SNC·LAVALIN

Mary Arches MSCP Lift Replacement

Tender Pack

Exeter City Council

23rd January 2019

Notice

This document and its contents have been prepared and are intended solely as information for Exeter City Council and use in relation to Release

SNC Lavalin assumes no responsibility to any other party in respect of or arising out of or in connection with this document and/or its contents.

This document has 15 pages including the cover.

Document history

Revision	Purpose description	Origin-ated	Checked	Reviewed	Author-ised	Date
Rev 2.0	Issue	ST	DL	DL	DL	23/01/2019

Client signoff

Client	Exeter City Council
Project	Mary Arches MSCP Lift Replacement
Job number	5166101
Client signature / date	

Contents

1. Tender Summary Page

Exeter City Council
Mary Arches Lift Replacement

PRICED TENDER SUMMARY

1 PRELIMINARIES – please provide separate breakdown

Fixed Costs	£
Time related Costs	£
Overheads and Profit	£
Construction Management Costs	£

2 SCHEDULE OF WORKS

Construction Total carried forward from Section 3 of this tender document	£
Costed general contingency	£ 20,000
SUB-TOTAL	**£**
CCTV Option	£
Comprehensive Maintenance after Expiry of Defects Liability Period	£

LEIA INDEX AT TIME OF TENDER

Contracts	……..
Maintenance	……..

Signature of contractor:

Company:

Date:_____

2. Preliminaries

Mary Arches Lifts Replacement

23rd January 2019

Table of Contents

A
JCT 2016 Intermediate Building Contract with Contractor's Design

A10
PROJECT PARTICULARS

A10 PROJECT PARTICULARS

110 THE PROJECT

- Name: Mary Arches Lift Replacement.
- Nature: Replacemnt of 2 number passenger lifts within the Mary Arches car park.
- Location: Mary Arches St, Exeter, EX4 3AZ.
- Length of contract: TBC.

120 EMPLOYER (CLIENT)

- Name: Exeter City Council.
- Address: The Civic Centre, Paris Street, Exeter, EX1 1JJ.
- Contact: David Licence.
- Telephone: 01392 265739.
- E-mail: david.licence@exeter.gov.uk.

130 PRINCIPAL CONTRACTOR (CDM)

- Name: TBC.
- Address: TBC.
- Contact: TBC.
- Telephone: TBC.
- E-mail: TBC.

140 ARCHITECT/ CONTRACT ADMINISTRATOR

- Name: Faithful + Gould.
- Address: The Octagon, 2nd Floor, Pynes Hill Court, Rydon Lane, Exeter, EX2 5AZ .
- Contact: Simon Thompson.
- Telephone: 07557 488130.
- E-mail: simon.thompson@fgould.com.

150 PRINCIPAL DESIGNER

- Name: (TUV SUD Ltd) Dunbar Boardman.
- Address: Office 314, Regus House, Cardiff, CF10 4RU.
- Contact: Paul St Claire.
- Telephone: 07971 149564.
- E-mail: Paul.StClaire@tuv-sud.co.uk.

160 QUANTITY SURVEYOR

- Name: Faithful + Gould.
- Address: The Octagon, 2nd Floor, Pynes Hill Court, Rydon Lane, Exeter, EX2 5AZ.
- Contact: Simon Thompson.
- Telephone: 07557 488130.
- E-mail: simon.thompson@fgould.com.

200 CONSULTANTS

- Description: (TUV SUD Ltd) Dunbar Boardman as specialist lift consultant.
- Name: Paul St Claire.
- Address: Office 314, Regus House, Cardiff, CF10 4R.
- Telephone: 07971 149564.

A11
TENDER AND CONTRACT DOCUMENTS

A11 TENDER AND CONTRACT DOCUMENTS

110 TENDER DRAWINGS

- The tender drawings are: 1) Mary Arches Lift Replacement Context Map.
  2) Lift Location Plan Level 2 .

120 CONTRACT DRAWINGS

- The Contract Drawings: The same as the tender drawings.

160 PRECONSTRUCTION INFORMATION

- Format: The Preconstruction information is described in these preliminaries in Section A34. It refers to information given elsewhere in the preliminaries and other tender documents.

180 OTHER DOCUMENTS

- Inspection: Drawings and other documents relating to the Contract but not included in the tender documents may be seen by appointment during normal office hours at the office of F aithful + Gould, The Octagon, 2nd Floor, Pynes Hill Court, Rydon Lane, Exeter, EX2 5AZ .
- The documents include: Plans to all car park decks and elevations.

A12
THE SITE/ EXISTING BUILDINGS

A12 THE SITE/ EXISTING BUILDINGS

110 THE SITE
- Description: Mary Arches Car Park, Mary Arches St, Exeter, EX4 3AZ.

120 EXISTING BUILDINGS ON/ ADJACENT TO THE SITE
- Description: A number of retail outlets adjoin the site.

200 ACCESS TO THE SITE
- Description: To be arranged by appointment through Simon Thompson at Faithful + Gould (07557488130).
- Limitations: Normal office hours.

210 PARKING
- Restrictions on parking of the Contractor's and employees' vehicles: To be restricted to site compound; to be agreed prior to commencement.

220 USE OF THE SITE
- General: Do not use the site for any purpose other than carrying out the Works.
- Limitations: Normal operating hours unless previously agreed.

230 SURROUNDING LAND/ BUILDING USES
- General: Adjacent or nearby uses or activities are as follows:
  - Retail units.

240 HEALTH AND SAFETY HAZARDS
- General: The nature and condition of the site/ building cannot be fully and certainly ascertained before it is opened up. However, the following hazards are or may be present:
  - Mary Arches is a public multi-storey car park and subject to uncontrollable movements of both vehicles and pedestrians.
- Information: The accuracy and sufficiency of this information is not guaranteed. Ascertain if any additional information is required to ensure the safety of all persons and the Works.
- Site staff: Draw to the attention of all personnel working on the site the nature of any possible contamination and the need to take appropriate precautionary measures.

250 SITE VISIT
- Assessment: Ascertain the nature of the site, access thereto and all local conditions and restrictions likely to affect the execution of the Works.
- Arrangements for visit: By appointment only arranged through Simon Thompson at Faithful + Gould (07557 488130).

A13
DESCRIPTION OF THE WORK

A13 DESCRIPTION OF THE WORK

120 THE WORKS

- Description: Replacement of 2 number passenger lifts within a multi storey car park. The intent of the Specification is that the Plant and/or the Works shall be designed, manufactured, supplied, installed and constructed such as to be fit for the purpose of providing &

  Passenger Lift service in compliance with BS EN81-20 and BS EN81-50 requirements; the Lifts Regulations 2016; EU Lifts Directive 2014/33/EU; Vandal Resistance to BS EN81-71 Category 2 requirements; Fire Recall Service to BS EN81-73 requirements; Mobility Scooter loading

  The Plant shall have a minimum service life of not less than 20-years commencing from Practical completion by the Employer..

130 WORK BY OTHERS CONCURRENT WITH THE CONTRACT

- Description: Full Refurbishment and Demolition Survey to facilitate works.

A20
JCT INTERMEDIATE BUILDING CONTRACT WITH CONTRACTOR'S DESIGN (ICD)

A20 JCT INTERMEDIATE BUILDING CONTRACT WITH CONTRACTOR'S DESIGN (ICD)

INTERMEDIATE BUILDING CONTRACT WITH CONTRACTOR'S DESIGN (ICD)

- The Contract: JCT Intermediate Building Contract with Contractor's Design 2016 Edition.
- Requirement: Allow for the obligations, liabilities and services described.

THE RECITALS

First - THE WORKS

- Comprise: Replacement of 2 number passenger lifts to include builders and electrical works to facilitate.
- Location: Mary Arches Car Park, Mary Arches ST, Exeter, EX4 3AZ.

Second - CONTRACTOR'S DESIGNED PORTION

- The Works include the design and construction of:
  - Replacement of 2 number passenger lifts and associated works.

Third - CONTRACT DRAWINGS

- The Contract Drawings: As listed in clause A11/120.

Fourth - OTHER DOCUMENTS SUPPLIED BY THE EMPLOYER

- Comprise: Plans of the car park including elevations, asbestos survey for the car park.
- Named person: The whole of the text referring to a named person as a subcontractor Selec t from list be deleted.

Fifth B - PRICING BY THE CONTRACTOR

- Option B will apply: Option A will be deleted.
- Priced Activity Schedule: The words 'and has provided the Employer with a priced schedule of activities annexed to this Contract (the Activity Schedule) will be deleted.

Ninth - INFORMATION RELEASE SCHEDULE

- The Ninth Recital will be deleted.

Eleventh - DIVISION OF THE WORKS INTO SECTIONS

- The Eleventh Recital will be deleted.

ARTICLES

3 - ARCHITECT/ CONTRACT ADMINISTRATOR

- Architect/ Contract Administrator: See clause A10/140.

4 - QUANTITY SURVEYOR

- Quantity Surveyor: See clause A10/160.

5 - PRINCIPAL DESIGNER

- Principal Designer: See clause A10/150.

6 - PRINCIPAL CONTRACTOR

- Principal Contractor: See clause A10/130.

CONTRACT PARTICULARS

Fourth Recital - EMPLOYER'S REQUIREMENTS

- Comprise: As Tender Pack.

Sixth Recital - CONTRACTOR'S PROPOSALS/ CDP ANALYSIS

- Comprise: To be completed by the Contractor.
- Specific Requirements: N/A.

Eighth Recital and Clause 4.6 - CONSTRUCTION INDUSTRY SCHEME

- Employer at Base Date is a 'contractor' for the purposes of the CIS.

Tenth Recital - CDM REGULATIONS

- The project is not notifiable.

Thirteenth Recital and Schedule 5 - SUPPLEMENTAL PROVISIONS

- Collaborative working: Supplemental Provision 1 applies.
- Health and safety: Supplemental Provision 2 applies.
- Cost savings and value improvements: Supplemental Provision 3 applies.
- Sustainable development and environmental considerations: Supplemental Provision 4 app lies.
- Performance indicators and monitoring: Supplemental Provision 5 does not apply.
- Notification and negotiation of disputes: Supplemental Provision 6 applies.
- Where Supplemental Provision 6 applies, the respective nominees of the parties are:
  - Employer's nominee: TBA.
  - Contractor's nominee: _____. Or such replacement as each party may notify to the other from time to time.

Article 8 - ARBITRATION

- Article 8 and clauses 9.3 to 9.8 (arbitration) apply.

Clause 1.1 - BASE DATE

- Base Date: 10 days prior to tender return date.

Clause 1.1 - DATE FOR COMPLETION OF THE WORKS

- Date for completion of the Works (where completion by sections does not apply): TBA.

Clause 1.7 - ADDRESSES FOR SERVICE OF NOTICES

- Employer:
  - Address: As A10/120.
  - Fax number: N/A.
- Contractor:
  - Address: _____.
  - Fax Number: _____

Clause 2.4 - DATE OF POSSESSION OF THE SITE

- Date of Possession of the site: TBA.

Clause 2.5 - DEFERMENT OF POSSESSION OF THE SITE

- Clause 2.5 applies.
- Where clause 2.5 applies, maximum period of deferment (if less than six weeks) is six weeks.

Clause 2.23.2 - LIQUIDATED DAMAGES

- Damages: At the rate of £700 per week plus daily rate at point of delay x the quantity of spaces out of use.

Clause 2.30 - RECTIFICATION PERIOD

- Period: Twelve months from the date of practical completion of the Works.

Clause 2.34.3 - CONTRACTOR'S DESIGNED PORTION

- Limit of Contractor's liability for loss of use: unlimited.

Clause 4.3 and 4.9 - FLUCTUATIONS PROVISION

- Fluctuations Provision: no Fluctuations Provision applies.
- Where Schedule 4 applies, percentage addition (paragraph 12): N/A.

Clause 4.7 - ADVANCE PAYMENT AND ADVANCE PAYMENT BOND

- Advance payment: Clause 4.7 does not apply.

Clause 4.8.1 - INTERIM PAYMENTS - INTERIM VALUATION DATES

- The first Interim Valuation Date is: 28 days after comencement, and thereafter the same date in each month or the nearest Business Day in that month.

Clause 4.9.1 - INTERIM PAYMENTS - PERCENTAGE OF VALUE

- Not achieved practical completion: Where the Works, or those works in a section, have not achieved practical completion, the percentage of total value in respect of the works that have not achieved practical completion is 95%.
- Completed works: Where the Works, or those works in a section, have achieved practical completion, the percentage in respect of the completed works is 2.5%.

Clause 4.10.4 - LISTED ITEMS - UNIQUELY IDENTIFIED

- Listed items: A bond as referred to in clause 4.10.4 in respect of payment for such items is required for Lift fabrication .

Clause 6.4.1 - CONTRACTOR'S PUBLIC LIABILITY INSURANCE: INJURY TO PERSONS OR PROPERTY

- Insurance cover for any one occurrence or series of occurrences arising out of one event: £ 5 Million.

Clause 6.5.1 - INSURANCE - LIABILITY OF EMPLOYER

- Insurance may be required.
- Minimum amount of indemnity for any one occurrence or series of occurrences arising out of one event: £5 million.

Clause 6.7 and Schedule 1 - WORKS INSURANCE - INSURANCE OPTIONS

- Schedule 1: Insurance option C applies.
- Percentage to cover professional fees: 15 per cent.
- If option A applies, annual renewal date (as supplied by the Contractor): _____.
- Where Insurance Option C applies, Paragraph C1: applies.

Clause 6.10 and Schedule 1 - TERRORISM COVER

- Details of the required cover:
  - N/A.

Clause 6.15 - JOINT FIRE CODE

- Joint Fire Code: Applies.
- Application: State whether the insurer under Insurance Option A, B or C (paragraph C.2) has specified that the Works are a 'Large Project': No.

Clause 6.18 - JOINT FIRE CODE - AMENDMENTS/ REVISIONS

- Joint Fire Code - Amendments/ revisions: The cost, if any, of compliance with amendments or revisions to the Joint Fire Code shall be borne by the Contractor.

Clause 6.19 - CONTRACTOR'S DESIGN PORTION - PROFESSIONAL INDEMNITY INSURANCE

- Level of cover: Amount of indemnity required:
  - relates to claims or series of claims arising out of one even;
  - and is £ 1 million.
- Cover for pollution and contamination claims: Is not required.
- Expiry of required period of CDP Professional Indemnity Insurance: 6 years.

Clause 7.2.2 - GUARANTEE FROM THE CONTRACTOR'S PARENT COMPANY

- Guarantee: is required.
  - Parent company's name and registration number: _____.
  - The required form of guarantee is set out in: TBA.

Clause 7.3 - COLLATERAL WARRANTIES

- Details: As set out in the following documents: TBA.

Clause 9.2.1 - ADJUDICATION

- The Adjudicator is: TBA.
- Nominating body - where no Adjudicator is named or where the named Adjudicator is unwilling or unable to act (whenever that is established): The Royal Institution of Chartered Surveyors.

Clause 9.4.1 - ARBITRATION

- Appointor of Arbitrator (and of any replacement): President or a Vice President of the Royal Institution of Chartered Surveyors.

THE CONDITIONS

SECTION 1: DEFINITIONS AND INTERPRETATION

1.12 - APPLICABLE LAW

- Amendments: None.

SECTION 2: CARRYING OUT THE WORKS

SECTION 3: CONTROL OF THE WORKS

SECTION 4: PAYMENT

SECTION 5: VARIATIONS

SECTION 6: INJURY, DAMAGE AND INSURANCE

SECTION 7: ASSIGNMENT AND COLLATERAL WARRANTIES

SECTION 8: TERMINATION

SECTION 9: SETTLEMENT OF DISPUTES

EXECUTION

- The Contract: Will be executed under hand.

A30
TENDERING/ SUBLETTING/ SUPPLY

A30 TENDERING/ SUBLETTING/ SUPPLY

MAIN CONTRACT TENDERING

110 SCOPE
- General: These conditions are supplementary to those stated in the Invitation to Tender and on the form of tender.

145 TENDERING PROCEDURE
- General: In accordance with the principles of: JCT Tendering Practice note 2017.
- Arithmetical errors: Overall price is dominant.

160 EXCLUSIONS
- Inability to tender: Immediately inform if any parts of the work as defined in the tender documents cannot be tendered.
- Relevant parts of the work: Define those parts, stating reasons for the inability to tender.

170 ACCEPTANCE OF TENDER
- Acceptance: No guarantee is offered that any tender will be recommended for acceptance or be accepted, or that reasons for non acceptance will be given.
- Costs: No liability is accepted for any cost incurred in the preparation of any tender.

190 PERIOD OF VALIDITY
- Period: After submission or lodgement, keep tender open for consideration (unless previously withdrawn) for not less than 90 days.
- Date for possession/ commencement: See section A20.

PRICING/ SUBMISSION OF DOCUMENTS

210 PRELIMINARIES IN THE SPECIFICATION
- Measurement rules: Preliminaries/ General Conditions must not be relied on as having been prepared in accordance with RICS NRM.

220 PRICING OF PRELIMINARIES
- Abbreviations: The following have been used:
  - F = Fixed charge item.
  - TR = Time related charge item.

250 PRICED DOCUMENTS
- Alterations: Do not alter or qualify the priced documents without written consent. Tenders containing unauthorised alterations or qualifications may be rejected.
- Measurements: Where not stated, ascertain from the drawings.
- Deemed included: Costs relating to items, which are not priced, will be deemed to have been included elsewhere in the tender.
- Submit: With tender.

300 QUANTITIES IN THE PRICED DOCUMENT
- Quantities: Where included in the priced document, these have been prepared in accordance with SMM7.

310 TENDER

- General: Tenders must include for all work shown or described in the tender documents as a whole or clearly apparent as being necessary for the complete and proper execution of the Works.

360 PRICED ACTIVITY SCHEDULE

- Submit: With tender.

440 CONTRACT SUM ANALYSIS

- Content of the Analysis: A breakdown of the Contract Sum into at least the following categories:
  - as detailed within Document 4 of the tender pack.
- Form: 4 - Mary Arches Car Park Specification 10.10.2018 (002).
- Fully priced copy: Submit with tender.

480 PROGRAMME

- Programme of work: Prepare a summary showing the sequence and timing of the principal parts of the Works and periods for planning and design. Itemize any work which is excluded.
- Submit: With tender.

490 INFORMATION RELEASE SCHEDULE

- Compatibility with programme: At the same time as submitting the proposed programme or summary, confirm that it is compatible with the Information Release Schedule.
- Alternative proposals: If any part of the programme is not compatible with the Schedule submit alternative proposals and reasons for varying the times for release of information.

500 TENDER STAGE METHOD STATEMENTS

- Method statements: Prepare, describing how and when the following is to be carried out:
  - The works.
- Statements: Submit with the tender.

510 ALTERNATIVE METHOD TENDERS

- General: In addition to and at the same time as tendering for the Works as defined in the tender documents, alternative methods of construction/ installation may be submitted for consideration. Alternatives, which would involve significant changes to other work, may not be considered.
- Alternative tenders: Such alternatives will be deemed to be alternative tenders and each must include a complete and precise statement of the effects on cost and programme.
- Safety method statement: Carry out a health and safety risk assessment for each alternative and where appropriate provide a safety method statement suitable for incorporation in the Health and Safety Plan.
- Full technical data: Submit for each alternative together with details of any consequential amendments to the design and/ or construction of other parts of the Works.
- Submit: With tender.

520 DESIGN DOCUMENTS

- Scope: Include the following in the Contractor's Proposals:
  - Design drawings: To include GA, lift car construction and design and manufacture drawings.
  - Technical information: As detailed ti Section 7 (PP 70-112) of document 4 of the tender pack.
- Submit: With tender.

530 SUBSTITUTE PRODUCTS

- Details: If products of different manufacture to those specified are proposed, submit details with the tender giving reasons for each proposed substitution. Substitutions, which have not been notified at tender stage, may not be considered.
- Compliance: Substitutions accepted will be subject to the verification requirements of clause A31/200.

540 QUALITY CONTROL RESOURCES

- Statement: Describe the organisation and resources to control the quality of the Works, including the work of subcontractors.
- QA staff: Identify in the statement the number and type of staff responsible for quality control, with details of their qualifications and duties.
- Submit: With the Tender.

550 HEALTH AND SAFETY INFORMATION

- Content: Describe the organization and resources to safeguard the health and safety of operatives, including those of subcontractors, and of any person whom the Works may affect.
- Include:
  - A copy of the health and safety policy document, including risk assessment procedures.
  - Accident and sickness records for the past five years.
  - Records of previous Health and Safety Executive enforcement action.
  - Records of training and training policy.
  - The number and type of staff responsible for health and safety on this project with details of their qualifications and duties.
- Submit: With the Tender.

570 OUTLINE CONSTRUCTION PHASE HEALTH AND SAFETY PLAN

- Content: Submit the following information within one week of request:
  - Method statements on how risks from hazards identified in the pre-construction information and other hazards identified by the contractor will be addressed.
  - Details of the management structure and responsibilities.
  - Arrangements for issuing health and safety directions.
  - Procedures for informing other contractors and employees of health and safety hazards.
  - Selection procedures for ensuring competency of other contractors, the self-employed and designers.
  - Procedures for communications between the project team, other contractors and site operatives.
  - Arrangements for cooperation and coordination between contractors.
  - Procedures for carrying out risk assessment and for managing and controlling the risk.
  - Emergency procedures including those for fire prevention and escape.
  - Arrangements for ensuring that all accidents, illness and dangerous occurrences are recorded.
  - Arrangements for welfare facilities.
  - Procedures for ensuring that all persons on site have received relevant health and safety information and training.
  - Arrangements for consulting with and taking the views of people on site.
  - Arrangements for preparing site rules and drawing them to the attention of those affected and ensuring their compliance.
  - Monitoring procedures to ensure compliance with site rules, selection and management procedures, health and safety standards and statutory requirements.
  - Review procedures to obtain feedback.

590 SITE WASTE MANAGEMENT PLAN

- Person responsible for developing the Plan: The Contractor.
- Content: Include details of:
  - Principal Contractor for the purposes of the plan
  - Location of the site.
  - Description of the project.
  - Estimated project cost.
  - Types and quantities of waste that will be generated.
  - Resource management options for these wastes including proposals for minimization/ reuse/ recycling.
  - The use of appropriate and licensed waste management contractors.
  - Record keeping procedures.
  - Waste auditing protocols.
- Additional requirements: Mineral oil disposal.
- Submit with tender.

599 FREEDOM OF INFORMATION

- Records: Retain, make available for inspection and supply on request information reasonably required to allow response to requests made under the provisions of the Freedom of Information Act.
- Determination: Submit requests received. Do not supply information to anyone other than the project participants without express written permission.
- Confidentiality: Maintain at all times.

SUBLETTING/ SUPPLY

630 DOMESTIC SUBCONTRACTS

- General: Comply with the Construction Industry Board 'Code of Practice for the selection of subcontractors'.
- List: Provide details of all subcontractors and the work for which they will be responsible.
- Submit: With tender.

A31
PROVISION, CONTENT AND USE OF DOCUMENTS

A31 PROVISION, CONTENT AND USE OF DOCUMENTS

DEFINITIONS AND INTERPRETATIONS

110 DEFINITIONS
- Meaning: Terms, derived terms and synonyms used in the preliminaries/ general conditions and specification are as stated therein or in the appropriate British Standard or British Standard glossary.

120 COMMUNICATION
- Definition: Includes advise, inform, submit, give notice, instruct, agree, confirm, seek or obtain information, consent or instructions, or make arrangements.
- Format: In writing to the person named in clause A10/140 unless specified otherwise.
- Response: Do not proceed until response has been received.

130 PRODUCTS
- Definition: Materials, both manufactured and naturally occurring, and goods, including components, equipment and accessories, intended for the permanent incorporation in the Works.
- Includes: Goods, plant, materials, site materials and things for incorporation into the Works.

135 SITE EQUIPMENT
- Definition: Apparatus, appliances, machinery, vehicles or things of whatsoever nature required in or about the construction for the execution and completion of the Works but not materials or other things intended to form or forming part of the Permanent Works.
- Includes: Construction appliances, vehicles, consumables, tools, temporary works, scaffolding, cabins and other site facilities.
- Excludes: Products and equipment or anything intended to form or forming part of the permanent works.

140 DRAWINGS
- Definitions: To BSRIA BG 6 A design framework for building services. Design activities and drawing definitions.
- CAD data: In accordance with BS 1192.

150 CONTRACTOR'S DESIGN
- Meaning: Design to be carried out or completed by the Contractor and supported by appropriate contractual arrangements, to correspond with specified requirements.

155 SUBMIT PROPOSALS
- Meaning: Submit information in response to specified requirements.

160 TERMS USED IN SPECIFICATION

- Remove: Disconnect, dismantle as necessary and take out the designated products or work and associated accessories, fixings, supports, linings and bedding materials. Dispose of unwanted materials. Excludes taking out and disposing of associated pipework, wiring, ductwork or other services.
- Fix: Receive, unload, handle, store, protect, place and fasten in position and disposal of waste and surplus packaging including all labour, materials and site equipment for that purpose.
- Supply and fix: As above, but including supply of products to be fixed. All products to be supplied and fixed unless stated otherwise.
- Keep for reuse: Do not damage designated products or work. Clean off bedding and jointing materials. Stack neatly, adequately protect and store until required by the Employer/ Purchaser or for use in the Works as instructed.
- Make good: Execute local remedial work to designated work. Make secure, sound and neat. Excludes redecoration and/ or replacement.
- Replace: Supply and fix new products matching those removed. Execute work to match original new state of that removed.
- Repair: Execute remedial work to designated products. Make secure, sound and neat. Excludes redecoration and/ or replacement.
- Refix: Fix removed products.
- Ease: Adjust moving parts of designated products or work to achieve free movement and good fit in open and closed positions.
- Match existing: Provide products and work of the same appearance and features as the original, excluding ageing and weathering. Make joints between existing and new work as inconspicuous as possible.
- System: Equipment, accessories, controls, supports and ancillary items, including installation, necessary for that section of the work to function.

170 MANUFACTURER AND PRODUCT REFERENCE

- Definition: When used in this combination:
  - Manufacturer: the person or legal entity under whose name or trademark the particular product, component or system is marketed
  - Product reference: the proprietary brand name and/ or identifier by which the particular product, component or system is described.
- Currency: References are to the particular product as specified in the manufacturer's technical literature current on the date of the invitation to tender.

200 SUBSTITUTION OF PRODUCTS

- Products: If an alternative product to that specified is proposed, obtain approval before ordering the product.
- Reasons: Submit reasons for the proposed substitution.
- Documentation: Submit relevant information, including:
  - manufacturer and product reference;
  - cost;
  - availability;
  - relevant standards;
  - performance;
  - function;
  - compatibility of accessories;
  - proposed revisions to drawings and specification;
  - compatibility with adjacent work;
  - appearance;
  - copy of warranty/ guarantee.
- Alterations to adjacent work: If needed, advise scope, nature and cost.
- Manufacturers' guarantees: If substitution is accepted, submit before ordering products.

210 CROSS REFERENCES

- Accuracy: Check remainder of the annotation or item description against the terminology used in the section or clause referred to.
- Related terminology: Where a numerical cross-reference is not given the relevant sections and clauses of the specification will apply.
- Relevant clauses: Clauses in the referred to specification section dealing with general matters, ancillary products and execution also apply.
- Discrepancy or ambiguity: Before proceeding, obtain clarification or instructions.

220 REFERENCED DOCUMENTS

- Conflicts: Specification prevails over referenced documents.

230 EQUIVALENT PRODUCTS

- Inadvertent omission: Wherever products are specified by proprietary name the phrase 'or equivalent' is to be deemed included.

240 SUBSTITUTION OF STANDARDS

- Specification to British Standard or European Standard: Substitution may be proposed complying with a grade or category within a national standard of another Member State of the European Community or an international standard recognised in the UK.
- Before ordering: Submit notification of all such substitutions.
- Documentary evidence: Submit for verification when requested as detailed in clause A31/200. Any submitted foreign language documents must be accompanied by certified translations into English.

250 CURRENCY OF DOCUMENTS AND INFORMATION

- Currency: References to published documents are to the editions, including amendments and revisions, current on the date of the Invitation to Tender.

260 SIZES

- General dimensions: Products are specified by their co-ordinating sizes.
- Timber: Cross section dimensions shown on drawings are:
  - Target sizes as defined in BS EN 336 for structural softwood and hardwood sections.
  - Finished sizes for non-structural softwood or hardwood sawn and further processed sections.

DOCUMENTS PROVIDED ON BEHALF OF EMPLOYER

410 ADDITIONAL COPIES OF DRAWINGS/ DOCUMENTS

- Additional copies: Issued free of charge.

440 DIMENSIONS

- Scaled dimensions: Do not rely on.

460 THE SPECIFICATION

- Coordination: All sections must be read in conjunction with Main Contract Preliminaries/ General conditions.

DOCUMENTS PROVIDED BY CONTRACTOR/ SUBCONTRACTORS/ SUPPLIERS

510 DESIGN AND PRODUCTION INFORMATION

- Master programme: Make reasonable allowance for completing design/ production information, submission (including information relevant to the CDM Regulations), comment, inspection, amendment, resubmission and reinspection.
- Design/ production information: Submit two copies, one could be returned with comments and this will be deemed to be a direction, notice or instruction under the Contract. Ensure that any necessary amendments are made without delay and resubmit unless it is confirmed that it is not required.
- Contractor's changes to Employer's Requirements: Support request for substitution or variation with all relevant information.
- Employer's amendments to Employer's Requirements: If considered to involve a variation, which has not already been acknowledged as a variation, notify without delay (maximum period 7 days), and do not proceed until instructed. Claims for extra cost, if made after it has been carried out, may not be allowed.
- Final version of design/ production information: Submit three copies.

600 CONTRACTOR'S DESIGN INFORMATION

- General: Complete the design and detailing of parts of the Works as specified.
- Provide:
  - Production information based on the drawings, specification and other information.
  - Liaison to ensure coordination of the work with related building elements and services.
- Master programme: Make reasonable allowance for completing design/ production information, submission (including information relevant to the CDM Regulations), comment, inspection, amendment, resubmission and reinspection.
- Information required: Complete Contractors design in accordance with Document 4 of the tender pack.
  - Format: PDF.
  - Number of copies: 1.
- Submit: Within one week of request.

620 AS BUILT DRAWINGS AND INFORMATION

- Contractor designed work: Provide drawings/ information:
  - Completion drawings as detailed in Document 4 of the tender pack.
- Submit: At least two weeks before date for completion.

630 TECHNICAL LITERATURE

- Information: Keep on site for reference by all supervisory personnel:
  - Manufacturers' current literature relating to all products to be used in the Works.
  - Relevant British, EN or ISO Standards.

640 MAINTENANCE INSTRUCTIONS AND GUARANTEES

- Components and equipment: Obtain or retain copies, register with manufacturer and hand over on or before completion of the Works.
- Information location: In Building Manual.
- Emergency call out services: Provide telephone numbers for use after completion. Extent of cover: twenty four hours seven days a week.

650 ENERGY RATING CALCULATION

- Calculation documentation:
  - Number of copies: 1.
  - Deliver to: Energy Performance Certificate Assessor and also lodge in the Building Manual.

A32
MANAGEMENT OF THE WORKS

A32 MANAGEMENT OF THE WORKS

GENERALLY

110 SUPERVISION

- General: Accept responsibility for coordination, supervision and administration of the Works, including subcontracts.
- Coordination: Arrange and monitor a programme with each subcontractor, supplier, local authority and statutory undertaker, and obtain and supply information as necessary for coordination of the work.

118 VEHICLE SAFETY REQUIREMENTS

- Vehicle equipment: Ensure that all vehicles have the following:
  - Audible alert to other road users to the planned movement of the vehicle when the vehicle's indicators are in operation.
  - Prominent signage at the rear of the vehicle to warn cyclists of the dangers of passing the vehicle on the inside.
  - Properly adjusted class VI mirror/s or Fresnel lens to eliminate the near side blind spot.
  - Side under run guards.
- Driver training:
  - Drivers must be trained on vulnerable road user safety through an approved course and hold a current valid Certificate of Competence.
  - Drivers must have a valid driving licence and be legally able to drive the vehicle.
- Scheme membership: Submit evidence of registration with and accreditation to the Fleet Operator Recognition Scheme (FORS)
- Level of accreditation: Bronze.
- Submittal date: Before commencement of operations on site.

120 INSURANCE

- Documentary evidence: Before starting work on site submit details, and/ or policies and receipts for the insurances required by the Conditions of Contract.

130 INSURANCE CLAIMS

- Notice: If any event occurs which may give rise to any claim or proceeding in respect of loss or damage to the Works or injury or damage to persons or property arising out of the Works, immediately give notice to the Employer, the person named in clause A10/140 and the Insurers.
- Failure to notify: Indemnify the Employer against any loss, which may be caused by failure to give such notice.

140 CLIMATIC CONDITIONS

- Information: Record accurately and retain:
  - Daily maximum and minimum air temperatures (including overnight).
  - Delays due to adverse weather, including description of the weather, types of work affected and number of hours lost.

150 OWNERSHIP

- Alteration/ clearance work: Materials arising become the property of the Contractor except where otherwise stated. Remove from site as work proceeds.

PROGRAMME/ PROGRESS

210 PROGRAMME

- Master programme: When requested and before starting work on site, submit in an approved form a master programme for the Works, which must include details of:
  - Design, production information and proposals provided by the Contractor/ Subcontractors/ Suppliers, including inspection and checking (see section A31).
  - Planning and mobilization by the Contractor.
  - Earliest and latest start and finish dates for each activity and identification of all critical activities.
  - Running in, adjustment, commissioning and testing of all engineering services and installations
  - Work resulting from instructions issued in regard to the expenditure of provisional sums (see section A54)
  - Work by or on behalf of the Employer and concurrent with the Contract (see section A50). The nature and scope of which, the relationship with preceding and following work and any relevant limitations are suitably defined in the Contract Documents.
- Exclusions: Where and to the extent that the programme implications for work which is not so defined are impossible to assess, the Contractor should exclude it and confirm this when submitting the programme.
- Submit: three copies.

230 SUBMISSION OF PROGRAMME

- Further information: Submission of the programme will not relieve the Contractor of the responsibility to advise of the need for further drawings or details or instructions in accordance with the Contract.

240 COMMENCEMENT OF WORK

- Notice: Before the proposed date for commencement of work on site give minimum notice of one week.

250 MONITORING

- Progress: Record on a copy of the programme kept on site.
- Avoiding delays: If any circumstances arise which may affect the progress of the Works submit proposals or take other action as appropriate to minimize any delay and to recover any lost time.
- Key Performance Indicators:
  - Details: N/A.
  - Performance: Record progress against each KPI.
  - Corrective action: If performance falls below target, submit proposals as soon as possible.

260 SITE MEETINGS

- General: Site meetings will be held to review progress and other matters arising from administration of the Contract.
- Frequency: Every two weeks.
- Location: On site.
- Accommodation: Ensure availability at the time of such meetings.
- Attendees: Attend meetings and inform subcontractors and suppliers when their presence is required.
- Chairperson (who will also take and distribute minutes): Contract Administrator.

265 CONTRACTOR'S PROGRESS REPORT

- General: Submit a progress report at least 3 days before the site meeting.
- Content: Notwithstanding the Contractor's obligations under the Contract the report must include:
  - A progress statement by reference to the master programme for the Works.
  - Details of any matters materially affecting the regular progress of the Works.
  - Subcontractors' and suppliers' progress reports.
  - Any requirements for further drawings or details or instructions to fulfil any obligations under the Conditions of Contract.

270 CONTRACTOR'S SITE MEETINGS

- General: Hold meetings with appropriate subcontractors and suppliers shortly before main site meetings to facilitate accurate reporting of progress.

290 NOTICE OF COMPLETION

- Requirement: Give notice of the anticipated dates of completion of the whole or parts of the Works.
- Associated works: Ensure necessary access, services and facilities are complete.
- Period of notice (minimum): Two weeks.

310 EXTENSIONS OF TIME

- Notice: When a notice of the cause of any delay or likely delay in the progress of the works is given under the contract, written notice must also be given of all other causes which apply concurrently.
- Details: As soon as possible submit:
  - Relevant particulars of the expected effects, if appropriate, related to the concurrent causes.
  - An estimate of the extent, if any, of the expected delay in the completion of the Works beyond the date for completion.
  - All other relevant information required.

CONTROL OF COST

410 CASH FLOW FORECAST

- Submission: Before starting work on site, submit a forecast showing the gross valuation of the Works at the date of each Interim Certificate throughout the Contract period. Base on the programme for the Works.

420 REMOVAL/ REPLACEMENT OF EXISTING WORK

- Extent and location: Agree before commencement.
- Execution: Carry out in ways that minimize the extent of work.

430 PROPOSED INSTRUCTIONS

- Estimates: If a proposed instruction requests an estimate of cost, submit without delay and in any case within seven days.
- Include:
  - A detailed breakdown of the cost, including any allowance for direct loss and expense.
  - Details of any additional resources required.
  - Details of any adjustments to be made to the programme for the Works.
  - Any other information as is reasonably necessary to fully assess the implications of issuing such an instruction.
- Inability to comply: Inform immediately if it is not possible to comply with any of the above requirements.

450 DAYWORK VOUCHERS

- Before commencing work: Give reasonable notice to person countersigning daywork vouchers.
- Content: Before delivery each voucher must be:
  - Referenced to the instruction under which the work is authorised.
  - Signed by the Contractor's person in charge as evidence that the operatives' names, the time daily spent by each and the equipment and products employed are correct.
- Submit: By the end of the week in which the work has been executed.

470 PRODUCTS NOT INCORPORATED INTO THE WORKS

- Ownership: At the time of each valuation, supply details of those products not incorporated into the Works which are subject to any reservation of title inconsistent with passing of property as required by the Conditions of Contract, together with their respective values.
- Evidence: When requested, provide evidence of freedom of reservation of title.

475 LISTED PRODUCTS STORED OFF SITE

- Evidence of Title: Submit reasonable proof that the property in 'listed items' is vested in the Contractor.
- Include for products purchased from a supplier:
  - A copy of the contract of sale and a written statement from the supplier that any conditions of the sale relating to the passing of property have been fulfilled and the products are not subject to any encumbrance or charge.
- Include for products purchased from a supplier by a subcontractor or manufactured or assembled by any subcontractor:
  - Copies of the subcontract with the subcontractor and a written statement from the subcontractor that any conditions relating to the passing of property have been fulfilled.

480 LABOUR AND EQUIPMENT RETURNS

- Records: Provide for verification at the beginning of each week in respect of each of the previous seven days.
- Records must show:
  - The number and description of craftsmen, labourers and other persons directly or indirectly employed on or in connection with the Works or Services, including those employed by subcontractors.
  - The number, type and capacity of all mechanical, electrical and power-operated equipment employed in connection with the Works or Services

A33
QUALITY STANDARDS/ CONTROL

A33 QUALITY STANDARDS/ CONTROL

STANDARDS OF PRODUCTS AND EXECUTIONS

110 INCOMPLETE DOCUMENTATION

- General: Where and to the extent that products or work are not fully documented, they are to be:
  - Of a kind and standard appropriate to the nature and character of that part of the Works where they will be used.
  - Suitable for the purposes stated or reasonably to be inferred from the project documents.

  Contract documents: Omissions or errors in description and/ or quantity shall not vitiate the Contract nor release the Contractor from any obligations or liabilities under the Contract.

120 WORKMANSHIP SKILLS

- Operatives: Appropriately skilled and experienced for the type and quality of work.
- Registration: With Construction Skills Certification Scheme.
- Evidence: Operatives must produce evidence of skills/ qualifications when requested.

130 QUALITY OF PRODUCTS

- Generally: New. (Proposals for recycled products may be considered).
- Supply of each product: From the same source or manufacturer.
- Whole quantity of each product required to complete the Works: Consistent kind, size, quality and overall appearance.
- Tolerances: Where critical, measure a sufficient quantity to determine compliance.
- Deterioration: Prevent. Order in suitable quantities to a programme and use in appropriate sequence.

135 QUALITY OF EXECUTION

- Generally: Fix, apply, install or lay products securely, accurately, plumb, neatly and in alignment.
- Colour batching: Do not use different colour batches where they can be seen together.
- Dimensions: Check on-site dimensions.
- Finished work: Not defective, e.g. not damaged, disfigured, dirty, faulty, or out of tolerance.
- Location and fixing of products: Adjust joints open to view so they are even and regular.

140 COMPLIANCE

- Compliance with proprietary specifications: Retain on site evidence that the proprietary product specified has been supplied.
- Compliance with performance specifications: Submit evidence of compliance, including test reports indicating:
  - Properties tested.
  - Pass/ fail criteria.
  - Test methods and procedures.
  - Test results.
  - Identity of testing agency.
  - Test dates and times.
  - Identities of witnesses.

  Analysis of results.

150 INSPECTIONS

- Products and executions: Inspection or any other action must not be taken as approval unless confirmed in writing referring to:
  - Date of inspection.
  - Part of the work inspected.
  - Respects or characteristics which are approved.
  - Extent and purpose of the approval.
  - Any associated conditions.

160 RELATED WORK

- Details: Provide all trades with necessary details of related types of work. Before starting each new type or section of work ensure previous related work is:
  - Appropriately complete.
  - In accordance with the project documents.
  - To a suitable standard.
  - In a suitable condition to receive the new work.
- Preparatory work: Ensure all necessary preparatory work has been carried out.

170 MANUFACTURER'S RECOMMENDATIONS/ INSTRUCTIONS

- General: Comply with manufacturer's printed recommendations and instructions current on the date of the Invitation to tender.
- Changes to recommendations or instructions: Submit details.
- Ancillary products and accessories: Use those supplied or recommended by main product manufacturer.
- Agrément certified products: Comply with limitations, recommendations and requirements of relevant valid certificates.

180 WATER FOR THE WORKS

- Mains supply: Clean and uncontaminated.
- Other: Do not use until:
  - Evidence of suitability is provided.
  - Tested to BS EN 1008 if instructed.

SAMPLES/ APPROVALS

210 SAMPLES

- Products or executions: Comply with all other specification requirements and in respect of the stated or implied characteristics either:
  - To an express approval.
  - To match a sample expressly approved as a standard for the purpose.

220 APPROVAL OF PRODUCTS

- Submissions, samples, inspections and tests: Undertake or arrange to suit the Works programme.
- Approval: Relates to a sample of the product and not to the product as used in the Works. Do not confirm orders or use the product until approval of the sample has been obtained.
- Complying sample: Retain in good, clean condition on site. Remove when no longer required.

230 APPROVAL OF EXECUTION

- Submissions, samples, inspections and tests: Undertake or arrange to suit the Works programme.
- Approval: Relates to the stated characteristics of the sample. (If approval of the finished work as a whole is required this is specified separately). Do not conceal, or proceed with affected work until compliance with requirements is confirmed.
- Complying sample: Retain in good, clean condition on site. Remove when no longer required.

ACCURACY/ SETTING OUT GENERALLY

320 SETTING OUT

- General: Submit details of methods and equipment to be used in setting out the Works.
- Levels and dimensions: Check and record the results on a copy of drawings. Notify discrepancies and obtain instructions before proceeding.
- Inform: When complete and before commencing construction.

330 APPEARANCE AND FIT

- Tolerances and dimensions: If likely to be critical to execution or difficult to achieve, as early as possible either:
  - Submit proposals; or
  - Arrange for inspection of appearance of relevant aspects of partially finished work.
- General tolerances (maximum): To BS 5606, tables 1 and 2.

410 SERVICES REGULATIONS

- New or existing services: Comply with the Byelaws or Regulations of the relevant Statutory Authority.

435 ELECTRICAL INSTALLATION CERTIFICATE

- Submit: When relevant electrical work is completed.
- Original certificate: To be lodged in the Building Manual.

445 SERVICE RUNS

- General: Provide adequate space and support for services, including unobstructed routes and fixings.
- Ducts, chases and holes: Form during construction rather than cut.
- Coordination with other works: Submit details of locations, types/ methods of fixing of services to fabric and identification of runs and fittings.

450 MECHANICAL AND ELECTRICAL SERVICES

- Final tests and commissioning: Carry out so that services are in full working order at completion of the Works.
- Building Regulations notice: Copy to be lodged in the Building Manual.

SUPERVISION/ INSPECTION/ DEFECTIVE WORK

510 SUPERVISION

- General: In addition to the constant management and supervision of the Works provided by the Contractor's person in charge, all significant types of work must be under the close control of competent trade supervisors to ensure maintenance of satisfactory quality and progress.
- Evidence: Submit, including details of the person proposed, their relevant skills training and knowledge; practical experience; qualifications; membership or registration with professional bodies; employment history, work related assessments and management structure.
- Submittal date: Within one week of request.
- Replacement: Give maximum possible notice before changing person in charge or site agent.

520 COORDINATION OF ENGINEERING SERVICES

- Suitability: Site organisation staff must include one or more persons with appropriate knowledge and experience of mechanical and electrical engineering services to ensure compatibility between engineering and the Works generally.
- Evidence: Submit when requested CVs or other documentary evidence relating to the staff concerned.

530 OVERTIME WORKING

- Notice: Prior to overtime being worked, submit details of times, types and locations of work to be done.
  - Minimum period of notice: One week.
- Concealed work: If executed during overtime for which notice has not been given, it may be required to be opened up for inspection and reinstated at the Contractor's expense.

540 DEFECTS IN EXISTING WORK

- Undocumented defects: When discovered, immediately give notice. Do not proceed with affected related work until response has been received.
- Documented remedial work: Do not execute work which may:
  - Hinder access to defective products or work; or
  - Be rendered abortive by remedial work.

550 ACCESS FOR INSPECTION

- Removal: Before removing scaffolding or other facilities for access, give notice of not less than three days.

560 TESTS AND INSPECTIONS

- Timing: Agree and record dates and times of tests and inspections to enable all affected parties to be represented.
- Confirmation: One working day prior to each such test or inspection. If sample or test is not ready, agree a new date and time.
- Records: Submit a copy of test certificates and retain copies on site.

610 PROPOSALS FOR RECTIFICATION OF DEFECTIVE PRODUCTS/ EXECUTIONS

- Proposals: Immediately any work or product is known, or appears, to be not in accordance with the Contract, submit proposals for opening up, inspection, testing, making good, adjustment of the Contract Sum, or removal and re-execution.
- Acceptability: Such proposals may be unacceptable and contrary instructions may be issued.

620 MEASURES TO ESTABLISH ACCEPTABILITY

- General: Wherever inspection or testing shows that the work, materials or goods are not in accordance with the contract and measures (e.g. testing, opening up, experimental making good) are taken to help in establishing whether or not the work is acceptable, such measures:
  - Will be at the expense of the Contractor.
  - Will not be considered as grounds for revision of the completion date.

630 QUALITY CONTROL

- Procedures: Establish and maintain to ensure that the Works, including the work of subcontractors, comply with specified requirements.
- Records: Maintain full records, keep copies on site for inspection, and submit copies on request.
- Content of records:
  - Identification of the element, item, batch or lot including location in the Works.
  - Nature and dates of inspections, tests and approvals.
  - Nature and extent of nonconforming work found.

  Details of corrective action.

WORK AT OR AFTER COMPLETION

710 WORK BEFORE COMPLETION

- General: Make good all damage consequent upon the Works.
  Temporary markings, coverings and protective wrappings: Remove unless otherwise instructed.
- Cleaning: Clean the Works thoroughly inside and out, including all accessible ducts and voids. Remove all splashes, deposits, efflorescence, rubbish and surplus materials.
- Cleaning materials and methods: As recommended by manufacturers of products being cleaned, and must not damage or disfigure other materials or construction.
- COSHH dated data sheets: Obtain for all materials used for cleaning and ensure they are used only as recommended by their manufacturers.
- Minor faults: Touch up in newly painted work, carefully matching colour and brushing out edges. Repaint badly marked areas back to suitable breaks or junctions.
- Moving parts of new work: Adjust, ease and lubricate as necessary to ensure easy and efficient operation, including doors, windows, drawers, ironmongery, appliances, valves and controls.

720 SECURITY AT COMPLETION

- General: Leave the Works secure with, where appropriate, all accesses closed and locked.
- Keys: Account for and adequately label all keys and hand over together with an itemized schedule, retaining duplicate schedule signed as a receipt.

730 MAKING GOOD DEFECTS

- Remedial work: Arrange access with Contract Administrator.
- Rectification: Give reasonable notice for access to the various parts of the Works.
- Completion: Notify when remedial works have been completed.

A34
SECURITY/ SAFETY/ PROTECTION

A34 SECURITY/ SAFETY/ PROTECTION

SECURITY, HEALTH AND SAFETY

110 PRECONSTRUCTION INFORMATION

- Location: Integral with the project Preliminaries, including but not restricted to the following sections:
  - Description of project: Sections A10 and A11.
  - Client's consideration and management requirements: Sections A12, A13 and A36.
  - Environmental restrictions and on-site risks: Section A12, A35 and A34.
  - Significant design and construction hazards: Section A34.

  The Health and Safety File: Section A37.

120 EXECUTION HAZARDS

- Common hazards: Not listed. Control by good management and site practice.
- Significant hazards: The design of the project includes the following:
  - Hazard: Working at height, confined spaces, asbestos.
  - Precautions assumed: submit proposals.
  - Specification reference: N/A.
  - Drawing reference: N/A.

140 CONSTRUCTION PHASE HEALTH AND SAFETY PLAN

- Submission: Present to the Employer/ Client no later than 2 weeks prior to commencement.
- Confirmation: Do not start construction work until the Employer has confirmed in writing that the Construction Phase Health and Safety Plan includes the procedures and arrangements required by the CDM Regulations.
- Content: Develop the plan from and draw on the Outline Construction Phase Health and Safety Plan, clause A30/570, and the Pre-tender Health and Safety Plan/ Preconstruction information.

150 SECURITY

- Protection: Safeguard the site, the Works, products, materials, and any existing buildings affected by the Works from damage and theft.
- Access: Take all reasonable precautions to prevent unauthorized access to the site, the Works and adjoining property.
- Special requirements: Hoarding to be erected to the entrance of the lift shaft at each and every level.

160 STABILITY

- Responsibility: Maintain the stability and structural integrity of the Works and adjacent structures during the Contract.
- Design loads: Obtain details, support as necessary and prevent overloading.

170 OCCUPIED PREMISES

- Extent: Existing buildings will be occupied and/ or used during the Contract as follows: Publ ic car park, opening hours available on request.
- Works: Carry out without undue inconvenience and nuisance and without danger to occupants and users.
- Overtime: If compliance with this clause requires certain operations to be carried out during overtime, and such overtime is not required for any other reason, the extra cost will be allowed, provided that such overtime is authorized in advance.

210 SAFETY PROVISIONS FOR SITE VISITS

- Safety: Submit details in advance of safety provisions and procedures (including those relating to materials, which may be deleterious), which will require their compliance when visiting the site.
- Protective clothing and/ or equipment: Provide and maintain on site for visitors to the site.

PROTECT AGAINST THE FOLLOWING

310 EXPLOSIVES

- Use: Not permitted

330 NOISE AND VIBRATION

- Standard: Comply with the recommendations of BS 5228-1, in particular clause 7.3, to minimize noise levels during the execution of the Works.
- Noise levels from the Works: Maximum level: N/A dB(A) when measured from N/A.
- Equipment: Fit compressors, percussion tools and vehicles with effective silencers of a type recommended by manufacturers of the compressors, tools or vehicles.
- Restrictions: Do not use:
  - Percussion tools and other noisy appliances without consent during the hours of normal working hours.
  - Radios or other audio equipment or permit employees to use in ways or at times that may cause nuisance.

340 POLLUTION

- Prevention: Protect the site, the Works and the general environment including the atmosphere, land, streams and waterways against pollution.
- Contamination: If pollution occurs inform immediately, including to the appropriate Authorities and provide relevant information.

360 NUISANCE

- Duty: Prevent nuisance from smoke, dust, rubbish, vermin and other causes.
- Surface water: Prevent hazardous build-up on site, in excavations and to surrounding areas and roads.

370 ASBESTOS CONTAINING MATERIALS

- Duty: Report immediately any suspected materials discovered during execution of the Works.
  - Do not disturb.
  - Agree methods for safe removal or encapsulation.

371 DANGEROUS OR HAZARDOUS SUBSTANCES

- Duty: Report immediately suspected materials discovered during execution of the Works.
  - Do not disturb.

  Agree methods for safe removal or remediation.

380 FIRE PREVENTION

- Duty: Prevent personal injury or death, and damage to the Works or other property from fire.
- Standard: Comply with Joint Code of Practice 'Fire Prevention on Construction Sites', published by Construction Industry Publications and The Fire Protection Association (The 'Joint Fire Code').

390 SMOKING ON SITE

- Smoking on site: Not permitted.

400 BURNING ON SITE

- Burning on site: Not permitted.

410 MOISTURE

- Wetness or dampness: Prevent, where this may cause damage to the Works.
- Drying out: Control humidity and the application of heat to prevent:
  - Blistering and failure of adhesion.
  - Damage due to trapped moisture.

  Excessive movement.

420 INFECTED TIMBER/ CONTAMINATED MATERIALS

- Removal: Where instructed to remove material affected by fungal/ insect attack from the building, minimize the risk of infecting other parts of the building.
- Testing: carry out and keep records of appropriate tests to demonstrate that hazards presented by concentrations of airborne particles, toxins and other micro organisms are within acceptable levels.

430 WASTE

- Includes: Rubbish, debris, spoil, surplus material, containers and packaging.
- General: Minimize production. Prevent accumulations. Keep the site and Works clean and tidy.
- Handling: Collect and store in suitable containers. Remove frequently and dispose off site in a safe and competent manner:
  - Non-hazardous material: In a manner approved by the Waste Regulation Authority.
  - Hazardous material: As directed by the Waste Regulation Authority and in accordance with relevant regulations.
- Recyclable material: Sort and dispose at a Materials Recycling Facility approved by the Waste Regulation Authority.
- Voids and cavities in the construction: Remove rubbish, dirt and residues before closing in.
- Waste transfer documentation: Retain on site.

450 LASER EQUIPMENT

- Construction laser equipment: Install, use and store in accordance with BS EN 60825-1 and the manufacturer's instructions.
- Class 1 or Class 2 laser equipment: Ensure laser beam is not set at eye level and is terminated at the end of its useful path.
- Class 3A and Class 3B laser equipment: Do not use without approval and subject to submission of a method statement on its safe use.

460 POWDER ACTUATED FIXING SYSTEMS

- Use: Not permitted.

PROTECT THE FOLLOWING

510 EXISTING SERVICES

- Confirmation: Notify all service authorities, statutory undertakers and/ or adjacent owners of proposed works not less than one week before commencing site operations.
- Identification: Before starting work, check and mark positions of utilities/ services. Where positions are not shown on drawings obtain relevant details from service authorities, statutory undertakers or other owners.
- Work adjacent to services:
  - Comply with service authority's/ statutory undertaker's recommendations.
  - Adequately protect, and prevent damage to services: Do not interfere with their operation without consent of service authorities/ statutory undertakers or other owners.
- Identifying services:
  - Below ground: Use signboards, giving type and depth;
  - Overhead: Use headroom markers.
- Damage to services: If any results from execution of the Works:
  - Immediately give notice and notify appropriate service authority/ statutory undertaker.
  - Make arrangements for the work to be made good without delay to the satisfaction of service authority/ statutory undertaker or other owner as appropriate.
  - Any measures taken to deal with an emergency will not affect the extent of the Contractor's liability.
- Marker tapes or protective covers: Replace, if disturbed during site operations, to service authority's/ statutory undertakers recommendations.

520 ROADS AND FOOTPATHS

- Duty: Maintain roads and footpaths within and adjacent to the site and keep clear of mud and debris.
- Damage caused by site traffic or otherwise consequent upon the Works: Make good to the satisfaction of the Employer, Local Authority or other owner.

540 RETAINED TREES/ SHRUBS/ GRASSED AREAS

- Protection: Preserve and prevent damage, except those not required.
- Replacement: Mature trees and shrubs if uprooted, destroyed, or damaged beyond reasonable chance of survival in their original shape, as a consequence of the Contractor's negligence, must be replaced with those of a similar type and age at the Contractor's expense.

550 RETAINED TREES

- Protected area: Unless agreed otherwise do not:
  - Dump spoil or rubbish, excavate or disturb topsoil, park vehicles or plant, store materials or place temporary accommodation within an area which is the larger of the branch spread of the tree or an area with a radius of half the tree's height, measured from the trunk.
  - Sever roots exceeding 25 mm in diameter. If unintentionally severed give notice and seek advice.
  - Change level of ground within an area 3 m beyond branch spread.

560 EXISTING FEATURES

- Protection: Prevent damage to existing buildings, fences, gates, walls, roads, paved areas and other site features, which are to remain in position during execution of the Works.
- Special requirements: N/A.

570 EXISTING WORK

- Protection: Prevent damage to existing work, structures or other property during the course of the work.
- Removal: Minimum amount necessary.
- Replacement work: To match existing.

580 BUILDING INTERIORS

- Protection: Prevent damage from exposure to the environment, including weather, flora, fauna, and other causes of material degradation during the course of the work.

620 ADJOINING PROPERTY

- Agreement: Access to and/ or use of the following has been agreed with adjacent owners:
  - None.
- Permission: Obtain as necessary from other owners if requiring to erect scaffolding on or otherwise use adjoining property.

625 ADJOINING PROPERTY RESTRICTIONS

- Precautions:
  - Prevent trespass of workpeople and take precautions to prevent damage to adjoining property.
  - Pay all charges.
  - Remove and make good on completion or when directed.
- Damage: Bear cost of repairing damage arising from execution of the Works.

630 EXISTING STRUCTURES

- Duty: Check proposed methods of work for effects on adjacent structures inside and outside the site boundary.
- Supports: During execution of the Works:
  - Provide and maintain all incidental shoring, strutting, needling and other supports as may be necessary to preserve stability of existing structures on the site or adjoining, that may be endangered or affected by the Works.
  - Do not remove until new work is strong enough to support existing structure.
  - Prevent overstressing of completed work when removing supports.
- Adjacent structures: Monitor and immediately report excessive movement.
- Standard: Comply with BS 5975 and BS EN 12812.

640 MATERIALS FOR RECYCLING/ REUSE

- Duty: Sort and prevent damage to stated products or materials, clean off bedding and jointing materials and other contaminants.
- Storage: Stack neatly and protect until required by the Employer or for use in the Works as instructed.

A35
SPECIFIC LIMITATIONS ON METHOD/ SEQUENCE/ TIMING

A35 SPECIFIC LIMITATIONS ON METHOD/ SEQUENCE/ TIMING

110 SCOPE

- General: The limitations described in this section are supplementary to limitations described or implicit in information given in other sections or on the drawings.

120 DESIGN CONSTRAINTS

- Details: To specification detailed in Document 4 of the tender pack.

170 WORKING HOURS

- Specific limitations: Normal car park operating hours unless previously arranged.

A36
FACILITIES/ TEMPORARY WORK/ SERVICES

A36 FACILITIES/ TEMPORARY WORK/ SERVICES

GENERALLY

110 SPOIL HEAPS, TEMPORARY WORKS AND SERVICES
- Location: Give notice and details of intended siting.
- Maintenance: Alter, adapt and move as necessary. Remove when no longer required and make good.

ACCOMMODATION

230 TEMPORARY ACCOMMODATION
- Proposals for temporary accommodation and storage for the Works: Submit two weeks prior to starting on site.
- Details to be included: Type of accommodation and storage, its siting and the programme for site installation and removal.

TEMPORARY WORKS

310 ROADS
- Permanent roads, hard standings and footpaths on the site: The following may be used, subject to clause A34/520:
  - Details: Provision of an area of the external parking space to be provided for use by agreement with ECC.
  - Restrictions on use: All storage and site parking to be within this area.
  - Protective or remedial measures: HERAS fencing to perimeter.

320 TEMPORARY WORKS
- Employer's specific requirements: Provide: Welfare/groundhog unit.

340 NAME BOARDS/ ADVERTISEMENTS
- Name boards/ advertisements: Not permitted.

SERVICES AND FACILITIES

410 LIGHTING
- Finishing work and inspection: Provide temporary lighting, the intensity and direction of which closely resembles that delivered by the permanent installation.

440 MOBILE TELEPHONES
- Direct communication: As soon as practicable after the start on site:
  - provide the Contractor's person in charge with a mobile telephone.
  pay all charges reasonably incurred.

530 BENEFICIAL USE OF INSTALLED SYSTEMS
- Permanent systems: Unless specific permission is given by the Employer and installer, do not use for any purpose other than running in, testing and commissioning.
- Other uses: If permission is given for any other use of a system before the Works are accepted as complete, enter into a separate written agreement recording details of the terms and conditions of use.

570 PERSONAL PROTECTIVE EQUIPMENT

- General: Provide for the sole use of those acting on behalf of the Employer/ Client, in sizes to be specified:
  - Safety helmets to BS EN 397, neither damaged nor time expired. Number required: 2.
  - High visibility waistcoats to BS EN ISO 20471 Class 2. Number required: 2.
  - Safety boots with steel insole and toecap to BS EN ISO 20345. Pairs required: 0.
  - Disposable respirators to BS EN 149.FFP1S.
  - Eye protection to BS EN 166.
  - Ear protection - muffs to BS EN 352-1, plugs to BS EN 352-2

  Hand protection - to BS EN 388, 407, 420 or 511 as appropriate.

A37
OPERATION/ MAINTENANCE OF THE FINISHED WORKS

A37 OPERATION/ MAINTENANCE OF THE FINISHED WORKS

GENERALLY

110 THE BUILDING MANUAL

- Purpose: The Manual is to be a comprehensive information source and guide for owners and users of the completed Works. It should provide an overview of the main design principles and describe key components and systems to enable proper understanding, efficient and safe operation and maintenance.
- Scope:
  - Part 1: General: Content as clause 120.
  - Part 2: Fabric: Content as clause 130.
  - Part 3: Services: Content as clause 140.
  - Part 4: The Health and Safety File: Content as clause 150.
  - Part 5: Building User Guide: Content as clause 151.
- Responsibility: The Building Manual is to be produced by TBC and must be complete no later than Practical completion.
- Information provided by others: Details: TBC.
- Compilation:
  - Prepare all information for Contractor designed or performance specified work including as-built drawings.
  - Obtain or prepare all other information to be included in the Manual.
- Reviewing the Manual: Submit a complete draft. Amend in the light of any comments and resubmit. Do not proceed with production of the final copies until authorized.
- Final copies of the Manual:
  - Number of copies: 2.
  - Format: PDF and paper versions.
  - Latest date for submission: 2 weeks before the date for completion stated in the contract.
- As-built drawings and schedules:
  - Number of copies: 2.
  - Format: PDF and paper versions.

115 THE HEALTH AND SAFETY FILE

- Responsibility: the contractor.
- Content: Obtain and provide the following information: All drawings, manuals and test evidence as required under Document 4 of the tender pack.
- Format: PDF and paper versions
- Delivery to: Contract administrator By (date): TBC.

120 CONTENT OF THE BUILDING MANUAL PART 1: GENERAL

- Content: Obtain and Provide the following, including all relevant details not included in other parts of the manual:
- Index: list the constituent parts of the manual, together with their location in the document.
- The Works:
  - Description of the buildings and facilities.
  - Ownership and tenancy, where relevant
  - Health and Safety information – other than that specifically required by the Construction (Design and Management) Regulations.
- The Contract:
  - Names and addresses and contact details of all significant consultants, contractors, subcontractors, suppliers and manufacturers.
  - Overall design criteria.
  - Environmental performance requirements
  - Relevant authorities, consents and approvals.
  - Third party certification, such as those made by _competent_ persons in accordance with the Building Regulations
- Operational requirements and constraints of a general nature:
  - Maintenance contracts and contractors.
  - Fire safety strategy for the buildings and the site. Include drawings showing emergency escape and fire appliance routes, fire resisting doors location of emergency alarm and fire fighting systems, services, shut off valves switches, etc.
  - Emergency procedures and contact details in case of emergency.
  - Other specific requirements: as detailed in Document 4 of the tender pack.
- Description and location of other key documents.
- Timescale for completion: TBC.

140 CONTENT OF THE BUILDING MANUAL PART 3: BUILDING SERVICES

- Content: Obtain and Provide the following, including all relevant details not included in other parts of the manual:
- Detailed design criteria and description of the systems, including:
  - Services capacity, loadings and restrictions
  - Services instructions.
  - Services log sheets.
  - Manufacturers' instruction manuals and leaflets index.
  - Fixtures, fittings and component schedule index.
- Detailed description of methods and materials used.
- As-built drawings for each system recording the construction, together with an index, including:
  - Diagrammatic drawings indicating principal items of plant, equipment and fittings
  - Record drawings showing overall installation
  - Schedules of plant, equipment, valves, etc. describing location, design performance and unique identification cross referenced to the record drawings.
  - Identification of services – a legend for colour coded services.
- Product details, including for each item of plant and equipment:
  - Name, address and contact details of the manufacturer.
  - Catalogue number or reference
  - Manufacturer's technical literature, including detailed operating and maintenance instructions.
  - Information and guidance concerning dismantling, repair, renovation or decommissioning.
- Operation: A description of the operation of each system, including:
  - Starting up, operation and shutting down
  - Control sequences
  - Procedures for seasonal changeover
  - Procedures for diagnostics, troubleshooting and faultfinding.
- Guarantees, warranties and maintenance agreements – obtain from manufacturers, suppliers and subcontractors.
- Commissioning records and test certificates list for each item of plant, equipment, valves, etc. used in the installations – including:
  - Electrical circuit tests.
  - Corrosion tests.
  - Type tests.
  - Work tests.
  - Start and commissioning tests.
- Equipment settings: Schedules of fixed and variable equipment settings established during commissioning.
- Preventative maintenance: Recommendations for frequency and procedures to be adopted to ensure efficient operation of the systems
- Lubrication: Schedules of all lubricated items
- Consumables: A list of all consumable items and their source.
- Spares: A list of recommended spares to be kept in stock, being those items subject to wear and tear or deterioration and which may involve an extended delivery time when replacements are required.
- Emergency procedures for all systems, significant items of plant and equipment.
- Annual maintenance summary chart.
- Other specific requirements: As detailed in Document 4 of the tender pack.
- Timescale for completion: TBC

150 CONTENT OF THE BUILDING MANUAL PART 4: THE HEALTH AND SAFETY FILE

- Content: obtain and provide the following, including all relevant details not included in other parts of the manual, including:
  - residual hazards and how they have been dealt with
  - hazardous materials used
  - information regarding the removal or dismantling of installed plant and equipment
  - health and safety information about equipment provided for cleaning or maintaining the structure;
  - the nature, location and markings of significant services,
  - information and as-built drawings of the structure, its plant and equipment
  - TBC.
- Information prepared by others: Details: None.
- Timescale for completion: TBC.
- Submit to: CA.

160 PRESENTATION OF BUILDING MANUAL

- Format: A4 size, plastics covered, loose leaf, four ring binders with hard covers, each indexed, divided and appropriately cover titled.
- Selected drawings needed to illustrate or locate items mentioned in the Manual: Where larger than A4, to be folded and accommodated in the binders so that they may be unfolded without being detached from the rings.
- As-built drawings: The main sets may form annexes to the Manual.

220 TRAINING

- Objective: Before Completion, explain and demonstrate to designated maintenance staff the purpose, function and operation of the installations including items and procedures listed in the Building Manual.
- Level of training Emergency Use.
- Time allowance: Include a minimum of two days.

250 TOOLS

- General: Provide tools and portable indicating instruments for the operation and maintenance of all services plant and equipment (except any installed under Named Subcontracts) together with suitable means of identifying, storing and securing.
- Quantity: Two complete sets.
- Time of submission: At completion.

A40
CONTRACTOR'S GENERAL COST ITEMS: MANAGEMENT AND STAFF

A40 CONTRACTOR'S GENERAL COST ITEMS: MANAGEMENT AND STAFF

110 MANAGEMENT AND STAFF

- Cost significant items: as detailed in Document 4 of the tender pack.

A41
CONTRACTOR'S GENERAL COST ITEMS: SITE ACCOMMODATION

A41 CONTRACTOR'S GENERAL COST ITEMS: SITE ACCOMMODATION

110 SITE ACCOMMODATION

- Details: Site accommodation required or made/ not made available by the Employer: See section A36.
- Cost significant items: Provision of welfare/groundhog facility and storage compound.

A42
CONTRACTOR'S GENERAL COST ITEMS: SERVICES AND FACILITIES

A42 CONTRACTOR'S GENERAL COST ITEMS: SERVICES AND FACILITIES

110 SERVICES AND FACILITIES

- Details: Services or facilities required or made/ not made available by the Employer: See section A36.
- Cost significant items: TBC.

A43
CONTRACTOR'S GENERAL COST ITEMS: MECHANICAL PLANT

A43 CONTRACTOR'S GENERAL COST ITEMS: MECHANICAL PLANT

110 MECHANICAL PLANT

- Cost significant items: As detailed in Sections 5 and 6 of Document 4 of the tender pack.

A44
CONTRACTOR'S GENERAL COST ITEMS: TEMPORARY WORKS

A44 CONTRACTOR'S GENERAL COST ITEMS: TEMPORARY WORKS

110 TEMPORARY WORKS

- Details: Temporary works required or made/ not made available by the Employer: See section A36.
- Cost significant items: Provision of hoarding to all lift entrances.

A50
WORK/ PRODUCTS BY/ ON BEHALF OF THE EMPLOYER

A50 WORK/ PRODUCTS BY/ ON BEHALF OF THE EMPLOYER

A53
WORK BY STATUTORY AUTHORITIES/ UNDERTAKERS

A53 WORK BY STATUTORY AUTHORITIES/ UNDERTAKERS

A54
PROVISIONAL WORK/ ITEMS

A54 PROVISIONAL WORK/ ITEMS

210 PROVISIONAL SUMS FOR UNDEFINED WORK, FOR USE WITH SMM7/ NRM2

- Item: Optional; provision of threshold drain at each access in lieu of sloped threshold.
- Description of work: Cut in to slab at each threshold access and remove conrete, install threshold drain to each level and make connections to existing downpipe adjacent to stair core at each lift access.
- Provisional Sums: Include all relevant works and making good.
- Allow for general attendance.

310 WORK WHERE COMPLIANCE WITH SMM7/ NRM2 IS NOT REQUIRED

- Item: Facilitate access for full Asbestos Refurbishment and Demolition Survey to lift and shaft area.
- Description of work: Provide safe access to Asbestos surveyor to the lift shaft area for the purpose of undertaking a survey prior to commencemement of the works.
- Provisional Sums: Include For time allowed.
- Allow for general attendance.

550 PROVISIONAL SUMS NOT SPECIFICALLY FOR WORK – EXTRA COST OF AUTHORISED OVERTIME

- Provisional sum: Include: Overtime rate per hour.
- Basis for calculating such extra cost: Rates of basic pay, allowances and additional payments, for use with the Working Rule Agreement for the Construction Industry, published by the Construction Industry Joint Council, current when the work is carried out, together with additional payments for continuous extra skill or responsibility or intermittent responsibility, as appropriate.
- Percentage addition: Add to cover the cost of the non-productive element only of overtime, incidental costs, overheads and profit,
  - At time and one half: _____%.
  - At double time: _____%.

590 CONTINGENCIES

- Costed general contingency item, allowance of £20,000 (excluding VAT) as included in the Tender Summary page.
- Provisional sum: Include: for additional threshold drainage channels and connections to existing drains as per specification.

A55
DAYWORKS

A55 DAYWORKS

A56
ADVANCE PROCUREMENT

A56 ADVANCE PROCUREMENT

3. Schedule of Works

1	General	Nr	Units	£
1A	The following schedule of works is not intended to be an exhaustive description of the works but a reasonable and practical guide to the extent and nature of the works under the contract. The schedule of works should be read and priced in conjunction with the attached drawings and associated number referencing. All costs should be totalled and transferred to the Collections / Main Summary page. The contractor is responsible for determining the exact quantities and dimensions relative to the works and is deemed to have allowed for this within his priced document. Please indicate and be specific on any items not included and therefore excluded from the works.			
1B	Tenders must allow for all works necessary for the complete and proper execution of the Works. This includes the requirement for all access equipment and scaffolding necessary for safe execution of the works. This schedule of work has been compiled to identify an indicative sequence/ programme. Each item within this schedule of works must be priced. Should the contractor fail to state a price then this item will be deemed to be included within their priced tender; The contractor may, for clarification of the scope of work, add further items to the schedule of works to fully reflect their planning and pricing strategy.			
1C	Full and job specific risk assessments and method statements for the works must be submitted to the CA at least 5 days prior to commencing any works. Generic documentation will not be accepted.			
1D	The contractor must be vigilant and ensure all operatives are made aware, at all stages of alteration to the building's fabric of the potential for any known sources and unknown concealed asbestos based or other hazerdous materials. If any suspicious materials are found, report to C/A immediately.			
1E	Contractor to form site storage and works area within the external area of the Mary Arches car park for the duration to include skips, site parking and welfare. All access routes to be kept clear at all times.			
1F	The contractor shall allow for removing all debris, unwanted materials and fixtures from site, unless stated otherwise. The contractor shall extend and make good all structures, surfaces, coverings and finishes disturbed during any alterations. Where fixtures and fittings are being removed the contractor shall allow for removing any clips, fixings and brackets, make good substrate and prepare for decoration and where necessary extend existing finishes.			
1G	In advance of works commencement a photographic schedule of condition is to be undertaken by the contractor with the CA in attendance to all areas accessed to facilitate the works.			
	Page 1 To Collection			

1	General	Nr	Units	£
1H	Keep noise levels to a minimum where possible. Prevent dust from entering spaces outside of the areas being refurbished with suitable seals and polythene where necessary. Allow to supply and install tacifier type mats at all entrance/ egress points to each site area for the full duration of the works. Ensure fresh layers of mat are exposed as necessary to minimise spread of dust and debris around the building. Clear dust, dirt or debris as work proceeds to prevent it spreading; ensuring corridors are kept as clean as reasonably possible. Radios will not be permitted on site. Establish site areas, e.g. room-by-room and maintain a site entry policy for site related staff only. Keep doors leading to the site areas shut where possible and provide warning notices to ensure good site safety practice is employed at all times. Do not leave the site open when unattended. The Contractor is not to leave the main front entrance doors of any of the buildings open, to maintain security to strictly controlled areas.			
1I	Corex or similar floor protection to be applied and suitably secured over the stair surface to delineate contractor walkways. In advance of works commencement a photographic schedule of these finishes to be undertaken with the contractor in attendance.			
1J	All Contractors and sub contractors operatives will be required to wear clothing and/or PPE indicating the firm for which they are working. All operatives to hold a valid CSCS card and carry on their person as a form of identification at all times.			
	Section 1 Total			
	Page 2 To Collection			
2	**Mary Arches**	**Nr**	**Units**	**£**
2A	**The Works**			
2A1	Completion of Builders works items as detailed in Section 4 - Schedule of Builders Works (pages 50 to 58) of Document 4 - Mary Arches Car Park Specification 10.10.2018 (002) of the tender pack and in accordance with the Technical Specification (Section 7) of the same document.			
2A2	Completion of Electrical works items as detailed in Section 5 - Schedule of Electrical Works (pages 59 to 61) of Document 4 - Mary Arches Car Park Specification 10.10.2018 (002) of the tender pack and in accordance with the Technical Specification (Section 7) of the same document.			
2A3	Completion of provision of equipment works items as detailed in Section 6 - Schedule of Equipment (pages 62 to 67) of Document 4 - Mary Arches Car Park Specification 10.10.2018 (002) of the tender pack and in accordance with the Technical Specification (Section 7) of the same document.			
	Section 2A To Collection			
2B	**Additional Facilitating Work**			
2B1	Provide safe access for a certified Asbestos Surveyor for the purpose of undertaking a survey to include sampling where required to enable the rpoduction of a full Refurbishment and Demolition Survey of all areas included within the scope of works to include lift and shaft.			
	Section 2B To Collection			
2C	**Optional Items**			
2C1	Optional Extra-Over cost for the the installation of threshold drainage channels to each entrance, to be cut into the slab and made good. All drainage outlets to connect to the drainage downpipe adjacent to the lift shaft.			
	Section 2 Total			

COLLECTION PAGE			
Section 1 - General Section 2A - The Works Section 2B - Additional Facilitating Work Section 2C - Optional Items			
SECTIONS Total			
PROVISIONAL SUMS INC IN SECTION SUMMARY ABOVE			
PRELIMS, OVERHEAD & PROFIT			
CONSTRUCTION TOTAL			£0.00

4. Specification

Ref: PSC/SG/N.W1800054

EXETER COUNTY COUNCIL

(C/O FAITHFUL & GOULD)

SPECIFICATION

FOR

LIFT REPLACEMENT WORKS

AT

MARY ARCHES CAR PARK

MARY ARCHES STREET

EXETER

EX4 3AZ

Prepared by: Paul St Claire Date: 10th October 2018

Checked by: Stephen Gadd Date: 10th October 2018

TUV SUD LIMITED
Office 314, Regus House, Falcon Drive, Cardiff, CF10 4RU
Tel: +44 (0) 2920 371 963
Email: dunbarboardman@tuv-sud.co.uk web:www.tuv-sud.co.uk/dunbarboardman
Consultants Birmingham Bishops Stortford Bristol Cardiff Cirencester Dubai Dublin Edinburgh Leeds London Newcastle upon Tyne Sheffield Warrington

INDEX

INSTRUCTIONS TO TENDERERS

SECTION 1

INSTRUCTIONS TO TENDERER

Acknowledgement: On receipt of these documents the Lift Contractor should confirm in writing that they have received the documents and whether or not they will be submitting a Tender in accordance with these instructions by the due date and confirm that the documents received are complete.

The Lift Contractor shall return the fully completed tender documents to the following email address:-

Return Email Address**:**

cpabids@exeter.gov.uk

On 29th March 2019 by 12 NOON

Tenders received after this date or time will be deemed invalid.

Completion of Documents: All of the pages in Section 10 of this Specification are to be fully completed by the Lift Contractor and submitted with the Tender together with any supporting information requested in this Specification. Failure to provide this documentation will invalidate the Tender.

Implementations: No guarantee can be made that the project will proceed as planned, or at all, or that it will not be postponed or cancelled. The Employer does not bind themselves to accept either the lowest or any Tender. No claim by a Lift Contractor for any expense, loss of profit or other such consideration incurred in the preparation of a Tender will be accepted.

Public Contracts Regulations 2015: Where this Tender is one to which the Public Contracts Regulations 2015, and/or the Public Contracts (Scotland) Regulations 2015, applies the award of any Contract shall be determined upon the basis of the most economically advantageous tender, which may, where appropriate, include factors such as key staff qualification and experience and life-cycle costing.

Alterations: Any alteration to the text of these documents will not be accepted. Any unauthorised alterations or qualifications will be disregarded and may result in disqualification of the Tender. Any conditions which may be printed on the Lift Contractor's letter paper and which may accompany the Tender will not be accepted and, any such conditions are deemed to be waived by the Lift Contractor unless specifically noted in the Lift Contractor's accompanying letter and agreed in writing by the Contract administrator.

Qualifications: The requirements of the Project are indicated within this Specification. Where the Lift Contractor's Tender for carrying out the work is based on any deviation from the requirements of this Specification in respect of any materials, method of installation, performance, builders work or the like, which is due solely to the Lift Contractor's own standard design requirements, such deviations shall be clearly set out in a covering letter or schedule to be submitted with this Tender. In the absence of such a covering letter or schedule it will be deemed that the price quoted by the Lift Contractor includes for the whole of the work to be carried out as specified herein and no later requests for deviation will be considered.

Corrections: Lift Contractors are requested to take all due care in the completion of the tender documents.

Bona Fide Tender: The Lift Contractor undertakes that they have not communicated, and will not communicate, to any person under any agreement or arrangement to do so, the amount of this Tender, and that the amount of this Tender has not been adjusted under any agreement or arrangement with any persons so to do.

Method Statement: The Lift Contractor is to provide with their offer a Method Statement detailing their proposed approach to this Project including; design, off-site manufacturing, delivery, dismantling, removal, installation, maintenance, supervision and management. This Method Statement shall include an Organisation Chart indicating the key personnel, including names and lines of responsibility from Board Director through to Site Charge hand.

Risk Assessment (CDM): The Project will fall within the scope of the Construction (Design & Management) Regulations 2015. The Lift Contractor shall provide with their offer risk assessments, COSHH data, Safety Policy and hierarchy of responsibilities, along with their accident record under RIDDOR covering the previous 3-year period.

TUV-SUD LTD DUNBAR & BOARDMAN

LIFT AND ESCALATOR CONSULTANTS

CONFIRMATION OF RECEIPT OF TENDER DOCUMENTS OR AMENDMENTS

CONTRACT: **Mary Arches Car Park Lift Replacements**

CONTRACTOR:

ACKNOWLEDGEMENT:

We confirm that we have today received your tender documents, which we have checked and agree these are complete, and that we will submit a bona fide tender by the due date.

Signed ……..

Contractor ……..

Date ……..

RETURN TO: cpabids@exeter.gov.uk

PREAMBLES AND CONDITIONS OF CONTRACT

SECTION 2

CONDITIONS OF CONTRACT

The Conditions of Contract are to be read throughout, subject to the amendments and special conditions set out in the Preliminaries.

The Form of Contract shall be the JCT Intermediate Building Contract with Contractor's Design 2016 as amended by the Faithful & Gould Schedule of Amendments to the JCT Intermediate Building Contract with Contractor's Design 2016 which is appended to this Specification as Appendix A and which should be read in conjunction with the conditions contained herein.

The submission of a Tender by the Lift Contractor shall be deemed to signify acceptance of the incorporation of the JCT Intermediate Building Contract with Contractor's Design 2016 as amended by the Faithful & Gould Schedule of Amendments to the JCT Intermediate Building Contract with Contractor's Design 2016.

The costs of complying with all standard amendments to the Contract, promulgated by the date of Tender (as defined in the Conditions) shall be included in the Tender sum.

Any additional cost considered necessary to meet all the requirements of the amendments to the Conditions of Contract shall be included in the Tender.

Preambles

Site Management Costs

The Lift Contractor shall provide for all on-site and off-site management costs including the cost for the Foreman in Charge.

The CDM 2015 Regulation requires that a Principal Contractor take responsibility for managing the Site Works.

For the avoidance of doubt, the Lift Contractor shall undertake the role and duties of Principal Contractor and is expected to fulfil those duties applying the requirements of CDM 2015 which, based on the scope and complexity of the work, may require a full-time managerial presence on site. In this respect the Lift Contractor must ensure that one of their senior employees acts as an on-site Supervisor/Manager, particularly when wholly Sub-contract labour is employed.

The Lift Contractor shall include for site management costs in relation to the requirements of the CDM 2015 Regulation together with the provisions of this Specification.

Lift Contractor Project Manager/Supervisor

The Lift Contractor shall appoint a Project Manager/Supervisor who is sufficiently experienced in terms of the work involved as to ensure the effective and safe and efficient management of the Works and the satisfactory progress of these. The Lift Contractor's appointed Project Manager/Supervisor shall be fully conversant with accepted lift industry work practices and safety requirements, the requirements of the CDM Regulations 2015, labour management, and in relation to the management and control of Works of a similar extent and nature.

Labour on-cost

The Lift Contractor shall provide for all on-costs in respect of all workmen in relation to disbursements arising from the employment of labour.

Hours of Work

The hours of work will be as shown on the Schedule of Site Works incorporated into the Contract. No additional working hours will be allowed except by agreement of the Contract administrator.

Daywork

The Lift Contractor shall obtain the Contract administrator's approval prior to the commencement of any work which is to be executed on a daywork basis, or which the Lift Contractor considers should be paid for on a daywork basis. The Lift Contractor shall submit proper daywork sheets signed by the General Foreman specifying the time daily spent upon the daywork and the workmen's names and the materials employed. The daywork sheets shall be delivered to the Contract administrator or their Authorised Representative not later than the end of the week following that in which the daywork has been executed.

Acceptance of daywork sheets will imply agreement only of the record of the hours worked and materials used and shall not thereby be considered to authorise payment for the work on a daywork basis. Payments for daywork shall be made in accordance with the relevant provision of the Contract.

The Contract administrator shall be entitled to amend the amount of time and/or materials shown in such daywork sheets if, in their opinion, such amount exceeds that which should reasonably have been expended in producing the result, the Contract administrator having regard to the circumstances and to the Lift Contractor's obligations under the Conditions of Contract to proceed with the work in a regular and diligent manner.

Sub Contractor's

The Lift Contractor is required to enter into Contracts with all Sub-contractors paid through them such as to bind the Sub-contractors to the same obligations and benefits in respect of the Sub-contract as those for which the Contractor is liable in respect of this Contract.

Working Rule Agreement: Declaration of Intent

The Lift Contractor or any Sub-contractor, whether nominated by the Employer or not, shall not employ in or upon the Works or any part thereof, any labour-only sub-contractor, other than in accordance with the National Working Rule settled by the National Joint Council for the Building Industry.

For the purpose of this Clause, a 'labour-only sub-contractor' shall mean any Sub-contractor undertaking to execute any part of the Works on terms that the materials and/or equipment and plant needed or used by such Sub-contractor shall be supplied or paid for directly by the Employer or Lift Contractor.

The Lift Contractor shall, if so required, produce evidence to the satisfaction of the Employer that any particular Sub-contractor for the time being or formerly employed on the Works is or was not a labour-only Sub-contractor employed, other than in accordance with the said National Working Rules at the time of such employment and, if in any specific case the Employer shall not be so satisfied, then the Employer shall be entitled to determine the Lift Contractor's employment, notwithstanding that the Lift Contractor may have ceased to employ such Sub-contractor on the Works.

If the Employer should determine the Lift Contractor's employment under this Contract as aforesaid, then the Employer shall be entitled forthwith to enter upon the site of the Works and take possession thereof of all plant, tackle and materials thereon and complete the Works or have them completed by some other contractor and, all

loss and extra expense which the Employer may suffer, incur or be put to, shall be borne by the Lift Contractor and may be deducted from any moneys due to them or may be recovered by legal process.

Incentive & Bonus Payments

The Lift Contractor is to note particularly, that should any change in the rates of wages and other emoluments and expenses payable to work people by a decision of the National Joint Council for the Building Industry or other body have in any way the effect of increasing the incentive and/or bonus payments, then such increase will not be allowed as an addition to this Contract.

Sample & Other Testing

The Lift Contractor shall provide samples, as the Contract administrator may require, of any or all materials and workmanship to be used on the Works.

The Lift Contractor shall bear the cost of providing samples and any testing of such samples of material which the Contract administrator may direct the Lift Contractor to arrange to be undertaken.

Any material or equipment which fails to meet the tests applied shall be replaced, “free of charge”, by the Lift Contractor, using a suitable alternative material or equipment which has first been approved by the Contract administrator.

Tolerances in Construction

The Lift Contractor is responsible for the co-ordination of tolerances (whether manufacturing or workmanship, including nominated sub-contractors and nominated suppliers) between different materials or components of the building.

Claims attributed to varying tolerances between materials and components will not be considered.

Drawings & Dimensions

Wherever dimensions are marked on drawings or described such dimensions are to be considered as correct. In the case of discrepancy between drawings and any existing site measurement this shall be referred to the Contract administrator whose decision will be final.

Abbreviations

The following abbreviations have been used:

BS	British Standards Specification
BSI	British Standards Institute
dBA	Decibels
FFL	Finished floor level
kg	kilograms
kW	kilowatts

m	metres
mA	milliamps
mg	millig
mm	millimetres
No.	Number
SWG	Standard Wire Gauge (Imperial)

Advertisements & Signboard

The Lift Contractor shall not, without first obtaining the permission of the Contract administrator, utilise or use any information and/or material from this Contract for advertising in such a manner that the building or project may be readily identified. Within the site and its environs no display of signboards will be permitted without prior written agreement of the Contract administrator.

Work Covered Up

The Lift Contractor must give due notice to the Contract administrator when any work or material is intended to be covered up. In default thereof the work and/or material shall be uncovered at the Lift Contractor's expense.

Warranty

The Lift Contractor shall Warrant that they have exercised, and will exercise, all proper skill and care in the design of the Works and in the selection of materials and goods, so far as the Works have been, or will be, designed by them, and so far as such materials or goods have been, or will be, selected by them.

In addition, the Lift Contractor shall comply with, and satisfy any Performance Specification or requirement included in, or referred to in, their Tender as part of the Description of the Works.

Rectification period

Will be for a period of 12 months commencing upon issue of the Practical Completion Certificate. Refer to Section 9 of this Specification in relation to details of maintenance requirements.

QUALITY AND TOLERANCES

Guide Rails

Guide rails of the highest available standard and quality shall be installed such as to achieve the performance criteria laid down in Section 10.

The guide rails shall be plumb to + 6mm in verticality and + 3mm in distance between guide rails.

The Lift Contractor is required to demonstrate accuracy of alignment as part of the Witness Test as detailed in Section 8 of this Specification.

Structural Tolerances

The existing lift shafts are constructed of brick and blockwork to front, side and rear walls, with structural steelwork separating the two shafts. The Lift Contractor shall include for all necessary fixings, brackets and associated components, to install their equipment within these conditions. The detail and dimensions of the lift shafts, lift motor rooms and pits are detailed on the enclosed Tender drawings. The Lift Contractor shall confirm

their full acceptance of these, including any restrictions and tolerances, with their Tender. In the event of a failure to provide this requirement for confirmation it will be assumed that the Lift Contractor confirms compliance and therefore no future additional costs will be entertained in relation to any non-compliance.

Regulations and Quality of Work

The Lift Contractor should refer to the Tender Documentation and the relevant clauses within this Specification.

The completed installation shall comply, in all respects, with the provisions of the latest editions of the following British Standards, including Draft Standards as follows:-

a)	BS476	Fire tests on building materials
b)	BS5499	Fire safety signs
c)	BS5655	Lifts & Service Lifts Parts 1 – 14 inclusive, where relevant
d)	BS7255	Safe Working on Lifts
e)	BS7671	The IET Wiring Regulations
f)	BS7980	Vehicle Lifts – Installation, maintenance, thorough examination and safe use – Code of practice
g)	BS8300	Design of Buildings to meet the needs of the Disabled
h)	BS8486-1 & -2	Examination & Test of New Lifts before putting into service. Specification for means of determining compliance with BS EN81-1/2
i)	BS8486-3	Examination and test of new lifts before putting into service - Specification for means of determining compliance with BS EN 81 - Part 3: Passenger and goods passenger lifts conforming to BS EN 81-20
j)	BS9999	Fire Safety in the Design and Use of Buildings
k)	BS EN81-1	Electric Lifts
l)	BS EN81-2	Hydraulic Lifts
m)	BS EN81-3	Electric & Hydraulic Service Lifts
n)	BS EN81-21	New Passenger & Goods Passenger Lifts in Existing Buildings
o)	BS EN81-22	Electric Lifts with Incline Path
p)	BS EN81-31	Accessible Goods Only Lifts
q)	BS EN81-40	Stairlifts & Inclined Lifting Platforms Intended for Use by Persons with Impaired Mobility
r)	BS EN81-41	Vertical Lifting Platforms Intended for Use by Persons with Impaired Mobility
s)	BS EN 81-20	Lifts for the Transport of Persons & Goods – Part 20: Passenger and Goods Passenger Lifts
t)	BS EN 81-28	Remote Alarm on Passenger & Goods Passenger Lifts
u)	BS EN 81-50	Examinations & Tests – Part 50: Design Rules, Calculations, Examinations & Tests of Lift Components
v)	BS EN 81-58	Examinations & Tests – Part 58: Landing Door Fire Resistance Test
w)	BS EN81-70	Disabled Persons Accessibility
x)	BS EN81-71	Vandal Resistant Lifts
y)	BS EN81-72	Firefighting Lifts

z)	BS EN81-73	Behaviour of Lifts in the Event of Fire
aa)	BS EN81-77	Lifts Subject to Seismic Conditions
bb)	BSEN81-80	Improvement of Safety of Existing Passenger & Goods Lifts
cc)	BS EN81-82	Improvement of Accessibility of Existing Lifts for Persons Including Persons with Disability
dd)	DD CEN/TS81-83	Existing Lifts. Rules for the Improvement of Resistance Against Vandalism
ee)	BS EN ISO14798	Risk Assessment & Reduction Methodology
ff)	BS8899	Code of Practice – Improvement of Firefighting & Evacuation Provisions in Existing Lifts
gg)	PD ISO/TS18870	Requirements for Lifts Used to Assist in Building Evacuation
hh)	DD CEN/TS81-76	Evacuation of Disabled Persons Using Lifts
ii)	BS ISO22201	Programmable Electronic Systems in Safety Related Applications (All Parts)
jj)	BS EN ISO25745	Energy Performance of Lifts, Escalators & Moving Walks (All Parts)
kk)	EN131-2	Ladders – Requirements, Testing, Marking
ll)	EN14122-1-4	Permanent Means of Access to Machinery: Parts 1 to 4
mm)	BS ISO4190	Lift (Elevator) Installation (All Parts)
nn)	EN1570-1	Lifting Tables Serving Up to Two Levels
oo)	BS EN ISO14120	General Requirements for the Design & Construction of Fixed & Moveable Guards
pp)	EN1993-1-1	Eurocode 3 – Design of Steel Structures – Part 1-1: General Rules and Rules for Buildings
qq)	EN10305-1	Steel Tubes for Precision Applications – Technical Delivery Conditions – Part 1: Seamless Cold Drawn Tubes
rr)	EN10305-2	Steel Tubes for Precision Applications – Technical Delivery Conditions – Part 2: Welded Cold Drawn Tubes
ss)	EN10305-3	Steel Tubes for Precision Applications – Technical Delivery Conditions – Part 3: Welded Cold Sized Tubes
tt)	EN10305-4	Steel Tubes for Precision Applications – Technical Delivery Conditions – Part 4: Seamless Cold Drawn Tubes for Hydraulic & Pneumatic Power Systems
uu)	EN10305-5	Steel Tubes for Precision Applications – Technical Delivery Conditions – Part 5: Welded Cold Sized Square & Rectangular Tubes
vv)	EN10305-6	Steel Tubes for Precision Applications – Technical Delivery Conditions – Part 6: Welded Cold Drawn Tubes for Hydraulic & Pneumatic Power Systems
ww)	BS EN12015	Electromagnetic Compatibility - Product Family Standard for Lifts, Escalators & Moving Walks – Emission
xx)	BS EN12016	Electromagnetic Compatibility - Product Family Standard for Lifts, Escalators & Moving Walks – Immunity
yy)	EN12385-5	Steel Wire Ropes – Safety – Stranded Ropes for Lifts

zz)	EN12600	Glass in Building – Pendulum Test – Impact Test Method & Classification for Flat Glass
aaa)	BS EN13015	Maintenance for Lifts & Escalators – Rules for Maintenance Instructions
bbb)	EN13501-1	Fire Classification of Construction Products & Building Elements – Part 1: Classification Using Data from Reaction to Fire Tests
ccc)	EN50205	Relays with Forcibly Guided (mechanically linked) Contacts
ddd)	EN50214	Flat Polyvinyl Chloride Sheathed Flexible Cables
eee)	EN50274	Low-voltage Switchgear & Controlgear Assemblies – Protection Against Electric Shock – Protection Against Unintentional Direct Contact with Hazardous Live Parts
fff)	EN60204-1	Safety of Machinery – Electrical Equipment of Machines – Part 1: General Requirements
ggg)	EN60529	Degrees of Protection Provided by Enclosures
hhh)	EN10025 (all parts)	Hot Rolled Products of Non-alloy Structural Steels – Technical Delivery Conditions
iii)	EN60068-2-6	Environmental Testing – Part 2: Tests – Test Fc: Vibration (Sinusoidal)
jjj)	EN60068-2-14	Environmental Testing – Part 14: Tests – Test N. Change of Temperature
kkk)	EN60068-2-27	Environmental Testing – Part 2-27: Tests – Test Ea & Guidance: Shock
lll)	EN60112	Method for the determination of the proof & the Comparative Tracking Indices of Solid Insulating Materials
mmm)	EN 60664-1	Insulation Coordination for Equipment within Low-voltage Systems – Part 1: Principles, Requirements & Tests
nnn)	EN 60947-4-1	Low-voltage Switchgear & Controlgear – Part 4-1: Contactors & Motor-starters- Electromechanical Contactors & Motor-starters
ooo)	EN 60947-5-1	Low-voltage Switchgear & Controlgear – Part 5-1: Control Circuit Devices & Switching Elements – Electromechanical Control Circuit Devices
ppp)	EN61508-1	Functional Safety of Electrical/Electronic/Programmable electronic Safety-related Systems – Part 1: General Requirements
qqq)	EN61508-2	Functional Safety of Electrical/Electronic/Programmable Electronic Safety-related Systems – Part 2: Electrical/Electronic/Programmable Electronic Safety-related Systems
rrr)	EN61508-3	Functional Safety of Electrical/Electronic/Programmable Electronic Safety-related systems – Part 3: Software Requirements
sss)	EN61508-7	Functional Safety of Electrical/Electronic/Programmable Electronic

		Safety-related Systems – Part 7: Overview of Techniques and Measures
ttt)	EN ISO 12100	Safety of Machinery – General principles for design – Risk assessment & risk reduction
uuu)	EN60664-1	Insulation Coordination for Equipment within Low-voltage Systems – Part 1: Principles Requirements & Tests
vvv)	EN60947-4-1	Low-voltage Switchgear and Controlgear – Part 4: Contactors & Motor-starters – Section 1: Electromechanical Contactors and Motor-starters
www)	EN60947-5-1	Low-voltage Switchgear & Controlgear – Part 5-1: Control Circuit Devices & Switching Elements – Electromechanical Control Circuit devices
xxx)	EN60947-5-5	Low-voltage Switchgear & Controlgear – Part 5-5: Control Circuit Devices & Switching Elements – Electrical Emergency Stop Device with Mechanical Latching Function
yyy)	EN61310-3	Safety of Machinery – Indication, Marking & Actuation – Requirements for the Location & Operation of Actuators
zzz)	EN61800-5-2	Adjustable Speed Electrical Power Drive Systems – Part 2: Safety Requirements. Functional
aaaa)	EN61810-1	Electromechanical Elementary Relays – Part 1: General Requirements
bbbb)	EN ISO12100	Safety of Machinery – General Principles for Design – Risk Assessment & Risk Reduction
cccc)	BS EN ISO13857	Safety of Machinery – Safety Distances to Prevent Danger Zones Being Reached by the Upper & Lower Limbs
dddd)	HD60364-4-41	Low-voltage Electrical Installations – Part 4-41: Protection for Safety – Protection Against Electrical Shock
eeee)	HD60364-4-42	Low-voltage Electrical Installations – Part 4-42: Protection for Safety – Protection Against Thermal Effects
ffff)	HD60364-6	Low-voltage Electrical Installations – Part 6: Verification
gggg)	IEC60227-6	Polyvinyl Chloride Insulated Cables of Rated Voltages up to & Including 450/750 V – Part 6: Lift Cables and Cables for Flexible Connections
hhhh)	IEC60245-5	Rubber Insulated Cables – Rated Voltages up to and Including 450/750 V – Part 5: Lift Cables
iiii)	IEC60417	Database – Graphical symbols for Use on Equipment
jjjj)	IEC60617	Graphical Symbols for Diagrams
kkkk)	ISO1219-1	Fluid Power Systems and Components – Graphic Symbols and Circuit Diagrams – Part 1: Graphic Symbols for Conventional Use & Data-processing Applications
llll)	BS EN1493	Vehicle Lifts
mmmm)	BS EN12385-4&-5	Steel Wire Ropes
nnnn)	BS EN60332-1&-2	Tests on Electric Cables under Fire Conditions

oooo)	BS EN ISO16032	Acoustics – Measurement of Sound Pressure Levels from Service Equipment in Buildings
pppp)	BS ISO18738	Measurement of Lift Ride Quality
qqqq)	DD222	Specification for Rack & Pinion Lifts

The Works shall comply with the following Acts, Regulations and Working Rules:

a) The Construction (Lifting Operations) Regulations

b) The Construction (General Conditions) Regulations

c) The Construction (Health & Safety) Regulations

d) The Construction (Work in Places) Regulations

e) The Construction Products Regulations

f) The Factories Act and all amendments thereto

g) Health & Safety at Work Act

h) The Electricity at Work Act

i) The Management of Health & Safety at Work Regulations 1999

j) The Provision and Use of Work Equipment Regulations 1998

k) The Work Place (Health, Safety & Welfare) Regulations 1992

l) The Construction (Design & Management) Regulations 2015

m) The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations

n) The Supply of Machinery (Safety) Regulations 2008

o) The Lifts Regulations 1997

p) The Lifts Regulations 2016

q) EU Lifts Directive 95/16/EC

r) EU Lifts Directive 2014/33/EU

s) The Lifting Operations and Lifting Equipment Regulations 1998

t) The Building Regulations Part M2 and subsequent updates

u) The Health & Safety (First-Aid) Regulations 1981

v) The Work at Height Regulations 2005

w) The Control of Noise at Work Regulations 2005

x) The Control of Asbestos Regulations 2012

y) The Waste Electrical and Electronic Equipment Regulations 2006

z) The Site Waste Management Plans Regulations 2008

aa) The Equality Act 2010

Site Inspection

The Lift Contractor shall be deemed to have satisfied themselves as to the local conditions with regard to accessibility of the site; as to the full extent and nature of the Works; as to the supply of and conditions affecting labour; as to provisions for messing, toilets, carriage, cartage, unloading, tools, accommodations, scaffolding, hoisting, cranage, ladders, and anything other which may influence their Tender or their carrying out of the Works.

Component Life

All major components, including but not limited to, contactors, relays, push units, indicators, call-accepted indicators, door operators, door interlocks, shaft switches and associated equipment, components and materials shall have been type tested to a minimum of 1 million operations.

The Lift Contractor shall state the expected life of solid-state components.

Product Guarantee & Warranties

Product Guarantees and Warranties provided by the Lift Contractor and/or by their suppliers shall be valid to, or extended up to, the end of the Rectification period, or longer in the case that the Guarantee and/or Warranty should extend beyond the end of the Rectification period.

Any Product Guarantee or Warrantee provided by a supplier which operates for a period of time extending past the end of Rectification period shall remain under Warranty and/or Guarantee up to the end of the period stated in the Warranty and/or Guarantee.

The Lift Contractor shall provide copies of all Guarantees and Warranties which shall be included in the Operation and Maintenance Manuals which are described in Section 8 of this Specification.

CDM REGULATIONS

SECTION 3

Safe Storage

The Lift Contractor shall provide and maintain a secure, dry and weatherproof type container for the storage of materials, tools and tackle. The location of the container at the site is to be agreed with the Contract administrator. The Lift Contractor shall include all costs in relation to alterations, movements and adaptions of the container as may be necessary from time to time. On completion of the Works the Lift Contract shall remove the container from the site, and shall reinstate the locations/areas and access routes upon which the container was located and transported, to the Contract administrator's approval.

Dismantling

The Lift Contractor shall include for the dismantling and disconnection of all existing lift equipment. Except where otherwise stated, materials of any kind obtained from dismantling shall become the property of the Lift Contractor.

The Lift Contractor shall dispose of all such materials in a responsible manner, taking due regard of all relevant Regulations, but in any case, shall remove redundant and waste materials from the premises promptly, as soon as these are dismantled and at all times expeditiously and cleanly. The Lift Contractor shall include for all taxes and/or other statutory fees associated with the disposal of the materials.

Substances Hazardous to Health

The Lift Contractor shall identify all substances which are to be incorporated into the completed Works and which could pose a health risk if improperly used or disposed of.

In the case of an existing installation the Lift Contractor shall, prior to dismantling any equipment or commencing any structural alternation, identify as far as is reasonably practicable, all such substances that are to be retained in the completed Works. Furthermore, the Lift Contractor shall identify, as far as is reasonably practicable, all substances which are to be removed from site and which could prove a health risk if improperly disposed of.

The Lift Contractor shall identify such substances in the form of a Schedule which is suitable for incorporation in the Health & Safety File and which is to be submitted to the Contract administrator.

The Lift Contractor shall, at all times, comply in full with the provisions set out in the current edition of the Control of Substances Hazardous to Health Regulations and the associated Guidance published by HSE.

Smoking

In compliance with The Smoke-free (Premises & Enforcement) Regulations 2006 the building operates a "No Smoking" policy. The Lift Contractor shall ensure that their employees and sub-contractor's employees do not smoke within the building or within the confines of the site, except for any specifically designated smoking area. Persons found to be in breach of this requirement will be refused access to the site.

Statutory Authorities

The Lift Contractor shall include within their Tender for all costs, and for necessary time scale provisions to meet the requirements of the Contract, which are required in order to seek and gain all necessary Statutory Approvals for the Works, including, but not limited to, Building Control Approvals/requirements, Building Regulation Approvals/requirements, District Surveyor Approvals/requirements, Fire Officer Approvals/requirements and Planning Approvals/requirements, where applicable.

These requirements also apply to all temporary works, including protective hoardings, and particularly in cases in which the fire separation between floors or between lift shafts and lobbies may be compromised.

These provisions are considered essential in relation to any landing or area where the landing, lobby or area forms part of a fire escape route.

CDM 2015 REGULATIONS

PRE-CONSTRUCTION INFORMATION

PRE-TENDER CONSTRUCTION INFORMATION

Construction (Design and Management) Regulations

DESCRIPTION OF PROJECT

General

The Project will be undertaken in accordance with the Construction (Design & Management) Regulations 2015.

The Lift Contractor will be expected to fulfil the duties of the Principal Contractor as set out in the CDM Regulations 2015 and associated HSE Guidance. The attention of the Lift Contractor is drawn to the requirements arising under Regulations 8, 9, 10, 11, 12, 13, 14, 15 and Part 4 of the Regulations.

The Lift Contractor shall not commence any construction work until they have developed the Construction Phase Health & Safety Plan in accordance with the requirements of Regulation 12. The completed plan shall be issued to the Principal Designer in sufficient time to allow for comment prior to commencement of the works.

The Lift Contractor shall ensure that all direct appointments that he may make in their capacity as Main Contractor or Construction Manager include provisions for the compliance of their trade or sub-contractors, suppliers and Designers with the relevant provisions of the CDM Regulations.

Preconstruction Phase Health & Safety

Client:	Exeter City Council
Address:	Corporate Manager Property Exeter City Council Paris Street Exeter EX1 1JN
Principal Designer & Contract administrator	Tuv Sud Ltd Dunbar & Boardman
Location of Works:	Mary Arches Car Park Mary Arches Street Exeter EX4 3AZ

Provide for all costs incurred by complying with and implementing statutory obligations in respect of Safety, Health and Welfare Regulations, including the Construction (Design & Management) Regulations 2015 appertaining to all personnel (including those employed by nominated sub-contractors) whose duties require them to be on the site.

The Lift Contractor shall cooperate with the Principal Designer and other Designers and Contractors, including the prompt provision of design and other information, and information required for the Health & Safety File, such as to meet the duties of Principal Contractor arising under the CDM 2015 Regulations.

The Project

The Project comprises **two** lifts within the existing lift shafts and motor room, including all associated Builders & Electrical Works.

The Project will also include additional items required in order to bring the lifts into line with current British Standards and Regulations.

The Existing Environment

The property comprises a multiple storey car park, served by two simplex traction passenger lifts. Each lift serves opposing floors, with the exception of lowest level which is served by both lifts.

The lift equipment in part is coming to the end of its useful life and has been assessed for a refurbishment to bring this more in line with current standards and ensure future reliability and life expectancy.

During the course of the Works it is not anticipated that any other Contractors will require access to the lift other than those under this Contract. The Lift Contractor shall be responsible for securing the work area and maintaining a Permit to Work system.

The property will remain occupied during the course of the Works and the appointed Lift Contractor (including any appointed sub-contractors) must adhere to all Health & Safety procedures associated with undertaking this type of work in an occupied environment.

The Design

The Design of the Works is detailed elsewhere within this Specification.

The principle of the Design is to achieve, as far as is practicable, a lift installation in accordance with current British Standards, the health and safety provisions contained within those Standards, current Regulation and the general requirements of the Health & Safety at Work Act 1974, together with all of the provisions of this Specification.

The Lift Contractor shall record and highlight on the construction drawings, including appropriate detail, all significant hazards and risks associated with the construction works which have not been eliminated and/or adequately mitigated in the Design of the Works.

The Lift Contractor shall record details of any significant residual hazards and risks affecting the Works and the Design, which could not be eliminated and/or adequately mitigated in the Design, on the final “as fitted” record drawings and in the H&S File.

The refurbishment will include:-

The removal and full replacement of two existing traction passenger lifts, including all builder’s and electrical works.

Construction Materials

The components and materials will include electrical and mechanical elements and construction materials which have been designed and manufactured to ensure reliable performance and service life and to minimise or eliminate risks.

The removal of any combustible or hazardous material will require that the necessary Health & Safety precautions be applied, as detailed in the COSHH Regulations.

Before any dismantling of machines is undertaken redundant mineral oil is to be removed into sealed containers which are designed, constructed and labelled in accordance with the COSHH Regulations.

All new materials and components utilised in the Works are to be properly designed and manufactured to suit their purpose and capable of providing reliable operation throughout the Service Life. Where materials are detailed in the Specification the Lift Contractor shall utilise these or, if permitted and agreed in writing, approved equivalent alternatives.

Redundant materials shall become the property of the Lift Contractor to dispose of in a responsible manner taking due regard of applicable legislation and codes. These are to be removed from site expeditiously to an approved disposal site. The accumulation of rubbish/debris is not permissible except in designated storage areas, and then only if properly bagged and labelled. The Lift Contractor shall incorporate evidence of correct disposal which is to be retained within the H&S File.

All new materials are to be delivered as required and stored in approved storage areas, and shall be protected such as to prevent damage, and to protect persons from injury.

Site Waste Management

The Lift Contractor shall, if and when required, produce a Site Waste Management Plan (SWMP) PRIOR to commencement of construction works.

The Lift Contractor shall adopt the SWMP and ensure compliance with the Environmental Protection Act 1990 (EPA), the Site Waste Management Plans Regulations 2008 and the CDM Regulations 2015.

Suitability of Material and Products

The Lift Contractor shall use materials and products which:

a) Are new unless specified otherwise
b) Are suitable for the services and conditions of use normally expected to apply after the installation is complete.
c) Are able to withstand the testing and commissioning conditions specified.
d) Do not initiate mould growth, support vermin, contain animal hair, contain crocidolite or support bacterial life.
e) Do not involve the use of CFC's at any stage of manufacture, installation or subsequent operation except where specified.
f) Are free from objectionable odours of the maximum or normal working conditions of operation.
g) Do not suffer deterioration at the maximum or specified conditions of operation.
h) Are capable of being applied to a base surface without causing damage or deterioration of the base.
i) Are not a fire hazard, and do not evolve dense or toxic fumes when subjected to excessive heat, such as a fire.
j) When of similar type, are made by the same manufacture.
k) Are, where applicable, in compliance with the provisions of the Construction Products Regulation 2013.
l) Whenever possible ensure products are manufactured and/or stocked under one of the following;

BSI Kite Mark Scheme
BSE Safety Mark Scheme
from Firms of Assessed Capability to BS ISO 9000
from Stockists of Assessed Capability to BS ISO 9000

Deleterious Materials

No materials generally known to be deleterious are to be used in, or incorporated into, any temporary or permanent Works forming part of the Project.

In particular none of the following items are to be used

- Asbestos or asbestos based products
- Urea formaldehyde or materials which may release formaldehyde in quantities which may be hazardous with reference to the limits set by the HSE
- Material containing fibres less than three microns diameter or 200 microns long
- Lead or any material or product containing lead which may be ingested, inhaled or absorbed
- Polychlorinated biphenyl
- Fibres not sealed or otherwise stabilised to ensure that migration is prevented
- Vermiculite containing fibrous dust
- Polytetrafluoroethylene (IPTFE) except for pipe work jointing
- Calcium silicate bricks or materials

Or, any other products or materials, which are generally known within the Building Industry to be deleterious or hazardous to health or safety or to the durability of the property in the circumstances in which they are used.

- High alumina cement and/or concrete
- Wood wool slabs used as permanent shuttering
- Calcium chloride in admixtures for use in reinforced concrete
- Sea-dredged aggregates for use in reinforce concrete which do not comply with current British Standards
- Aggregates for use in concrete which do not comply with current British Standards
- Alkali reactive aggregates

The Lift Contractor shall check with the manufacturers and/or suppliers of products and materials in order to ensure that any product does not contain such material. Any products and/or materials found to contravene this requirement shall be removed and replaced by the Lift Contractor at their own expense.

Anticipated Target Programme/Key Dates

The programme will be agreed between the Lift Contractor and the Employer in order to minimise inconvenience. It is anticipated that the Works will be completed in **one phase of two lifts**.

The Lift Contractor shall confirm with their Tender the best possible material procurement/delivery periods and installation times which he is able to achieve.

It is anticipated that the following key dates should be achievable:

Return of Tenders:	**29th March 2019**
Employer order to Lift Contractor:	**2 weeks from tender return**
Initial Lift Contractor's design & production of drawings:	**4 weeks from letter of instruction/ order**
Lift Contractor's completion of Construction Phase H&S Plan:	**Included in manufacture period**
Manufacture/delivery of materials and start site works:	**Best achievable**
Completion of works:	**Best achievable**

CDM 2015 Duty Holders

Client:	Exeter City Council
Contact Name:	David Licence
Address:	Corporate Manager Property Exeter City Council Paris Street Exeter EX1 1JN
Tel:	01392 265739
Principal Designer:	Tuv Sud Ltd Dunbar Boardman
Contact Name:	Paul St Claire
Address:	Office 314 Regus House Falcon Drive Cardiff CF10 4RU
Tel:	07971149564
Designers:	The appointed Lift Contractor & Tuv Sud Ltd Dunbar Boardman
Principal Contractor:	The appointed Lift Contractor
Contractors:	Any Sub-contractors appointed by the Lift Contractor

The Extent and Location of Existing Records & Plans

No architectural/structural drawings are available relating to the lift well or lift motor room. The Lift Contractor is therefore required to undertake their own detailed survey of the existing situation of the lift well, lift motor room and associated structure (particularly in relation to the loads imposed and available clearances). The Lift Contractor shall visit the site and ascertain for themselves the nature and extent of the Works and the conditions under which these are to be executed.

No claim by the Lift Contractor for additional payment shall be allowed on the grounds that they had not, or could not, foresee any matter which may in fact affect or have affected the execution of the Works.

The Lift Contractor shall be responsible for providing general arrangement, setting-out and construction drawings for the refurbished lifts as part of the Project and as detailed within the Specification together with any additional drawings required for any authorising body.

CLIENT'S CONSIDERATIONS & MANAGEMENT REQUIREMENTS

Planning & Management of the Construction Works

The Client has appointed Tuv Sud Ltd Dunbar & Boardman, who are Lift Consultants experienced in the design, specification and management of lift installation and replacement works, to prepare a Performance Specification and undertake the management of the Project.

Key safety goals include:

- No safety related incidents
- No accidents to employees, residents, contractors, subcontractors or members of the public
- A completed lift installation, suitable for use by disabled persons, that can be used, maintained and operated safely throughout its operational life
- Compliance with the requirements of the Lifts Regulations 2016 and EU Lifts Directive 2014/33/EU; and Harmonised Standards BS EN81-20 & 50: 2014; and BS EN81-21: 2018; and BS EN81-70: 2003; and BS EN81-71: 2018
- Handover of a Health & Safety File comprising a complete set of CDM 2015, Design and O&M documentation to the Client on completion of the Works

Communication & Liaison between the Client & Others

The Lift Contractor and their sub-contractors shall, at all times, comply with the agreed Health & Safety procedures and particular those which directly affect the Health & Safety of personnel throughout the installation period of the Contract. Any additional requirements with respect to emergency procedures and associated requirements are to be discussed/agreed with the Principal Designer and Contract administrator prior to the commencement of site works.

Method Statements and continuing re-evaluation of work sequences will be required and must be properly implemented by the Lift Contractor. Changes and revisions are to be recorded and/or minuted, and the Construction Phase Safety Plan amended accordingly, during the installation period.

Where unforeseen events may occur during the site works the Lift Contractor shall provide a suitable Safe System of Work which can be implemented to meet the requirements and circumstances of any design change, including assessments of all hazards involved and the necessary communication and liaison required to minimise the effect of these, both materially and with respect to human resources.

The Lift Contractor shall include for attending regular site meetings. The anticipated time scale will normally be once every two weeks, although the actual timing of such meetings shall be as required by the Contract administrator.

The Lift Contractor is responsible for ensuring that all of their engineers, operatives and sub-contractors are fully trained and made conversant with the required Health & Safety procedures and requirements, prior to commencement of any operations on site. A Register of Inductions and Tool Box Talks shall be included in the Construction Phase Safety Plan.

Overlap with Clients' Undertaking

The premises will remain occupied during the course of the works on site. The Lift Contractor shall ensure therefore that their engineers and operatives are aware of the requirements for safe access and the protection of work areas.

The Lift Contractor shall protect, uphold and maintain all underground services and overhead lines during the execution of the Works.

The Lift Contractor shall safeguard all reference points which indicate the presence of an underground service and will be held liable for any damage resulting due to any cause within their or their sub-contractor's control which is occasioned to any service or marker and shall be held responsible for any costs or charges for making good.

The Lift Contractor shall comply fully and in all respects with the statutory requirements of the Control of Pollution Act 1974 and the Control of Noise at Work Regulations 2005. The use of noisy items of plant, such as percussion drills and angle grinders, whilst permissible, shall be kept to a minimum. If necessary these activities are to be undertaken outside of the normal working hours of the building. Sufficient controls or working methods shall be applied in order to ensure that the risks (of exposure to high noise levels) to the Lift Contractor's employees, sub-contractors or other persons likely to be affected, are reduced to as low a level as reasonably practical. The timing of all activities where a high level of noise generation cannot be avoided must be agreed with the Contract administrator prior to commencement.

At no time will the use of personal radios be permitted.

The Lift Contractor shall include for taking reasonable precautions to prevent workmen, including those employed by sub-contractors, from trespassing on adjoining owner's property or any part of the premises which are not affected by the Works.

Security of the Site

The element of the construction site, comprising the lift well and entrances, shall be secured behind robust protective hoardings, which are to be securely fixed to the structure of the building. These shall be checked daily by the Lift Contractor.

The access to the site shall be via **ramped entrance** at times agreed with the Contract administrator. **All** protection to finishes and personnel routes shall be the responsibility of the Lift Contractor. Floor surfaces at each level shall be protected using 'Cordex' or equal approved hazard tape in order to avoid tripping hazards.

The existing machine rooms will be available to the Lift Contractor's operatives as secure areas for the temporary storage of tools etc. during the course of the works.

The Lift Contractor shall:-

Safeguard the Works, materials and plant against damage, theft or vandalism, including the provision of all necessary lighting for the security of the Works and the protection of the Public.

The Lift Contractor shall provide for carefully covering up and protecting all fixed or unfixed items of equipment throughout the duration of the Works until Taking-Over. Any equipment which has become tarnished, corroded, degraded, or damaged in any way whatsoever, will not be accepted and shall be replaced by the Lift Contractor at their own cost.

The Lift Contractor shall provide for removing all rubbish from the site, both as this accumulates and at completion, including the removal of all temporary works associated with the provision of plant, signboards, temporary roads, temporary hoarding and temporary buildings. Any damage or disruption arising as a result of the foregoing shall be made good. All packing cases and packing material shall be removed from site immediately the contents have been unpacked. All waste and/or redundant materials shall be disposed of at an approved site and evidence provided for retention in the Health & Safety File. Upon completion of the Works, the Lift Contractor shall fully reinstate the site to its original condition.

The Lift Contractor shall make adequate provision to protect the decorative finish to floors, walls and ceilings and areas adjacent to the Works, from damage, occurring accidental or otherwise, occasioned during the course of the Works. Any damage which does occur must be re-instated by the Lift Contractor to the satisfaction of the Contract administrator.

The Lift Contractor shall ensure that all Portable Appliances used at/or brought to the site shall be tested and marked in compliance with current Regulations.

The Lift Contractor shall ensure that all lifting equipment, including tackles and slings, is tested and marked in accordance with current Regulations.

The Lift Contractor shall ensure that all scaffolding is correctly installed to current Regulations, with installation and/or modifications, adjustments or adaptation, undertaken by authorised personnel only. Scaffolds shall be Inspected and Tagged and a register shall be retained on site.

The Lift Contractor shall issue to, or arrange for, their employees and sub-contractors to be provided with photographic ID Cards which are to be designed to the Contract administrator's approval. These are to remain valid for the duration of the Works, and are to be carried at all times. Entry to the premises will be refused if a valid pass cannot be produced.

The Lift Contractor shall also comply with any other security measures which the Client may impose during the Works.

Welfare provision

The Lift Contractor shall provide welfare facilities in the form of Ground Hog unit for the duration of the works. The exact location for the unit to be agreed prior to commencement of the works.

Site Hoarding Requirements

The Lift Contractor shall install robust protective hoardings the design and construction of which is to be as detailed elsewhere in this Specification.

Entrance protection shall be provided by the Lift Contractor in accordance with Section 4 of this Specification.

It is imperative that any protective hoarding, barrier and work screen is maintained in a sound and secure condition at all times. Access doors are to be kept securely locked excepting for when the Lift Contractor's engineers or Sub-contractors are working in the immediate vicinity.

Hoardings shall not be dismantled and/or removed without the express agreement of the Contract administrator.

Site Transport Arrangements & Vehicle Movement Restrictions

The Lift Contractor's attention is drawn to the requirement that he is to restrict the flow of vehicles to times as agreed with the Contract administrator, and must allow in their Tender, for all necessary precautions necessary to protect the occupants of the premises and the members of the public, and to maintain access at all times.

The only form of site transport envisaged is that of delivery vehicles to the exterior section of car park and small handling trolleys within the building.

Delivery of large assemblies or components shall be co-ordinated with the Contract administrator. The Lift Contractor shall, at all times, supervise offloading and vehicle movements which are to be undertaken during periods of low use of the areas involved.

The Lift Contractor shall provide, and display in the appropriate position, all necessary signs in accordance with the Ministry of Transport system of advance warning signs, as required by the Policy Authority and the responsible Highway Authority. The Lift Contractor shall include for all costs and charges for complying with all other regulations and directions, including obtaining permissions in relation to any road closure, cranes, etc.

Client Permit to Work System

The Client does not operate a Permit to Work system at the premises. However, the Lift Contractor will be expected to manage and monitor access to the work area for the lift and ensure that all operations are conducted in accordance with their own safe working system.

Fire Precautions

All hot works shall be notified to Exeter City Council's principal Health & Safety officer for prior approval.

The fire alarms and procedures will be reviewed with the Lift Contractor at a pre-start meeting to be held with the Contract administrator and Client's representative. The Lift Contractor shall provide fire extinguishers appropriate for any Hot Works. Any Hot Works shall be properly supervised and only undertaken during times and for durations which have been advised to, and agreed with, the Contract administrator.

Only the Lift Contractor's employees or sub-contractors who have been properly trained in the use of such equipment shall be permitted to use such equipment. The Lift Contractor shall ensure that proper safety precautions, in compliance with good practice and statutory requirements, are applied and maintained for the duration of the use of the equipment.

Should the Lift Contractor or their sub-contractors have a requirement to use either oxyacetylene or electrical welding equipment on site the Lift Contractor shall first seek the permission of the Contract administrator, who will not unreasonably withhold such permission.

The Lift Contractor shall include all necessary equipment to control fumes and smoke generated by such operations.

Emergency Procedures & Means of Escape

Emergency procedures, means of escape and first aid facilities (which shall meet the requirements of The Health & Safety (First-Aid) Regulations 1981), will be reviewed at the Pre-Start Meeting.

No-go areas & other specific authorization requirements

Due to the limited space available the Lift Contractor is required to limit their area of operations to the motor rooms, shafts and any hoarded area of the landings.

The Lift Contractor's normal access areas will be limited to the motor rooms, wells, entrance lobbies and immediate staircase, as well as agree welfare and washroom facilities. All operatives shall restrict their access to the generally agreed site access and work areas.

The area of the shaft pit, motor room and hoarding shall be designated hard hat areas. The Lift Contractor shall ensure that all of their employees and sub-contractors are issued with, and wear, hard hats whilst working in these areas. Adequate spare hard hats shall be made available on site for visitors.

Confined Spaces

No confined spaces in the regulatory sense are envisaged. In cases where work is to be undertaken at the head of the lift well, or in the lift pit, where access and egress may be inhibited, the Lift Contractor shall establish a Safe System of Work together with provisions for communication and rescue.

Site Rules & Discipline

The Lift Contractor shall comply with the Client's Building Rules which are appended to the Specification.

The Lift Contractor shall, at all times, ensure that their employees, whether for installation works or service work, act in a responsible manner whilst on the Client's premises.

The Lift Contractor shall ensure that all employees and sub-contractors are issued with, and wear at all times, personal protective equipment. This should comprise, as a minimum, overalls bearing the company name or logo, safety footwear, eye protection, hearing protection and hard hat.

Each of the Lift Contractor's employees who are required to visit the premises are expected to carry identification which must be produced on request to duly authorised representatives of the Client.

The Client reserves the right to refuse access to or to reject any of the Lift Contractor's employees or sub-contractors in the event that their actions are considered to be disruptive or detrimental to the operation of the premises or to the progress of the Works.

The Lift Contractor shall ensure that all work areas are left safe and secure following completion of each day's work, with all access keys returned to the Client's Representative.

Construction Skills Certification Scheme

All the Lift Contractor's engineers and sub-contractors shall have passed the relevant level of CSCS test and be in possession of a valid card.

The Lift Contractor must refuse access to any operative who is not carrying a valid card.

Parking Restrictions

There is designated car parking available to the Lift Contractor at this stage.

ENVIRONMENTAL RESTRICTIONS & EXISTING ON-SITE RISKS

Safety Hazards

Known potential existing safety hazards and environmental restrictions which are to be taken into account and addressed by the Lift Contractor in their Construction Phase H&S Plan include the following:

- Hypodermic needles & syringes/sharps in foyer areas.
- Loading, off-loading and distribution of materials will be undertaken in areas accessible to members of the public.
- Moving vehicles in parking areas.
- Limited storage space is available and redundant materials are to be removed on a daily basis.
- Wiring for the fire alarm smoke detector at the top of the lift shaft is to be retained and reinstated during the strip out of redundant lift material.

Health Hazards

Roof Aerials/Masts/Microwave Dishes

There may be roof mounted antennae on the access route to the lift machine room. Whilst carrying out their pre-tender survey the Lift Contractor should undertake a detailed inspection in order to identify any radio masts, microwave dishes/antennae and shall inform the Contract administrator of the findings.

The Lift Contractor must ensure that all personnel follow instructions on warning signs, observe any exclusion zones, and keep to prescribed access route.

If unmarked radio masts, microwave dishes/antennae are later discovered, evacuate from the area and carry out a hazard analysis.

The Lift Contractor shall, whenever required, take suitable action to avoid exposure to high levels of microwave radiation. And, only proceed if satisfied that the access route is safe or that additional precautions are such as to sufficiently reduce any residual risk. If the route remains a high risk and no alternative means of access is available, the Lift Contractor must respond as follows:-

a) Cease work in the vicinity of the perceived hazard.
b) Report the nature of the risk by telephone to the CONTRACT ADMINISTRATOR.
c) Do not recommence work in that area until instructed to do so by the CONTRACT ADMINISTRATOR.

Contaminated Land

The Lift Contractor shall observe the environmental controls detailed in The Contaminated Land (England) Regulations 2000 as enforced by the Environment Agency or Local Authority and seek specialist advice before commencing work.

KNOWN EXISTING HAZARDS

Known potential existing health hazards to be taken account of and addressed by the Lift Contractor in their construction phase plan are as follows:

Asbestos

There are no known asbestos containing materials present in the work areas or equipment covered by this project (refer to asbestos survey/register appended to this Specification).

However, clear and explicit instructions must be issued by the Lift Contractor to all operatives and sub-contractors involved with the works on site, such that if during the course of the works material is encountered which it is reasonably suspected may contain any form of asbestos, they should respond as follows:-

- Cease work in the vicinity of the suspect material immediately.
- Report immediately by telephone, and confirm by facsimile within two hours, to the Contract administrator.
- Do not recommence work until instructed to do so by the Contract administrator.

Mineral Oil

- The existing drive unit contains gear oil, which will require appropriate protective clothing, gloves etc. to be worn by operatives handling the removal of the redundant equipment. All oil must be disposed of in accordance with the relevant legislation and guidance.

Hypodermic Needles/Syringes & Sharps

- There is evidence of use of drug related paraphernalia within the car park premises. Where identified, it must be immediately reported to car park officers for removal.

SIGNIFICANT DESIGN & CONSTRUCTION HAZARDS

Significant Design Assumptions (Work methods, sequences and other control measures)

The lift design shall be in compliance with the Harmonised Standards BS EN81-20: 2014 and BS EN81-50: 2014 providing an assumption of compliance with the Essential Health & Safety Requirements of EN Lifts Directive 2014/33/EU and with the Lifts Regulations 2016. The lift shall be subject to witness test in line with BS 8486-1: 2007/ BS8486-3: 2017 Standard on completion.

The lift installation method is proprietary to the Lift Contractor and detailed installation Method Statements, Risk Assessments and layout drawings shall be provided by the Lift Contractor. These shall be incorporated into the Construction Phase Plan.

The removal of the existing lift shall be undertaken by the Lift Contractor's operatives who must be experienced in this type of work.

It is envisaged that the existing lift well equipment can be electrically isolated and the lift car suitably suspended, applying a double set of tested lifting equipment each of which is suitably de-rated by 50% of SWL, from the existing lifting beam, which shall be tested prior to use. The lift car may then be utilized as a working platform to dismantle equipment in the upper section of the lift well and lower this into the pit area for dismantling and removal from site via the car park entrance/exit.

It is envisaged that the lift machine room equipment can be electrically isolated, mechanically and electrically disconnected and removed from site.

The lift motor and gearbox can remain in-situ once decommissioned and drained of oil. All remaining equipment is to be removed.

Comprehensive and detailed Safe Systems of Work, Method Statements, Risk Assessments and Control Measures are to be provided and agreed with the Principal Designer/Contract administrator prior to commencement.

The associated builders and electrical work shall be undertaken by the Lift Contractor. It is envisaged that the works are to be undertaken using traditional construction trades working from a traditional scaffold structure or temporary platform installed within the lift well. The Lift Contractor shall provide comprehensive and detailed Safe Systems of Work, Method Statements and Risk Assessments for all builder's and electrical works tasks.

Coordination of Ongoing Design and Design Changes

It is envisaged that the Lift Contractor shall provide detailed lift design drawings together with details of the required builder's works alterations and any modifications to the lift well and lift motor room. These are to be reviewed and agreed with the Contract administrator. Any subsequent design changes which may arise are to be channeled through the Principal Designer/Contract administrator, recorded in the Construction Phase Plan, and detailed on the Construction and the final As-Built Drawings.

The Lift Contractor shall record and highlight, including appropriate detail, any significant hazards and risks associated with the Construction Works, which have not been eliminated and/or adequately mitigated in the Design of the Works, on the Construction Drawings.

The Lift Contractor shall record details of any significant residual hazards and risks affecting the Works and the Design, which could not be eliminated and/or adequately mitigated in the Design, on the Final "As Fitted" record drawings and in the H&S File.

Information on Significant Risks Identified During Design

- Refer to the Lift Contractors Design Risk Assessment for compliance with the Lifts Regulations 2016 and EU Lifts Directive 2014/33/EU.
- Refer to following Dunbar & Boardman indicative risk assessments.

Materials Requiring Particular Precautions

Disposal of redundant mineral oil.

PRINCIPAL CONTRACTOR CONSTRUCTION PHASE PLAN DEVELOPMENT

The Lift Contractor shall develop the Health & Safety Plan in accordance with Regulation 12 of the CDM 2015 Regulations.

A copy of the Construction Phase Health & Safety Plan shall be provided to the Principal Designer and Contract administrator prior to commencement of any works.

During the course of the Project a copy of the Plan will be held on site by the Lift Contractor's Senior Engineer. This shall be updated with any necessary amendments agreed during the regular site meetings.

At completion of the Project the Lift Contractor shall provide the Operating and Maintenance Manuals and the Health & Safety information, including assessments of residual risks, to the Principal Designer for incorporation into the Health & Safety File, which is to be provided to the Client.

THE HEALTH & SAFETY FILE

The Health & Safety File shall be produced in accordance with the CDM 2015 Regulations and the Guidance provided by HSE. Relevant information obtained from the Lift Contractor, Designers, Contractors and other parties during the course of the Project shall be collated by the Principal Designer for issue to the Client on completion of the Project.

In order to produce the file the Principal Designer requires the cooperation of the Lift Contractor and other Designers and Contractors who shall to provide information expeditiously, and whenever required, throughout the course of the Project. In particular the Operating and Maintenance Manuals, which are detailed later in this Specification, these are to be provided at the latest by the date of Taking-Over, accepting that the final installation Test Certificates may not be available until completion of Witness Tests.

The information to be included must be specific to those Health and Safety issues relevant to the Project and Works and shall cover the whole installation life cycle including development, maintenance and subsequent demolition.

TUV SUD Ltd Dunbar Boardman Risk Assessments

Mary Arches Car Park, Exeter, EX4 3AZ

(Based upon BS ISO 14798:2013)

LIFT SPECIFICATION RISK DOCUMENTATION		Document No. LSRD
Contract Name: Mary Arches Car Park Lift Replacement Project		NOTE: The hazards identified should not be considered to be an exhaustive list. You are also advised to make reference to BS EN81-80:2003, for significant hazards associated with existing lift installations and implement appropriate control measures.
Lift Identity & location: Mary Arches Car Park, Exeter, EX4 3AZ		This document is intended as a reminder of the possible consequences of certain activities/actions and is not a reflection on your skill and experience. If you identify any other potential hazards, please ensure the master document is suitably amended.
Assessment conducted by: Paul St Claire Date: 29.08.18	Signed: 	

No:	Activity/Location Materials/Tools etc *(Cause/Trigger)*	Hazards Identified - *(Effect)*	S	F	Initial Risk Rating (S x F)	Persons at Risk	Control Measures/*Corrective Actions*	S	F	Final Risk Rating (S x F)	*Residual Risk*
G1	Equipment Remains Unexpectedly Live	Electric Shock due to: • Faulty switchgear • Poor insulation or earthing • Inadequate switch marking • Live interconnected wiring • Car lighting or other high voltage equipment in controller • Charge remaining on DC link capacitors on VVF drives • Equipment not PAT tested • No rubber mats • No main switch lock off facility • Missing or broken covers • Tripping hazards • Inadequate lighting	4	4	16 =**VH**	**E CO O**	Motor room to be designed to allow adequate access for working in accordance with Electricity at Work Regulations and be well lit and free of tripping hazards. Lift Contractor to ensure all staff are adequately trained in safe working practices. All portable appliances to be tested and marked with valid PAT certification. Lift Contractor to provide lock-off facilities to main switches and rubber mats to BS921 at front and rear of controllers. Wherever practical, inspection of electrical systems should be carried out only after the equipment has been isolated from the power supply. When appropriate, to safeguard accidental reconnection by others, the main supply must be "locked-off" and "tagged out" to clearly indicate that work is in progress. All readily accessible live conductors must be covered by an insulating material, e.g. rubber shrouds, or be positioned so they are safe. All equipment must be properly earthed. All doors to control cabinets must be closed and secured after use. A "treatment for electric shock" notice should be displayed in appropriate locations, as recommended by the Guidance to the Electricity at Work Regulations.	2	2	4 = **L**	Acceptable risk

Risk Rating Criteria					
SEVERITY (**S**)		FREQUENCY (**F**)			
1 Negligible	2 Minor Injury	1 Highly Improbable	2 Improbable	3 Remote	
3 Serious Injury	4 Major Injury	4 Occasional	5 Probable	6 Highly Probable	

Risk Rating Multiples: 1 - 4 LOW = Acceptable risk; 5 – 9 MEDIUM = Investigate and where practical reduce the risk; **10 – 14 HIGH = Action must be taken to reduce the risk**; **15 – 24 VERY HIGH = RISK IS TOO HIGH TO START WORK OR CONTINUE. WORK MUST STOP**												
Persons at Risk	Public	**P**	Client	**CL**	Employee	**E**	Contractors	**CO**	Visitors	**V**	Others	**O**

No:	Activity/Location Materials/Tools etc *(Cause/Trigger)*	Hazards Identified - *(Effect)*	S	F	Initial Risk Rating (S x F)	Persons at Risk	Control Measures/*Corrective Actions*	S	F	Final Risk Rating (S x F)	*Residual Risk*
G2	Manual Handling of Equipment	Injury due to: • Items heavier than they appear • Incorrect lifting method • Lack of mechanical handling equipment • Lack of assistance for heavy load • Lack of protective footwear • Sharp edges	2	4	8 = **M**	**E** **CO**	All items to be marked with their weight. Lift Contractor to provide mechanical handling equipment to move items which cannot be safety man handled. Safety footwear to BS EN ISO 20345 and protective Kevlar or rigger gloves must be worn.	2	2	4 = **L**	Acceptable Risk
G3	Use of Percussion Drill/Angle Grinder or Hand Tools	Damage to hearing by percussion drilling or accident while using angle grinder/hand tools.	3	5	15= **VH**	**E** **CO** **V** **O**	Lift Contractor to observe Principal Contractors disciplines for noisy works and ensure full compliance with the Control of Noise at Work Regulations 2005. Non-percussive drills should be used wherever practical to reduce the risks from noise and vibration. Lift Contractor to ensure all staff using or working near percussion drilling equipment/angle grinders etc. are equipped with suitable ear defenders/protective goggles and that they use protective equipment and have been instructed on their correct use. All portable appliances to be tested and marked with valid PAT certification. Unless battery powered or hand tools are employed, a residual current earth leakage device (RCD) designed to BS EN 61008-1 must be used.	2	2	4 = **L**	Acceptable Risk
G4	Use of Mineral Oil	Risk of illness from contact with mineral oils	3	3	9 = **M**	**E** **CO**	Consultant to specify low risk or bio-degradable oils where available. Lift Contractor to provide COSHH data sheets for any substances involved. The area should be well ventilated and PPE should include the use of disposable overalls	2	2	4 = **L**	Acceptable Risk

Risk Rating Criteria				
SEVERITY (**S**)		FREQUENCY (**F**)		
1 Negligible	2 Minor Injury	1 Highly Improbable	2 Improbable	3 Remote
3 Serious Injury	4 Major Injury	4 Occasional	5 Probable	6 Highly Probable
Risk Rating Multiples: 1 - 4 LOW = Acceptable risk; 5 – 9 MEDIUM = Investigate and where practical reduce the risk; **10 – 14 HIGH = Action must be taken to reduce the risk**; **15 – 24 VERY HIGH = RISK IS TOO HIGH TO START WORK OR CONTINUE. WORK MUST STOP**				

Persons at Risk	Public **P**	Client **CL**	Employee **E**	Contractors **CO**	Visitors **V**	Others **O**

No:	Activity/Location Materials/Tools etc *(Cause/Trigger)*	Hazards Identified - *(Effect)*	S	F	Initial Risk Rating (S x F)	Persons at Risk	Control Measures/*Corrective Actions*	S	F	Final Risk Rating (S x F)	*Residual Risk*
G5	Use of Welding/Grinding Equipment	Danger of fire due to dry grinding or welding on site	3	4	12 = **H**	**P CL E CO V O**	Principal Contractor to establish regime of Hot Works including permits. Lift Contractor to ensure site staff are aware of procedures and work to them. Lift Contractor to provide all necessary PPE, safety and fire precautions, certified as necessary and ensure they are maintained throughout the Hot Work process. As a minimum, fire extinguishers must be readily available and members of the public and other non essential staff excluded from the agreed work area. If gas welding equipment is used it must be inspected prior to use for damage to valves, hoses and for leaks and must not be used if defective. The work area must be well ventilated and any smoke detectors temporarily disarmed.	2	2	4 = **L**	Acceptable Risk
G6	Use of Paint Spraying Equipment	Danger of inhalation of fumes from site spraying or painting	3	3	9 = **M**	**CL E CO**	Wherever practical, off-site application of paint specified by Consultant. Otherwise, Lift Contractor must use low fume materials where available and provide COSHH data on all materials used. Lift Contractor to provide PPE and any necessary protection and extraction necessary to comply with the COSHH Regulations.	2	2	4 = **L**	Acceptable Risk
G7	Lift Car to be Delivered and Installed in One Section	Injury due to: • Incorrect lifting method • Inadequate mechanical handling equipment • Failure of mechanical handling equipment • Lack of assistance for heavy load • Lack of protective footwear • Curiosity of members of the public	4	3	12 = **H**	**P CL E CO V O**	Design Team to provide adequate information including restricted heights, widths and floor loadings, to allow Contractor to prepare a method statement and risk assessment for the task. Design Team to check method statement and risk assessment. As a minimum, the unloading area and access route must not be accessible to the public and all operatives are to be trained in manual handling and rigging of loads. Contractor to ensure site staff are aware of safe working documentation and work to it. Contractor to ensure site staff are provided with all necessary safety equipment, plant and tackles with test certificates as required and are instructed on their use. Principal Contractor to ensure other works are scheduled to provide adequate free access to Contractor during delivery	4	2	8 = **M**	The hoist/crane or slings could fail

Risk Rating Criteria				
SEVERITY (**S**)		FREQUENCY (**F**)		
1 Negligible	2 Minor Injury	1 Highly Improbable	2 Improbable	3 Remote

3 Serious Injury	4 Major Injury	4 Occasional	5 Probable	6 Highly Probable

Risk Rating Multiples: 1 - 4 LOW = Acceptable risk; 5 – 9 MEDIUM = Investigate and where practical reduce the risk; **10 – 14 HIGH = Action must be taken to reduce the risk**; **15 – 24 VERY HIGH = RISK IS TOO HIGH TO START WORK OR CONTINUE. WORK MUST STOP**

Persons at Risk	Public **P**	Client **CL**	Employee **E**	Contractors **CO**	Visitors **V**	Others **O**

No:	**Activity/Location Materials/Tools etc *(Cause/Trigger)***	**Hazards Identified - *(Effect)***	**S**	**F**	**Initial Risk Rating (S x F)**	**Persons at Risk**	**Control Measures/*Corrective Actions***	**S**	**F**	**Final Risk Rating (S x F)**	***Residual Risk***
G8	Delivery/Removal of Lift Equipment	Danger of tripping or being struck by equipment being removed or delivered to site.	3	4	9 = **M**	**P CL E CO V O**	Contractor to provide temporary barrier protection and notices on agreed access route for deliveries. The access route must not be accessible to the public. Any floor protection to be taped in place. All deliveries to be co-ordinated with the Contract administrator/Employer.	3	2	6 = **M**	Acceptable Risk
G9	Possible Asbestos Contamination Within the Lift Area	Health risk due to inhalation of asbestos fibres from: • Brake linings • Contactor arc shields • Door insulation • Pipework/ductwork lagging • Machine room or shaft panelling/wall cladding	3	4	12 = **H**	**E CO**	The owner (or 'Duty Holder') shall furnish a copy of the Asbestos Register called for by the Control of Asbestos Regulations 2006. Contractor to arrange specialist analysis, identification and recommended action then submit a report to Design Team. Contractor to arrange recommended action in accordance with specialist report. Any removal & disposal shall be carried out by a registered Contractor fully in accordance with the Health & Safety at Work Act and all relevant Health & Safety Executive Guidance Notes.	3	2	6 = **M**	Acceptable Risk
G10	Installation of Mirrors or Glass Doors/Decorative Panels	Injury from broken glass	3	3	9 = **M**	**E CO**	Design team to specify laminated glass and mirrors with safety backing. Protective gloves to be worn when handling glazed panels.	3	2	6 = **M**	Acceptable Risk
G11	High Voltages on Auxiliary Lift Equipment Termination Points.	Danger of electric shock	4	3	12 = **H**	**E CO O**	Lift Contractor designer to ensure all auxiliary wiring within the lift machine room, lift shafts and lift car are of a maximum 55 volts where practically possible. (PD6519-1:1995 & IEC 60479-1:1994 refer). All connections and enclosures where higher voltages are present are to be identified with appropriate signage.	3	2	6 = **M**	Acceptable Risk
G12	Alterations to Existing Electrical Supplies	Danger of electric shock	4	3	12 = **H**	**E CO**	Lift Contractor to issue Method Statement and Risk Assessment on working procedure on existing electrical supplies that require alteration during the scope of the works. If the existing supplies cannot be identified and isolated then works are not to proceed and must be reported to the Contract administrator and site contact.	2	2	4 = **L**	Acceptable Risk

Risk Rating Criteria												
SEVERITY (**S**)				FREQUENCY (**F**)								
1 Negligible		2 Minor Injury		1 Highly Improbable		2 Improbable		3 Remote				
3 Serious Injury		4 Major Injury		4 Occasional		5 Probable		6 Highly Probable				
Risk Rating Multiples: 1 - 4 LOW = Acceptable risk; 5 – 9 MEDIUM = Investigate and where practical reduce the risk; **10 – 14 HIGH = Action must be taken to reduce the risk**; **15 – 24 VERY HIGH = RISK IS TOO HIGH TO START WORK OR CONTINUE. WORK MUST STOP**												
Persons at Risk	Public	**P**	Client	**CL**	Employee	**E**	Contractors	**CO**	Visitors	**V**	Others	**O**

No:	Activity/Location Materials/Tools etc *(Cause/Trigger)*	Hazards Identified - *(Effect)*	S	F	Initial Risk Rating (S x F)	Persons at Risk	Control Measures/*Corrective Actions*	S	F	Final Risk Rating (S x F)	*Residual Risk*
LS1	Shaft Access During Lift Installation	Danger of falling down lift shaft during construction and installation of lift.	4	3	12 = **H**	**P** **CL** **E** **CO** **V** **O**	Principal Contractor to protect entrance openings to lift shaft so there is no risk of falling. Lift Contractor to provide method statement with safe system of working. Lift Contractor to ensure that all staff have adequate safety equipment and are instructed for its use and that they must ensure their activities do not endanger others.	3	2	6 = **M**	Acceptable Risk
LS2	Working on Car Top - Limited Headroom	Danger of Engineer striking head on slab over lift shaft whilst working on car top.	2	5	10 = **H**	**E** **CO**	The headroom must be designed to meet the requirements of BSEN81 so there is headroom above the lift car to provide a space sufficient to accommodate persons travelling on top of the lift. Limit switches in compliance with BS7255 must be installed to prevent movement of the lift car beyond a defined point to create this safe space. Suitable danger notices to be provided on car top by Lift Contractor.	2	2	4 = **L**	Limit switch could fail to stop the lift
LS2A	Working on Car Top - Headroom Not Compliant with BSEN81	Risk of Engineer being crushed whilst working on car top.	4	5	20=**VH**	**E** **CO**	Lift Contractor to develop a safe system of working taking into account the existing constraints and then seek approval of his Notified Body for this deviation from the standard. As a minimum, electrically interlocked props and limit switches must prevent movement of the lift car beyond a defined point to create the safe space required by BSEN81 & BS7255. Travel in the up direction must not be attempted unless it is essential.	2	2	4 = **L**	Acceptable Risk
LS3	Working in the Lift Pit	Danger of Engineer being crushed below the descending car whilst working in pit.	4	4	16=**VH**	**E** **CO**	Pit depth and position of stop switches to be in accordance with BSEN81. Consultant to specify provision of guide clamps or props in pit. Lift Contractor to provide clamps or props along with notice instructing on their use. Prior to entering pit, verify the correct operation of the landing locks and the pit emergency stop switch. Use props on hydraulic units and do not go under a traction unit that has a load in the car.	4	2	8 = **M**	Pit stop switch may subsequently fail

Risk Rating Criteria					
SEVERITY (**S**)		FREQUENCY (**F**)			
1 Negligible	2 Minor Injury	1 Highly Improbable	2 Improbable	3 Remote	
3 Serious Injury	4 Major Injury	4 Occasional	5 Probable	6 Highly Probable	
Risk Rating Multiples: 1 - 4 LOW = Acceptable risk; 5 – 9 MEDIUM = Investigate and where practical reduce the risk; **10 – 14 HIGH = Action must be taken to reduce the risk**; **15 – 24 VERY HIGH = RISK IS TOO HIGH TO START WORK OR CONTINUE. WORK MUST STOP**					

Persons at Risk	Public	**P**	Client	**CL**	Employee	**E**	Contractors	**CO**	Visitors	**V**	Others **O**

No:	Activity/Location Materials/Tools etc *(Cause/Trigger)*	Hazards Identified - *(Effect)*	S	F	Initial Risk Rating (S x F)	Persons at Risk	Control Measures/*Corrective Actions*	S	F	Final Risk Rating (S x F)	*Residual Risk*
LS3A	Working in the Lift Pit – Pit Depth Not Compliant with BSEN81	Danger of Engineer being crushed whilst working in pit due to existing pit depth not being compliant with BSEN81.	4	5	20=**VH**	**E CO**	Consultant to specify provision of guide clamps or props in pit. Lift Contractor to provide clamps or props along with notice instructing on their use. Prior to entering pit, verify the correct operation of the pit emergency stop switch. Use props on hydraulic units and do not go under a traction unit that has a load in the car. Lift Contractor to develop a safe system of working taking into account the existing constraints and then seek approval of his Notified Body for this deviation from the standard. A "Permit to Work" system must be operated in the interim period.	3	2	6 = **M**	Permit to work system ineffective
LS4	Working Below Suspended Pit	Danger of Engineer being crushed whilst working below suspended pit	4	3	12 = **H**	**E CO**	The building structure must be designed to comply with current Regulations and accommodate the loads resulting from actuation of safety gears and/or buffers. A counterweight safety gear must be provided but if this is impractical the structure must incorporate steel or concrete piers beneath the counterweight buffers down to terra firma to withstand the loads imposed by the free falling counterweight. Contractor to check and verify as part of his commissioning tests.	4	1	4 = **L**	Acceptable Risk
LS5	Working on Car Top	Danger of falling from car top during maintenance or inspection	4	4	16=**VH**	**E CO**	Design Team to include in car design for safety barriers and harness anchor point. Contractor to provide suitable harness to all staff working on lift, with instructions to their use. Contractor to provide suitable notices on car top. Health & Safety file and O&M Manuals to contain information and warnings.	4	2	8 = **M**	Harness may not be worn

Risk Rating Criteria					
SEVERITY (**S**)		FREQUENCY (**F**)			
1 Negligible	2 Minor Injury	1 Highly Improbable	2 Improbable	3 Remote	
3 Serious Injury	4 Major Injury	4 Occasional	5 Probable	6 Highly Probable	
Risk Rating Multiples: 1 - 4 LOW = Acceptable risk; 5 – 9 MEDIUM = Investigate and where practical reduce the risk; **10 – 14 HIGH = Action must be taken to reduce the risk**; **15 – 24 VERY HIGH = RISK IS TOO HIGH TO START WORK OR CONTINUE. WORK MUST STOP**					
Persons at Risk	Public **P**	Client **CL**	Employee **E**	Contractors **CO**	Visitors **V**	Others **O**

No:	Activity/Location Materials/Tools etc *(Cause/Trigger)*	Hazards Identified - *(Effect)*	S	F	Initial Risk Rating (S x F)	Persons at Risk	Control Measures/*Corrective Actions*	S	F	Final Risk Rating (S x F)	*Residual Risk*
LS6	Working on Lift Landing	Danger of falling down existing shaft from landings during works.	4	4	16=**VH**	**E CO**	Contractor to provide lockable hoarding to each entrance where the doors have been removed in accordance with the Designers specification, taking due care to avoid restricting access through building, means of escape, etc. Hoardings to be fitted with suitable notices warning of risks. Hoardings to be kept locked. Contractor to operate a "Permit to Work" system, ensuring all staff work to them and are aware of risks.	4	2	8 = **M**	Unauthorised persons may enter while hoardings are open
MR1	Working in Machinery Area	Danger of Engineer having inadequate space for safe access of equipment.	3	3	9 = **M**	**E CO**	The machine room area, height, access and layout of equipment to be in accordance with BSEN81, Health & Safety at Work Act and the Electricity at Work Regulations.	3	1	3 = **L**	Acceptable Risk
MR1A	Working in Existing Machinery Area	Danger of Engineer having inadequate space for safe access of equipment.	3	4	12 = **H**	**E CO**	Since the machine room is existing, the Lift Contractor shall select and lay out equipment to achieve the clearances recommended in BSEN81, and ensure that the mandatory provisions of The Health & Safety at Work Act and the Electricity at Work Act are achieved.	3	2	6 = **M**	It may not be possible to be fully compliant due to space restrictions.
MR2	Working in Machinery Area	Danger of injury by unguarded machinery.	3	3	9 = **M**	**E CO**	Motor room and lift shaft to be kept locked. Lift Contractor to paint all moving parts safety yellow and provide guarding in accordance with Machinery Directive and PUWER Regulations. A remote gear isolation switch should be fitted to act as an emergency stop whilst working near unguarded sheaves or ropes.	2	2	4 = **L**	Guarding could be inadequate or have been removed

Risk Rating Criteria					
SEVERITY (**S**)		FREQUENCY (**F**)			
1 Negligible	2 Minor Injury	1 Highly Improbable	2 Improbable	3 Remote	
3 Serious Injury	4 Major Injury	4 Occasional	5 Probable	6 Highly Probable	
Risk Rating Multiples: 1 - 4 LOW = Acceptable risk; 5 – 9 MEDIUM = Investigate and where practical reduce the risk; **10 – 14 HIGH = Action must be taken to reduce the risk**; **15 – 24 VERY HIGH = RISK IS TOO HIGH TO START WORK OR CONTINUE. WORK MUST STOP**					
Persons at Risk	Public **P**	Client **CL**	Employee **E**	Contractors **CO**	Visitors **V**	Others **O**

No:	Activity/Location Materials/Tools etc *(Cause/Trigger)*	Hazards Identified - *(Effect)*	S	F	Initial Risk Rating (S x F)	Persons at Risk	Control Measures/*Corrective Actions*	S	F	Final Risk Rating (S x F)	*Residual Risk*
MR3	Working in Machinery Area	Danger of injury to Contractor's staff due to inadequate lifting facilities. See also item G7	4	3	12 = **H**	**E** **CO**	Lifting beam requirements to be shown by Lift Contractor in his design drawings. Structural Engineer to design fixings to suit. Suitable lifting beams to be provided in head of shaft by Principal Contractor. Beam to be tested and marked with its SWL. Certificates to be kept in site records.	3	2	6 = **M**	Acceptable Risk
MR4	Entering or Leaving Hydraulic Machine Room	Danger of tripping over bund wall to pump room door.	2	4	8 = **M**	**E** **CO**	Bund wall to be marked using suitable hazard warnings by Principal Contractor.	2	2	4 = **L**	Acceptable Risk
MR5	Working in Machinery Area	Danger of falling from raised machine room plinth	3	4	12 = **H**	**E** **CO**	Design team to specify supply and installation of adequate cat ladders and guard rails to comply with current Regulations. Contractor to ensure these are fitted as part of his commissioning tests.	3	2	6 = **M**	Acceptable Risk
MR6	Working in Machinery Area	Danger of moving equipment in multiple motor room	3	4	12 = **H**	**E** **CO**	Contractor to install suitable fixed barriers around all retained components in motor room. Carry out Risk Assessments and establish a safe method of working.	2	2	4 = **L**	Acceptable Risk
MR7	Entering plant rooms, lift shaft or pit	Danger of hostile atmosphere & build up of toxic gases within lift motor room and pit. Lack of oxygen/explosive atmosphere	4	3	12 = **H**	**E** **CO** **O**	Design Team to provide adequate information to allow Contractors to prepare Method Statement. Design Team to check statement prior to commencement of work. Contractor to ensure site staff are fully aware of risks and work to the method statement. Contractor to provide tested and certified gas detectors and fully functional respiratory protective equipment. A contingency Rescue Plan shall be ready for activation. Atmospheric tests must be conducted to ensure that the oxygen supply is within safe limits (e.g. 19% +) and safe working conditions exist, before entry is made into the plant rooms, lift shaft or pit. In each case a permit to work system shall be operated	2	2	4 = **L**	Acceptable Risk

Risk Rating Criteria				
SEVERITY (**S**)		FREQUENCY (**F**)		
1 Negligible	2 Minor Injury	1 Highly Improbable	2 Improbable	3 Remote
3 Serious Injury	4 Major Injury	4 Occasional	5 Probable	6 Highly Probable

Risk Rating Multiples: 1 - 4 LOW = Acceptable risk; 5 – 9 MEDIUM = Investigate and where practical reduce the risk; **10 – 14 HIGH = Action must be taken to reduce the risk**; **15 – 24 VERY HIGH = RISK IS TOO HIGH TO START WORK OR CONTINUE. WORK MUST STOP**						
Persons at Risk	Public **P**	Client **CL**	Employee **E**	Contractors **CO**	Visitors **V**	Others **O**

TUV SUD LTD DUNBAR BOARDMAN – HAZARD IDENTIFICATION CHECKLIST	
JOB NO. PSC/SG/N.W1800054	**DATE:** 29.08.2018
PROJECT: Mary Arches Car Park Lift Replacement Project	**ACTIVITY:** Lift Removal & Installation

(To be read in conjunction with Risk Analysis Sheets)

Activity	HAZARD (tick off relevant hazards)													
	Radiation Chemical & Metal Splash	Confined spaces	Fall From Height.	Struck by Mobile Plant	Trip	Collapse	Manual Handling	Moving Object	Electricity	Contact with moving machine	Fire	Hazardous Substance	Noise & Vibration	Explosion.
LIFTS														
- New Installation		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
- Modify Existing														
- Removal of Existing		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
ESCALATORS														
- New Installation														
- Removal of Existing														
Builders Works		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Electrical Works		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Asbestos Removal														

Signed:  **Name: Paul St Claire**

SCHEDULE OF BUILDER'S WORK

SECTION 4

SCHEDULE OF BUILDERS WORK

The work described in this section is to be provided by the Lift Contractor or their Sub-contractor and is to be included within the Tender price.

Attendances

Attendances as set out in the Preliminaries including: -

Storage and accommodation;

Temporary lighting and power;

Scaffold as required for the Lift Contractor's preferred method of discharging the Works. All scaffolding used is to be designed and installed in compliance with the requirements of BS EN12811: 2003, CITB TG20:13, the CDM Regulations 2015 and the Health & Safety at Work Act, together with any other Guidance, Regulation or Statutory requirement which may apply to the site and/or Works.

The scaffolding installation may be altered, modified, moved and or revised only by authorised and approved scaffolding operatives, and shall be inspected, tested and tagged periodically (weekly), through the duration Works.

Dismantling

The Lift Contractor is to allow for dismantling of all redundant lift and associated equipment and the expeditious removal of the same from site.

On completion of the dismantling element of the works, the Lift Contractor shall include for the preparation of, and any alteration to, the building fabric, which is required to accommodate the new lift equipment.

The redundant materials shall be disposed of by the Lift Contractor in a responsible manner, taking due regard of all relevant Regulations, and the Lift Contractor shall include for the payment of all relevant Taxes or charges associated with this within their Tender.

Steelwork

The Lift Contractor shall dismantle any redundant steelwork and supply and install all necessary new steelwork which is, or may be, required to accommodate the new lift equipment within the lift machine room and lift shaft.

Fire Stopping

The Lift Contractor shall install suitable fire stopping, rated such as to provide a level of fire resistance equal to, or in excess of, the surrounding material.

The Lift Contractor shall install the fire stopping throughout the entire lift installation, including the lift machine room, pulley rooms, and lift shafts, such as may be required in order to meet LPC and Building Regulations Approved Document B requirements.

The Lift Contractor shall undertake the fire stopping to the satisfaction of the Contract administrator.

Lifting Beams (Testing)

The existing lifting beams shall be tested by the Lift Contractor and a label affixed displaying the safe working load in compliance with the requirements of PUWER, LOLER and the Health & Safety at Work Act 1974.

Shaft Dividing Screens (existing)

The existing shaft dividing screens shall be retained and modified and the Lift Contractor is to inspect all fixings for security and repair as necessary.

The Lift Contractor shall modify and/or replace the division screens between lifts in the common lift well such that any openings in the existing infill web mesh are reduced such that these shall not exceed a maximum of 25 mm x 25 mm, and are in full compliance with c.4.2.4.1 of BS EN ISO13857.

The division screen shall extend the full depth and height of the well and the installed panels shall fit closely to any push units or other equipment which protrudes into the lift shaft with no gaps around the outside of the panels.

The design and construction of the modified division screen shall be such that the mechanical strength of this accommodates a force of 1000 N, applied evenly over an area not less than 0.3 M x 0.3 M in round or square section and at right angles to the screen, and at any point on either face of the screen, such that the screen does not permanently deflect in excess of 1 mm and elastically deflect in excess of 15 mm.

Alternative methods of construction and fixing will be considered but must be in compliance with the design Standard and offered for approval before any work is commenced.

The complete screen is to be thoroughly cleaned and wire brushed and re-painted with two coats of oil based machine paint to an approved colour.

Protective Screens on Landings (Full Hoardings)

The Lift Contractor shall provide sketch drawing of their proposed landing protective screens. The drawing shall detail the design, the materials to be used, the method of construction and the manner in which the protective screen is to be secured to the building fabric.

Prior to the commencement of works on site the Lift Contractor shall provide rigid protective screens at each lift landing entrance. The screens shall be securely capped at a minimum height of 2.5 M. Each screen shall enclose such working space as is available, but shall not obstruct access and/or means of escape to routes, stairways and landings. Each screen shall incorporate a hinged and lockable access door to a clear height and width to suit the Lift Contractor's requirements.

The screens shall be constructed from smooth faced plywood or MDF board, with sufficient softwood bracing as to provide rigidity and security. Polythene sheeting which is covered with sheet(s) of hardboard over the entire area shall protect the floor area within the protective screen.

The Lift Contractor **must** include for meeting the additional requirements of the Building Control Officer, wherever applicable, as to the construction, and in particular the fire resistance, overall dimensions and exact positioning of protective screens, access doors and frames. Note: any protective screen on a fire escape route **must** be a minimum ½ hour fire rated including the doors and surround.

The access door/s shall be fitted with suited locks such that each door can be positively locked from the outside by way of a key and can be opened from the inside without the use of a key, even when locked from the outside.

In addition, two shoot-bolts shall be fitted on the inside of each such door. All doors shall be fitted with self-closers in order to prevent these being inadvertently opened.

All fixings shall be such that these cannot be removed from the outside of the screen and shall not cause any damage to the decorative finishes. The Lift Contractor shall maintain the screens and doors in a safe condition throughout the duration of the Works and shall not remove these until directed to do so by the Contract administrator.

Within each hoarding a handrail, mid-rail and toe board shall be provided in order to protect any open void. These may be removed temporarily for working only when the lift car is safely positioned at that landing and on the basis that these are re-instated before the lift car is moved.

The screens shall be decorated to complement the surrounding décor, with a minimum of two coats of emulsion paint, in a colour to be agreed.

The Lift Contractor shall maintain the finish of the screens throughout the works and to the satisfaction of the Contract administrator and shall ensure that any dirty marks are removed from the landing side of the screen as and when these arise.

Danger notices warning of the nature of works and any exposed voids, complete with 'apology for inconvenience' signage, shall be prominently displayed on the screens.

Shaft Openings

The front wall construction adjacent to the entrances is to be modified to suit requirements of the new equipment and made good on completion.

Landing Thresholds

The lift landing thresholds shall be altered to include the provision of a 25mm raised slope, with a gradient of 1:12, to prevent ingress of water into lift shaft.

The raised area shall be finished in materials and or finishes which match the existing. In the event that matching material proves difficult to obtain, alternatives shall be offered for consideration prior to the making good being put in hand.

Making Good

The Lift Contractor shall make good all damage to the fabric or finishes in the building and its surroundings, whether scheduled or inadvertent, which has been occasioned by their Works. These shall be reinstated in materials and or finishes which match the existing. In the event that matching material proves difficult to obtain, alternatives shall be offered for consideration prior to the making good being put in hand. Particular care is to be taken in relation to the decorative finishes to floors and walls around the lift landing entrances.

The extent of making good shall be defined for estimating purposes as the full front wall of the lift shaft from floor to ceiling up to 2 M from each architrave horizontally. This may be varied prior to commencement by mutual agreement between the Lift Contractor and Contract administrator.

SPECIFICATION FOR THE REPAIR OF DEFECTIVE CONCRETE USING POLYMER MODIFIED CEMENTITIOUS MATERIALS

General

Repairs shall be effected using cementitious-based materials that shall conform to the requirements of the relevant Part of BS EN1504. Not less than two weeks prior to the commencement of work, the Lift Contractor shall submit, in writing for the approval of the Contract administrator, their proposals for their programme of works and their Method Statement for carrying out the repairs. No work shall commence until the programme and the Method Statement have been approved.

The Method Statement shall include details of their proposed means of access, the plant and equipment to be used, the materials to be used and the manufacturer's instructions for their use, a copy of the current Agrément Certificates of the ISO9000 Quality Assurance Certificate for the materials, the sequence in which they are to be used, any critical timings in their use and the procedures to be adopted if these timings are not complied with, the method of mixing, application and curing of the materials and the colours available for the overall protective treatment.

Should the Contract administrator require the Lift Contractor shall arrange a meeting at a mutually convenient time and place between theirselves, their chosen manufacturer's representative and the Contract administrator, prior to approval of the Method Statement, in order to discuss the proposed Method Statement.

Once the Method Statement has been approved, no deviation from this will be permitted without the express approval of the Contract administrator.

Preparation

All exposed concrete shall be hammer tested in the presence of the Contract administrator or their Representative. All areas which require repair under this Contract shall be marked by, or with the agreement of, the Contract administrator.

Within the areas identified all loose concrete, all carbonated concrete and all sound concrete which is required to be removed in order to satisfy the requirements of the particular process selected in BS EN1504-9, shall be carefully broken out to leave a dense and sound base.

The base shall be suitably cleaned and prepared in accordance with the requirements of Section 7.2 of BS EN1504-10.

The perimeter of all areas to be repaired shall be cut square to the original face using a disc cutter to a depth not less than 10 mm. No featheredges will be permitted.

Steel reinforcement shall be fully exposed along its corroded length to provide 20 mm clearance all around.

All exposed reinforcement shall be thoroughly blast cleaned and prepared in accordance with the requirements of Section 7.3 of BS EN1504-10.

In cases in which steel reinforcing is found to be excessively corroded, new steel shall be spliced in at the direction of the Contract administrator. The new material shall be of similar electrochemical composition as the existing material such that the conditions which may give rise to corrosion are prevented.

All surface cracks shall be identified and chased out using a disc cutter to a depth not less than 10mm.

Repairs

The Lift Contractor shall prepare a Quality Plan, which is in accordance with Section 9 of BS EN1504-10, in relation to the Works.

The repair of the defective areas shall be carried out strictly in accordance with the requirements of Section 8 of BS EN1504-10 and the relevant Part of BS1504 which is appropriate in relation to the form and/or process of the particular repair, and in accordance with the provisions of the Method Statement. Where the materials are not pre-batched or where dry aggregates are mixed on site or where water is added on site, all materials shall be volume batched.

Overall Protective Treatment

All dirt, grease or other surface contaminants, including moss, algae and existing surface coatings, cement laitance, etc, shall be removed from the exposed concrete surface by blast cleaning.

The materials for the overall protective treatment need not be supplied by the same manufacturer as the repair materials, but in the event, the Lift Contractor shall supply clear evidence of the mutual compatibility of the concrete, the repair materials and the protective treatment materials. All materials shall be applied in accordance with the manufacturer's instructions.

Materials

A single manufacturer, who shall hold a current British Board of Agrément Certificate for those materials, shall supply all repair materials, or a Certificate of Registration as a ISO9000 Quality Assurance Scheme approved supplier of those materials.

The compressive strength of the finished repair materials shall be not less than 35 N/sq.mm at 28 days.

The surface water absorption of the finished repair shall be not more than 0.25 ml/sq.m/sec at 10 minutes, 0.17 at 30 minutes, 0.10 at 1 hour and 0.05 at 2 hours.

The bond strength of the repair material to be base concrete shall be not less than 4.5 N/sq.mm at 28 days.

Testing

When directed by the Contract administrator, the Lift Contractor shall arrange for tests to be carried out by an approved laboratory. The Contract administrator shall determine the tests which are to be carried out.

Surface water absorption shall be measured using the Absorption Test described in BS 1881-122 Method for Determination of Water Absorption.

Taking and crushing 100 mm cubes of the material shall measure the compressive strength of the repair material.

The bond strength at the concrete/repair material interface shall be measured by way of the criteria and the appropriate Test Methods set out in BS EN1504-4. In the event that it is not possible to achieve the required test load, or if the test should not meet the particular test criteria, the repair shall be deemed to be unsuccessful.

The Lift Contractor shall make good any areas damaged or defaced during the testing.

Repairs which fail to meet the test criteria may be classified as defective work. Work so classified shall be cut out and replaced at the Lift Contractor's expense. The cost of tests on repairs which fail to meet the test criteria shall also be borne by the Lift Contractor.

Shaft Painting

The Lift Contractor shall clean down the shaft and pit, remove all debris, grease and oil, and then treat the shaft walls and soffit with two coats of white emulsion paint.

All retained shaft steelwork shall be scratch brushed and painted in two coats of machine paint.

The pit floor shall be cleaned, degreased and then sealed using two coats of an anti-slip, oil proof, and proprietary floor paint.

At the completion of the Works, any damage to these finishes shall be repaired to the satisfaction of the Contract administrator.

Landing Fixture Apertures

The Lift Contractor shall include for cutting new apertures to accommodate the new landing pushes/indicators in the front wall.

The pushes shall be fixed at a height in compliance with Part M2 of the Building Regulations and the provisions of BS EN81-70 and BS8300.

The lift landing indicators shall be as detailed elsewhere in this Specification.

The Lift Contractor shall include for making good the existing apertures in an equivalent matching finish to the existing, and to the satisfaction of the Contract administrator.

Lift Control Cabinet

The Lift Contractor shall include for cutting new apertures to accommodate the new lift control cabinet in the front wall.

The control cabinet shall be fully recessed and meet the requirements of BS EN81-71.

The Lift Contractor shall include for making good the existing apertures in an equivalent matching finish to the existing, and to the satisfaction of the Contract administrator.

Decommissioning and Removal of Lifts

The Lift Contractor shall include for all decommissioning and removal of the existing lift equipment. Except as otherwise stated in this Specification materials of any kind obtained from dismantling shall become the property of the Lift Contractor. The Lift Contractor shall dispose of such materials in a responsible manner, taking due regard of all relevant Regulation, but in all cases, shall remove the materials from the premises promptly, and as soon as dismantled, and at all times expeditiously and cleanly. The Lift Contractor shall include for all taxes and/or other statutory fees associated with the disposal of the materials.

Prior to commencement of the Works the Lift Consultant shall identify any items of equipment which the Lift Contractor shall carefully remove and deliver to an agreed location within the premises for re-use by the Employer on other installations.

As part of the Works the Lift Contractor shall ensure that personnel have received the correct safety induction and have available all of the necessary tools and plant, complete with required test certification, and all personal protective equipment necessary to undertake the work.

In cases where the removal process involves the use of Hot Work Permits, these shall be obtained in accordance with the Employer's requirements.

Where Oxy-propane equipment is to be used then the personnel involved shall have a minimum of two years' experience and training certificates shall be provided. A Fire Watchman must also be present and shall continue to be present for a period of one hour following completion of the process.

In terms of manual handling, all dismantled materials shall be broken down into adequately manageable sections, ready for disposal, and using mechanical methods wherever possible, and shall be subject to the Contract administrators approval.

The following provides guidance in relation to a method of works:

The lift car shall be suspended by means of a suitable chain block to the lift car and by suitable wire rope slings, which are slung from a steel lifting beam which has been tested, certified and marked to a "safe working load" which is suitable to accommodate the loads to be suspended and/or lifted. All elements of the lifting tackle and of lifting accessories shall be de-rated to 50% of its certified safe working load.

The lift car safety gear and overspeed governor and rope shall remain in place and operational whilst the lowering operation is in progress (these to operate as a back-up safety device). In cases in which the safety gear cannot be relied upon two separate sets of lifting tackle, both suitably de-rated to 50% of its certified safe working load shall be used.

The lift counterweight shall be secured upon its buffer and/or the base of the pit. The lift suspension ropes shall be disconnected from the lift car and counterweight. The suspension ropes shall be removed from the lift shaft and work area, suitably coiled up, tied and removed from the area via an agreed location.

The Lift Contractor's operatives, when using the lift car to descend down the lift shaft, shall remove all brackets and guiderails by means of unbolting. The guiderails shall be lowered using a suitable hoisting device suspended from the top of the shaft by means of wire rope slings. Alternatively, the guiderails may be cut into manageable sections and transported from the area via the nearest exit, subject to the Contract administrator's approval.

Each landing entrance, including header, upright angles, doors and landing angle sills, shall be removed by means of unbolting.

Upon completion of this element of the work the lift car shall then be secured at the lowest floor where this may be dismantled using hand tools.

The counterweight shall be dismantled and removed from the lift shaft either by hand or by suitable hoisting equipment and transport plant.

All equipment and redundant materials will then be removed from the lift shaft area via an agreed route approved by the Contract administrator.

The lift machine room equipment shall be broken down into small, manageable sections, i.e. motor and gear units, generators, controllers, floor selectors, by unbolting and/or grinding.

The lift machine gear unit, motor, controllers and generators shall be removed via an agreed route, approved by the Contract administrator, and using suitable chain blocks, existing lifting facilities which are to be tested and marked by the Lift Contractor prior to use, and temporary lift equipment.

Wherever and whenever angle grinders and/or Oxy-propane cutting equipment, or other hot-works are used the Lift Contractor shall operate a suitable Permit System and shall also, were applicable, operate the Employer's Permit System.

Oxy-propane and/or other hot works cutting equipment shall be moved from floor to floor on a bottle barrow, complete with appropriate fire-fighting equipment, which will include 5-gallon water butts, stirrup pumps, suitable fire extinguishers and a fire blanket.

The Lift Contractor shall apply safety measures in accordance with the requirements of BS7255, BS6187, HSE Guidance FOD 1-2013 and LEIA Guidance Demolition and Dismantling of Lifts PA54.

Fire Stopping

The Lift Contractor shall install suitable fire stopping, rated such as to provide a level of fire resistance equal to, or in excess of, the surrounding material.

The Lift Contractor shall install the fire stopping throughout the entire lift installation, including the lift machine room, pulley rooms, and lift shafts, such as may be required in order to meet LPC and Building Regulations Approved Document B requirements.

The Lift Contractor shall undertake the fire stopping to the satisfaction of the Contract administrator.

SCHEDULE OF ELECTRICAL WORK

SECTION 5

SCHEDULE OF ELECTRICAL WORK

The works described below are to be provided by the Lift Contractor or their sub-contractor and are to be included in the Tender Price. All works are to be carried out and completed in full compliance with the current edition of BS7671 the IEE/IET Regulations and the Electricity at Work Act.

Mains Supply Cable

The Lift Contractor shall include for extending the existing electrical main supply from the machine room to the required location in lift shaft, including all necessary tooling and equipment.

Upon completion, they shall provide a certificate from NICEIC Registered Electrician.

The Lift Contractor shall test to satisfy themselves that the existing electrical main supply riser cable is adequately rated, including earth loop impedance and the required number of conductors and earth conductors, and in a satisfactory condition to be re-used to supply the new lift installation and shall provide a certificate from a NICEIC Registered Electrician.

If the Lift Contractor should find that existing cable is not adequate, they shall allow for providing a new cable and show the cost for this in the appropriate part of the Fixed Price Summary.

Any new cable shall be p.v.c. sheathed XLPE insulated and steel wire armoured and all jointing and cleating shall be in full compliance with the current edition of BS7671 the IEE/IET Wiring Regulations.

Telephone Cable

The Lift Contractor shall include for extending the existing telephone connection from the machine room to the required location in lift shaft, including all necessary tooling and equipment.

Machinery Lighting

The Lift Contractor shall install new low energy LED light fittings within the lift machinery area such as to provide a minimum level of illumination of 200 lux at any point within the machinery area. This lighting may form part of the lift shaft lighting and shall be controlled by a switch (or switches) located adjacent to the landing entrance access door(s) and/or machinery area access and shall be fitted at a convenient height.

The machinery area lighting shall provide the minimum levels of illumination in all areas of the machinery area such as meet the requirements of BS EN81-20 and the PUWER Regulations.

The light fittings closest to the lift controller and/or equipment located within the machinery area shall be utilised as an emergency light and shall derive its alternative power source from an auto-recharge unit fitted with nickel-cadmium cells. The unit shall have a minimum duration of 3 hours and a maximum recharge time of 12 hours and shall be in full compliance with the requirements of BS COP BS5266-1.

The light fittings shall be suitably guarded in accordance with the PUWER Regulations.

Lift Shaft Lighting (MRL Lifts)

The Lift Contractor shall provide permanent lift shaft lighting throughout the travel of the lift. All associated wiring shall be installed and routed in metal conduits which are separate from the lift electrical wiring. The light fittings shall be industrial type low energy LED bulkhead with polycarbonate diffusers to the approval of the Contract administrator

Three-way switching shall be provided such that the shaft lighting can be controlled from the lift machine room/machinery spaces, lift car top and from the lift shaft pit. The shaft light switch in the lift pit shall be readily accessible from the landing and shall be located within 0.75 M of the inner edge of the landing entrance door frame and at a height not less than 1.0 M above the landing sill level.

Light fittings shall be mounted 500 mm from the pit floor and 500 mm from top of the lift shaft, and at an adequate pitch in-between, such as to ensure that the level of illumination specified in BS EN81-20 are achieved at all point within the lift shaft.

The light fittings at the top of the shaft and in the pit area shall each incorporate an emergency light facility, with an alternative power source derived from an auto-recharge unit fitted with nickel-cadmium cells. These units shall have a minimum duration of 3 hours and a maximum recharge time of 12 hours and shall be in full compliance with the requirements of BS COP BS5266-1.

Socket Outlets

The Lift Contract shall provide, within the lift pit, switched 13-amp three pin double socket outlet, with integral RCD which shall be designed to operate at 30mA. The electrical supply to the socket outlet shall be derived from the lift control cabinet.

SCHEDULE OF EQUIPMENT

SECTION 6

Schedule of Existing Equipment

Number & Type of Lift(s)	Two Traction Passenger Lift
Capacity	Unknown
Speed	0.5m/s
Levels Served	4 (Alternate levels apart from Level A)
No. of Stops	4
Machine Position	Above
Location of Lift Machine room	Above
Drive Systems	Traction Geared Machine
Duty Cycle	Unknown
Levelling Accuracy	+/-10mm
Power Supply	415v TPN
Control Systems	PLC Panel, Down Collective
Control Features	Keyswitch isolation on Level A, Autodialler
Signal & Operating Fixtures	CPI, LPI (Level A only)
Car Dimensions	Unknown
Car & Landing Entrances	Automatic Side Opening
Landing Frame	Steel
Door Tracks	Bronze
Architraves	Steel
Shaft Dimensions	2120mm (W) x 1590mm (D)
Arrangement	1:1
Minimum Clear Opening	830mm x 2050mm
Headroom	3910mm
Pit Depth	1200mm

Schedule of New Equipment

Number & Type of Lift(s)	Two Machine Roomless Passenger Lift
Capacity	8 Persons 630KG
Speed	1.0m/s
Levels Served	Left Hand: A,D,F,H Right Hand: A,C,E,G
No. of Stops	Four
Machine Position	Top of Lift Shaft
Location of Lift Machine room	MRL
Drive Systems	Traction Gearless Machine
Duty Cycle	240 Starts/Hour
Levelling Accuracy	+/- 5mm
Power Supply	415v, TPN
Control Systems	Full Collective
Control Features	Autodialler, Fire Recall Switch, Isolation Keyswitch
Signal & Operating Fixtures	CPI, LPI (All levels)
Car Dimensions	TBC
Car & Landing Entrances	Automatic Centre Opening
Landing Frame	Stainless Steel
Door Tracks	Aluminium/Bronze
Architraves	Stainless Steel
Shaft Dimensions	2120mm (W) x 1590mm(D)
Arrangement	2:1 Underslung
Minimum Clear Opening	900mm(W) x 2000mm (H)
Headroom	3910mm
Pit Depth	1200mm

Schedule of Finishes and Designated Materials

The successful Lift Contractor shall provide car design samples of all agreed finishes prior to manufacture or approval of the car design. The samples shall be provided on a presentation board produced from A4 size white card.

Each selected finish shall be fully described on the presentation board inclusive of British Standard or manufacturer's numbers and codes were applicable.

LIFT CAR FRAME AND ENCLOSURE VANDAL RESISTANT

Car Frame

The Lift Contractor's attention is drawn to the fact that the lift car and lift car entrance are subject to a level of abuse including ingress of water and urine to the lift car and entrance equipment. The equipment design is to be suitable to accommodate this abuse. All materials used in the construction of the lift car platform and floor and entrances are to be suitably protected from the development and effects of corrosion. The Lift Contractor shall provide full details of the proposed protection with their Tender.

The car frame shall be designed and constructed in accordance with the requirements of BS EN81-20 **AND** the requirements of s.5.4 and s.5.8 of BS EN81-71:2018 in relation to a Category 2 Lift.

The car enclosure shall be carried within a steel frame which is of substantial construction, formed with angle and channel sections which are suitably braced and stiffened. The lift car frame shall be designed and constructed such as to sustain a fully loaded car plus 25% overload, together with the dynamic loads and forces arising during use, during loading, and during safety gear and buffer operation, without permanent deformation. In the case of Goods Passenger Lifts, or Mobility Scooter use the calculation of the rated load shall be increased such that the design and construction of the lift car frame and platform shall be such as accommodate the additional loads and forces imposed by the handling devices and/or Mobility Scooters.

The lift car enclosure shall suitably isolated from the lift car frame by way oil resistant isolation rubbers which are of suitable resistance and density.

During the operation of safety devices, the lift car floor shall not incline in excess of 5% from its normal position under the full load range of the lift car.

The lift car shall incorporate a substantial platform constructed as a framework of rolled steel sections bolted together and supporting a floor constructed from a suitably corrosion protected sheet steel floor panel which is adequately braced and supported such as to prevent flexure at 125% rated load. All surfaces of the platform steel construction and floor shall be suitably protected in a proprietary corrosion resistant coating.

All exposed metal work shall be painted with machine paint, in a colour to the approval of the Contract administrator, and as detailed in this Specification.

On the underside of the lift car provision shall be include for statically balancing the lift car. The design and construction of the static balancing system shall ensure that the complete lift car and its attachments can be statically balanced without exceeding the design parameters relating to the overall weight of the complete lift car and sling assembly and the lift safety equipment.

A toe guard, designed and constructed in accordance with the requirements of Section 5.4.5 of BS EN81-20, and manufactured in not less than 16 SWG steel, shall be installed beneath the lift car sill complete with adequate

bracing to the lift car platform steelwork. The toe-guard and bracing shall be painted as detailed within this Specification.

A data plate shall be fitted to the cross head of the lift car frame which shall provide details of the suspension rope type, construction, diameter and length along with weight of the lift car and the contract speed all expressed in SI Units.

Car Enclosure

The car enclosure shall be constructed in 16 SWG patterned stainless steel sheet. Each panel shall be flanged and bolted to give an enclosure which is of rigid and robust construction which is design and constructed in accordance with the requirements of BS EN81-20 **AND** the requirements of s.5.5 of BS EN81-71:2018 in relation to a Category 2 Lift.

The exterior of the panels shall be treated with anti-drumming compound and noise absorption pads are to be fitted between the car frame and enclosure. All exposed metal work to the exterior of the enclosure is to be treated with machine paint, in a colour to approval of the Contract administrator.

The design and construction of the car enclosure shall be such as to ensure that each wall of the lift car shall resist, without permanent deformation in excess of 1 mm and elastic deformation in excess of 15 mm, a force of 300 N evenly distributed over an area of 5 cm^2 in round or square section and applied at right angles at any point from within the lift car.

The design and construction of the car enclosure shall be such that this is of mechanical strength which is at least equal to that of the landing doors and such as to ensure that each wall of the lift car shall resist, without permanent deformation in excess of 1 mm, a force of 1000 N evenly distributed over an area of 100 cm^2 in round or square section and applied at right angles at any point from within the lift car.

In the case of a Category 2 lift the design, construction and installation of any handrail shall be such as to support a force of 2500 N applied in any direction at the most unfavourable point.

The design and construction of the car roof shall be such as to have sufficient strength to safely support the maximum number of persons for who refuge spaces are provided under Section c.5.2.5.7.1 of BS EN81-20. And, the design and construction of the car roof shall be such as to ensure that this shall resist, without permanent deformation, a force of 2000 N applied at any position on an area of 0.3 M x 0.3 M.

Any trap or emergency door fitted in the lift car ceiling shall be design and constructed in accordance with the requirements of BS EN81-20 and with those of c.5.5.2 of BS EN81-71 including a security device the reset of which shall require intervention at the lift machinery space, control cabinet or emergency and inspection panel.

The external perimeter of the lift car roof shall be equipped with a toe board which shall be of minimum height 100 mm.

The surface of the car roof shall be of non-slip design and construction.

The lift contractor shall mark upon the car roof, using an indelible material, the locations of the refuge spaces and the extent of these.

All materials used in the design and construction of the lift car enclosure and roof shall be non-flammable.

Materials applied for the car interior décor shall be designed and manufactured in accordance with the requirements of BS EN13501-1 as follows:

Car Flooring – Cfl-s2 for Category 1 Lifts and A2fl for Category 2 Lifts.

Car ceiling and walls – C-s2, d1 for Category 1 Lifts and A2 for Category 2 Lifts.

The design of the lift car lighting for Category 1 and 2 Lifts shall be low energy LED which is in accordance with the requirements of c.5.5 of BS EN81-71, and shall provide a minimum level of illumination of 100 lux at floor level and at the control devices. The light fixtures shall be flush fitting without visible fixings and designed such as to prevent unauthorized access. The light fittings shall resist, without material failure or loss of function, the tests set out at Annexes B and F of BS EN81-71.

Mirrors or glass materials shall be designed, constructed and installed such as to comply with the requirements of Mode B or C of BS EN12600, and Annex C should the material become broken. In the case of a Category 2 lift any mirror shall be flush fitted and of laminated material.

The Lift Contractor shall submit a constructional drawing of the car bodywork for inspection and comment before proceeding with manufacture.

To ensure that vibration is not transmitted to the car enclosure, a minimum clearance of 3 mm shall be maintained between the car enclosure and the steelwork of the sling.

TECHNICAL SPECIFICATION

SECTION 7

INFORMATION FOR APPROVAL, NOTICES AND TECHNICAL SPECIFICATION

Information for Approval and Notices

The Lift Contractor must take all necessary dimensions on site during the progress of the works.

Before commencing work, **three** copies of the following working drawings shall be submitted for approval of the Contract administrator.

Item	Description
a)	General arrangement and builders work detail, shaft and machine room.
b)	Car enclosure, car doors, landing entrance complete with frame fixing details (where applicable).
c)	Car design, Perspective and Manufacturing Drawings.
d)	Sketch drawing of proposals for landing protective hoardings.
e)	Car operating panel engraving details.
f)	Landing push and indicator details.

After approval, **three** copies of each shall be submitted for use during the duration of the Contract. Electronic copies shall also be provided in Auto Cad 2000 format or equal as advised.

The Lift Contractor shall submit, no later than the date of submission of the initial General Arrangement Drawings, a schedule of the electric power and lighting requirements for the lift installations.

The information shall be complete in all respects and will include confirmation of the kW ratings, full load and starting currents, fuse ratings, permitted volt drop and a line diagram of the switch gear arrangement in the machine room, for the 3-phase and single-phase supplies.

Any additional requirements for ancillary equipment, such as communications or diagnostics, shall be fully detailed with all information on cabling and terminations.

On completion of the work, the Lift Contractor shall provide and fix in the machine room a suitably mounted “straight line” and “as wired” set of wiring diagrams of all electrical apparatus of the lift as actually wired and fitted and showing the arrangement and markings of all connections. These diagrams shall be plastic encapsulated or equivalent finish to approval.

Similarly, nomenclature detailing all symbols and forms of identification used on the equipment drawings or circuit diagrams applicable to the equipment, encapsulated in plastic of equivalent to approval, shall be mounted alongside the circuit diagrams.

Full information in respect of the heat output and operating temperature range of the equipment is to be provided.

Notices

All danger, warning or advisory notices as may be required by LOLER or PUWER, and by BS EN 81-20, BS EN81-50, BS EN81-71, BS EN81-73, BS5655 and BS7255, which are applicable to this Contract, shall be provided and installed by the Lift Contractor. These shall comply in all respects with the requirements of British Standards and shall be relief engraved on plastic laminate or equivalent material with 12 mm minimum height lettering.

All notices shall be screw fixed. Self-adhesive notices will not be accepted.

All notices, signs and markings accessible to the public shall be in accordance with Section 5.9 of BS EN81-71.

Hand Winding Notice (Machine Room-less)

The Lift Contractor shall provide and install diagrammatic and written hand-winding instructions which shall be mounted in an appropriate and prominent position where these may easily be read when carrying out emergency hand-winding operations.

The instructions shall be specific to the site and to the lift equipment and machinery installed.

The notice shall be a minimum of 500 mm wide x 500 mm high and shall be in English and clear and legible.

The design of the notices shall comply in all respects with the requirements of BS EN81-20, BS EN81-50, BS5655, BS7255 and LOLER and PUWER.

Notices (Electrical)

The Lift Contractor shall supply and install, adjacent to the lift main switch fuse, an Electric Shock Notice, which is in accordance with the Electricity at Work Act,

The Lift Contractor shall supply and install a notice upon the electrical consumer unit which identifies the all of the circuits and their particular fuse ratings.

The Lift Contractor shall supply and install, to all electrical switches within the lift machine room and/or machinery areas, a permanently fixed label identifying their function.

MACHINE AREA (MACHINE ROOMLESS)

Lift Machine

The gearless machine shall comprise a slow speed traction sheave directly coupled to an electric motor and incorporating an electro-mechanical brake. The whole assembly shall be carried on various steelwork mounted on up-stand piers of reinforced concrete or fabricated steel. Transmission of vibration to the fabric of the building shall be prevented by the use of proprietary anti-vibration mountings. The Lift Contractor is to ensure that their offer includes for all necessary steelwork to accommodate the lift machine. The lift machine shall be configured such as provide safe access for maintenance and adjustment processes. The whole assembly is to be designed and tested to sustain contract load plus 25% over-load and shall be designed constructed and installed in accordance with the requirements of BS EN81-20.

The hoisting motor shall be a Single Speed Low Slip AC Induction Motor, which is designed specifically for use with inverters, and rated for the duty set out in this Specification. The synchronous speed of the motor shall not exceed 1500 rpm. The design and construction of the motor shall be in accordance with the requirements of the BS EN60034 Standards.

Suitably designed motor protection shall be provided and shall be by way of thermistors which are embedded in the motor windings. Minimum of three separate thermistors shall be used.

The design shall be such as to incorporate an electronic sensor in the control system which shall be configured to monitor the motor speed control encoder/device such that the electronic sensor shall detect any error and/or fault condition which may arise and operate to isolate the motor electrical supply within 3 seconds of an error or fault condition arising.

The motor shall bear a name-plate which clearly sets out the manufacturer's details together with the motor design information and serial number.

A suitable design permanent and resilient metal sign shall be installed at the hand-wheel end of the motor casing shall clear designate the direction of rotation and corresponding movement of the lift car.

All moving parts of the lift machine shall be suitably guarded in accordance with the requirements of this Specification and those of BS EN ISO14120 and BS EN81-20. All prime movers shall be painted in safety yellow.

The lift machine shall incorporate a means of manual operation the design and application of which shall be such that the manual effort required to move the lift car, in the empty car and loaded to rated load plus 10% conditions, shall not exceed 150 N.

In the case of a permanently installed flywheel/handwinding wheel this shall be guarded in accordance with the requirements of BS EN81-20 and the requirements of this Specification.

The direction of the lift car movement corresponding to the rotation of the handwinding wheel shall be permanently marked upon the lift machine, and in close proximity to the location of the handwinding wheel.

The brake release device together with any detachable handwinding wheels or tools shall be painted in safety yellow and shall be mounted upon a purpose made tool rack which shall incorporate clear and detailed instructions for use in relation to handwinding and passenger emergency release.

In cases in which the design of the lift machinery is such that the manual effort required to move the fully loaded lift car upwards is in excess of 400 N, and/or if no mechanical means of emergency operation in accordance with c.5.9.2.3.1 of BS EN81-20 is provided, the Lift Contractor shall supply and install a means of emergency electrical operation which is designed, constructed and installed in accordance with the requirements of Section 5.12.1.6 of BS EN81-20 and with the requirements of this Specification.

In all cases the means of manual winding, operation and/or rescue shall function such as to provide for manual movement of the lift car through the full operational load range of the lift car from 0% to 110% lift car load.

The lift machine brake shall be of spring applied, electrically released design and shall be of heavy-duty construction complete with the necessary brake shoe/pad to brake drum/disk contact surface area to suit the load and speed of the lift. The design of the brake shall be such that this shall incorporate no less than two separate brake shoes/pads which are configured such as to be self-aligning. Each brake shoe/pad shall incorporate its own specific actuation device and guided compression spring and housing. The lift machine brake shall, in all respects, be designed and constructed in accordance with the requirements of BS EN81-20 and BS EN81-50

The machine brake, unassisted by any other equipment of the lift, shall be designed such that this shall safely stop the lift machine when the lift car loaded with 125% of rated load, is travelling downwards at rated speed, such that the average retardation of the lift car shall not exceed that arising during safety gear and/or buffer operation.

The design of the lift machine brake shall incorporate redundancy such that all of the mechanical components of the brake, including any solenoid plunger, which are involved in the application of the braking action on the brake drum shall be provided in two separate sets. Each of the two sets of braking components shall be designed and constructed such as to apply a braking effort which is sufficient to decelerate, stop and hold the lift car, loaded at rated load and travelling downwards at rated speed; and when travelling upwards with the lift car empty.

The brake drum/disk shall be coupled by direct and positive mechanical means to the lift machine traction sheave, winding-drum or sprocket.

The lift machine brake solenoid shall be designed for a DC electrical supply sourced from suitably rated rectifiers in the lift control system. The supply shall be controlled by at least two electromechanical devices which shall be designed and applied in accordance with the requirements of Section 5.10.3.1 of BS EN81-20. These electromechanical devices shall be designed and configured such that if, whilst the lift is stationary, one of these has failed to open the electrical circuit to the machine brake solenoid, then further movement of the lift car shall be prevented. The effect of any stuck-at-failure monitoring of this system shall be such as to prevent further movement of the lift car.

Alternatively, the lift machine brake shall incorporate an electrical monitoring circuit which is designed and configured in accordance with the requirements of Section 5.11.2.3 of BS EN81-20. In case in which this method is applied the Lift Contractor shall provide a Certificate of Type Examination which is in accordance with the requirements of Section 5.6 of BS EN81-50.

The design shall be such that electrical current shall not be applied to the lift machine brake solenoid unless the lift drive motor has been powered. The brake shall be designed to apply instantly and automatically in the event of interruption of the power supply to the solenoid.

The lift machine brake shall be designed such as to incorporate a means whereby the brake may be released manually, by way of continuous manually applied pressure, in order to enable hand winding of the lift machine. The design and construction of the means of manual release shall be such that this cannot cause a failure of the braking function.

In cases in which the lift machine is installed within the lift well it shall be possible to test each of the braking sets from outside of the lift well.

Traction and Diverter Sheave

All lift machine traction sheaves and rope diverter pulleys shall be painted yellow, and suitably designed rope restraints shall be installed such as to prevent the suspension ropes from leaving the sheave/pulley grooves.

The lift machine traction sheave shall have sufficient diameter to ensure that the ratio between traction sheave and suspension rope diameter is not be less than 40:1.

Roping Arrangement (Machine Room-less)

Each lift shall be designed such that the lift car is configured in an underslung arrangement and applying a 2:1 suspension roping arrangement. Lifts cars configured in an overslung arrangement may also be considered, to suit the manufacturer's standard arrangement, but subject to the approval of the Contract administrator.

Overhead rope diverter sheaves shall be located outside of the footprint area of the lift car in order to ensure safe operation, safe access for maintenance and to minimise headroom requirements.

The rope diverter sheaves which are located below the lift car platform shall be configured in a manner such as to minimise the effects of offset forces from the ropes and to allow the lift car to be satisfactorily statically balanced at all points in the lift travel. All diverter sheaves shall have a minimum sheave to rope diameter ratio of 40:1.

The Lift Contractor shall supply and fix all necessary steelwork to support the diverter sheaves and suspension rope hitches for each lift.

The location for the governor shall be in the lift shaft. The Lift Contractor shall provide a means to remotely trip and reset the governor from outside of the lift shaft.

Machinery Guarding – General Requirements

The design and construction of machinery guards shall meet with all of the requirements of *Section* 1.4 of *The Supply of Machinery (Safety) Regulations* 2008 and with the requirements of PUWER 1998, BS EN81-20 and BS EN81-50, the Lifts Regulations 2016 and EU Lifts Directive 2014/33/EU, and shall be fully compliant with the requirements of BS EN ISO14120: 2015 *Safety of Machinery - Guards - General Requirements for the Design and Construction of Fixed and Moveable Guards*.

All guarding shall be designed and constructed to offer adequate, clear and satisfactory viewing of the components guarded in order to meet maintenance, lubrication and inspection requirements. Wherever possible this shall be achieved without requiring the complete removal of the guard.

Machinery guards shall be designed to be of suitable size and weight to permit ease of handling and shall be designed such that these may only be removed with the aid of a tool. The guards shall be designed in order that they do not cause hazardous crushing or trapping points with reference to parts of the machinery being guarded or other guards. Wherever practicable, guards shall be designed such that these are unable to remain in place without their fixings.

The guards shall be so constructed as not to have exposed sharp edges, corners or other hazardous projections. Welded, bonded or mechanically fastened joints shall be of sufficient strength, number and spacing to ensure the stability and rigidity of the guard so that it remains secure under all foreseeable loading conditions. In particular guards shall be designed to withstand reasonably foreseeable impact from parts of the machinery and any ejected solid or fluid materials. All fastenings shall be fitted with lock nuts, spring washers or other features to ensure these are resistant to machinery vibration and remain attached to the guard/machine.

Guards shall be formed from materials that allow the protective properties of the guard to be maintained throughout the foreseeable life of the machinery. Supports, frames and all infill materials shall be selected from a range to provide a rigid and stable structure and to resist deformation. The materials selected for the construction of the guard are to be resistant to foreseeable oxidation and corrosion and other environmental factors. This may be achieved through the application of suitable protective coatings.

Stop Switches (Machinery Area)

The Lift Contractor shall supply and install a stopping device which is in accordance with the requirements of Section 5.12.1.11 and Section 5.11.2 of BS EN81-20

The design and construction of the stopping device shall be in accordance with the requirements of BS EN60947-1-1.

The Lift Contractor shall supply and install, on or near to the stopping device, a suitable sign marked ‘STOP’.

The stopping device shall be installed adjacent to the lift machine in a position and at a height where this is readily accessible to personnel in an emergency situation.

Hand Winding Equipment (Machine Room-less)

The Lift Contractor shall provide a suitable means by which the lift machine may be safely hand wound, in a controlled manner, from a suitable and safe position which is external to the lift shaft.

The means provided shall be designed and constructed in accordance with the requirements of BS EN81-20.

If the means is in any way reliant upon the lift car and counterweight being out of balance in order to achieve movement of the lift car then the lift contractor shall install a suitable means of ensuring that the lift car may be safely moved under an out of balance condition.

In the case of a detachable or removable handwinding device an electrical safety device, which is designed and constructed in accordance with the requirements of Section 5.11.2 of BS EN81-20, shall be installed at the lift machine such that the device is actuated whenever the handwinding device is attached to the lift machine, and that electrically powered movement of the lift machine is prevented whenever the handwinding device is attached.

The design and application of the means shall be such that the manual effort required to move the lift car shall not exceed 150 N.

In the case of a permanently installed flywheel/handwinding wheel this shall be guarded in accordance with the requirements of BS EN81-20 and the requirements of this Specification.

The direction of the lift car movement corresponding to the rotation of the handwinding wheel shall be permanently marked upon the device, in close proximity to the location of the handwinding point.

The brake release device together with any detachable handwinding wheels shall be painted in safety yellow and shall be mounted upon a purpose made tool rack which shall incorporate clear and detailed instructions for use in relation to handwinding and passenger emergency release.

In all cases the means of manual winding, operation and/or rescue shall function such as to provide for manual movement of the lift car through the full operational load range of the lift car from 0% to 110% lift car load.

Over-speed Governor (Machine Room-less)

A robustly designed and constructed overspeed governor complete with governor rope and tension pulley frame shall be provided. The design and construction shall be such that the overspeed governor rope and its terminations shall remain intact during engagement of the safety gear.

The design of the overspeed governor shall be such that the tensile force produced in the governor rope when the governor is tripped shall be at least twice the force necessary to operate the safety gear and in no case less than 300 N.

The design and construction of the overspeed governor shall be such that the maximum distance between tripping shall not exceed 250 mm relative to the movement of the governor rope.

The design, construction and installation of the overspeed governor, together with its associated components, shall be in accordance with the requirements of BS EN81-20. Electrical devices shall be designed and constructed in accordance with the requirements of Section 5.11.2 of BS EN81-20.

The overspeed governor shall be subject to Type Examination in accordance with the requirements of Section 5.4 of BS EN81-50, the Lifts Regulations 2016 and Directive 2014/33/EU, and a Type Examination Certificate which is in accordance with the requirements of c.5.4.3 of BS EN81-50 shall be provided and a copy retained in the lift O&M Manual.

The overspeed governor shall be designed such as to meet the requirements of the particular lift speed and safety gear design, and in accordance with the respective electrical and mechanical tripping speeds specified in BS EN81-20. The governor rope shall be easily detachable from the safety gear such as to ease testing and maintenance.

The pitch diameter of the overspeed governor and of its tension and diverter pulleys shall be no less than 30:1 in relation to the diameter of the governor rope.

The governor rope shall be tensioned by way of a pulley and tension weight which shall be securely guided. Breakage or excessive stretch of the governor rope shall be detected by an electrical device which is designed and constructed in accordance with the requirements of Section 5.11.2 of BS EN81-20.

The governor rope shall be designed and constructed in accordance with the requirements of BS EN12385-5 and with a minimum safety factor equivalent to eight times the tensile force generated in the governor rope and based upon a friction factor of 0.2 for traction governors.

The overspeed governor shall be located such that this is readily accessible and reachable for maintenance and testing purposes from outside of the lift well. This requirement may, with the agreement of the Contract administrator, be dis-applied providing that all of the following provisions are met:

- The design shall be such that the governor may be remotely tripped from outside the well, and;
- That the governor is readily accessible from the lift car roof or pit, and;
- The mechanical reset of the governor is automatic upon raising of the lift car, and the governor electrical devices may be reset by remote means.

A means shall be provided for testing purposes to allow the governor to trip when the car is travelling at normal speed.

The direction of rotation corresponding to the operation of the safety gear shall be permanently and indelible marked upon the governor.

Governors which incorporate adjustable speeds shall be sealed such that adjustment causes the seal to be broken.

Governor and pulley guards shall be provided and shall be designed in accordance with the requirements of BS EN81-20, BS EN ISO14120 and the requirements of this Specification, and such as to allow the governor trip mechanism and switches to be reset without the need for removal of the guard. The data plate details shall be **repeated** on the top of the guard.

Control Panels (Machine Room-less)

The control equipment shall be totally enclosed in a steel cabinet with louvered ventilation and hinged doors exposing all components for accessibility, and design and constructed in accordance with the requirements of Sections 5.10 and 5.11 of BS EN 81-20 and Section 5.3 of BS EN81-71. Forced ventilation fans complete with suitable filters shall be applied wherever necessary in order to ensure the correct operating environment for the control components.

The control and drive system, together with its various elements of equipment and enclosures, shall be designed and constructed in accordance with the requirements of BS EN81-20, BS EN50274, BS EN60204-1, BS EN60529, BS EN60664-1, BS EN60947-4-1, BS EN60947-5-1, BS 60800-5-2, BS EN61810-1, HD60364-4-41, HD60364-4-42 and HD60364-6.

All main components including circuit boards, transformers, power supplies, relays, contactors, fuses, overloads and associated equipment shall be suitably identified, by way of permanent indelible labeling, and a nomenclature compatible with the circuit diagrams shall be provided.

The hoist/pump motor windings shall be protected by way of suitable thermistors which shall be electrically connected to detection units which are designed to provide a level of protection commensurate with the motor manufacturer's recommendations.

All solid state/thermistor/micro-processor based control circuits shall be fed from electrical power supplies providing the correct voltage, and with all necessary over and under voltage and current protection devices, such as to ensure their correct and safe operation. Circuits shall be designed in accordance with current British Standard requirements such that in case of failure this is to a safe condition.

A device shall be incorporated within each controller which will detect a loss of one phase of main electrical supply or a reversal of the phases. Where the device detects either of these conditions a switch, relay or contactor shall be rendered open circuit removing the supply to all relevant contactors and control panel circuitry, and preventing movement of the lift.

Lift speed regulation over the range between no load and full load shall be within 5% of the contract speed.

The entire lift installation shall run normally when the supply voltage varies to a limit of +10% and -6% of the declared supply voltage.

The electrical supply to the drive motor shall be controlled be at least two independent contactors. If, when the lift is stationary, the main contacts of one of the contactors should fail to fail to open any further movement of the lift shall be prevented. Alternatively, a stuck-at-failure monitoring system shall achieve the same result. Alternative systems of protection, which shall be designed and constructed in accordance with the requirements of BS EN81-20 may be proposed of the approval of the Contract administrator.

The controller shall prevent the lift machine starting unless the car door is in the closed position and all landing doors are in the closed and locked position.

A means of lift position indication based upon a digital display shall be provided within the control panel.

Permanent provision shall be made for inserting lift car and landing calls within the cabinet and this shall remain accessible and functional at all times, and for isolating landing calls, remote commands and to disable automatic door operation.

An inspection control station which is designed and constructed in accordance with the requirements of Section 5.12 of BS EN81-20 shall be incorporated in each of the control panels. The lift shall remain in inspection mode until all inspection control stations are set to the normal operation condition.

A landing and car door bypass device shall be provided in the lift controller. The device shall be designed and constructed in accordance with the requirements of Sections 5.11.2 and 5.12.1.8.3 of BS EN81-20. The device shall be protected against unintended use and protected mechanically by means of a permanently installed robust and secure guard or by way of a plug socket combination. The device shall be marked 'Bypass' and that activation status of the device shall be clearly marked. When operated the Bypass Device shall: normal operation including that of automatic doors shall be prevented; the bypassing of the lift landing door contacts and locks and the lift car door contacts and locks shall be possible, although the simultaneous bypassing of both car and landing door contacts and locks shall be prevented; a separate monitoring signal shall be provided such as to provide a check that the car door is in the closed position during lift movements with the car door bypassed; movement of the lift car shall be possible only under inspection control operation or emergency electrical control operation; and audible signal at the lift car (minimum 55 dB(A) measured 1 M below the lift car) and a clearly visible flashing light under the lift car shall be activated during movement of the lift car. In the case of manually operated doors or gates the simultaneous bypass of the landing door contacts and landing door locks shall be prevented.

The controller shall incorporate a device which is configured such as to verify the correct operation of the lift door contact circuits whenever the lift car is within the unlocking zone, the car door is open and the landing door lock is released. The device shall monitor the monitor the condition of the electrical device which proves the closed condition of the lift car door, the electrical device proving the locked condition of the landing door locking device and the monitoring signal associated with the 'Bypass' device, in order to detect malfunction and to prevent the normal operation of the lift.

Where required, and/or where required by this Specification, an Emergency Electrical Control Operation device shall be provided and shall be designed and constructed in accordance with the requirements of Section 5.12.1.6 of BS EN81-20.

All wiring within the control panel cabinet shall be properly and securely terminated. Any spare wires which are run to the panel shall be properly segregated and insulated from any live circuits and components and shall be suitably identified.

A rubber isolation mat, which is design and constructed in accordance with the requirements of BS EN61111, shall be provided in front of the control panel cabinet and at the rear of the panel in case where access may be required.

Portable and/or hand-held devices which permit the interrogation of the lift control system shall be provided to the Employer complete with detailed instructions for safe use of the device. The device shall be provided free of any additional charge, hire, rental, lease or license and the device and its associated software shall remain functional the service life of the lift installation.

The controller shall incorporate a means to detect the temperature of the lift machine room and configured such as to isolate the lift in accordance with the requirements of BS EN 81-20 should the temperature limit of the equipment be exceeded.

The control system shall be designed to meet the requirements of BS EN12015 and BS EN12016 in relation to Electro-Magnetic Compatibility (EMC). A valid Declaration of Conformity shall be provided as evidence of compliance.

Control System (Simplex Down Collective)

A down collective control system shall be provided with the following features -

a) The system shall be microprocessor based and shall incorporate the facility for future installation of 'fault logging' and remote monitoring equipment complying with BS EN627.

b) Lift car and landing calls shall be stored and retained in the system after operation of the respective lift car or landing push button. The lift car shall respond to and answer the highest landing call registered, prior to reversing direction in order to answer any remaining calls in the down direction.

c) A facility shall be provided for "homing" the lift car to the main floor level once all calls have been answered. This feature shall be readily disenabled if required and without recourse to tools or devices.

d) An adjustable timing device shall be incorporated in the system which shall allow passengers to enter the lift car and register a car call prior to the lift car responding to a further landing call. This shall also allow sufficient time for passengers to determine the direction of travel.

CCTV (OPTIONAL PRICE)

The Lift Contractor shall provide each lift car with the necessary electrical and mechanical facilities necessary for the incorporation of a CCTV system, which shall be supplied and fitted by a specialist contractor. The Lift Contractor shall include for providing access and support in relation to the installation and termination of the CCTV system and equipment.

The Lift Contractor shall include within their works package for the supply and installation of a separate, purpose manufactured LSF lift trailing cable connecting each lift controller to each lift car. The trailing cable shall be designed and manufactured such as to meet the requirements of EN81-20 in relation to the speed and travel of the lift and the height of the lift shaft and shall be in conformity with EN 50214, IEC 60227-6 or IEC 60245-5.

The trailing cable shall be designed to incorporate the requirements of the CCTV system as set out herein or associated with this Tender or, in the event that the design/specification for the CCTV

system has not been finalized, the Lift Contractor shall as a minimum base their costs on the supply and installation of a screened lift trailing cable incorporating, as a minimum, the following:

4x power supply
2x co-axial
4x twisted pairs
8x control

The final materials and construction shall be subject to the agreement of the Contract administrator.

The Lift Contractor shall supply, install and interconnect to suitably designed junction boxes at the lift car top, lift car interior, in the lift shaft and at the lift machinery space/machine room. The junction boxes shall be suitably marked and labelled in accordance with the requirements of this specification.

Diagnostics

The lift control system shall incorporate facilities for fault and event diagnostics in the form of a microcomputer which shall be capable of being interrogated at the controller. The information shall be presented as a digital display and, if coded, the appropriate key shall be listed on a label fixed to the interior of the controller and in the O&M Manuals.

The following list of faults and events shall be the minimum requirement, as detailed in BS EN627:

Code	Fault
00	No faults recorded.
01	Safety circuits interrupted.
02	Lock circuit interrupted whilst running.
03	Failure of normal door closing sequence.
04	Car stopped outside door unlocking zone.
05	Stuck call button.
06	Lift failed to start.
07	Low voltage on the lift logic supply.
08	Not allocated.
09	Failure of the self-test procedure.
10	Run-time limiter operated.
11	Position lost.
12	Excessive temperature of drive system.
13	Failure of normal door opening sequence.

Code	Event
40	No events recorded.
41	Main lift supply switched off.
42	Inspection control mode.
43	Fire service mode.
44	Data logging OFF (Engineer on site).
45	Car preference mode.
46	Emergency power operation.

Code	Alarm Code for Lifts
90	Alarm button pressed.

The record shall be held in the memory of the microcomputer in real time and shall be retained in rolling sequence of up to 5 timed occurrences of each of the listed fault or event. The system shall incorporate a facility for recognising and reporting that there have been more than 5 recurrences of any one fault or event and the first and last shall be retained in the memory. Upon clearance of a fault, the date and time shall be recorded and the next occurrence of the fault shall be reported as the first.

The equipment shall be configured such that a micro-computer may be applied to interrogate the system and through a serial link to a remote location or modem into a communication network, whereby each lift may be interrogated.

The remote equipment shall be capable of receiving data transmitted in the following minimum format:

a) V21 class 300 baud, asynchronous half duplex; and

b) Standard ASC11 code.

The memory shall be maintained by a back-up battery supply against a mains power failure for a minimum of 100 hours.

If the information at the controller is accessed by a portable reader, then one such reader shall be supplied to become the Employer's property, together with one copy of the operating manual containing a key to the codes and all operational and servicing information relevant to the diagnostics system.

Fire Alarm Automatic Recall (BS EN81-73:2016)

Behaviour of Lifts in the Event of Fire.

The lifts shall operate in accordance with the requirements of BS EN81-73:2016.

The lift controller shall be configured such as to include a fire recall mode which may be initiated on receipt of electrical signals provided by an automatic fire detection and alarm system, or where applicable, by way of the manually operated system.

The fire recall system shall be capable being activated by the operation of voltage free contacts or by way of a manually activated recall switch.

Should voltage free contacts not be available, the lift contractor shall include for a manually activated recall switch within their offer.

If, at the time of activation, the doors are closed, the lift car shall travel non-stop to the designated floor where the lift shall remain inoperable.

If, at the time of activation, the lift car is at a landing, other than the designated landing, with open doors an audible signal shall sound within the lift car and shall continue until the doors are closed. If after 20-seconds the doors are not closed the door protection devices shall be rendered inactive and the doors shall close with reduced kinetic energy, not exceeding 4 J, and with an acoustic warning signal in operation during the door closing cycle. The lift shall then travel non-stop to the designated landing.

If, at the time of activation, the lift car is descending, the lift car shall continue to the designated landing without stopping and on arrival the lift doors shall open.

If, at the time of activation, the lift car is ascending, the lift car shall decelerate and stop normally at the next available floor and shall then return to the designated landing where the doors shall open.

On arrival of the lift car at the designated landing an audible speech message and a visual signal, each indicating "Fire alarm – lift out of service – exit now", shall be initiated within the lift car. The doors shall remain open for 20-seconds after which the doors shall close and the lift shall be removed from service, with only the lift car interior door open and emergency alarm buttons remaining operational.

If the design of the building provides for more than one designated landing then separate pairs of volt free contacts, or suitable signalling system, shall operate in order to recall the lift car and park this at the appropriate designated landing following the same control sequence as is set out here above.

A prohibition sign, which is designed in accordance with the requirements of BS EN81-73 and based upon an International 'NO ENTRY' sign shall be provided on each lift landing in a position in which this is easily visible. An addition sign stating "Do not use lift in the event of fire" shall be installed in conjunction with the prohibition sign. When the recall device is operated all of the lift safety devices shall remain operational, and all of the lift landing and lift car controls (excepting for the door open and emergency alarm push buttons) shall be rendered inoperative. All existing calls in the system shall be cancelled.

A visual signal located in the lift car operating panel shall be illuminated and shall remain illuminated until the lift is returned to normal operation.

If at the time the recall device is activated the lift is on inspection control, under emergency electrical operation and/or under any other maintenance control, audible and visual indicators installed in the lift motor room, at each lift machinery space, on the lift car top, and in the lift pit shall automatically activate and shall remain activated until the lift is returned to normal control whereupon the lift shall immediately revert to fire recall operation, and the audible and visual signal shall cease.

All audible signals shall be designed and constructed to provide a sound level which is adjustable between 35 d(B) A and 65 d(B) A and shall be set at 55 d(B) A. The sound produced shall be such that this differs from other signals used on the installation in order to enable maintenance staff to easily identify the condition.

Fire Recall (Doors Required to Park Closed) [Machine Room-less]

There may be circumstances in which the local Fire Officer and/or the Building Fire Strategy require that the lift car should park with its doors closed. In this instance, or where National Regulations do not permit the lift doors to remain open, a means shall be provided to open the doors (even with the electrical power is switched on) such as to enable the Fire Service to check whether the lift car is present at the landing and ensure that persons are not trapped in the lift car.

On receipt of a fire signal from one of two pairs of volt-free contacts in each lift machinery area (to be provided by others), the lift(s) shall immediately return to the designated floor without stopping or answering any calls. If travelling away from the designated floor, the lift shall stop at the next available floor and, without opening its doors, return to the main floor. On arrival to the main floor, the lift doors shall open, and remain open for a pre-determined period, and then close and remain closed until the fire signal is cancelled. The additional pair of contacts shall be utilized in order to indicate that there is a fire at the designated floor and shall cause the lift control system to send the lift car to an agreed alternative level. In all cases the lift car interior door open button shall remain operational at all times.

LIFT CAR FRAME AND ENCLOSURE VANDAL RESISTANT

Car Frame

The Lift Contractor's attention is drawn to the fact that the lift car and lift car entrance are subject to a level of abuse including ingress of water and urine to the lift car and entrance equipment. The equipment design is to be suitable to accommodate this abuse. All materials used in the construction of the lift car platform and floor and entrances are to be suitably protected from the development and effects of corrosion. The Lift Contractor shall provide full details of the proposed protection with their Tender.

The car frame shall be designed and constructed in accordance with the requirements of BS EN81-20 **AND** the requirements of s.5.4 and s.5.8 of BS EN81-71:2018 in relation to a Category 2 Lift.

The car enclosure shall be carried within a steel frame which is of substantial construction, formed with angle and channel sections which are suitably braced and stiffened. The lift car frame shall be designed and constructed such as to sustain a fully loaded car plus 25% overload, together with the dynamic loads and forces arising during use, during loading, and during safety gear and buffer operation, without permanent deformation. In the case of Goods Passenger Lifts, or Mobility Scooter use the calculation of the rated load shall be increased such that the design and construction of the lift car frame and platform shall be such as accommodate the additional loads and forces imposed by the handling devices and/or Mobility Scooters.

The lift car enclosure shall suitably isolated from the lift car frame by way oil resistant isolation rubbers which are of suitable resistance and density.

During the operation of safety devices the lift car floor shall not incline in excess of 5% from its normal position under the full load range of the lift car.

The lift car shall incorporate a substantial platform constructed as a framework of rolled steel sections bolted together and supporting a floor constructed from a suitably corrosion protected sheet steel floor panel which is adequately braced and supported such as to prevent flexure at 125% rated load. All surfaces of the platform steel construction and floor shall be suitably protected in a proprietary corrosion resistant coating.

All exposed metal work shall be painted with machine paint, in a colour to the approval of the Contract administrator, and as detailed in this Specification.

On the underside of the lift car provision shall be include for statically balancing the lift car. The design and construction of the static balancing system shall ensure that the complete lift car and its attachments can be statically balanced without exceeding the design parameters relating to the overall weight of the complete lift car and sling assembly and the lift safety equipment.

A toe guard, designed and constructed in accordance with the requirements of Section 5.4.5 of BS EN81-20, and manufactured in not less than 16 SWG steel, shall be installed beneath the lift car sill complete with adequate bracing to the lift car platform steelwork. The toe-guard and bracing shall be painted as detailed within this Specification.

A data plate shall be fitted to the cross head of the lift car frame which shall provide details of the suspension rope type, construction, diameter and length along with weight of the lift car and the contract speed all expressed in SI Units.

Car Enclosure

The car enclosure shall be constructed in 16 SWG patterned stainless steel sheet. Each panel shall be flanged and bolted to give an enclosure which is of rigid and robust construction which is design and constructed in accordance with the requirements of BS EN81-20 **AND** the requirements of s.5.5 of BS EN81-71:2018 in relation to a Category 2 Lift.

The exterior of the panels shall be treated with anti-drumming compound and noise absorption pads are to be fitted between the car frame and enclosure. All exposed metal work to the exterior of the enclosure is to be treated with machine paint, in a colour to approval of the Contract administrator.

The design and construction of the car enclosure shall be such as to ensure that each wall of the lift car shall resist, without permanent deformation in excess of 1 mm and elastic deformation in excess of 15 mm, a force of 300 N evenly distributed over an area of 5 cm^2 in round or square section and applied at right angles at any point from within the lift car.

The design and construction of the car enclosure shall be such that this is of mechanical strength which is at least equal to that of the landing doors and such as to ensure that each wall of the lift car shall resist, without permanent deformation in excess of 1 mm, a force of 1000 N evenly distributed over an area of 100 cm^2 in round or square section and applied at right angles at any point from within the lift car.

In the case of a Category 2 lift the design, construction and installation of any handrail shall be such as to support a force of 2500 N applied in any direction at the most unfavourable point.

The design and construction of the car roof shall be such as to have sufficient strength to safely support the maximum number of persons for who refuge spaces are provided under Section c.5.2.5.7.1 of BS EN81-20. And, the design and construction of the car roof shall be such as to ensure that this shall resist, without permanent deformation, a force of 2000 N applied at any position on an area of 0.3 M x 0.3 M.

Any trap or emergency door fitted in the lift car ceiling shall be design and constructed in accordance with the requirements of BS EN81-20 and with those of c.5.5.2 of BS EN81-71 including a security device the reset of which shall require intervention at the lift machinery space, control cabinet or emergency and inspection panel.

The external perimeter of the lift car roof shall be equipped with a toe board which shall be of minimum height 100 mm.

The surface of the car roof shall be of non-slip design and construction.

The lift contractor shall mark upon the car roof, using an indelible material, the locations of the refuge spaces and the extent of these.

All materials used in the design and construction of the lift car enclosure and roof shall be non-flammable.

Materials applied for the car interior décor shall be designed and manufactured in accordance with the requirements of BS EN13501-1 as follows:

Car Flooring – Cfl-s2 for Category 1 Lifts and A2fl for Category 2 Lifts.

Car ceiling and walls – C-s2, d1 for Category 1 Lifts and A2 for Category 2 Lifts.

The design of the lift car lighting for Category 1 and 2 Lifts shall be low energy LED which is in accordance with the requirements of c.5.5 of BS EN81-71, and shall provide a minimum level of illumination of 100 lux at floor level and at the control devices. The light fixtures shall be flush fitting without visible fixings and designed such as

to prevent unauthorized access. The light fittings shall resist, without material failure or loss of function, the tests set out at Annexes B and F of BS EN81-71.

Mirrors or glass materials shall be designed, constructed and installed such as to comply with the requirements of Mode B or C of BS EN12600, and Annex C should the material become broken. In the case of a Category 2 lift any mirror shall be flush fitted and of laminated material.

The Lift Contractor shall submit a constructional drawing of the car bodywork for inspection and comment before proceeding with manufacture.

To ensure that vibration is not transmitted to the car enclosure, a minimum clearance of 3 mm shall be maintained between the car enclosure and the steelwork of the sling.

The design of the lift car frame, platform, enclosure and entrances, including sills and mountings, shall be such as to accommodate the loads imposed during loading and unloading of the lift car and shall be designed based upon a minimum loading of:

In the case of Passenger Lifts which carry Class C wheelchairs and/or mobility scooters 60% of lift car rated load;

Car Top Balustrade

In all cases in which the distance between the outer edge of the lift car roof and the wall of the lift well, measured horizontally and perpendicular to the lift car roof, exceeds 0.3 M the Lift Contractor shall supply and install a balustrade in accordance with the requirements of BS EN 81-20.

The design and construction of the balustrade shall include; a handrail; an intermediate bar positioned at half the height of the balustrade, and; a toe board, of minimum height 0.1 M, fitted around the external perimeter of the lift car roof.

The height of the balustrade, in its fully extended position, shall be not less than 1.1 M and the balustrade shall be located at a maximum distance of 0.15 M from the edges of the car roof. The distance between the outer edge of the handrail and any component of the lift or part of the lift well shall in no case be less than 0.1 M.

The design of the balustrade shall be such that this shall resist, without elastic deformation in excess of 50 mm, the application of a force of 1000 N applied horizontally and at right angles at any point at the top of the balustrade.

In cases in which the available headroom clearance is insufficient to accommodate a barrier of 1.1 M in height a suitably designed extendable barrier, which is designed and constructed in accordance with the requirements of BS EN81-20, and which has been approved by the Lift Contractor's Notified Body, may be applied. Such designs shall incorporate electrical interlock safety switches, which are designed and constructed in accordance with Section 5.11.2 of BS EN81-20, and configured such that the lift cannot be operated on 'Normal' operation whilst the barrier is extended, and such that the extension of the barrier is necessary in order to enable the lift car top inspection control operation.

A suitable warning notice shall be provided on each rail in order to warn of the danger of leaning over the rail.

The rail shall be manufactured in galvanised steel and suitably painted in a colour to the approval of the Contract administrator.

Lift Car Apron

An apron, designed and constructed in accordance with the requirements of Section 5.4.5 of BS EN81-20, and manufactured in not less than 16 SWG steel, shall be installed beneath each lift car entrance sill complete with adequate bracing to the lift car platform steelwork. The apron and bracing shall be painted as detailed within this Specification.

The apron shall extend for at least the full width of the clear landing entrance and shall extend vertically downwards by at least 750 mm. The lowest edge of the apron shall be formed to provide a chamfer of angle of at least 60° and which shall extend in the horizontal plane for not less than 20 mm.

Only countersunk screws will be accepted such that the surface, at all points on each panel, is smooth and flush. Any projections on the face of the apron shall not exceed 5 mm and any projections in excess of 2 mm shall be chamfered at least 75° to the horizontal.

The design, construction and installation of the apron shall be in accordance with the requirements of BS EN81-20 and such that this is capable of withstanding a force of 300 N, which is applied at right-angles to the fascia from the landing side, and at any point on the lower edge, and evenly distributed over an area of 5 cm^2 in round or square section. The apron shall resist without permanent deformation in excess of 1 mm and without elastic deformation in excess of 35 mm.

Safety Gear (Traction)

A robustly designed and constructed safety gear shall be fitted to the underside of the lift car. The safety gear shall be of the progressive type and operated by a suitably designed overspeed governor which is designed and constructed to match the characteristics of the safety gear. The safety gear shall be designed, constructed and installed such that this is capable of safely stopping and sustaining the descending lift car complete with rated load, by locking this to the guide rails. The safety gear shall operate at the tripping speed of the overspeed governor and in the case of a breakage of the suspension means.

The design of the safety gear shall be such that this will release automatically by movement of the lift car in the upwards direction of travel and shall reset such that the safety gear is immediately enabled for further operation. The design shall be such that the release may be affected under all load conditions up to and including rated load.

The design, construction and installation of the safety gear, together with its associated components, shall be in accordance with the requirements of BS EN81-20. Electrical devices associated with the safety gear shall be designed and constructed in accordance with the requirements of Section 5.11.2 of BS EN81-20.

The safety gear shall be subject to Type Examination in accordance with the requirements of Section 5.3 of BS EN81-50, the Lifts Regulations 2016 and Directive 2014/33/EU, and a Type Examination Certificate which is in accordance with the requirements of c.5.3.5 of BS EN81-50 shall be provided and a copy retained in the lift O&M Manual.

In all cases the average retardation of the lift car in the case of free fall shall be between 0.2 gn and 1.0 gn.

In cases in which a bi-directional safety gear is installed such as to prevent uncontrolled ascent or unintended movement of the lift car, this shall comply in all respects with the above requirements

excepting that when actuated, the overspeed governor and safety gear shall be designed such that engagement of the 'upwards' direction elements of the governor and safety gear shall be released by movement of the lift car in the 'downwards' direction.

Safety gears incorporate adjustable speeds shall be marked with the range of speeds and the instructions shall be included in the lift O&M Manual.

Protection against Unintended Movement of the Lift Car

The Lift Contractor shall supply and install a safety device which shall detect and prevent unintended movement of the lift car at a landing whilst the landing door is not in the locked position and the car door not in the closed position.

The device shall detect unintended movement of the lift car and shall by way of a suitably designed actuation system, cause the lift car to stop, and remain stopped, in accordance with the distance constraints set out at Section 5.6.7 of BS EN81-20.

The design, construction and installation of the safety device, together with its associated components, shall be in accordance with the requirements of BS EN81-20. Electrical devices associated with the safety device shall be designed and constructed in accordance with the requirements of Section 5.11.2 of BS EN81-20.

In the case that the lift machine brake is used as a means of preventing/stopping unintended movement this shall be designed and constructed in accordance with the requirements of Section 5.9.2.2.2. of BS EN81-20. The brake shall incorporate self-monitoring of correct lifting and dropping of the braking mechanism and verification of the braking force. The self-monitoring function shall be subject to Type Examination in accordance with the requirements of Section 5.8 of BS EN81-50, the Lifts Regulations 2016 and Directive 2014/33/EU.

The unintended movement device shall incorporate, in the form of specific system design, a means of detection, a means of actuation and a stopping means. Suitable stopping means may include: additional safety gears on the lift car or counterweight; lift machine sheave brakes; rope brakes or an equivalent to the approval of the Contract administrator.

The combined system of detection, actuation and stopping means shall form an integrated system which shall be subject to Type Examination in accordance with the requirements of Section 5.8 of BS EN81-50, the Lifts Regulations 2016 and Directive 2014/33/EU.

The Lift Contractor shall state the type of device and the means detection, means of actuation and stopping means in Section 10 of this document

Ascending Car Over-Speed Protection

The Lift Contractor shall supply and install a safety device which shall detect, prevent and stop uncontrolled ascent of the lift car.

The device shall be operational during normal lift operation and during manual rescue operations.

The design, construction and installation of the safety device, together with its associated components, shall be in accordance with the requirements of BS EN81-20. Electrical devices associated with the safety device shall be designed and constructed in accordance with the requirements of Section 5.11.2 of BS EN81-20.

The device shall detect uncontrolled ascent of the lift car and shall by way of a suitably means, cause the lift car to stop, and remain stopped, in accordance with the requirements set out at Section 5.6.6 of BS EN81-20.

In the case that the lift machine brake is used as a means of preventing/stopping uncontrolled ascent of the lift car this shall be designed and constructed in accordance with the requirements of Section 5.9.2.2.2. of BS EN81-20. The brake shall incorporate self-monitoring of correct lifting and dropping of the braking mechanism and verification of the braking force. The self-monitoring function shall be subject to Type Examination in accordance with the requirements of Section 5.8 of BS EN81-50, the Lifts Regulations 2016 and Directive 2014/33/EU.

The uncontrolled ascent protection device shall incorporate, in the form of specific system design, a means of detection, a means of actuation and a stopping means. Suitable stopping means may include: additional safety gears on the lift car or counterweight; lift machine sheave brakes; rope brakes or an equivalent to the approval of the Contract administrator. During operation of the device the retardation of the empty lift car shall not exceed 1 gn

The combined system of detection, actuation and stopping means shall form an integrated system which shall be subject to Type Examination in accordance with the requirements of Section 5.7 of BS EN81-50, the Lifts Regulations 2016 and Directive 2014/33/EU. .

The Lift Contractor shall state the type of device and the means detection, means of actuation and stopping means in Section 10 of this document.

Suspension Rope (Machine Room-less)

The requirements regarding suspension are as follows:-

a) In the case of traction lifts at least four suspension ropes shall be used, and in the case of hydraulic lifts at least four suspension ropes for each hydraulic jack. Their nominal diameter shall not be less than 11 mm with a minimum safety factor of 12:1 and which shall be calculated in accordance with the requirements of BS EN81-50: 2014 and calculated based upon the worst case scenario.

b) The characteristics and tensile strength of the wire ropes shall be in accordance with the requirements of BS EN12385-5.

c) Each of the ropes shall be independently attached at its termination. Terminations shall be designed and constructed in accordance with the requirements of BS EN 81-20: 2014 and shall be fitted with a means of equalization and an isolated car hitch by means of springs or other method to the approval of the Contract administrator. The roping arrangement shall be **2:1 underslung.**

d) Acceptable means of termination include self-tightening wedge type sockets in accordance with the requirements of BS EN13411-6 or BS EN13411-7; ferrule secured eyes in accordance with the requirements of BS EN13411-3; or swage terminal in accordance with the requirements of BS EN13411-8. In all cases the design and construction of the rope termination shall be such as to achieve not less than 80% of the minimum breaking load of the rope.

e) During the servicing of the lift it shall be possible, by means of adjustment of nuts on the rope terminations, to shorten the ropes by 150 mm or more. The design shall be such that the termination shall not work loose following installation or adjustment

f) Following installation an anti-twist rope (6 mm) shall be fitted through the rope terminations in order prevent rotation.

g) A data plate shall be fixed to the lift car cross head giving the details of the suspension ropes type, construction, diameter, length and lift car weight, all expressed in SI Units.

h) Ropes and their terminations shall be installed in full compliance with the manufacturer's data and instructions, a copy of which shall be made available at the request of the Contract administrator, and which shall be included in the Operation & Maintenance Manuals.

Alternative means of suspension will be considered only on the basis that the design has been formally approved by a Notified Body, and in accordance with EU Lifts Directive 2014/33/EU and the requirements of BS EN81-20 and BS EN81-50, and strictly on the basis that the Lift Contractor has provided full details of the proposed design at the time of Tender.

Load Weighing Devices (Simplex)

The car sling or platform shall incorporate an automatic load-weighing feature. The device shall be operated when the lift car is overloaded such that lift operation is prevented whenever the load in the lift car reaches or exceeds 110% of the rated load.

When operated the device shall prevent normal starting of the lift car, including re-leveling (re-leveling shall remain operative in the case of hydraulically driven lifts) and prevent the closing of the lift doors. In the case of manually operated doors or gates these shall remain unlocked. The device, when operated, shall cancel any preliminary lift starting functions.

When operated the device shall cause an audible and visible warning signal, which shall be located within the lift car interior, and fitted in the car station, to be activated to indicate the 'overload' condition.

The design shall be such as to include a means of self checking and the device shall 'fail to safe' such that it is not possible for an overloaded lift to operate.

The load-weighing feature shall also detect when the car is loaded to 80% load and will cause the lift to by-pass other landing calls in the current direction of travel. The final load figures shall be agreed with the Contract administrator during the Commissioning Tests.

The "overload" and "load weighing" switches may be fixed to the underside or top of the car sling but if mounted on the top, these shall be provided with suitable protection against damage.

Guide Shoes (Adjustable)

The lift car and counterweight shall be fitted with self-adjusting robust guide shoes which incorporate renewable liners. Each of the shoes on the top of the lift car and counterweight shall be provided with an oil reservoir which incorporates wick lubricators complete with a means of adjusting the flow of lubricant to the guide rails.

In cases where sliding guide shoes with oil lubrication are employed a readily serviceable metal drip tray shall be provided at the base of each guide rail.

Mechanic's Control Station (Lift Car Top)

A Mechanic's Control Station, which is in compliance with the requirements of Section 5.12.1.5 of BS EN81-20, and the requirements of BS7255, shall be installed on the lift car top.

The design of the Mechanic's Control Station shall be in accordance with the requirements of c.5.12.1.5.2.4 of BS EN81-20.

The Mechanic's Control Station shall incorporate an 'Inspection Control Switch' which is designed in accordance with the requirements of Section 5.11.2 of BS EN81-20. The Inspection Control Switch shall be of bi-stable design and shall be suitably protected against involuntary or accident operation. The inspection control switch

Switches which are of rotary design shall incorporate a mechanical means (non-friction) of preventing the rotation of the stationary element.

In addition, the Mechanic's Control Station shall incorporate direction push buttons, designated 'UP' and 'DOWN' and a push button designated 'RUN'. These push buttons shall be suitably protected against involuntary or accidental operation.

The design and construction of these push buttons shall be such that these operate in a constant pressure mode. Movement of the lift car shall be possible only by way of simultaneous constant depression of the 'RUN' button and one of the 'UP' or' 'DOWN' directional buttons. The design of the push buttons shall be in accordance with the requirements of c.5.12.1.5.2.3 of BS EN81-20, and these shall be configured such that operation of the 'RUN' and 'UP' or 'DOWN' buttons may be performed simultaneously by a person using only one hand.

The Mechanic's Control Station shall incorporate a stopping device which is designed and constructed in accordance with the requirements of c.5.12.1.11 of BS EN81-20.

The Mechanic's Control Station shall be design with a minimum level of protection of IPXXD in accordance with BS EN60529.

The Inspection Control Switch, when switched to the 'INSPECTION'' mode of operation, shall:

- Neutralise the normal controls of the lift;
- Neutralise the lift emergency electrical operation function;
- Disable the levelling and re-levelling functions;
- Prevent automatic operation of the lift door equipment; and
- Permit power operated closing of the lift doors by way of the operation of one of the direction push buttons of the Mechanic's Control Station; or additional switches, incorporated into the Mechanic's Control Station, and suitably protected against involuntary or accident operation, which control the operation of the doors.
- Prevent the lift car from overrunning the normal stopping positions.

- Maintain all lift safety devices in a functional and operational condition.

When in use the Mechanic's Control Station shall limit the speed of the lift car to a maximum of 0.63 m/sec and, to 0.3 m/sec whenever the vertical distance above any standing area on the lift car top is 2.0 M or less.

In cases in which more than one Mechanic's Control Station is provided (lift pit or machinery space, etc) and when more than one of these is switched to 'INSPECTION' mode, movement of the lift car shall be possible only by the simultaneous operation of the same control function switches of each Mechanic's Control Station.

The Mechanic's Control Station shall be located such that this is readily operable from within of horizontal distance of 0.3 M of a refuge space.

A stopping device, which is designed and constructed in accordance with the requirements of c.5.12.1.11 of BS EN81-20, shall be located in a readily accessible position and not more than 1.0 M from the entry point to the lift car top. This device may be that incorporated in the Mechanic's Control Station if this is located with 1.0 M of the car top entry point, or may be a separate device.
.
Incorporated into the Mechanic's Control Station shall be a switched 13 amp three pin socket outlet with integral RCD operated at 30mA. A minimum 100 watt inspection lamp fitted with a protective guard shall be mounted on the Station and controlled by a switch fitted adjacent to it.

The inspection lamp, or an additional emergency light unit complete with protective guard, shall be provided with emergency backup by means of a battery and charger, giving a minimum 3 hours duration and maximum 12 hours recharge. The light shall provide a minimum light intensity of 5 lux for a minimum period of 1-hour, measured at the engineer alarm initiation device and at a point 1 M above the floor of the car roof at the centre of the car roof.

A lift car top communication system, designed and constructed in accordance with the requirements of BS EN81-20 and BS EN81-28, shall be incorporated into, or mounted adjacent to the Station, together with clear instructions as to its use.

Mechanic's Control Station (Lift Well Pit)

A permanently installed Mechanic's Control Station, which is in compliance with the requirements of Section 5.12.1.5 of BS EN81-20, and the requirements of BS7255, shall be installed in the lift well pit.

The design of the Mechanic's Control Station shall be in accordance with the requirements of c.5.12.1.5.2.4 of BS EN81-20.

The Mechanic's Control Station shall incorporate an 'Inspection Control Switch' which is designed in accordance with the requirements of Section 5.11.2 of BS EN81-20. The Inspection Control Switch shall be of bi-stable design and shall be suitably protected against involuntary or accident operation. The inspection control switch

Switches which are of rotary design shall incorporate a mechanical means (non-friction) of preventing the rotation of the stationary element.

In addition, the Mechanic's Control Station shall incorporate direction push buttons, designated 'UP' and 'DOWN' and a push button designated 'RUN'. These push buttons shall be suitably protected against involuntary or accidently operation.

The design and construction of these push buttons shall be such that these operate in a constant pressure mode. Movement of the lift car shall be possible only by way of simultaneous constant depression of the 'RUN' button and one of the 'UP' or' 'DOWN' directional buttons. The design of the push buttons shall be in accordance with the requirements of c.5.12.1.5.2.3 of BS EN81-20, and these shall be configured such that operation of the 'RUN' and 'UP' or 'DOWN' buttons may be performed simultaneously by a person using only one hand.

The Mechanic's Control Station shall incorporate a stopping device which is designed and constructed in accordance with the requirements of c.5.12.1.11 of BS EN81-20.

The Mechanic's Control Station shall be design with a minimum level of protection of IPXXD in accordance with BS EN60529.

The Inspection Control Switch, when switched to the 'INSPECTION'' mode of operation, shall:

- Neutralise the normal controls of the lift;
- Neutralise the lift emergency electrical operation function;
- Disable the levelling and re-levelling functions;
- Prevent automatic operation of the lift door equipment; and
- Permit power operated closing of the lift doors by way of the operation of one of the direction push buttons of the Mechanic's Control Station; or additional switches, incorporated into the Mechanic's Control Station, and suitably protected against involuntary or accident operation, which control the operation of the doors.
- Prevent the lift car from overrunning the normal stopping positions.
- Maintain all lift safety devices in a functional and operational condition.

When in use the Mechanic's Control Station shall limit the speed of the lift car to a maximum of 0.63 m/sec and, to 0.3 m/sec whenever the vertical distance above any standing area in the lift well pit is 2.0 M or less.

In cases in which more than one Mechanic's Control Station is provided (lift car top or machinery space, etc.) and when more than one of these is switched to 'INSPECTION' mode, movement of the lift car shall be possible only by the simultaneous operation of the same control function switches of each of the Mechanic's Control Stations.

The Mechanic's Control Station shall be located such that this is readily operable from within of horizontal distance of 0.3 M of a refuge space.

A stopping device, which is designed and constructed in accordance with the requirements of c.5.12.1.11 of BS EN81-20, shall be incorporated into the Mechanic's Control Station.

An electrical reset switch shall be provided and shall be configured such that this is operated from outside of the lift well, either by operation in conjunction with the emergency unlocking means provided to the door which gives access to the pit; or which located outside of the well and which is accessible to authorised persons only.

The return of the lift to Normal operation shall only occur when:

- The landing doors providing access to the pit are closed and locked;
- All of the stopping devices in the pit are set to their 'Run or 'Normal' mode;
- When an electrical reset switch located outside of the lift well, is operated.

.

A lift well pit communication system, designed and constructed in accordance with the requirements of BS EN81-20 and BS EN81-28, shall be incorporated into, or mounted adjacent to the Station, together with clear instructions as to its use.

CAR SIGNAL AND OPERATING DEVICES

Operating Panel (Side Wall) – Vandal Resistant

The lift car interior operating devices shall be incorporated within the side wall of the lift car and integral with it, in a position which is in compliance with the requirements of Part M2 of the Building Regulations and those of BS EN 81-70. Faceplate designs will not be accepted.

A key operated independent service switch, a key operated fan switch and a key operated car interior light switch, door open push and alarm push buttons shall be provided in addition to the required lift floor call push buttons.

A visual indicator and audible buzzer shall be provided in order to signify “car overloaded”. The alarm and door open push buttons shall be permanently illuminated including under emergency lighting operation. The alarm and door open push buttons, which shall be the lowest of the push buttons in the lift car, shall be positioned at a height not less than 900 mm above the car floor. The operating pushes shall be positioned at a height of between 900 mm and 1200 mm above the lift car floor in order to aid accessibility.

The design of the push buttons shall be such as to meet the requirements of BS EN 81-70, and shall be in a single or double column arrangement and of the “micro” movement type. The key switches, door open button and alarm button and the overload indicator shall all be of the same design and manufacture as the push buttons. Each push button shall be arranged to illuminate to indicate call acceptance and the method of illumination shall be by light emitting diodes (LED).

The pushes shall be tonal contrast to the panel and the panel to the surrounding wall.

An **LED** call registered illuminated signal shall be incorporated within the halo symbol of each push and each push button shall incorporate an audible signal to confirm operation.

The Exit floor push shall protrude 5mm beyond the other floors and be coloured green, with green illumination.

The Alarm button system shall be provided with an additional yellow illuminated pictogram to indicate the alarm has been given, and a green illuminated pictogram to indicate that the alarm has been registered.

The key operated independent service switch shall, when switched to ‘Independent Service’, isolate the lift car from all landing calls. The lift car shall respond to only to car interior calls, and on a single call basis only, and shall park with the doors open.

The key operated car interior light switch shall be suitably shrouded and incorporate a test position for the lift car emergency lighting.

An alphanumeric digital lift car position indicator, or alternatively a scrolling message type position indicator, shall be provided within each lift car operating panel at a height between 1600 mm and 1800 mm above the lift car floor. The visible part of the floor numbers shall be between 30 mm and 60 mm.

All of the equipment shall be designed, constructed and installed in accordance with the requirements of B EN81-20 and BS EN81-70.

The car-operating panel shall incorporate the lift manufacturer's name, the lift serial number, the CE Mark and the reference number of the Notified Body.

In addition to the stated general requirements of this Specification the design, construction and installation of the lift car interior and landing operating fixtures and devices, including lift car interior operating panels, lift car and landing position indicators, signal lanterns and call stations shall meet with the requirements of BS EN81-20 and BS EN81-70 together with the specific requirements of s.5.6 of BS EN81-71.

The design, construction and installation of the equipment shall be such as to meet the water resistance requirements of IPX3 as specified in BS EN60529.

In the case of Category 1 lifts to BS EN81-71 the equipment shall be removable only by way of the use of special tools. And, in the case of Category 2 lifts the equipment shall incorporate fixings which are not visible to lift users.

The equipment shall be subject to testing in accordance with the requirements set out at Annex B of BS EN81-71.

The equipment shall be resistant to cutting through by any item which is listed at Annex E of BS EN81-71.

The equipment shall meet the fire resistance test requirements set out at Annex F of BS EN81-71.

The design and construction of symbols and markings shall be such that the requirements of c.5.6.2.2 and Annex E of BS EN81-71 are achieved.

In all cases a landing position indicator shall be provided at the main floor as well as other floors where required by this Specification.

Unless the lift car is positioned at a floor with the doors open the operation of the lift car alarm call button shall cause a device to sound for a period of not less than 60 seconds or until the lift car doors open. The device shall be audible from within the lift car at a minimum sound level of 70 dB(A) to 85 dB(A).

Emergency Auto Dialling

An auto-dialling emergency communications system which is designed, constructed and installed in accordance with the requirements of BS EN81-20, BS EN81-28 and the Lifts Regulations 2016 shall be provided in each lift car and electrically connected to the machine room/machinery space. The system shall include as a minimum:-

a) A speaker unit shall be suitably mounted and concealed behind the lift car front panel. The unit shall be fitted with an integral steel baffle plate for protection against vandalism and a volume control which shall not be accessible from within the lift car.

b) A call/speaker unit mounted on the car top and in the pit.

c) A main power pack and control unit mounted on the lift car roof and connected to the speaker by communications grade cabling.

d) The auto-dialler shall be activated by the operation of the "alarm" push and will then automatically dial the first of a sequence of pre-programmed telephone numbers. When

the operator answers, the system will allow two-way "hands-free" conversation and a pre-programmed voice message shall identify the lift number and its precise location. e.g. "Lift alarm activated on passenger lift 3 at Dunbar & Boardman House, 95 Spencer Street, Birmingham B18 6DA, please press star to acknowledge this call." This voice prompt shall continue at preset intervals until acknowledgement has been given. Two-way communication shall be possible throughout this period. If the call has not been acknowledged within an adjustable period of 30 seconds, the call will terminate and move onto the next number in the sequence. Similarly, failure to connect with the first number will initiate dialling to the second pre-programmed number. This cycle of automatic dialling shall continue to all programmed numbers until acknowledgement of the call has been registered. When the call has been acknowledged then an adjustable call duration of 2 minutes will be allowed. This period may be extended, or the call terminated by following the advice of voice prompt messages.

e) The following features will be incorporated:-

220-240 volt mains supply
8 hours battery back-up
3 programmable numbers to 10 digits
programming by portable programmer
3 second response delay
2 minutes time out per conversation
System generated self-test of auto-dialler, at least once every 3 days
BT approval
Voice enunciation of instruction, to minimise engraving.

f) Provide an acoustic coupler or, when a remote proximity device is installed, an inductive loop system with sufficient field strength to be suitable for its purpose, along with suitable indication of its availability for hearing aid users.

g) A green illuminated pictogram to indicate the call/alarm has been registered.

h) Adjustable volume to ensure a sound level of between 35 and 65 dBA.

The Lift Contractor shall include for all costs of reprogramming the auto-dialler system and/or changing the telephone numbers in order to suit the Employer's requirements, in the case that the Lift Contractor is not awarded the Maintenance Contract upon completion of the Rectification period, or at any subsequent time.

Voice Synthesiser

The voice synthesiser shall be of the digital type capable of on-site programming and shall include, as a minimum, for the transmission of the following messages.

- Arrival at the floor and its designation.
- Preparing to depart.
- Doors about to close.
- Remove obstruction from the doors.
- Lift failed to start, please press door open push.

- Lift overloaded.

The synthesiser shall have an additional facility for incorporating and processing a further 10 separate phrases.

Final detail in respect of the voice type and the wording of the individual messages to be transmitted shall be subject to the Contract administrator's approval.

The voice synthesiser shall have an inductive loop system with sufficient field strength to be suitable for its purpose, along with suitable indication of its availability for hearing aid users.

The sound level shall, as a minimum, be adjustable between 35 dB(A) and 65 dB(A), and with a facility to increase the sound level such as to meet site conditions. The final sound level shall be to the approval of the Contract administrator.

CAR & LANDING ENTRANCES

Automatic Power Operation of Car and Landing Doors Vandal Resistant (without nudging)

The automatic door operator shall provide quiet controlled motion of the car and landing doors throughout the full extent of the opening and closing cycles. A solid guard shall be fitted to the operator driving mechanism. The whole of the operator and its associated devices shall be mounted on steel members forming part of the car sling and under no circumstances shall the operator be fitted directly to the car enclosure.

The lift car and landing entrances shall meet with the requirements of, and tests specified in, s.5.4 of BS EN81-71: together with those of BS EN81-71 in relation to a Category 2 Lift.

The lift car and landing entrance doors shall be equipped with devices which ensure that the door panels are retained in position in the event of failure of a guiding element. The door panels and retain devices shall be tested in accordance with the requirements of c.5.3.5.3.4 of BS EN81-20: 2014 and of Section 5.14 of BS EN81-50: 2014 and of c.5.4.1.2 and c.5.4.1.3 of BS EN81-71. The Lift Contractor shall provide a Test Report in accordance with c.5.14.5 of BS EN 81-50: 2014.

The following requirements shall also be maintained:-

a) It shall be driven by an electric motor in both opening and closing directions and tested for compliance with BS EN81-20 in relation to closing force and for kinetic energy by using an approved device. Any reduction gearbox shall utilise steel/bronze gearwheels. Nylon/plastic gears will not be acceptable.

b) Provision shall be made for the site adjustment of the opening and closing cycles of the car and landing doors and these adjustments shall be independent from each other.

c) In the case of glass panel construction lift car and/or landing doors a device which limits the door opening force to 150 N and which stops the door in the opening cycle in the event of an obstruction shall be provided.

d) Car doors shall only operate on normal service while the car is in the levelling zone of a particular floor.

e) A “door open” button shall be provided in the car and it shall be operative only while the car is stationary with the car door coupled to a landing door. The lift shall “normally” park with the doors closed.

f) The design of the door operator shall be such that the prevention of the door closing movement shall initiate an automatic re-opening of the door.

g) Couplers shall be of the metal type of robust construction, being of the same manufacture as the door operator and landing locks.

h) The design and construction of the door operator and associated equipment shall be such that when the lift car is stopped within the unlocking zone it shall be possible, applying a force not exceeding 300 N, to open the lift car and landing door by hand from the interior of the lift car, and from the landing once the landing door has been unlocked, either by the car door or by way of the landing locking device release key.

i) The design and construction of the door operator and associated equipment shall be such that when the lift car is stopped within 1.2 M of a landing it shall be possible to open the

lift car doors from the corresponding landing without the need for tools, other than for the landing locking device release key and/or a specific tool which is permanently retained with the lift installation.

j) Car doors shall be fitted with a device to ensure that they remain closed and interlocked when the lift is outside the levelling zone. The device shall be designed and constructed in accordance with the requirements of Clause 5.3.9.2 of BS EN81-20: 2014 and shall be subject to Type Examination in accordance with the requirements of Section 5.2 of BS EN81-50: 2014 and the Lift Contractor shall provide a Type Examination Certificate which is in accordance with Annexe A of BS EN81-50: 2014.

Locking Devices and Switches for Car and Landing Entrances Vandal Resistant

The locking devices and switches for the car and landing entrances shall meet with the requirements of, and tests specified in, c.5.4 of BS EN81-71 such as to provide compliance in relation to a Category 1 Lift.

In the case of Category 2 Lifts the requirements of c.5.4.2 and c.5.4.6 in relation to the prevention of the manipulation of the lift door operator, car and landing locks and associated equipment shall apply.

The requirements of c.5.8 of BS EN81-71 shall apply in relation to both Category 1 and Category 2 Lifts.

The car door contacts, car and landing door locking devices and “pick-up” mechanism shall be of the same manufacture as the door operator and properly aligned for correct operation.

The landing and car doors shall be provided with electro-mechanical interlock devices, which shall prevent operation of the lift under any circumstances, unless all lift car and landing doors are in the closed position, and are locked both electrically and mechanically.

Provision shall be made for fully opening each landing door by an authorised person by the aid of a release key which shall be designed such as to fit an unlocking device which is incorporated into in one door panel. The release aperture on the visible face shall be fitted with a 3 mm raised circular stainless steel bezel secured in position, or by way of a fixed escutcheon plate with a profile aperture suitable for the specific type of release key. No fixing screws shall be visible from the landing.

The design of the release key shall be in accordance with Section 5.3.9.3 of BS EN 81-20: 2014, and shall be of steel section or cast materials and the access to each lock shall be restricted to this key. The force necessary to operate and release the door shall be such that unauthorised use of the release mechanism (by the use of screwdriver, pliers etc) will not be possible.

In order to enable safe egress from the lift pit the Lift Contractor shall provide an additional, permanently installed device, which allows a person standing on the base of the pit to safely unlock the pit access landing entrance door. The device shall be designed and constructed in accordance with Clause c.5.3.9.3.5 of BS EN81-20: 2014.

All locking devices shall be designed and constructed in accordance with the requirements of Section 5.3.9 of BS EN81-20 and in particular Clauses c.5.3.9.2, c.5.3.13 and c.5.3.14 (lift car door devices); and Clauses c.5.3.9.1, c.5.4.9.4 and c.5.3.11 (lift landing door devices), and shall be subject to Type Examination in accordance with the requirements of Section 5.2 of BS EN81-50:

2014. In addition, the requirements of c.5.4.2 and c.5.4.6 of BS EN81-71 shall apply to Category 2 lifts.

Lift Contractor shall provide a Type Examination Certificate which is in accordance with Annexe A of BS EN81-50: 2014.

The lock circuit voltage shall be given in the Tender Particulars in Section 10 of this Specification. If this is designed to be in excess of 50v then suitable warning notices, in accordance with the relevant standards, shall be provided on each lock cover to warn of the hazard within. Additionally, a suitable residual current device (RCD) or similar earth leakage circuit breaker shall be incorporated in the lock control circuitry to minimise the risk of electrocution.

Door Detector (VR EN81-71)

The car door panels shall be fitted with an electronic device, which will provide a protective zone for the full width and height of the doors.

The door detector and its configuration and mounting and shall meet with the requirements of s.5.4.4 of BS EN81-71.

The principle of operation shall be an infra-red curtain of light. The device shall remain operational throughout the complete closing cycle of the doors to within 20 mm of the door closed position. The device shall have the facility to detect persons and/or objects as they approach the entrance. The device shall be capable of detecting objects and/or obstacles of 50 mm in diameter. When the device is obstructed, it shall cause the doors to immediately stop and then fully re-open after which the doors will re-commence the normal closing cycle.

Whenever the device is deactivated and/or in failure mode the kinetic energy of the combined lift car and landing doors shall be reduced to 4J or less and a distinct acoustic warning signal shall operate whilst the doors are closing.

The device location shall be given in the Tender Particulars in Section 10.

Car & Landing Sills – Vandal Resistant

The lift car and landing door sills shall be designed and manufactured in the form of a heavy section aluminium extrusion. The sills shall be securely bolted on to RSA angles which shall be fixed to the front wall of the lift shaft with proprietary fixings. The number of fixings used shall be calculated to accommodate the maximum point loading which may be applied. Any packing between the aluminium and RSA sill or treadplate shall be continuous and such that no voids shall exist on completion such that deflection of the sill cannot occur.

The design of the sills and mountings shall be such as to accommodate the loads imposed during loading and unloading of the lift car and shall be designed based upon a minimum loading of:

In the case of Passenger Lifts which carry Class C wheelchairs and/or mobility scooters 60% of lift car rated load;

In addition to the general requirements of this Specification the design, construction and installation of the lift car and landing entrances and sills shall meet with the requirements of, and tests specified in, s.5.4, and the corrosion resistance specified in s.5.8, of BS EN81-71.

Landing Fascia Vandal Resistant

Fascia panels manufactured from a minimum of 16 SWG zinc-coated mild sheet steel shall be fitted between the header of each entrance and the sill of the floor above.

The panels shall be rigidly braced, and any fixings or brackets used for mounting or to achieve rigidity shall be of steel.

The design, construction and installation of the fascia shall such that this is capable of withstanding a force of 2500 N applied at right-angles to the fascia, and evenly distributed over an area of 100 cm2 in round or square section, and applied at any point on the fascia, without permanent deformation, and without elastic deformation in excess of 15 mm.

The surface of the fascia panels and their joints shall be continuous and hard and smooth throughout the height and width of the shaft.

Each fascia panel shall exceed the full width of the widest entrance by 200 mm on either side.

Only countersunk screws will be accepted such that the surface, at all points on each panel, is smooth and flush

Following installation, the fascia shall be site painted with hand brushing cellulose colour to match all other site steelwork.

In addition to the stated general requirements of this Specification the design, construction and installation of the landing fascia shall meet with the requirements of BS EN81-20 together with the specific requirements of s.5.4, and the corrosion resistance specified in s.5.8, of BS EN81-71.

Architraves Vandal Resistant (Stainless)

Architraves shall be provided at each lift landing entrance at each level served. These shall be manufactured from 16 SWG stainless sheet steel. Following site erection these shall be supported by form work and shall be back-filled with cement grout for a minimum of two thirds of their height.

The landing entrance architraves shall meet with the requirements of s.5.4, and the corrosion resistance specified in s.5.8, of BS EN81-71.

Side uprights and header members shall be bolted together, and welding will NOT be accepted. The finish and pattern of the stainless-steel material shall be as identified in the Finishes Schedule of this Specification.

Following site erection these shall be supported by form-work and shall be back filled with cement grout for a minimum of two thirds of the height.

The design and construction shall be such as to meet with the requirements of the Lift Contractor's landing entrance fire rating and Fire Certificate.

Landing Signal and Operating Devices (Simplex/Standard) – Vandal Resistant

The landing signal and operating units shall comprise of robustly constructed steel back boxes, which are of rectangular form and let into appropriate cut-out preparations in the landing structural walls. The unit shall contain the push units and have cover plates manufactured from 12 SWG stainless steel.

The cover plates shall be secured by semi-secret fixings such as recessed captive grub or socket headed screws. Visible screw heads will not be accepted. Cover plates shall provide an adequate overlap of the wall box and the method of securing shall allow for adequate adjustment in order to overcome any error in the positioning of the back boxes.

Landing controls shall be arranged as a single riser with a push station located on the landing wall adjacent to the landing entrance at each floor.

Each landing push station shall be fitted with one or two push units to suit the requirements of the control system. The design and construction of the units shall be in accordance with the requirements of BS EN81-70. The units shall be positioned and arranged in accordance with the requirements of BS EN81-70. The visible section of each push shall incorporate a pressel, with a translucent halo and symbol, which are suitably finished to contrast in colour and tone with that of the cover plate. Each push pressel shall be arranged to illuminate to indicate call acceptance. The method of illumination shall be by light emitting diodes (LED).

Each push shall have an audible signal to confirm operation. The push stations shall be installed at a height which ensures a minimum dimension of 900 mm above Finished Floor Level to the centreline of any push and a maximum height of 1100 mm above Finished Floor Level the centreline of the highest push.

The push plate shall be in tonal contrast to the surrounding wall.

In addition to the stated general requirements the design, construction and installation of the landing signal and operating devices shall meet with the requirements of s.5.6 of BS EN81-71.

Landing Position Indicators and Direction Arrows – Vandal Resistant

Landing signal devices shall be provided at every floor and shall comprise of an alpha numeric display combined with an audible enunciator.

The display shall consist of a matrix of LED lamps, or other alternative device to the approval of the Contract administrator, installed behind a tinted polycarbonate mask providing a display of alpha/numeric characters of minimum 40 mm in height. The enunciator shall be of a soft tone gong or electronic sounder design and shall be contained within the unit. The enunciator shall provide different sounds for ‘UP’ and ‘DOWN’ directions of lift travel e.g. one sound up, two sounds down.

As the lift car moves in the lift well its position shall be indicated by the changing the alpha numeric display. As the lift car approaches the next landing at which it is to stop in order to discharge or receive passengers, the tone shall sound in order to announce the imminent arrival of the lift car and the display shall switch to an arrow indicating the next direction of lift travel from the landing. This directional signal shall be maintained until the lift doors close and the lift car moves away from the landing.

All other levels direction arrows with enunciators shall be provided having a matrix of LED’s or other display to match the main floor with a minimum visible height of 40mm. These shall illuminate as the lift nears a floor where it is to stop and answer a call, to indicate the direction that the lift will depart from the landing and the enunciator will sound as above.

The lift position indicators shall be supplied as individual units and shall be located between 1800 mm and 2500 mm from Finished Floor Level and adjacent to their respective lift landing entrances

and shall be provided complete with cover plates to match those of the landing push stations. The indicator shall be located above the entrance above the landing push station in the vertical position.

The indicator shall provide an angle of view of at least 140 from any position in the lift landing lobby.

The devices shall be design and constructed in accordance with the requirements of BS EN81-70.

In addition to the stated general requirements of this Specification the design, construction and installation of the landing position indicators shall meet with the requirements of s.5.6 of BS EN81-71.

LIFT SHAFT, COUNTERWEIGHT & PIT

Guides and Fixings (New Lifts)

The Lift Contractor shall supply and install “T” section machined steel guide rails complete with purpose designed brackets, bolts and fixings, all designed, constructed and installed in accordance with the requirements of BS EN81-20 and BS EN81-50.

Both the lift car and counterweight guide rails shall be plumbed and aligned with each other. And, “tram lining” will not be allowed.

The guide rail system, inclusive of brackets and fixings, shall be designed to suit the configuration of the lift shaft and the loads imposed by the lift, lift equipment and the means of loading of the lift car, including motorised wheelchairs.

The design and installation of the guide rail brackets shall be such as to accommodate settling of the building structure and/or shrinkage of concrete. The design and installation of the fixings shall be such as to prevent rotation which could release or compromise the integrity of the system

The vertical pitch of fixings and size of guide rails shall be selected and designed such as to accommodate the maximum loading that may be imposed upon this at any time and without excessive deflection of the guide rails.

The guide rails, fixings and the pitch of fixings shall be designed such that the maximum deflection criteria detailed in BS EN81-20 is not exceeded. The necessary proof calculations, based upon the BS EN81-50 method, shall be made available at the Contract administrators request. The Lift Contractor shall include for the possible failure of any non-metallic elements of the guide rail fixings in the calculation of permissible deflection.

The design of the guide rails, brackets and fixings shall be such as to accommodate the loads imposed during loading and unloading of the lift car and shall be designed based upon a minimum loading of:

In the case of Passenger Lifts which carry Class C wheelchairs and/or mobility scooters 60% of lift car rated load;

Counterweight and Screen (New Lifts)

The Lift Contractor shall supply and install robustly constructed channel frame type of counterweight which shall be designed to securely house a number of multiple section filler weights commensurate with the design of the lift installation.

The filler weights shall be of either cast iron or flame cut mild steel construction.

The complete counterweight shall be balanced by the suspended weight of the lift car and its attachment together with 45% to 50% of the contract load of the lift car.

The Lift Contractor shall include provision for securely clamping the filler weights into position such that under no circumstances, including operation of the lift car or counterweight buffers, can the filler weights become dislodged from the counterweight frame. The whole counterweight assembly shall be site painted with safety yellow proprietary machine paint.

In cases in which extension sections are attached to the bottom of the counterweight in order to provide an allowance for adjustment of the runby after normal stretching of the suspension ropes, these extension sections shall be fabricated from rolled steel sections, and shall be securely bolted to the underside of the counterweight and accurately aligned with the striking surface of the buffer(s).

The Lift Contractor shall supply and install, at the base of the counterweight guides, a counterweight screen rigidly constructed in expanded mesh in accordance with the requirements of c.4.2.4.1 of BS EN ISO 13857:2008.

The counterweight screen shall extend upwards from the lowest point of counterweight travel (including the stroke of the counterweight buffer), or a point not greater than 300 mm, whichever is the lower, to a minimum height of 2.0 M above the pit floor.

The counterweight screen shall extend for a minimum of the full width of the counterweight.

In the case that the horizontal distance between the counterweight guide rails and the wall of the lift well should exceed 300 mm the areas at the sides of the counterweight and counterweight guide rail shall be guarded using materials of the same design and specification as that of the counterweight screen.

In cases in which chain or rope compensation is applied that counterweight screen may be designed to accommodate slots which shall be of the minimum width necessary in order to safely accommodate the compensation.

The design and construction of the counterweight screen shall be such as to accommodate a force of 300 N evenly distributed over an area of 5 cm2 in round or square section, applied at any point on the screen, without deflection such that the screen should come into contact with the counterweight.

The design of the counterweight screen shall be such that a minimum clearance of 50 mm is maintained at all times between the lift car and the counterweight and their associated components and the screen.

The bottom of the screen shall be designed to assure easy access to the buffers, and to permit checking of run-by clearances, but such as to prevent inadvertent contact between personnel and the counterweight.

Buffers (Energy Accumulation)

The Lift Contractor shall supply and install energy accumulation (spring or polypropylene) buffers below the lift car and below the counterweight.

The design, construction and installation of the buffers shall, in all respects, be in accordance with the requirements of BS EN81-20.

The Lift Contractor shall supply and install all necessary associated steelwork for the mounting and fixing of the buffers.

Concrete supporting piers will NOT be acceptable.

The buffer mounting steelwork shall be of robust construction securely fixed between the respective lift car and counterweight guide rails and be of sufficient height to maintain the overtravels of the lift car and counterweight and the clearances required under BS EN81-20.

The design of the buffers shall be such as to ensure that the rate of retardation applied in order to safely arrest the fully loaded lift car and counterweight, is applied without undue discomfort to passengers or damage to the equipment.

In the case of buffers designs in which the buffers are mounted directly upon the lift car or counterweight a permanently installed, robust, steel pedestal, of not less than 300 mm in height, shall be securely fixed to the floor of the lift well pit in a position corresponding to each buffer impact point.

In the case of hydraulic lifts, the stroke of the buffers shall be such that when the buffers are fully compressed that the ram of the hydraulic jack shall not contact the base of the hydraulic cylinder.

In the case of buffers with linear characteristics the stroke of the buffers shall be not less than twice the gravity stopping distance corresponding to 115% of the rated speed of the lift, but in no case shall the stroke be less than 65 mm. The design of the buffers shall be such that the buffer stroke shall be calculated to fall within that arising under the application of a static load of 2.5 and 4 times the mass of the lift car and its rated load, or of the counterweight,

In the case of buffers with non-linear characteristics the average retardation, calculated based upon the fully loaded lift car in free fall striking the buffer at 115% of contract speed, shall not exceed 1 gn; and retardation in excess of 2.5 gn shall be for no longer than 0.04 seconds; and with the return speed of the lift car not exceeding 1.0 m/sec; and without permanent deformation. In any case the maximum peak retardation shall not exceed 6 gn.

In the case of buffers with non-linear characteristics each buffer shall incorporate a permanently fixed data plate which sets out the name of the manufacturer of the buffer; the number of the associated Type Examination Certificate; and the type of the buffer.

A Certificate of Type Test, in accordance with the requirements of Section 5.5 of BS EN81-50, shall be provided in relation to buffers with nonlinear characteristics.

Groups of lifts

When the lift well contains several lifts the partition in the pit shall extend at least from the pit floor level to a height of 4.0 M and shall prevent access from one pit to another.

Safe pit access

For a pit depth not exceeding 0.5 M a pit ladder is not required.

Limits and Switches

The Lift Contractor shall incorporate an “UP” limit in the lift control circuit such that when the mechanic’s lift car top control switch is set to the “INSPECTION” position and the “UP” button depressed, the upwards travel of the lift car shall be limited such that inspection and maintenance of any equipment at the top of the lift shaft may be safely undertaken, AND such as to ensure that safe egress is possible through the top floor landing entrance.

The lift control circuits shall incorporate terminal slow down switches and/or shaft limit switches which, in the event of a circuitry or selector malfunction, shall operate such as to safely slow and stop the lift, in a safe and controlled manner, at each of the terminal floors.

The electrical switches and/or devices used shall be designed and constructed in accordance with the requirements of Section 5.11.2 of BS EN81-20. The Lift Contractor shall identify the switches/devices and outlined the proposed operation of these, in the appropriate section of the Schedule of Technical and Constructional details of this Specification.

Stop Switches (Pit)

The Lift Contractor shall supply and install two stop switches in the lift well pit. One stop switch shall be installed in a position that is readily visible and easily accessible from the landing entrance and at a height of 1 M above the landing sill level and at a horizontal distance not greater than 0.75 M from the inner edge of the landing entrance door frame.

The second switch shall be installed such that this is visible and readily accessible and may be safely operated from a pit refuge space, and in no case shall the stop switch be position in excess of 1.2 M above the pit floor.

The stop switches shall be designed and constructed in accordance with the requirements of Section 5.12.1.11 of BS EN81-20 and shall be of mushroom headed, “push to stop, pull to release” type.

Pit Communications

A communications unit shall be provided in the lift well pit which will enable two-way communication with a permanently manned rescue service in the event of a person being trapped in the lift pit.

The unit shall meet with the requirements of c.5.2.1.6 of BS EN81-20.

The communication device may form part of the lift car trapped passenger and lift car top communication system.

The communication unit shall meet with the requirements of BS EN81-28.

The communication unit shall be located such that this is readily accessible from the floor loft the pit and that this is readily operable from the refuge spaces.

Clear instructions as to the use of the unit shall be provided on, or in close proximity to, the unit.

ELECTRICAL INSTALLATION METHOD (Conduit and Trunking Vandal Resistant)

The Lift Contractor shall install all necessary wiring, trunking and conduit for the lift from the main riser termination within the lift machine room.

All cables, except travelling cables in the lift shaft, shall be enclosed throughout their length in heavy gauge steel conduit or in steel trunking.

The use of existing trunking, conduit and fittings will not be acceptable. All trunking runs shall be at high level and shall not run across the machine room floor. All new trunking, conduit and associated fittings shall have a galvanised finish and made by a manufacturer having a licence to use the British Standard Institution Mark.

All travelling cables shall run direct from the controller to the lift car termination box. Each flex shall be suspended from a clamp provided by the cable manufacturer with adequate protection to the cable coverings. Excessively tight bends will not be acceptable.

In addition to the half way anchorage point for travelling cables, clamps shall be fitted so that there shall be not more than a 3-metre pitch between clamping points above the halfway point up to the machine room.

PVC coated kopex conduit shall be used only in cases where it is necessary to provide for adjustment or to reduce the transmission of noise and vibration. The conduit shall terminate in suitable couplings which shall positively grip the flexible conduit and an additional earth continuity conductor shall be run inside the conduit between lengths. Lengths exceeding 450mm shall not be allowed.

These cables shall be 450/750 volt and insulated with high temperature grade polyvinyl chloride and shall comply with BS 6004:2012.

All wiring must comply with the current edition of BS 7671 the IEE Regulations and shall be procured from a reputable manufacturer.

Provision shall be made within the travelling cables for any telephone cables necessary for the car communication system.

Factory manufactured wiring looms for site wiring will be allowed, providing detailed and accurate site dimensions are obtained from site for use during manufacture. Any looms installed which have excessive length or are not generally neatly finished and installed, will be rejected and will have to be returned to the Lift Contractor's manufacturing facility for re-manufacture at "the Lift Contractor's own expense".

All wiring, including trailing flexes, shall be insulated with low emission of smoke and halogen free cross-linked insulation, in compliance with BS 7211:2012, BS EN50525-1, BS50525-3-1 and IEC 332-1.

The Lift Contractor shall include for connection of all extraneous metalwork to earth bonding and lighting protection systems terminated in the lift pits.

In addition to the stated electrical installation method the design, construction and installation of the electrical installation shall meet with the requirements of BS EN81-71.

Earthing

A separate electrical earth conductor shall be run in all conduits and trunking to every item of electrical equipment from the earth termination in the control panel. This termination shall in turn be connected by means of a suitable conductor to the electrical mains supply earth point.

A separate earth conductor in at least one trailing cable shall be connected to the lift car equipment and to the control panel earth termination.

Each section of trunking shall be electrically and mechanically bonded to the earth conductor by means of brass screw, clamp washers, locking washer and nut.

Al of the earth points shall be identified using coloured tags

Painting

All equipment shall be suitably prepared, primed, undercoated and then painted with an approved colour before shipment to site. All shaft steelwork within the shaft shall be painted in two coats of machine paint following erection. Any existing steelwork retained within the lift shaft, pit or lift machine room shall be wire-brushed, cleaned, primed, undercoated and then painted with an approved shade of machine paint. Any damage to the painted surfaces which arises prior to completion shall be made good by the Lift Contractor.

Any new steelwork that will not be readily accessible after erection shall be painted with red oxide paint (or paint of similar protective quality) prior to installation.

COMMISSIONING, ACCEPTANCE PROCEDURE AND SERVICE MANUALS

SECTION 8

COMMISSIONING, ACCEPTANCE PROCEDURE AND SERVICE MANUALS

Commissioning and Acceptance Procedure

The Lift Contractor shall agree a full commissioning and testing programme with the Contract administrator. Prior to offering the installation to the Contract administrator for acceptance tests, the Lift Contractor shall carry out full tests in compliance with the requirements of BS8486-3: 2017, BS EN81-20, BS EN81-50, the Lifts Regulations 2016 and EU Directive 2014/33/EU and the specific requirements of the Specification. Any defects identified during or arising from the Lift Contractor's inspection and testing shall be remedied prior to the installation being offered for acceptance tests. The Lift Contractor shall further ensure that the whole installation fully satisfies the design criteria and functionality in accordance with the requirements of the Specification.

The Lift Contractor shall make complete records of the tests utilising test sheets, which shall be in full compliance with BS8486-3: 2017. In the case of a modernisation of existing installations the Lift Contractor shall provide **additional** updated test sheets in the form applicable to the original installation of the lift, be this PAS 32-1, PAS32-1, BS8486-1 or BS85486-2 as may be applicable.

The Lift Contractor shall be responsible for providing all of the instruments necessary to undertake the commissioning and the tests as required by the Contract administrator, including, but not limited to, test weights, thermometers, noise and vibration measurement devices, electrical test meters, force measurement gauges, deflection gauges and jigs, all of which shall be accurately calibrated and accompanied by current (within 12-months) Calibration Certificates, and to the satisfaction of the Contract administrator.

The Lift Contractor shall provide the Contract administrator with not less than five full working days prior notice of their intention to offer the installation for acceptance tests. The Lift Contractor shall confirm this in writing.

The Lift Contractor shall be responsible for all the tests to ensure the proper function and operation of the lift under this Contract. Prior to acceptance and placing into service the lift shall, under the supervision of the Contract administrator, pass all of the tests detailed within this Specification or as may be required by the Contract administrator during commissioning.

a) 25% overload test.

b) 60 minutes full load test.

c) Motor current and speed tests.

d) Door Inspection and tests.

e) Electrical insulation resistance to earth test, earth loop impedance and RCD test.

f) Earth continuity resistance test.

g) Full load, full speed safety gear test for both downward movement and empty car test for upward movement.

h) Full load and empty car test of the unintended movement protection device.

i) Brake test full load and redundant shoe/disc test.

j) Buffer test carried out with contract load and at contract speed.

k) Overload test (electrical).

l) RCD electrical protective device tests.

m) Electrical protective device tests.

n) Levelling device tests.

o) Car balance tests.

p) Noise and vibration tests as specified.

q) Fire-fighting, disabled evacuation and communication system tests.

In cases where the veracity and/or strength of the mechanical design of elements of the lift structure and/or lift equipment or components under the requirements of BS EN81-20 and BS EN81-50 are determined by way of the assessment material deflection the Lift Contractor shall, at the request of the Contract administrator, demonstrate compliance as part of the commissioning tests, providing all tools and test equipment required to demonstrate compliance.

The Lift Contractor shall also carry out any other tests required by the Contract administrator in order to prove that the equipment complies with the requirements of the Contract and with all codes and Regulations relating to the equipment supplied and its installation under the Contract.

The Lift Contractor shall generally demonstrate the lift in operation under various loading conditions from no load to 25% overload in order to check the operation and floor levelling accuracy.

The 25% overload test is to ensure that the equipment installed has an ample safety margin above that of the rated load incorporated in the design.

The lift shall also be subject to a 60-minute test such as to prove the adequacy of all components in terms of achieving the rated duty and minimum starts per hour. The test shall be conducted with the lift car fully loaded, during which it shall stop at each floor in the up and down direction, opening and closing its doors at each stop. The test shall be continuous, the stops being of 10 seconds maximum duration and with the doors operational. During the test, the equipment should not overheat, spark excessively, become noisy or operate in a faulty or deficient manner.

All the tests shall be carried out in the presence of the Contract administrator and the results shall be recorded in a tabulated form for easy checking and reference with the form signed by the Lift Contractor's representative undertaking the tests.

Health & Safety File and Service Manuals

The Lift Contractor shall provide a separate Health & Safety File as is required under the CDM 2015 Regulations, including residual risks, risk assessments, COSHH data, accident records and all other relevant data and information.
The Lift Contractor shall ensure that the Manuals and Certificates are available at the time of hand over of the Lift in accordance with the requirements of the Lifts Regulations 2016 and EU Lifts Directive 2014/33/EU, BS EN13015 and all applicable UK Regulation.

Duplicate copies of the Manuals, which shall be in full compliance with the requirements of BS EN13015 and the requirements of this Specification, shall be provided and these shall include the following:-

Documents

Full written general description of the equipment as installed identifying its main operational features.

Sequence of operations applicable to the functioning of all control apparatus.

Nomenclature detailing all symbols and forms of identification used on or in relation to the equipment and to drawings or circuit diagrams applicable to the installation.

Fully descriptive list of components which it is anticipated may require regular or routine replacement due to wear and tear. The minimum information provided shall ensure that ordering of replacement components can be achieved.

Maintenance schedules detailing all areas of planned preventative maintenance, routine servicing and including all settings and adjustments together with control and component software parameters.

Wherever any hand held or portable device is used to service, interrogate, alter, modify, adjust, reset and/or recalibrate the lift system and/or components the Lift Contractor shall supply one of these devices for each lift together with clear instructions for the use of the device and all necessary data sheets for the interpretation of information shall be included. The device shall be supplied free of license for the duration of the life of the lift installation, and free of any hire, lease, rental or servicing charges.

Full details of recommended methods of cleaning all finishes, including any special materials required.

Test Certificates

The Lift Contractor shall supply a minimum of two copies of each of the site test certificates in respect of the tests carried out at the time of commissioning of the equipment. These shall be fully completed and signed by a competent person authorised by the Lift Contractor.

a) Hoisting ropes)
b) Governor ropes)) Each certificate identified with its lift number

c) Overspeed governor

d) Hoisting motor

e) Lift machine brake and brake monitoring

f) Door gear motor

g) Car and counterweight buffers

h) Safety gears lift car (ascent and descent) and counterweight

i) Unintended movement protection

j) Reports of pendulum tests relating to lift car and landing entrances and doors, lift car enclosure panels, shaft enclosure panels and any glass panels.

k) Fire Certificate for lift landing and car doors

l) Lifting beam or eyes (where applicable)

m) Electrical completion certificate to BS 7671

n) Certificate of Conformity for the lift installation

o) Certificates of Conformity for all of the lift safety components.

Drawings and Circuit Wiring Diagrams

The Lift Contractor shall provide a full set of electrical circuit diagrams which shall incorporate any and all amendments which have been carried out prior to the equipment being accepted by the Contract administrator.

The Lift Contractor shall supply a complete set of wiring and “as fitted” drawings in respect of the completed lift installation.

The Lift Contractor shall supply a complete set of builder’s work and general arrangement drawings, including landing entrances and lift car interior perspective.

The “as-fitted” drawings shall record details of any significant residual hazards and risks affecting the installation, the works and the design, which could not be eliminated and/or adequately mitigated in the design, on the final “as fitted” record drawings and in the H&S File.

Inspection Certificates

This section shall be provided for the future retention of Inspection Certificates in accordance with SAFed Recommendations.

Maintenance Contract and Inspection Reports

This section shall be provided for the future retention of maintenance reports and the maintenance contract documents.

Warranties & Guarantees

Each Manual shall include copies of the manufacturer’s or supplier’s guarantees or warranties in relation to products as described in the Preliminaries Section of this Specification.

Handover Procedure

Prior to offering the equipment for acceptance, the Lift Contractor shall ensure that all works identified during the witness tests as remedial items have been satisfactorily completed and that the Operating and Maintenance Manuals with complete with all Certification and the complete CDM 2015 H&S File are available.

Should the handover be delayed because remedial items are outstanding, the commencement of the Rectification period shall be deferred until such time as all outstanding works and items are complete to the satisfaction of the Contract administrator.

Prior to, or during handover, the Lift Contractor shall provide on-site training to the Employer's representatives, comprising of practical instruction and demonstration of safe passenger release procedures and emergency handwinding/lowering. This shall also include instruction in relation to procedures for calling the Lift Contractor in the case that safe release should be unsuccessful or deemed unsafe for the Employer's representative to undertake.

At handover, the Lift Contractor shall provide for the Employer's use the following:-

a) 3 sets of keys for each key switch on each lift installation.

b) 3 landing door release keys.

c) A typed document, which is encapsulated in plastic, providing full details of the Lift Contractor's local and national emergency breakdown and call out procedure inclusive of phone numbers.

d) Certificates of personnel trained in emergency release and handwinding/lowering procedures.

Levels of acceleration, deceleration and jerk rate shall also be measured and recorded.

MAINTENANCE

SECTION 9

Comprehensive Form of Contract

Maintenance

The Lift Contractor shall provide a price for providing the Comprehensive Form of Maintenance Contract in the Summary of Prices, at Section 9 of this Specification. The Lift Contractor shall provide samples of the proposed schedule of planned preventative maintenance and record cards with the Tender. Upon commencement of the Rectification period these shall be in place in the machine room and shall be completed at each maintenance visit.

The Lift Contractor shall provide for monthly maintenance visits and repair service in full compliance with the Comprehensive Form of Contract, for the duration of the Rectification period.

At monthly intervals throughout the Rectification period the Lift Contractor shall provide computer generated reports in relation to breakdowns and call outs for the previous period, with detail of each breakdown.

Comprehensive Form of Contract

Excluded from the Lift Contractor's responsibility on maintenance are:-

a) Decorative finishes of the car enclosure, car and landing entrances except where damage is a result of the Lift Contractor's own negligence and/or misuse or abuse.

b) Cleaning of the lift shaft fabric and enclosure walls.

c) Buried piping and cylinders which are located below the level of the pit floor on hydraulic lifts.

d) The incoming electrical mains power supply cable to both power and lighting circuits in connection with the lift installations.

e) Failure of the lift equipment due to misuse with such repairs, where established as due to misuse, will be chargeable as an extra to the Contract.

Included in the Lift Contractor's responsibility is the provision of all labour and materials required for the correct adjustment, repair and/or replacement, as conditions warrant, of all other component parts of the lift installation which are not specifically excluded here above.

Cleaning of all equipment in the lift machine room, machinery spaces, lift shaft and lift pit, such as to ensure that the areas and equipment are kept clean at all times and free of rubbish and potentially inflammable material.

Provision of all cleaning materials and the correct lubricants, which are in accordance with the equipment manufacturer's specifications, such as to ensure the correct maintenance of the lift equipment. No stocks of lubricating oil or lubricants of an inflammable nature are to be retained on site at any time.

Whenever the lift is not available for service due to this being in the control of the Lift Contractor during works or inspections, the Lift Contractor shall provide a suitable barrier at each lift entrance under inspection to indicate that the installation is not available for service. A sample design of the barrier shall be submitted for approval to the Employer's Representative. When not in use, the barrier shall be retained in the lift machine room or machinery space and mounted on purpose made brackets, or at an agreed location on the site. At the expiry of the maintenance contract, the barrier shall remain as the property of the Employer. The barrier shall be collapsible in design, painted safety yellow and be fitted with a suitable "DANGER" notice and designed and constructed in accordance with the requirements of BS7255.

"Out of service" indication notices shall be placed on each landing whenever a lift is removed from service for either maintenance or repair.

The lift contractor shall include for the replacement of all rechargeable batteries included within the lift system, including (but not limited to) controllers, intercoms, emergency lighting, emergency brake release or recovery systems within the time periods and/or dates recommended by the manufacturer/supplier. The lift contractor shall provide a schedule of recommended replacement periods with the contract.

The lift contractor shall include for all SAFed supplementary tests as defined in Section 5 Annex A of the Guidelines on the supplementary tests of in-service lifts 2006, issued by the Safety Assessment Federation and endorsed by the Health & Safety Executive.

Test No.	Supplementary Test
A1	Earth Continuity
A2	Electric Safety Devices
A3	Terminal Speed Reduction Systems
A4	Landing Door Interlocks
A5	Lift Machine – Investigatory Test (Type A)
A6	Lift Machine – Comprehensive Test (Type B)
A7	Overspeed Governors
A8	Governor Operated Safety Gear Test – Instantaneous Type
A9	Governor Operated Safety Gear Test – Progressive Type
A10	Safety Gear Operated by Other Means
A11	Devices to Prevent Overspeed by Ascending Car
A12	Energy Dissipation Buffers
A13	Suspension System
A14	Car Overload Detection Warning Devices
A15	Hydraulic System
A16	Hydraulic Cylinder in Boreholes or Similar Location
A17	Hydraulic Rupture/Restrictor Valves
A18	Electrical Anti-creep Device
A19	Mechanical Anti-creep Device (Pawl or Clamp)
A20	Low Pressure Detection Devices
A21	Traction, Brake & Levelling
A22	Car/Counterweight Balance

On completion of an Examination, two original signed certificates shall be provided; one copy for the Client's file, the other to be displayed within the maintenance records, by the Lift Contractor.

A reasonable stock of replacement lamps, LED luminaires and fluorescent tubes for use within the motor room, machinery spaces, lift shaft, lift car and all indicators and push units shall be retained in the lift machine room and/or machinery space.

Within one month following each maintenance visit a Report shall be forwarded to the Employer's Representative. All reports shall:

a) Relate to one visit to each of the lifts.

b) State clearly the work done and adjustments made and indicate which car and/or landing indicator lamps, if any, were renewed at the time of the visit.

c) Certify that the lift is in a satisfactory safe and serviceable condition, or in the alternative suitably advise the Employer's Representative.

d) Give details of attendance to any breakdowns during the period since the date of the preceding Report.

The Lift Contractor shall include for providing full instruction as to the running and operation of the lifts to the Employer's appointed staff, including safe passenger release and emergency handwinding/lowering procedures. Each person trained shall be issued with a Certificate by the Lift Contractor. This training shall be carried out annually under the Maintenance Contract.

The Lift Contractor shall include for annual re-programming of the auto dialer.

The Comprehensive Contract shall include for operational guarantees by the Lift Contractor to the Employer for:

i) Response times to breakdowns not exceeding:

45 minutes - at any time when a person is trapped within the car
2 hours – during normal office hours) where no trapping has
3 hours – outside normal office hours) occurred

ii) Guarantees against failure. This will be a maximum number of:

5 failures per lift, per annum maximum.

iii) The Lift Contractor shall refund to the Employer as financial compensation a sum equivalent to 1% of the contract sum for the lift for each failure above the agreed rate. This provision shall be operational immediately following the 12 months Rectification period.

iv) Repair and replacement component availability to be stated, including an agreed schedule of "down" time.

v) Maintenance during agreed periods as determined by the Employer's requirements.

vi) Rebate in full, or rescheduling, at the Employer's discretion, of any missed maintenance visits.

vii) Maintenance visits planned and advised in advance by means of annual planner provided at handover.

viii) 6 sets of encapsulated details to be provided at handover giving full details of contact procedure for trappings, breakdowns and routine maintenance.

Tenderer……..

TENDER PARTICULARS

SECTION 10

The Lift Contractor should note that if at the time of evaluation of their Tender all technical and other details within this document have NOT been completed, this will cause their offer to be invalidated.

TENDER PARTICULARS – Traction Power Doors

The Lift Contractor must submit the following information at the time of Tender.

Technical and Constructional Details of Equipment

The Tenderer shall supply the following information.

COMPLIANCE WITH STANDARDS

In addition to compliance with the requirements of the Lifts Regulations 2016, BS EN81-20 & BS EN81-50 the Lift Contractor shall confirm compliance in full with the following:

BS EN81-70 Accessibility	Yes/No
BS EN81-71 – Vandal Resistance – Category 1	Yes/No
BS EN81-71 – Vandal Resistance – Category 2	Yes/No
BS EN81-72 – Fire Fighting	Yes/No
BS EN81-73 – Fire Recall	Yes/No
BS EN81-21 – Existing Building (Lift Contractor to include details of headroom & pit refuge space safety provisions)	Yes/No

BASIS OF LIFT DESIGN

Passenger Lift to BS EN81-20 & 50	Yes/No
Passenger Lift to BS EN81-20 & 50 (with Mobility Scooter loading)	Yes/No
Goods Passenger Lift to BS EN81-20 & 50	Yes/No
Lift Car Capacity	_____ kg/ _____ Pers

LIFT MACHINE – ELECTRIC TRACTION

Machine bearers, type and size	----------
Method of vibration isolation	----------
Type and size of piers or plinth	----------

METHOD OF EMERGENCY OPERATION

Manual means	----------
Electrical means	----------

MOTOR

Type, including Trade Name Rating
In HP or kW ----------

Speed in RPM ----------

Duty Cycle (starts per hour) ----------

Heat output at full load/duty ----------

F.L. starting current ----------

F.L. running current ----------

Power factor ----------

Name of manufacturer ----------

MOTOR PROTECTION

Type, state number of protective devices ----------

Time for protection to trip on low
speed stall ----------

Time for protection to trip on high
speed stall ----------

REGULATOR

Manufacturer ----------

Reference ----------

Type ----------
Rating ----------

Starting Current ----------

F.L. running current ----------

Power factor ----------

Type of filters ----------

EMC compliance? ----------

CE marking ----------

Method of feedback ----------

Regeneration to mains? ----------

TRACTION AND DIVERTOR SHEAVES

Maximum suspended load on drive sheave ----------

Traction sheave diameter ----------

Traction sheave hardness ----------Brinell

Diverter sheave diameter ----------

Location of divertor sheave ----------

Rope pressure ----------

BRAKE ASSEMBLY

Diameter of brake drum ----------

Number of brake shoes ----------

Width of brake shoe ----------

Number of springs ----------

Coil voltage and current Volts----------

Amps----------

Manufacturer ----------

Brake monitoring to EN81-20/50? ----------

OVERSPEED GOVERNOR

Method of tripping at contract speed ----------

Electrical trip speed ----------

Mechanical trip speed ----------

Rope diameter and construction ----------

Manufacturer and type No. ----------

CE marked? ----------

CONTROLLER

Manufacturer		----------
Type		----------
Voltage		----------
Method of achieving lamp reliability		----------
Description – tick as appropriate		
	Location:	Wall ----------
		Floor----------
	Access:	Front----------
		Rear----------
Expected life of solid state components		----------
Method of temperature monitoring		----------
Heat output		----------
CE marked?		----------
Programming/Interrogation Device provided to be Employer?		Yes/No

GUIDES width/depth/blade*

Car: “T” number and size	----------
Counterweight: “T” number and size	----------
Maximum pitch of fixing	----------
Fixing type	----------

GUIDE SHOES

Make and type	----------
Dimensions of guide shoe	----------
Diameters of rollers (if applicable)	----------
Method of self-adjustment	----------

Method of lubrication ----------

BUFFERS

Car: type and number ----------

Counterweight: type and number ----------

Rate of retardation ----------

CE marked? ----------

CAR AND FRAME

Total weight of car and sling ----------

Load weighing devices, type and number ----------

Method of car balancing ----------

Method of car body isolation ----------

Maximum weight of car finishes ----------

Max force applied at car sill during loading (% of rated load) ----------%

SAFETY GEAR

Description ----------

Makers name and type number ----------

CE marked? ----------

UNINTENDED MOVEMENT

Means of detection ----------

Means of prevention ----------

Means of actuation ----------

CE marked? ----------

SUSPENSION ROPES

Number and diameter ----------

Tensile strength ----------

Construction and lay ----------

Breaking force per rope ----------

Method of rope isolation/equalising ----------

Current selling price per/M rope/chain/belt ----------

CAR ENCLOSURE

Name of supplier/manufacturer ----------

Number of car top refuge spaces ----------

MECHANICS CAR TOP CONTROL STATION

Name of supplier/manufacturer ----------

MECHANICS LIFT PIT CONTROL STATION

Name of supplier/manufacturer ----------

Number of pit refuge spaces ----------

PIT ACCESS LADDER

Name of supplier/manufacturer ----------

BS EN81-20 Design Type (Type 1, 2a, 2b, 3a, 3b or 4) ----------

Electrical Safety Switch ----------

DOOR OPERATOR/DOOR EQUIPMENT

Make and type number ----------

Method of car/landing coupler ----------

Rated starts per hour ----------

Lift expectancy of belts if used ----------

AC or DC ----------

Method of speed control and adjustment ----------

Opening speed (std)	----------
Type of car door lock	----------
CE marked?	----------
Means of emergency release	----------
Closing speed (std)	----------
Pre-opening?	----------
Method of isolation from car bodywork	----------
Size and construction of top rollers	----------
Type of roller bearings	----------
Method of preventing up thrust	----------
Size and construction of bottom guides	----------
Construction of door panels	----------
Method of sound deadening	----------
Method of self-closing	----------
Minimum clear opening width	----------mm
Minimum clear opening height	----------mm
Hard pendulum shock test to S.5.14 BS EN81-50?	Yes/No
Soft pendulum shock test to S.5.14 BS EN81-50?	Yes/No

DOOR SAFETY DEVICES

Type of landing lock	----------
Voltage of lock circuits	----------
CE marked?	----------
Emergency release type	----------
Means of releasing lowest lock from within the lift pit	----------

DOOR PROTECTIVE DEVICE

Manufacturer and reference	----------

Number of beams ----------

Extent of detector field on to landing ----------

Location of device (door edge/
back of sill) ----------

LIMITS AND SWITCHES

Type and make of limit switches ----------

CE marked? ----------

Type and make of inductors ----------

Number of inductors used in the system ----------

Method of mounting inductors in shaft ----------

AUTO RECHARGE UNITS

Make and type number ----------

Total power output in watt/hours ----------

Consumption of emergency lighting ----------

Consumption of alarm bell ----------

MAINS SUPPLY

Main switch type and rating ----------

Fuses type and rating ----------

Mains riser rating and construction ----------

WIRING

State method of wiring and protection ----------

TRAVELLING CABLES

Type of trailer and construction ----------

Manufacturer	----------
Number of ways	----------
Make of travelling cable	----------
Make of anchorage system	----------

PUSHES AND FIXTURES

Manufacturer and reference of landing call units	----------
Location of braille/tactile markings illumination method	----------
IPX rating	----------
Manufacture and reference of position indicators	----------
IPX rating	----------
Manufacture and reference of direction indicators	----------
IPX rating	----------
Manufacture and reference of car operating panel	----------
IPX rating	----------
Grade of material and finish	----------

Manufacturer and reference of Fire Fighting Intercom ----------

Manufacturer and reference of Disabled Evacuation System ----------

Lift Contractor to supply illustrations and descriptions of all units in the supporting documents.

VOICE SYNTHESISER

Manufacturer and model ----------

Method of voice reproduction ----------

Maximum number of messages ----------

On site re-programmable? ----------

Location of speaker ----------

Position of inductive loop ----------

AUTO DIALER

Manufacturer and model ----------

No. of numbers ----------

Message enunciator ----------

Line requirements ----------

Speaker/Mic location ----------

ADDITIONAL INFORMATION

Premises where a similar installation may be viewed and performance characteristics as given in 9.2 be checked ----------

Forecast of life of the installation based on anticipated usage ----------

MAXIMUM HEIGHT OF EQUIPMENT

(a) Hoisting unit ----------

(b) Controller cabinet ----------

This Schedule must be completed in every particular, signed and dated and returned with the Tender. Any deviations from the Specification and any other information relevant to the Tender shall be set out by the Lift Contractor on a separate sheet as an additional Schedule of Particulars.

NAME OR TRADING NAME OF LIFT CONTRACTOR_____

ADDRESS _____

SIGNATURE _____DATED _____

NAME_____

Production Schedule

To be completed by the addition of the appropriate program dates and returned with the Tender).

	L/H Lift	R/H Lift
Date of order instructions to proceed	----------	----------
Builder's work GA drawings submitted to Contract Administrator	----------	----------
Lift car construction and design drawings submitted to Contract Administrator	----------	----------
Commencement of materials procurement	----------	----------
Completion of materials procurement	----------	----------
Completion of manufacturing Drawings	----------	----------
Major components available for off-site inspection, in particular the gear/motor assemblies, controllers, car frame and safety gear	----------	----------
Lift car erected fully complete and illuminated and available for off-site inspection	----------	----------
Complete all manufacturing	----------	----------
Commence deliveries to site	----------	----------

The Lift Contractor, in completing this Schedule, is to state the most favourable deliveries and program he is able to achieve. It should be noted that in evaluating the submitted Tender, program and delivery will be taken into account.

NAME OR TRADING NAME OF LIFT CONTRACTOR _____

ADDRESS _____

SIGNATURE _____ DATED _____

NAME _____

Schedule of Site Works

	Left Hand Lift	Right Hand Lift
Anticipated Labour on Site		
	No. of Working Days	
Fit entrance protection hoardings		
Dismantle and remove all redundant equipment from site		
Builder's and electrical work		
Align guides		
Check landing sills and entrance		
Hang landing doors and adjust		
Refurbish architraves		
Fit all shaft switches and fit landing pushes and indicators		
Position machine room equipment		
Trunk tube and wire machine room		
Trunk tube and wire lift shaft		
Connect all shaft and machine room wiring		
Refurbish counterweight/car slings and safety gear and fit main suspension ropes		
Refurbish lift car and fit all internal and external equipment		
Fit landing fascias and all covers		
Clean down, paint and lubricate		
Final adjustments and domestic testing		
Witness tests		
Special requirements (if any)		
Total working days per lift		

Total number of person days on site (CDM 2015 Regulations) _____ Days.

The Lift Contractor to provide separate method statement fully detailing the operations to achieve these periods.

NAME OR TRADING NAME OF LIFT CONTRACTOR _____

ADDRESS _____

SIGNATURE _____ DATED _____

NAME _____

Schedule of Working Hours

The Lift Contractor is to insert in the Schedule the starting and finishing hours for their operations to achieve the periods detailed in the Schedule of Site works.

Monday – Friday	……am	……pm
Saturday	……am	……pm
Sunday	……am	……pm

NAME OR TRADING NAME OF LIFT CONTRACTOR _____

ADDRESS _____

SIGNATURE _____ DATED _____

NAME _____

Schedule of Work to be Sub-Let

This Schedule must be completed and returned with the Tender.

Failure to comply may disqualify the Tender.

The Lift Contractor is to give below the names and addresses of those firms to whom it is proposed to sub-let portions of the work not normally carried out by theirselves.

This Schedule shall not be subsequently modified without prior permission in writing from the Contract administrator.

The Contract administrator reserves the right to reject any proposed sub-contractor and to request an alternative.

The Lift Contractor shall provide copies of invoices from vendors or sub-contractors at the Contract administrator's request, showing an agreed on cost of ------%.

Name and address of proposed Sub-Contractor	Work to be sub-let

NAME OR TRADING NAME OF TENDERER _____

ADDRESS _____

SIGNATURE_____ DATE _____

NAME _____

Schedule of Day-work Charges

We undertake to execute any works specifically authorised to be charged at daywork rates at net cost plus the following percentages:

Labour	Plus %
Fares & Allowances	Plus %
Materials	Plus %
Plant	Plus %
Sub-Contractors	Plus %
Contractor's percentage to be added to Prime Cost Items, if applicable	Plus %

NOTE:

On-costs include establishment charges and all insurance and holiday with pay contributions.

Labour to be wages of work people (ie chargehands, fitters and mates, but not weekly or monthly paid foreman, supervisors, draughtsmen, storemen and clerks) based on trade union rates including overtime and payments in respect of travelling based on time or distance.

Allowances will comprise outworking lodgings, out of pocket expenses and dirty money payments. Fares and allowances for broken days are to be calculated on the percentage of a full week's labour excluding overtime.

Materials to be at net cost (delivered to site) and after deducting all discounts.

The Lift Contractor shall enter below the net basic labour rates on which the tender is based and shall add rates of any work people which it is proposed to bring onto site.

	Normal Working Hours		**Out of Normal Working Hours**	
	a	b	c	d
	Between 0800-1700	Between 1700-1900	After 1900 hrs & Sat	Sundays & Bank Holidays
Fitter	£ p/h	£ p/h	£ p/h	£ p/h
Mate	£ p/h	£ p/h	£ p/h	£ p/h
C/hand	£ p/h	£ p/h	£ p/h	£ p/h

NAME OR TRADING NAME OF LIFT CONTRACTOR _____

ADDRESS _____

SIGNATURE _____ DATE _____

NAME _____

JCT INTERMEDIATE CONTRACT

APPENDIX A

Available on request.

EXETER CITY COUNCIL
SITE RULES

APPENDIX B

Fire Procedures

Evacuation procedures and muster points in the event of fire will be provided by client during site induction.

ASBESTOS SURVEY

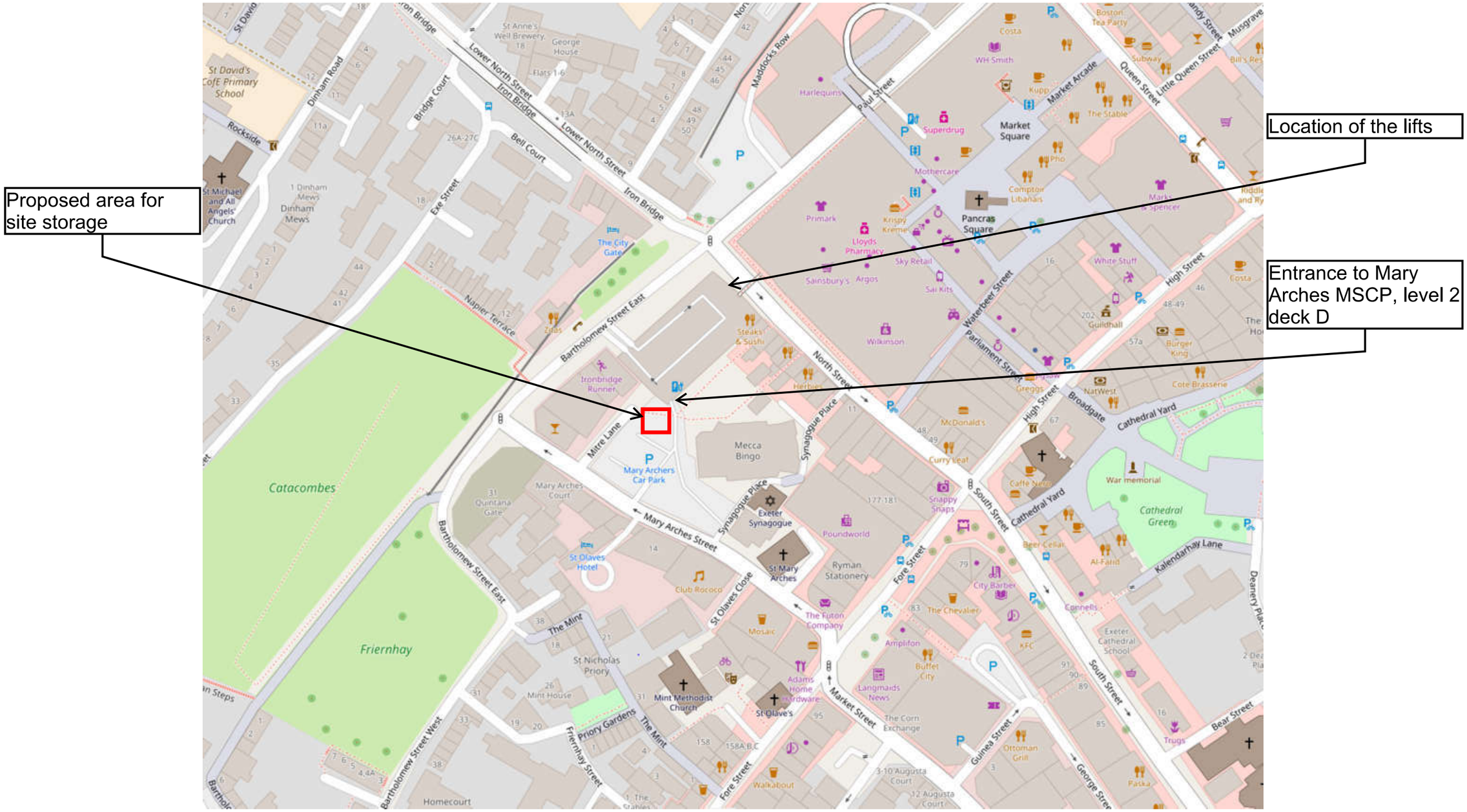
APPENDIX C

Asbestos Survey

To be provided to successful contractor at later stage.

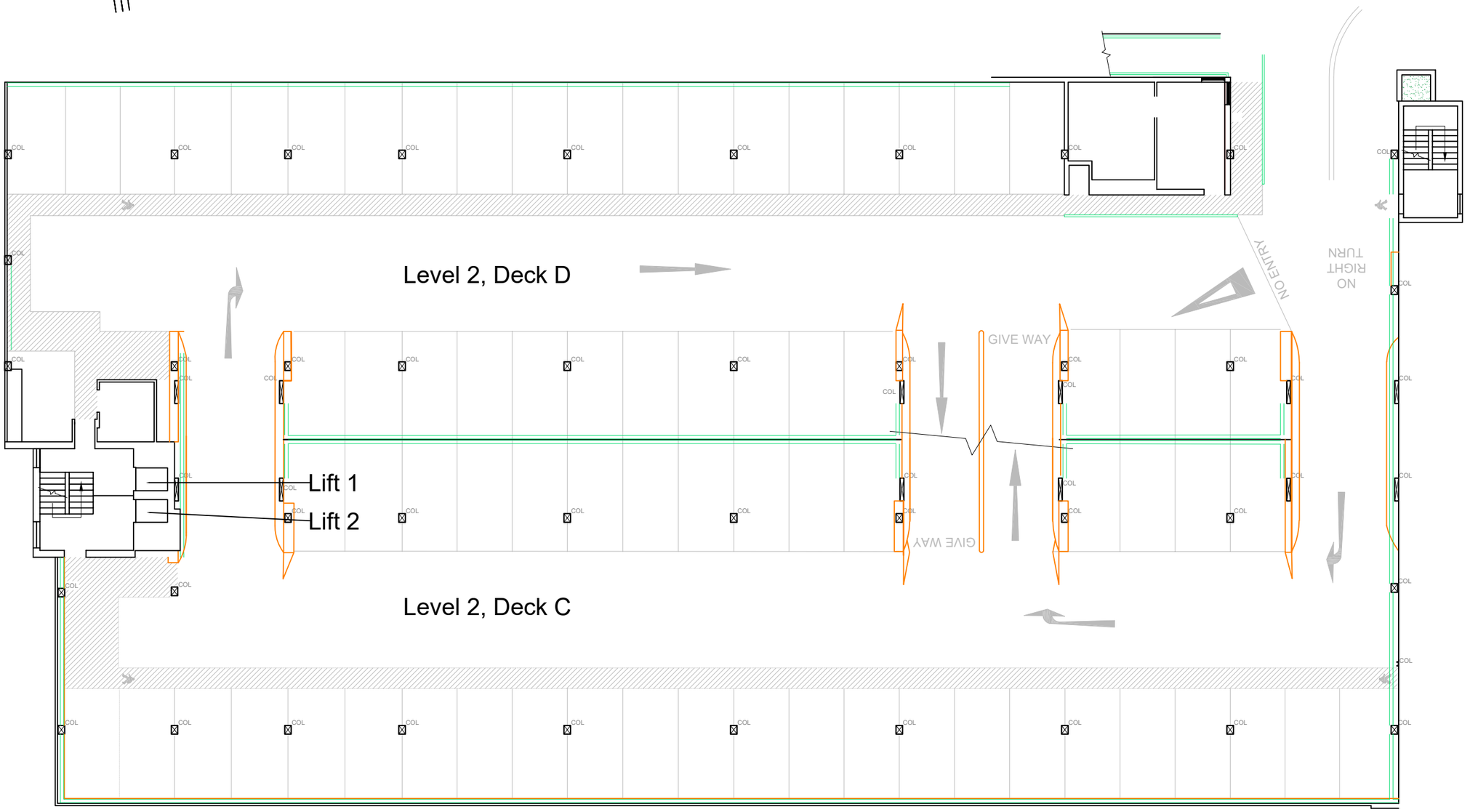
5. Drawings

Mary Arches lift refurbishment context map



N
(Approx)

External parking area, section of which to be shut off and used for site storage as to be agreed with Exeter City Council.



Use only written dimension. All dimension must be verified prio to works being put into hand and any discrepancies reported t the originator.

Health and Safety Information

	Details	Sign	Dat
Asbestos Survey			
Structural Check/Lifting & Handling			
Site Survey			
Access and Egress/Site Compound			
Hazards Identified			

General Notes

REV	Details of Revision	Date	Sig

Client

Exeter City Council
Corporate property Services
Civic Centre
Paris Street

FAITHFUL+GOULD

The Octagon, 2nd Floor, Pynes Hill Court, Rydon Lane, Exeter, EX2 5AZ

Tel: +44(0)1392 813100
Fax: +44(0)1392 352999

Project

Mary Arches Multi-Storey Car Park
Lift Replacement

Title

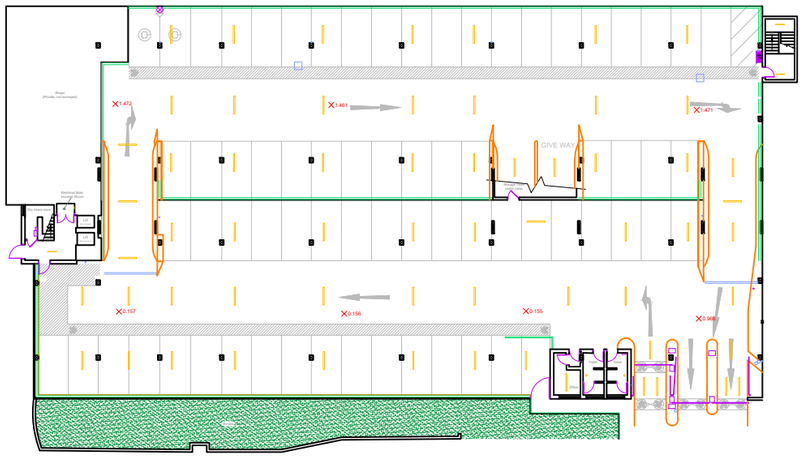
Lift location plan
showing level 2, deck C&D

Drawing No			
001			
Scale: Not to Scale	Drawn: JP	Checked: ST	Co-ord chk
Drawing size: A3	Date: 15/10/18	Date: 15/10/18	Date

Status: INFORMATION

P:\GBEXD\F and G - South West\Projects\5166101 - ECC Mary Arches\Mary Arches lift refurbishment.dwg

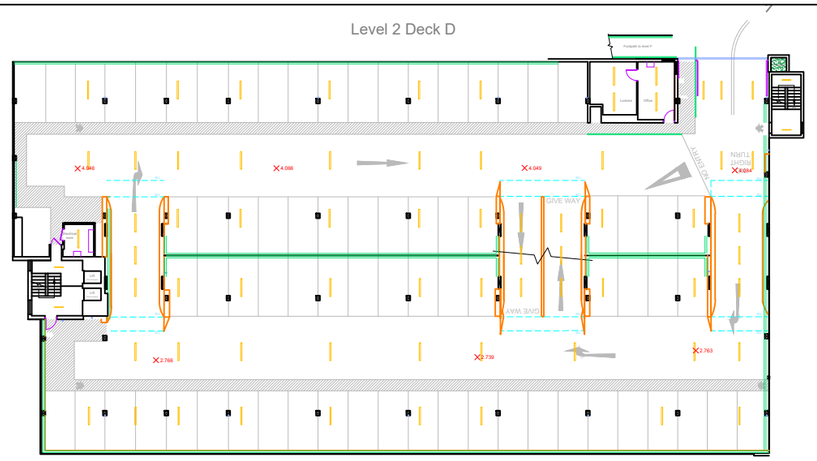
Level 1 Deck B



Level 1 Deck A

BARTHOLOMEW STREET

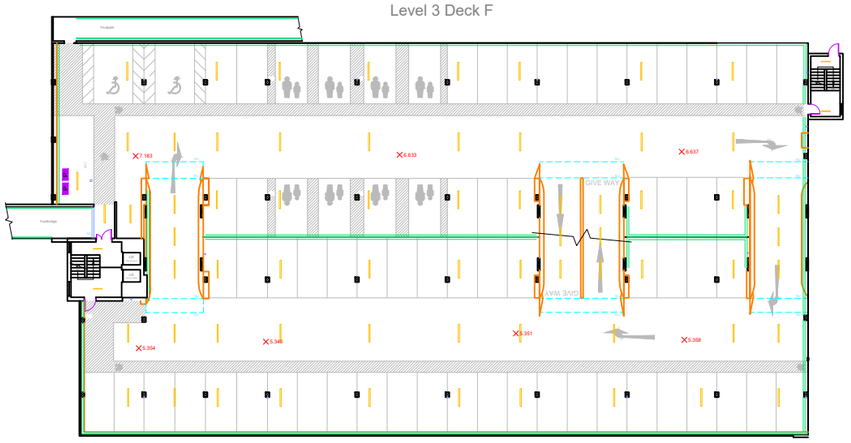
Level 2 Deck D



Level 2 Deck C

N
(Approx)

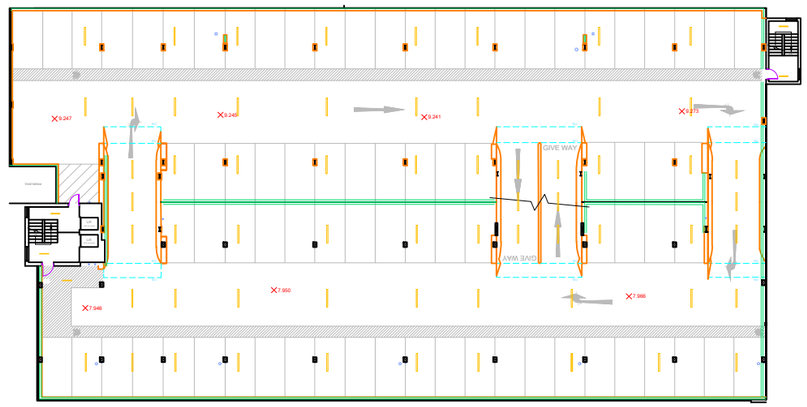
Level 3 Deck F



Level 3 Deck E

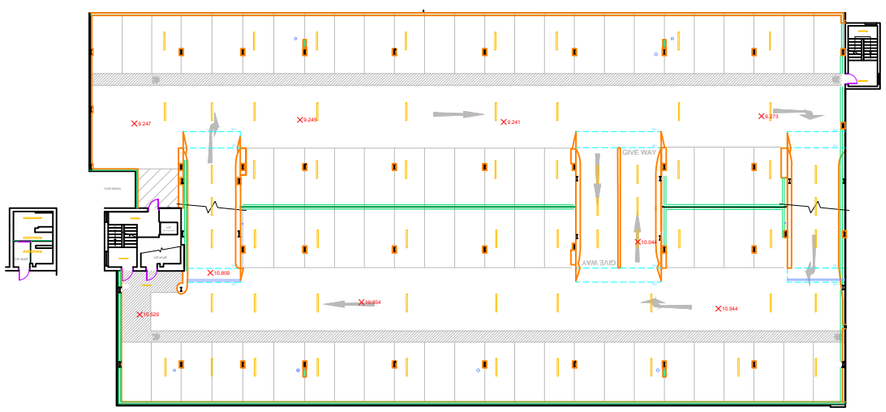
Level 4 Deck H

Level 4 Deck H

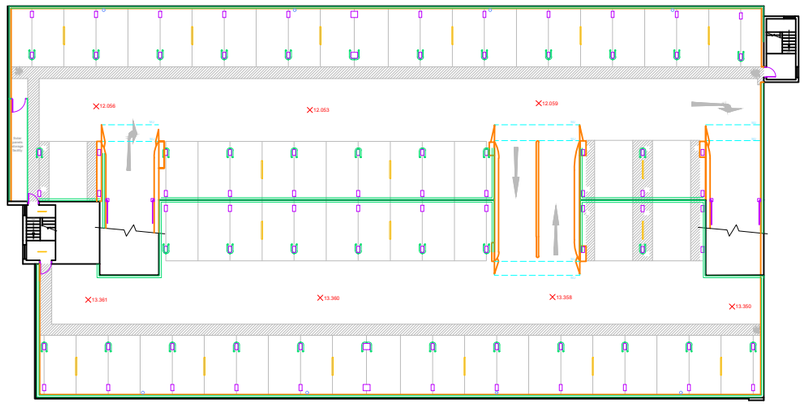


Level 4 Deck G

Level 5 Deck J



Level 5 Deck I



Level 6 Deck K

NOTES

All dimensions on this drawing are to be measured on site and not scaled from this drawing.

Issue	Amendments	Date
A	Original Issue	28/04/17

Stripe Consulting
Bridge Farm
Meath Green Lane
Horley
Surrey, RH6 8JA

STRIPE CONSULTING
STRUCTURAL ENGINEERS
WWW.STRIPEUK.COM

Client

Exeter Council

Project

Mary Arch MSCP
Bartholomew Street
Exeter

Title

Car Park Plans.
All Levels.

Issue Date			
28/04/17			
Drawn By	Checked	Scale	
AP	RS	1:250	
Job Number	Drawing Number	Issue	Original Size
6308/6	009	A	A3

N
(Approx)

KEY:-

=Barriers / Railings

=Deck demarcation

=Kerb

P =Paystation

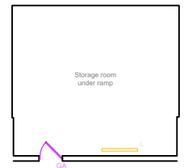
ABBREVIATIONS:-

BOL = Bollard
COL = Column
CP = Charging point (electric cars)
DC = Drainage channel
DP = Downpipe
ECP = Electrical control panel
FB = Fuse box
GG = Gully grate
GA = Gate / door
IC = Inspection cover
L = Light
MJ = Movement joint
TB = Traffic barrier
SP = Solar panel baseplate

Level 1 Deck B

Level 1 Deck A

BARTHOLOMEW STREET



NOTES

1. All dimensions on this drawing are to be measured on site and not scaled from this drawing.

Issue	Amendments	Date
C	General Update	28/04/17
B	General Update	28/02/17
A	Original Issue	30/10/16

Stripe Consulting
Bridge Farm
Meath Green Lane
Horley
Surrey, RH6 8JA

STRIPE CONSULTING
STRUCTURAL ENGINEERS
WWW.STRIPEUK.COM

Client

Exeter Council

Project

Mary Arch MSCP
Bartholomew Street
Exeter

Title

General Arrangement
Level 1 (A & B)

Issue Date			
28/04/17			
Drawn By	Checked	Scale	
AAR	RS	1:250	
Job Number	Drawing Number	Issue	Original Size
6308/6	001	C	A3

N
(Approx)

KEY:-

- = Barriers / Railings
- = Deck demarcation
- = Kerb
- P = Paystation

ABBREVIATIONS:-

BOL = Bollard
COL = Column
CP = Charging point (electric cars)
DC = Drainage channel
DP = Downpipe
ECP = Electrical control panel
FB = Fuse box
GG = Gully grate
GA = Gate / door
IC = Inspection cover
L = Light
MJ = Movement joint
TB = Traffic barrier
SP = Solar panel baseplate

NOTES

All dimensions on this drawing are to be measured on site and not scaled from this drawing.

Issue	Amendments	Date
C	General Update	28/04/17
B	General Update	28/02/17
A	Original Issue	30/10/16

Stripe Consulting
Bridge Farm
Meath Green Lane
Horley
Surrey, RH6 8JA

STRIPE CONSULTING
STRUCTURAL ENGINEERS
WWW.STRIPEUK.COM

Client

Exeter Council

Project

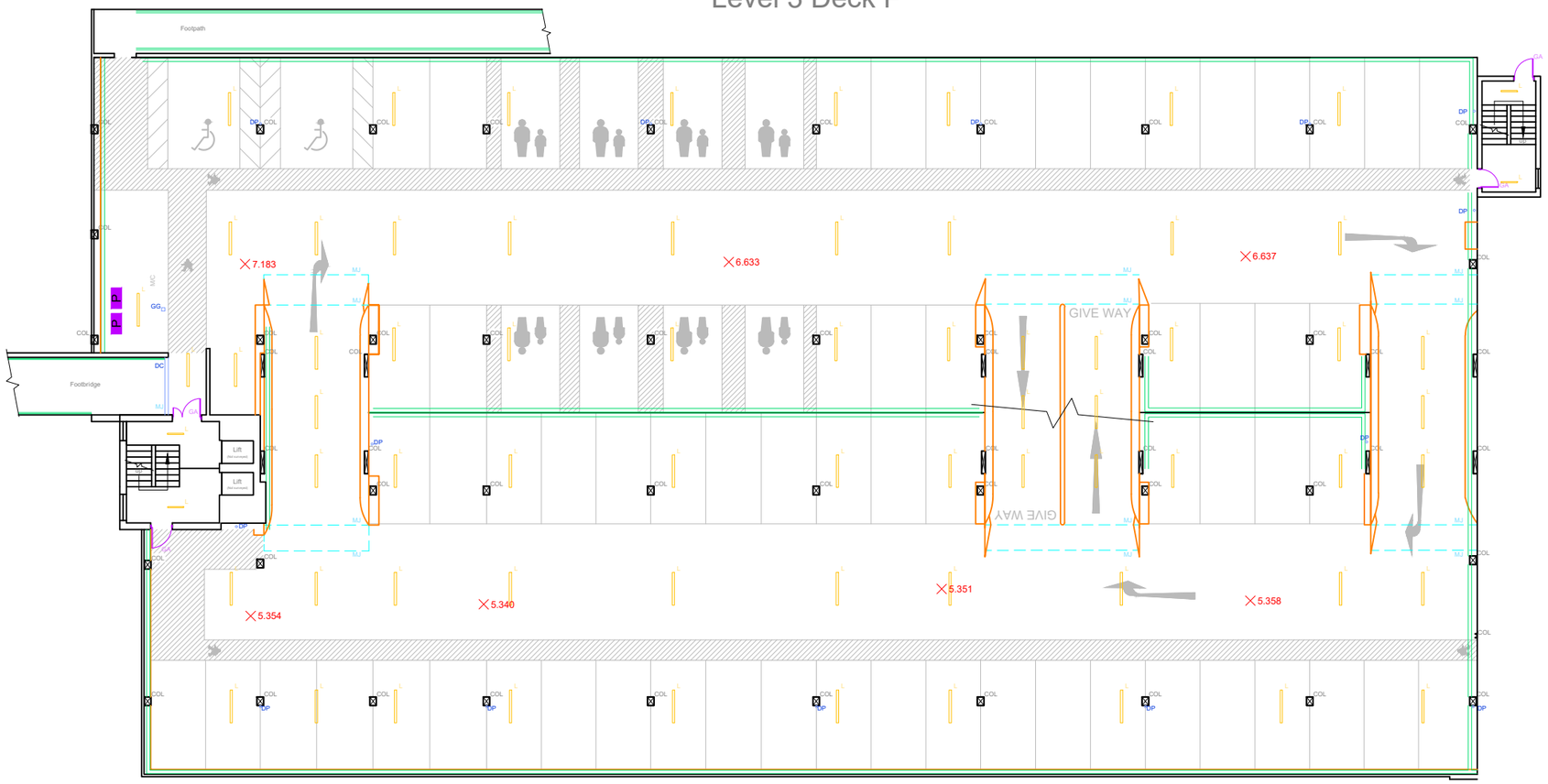
Mary Arch MSCP
Bartholomew Street
Exeter

Title

General Arrangement
Level 2 (C & D)

Issue Date			
28/04/17			
Drawn By	Checked	Scale	
AAR	RS	1:250	
Job Number	Drawing Number	Issue	Original Size
6308/6	002	C	A3

Level 3 Deck F



Level 3 Deck E

N
(Approx)

KEY:-

= Barriers / Railings
= Deck demarcation
= Kerb
P = Paystation

ABBREVIATIONS:-

BOL = Bollard
COL = Column
CP = Charging point (electric cars)
DC = Drainage channel
DP = Downpipe
ECP = Electrical control panel
FB = Fuse box
GG = Gully grate
GA = Gate / door
IC = Inspection cover
L = Light
MJ = Movement joint
TB = Traffic barrier
SP = Solar panel baseplate

NOTES

All dimensions on this drawing are to be measured on site and not scaled from this drawing.

Issue	Amendments	Date
C	General Update	28/04/17
B	General Update	28/02/17
A	Original Issue	30/10/16

Stripe Consulting
Bridge Farm
Meath Green Lane
Horley
Surrey, RH6 8JA

STRIPE CONSULTING
STRUCTURAL ENGINEERS
WWW.STRIPEUK.COM

Client

Exeter Council

Project

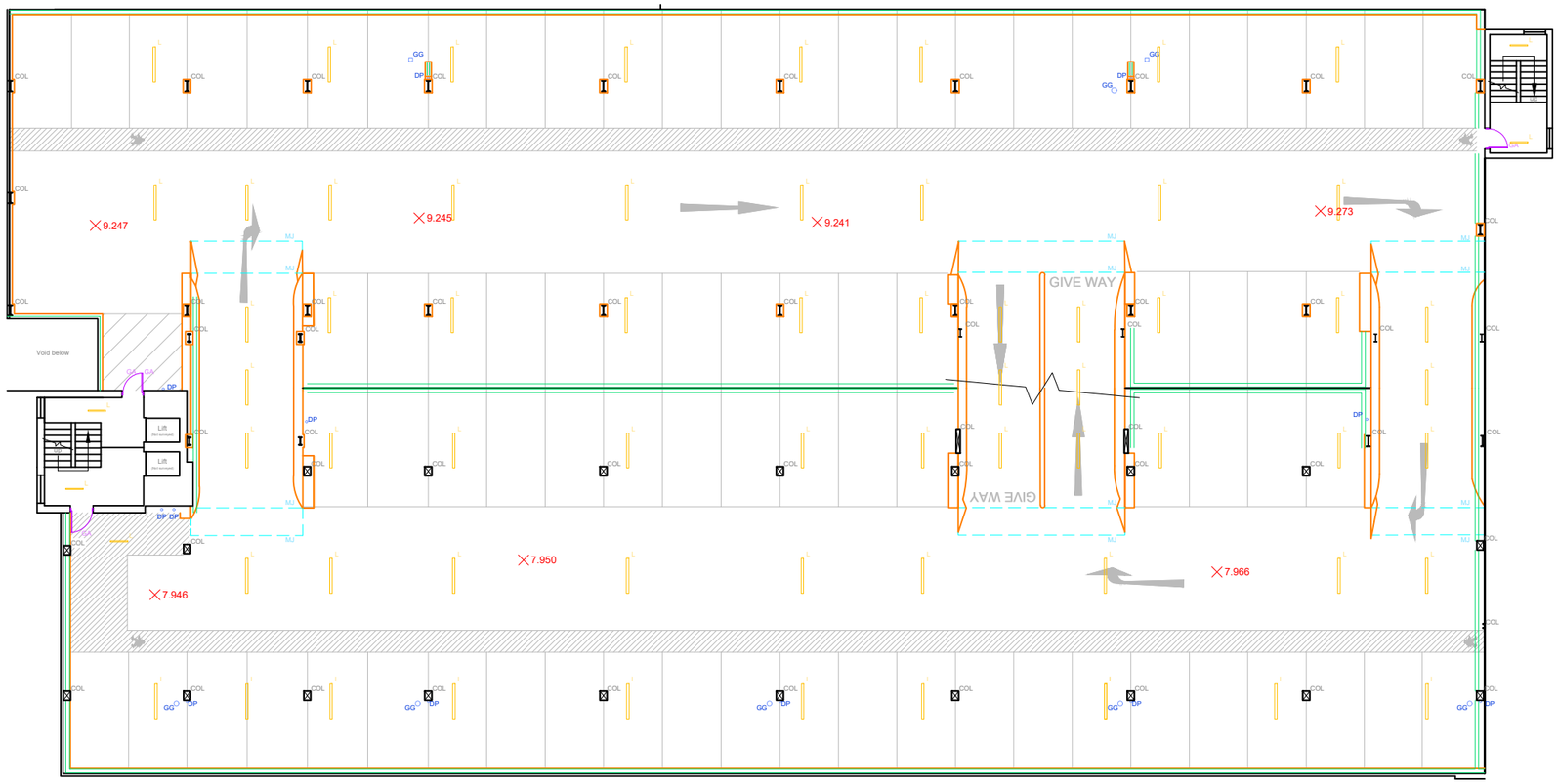
Mary Arch MSCP
Bartholomew Street
Exeter

Title

General Arrangement
Level 3 (E & F)

Issue Date			
28/04/17			
Drawn By	Checked	Scale	
AAR	RS	1:250	
Job Number	Drawing Number	Issue	Original Size
6308/6	003	C	A3

Level 4 Deck H



Level 4 Deck G

N
(Approx)

KEY:-

=Barriers / Railings
=Deck demarcation
=Kerb
P =Paystation

ABBREVIATIONS:-

BOL = Bollard
COL = Column
CP = Charging point (electric cars)
DC = Drainage channel
DP = Downpipe
ECP = Electrical control panel
FB = Fuse box
GG = Gully grate
GA = Gate / door
IC = Inspection cover
L = Light
MJ = Movement joint
TB = Traffic barrier
SP = Solar panel baseplate

NOTES

All dimensions on this drawing are to be measured on site and not scaled from this drawing.

Issue	Amendments	Date
C	General Update	28/04/17
B	General Update	28/02/17
A	Original Issue	30/10/16

Stripe Consulting
Bridge Farm
Meath Green Lane
Horley
Surrey, RH6 8JA

STRIPE CONSULTING
STRUCTURAL ENGINEERS
WWW.STRIPEUK.COM

Client

Exeter Council

Project

Mary Arch MSCP
Bartholomew Street
Exeter

Title

General Arrangement
Level 4 (G & H)

Issue Date			
28/04/17			
Drawn By	Checked	Scale	
AAR	RS	1:250	
Job Number	Drawing Number	Issue	Original Size
6308/6	004	C	A3

N
(Approx)

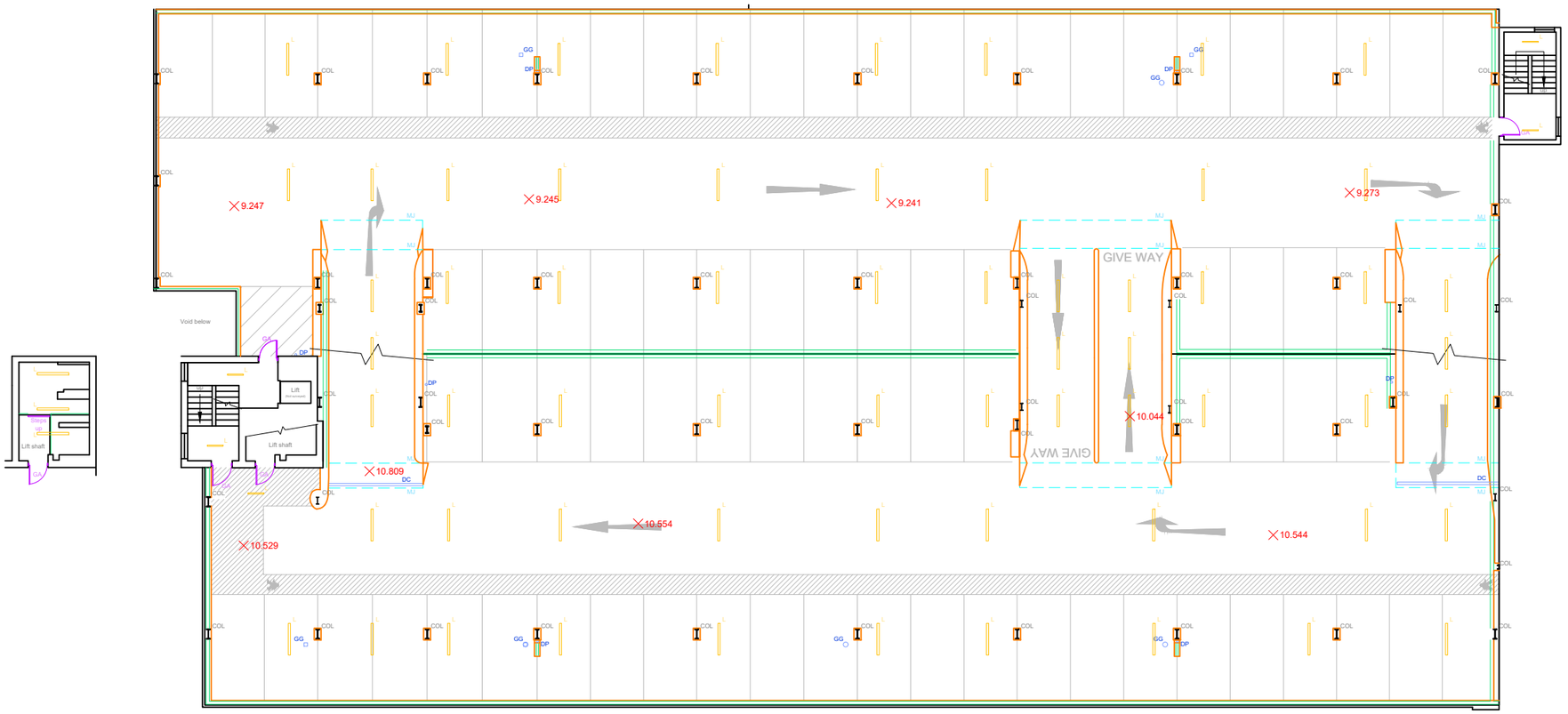
KEY:-

= Barriers / Railings
= Deck demarcation
= Kerb
P = Paystation

ABBREVIATIONS:-

BOL = Bollard
COL = Column
CP = Charging point (electric cars)
DC = Drainage channel
DP = Downpipe
ECP = Electrical control panel
FB = Fuse box
GG = Gully grate
GA = Gate / door
IC = Inspection cover
L = Light
MJ = Movement joint
TB = Traffic barrier
SP = Solar panel baseplate

Level 4 Deck H



Level 5 Deck I

NOTES

All dimensions on this drawing are to be measured on site and not scaled from this drawing.

Issue	Amendments	Date
C	General Update	28/04/17
B	General Update	28/02/17
A	Original Issue	30/10/16

Stripe Consulting
Bridge Farm
Meath Green Lane
Horley
Surrey, RH6 8JA

STRIPE CONSULTING
STRUCTURAL ENGINEERS
WWW.STRIPEUK.COM

Client
Exeter Council

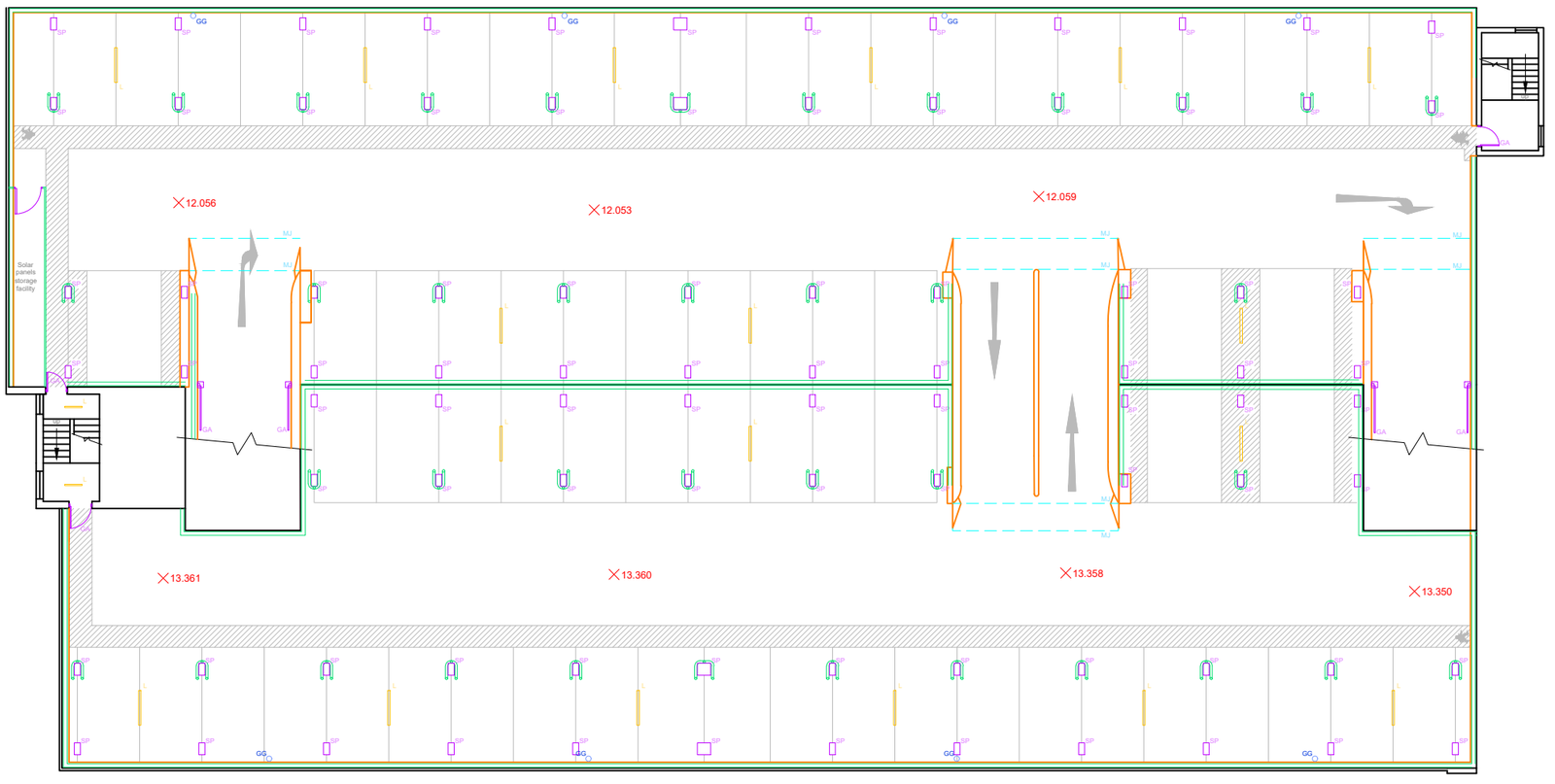
Project
Mary Arch MSCP
Bartholomew Street
Exeter

Title
General Arrangement
Level 5 (I & J)

Issue Date			
28/04/17			
Drawn By	Checked	Scale	
AAR	RS	1:250	
Job Number	Drawing Number	Issue	Original Size
6308/6	005	C	A3

N
(Approx)

Level 5 Deck J



Level 6 Deck K

KEY:-

- = Barriers / Railings
- = Deck demarcation
- = Kerb
- P = Paystation

ABBREVIATIONS:-

BOL = Bollard
COL = Column
CP = Charging point (electric cars)
DC = Drainage channel
DP = Downpipe
ECP = Electrical control panel
FB = Fuse box
GG = Gully grate
GA = Gate / door
IC = Inspection cover
L = Light
MJ = Movement joint
TB = Traffic barrier
SP = Solar panel baseplate

NOTES

All dimensions on this drawing are to be measured on site and not scaled from this drawing.

Issue	Amendments	Date
C	General Update	28/04/17
B	General Update	28/02/17
A	Original Issue	30/10/16

Stripe Consulting
Bridge Farm
Meath Green Lane
Horley
Surrey, RH6 8JA

STRIPE CONSULTING
STRUCTURAL ENGINEERS
WWW.STRIPEUK.COM

Client
Exeter Council

Project
Mary Arch MSCP
Bartholomew Street
Exeter

Title
General Arrangement
Level 6 (J & K)

Issue Date			
28/04/17			
Drawn By	Checked	Scale	
AAR	RS	1:250	
Job Number	Drawing Number	Issue	Original Size
6308/6	006	C	A3