PIPING SYSTEM ABBREVIATIONS

ABBV	FULL NAME	ABBV	FULL NAME	ABBV	FULL NAME
C	CONDENSATE INDIRECT DRAIN	GLWR	GLYCOL WATER RETURN	NGV	NATURAL GAS VENT
CA	AIR COMPRESSED	GLWS	GLYCOL WATER SUPPLY	PA	AIR PNEUMATIC
CDWR	CONDENSER WATER RETURN	HHWR	HEATING HOT WATER RETURN	PC	CONDENSATE PUMPED
CDWS	CONDENSER WATER SUPPLY	HHWS	HEATING HOT WATER SUPPLY	PCHR	CHILLED WATER (PROCESS) RETURN
CHRV	CHILLER RELIEF VENT	HPC	STEAM CONDENSATE HIGH PRESS	PCHS	CHILLED WATER (PROCESS) SUPPLY
CHWR	CHILLED WATER RETURN	HPS	STEAM HIGH PRESS	RGAS	REFRIGERANT HOT GAS
CHWS	CHILLED WATER SUPPLY	HRR	HEAT RECOVERY RETURN	RLIQ	REFRIGERANT LIQUID
CLN STM	STEAM CLEAN	HRS	HEAT RECOVERY SUPPLY	RSUC	REFRIGERANT SUCTION
CLR	CLOSED LOOP WATER RETURN	LPC	STEAM CONDENSATE LOW PRESS	SCHR	CHILLED WATER (SECONDARY) RETURN
CLS	CLOSED LOOP WATER SUPPLY	LPG	LIQUID PROPANE	SCHS	CHILLED WATER (SECONDARY) SUPPLY
COMB-PVC	AIR COMBUSTION PVC	LPS	STEAM LOW PRESS	SCV	STEAM CONDENSATE VENT
CRYV	CRYO VENT	LTCR	CHILLED WATER (LOW TEMP) RETURN	SPC	STEAM CONDENSATE PUMPED
DTWS	DUAL TEMP WATER SUPPLY	LTCS	CHILLED WATER (LOW TEMP) SUPPLY	SV	STEAM VENT
DTWR	DUAL TEMP WATER RETURN	MPC	STEAM CONDENSATE MEDIUM PRESS	VAC	VACUUM
EV	EVACUATION (WAGD)	MPS	STEAM MEDIUM PRESS	VAC-E	VACUUM EXHAUST
EVD	EVACUATION DISCHARGE	MUW	MAKE-UP WATER	VRFG	VRF HOT GAS
FOR	FUEL OIL RETURN	NG-CONDUIT	NATURAL GAS CONDUIT	VRFL	VRF HIGH PRESS LIQUID
FOS	FUEL OIL SUPPLY	NG-H	NATURAL GAS HIGH PRESS	VRFS	VRF LOW PRESS SUCTION
FOV	FUEL OIL VENTS	NG-L	NATURAL GAS LOW PRESS		
GENX	GENERATOR EXHAUST	NG-M	NATURAL GAS MEDIUM PRESS		

PIPING SYMBOL LEGEND

SYMBOL	FULL NAME	ABBR	SYMBOL	FULL NAME	ABBR
	VALVE TWO-WAY CONTROL	2WAY	BTU	METER BTU	BTU MTR
	VALVE THREE-WAY CONTROL	3WAY	M	SUB-METER WATER FLOW	MTR
AF	VALVE AUTOMATIC FLOW CONTROL	AF		PRESSURE / TEMPERATURE PORT	P&T
	VALVE BALANCING	BALV	DP	SENSOR PRESSURE DIFFERENTIAL	DP
	VALVE BALANCING AUTOMATIC	ABALV		STRAINER	STRN
	VALVE BALL - FULL PORTED	BV		SUCTION DIFFUSER	SUC DIFF
	VALVE BALL - W/ 3/4" HOSE ADAPTOR	BV W/ HA		UNION	UNION
	VALVE BUTTERFLY	BFV		HOSE BIBB	HB
	VALVE BUTTERFLY - W/ MEMORY STOP	BFVM		PIPE BREAK - PIG TAIL	
	VALVE CHECK	CV		POINT OF CONNECTION	POC
	VALVE CIRCUIT SETTER	CS		CONCENTRIC REDUCER	CR
	VALVE GAS COCK	GC		ECCENTRIC REDUCER	ER
	VALVE GATE	GV	6" CHWS	PIPE - EXISTING	
	VALVE GLOBE	GLV		PIPE - DEMO	
	VALVE PRESSURE REDUCING	PRV	6" CHWS	PIPE - NEW	
	VALVE PRESSURE RELIEF	RV	6" CHWS	PIPE - FUTURE	
S	VALVE SOLENOID	SV	6" CHWS	PIPE - SIZE & ABBREVIATION	
	AUTOMATIC AIR VENT	AV	6" CHWS-W	PIPE - SIZE & ABBREVIATION WITH INSULATION	
	MANUAL AIR VENT	MAV		THERMAL EXPANSION DEVICE	EXP
	WATER HAMMER ARRESTOR	WHA		FLEXIBLE CONNECTION	
	DOUBLE CHECK BACKFLOW PREVENTER	DCBP		FLEXIBLE PIPE	
	REDUCED PRESS. BACKFLOW PREVENTER	RPBP		PIPE - HEAT TRACE	
	BULB WELL	BW		PUMP	
	FLOW DIRECTION ARROW			AIR SEPARATOR	AIR SEP
P	PRESSURE INDICATOR	PRESS		CHEMICAL POT FEEDER	CPOT
S	SENSOR	SNSR		HEAT EXCHANGER	HTX
	TEMPERATURE INDICATOR	THERM		EXPANSION TANK	ET

MEDGAS PIPING MATERIAL SCHEDULE

LOCATION	NFPA 99 CATEGORY	PIPING	SIZE	MATERIAL	JOINT
MECHANICAL PENTHOUSE	CATEGORY 1	MEDICAL VACUUM INTAKE (FROM INLETS)	ALL	ASTM B 819 or ASTM B 88 COPPER TYPE L	BRAZED (a), THREADED (b)
	CATEGORY 1	MEDICAL VACUUM EXHAUST (TO OUTDOORS)	ALL	ASTM B 819 or ASTM B 88 COPPER TYPE L	BRAZED (a), THREADED (b)

FOOTNOTES:

(a) MEDICAL GAS PIPING, FITTINGS, AND VALVES SHALL BE CLEANED, PROTECTED AND LISTED FOR OXYGEN SERVICE. ALL JOINTS SHALL BE BRAZED USING ANSI/AWS A5.8 COPPER-PHOSPHORUS OR COPPER-PHOSPHORUS-SILVER BRAZING FILLER METAL WITHOUT FLUX. JOINTS SHALL BE PURGED WITH OIL-FREE DRY NITROGEN NF DURING BRAZING AND TESTING.

(b) THREADED FITTINGS SHALL BE LIMITED TO CONNECTIONS FOR PRESSURE AND VACUUM INDICATORS, ALARM DEVICES, CHECK VALVES, AND SOURCE EQUIPMENT ON THE SOURCE SIDE OF THE SOURCE VALVE. THREADED FITTINGS SHALL HAVE TAPERED PIPE THREADS IN ACCORDANCE WITH ASME B1.20.1. THREADED FITTINGS SHALL BE MADE UP WITH POLYTETRAFLUROETHYLENE TAPE OR OTHER THREAD SEALANT RECOMMENDED FOR OXYGEN SERVICE, WITH THE SEALANT APPLIED TO THE MALE THREADS ONLY AND CARE TAKEN TO ENSURE SEALANT DOES NOT ENTER THE PIPE.

MEDICAL EQUIPMENT SCHEDULE

NO.	EQUIPMENT DESCRIPTION
MEVP-1	MEDICAL VACUUM PUMP - BEACONMEDAES MODEL VAS07Q-200V-QCV, QUADRUPLEX OIL-LESS CLAW MEDICAL VACUUM PACKAGE.. QTY (4) 7.5-HP PUMPS, 65 SCFM @ 19" Hg NFPA 99 CAPACITY WITH RESERVE VACUUM PUMPS ON STANDBY. ASME 200 GALLON VERTICAL STORAGE TANK, PUMP MOTORS WITH VARIABLE FREQUENCY DRIVES, QUADRUPLEX 360 CONTROL SYSTEM WITH VISUAL AND AUDIBLE ALARMS, RECONNECT MASTER ALARM PANELS, WIRING BY ELECTRICAL, ISOLATION VALVES, COMPLIES WITH NFPA 99, UL LISTED, O2 ASSURED VACUUM PUMP SAFE FOR ALL WAGD APPLICATIONS. 460V/3/60, 40.8 FLA, 105.5"Lx52.5"Wx84.35" TALL, 4,471 LBS. POWER WIRING AND DISCONNECT SWITCH BY ELECTRICAL CONTRACTOR.

MEDICAL GASES - GENERAL NOTES

1. THE TERM "MEDGAS" SHALL INCLUDE MEDICAL GAS AND VACUUM SYSTEMS WHEN REFERENCED THROUGHOUT THIS DOCUMENT.
2. THESE PLANS ARE SCHEMATIC AND DO NOT SHOW EXACT ROUTING OR EVERY OFFSET WHICH MAY BE REQUIRED. THE MEDGAS CONTRACTOR IS TO COORDINATE WITH ALL OTHER TRADES AND IS TO VERIFY ALL CLEARANCES BEFORE COMMENCING WORK.
3. MATERIALS, METHODS, AND INSTALLATION SHALL COMPLY WITH THE PROVISIONS OF THE 2021 UNIFORM PLUMBING CODE CHAPTER 13, AND THE 2012 EDITION OF NFPA 99, WITH WASHINGTON STATE AMENDMENTS.
4. HANGERS AND SUPPORTS FOR PIPING SHALL BE IN ACCORDANCE WITH UPC SECTION 1310.5, AND NFPA 99 SECTION 5.1.10.11.
5. PIPING PENETRATIONS OF FIRE RATED WALLS OR FLOORS SHALL BE SLEEVED AND FIRE STOPPED WITH LISTED MATERIALS SO AS TO MAINTAIN THE INTEGRITY AND RATING OF THE FLOOR OR WALL.
6. MEDGAS EQUIPMENT, VALVES, AND SENSORS SHALL BE LOCATED IN EASILY ACCESSIBLE LOCATIONS. UNLESS SHOWN ON ARCHITECTURAL DRAWINGS, REQUIRED ACCESS PANELS SHALL BE PROVIDED BY THE MEDGAS CONTRACTOR AND INSTALLED BY THE GENERAL CONTRACTOR.
7. LABELING AND IDENTIFICATION OF PIPING, VALVES, ZONE VALVE BOX ASSEMBLIES, AND STATION OUTLETS AND INLETS SHALL BE IN ACCORDANCE WITH NFPA 99 SECTION 5.1.11. LABELING AND IDENTIFICATION OF CENTRAL SUPPLY SYSTEMS SHALL BE IN ACCORDANCE WITH NFPA 99 SECTION 5.1.3.1.
8. THE MEDGAS CONTRACTOR SHALL PROVIDE AND LOCATE ALL REQUIRED FLOOR, WALL, AND FOOTING SLEEVES.
9. PROVIDE EARTHQUAKE RESTRAINT FOR MEDGAS PIPING AND EQUIPMENT IN ACCORDANCE WITH SECTION 1613 OF THE 2021 IBC AND ASCE 7.
10. MEDGAS PIPING SYSTEMS SHALL BE INSPECTED AND TESTED IN ACCORDANCE WITH NFPA 99 AND CERTIFIED IN ACCORDANCE WITH CHAPTER 13 OF THE UPC.
11. MEDGAS TECHNICIANS SHALL MEET THE "QUALIFICATION OF INSTALLERS" IN ACCORDANCE WITH NFPA 99 SECTION 5.1.10.11.10.
12. MEDGAS BRAZING SHALL MEET THE "QUALIFICATION OF BRAZING PROCEDURES AND BRAZING" IN ACCORDANCE WITH NFPA 99 SECTION 5.1.10.11.11.
13. INSTALLER-PERFORMED TESTING SHALL BE PERFORMED IN ACCORDANCE WITH NFPA 99 SECTION 5.1.12.2.
14. MEDGAS SYSTEM INSPECTIONS SHALL BE PERFORMED IN ACCORDANCE WITH NFPA 99 SECTION 5.1.12.3. INSPECTIONS SHALL BE PERFORMED BY A PARTY OTHER THAN THE INSTALLING CONTRACTOR.
15. MEDGAS SYSTEM VERIFICATION SHALL BE PERFORMED IN ACCORDANCE WITH NFPA 99 SECTION 5.1.12.4. TESTING OF MEDICAL GAS AND VACUUM PIPELINES SHALL MEET THE REQUIREMENTS OF ASSE 6030. TESTING OF CRYOGENIC FLUID CENTRAL SUPPLY SYSTEMS SHALL MEET THE REQUIREMENTS OF ASSE 6035. SYSTEM VERIFICATION SHALL BE PERFORMED BY A PARTY OTHER THAN THE INSTALLING CONTRACTOR.
16. MEDGAS SYSTEMS SHALL BE CERTIFIED IN ACCORDANCE WITH UPC CHAPTER 13 PRIOR TO BEING PLACED IN SERVICE. THE CERTIFICATION TEST SHALL BE PROVIDED TO THE AUTHORITY HAVING JURISDICTION AND INCLUDE THE FOLLOWING:
    1. VERIFIYING IN ACCORDANCE WITH THE INSTALLATION REQUIREMENTS.
    2. TESTING AND CHECKING FOR LEAKAGE, CORRECT ZONING AND IDENTIFICATION OF CONTROL VALVES.
    3. CHECKING FOR IDENTIFICATION AND LABELING OF PIPELINES, STATION OUTLETS AND CONTROL VALVES.
    4. TESTING FOR CROSS-CONNECTION, FLOW RATE, SYSEM PRESSURE DROP AND SYSTEM PERFORMANCE.
    5. FUNCTIONAL TESTING OF PRESSURE RELIEF VALVES AND SAFETY VALVES.
    6. FUNCTIONAL TESTING OF SOURCE SUPPLY.
    7. FUNCTIONAL TESTING OF ALARM SYSTEMS, INCLUDING ACCURACY OF SYSTEM COMPONENTS.
    8. PURGE FLUSHING OF SYSTEM AND FILLING WITH SPECIFIC SOURCE GASES.
    9. TESTING FOR PURITY AND CLEANLINESS OF SOURCE GASES.
    10. TESTING FOR SPECIFIC GAS IDENTITY AT EACH STATION OUTLET.

LEGAL DESCRIPTION

PARCEL NUMBER: 9810000016

LEGAL DESCRIPTION:
SECTION 34 TOWNSHIP 20 RANGE 04 QUARTER 23 WOODS 1ST CANNOT BE SOLD OR SUBD WITHOUT 001-4 & 001-5 LOT 1 OF BLA 2010-06-15-5001 DESC AS BEG AT A PT 30 FT E & 151.05 FT N OF INTER OF 15TH AV SE & 3RD ST SE TH N 322.08 FT TH N 305.27 FT TH E 692.45 FT TH S 78 DEG 58 MIN 52 SEC E 0.44 FT TH S 49.97 FT TH E 40.98 FT TH S 43.29 FT TH N 41.04 FT TH S 181.78 FT TH W 30 FT TH S 196.6 FT TO BEG CURVE CONCAVE TO NW HAVING A RAD OF 19.5 FT & C/A OF 59 DEG 50 MIN 20 SEC & BEING SUBTENDED BY A CHORD WHICH BEARS S 56 DEG 53 MIN 06 SEC W 19.45 FT TH SWLY & WLY ALG SD CURVE 20.37 FT TO PT OF REVERSE CURV TH WLY & SWLY & SLY 90.9 FT CONCAVE TO SE HAVING A RAD OF 60.5 FT & C/A OF 86 DEG 05 MIN 15 SEC TH S 3.26 FT TH SLY, SWLY & WLY 14.92 FT ALG CURVE CONCAVE TO NW HAVING A RAD OF 9.5 FT & C/A OF 89 DEG 59 MIN 59 SEC TH W 107.24 FT TO BEG OF CURVE CONCAVE TO NW HAVING A RAD OF 55.98 FT & C/A OF 81 DEG 57 MIN 04 SEC & BEING SUBTENDED BY CHORD WHICH BEARS S 49 DEG 34 MIN 17 SEC W 73.42 FT TH SLY, SWLY & WLY ALG SD CURVE 80.07 FT TH W 6.43 FT TH S 131.8 FT TH SLY & SELY 14.27 FT ALG SD CURVE CONCAVE TO E HAVING A RAD OF 25 FT & C/A OF 32 DEG 42 MIN 11 SEC TH N 88 DEG 06 MIN 01 SEC W 77.46 FT TO BEG OF CURVE CONCAVE TO N HAVING A RAD OF 40 FT & A C/A OF 43 DEG 31 MIN 52 SEC & BEING SUBTENDED BY CHORD WHICH BEARS S 70 DEG 08 MIN 03 SEC W 29.66 FT TH SWLY & WLY ALG SD CURVE 30.39 FT TH N 88 DEG 06 MIN 01 SEC W 238.87 FT TO BEG OF A CURVE CONCAVE TO NE HAVING A RAD OF 63 FT & A C/A OF 65 DEG 47 MIN 29 SEC & BEING SUBTENDED BY CHORD WHICH BEARS N 48 DEG 11 MIN 19 SEC W 68.43 FT TH WLY, NWLY & NLY ALG SD CURVE 72.34 FT TH N 12 DEG 28 MIN 32 SEC W 81.31 FT TO POB EXC POR DETER TAXABLE & EXC POR DETER EXEMPT PER DOR REG # 01777-001 TOG/W VAC ORD 2958 EASE OF RECORD OUT OF 981000-065-0 SEG 2011-0091 BB 10/11/10 BB DC00354165 5/2/2014 KG

CONTACT LIST

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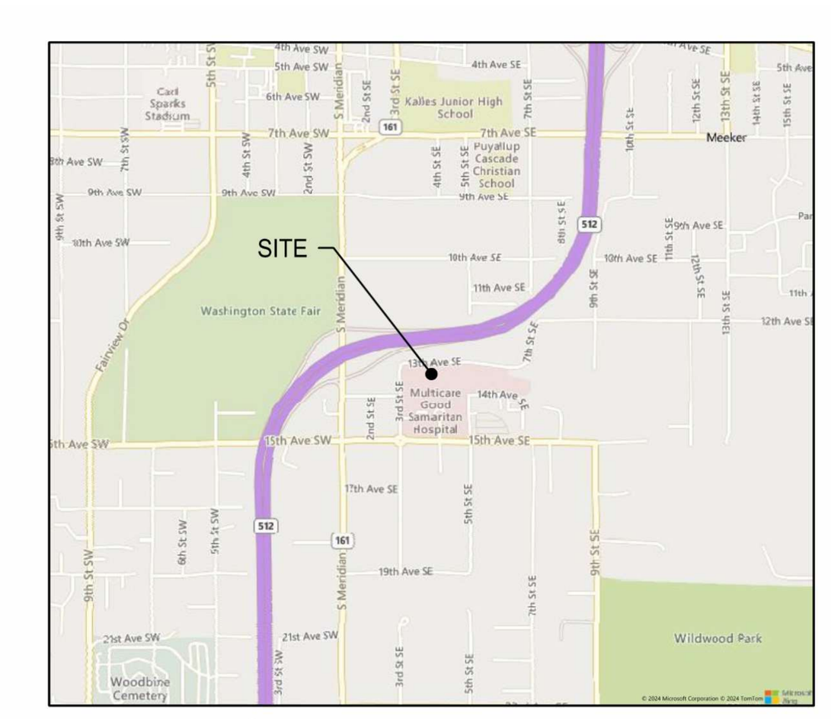
SCOPE OF WORK

REPLACE EXISTING DEDICATED DUPLEX WAGD VACUUM PUMP WITH NEW DEDICATED QUADRUPLEX WAGD VACUUM PUMP FOR N+1 REDUNDANCY.

DRAWING SHEET INDEX - MEDGAS

NUMBER	TITLE
TMG0.01	SCHEDULES
DMG2.05	MECHANICAL PENTHOUSE DEMO PLAN - MEDGAS
TMG2.05	MECHANICAL PENTHOUSE PLAN - MEDGAS
TMG4.01	RISERS & DIAGRAMS - MEDGAS



VICINITY MAP
NO SCALE

MacDonald-Miller
FACILITY SOLUTIONS
17930 Intl. Blvd. Suite 120, SeaTac, WA 98188
Phone: 206-763-9400 www.macmiller.com

TODD E. BOVEY
STATE OF WASHINGTON
23133
REGISTERED PROFESSIONAL ENGINEER
10-07-24

DATE

REVISIONS:

DATE

REVISIONS:

MHS - GSH NEW WEST - WAGD PUMPS
GOOD SAMARITAN HOSPITAL
401 15TH AVE SE
PUYALLUP, WA 98372

SCHEDULES
MED GAS

ISSUED FOR PERMIT

ENGINEER:	LAST REVISED:
M RYPDAHL	10-07-24
CHECKED BY:	DATE PLOTTED:
T BOVEY	10-07-24
CAD:	ISSUE DATE:
M HAGBERG	10-07-24

DRAWING NUMBER:
D-4044-77243212-00

SHEET NUMBER:
TMG0.01

DPD STAMP

SHEET NOTES

1. DISCONNECT EXISTING VACUUM PUMP AND REMOVE.

PRPL20241606

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TODD E. BOVEY
STATE OF WASHINGTON
23133
REGISTERED PROFESSIONAL ENGINEER
10-07-24

DATE
REVISIONS:
DATE
REVISIONS:

MHS - GSH NEW WEST - WAGD PUMPS
GOOD SAMARITAN HOSPITAL
401 15TH AVE SE
PUYALLUP, WA 98372

MECHANICAL PENTHOUSE DEMO PLAN
MED GAS
ISSUED FOR PERMIT

ENGINEER: M RYPDAHL	LAST REVISED: 10-07-24
CHECKED BY: T BOVEY	DATE PLOTTED: 10-07-24
CAD: M HAGBERG	ISSUE DATE: 10-07-24

DRAWING NUMBER: D-4044-77243212-00

SHEET NUMBER: DMG2.05

SHEET NOTES

1. MEVP-1, NEW QUADRUPLEX MEDICAL VACUUM PUMP FOR DEDICATED WAGD SYSTEM. EXTEND EXISTING HOUSEKEEPING PAD TO 106"Lx53" W, MAINTAIN 36" WALKWAY BETWEEN EXISTING PUMP HOUSEKEEPING PAD AND MEVP-1 PAD. MAINTAIN EXISTING DISTANCE BETWEEN THE ELECTRICAL EQUIPMENT AND MEVP-1 PAD. BLOCK OUT EXISTING FLOOR DRAIN TO MAINTAIN USE OF FLOOR DRAIN. MODIFY EXISTING PIPING AS REQUIRED TO RECONNECT TO NEW MEVP-1 VACUUM PUMP. COORDINATE NEW ELECTRICAL POWER CONNECTION WITH ELECTRICIAN.

2. EXTEND 2" EVD ON THE ROOF IF NECESSARY TO DISCHARGE A MINIMUM OF 25 FEET AWAY FROM AIR INTAKES. FIELD VERIFY EVD OUTLET AND AIR INTAKE LOCATIONS.

PRPL20241606

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10-07-24

DATE | REVISIONS:

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401 15TH AVE SE
PUYALLUP, WA 98372

MECHANICAL PENTHOUSE PLAN

MED GAS

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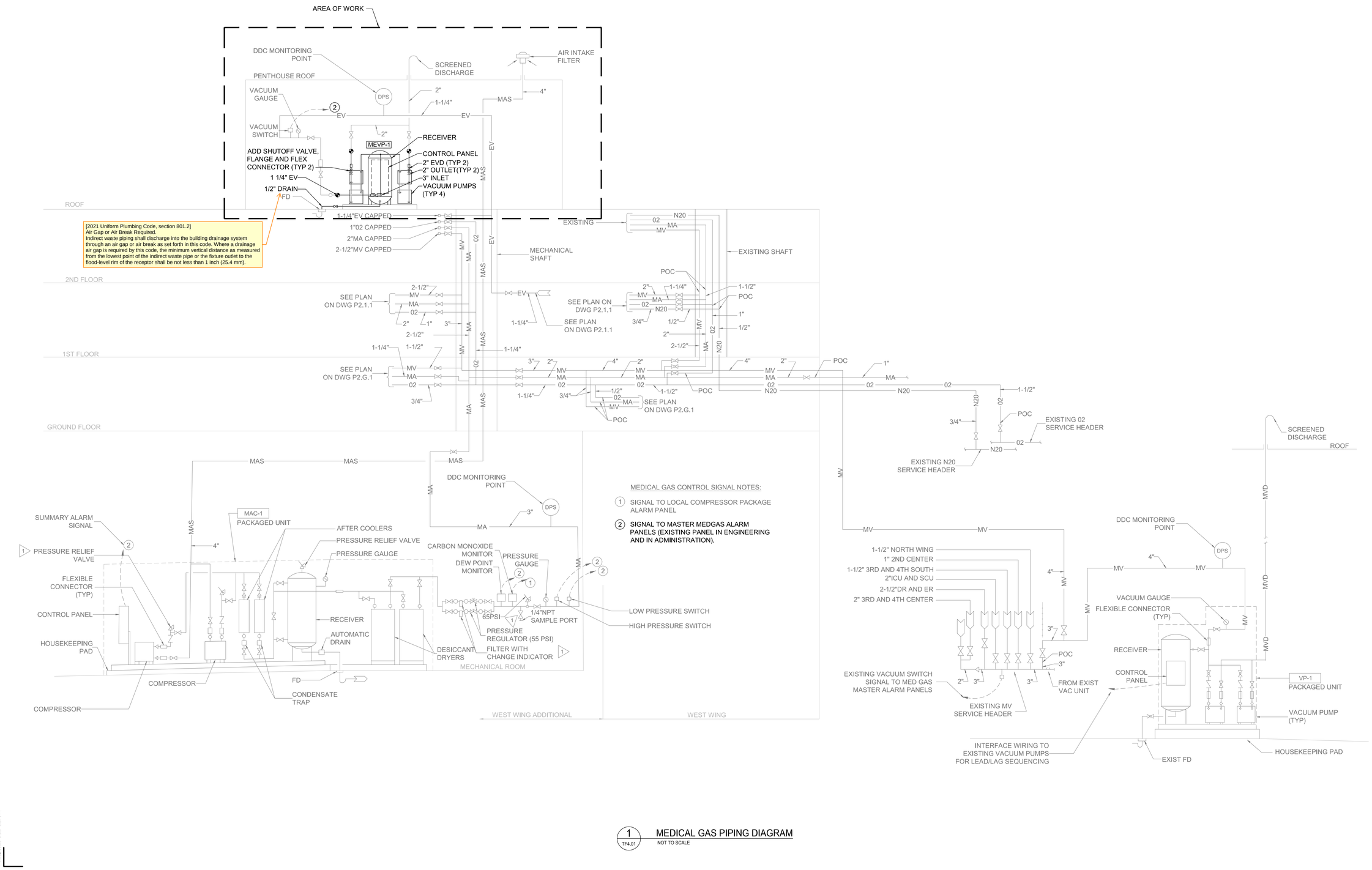
ENGINEER: M RYPDAHL	LAST REVISED: 10-07-24
CHECKED BY: T BOVEY	DATE PLOTTED: 10-07-24
CAD: M HAGBERG	ISSUE DATE: 10-07-24

DRAWING NUMBER: D-4044-77243212-00

SHEET NUMBER: TMG2.05

DPD STAMP



1 TF4.01 MEDICAL GAS PIPING DIAGRAM
NOT TO SCALE

Thursday, October 3, 2024 3:55:43 PM

PRPL20241606

City of Puyallup
Development & Permitting Services
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TODD E. BOVEY
STATE OF WASHINGTON
20133
REGISTERED
PROFESSIONAL ENGINEER
10-07-24

DATE
REVISIONS:
DATE
REVISIONS:

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GOOD SAMARITAN HOSPITAL
401 15TH AVE SE
PUYALLUP, WA 98372

RISERS & DIAGRAMS
MED GAS
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ENGINEER:	LAST REVISED:
M RYPDAHL	10-07-24
CHECKED BY:	DATE PLOTTED:
T BOVEY	10-07-24
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M HAGBERG	10-07-24

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SHEET NUMBER:
TMG4.01