

Wood Green Crown Court External Lighting Replacement MEP Performance Specification

Client EQUANS
Vinewood House
1 Waters Edge Business Park
Campbell Road, Stoke on Trent
ST4 4DB

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1.0 General

1.1 Introduction

Site Address

Wood Green Crown Court
Lordship Lane
London
N22 5LF

Wood Green Crown Court is a three-storey building located on Lordship Lane, North London. The building is accessed from street level and the building mainly comprises of courtrooms, judges' rooms, conference rooms, office rooms, jury rooms along with the custody suite.

There are two plantrooms located to the left of the main entrance which are accessed externally. The services are mainly distributed from the plantrooms within a riser located within the ground floor mechanical plantroom.

The external lighting is provided throughout the site and generally distributed throughout the walkways, parking and circulation areas.

This MEP Performance specification is for the replacement of the existing lighting serving the external areas of Wood Green Crown Court, with the scope being limited to:

- Strip out and replacement of lighting serving the external areas, along with all associated power supplies and cabling.
- Provision of modifications to the existing LV installation.
- Testing and Commissioning.

1.1.1 Project Team

Client

EQUANS
Vinewood House
1 Waters Edge Business Park
Campbell Road
Stoke on Trent
ST4 4DB

MEP Consultant & Principal Designer

RED Engineering Design Ltd
100 New Oxford Street
London
WC1A 1HB

1.2 Related Specifications

This MEP specification is for the supply, installation, testing and commissioning of the building engineering services works as described in the Contract documents. The specification documents form part of the Employers Requirements.

Specifications are subdivided into the following categories:

- **Standard Specifications:** Documents that define the general specifications for plant, equipment, system and workmanship and materials standards as well as General Requirements and Preliminaries. Documents that provide details of the contract requirements.

- **Performance Specifications:** Documents that provide project specific requirements that require further design. They define the operational requirements of the installations.

The Contract Documents shall include this Performance Specification, the Standard Workmanship and Materials Specification contained herein, and the tender drawings shall be read together, and shall form part of the Contract Documents.

The purpose of this specification is to provide the design intent (indicative) for the works and to enable the Contractor to develop their construction design to achieve the objectives of the project. The Contractor will be appointed as the Principal Contractor and will be responsible for the construction design and delivery of the works.

The Contractor shall refer to the separate tender documentation (if sent separately) issued by the Project Manager for the General Contract Conditions and Instructions to Tenderers for information relating to any tender preparation and submission process.

1.3 Conflict between Specifications

The Performance Specification will take precedence in the event of conflict between documents excluding the drawings.

Any potential conflict between the specification and legislation, statutory documents, approved documents, or approved codes of practice, shall be notified to the Engineer in accordance with the tender or contract technical query or Request for Information (RFI) procedures.

1.4 General Requirements

This Performance Specification shall be read in conjunction with the Architectural and Electrical drawings, other relevant specifications and contract documentation, preliminaries, etc, that make up the contract documents and as listed in the issue register, which are relevant to the specific work elements.

The Contractor shall be responsible for the design, supply, installation, testing and commissioning of the specified engineering installations detailed in the documents and shall meet all the parameters specified and requirements detailed within the design documentation, drawings, and specifications. Wherever the term 'Contractor' is referred to within this specification, this shall denote The Contractor for the works package being described.

The MEP Performance Specification and drawings are issued to indicate the principles of the system design, design criteria and client's requirements. They do not attempt to detail every system component and it is the responsibility of The Contractor to ensure that he has included within their costs for all items necessary to meet the requirements of the specifications, drawings, engineering design intent and Employer's requirements.

The work shall be complete in every respect and The Contractor shall include for all items, though some may not be particularly specified, to ensure that the work shall be complete in every detail for the sum stated in the Tender.

No claims for extras shall be considered unless specific instructions have been issued in writing by the Employer's Agent to execute works additional to the Contract.

1.4.1 Definitions used in this Document

Contractor shall mean the Sub-Contractor in relation to the Terms and Conditions of the Main Contract. The Contractor shall adhere to all conditions of the Main Contract.

The Engineer shall mean RED Engineering Design Ltd as detailed in the Main Contract Documentation.

The Client / Project Manager shall mean EQUANS as detailed in the Main Contract Documentation.

The Contractor is required to check that all documents described in the Invitation to Tender are received and check the number of pages of the tender documents. Should The Contractor find any to be missing, or duplicated, or indistinct, the Contractor must inform the Engineer / Project Manager at once, similarly should the Contractor find a discrepancy between the tender drawings and the specification he must raise a query during the tender period. The Engineer's / Project Manager's response to the query will be issued to all Tenderers.

Should the Contractor be in any doubt about the precise meaning of any term, item or figure the Contractor must inform the Engineer / Project Manager in writing in order that the correct meaning may be decided before the date for submission of Tenders and accept such reply as the Engineer / Project Manager may give in writing. The Engineer's / Project Manager's response to the query will be issued to all Tenderers.

The drawings supplied with this specification are intended to provide the tenderer with appropriate details of the installation to assist him in pricing the works. It shall be the Contractor's responsibility to mark and set out accurately his works and any unnecessary work executed by others and carried out through inaccuracy on the part of the Contractor shall be made good at his expense.

1.4.2 Site visit

The Contractor is recommended to visit the site to familiarise himself with the existing installations on site and the routes required where applicable.

The Contractor will be deemed as a condition of the tender to have visited the site and survey the building works and associated site conditions. Access to the site is to be arranged with EQUANS and the client (Building Champion).

The Contractor shall contact – Wayne Henderson (EQUANS) to arrange access to the site:

Email: wayne.henderson@equans.com

Due to COVID-19 restrictions and government guidelines please ensure that social distancing and limited numbers of persons attend the site visits. If in doubt check before attendance.

1.4.3 Contractor's Responsibilities

The Contractor is responsible for the procurement, design, installation, testing, commissioning, setting to work, record documentation and training of the client's staff in the operation and maintenance of the services installations installed within the work package.

Where separate work elements have been identified the Contractor, who is appointed as the general electrical installation Contractor, shall be responsible for the co-ordination of the complete engineering services' installation including the coordination and management of the testing and commissioning, where interfacing is required, for all mechanical, electrical, and public health work elements.

The Contractor shall be totally responsible for the design of all secondary support systems associated with the works which are required to provide a fully functional installation.

The Contractor shall be responsible for ensuring that the engineering services comply with all statutory requirements, together with the requirements of all mechanical and electrical engineering specifications.

The Main Contractor shall ensure that he has adequately co-ordinated and liaised with all individual work element Sub-Contractors and shall ensure that he has included for all items necessary to provide a fully complete installation. Any additional costs resulting from failure to comply with this clause shall be borne by the Main Contractor.

The precise position of a piece of equipment shall be determined as follows:

Single items of equipment, which are visually remote from other electrical, mechanical, or public health equipment, shall be erected at the mounting heights stated in the Specification or on the drawings.

Two or more items of equipment, which are to be erected on the same wall, or which will be otherwise visually close to each other, shall be arranged in a neat and symmetrical group. Symmetry of arrangement shall be

obtained by horizontal and vertical alignment through the centre lines and not the edges of the equipment, and for this purpose the mounting heights stated in the Specification or on the drawings may be varied slightly.

The Contractor shall be responsible for the provision of all necessary scaffold / towers to allow the safe installation of all high-level services for this project fully in accordance with the requirements of the current Health & Safety regulations.

The Contractor shall be responsible for the installation of the Electrical services as described in this specification and for the preparation of:

- a) To undertake a detailed survey of the existing installations to confirm the extent of the works and verify that the existing installations have sufficient capacity to meet the requirements of the design.
- b) Detailed design calculations, schedules, schematic design, detailed design, and layout drawings for submission to the Engineer for approval prior to the works commencing on site.
- c) Designers risk assessments.
- d) The Contractor shall retain responsibility for any services design or selection activity passed onto specialist contractors or suppliers.
- e) The detailing of all building work required for installation of the works.
- f) Technical submissions for approval of all final equipment selections to be submitted prior to purchase. Technical submittals shall include a description of the system, employer's requirements, design criteria, calculations, supporting drawings and manufacturer's data. No equipment shall be procured until the technical submissions have been approved.
- g) Fully co-ordinated working installation drawings supported where appropriate with manufacturers "shop" drawings defining how the works are to be installed.
- h) Detailed co-ordination, together with the other contractors, of the complete works, both between services and structure.
- i) Supply, installation, testing, commissioning, and setting to work of all services and materials detailed in this specification, drawings, and tender documentation.
- j) Making all applications, giving all notices, and paying all fees required by and to comply with the provisions of the statutory requirements.
- k) Fixing and correctly installing all equipment. Ensuring that associated work such as electrical wiring, controls, builders work, etc. are properly executed.
- l) Commissioning the complete installation including and adjusting, calibrating, and balancing as necessary inclusive of all site visits by specialists to achieve a working system, as detailed later in this section of this specification.
- m) Demonstrating to the complete satisfaction of the Engineer that the equipment is capable of the performance and method of operation specified.
- n) Providing identification labels on items of all equipment as specified or necessary for the users and future maintenance.
- o) Providing "As fitted" record drawings and operating and maintenance manuals.
- p) Instructing the Employer's staff in the operation of the installations.
- q) Attendance before, during and after the works are completed.
- r) Attend to defects in the time period detailed in the contract and all other remedial works during the maintenance period.
- s) Inspect the installations prior to the end of defects meeting and ensure all remedial items have been completed.

1.4.4 Responsibility for Plant and Equipment

The Contractor shall ensure that the suppliers are provided with all performance data, specification, and standards, necessary for the provision of equipment capable for the specified duty and purpose.

Where plant and equipment are pre-tendered the Contractor shall ensure that his tender complies with all relevant technical information contained in this specification irrespective of any pre-tender information suppliers provided to the Engineer.

The Contractor shall give supervision, inspection, and testing reports during manufacture or fabrication at works or on site, as and when required; and is to ensure that delivery, assembly and completion of the order and amendments or modifications thereto comply with the programme.

1.4.5 Health and safety

The Contractor shall comply with the requirements of the Factories Act 1961, the Health, and Safety at Work etc. Act 1974 and sub-ordinate legislation made under the enabling acts, including the following regulations, the Management of Health and Safety at Work Regulations 1992 and the Construction (Design and management) Regulations 2015.

The Contractor shall comply with the terms set out in the schedule of works of this document and the information contained in the pre-construction information as a minimum requirement regarding health & safety management.

The EQUANS appointed Principal Designer shall provide the Pre-Construction Information Pack to the Contractor.

The Contractor will be appointed as Principal Contractor and shall ensure that they provide a non-working foreman for the complete duration of the works.

The Contractor is to provide Construction Phase plan to EQUANS appointed Principal Designer as appropriate in a timely manner i.e., prior to commencement of any works, to enable full and proper consideration.

The Contractor shall accept all risks, other than those separately identified as Client risks.

The Contractor shall allow for all necessary temporary services required to carry out the works and shall always maintain the services throughout the site (where applicable).

The Contractor shall review, acknowledge, and manage all Construction defined risks as detailed in the site risk register.

The Contractor shall provide (where applicable), contract drawings (as built), maintenance data, warranties, user manuals, health & safety manuals, staff training re: use of equipment, keys, codes 'and the like,' relating to the project, to EQUANS, at/prior, to the contract handover meeting.

1.4.6 Sequence and timing of works

The Contractor shall complete all works within programme and by milestone dates.

The Contractor is reminded that the site shall remain operational at all times and there shall be no disruption to the Courts daily routines or sensitive areas, which shall include the transportation of offenders and court users and that these movements shall take priority over the Contractors requirements.

The Contractor shall propose phasing of the works for Client, PM, and Engineer's approval before commencing any works. It shall be the Contractor's responsibility to plan their works and issue a phasing plan approval prior to commencing any works.

The Contractor shall develop their own programme and identify any issues with regards to the planning of works as described within this specification. The schedule and sequence of works shall be agreed with the Client, Engineer, and Project Manager prior to submission of the tender cost.

All disruptive works shall be carried out during evenings and on weekends when the courts are not in use. Potential disruptive works to be discussed (prior to tender submission) in detail by the Contractor with the relevant staff to determine that out of hours and weekend works will need to be included as part of the contract quotation.

Due to the nature of these works and for the purposes of the tender cost submission, it is assumed that all works impacting sensitive areas will be Undertaken outside of Normal Working Hours and on Weekends. As a rule of thumb, the following are considered outside normal business hours:

- Monday to Friday – 18.00hrs to 07.00hrs

- Saturday & Sunday – 08.00hrs to 16.00hrs

Exceptional circumstances: Works carried out within 'sensitive areas', as defined above, will be permitted in normal business hours on the proviso that – For these works the below is not applicable:

- The courts are closed during the hours requested.
- The Contractor confirms arrangements and intended works 'in advance' with the court, in conjunction with the Project Manager.
- Sensitive areas in this context also includes for works within; courtrooms; public areas; custody suites, judge's chambers, kitchens, or any other areas as noted by the Client as being sensitive to the operation of the court.

Due consideration shall be given to periods of excessive noise which shall be agreed in advance with the Project Manager and Court staff. Specific working hours, access arrangements and storage/compound areas shall be agreed with the Project Manager and Court staff prior to submission of the tender cost. Note that this is a working court building where during normal working hours, public, staff, and Judiciary are present.

1.4.7 Schedule of rates

The Contractor shall submit a Schedule of Rates within 14 days of a Contract order being placed. This shall comprise a schedule of quantities of all items and materials included in the tender together with their unit prices, extended and totalled. Such totals shall agree with the lump sum figure of the tender. Sub-totals shall agree with those of the items in the Tender pricing schedule, and this applies to any specialist trade suppliers.

This schedule shall be part of the tender and the net rates in the said schedule shall be used for the valuation of any alteration in addition to, or omission from, the works as described in this specification and/or drawings.

Variation orders issued through the contract are to be priced in accordance with this schedule and submitted for agreement to the Engineer within 5 days of issue of the variation Instruction.

1.4.8 Materials and workmanship

Unless specifically stated to the contrary, all materials, plant or apparatus supplied, or work done shall comply with the current British or EN Standard where such exists and be fit for purpose.

Materials, equipment, and workmanship required under this contract shall comply with this specification.

Samples of all materials and components to be submitted to the client for approval as required.

The workmanship shall be carried out to the entire satisfaction of the client or his representative; any unsatisfactory work is to be taken down and replaced at the Contractor's own expense.

1.4.9 Technical Submissions

Upon acceptance of the Order to undertake the works the Contractor is to provide a programme detailing the period in which it is proposed that all technical submissions for equipment and materials will be submitted to the Engineer for approval.

A period of 7 working days will be allowed for the Engineer / Project Manager to comment on the submission. The overall time allowed for the material approval submissions will be reflected in the programme for the works, and the Contractors Programme submitted with the tender.

The new works are to be carried out using only approved manufacturers equipment and materials. Should substandard equipment or materials be installed, then if so, directed by the Engineer /Project Manager, this is to be removed and replaced with approved equipment or materials at no cost to the Client. Such replacement works, if required, will not alter, or affect the agreed programme of works or project completion date.

The Contractor shall submit to the Engineer / Project Manager samples of proposed equipment on request.

1.4.10 Permit to Work

A “permit to work” system shall be employed, and all relevant interested parties made aware of the works to be carried and their approval given in respect of the following activities as applicable.

- a) EQUANS specific permit to work systems
- b) Confined space
- c) Working at Height including Scaffolding, towers etc
- d) Excavation
- e) Working on electrical switchgear etc.
- f) Fire alarm system
- g) Heating system
- h) Data and telecom installations

The Contractor shall be responsible for any damage caused by non-compliance with clause and shall make good any such damage at his own expense, to the satisfaction of the Employer, Authorities or Landlord as the case may be.

The Contractor shall take all proper measures to the satisfaction of the Engineer/ Project Manager to minimise noise, vibration and the spread of dust, dirt, etc. and to prevent any nuisance arising from the carrying out of the Contractor works, also any protection of existing works shall be provided by the Contractor.

1.4.11 Contractor’s drawings

The Contractor shall provide installation, and record drawings appropriate for Stage 4 and 5 manufacture and installation as defined by BSRIA Guide BG6 2018 – 5th Edition – “A Design Framework for Building Services”.

The Contractor shall allow for all necessary CAD resources for the production of drawings and shall make due allowance in the programme to revise the drawing as necessary to take account of the design development.

The Contractor is advised that all drawings produced in electronic format shall be in accordance with the project CAD standards.

A schedule of drawings shall be submitted for approval by the Contractor detailing a composite list of all design, builders work and working installation drawings that the Contractor proposes to produce for the contract together with a programme of their production for approval purposes within 5 days of receipt of order.

The Contractor shall in the preparation of drawings co-ordinate fully with the structure, finishes and other services. It shall be the Contractor’s responsibility to obtain the information, by means of Requests for Information, if necessary, to enable him to comply with the programme for the issue of such drawings.

All drawings shall be prepared and submitted to comply with the programme which shall include a minimum of 7 working days for approval by the Engineer / Project Manager.

The Engineer’s / Project Manager’s comments upon the drawings submitted by the Contractor shall not in any way relieve the Contractor from his responsibility in respect of the accuracy of such drawings nor from his responsibility to provide equipment suitable in dimensions, construction, and finish for the location in which it is to be installed.

1.4.12 “As Fitted” record drawings

The Contractor shall keep a record in his site office of any amendments to the installation as works proceed. This is to be achieved by updating the working installation drawings, a set of marked up drawings are to be available for the Engineer’s / Project Manager’s inspection if requested.

All drawings shall conform to the following standards:

- All drawings shall be of the International ‘A’ Series.
- All drawings shall be dimensioned and scaled in S.I units.
- The scale of the drawing shall be at least 1:50.

- The record drawings shall be purpose produced drawings and not modified copies of the working drawings.
- The record drawings shall include detailed routes of all pipes, ducts, cables, trunking, and cable trays, etc.

Each drawing prepared by the Contractor shall have the following information on the drawing:

Name of contract, and where appropriate the phase number, zone floor number.

- Description of drawing.
- Drawing Number.
- Scale.
- Name and address of Contractor.
- The words 'Record Drawing' in bold print.

1.4.13 Testing and commissioning

The Contractor shall test and commission all the installed and/or modified services and systems in order to provide an effective working installation to the satisfaction of the Engineer /Project Manager.

The Contractor shall provide a detailed commissioning programme for the works identifying testing, witness testing and training dates. The programme shall allow sufficient time for testing and commissioning to be completed before the systems are offered for witness testing.

Testing and commissioning of the installations and systems shall be in accordance with recognised industry methods and the appropriate standards, the BSRIA and CIBSE Commissioning Codes and BS 7671.

The Contractor shall notify the Engineer / Project Manager in writing when, in his opinion, the Contractor's works or parts thereof are ready for commissioning and testing.

The Contractor shall issue the Engineer/ Project Manager with his own list of remedial items to be completed.

Should the plant tests fail to demonstrate that the plant and equipment are properly installed and functioning correctly, the cause of the failure shall be investigated, and should this be due to incorrect or faulty work by the Contractor, or his Suppliers, then the Contractor shall without delay and at his own cost carry out such remedial measure and adjustments as may be necessary and repeat the commissioning and testing procedure to the satisfaction of the Engineer / Project Manager.

In the event of commissioning tests and inspections failing to meet the required standards, all abortive costs so arising incurred by the Engineer / Project Manager, or other parties shall be paid by the Contractor, and these shall be in accordance with the appropriate time charge rates and expenses incurred.

Where portions of the work are commissioned and tested separately, the Contractor shall upon final completion demonstrate to the Engineer / Project Manager that all the several portions are capable of proper simultaneous operation in accordance with the requirements of the Contract.

For the purposes of commissioning and testing of the installation the Contractor shall provide all necessary materials, labour and all necessary instruments and testing equipment.

1.4.14 Testing and completion certificates

Upon completion of the works the Contractor shall demonstrate the working of the installations/ systems to the Engineer / Project Manager and obtain approval from the regulating authorities as appropriate including the Fire Officer and Building Control Officer.

The Contractor shall be responsible for collating and presenting the following test results and completion certificates as applicable for the project described in Section 5:

- Testing and Commissioning of all the new equipment installed – new external lighting including controls.
- Testing and Commissioning of the electrical services system serving the new equipment

- Electrical Testing certifications.

1.4.15 Operating and Maintenance Manuals

The Contractor shall include in the tender for providing the services of a skilled Engineer to instruct the Client's staff in the correct operation and maintenance of the works. Such instruction shall take place after the commissioning period and the completion of which shall be a prerequisite of Practical Completion.

The Operating and Maintenance Manuals shall be prepared by a specialist technical author.

1No hard copies and one soft copy of the manual shall be supplied conforming to the following minimum standards – Note that the Soft Copy is to be one PDF File containing all relevant information.

- 1) The various documents shall be contained within a loose leaf two-ring PVC bound stiff-sided binder not exceeding the international A3 size.
- 2) The cover shall be printed with the following information on the front face and spine: -
 - a. Operating and Maintenance Instruction Manual for the "project name" and "building name".
 - b. Where more than one volume is necessary, the volume number is to be printed.

Each section of the manual shall be divided by a stiff divider of the same size as the holder. The divider shall be labelled as to the section of the manual which is following.

All written instructions within the manual not provided by the manufacturers shall be type- written with a margin on the left-hand side.

One copy of the Draft Manual is to be issued to the Engineer / Project Manager for comment / approval two weeks before the Practical Completion date, in compliance with the Construction (Design and Management) Regulations. The comments or approval shall be given within five working days of their receipt by the Project Manager / Engineer.

The arrangements of the manual shall be as follows:

SECTION ONE

Index

SECTION TWO

Description of the design intent.

SECTION THREE

Description of the operational routines.

The description must include step by step instructions on starting and stopping each plant or system.

In addition, a simple instruction sheet shall be included giving fundamental guidance on starting/stopping the plant. This description shall also be mounted in the glazed frame in an agreed position.

SECTION FOUR

Planned Maintenance Instructions.

Instructions must include written step by step instructions on the maintenance of all items of plant. Data shall also be provided for ordered replacements. Full sets of Manufacturer's Maintenance Instructions including wiring diagrams and typical fault-finding routines.

SECTION FIVE

A set of Record Drawings in A3 and A1 size and Test Certificates. The record shall include schematics of the complete installation inclusive of controls.

Full details of all plant and equipment including order/number, date, catalogue reference, makers/suppliers name, address, and telephone number. This shall be produced in the form of a schedule with the location of the plant indicated.

A USB Memory Stick containing the following information shall be issued with the record documents:

- All record Drawings in AutoCAD or current edition 'DWG' File format or equivalent.
- All Record drawings in 'PDF' format.
- All text and schedules from the Manual in Microsoft Word/Excel format.
- All copies of the test certificates shall be scanned and included on the memory stick.

SECTION SIX

Emergency measures, including telephone number of Contractor's emergency staff. Names, addresses and telephone number of all manufacturers and statutory authorities, i.e., gas board, electricity board and water board.

1.4.16 Handover

One full working week before practical completion (or in an agreed time frame with EQUANS) the Contractor shall:

- Inspection to witness the operation of any remaining controls or systems.
- Prepare a list of defects for review by the Engineer / Project Manager, any works not listed, outstanding or not completed to the satisfaction of the Engineer / Project Manager will be cleared for inspection before the handover meeting.
- Issue of the three approved completed copies of the Operating and Maintenance manuals and Record drawings.
- Completed to the satisfaction of the Client a practical demonstration and instruction on the operation of the system.

1.4.17 Practical completion

Practical completion shall be subject to the Contractor successfully demonstrating/providing the following:

- Achieved completion of the works and commissioned the same to the satisfaction of the Engineer / Project Manager.
- Made, in the presence of the Engineer / Project Manager, the tests specified or reasonably required by the Contractor.
- Handed to the Engineer / Project Manager the record documents in accordance with this specification.
- Instructed the Client staff in the use and correct operation of the installation.

1.5 List of Drawings and Specifications

Refer to the RED drawing issue register for a full list of design drawings and specification documents.

2.0 Specific Requirements

2.1 Description of Existing Services

2.1.1 External Lighting

The external lighting for Wood Green Crown Court is provided via the existing LV system. The external lighting comprises of a mixture of columns, bollards, wall lights and brick lights to provide illuminance to Wood Green Crown Court.

The luminaires are controlled via photocells and timeclocks within the building. The luminaires are supplied via conduits below ground.

2.1.2 Electrical Supply

The main building LV switchboard is located in the building. All supplies for the external lighting are supplied from dedicated circuit protective devices within a distribution board, in LV switchboard, switching on when the photocell and timeclocks have been activated.

2.2 Description of Scope of Works and Related Services

This MEP Performance specification is for the external lighting replacement at Wood Green Crown Court building, with the scope being limited to:

- Replacement of external lighting fixtures throughout external site.
- Removal of redundant luminaires not being used.
- Replacement of the existing wiring to the external lighting positions, with existing conduits reused.
- Verification of the supply details for all the new external luminaires to ensure compliance with the existing supply allocation.
- Replacement of existing MCBs to be replaced as required for the rating of new luminaires.

The proposed works are to be undertaken externally throughout the site.

The Contractor is to note that this is an outline schedule of works only, designed to assist the Contractor in preparing their tender.

The Contractor shall develop their own programme and identify any issues with regards to the planning of works as described within this specification. The schedule and sequence of works shall be agreed with the Client, Engineer, and Project Manager prior to submission of the tender cost.

The scope of works shall be generally as follows:

- Site Visit and Validation works prior to commencement.
- Survey the existing electrical installation and confirm circuit breaker sizes and external duct routes.
- Trace the existing routing for the external lighting fixtures.
- Isolate and strip out the existing wiring for the external lighting fixtures.
- The Contractor shall carry out all the necessary strip out works as described within this Specification.
- Install new external lighting fixtures throughout site as indicated on the Tender drawings. Contractor to utilise existing conduits when routing the new cabling to the new external lighting fixtures where possible.
- All external lighting not being removed and stripped out is to be protected at all times during the proposed works.

- Installation of new wiring, isolators and protective devices to serve the new external lighting.
- All other necessary works to accommodate the above.
- Undertake full testing and commissioning of all the new installed services.
- Undertake all the builders work and fire stopping necessary to complete the works.
- Production of new record drawings and documentation to update the existing Operation and Maintenance Manual.
- Following completion of the installation works, the client and client design team are to be offered the commissioned installation for witnessing and snagging.

The proposed works will need to be phased so that the site shall remain operational at all times and there shall be no disruption to the Courts daily routines or sensitive areas.

The Contractor shall acquaint themselves with all necessary information, building fabric details, access, existing utilities etc. together with reference to this schedule and in conjunction with any plans and associated drawings stored on site to distinguish the extent and understanding of the work required and the co-ordination of existing services.

No claims for extra payments will be made for lack of knowledge of these conditions.

The Contractor shall be responsible for the design, supply and installation of the works described herein.

2.3 Submission requirements

Information shall be provided by the Contractor as follows.

On the tender return date

Initial project proposals including method statement and outline specification for the execution of the works.

- Detailed cost proposals for the works – Please return the Pricing document in Excel format.
- Critical path programme (to include lead in times)
- Information required by the Principal Designer at tender stage.
- COVID 19 policy
- Confirmation of any delays / risks in association with COVID-19

Prior to starting on site

- Detailed project proposals for the works including detailed construction drawings, schedules, specification, developed Construction phase H&S plan, RAMS.
- Agreed contract sum.
- Updated contract programme
- Confirmation of access proposals agreed with site staff.

2.4 Preliminaries

The Contractor shall allow for all prelims required to undertake the works and shall allow for the following within their submission:

- Site Supervision – Non-Working Foreman
- Waste Management – Lockable Skips and Container as required
- Site Welfare & H&S
- Loading & Unloading Materials and Equipment

- Hire equipment
- 110v site power
- Design
- Site Lighting as Required
- Builders Work In Construction
- Site Meetings

2.5 Services Installation, Maintenance and Replacement Strategies

The Contractor shall ensure that agreed maintenance and replacement strategies are recorded in the O&M manual.

3.0 Design Criteria and Standards

3.1 Codes and Standards

The works will be executed in accordance with the relevant current British and European Standards, Codes of Practice, Local Authority, and this scheme design specification.

Materials will be incorporated into the works in accordance with the manufacturer's recommendations and requirements. The installations will comply in every respect with the latest versions of the following publications and any others relevant to the works being carried out: -

- Court Service Design Guide
- Courts of the Future Design Guides
- Comply with the requirements of the Local Authority Building Inspector.
- Statutory Obligations.
- Health and Safety at Work etc. Act 1974.
- Management of Health & Safety at Work Regulations 1999.
- HSE L101 Safe Work in Confined Spaces. Confined Spaces Regulations. ACOP.
- Building Regulations and current amendments, and relevant Approved Documents in England and Wales.
- London Building Acts 1939 and/or Building (Inner London) Regulations 1985 and current amendments.
- Electricity Acts.
- The Electricity at Work Regulations 1989.
- HSE HSR25 Memorandum of Guidance on the Electricity at Work Regulations 1989.
- BS 7671 - Requirements for Electrical Installations (IET Wiring Regulations).
- BS EN 50110 -1:2013 Operation of electrical installations.
- The Electricity Safety, Quality and Continuity Regulations 2002 and current amendments.
- Factories Act 1961 and current amendments.
- The Workplace (Health, Safety and Welfare) Regulations 1992.
- The Regulatory Reform (Fire Safety) Order 2005.
- BS 5266-1:2016 Emergency lighting – Part 1: Code of Practice for emergency lighting of premises.
- HSE L24 Workplace health, safety, and welfare ACOP and guidance.
- The Construction (Design and Management) Regulations 2015.
- The Health and Safety (Display Screen Equipment) Regulations 1992 as amended by the Health and Safety (Miscellaneous Amendments) Regulations 2002.
- Control of Asbestos Regulations 2012.
- HSE L143 Managing and working with asbestos. Control of Asbestos Regulations 2012. ACOP and guidance.
- The Provision and Use of Work Equipment Regulations 1998 (PUWER).
- HSE L22 Safe use of work equipment. Provision and Use of Work Equipment Regulations 1998. ACOP and guidance.
- Personal Protective Equipment at Work Regulations 1992.
- HSE L25 The Electricity at Work Regulations 1989. Guidance on Regulations (Third edition, 2015).
- The Lifting Operations and Lifting Equipment Regulations 1998.
- HSE L113 Safe use of lifting equipment. Lifting Operations and Lifting Equipment Regulations 1998. ACOP and guidance.
- The Equality Act 2010 and current amendments.
- Public Utility Company and/or Statutory Authority regulations, specifications, and requirements.
- Insurance Company Requirements.
- BS EN 12464-2: 2014 Light and Lighting – Lighting of work places Part 2: Outdoor work places
- CIBSE Lighting Guide LG6 The Outdoor Environment

The tender shall be based on the regulations current at the date for return of tenders. If these regulations are amended or new regulations enacted after the date for the return of tenders the Contractor shall immediately inform the engineer.

4.0 Enabling Works

4.1 Validation Works and Visit To Site

It is deemed essential that the Contractor visits the site to thoroughly understand the nature of the work and the conditions under which the work will be executed.

The Contractor shall make due allowance within their tender return for the detailed surveying of the existing external lighting installation to identify the existing luminaires and services routes for the site. The survey findings shall be used by the Contractor to develop their services detailed design drawings and associated services installation drawings.

The Contractor is to carry out external lighting calculations for the purpose of selecting the correct luminaires for the site.

Prior to any works being undertaken, the Contractor is to trace the existing external lighting duct routes to identify the locations, cable condition and routing. The Contractor is to confirm the current state of the services and report these to the Client and Design Team.

The validation works shall form part of the pre-construction works, commencing as soon as the Contractor is appointed but before the production of full installation information.

Any issues relating to the external lighting installation raised or damages to the current installation after the completion of the validation works shall be deemed to be the responsibility of the Contractor, who shall be required to rectify them without cost or delay to the project.

The Contractor is to provide the new external lighting with suitable electrical power supplies as per manufacturers requirements. The Contractor is to verify the supply details for all the new luminaires to ensure compliance with the existing incoming supply allocation.

Any modifications to the installations by the Contractor shall in no way compromise the performance of the systems to achieve the aforementioned design criteria.

4.2 Strip Out Works

The Contractor shall allow for safe isolation, de-commissioning, and stripping out of the obsolete external luminaires and associated circuits located within the site boundary of Wood Green Crown Court (except the existing containment which shall be re-used for new control wiring).

The Contractor shall allow for all external luminaires and equipment not being removed and stripped out to be protected at all times during the proposed works.

5.0 Electrical Services

The Contractor shall design, supply, install, test, commission and set to work all the necessary electrical connections and supplies as required to complete the external lighting installation works as shown on the tender drawings.

The new electrical supplies shall be wired from the local distribution board with LSZH cables and terminated within the protective devices fused connection units associated with the external lighting.

The Contractor shall ensure all existing services shall be left coordinated and be operating normally following the completion of the works.

5.1 General

The external lighting installation shall be retained, modified and added to meet the new external layout and to be in accordance with BS EN 12141-2 and as outlined below. Refer the external services layout drawing for the modifications to be made to the external lighting layout.

The external lighting shall be provided for the parking areas to allow safe movement of traffic and personnel.

The contractor shall replace the existing flood lights, bollards, brick lights, wall mounted luminaires and columns with a new LED equivalent. Where the wall mounted luminaires are concerned, the existing positions shall be retained.

Where applicable, existing shrubs in front of flood lights to be trimmed and/or removed in increased light distribution.

The contractor shall provide 180° shields to be provided for bollards to avoid illuminating green areas.

Where applicable, the contractor shall replace redundant bollards with 4m column lights as per the external lighting layout.

The contractor shall remove the CCTV mast mounted flood light as per external lighting layout.

The contractor shall retain the 2No. wall mounted luminaires at court entrance.

All external luminaires shall be low energy LED type.

Consideration to be given to minimising the light pollution when selecting luminaires and the method of installation. External luminaires are to be provided at 2700K as per ecologists requirements.

All existing photocells and time switches to be replaced with new photocells and digital devices.

Luminaires to be installed so that the positions do not affect the nearby residential areas.

The Contractor is to replace the existing supplies and rewire to the new external luminaires as per manufacturers requirements.

The contractor shall strip out the existing wiring to the external lighting positions as indicated on tender drawings, with existing conduits reused.

The existing circuit protective devices within the distribution board shall be re-used to feed the new luminaires. Existing MCBs to be replaced as required for the rating of new luminaires.

The Contractor is to verify the supply details for all the new external luminaires to ensure compliance with the existing supply allocation.

5.2 Power supplies

All cables shall be CE marked and BASEC approved. The Contractor shall include within the technical submittal details of the cables to be used prior to purchase or installation.

Allowance shall be made for all the necessary cable glands, terminations, earth rings, shrouds and cable markers to complete the installation.

The Contractor shall provide cable labels fixed at both ends of each cable and at appropriate interval, (e.g. transition through walls, levels, fire barriers etc.) to clearly indicate the size, type and identification number of the cable.

The circuit protective conductor shall be provided by an additional copper cable core or separate LSF single core cable sized to BS7671. Cable armouring shall not be the sole method of circuit protective conductor.

All cables shall be supported on metallic containment or clipped utilising metallic tie wraps to comply with the requirements of BS7671 clause 521.10.202.

The distribution board schedules and labelling shall be updated as required to reflect the changes to the existing installation.

5.2.1 Calculations

The Contractor shall carry out full lighting and cable sizing calculations for all sections of the design and make these available for review by the Client throughout the design period. This shall include incorporation of lux levels, thermal current ratings, voltage drop, clearance time of protection devices, absolute discrimination of all protective devices, system availability calculation, power factor and harmonic estimations and fault levels at all positions in the electrical system. Cable spacing, support and containment system capacities are to be provided.

The Contractor shall carry out volt drop calculations on all LV circuits and ensure that target voltages are maintained for proper operation of equipment.

5.2.2 Discrimination Study

The Contractor shall be responsible for undertaking a discrimination study to ensure that all new protective devices provided under these works fully discriminate with the existing installation. The output data from this study shall be provided to the Client or their representative prior to being implemented by the Contractor.

5.3 External Lighting

NOTE: The uniformity for some areas within the site DOES NOT COMPLY with BS 12141-2 due to restrictions with the existing luminaire locations. Deviation to be agreed with Client.

The design internal illumination standards shall be:

AREA	ILLUMINATION LEVEL	UNIFORMITY	GLARE
Meduim Traffic; e.g. parking areas of department stores, office buildings, plants, sports and multipurpose building complexes	10	0.25	50
Walkways exclusively for pedestrians	10	0.40	50
Traffic areas for slowly moving vehicles (max. 10 km/h), e.g. bicycles, trucks and excavators	50	0.40	50

Illumination level shall be measured at 0.00m.

Maximum obtrusive light permitted for exterior lighting installations shall not exceed those outlined in BS EN 12464;

ENVIROMENTAL ZONE	LIGHT ON PROPERTIES		LUMINAIRE INTENSITY		UPWARD LIGHT RATIO	LUMINANCE	
	Ev	Ix	I	cd	RUL	Lb	Ls
	Pre-curfew	Post-curfew	Pre-curfew	Post-curfew	%	cd m ⁻²	cd m ⁻²
E1	2	0	2500	0	0	0	50
E2	5	1	7500	500	5	5	400
E3	10	2	10000	1000	15	10	800
E4	25	5	25000	2500	25	25	1000

where

E1 represents intrinsically dark areas, such as national parks or protected sites;

E2 represents low district brightness areas, such as industrial or residential rural areas;

E3 represents medium district brightness areas, such as industrial or residential suburbs;

E4 represents high district brightness areas, such as town centres and commercial areas;

Ev is the maximum value of vertical illuminance on properties in Ix;

I is the light intensity of each source in the potentially obtrusive direction in cd;

RUL is the proportion of the flux of the luminaire(s) that is emitted above the horizontal, when the luminaire(s) is (are) mounted in its (their) installed position and attitude, and given in %;

Lb is the maximum average luminance of the facade of a building in cd m⁻²;

Ls is the maximum average luminance of signs in cd m⁻².

In case no curfew regulations are available, the higher values shall not be exceeded and the lower values should be taken as preferable limits.

5.1 System Description

All luminaires shall be suitable for the installed environment (IP65 minimum, vandal resistant, tamperproof fixings).

External lighting shall be controlled by a combination of manual switch, timeclock and photocell.

5.2 Containment

The Contractor shall include for the provision of all support and fixing systems necessary.

Where containment penetrates external walls of the building the Contractor shall allow for appropriate water-proofing seals to be provided.

The Contractor shall include for the provision of manufacturers bends, accessories, support and fixing systems. All containment supports shall be metallic.

Mechanical protection in the form of metal conduit shall be provided to all surface mounted accessories.

5.3 Earthing & Bonding

All exposed conductive parts of the electrical mechanical and structural installations and all extraneous conductive parts shall be bonded together to form an equipotential earth cage so that in the event of a fault of negligible impedance, disconnection of the electrical supply shall take place in a manner and in such time as to ensure no danger arises.

6.0 Testing and Commissioning

6.1 General Testing and Commissioning Requirements

The Contractor shall carry out testing and commissioning in accordance with procedures stated in the following guidance and recommendations:

- Latest relevant British Standards and Regulations.
- BS 7671 (the latest edition) IET Wiring Regulations.
- BS 9999:2017 Fire safety in the design, management, and use of buildings. Code of practice.

6.2 Method Statements

The Contractor shall provide the Engineer with full and detailed method statements for the pre-commissioning, setting to work, commissioning, testing and handover procedures to be applied to the whole of the works.

Where specialists are required to undertake the works, the Contractor shall obtain similar documents from them and incorporate them into the Works Method Statement.

Include within the method statement, the following:

- Logic diagram of the process flow
- Outline programme, detailed programme(s) to be added as the document develops
- Copies of all check lists, record sheets, etc. proposed for use. Ensure all are clearly specific to the project and complete with design information and schematic drawings
- Permit to work systems and documentation
- Details of works by others on which the Contractor depends on being complete and at what time to maintain programme progress
- Proposed off site testing
- Proposed completion of work in zones
- Proposals for quality control of the work prior to offering to the Employer's Agent.
- Handover, demonstration, and training

The Contractor shall submit the method statement for testing, commissioning, and handover within one month of the contract award and shall regularly update thereafter to incorporate the MEP Engineers comments and/or ongoing developments.

The Engineer reserves the right to request additional method statements from the Contractor for any other aspect of the works, at his discretion at no additional cost.

6.3 Site Tests

A visual inspection shall be made of the installed equipment before any tests are carried out to confirm the following:

- Correct selection and erection of materials and workmanship
- Signs of damaged which may impair safety

This inspection shall be completed with the part of the installation under inspection disconnected from the electrical supply.

During construction of the works the Contractor shall undertake all necessary tests to ensure compliance with regulations and the specifications relating to the works.

Where any part of the installation is to be concealed within the building fabric tests shall be made to ensure that the installation is satisfactory prior to concealment.

The Contractor shall keep a record of the results of each test on site. Such records shall include details of sections tested, remedial measures taken, sections of works replaced.

Upon completion of the works the whole installation shall be subjected to the tests detailed within the relevant specification for the item of works and as detailed on the MEP Engineers Inspection sheets. Every defect shall be noted, corrected, and brought to the notice of the Employers Agent. Prior to final acceptance of the installation, all tests shall be repeated either in whole or in part and witnessed by the Engineer to his full satisfaction.

The Engineer shall be issued with detailed method statements for each test 14 days prior to carrying out the works. The method statements shall detail the following: -

- Health and safety issues
- Instruments to be used and their calibration certificates
- Sequence of tests to be carried out
- Documentation, which will be provided to record results. This documentation shall be fully completed with all design information.

All tests shall be executed within the programme of building works.

All labour, communication two-way radios and test instruments shall be provided by the Contractor for carrying out the tests. The instruments shall be correctly calibrated and certified for the limits of accuracy required and shall be operated by competent persons, trained in the use of the instruments. Calibration certificates for the instruments shall be attached to the test certificates. If in the MEP Engineers opinion, a particular instrument is not suitable then an acceptable alternative shall be provided.

The Engineer shall be at liberty to demand the use of any testing instrument or apparatus that he may reasonably consider to be necessary in the execution of the testing.

In the event of the works being incomplete and causing a postponement of the notified verification of test date or the installation failing to pass the test the Employers Agent shall be at liberty to deduct from the contract price all expenses incurred by him and the Engineer, in attending the repetition of the tests.

6.4 Commissioning

Following the completion of the installation works, the Contractor is to commission all the new external lighting as described above. The client and client design team are to be offered the commissioned installation for witnessing and snagging.

During system commissioning, the Contractor shall verify the correct operation of the whole installation to ensure that it is operating in accordance with the specified conditions and that the systems achieve the environmental conditions required shall carry out commissioning.

Upon completion of all testing and commissioning, the Contractor is to show that the equipment, materials, and installations have been tested and commissioned shall provide two copies of the commissioning certificates.

Each certificate shall be signed by the Contractor and submitted to the Engineer within 14 days of the results being obtained. Signed copies of certificate shall be included within the operating maintenance manuals.

The following tests shall also be witnessed:-

- External Lux Level testing
- New LV installation testing.

The results of the tests shall be recorded, and duplicate copies handed over to him for acceptance, and included in the Operation and Maintenance Manuals.

The following test certificates shall be provided:-

- An NICEIC electrical test certificate.

The Consultant shall be invited to snag the works prior to Practical Completion and the Contractor shall allow the necessary time to clear snags within their programme.

The Contractor shall provide, at his own cost, unless stated to the contrary, all water, power, fuel, labour etc, necessary for all testing and commissioning of the plant.

6.4.1 Equipment Warranties

Manufacturers' guarantees and warranties for material and products shall be provided valid up to the end of the Defects Liability Period:

WARRANTIES	COMMENCING FROM	DURATION
Equipment and material manufacturers' guarantees and warranties	Practical Completion	12 months
Extended guarantees for repair under Defects Liability Period	Date of repair	12 months
Extended guarantees for specific equipment:	Practical Completion	12 months

7.0 Handover and Aftercare

The record information shall be prepared in accordance with the requirements of this specification and all services shall be treated as if new. Therefore, the installation being retained shall be provided with operating and maintenance instructions and detailed on the record drawings.

Record drawings shall be prepared using Auto CAD software and provided on a USB Storage Device containing the O&M's.

The complete documentation required at handover, shall include all certificates, and incorporate all services.

Contractor shall make allowance to produce the working drawings to be submitted to the project manager prior to the installation of new services.

Contractor shall allow for carrying out verification of the installed systems to the project manager and demonstration of the installed system to Client /End User.

Upon completion of the works, the Contractor shall hand over 2No. Copies (1 hard copy and 1No USB Memory Stick) of an operating and maintenance manual which shall contain, but not be limited to, the following information:

- Materials and Systems used
- Emergency contact numbers
- Procedures for fault finding
- Emergency procedures.
- System description.
- Certification
- Manufacturer's maintenance instructions and contact details.
- Revised and new distribution board charts.
- NIC/EIC completion certificate
- As fitted drawings
- All test results.

A copy of the manual and record drawings shall be provided electronically on USB Memory Stick and a complete copy of the O&M to be provided in 1No PDF document.

A draft copy of the manual sufficient for the safe operation of the systems installed shall be available upon handover. A final copy shall be submitted to the PM within 14 days of handover.

7.1.1 Training and Demonstration

The Contractor shall ensure full training is provided and demonstration of all new systems installed. Structured training with signing sheet to be provided.

7.1.2 Deep Clean of Area on completion

The Contractor shall ensure all working areas are fully cleaned prior to handover.

7.1.3 Upload to Clients Document Storage Portal

The Contractor will be expected to upload the soft copy of the O&M manual to the clients online document storage portal – Access will be granted on appointment to a contractor nominated person. Note that there is

a “File Name Builder” that must be used, guidance will be given. Note that it is essential that 1No PDF document be provided to limit the number of file building names given.