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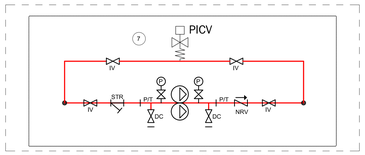
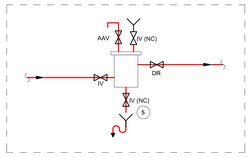
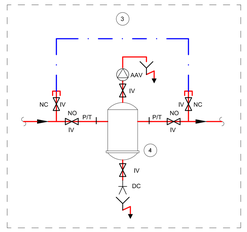


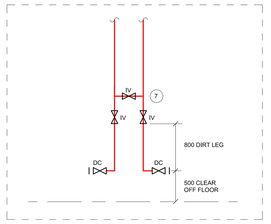
DETAIL 1 - STANDARD DUPLEX PUMP ARRANGEMENT



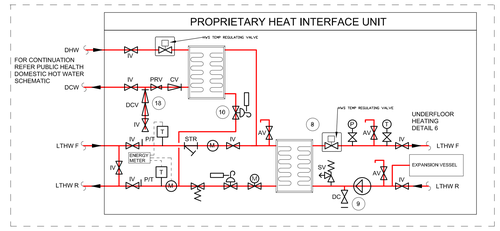
DETAIL 2 - DOSING POT



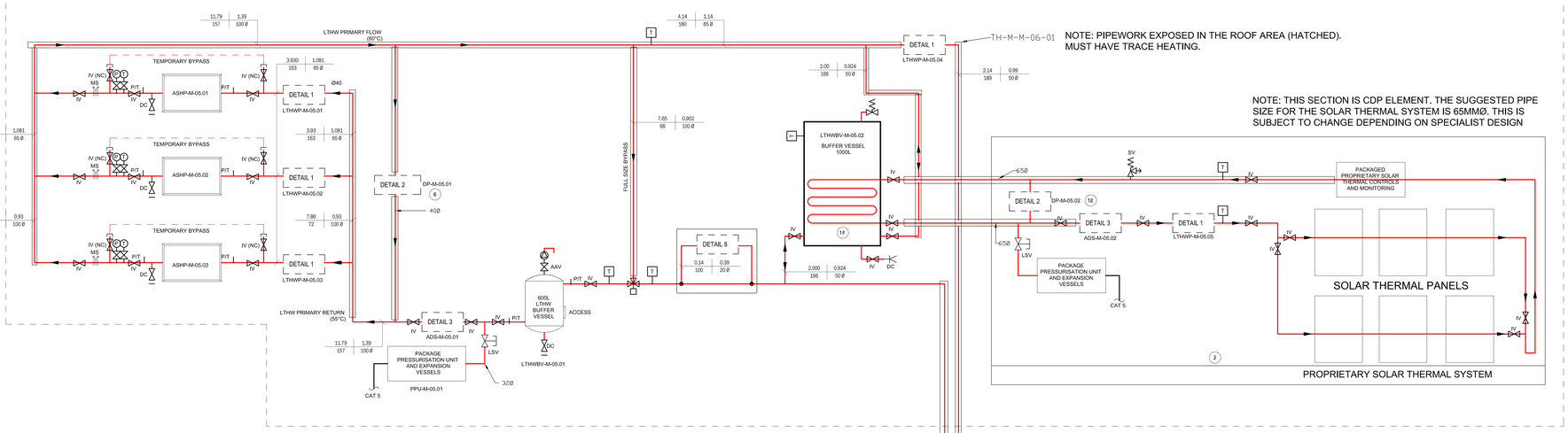
DETAIL 3 - AIR / DIRT SEPARATOR

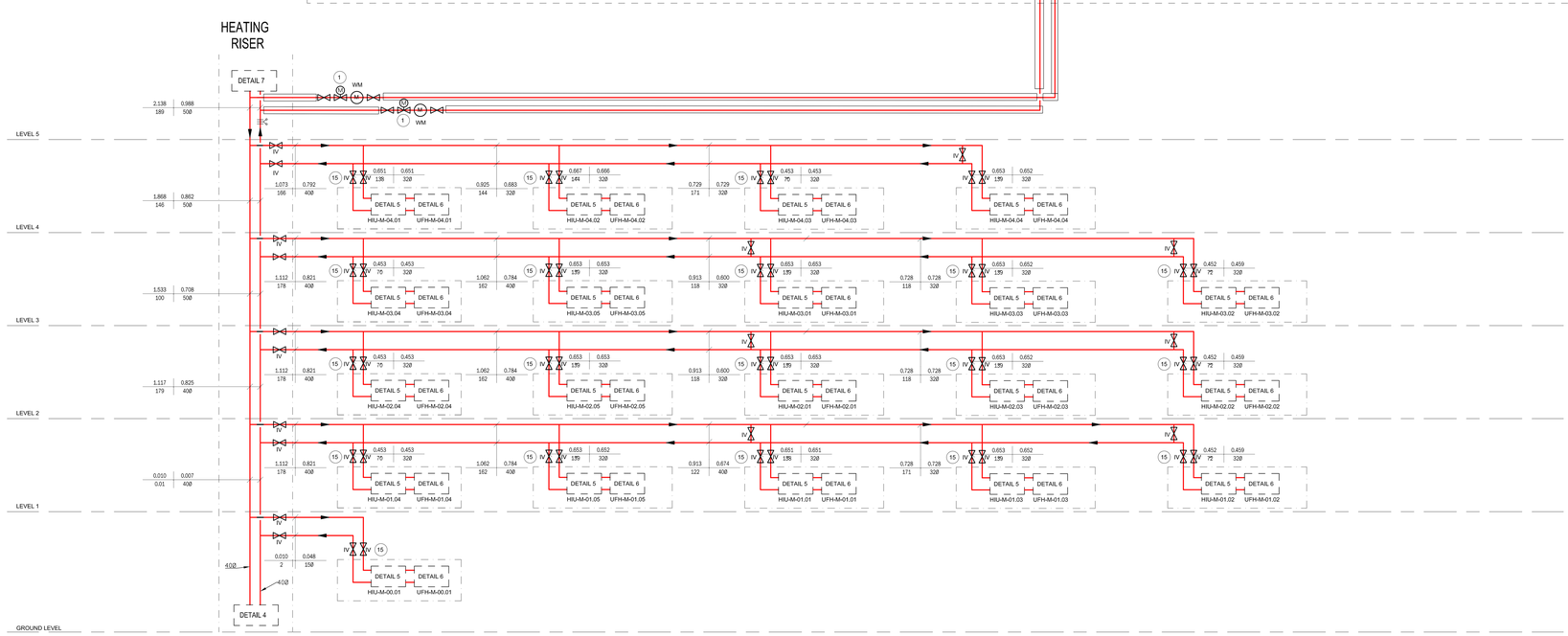


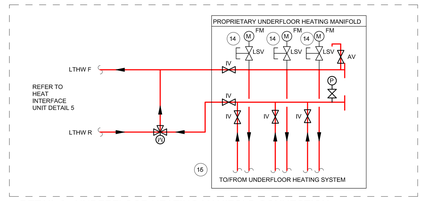
DETAIL 4 - RISER DIRT LEG



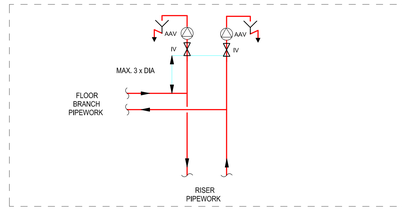
DETAIL 5 - HEAT INTERFACE UNIT CONNECTION



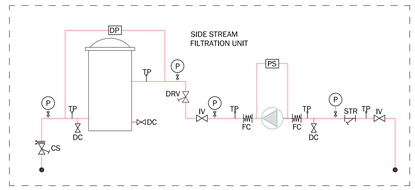




DETAIL 6 - UNDERFLOOR HEATING MANIFOLD CONNECTION



DETAIL 7 - TOP OF RISER CONNECTION



DETAIL 8 - SIDE STREAM FILTRATION DETAIL

Notes:

GENERAL NOTES

- DO NOT SCALE. VERIFY ALL DIMENSIONS BY SITE MEASUREMENT
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT DRAWINGS AND SPECIFICATIONS.
- AUTOMATIC AIR VENTS TO BE INSTALLED AT ALL HIGH POINTS AND DRAIN OFF COCKS AT ALL LOW POINTS
- ALL PICV'S TO BE FULLY CONTROLLED VIA BMS TO ENABLE SYSTEM FLUSHING
- ALL CAPACITIES AND SIZES ARE ESTIMATES ONLY AND ARE SUBJECT TO DESIGN DEVELOPMENT
- FOR MECHANICAL SYMBOLS LEGEND REFER TO DRAWING NO. SPC-MJL-ZZ-XX-DR-M-05000

No. DESCRIPTION

1. PROPRIETARY LEAK/ESCAPE OF WATER DETECTION METER AND SHUT-OFF VALVE ASSEMBLY.
2. SOLAR THERMAL PANELS, AIR SOURCE HEAT PUMPS, BUFFER VESSELS AND ANCILLARY PLANT (AS DOCUMENTED) TO BE SOURCED FROM SINGLE MANUFACTURER, ALONGSIDE PROPRIETARY CONTROLS SYSTEM. TO ENSURE HARMONIOUS INTERFACE BETWEEN HEAT SOURCES AND OPTIMISED SYSTEM USE
3. LINE SIZE TEMPORARY BYPASS REQUIRED FOR FLUSHING. CONTRACTOR SHALL ALLOW TO DEVELOP DETAILED FLUSHING STRATEGY WITH WATER SPECIALIST AND PROVIDE ALL TEMPORARY PIPE WORK FITTING AND FIXTURES TO COMPLETE THE FLUSH. FLUSHING BYPASS SHALL BE FITTED TO MINIMISE ACCUMULATION OF AIR OR DIRT AND SHALL HAVE THE IV's LOCATED ADJACENT FLOW AND/OR RETURN PIPE TO MINIMISE DEAD LEGS
4. DIRT/AIR SEPARATOR TO BE PROVIDED WITH FLANGED REMOVABLE END AND FITTED WITHOUT INTERNAL COIL FOR INTERNAL FLUSH, COIL TO BE REFITTED AFTER INITIAL FLUSH AND CHEMICAL TREATMENT.
5. CONNECTION TO BE MINIMUM 500 mm FROM FFL IF NO LOCAL ACCESS TO DRAIN.
6. MANUAL DOSING POT - 35 LITRES
7. PICV TO BE SIZED TO ACCOMMODATE PUMP MINIMUM VOLUME
8. SYSTEM PRESSURE TO BE COMMISSIONED AT 4BAR
9. DRAIN COCK LINE SIZE FOR FLUSHING
10. MOTORISED VALVE FOR LOW FLOW OPERATION AND DURING THE VALVE EXERCISING REGIME. VALVE SHALL BE COMPLETELY SHUT FOR NORMAL OPERATION
11. BUFFER VESSEL TO BE MAINTAINED AT A MINIMUM OF 60°C
12. MANUAL DOSING POT - 10 LITRES
13. TEMPORARY FILLING LOOP (LOOSE WITH UNIT)
14. VALVE ARRANGEMENT TO PROVIDE VISUAL FLOW GAUGE, ISOLATION AND LOCKSHIELD VALVE AND FLOW REGULATING COMPONENT
15. NUMBER OF UNDERFLOOR HEATING ZONES AS SHOWN ON LAYOUT DRAWINGS. UNDERFLOOR PIPEWORK SIZES AND ROUTES ARE CDP ELEMENT

REV:	DATE:	REVISION:	DRN:	CHK:
P01	10/12/21	STAGE 4A ISSUE	TC	DA

Stage 4 Consultant: Norman Disney & Young, A WSP PLC COMPANY

Architect: Caruso St John Architects

Client: Westminster Real Estate

Project: St Pancras Campus

Status: STAGE 4A ISSUE

Drawing Title: MECHANICAL SERVICES RESIDENTIAL MARKETABLE LTHW SCHEMATIC

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Chapman BDSP
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Discipline: HEATING	Originator (CAD Bureau): CHAPMANBDSP	Grid Reference: N/A
Checked By: TC	Checked Date: 10/12/2021	MJL Project No.: ME 2931
Approved By: TC	Approval Date: 10/12/2021	Client Project No.: TBC
Author: TC	Shared Suitability Code: S3	Scale: N/A

Drawing Number: SPC-MJL-ZZ-XX-DR-M-50022

Revision: P01

5 Schedules

Technical schedules for Air Source Heat Pumps have been added. The schedules show the physical sizes, the capacities, Seasonal Coefficient of Performance figures and performance data. The reference numbers for each equipment are:
ASHP-06.01 – Commercial Level 06 Air Source Heat Pump
ASHP-07.01 – Commercial Level 07 Air Source Heat Pump
ASHP-A-06.01 – Affordable Building Level 06 Air Source Heat Pump 1
ASHP-A-06.02 – Affordable Building Level 06 Air Source Heat Pump 2
ASHP-A-06.03 – Affordable Building Level 06 Air Source Heat Pump 3
ASHP-M-05.01 – Marketable Building Level 05 Air Source Heat Pump 1
ASHP-M-05.02 – Marketable Building Level 05 Air Source Heat Pump 2
ASHP-M-05.03 – Marketable Building Level 05 Air Source Heat Pump 3

Please see below.

Item No	**ASHP-A-06.01**[*3,4]
Chiller Type	Heating Only Air Source Heat Pump
Refrigerant	R407C
Number of Compressors	2
Compressor Type	Inverter
European Seasonal Energy Efficiency Ratio	N/A
Cooling Capacity (kW)	N/A
Entering Water Temperature Cooling (°C)	N/A
Leaving Water Temperature Cooling (°C)	N/A
Water Flow Rate Cooling (L/s)	N/A
Air On Dry Bulb Temperature Cooling (°C)	N/A
Heating Capacity (kW)	43
Entering Water Temperature Heating (°C)	55
Leaving Water Temperature Heating (°C)	60
Water Flow Rate Heating (L/s)	2.0
Air On Dry Bulb Temperature Heating (°C)	-4
Fan Type	Axial
Fan Control	VSD
Air Discharge Type	Vertical
Length (mm)	759
Width (mm)	1978
Height (mm)	1650
Weight (kg)	
Switchboard Number	A-MCCP-06-01
Electrical Service Type	non-essential
Motor Size (kW)	30.8
Starter Type	Inverter
Compressor Motor Power (kW)	30.8
Power Supply (V/ Ph/ Hz)	400/3/50
Noise Level Reference	**dB re 1pW**
Overall Noise (dB(A) re 1pW)	63

Item No	**ASHP-A-06.02(*3,4)**	**ASHP-A-06.03(*3,4)**	**ASHP-M-05.01(*5,4)**
Chiller Type	Heating Only Air Source Heat Pump	Heating Only Air Source Heat Pump	Heating Only Air Source Heat Pump
Refrigerant	R407C	R407C	R407C
Number of Compressors	2	2	2
Compressor Type	Inverter	Inverter	Inverter
European Seasonal Energy Efficiency Ratio	N/A	N/A	N/A
Cooling Capacity (kW)	N/A	N/A	N/A
Entering Water Temperature Cooling (°C)	N/A	N/A	N/A
Leaving Water Temperature Cooling (°C)	N/A	N/A	N/A
Water Flow Rate Cooling (L/s)	N/A	N/A	N/A
Air On Dry Bulb Temperature Cooling (°C)	N/A	N/A	N/A
Heating Capacity (kW)	43	43	43
Entering Water Temperature Heating (°C)	55	55	55
Leaving Water Temperature Heating (°C)	60	60	60
Water Flow Rate Heating (L/s)	2.0	2.0	2.0
Air On Dry Bulb Temperature Heating (°C)	-4	-4	-4
Fan Type	Axial	Axial	Axial
Fan Control	VSD	VSD	VSD
Air Discharge Type	Vertical	Vertical	Vertical
Length (mm)	759	759	759
Width (mm)	1978	1978	1978
Height (mm)	1650	1650	1650
Switchboard Number	A-MCCP-06-02	A-MCCP-06-03	M-MCCP-05-01
Electrical Service Type	non-essential	non-essential	non-essential
Motor Size (kW)	30.8	30.8	30.8
Starter Type	Inverter	Inverter	Inverter
Compressor Motor Power (kW)	30.8	30.8	30.8
Power Supply (V/ Ph/ Hz)	400/3/50	400/3/50	400/3/50
Noise Level Reference	**dB re 1pW**	**dB re 1pW**	**dB re 1pW**
Overall Noise (dB(A) re 1pW)	63	63	63

Item No	**ASHP-M-05.02(*5,4)**	**ASHP-M-05.03(*5,4)**
Chiller Type	Heating Only Air Source Heat Pump	Heating Only Air Source Heat Pump
Refrigerant	R407C	R407C
Number of Compressors	2	2
Compressor Type	Inverter	Inverter
European Seasonal Energy Efficiency Ratio	N/A	N/A
Cooling Capacity (kW)	N/A	N/A
Entering Water Temperature Cooling (°C)	N/A	N/A
Leaving Water Temperature Cooling (°C)	N/A	N/A
Water Flow Rate Cooling (L/s)	N/A	N/A
Air On Dry Bulb Temperature Cooling (°C)	N/A	N/A
Heating Capacity (kW)	43	43
Entering Water Temperature Heating (°C)	55	55
Leaving Water Temperature Heating (°C)	60	60
Water Flow Rate Heating (L/s)	2.0	2.0
Air On Dry Bulb Temperature Heating (°C)	-4	-4
Fan Type	Axial	Axial
Fan Control	VSD	VSD
Air Discharge Type	Vertical	Vertical
Length (mm)	759	759
Width (mm)	1978	1978
Height (mm)	1650	1650
Switchboard Number	M-MCCP-05-02	M-MCCP-05-03
Electrical Service Type	non-essential	non-essential
Motor Size (kW)	30.8	30.8
Starter Type	Inverter	Inverter
Compressor Motor Power (kW)	30.8	30.8
Power Supply (V/ Ph/ Hz)	400/3/50	400/3/50
Noise Level Reference	**dB re 1pW**	**dB re 1pW**
Overall Noise (dB(A) re 1pW)	63	63

Item Notes:

1. Air source heat pump to be noise attenuated to meet local noise limits and acoustic consultant requirements. Enclosure to be vertical intake and discharge type by Allaway or approved equal. Total height of unit and enclosure not to exceed surrounding plant screen enclosure.
2. COP = min 2.4

3. Low temperature hot water system to be coupled with 14 no. array, 30 tube evacuated collectors located on roof to pre-heat LTHW storage vessel. Supply with associated controls, pumps, frost protection and ancillary equipment.
4. COP = min 1.76
5. Low temperature hot water system to be coupled with 12 no. array, 30 tube evacuated collectors located on roof to pre-heat LTHW storage vessel. Supply with associated controls, pumps, frost protection and ancillary equipment.

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COMMERCIAL ASHP TECHNICAL SCHEDULE RFC - 06
SELECTION FOR BOTH ASHP-06.01 AND ASHP-07.01

UNIT MODEL	Sintesis Balance
MODEL	CMAF 190 HE XLN EC
UNIT APPLICATION	Low ambient air temperatures
COMPRESSOR TYPE	Scroll
REFRIGERANT	Full refrigerant charge HFC-410A
ETAsc	179%
ETAsh	144%
SEER	4.54
SCOP (Seasonal Coefficient of Performance)	3.67
SEPER HT	5.93
HEAT RECOVERY	Heat recovery included
FREE COOLING	No option
CHILLED LOOP HYDRAULIC MODULE	Signal On/Off pump
HOT LOOP HYDRAULIC MODULE	Signal On/Off pump
UNIT POWER SUPPLY	400V 50Hz 3Ph

CONDITIONS		
	COOLING	HEATING
OUTDOOR AIR DRY BULB TEMP (DEG C)	35.0	-5.0
RELATIVE HUMIDITY (%)		90
FLUID ENTERING TEMP (DEG C)	12.0	40.0
FLUID LEAVING TEMP (DEG C)	7.0	45.0
FLUID TYPE AND CONCENTRATION	Water	Water

PERFORMANCE DATA		
	COOLING	HEATING
GROSS CAPACITY (kW)	631.78	494.12
NET CAPACITY (kW)	631.25	494.5
GROSS TOTAL ABSORBED POWER (kW)	219.29	192.38
TOTAL ABSORBED POWER (kW)	221.26	193.54
FLOW RATE (L/s)	30.11	23.85
HEAT EXCHANGER PRESSURE DROP (kPa)	40	27.2
HEAT EXCHANGER MIN. FLOW (L/s)	15.2	9.8
HEAT EXCHANGER MAX. FLOW (L/s)	45.9	48.9
MAX. FLOW VARIATION ALLOWED (L/s)	3.01	2.39

HEAT RECOVERY MODE			
	COOLING	HEATING	TOTAL
GROSS CAPACITY (kW)	680.1	849.5	1529.6
NET CAPACITY (kW)	679.5	849.9	1529.4
GROSS TOTAL ABSORBED POWER (kW)			183.0
FLOW RATE (L/s)	30.1	23.9	
HEAT EXCHANGER PRESSURE DROP (kPa)	39.8	27.2	
HEAT EXCHANGER MIN. FLOW (L/s)	15.2	9.8	
HEAT EXCHANGER MAX. FLOW (L/s)	45.9	48.9	
INLET WATER TEMP (DEG C)	12.4	36.4	
OUTLET CHILLED WATER TEMP (DEG C)	7.0	45.0	

ACOUSTIC DATA (UNIT ONLY)								
OUTDOOR SOUND POWER LEVEL	92 dBA							
OUTDOOR SOUND PRESSURE LEVEL	59 dBA							
OUTDOOR SOUND SPECTRUM (Lwa)	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
		96 dB	90 dB	91 dB	87 dB	80 dB	79 dB	72 dB

ACOUSTIC DATA (UNIT + ACOUSTIC HOUSING)								
OUTDOOR SOUND POWER LEVEL	78 dBA							
OUTDOOR SOUND PRESSURE LEVEL (*)	45.4 dBA							
OUTDOOR SOUND SPECTRUM (Lwa) (*)	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
		54.4 dB	45.4 dB	43.4 dB	36.4 dB	29.4 dB	29.4 dB	23.4 dB

(*) - Note that these figures are based on distance of 10m horizontally from the acoustic package and 1.5m distance above the heat pump base

GENERAL DATA	
REFRIGERANT	Full refrigerant charge HFC-410A
REFRIGERANT GWP (AR5)	2088
NUMBER OF CIRCUITS	2
NUMBER OF COMPRESSORS (circuit 1 / 2n)	3/3
COMPRESSOR TYPE	Scroll
REFRIGERANT CHANGE PER CIRCUIT	69 / 69
OIL CHANGE PER CIRCUIT (kg)	10
NUMBER OF OUTDOOR FANS	12
FAN TYPE	EC Fans
TOTAL NOMINAL AIR FLOW AT CONDITIONS (m3/s)	68.42

ELECTRICAL DATA	
UNIT POWER SUPPLY	400V 50Hz 3Ph
START-UP CURRENT (A)	653.38
START-UP CURRENT (A)	480.27
MAX POWER AT MAX CURRENT (kW)	290.07
DISPLACEMENT POWER FACTOR (cos-phi)	0.872

DIMENSIONS AND WEIGHT	
LENGTH (mm)	6770
WIDTH (mm)	2200
HEIGHT (mm)	2530

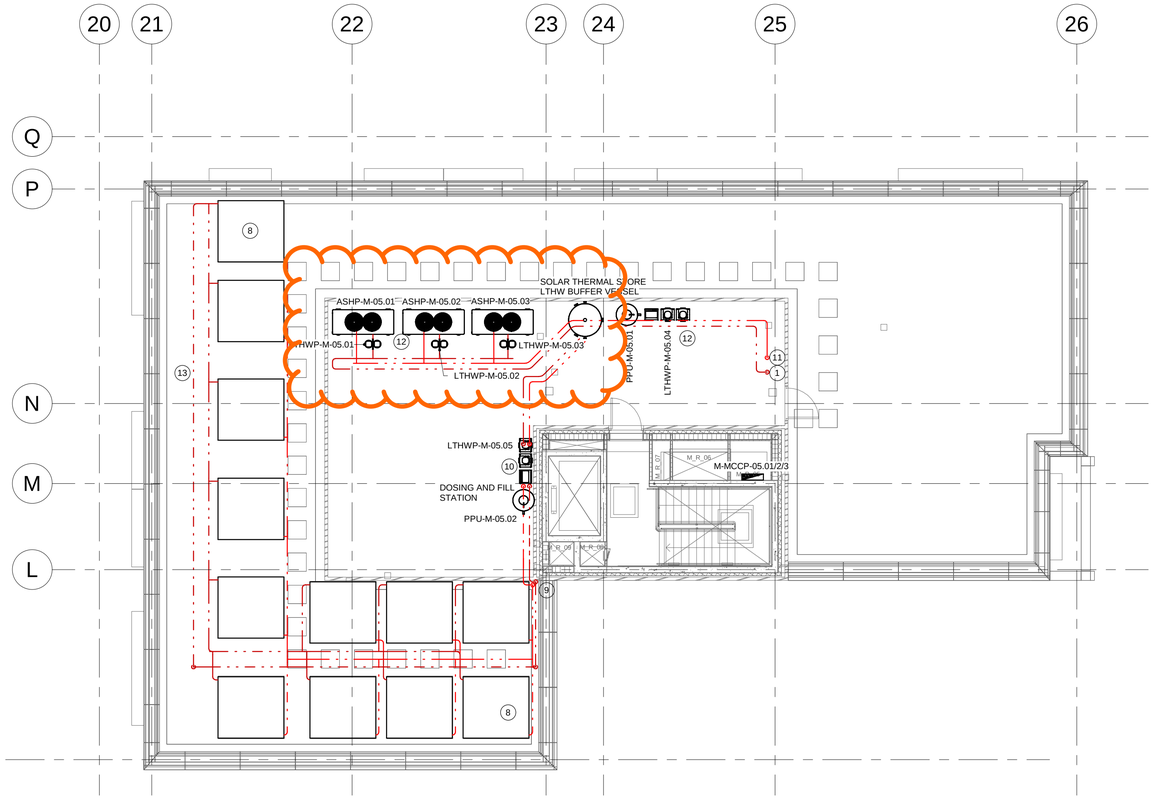
6 Drawings

Layouts have been included to show where the Air Source Heat Pumps and associated equipment are located throughout the buildings.

No.	DESCRIPTION
1	HEATING FLOW AND RETURN PIPEWORK RISER
2	UNDERFLOOR HEATING MANIFOLD AT LOW LEVEL IN UTILITY CUPBOARD FROM WHICH ZONAL PIPEWORK IS ROUTED TO RUN IN FLOOR VOID.
3	SECONDARY HEATING FLOW AND RETURN PIPEWORK DROP TO LOW LEVEL TO SERVE UNDERFLOOR HEATING MANIFOLD.
4	HEATING PIPEWORK ABOVE CEILING TO HIU WITHIN UTILITY CUPBOARD
5	PRIMARY FLOW AND RETURN HEATING PIPEWORK DROPS TO HEAT INTERFACE UNIT.
6	UNDERFLOOR HEATING PIPEWORK SIZING AND LAYOUT CDP ITEM. REFER LOAD SCHEDULE ON SHEET FOR HEATING LOADS FOR EACH REFERENCED ZONE.

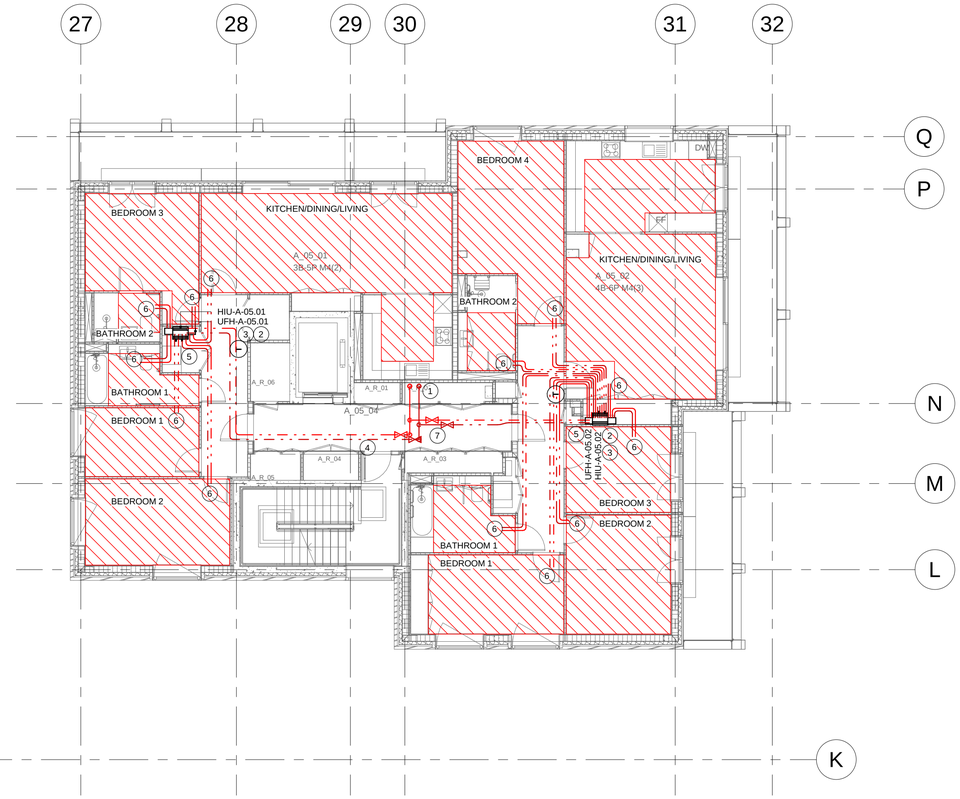
No.	DESCRIPTION
7	ISOLATION VALVES LOCATED IN BRANCH PIPEWORK IN CEILING VOID OF CORRIDOR FOR TENANT ISOLATION BY LANDLORD. VALVES TO BE DIRECTLY AFTER TAKE-OFF TO REDUCE DEAD LEG (WHEN VALVE CLOSED). ACCESS PANEL IN CEILING TO BE PROVIDED AND COORDINATED WITH ARCHITECT.
8	SOLAR THERMAL COLLECTORS TO BE PIPED USING REVERSE RETURN HYDRAULIC CIRCUIT TO PUMP STATION COMPLETE WITH PRESSURISATION, FILL, AND EXPANSION PACKAGE SET. SOLAR THERMAL COLLECTORS CIRCUIT TO BE HYDRONICALLY SEPARATED VIA COIL HEAT EXCHANGER WITHIN THERMAL STORAGE VESSELS. REFER PIPEWORK SCHEMATIC FOR PIPE SIZING, VALVE ARRANGEMENTS AND DETAILS.
9	PIPEWORK TO SOLAR THERMAL PANELS ON ROOF
10	SECONDARY CIRCULATION LTHW PUMP. SECONDARY SOLAR THERMAL LTHW PUMP, DOSING POTS, AIR-DIRT SEPARATORS, PACKAGED PRESSURISATION UNITS AND EXPANSION VESSELS (PRIMARY LTHW AND SOLAR THERMAL CIRCUITS)

No.	DESCRIPTION
11	KERB UPSTAND WITH WEATHERPROOF ENCLOSURE WITH OVERHANGING ROOF DETAIL PERMITTING SIDE ENTRY FOR SERVICES OVER ALL PENETRATIONS INCLUDING PIPEWORK AND DUCTWORK SLAB PENETRATIONS
12	REFER SYSTEM SCHEMATIC FOR PIPEWORK ARRANGEMENT AND INTERCONNECTIVITY OF COMPONENTS, ARRANGEMENT AND SIZING. LAYOUT PROVIDES INDICATIVE POSITIONS ONLY. PIPEWORK TO BE LOW LEVEL. AIR SOURCE HEAT PUMPS TO BE ELEVATED ON SECONDARY STRUCTURAL SUPPORTS TO ENSURE DISCHARGE IS LEVEL TO ADJACENT WALL/ENCLOSURE.
13	SOLAR THERMAL COLLECTOR PIPEWORK TO BE LOW LEVEL AND PROVIDED WITH EDGE PROTECTION ADJACENT TRAFICABLE ZONES.



2 M1 - FIFTH FLOOR - LTHW PIPEWORK

1 : 100



1 A1 - FIFTH FLOOR - LTHW PIPEWORK

1 : 100

UNDERFLOOR HEATING ZONE LOADS

	A-05-01	A-05-02
Kitchen/dining/living area (m²)	37.1	44
Bedroom 1 area (m²)	13.2	11.4
Bedroom 2 area (m²)	8.3	13.3
Bedroom 3 area (m²)	13.6	9.5
Bedroom 4 area (m²)	N/A	17.4
Bathroom 1 area (m²)	4.12	5.1
Bathroom 2 area (m²)	1.75	2.3
Active UFH Area	78.07	103
Bathroom 1 (W)	250	300
Bathroom 2 (W)	100	150
Kitchen/dining/living (W)	1900	2200
Bedroom 1 (W)	700	600
Bedroom 2 (W)	450	700
Bedroom 3 (W)	700	500
Bedroom 4 (W)	N/A	900
Total (W)	4100	5350

GENERAL NOTES

- DO NOT SCALE. VERIFY ALL DIMENSIONS BY SITE MEASUREMENT
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT DRAWINGS AND SPECIFICATIONS.
- REFER PIPEWORK SCHEMATICS FOR METERING, VALVES AND TENANT CONNECTION DETAILS
- UNDERFLOOR HEATING (UFH) SYSTEM IS A CDP ELEMENT. ALL FLOOR AREAS NOTED ARE INDICATIVE AND SUBJECT TO CONTRACTOR AND ON-SITE MEASURE TO ADEQUATELY DESIGN UFH SYSTEM. PIPEWORK LAYOUT TO OBVIATE PIPEWORK CROSSOVERS WITHIN SCREED.

Rev	Description	Date	Rev	Description	Date	Rev	Description	Date
P01	STAGE 3 - DRAFT	13.01.20						
P02	STAGE 3	06.02.20						
P03	STAGE 4 - DRAFT	28.08.20						
T01	STAGE 4 ISSUE	13.11.20						

CDM NOTES

DURING THE DESIGN PHASE, CONSIDERATION HAS BEEN GIVEN TO SITE SPECIFIC HAZARD IDENTIFICATION. A SCHEDULE OF CDM RISK ITEMS IS INCLUDED WITHIN THESE DOCUMENTS HOWEVER IT SHOULD BE NOTED THAT ONLY SIGNIFICANT AND UNUSUAL RISKS HAVE BEEN IDENTIFIED. THE CONTRACTOR MUST CARRY OUT THEIR OWN RISK ASSESSMENT AS OTHER UNIDENTIFIED RISKS MAY EXIST. WHERE RISK(S) HAVE BEEN IDENTIFIED ON THIS DRAWING PLEASE REFER TO THE CDM SCHEDULE LOCATED ON THE LEGEND SHEET FOR DETAILS

Air Source Heat Pumps & Associated Equipment Planning Condition Milestone issue

chapmanbdsp

Project: ST PANCRAS COMMERCIAL CENTRE
PRATT STREET, LONDON, NW1 0BY

Title: MECHANICAL SERVICES
RESIDENTIAL DEMISE
FIFTH FLOOR
PIPEWORK LAYOUT

Scale	Project Commencement	Drawn	Design	Project No.
1 : 100 @ A1	APR. 2019	TC	CBDSP	60544

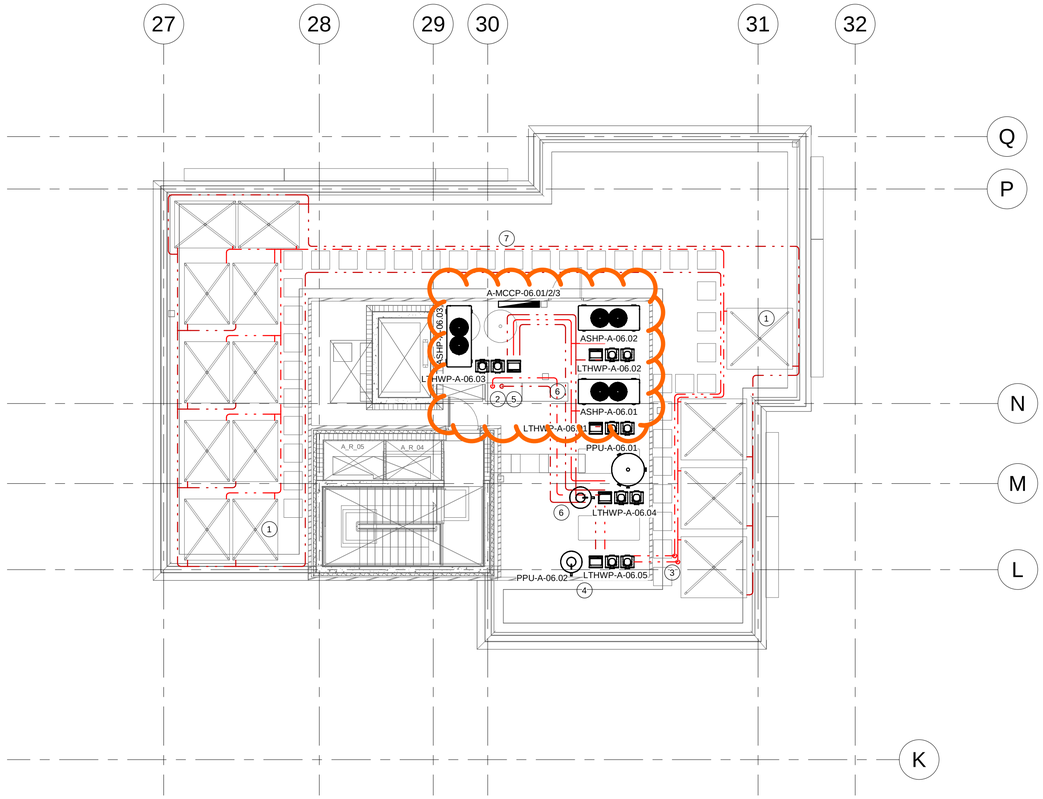
Revit Version 2019

DRAWING IN COLOUR

Drawing No. R-M-05-002 Revision T01

A1 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 When reproduced at correct scale this line measures 150mm

No.	DESCRIPTION
1	SOLAR THERMAL COLLECTORS TO BE PIPED USING REVERSE RETURN HYDRAULIC CIRCUIT TO PUMP STATION COMPLETE WITH PRESSURISATION, FILL, AND EXPANSION PACKAGE SET. SOLAR THERMAL COLLECTORS CIRCUIT TO BE HYDRONICALLY SEPARATED VIA COIL HEAT EXCHANGER WITHIN THERMAL STORAGE VESSELS. REFER PIPEWORK SCHEMATIC FOR PIPE SIZING, VALVE ARRANGEMENTS AND DETAILS.
2	HEATING FLOW AND RETURN PIPEWORK RISER
3	PIPEWORK TO SOLAR THERMAL PANELS ON ROOF
4	SECONDARY CIRCULATION LTHW PUMP, SECONDARY SOLAR THERMAL LTHW PUMP, DOSING POTS, AIR-DIRT SEPARATORS, PACKAGED PRESSURISATION UNITS AND EXPANSION VESSELS (PRIMARY LTHW AND SOLAR THERMAL CIRCUITS)
5	KERB UPSTAND WITH WEATHERPROOF ENCLOSURE WITH OVERHANGING ROOF DETAIL PERMITTING SIDE ENTRY FOR SERVICES OVER ALL PENETRATIONS INCLUDING PIPEWORK AND DUCTWORK SLAB PENETRATIONS
6	REFER SYSTEM SCHEMATIC FOR PIPEWORK ARRANGEMENT AND INTERCONNECTIVITY OF COMPONENTS, ARRANGEMENT AND SIZING. LAYOUT PROVIDES INDICATIVE POSITIONS ONLY. PIPEWORK TO BE LOW LEVEL. AIR SOURCE HEAT PUMPS TO BE ELEVATED ON SECONDARY STRUCTURAL SUPPORTS TO ENSURE DISCHARGE IS LEVEL TO ADJACENT WALL/ENCLOSURE.
7	SOLAR THERMAL COLLECTOR PIPEWORK TO BE LOW LEVEL AND PROVIDED WITH EDGE PROTECTION ADJACENT TRAFICABLE ZONES.



1 A1 - SIXTH FLOOR - LTHW PIPEWORK

1 : 100

GENERAL NOTES

- DO NOT SCALE. VERIFY ALL DIMENSIONS BY SITE MEASUREMENT
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT DRAWINGS AND SPECIFICATIONS.
- REFER PIPEWORK SCHEMATICS FOR METERING, VALVES AND TENANT CONNECTION DETAILS
- UNDERFLOOR HEATING (UFH) SYSTEM IS A CDP ELEMENT. ALL FLOOR AREAS NOTED ARE INDICATIVE AND SUBJECT TO CONTRACTOR AND ON-SITE MEASURE TO ADEQUATELY DESIGN UFH SYSTEM. PIPEWORK LAYOUT TO OBVIATE PIPEWORK CROSSOVERS WITHIN SCREED.

Rev	Description	Date	Rev	Description	Date	Rev	Description	Date
P01	STAGE 4 - DRAFT	28.08.20						
T01	STAGE 4 ISSUE	13.11.20						

CDM NOTES

DURING THE DESIGN PHASE, CONSIDERATION HAS BEEN GIVEN TO SITE SPECIFIC HAZARD IDENTIFICATION. A SCHEDULE OF CDM RISK ITEMS IS INCLUDED WITHIN THESE DOCUMENTS HOWEVER IT SHOULD BE NOTED THAT ONLY SIGNIFICANT AND UNUSUAL RISKS HAVE BEEN IDENTIFIED. THE CONTRACTOR MUST CARRY OUT THEIR OWN RISK ASSESSMENT AS OTHER UNIDENTIFIED RISKS MAY EXIST. WHERE RISK(S) HAVE BEEN IDENTIFIED ON THIS DRAWING PLEASE REFER TO THE CDM SCHEDULE LOCATED ON THE LEGEND SHEET FOR DETAILS

Air Source Heat Pumps & Associated Equipment Planning Condition Milestone Issue

chapmanbdsp

Project: ST PANCRAS COMMERCIAL CENTRE

PRATT STREET, LONDON, NW1 0BY

Title: MECHANICAL SERVICES
RESIDENTIAL DEMISE
SIXTH FLOOR
PIPEWORK LAYOUT

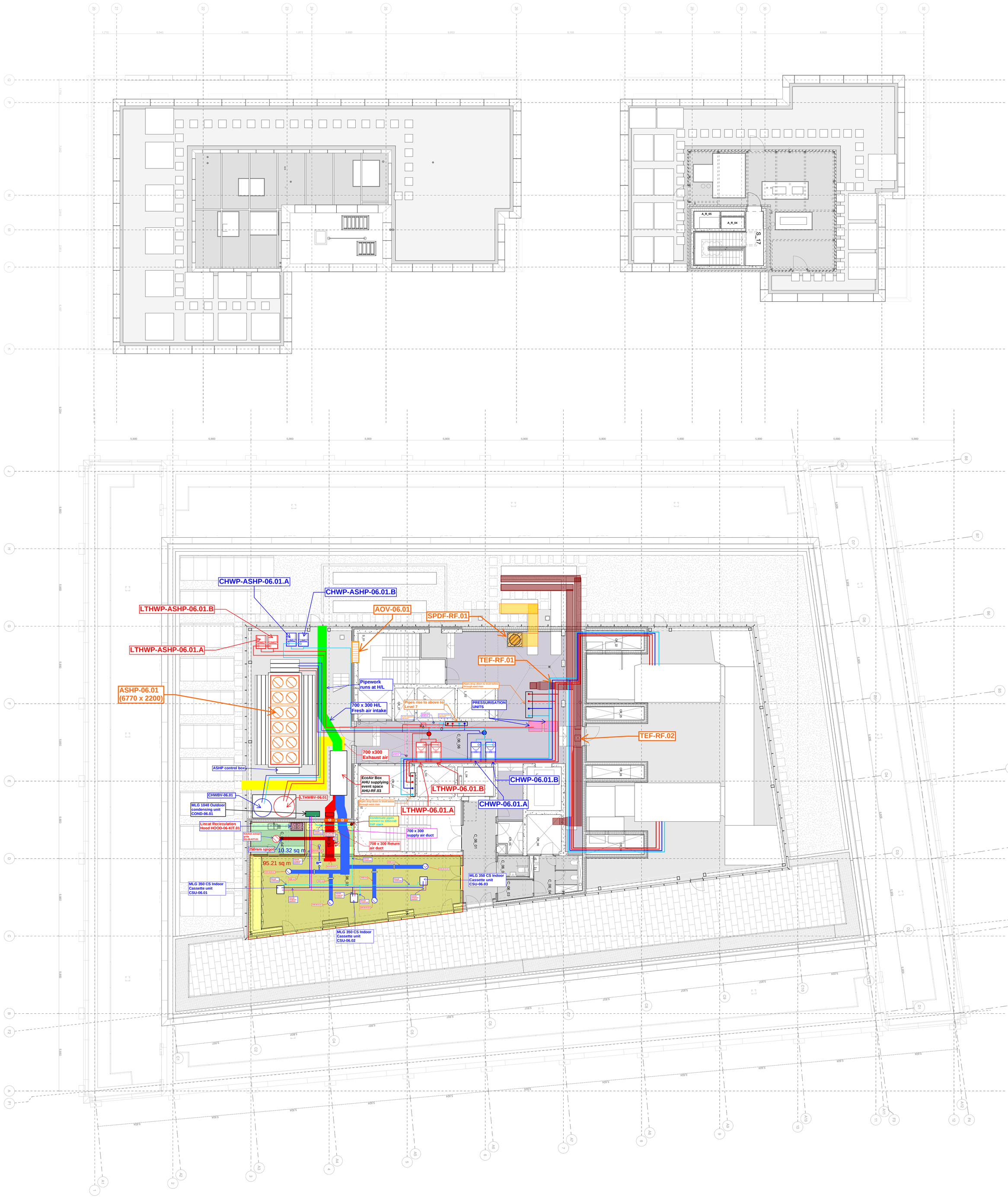
Scale	Project Commencement	Drawn	Design	Project No.
1 : 100 @ A1	APR. 2019	TC	CBDSP	60544

Revit Version 2019

DRAWING IN COLOUR

Drawing No. R-M-06-002 Revision T01

A1 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 When reproduced at correct scale this line measures 150mm



chapmanbdsp	
60544 - St Pancras Commercial Centre	
RFC-06 Mechanical Sketches	Air Source Heat Pumps & Associated Equipment Planning Condition Milestone issue
Level 06	
Date	27/01/2022
Revision	1
Drawn By	TC
Checked By	DA

Notes:

1. Sketches are to be read in conjunction with the schematics, schedules, specification and other sketches issued under RFC - 06.
2. Refer to schedules on the full details of the new equipment added for RFC-06.
3. Refer to schematics on pipe sizes

Scale 1 : 100

0 1 2 3 4 5m

Notes:

Slab edge

Insulation, Rigid
Insulation, Soft
Stone
Blockwork
Screed
Steel
Concrete, In-situ
Concrete, Precast
Brick
Dropped Ceiling

Material hatches:

Personal protective equipment
Appropriate equipment to be worn at all times while on site.

Temporary propping
Care to be taken when fixing vertical elements to allow for secure fixing when fitting.

Confined space / Working at height
Safe access to be provided when working at height.
Be aware of restrictions placed on movement when working with temporary access equipment.

Manual handling
Avoid as far as reasonably practicable hazardous handling operations, including heavy lifting loads and working over shoulder height.

Health and safety notes:

All drawings to be read in conjunction with Structural Engineers and Services Engineers drawings. Any discrepancies are to be highlighted and brought to the attention of the Architects.

General notes:

All dimensions are approximate and subject to a full measured survey