MLM CRAYFORD

Unit Two 114,945 Sq Ft GEA

INDUSTRIAL / LOGISTICS UNIT
PC Q4 2025

Tech Pack

CRAYFORD LOGISTICS PARK
CRAYFORD CREEK ROAD
CRAYFORD
DARTFORD
DA1 4GR

Driven by a bold vision for the future, MLM CRAYFORD is purpose-built to support businesses that value performance, resilience and environmental responsibility.

CONTENTS

STOFORD

AXEL LOGISTICS

STOFORD AXEL LOGISTICS

- Available for occupation Q4 2025 with options for tenant fit out prior to practical completion.
- Market leading specification including Carbon Net Zero in Whole Life Cycle, BREEAM Outstanding and EPC A.
- Mezzanine areas included within the base build to maximise operational efficiencies.
- Planning consent for B8 and B2 uses.
- Urban location with excellent links to the South East and Greater London road network.

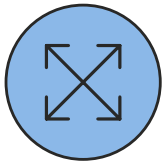
Indicative Image

CONTENTS

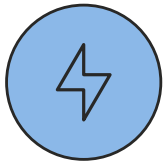
12 Dock
Level Doors

69 Car Parking
Spaces

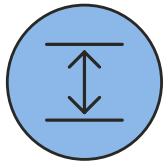
Grade A
Three-Storey Offices



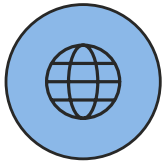
50m Yard
Depth



1 mVa
Power

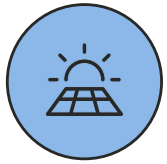


12.5m Eaves
Height

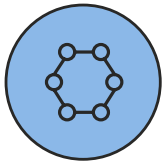


BREEAM
Outstanding

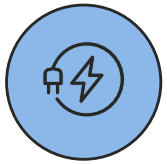
EPC
Target A



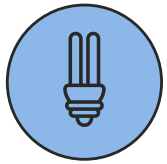
Photovoltaic
Panels



Carbon Neutral -
Whole Life Cycle

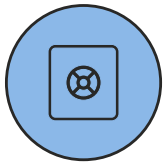


EV
Charging



Energy Efficient
LED Lighting

Bike
Storage



Air Source
Heat Pump

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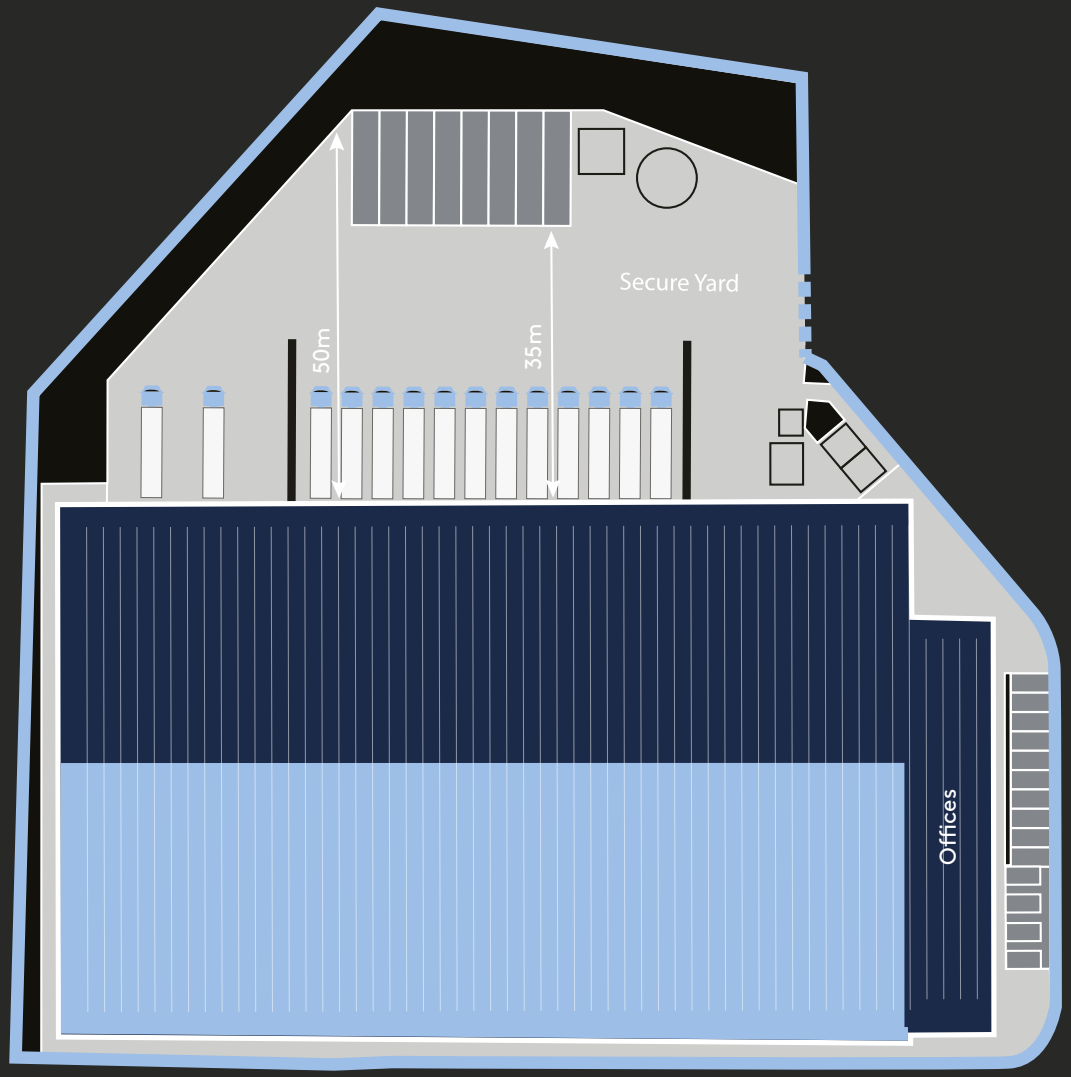
Unit Two 114,945 Sq Ft

Unit One	Sq Ft
Warehouse	91,316
Ground Floor Offices	1,334
First Floor Offices	6,160
Second Floor Offices	6,160
Mezzanine	9,975
Total	**114,945**

(Gross External Area)



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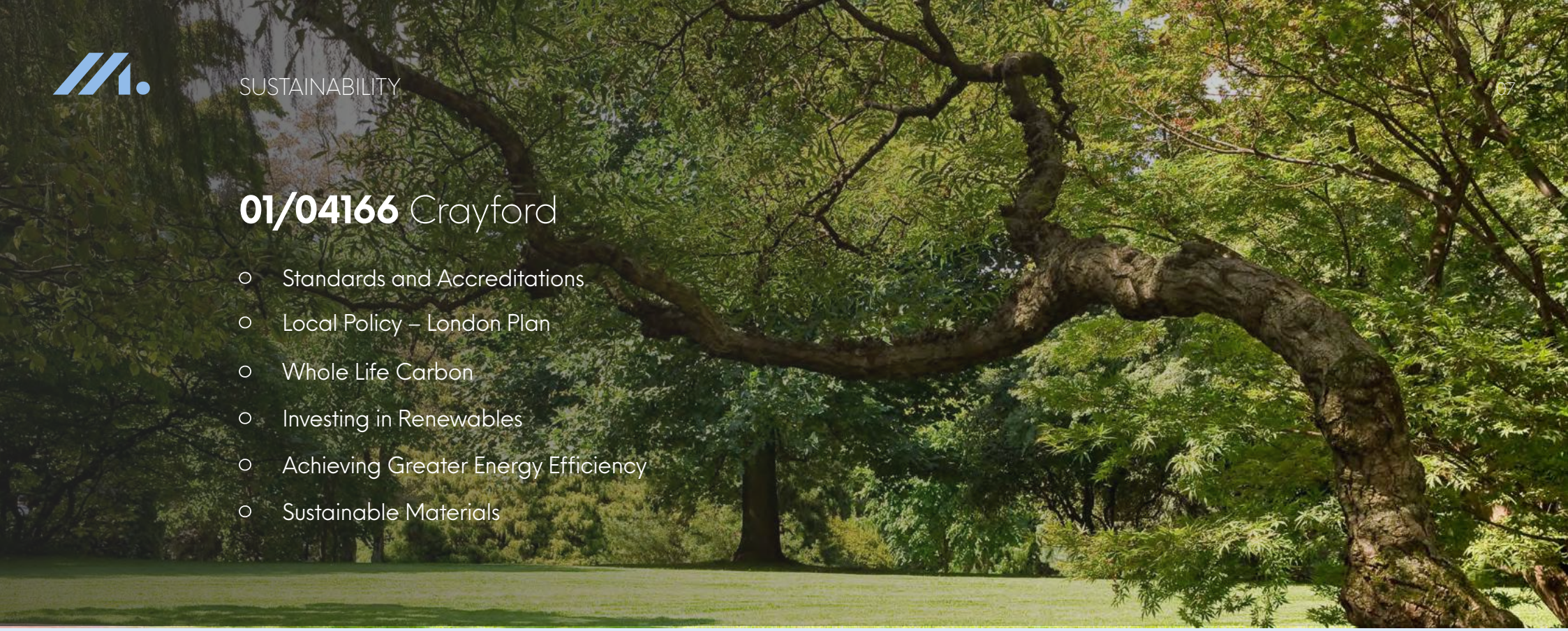

01/04166 Crayford

- Standards and Accreditations
- Local Policy – London Plan
- Whole Life Carbon
- Investing in Renewables
- Achieving Greater Energy Efficiency
- Sustainable Materials

Standards and Accreditations

EPC A Unit Two
EPC A+ Unit Two Office

2.08 Target Emission Rate (kgCO2/Year)

1.26 Building Emission Rate (kgCO2/Year)

39.4% Percentage Betterment

CONTENTS

Local Policy – London Plan

Be Lean.

Use Less Energy

Be Clean.

Supply Energy Efficiently

Be Green.

Assess Low or Zero Carbon

Be Seen.

Monitor and Report Operational Energy

- 35% carbon emission reduction to London Plan targets following the energy hierarchy in the diagram opposite.
- Remaining 65% carbon emission saving achieved via investment in offsetting projects which deliver tangible carbon savings that will contribute to London becoming a zero-carbon city
- Development therefore achieves 100% reduction in carbon emissions (for regulated use)

Whole Life Carbon

BREEAM Target Outstanding

87.05% Baseline Score
91.54% Potential Score

CONTENTS

Investing Renewables

401 PV Panels on Unit Two

64,160 kWh Annual Yield for Unit Two

Batteries Linked To PV

- Sized to store a minimum 10% of the PV kWp (kilowatt peak output)
- Batteries can store renewable energy for use outside of generation hours or when grid electric prices are high during peak demand periods

Future Proofing

- Roof area future proofed to support extension of the PV panel system
- Dedicated service way to facilitate a future district heating system connection to each building

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Example PV Panel Cost Savings

Base Build

Unit	Base Build PV amount (m2)	Annual Yield (160kWh/m2)	Annual Cost Savings on Direct Electric (£0.22/kWh)	Annual Cost Savings on Direct Electric (£0.31/kWh)	Annual Cost Savings on per Additional 100m2 of PV (£0.22/kWh)	Annual Cost Savings on per Additional 100m2 of PV (£0.31/kWh)
2	401	64,160 kWh	£14,115	£19,890	£3,520	£4,960

Full Roof Potential PV Provision (Inc Base Build)

Unit	PV Amount (m2)	Annual Yield (160kWh/m2)	Annual Cost Savings on Direct Electric (£0.22/kWh)	Annual Cost Savings on Direct Electric (£0.31/kWh)
2	1,608	257,280 kWh	£56,601	£79,757

CONTENTS

- Achieving Greater Energy Efficiency

Air Source Heat Pump
Heating and Cooling

Heat Recovery
Fresh Air Ventilation

LED
Lighting

7.2kW Electric
Vehicle Charging

CONTENTS

284,754

The population of Crayford and the surrounding Bexley Borough.

483,000+

People live within a 5 mile radius of site.

72.3%

Of the local population are economically active.

6,930

People locally are employed in the manufacturing sector.

6.3%

Of the population are employed in the transport and storage industry, higher than national average.

CONTENTS

	Unit Area (GIA-sq m)	Unit Area (GIA-sq ft)	Estimated Total RV	Annual Rates Payable 24/25 (£0.566)	Rates Payable £/sq m	Rates Payable £/sq ft
Unit 2 Business Rates	10,170.09	109,470	£1,112,074.00	£629,434.00	£61.89	£5.75

	Unit Area (GIA-sq m)	Unit Area (GIA-sq ft)	Estimated Annual SC	Estimated Annual SC (£/sq m)	Estimated Annual SC (£/sq ft)
Unit 2 Service Charge (SC) Costs	10,170.09	109,470	X	X	X

CONTENTS

MLM Crayford is in close proximity to a number of commercial ports and airports catering to the South East and London supply chain and benefits from outstanding transport links to Central London via the A2, A20 and A13.

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Whether for logistics, employee commutes or customer access, the unit is exceptionally well-placed. Below are typical drive times to nearby transport hubs, road links and local amenities:

Nearby Locations	Distance
Dartford Town Centre	2.3 Miles
Dartford River Crossing	4.4 Miles
Woolwich Ferry	9.6 Miles
Blackwall Tunnel	10.6 Miles
Central London	16 Miles

Airports	Distance
London City Airport	14.2 Miles
Gatwick Airport	36 Miles
Heathrow Airport	57 Miles

Shopping Centres	Distance
Bluewater	0.8 Miles
Lakeside	8 Miles

Ports & Terminals	Distance
Tillbury Docks	14.2 Miles
London Gateway	36 Miles
Channel Tunnel	57 Miles
Dover Channel Crossing	63 Miles

Road	Distance
M25 Junction 1B	2.8 Miles
Dartford Crossing	3.7 Miles

Rail	Distance
Crayford Station	0.8 Miles
Slade Green	2.3 Miles

Town Centre	Distance
Crayford	0.2 Miles

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Indicative Image

STOFORD

Founded in 1996, Stoford specialise in occupier led pre-let commercial property developments. We are a privately owned company with all the shareholders taking an active role in the running of the business.
Working in partnership with occupiers, landowners and investors, our committed team have developed in excess of 14m sq ft throughout the UK, including industrial, office, retail and hotels. Our high quality schemes have been recognised at industry level, achieving a number of prestigious awards.

Our innovative approach to site and contract procurement, coupled with an in-depth understanding and experience of occupier requirements, has ensured that we remain highly competitive and able to deliver a quality product on time and within budget. Our experience of market demand gives us an unrivalled knowledge of the latest occupier requirements, and we are proud to have been trusted to develop for some of the UK's largest financial institutions and occupiers.

CONTENTS

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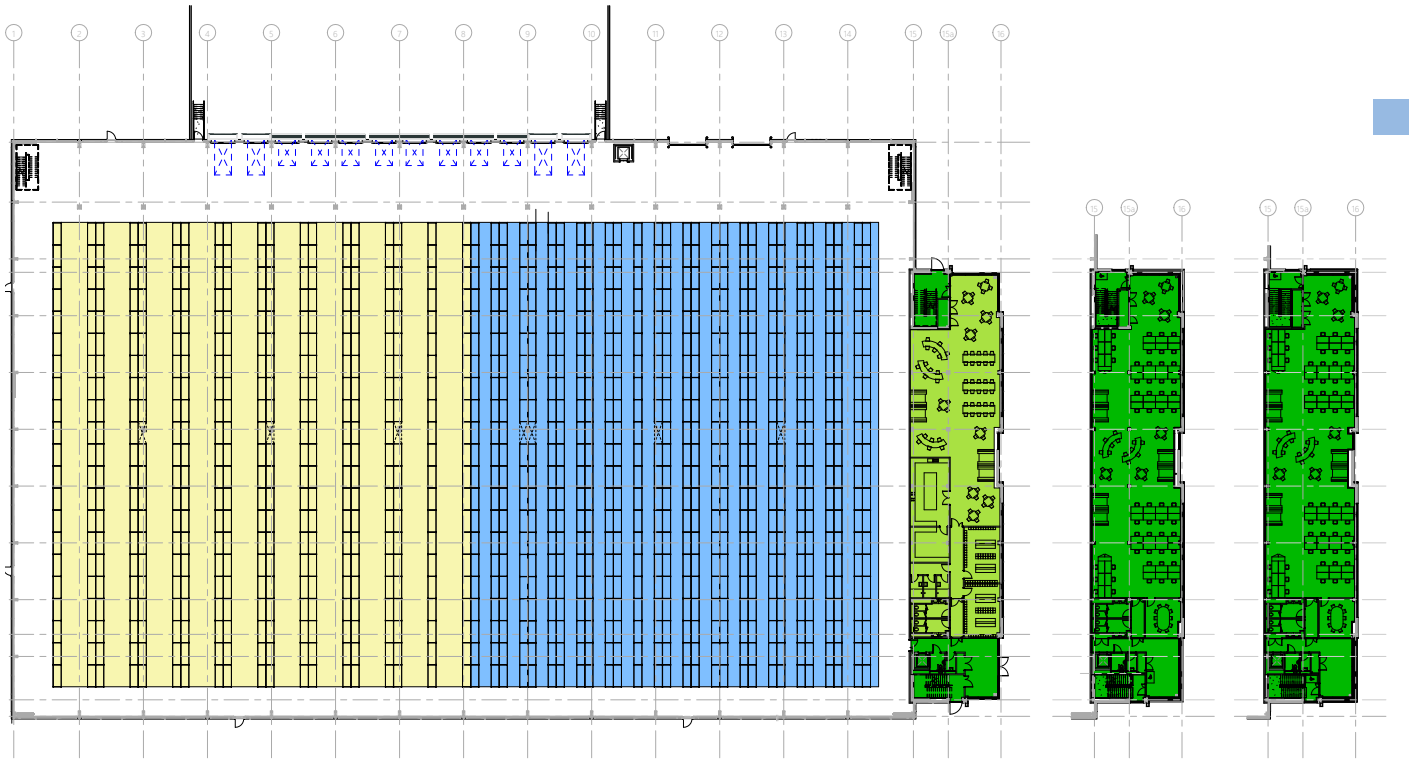
CONTENTS

Unit 2 - Racking Options - VNA and Standard



General Floor Plan
1 : 250

First Floor Plan
1 : 250

Second Floor Plan
1 : 250

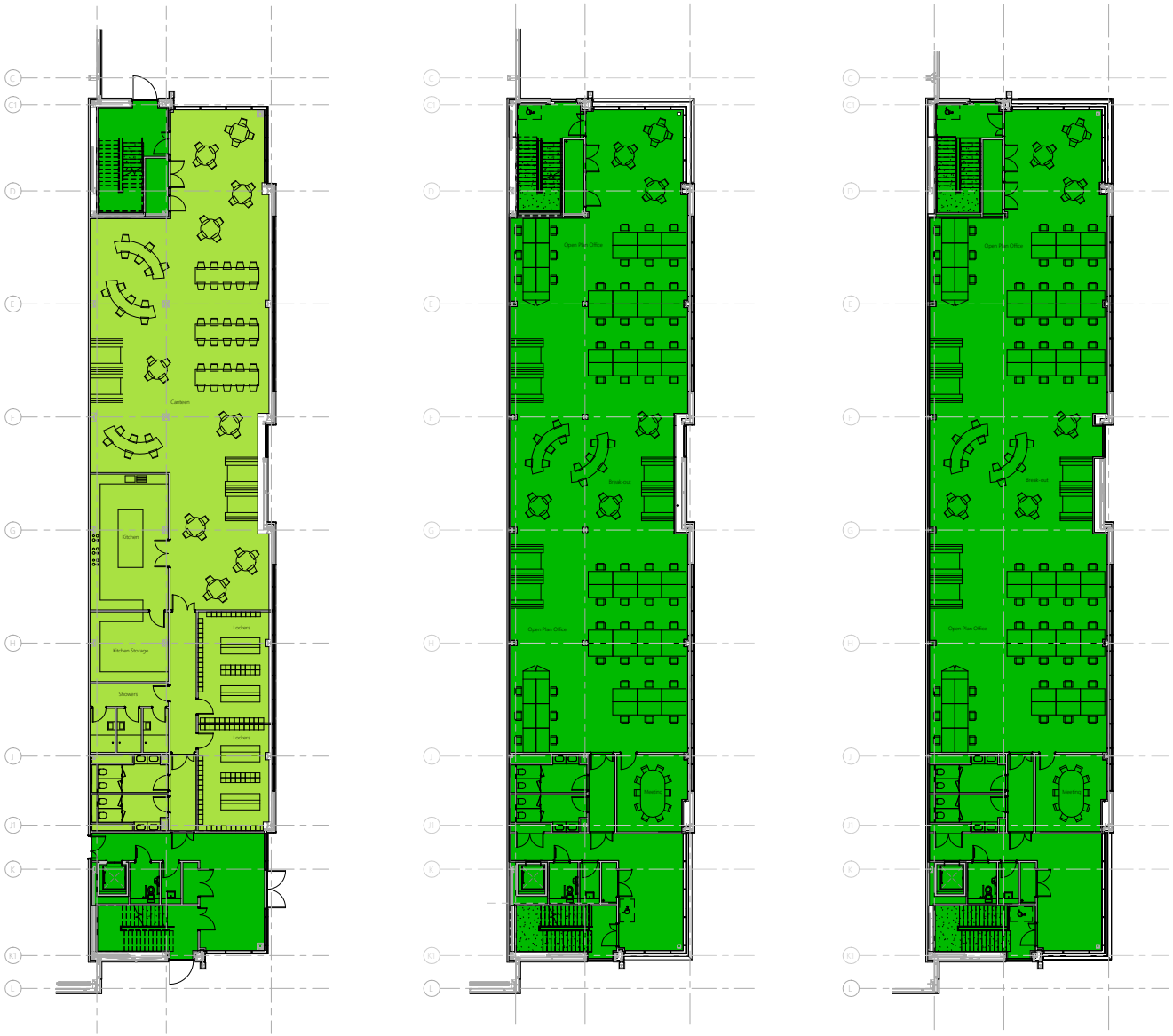
Mezzanine First Floor
1 : 250

Racking with standard aisles (3.2m wide) pallet capacity: c. 4,998 (50% of total area)

Racking with very narrow aisles (1.5m wide) pallet capacity: c. 8,200 (50% of total area)

CONTENTS

- Unit 2 - Office Plan



CONTENTS

1. Project

- The works, as indicated on the drawings list in Section 1.4, comprise the construction of warehouse units with Mezzanine, offices and undercrofts totalling 303,585ft2 gross internal area (GIA):-
- Unit 001, warehouse 131,400ft2, mezzanine 8500ft2 & office over Gf,1st & 2nd floors 22,518ft2 Inc. GF undercroft, totalling 162,420ft2 with a warehouse height of 15m to underside of haunch.
- Unit 002, warehouse 82,580 ft2, mezzanine 9,500ft2 & office over Gf,1st & 2nd floors 17,373ft2 Inc. GF undercroft, totalling 109,470ft2 with a warehouse height of 12.5m to underside of haunch.
- Unit 003, warehouse 23,855ft2, mezzanine 3,670ft2 & office over Gf & 1st floors 4,170ft2 Inc GF undercroft, totalling 31,695,ft2 with a warehouse height of 12.5m to underside of haunch.
- External site works include hardstanding's, car parking with a standalone split deck carpark located adjacent to unit 001 offices, retaining walls, landscaping, mains services and drainage.
- The ground floor office fit out is limited to the core areas comprising a reception, evacuation lifts, stairs, and WCs. Any remaining ground floor office area will be left as shell accommodation (undercroft), for later fit out.
- First and second floors to receive full open plan fit out.
- For the avoidance of doubt, heating and lighting is not to be provided to the warehouse/production unit within these works but, for the purposes of Building Regulation approval, it is to be assumed that high-efficacy lighting will be installed at a later date, as part of the first tenant fit-out.

1.1 Design, Materials and Quality Standards

- The work shall be executed in accordance with the relevant current British and/ or European Standards and Codes of Practice whether or not named in this document and unless stated otherwise. In the absence of an appropriate Code of Practice, the development shall be required to conform to current good practice.
- Unless specifically stated as otherwise, any reference to specific manufacturers, products and\or suppliers is made to establish a minimum acceptable level of quality. The contractor may propose alternative manufacturers, products and\ or suppliers of equal or superior quality for approval by the Employer's Agent.
- All materials are to comply with the current, relevant British and/or European Standards and Codes of Practice and are to be incorporated into the works in accordance with the manufacturer's written recommendations.
- The design and construction of the works are to comply with the following statutory requirements to the extent that they apply to the works and/or the anticipated use of the works following completion:
  (a) Any Acts of Parliament and any statutory instruments, rules, orders, regulations, notices, directions, bye-laws and permissions for the time being made under or deriving validity from any Act of Parliament;
  (b) Any European directive or regulations and rules having the force of law in the United Kingdom; and
  (c) Any regulations, orders, bye-laws or codes of practice of any local or statutory authority or statutory undertaker having jurisdiction over the Works

1.2 Prohibited Materials

- Neither the contractor nor his design team shall specify for use or permit to be used any of the following prohibited materials for use or used in relation to the development or any part or parts of it:
  Any materials or substances generally known to be or suspected of being deleterious at the time of specification or use, including, but without limitation substances which have been referred to by the Building Research Establishment at the date of this specification as being hazardous to health and safety or to the durability of the Development in the particular circumstances in which they are used and substances which are not in accordance with current British and/ or European Standard Specifications and Codes of Practice or with the publication entitled "Good Practice in the Selection of Construction Materials" published by the British Council for Offices.

CONTENTS

1.3 Drawings

- This Specification is to be read in conjunction with the following drawings & documents listed below:
- **Site**
  - (002) 8781-WGA-EX-XX-DR-A-002-T-00 Overall Site Layout Plan
- **Unit 1**
  - (1100)-8781-WGA-BR-ZZ-DR-A-1100-T-00-General Floor Plan
  - (1106)-8781-WGA-BR-ZZ-DR-A-1106-T-01-Proposed Elevations
  - (1107)-8781-WGA-BR-ZZ-DR-A-1107-T-00-General Sections
- **Unit 2**
  - (2100)-8781-WGA-BR-ZZ-DR-A-2100-T-00-General Floor Plan
  - (2106)-8781-WGA-BR-ZZ-DR-A-2106-T-01-Proposed Elevations
  - (2107)-8781-WGA-BR-ZZ-DR-A-2107-T-00-General Sections
- **Unit 3**
  - (3100)-8781-WGA-BR-ZZ-DR-A-3100-T-00-General Floor Plans
  - (3105)-8781-WGA-BR-XX-DR-A-3105-T-01-Proposed Elevations
  - (3106)-8781-WGA-BR-ZZ-DR-A-3106-T-00-General Sections
- **Split Deck Car Park**
  - (4100)-8781-WGA-BR-ZZ-DR-A-4100-T-00-General Layout Plans
  - (4104)-8781-WGA-BR-ZZ-DR-A-4104-T-00-Proposed Elevations
  - (4105)-8781-WGA-BR-ZZ-DR-A-4105-T-00-General Sections

1.4 Exclusions / Assumptions

- The following items are specifically excluded;
- All firefighting equipment, sprinkler installations, hose reels and extinguishers and any other firefighting equipment, other than as a requirement of the Building Regulations and/or Bye Laws or the Fire Officer.
- Mechanical, and electrical installations within the warehouse unit, except for those expressly described.
- Accommodation works and welfare areas within the warehouse area.
- CCTV, intruder detection, access control to the units, telephone and data systems.
- Any external signage including support steelwork.
- Canteen/kitchen, catering equipment, servery, and fittings.
- Furniture, furnishings, blind fittings, lockers, shelving, process machinery of any type, racking, skips, vehicle wash equipment including bases, fuel installation including bases.
- All office fit out requirements relating to the ground floor of the office block excluding the reception / lobby core area. Any structures, fixtures and fittings not detailed within this specification.

1.5 Path to Achieving Net Zero Carbon on the Base Build

- The building will be constructed Responsibly and at every stage, consideration will be given to minimising embodied carbon and to reducing energy use in operation. The building will achieve a minimum Energy Performance Certificate rating of 'A' and achieve BREEAM Outstanding.
- The development will minimise annual and peak energy demand according to the energy
- hierarchy: be lean – be clean – be green – be seen.
- The development will achieve the GLA Targets of a 35% Carbon Reduction following the Be Green stage and will offset the remaining carbon emissions to achieve net zero carbon. This is at a rate of £95 per tonne of CO2 over 30 years (£95/tonne/CO2 x 30 years).
- The development will have the facility to monitor and report energy performance post-construction to ensure that the operational energy performance of the development can be reported in line with GLA Be Seen requirements.
- Materials will be sourced from manufacturers holding Environmental Product Declarations (EPDs) wherever possible. Materials with carbon offset credentials will be utilised where appropriate and the supply chains for materials and suppliers will be examined to see they are responsibly manufactured and supplied. A highly efficient thermal envelope design centred around high levels of insulation and air-tightness will reduce the amount of energy required to heat and cool the building. The mechanical and electrical services (see Section 5) will utilise energy in a highly efficient manner.

CONTENTS

- An evaluation of Whole Life Carbon will be undertaken in accordance with BS EN 15978:2011 and GLA requirements and reported at design stage and at post construction to see that the Whole Life carbon is measured and recorded, such that at completion of construction, the Whole Life Carbon value can be certified in line with GLA requirements.
- At post construction, a Circular Economy statement will be undertaken in line with GLA requirements, reporting against the benchmarks and targets established at design stage. This includes an updated bill of materials, lessons learnt and key achievements section in regard to Circular Economy and those targets set at design stage.
- The roof of the building will be strengthened as necessary to see it can support a sufficient area of photo voltaic panels to generate sufficient electrical energy on an annual basis equivalent to the Base-line Operational energy value for the Basebuild only fixed building services calculated at design stage. This may in turn allow in-built off-set of the embodied carbon in the building, but more importantly will allow such a PV installation to be scaled up to match the operational energy demands of the building on an annual basis. A comprehensive metering and reporting system will be provided to permit the energy use to be remotely monitored and verified and the extent of PV required assessed on a regular basis to achieve Net Zero Carbon in Operation over an agreed timescale.

1.6 Secure by Design

- The development is to achieve a Secured by Design issued by the Metropolitan Police in accordance with the Secure by Design Commercial Guide 2023. Approved details are to be submitted and approved in writing by the local authority. (Planning condition 5).

CONTENTS

Sub-Structures

1. Geotechnical Report

- An intrusive Site Investigation including appropriate geotechnical and contamination testing shall be undertaken and the recommendations/results used in the subsequent substructure and foundation design.

1.1 Site Clearance

- The existing site shall be cleared of vegetation and the like prior to commencement of the construction works.

1.2 Earthworks

- Excavation/filling will be carried out over the site to achieve the formation levels over the building and external areas. All filling is to be carried out in strict accordance with the requirements of the Structural Engineer.
- Imported materials will require validation to ensure their geotechnical and chemical suitability for the works. Materials imported must comply with the relevant waste management regulations.
- During the development works, to reduce off-site disposal costs and increase sustainability, site-won materials are to be recycled and reused wherever possible. Site-won materials will require validation by geotechnical testing, chemical analysis and certification to ensure they meet the required specification.

1.3 Ground Improvement

- Specialist sub-contractors will carry out any necessary ground improvement works, in full accordance with the requirements of the Structural Engineer and to the local authority's approval.

1.4 Concrete Foundations

- The foundations for all the load bearing walls, perimeter walls, floor slabs and structural frames shall be designed to take account of the prevailing ground conditions, imposed loading and any relevant statutory requirements; with due margins for safety. The foundation solution shall be designed to control settlement within the limits appropriate to the building's structure, finishes, and floor slab criteria.
- The whole of the substructure work will be carried out to the Structural Engineer's design and approved by the local authority.

1.5 Retaining Walls

- Pre-cast retaining walls, including dock leveller pits and tailgate slots, will be provided to the dock area of the building; all to the structural engineer's details for units 001 & 002
- Where variation of external levels requires the construction of retaining structures, these will be constructed in timber, brickwork, reinforced concrete or proprietary systems to the design of the Structural Engineer and the approval of the local planning authority.

1.6 Ground Floor Slab

- A reinforced concrete ground slab, with a power floated finish, and a minimum thickness of 175mm will be provided to all warehouse ground floor areas within the building. The slab will be designed in accordance with the recommendations of TR34, (4th edition 2013).
- The slab will be constructed such that the top surface is within the construction tolerances, as defined in TR34 as FM2 for free movement, within one month post completion the floor shall be surveyed by profilegraph and formally reported to confirm compliance has been achieved.
- The slab will be designed to accommodate a maximum, uniformly-distributed loading of 50kN/m² together with back to back rack leg loads of 12 tonnes unit 001 & 002, 10 tonnes for unit 003.
- A wire guided MHE truck system may be employed by a future tenant and therefore, reinforcement is not permitted within 75mm of the floor surface.
- The concrete is to be in accordance with the relevant British Standards, seven and twenty-eight day concrete cube test results shall be provided in respect of the ground floor slab to demonstrate that it has achieved its design strength.
- The ground floor slab-wearing surface shall have a minimum abrasion resistance of AR2 for production, warehousing and distribution in accordance with BS 8204-2.
- Where joints are provided in the construction of the floor, they will be, generally, detailed in accordance with TR34 and designed such to limit vertical movement across joints. The number of joints will be kept to the practical minimum. The offset from the centre of load (e.g. rack leg load) to a joint will be a minimum 150mm, with final offset to be determined through the detailed design in accordance with TR34.
- Day joints should be tied or reinforced with Permaban Alpha Joint or similar. All joints are to be sealed just prior to practical completion with sealing compounds having a minimum shore hardness of at least 45. Colour to be agreed.
- The office ground floor slab is to be designed to take a uniformly distributed loading of 15kN/m² with a surface tolerance and finish appropriate to the specified floor finishes.

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External Envelope

1. Structural Frame

- The structural frame will be a steel portal frame, with a minimum clear height to underside of haunch at intersection of haunch and stanchion and any valley beam of 15m for unit 1 & and 12.5m for units 002 & 003. The internal columns to the warehouse shall be provided on a 'hit and miss' basis and shall be free from any diagonal wind bracing etc. Rafters will have a minimum pitch of 6 ° after all due allowance for loading and deflection.
- The steel frame to the offices shall be designed to accommodate the floor to ceiling heights set out under Section 4.7 plus a clear zone above the suspended ceiling for services such as fan coil units, air handling units, comfort cooling units, sprinkler systems etc.
- The steel frame to the mezzanines over the dock leveller areas shall be designed to accommodate the opening requirements of the dock levellers doors. With a UDL of 15kn/m2 with a clear height to accommodate the dock leveller and level access doors as indicated on the architects drawings.
- The frame is to be designed to accept all dead and live loads and wind loads in accordance with all relevant codes of practice applicable to the contract in force at the time of erection and in compliance with the Building Regulations. A minimum loading allowance of 0.25 KN/m2 is to be applied with addition loads of 0.1KN/m2 for sprinklers & a further 0.1KN/m2 for PV's as required. Loads imposed by the siphonic drainage are to be included within the base design. The frame is not designed to FM global standards.
- Steelwork will be shot blasted and primed prior to delivery to site. Any primer damaged following erection will be touched up, using matching primer. The frame will be protected with a paint system designed to BS EN ISO 12944:1998 - Atmospheric-corrosivity category C2 and Expected durability of Medium to High - Colour – Grey. Compatibility between paint systems is to be checked. If remedial works are required to webs, flanges, beams, columns or other steelwork that is visible within the completed building, the whole area of affected steelwork will be coated to provide a uniform appearance.
- Steelwork positioned within an external wall and encased in masonry, or similar semi-porous material with a coating of isocynate pitch epoxy to a dft of 450 microns. Elsewhere, encased steelwork is to receive a coating of isocynate pitch epoxy to a dft of 450 microns. to a level of 150mm above the adjacent damp-proof course.
- Galvanised surfaces of purlins and sheeting rails will be left un-coated.
- To reduce exposure to sharp ends of self drilling screws all sheeting rails within 2.0m of FFL to be installed 'toes down'.
- Where fire protection of structural steelwork is necessary, this will be achieved using intumescing paint or proprietary fire lining board; applied to accord with the requirements of the Building regulations. Intumescing paint will be self-coloured to achieve the nearest match to the remainder of the steelwork. The proprietary fire lining board will be painted to match the remainder of the steelwork.

1.1 Roof Construction

- The roofing will be either a built-up system and/or composite as detailed below; to achieve a 'U' value to meet or better the requirements of the current Building Regulations and planning. GRP, double or triple-skinned, sealed roof-lights will be provided to an area equivalent to a minimum 10% of the warehouse/production floor area or to building regulations. Roof lights will be site assembled and achieve 25 years non-fragility performance rating and system guarantee all in accordance with guidance and requirements of The Rooflight Association.. Note: Roof lights are not LPCB Approved or FM Approved as this is not available.
- The exposed, profiled, steel, roof sheeting will have a TATA Steel Colorcoat HPS200 Ultra coating or equal and approved, from the standard range of colours. (Note that HPS200 is only Class B Non fragility fire spread). A 'Confidex' guarantee including the Confidex Sustain requirement or equal and approved will be provided for the coatings. Internal liner sheet to be zinc coated steel, with internal coating of lining enamel, colour white. Lining sheet to the main roof will be Class 'A1' rated to BS EN 13501 and all liner fillers to be FRP (flame retardant polyethylene). An adequate vapour control barrier is to be incorporated. The system is to be installed as manufacturers guidelines. The systems are to be designed, installed, and inspected, to achieve the relevant manufacturers system guarantees.
- Composite systems are to be certified by the Loss Prevention Council Board (LPCB) or FM Global Approved with regard to fire performance.
- The design and construction of all junctions, including ridges, eaves, hips and verges, will be in accordance with the roof sheeting manufacturer's recommendations and in accordance with the architect's approved, robust, design details to ensure continuity of insulation. Should any evidence suggest that continuity of insulation has not been achieved; the contractor will undertake thermal imaging and provide the results.

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- The building will comply with part L of the Building Regulations and an air-leakage test is to be carried out to confirm compliance with the air-leakage criterion assumed in the required energy and carbon emission calculations.
- All efforts are to be made to reduce the frequency or requirement for roof access. Where frequent access is required, a 'Mansafe' system will be provided to allow safe roof access and maintenance to all roof areas, including two sets of harnesses and lanyards.
- Roofs to outboard offices to have a concrete deck with an hot melt system applied or a single ply roof sheet system. Roof pitch of this element to be min 2 deg. The full extent of the Main Office roofs are to incorporate a Sedum Roof this is to be Bauder, Sika or equal approved. The Sedum roof system should have a vapour control layer, insulation layer laid to falls, waterproofing membrane, protection layer, drainage filter, growing medium and sedum. No plant or access to office roofs – gutter cleaning will be from a MEWP where possible and also a minimal latchway system offering fall restraint. The roofing system is to be certified by FM Global grade EXT-B in regard to fire performance .

1.2 Rainwater Goods

- Boundary and valley gutter material will be a minimum 1.2 mm thick nominal pre-galvanised steel, complete with 1.2mm PVC pre-laminated membrane, in accordance with the Metal Gutter Manufacturers Association (MGMA). The gutter system is to have a minimum 25 year guarantee to match the roof system. All internal gutters to be factory insulated using rigid 50mm thick rock fibre insulation. Downpipes are to be designed to avoid office areas. Where unavoidable, downpipes within the office compartment shall be acoustically insulated and boxed in.
- Wherever possible, rainwater pipes are to be located within the web of the structural steel stanchions, with suitable access to the rodding eye provided. Rainwater down-pipes are to be positioned on external walls only. No part of the roof drainage system shall encroach below the clear dimension from the finished floor level to the underside of the haunch. The pipework will be fixed to a dedicated support system. Insulation is to be provided to the system to prevent condensation forming.
- All rainwater goods, outlets and down pipes are to have appropriate access for cleaning and maintenance.
- Where a siphonic system is utilised the design will be in accordance with the relevant British Standard BS8490:2007 "Guide to Siphonic drainage systems".
- An overflow system is to be provided to prevent overflow of gutters into the building.
- Tell-tale overflow outlets set at freeboard level and discharging externally at visible locations shall be proved at each end of the gutter.
- All downpipes in vulnerable areas are to have suitable hoop protection to a height of 1.2m.
- All secondary outfalls should be protected from bird/ vermin ingress and discharge onto a suitably durable hard surface.

1.3 External Wall Cladding

- The cladding indicated on the drawings will be either a built-up system and/or composite as detailed below;
- The wall cladding will have a TATA Steel Colorcoat Prisma finish or equal and approved, from the standard range of colours. A 'Confidex' guarantee including the Confidex Sustain requirement, or equal and approved, will be provided.
- Internal liner sheets to either system to be zinc coated steel, with internal coating of lining enamel, colour white. The internal metal lining to the walls will be Class 'A1' rated to BS EN 13501 and all liner fillers to be FRP (flame retardant polyethylene). All external fixings must be stainless steel.
- Colours are to be from the manufacturer's standard range as approved by the local planning authority.
- An adequate vapour control barrier is to be incorporated.
- In order to allow additional light to the building, a section / strip of translucent cladding is to be installed above dock doors / Prowall systems in locations as shown on the Architect's drawings. Unit 1 also utilizes this system along the South East & West Elevations as shown on the Architects drawings.
- The systems are to be designed, installed, and inspected, to achieve the relevant manufacturers system guarantees.
- The design and construction of all junctions, including corners, cills, eaves and cap flashings, will be in accordance with the cladding manufacturer's recommendations and in accordance with the architect's approved, robust, design details to ensure continuity of insulation. Should any evidence suggest that continuity of insulation has not been achieved; the contractor will undertake thermal imaging and provide the results.
- The composite cladding will be minimal profile/microrib and shall incorporate CFC-free, LPC approved, foam insulation of a thickness to achieve the designed 'U' value. The system is to be certified by the Loss Prevention Council Board (LPCB) or FM Global Approved with regard to fire performance.

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- The built up system will be insulated with mineral-wool insulation to achieve a 'U' value to meet or better the requirements of the current Building Regulations and planning.
- An independent cladding inspector is to be employed by the contractor to review the on site installation and provide a written report to be made available to the Developer and the Fund.
- The building will comply with part L of the Building Regulations and an air-leakage test is to be carried out to confirm compliance with the air-leakage criterion assumed in the required energy and carbon emission calculations

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1.4 Windows, Curtain Walling and Glazed Doors

- All windows, curtain walling and glazed doors are to use the 'Kawneer', Technal', or 'Schuco' system or equal and approved. The system is to comprise fully thermally-broken, polyester-powder-coated, aluminium heads, cills, mullions and transoms complete with factory-sealed, double-glazed units with glazed and insulated spandrel panels, where necessary. The glazing will be high performance solar glass on relevant facades and low emissivity glass on all other facades.
- Windows are to be openable for ventilation, but with safety locking devices to prevent excessive opening on the basis of 1 in 3 glazed units with the exception of the curtain walling which will sealed. The glazing is to be cleaned from outside by means of static or non-static access equipment.
- The main entrance door will be self-closing and will incorporate top and bottom deadlock facilities, letter plates, include a bell push and is to be capable of being retro-fitted for power assistance. The doors are to be glazed to the recommendations of BS 952-1 and BS 6262-4 in toughened glass.
- Glazed curtain walling, windows and doors shall be detailed as "robust" details to achieve the required air tightness. In particular, they shall be sealed around their perimeter and to any adjoining element in a manner that is to maintain air-tightness without cracking, whilst allowing for thermal expansion and general building movement.
- Designed to achieve a 'U' value to meet or better the requirements of the current Building Regulations and planning.
- Where glazing is proposed to office undercroft areas, the internal perimeter shall be flashed and a window cill board included.
- A feature glass canopy will be provided over each main entrance door hung off the curtain wall system.
- Polyester powder coated aluminium or similar, static solar shading will be provided to the elevations as required and as detailed on the drawings. System to be incorporated and support off the curtain wall / window system.

1.5 External Doors to Warehouse

- Warehouse Doors to be ASSA ABLOY Clandeboye (or equal approved). Steel doorsets manufactured, designed and installed to the criteria required by BS EN ISO 9001; 2000. Independently security tested by BRE in accordance to LPS1175 security standard to level SR2. Warehouse doors to be construction to comprise two skins of 1.5mm thick Magizinc steel 44mm thick door leaf with no face seams.
- Door frame to be manufactured from 1.5mm Magizinc steel to BS 1245 with double or single rebate profile. Frames to have mitre jointed WELDED frame corners with no visible seam.
- All door hardware to be tested and in accordance with the SR2 security rating of the door and to be factory fitted and commissioned. The door set design is to include low profile thresholds, 3-point push-bard panic bolts, weather seals, stainless steel hinges complete with hinge bolts, anti-jemmy rebated door leaves, fire exit and running man logo signage with surface mounted door closers where applicable. Doors indicated on the drawings to have external access over-ride to be fitted with a high security auto-mechanical dead locking system to over-ride the panic bar mechanism and grade 3 cylinder guards with external lever handle furniture kit to match the other fittings and heavy-duty spring loaded door stays.
- Doors, frames and ironmongery to be supplied, designed and manufactured in full accordance with the manufacturer's specifications and instructions.
- Doors to be designed and manufactured to achieve a 'U' value to meet or better the requirements of the current Building Regulations and planning and in accordance with the project design stage BRUKL/Part L2A assessment forming part of the tender documentation.

1.6 Level Access Doors

- Doors to be ASSA ABLOY OH1042P SBD (secured by design) or equal and approved, to consist of electrically operated (with manual over-ride facility) standard lift/ vertical doors fully balanced for ease of operation. The doors are to have insulated panels manufactured with a broken

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cold bridge to provide minimum thermal transmittance.
- Dimensions as shown on the drawings to suit a clear opening of 4500mm wide x 5000mm high and as shown on the drawings.
- Safety devices; Spring break device, cable break device with covers and stop and return safety edge device (in conjunction with ECS 950 system).
- Door panels to be generally CFC free insulation giving an optimum panel U value of 0.4 Wm^2 ° C and to generally to better the requirements of the current Building Regulations and Planning.
- Door finish internally to be pre-coated polyester to RAL 9002. Externally pre-coated polyester in colour as shown on the elevation drawings..
- Each door to be fitted with 1No row of 4No ALRB – Aluminium Rectangular Burglar Resistant vision panels. Burglar resistant Class (RC2) according to EN 1627. Size of light openings to be 578 x 268mm.
- The track system is to be a Vertical Lift (VL) track arrangement complete with low level spring console for ease of maintenance.
- The activation and control system is to be Electrically operated via the Assa Abloy CDM9, 240 volt (0.37kw), single phase operator, incorporating soft start and stop, torque resistance monitor that detects obstructions to the door movement. Low level pull cord for conversion to manual operation in the event of power failure. An integral chain hoist override to be included to motor, for return to closed position should motor need to remain disengaged. Motor to be rated to IP65 as a minimum.
- The door locking mechanism will be two interlocked ASSA ABLOY Safelock cylinder locks interfaced with torque resistant CDM9 operator per door, one Safelock mounted to both left and right side of the door and engaging with each of the door tracks. Cylinder internally for keyed locking, cylinder blank to external side of the door.
- To be Compliant with Part L2A Building Regulations, Planning and BREEAM.
- Burglar Resistant Class 2 (RC2) according to EN 1627.
- Each level access door to have 1.2m high, tubular-steel, protection bollards to be provided (2nr) on the external elevation and (2nr) on the internal elevation to each of the level-access door jambs. The bollards are to be primed, undercoated and have two coats of gloss paint applied in contrasting coloured bands.

1.7 Dock Access Doors and Equipment
- Standard height loading dock doors to be ASSA ABLOY OH1042P SBD (secured by design) or equal and approved, to consist of electrically operated (with manual over-ride facility) standard lift/vertical doors fully balanced for ease of operation. The doors are to have insulated panels manufactured with a broken cold bridge to provide minimum thermal transmittance.
- Dimensions as shown on the drawings to suit a clear opening of 2860mm wide x 3000mm high in pre-cast concrete dock wall (Prowall) openings as shown on the drawings.
- Safety devices; Spring break device, cable break device with covers, slack cable device and pneumatic safety edge device.
- Door panels to be generally CFC free insulation giving an optimum panel U value of 0.4 Wm^2 ° C and to generally to better the requirements of the current Building Regulations and Planning.
- Door finish internally to be pre-coated polyester to RAL 9002. Externally pre-coated polyester in colour as shown on the elevation drawings.
- Each door to be fitted with 1No row of 2No ALRB – Aluminium Rectangular Burglar Resistant vision panels. Burglar resistant Class (RC2) according to EN 1627. Size of light openings to be 578 x 268mm.
- The track system is to be a Vertical Lift (VL) track arrangement complete with low level spring console for ease of maintenance.
- The activation and control system is to be Electrically operated via the Assa Abloy CDM9, 240 volt (0.37kw), single phase operator, incorporating soft start and stop, torque resistance monitor that detects obstructions to the door movement. Low level pull cord for conversion to manual operation in the event of power failure. An integral chain hoist override to be included to motor, for return to closed position should motor need to remain disengaged. Motor to be rated to IP65 as a minimum.
- The door locking mechanism will be two interlocked ASSA ABLOY Safelock cylinder locks interfaced with torque resistant CDM9 operator per door, one Safelock mounted to both left and right side of the door and engaging with each of the door tracks. Cylinder internally for keyed locking, cylinder blank to external side of the door.
- To be Compliant with Part L2A Building Regulations, Planning and BREEAM.
- Burglar Resistant Class 2 (RC2) according to EN 1627.
- Each standard dock door to have 1.2m high, tubular-steel, protection bollards to be provided (2nr) on the external elevation and (2nr) on the internal elevation to each of the level-access door jambs. The bollards are to be primed, undercoated and have two coats of gloss paint applied in contrasting coloured bands.
- Shall be fitted with ASSA ABLOY DL6220T Teledock leveller (or equal approved) driven by twin hydraulic cylinders. Strengthening

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ribs are incorporated to the underside to guarantee a full load bearing capacity designed around a single axle loading in accordance with EN 1398. Installed into a pre-cast pit sat within the building floor slab.

- Dock dimensions to be - Platform Width 2000mm x Platform Length 3000mm x Machine Depth 600mm, Pit Width 2060mm x Pit Length 3000mm x Pit Depth 610mm and Gradient length: Platform length +200mm (3200mm).
- Docking System to be supplied, designed and installed in full accordance with the manufacturers specifications and instructions.
- Platform construction designed to achieve a maximum point load of 6.5N/mm².
- 1000mm long steel telescopic lip, providing infinitely variable positioning of the lip on the deck of trailers and maximum flexibility and future proofing of the leveller.
- Telecopic lip design incorporates a 5° crank and a 80mm bevel (to the leading edge) to ensure a smooth transition between the dock leveller and vehicle bed.
- Single axle load capacity of 60kn.
- Vertical working range; above dock FFL +490mm / -410mm in accordance with EN 1398 safe working gradient, 6mm thick side plates (toe guards) with hazard warning signs both above and below dock level.
- Surface paint finish in RAL 5010 (80pm coating thickness with corrosive category C2M).
- The performance of the dock leveller is to comply with European Standards including EN 1398 Dock Levellers and compliant with L2A Building Regulations.
- The activation and control system is to be a Hydraulic lifting system is powered via a 400volt, 3 phase, 0.75Kw powerpack unit mounted to the underside of the leveller platform with ease of access. The system is controlled by an IP54 rated single 950DLA door and dock, offering door, leveller operations via a combined control panel unit.
- All standard bay docks to be fitted with ASSA ABLOY DS6060A (or equal approved) collapsible dock shelter providing an energy saving seal to the loading bay. Self-adjusting with built-in springs allowing the shelter to follow the vehicles movement without causing damage. The shelter is constructed from a robust and lightweight aluminium front and rear frame, connected with parallel bracing arms.
- Complete with self-adjusting roof frame which rises automatically, independent of the side frames.
- Standard dock Shelter Dimensions as manufacturers details and recommendations:
- Normal height: 3600 mm
- Normal width: 3450 mm
- Normal depth: 600 mm
- Top curtain: 1000 mm
- Side curtain: 700 mm
- To suit trailer heights (from yard level) in the range: 3900mm – 4400mm based on 1200mm Dock Height
- Dock Shelters provided with ASSA ABLOY standard equipment:
- Rain channel integrated into roof section for draining water to each side of the loading bay.
- Curtain colour: black Parking guides: white
- Wall fixings: Precast concrete Prowall with a height +FFL of 4600mm minimum
- Performance:- To comply with European Standards and DIN 75200 Flammability all curtains
- Docking Shelter System to be supplied, designed and installed in full accordance with the manufacturers specifications and instructions.
- Dock buffers generally to be ASSA ABLOY DS6090NDB (or equal approved) dock buffers The buffer is constructed from a minimum 90mm thick high molecular polyethylene, designed to withstand frequent impact for a wide range of vehicle sizes.
- Dock Buffer System to be supplied, designed and installed in full accordance with the manufacturers specifications and instructions.
- Dock Buffers to standard loading bays to be Hardened Nytrex Buffers : 500 mm high x 250 mm wide x 110 mm deep supplied in pairs, positioned 1 to each side.
- Each standard loading bay to be complete with a Heavy Duty ASSA ABLOY DE6090DL (or equal approved) dock light.
- ASSA ABLOY DS6090WG (or equal approved) galvanized steel tubular bolt down wheel guides shall be provided to each loading bay location. Impact resistant protection wit
- Splayed head arrangement to assist with positioning of vehicles.
- Length x Diameter x Height (upstand above yard) – 2490mm x 159mm x 250mm.
- A Traffic light system is to be fitted to every bay mounted externally.
- Doors and dock levellers to be CE marked to meet European Directives. All dock/door locations are to be numbered internally and externally; minimum font size 200mm.

1.8 Euro / Container Height Deck Enhancement

- Euro / Container height loading dock doors to be ASSA ABLOY OH1042P SBD (secured by design) or equal and approved, to consist of electrically operated (with manual over-ride facility) standard lift/vertical doors fully balanced for ease of operation. The doors are to have insulated panels manufactured with a broken cold bridge to provide minimum thermal transmittance.

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- Dimensions as shown on the drawings to suit a clear opening of 2860mm wide x 3500mm high in pre-cast concrete dock wall (Prowall) openings as shown on the drawings.
- Safety devices; Spring break device, cable break device with covers, slack cable device and pneumatic safety edge device.
- Door panels to be generally CFC free insulation giving an optimum panel U value of 0.4 Wm^2 ° C and to generally to better the requirements of the current Building Regulations and Planning.
- Door finish internally to be pre-coated polyester to RAL 9002. Externally pre-coated polyester in colour as shown on the elevation drawings.
- Each door to be fitted with 1No row of 2No ALRB – Aluminium Rectangular Burglar Resistant vision panels. Burglar resistant Class (RC2) according to EN 1627. Size of light openings to be 578 x 268mm.
- The track system is to comprise of a vertical Lift (VL) track arrangement complete with low level spring console for ease of maintenance.
- The activation and control system is to be Electrically operated via the Assa Abloy CDM9, 240 volt (0.37kw), single phase operator, incorporating soft start and stop, torque resistance monitor that detects obstructions to the door movement. Low level pull cord for conversion to manual operation in the event of power failure. An integral chain hoist override to be included to motor, for return to closed position should motor need to remain disengaged. Motor to be rated to IP65 as a minimum.
- The door locking mechanism will be two interlocked ASSA ABLOY Safelock cylinder locks interfaced with torque resistant CDM9 operator per door, one Safelock mounted to both left and right side of the door and engaging with each of the door tracks. Cylinder internally for keyed locking, cylinder blank to external side of the door.
- To be Compliant with Part L2A Building Regulations, Planning and BREEAM.
- Burglar Resistant Class 2 (RC2) according to EN 1627.
- Each tall loading door to have 1.2m high, tubular-steel, protection bollards to be provided (2nr) on the external elevation and (2nr) on the internal elevation to each of the level-access door jambs. The bollards are to be primed, undercoated and have two coats of gloss paint applied in contrasting coloured bands.
- Shall be fitted with ASSA ABLOY DL6220T Teledock leveller (or equal approved) driven by twin hydraulic cylinders. Strengthening ribs are incorporated to the underside to guarantee a full load bearing capacity designed around a single axle loading in accordance with EN 1398. Installed into a pre-cast pit sat within the building floor slab.
- Dock dimensions to be - Platform Width 2000mm x Platform Length 3500mm x Machine Depth 800mm, Pit Width 2060mm x Pit Length 3500mm x Pit Depth 810mm and Gradient length: Platform length +190mm (3690mm).
- Docking System to be supplied, designed and installed in full accordance with the manufacturers specifications and instructions.
- Platform constructed from 8/10mm tear plate designed to achieve a maximum point load of 6.5N/mm^2, 1000mm long steel telescopic lip, with wheel stop model parking guides requiring minimal maintenance.
- Telecopic lip design incorporates a 5° crank and a 100mm bevel (to the leading edge) to ensure a smooth transition between the dock leveller and vehicle bed.
- Single axle load capacity of 60kn.
- Vertical working range; above dock FFL +600mm / -440mm in accordance with EN 1398 safe working gradient, 4mm thick side plates (toe guards) with hazard warning signs both above and below dock level.
- Surface paint finish in RAL 5010 (80pm coating thickness with corrosive category C2M).
- The performance of the dock leveller is to comply with European Standards including EN 1398 Dock Levellers and compliant with L2A Building Regulations.
- The activation and control system is to be a Hydraulic lifting system is powered via a 400volt, 3 phase, 0.75Kw powerpack unit mounted to the underside of the leveller platform.
- All tall bay docks to be fitted with ASSA ABLOY DS6060P (or equal approved) collapsible dock shelter providing an energy saving seal to the loading bay. The shelter is constructed from a robust and lightweight aluminium front and rear frame, connected with parallel bracing arms. Fitted with a durable, tear resistant polyester continuous curtain with an integrated rain channel controlling water drainage away from the docked trailers.
- Tall dock Shelter Dimensions as manufacturers details and recommendations:
- Normal height: 4200 mm
- Normal width: 3450 mm
- Normal depth: 900 mm
- Top curtain: 1500 mm
- Side curtain: 700 mm
- To suit trailer heights (from yard level) in the range: 4200mm – 5200mm based on 1200mm Dock Height

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- Dock Shelters provided with ASSA ABLOY standard equipment:
- Rain channel integrated into roof section for draining water to each side of the loading bay.
- Curtain colour: black Parking guides: white
- Wall fixings: Precast concrete Prowall with a height +FFL of 4600mm minimum
- Performance:- To comply with European Standards and DIN 75200 Flammability all curtains
- Docking Shelter System to be supplied, designed and installed in full accordance with the manufacturers specifications and instructions.
- Dock buffers generally to be ASSA ABLOY DS6090NDB (or equal approved) dock buffers providing impact resistant protection to dock edges.
- Dock Buffer System to be supplied, designed and installed in full accordance with the manufacturers specifications and instructions.
- Dock Buffers to tall loading bays to be Hardened Nytrex Buffers with 1No 750 mm x 250mm x 130mm to one side of each dock bay terminating at Dock Height and 1No 750mm x 250mm x 130mm to one side of each dock bay terminating at Dock Height +250mm.
- Each tall bay is to be fitted one steel angle bracket bolted at 250mm above dock level.
- Each tall loading bay to be complete with a Heavy Duty ASSA ABLOY DE6090DL (or equal approved) dock light.
- ASSA ABLOY DS6090WG (or equal approved) galvanized steel tubular bolt down wheelguides shall be provided to each loading bay location. Splayed head arrangement to assist with positioning of reversing vehicles.
- Each tall loading bay to be complete with a Heavy Duty ASSA ABLOY DE6090DL (or
- equal approved) dock light.
- ASSA ABLOY DS6090WG (or equal approved) galvanized steel tubular bolt down wheel
- guides shall be provided to each loading bay location.
- Splayed head arrangement to assist with positioning of reversing vehicles.
- Length x Diameter x Height (upstand above yard) – 2490mm x 159mm x 250mm.
- A Traffic light system is to be fitted to every bay mounted externally.
- Doors and dock levellers to be CE marked to meet European Directives. All dock/door
- locations are to be numbered internally and externally; minimum font size 200mm.

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Internal Superstructure, Finishes and Fixtures

1. Upper Floors

- The upper floor will be constructed in a 'Holorib' composite floor or pre-cast concrete planks supported by load bearing blockwork/structural steelwork.
- The pre-cast units will be grouted in position. Areas not specified with a raised floor will have a minimum 75mm thick, fine-concrete screed laid over the floor and will include a layer of D49 structural fabric reinforcement. The top surface of the screed will be trowelled to receive floor finishes.
- The first floor office floors are to be designed to support a superimposed loading of 3 kN/m² + 1 kN/m² for lightweight partitioning, together with the dead loads and the self-weight of finishes indicated in this specification.
- The undercroft / lid of the floor slab shall be insulated to meet the requirements of Part L if exposed to the warehouse. Designed to achieve a 'U' value to meet or better the requirements of the current Building Regulations and planning.

1.1 Staircases

- Steel or concrete staircases, in accordance with the architect's details, shall be designed for a superimposed loading of 3kN/ m².
- The balustrade and handrails to the main reception staircase will be formed in a mixture of circular square / rectangular box and flat rod sections with brushed satin stainless-steel finish incorporating a side fixed feature bracket fixing and not fixed to the top of tread. The balustrade and handrails to any secondary, fire escape staircases will be of matching detailing, but will be polyester powder colour coated, circular steel sections, reflecting the design of the main staircase balustrade and handrails.
- Handrailing and balustrading to stairs to be a fabricated installation only. A bolt together system type installation will not be accepted.
- Balusters to be fixed to the side of the stairs with feature detail as shown on the Architectural drawings.
- Stair strings as per Architect's details, concrete strings to be painted, with a Gradus TAXT5212 Aluminium side trim to finish.
- Treads to stairs to receive carpet tiles as per the main offices and Gradus nonslip contrasting nosings suitable for the use and location.
- The balustrade and handrails to mezzanine stairs are to be galvanised coated and formed in circular steel sections.
- Treads to the mezzanine stairs to be checker plate with contrasting nosings.
- Mezzanine edge to be protected by a Key clamp galvanised steel tubular handrail / guardrail and intermediate rail guarding top fixing to slab. System designed to a minimum 740 Newtons per metre run to suit commercial use. Design loads to be in accordance with BS 8118, BS 6180, BS6399, BS 7818.
- Mezzanine edge to have a Steel RSA kick plate to perimeter.

1.2 Internal Walls / Partitions

- The wall between the warehouse and the office, will be constructed in pre-finished insulated "whitewall" panelling or metal stud partitioning. Designed to achieve a 'U' value to meet or better the requirements of the current Building Regulations and planning and equivalent to an external wall. Any such construction must achieve the fire resistance and fire stopping required by the Building Regulations. Composite systems are to be certified by the Loss Prevention Council Board (LPCB) or FM Global Approved with regard to fire performance and meet the following accreditations / approvals FPA Design code & LPCB 1500 and 1531.
- The base and head of the internal walls will be closed to prevent any access to the cavity. Movement joints, wall stability and means of restraint will be in accordance with the structural engineer's design and details.
- The internal walls are to be British gypsum or equal and approved. Walls are to meet the following standards BS-EN 13501-1 class B-s3, d2 in line with AD B Table classification of linings. BS EN 1363-1 Fire resistance tests for non-loadbearing elements – walls. BS 5234-2 Specification for performance requirements for strength and robustness including methods of test. General Acoustic requirements should be in line with BS8233.
- Toilet partitions will be manufactured by Total Laminate systems Elegance 13 range or equal and approved, with fitted coat hook buffer, toilet roll holder and indicator bolts (with emergency operation facility).
- In all toilet areas, sanitary ware is to be fixed within an IPS or equal and approved plastic laminate wall panel system, full-height with removal panels to permit access for maintenance.

1.3 Raised Floors

- Generally, throughout the first floor main office areas a raised access floor medium grade system; as Kingspan or similar, to MOB installation standards to provide a minimum 150mm clear void. The standard medium grade 600mm x 600mm panels to receive carpet tile covering. The raised access floor to be earth bonded in accordance with I.E.E. regulations and the raised floor manufacturers recommendations.

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Internal Superstructure, Finishes and Fixtures

1.4 Floor Finishes

- The main entrance reception area, ancillary areas, and plant areas, shall be power floated concrete or screed finish to receive the specified floor coverings. For the full width of the main entrance reception area and to a depth of 2.0m from the external doors, a 'barrier' entrance mat will be laid in stainless steel matwell frame. All due allowance is to be made for any variation in floor finish thickness.
- Generally, throughout the first-floor office areas, staircases and circulation areas, Tarkett Desso Recharge or similar carpet floor tile coverings shall be provided.
- Office reception area 600mm x 600mm ceramic tiles.
- The office toilets, ancillary lobbies and shower rooms shall be finished in "Polyflor Polysafe Standard PUR", or similar, slip resistant vinyl sheeting complete with welded seams and 100mm high coved skirting
- The ground floor office (undercroft) will be left as a concrete finish assuming carpet will be laid as part of the Tenant's fit out works
- Plant rooms and accessible ducts will have no applied floor finish; concrete/screed floors will be treated with a suitable dust inhibitor.
- A consistent level floor shall be provided throughout the office and ancillary areas.

1.5 Wall Finishes

- All internal walls unless specified otherwise throughout the first floor offices, ground and first floor ancillary and circulation areas shall be plastered/dry lined, fully sealed and decorated with one mist coat and two full coats trade durable flat vinyl matt emulsion paint from standard BS 4800 colour range. An optional painted Accent wall should be included as shown on the architects drawings.
- All walls to the office toilets and shower rooms shall be tiled, with minimum or 300mm x 100mm ceramic tiles.
- Plant rooms, lift shafts and accessible ducts will have no applied wall finishes.

1.6 Ceiling Finishes

- Suspended ceilings will be provided as follows:
- Generally throughout the first floor offices and ancillary areas, "Zentia Aruba" 600mm x 600mm tegular tiles in prelude 15 exposed grid system, with a stove enamelled finish, on wire hangers.
- Toilet and shower areas shall have Zentia 'Microlook Hydrabloc 600mm x 600mm, or similar moisture resistant tiles, in prelude 15 lay-in grid system.
- Gyproc saint gobain or equal and approved MF ceiling system finished with 3 coats emulsion to located as indicated on architect's drawings. Any access hatches are to be co-ordinated with Architect.
- A proprietary, shadow-edge trim shall be included to all office/circulation areas.
- The finished floor to ceiling height to the first floor office and ancillary areas shall be 2.70m, and 2.40m in the welfare and toilets areas. Where necessary, to avoid excessively long hangers, first floor suspended ceilings are to incorporate a secondary support grid.
- The ground floor undercroft, plant rooms and accessible ducts will have no applied ceiling finishes.

1.7 Internal Doors and Joinery

- Internal doors throughout the offices to be solid-core, flush doors with non-tropical hardwood veneers. Frames to be softwood and architraves to be mdf; primed, undercoated and finished with two full coats of trade gloss satin paint. The source of all hardwoods to be incorporated within the works is to be disclosed and approved.
- Where required by the Building Regulations, doors will have an appropriate fire rating and be fitted with intumescing strips, smoke seals, door closers and clear glazed vision panels.
- Ironmongery will be appropriate to the location of the door and will be heavy gauge satin stainless steel furniture with ancillary fittings from Eisenware, or equal and approved.
- Locks will be individually keyed under master key. (No locking facility is to be provided to toilets and fire exit doors)
- Full height and width mirror, with concealed fixings, to be inset into the tiles above the wash hand basins in all toilet areas;. Mirrors in toilets for the use of the disabled will accord with the requirements of the Building Regulations.
- Internal cill boards to be mdf; primed, undercoated and finished with two full coats of trade gloss satin paint. Ex 100mm x 25mm mdf with 6x6 quirk skirtings (see Architects details); primed, undercoated and finished with two full coats of gloss paint.

1.8 Sanitary Ware

- All sanitary ware to be Armitage Shanks, Twyford or equal and approved, and supplied complete with all necessary fittings, fixings and accessories. All ware to be white and with concealed pipework, including suitable maintenance access. For avoidance of doubt, male and female toilet accommodation will be required at first and second floor levels with future provision at ground floor. An accessible toilet should be provided at each floor level.
- WCs, surface mounted on IPS system
- Basins to be under-countertop within vanity unit system.
- Accessible facilities are to comply with Doc. M of the Building Regulations.

CONTENTS

Internal Superstructure, Finishes and Fixtures

- A cleaner's cupboard, including a sink with bucket stand, will be provided with hot and cold water services. Sink to be surface mounted on IPS system.
- All sanitary ware to meet BREEAM requirements.

1.9 Fire Precautions

- The requirements of the Building Regulations and planning will be incorporated in respect of means of escape, fire resisting doors and partitions, fire exit doors and fittings and all associated signs and notices; insofar as the extent of the works prior to any subsequent fitting out by an occupier.

Mechanical and Electrical Services

1. Introduction

- This section describes the scope of the mechanical and electrical engineering services and sets out the performance required from the systems in operation.
- These provide for an open plan arrangement in the net internal office areas. The ground floor open plan office area shall be completed to a shell specification as detailed in Section 1.1 and no services shall be provided therein, other than those described herein

1.1 Design Standards

- In addition to the standards detailed within item 1.2, the mechanical and electrical services will be designed in accordance with the following standards:
- British Standards, where relevant to Building Services
- BSRIA Guides and Technical Memoranda
- Chartered Institution of Building Services Engineers' Design Guides
- Statutory Regulations and Instruments

1.2 Design Criteria

- **Winter External Temperature**
  -4°C db saturated
- **Winter Internal Temperature – Office Areas**
  22°C db +/- 2°C control band
- **Winter Internal Temperature – Common Parts**
  19°C db minimum
- **Summer External Temperature**
  30°C db
- **Summer Internal Temperature – Offices**
  24 °C dry bulb ± 2°C control band
- **Summer Internal Temperature – Common Parts**
  Not controlled
- **Occupancy Rates – Offices**
  1 person per 10 m^2
- **Ventilation Rates:**
- **Fresh Air to Occupants**
  12 litres per second/person based on the above occupancy.
- **Fresh Air to Common Areas**
  Natural ventilation or 0.5 litre per second per m^2
- **Toilet Extract**
  In accordance with Building Regulations
- **Acoustic Criteria – noise generated by the Building Services:**
- **Main Areas**
  NR38
- **Toilets and Common Areas**
  NR40
- **Plant Areas**
  NR65
- **External Criteria**
  As required by LA
- **Electrical Loading allowances:**
- **Lighting to offices**
  7 W/m^2
- **Small Power**
  20 W/m^2

Average Lighting Levels:

- **Office Areas**
  500lux as per SLL Lighting Handbook
- **Reception**
  300lux
- **Toilets**
  200lux
- **Stairways**
  150lux
- **Plant Rooms**
  200lux
- **Warehouse**
  Occupier Fit Out Works
- **External**
  As CIBSE LG 6 (see 5.17)
- **Other Areas**
  As per SLL Lighting Handbook

1.3 Mechanical Services

- This section provides an outline description of the mechanical engineering systems which will be installed to provide control of the internal environment and deliver domestic sanitary services to the occupants.

1.4 Heating & Cooling Systems

- The offices and main ground floor reception will be heated and comfort cooled by Variable Refrigerant Flow / Variable Refrigerant Volume (VRF/ VRV) heat recovery electric air source heat pump systems. These will comprise horizontal chassis units located in the ceiling voids connected to an external condenser unit(s). The indoor units will deliver treated air into the occupied space through ceiling mounted high-induction diffusers. Air will return to the units through dedicated extract air grilles. All indoor units will heat or cool independent of the other units.
- Each indoor unit will be either individually controlled or be part of a group controller as applicable to the location. Return air sensors in the occupied space will control individual or groups of indoor units. The internal units will be fitted with filters that can be removed for cleaning or replacement. Access to the units will be through removable ceiling tiles or casings.
- Condensate will be taken away from the units through gravity drainage, pumped where necessary to drain.
- Ancillary Areas/Cores
- Heating to ancillary areas, toilets, staircases will be provided by wall mounted low surface temperature electric panel heaters with thermostatic and time control.
- Warehouse Area
- All mechanical services in the warehouse form the tenant's own fit out works.

CONTENTS

Mechanical and Electrical Services

1.5 Ventilation Systems

- The office areas will be provided with fresh air via local heat recovery ventilation units located in the ceiling voids. Air will be ducted to the back of the VRF units within the ceiling void where possible or directly into the occupied areas through high induction diffusers. All fresh air systems will be operated in accordance with current guidance or regulations for minimisation of virus transmission.
- Office area ventilation systems will have heat recovery of minimum efficiency to comply with Part L.
- **Toilets**
  Vitiated air will be extracted from the toilets by dedicated extract systems, with duct-mounted fans within the ceiling void and within risers. Air will be extracted through terminal grilles or circular air valves in the toilet areas, with make-up air coming from the adjacent areas so as to keep the toilets under a relative negative pressure.
- **Cores**
  The core circulation areas are to be naturally ventilated or where not possible, mechanically ventilated to the requirements of Part F of the Building Regulations.

1.6 Domestic Water Services

- Mains domestic cold water will be distributed through a pressure boosted water system around the building to serve drinking water and all outlets requiring Class 1 water quality.
- Domestic hot water shall be generated via either a:
- local electric water heaters, fed directly off the mains supply,
- Pumped return distribution system fed from a central storage air source heat pump system, linked to the space heating/cooling system or a dedicated standalone system.
- An external watering point will be provided, built into the external wall near the offices.

1.7 Above Ground Foul Drainage

- Above ground foul drainage will be installed to serve all sanitary appliances and a spare connection point will be left at each floor level for the occupier to connect future kitchenettes/vending points.
- All drainage will be by gravity wherever possible and will be installed using modern materials.

1.8 HVAC Control System

- A proprietary digital, standalone, intelligent controller, supplied as a matched unit by the heat pump equipment supplier, will manage the electric heat pump systems and fresh air ventilation systems.
- The toilet extract systems will act under the dictates of their own dedicated controllers.
- A comprehensive energy and water metering system, incorporating data collection will be installed, to measure the energy use of the building.

1.9 Electrical services

- This section provides an outline description of the electrical engineering systems that will be installed.

2.0 Main Electrical Supply

- A new high voltage supply shall be provided by the local DNO for the site, this shall terminate to each unit as follows:
- **Unit 1**
  HV supply to DNO substation. Supply metered at low voltage
- New low voltage supply will be provided from the POC to a low voltage panel located in the warehouse area.
- **Unit 2 and 3**
  HV supply to DNO substation. Supply metered at low voltage
- LV point of connection will be at the ACB on each of the DNO out going ways
- New low voltage supply will be provided from the POC to a low voltage panel located in the warehouse area.
- **MSCP**
  Low voltage supply from DNO substation
- LV point of connection will be at the ACB on each of the DNO substations and a new low voltage supply will be provided from the POC to a low voltage panel located in the warehouse area.
- The main electrical supply will be supplemented with Zero Carbon electricity generated by Photovoltaic (PV) panels positioned on the roof of the warehouse. The amount of PV panels will be calculated to achieve the minimum 35% carbon emission reduction of regulated operational energy as required by the GLA.
- This system will be battery enabled. The battery will be sized to store a minimum 10% of the PV kWp (kilowatt peak output) installed in the basebuild works. The Production area roof will be strengthened to allow for additional PV to be added in the future.

2.1 LV Distribution

- An LV distribution system shall be provided from the main low voltage switch panel. The panel will be modular form expandable by the future tenant and will comprise MCCB's or fuse switches etc., providing the necessary protection for the sub-main system. The LV distribution will be provided from a cabled sub-main system utilising XLPE/SWA/LSF cables.

CONTENTS

Mechanical and Electrical Services

2.2 General LV Power

- Low voltage power supplies will be taken from local distribution boards to serve small power outlets for cleaning purposes, spurs for hand dryers (hand drier units are a tenant fit out item), mechanical equipment and installations expressly detailed within this specification.
- Three compartment skirting / dado trunking shall be provided to the perimeter of the offices that do not have raised access floors 13A twin switched socket outlets shall be provided at 3 metre intervals.
  Within the office core areas, cleaning outlets shall be provided assuming a 10m lead on equipment.
- Wiring of final circuits will, generally, be carried out utilising LSOH cables enclosed in trunking and conduit, modular wiring or LSOH/LSOH cables with suitable mechanical protection.
- To areas of raised access floor, three compartment floor boxes will be supplied at a ratio of 1 per 10m2. Each box will be fitted with a twin switched socket outlet compliant with BS 7671 High Integrity Earthing Chapter 54 and two twin back boxes ready to accept standard twin outlet plates.
- For the avoidance of doubt, where floor boxes are provided within a raised floor, power distribution to the floor boxes is expressly excluded.
- Voice and data cabling shall be installed by the Tenants. All wireways shall be provided to enable the voice and data cabling installation to be carried out.

2.3 General Lighting

- Lighting to the office areas will comprise recessed, modular LED luminaires.
  The lighting arrangement will provide an average illuminance of 500lux in compliance with SLL Lighting Handbook.
- The luminaries will be arranged on a suitable grid with switching via manual on/off control and absence over-ride detectors. The luminaires nearest to windows shall be daylight linked where applicable.
- Lighting to the entrance and reception areas will comprise recessed down lights and/or wall lights with LED lamps. The lighting arrangement will be of a quality suitable for an entrance and reception area.
- The lighting system will be wired utilising LSOH cables enclosed in trunking and conduit, modular wiring or LSOH/LSOH cables with suitable mechanical protection. The system will provide flexibility to modify the installation with minimal future disruption. Final connections to luminaires will be via a plug and socket arrangement with heat resistant flex.
- All lighting will be designed in accordance with CIBSE recommendations and SLL Lighting Handbook.

2.4 Emergency Lighting

- The emergency lighting system will be designed in accordance with BS5266:2016 to provide safe passage from the building in the event of an emergency condition and will operate on mains or local circuit failure.
- For the avoidance of doubt this includes the internal and external emergency lighting to all perimeter fire escape doors to the warehouse along with fire escape signage.
- The emergency lighting system will comprise self-contained battery units and will provide three-hour illumination. Where possible these will be integral to the general luminaries.
- Test switches will be provided centrally or integrated into the general lighting switch plates. All areas will be provided with exit luminaires and legends in accordance with current legislation.

2.5 External Lighting

- External lighting will be provided utilising LED luminaires either column and/or building mounted.
- The lighting will be designed to provide adequate illumination for safety and security, as defined by SLL Lighting Guide 6. Generally, the external lighting shall be provided as follows:
  Car park areas: 20 lux
  Lorry park areas: 50 lux
- All external lighting shall be controlled via a central digital control system, with a combination of photocell, time clock and presence detectors. The light output of the luminaires shall automatically reduce outside of normal working hours, only increasing once a person or vehicle is detected.

2.6 Voice and Data System

- Facilities will be provided to allow analogue and digital communications services to enter the building. A total of 4 ducts of 100mmØ dedicated to the facility will be installed, split between to two locations within the building.

2.7 Fire Detection and Alarm System

- The fire detection and alarm system shall be designed in accordance with BS5839-1:2017 and will comprise an analogue addressable fire alarm panel located at the main entrance. The system will comply with the requirements of Building Regulations and fire engineers report, minimum 'L2' cover to the office building, but will be capable of being expanded to a 'Type L1' at a later date. The fire alarm will comprise manual call points and sounders only within the warehouse area, or as required by Building Regulations.
- Manual break glass call points or automatic detectors will activate the system. Electronic sounders will provide alarm.

CONTENTS

Mechanical and Electrical Services

- All parts of the fire alarm and detection system will be wired in an approved type of fire-resistant cable

2.8 Lightning Protection System

- A lightning protection system shall be installed utilising the building structure wherever possible.

2.9 Vertical Transportation

- The passenger vertical transportation system will comprise one central core with one evacuation lift, which shall be sized for a minimum of 8 persons (630kg). The lift will be a machine room less electric traction lift to EN81 standards. Schindler or equal approved.
- An additional goods lift is to be provided to serve the mezzanine areas which shall be sized for a minimum of 1500kg. Stannah Goodsmaster CD Plus or equal and approved to each Mezzanine.
- The lift will be finished from the manufacturer's standard range to meet the architect's requirements and will be compliant with Part M of the Building Regulations and Disability Discrimination Regulations.
- Lift finishes to be as per Architects details.

3.0 Defibrillator

- 1nr Defibrillator to be installed within the completed offices.

External Services / Connections

1. Electrical
- The building will be provided with the following electrical supplies:
  Unit - 11.5mVA
  Unit 2 - 1mVA
  Unit 3 - 0.5mVA
  Car Park - 0.2mVA
- Electric Vehicle Charging points will be provided as per Section 7.9 below, as twin chargers, rated at 7.2kW per pole

1.1 Gas
- Spatial allowance has been provided to enable the routing of future gas supplies to each unit.

1.2 Water
- New water supplies will be taken from the site water main to serve each building and serve the sanitary facilities and drinking water requirements.
- A new fire hydrant(s) will be provided in the with the British standards and Fire officer requirements from the new water main.

1.3 Sprinklers
- Unless there is a close adjacency to the water main or a route through soft landscaping, a water supply pipe will be provided to each building to enable the future connection of a water supply to serve as a fill for future a sprinkler water storage tank location. The pipe will be capped at either end and left dry ready for future connection at either end.
- No other future sprinkler provision is provided.

1.4 UPS
- A new UPS will be provided to serve the evacuation lifts in line with BS9999 requirements.

1.5 Telecoms
- Open reach Telecommunications infrastructure will be brought to the boundary of the plot to enable the connection of either BT or a third-party telecoms provider.
- Ducts will be run between the building and the existing infrastructure as defined in Section 5.17.

1.6 Future District Heating Connection
- Spatial allowance has been provided to enable the routing of the future installation of District heating pipework.

1.7 Cross Rail Area
- No buildings or services are to be constructed within this area.

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External Works

1. Groundwork, Hardcore and Sub-Bas

- The area of the external works will be prepared in accordance with clauses 2.1, 2.2, 2.3 and 2.4 of this specification.
- Any capping layers will be of DTLR Specification for Highway Works, MOT type 2 sub-base materials to the specification and satisfaction of the structural engineer. Sub-base material will be a granular, MOT Type 1 material. The sub-base will be laid and consolidated in layers and blinded, ready to receive a polythene slip membrane where required under concrete surfacing.
- A minimum layer of 150mm thickness will be laid to areas with block surfacing.

1.1 Concrete Beds

- Where shown on the drawings the service yard and service access roads will have a concrete surfacing and will be constructed from PAV 2 concrete to the relevant British Standard with a fine brush finish, with 100mm trowelled margins, and be suitable to take articulated vehicles, operating within the Authorised Weight Regulations, for a total of 5.0 million standard axles to be applied over a 25 year design life. The concrete mix design shall address durability when subjected to the freeze thaw cycle (by air entrainment or other approved means) with a minimum cement content of 325kg/cu.m.
- All concrete work generally will be in accordance with the relevant British Standard.
- Concrete paving shall be reinforced to suit the joint layout. Joint spacing shall be selected to control cracking, facilitate construction and changes in gradient. All joints within the service yard are to be sealed with two-part, polysulphide sealant.
- Retaining walls within the service yard, where vehicular access is possible to the upper side, are to be designed to either withstand or to be protected by suitable barriers.
- The service yard circulation space is to be laid to gradients no steeper than 1 in 40. The service yard adjacent to the building, including at grade access doorways is to be no steeper than 1 in 20. Lorry parking areas are to be no steeper than 1 in 20. The area in front of the dock door positions will be designed and constructed to maintain a level bed of docking lorries. At no point on the service yard is the gradient to be flatter than 1 in 80/ 100. Access ramps to Docking Areas will be to a maximum gradient of 1 in 12. All to be in accordance with the recommendations of the Freight Transport Association.

1.2 Flexible Pavements

- Where shown on the drawings, the service access road will be of flexible construction, to the design of the structural engineer, and surfaced with hot-rolled asphalt
- The car park spaces will be surfaced in 100mm consolidated thickness of two course bituminous macadam comprising 75mm (20mm nominal stone size) dense base course and 25mm (6mm nominal stone size) medium grade wearing course laid to minimum 1 in 80 and maximum 1 in 30 falls.
- White linings to car parking areas will be one-coat, thermoplastic paint to a total width of 100mm. Directional arrows, pedestrian crossings and disabled parking signs will be similarly formed using thermoplastic paint.

1.3 Block Surfacing

- Where indicated on drawings, roadways serving car park areas and pathways will be paved in 60mm thick 'Marshalls', or similar, blocks, standard colours, laid herringbone pattern onto a 50mm bed of sand on a minimum 150mm thick sub-base. In circulation routes liable to be used by fire engines or office delivery vehicles there is to be an additional 150 mm layer of sub-base. The joints will be filled with kiln-dried washed sand and the surface well vibrated.
- Where indicated on the drawings, footpaths will be excavated to formation level, trimmed, compacted and provided with 100mm thick sub- base, blinded with fine stone, or sand and finished with 60mm thick concrete block paving, laid on a 50mm bed of sand, well vibrated, with joints filled with dry wash sand.

1.4 Other Surfacing

- Where indicated on the drawings paths and external areas will be surfaced with a 75mm depth of compacted, washed gravel, shingle or treated bark laid on 'Terram', or similar, geo-textile fabric. Where indicated on the drawings, footpaths will be excavated to formation level, trimmed, compacted and provided with 100mm thick stone hardcore base blinded with fine stone, or sand and finished with 50mm thick pre-cast concrete paving slabs, laid on a 50mm bed of sand, well vibrated, with joints filled with kiln-dried, washed sand.
- The perimeter path to the building will be constructed to allow for sufficient access and loading for MEWP access to the roof and elevations.

1.5 Kerbs and Edgings

- To the perimeter of all car parks, service yard, service access road and paved areas 254mm x 127mm half-battered, pre-cast, concrete kerbs bedded onto a 325mm x 150mm concrete base and haunch with will be laid. Drop kerbs will be provided at the entrances and where necessary for wheelchair access. Where appropriate 152mm x 52mm pre-cast, concrete edgings will be used.

CONTENTS

External Works

- Where required, Trieff kerbing will be installed to protect vulnerable areas of any structure.

1.6 Landscaping

- Landscaped areas will be laid with suitable depth of topsoil (minimum 150mm) in accordance with relevant clauses within the landscape specification and the recommendations of the Landscape Architect. The landscaping will be executed in accordance with landscape plan approved by Planning Authority & remediation strategy. Due allowance shall be made in the design for lorry overhangs and security of the site. All building elevations are to be accessible for maintenance means.
- Where indicated on the landscape plan, all rubbish will be removed, subsoil graded to contours, minimum 150mm topsoil spread and rotovated, stones removed, beds raked and prepared for planting.
- Trees, shrubs and other plants will be planted, watered, staked, supported as necessary and maintained for a period of twelve months. All exposed topsoil areas will be covered with bark mulch. Grassed areas will be graded to contours turfed or hydro-seeded as specified by the landscape specification.
- A well being area shall be formed within the site and comprise a hard landscaped area with associated picnic tables & benches.
- Cycle Hub within the multi storey carpark.

1.7 Fencing, Gates and Barriers

- 2.40m high, polyester powder coated 'Paladin' fencing will be provided to the service yard and where indicated on the site layout drawing. Matching, sliding lockable vehicular and pedestrian gates will be incorporated where shown on the drawings. SBD SR1 rating.
- The boundary of the site, where not fenced or defined by kerbs, edgings and the like, will be defined by the provision of 100mm x 100mm treated sawn softwood posts set at regular intervals.

1.8 Sundry

- If required, within the service yard Armco type barriers will be installed, as detailed on the drawings.
- 20% of all car parking spaces to have EV charging points with a further 10% ducted for future expansion
- Where applicable the external steps to the dock level area will be constructed in galvanised steel, with a slip resistant finish. Handrails and balustrading will be provided in circular hollow, hot dipped galvanised mild steel, sections and receive a colour paint finish. Bollard protection is to be provided at external steps locations.

1.9 Drainage

- Connections from the site boundary to main foul and surface water sewers will be made in accordance with the requirements of the local drainage authority.
- Foul and surface water drainage will be constructed to the details shown on the drainage drawings to the relevant British Standards. Where required, pipework will be protected in accordance with the 'Simplified Tables of External Loads on Buried Pipelines'.
- Manholes will be constructed to the depths required using either pre-cast concrete rings with heavy-duty cover slabs or in semi engineering brickwork. The bases of manholes will incorporate all necessary clayware channels and junction fittings and will be benched in fine granolithic concrete. Galvanized step irons will be included in the walls of manholes and the manhole covers will be of galvanised steel or cast. Any manhole covers, access panels and the like, internally within the building, will to be capable of supporting loads; as detailed within the floor slab specification.
- No manholes will be located within the extent of the warehouse/production unit slab.
- Manhole covers and gully gratings in the service yard and service access road are to be Ductile Iron grade D400. Drainage channels and gratings in these areas are to be strong enough to withstand small solid wheel forklift trucks.
- Manhole covers, gully gratings and drainage channels etc. in car park areas are to be suitable for C250 loading.
- Manhole covers, gully gratings and drainage channels etc. in other areas are to be suitable for pedestrian loading unless there is a significant risk of vehicular over run or for deep manholes where a more substantial loading shall be specified.
- Where possible there are to be no manholes or gratings in the HGV circulation areas, access roads, in front of level access doors, or office main entrance doors. If unavoidable these must be designed accordingly.
- Where necessary, gullies will generally be 375mm dia., 750mm deep, pre-cast concrete or U.P.V.C road gullies with 150mm trapped outlet and rodding eye to BS.5911 Part 230:1994 raised with minimum one course brickwork and fitted with heavy duty or medium duty cast iron gully grate and frame as appropriate to position.
- "Decathlon" or equal and approved drainage channel is to be provided at the level access door positions, connected to the surface water drainage system.
- The surface water drainage is to comply with any discharge restrictions placed on the site by the Environment Agency, the Planning Authority and local water authority.
- A full CCTV inspection will be carried out for both surface water and foul water drainage systems and the results made available for incorporation into the building manual.
- S106 connection agreements for drainage

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