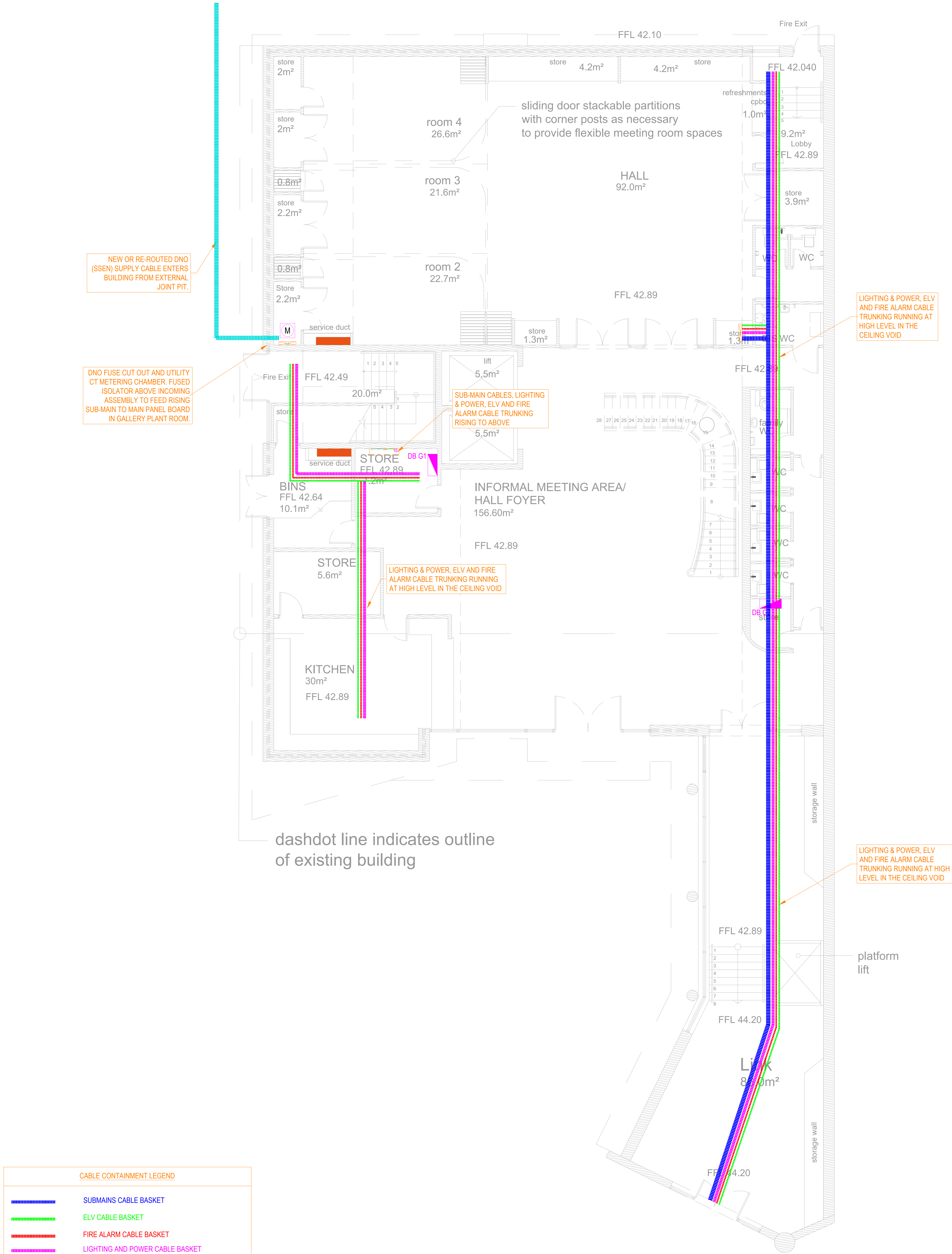
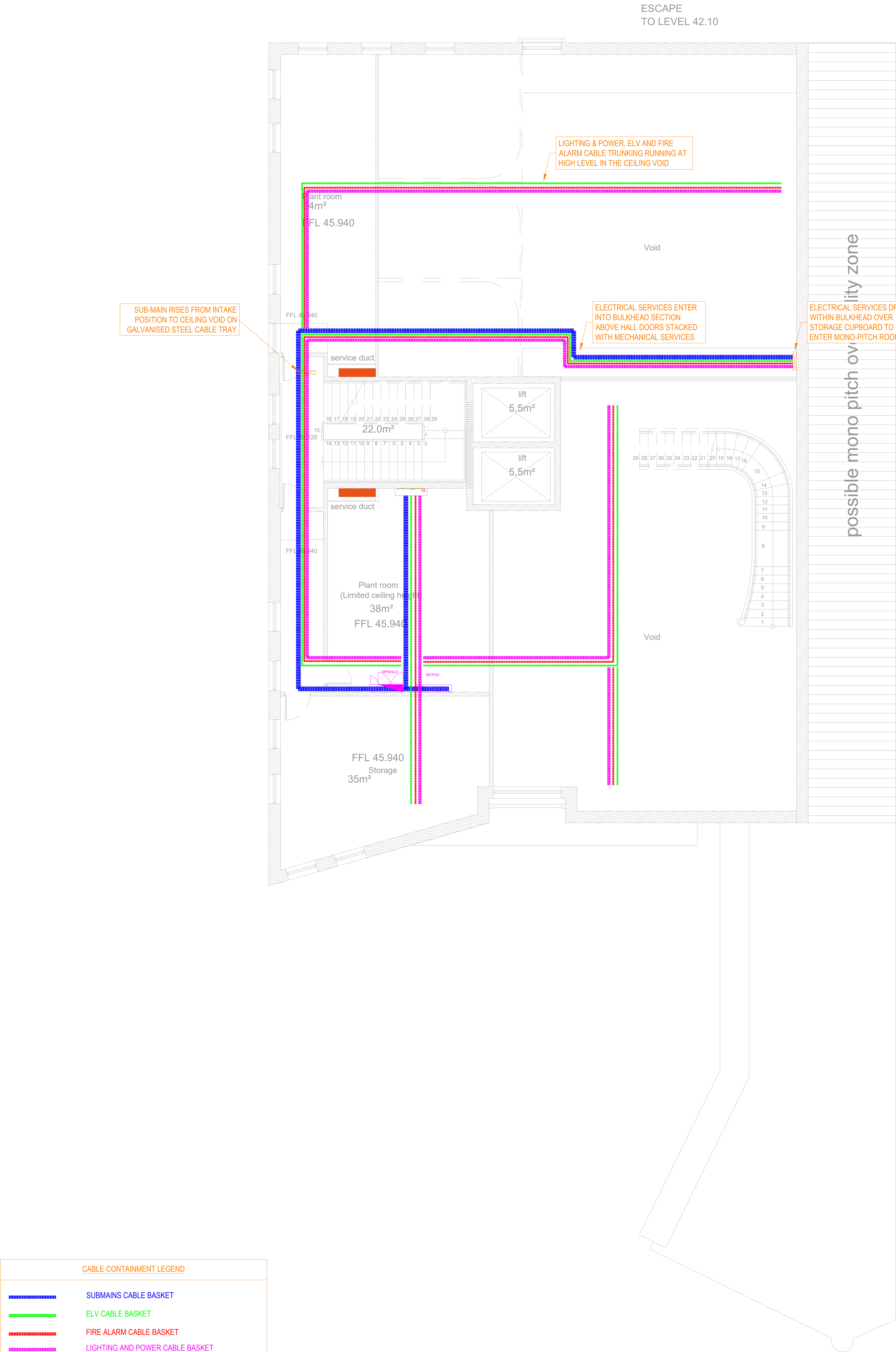




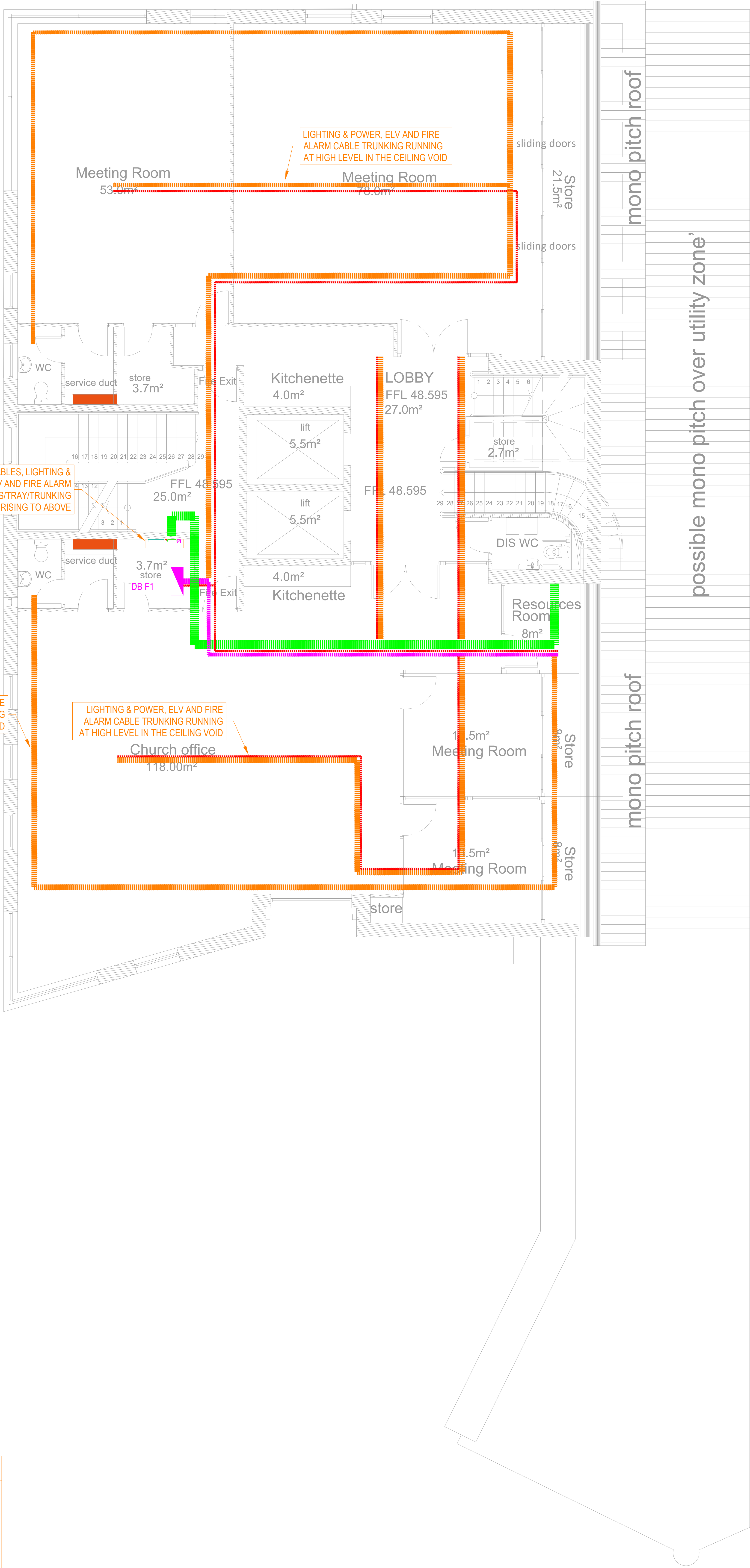
CABLE CONTAINMENT LEGEND	
	SUBMAINS CABLE BASKET
	ELV CABLE BASKET
	FIRE ALARM CABLE BASKET
	LIGHTING AND POWER CABLE BASKET
	BURIED DUCTWORK
	2-COMPARTMENT TRUNKING FOR LV & ELV CABLING

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IN ASSOCIATION WITH:		JBKS Architects		DRAWN BY: AN		SCALE: NTS @ A0			
PROJECT:		Greyfriars Church Reading		CHECKED BY: AJS		DATE: 05/11/2019			
REV		DESCRIPTION		STATUS:		PRELIMINARY			
P1		Stage 3 Issue		DRAWING NO: 5004328-RDG-03-00-PL-E-0623		REALMONT HOUSE 59 HIGH STREET READING, RG7 5AL		TEL: 0118 932 3088	
				PROJECT		5004328		WWW.RIDGE.CO.UK	
				ORG		RDG			
				ZONE		03			
				LEVEL		00			
				PL		E			
				TYPE		0623			
				NUMBER		P1			



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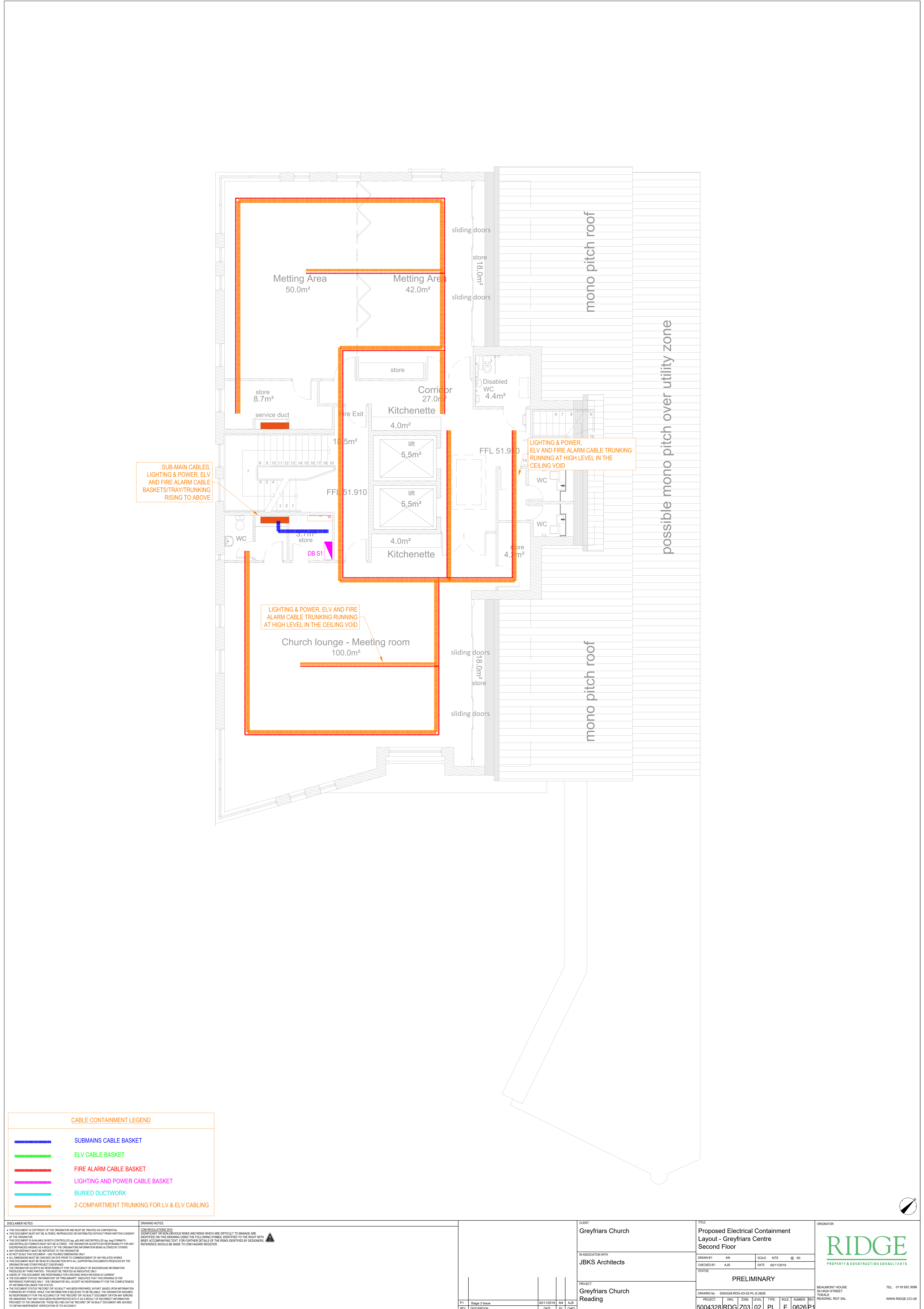
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IN ASSOCIATION WITH:		JBKS Architects		PROJECT:		DRAWN BY: AN		SCALE: NTS @ A0	
PROJECT:		Greyfriars Church Reading		CHECKED BY: AJS		DATE: 05/11/2019		STATUS:	
PRELIMINARY		DRAWING No: 5004328-RDG-03-MD-PL-E-0624		PROJECT:		ORG: RDG		ZONE: Z03	
LEVEL: M0		TYPE: PL		ROLE: E		NUMBER: 0624		REV: P1	
TEL: 0118 932 3088		WWW.RIDGE.CO.UK							



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- LIGHTING AND POWER CABLE BASKET
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P1	Stage 3 Issue	05/11/2019	AN	AJS
REV	DESCRIPTION	DATE	BY	CHKD

CLIENT:	
Greyfriars Church	
IN ASSOCIATION WITH:	
JBKS Architects	
PROJECT:	
Greyfriars Church Reading	

TITLE:	
Proposed Electrical Containment Layout - Greyfriars Centre Second Floor	
DRAWN BY: AN	SCALE: NTS @ A3
CHECKED BY: AJS	DATE: 05/11/2019
STATUS:	
PRELIMINARY	
DRAWING NO: 5004328-RDG-Z03-02-PL-E-0626	
PROJECT: 5004328-RDG-Z03	ORIG: 02
ZONE: PL	TYPE: E
NUMBER: 0626	REV: 1

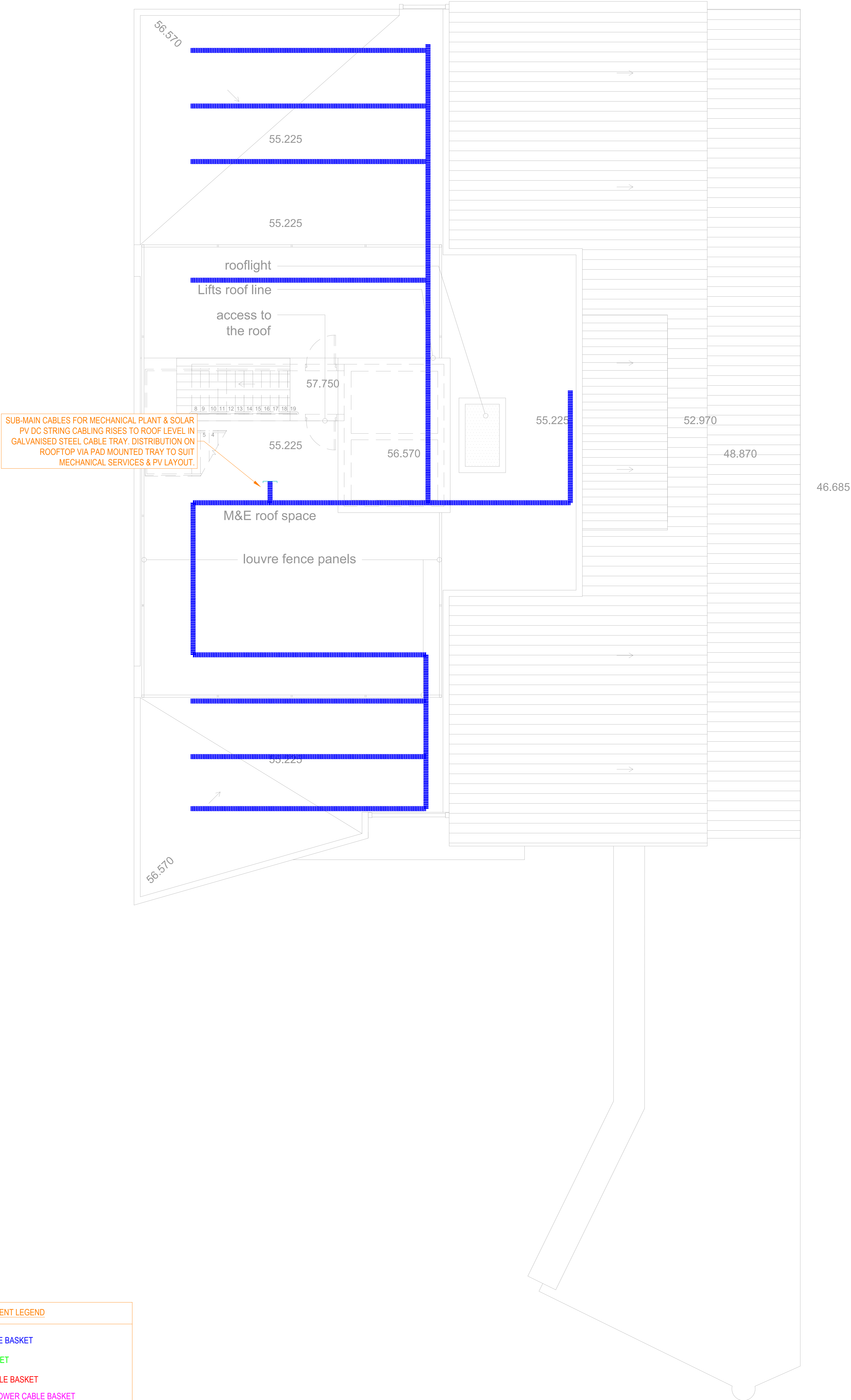
ORIGINATOR:

RIDGE

PROPERTY & CONSTRUCTION CONSULTANTS

BEAUMONT HOUSE
59 HIGH STREET
READING, RG7 5AL

TEL: 0118 932 3088
THEALE
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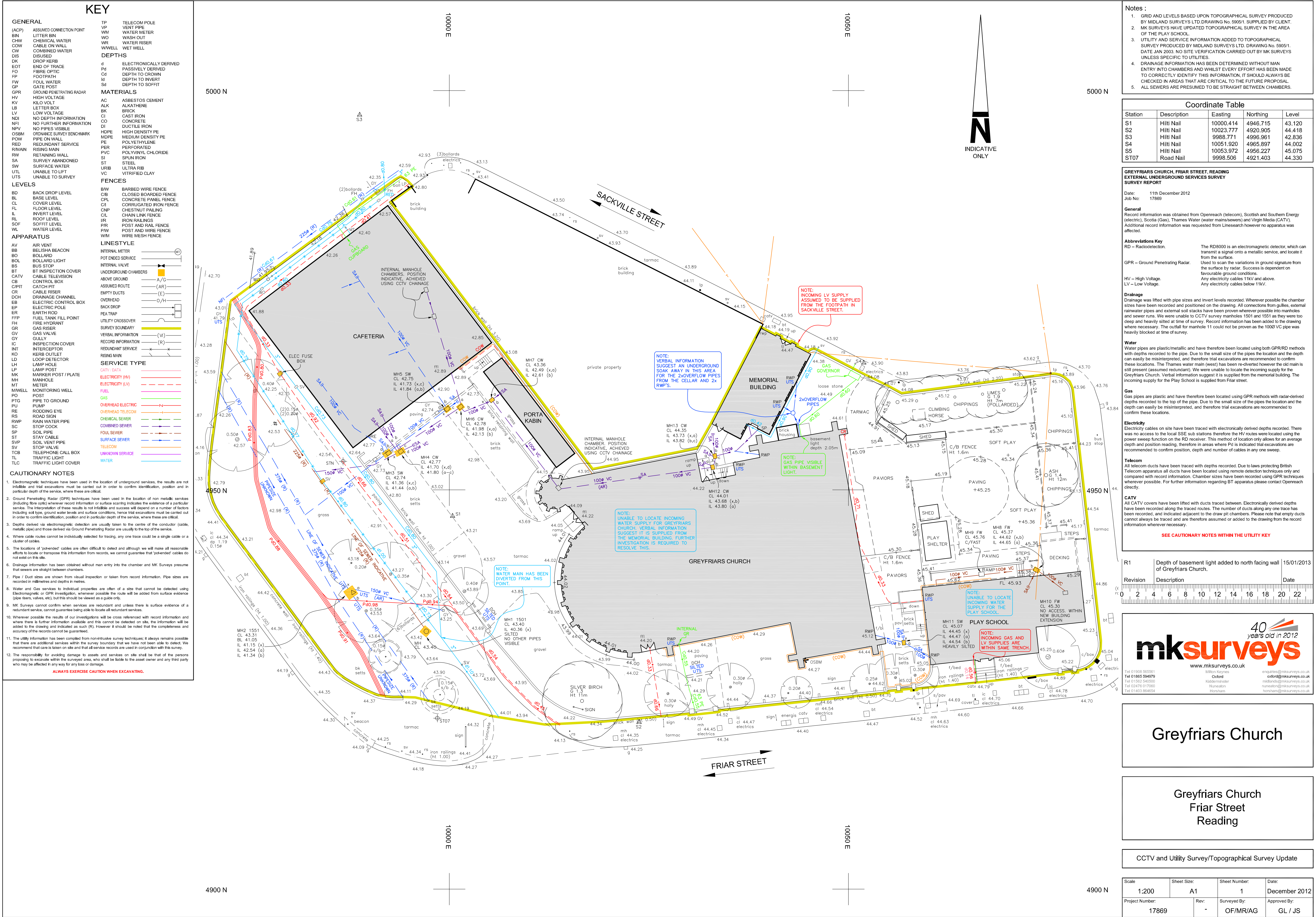
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IN ASSOCIATION WITH: JBKS Architects				PROJECT: Greyfriars Church Reading				DRAWN BY: AN SCALE: NTS @ A0 CHECKED BY: AJS DATE: 06/11/2019 STATUS: PRELIMINARY				DRAWING No: 5004328-RDG-Z03-RF-PL-E-0627 PROJECT ORG ZONE LEVEL TYPE ROLE NUMBER REV 5004328 RDG Z03 RF PL E 0627 P1							
P1	Stage 3 Issue	06/11/2019	AN	AJS															
REV	DESCRIPTION	DATE	BY	CHKD															

APPENDIX B: CONTRACTOR DESIGN PORTIONS

Below is a list of the Contractor Design Proportions for the building.

- Building Management System.
- Pipework expansion.
- Boiler flues.
- Photovoltaic panel installation.
- Lighting controls.
- Fire Alarm System.
- Access Control.
- Intruder alarm.
- CCTV system.
- Lightning protection.
- Under Floor Heating.

APPENDIX C: UNDERGROUND SERVICES SURVEY DRAWING



APPENDIX D: RIBA STAGE 3 DESIGN BRUKL

BRUKL Output Document

HM Government

Compliance with England Building Regulations Part L 2013

Project name

Greyfriars Church

As designed

Date: Fri Nov 01 15:20:31 2019

Administrative information

Building Details

Address: Friar Street, Reading, RG1 1EH

Certification tool

Calculation engine: SBEM

Calculation engine version: v5.4.a.1

Interface to calculation engine: Virtual Environment

Interface to calculation engine version: v7.0.9

BRUKL compliance check version: v5.4.a.1

Owner Details

Name: Greyfriars Church

Telephone number: Phone

Address: Friar Street, Reading, RG1 1EH

Certifier details

Name: Name

Telephone number: Phone

Address: Street Address, City, Postcode

Criterion 1: The calculated CO₂ emission rate for the building must not exceed the target

CO ₂ emission rate from the notional building, kgCO ₂ /m ² .annum	22.8
Target CO ₂ emission rate (TER), kgCO ₂ /m ² .annum	22.8
Building CO ₂ emission rate (BER), kgCO ₂ /m ² .annum	22.7
Are emissions from the building less than or equal to the target?	BER =< TER
Are as built details the same as used in the BER calculations?	Separate submission

Criterion 2: The performance of the building fabric and fixed building services should achieve reasonable overall standards of energy efficiency

Values which do not achieve the standards in the Non-Domestic Building Services Compliance Guide and Part L are displayed in red.

Building fabric

Element	U _a -Limit	U _a -Calc	U _i -Calc	Surface where the maximum value occurs*
Wall**	0.35	0.15	0.37	MZ000006_W2_A0
Floor	0.25	0.15	0.15	MZ000006_F
Roof	0.25	0.15	0.37	GF000002_C_A1
Windows***, roof windows, and rooflights	2.2	1.19	1.2	FF000008_W6_O1
Personnel doors	2.2	-	-	"No external personnel doors"
Vehicle access & similar large doors	1.5	-	-	"No external vehicle access doors"
High usage entrance doors	3.5	-	-	"No external high usage entrance doors"

U_a-Limit = Limiting area-weighted average U-values [W/(m²K)]

U_a-Calc = Calculated area-weighted average U-values [W/(m²K)]

U_i-Calc = Calculated maximum individual element U-values [W/(m²K)]

* There might be more than one surface where the maximum U-value occurs.

** Automatic U-value check by the tool does not apply to curtain walls whose limiting standard is similar to that for windows.

*** Display windows and similar glazing are excluded from the U-value check.

N.B.: Neither roof ventilators (inc. smoke vents) nor swimming pool basins are modelled or checked against the limiting standards by the tool.

Air Permeability	Worst acceptable standard	This building
m³/(h.m²) at 50 Pa	10	3

Building services

The standard values listed below are minimum values for efficiencies and maximum values for SFPs. Refer to the Non-Domestic Building Services Compliance Guide for details.

Whole building lighting automatic monitoring & targeting with alarms for out-of-range values

YES

Whole building electric power factor achieved by power factor correction

<0.9

1- 04 Gas Boiler Rads - Circulation and WC

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	0.91	-	-	-	-
Standard value	0.91*	N/A	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					
YES					
* Standard shown is for gas single boiler systems <=2 MW output. For single boiler systems >2 MW or multi-boiler systems, (overall) limiting efficiency is 0.86. For any individual boiler in a multi-boiler system, limiting efficiency is 0.82.					

2- 01 Air Source Heat Pump (Combi Gas DHW)

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	3.6	3.5	-	1.4	-
Standard value	2.5*	2.55	N/A	1.6^	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					
YES					
* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps. For types <=12 kW output, refer to EN 14825 for limiting standards.					
^ Limiting SFP may be extended by the amounts specified in the Non-Domestic Building Services Compliance Guide if the system includes additional components as listed in the Guide.					

1- SYST0001-DHW

	Water heating efficiency	Storage loss factor [kWh/litre per day]
This building	0.91	0.003
Standard value	0.8	N/A

Local mechanical ventilation, exhaust, and terminal units

ID	System type in Non-domestic Building Services Compliance Guide
A	Local supply or extract ventilation units serving a single area
B	Zonal supply system where the fan is remote from the zone
C	Zonal extract system where the fan is remote from the zone
D	Zonal supply and extract ventilation units serving a single room or zone with heating and heat recovery
E	Local supply and extract ventilation system serving a single area with heating and heat recovery
F	Other local ventilation units
G	Fan-assisted terminal VAV unit
H	Fan coil units
I	Zonal extract system where the fan is remote from the zone with grease filter

Zone name	SFP [W/(l/s)]										HR efficiency	
ID of system type	A	B	C	D	E	F	G	H	I		Zone	Standard
Standard value	0.3	1.1	0.5	1.9	1.6	0.5	1.1	0.5	1			
FF - Stairs - Offices	-	-	-	-	-	-	-	-	-	-	N/A	
FF - Resources Room	-	-	-	0.3	-	-	-	-	-	0.8	0.5	
FF - WC - Lobby	-	-	0.4	-	-	-	-	-	-	-	N/A	
FF - West Stair	-	-	-	-	-	-	-	-	-	-	N/A	
FF - Kithenette - Stair Lobby	-	-	0.3	-	-	-	-	-	-	-	N/A	
FF - Stair Lobby	-	-	-	-	-	-	-	-	-	-	N/A	

Zone name	ID of system type	SFP [W/(l/s)]									HR efficiency	
		A	B	C	D	E	F	G	H	I	Zone	Standard
Standard value												
MZ - West Stairs	-	-	-	-	-	-	-	-	-	-	-	N/A
SF - West Stair	-	-	-	-	-	-	-	-	-	-	-	N/A
SF - Office Stairs	-	-	-	-	-	-	-	-	-	-	-	N/A
SF - Lobby	-	-	-	-	-	-	-	-	-	-	-	N/A
SF - Kitchenette - Lobby	-	-	0.3	-	-	-	-	-	-	-	-	N/A
SF - WC	-	-	0.4	-	-	-	-	-	-	-	-	N/A
SF - WC	-	-	0.4	-	-	-	-	-	-	-	-	N/A
SF - Kitchenette - Church Lounge	-	-	0.3	-	-	-	-	-	-	-	-	N/A
TF - West Stair	-	-	-	-	-	-	-	-	-	-	-	N/A
GF - West Stairs	-	-	-	-	-	-	-	-	-	-	-	N/A
GF - Hall Lobby	-	-	-	-	-	-	-	-	-	-	-	N/A
GF - WC - Hall	-	-	0.4	-	-	-	-	-	-	-	-	N/A
GF - WCs - Informal Meeting	-	-	0.4	-	-	-	-	-	-	-	-	N/A
FF - WC	-	-	0.4	-	-	-	-	-	-	-	-	N/A
SF - WC - Church Lounge	-	-	0.4	-	-	-	-	-	-	-	-	N/A
GF - Kitchen	-	-	-	-	-	-	-	-	-	0.4	-	N/A
FF - WC - Church Office	-	-	0.4	-	-	-	-	-	-	-	-	N/A
FF - Kitchenette - Church Office	-	-	-	-	-	-	-	-	-	0.3	-	N/A
GF - WC Corridor	-	-	-	-	-	-	-	-	-	0.3	-	N/A
FF - Meeting Room 2	-	-	-	-	-	-	-	-	-	0.3	-	N/A
FF - Meeting Rooms	-	-	-	-	-	-	-	-	-	0.3	-	N/A
FF - Church Office	-	-	-	-	-	-	-	-	-	0.3	-	N/A
FF - Meeting Room 1	-	-	-	-	-	-	-	-	-	0.3	-	N/A
SF - Meeting 2	-	-	-	-	-	-	-	-	-	0.3	-	N/A
SF - Church Lounge	-	-	-	-	-	-	-	-	-	0.3	-	N/A
GF - Hall (no temp partitions)	-	-	-	-	-	-	-	-	-	0.3	-	N/A
SF - Meeting 1	-	-	-	-	-	-	-	-	-	0.3	-	N/A
GF - Informal Meeting Area/ Hall Foyer	-	-	-	-	-	-	-	-	-	0.3	-	N/A

General lighting and display lighting				Luminous efficacy [lm/W]			General lighting [W]
Zone name				Luminaire	Lamp	Display lamp	
Standard value				60	60	22	
FF - Stairs - Offices	-	-	-	90	-	-	171
FF - Resources Room	-	-	-	100	-	-	70
FF - WC - Lobby	-	-	-	90	-	-	98
FF - West Stair	-	-	-	90	-	-	305
FF - Kithenette - Stair Lobby	-	-	-	100	-	-	74
FF - Stair Lobby	-	-	-	90	-	-	333
MZ - West Stairs	-	-	-	90	-	-	247
SF - West Stair	-	-	-	90	-	-	290
SF - Office Stairs	-	-	-	90	-	-	103
SF - Lobby	-	-	-	90	-	-	291
SF - Kitchenette - Lobby	-	-	-	100	-	-	63

Project No. 5004328
39

HVAC Systems Performance									
System Type	Heat dem MJ/m2	Cool dem MJ/m2	Heat con kWh/m2	Cool con kWh/m2	Aux con kWh/m2	Heat SSEFF	Cool SSEER	Heat gen SEFF	Cool gen SEER
[ST] Central heating using water: radiators, [HS] LTHW boiler, [HFT] Natural Gas, [CFT] Electricity									
	Actual	73.5	51.6	23.9	0	5.2	0.86	0	0.91
	Notional	131.1	77.9	44.4	0	5.8	0.82	0	----
[ST] Fan coil systems, [HS] Heat pump (electric): air source, [HFT] Electricity, [CFT] Electricity									
	Actual	106.3	31.6	9.2	4.4	16.9	3.19	1.99	3.6
	Notional	59.8	76.3	6.8	5.9	13.3	2.43	3.6	----

Key to terms	
Heat dem [MJ/m2]	= Heating energy demand
Cool dem [MJ/m2]	= Cooling energy demand
Heat con [kWh/m2]	= Heating energy consumption
Cool con [kWh/m2]	= Cooling energy consumption
Aux con [kWh/m2]	= Auxiliary energy consumption
Heat SSEFF	= Heating system seasonal efficiency (for notional building, value depends on activity glazing class)
Cool SSEER	= Cooling system seasonal energy efficiency ratio
Heat gen SSEFF	= Heating generator seasonal efficiency
Cool gen SSEER	= Cooling generator seasonal energy efficiency ratio
ST	= System type
HS	= Heat source
HFT	= Heating fuel type
CFT	= Cooling fuel type

Key Features

The Building Control Body is advised to give particular attention to items whose specifications are better than typically expected.

Building fabric			
Element	U _{i-Typ}	U _{i-Min}	Surface where the minimum value occurs*
Wall	0.23	0.01	FF000007_W8_A2
Floor	0.2	0.12	GF000003_F_A0
Roof	0.15	-	SF000003_C_A0
Windows, roof windows, and rooflights	1.5	0.91	SF00000A_C_O0
Personnel doors	1.5	-	"No external personnel doors"
Vehicle access & similar large doors	1.5	-	"No external vehicle access doors"
High usage entrance doors	1.5	-	"No external high usage entrance doors"
U _{i-Typ} = Typical individual element U-values [W/(m²K)]		U _{i-Min} = Minimum individual element U-values [W/(m²K)]	
* There might be more than one surface where the minimum U-value occurs.			

Air Permeability	Typical value	This building
m³/(h.m²) at 50 Pa	5	3

APPENDIX E: INDOOR AIR QUALITY PLAN



**GREYFRIARS CHURCH – PHASE 2
INDOOR AIR QUALITY PLAN
JBKS ARCHITECTS**

5th November 2019

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Version Control

Project	5004328
Issue Date	05/11/2019
Originator	JD/AN/TM
Checked	DAF/AS/AK
Version	1.0
Notes	

1. INTRODUCTION

1.1. General

The project involves the construction of a three-storey community building, refurbishment of existing buildings and a new foyer to the existing church linking the buildings together.

To suit the various uses of the building various ventilation, heating and cooling principles will be utilised appropriate to the function and processes being carried out. To minimise the energy requirements systems will be designed to have low specific fan powers, appropriate levels of fresh air provision and use of heat reclaim systems.

The new building is predominantly ventilated via mechanical ventilation. All air handling units are selected to provide fresh air to the spaces in line with current Building Regulations and CIBSE guidance. The quantity of air provided will satisfy the occupancy levels.

1.2. Removal of Contamination Sources

Sources of external contamination are controlled via appropriate siting of air intakes and maximum distances away from pollution sources. All air handling plant will be provided with air filtration to BS EN 779 F7 which shall remove airborne particulate matter from air sources.

Air intakes and extract will be sited a maximum distance from each other and will be orientated in differing directions to prevent ‘short-circuiting’.

Sources of internal building contamination sources will be controlled via appropriate specification of internal finishes and decorations such that volatile organic compounds emissions are minimised.

Material containing VOC’s will be specified such that data is to be provided to the BREEAM assessor for review prior to approval. This includes all details of OSB, Plywood, MDF etc. to confirm regulated wood preservatives are absent or of minimum content. Test results for substances harmful for health required on products such as ceiling tiles, carpet, vinyl, wall coverings, adhesives, and decorative paints and varnishes. It will be a requirement that all decorative paints and varnishes are to meet the requirements listed in BREEAM Table 5-3. At least five of the eight remaining product categories listed in Table 5-3, are to meet the testing requirements and emission levels for Volatile Organic Compound (VOC) emissions against the relevant standards identified within this table.25.

For materials held on site only those potential contaminant sources attributed to specific process requirements shall be stored on site. A Health & Safety file with complete COSHH data sheets shall always be kept on site and all material will be contained within appropriate controlled cabinets and stores.

1.3. Dilution and Control of Contamination Sources

All ventilation systems will be specified with appropriate levels of fresh air capacity to the relevant CIBSE and Building Regulations requirements appropriate to the use of the space. To ensure satisfactory control and to minimise energy all systems will operate during occupied times only and make intelligent use of heat recovery. Highly occupied spaces such as the hall shall operate on a variable volume principle with CO₂ air quality sensors to ensure satisfactory dilution of internal CO₂ levels. Should CO₂ levels exceed the specified maximum level the BMS shall provide an alarm for the maintenance team to react to.

1.4. Procedures for Pre-occupant flush out, 3rd party testing and Analysis.

To ensure the building is completed to a satisfactory level for occupation and to ensure the requirements above are met there shall be the requirement to carry out pre-occupation flushing and testing. This shall be carried out by an appropriately certified testing organisation.

Testing for formaldehyde and total volatile organic compounds shall be carried out on completion of all building works but prior to occupation. This testing shall be in accordance with BREEAM and Building regulations with the results to be in line with,

- formaldehyde concentration levels are measured post construction (but pre-occupancy) and be found to be less than or equal to 100mg/m3 averaged over 30 minutes.
- total volatile organic compound (TVOC) concentration levels measured post construction (but pre-occupancy) and be found to be less than 300mg/m3 averaged over 8 hours, in line with Building Regulation Requirements.

Testing and measurement shall be in accordance with

- | | |
|----|--|
| a. | BS EN ISO 16000-4:2004 Diffusive sampling of formaldehyde in air |
| b. | EN ISO 16000-6 |
| c. | BS EN 16017-2 |
| d. | BS EN ISO 16000-3 |

The results of all testing shall be reported to the BREEAM assessor and contract administrator.

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APPENDIX F: COMMISSIONING SCHEDULE

Greyfriars Commissioning Schedule



Project

Project Number

Document Ref.

Revision

JBKS - Greyfriars Church M&E

5004328

CS01

-

Date:

Engineer:

Checked:

5 November 2019

JD/AN

DF/AS

Building Service		Requirement		Evidence	
VRF Heat Pump (Heating & Cooling)		Commission Refrigerant Systems. Commission in accordance with CIBSE Commissioning Code R and Code A.		Commissioning certification.	
Domestic Water Services		Commission TMVs to correct temperature, check water storage temperature. Commission in accordance with CIBSE Commissioning Code W.		Certificate of hot water outlet temperatures. Check a sample of hot water outlets for correct temperature in the required time.	
LTHW Heating System		Commission LTHW flow rates in accordance with the design information, check flow and return temperatures. Check gas supply to boiler in accordance with Gas Safe requirements. Commission in accordance with CIBSE Commissioning Code B.		Gas Safe certification. Boiler commissioning certificate. LTHW flow rate commissioning certificate.	
Mechanical Ventilation System		Commission supply and extract flow rates in accordance with the design information. Commission in accordance with CIBSE Commissioning Code A.		Commissioning certificates, witness a sample on site.	
BMS Control System		Commission in accordance with the Description of Operation and in accordance with CIBSE Commissioning Code C.		Witness a demonstration of controls, check safety interlocks, operation of all connected equipment, general control philosophy.	
Lighting Control		Commission in accordance with the design information and manufacturer's requirements.		Witness operation.	
Emergency Lighting		Commission in accordance with the design information, manufacturer's requirements and BS 5266.		Emergency Lighting commissioning certification and witnessing of operation.	
Fire Alarm		Commission in accordance with the design information, manufacturer's requirements and BS 5839.		Fire Alarm commissioning certification and witnessing of operation.	
General Electrical Wiring		Electrical testing in accordance with the 18th Edition of BS 7671 Wiring Regulations.		Electrical test certificates and witnessing of Electrical Testing Methods.	
Security and Alarm Systems		Commission in accordance with the design information and manufacturer's requirements.		Security Alarm commissioning certification and witnessing of operation.	
Solar Photovoltaics (PV)		Electrical testing in accordance with the 18th Edition of BS 7671 Wiring Regulations and Commissioning of metering and distribution systems.		Electrical test certificates and witnessing of system operation.	
Notes 1) Client Demonstrations of systems to be provided where required.					
Revisions	Date	Notes			
-	05/11/2019	Concept Design Stage			

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