
	DP = DAMPER		
	VAV = VARIABLE AIR VOLUME		
	GD = GAS DETECTOR		
	INSULATED PIPING		
	ACOUSTICALLY LINED DUCTWORK		

**GENERAL NOTES:**

- DIMENSIONS AND BUILDING ORIENTATION SHOWN ON THE DRAWING ARE APPROXIMATE. THE CONTRACTOR IS RESPONSIBLE TO VERIFY EQUIPMENT/BUILDING LOCATIONS AND DIMENSIONS ON SITE.
- PATCH ALL OPENINGS REMAINING AFTER EQUIPMENT, DUCT, OR PIPING INSTALLATION/REMOVALS. PATCHING TO ACHIEVE COLOUR MATCHED FINISH OF LIKE MATERIALS TO THE SURROUNDING SURFACE MATERIAL.
- CUT ALL NEW OPENINGS REQUIRED FOR NEW INSTALLATIONS OR DEMOLITION WORK USING DUE CARE AND APPROPRIATE TOOLS AND METHODS TO MAINTAIN THE INTEGRITY OF THE STRUCTURE/ASSEMBLY IN WHICH THE OPENING IS BEING CUT. MECHANICAL CONTRACTOR SHALL SUPPLY GALVANIZED STEEL SHEET METAL AND SLEEVES FOR EQUIPMENT PENETRATING THE WALL.
- ELECTRICALLY ISOLATE ALL DISSIMILAR METALS.
- PROVIDE ADDITIONAL FRAMING AT ALL WALL PENETRATIONS.
- PERFORM ALL WORK IN CO-ORDINATION WITH ALL OTHER TRADES AND CONTRACTORS. PROVIDE COMPLETE FUNCTIONAL AND CODE COMPLIANT SYSTEMS.
- CONTRACTOR IS RESPONSIBLE FOR TAKING OUT PERMITS AND PAYING ALL FEES RELATED TO DEMOLITION/MODIFICATION OF THE EXISTING SYSTEMS, CONSTRUCTION, MODIFICATION AND INSTALLATION OF NEW SYSTEMS.
- DEMOLITION/MODIFICATION/DISPOSAL/INSTALLATION OF MECHANICAL WHICH INVOLVE NATURAL GAS PIPING AND EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH THE MANITOBA FIRE CODE, REGULATIONS, INDUSTRY STANDARDS AND LOCAL BYLAWS.
- USE SKILLED AND LICENSED LABOURERS AND JOURNEYMEN TO PERFORM ALL WORK.
- ALL WASTE IS TO BE DISPOSED OF OFF SITE IN AN APPROVED FACILITY LICENSED TO ACCEPT SUCH WASTE.
- CONTRACTOR IS RESPONSIBLE TO REMOVE ANY CONTAMINATED OR HAZARDOUS WASTE/REFUSE, WHICH IS CAUSED BY THIS CONSTRUCTION WORK, AND TO DISPOSE THEM OFF SITE AS PER CODE.
- CONTRACTOR TO PROVIDE PROTECTION TO OWNER EQUIPMENT DURING CONSTRUCTION. WORK WITH EXTREME CARE AROUND OPERATING EQUIPMENT.
- COORDINATE THE TIMING, DURATION AND SAFETY REQUIREMENTS FOR SHUT-DOWNS TO ALLOW PIPING TIE-INS AND WORK IN HAZARDOUS ATMOSPHERE WITH THE CITY OF WINNIPEG WATER AND WASTE DEPARTMENT.
- VERIFY CONFINED SPACES ENTRY REQUIREMENTS WITH CITY PRIOR TO ENTERING SUCH SPACES.
- CONTRACTOR SHALL PROVIDE REQUIRED PERSONNEL FACILITIES FOR STAFF ON SITE.

**DESIGN NOTES:**

DRY WELL, GENERATOR ROOM, AND CONTROL ROOM WILL BE ELECTRICALLY DECLASSIFIED PER NFPA 2003-820 TABLE 4.2 ROW 17 LINE B & A AND AS PER NFPA 496, BY MAINTAINING 25 Pa POSITIVE STATIC PRESSURE USING CONTINUOUS VENTILATION. 6 AIR CHANGES PER HOUR (ACH) WILL BE PROVIDED IF THE STATIC PRESSURE FALLS BELOW 25 Pa (POSITIVE) OR 10% OF LEL IS EXCEEDED.

REMAINDER OF LEVEL 400 IS UNCLASSIFIED BUT PROVIDED WITH MINIMUM 1 ACH.

MAKE UP AIR UNIT IS SIZED FOR 50°C OUTDOOR TEMPERATURE RISE.

WET WELL WILL BE POSITIVELY SEPARATED FROM OTHER AREAS AND RETAIN CLASS 1 DIV. 1 RATING.

EXHAUST FOR WET WELL WILL BE PROVIDED @ 3 ACH CONTINUOUSLY AND WILL INCREASE TO 12 ACH IF 10% OF THE LOWER FLAMMABLE LIMIT (LFL) OR 10% OF THE LOWER EXPLOSIVE LIMIT (LEL) IS EXCEEDED OR IF MANUALLY SELECTED FOR CONFINED SPACE ENTRY REQUIREMENTS.

NATURAL GAS LOAD ALLOWANCES  
 EXISTING PUMP ENGINE: 1025 KW (3.5 MMBH)  
 HVAC: 295 KW (1.0 MMBH)  
 STAND BY GENERATOR: 1025 KW (3.5 MMBH)

GENERATOR ROOM VENTILATION BASED ON 150KW KOHLER UNIT  
 HEAT INTO ROOM; ENGINE: 85 KW (287 MBH)  
 GENERATOR: 16 KW (55MBH)

174 LPS COMB. AIR  
 5714 LPS RADIATOR AIR  
 32°C OUTSIDE AIR TEMPERATURE  
 40°C ROOM ALLOWABLE TEMPERATURE  
 4200 LPS ROOM COOLING AIR

L400 MAIN ROOM MXX-SF BASED ON 10KW EQUIPMENT LOAD  
 NO AIR FLOW FROM M609AHU  
 32°C OUTDOOR AIR TEMPERATURE, 37°C INDOOR AIR TEMPERATURE

16. PROVIDE TEMPORARY WET WELL EXHAUST VENTILATION AS FOLLOWS, UNTIL NEW EQUIPMENT IS COMMISSIONED:  
 - 450 LPS (950 CFM) AT ALL TIMES.  
 - MINIMUM OF 1800 LPS (3800 CFM) OR AS REQUIRED FOR CONFINED SPACE ENTRY WHEN OCCUPIED.

**IMPORTANT: ASBESTOS NOTIFICATION AND ACKNOWLEDGMENT**

Every effort has been made to identify known asbestos containing materials within the areas of the proposed work. As a precautionary measure, where material is encountered by trades and contractors that is suspected or suspicious, the Trade/Contractor/Subcontractor is to contact the Contract Administrator who will have samples taken and tested to confirm its composition.

Mo. Reg. 53-88 (Workplace Health Hazard Regulation), Mo. Reg. 100-88R (Fibrosis and Silicosis Regulation) and associated Guidelines apply to all maintenance and renovation work that may disturb asbestos or suspect asbestos-containing materials in the Workplace. Such regulations and guidelines state that any disturbance of asbestos-containing materials may only be performed by workers or by an outside contractor who have first received the required training in asbestos-related precautions.

WORKING WITH ASBESTOS CAN BE DANGEROUS. INHALING ASBESTOS FIBERS CAN CAUSE VARIOUS TYPES OF LUNG DISEASE INCLUDING CANCER. SMOKING INCREASES THE RISK OF LUNG CANCER FROM ASBESTOS EXPOSURE.

**ACKNOWLEDGMENT:**

In undertaking the work of this project, we the trade or contractor agree to perform our work in such a manner so as NOT to disturb any asbestos-containing materials without:

- giving notice to the appropriate supervisor, individual manager and/or project coordinator at the Water And Waste Department that known or suspected asbestos-containing material(s) will be needed to be disturbed, or
- halting work and giving notice to the Contract Administrator when unforeseen suspected asbestos-containing materials are uncovered during the provisions of services/materials.

MAKE UP AIR UNIT SCHEDULE						
ITEM	LOCATION	MANUFACTURER AND MODEL No.	AIRFLOW (LPS)	TSP / ESP (Pa)	KW INPUT (MBTU INPUT)	DETAILS
M609-AHU	OUTSIDE	ENGINEERED AIR DJE-100	3920	250	235 (800)	INDIRECT FIRED, 100% OUTSIDE AIR, MINIMUM 15:1 TURNDOWN MODULATING BURNER, 0-10 VDC DISCHARGE TEMP. RESET, LOCKABLE DISCONNECT

NOTE: VFD IN M.C.C. BY DIVISION 26

FAN SCHEDULE										
ITEM	LOCATION	MANUFACTURER AND MODEL No.	AIRFLOW (LPS)	FAN SIZE	TSP / ESP (Pa)	RPM	BHP	MOTOR KW	VOLTAGE / PHASE	DETAILS
M610-EF	ROOF PENTHOUSE - WET WELL	NORTHERN BLOWER DESIGN 7410	450 / 1800	1825	30	-	3/4	0.6	575 / 3 / 60	SS CONSTRUCTION, BELT DRIVE, SPARK PROOF, VFD
M620-EF	GENERATOR ROOM	GREENHECK SBC3L30-10	4200	900	37	-	1	0.76	575 / 3 / 60	VFD, BELT DRIVE
M634-SF	L400 WEST	GREENHECK SBC3L24-3	1710	600	50	-	1/3	0.26	575 / 3 / 60	SUPPLY AIR

NOTE: VFD IN M.C.C. BY DIVISION 26

LOUVRE SCHEDULE				
ITEM	LOCATION	MANUFACTURER AND MODEL No.	SIZE W x H	OPEN AREA
LV-1	GENERATOR ROOM INLET	PRICE DE635	1800 x 1800	1.8m <sup>2</sup>
LV-2	GENERATOR WET WELL	PRICE DE635	900 x 900	0.8m <sup>2</sup>
LV-3	GENERATOR ROOM RADIATOR	PRICE DE635	1200 x 1500	1.0m <sup>2</sup>
LV-4	GENERATOR ROOM EXHAUST	PRICE DE635	1200x1200	0.84m <sup>2</sup>
LV-5	WEST WALL	PRICE DE635	900x900	0.4m <sup>2</sup>

GRILLE SCHEDULE				
ITEM	LOCATION	MANUFACTURER AND MODEL No.	ACCESSORIES	
GR-1	L100, 200, 300	PRICE 610 DAL		
GR-2	L400	PRICE 610 DAL		

VARIABLE AIR VOLUME SCHEDULE					
ITEM	LOCATION	MANUFACTURER AND MODEL No.	MINIMUM AIRFLOW (LPS)	MAXIMUM AIRFLOW (LPS)	ACCESSORIES
M615-VAV	LEVEL 400	PRICE SEV 12	95	560	SP300 AIRFLOW SENSOR (4-20 mA)
M616-VAV	LEVEL 400	PRICE SEV 14	655	1160	SP300 AIRFLOW SENSOR (4-20 mA)
M617-VAV	LEVEL 400	PRICE SEV 16	1000	1840	SP300 AIRFLOW SENSOR (4-20 mA)

WASTE WATER VALVE SCHEDULE							
P&ID TAG	LOCATION/USE	VALVE No.	MAKE/MODEL	SIZE (MM)	MAX PRESSURE KPA (PSI)	ACTUATOR	MATERIALS OF CONSTRUCTION
M	P2 DISCHARGE	P2 - 02	PRATT BALLCENTRIC PLUG	450	1035 (150)	DOUBLE ACTING ON/OFF PNEUMATIC, WITH LIMIT SWITCHES 625 KPa (90 PSIG) OPERATING PRESSURE	BODY: CAST IRON ASTM A126 CLASS B VALVE PLUG: CAST IRON ASTM A126 CLASS B SEATING: BUNA FLANGES: ANSI B16.1, CLASS 125 BEARINGS: SINTERED, OIL IMPREGNATED TYPE 316 SS ASTM A-743 OR BRONZE ASTM B-127

**APEGM**  
 Certificate of Authorization  
 UMA Engineering Ltd. (MB)  
 No. 256 Date: 08/01/24

RS	ALS	CC	CC	BP
DRN	CHK	DES	ENG	IDR
UMA REVIEW				

B.M. ELEV.	FIELD BOOK #:	UMA	AECOM
POSTED TO LBS		DESIGNED BY CAC	CHECKED BY -----
		DRAWN BY RJP	APPROVED BY -
E ISSUED FOR ADDENDUM 3	08/01/23	RS	
D ISSUED FOR BID	07/12/14	RS	
C ISSUED FOR 100% REVIEW	07/11/09	RS	
B ISSUED FOR ZONING	07/08/21	ALS	
A ISSUED FOR 80% REVIEW	07/06/18	RJP	
NO. REVISIONS	DATE	BY	FILENAME: D265-202-02_01-M-0001_RX.dwg

ENGINEER'S SEAL  
 ISSUE / REVISION E  
 ISSUED FOR ADDENDUM 3  
 WAS SEALED BY  
 CLAUDE COURCHAINE  
 AND DATED  
 08/01/24

**THE CITY OF WINNIPEG**  
 WATER AND WASTE DEPARTMENT  
 PERIMETER ROAD PUMPING STATION UPGRADES  
 Contract B - Building Upgrades  
 Mechanical  
 GENERAL NOTES AND LEGEND  
 CITY DRAWING NUMBER: 1-0111L-M0001  
 SHEET: 001  
 REV: E  
 SIZE: D