

CONTINUED ON 3 / M1.1

GENERAL NOTES

- A. ALL GROUND WATER PIPING TO BE EQUAL TO IPEX CLASS 150 PVC BLUE BRUTE PRESSURE PIPE CONFORMING TO AWWA SPECIFICATIONS WITH INTEGRAL GASKETED JOINTS.
- B. ALL GEOTHERMAL PIPING TO BE AT A DEPTH OF 8FT.

KEY NOTES

- 1. REFER TO DRAWING 1/M1.2 FOR MECHANICAL ROOM LAYOUT DETAIL, TYPICAL FOR BOTH MECHANICAL ROOMS ON SITE.

MECHANICAL DRAWING LIST

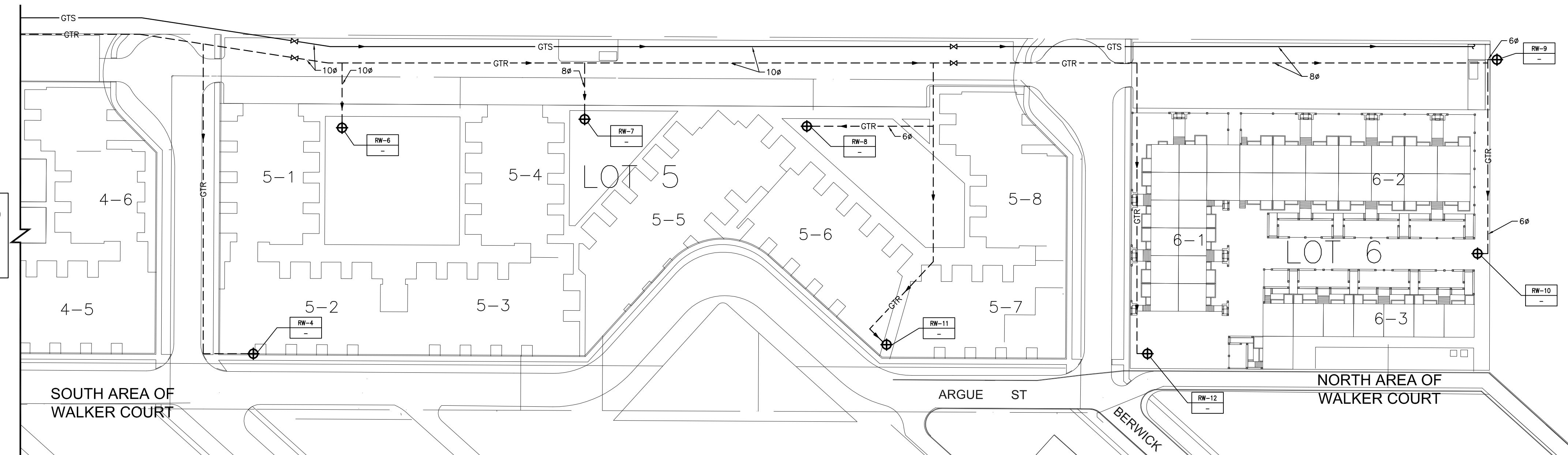
- M1.1 GEOTHERMAL LOOP
- M1.2 INFLOOR HEATING MECHANICAL ROOM LAYOUT
- M2.1 MECHANICAL SPECIFICATION
- M2.2 MECHANICAL DETAILS

MECHANICAL LEGEND

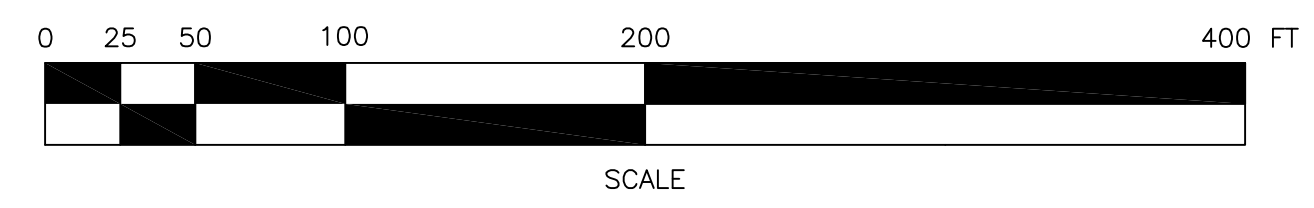
--- R ---	RETURN WATER TO WELL
— S —	SUPPLY WATER FROM WELL
RW	RETURN WELL
SW	SUPPLY WELL
GHS	GLYCOL HEATING SUPPLY
GHR	GLYCOL HEATING RETURN
GTR	GEOTHERMAL RETURN
GTS	GEOTHERMAL SUPPLY
IW	INDIRECT WASTE
---	CONTROL LINE
⊠	AIR PURGER
⊞	BALANCING VALVE
⊞	STRAINER
⊞	CHECK VALVE
⊞	RELIEF VALVE
⊞	PRESSURE GAUGE
⊞	CONTROL VALVE
⊞	UNION
⊞	ISOLATION VALVE
⊞	TEMPERATURE SENSOR
⊞	THERMOSTAT
⊞	PUMP
⊞	FLOOR DRAIN
RW-10	WELL
RW-10	RETURN/SUPPLY WELL

1 GEOTHERMAL LOOP LOT 3 & 4
M1.1
SCALE: 1/8" = 1'-0"

2 RETURN WELL - MCKITTRICK PARK
M1.1
SCALE: 1/8" = 1'-0"



CONTINUED ON 1 / M1.1



3 GEOTHERMAL LOOP LOT 5 & 6
M1.1
SCALE: 1/8" = 1'-0"

LOCATION UNDERGROUND STRUCTURES ORIGINAL SIGNED BY	APPROVED STRUCTURES MW/00/XXXX	DESIGNED BY JY
X	___/___/2014	DRAWN BY DL
SUPV. U/S STRUCTURES COMMITTEE		CHECKED BY JY
NOTE: LOCATION OF UNDERGROUND STRUCTURES AS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE, BUT NO GUARANTEE IS GIVEN THAT ALL EXISTING UTILITIES ARE SHOWN OR THAT THE GIVEN LOCATIONS ARE EXACT. CONFIRMATION OF EXISTENCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION.		APPROVED HW
DISCLAIMER: THIS DRAWING MUST NOT BE SCALED.		SCALE AS SHOWN
VARIATIONS AND MODIFICATIONS TO WORK SHOWN ON THESE DRAWINGS SHALL NOT BE CARRIED OUT WITHOUT WRITTEN PERMISSION OF GEM EQUITIES INC.		RELEASED FOR CONSTRUCTION

NO.	REVISIONS	DATE	BY	DATE
5	ISSUED FOR CONSTRUCTION	09/29/14	JY	
4	ISSUED FOR 99% REVIEW	08/22/14	GZ	
3	ISSUED FOR 95% REVIEW	07/28/14	CJH	
2	ISSUED FOR 90% REVIEW	04/15/14	CJH	
1	ISSUED FOR REVIEW	01/03/14	CJH	

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CONSULTANT'S SEAL
J. YACOUB
SAF. 2014
 MEMBER
 33894

OWNERS **THE CITY OF WINNIPEG**
TRANSIT DEPARTMENT

Winnipeg

GEM EQUITIES INC.

SOUTHWEST RAPID TRANSIT CORRIDOR
 JUBILEE STATION
 STATION CONSTRUCTION, LANDSCAPING & ASSOCIATED WORKS

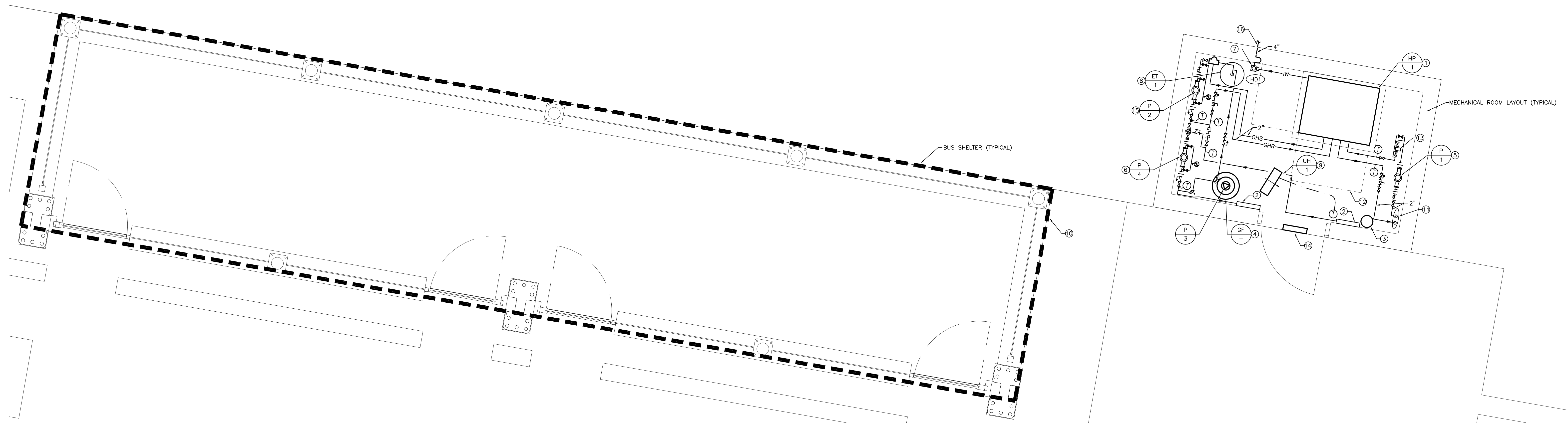
CONSULTANT SHEET TITLE
GEOTHERMAL LOOP

SHEET 1 OF 4

CONSULTANT DRAWING NUMBER
M1.1

CONSULTANT PROJECT NO.
 13-173-01

DATE 09/29/2014



1 MECHANICAL ROOM LAYOUT DETAIL - TYPICAL
SCALE: 1/2" = 1'-0"

GENERAL NOTES

- A. CONTRACTOR TO COORDINATE THE INSTALLATION WITH SUPPLIER AND ELECTRICAL DIVISION.

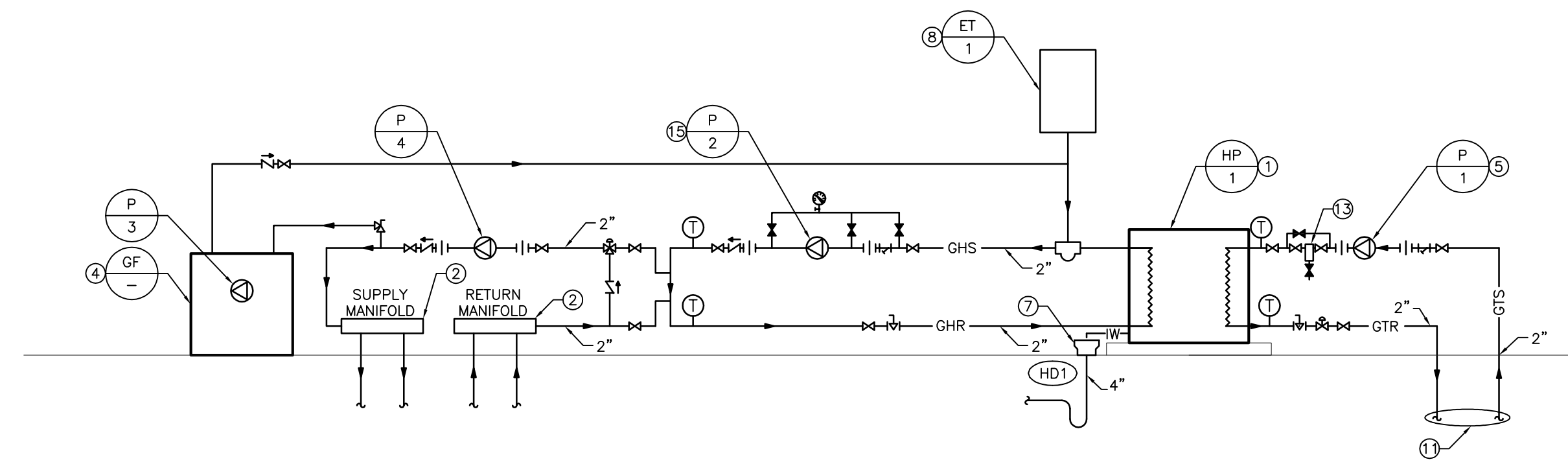
KEYNOTES

1. WATER TO GLYCOL HEAT PUMP C/W 4" CONCRETE PAD.
2. MANIFOLD FOR IN-FLOOR HEATING.
3. FIRE EXTINGUISHER.
4. GLYCOL FILL TANK C/W INTEGRAL PUMP.
5. GROUND WATER SUPPLY PUMP.
6. GLYCOL IN-FLOOR HEATING CIRCULATION PUMP.
7. 4" HUB DRAIN.
8. EXPANSION TANK.
9. 3KW ELECTRIC FORCE FLOW UNIT HEATER SUSPENDED FROM CEILING BY ELECTRICAL. REFER TO ELECTRICAL DIVISION.
10. IN-FLOOR HEATING ZONE FOR BUS SHELTER (TYPICAL).
11. GROUND WATER LOOP S AND R TO CIRCULATING PUMP.
12. 24" SERVICE SPACE IN FRONT AND ON ONE SIDE FOR HEAT PUMP.
13. INLINE WATER FILTER, LAKOS MODEL ILB-0100. LAKOS MODEL ABV2 C/W AUTOMATED ELECTRIC PURGE VALVE WITH INDICATOR DRAINING OVER HD1.
14. 12"x12" AIR LOUVERS 1500A LOUVER WITH SECURITY GRILLE, GALVANIZED SHEET METAL FOR EXTERIOR USE AND CORROSION-RESISTANCE AND MESH INSECT SCREEN. INSTALL LOUVER AT HIGH LEVEL IN DOOR. COORDINATE COLOR WITH OWNER.
15. PRIMARY GLYCOL PUMP.
16. CONNECT SANITARY DRAIN LINE TO THE SITE SERVICE SANITARY DRAIN WITHIN 3 FT. OF THE BUILDING. REFER TO SITE LAYOUT SERVICE DRAWING FOR MORE INFORMATION.

Expansion Tanks						
TANK NO.	TANK SERVICE	LOCATION	ACCEPTANCE VOLUME (gallons)	MODEL NUMBER	TANK SIZE (inches) DIA x HEIGHT	PRECHARGE PRESSURE (psig)
ET-1	Glycol Primary Loop	Mechanical Room	2.5	Flexcon HTX 30	11 X 14	12

Pump Schedule							
NO.	SERVICE	LOCATION	MODEL / SIZE	CAP. (gpm) (l/s)	HEAD (ft) (m)	MTR. (HP) (kW)	REMARKS
P-1	Source Pump	Mech Rm(s)	Bell & Gossett Series 90 90-1 1/2 A	20 1.26	80 24.38	2 1.49	
P-2	Load Pump	Mech Rm(s)	Bell & Gossett Series 90 90-1 AA	20 1.26	50 15.24	1.5 1.12	
P-3	Glycol Tank Pump	Mech Rm(s)	Axiom MF200 Packaged Unit	-	-	-	
P-4	Secondary Pump	Mech Rm(s)	Bell & Gossett Series PL	18 1.14	35 10.67	0.17 0.13	

HEAT PUMP													REMARK								
TAG	Qty	Model	Electrical			Unit						Heating				COP	CW ANTI CYCLING				
			Voltage	MCA (Amps)	Max. Rec. Fuse (Amps)	Source		Condenser Coil		Load		Source		Load							
						Fluid Flow Rate (gpm)	WPD (ft H ₂ O)	Glycol Type	Glycol (%)	Fluid Flow Rate (gpm)	WPD (ft H ₂ O)	Glycol Type	Glycol (%)	EWT (°F)	LWT (°F)	EWT (°F)	LWT (°F)	Total Capacity (Btu/hr)	Heat of Absorp. (Btu/hr)		
WSHP 001	1	WWHA1072	208-230/60/3	28.10	50.0	17.00	18.92	Water	0.0	17.00	25.73	Propylene	40.0	43.0	38.6	104.0	108.4	50950	34537	2.92	



2 MECHANICAL ROOM SCHEMATIC
SCALE: NTS

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APPROVED STRUCTURES _____ MW/00/XXXX / / 2014

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DESIGNED BY	JY
DRAWN BY	DL
CHECKED BY	JY
APPROVED BY	HW
SCALE	AS SHOWN
DATE	09/29/2014

CONSULTANT **SMS ENGINEERING**
19-173-01

RELEASED FOR CONSTRUCTION

DATE 09/29/2014

CONSULTANT'S SEAL
J. YACOUB
REGISTERED PROFESSIONAL ENGINEER
33894

CONSULTANT PROJECT NO. 13-173-01

OWNERS **THE CITY OF WINNIPEG TRANSIT DEPARTMENT**

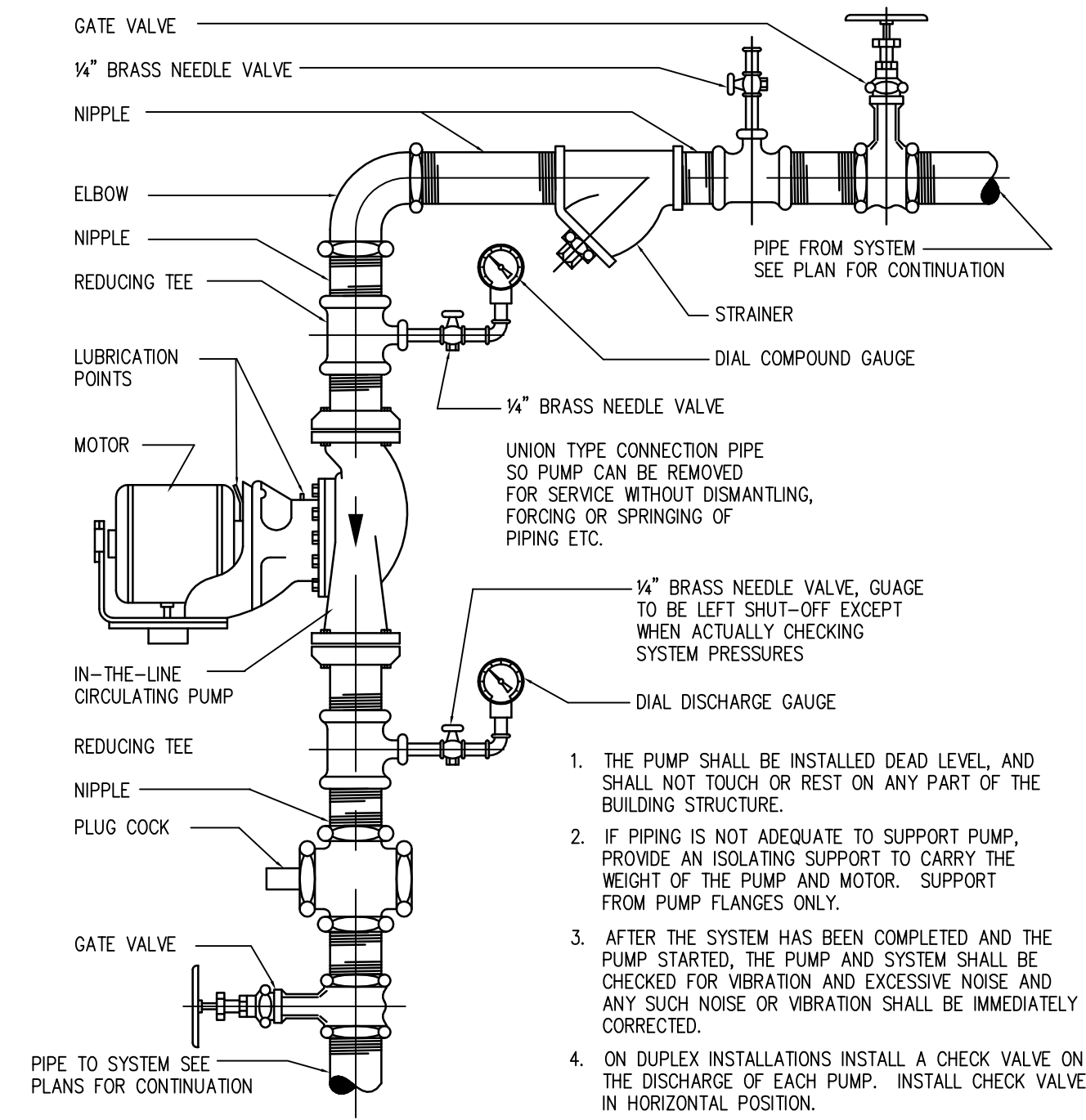
Winnipeg

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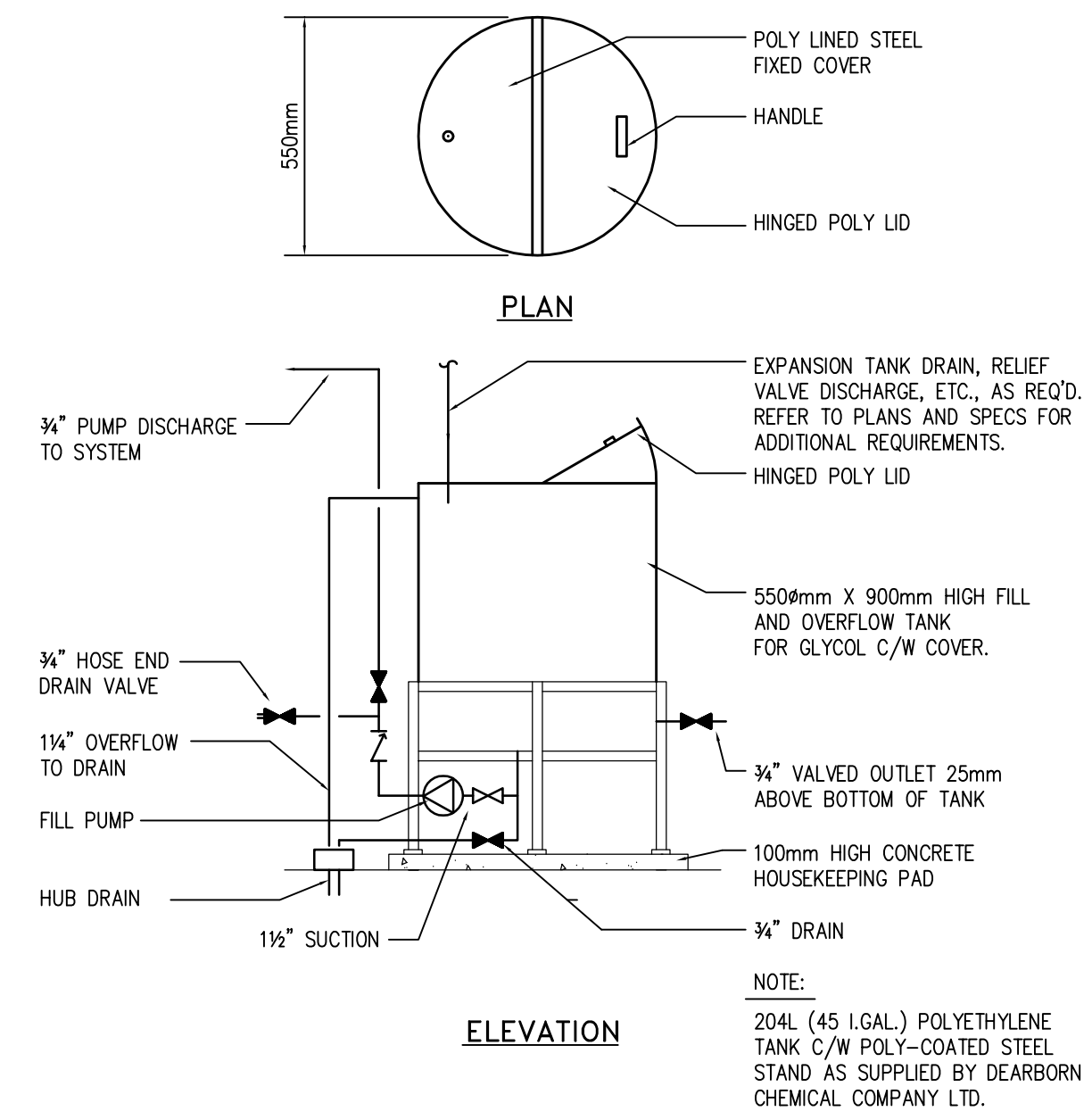
CONSULTANT SHEET TITLE
INFLOOR HEATING MECHANICAL ROOM LAYOUT

SHEET 2 OF 4

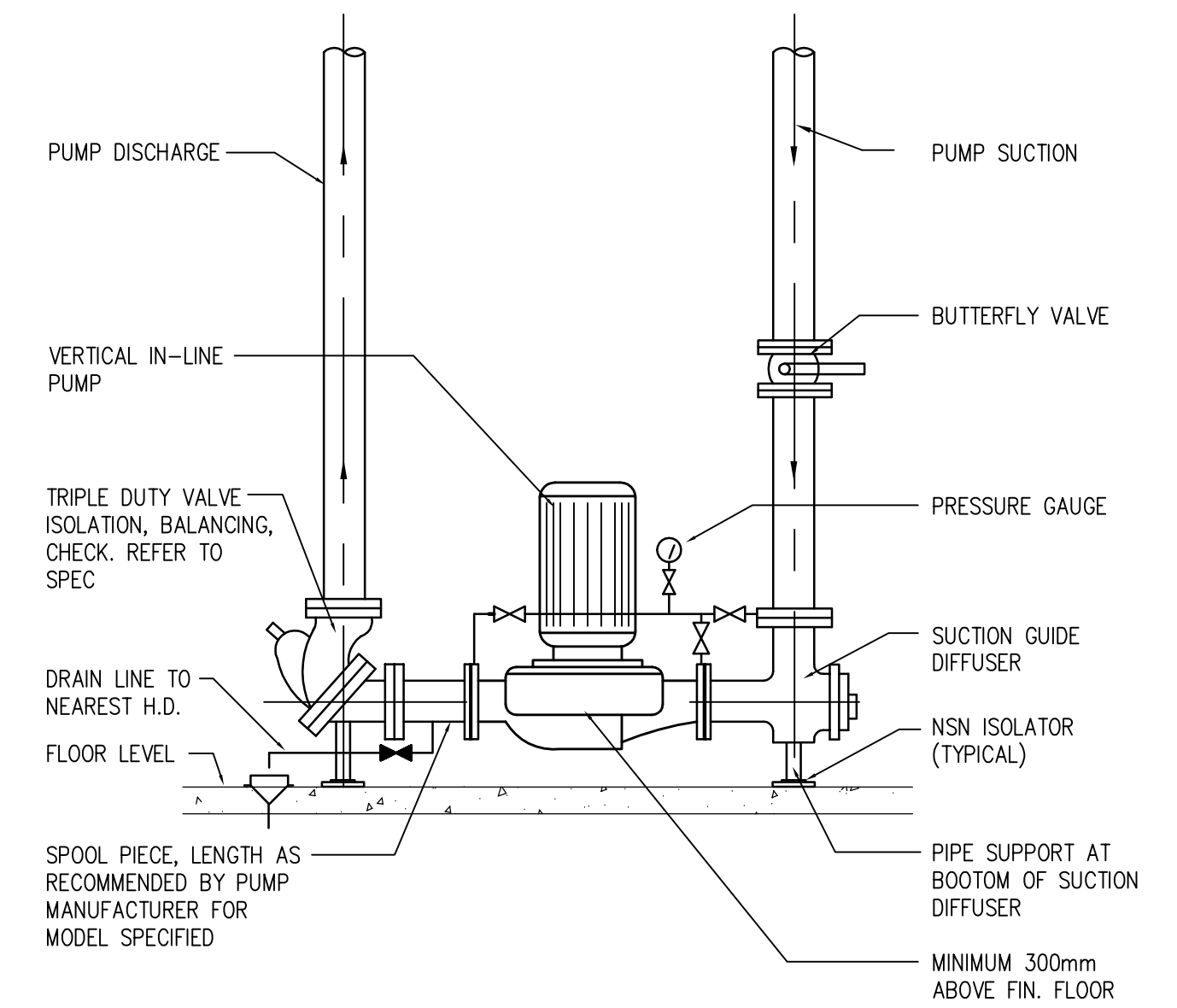
CONSULTANT DRAWING NUMBER
M1.2



3 IN-LINE CIRCULATING PUMP (HEATING ONLY)
SCALE: NTS



2 GLYCOL FILL TANK DETAIL
SCALE: NTS



1 VERTICAL IN-LINE PUMP DETAIL FLOOR SUPPORT
SCALE: NTS

LOCATION UNDERGROUND ORIGINAL SIGNED BY _____ SUPV. I/O STRUCTURES COMMITTEE	APPROVED STRUCTURES MW/00/XXXX / / 2014	DESIGNED JY DRAWN DL CHECKED JY APPROVED HW	CONSULTANT SMS ENGINEERING <small>SMS Engineering Ltd. Consulting Engineers 175 Ross Street Winnipeg MB Canada R3S 0R3 Telephone 204.775.0201 Fax 204.775.2153 smseng.com</small>	CONSULTANT'S SEAL 	OWNERS 																									
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NO.	REVISIONS	DATE	BY																											
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