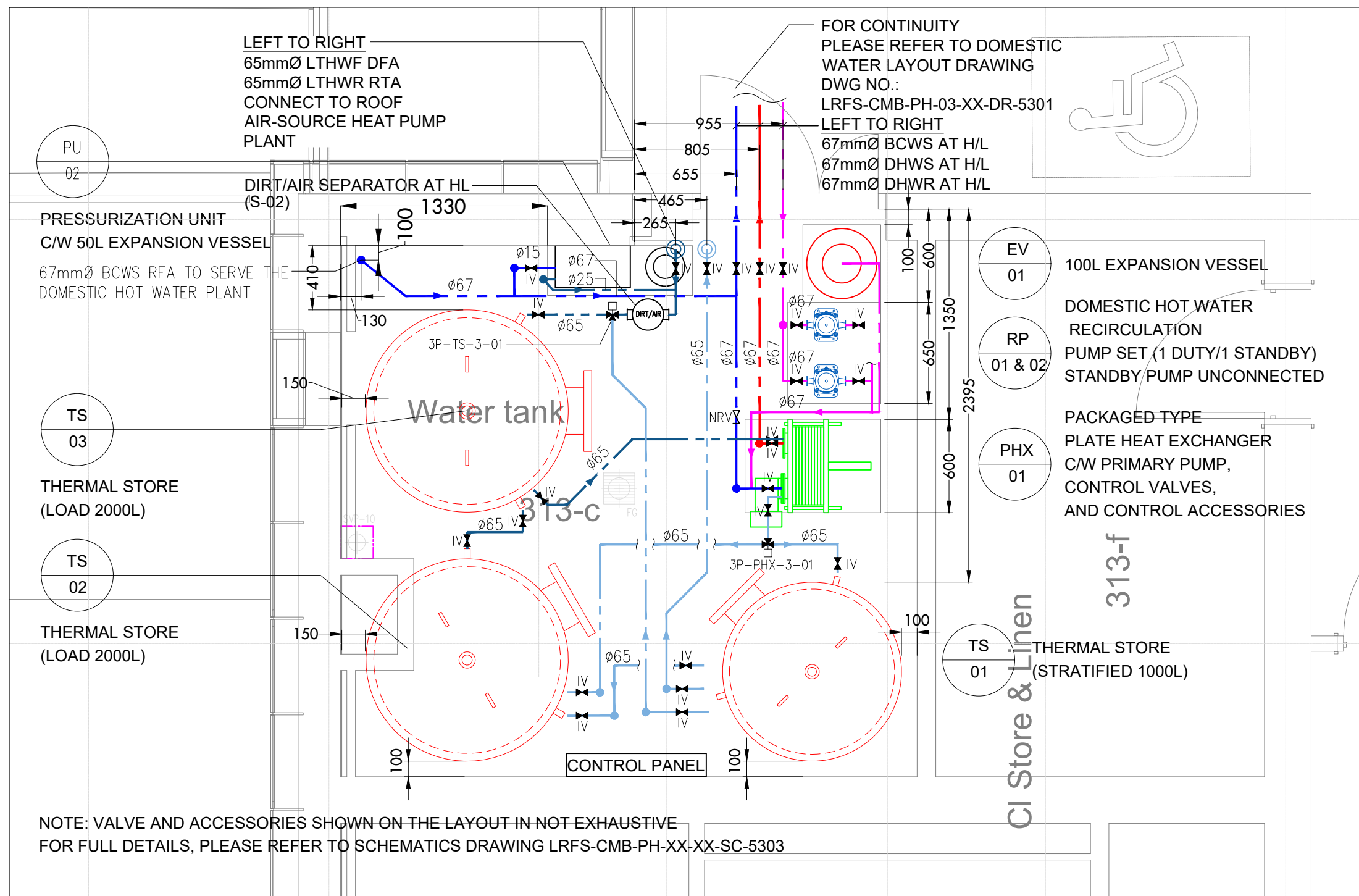


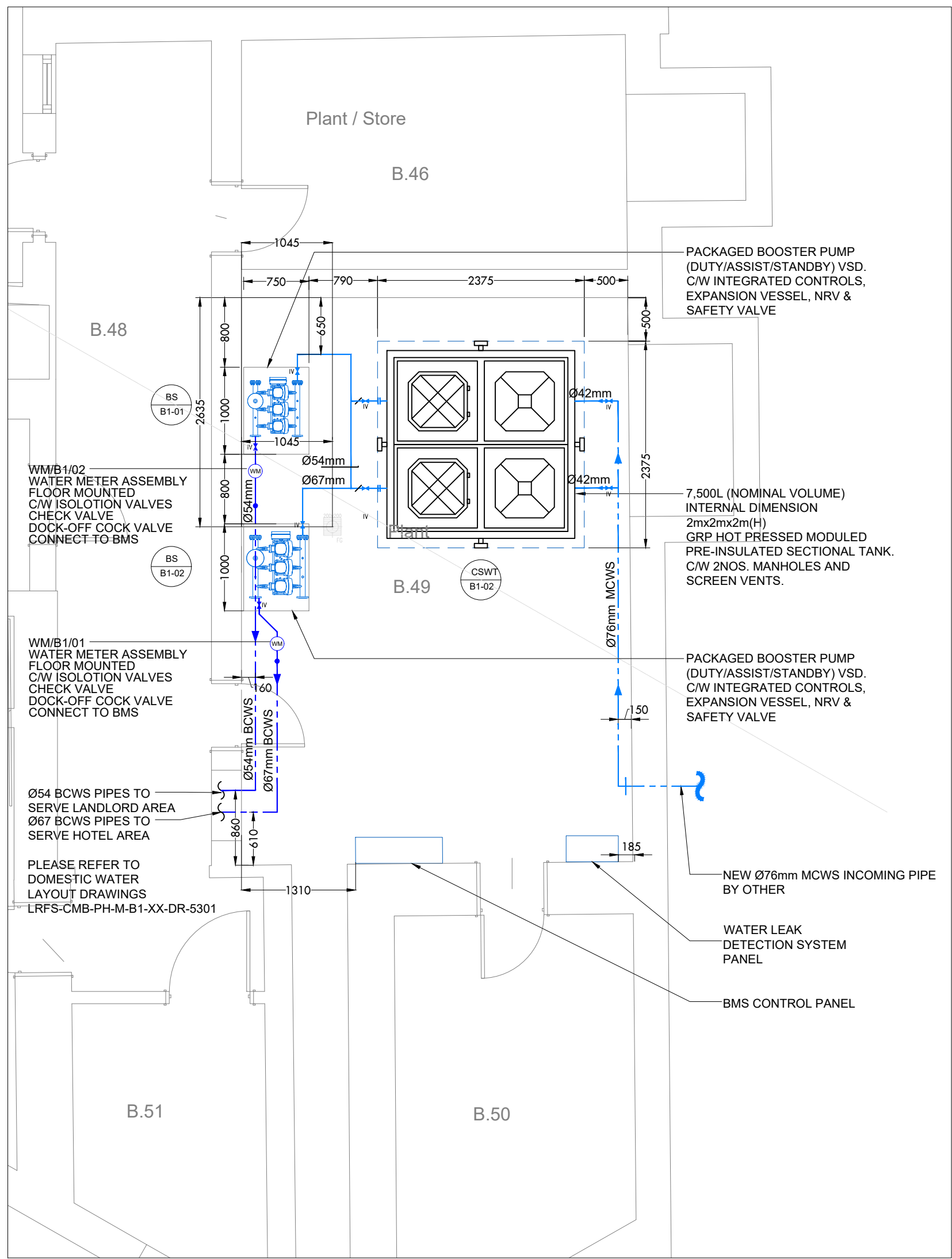
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FLOOR PLAN (A1 @ 1:30)

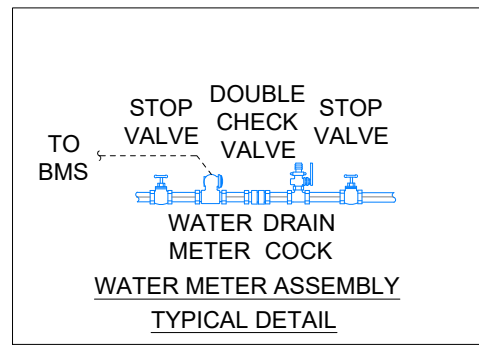
HOT WATER TANKS & PLATE HEAT EXHCHANGER PLANTROOM (HOTEL) LAYOUT - LEVEL 03



02
50-01

FLOOR PLAN (A1 @ 1:50)

COLD WATER TANK & BOOSTER PLANTROOM 2 (WORKSPACE/F&B) LAYOUT - BASEMENT LEVEL



03
50-01

WATER METER ASSEMBLY TYPICAL DETAIL

COLD WATER TANK & BOOSTER PLANTROOM 2 (WORKSPACE/F&B) LAYOUT - BASEMENT LEVEL

LEGEND

- MAINS COLD WATER (MCWS)
- BOOSTED COLD WATER SERVICES (BCWS)
- HOT WATER SERVICES FLOW (HWSF)
- HOT WATER SERVICES RETURN (HWSR)
- LOW TEMP. HOT WATER FLOW (LTHWF)
- LOW TEMP. HOT WATER RETURN (LTHWR)
- PIPEWORK IN CEILING VOID
- PIPEWORK AT LOW LEVEL
- PIPEWORK IN FLOOR VOID
- ISOLATION VALVE
- PRESSURE REDUCING VALVE
- DOUBLE CHECK VALVE
- MIXING VALVE
- THERMOSTATIC MIXING VALVE
- STOP COCK

ABBREVIATIONS

- HL - HIGH LEVEL
- LL - LOW LEVEL
- RTA - RISE TO ABOVE
- FB - FROM BELOW
- CV - CEILING VOID
- DTLL - DROP TO LOW LEVEL
- WHB - WASH HAND BASIN
- AP - ANCHOR POINT
- EB - EXPANSION BELLOW

NOTES

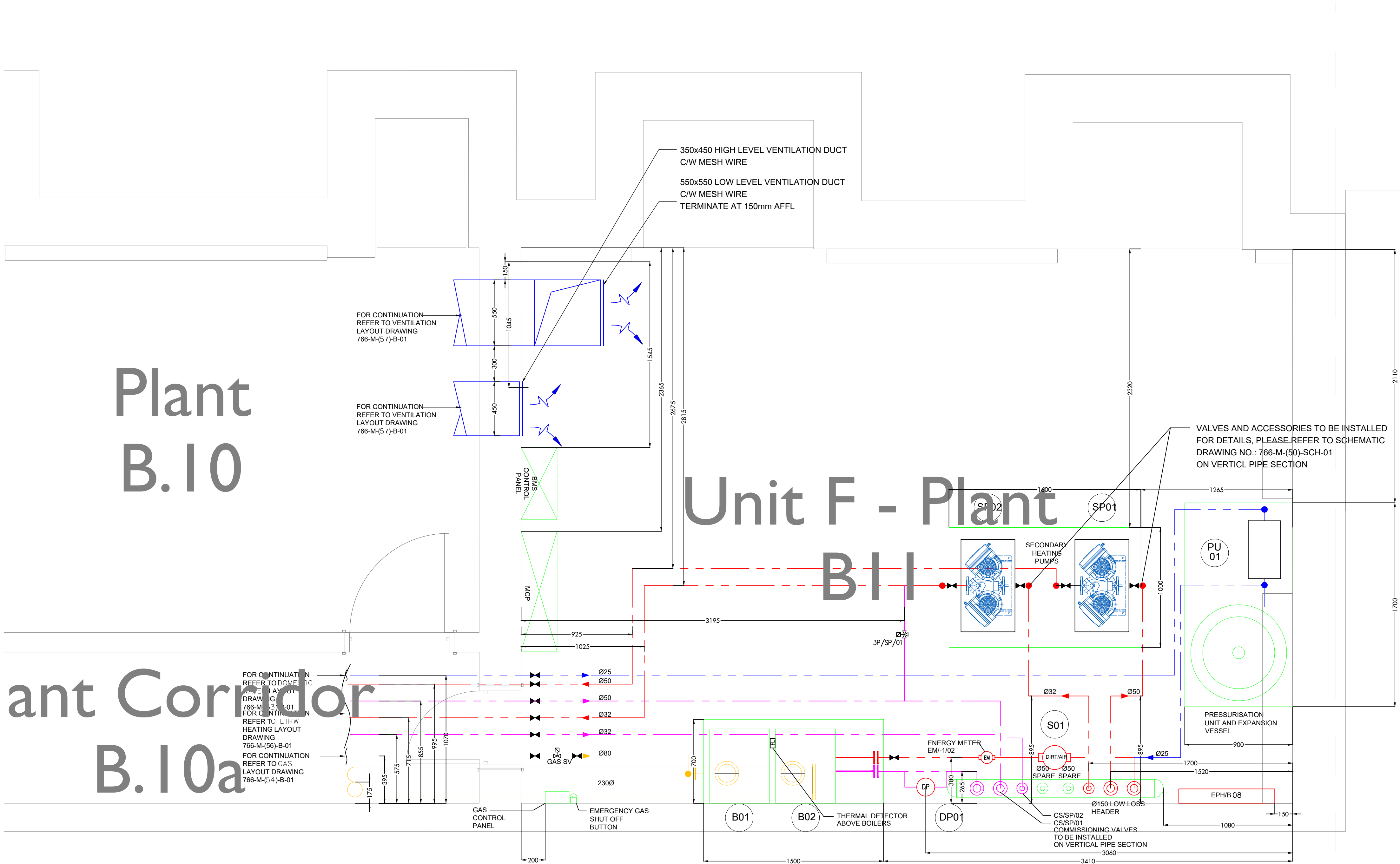
- DO NOT SCALE FROM THIS DRAWING
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- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER CONSULTANTS DRAWINGS, SPECIFICATIONS AND SCHEDULES.
- ANY PENETRATION THROUGH FLOOR, SEEK STRUCTURAL ENGINEERS APPROVAL BEFORE COMMENCEMENT.
- ALL PLANT AND EQUIPMENT SHALL BE INSTALLED FULLY IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- PIPE VALVES AND ACCESSORIES SHOWN IN THE LAYOUT DRAWING IN NOT EXHAUSTIVE, PLEASE REFER TO THE SCHEMATIC DRAWINGS FOR DETAILS.

HOT & COLD WATER SERVICES INSTALLATION

- ALL COMMUNAL & EXPOSED DOMESTIC WATER SERVICES PIPEWORK IS TO BE INSTALLED IN COPPER WITH A THICKNESS IN ACCORDANCE WITH BS EN 1057 + A1:2010.
- ALL FITTINGS USED WITHIN THE DOMESTIC WATER SYSTEM SHALL BE WRAS APPROVED AND SUITABLE FOR USE IN A POTABLE WATER ENVIRONMENT.
- EXCESSIVE MAINS WATER PRESSURE AT THE POINT OF USE SHALL BE MITIGATED THROUGH THE USE OF PRESSURE REDUCING VALVES IF NECESSARY.
- ALL DOMESTIC WATER SERVICES PIPEWORK SHALL BE INSULATED WITH FOIL FACED MINERAL FIBRE SECTIONS TO BS 3958. IN ADDITION ANY PIPEWORK WITHIN EXTERNAL OR UNHEATED SPACES SHALL BE DOUBLE INSULATED AND IF THERE IS A RISK OF FREEZING TRACE HEATED.
- FIRE STOPPING IS TO BE PROVIDED AT ALL INSTANCES WHERE PIPEWORK PASSES THROUGH A FIRE COMPARTMENT.
- DISCHARGE FROM ALL SAFETY AND RELIEF VALVES ARE TO DISCHARGE TO DRAIN VIA A TUNDISH WITH A VISIBLE AIR GAP IN A SAFE AND CONSPICUOUS LOCATION.
- ALL NEW MAINS PIPEWORK IS TO BE PROVIDED WITH IDENTIFICATION TO BS 1710, INCLUDING DIRECTION OF FLOW AT REGULAR INTERVALS (MAX 5m).
- ALL HOT & COLD WATER SERVICES TO BE FLUSHED & STERILIZED IN ACCORDANCE WITH BS EN 806.

P01	19.04.24	REISSUED AT (P) STAGE 5 PREVIOUS DRAWINGS SUPERCEDED			JH	CC	LM
Rev.	Date	Description			By	Chk'd	App'd
Drawing Suitability						Status	
CMBENGINEERING							
Client							
ALLIED LONDON							
Project Title							
LONDON ROAD FIRE STATION							
FIRE STATION, LONDON ROAD, MANCHESTER, M1							
Drawing Title							
MECHANICAL SERVICES							
COLD WATER STORAGE TANK & BOOSTER PLANTROOM LAYOUTS							
Scale	NTS	Designed	CC	Drawn	KD	Checked	CC
Authorised	LM						
Original Size	A1	Date	19.04.24	Date	19.04.24	Date	19.04.24
Drawing Number						Revision	
LRFS-CMB-M-B1-XX-DR-5001						P01	

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NOTES

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3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER CONSULTANTS DRAWINGS, SPECIFICATIONS AND SCHEDULES.
4. ANY PENETRATION THROUGH FLOOR, SEEK STRUCTURAL ENGINEERS APPROVAL BEFORE COMMENCEMENT.
5. ALL PLANT AND EQUIPMENT SHALL BE INSTALLED FULLY IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

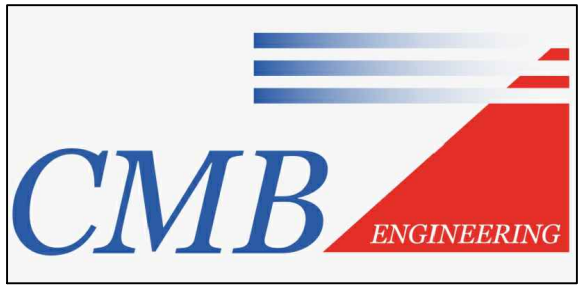
HEATING INSTALLATION

1. VALVE SHOWN IN LAYOUT IN NOT EXHAUSTIVE. VALVE ARRANGEMENTS SHALL REFER TO THE SCHEMATICS FOR FULL DETAILS.
2. EACH BOILER SHALL BE SUPPLIED WITH A SAFETY VALVE, SIZE AND PRESSURE SETTING TO BE ADVISED BY MANUFACTURER.
3. THE DISCHARGE FROM ALL SAFETY AND RELIEF VALVES SHALL DISCHARGE TO DRAIN VIA A TUNDISH WITH A VISIBLE AIR GAP LOCATED IN A SAFE AND CONSPICUOUS LOCATION.
4. ALL HEATING PIPEWORK SHALL BE MEDIUM GRADE STEEL TO BS EN 10255.
5. ALL PIPES THROUGH WALLS, FLOORS & CEILINGS TO BE SLEEVED & FITTED WITH PIPE COVERS.
6. FIRE STOPPING IS TO BE PROVIDED AT ALL INSTANCES WHERE PIPEWORK PASSES THROUGH A FIRE COMPARTMENT.
7. THE BOILER FLUE IS TO BE INSTALLED STRICTLY IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
8. ALL PIPEWORK IN VOIDS / BOXING ETC NOT PROVIDING USEFUL HEAT TO BE INSULATED IN ACCORDANCE WITH THE MECHANICAL PARTICULAR SPECIFICATION.
9. FLUES ARE TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS, THE CLEAN AIR ACT MEMORANDUM ON CHIMNEY HEIGHTS, THE BUILDING REGULATIONS PART J AND IGE/UP/10.
10. THE BOILER FLUES SHALL BE COMPLETE WITH ACCESS PANELS IN RISERS AND CEILING VOIDS AT 5m INTERVALS AND AT EVERY JOINT. RECOMMENDED MANUFACTURER: ACCESS PANEL COMPANY LTD AND THEIR 'GAS FLUE INSPECTION PANEL'.
WWW.ACCESSPANELS.CO.UK

ABBREVIATIONS

- DFA - DROP FROM ABOVE
RTA - RISE TO ABOVE
RFB - RISE FROM BELOW
RTHL - RISE TO HIGH LEVEL
DTLL - DROP TO LOW LEVEL
DFCV - DROP FROM CEILING VOID
HTG - HEATING
MCWS - MAINS COLD WATER SERVICE
F&R - FEED & RETURN
H/L - HIGH LEVEL
L/L - LOW LEVEL
C/V - CEILING VOID
F/V - FLOOR VOID

P01	19.04.24	REISSUED ATM (P) STAGE 5 PREVIOUS DRAWINGS SUPERCEDED	JH	CC	LM
Rev.	Date	Description	By	Chk'd	App'd
Drawing Suitability			Status		

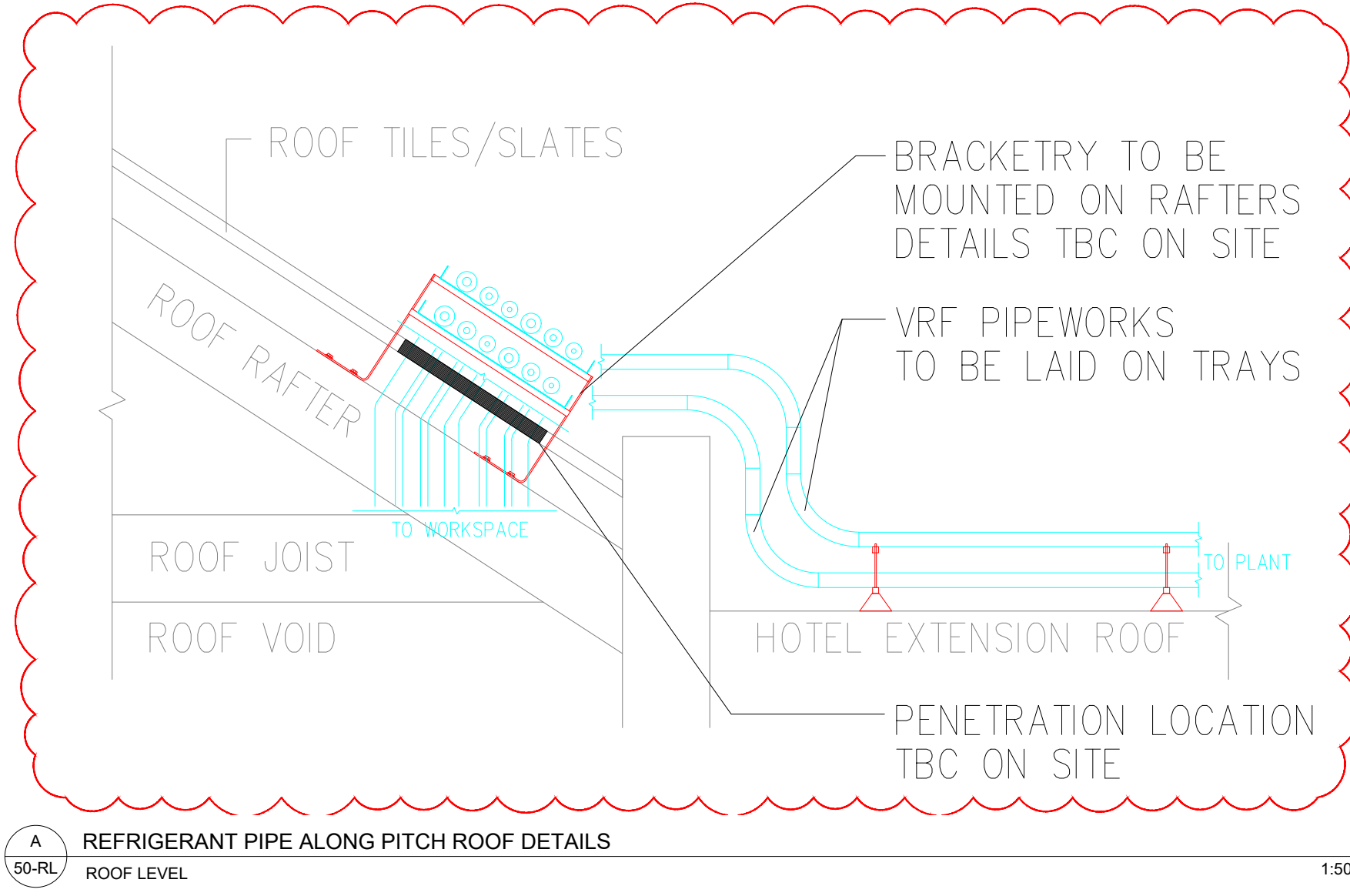


Client					
ALLIED LONDON					
Project Title					
LONDON ROAD FIRE STATION					
FIRE STATION, LONDON ROAD, MANCHESTER, M1					
Drawing Title					
MECHANICAL SERVICES, LTHW HEATING PLANTROOM LAYOUT					
Scale	Designed	Drawn	Checked	Authorised	
1:20	CC	KD	CC	LM	
Original Size	Date	Date	Date	Date	Date
A1	19.04.24	19.04.24	19.04.24	19.04.24	19.04.24
Drawing Number				Revision	
LRF5-CMB-M-B1-XX-DR-5002				P01	

B1
50-02

FLOOR PLAN (A1 @ 1:20)
LTHW HEATING PLANTROOM LAYOUT - BASEMENT

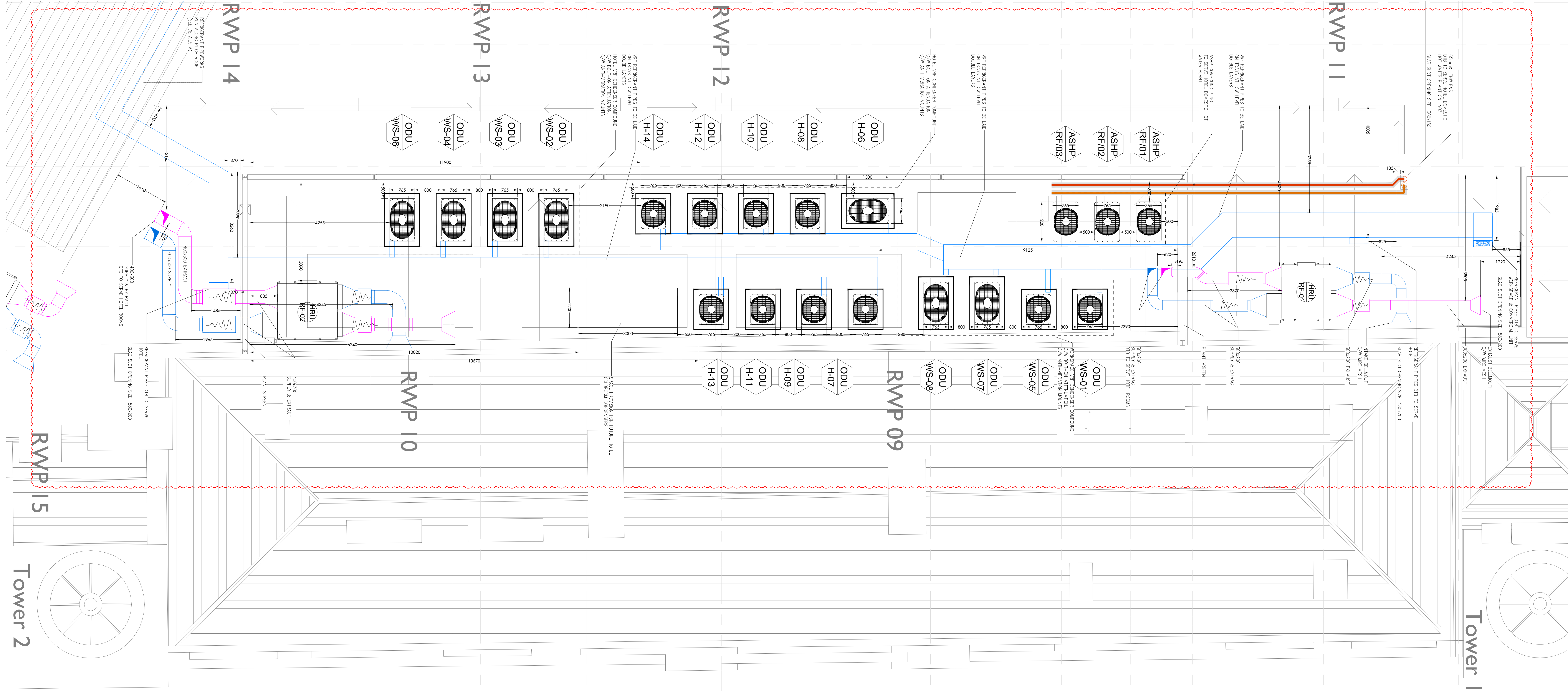
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- VENTILATION INSTALLATION**
1. ALL FAN INSTALLATIONS TO BE COMPLETE WITH ALL ACCESSORIES, CONTROLS AND FITTINGS TO PROVIDE A COMPLETE AND FUNCTIONAL INSTALLATION
 2. ALL VENTILATION SYSTEMS AND COMPONENTS TO BE INSTALLED, TESTED AND COMMISSIONED IN ACCORDANCE WITH BUILDING REGULATIONS APPROVED DOCUMENT F1, OTHERWISE STATED.
 3. ALL DUCTWORK SHALL BE MANUFACTURED RIGID PVC UNLESS OTHERWISE STATED.
 4. ALL DUCTWORK TO BE MANUFACTURED AND INSTALLED IN ACCORDANCE WITH DW144.
 5. FLEXIBLE DUCTING HAS BEEN ALLOWED FOR THE FINAL UNIT CONNECTION, NO MORE THAN 300mm PER LEG SHOULD BE USED AS PER SPEC GUIDANCE.
 6. ATTENUATION AND FIRE PROTECTION HAS BEEN EXCLUDED AS WE ARE NOT IN RECEIPT OF A FIRE STRATEGY OR ACOUSTIC REPORT AT THIS STAGE.
 7. ALL DUCTING WITHIN AN UNHEATED SPACE MUST BE INSULATED IN ACCORDANCE WITH PART F1 OF THE 2019 BUILDING REGULATIONS. FRESH AIR INTAKE AND EXHAUST AIR LEGS ARE TO BE FULLY INSULATED BACK TO THE UNIT.
 8. A MINIMUM DISTANCE OF 500mm IS REQUIRED BETWEEN EACH SPRICOT OFF THE UNIT AND ANY DUCTWORK FITTING. FLEXIBLE DUCT SHOULD BE PULLED TIGHT WITH SMOOTH BENDS ONLY.
 9. SUPPLY AND EXTRACT VALVES SHOULD BE COMMISSIONED / TRIMMED AT THE GRILLE TO ENSURE THE CORRECT FLOW RATE IS ACHIEVED.
 10. BETWEEN EACH RISE AND FALL BETWEEN FLOOR LEVELS, IT SHALL ALLOW FOR OFFSETS DURING INSTALLATION.
 11. WORKSPACE OFFICES SUPPLY AND EXTRACT GRILLES SHALL BE FIXED TO THE SIDES OF RISERS WITHIN THE SPACE VIA FIRE RATED GRILLES C/W VCD AND FIRE DAMPER IF THE WALL IS FIRE RATED.

- NOTES**
1. THE VRF SPECIALIST SHALL BE RESPONSIBLE FOR THE DESIGN AND VERIFY THE VRF SYSTEMS IN ACCORDANCE WITH EN 378.
 2. ALL PIPEWORK TO BE CARRIED OUT IN REFRIGERATION QUALITY SOFT-MEDIUM DRAWN COPPER TUBING TO BS2871 PART 2: 1992 COMPLETE WITH THE APPROPRIATE JOINT PIPES FOR TWIN AND TRIPLE SYSTEMS.
 3. PIPEWORK SHOULD BE CARRIED OUT BY AN APPROVED (CERTIFICATE APPROVAL MUST BE SUBMITTED PRIOR TO INSTALLATION COMMENCEMENT) REFRIGERANT ENGINEER AND IN ACCORDANCE TO BS EN 378 2000 SPECIFICATION. REPAIR TOOLS REQUIRED FOR ALL PIPEWORK, TORQUE SPANNERS, FLARING BLOCKS ETC.
 4. LONGEST POSSIBLE LENGTHS OF COPPER PIPE SHOULD BE UTILISED TO MINIMISE JOINTS ON SITE.
 5. APPROPRIATE REFRIGERATION INSTALLATION TOOLS MUST BE UTILISED. DRY NITROGEN MUST BE UTILISED AT ALL TIMES IN THE SYSTEM DURING BRAZING.
 6. ALL PIPEWORK (SECTION AND LIQUID LINES) TO BE INSULATED WITH SLIP ON CLOSE CELL ELASTOMERIC PIPE INSULATION (AS MANUFACTURED BY ARMAFLEX OR EQUAL AND APPROVED) WITH A FIRE PERFORMANCE CLASS 0 OF THE 1988 BUILDING REGULATIONS, HAVING A WALL THICKNESS OF NOT LESS THAN 15mm.
 7. AFTER INSTALLATION OF PIPEWORK, AND PRIOR TO SEALING OF INSULATION JOINTS AND STARTING OF EQUIPMENT, PIPEWORK SHOULD BE PRESSURE TESTED TO 42 BAR, CHECKED FOR DEFORMATION, AND THEN LEAK TESTED AT 33 BAR AND HOLD FOR 24 HOURS AND CHECKED FOR LEAKS. THEN VACUUM DECONTAMINATED TO (250MM HG) 2 TORR, AND HELD AT THAT SETTING FOR 12 HOURS (MINIMUM). HSE DOCUMENT GSA SHOULD BE FOLLOWED DURING PRESSURE TESTING PERIOD.
 8. REFRIGERANT CHARGE WEIGHT MUST BE CALCULATED, TO THE ACTUAL INSTALLED LENGTH OF PIPEWORK IN ACCORDANCE TO MANUFACTURERS RECOMMENDATIONS.
 9. PIPEWORK TO BE PROPERLY FIXED AND SUPPORTED AT A MINIMUM OF 1.5 METRE CENTRES AND WHERE REQUIRED SHOULD BE RUN ON GALVANISED TRAYS. ALL PIPEWORK TO BE LABELLED WITH ID NUMBER (CONDENSING UNIT REF) AT 3 METRE INTERVALS.
 10. JOINTS IN COPPER PIPE SHALL BE BRAZED. BRAZING SHALL BE CARRIED OUT TO THE REQUIREMENTS OF THE HWS CODE OF PRACTICE - BRAZING AND BRONZE WELDING OF COPPER PIPE AND SHEET.
 11. WHERE VRF AND VENTILATION PLANT IS INSTALLED ABOVE SOLID CEILING, I.E. PLASTERBOARD SUITABLY SIZED ACCESS HATCHES ARE TO BE INSTALLED TO ALLOW ACCESS FOR INSTALLATION, COMMISSIONING, MAINTENANCE, CLEANING AND REMOVAL.
 12. DUCTED VRF UNITS SHALL BE SUPPLIED WITH AN EXTENDED RETURN AIR TEMPERATURE SENSOR WHICH SHALL EXTEND FROM THE UNIT TO PROTRUDE SLIGHTLY FROM THE FACE OF THE ROOM RETURN AIR GRILLE.
 13. A CONDENSATE LINE SHALL BE INSTALLED TO EACH FAN COIL UNIT. THIS SHALL BE INSTALLED AND INSULATED ALL AS PER THE STANDARD SPECIFICATION. MINIMUM SIZE OF CONDENSATE PIPES TO BE 25mm COPPER OR PLASTIC. INSULATED AND PUMPED ON BY GRAVITY FROM EACH FAN COIL / CASSETTE, DRAINS TO RUN 180 MIN FALLS.
 14. CONDENSATE PIPEWORK FROM VRF UNITS SHALL RUN WITHIN THE CEILING VOID TO THE NEAREST BELOW GROUND DRAINAGE POINT AND SHALL BE COMPLETE WITH IN LINE SELF SEALING TRAP.
 15. THE VRF SPECIALIST SHALL BE RESPONSIBLE FOR THE INTERCONNECTING CONTROL WIRING BETWEEN THE INDOOR AND OUTDOOR UNITS AND CONTROL WIRING BETWEEN REMOTE CONTROLLER AND RELEVANT COMPONENTS. THIS WORK SHALL BE CO-ORDINATED WITH THE ELECTRICAL SUB CONTRACTOR FOR THE ROUTING AND TRUNKING OF THE CABLES.
 16. CONTROL WIRING SHALL NOT BE RUN NEXT TO POWER WIRING. A MINIMUM SPACE OF 100mm BETWEEN BOTH CONTROL AND POWER CABLES SHALL APPLY.

- LEGEND**
- REFRIGERANT PIPEWORK FLOW
 - REFRIGERANT PIPEWORK RETURN
 - RECTANGULAR INTAKE/SUPPLY DUCTWORK
 - RECTANGULAR EXHAUST/EXTRACT DUCTWORK
- ABBREVIATIONS**
- HL - HIGH LEVEL
 - LL - LOW LEVEL
 - RTA - RISE TO ABOVE
 - FB - FROM BELOW
 - CV - CEILING VOID
 - DTLL - DROP TO LOW LEVEL
 - AP - ANCHOR POINT
 - EB - EXPANSION BELOW
 - WHB - WASH HAND BASIN



Rev.	Date	Description	By	Chk'd	App'd	Status
P02	14.11.2024	REVISED PER COMMENTS	CC	OW	LM	
P01	24.04.24	REISSUED AT (P) STAGE 5 PREVIOUS DRAWINGS SUPERCEDED	KD	CC	LM	

Client

ALLIED LONDON

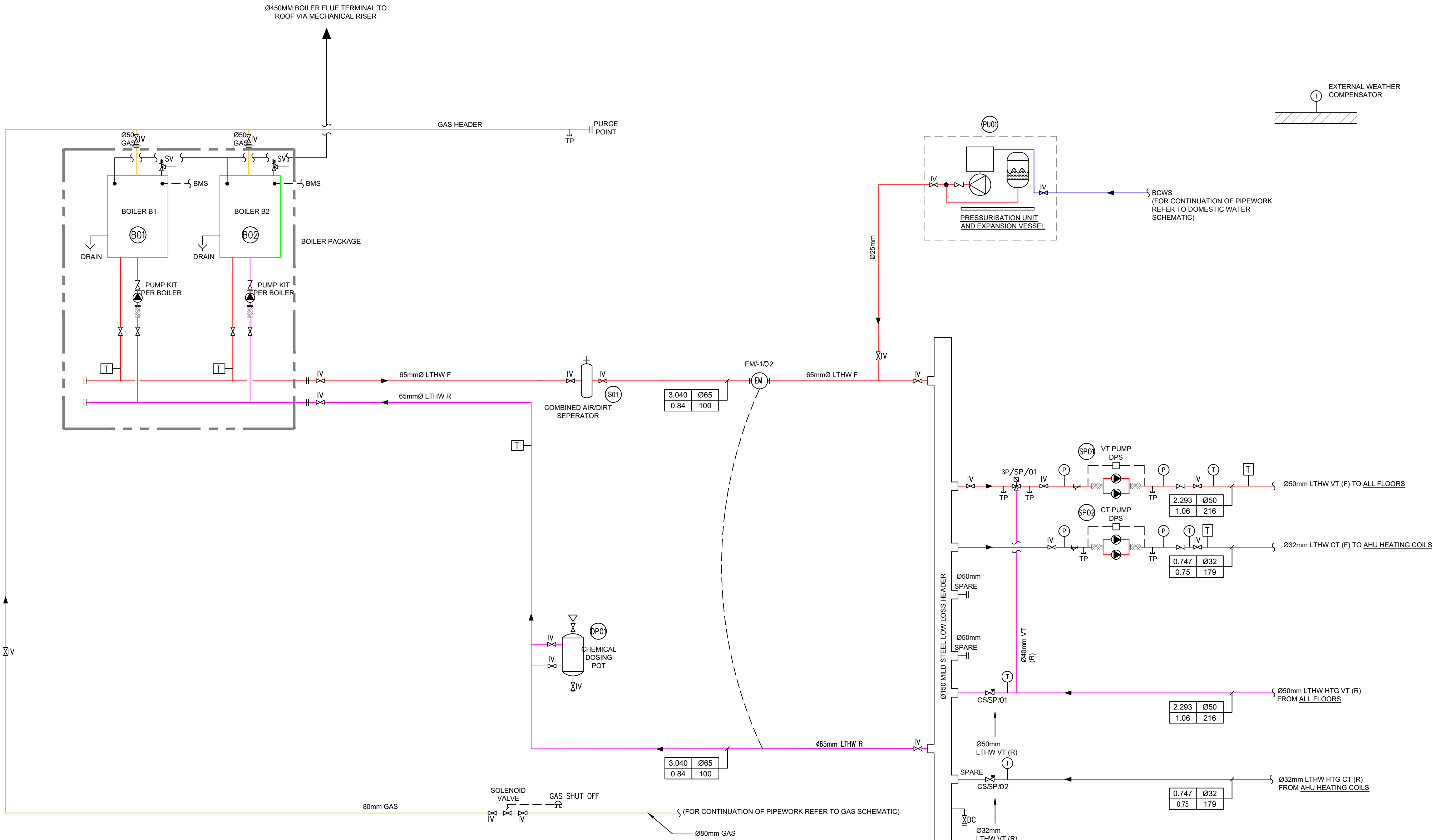
Project Title

LONDON ROAD FIRE STATION
FIRE STATION, LONDON ROAD, MANCHESTER, M1 2PH

Drawing Title

**MECHANICAL SERVICES
VRF CONDENSER & AIR SOURCE HEAT PUMP
PLANT LAYOUT**

Scale	AS SHOWN	Designed	CC	Drawn	KD	Checked	CC	Authorised	LM	
Original Size	-	Date	24.04.24	Date	24.04.24	Date	24.04.24	Date	24.04.24	
Drawing Number	LRFS-CMB-M-RL-XX-DR-5001								Revision	P02



NOTES

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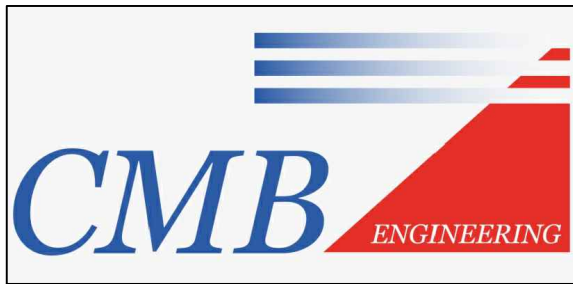
LEGEND

- IV ISOLATING VALVE
DRV DOUBLE REGULATING VALVE
NRV NON RETURN VALVE
LSV LOCK SHIELD VALVE
SV SAFETY VALVE
CV COMMISSIONING VALVE
MV MOTORISED VALVE
ST STRAINER
DC DRAIN COCK
AAV AUTOMATIC AIR VENT
TP TEST POINT
FC FLEXIBLE CONNECTION
PG PRESSURE GAUGE
TS TEMPERATURE SENSOR
TG TEMPERATURE GAUGE
PUMP
DPCV DIFFERENTIAL PRESSURE CONTROL VALVE
GM GAS METER
EM ENERGY METER
BP BINDER POINT
CS COMMISSIONING SET
m³/s Dia
m/s Po/m

NOTES

- ALL FINAL CONNECTION SHALL BE MINIMUM 15mm UNLESS NOTED OTHERWISE.
- DRAIN COCKS SHALL BE PROVIDED AT BOTTOM OF ALL RISERS.
- AAV'S SHALL BE PROVIDED AT ALL SYSTEM HIGH POINTS.

P01	19.04.24	REISSUED AT (P) STAGE 5 PREVIOUS DRAWINGS SUPERCEDED	JH	CC	LM
Rev.	Date	Description	By	Chk'd	App'd
Drawing Suitability			Status		



Client

ALLIED LONDON

Project Title

LONDON ROAD FIRE STATION
FIRE STATION, LONDON ROAD, MANCHESTER, M1

Drawing Title

MECHANICAL SERVICES
LTHW PLANTROOM SCHEMATIC

Scale	Designed	Drawn	Checked	Authorised
NTS	CC	KD	CC	LM
Original Size	Date	Date	Date	Date
A1	19.04.24	19.04.24	19.04.24	19.04.24
Drawing Number				Revision
LRF5-CMB-M-XX-XX-SC-5001				P01