Notes

1.This drawing is to be read in conjunction with all other drawings, specifications, schedules and documents quoting reference B1305203
2. The work is to be carried out in accordance with the contract, specification, associated drawings and schedules. the work includes for the supply, delivery to site, off-loading, installation and setting to work, testing, commissioning and full defects liability period of twelve months from the date of satisfactory handover of the completed installations. The System Specialist Contractor appointed to carry out the works shall be members of, and accredited by recognised national or international trade organisations relevant to their works.
Recognised specialist services associations shall include the following: -
a) The Association of Lightning and Access Specialist (ATLAS) or the Federation of Lighting Protection Specialists (FOLPS) or equivalent organisation for all lightning protection works;
b) NICEIC roll of approved contractors or ECA registered, certified and approved for all works to the electrical services systems. All systems specialist shall be registered and accreditted by an appropriate recognised organisation to demonstrate national recognition of ability and competence relevant to the specialist service provided.

3. All items of the lightning protection system together with plant and equipment associated with the electrical services installations shall be installed, connected and commissioned in accordance with relevant British and international standards and codes of practice, the current edition of IEE wiring regulations together with all manufacturers' and system specialist written instructions and recommendations.

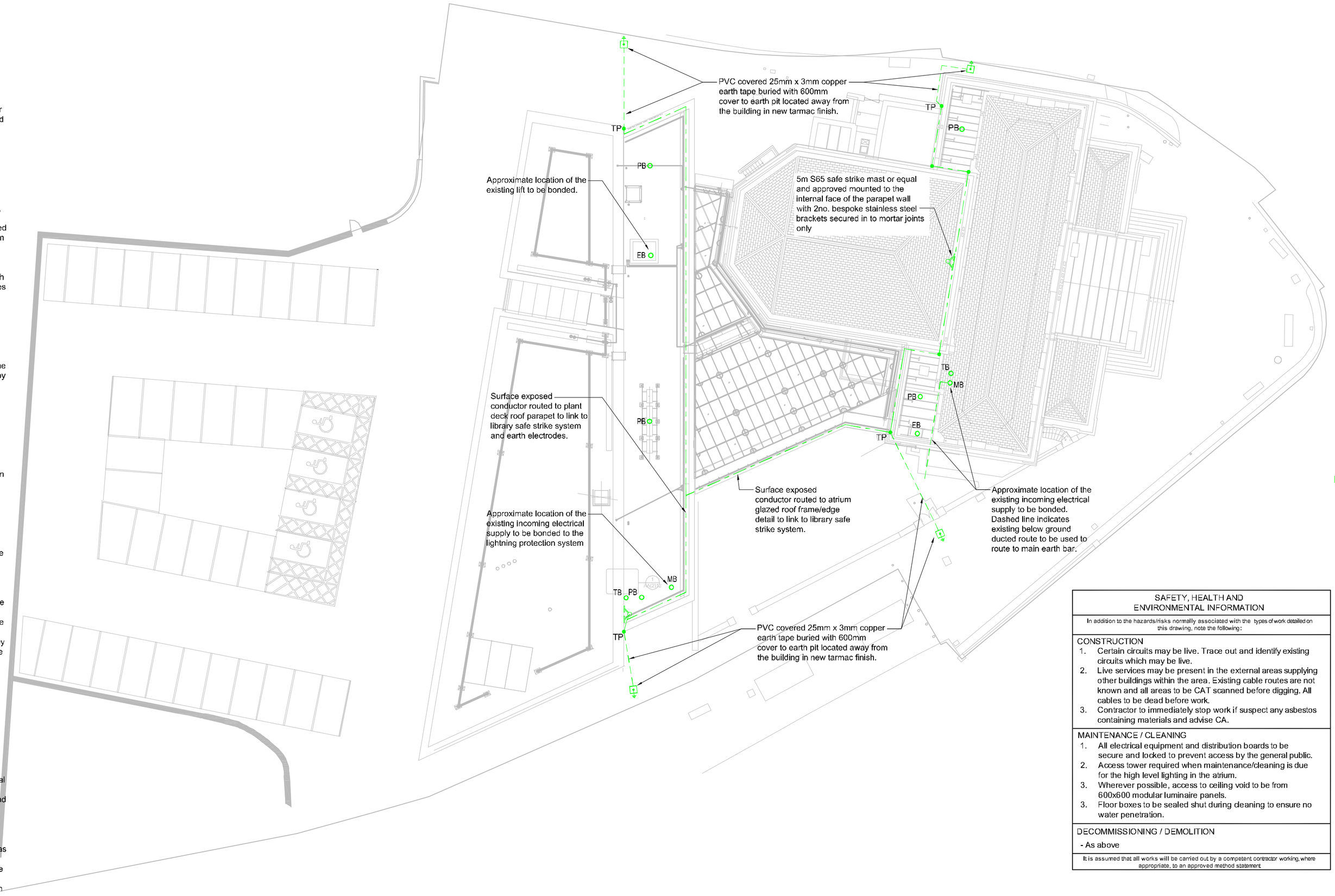
4. All works included in this specification and shown on the associated drawings shall be undertaken and controlled by the electrical contractor and the appointed Lightning Protection System Specialist who shall ensure all Electrical Sub-Contractor, Telecommunications Sub-Contractor and Main Contractor attendance, and builder's work and access equipment required by the works is included.

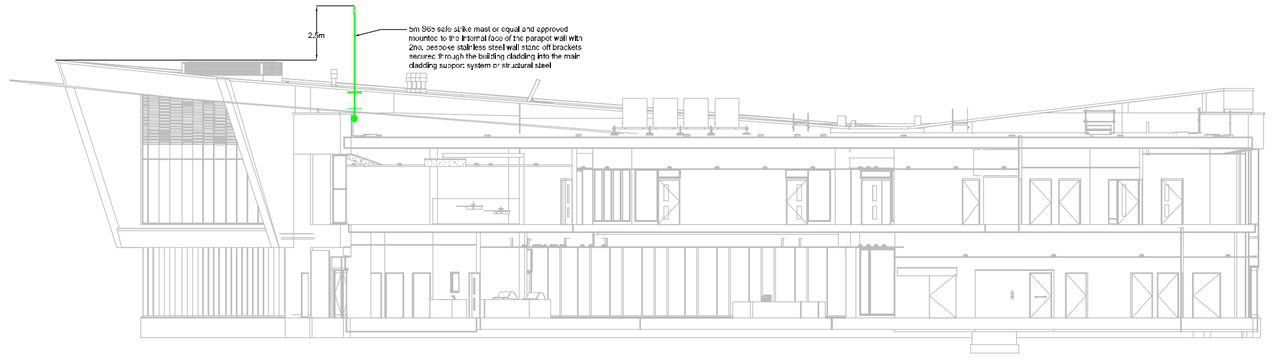
5. All work shall be fully co-ordinated and integrated with the existing and proposed building structure, finishes, electrical installation and other services, both to and within the building and to the requirements of the Contract Administrator.

6.The works shall be implemented in such a manner that results in the minimum of disruption to the surrounding buildings, their occupants, with particular regards to vibration, noise, dirt and dust and the contractor shall program all isolations effecting the occupied areas outside operational hours.

7. The Lightning Protection Specialist shall provide a lightning protection scheme for compliance with BSEN 62305 / NFC-17-102. The risk level weighting factors have been assessed and a protection level 1 has been established based on the available information. Due to the diverse nature of the construction the lightning protection specialist shall include for carrying out an initial site survey and shall include for carrying out a full re-evaluation of the risks based analysis based on the actual site conditions and proposed drawings.

8. All builder's work and attendance associated with the lightning specialist services shall be provided by the main contractor and shall include but not be limited to :-
* general site welfare and first aid
* the removal and reinstatement of building perimeter pathways, paved, tarmac, turf and landscaped finishes to match the existing provision
* excavation and making good of 600mm deep trenches for earth tapes and electrodes
* making provision for and sealing of all internal to external conductors
* working access to all areas including edge protection and scaffolding or man safe arrangements
* building in of inspection covers for earth electrodes and making good ground finishes
* Where felt or membrane roofing system are used the contractor shall provide fixing pads or proprietary fixings as recommended by the roofing system manufacturer at a minimum of 1m centres along the lightning protection tape routes to suit the lighting protection system requirements, fixing details shall be co-ordinated with the roofing system supplier in order to maintain any existing roof guarantees.
9. At each earth electrode position the system specialist shall include for the provision of two 2.4m deep earth electrodes and associated pits and tapes etc and shall provide an extra over cost for each addition electrode required to achieve the recommended resistance to earth.
10. The system is designed such that each building is individually protected but both systems provide coverage to the entire site.





SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION
In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following:
CONSTRUCTION 1. Certain circuits may be live. Trace out and identify existing circuits which may be live. 2. Live services may be present in the external areas supplying other buildings within the area. Existing cable routes are not known and all areas to be CAT scanned before digging. All cables to be dead before work. 3. Contractor to immediately stop work if suspect any asbestos containing materials and advise CA.
MAINTENANCE / CLEANING 1. All electrical equipment and distribution boards to be secure and locked to prevent access by the general public. 2. Access tower required when maintenance/cleaning is due for the high level lighting in the atrium. 3. Wherever possible, access to ceiling void to be from 600x600 modular luminaire panels. 3. Floor boxes to be sealed shut during deaning to ensure no water penetration.
DECOMMISSIONING / DEMOLITION - As above
It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement

Key to Symbols

The lightning protection system has been provisionally assessed as requiring a protection level 1 scheme. The electrical contractor shall engage a certified system specialist (J Lacey Steeplejacks or equal and approved) to provide a certified calculation to prove the category selection. The system specialist shall supply, install, commission, certify, and maintain for the first 12 months all necessary structural lightning protection (inclusive of a re-test and commission of the entire system in the 11 month following the original completion and certification and prior to the end of the 12 month defects period.

The proposed lightning protection scheme is indicative only and shows the main criteria of protection for a Protection Level 1. The positioning of down conductors, together with the positioning of earth electrodes and roof termination network masts and conductors are provisional only and shall be confirmed by the lightning protection system specialist prior to commencement of the construction. Down conductors shall be concealed wherever practicable adjacent to or behind new and existing building recesses and rainwater down pipes. Main bonds are noted on the drawings, however the contractor shall allow for the provision of additional gunmetal bonds to all necessary metallic objects both at roof level and the surrounding areas where required to meet the requirements of BSEN 62305 / NFC 17-102.

25mm x 3mm PVC Covered Aluminium Tape or equivalent PVC Covered Aluminium Rod including appropriate fixings with maximum fixing centres of 450mm vertically and 1000mm horizontally. Conductors shall be PVC covered in various colours selected to blend in with the building fabric. Conductor type and colour to be agreed with the contract administrator prior to installation. Dashed line indicates surface install concealed behind parapet wall or building recess. Center line indicates surface installed exposed on building.

Indicates Aluminium PVC covered down conductor change in level eg.drops from roof level to low level test point or building level change.

TP — Indicates Down Conductor terminating with low level Gun Metal Test Point

Indicates burried PVC Covered Copper Tape (600mm cover) and Steel cored copper bond earth rod electrode driven to minimum depth of 2400mm complete with heavy duty concrete inspection chamber bonding clamp. 25mm x 3mm PVC covered copper tape linked below ground to bonding point test clamp. See typical detail)

MB — Main earth bond to incoming earth bar comprising a 25mm x 3mm copper tape bond to the main incoming electrical earth bar complete with removable test link facility together with 3 Phase Surge Protection complying with BSEN62305 Type 1+2 to be provided to the internal electrical distribution board at this location.

TB — Multi-Way Telecoms Surge Protection complying with BSEN62305 to be provided to each incoming telecoms service at this location internally.

PB — External plant bond at roof level comprising a 25mm x 3mm tape bonds and Surge Protection complying with BSEN62305. External plant bonds need not be provided where Early Streamer Emission (ESE) Systems are used, however all external plant shall be fitted with a BSEN 62305 surge protection.

EB — Internal bond to lift equipment in accordance with BSEN62305.

In addition to the main bonding information detailed in the key above the lightning system specialist contractor shall include for bonding to all exposed roof metal work, flashings, handrails, etc as required to present a fully compliant lightning protection scheme at completion of the works.

Surge protection may be provided by the Lightning Protection System Specialist as a package or by the Electrical Contractor.

Rev	Rev. Date	Purpose of revision	Drawn	Checkd	Rev'd	Apprv'd
C2	JUNE 2017	Contract issue Faraday Cage System Omitted, ESE system added	LG	SB	SB	ID
C1	FEB 2017	Contract issue	LG	DJF	DJF	JP

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Client
Powys

Project
Brecknock Museum and Brecon Library - Co-location - Cultural Hub

Drawing title
Brecon Library and Brecknock Museum Lightning Protection Plan and Detail Electrical Services

Drawing status
CONTRACT

Scale	1:100 @ A1	DO NOT SCALE
Jacobs No.	B1305203	
Client no.		
Drawing number	B1305203/E/6656	Rev C2

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PROVISIONAL

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