200421 - Fire Safety Improvement Works - External Escape Stairs

AH - Fire Safety Improvement Works Aster group- Banning Street

Kendall Kingscott
3 GP Centre, Yeoman Road, Ringwood, Hants, BH24 3FF T: 01425 472 833 W: www.kendallkingscott.co.uk

200421

Document Control Record

Version	Date	Prepared by	Checked by
S20 Notification	7 May 2021	David Mondino	Nathan Wilmott

Kendall Kingscott
3 GP Centre,Yeoman Road, Ringwood, Hants. BH24 3FF. T: 01425 472833
W: www.kendallkingscott.co.uk

Job No. 200421

Contents

C20
Demolition

General requirements

110 Desk study/ Survey

1. Scope: Before starting deconstruction/ demolition work, examine available information, and carry out a survey of:
   1.1. the structure or structures to be deconstructed/ demolished,
   1.2. the site on which the structure or structures stand, and
   1.3. the surrounding area.
2. Report and method statements: Submit, describing:
   2.1. Form, condition and details of the structure or structures, the site, and the surrounding area.
      2.1.1. Extent: To location of new proposed external stairs connection: Gable-end walls and external balcony escape routes and balcony balustrade where applicable.
   2.2. Type, location and condition of features of historical, archaeological, geological or ecological importance.
   2.3. Type, location and condition of adjoining or surrounding premises that might be adversely affected by removal of the structure or structures, or by noise, vibration and/ or dust generated during deconstruction/ demolition.
   2.4. Identity and location of services above and below ground, including those required for the Contractor's use, and arrangements for their disconnection and removal.
   2.5. Form and location of flammable, toxic or hazardous materials, including lead-based paint, and proposed methods for their removal and disposal.
   2.6. Form and location of materials identified for reuse or recycling, and proposed methods for removal and temporary storage.
   2.7. Proposed programme of work, including sequence and methods of deconstruction/ demolition.
   2.8. Details of specific pre-weakening required.
   2.9. Arrangements for protection of personnel and the general public, including exclusion of unauthorized persons.
   2.10. Arrangements for control of site transport and traffic.
   2.11. Special requirements: None
3. Format of report: Electronic / paper copy distributed to CA

120 Extent of deconstruction/ demolition

1. General: Subject to retention requirements specified elsewhere, deconstruct/ demolish structures down to As indicated on tender drawings. General forming new access to external stairs by means of new doors the gable-end wall or the partial removal of external balcony escape route, concrete panel balustrade .

130 Groundworks

1. Old foundations, slabs and the like: Break out in locations and to the extents stated.
2. Contaminated material: Remove, and carry out remediation required by the Enforcing Authority.

150 Features to be retained

1. General: Keep in place and protect the following: Generally retain complete building structure/ envelop.

Services affected by deconstruction/ demolition

210 Services regulations

1. Work carried out to or affecting new and/ or existing services: Carry out in accordance with the byelaws and/ or regulations of the relevant Statutory Authority.

220 Location of services

1. Services affected by deconstruction/ demolition work: Locate and mark positions.
2. Mains services marking: Arrange with the appropriate authorities for services to be located and marked.
    2.1. Marking standard: In accordance with National Joint Utilities Group ‘Guidelines on the positioning and colour coding of underground utilities’ apparatus’.

230 Services disconnection arranged by contractor

1. General: Arrange with the appropriate authorities for disconnection of services and removal of fittings and equipment owned by those authorities prior to starting deconstruction/ demolition.

250 Live foul and surface water drains

1. Drains and associated manholes, inspection chambers, gullies, vent pipes and fittings
    1.1. Protect; maintain normal flow during deconstruction/ demolition.
    1.2. Make good any damage arising from deconstruction/ demolition work.
    1.3. Leave clean and in working order at completion of deconstruction/ demolition work.
2. Other requirements:

260 Service bypass connections

1. General: Provide as necessary to maintain continuity of services to occupied areas of the site on which the deconstruction/ demolition is taking place and to adjoining sites/ properties.
2. Minimum notice to adjoining owners and all affected occupiers: 72 hours, if shutdown is necessary during changeover.

270 Services to be retained

1. Damage to services: Give notice, and notify relevant service authorities and/ or owner/ occupier regarding damage arising from deconstruction/ demolition.
2. Repairs to services: Complete as directed, and to the satisfaction of the service authority or owner.

Deconstruction/ demolition work

310 Workmanship

1. Standard: Demolish structures in accordance with BS 6187.
2. Operatives
    2.1. Appropriately skilled and experienced for the type of work.
    2.2. Holding, or in training to obtain, relevant CITB Certificates of Competence.
3. Site staff responsible for supervision and control of work: Experienced in the assessment of risks involved and methods of deconstruction/ demolition to be used.

320 Gas or vapour risks

1. Precautions: Prevent fire and/ or explosion caused by gas and/ or vapour from tanks, pipes, etc.

330 Dust control

1. General: Reduce airborne dust by periodically spraying deconstruction/ demolition works with an appropriate wetting agent. Keep public roadways and footpaths clear of mud and debris.
2. Lead dust: Submit method statement for control, containment and clean-up regimes.

340 Health hazards

1. Precautions: Protect site operatives and general public from hazards associated with vibration, dangerous fumes and dust arising during the course of the Works.

350 Adjoining property

1. Temporary support and protection: Provide. Maintain and alter, as necessary, as work proceeds. Do not leave unnecessary or unstable projections.
2. Defects: Report immediately on discovery.
3. Damage: Minimize. Repair promptly to ensure safety, stability, weather protection and security.
4. Support to foundations: Do not disturb.

360 Structures to be retained

1. Extent: All existing building structure to be retained.
2. Parts which are to be kept in place: Protect.
3. Interface between retained structures and deconstruction/ demolition: Cut away and strip out with care to minimize making good.

370 Partly demolished structures

1. General: Leave in a stable condition, with adequate temporary support at each stage to prevent risk of uncontrolled collapse. Make secure outside working hours.
2. Temporary works: Prevent overloading due to debris.
3. Access: Prevent access by unauthorized persons.

380 Dangerous openings

1. General: Provide guarding at all times, including outside of working hours. Illuminate during hours of darkness.
2. Access: Prevent access by unauthorized persons.

391 Asbestos-containing materials – unknown occurrences

1. Discovery: Give notice immediately of suspected asbestos-containing materials when discovered during deconstruction/ demolition work. Avoid disturbing such materials.
2. Removal: Submit statutory risk assessments and details of proposed methods for safe removal.

410 Unforeseen hazards

1. Discovery: Give notice immediately when hazards such as unrecorded voids, tanks, chemicals, are discovered during deconstruction/ demolition.
2. Removal: Submit details of proposed methods for filling, removal, etc.

442 Site surface at completion

1. Levels: Grade the site to follow the levels of adjacent areas.
2. Temporary surface: Cover the site with None.

450 Site condition at completion

1. Debris: Clear away and leave the site in a tidy condition.
2. Other requirements: Allow for making good any existing retained surfacing effected as a consequence of the proposed scope of works.

Materials arising

510 Contractor's property

1. Components and materials arising from the deconstruction/ demolition work: Property of the Contractor except where otherwise provided.
2. Action: Remove from site as work proceeds where not to be reused or recycled for site use.

511 Employer's property

1. Components and materials to remain the property of the Employer: External light fittings removed to facilitate the proposed scope of works.
2. Protection: Maintain until these items are removed by the Employer or reused in the Works, or until the end of the Contract.
3. Special requirements:

Ω End of Section

C90
Alterations - spot items

General

110 Descriptions

1. Location of spot item descriptions: Refer to Document 1 Volume 1 - Architectural NBS Specification, Document 1 Volume 2 - Architectural Drawings & Document 1 Volume 3 - Structural Specification and Drawings, contained with in the Tender Package for general description, requirements & proposals.

120 Employer's property

1. Components and materials arising from alterations that are to remain the property of the Employer: External street bench seating & external landscaping timber sleepers (Mount Pleasant).
2. Special requirements: None

130 Recycled materials

1. Materials arising from alterations: May be recycled or reused elsewhere in the project, subject to compliance with the appropriate specification and in accordance with any site waste management plan.
2. Evidence of compliance: Submit full details and supporting documentation.
   2.1. Verification: Allow adequate time in programme for verification of compliance.

200 Demolish - Enabling works Mount Pleasant

1. Main contractor is to allow to remove existing landscaping in the location of the proposed new stairs (only) and clear all arising debris from site. To include but not limited to 1 No. small tree, shrubbery, raised planter masonry retaining wall & foundation, timber slippers & supports retains walls, planter soil, etc. To facilitate the proposed works.
2. Spoil removal: Allow to reduce dig new formation level to accommodate new proposed external hard surfacing finishes and clear all arising debris from site.
3. Carefully remove and store existing paving slabs & base/ bedding to facilitate the associated sub-structure & foundation work for the proposed stairs and reinstate paving slabs on complete.
4. Allow to form 1 No. new door openings through end-gable wall giving access from existing external balcony access on to new stairs. Allow to clear all arising debris from site.
5. Existing external wall surface mounted services - To location of proposed stairs: Allow to protect and retain all live services.
6. Redundant external light fitting: Allow to remove light fitting and isolated and cap off supply.
7. Remove existing redundant through wall flue terminal and brick up opening with matching bricks.
8. Existing loose cabling - External wall surface mounted: Allow to provide and install new surface mounted conduit, cable management & protection to all loose cabling with in location of proposed new stairs.
   Conduit: Black pvc external grade cable conduit and stainless screw & plug fixings.
9. Contractor is to adequately protect existing retained external masonry stairs & associated masonry retaining walls, and remained of existing landscaping unaffected by the proposed scope of works.
10. Allow to retain and protect RWP service riser including face cover panels, ground level concrete cover and below ground drainage sump structure & outlet grating.

201 Demolish - Enabling works St Mary's

1. Existing external balcony walkway - Concrete guarding balustrade to maisonette No. 12 - Level 1. Allow to carefully remove part section of the existing concrete guarding balustrade to facilitate the installation on the new stairs. Allow to make good existing retained leading edge of balcony floor slab in preparation for new installation. Allow to clear all arising debris from site.
   Refer to structural engineer's specification with in Document 1 Volume 3 - Structural Specification and Drawings for structural details of removal and fixing details of the retained section of existing concrete balustrade.
2. Carefully remove and store existing paving slabs & base/ bedding to facilitate the associated sub-structure & foundation work for the proposed stairs and reinstate paving slabs on complete.
3. Spoil removal: Allow to reduce dig new formation level to accommodate new proposed external hard surfacing finishes and clear all arising debris from site.
4. Allow to retain and protect existing adjacent timber gate & post and concrete post and rail fence.
5. Allow to retain and protect existing external emergency lighting and cabling to external balcony walkways.

202 Demolish - Enabling works Tadburn Green 1

1. Contractor to allow to reduce dig existing soft ground adjacent embankment to facilitated new external works and formation of new pedestrian foot path and associated new retaining wall. Allow to clear all arising debris from site.
2. Allow to form 2 No. new door openings through end-gable wall giving access from existing external balcony access on to new stairs. Allow to clear all arising debris from site.
3. Existing external wall surface mounted services - To location of proposed stairs: Allow to protect and retain all live services.
4. Remove existing redundant through wall flue terminal and brick up opening with matching bricks.
5. Existing loose cabling - External wall surface mounted: Allow to provide and install new surface mounted conduit, cable management & protection to all loose cabling with in location of proposed new stairs.
   Conduit: Black pvc external grade cable conduit and stainless screw & plug fixings.
6. Existing through wall boiler flue terminal at Level 0 Flat No. 01 to be removed from gable-end wall and relocated on North West Elevation.
   This item of work will be facilitated by the client/ landlord.
   Main contractor to coordinate work item with client in terms of project programming.
7. Allow to retain and protect RWP service riser including face cover panels, ground level concrete cover and below ground drainage sump structure & outlet grating.
8. Retain and protect existing wall mounted telecommunication service cabinet.

203 Demolish - Enabling works Tadburn Green 2

1. Existing external balcony walkway - Concrete guarding balustrade to maisonette No. 24 - Level 1 & No.36 - Level 3. Allow to carefully remove part section of the existing concrete guarding balustrade to facilitate the installation on the new stairs. Allow to make good existing retained leading edge & top of balcony floor slab in preparation for new installation. Allow to clear all arising debris from site.
   Refer to structural engineer's specification with in Document 1 Volume 3 - Structural Specification and Drawings for structural details of removal and fixing details of the retained section of existing concrete balustrade.
2. Contractor to allow to reduce dig existing soft ground to location of new stairs to facilitated new substructure, foundations, external works, formation of new pedestrian foot path. Allow to clear all arising debris from site.
3. Existing through wall boiler flue terminal at Level 2 Maisonette No. 24 to be removed and relocated on to gable-end wall.
   This item of work will be facilitated by the client/ landlord.
   Main contractor to coordinate work item with client in terms of project programming.

4. Existing loose cabling - External wall surface mounted: Allow to provide and install new surface mounted conduit, cable management & protection to all loose cabling with in location of proposed new stairs.
   Conduit: Black pvc external grade cable conduit and stainless screw & plug fixings.
5. Existing telecoms cable - Wall surface mounted in position of new stairs.
   Contractor to allow to extend and divert existing telecoms cable up, across and down around new stairs structure and reestablish live connection.
6. Allow to retain and protect existing external emergency lighting and cabling to external balcony walkways.

204 Demolish - Enabling works Berthon House

1. Contractor to allow to reduce dig existing soft ground adjacent to existing foot path to facilitated new external works and formation of new pedestrian foot path and edgings. Allow to clear all arising debris from site.
2. Allow to form 1 No. new door openings through end-gable wall giving access from existing external balcony access on to new stairs. Allow to clear all arising debris from site.
3. Existing external wall surface mounted services - To location of proposed stairs: Allow to protect and retain all live services.
4. Allow to remove existing redundant external light fitting, cabling and isolated and cap off supply. Make good effected surfaces.
5. Remove existing redundant through wall flue terminal and brick up opening with matching bricks.
6. Existing external wall surface mounted services - To location of proposed stairs: Allow to protect and retain all live services.
7. Existing loose cabling - External wall surface mounted: Allow to provide and install new surface mounted conduit, cable management & protection to all loose cabling with in location of proposed new stairs.
   Conduit: Black pvc external grade cable conduit and stainless screw & plug fixings.
8. Allow to retain and protect RWP service riser including face cover panels, ground level concrete cover and below ground drainage sump structure & outlet grating.
9. Retain and protect existing external wall mounted telecommunication service cabinet.

205 Demolish - Enabling works Ashley House

1. Contractor to allow for raising & fill to regrade adjacent soft ground embankment to suit proposed new foot path levels.
2. Allow for removal of 1 No. small tree, pruning back of 1 No. tree and removal of existing bush/ shrubbery. Allow to clear all arising debris from site.
3. Existing through wall boiler flue terminal at Level 0 Ground floor Flat No. 01 to be removed from end-gable wall and relocated to alternative elevation, location to be determined by client/ landlord. This item of work will be facilitated by the client/ landlord.
   Main contractor to coordinate work item with client in terms of project programming.
4. Contractor to allow to remove existing redundant through wall flue terminal and brick up opening with matching bricks.
5. Existing surface mount above ground drainage waste pipes are to be protected & retained in working order.
6. Existing external wall surface mounted services - To location of proposed stairs: Allow to protect and retain all live services.
7. Existing loose cabling - External wall surface mounted: Allow to provide and install new surface mounted conduit, cable management & protection to all loose cabling with in location of proposed new stairs.
   Conduit: Black pvc external grade cable conduit and stainless screw & plug fixings.
8. Allow to retain and protect RWP service riser including face cover panels, ground level concrete cover and below ground drainage sump structure & outlet grating.

206 Contractor's site access General

1. Main contractor must visit site during the Tendering period to survey & assess the access requirements for the proposed scope of works for each block and in particular the following items:
   St Mary's Block: Has narrow pedestrian foot path access only, access for excavation, lifting plant etc & materials could be obtained via Paimpol Place and lifted/ craned over garden fence, subject to client approval. (All effected soft ground landscaping is to be made good on completion).
   Mount Pleasant Block: Proposed new stair is located on a split lower level which has restricted access via an existing external narrow stair. Access for excavation, piling, lifting plant etc & materials could be obtained via Crosfield Hall public car park subject to the necessary temporary car parking spaces closure agreement with the local authority. (All effected hard surfacing to be made good on completion).
2. Main contractor to include in the tender returns clarification of proposed site access arrangements.

207 Construction plant General

1. Main contractor is to allow for all the necessary construction plant to facilitate the scope of works, to include but not limited to piling foundation rigs, excavation plant, spoil removal, lifting/ carnage equipment for stair erection, lifting/ carnage for moving construction plant in to places of limited access.

208 Existing external balcony walkway slab Making good

1. Contractor to allow for making good existing external balcony walkway concrete slab effected by the removal of the existing concrete balustrade and the forming of the new stair access doors formed through the end-gable wall.
2. Where existing concrete balustrade is removed allow to take 20mm off top of existing slab finish level to provide depth for proprietary concrete repair application. Allow for repair to top of slab and front leading edge, all to have a smooth level finish with finish levels to match existing slab.
3. Main Contractor to arrange for Fosroc Concrete Repairs technical representative to inspect and provide repair product and install method.

209 External Works - General Scope of Works Mount Pleasant

1. Main contractor to provide and install new external works items in accordance with Drawing No. 200421-6 Proposed External Works Plan to include but not limited to the following:
   Concrete paving slabs & base to new stairs hard standing & landing.
   New below ground surface water drainage fallout.
2. Trees to be cut back and pruned in accordance with Arboricultural Impact Assessment Drawing No. 200830-1.1-BSR-TPP-NC Tree Protection Plan & Drawing No. 200827-1.1-BSR-TCP-NC Tree Constraints Plan. Document contained in Specification - Appendix C Arboricultural Impact assessment.
3. Make good all effected existing surfaces as a consequence of the proposed scope of works.

210 External Works - General Scope of Works St Mary's

1. Main contractor to provide and install new external works items in accordance with Drawing No. 200421-6002 Proposed External Works Plan to include but not limited to the following:
   Concrete paving slabs & base to new stairs hard standing, landings & ramp.
   New ramp handrail.
   New landing and ramp kerb up-stand and retaining wall.
   New soakaway and below ground surface water drainage connection.
2. Make good all effected existing surfaces as a consequence of the proposed scope of works.

211 External Works - General Scope of Works Tadburn Green 1

1. Main contractor to provide and install new external works items in accordance with Drawing No. 200421-6000 Proposed External Works Plan to include but not limited to the following:

New concrete paving slabs & base to new stairs hard standing and additional new diverted pedestrian foot path.
New foot path kerb up-stand and retaining wall.
New soakaway and below ground surface water drainage connection.

2. Trees to be cut back and pruned in accordance with Arboricultural Impact Assessment Drawing No. 200830-1.1-BSR-TPP-NC Tree Protection Plan & Drawing No. 200827-1.1-BSR-TCP-NC Tree Constraints Plan. Document contained in Specification - Appendix C Arboricultural Impact assessment.
3. Make good all effected existing surfaces as a consequence of the proposed scope of works.

212 External Works - General Scope of Works Tadburn Green 2

1. Main contractor to provide and install new external works items in accordance with Drawing No. 200421-6000 Proposed External Works Plan to include but not limited to the following:
New Tarmac & base to new stairs hard standing and additional new connecting pedestrian foot path.
New concrete edgings.
New soakaway and below ground surface water drainage connection.
2. Trees to be cut back and pruned in accordance with Arboricultural Impact Assessment Drawing No. 200830-1.1-BSR-TPP-NC Tree Protection Plan & Drawing No. 200827-1.1-BSR-TCP-NC Tree Constraints Plan. Document contained in Specification - Appendix C Arboricultural Impact assessment.
3. Make good all effected existing surfaces as a consequence of the proposed scope of works.

213 External Works - General Scope of Works Berthon House

1.
2. Trees to be cut back and pruned in accordance with Arboricultural Impact Assessment Drawing No. 200830-1.1-BSR-TPP-NC Tree Protection Plan & Drawing No. 200827-1.1-BSR-TCP-NC Tree Constraints Plan. Document contained in Specification - Appendix C Arboricultural Impact assessment.
3. Make good all effected existing surfaces as a consequence of the proposed scope of works.

214 External Works - General Scope of Works Ashley House

1. Main contractor to provide and install new external works items in accordance with Drawing No. 200421-6 Proposed External Works Plan to include but not limited to the following:
New concrete paving slabs & base to new stairs hard standing and additional new diverted pedestrian foot path.
New foot path kerb up-stand and retaining wall.
New soakaway and below ground surface water drainage connection.
2. Trees to be cut back and pruned in accordance with Arboricultural Impact Assessment Drawing No. 200830-1.1-BSR-TPP-NC Tree Protection Plan & Drawing No. 200827-1.1-BSR-TCP-NC Tree Constraints Plan. Document contained in Specification - Appendix C Arboricultural Impact assessment.
3. Make good all effected existing surfaces as a consequence of the proposed scope of works.

215 Tree protection & pruning/ tree removal General

1. Main contractor is to carryout all enabling works tree protection measures and tree pruning and removal. Sequencing, method and scope of works in strict with Arboricultural Impact Assessment Drawing No. 200830-1.1-BSR-TPP-NC Tree Protection Plan & Drawing No. 200827-1.1-BSR-TCP-NC Tree Constraints Plan. Document contained in Specification - Appendix C Arboricultural Impact assessment.
2. All required temporary tree protection in to be installed prior to start of the proposed works.
3. Allow to clear all arising debris from site.

216 Emergency lighting - To new stair structure. Contractor's Design Portion (CDP)

1. Emergency lighting to new stair structure to cover complete escape route from entry point to exit point:
    - This section, when read with the drawings, indicates the design intent, where the Contractor will be required to obtain / provide specialist design services to complete the Detailed Design. The Contractor retains full responsibility for the Detailed Design, installation, execution and warranting of the works and for meeting the performance criteria identified. The contractor shall complete the Detailed Design of all interfaces with adjoining trades and ensure the interfaces are fully co-ordinated. Ensure the design intent identified on the drawings, schedules & specification is maintained, unless doing so would prevent compliance with the performance criteria / statutory requirements.
    - Where no product or supplier is indicated in the specification or drawings, propose suitable materials and systems prior to Contract award which comply with the visual intent and performance criteria stated and remain fully responsible for the Detailed Design of the works. Where a particular material, product or supplier is indicated, such material, product or supplier shall be deemed indicative representing the design intent only. The Contractor may complete the installation using that material or product, or such other confirmed as acceptable by the CA in writing, but shall remain fully responsible for the Detailed Design and performance of the works.
2. The Contractor shall allow for providing an emergency lighting installation comprising 3hr self□contained, switch□maintained emergency fittings and illuminated exit signage. The emergency lighting installation shall fully comply with the requirements of BS 5266 X0□189 and BS 5499.
   The wiring of emergency lighting luminaries shall be such that the emergency circuit is tested without isolation of the general lighting circuits.
   Emergency lighting test switches shall be mounted adjacent to the serving landlord's distribution board.
3. Illuminated direction emergency exit light with 'Running man logo': Main contractor to provide and install a emergency exit wall bulkhead light - LED IP65, powered by both 230 V power supply and a battery (in the event of a power failure).
   Signage: Direction arrow with green running man logo.
   Location: At the stair entry point of every new stair landing to all 6 No. blocks.
   Function: New Illuminated direction emergency exit light is to provide a clear illuminated direction exit point to new stairs, this should be clear from the full length of the existing external balcony escape routes.
4. Each emergency light shall be provided with LED status indicator, clearly visible with the luminaire cover fitted.
5. Upon completion of the works, the Contractor shall allow for a complete 3hr test of the emergency lighting system and produce a testing/commissioning certificate, which shall be bound into the Operating & Maintenance manual. This test shall be completed outside of normal working hours and during the hours of darkness. As part of the emergency lighting test, the Contractor shall allow for marking□up an AutoCAD drawing highlighting each test position and results of each point; this shall be inserted into the Operating & Maintenance Manual.
6. Distribution boards serving lighting and small power circuits shall be arranged (split) so that the lighting and small power circuits can be separately metered, and new supply must be connected to the landlord's metered distribution board.
   All metering shall be in accordance with the requirements of the Building Regulations Approved Document L, and CIBSE TM39. Each Power monitor shall have facility for network connection through an RS232 interface to a Building Management System (BMS). Each new distribution board section shall be provided with a dedicated digital display kWhr meter, as Schneider Electric PM5110 or equal and approved. .
   Distribution cabling shall be completed using multi□core XLPE/SWA/LSOH cables fixed to medium duty cable basket, fixed to the building fabric via secondary support brackets. All cable containment and brackets shall be suitable for the environment in□which being installed.

Galvafroid paint shall be applied to all bracket cut□ends. End caps shall be provided to all Unistrut supports.

7. WIRING SYSTEMS AND CONTAINMENT: Provide complete wiring systems to the whole of the installation, generally as follows
   2.5mm2 LSF (6242B) multi□core copper cables contained within surface conduits to be metallic.
8. Luminare fittings - VANDAL-RESISTANT CIRCULAR LUMINAIRES
   Manufacture: Thorlux Lighting or equal and approved.
   Product reference: PRISMALETTE 360 with Integral 3 hour emergency back□up.
   IP66 exterior minimum rating.
9. Emergency light controls:
   Photo cell for operation in hours of darkness only.
   360° Microwave Motion Detector Radar Sensor Light Switch DC 12-24V, Automatic Turn ON/OFF Based on Motion.

217 Scaffold General

1. Item: Contractor to allow to Provide, erect, maintain and dismantle on completion all necessary scaffolding, trestles, toe boards, handrails, ladders, hoists and protective sheeting to enable safe execution of the works.
   All scaffold, including collars and joints, should be protected with foam padding up to head level, include plastic protective cups over ends of tubes. Uprights to first lift to be wrapped in bright coloured tape.
   - Allow to provide and install crash decks over all maintained building entrances & fire escape final exit doors.
   - Allow to maintain safe residents & public thoroughfare pedestrian access for the whole construction phase and provide crash decks as necessary - Refer to Site Logistics Plan.
   Provide all necessary signage, barriers and illumination where scaffold encroaches on or close to paths & access routes.
   All points of entry into the building and all fire exits are to be safely maintained at all times, scaffolding over these doors to be double boarded, butted up to building with polythene between to prevent debris falling through.
   Contractor to be liable for any costs to repair areas damaged by or during the works at completion.
   All ladders to be removed at the end of each working day and kept in a secure place. All scaffold shall comply with the following:
   - CP3 Chapter V Part 2 Wind Loads
   - BS5973 Code of Practice for Access and Working Scaffolds - The Health & Safety at Work etc. Act 1974
   - Construction, (Health, Safety & Welfare) Regulations 1996
   - CITB GE 700/5 – Scaffolding
   Contractor to submit construction site management plan and method statement for all scaffold & security fencing works to C.A for review & comment prior to erection of scaffold & fencing.
2. Main Contractor to submit Construction Phase Health & Safety Plan to Cleary illiterate proposed scaffold for C.A. review and comment prior to scaffold erection.

218 Scaffold & site compound - Security fencing

1. Contractor to provide and erect temporary secure 2 metre high Heras Fencing system with screen mesh & allowing for all supports and fixings around scaffolding to provide a secure separation between contractors working zone and residents & public use access & circulation for the duration of works in accordance with contractor's approved Site Set Up Plan. Refer also to the Preliminaries.
2. Where applicable public pedestrian foot paths to be closed to facilitate and allow for the proposed stair structure erections and permanent public foot path diversions.
3. Contractor to allow for all necessary temporary pedestrian barriers, temporary pedestrian walkway mats over soft ground and all associated access and directional signage.

219 Removal existing redundant mechanical, drainage & electrical services General

1. Contractor to carefully dismantle, take down and remove all redundant mechanical, drainage & electrical services to include but not limited to flue penetrations & terminal, fittings & fixings, associated controllers, switches, and all cabling and pipework.
   All associated electrical power, gas/ heating, water feeds etc should be isolated and or disconnected prior to removals.
2. Make good all existing retained surfaces affected as a consequence of the removal works items as necessary in preparation for the proposed alterations and refurbishment scope of works.
3. Note: The removal & relocation of exiting live boiler & through wall flue terminals is to be undertaken by the landlord and is outside the project scope of works.

220 Builder's work in connection

1. Item: Main contractor is to allow for providing building's work in connection for the complete installation of the stair structure to include but not limited to the complete install of the primary structure & the connections back to existing building concrete floor slabs, the secondary stair structure, the partial removal & new support of the existing concrete balcony balustrade, new door opening & lintels through gable-end walls, substructure & foundations, alterations & adaptions to the existing below ground services, emergency lighting installations, proposed external works, etc.
2. Primary steel structure frame connection to existing building concrete floor slab, refer to structural engineer's details Document 1 Volume 3 - Structural Specification and Drawings, contained with in the Tender Package.

221 Bush & shrubbery removal Enabling works

1. Main contractor is to allow for cutting back and or the removal of existing bushes, shrubbery vegetation to facilitate the complete proposed scope of works.
2. All cutting back and removal must be carried out in strict accordance of the Arboricultural Impact Assessment report.
   Refer to Architectural Specification Appendix C - Arboricultural Impact Assessment for full details.
3. Allow to clear all arising debris from site

222 Trees Enabling works removal

1. Main contractor is to allow for cutting back and or the removal of existing trees to facilitate the complete proposed scope of works.
2. All cutting back and removal must be carried out in strict accordance of the Arboricultural Impact Assessment report.
   Refer to Architectural Specification Appendix C - Arboricultural Impact Assessment for full details.
3. Allow to clear all arising debris from site

223 Soft ground/ landscaping Making Good

1. Main contractor is to allow for making good to all soft ground landscaping (grass) areas affected by the proposed scope of works.
   Allow for removal, on site storage and reinstatement of existing top soil and sowing of new grass seed.
2. Location: Refer to Drawing No's. 200421-6000 series - Proposed External Works Plan for general arrangement and scope of area of making good to existing soft landscaping.
3. All works to be carried out in accordance of Specification Section Q30 - Seeding/ turfing.

224 Excavations To new substructure footings & piling

1. IMPORTANT NOTE - HAND DIG EXCAVATIONS

2. Main contractor MUST allow for hand dig to carryout full below ground intrusive inspection to confirm the precise layout & depths of the services prior the substructure works.
3. Foundation piling works and any subsequent mechanical excavation method for footings may only be permitted once contractor has demonstrated beyond all reasonable doubt the it is safe to do with no risk of damaging existing below ground services.
4. If their is any doubt with potential risk of damage to existing services the contractor must complete footing foundations excavations by hand dig method.
   Main contractor must make cost allowance for this eventually in their tender returns.

225 Piling foundations Position

1. Prior to piling mechanical excavation the contractor must first hand dug to confirm beyond reasonable doubt that the proposed location & position of the proposed piling does not clash with any below ground existing services.
2. If it is determined that the proposed piling position will potentially clash with below ground existing services, the works must stop immediately and the main contractor must contact the C.A. & project structural engineer and await further instructions.

226 Existing below ground drainage Foul water & storm water drains

1. Main contractor is to allow for building over existing foul water & storm water drains with new substructure foundations.
   For general arrangement of existing below ground foul water & storm water drains and proposed substructure foundations/ footings/ piling refer to Substructure Plans Drawing No's. 200421-2000 series.
   Refer to structural engineers details contained with in Document 1 Volume 3 - Structural Specification and Drawings for complete details of existing drainage invert levels and proposed footing formation levels.
   The above drawings must also be read in conjunction with the Utility Mapping Survey by CLEAR VIEW Drawing No's. 12753-001 - 1 of 4, 2 of 4, 3 of 4 & 4 of 4.
2. Note: Below ground services indicated are based on survey data by others. It remains the responsibility of the main contractor to carryout further below ground intrusive investigations to confirm the precise layouts and pipe invert & crown depths of the existing foul water & storm water drains prior to the proposed substructure works.
   Any discrepancy with the data provided or potential clash with existing drainage and proposed footings is to be report to the C.A immediately and contractor to stop activity & await further instruction.

227 Existing below ground services Utility services

1. Main contractor is to allow for diverting existing below ground utility services as necessary to facilitate the proposed scope of works proposed new substructure foundations/ footings/ piling.
2. For general arrangement of existing below ground utility services and proposed substructure foundations/ footings/ piling refer to Substructure Plans Drawing No's. 200421-2000 series and structural engineer's drawing contained with in Document 1 Volume 3 - Structural Specification and Drawings.
   The above drawings must also be read in conjunction with the Utility Mapping Survey by CLEAR VIEW Drawing No's. 12753-001 - 1 of 4, 2 of 4, 3 of 4 & 4 of 4.
3. Note: Below ground services indicated are based on survey data by others. It remains the responsibility of the main contractor to carryout further below ground intrusive investigations to confirm the precise layouts and depths of all the effected below ground utility services prior to the proposed substructure works.
   Any discrepancy with the data provided or potential clash with existing below ground utility services and the proposed footings is to be report to the C.A immediately and contractor stop activity & await further instruction.
4. Diversion of existing below ground utility services: The main contractor at tender stage submissions is to allow for a provisional sum for the diversion of the existing below ground utility

services to facilitate the proposed substructure scope of works.
Refer to clause C90-300.

5. Utility services diversion notice: On completion of formal contract appointment the main contractor must immediately apply and submit notice to the relevant utility providers for the diversions of existing below ground utility services to facilitate the proposed scope of works.
This is to include but not limited to the following service providers: Main electricity supply provider, mains water supply provider, mains gas supply providers, BT Communication, Virgin Media communications and any additional unknown below ground services discovered during the hand dig intrusive investigations.
Main contractor is to update contractors programme in accordance with the above notice dates as soon as available and issue to C.A.

228 Existing hard surfacing finishes - Making good General to tarmac & concrete flag paving surfaces

1. Main contractor to allow for making good all existing hard surfacing finishes for tarmac and concrete flag paving effected by the consequence of the proposed scope of works.
2. Tarmac hard surfacing: Making good tarmac surfacing as Section Clause Q22-112.
3. Concrete flag paving: Making good concrete flag surfacing as Section Clause Q25-120.
Allow to replace any damaged of cracked existing concrete flag pavings at the abutment with the new paving.

229 Lintels To new door openings

1. Main contractor is to allow to neatly cut through existing gable-end walls of masonry cavity construction.
Cuts should be neat, accurate and true to suit the proposed. structural openings.
2. Allow to provide, install & fix new UPVC pre-insulated cavity closer trays to new opening reveals and heads cavity wall openings, cavity closer size/ type to suit existing cavity width and provide a suitable tight fit.
3. Allow to provide and install lintels over new door structural openings with a minimum 150mm endearing both ends.
Refer to SE details contained in Document 1 Volume 3 - Structural Specification and Drawings for details.

230 Construction machinery access

1. Main contractor must visit site at tender stage to fully assess, determine and conclude satisfactory method for access and egress for all necessary construction plant machinery to include but not limited to excavators, piling rigs, lifting equipment for stair structure, welding equipment, scaffold, water pumps etc.
2. Allow for lifting/ carnage equipment for lifting construction plant machinery in to place of work as required.

231 Concrete delivery & pumping access

1. Main contractor must visit site at tender stage to fully assess, determine and conclude satisfactory method for access and egress of concrete delivery vehicles and pumping of concrete to place of work as required.

232 Underground utilities services - Tracing & mapping Contractor's additional investigations

1. In advance of the intrusive 'hand dig' below ground services investigations the main contractor shall allow for any additional underground scanning surveys as deemed necessary to minimise the risk of any damage caused by excavations to the existing below ground services.
2. The main contractor should provide a separate identified cost for the above item in the tender returns.

233 Construction rubbish/ debris removal Skips

1. Main contractor is to allow to provide for all removal skips as required to facilitate the proposed scope of works.

234 Contractors site compound & Welfare

1. Contractor to provide and erect temporary secure 2 metre high Heras Fencing & secure gate system with screen mesh & allowing for all supports, fixings & signage. To provide a secure contractor's site compound for site accommodation office, & all welfare facilities and site storage containers with secure separations to public areas.
2. Main contractor to all for night time security lighting to contractor's compound controlled by motion detection and security CCTV surveillance.
3. Contractor to provide & install with all required temporary services connections to include but not limited to below ground foul drainage connection, water, power and communication for a suitable site office and welfare facilities in the location indicated on drawing No. 170846-1151(Subject to contractor's site survey and below ground existing services scan checks).
4. Contractor to provide natural ventilated secure storage container as required for the duration of the project, including delivery and placing on site and removal at completion.

235 Security fencing To enclose proposed work area

1. Main contractor to provide and erect a temporary secure 2 metre high Heras Fencing & access gate system with screen mesh & allowing for all supports, fixings and signage around the proposed working area of the stairs installation.
   To provide a secure separation between contractors working zone and the public areas in general to fully maintain unimpeded access & circulation to the public for the duration of works in accordance with contractor's approved Site Set Up Plan.
2. Main contractor must submit a fully detailed CDM Construction Phase Plan to the C.A for review, comment and sign off prior to site phase.

236 Banksman For contractor's traffic

1. Main contractor is to allow for Banksman to control all contractor's vehicular traffic movements from entry on to the residental site, to include meeting vehicle at main site entrance and control all contractor's traffic for access, egress and vehicular turning and unloading / loading. Refer also to the Preliminaries.

237 Stairs & electrical services General - Contractor's Design Portion

1. The Contractor shall undertake any Contractor Design Elements, which shall include, but not be limited to the following:
   Detailed design of the installation including calculations, equipment specification, coordination drawings, working drawings and such details as are necessary. Calculations shall be submitted for review and comment.
   Attending design meetings, working with the other members of the design team to develop the design, explaining to other members of the design team the proposed system/ design and providing information to enable the design of the supporting structure to be completed. Building Regulations and Statutory Approvals. Submission of drawings and specifications to the Local Authority and Fire Officer for approval.
   Programme of works covering all aspects of the Sub-Contract and for co-ordination with the Main Contract programme.
   Preparation of drawings and schedules.
   Co-ordination of access requirements to equipment with the Architect to enable safe working for future maintenance.
   Installation work shall not proceed until design details have been commented on by the Engineer and Client's Representative. The Contractor shall allow a minimum of 10 working days for comments to be received.

2. Visit to site: Tenderers are advised to visit the existing site to inspect and survey the existing site conditions prior to submitting their Tender.
   An appointment can be made for this purpose by contacting the Contract Administrator.
   The Contractor shall be deemed to have visited site prior to tendering.
   No claims shall be entertained for lack of knowledge to work content or working conditions on site.
3. Enabling works: The Contractor shall carry out a physical survey of the site and adjacent areas to determine as far as practical the accuracy of any services information.
   A record of all information gained shall be maintained on site and forwarded to the Contract Administrator.
4. Tender drawings: The Tender drawings are provided to assist the Contractor in preparing his Tender, they are not intended to be installation drawings, and the Contractor shall be deemed to have included for any necessary amendments to service design arising from his survey at Tender stage.
   The tender documents have been prepared to provide a performance specification which defines the required outcomes and design intent rather than detailed design solutions.
   The Contractor shall be responsible for the verification of the performance specification, full and detailed technical design, coordination, construction and supervision of the complete Building Services installation.
   The Contractor shall refer to Part Two of the specification which further defines project particular design responsibilities.
5. Regulations & standards: The Contractor shall ensure all design, performance, materials, equipment and works are in accordance with the appropriate industry regulations and standards current at the date of Tender. Where no specific design, performance or installation guidance, standards and regulation are quoted the requirements and recommendations of the following shall apply:
   Acts of Parliament
   Statutory Regulations
   Building Regulations
   Building Control
   Health and Safety at Work Act, HS Regulations and HSE Publications
   British Standards / Code of Practice
   Government departments, agencies and public bodies
   Local Planning Authority
   Local byelaws relating the area of the site
   Requirements of the Building Control Officer and Environmental Health Officer
   Construction (Design and Management) Regulations
   Water Supply (Water Fittings) Regulation
   Gas Safety (Installation and Use) Regulations
   Electricity at Work Regulations
   The Regulatory Reform (Fire Safety) Order
   Control of Substances Hazardous to Health (COSHH) Regulations
   Chartered Institute of Building services Engineers (CIBSE) Inc. Guides, Technical Memoranda and Commissioning Codes
   Building Services Research and Information Association (BSRIA)
   Building Engineering Services Association (BESA)
   Chartered Institute of Plumbing and Heating Engineering (CIPHE)
   Institution of Gas Engineers and Managers (IGEM)
   Building Controls Industry Association (BCIA)
   Institution of Engineering Technology (IET) Inc. IET Wiring Regulations, Guidance Notes and On-Site
   Guides
   Electrical Contractors Association (ECA)
   British Council for Offices (BCO)
   Loss Prevention Council (LPC)
   Manufacturers' recommendations for installation and testing of equipment and materials.

300 Existing below ground services Unforeseen remedial works & alterations and adaptions - PROVISIONAL SUM

1. Item: Include a provisional sum of £25000.00 for unknown & unforeseen remedial works, alterations, adaptions, diversions to existing below ground services and including but not limited to all associated inspection chamber adaptions or relocation, isolation & control valves etc as a consequence of the new substructure and foundations to facilitate the proposed new stair structure.

301 New Stairs emergency lighting Connections & link back to Landlords electrical cupboard distribution board - PROVISIONAL SUM

1. Item: Include a provisional sum of £6000.00 for unforeseen works to new stair emergency lighting cable routing connections back to the Landlords electrical cupboard distribution board.

302 Existing external emergency escape lighting - Upgrading To existing external balcony escape routes - PROVISIONAL SUM

1. Item: Include a provisional sum of £6000.00 for general upgrading of existing external emergency light to existing external balcony escape routes.
   Note: This item is to be reviewed on site with the C.A and the scope of works to be agreed, subject to review of the work in progress of the emergency lighting upgrades currently being undertaken by others outside of the contract.
2. General requirements: Typical allow for a new emergency light direction outside each flat/ maisonette entrance door (6 No. light fittings to each existing external balcony escape route). New light fitting are to be controlled by PIR sensors and automatically turn on in hours of darkness.
3. Emergency lighting installation comprising 3hr self□contained, switch□maintained emergency fittings.
   All supply is to be routed back to the existing electrical cupboards - Landlords distribution board. The emergency lighting installation shall fully comply with the requirements of BS 5266 X0□189 and BS 5499.

Ω End of Section

D20
Excavating and filling

Generally/the site

110 Site investigation

1. Report: Refer to Specification Document 1 Volume 3 Structural Drawings, Calculations & Specification & Report.

145 Variations in ground water level

1. Give notice: If levels encountered are significantly different from levels in the site investigation report or previously measured.

150 Existing services, features and structures

1. Services: See section A12 for locations - Refer to Utility Mapping Survey by Clear View - Drawing No. 12753-001 Utility Mapping Survey contained with in NBS Specification - Appendix B - Below ground services.
2. Site features to be retained: See section A12 for details.
   All above & below ground utility services.
   Existing trees - Refer to Arboricultural Impact Assessment contained with in NBS Specification - Appendix C - Arboricultural Impact Assessment.
3. Structures: See section A34 for details of protection.
   Main contracture to allow to provide and install all necessary temporary protection to the existing building at above & below ground levels as necessary to facilitate the proposed scope of works and protection the existing building from damage.

Clearance/excavating

164 Tree roots

1. Protected area: Do not cut roots within precautionary protection area.
   1.1. Size of area: Refer to Arboricultural Impact Assessment contained with in NBS Specification - Appendix C - Arboricultural Impact Assessment.
   As Drawing No's. 200830-1.1-BSR-TPP-NC & 200827-1.1-BSR-TCP-NC
2. Excavation in protected area
   2.1. Method: By hand
   2.2. Backfill as soon as possible or temporarily line with polyethylene sheet to reduce evaporation.
3. Outside protected area: Give notice of roots exceeding 25 mm and do not cut without approval.
4. Cutting
   4.1. Make clean smooth cuts with no ragged edges.
   4.2. Pare cut surfaces smooth with a sharp knife.
   4.3. Treatment of cut roots: Refer to Arboricultural Impact Assessment.
5. Backfill: Refer to Arboricultural Impact Assessment.

166 Tree root barriers

1. Trench: Sever all roots.
   1.1. Depth: Refer to Arboricultural Impact Assessment.
2. Root barrier: Refer to Arboricultural Impact Assessment.
3. Cutting roots: As clause 164.

4. Root barrier installation: Full depth of excavation. Fit closely to trench wall nearest the tree.
5. Backfill material: As dug material excavated from trench.
6. Backfilling: Lay and compact thoroughly in layers not more than 300 mm thick.

168 Site clearance

1. Timing: Before topsoil stripping, if any.
2. General: Clear site of rubbish, debris and vegetation. Do not compact topsoil.
3. Treatment: Refer to Arboricultural Impact Assessment.

170 Removing small trees, shrubs, hedges and roots

1. Identification: Clearly mark trees to be removed.
2. Small trees, shrubs and hedges: Cut down.
3. Roots: Grub up and dispose of without undue disturbance of soil and adjacent areas.
4. Safety: Comply with Forest Industry Safety Accord safety leaflets.

175 Felling large trees

1. Definition: Girth over 600 mm.
2. Identification: Clearly mark trees to be removed.
3. Safety: Comply with Forest Industry Safety Accord safety leaflets.
4. Felling: As close to the ground as possible.
5. Stumps: Refer to Arboricultural Impact Assessment.
6. Work near retained trees: Take down trees carefully in small sections to avoid damage to adjacent trees that are to be retained, where tree canopies overlap and in confined spaces generally.

220 Stripping topsoil

1. General: Before beginning general excavation or filling, strip topsoil from areas where there will be regrading, buildings, pavings/ roads and other areas shown on drawings.
2. Depth
    2.1. Remove to an average depth of 150 mm.
    2.2. Give notice where the depth of topsoil is difficult to determine.
3. Handling: Handle topsoil for reuse or sale in accordance with clause 225.
4. Around trees: Do not remove topsoil from below the spread of trees to be retained.
5. Site storage: Keep separate from excavated sub-soil

221 Treating topsoil

1. Treatment: Apply a suitable translocated nonresidual herbicide.
2. Timing: Not less than two weeks before excavating topsoil.

225 Handling topsoil

1. Standard: To BS 3882.
2. Aggressive weeds
    2.1. Species: Notify the presence of species included in the Weeds Act, section 2, or the appropriate Wildlife and Countryside Act for the relevant jurisdiction.
    2.2. Give notice: Obtain instructions before moving topsoil.
3. Contamination: Do not mix topsoil with:
    3.1. Subsoil, stone, hardcore, rubbish or material from demolition work.

3.2. Other soil or material containing aggressive weeds, sharps, plastics and non soil forming materials and notifiable animal or plant diseases.

3.3. Oil, fuel, cement or other substances harmful to plant growth.

3.4. Other classifications of topsoil.

4. Multiple handling: Keep to a minimum. Use topsoil immediately after stripping.

240 Adjacent excavations

1. Requirement: Where an excavation encroaches below a line drawn at an angle from the nearest formation level of another higher excavation, the lower excavation, all work within it and backfilling thereto, must be completed before the higher excavation is made.
2. Angle of line below horizontal: 30°
3. Backfill material: General filling as clause 626

242 Excavations adjacent to existing backfilled trenches

1. Proximity: When width of undisturbed ground between the two excavations will be less than …….
2. Action: Assume that the ground between the trenches is unstable and provide side support accordingly.

244 Excavations adjacent to existing foundations

1. Prior to commencing excavation

1.1. Excavate trial pits adjacent to existing foundations to determine extent and formation levels.

1.2. Allow for inspection of trial pits.

1.3. Allow time for amendment of details if required.

1.3.1. Time period: 10 working days

2. Backfill material to new excavation: General filling as clause 626

248 Backfill to excavations lower than foundation formation level

1. Critical level

1.1. Distance between near faces of foundation and lower excavation less than 1 m: Refer to Specification Document 1 Volume 3 Structural Drawings, Calculations & Specification & Report.

1.2. Otherwise:

2. Backfill material

2.1. Below critical level:

2.2. Above critical level:

250 Permissible deviations from formation levels

1. Beneath mass concrete foundations: ±25 mm.
2. Beneath ground bearing slabs and r.c. foundations: ±15 mm.
3. Embankments and cuttings: ±50 mm.
4. Ground abutting external walls: ±50 mm, but such as to ensure that finished level is not less than 150 mm below dpc.

255 Accuracy – linear dimensions

1. Permissible deviations from linear dimensions generally: Refer to Specification Document 1 Volume 3 Structural Drawings, Calculations & Specification & Report.

260 Inspecting formations

1. Give notice: Make advance arrangements for inspection of formations for foundations and filling formations.
   1.1. Notice (minimum):
2. Preparation: Just before inspection remove the last 150 mm of excavation. Trim to required profiles and levels.
   2.1. Loose material:
3. Seal: Within 4 hours of inspection, seal formations with …….

270 Foundations generally

1. Give notice if
   1.1. A natural bearing formation of undisturbed subsoil is not obtained at the depth shown on the drawings.
   1.2. The formation contains soft or hard spots or highly variable material.

275 Foundation bearing

1. Requirement: Foundations are designed to bear on:
   Refer to Specification Document 1 Volume 3 Structural Drawings, Calculations & Specification & Report.
   1.1. Strata:
   1.2. Safe bearing capacity (minimum):
2. Give notice: If the material at the design depth of the foundation does not comply with this description, or contains soft or hard spots or highly variable material.

280 Trench fill foundations

1. Excavation: Form trench down to formation in one operation.
2. Safety: Prepare formation from ground level.
3. Inspection of formations: Give notice before commencing excavation.
   3.1. Period of notice:
4. Shoring: Where inspection of formation is required, provide localised shoring to suit ground conditions.
5. Concrete fill: Place concrete immediately after inspection and no more than four hours after exposing the formation.

283 Formations for pile supported structures

1. Excavate: To the design formation level.
2. Compact: As necessary to ensure formation will support weight of concrete without settlement.
3. Blinding to formation: Refer to Specification Document 1 Volume 3 Structural Drawings, Calculations & Specification & Report.

290 Foundations in made up ground

1. Depth: Excavate down to a natural formation of undisturbed subsoil.
2. Discrepancy: Give notice if this is greater or less than depth given.

310 Unstable ground

1. Generally: Ensure that the excavation remains stable at all times.
2. Give notice: Without delay if any newly excavated faces are too unstable to allow earthwork support to be inserted.

3. Take action: If instability is likely to affect adjacent structures or roadways, take appropriate emergency action.

330 Unrecorded features

1. Give notice: If unrecorded foundations, beds, voids, basements, filling, tanks, pipes, cables, drains, manholes, watercourses, ditches, etc. not shown on the drawings are encountered.

335 New foundations crossing old foundations or walls

1. Break out: The old foundation/ wall where it crosses the new foundation/ wall:
   1.1. Length of breaking out: Width of the new foundation/ wall plus Refer to Specification Document 1 Volume 3 Structural Drawings, Calculations & Specification & Report..
   1.2. Depth of breaking out:
2. Disturbed/ softened soil: When the formation for the old foundation/ wall is deeper than the formation of the new foundation.
   2.1. Excavate: Soil that has been disturbed and/ or softened on either side of the old wall/ foundation, and for …….
3. Step up: The formation for the new foundation as necessary on either side of the old foundation/ wall until the formation is at its design level.
   3.1. Size of steps:
4. Backfilling beneath design formation level:

337 Old foundations or walls beneath new ground supported slab

1. Break out: The old foundation/ wall to a depth below the slab formation level of at least Refer to Specification Document 1 Volume 3 Structural Drawings, Calculations & Specification & Report..
   1.1. Excavate: Soil that has softened on either side of the old wall/ foundation.
2. Backfill: Obtain instructions if depth of fill will be greater than 600 mm, otherwise backfill with compacted hardcore.

350 Existing watercourses

1. Diverted watercourses which are to be filled: Before filling, remove vegetable growths and soft deposits.

Disposal of materials

410 Excavated topsoil storage

1. Storage: Stockpile in temporary storage heaps on site .

415 Excavated topsoil removal

1. General: Remove from site.

450 Water

1. Generally: Keep all excavations free from water until:
   1.1. Formations are covered.
   1.2. Below ground constructions are completed.
   1.3. Basement structures and retaining walls are able to resist leakage, water pressure and flotation.
2. Drainage: Form surfaces of excavations and fill to provide adequate falls.
3. Removal of water: Provide temporary drains, sumps and pumping as necessary. Do not pollute watercourses with silt laden water.

454 Ground water level, springs or running water

1. Give notice: If it is considered that the excavations are below the water table.
2. Springs/ Running water: Give notice immediately if encountered.

457 Pumping

1. General: Do not disturb excavated faces or stability of adjacent ground or structures.
2. Pumped water: Discharge without flooding the site or adjoining property.
3. Sumps: Construct clear of excavations. Fill on completion.
   3.1. Locations:

Filling

500 Proposed fill materials

1. Details: Submit full details of proposed fill materials to demonstrate compliance with specification, including:
   1.1. Type and source of imported fill.
   1.2. Proposals for processing and reuse of material excavated on site.
   1.3. Test reports as required elsewhere.
2. Timing:

510 Hazardous, aggressive or unstable materials

1. General: Do not use fill materials which would, either in themselves or in combination with other materials or ground water, give rise to a health hazard, damage to building structures or instability in the filling, including material that is:
   1.1. Frozen or containing ice.
   1.2. Organic.
   1.3. Contaminated or noxious.
   1.4. Susceptible to spontaneous combustion.
   1.5. Likely to erode or decay and cause voids.
   1.6. With excessive moisture content, slurry, mud or from marshes or bogs.
   1.7. Clay of liquid limit exceeding 80 and/or plasticity index exceeding 55.
   1.8. Unacceptable, class U2 as defined in the 'Specification for highway works', clause 601.

520 Frost susceptibility

1. General: Except as allowed below, fill must be non frost-susceptible as defined in the 'Specification for highway works', clause 801.8.
2. Test reports: If the following fill materials are proposed, submit a laboratory report confirming they are non frost- susceptible:
   2.1. Fine grained soil with a plasticity index less than 20%.
   2.2. Coarse grained soil or crushed granite with more than 10% retained on a 0.063 mm sieve.
   2.3. Crushed chalk.
   2.4. Crushed limestone fill with average saturation moisture content in excess of 3%.
   2.5. Burnt colliery shale.
3. Frost-susceptible fill: May only be used:
   3.1. At depths below the finished ground surface greater than:
   3.2. Within the external walls of buildings below spaces that will be heated. Protect from frost during construction.

3.3. Where frost heave will not affect structural elements.

530 Placing fill

1. Surfaces of excavations and areas to be filled: Free from loose soil, topsoil, organic material, rubbish and standing water.
2. Freezing conditions: Do not place fill on frozen surfaces. Remove material affected by frost. Replace and recompact if not damaged after thawing.
3. Adjacent structures, membranes and buried services
   3.1. Do not overload, destabilise or damage.
   3.2. Submit proposals for temporary support necessary to ensure stability during filling.
   3.3. Allow 14 days (minimum) before backfilling against in situ concrete structures.
4. Layers: Place so that only one type of material occurs in each layer.
5. Earthmoving equipment: Vary route to avoid rutting.

535 Compaction generally

1. General: Compact fill not specified to be left loose as soon as possible after placing.
2. After compaction: Surface of each layer must be well closed, showing no movement under compaction plant, and without cracks, holes, ridges, loose material and the like.
3. Defective areas: Remove and recompact to full thickness of layer using new material.

540 Benching in fill

1. Adjacent areas: If, during filling the difference in level between adjacent areas of filling exceeds 600 mm, cut into edge of higher filling to form benches 600 mm minimum width and height equivalent to depth of a layer of compacted filling.
2. New filling: Spread and compact to ensure maximum continuity with previous filling.

550 Geotextile sheet

1. Geotextile Sheeting: Contractor to provide and lay geotextile sheeting below new hard surfacing finishes
2. Manufacturer: Contractor's choice
   2.1. Product reference: Contractor's choice
3. Type: Woven
4. Polymer type: Polyester
5. Recycled content: None permitted
6. Jointing: 300 mm overlap
7. Preparation of subgrade: Before laying sheet, remove humps and sharp projections. Fill hollows
8. Protect from
   8.1. Exposure to light.
   8.2. Contaminants.
   8.3. Materials listed as potentially deleterious by geotextile manufacturer.
   8.4. Wind uplift.

615 Loose tip filling for landscape areas

1. Filling: Do not firm, consolidate or compact when laying. Tip and grade to approximate levels in one operation with minimum of trafficking by plant.

617 Type 1 unbound mixture

1. Fill: To 'Specification for highway works', clauses 801 and 803:
   1.1. Crushed rock (other than argillaceous rock).
   1.2. Coarse crushed concrete aggregate.
   1.3. Recycled aggregates.
   1.4. Crushed non-expansive slag to clause 801.2.
   1.5. Well-burned non-plastic colliery shale.
2. Amendments to requirements in the 'Specification for highway works':
3. Filling: To 'Specification for highway works', clause 802.

620 Subgrade improvement layer (capping)

1. Fill: To 'Specification for highway works', Table 6/1, Class 6F1 or 6F2.
2. oFilling: Place and compact to MCHW Volume 1: 'Specification for highway works' (SHW), Table 6/1, clause 612 and clause 613.3, 613.9 and 613.10.

700 Backfilling around foundations

1. Under oversite concrete and pavings: Hardcore as clause 710.
2. Under grassed or soil areas: Material excavated from the trench, laid and compacted in 300 mm maximum layers.

710 Hardcore filling

1. Fill: Granular material, free from excessive dust, well graded, all pieces less than 75 mm in any direction:
   1.1. Test requirements
      1.1.1. Minimum 10% fines value tested in a soaked condition to BS 812-111 …….
      1.1.2. Impact value SZ tested to BS EN 1097-2 …….
2. Material
   2.1. Permitted materials in any one layer
      2.1.1. Crushed rock (other than argillaceous rock) or quarry waste with not more binding material than is required to help hold the stone together.
      2.1.2. Crushed concrete, crushed brick or tile, free from plaster, timber and metal.
      2.1.3. Crushed non-expansive slag.
      2.1.4. Gravel or hoggin with not more clay content than is required to bind the material together, and with no large lumps of clay.
      2.1.5. Well-burned non-plastic colliery shale.
      2.1.6. Natural gravel.
      2.1.7. Natural sand.
3. Filling: Spread and level in 150 mm maximum layers. Thoroughly compact each layer.

Bioremediation - Not Used

'specification for highway works: earthworks specification' appendices - Not Used

Ω End of Section

H31
Metal profiled/ flat sheet self-supporting cladding/ roof covering

Types of cladding/ covering system

125 Metal profiled sheet self-supporting roof covering systems Contractor's Design Portion (CDP)

1. Main contractor to provide & install a complete metal profile roof covering system to all new primary steel frame stair structure to include but not limited to external roof sheets and all associated supports & fixings system, soffit trims, fascia trims, roof pitch side panel infill closer panels to both side of Roof Type 1, flashings, bespoke secrete hidden gutter and associated rainwater collection system.
   This section, when read with the drawings, indicates the design intent, where the Contractor will be required to obtain / provide specialist design services to complete the Detailed Design. The Contractor retains full responsibility for the Detailed Design, installation, execution and warranting of the works and for meeting the performance criteria identified. The contractor shall complete the Detailed Design of all interfaces with adjoining trades and ensure the interfaces are fully co-ordinated. Ensure the design intent identified on the drawings, schedules & specification is maintained, unless doing so would prevent compliance with the performance criteria / statutory requirements.
   Where no product or supplier is indicated in the specification or drawings, propose suitable materials and systems prior to Contract award which comply with the visual intent and performance criteria stated and remain fully responsible for the Detailed Design of the works.
   Where a particular material, product or supplier is indicated, such material, product or supplier shall be deemed indicative representing the design intent only. The Contractor may complete the installation using that material or product, or such other confirmed as acceptable by the CA in writing, but shall remain fully responsible for the Detailed Design and performance of the works.
2. Manufacture: Euroclad
   Product reference: Elite System 4.
   External sheet: Euroseam ESA400.
   Finish: Matt lacquer coated PVDF coated Stucco embossed.
   Colour Liner panel: Euroclad MW5L 0.7 mm steel, solid, plain.
   U-value: Not applicable - open roof system.
   Vapour control membrane: Not applicable - uninsulated roof.
3. Accessories:
   Side roof pitch infill panels to Roof Type 1, finish and colour matching external sheet.
   Roof pitch transition weather flashing, finish and colour matching external sheet.
   Hidden secret gutter profile, finish and colour matching external sheet.
   Fascia & soffit trim pressings, finish and colour matching external sheet.
   Barge board trim pressings, finish and colour matching external sheet.
   All accessories and rainwater goods fabricated details and trims to be provided by Euroclad.
4. External sheet:
   Euroclad Euroseam 0.9 mm aluminium. Cover width 400mm.
   External sheet colour: From Corus Standard Range, Repertoir and through Consultation with Euroclad.
   Colour selection to be confirmed, contractor to provide roof sheet sample for review 7 comment.
5. Spacer system:
   Provide & install spacer fixing rail system as recommend by manufacture for Elite System 4 to suit the proposed general arrangement and non-insulated open roof type.
6. Vapour control membrane & acoustic performance: Not applicable.
7. Liner panel: Allow to provide and install liner if recommended by manufacture to suit the roof general arrangement.

General requirements

165 Contractor's design

1. Description: OF ROOF COVERING AND ALL FLASHINGS, FASCIAS AND ACCESSSORIES TO PRIMARY STEEL FRAME STAIR STRUCTURE.
2. Design responsibility: Determine depth and thickness of metal sheet and type, sizes and number of fixings.
3. Design standard: In accordance with BS 5427
4. Product specification and requirements: To BS EN 14782 for metal sheet
5. Structural and fire requirements
   - 5.1. Generally: To meet and satisfy the relevant Approved Documents Building Regulations requirements.
   - 5.2. Modifications: None
   - 5.3. Design: Complete the design in accordance with the designated code of practice to satisfy specified performance criteria
6. Functional requirements: structural integrity for wind-loads & with fire-stopping to the requirements of the Building Regulations.
7. Additional requirements: Allow for all necessary bespoke pressings, trims and profiles to complete the design intent.
8. Design and production information: Submit fabrication drawings.
9. Timing of submissions: Submit to C.A for review & comment prior to construction phase.

175 Product samples

1. General: Before commencing detailed design, submit labelled samples of the following: Proposed metal profile roofing sheet.

Design/ performance requirements

187 Deflection of metal cladding/ roof covering

1. Roof covering: Maximum permitted deflection under distributed loads as a multiple of span and due to:
   - 1.1. Permanent load: In accordance with BS 5427
   - 1.2. Permanent and imposed loads (or undrifted snow load): In accordance with BS 5427
   - 1.3. Permanent and wind loads: In accordance with BS 5427
2. Wall cladding: N/A
   - 2.1. Wind loads: N/A

198 Water penetration

1. Requirement: Under site exposure conditions, moisture must not penetrate onto internal surfaces, or into cavities not designed to be wetted

204 Fire performance of roof sheeting

1. External fire exposure: To BS EN 13501-5, Class Broof(t4)

Fixing cladding/ roof covering

221 Fittings and accessories

1. Unspecified fittings and accessories: Recommended for the purpose by the cladding/ covering manufacturer

223 Prevention of electrolytic action

1. Isolating tape: Type recommended by cladding/ covering manufacturer
   1.1. Location: To contact surfaces of supports and sheets of dissimilar metals

410 Fixing sheets generally

1. Cut edges: Clean true lines
2. Penetrations: Openings to minimum size necessary
   2.1. Edge reinforcement: Trimming plates
3. Sheet orientation: Exposed joints of side laps away from prevailing wind unless shown otherwise on drawings
4. Sheet ends, laps and raking cut edges: Fully supported and with fixings at top of lap
5. Fasteners: Drill holes. Position at regular intervals in straight lines, centred on support bearings
   5.1. Position of fasteners in oversized drilled holes: Central
   5.2. Fasteners torque: Sufficient to correctly compress washers
6. Debris: Remove dust and other foreign matter before finally fixing sheets
7. Completion: Check fixings and sealants to ensure that they are watertight, and that fixing and sheets are secure with no buckling or distortion
8. Cut edges: Paint to match face finish

480 Flashings/ trims generally

1. Lap joint treatment
   1.1. Vertical and sloping flashings/ trims: End laps to be same as for adjacent sheeting
   1.2. Horizontal flashings/ trims: End laps to be 150 mm, sealed and where possible arranged with laps away from prevailing wind
2. Method of fixing: To structure in conjunction with adjacent sheeting. Otherwise to sheeting
   2.1. Fasteners: Sealed aluminium rivets in accordance with manufactures recommendations.

560 Safety signs

1. Fixing locations of signs: In accordance with BS 5499-10
2. Manufacturer: Contractor's choice
   2.1. Product reference: Contractor's choice
3. Material: Aluminium with polyester powder-coated base, screen printed graphics
4. Signs description: Warning sign to BS EN ISO 7010, code W036 with supplementary text warning, 'Warning; Fragile roof'

Ω End of Section

L20
Doors/ shutters/ hatches

General

110 Evidence of performance

1. Certification: Provide independently certified evidence that all incorporated components comply with specified performance requirements.

115 Fire resisting and smoke control pedestrian doors/ door assemblies/ doorsets

1. CE marked fire resisting and smoke control pedestrian doorsets: To BS EN 16034 and in conjunction with BS EN 13241 and BS EN 14351-1 (and eventually prEN 14351-2).
2. Door products: As defined in BS EN 12519.
3. Evidence of fire performance: Provide certified evidence, in the form of a product conformity certificate, directly relevant fire test report or engineering assessment, that each door/ door assembly/ doorset supplied will comply with the specified requirements for fire resisting and/ or smoke control if tested to BS 476-22, BS EN 1634-1, BS EN 1634-3 or is CE marked to BS EN 16034. Specified values should not be a combination of both standards. Such certification must cover door and frame materials, glass and glazing materials and their installation, essential and ancillary ironmongery, hinges and seals.
4. Components, assemblies or sets will be marked to the relevant CE marking European product standard (hEN), national product standard and/ or third party certification rating.

150 Site dimensions

1. Procedure: Before starting work on designated items take site dimensions, record on shop drawings and use to ensure accurate fabrication.
2. Designated items: All new external fire exit doors.

Products

485 Metal fire rated doorsets External grade with glazed vision panel

1. Metal fire rated doorsets: : Main contractor is to provide, install & commission new external grade metal doorsets and associated hardware ironmongery door providing access on to new external fire escape stairs.
   Refer to Proposed Floor Plan 2000 series drawings for location and general arrangement.
   Ref to Drawing No 200421-5200 Proposed Door Schedule for complete scheduling of doors.
2. Manufacturer: HAG Ltd. - The Door Specialists
   2.1. Product reference: FIREGUARD FD01
   2.2. Web: www.hag.co.uk
   2.3. Email: info@hag.co.uk
3. Standard: Tested and compliant to BS 476-22, BS EN 1634-1:2008, BS EN 1634-3:2014.
4. Third party accreditation: CERTIFIRE certified.
5. Configuration: Single leaf, single action.
6. Performance: 60 minutes integrity only.
   6.1. Fire performance: E60
      6.1.1. Fire integrity: To BS EN 1634-1: 2014, 60 minutes.
   6.2. Acoustic performance: Not applicable
   6.3. Intruder resistance: Standard

6.3.1. Minimum requirement: Push bar panic bolt with two point locking horizontal pullman latches.

7. Frame:
   - 7.1. Material: 1.5 mm folded Aluzinc steel with fixed reveal.
   - 7.2. Threshold: 15 mm stepped threshold for compliance to Disability Discrimination act (DDA).
   - 7.3. Perimeter seals or inserts: Variable sub frame to allow up to 30 mm tolerance for site installations.
   - 7.4. Finish:
     - 7.4.1. Coating: Polyester powder-coated.
     - 7.4.2. Texture: Polyester powder-coated.
     - 7.4.3. Colour: Black
8. Door leaf:
   - 8.1. Thickness: 48 mm.
   - 8.2. Core: Rock wool.
   - 8.3. Panel details: Flat.
   - 8.4. Material: Steel.
   - 8.5. Perimeter seals: Fire resisting door seals.
   - 8.6. Finish:
     - 8.6.1. Coating: Polyester powder-coated.
     - 8.6.2. External colour: White
     - 8.6.3. Internal colour: As External.
9. Hardware: Emergency escape Hardware: Exidor 294 SD - Single Panic Bolt
   Three point locking with horizontal pullman latches.
   Corrosion protection: Passivation Protection - Exidor option is required.
   Self-closing device:
   Supplier: Spiller Architectural Ironmongery
   Manufacture:Dormakaba
   Product reference: Dorma TS83 BC DC EN 2 - ANTI-CORROSIVE finish.
10. Product Reference: Fireguard FD01 Single
11. Operation: Manual.
12. Vision panel: Glazed - Clear glass:
    Performance: E60.
    Configuration: Centre vision panel.
    Size: 200mm wide by 1400mm high.

Execution

710 Protection of components

1. General: Do not deliver to site components that cannot be installed immediately or placed in clean, dry, floored and covered storage.
2. Stored components: Stacked on level bearers, separated with spacers to prevent damage by and to projecting ironmongery, beads, etc.

750 Fixing doorsets

1. Timing: After associated rooms have been made weathertight and the work of wet trades is finished and dried out.

760 Building in

1. General: Not permitted unless indicated on drawings.

800 Fixing of loose thresholds

1. Spacing of fixings: Maximum 150 mm from each end and at 600 mm maximum centres.

809 Fire resisting and smoke control doors/ door assemblies/ doorsets/ roller shutters and curtains – accredited installer

1. Installation: By a firm currently registered under a third party accredited fire door installer scheme in accordance with instructions supplied with the product conformity certificate, test report or engineering assessment.

811 Fire resisting and smoke control doorsets, industrial, commercial and garage doors

1. Installation: By manufacturer or their approved installers, in accordance with requirements of BS EN 16034 and in conjunction with BS EN 13241, including the Declaration of Performance (DoP) certification for the CE marked doorset.

820 Sealant joints

1. Sealant
    1.1. Manufacturer: In accordance with doorset manufactures instructions.
        1.1.1. Product reference: In accordance with doorset manufactures instructions.
        1.1.2. New Item: Intumescent sealant to provide E60 performance.
    1.2. Colour:
    1.3. Application: As section Z22 to prepared joints. Triangular fillets finished to a flat or slightly convex profile.

830 Fixing ironmongery generally

1. Fasteners: Supplied by ironmongery manufacturer.
    1.1. Finish/ Corrosion resistance: To match ironmongery.
2. Holes for components: No larger than required for satisfactory fit/ operation.
3. Adjacent surfaces: Undamaged.
4. Moving parts: Adjusted, lubricated and functioning correctly at completion.

840 Fixing ironmongery to fire resisting door assemblies

1. General: All items fixed in accordance with door leaf manufacturer's recommendations ensuring that integrity of the assembly, as established by testing, is not compromised.
2. Holes for through fixings and components: Accurately cut.
    2.1. Clearances: Not more than 8 mm unless protected by intumescent paste or similar.
    2.2. Lock/ Latch cases for fire doors requiring

850 Location of hinges

1. Primary hinges: Where not specified otherwise, positioned with centre lines 250 mm from top and bottom of door leaf.
2. Third hinge: Where specified, positioned …… .
3. Hinges for fire resisting doors: Positioned in accordance with door leaf manufacturer's recommendations.

860 Installation of emergency exit devices

1. Standard: Unless specified otherwise, install panic bolts/ latches in accordance with BS EN 1125.

Ω End of Section

L30
Stairs/ ladders/ walkways/ handrails/ balustrades

Preliminary information/ requirements

105 Contractor's design

1. Description: CONTRACTORS DESIGN PORTION (CDP)
   STAIRS, LANDINGS, GROUND LEVEL ENCLOSURE, ROOF CLADDING & BALUSTRADE PACKAGE (INCLUDING HANDRAILS, GUARDRAILS, INFILL, BALUSTRADE PERFORATED METAL SHEET GUARDING) AND OTHER ASSOCIATED ELEMENTS
   - This section, when read with the drawings, indicates the design intent, where the Contractor will be required to obtain / provide specialist design services to complete the Detailed Design. The Contractor retains full responsibility for the Detailed Design, installation, execution and warranting of the works and for meeting the performance criteria identified. The contractor shall complete the Detailed Design of all interfaces with adjoining trades and ensure the interfaces are fully co-ordinated. Ensure the design intent identified on the drawings, schedules & specification is maintained, unless doing so would prevent compliance with the performance criteria / statutory requirements.
   - Where no product or supplier is indicated in the specification or drawings, propose suitable materials and systems prior to Contract award which comply with the visual intent and performance criteria stated and remain fully responsible for the Detailed Design of the works. Where a particular material, product or supplier is indicated, such material, product or supplier shall be deemed indicative representing the design intent only. The Contractor may complete the installation using that material or product, or such other confirmed as acceptable by the CA in writing, but shall remain fully responsible for the Detailed Design and performance of the works.
   - Design intent: The final stair design must be in strict accordance with the approved planning drawings in terms of appearance and no deviation or alternative proposals that effect the overall visual appearance will be accepted.
   - Design intent elements:
   - Balustrade - Stairs, landings and link walkways: Must be seamless in appearance with no visible framing or fixings when viewed from outside of the stair structure.
   - Balustrade must run continuous without interruption around the complete stair structure from top to bottom.
   - Balustrade must be located outbound of primary structural frame and secondary stair structure so as the balustrade visually screens the structure, supports and fixings behind.
   - Ground level secure fence and gate enclosure: The fence and gate must be frameless and be integrated to form a seamless continuation of the stair & landing balustrade to provide an overall monolithic appearance.
   - Main contractor is to develop and complete a fully compliant stair design fabrication drawing & structural calculations package in terms of technical requirement and the essence of visual appearance of the design intent drawings and submit to C.A for review & comment & to obtain building control approval prior to commencement of work and project contract start date.
2. Design responsibility: Specialist stair subcontractor is to determine stairs section sizes and strengths and type, sizes and numbers of fixings for the complete proposed stairs arrangement to satisfy & comply with the requirement of BS 6399-1:1996 Minimum horizontal imposed loads for parapets, barriers and balustrades, etc & Building regulations Approved Document Part K Protection from falling, collision & impact - K2/3 Section 3: Guards & barriers. To include but not limited to landing stair treads & risers metal gratings and or open bar flooring, stair metal stringers, vertical upright posts, handrails, balustrade sheeting - Perforated metal sheeting, balustrade top support sections, balustrade laser cutting and or balustrade edging section trims, complete ground floor fencing and gate enclosure, gate ironmongery, all fixings and connections details, all structural loading calculations etc.
   Stairs structure roof cladding: Roof metal sheet trapezoidal roofing panels - non-insulated and all

associated support roof purlins and fixings, roof flashings, ridge trims, valley trims and eaves trims, Roof secrete gutter metal sheet proprietary gutter profile & outlet to new RWP.

3. Structural and fire requirements
   - 3.1. Generally: As section B50.
   - 3.2. Modifications: None
   - 3.3. Design: Complete the design in accordance with the designated code of practice to satisfy specified performance criteria.
   - 3.4. Balustrade guarding loadings:: To be in strict accordance with Building Regulations Approved Document Part K Protection from falling, collision & impact - K2/3 Section 3: Guards & barriers.
     - Horizontal uniformly distributed line load: 0.74kN/m.
     - A uniformly distributed load applied to the infill: 1.0kN/m2.
     - A point load applied to part of the infill: 0.5kN.
     - Guarding height - To all new stair flights: 1000mm (Minimum).
     - Guarding height - To all new stair landings: 1100mm (Minimum).

     BS 6399-1:1996 Table 4 - Minimum horizontal imposed loads for parapets, barriers and balustrades etc.

4. Functional requirements: External stairs, landings & walkways to BS 8300-1
   Loads/ actions applied to elements of structure to BS 8300-1
   Resistance to impact to elements of structure to BS 8300-1 Straight stairs and winders to BS 5395-1
   Straight stairs and winders to BS 5395-1.
   To Building Regulations (Eng) Approved Documents K.
5. Corrosion - Bimetallic contact:: Main contractor must make design/ fabrication procedures for the avoidance of situations in which corrosion may arise from bimetallic contacts between different metals & alloys.
   Main contractor must allow for all necessary & required Nylon 'Top Hat' washers and neoprene isolation pads to all bolt connections etc to prevent corrosion due to contacts between different metals & alloys.
   All design must be in accordance with PD 6484:1979 Commentary on corrosion at bimetallic contacts and its alleviation.
   Also refer to structural engineer's Specification Document 1 Volume 3 Structural Drawings, Calculations & Specification for further information on the design requirement for the avoidance of corrosion - Bimetallic contact.
6. Additional requirements: Emergency escape lighting & emergency escape door/ gate ironmongery hardware.
   The emergency lighting installation shall fully comply with the requirements of BS 5266 X0□189 and BS 5499.
7. Buried services:: For type and location of existing below ground services refer to Utility Mapping Survey in Specification Appendix D.
   Note: Below ground services indicated are based on survey data by others. It remains the responsibility of the main contractor to carryout further below ground intrusive inspection to confirm the precise layout of the services prior the substructure works.
   Allow for hand digging of excavations to de-risk damage to existing below ground services.
8. Design and production information: As Preliminaries section A31
   Main contractor to provide via stair specialist subcontractors CAD 3D structural model drawings for complete stair design for review & comment by C.A prior to procurement and fabrication.
9. Equal and accepted:: Note all items specified are on the basis of 'or equal and accepted
10. Manufacturers recommendations:: Note all items are to be in full accordance with the manufacturers recommendations and instructions.
11. Timing of submissions: As Preliminaries section A31

130 Site dimensions

1. Procedure: Before starting work or fabrication on any item, take site dimensions, record on shop drawings and use to ensure accurate fabrication.
   1.1. Designated items: All complete stairs generally arrangement, stair structure roof, stair structure ground level enclosure including interface with existing outside amities such as foot paths, existing external items such as walls, lamp posts, telecommunication poles etc.
   1.2. Existing building levels survey data:: NOTE: The existing building floor to floor levels and the ground level topography levels are based on measurement surveys by others.
   It remains the responsibility of the stair specialist contractor to carryout site check as necessary to satisfy their own requirements prior to detailed design, procurement & fabrication.

Components

271 External galvanised stairs - Primary structure steel frame - Refer to Structural Engineers details contained in Document 1 Volume 3 Structural Drawings, Calculations & Specification

1. Item: Main contractor is to provide & install the new stair enclosure primary steel structure to include but not limited to steel structural frame vertical columns, cranked steel beams, roof structure, bracing & hangers, steel connection details, new structure connection fixing details back to existing building structure, foundation and below ground base plate and connection details etc- Refer to Specification Document 1 Volume 3 Structural Drawings, Calculations & Specification.
2. Primary structure steel frame materials, finishes & colours:
   All main section components - Cranked steel landing & stair stringer beams, SHS main columns, all visible ties, bracing and connection sleeves are to be as follows:
   Material: Galvanised steel.
   Finish: Galvanised self-finish & self-colour.
3. Main contractor: Before starting work or fabrication on any item, take site dimensions, record on shop drawings and use to ensure accurate fabrication.
4. Main contractor: Before starting work or fabrication on any item, main contractor is to carryout excavation trial holes to expose and confirm the general arrangement of the existing building foundations/ footings.
5. Main contractor: To allow for all necessary foundation excavation and pile foundation equipement.
   Main contractor: To allow for all necessary steel frame carnage & lifting equipment.
   Main contractor: Must visit site at tender stage to review site access for proposed stair locations installations and provide a full method statement for the proposed civils below ground foundation sub-structure works and steel frame sub-structure works, to be submitted as part of tender returns stage.
6. Main contractor to submit full fabrication structural model drawings for the review and comment by the C.A. prior to procurement and fabrication.
7. Material: Complete above & below ground stairs primary structure to be formed with galvanised steel sections - Refer to Specification Document 1 Volume 3 Structural Drawings, Calculations & Specification.
8. Finish: Complete above ground stairs primary structure to have galvanised finish.
   - A fully completed guarantee request form must be submitted to the applicator in advance of the galvanised work commencing.
   - Refer to Specification Document 1 Volume 3 Structural Drawings, Calculations & Specification, for performance of galvanising.
9. Finish: Complete below ground stairs primary structure is to be finished with 2 No. coats of bitumen solution brush applied coating system.
   Manufacturer: RIW
   Arc House, Terrace Road South, Binfield, Bracknell, Berkshire, RG42 4PZ Technical enquires tel:

01344 397777.
Product reference: LIQUID ASPHALTIC COMPOSITION (LAC).
Preparation & application to be carried out in strict accordance with manufactures instructions & recommendations.

10. Guarantee: The appointed Main Contractor will be required to provide guarantees for the galvanise finish for a minimum of 30 years.

272 Primary structure steel frame - Roof Covering CONTRACTORS DESIGN PORTION (CDP)

1. Item: Main contractor is to design, fabricate & install the new stair enclosure primary steel structure roof covering to include but not limited to Roof metal profile seams sheet roofing panels - non-insulated and all associated support roof purlins and fixings, roof flashings, ridge profiles, valley trims and eaves trims & pressings, roof secrete gutter metal sheet proprietary gutter profile & outlet to new RWP.
2. Main contractor: Before starting work or fabrication on any item, take site dimensions, record on shop drawings and use to ensure accurate fabrication.
3. Main contractor to submit full fabrication structural model drawings for the review and comment by the C.A. prior to procurement and fabrication.
4. Roof sheeting: Elite System 4 - Standing seam roofing system.
   Manufacturer: Euroclad or equal and approved.
   Product reference: Elite System 4 - Standing seam roofing system. Single skin roof sheets.
   Standard: BS EN 14782 Profile Roofing Sheets.
   Roof pitch: 5 degrees (minimum).
   Finish: Colorcoat® pre-finished steel - (both sides)
   Colour: TBC from standard colour range.
   Refer to NBS Section H31-125 for details.
5. Roof sheeting support & fixings:
   Provide and install galvanised steel 'Z' profile purlins from same manufacture.
   Main contracture to design sizes and spacings & fixings of purlins all in struct accordance with manufactures instructions and recommendations.
6. Roof sheeting accessories: Main contractor to provide and install all additional accessories trims, pressings & flashings as necessary to complete the roof covering installation, all products and fixings from single manufacturer and to be Colorcoat pre-finished to match new main roofing sheets. To include but not limited to flashings, ridge profiles, valley trims and eaves trims & pressings, roof secrete gutter metal sheet proprietary gutter profile & outlet to new RWP.
7. Roof Type 1: Mono shallow pitch roof with 5 degree pitch. Rainwater drainage to discharge directly on to Roof Type 2.
   Covering: Elite System 4 - Standing seam roofing system single skin roof sheets.
   Support: Galvanised steel 'Z' profile purlins from same manufacture, size & spacing in accordance with manufactures recommendations.
   Framing: Galvanised steel stub sections profile connected to primary steel frame to provide a 5 degree roof pitch.
   Roof barge boards: Bespoke metal sheet pressing barge board trims to suit roof end profile, with Colorcoat® pre-finished steel to match roof metal sheet trapezoidal roofing panels.
8. Roof Type 2: Mono pitch roof with roof pitch to match stair string pitch line. Rainwater drainage to discharge in to 'Secret' gutter.
   Covering: Elite System 4 - Standing seam roofing system single skin roof sheets.
   Support: Galvanised steel 'Z' profile purlins from same manufacture, size & spacing in accordance with manufactures recommendations.
   Flashing: Galvanised flashing dressed under Roof Type 1 and lapped over Roof Type 2. Finish: Colorcoat® pre-finished steel to match roof metal sheet trapezoidal roofing panels.
   Roof fascia boards: Bespoke metal sheet pressing barge board trims to suit roof eaves profile, with Colorcoat® pre-finished steel to match roof metal sheet trapezoidal roofing panels.
9. Roof Type 2 'Secret' gutter & rainwater outlet & down-pipe: Provide and install 'Secret gutter' and associated rainwater outlet flashings.

Gutter: Provide and install bespoke hidden gutter tray pressing with weather tight rainwater outlet flashing and vertical spigot connection. Finish: Colorcoat® pre-finished steel to match roof metal sheet trapezoidal roofing panels.
Allow to provide and install 1 No. 75mm diameter pressed aluminium rainwater down-pipe and 2 No.
Material: Aluminium (pressed)
Finish: Polyester powder coated.
Colour: TBC and match new stair primary steel frame.
Design intent: Refer to Drawing No. 200421 - Proposed Design Intent Stair Details No. 1, No.2 & No.3.

10. Rainwater collection - Soakaway: Main contractor to allow to provide
11. Wind-load calculations: Main contractor to provide project specific wind-load calculations for each individual building stair frame roof design for the purpose of building regulation submission and compliance.
12. Guarantee: The appointed Main Contractor will be required to provide guarantees for the pre-finished steel roofing sheets for a minimum of 20 years.
13. Samples: Main contractor to provide sample of proposed Elite System 4 - Standing seam roofing system to C.A for review & comment prior to procurement and fabrication.

275 External galvanised PPC steel stairs secondary structure - CONTRACTORS DESIGN PORTION (CDP)

1. Description:
    - For design intent for geometrical arrangement, including size of treads & risers, profile of
    - tread etc - refer to Architectural drawings.
    - Visually contrasting nosings: 55mm non slip carborundum nosing to leading edge of both
    - tread and riser. Colour to achieve 30pt LRV contrast with galvanised finish of tread and riser, submit proposals of colour for acceptance. Type of non slip carborundum nosing to be suitable for marine environment
2. Manufactures & product references:: Note: All items specified are on the basis of 'or equal and accepted'
3. Component material, grade, finish as delivered
    3.1. Treads: Manufacture: F.H. Brundle.
    Product reference: Anti-slip floor planks RhinoMixte galvanised grating with 6mm diameter holes burst embossed downwards and 11mm diameter holes upwards, treads galvanised finish.
    Draining surface % open area 21.
    Submit proposals for review & comment prior to procurement & fabrication.
    Size: Tread depth 250mm. Refer to Proposed Design Intent Stair Detail Drawings 1, 2 & 3 for tread width information.
    Material: Galvanised.
    Finish: Galvanised self-finish.
    Colour: As galvanised self-colour.
    Fixing bolts: Stainless steel - Grade: 316 with isolators to prevent galvanic corrosion.
        3.1.1. Slip resistance value of integral tread – water wet (minimum): PTV of 40 to BS 7976
        3.1.2. Slip resistance value of integral nosing – water wet (minimum): PTV of 40 to BS 7976
        3.1.3. Colour of integral nosing: LRV to BS 8493 contrast of 30 (minimum) with tread. Submit proposals
        3.1.4. Stair nosing:: GRP slip resistant contrasting tread & riser nosing:
        Manufacture & Product reference: Contractor to submit proposals for C.A. review & comment.
        Type profile: Combined nosing to tread & riser.
        Size: 55mm on tread & riser by full width of stair flight.
        Fixing: Illbruck Tremco MT 440 High Grip adhesive or equal.

3.2. Risers: Galvanised steel solid flat plate sheet.
Thickness & connections to be determined by the specialist stair contractor to accommodate the design, fabrication & installation.
Finish: Galvanised self-finish.
Colour: As galvanised self-colour.

3.3. Strings: Stair flight stringers: Solid metal plate - Depth & by thickness to be determined by stair specialist contractors to accommodate the design, fabrication & installation.
Material: Galvanised.
Finish: Polyester powder coat finish - Interpon or Syntha Pulvin applicator marine grade to 60 microns with no exposed, bare metal edges.
Colour: From the RAL Classic colour range - RAL 7036 Platinum grey (Matt 30%) - Subject to main contractor providing samples for three colour options to C.A for client review and sign-off.
Fixing bolts: Stainless steel - Grade: 316 with isolators to prevent galvanic corrosion.

3.4. Primary steel structure & secondary steel stair structure connections: Specialist stair contractor to design, fabricate and install all fixings and connections for the interface and connection of the secondary steel stair structure to the primary steel structure.

3.5. Newels: Vertical upright posts: Post supports to handrail & balustrade.
SHS steel sections and base plate galvanised with polyester powder coat finish to posts.
Bolt or weld connected to top of primary steel stair structure PFC cranked beams to stair specialist contractors design & details.
Final sizes & connection details to be determined by stair specialist contractors to accommodate the design, fabrication & installation and to satisfy the minimum horizontal imposed loads for barriers and balustrades set out in BS 6399-1:1996.
Vertical post fixing lugs: Each post is to have 3 No. equally vertically spaced fixing lugs for the purposes of fixing the balustrade perforated galvanised sheet to the vertical upright posts by means of weld joint or similar connection to be determined and detailed by stair specialist contractors. The fixing connection between the vertical upright post and the balustrade perforated galvanised sheet must not visible when viewed from outside of the stair structure.
Vertical upright post spacing:
For visual purposes requirements: The frequency and number of posts the post spacing must be a minimum of 900mm centre to centre spacing between each post on the stair flights and landings. Final setting out & positioning to be determined by stair specialist contractors.
Post sizes: For the overall of the size of the stair structure & general arrangement of 1100mm clear between handrails the posts must not be grater than 50mm. Note the project structural engineer has carried out proof calculations to demonstrate that 50 mm SHS will satisfy the requirements of Horizontal uniformly distributed line load: 0.74kN/m.
Fixings: Generally the design preference is for a site weld connection on the internal side of the stairs for the fixing of the balustrade to the posts. Any bolt fixings must not be visible from outside of the stair enclosure.
Any Nuts & bolts must be stainless steel permanent security tamper proof type bolts such as Fastenright’s patented Tricone® Security Bolt or equal approved & have isolators to prevent galvanic corrosion.
Material: Galvanised.
Finish: Polyester powder coat finish - Interpon or Syntha Pulvin applicator marine grade to 60 microns with no exposed, bare metal edges
Colour: From the RAL Classic colour range - RAL 7036 Platinum grey (Matt 30%) - Subject to main contractor providing samples for three colour options to C.A for client review and sign-off.

3.6. Guarding: Balustrade guarding:
Manufacture: F.H. Brundle.
Product reference: Perforated metal sheet 20mm holes & 27mm pitch - Brunperf galvanised R20 T27. Perforated sheets thickness to be determined by stair specialist contractors to accommodate the design, fabrication & installation and to satisfy the minimum horizontal imposed loads for barriers and balustrades set out in BS 6399-1:1996.
Balustrade height: 1000mm above stair string pitch line.

Balustrade height: 1100mm above stair landing levels.
Perforated metal sheet cuts & fixing positions: To be determined by the stair specialist contractors to provide the balustrade with a frameless appearance & must run continuous without interruption around the outside of the complete stair structure from top to bottom. The stair specialist contractors must allow for laser cutting the perforated metal sheets to required shapes to enhance the frameless appearance.
Edging sections: F.H. Brundle galvanised rectangular profiles edging sections to be provide as necessary to encase any machine cut edges of perforated steel sheet. Edging profile size to suit sheeting.
Perforated galvanised sheet - Fixings: To be fixed to each vertical upright post with 3 No. equally vertically spaced fixing lugs and 1 No. fixing point to stair stringers by means of weld joint or similar connection to be determined and detailed by stair specialist contractors. The fixing connection between the vertical upright post and the balustrade perforated galvanised sheet must not visible when viewed from outside of the stair structure.
Balustrade Top Restraint Capping Trim: Standard section Equal Angle galvanised steel sections capping trims weld fixed to side of vertical upright posts to cap & restrain top of balustrade perforated sheeting. The balustrade top restraint capping trim must be sized & detailed to limit the deflection of the balustrade sheeting by no greater than 5mm.
Equal Angle size and fixings to be determined by stair specialist contractor.
Balustrade barrier imposed loading restraint: The complete balustrade system must be compliant with the minimum imposed loads requirements as determined by BS 6399-1:1996 Table 4 - Minimum horizontal imposed loads for parapets, barriers and balustrades etc.
Horizontal uniformly distributed line load: 0.74kN/m.
A uniformly distributed load applied to the infill: 1.0kN/m2.
A point load applied to part of the infill: 0.5kN.
Material: Galvanised.
Finish: Polyester powder coat finish - Interpon or Syntha Pulvin applicator marine grade to 60 microns with no exposed, bare metal edges.
Colour: From the RAL Classic colour range - RAL 7036 Platinum grey (Matt 30%) - Subject to main contractor providing samples for three colour options to C.A for client review and sign-off.

3.7. Balustrade appearance:: Balustrade - Stairs, landings and link walkways: Must be seamless in appearance with no visible framing or fixings when viewed from outside of the stair structure.
Balustrade must run continuous without interruption around the outside of the complete stair structure from top to bottom.
Balustrade must be located outbound of primary structural frame and secondary stair structure so as the balustrade provides a visual screen to the structure, supports and fixings behind.
Ground level secure fence and gate enclosure: The fence and gate must be frameless and be integrated to form a seamless continuation of the stair & landing balustrade to provide an overall monolithic appearance.

3.8. Handrails: Handrails: Side & top mounted.
Manufacture: F.H. Brundle.
Product reference: C Tube - 42.4mm Diameter.
Galvanised PPC Ø42.4mm by 3.25mm thick plain tube and bends hand-railing. To run continuous around stair flights and stair landings to both sides of stair flight as indicated on Design Intent Stair Detail drawing 1, 2 & 3.
Handrail Fixings: Side fix & top fix.
Manufacture: F.H. Brundle.
Product reference: (Post side fix) Handrail Bracket Mild Steel With Rectangular Back Plate - Fits Ø 42.4 or 48.3mm Tube. Part K Compliant.
Product reference: (Post top fix) Vertical upright posts to have 16mm diameter solid arm weld joint to top of posts with F.H. Brundle handrail saddle bracket connection to receive C Tube 42.2 diameter handrail.
Material: Galvanised steel.
Finish: Polyester powder coat finish - Interpon or Syntha Pulvin applicator marine grade to 60 microns with no exposed, bare metal edges
Colour: Black.

3.9. Ground level enclosure:: Fencing:
Fence guarding: Side, bottom & top fixed.
Manufacture: F.H. Brundle.
Product reference: Perforated galvanised 20mm holes & 27mm pitch - Brunperf Galvanised R20 T27. Perforated sheets to match stair balustrade with thickness to be determined by stair specialist contractors to accommodate the design, fabrication & installation and to satisfy the minimum horizontal imposed loads for barriers and balustrades set out in BS 6399-1:1996.
Fence & gate height: 2400mm above finished ground level with a 20mm fence panel & gate clearance above finish ground level.
Perforated galvanised sheet cuts & fixing positions: To be determined by the stair specialist contractors to provide the fence & gate with a frameless appearance & must run continuous without interruption around the complete stair ground level enclosure.
Perforated galvanised sheet - Fixings: To be fixed to each vertical upright post with 8 No. equally vertically spaced fixing lugs by means of weld joint or similar connection to be determined and detailed by stair specialist contractors. The fixing connection between the vertical upright post and the fence perforated metal sheet must not visible when viewed from outside of the stair structure.
Fence Top Restraint Capping Trim: Standard section Equal Angle galvanised steel sections restraint capping trims weld fixed to side of vertical upright posts to cap & restrain top of balustrade perforated sheeting. The fence panel top restraint capping trim must be sized & detailed to limit the deflection of the fence panel sheeting by no greater than 5mm.
Equal Angle size and fixings to be determined by stair specialist contractor.
Edging sections: F.H. Brundle galvanised rectangular profiles edging sections to be provide as necessary to encase any machine cut edges of perforated galvanised sheet. Edging profile size to suit sheeting thickness.
Material: Galvanised.
Finish: Polyester powder coat finish - Interpon or Syntha Pulvin applicator marine grade to 60 microns with no exposed, bare metal edges.
Colour: From the RAL Classic colour range - RAL 7036 Platinum grey (Matt 30%) - Subject to main contractor providing samples for three colour options to C.A for client review and sign-off.

3.10. Ground level enclosure : Gate: Bespoke metal frame gate, SHS framing section sizes to be determined by stair specialist contractors to accommodate the design, fabrication & installation.
Galvanised solid plate: Internal for mounting push bar.
Gate infill panels: external to provide frameless appearance.
Manufacture: F.H. Brundle.
Product reference: Perforated galvanised 20mm holes & 27mm pitch - Brunperf Galvanised R20 T27. Perforated sheets to match stair balustrade with thickness to be determined by stair specialist contractors.
Gate ironmongery:
6 No. heavy duty stainless steel concealed type hinges, not to be visible when viewed externally, contractor choice and approved by C.A.
Emergency escape hardware 1 No. Panic bar with 1 point latch locking and matching roses - Emergency escape Hardware: Exidor 294 SD - Single Panic Bolt with 1 point latch locking.
Corrosion protection: Passivation Protection - Exidor option is required.
Gate self-closing device:
Manufacture: F.H. Brundle
Product reference: APS Hydraulic Gate Closer And Top Hinge Kit or equal.
Gate self-closing device performance: The self-closer device must have the required closing force to close the gate and re-engaging the push bar latch lock.
Function/ operation: Upon exiting through the gate the gate must then return to the closed position and re-engage the latch lock automatically & ensure the gate returns to a locked state and prevents entry externally.
It remains the responsibility of the stair specialist contractors to ensure the function and operation is achieved.
Proposed Gate self-closing device: It is at the discretion of the stair specialist contractors to satisfy that the function & operation requirements are satisfied, the contractor may proposed

alternative gate self-closing device to achieve the function & operation.
Finish: Polyester powder coat finish - Interpon or Syntha Pulvin applicator marine grade to 60 microns with no exposed, bare metal edges.
Colour: From the RAL Classic colour range - RAL 7036 Platinum grey (Matt 30%) - Subject to main contractor providing samples for three colour options to C.A for client review and sign-off.

3.11. Ground level enclosure - Appearance: : Appearance: Ground level enclosure fencing & gate is to match the balustrade guarding perforated metal sheeting and the general arrangement is to be integrated with the balustrade system to provide a frameless look and a seamless continuation of the stair & landing balustrade to provide an overall monolithic appearance.

4. Workmanship

4.1. Metalwork: Refer to section Z11

5. Other requirements: Main contractor is to develop and complete a fully compliant stair design fabrication drawing & structural calculations package in terms of technical requirement and the essence of the visual appearance of the design intent drawings.
Main contractor must submit to C.A for review & comment & to obtain building control approval prior to commencement of work and project contract start date.
Applied slip resistant nosings with visual contrast Joints.
Welded and ground smooth.

6. Samples:: Main contractor must provide and submit the follow samples to the C.A prior to procurement and fabrication:
Floor gratings & open bar flooring: For the stair landings & stair treads.
Perforated galvanised sheeting with PPC finish: For the stairs balustrade and ground floor level fence & gate enclosure.

590 Applied stair nosings Type A

1. Manufacturer: Quantum Flooring Solutions, a trading name of Quantum Profile Systems Ltd

1.1. Web: www.quantumprofilesystems.com

1.2. Email: info@quantumflooring.co.uk

2. Product Reference: Photoluminescent Stair Nosing / Stair Edging for Internal and External Use
3. Stair nosing/ edging: SF125R
4. Tread:

EGLO-53 SLIP RESISTANT BLACK (50MM)

5. Fixing: Mechanical (screw) and adhesive fix, secret fix, without pips.
Consult manufacture for further guidance and recommendation for fixing nosing to propose open bar or metal grate treads.

Installation

620 Priming/ Sealing/ Painting

1. Surfaces inaccessible after assembly/installation: Before fixing components, apply full protective/decorative treatment/coating system.

630 Corrosion protection of dissimilar materials

1. Components/ substrates/ fasteners of dissimilar materials: Isolate using washers/ sleeves or other suitable means to separate materials to avoid corrosion and/ or staining.

640 Installation generally

1. Fasteners and methods of fixing: To section Z20.

2. Structural members: Do not modify, cut, notch or make holes in structural members, except as indicated on drawings.
3. Temporary support: Do not use stairs, walkways or balustrades as temporary support or strutting for other work.
4. Applied finishes: Substrates to be even, dry, sound and free from contaminants. Make good substrate surfaces and prepare/ prime as finish manufacturer's recommendation before application.

Completion

910 Inspection

1. Timing:
2. Period of notice (minimum):

920 Documentation

1. Contents
   1.1. Copies of structural design calculations/ test reports.
   1.2. General product information.
   1.3. Installation information.
   1.4. Inspection and maintenance reports.
2. Number of copies: Electronic copy.
3. Submission: Two weeks prior to date when Contractor expects work to be practically complete

Ω End of Section

N15
Internal fire and safety signage systems

General

110 Fire and safety signage systems

1. Description: FOR ESCAPE ROUTE
2. System manufacturer: Contractor's choice
   2.1. System reference: All new fire signage and fixings must be external grade suitable for external use.
   Submit proposals to C.A for review and comment prior to order.
3. Locations and layout: As drawings Proposed Design Intent Stair Details - Plans - 200421-4200 drawing number series.
   3.1. Language: English.
4. Material: PVC Rigid plastics sheet
   4.1. Other properties: Fixing holes: All fixings to be stainless steel security anti-temper type fixing screws.
5. Fire signs:: Provide and install the following fire escape signage:
   5.1. Door & gate signage:: New fire exit doors giving access to new external escape stairs and final exit gates:
   "Push bar to open" To be placed above all new door & gate panic bars.
   "Fire door keep shut" & " Keep clear" To all new fire doors.
      5.1.1. General fir escape - directional signage: New direction signage to be located on existing external balcony escape routes. Generally to be Green running man logo with white direction arrow type.
      Final sign directional arrangement and location to be agreed with the Fire & Rescue Services.

126 Way-finding flat identification signage For the Fire & Rescue Services

1. Description: Main contractor is to provide and install new bespoke "Way-finding" floor leave and and flat numbering identification signage for the purposed of the fire & rescue services.
2. System manufacturer: Contractor's choice
   2.1. System reference: Bespoke: Flat identification.
   Contractor to provide sample & proof to C.A for review and comment prior to order.
3. Locations and layout: New signage is to be installed at each floor level in the existing main access stairs.
   The signage is to state each floor level of the over all building and the individual flat/ maisonettes No's. access from said floor level.
4. Material: PVC Rigid plastics sheet
5. Fixings: : Fixing holes: All fixings to be stainless steel security anti-temper type fixing screws.
6. Signage design:: White background with black font.
   Font size: 50mm.

System performance

205 Design of internal signage systems

1. Description: New fire escape and way-finding signage.
2. Design: Complete detailed design and submit before commencing work.
3. Content: Signs including facing information, components, inserts, accessories and fixings necessary to complete the system.

4. Proposals: Submit drawings, schedules, technical information, calculations and manufacturer's literature before commencing work.

210 General requirements

1. Signage and way guiding system design:
   1.1. For fire escape and evacuation signage: In accordance with: BS 5499-4 or BS ISO 16069.
   1.2. For way guiding systems: In accordance with BS ISO 16069.
   1.3. For safety signs other than escape route signage: In accordance with: BS 5499-10.
2. Comply with the requirements of: Specification Section N15 and Tender drawings in Document 1 Volume 2 - Architectural Drawings.

220 Sign design and format

1. Description: All new signage.
2. Format: In accordance with HSE L64 Safety signs and signals In accordance with BS EN ISO 7010
3. Geometric shapes, colours and layout: In accordance with BS ISO 3864-1.
4. Design principles for graphical symbols: In accordance with BS ISO 3864-3.
5. Colorimetric and photometric properties of safety sign materials: In accordance with BS ISO 3864-4.
6. Water safety: In accordance with BS ISO 20712-1.

280 Design life

1. Description: OF FIRE ESCAPE SIGNAGE SYSTEM
2. Duration: 10 years
   2.1. Subject to reasonable wear and tear.
3. Condition of use: Subject to regular maintenance.

290 Signage samples

1. Sign type: Bespoke way-finding signs
   1.1. Action: Submit labelled samples.
   1.2. Conformity: Retain samples on site for the duration of the contract or until instructed to remove.
   1.3. Delivered products: To conform with labelled samples.

Products

330 Plastics sheet

1. Description: -FOR ESCAPE ROUTE SIGNS & WAY-FINDING SINAGE
2. Material: Acrylic
3. Manufacturer: Contractor's choice
   3.1. Product reference: Submit proposals
4. Component thickness: 6 mm, 2 mm facing on 4 mm backing panel
5. Finish: Manufacturer's standard
6. Perimeters: Radiused corners
7. Supports/ Fixings: Fixing holes: All fixings to be stainless steel security anti-temper type fixing screws.
8. Accessories: Not required

Execution

610 Fixing signs generally

1. Installation: Secure, plumb and level.
2. Fasteners and adhesives: As section Z20.
3. Strength of fasteners: Sufficient to support live and dead loads.
4. Fixings showing on surface of sign: Must not detract from the message being displayed.

Completion

910 Documentation

1. Submit
   1.1. Manufacturer's maintenance instructions.
   1.2. Guarantees, warranties, test certificates, record schedules and logbooks.

Ω End of Section

Q10
Kerbs/ edgings/ channels/ paving accessories

Types of kerbs/edgings and channels

113 Precast concrete edgings

1. Contractor to provide and install new precast concrete flat top edgings to new and modified foot paths.
   Refer to Proposed External Works Plan 6000 Series Drawings for edgings general arrangement.
2. Manufacturer: Contractor's choice.
   Product reference: Flat Top Edgings - Contractor's choice.
   Colour: Natural.
   Size: 50x250mm
   Special shapes: As required to suit site geometry.
   Finish: As cast.
   Colour: Grey.
   Bedding: Fresh concrete race and haunching.
   Joints generally: Dry, neatly mitred, tightly butted.
   Sealant movement joints: Not required.
   Accessories: As required for complete installation.
   Sub base and subgrade improvement works as clause Q24/110A

114 Brickwall edging

1. Contractor to provide and install new engineering brick retaining wall edgings to new and modified foot paths.
   Refer to Proposed External Works Plan 6000 Series Drawings for edgings general arrangement.
2. Bricks:
   Manufacture: IBSTOCK
   Product reference: 65mm Red Solid Class B Engineering Brick.
3. Wall thickness: 215mm
   Brick bond: Flemish bond - 1 brick thick with brick on edge coping.
   Wall constraint height: 100mm above new ramp level and 100mm above finished level of retainment.
4. Foundations - Edging (only) brick wall edging: 450mm wide by 250mm deep grade C20 continuous concrete strip foundations, with brickwork 300mm (Minimum) below external ground finished level.
5. Foundations - Edging & ground retainment brick retaining wall: Refer to structural engineer's details Refer to Specification Document 1 Volume 3 Structural Drawings, Calculations & Specification.

250 Material samples

1. Samples representative of colour and appearance of designated materials: Submit before placing orders.
   1.1. Designated materials: Red engineering bricks & concrete edgings.

Roads/paving accessories/ marking/ demarcation - Not Used

Laying

510 Laying kerbs, edgings and channels

1. Cutting: Neat, accurate and without spalling. Form neat junctions.
   1.1. Long units (450 mm and over) minimum length after cutting: 300 mm.

1.2. Short units minimum length after cutting: The lower of one third of their original length or 50 mm.

2. Bedding of units: Positioned true to line and levelled along top and front faces, in a mortar bed on accurately cast foundations or on a race of fresh concrete.
3. Securing of units: After bedding has set, secured with a continuous haunching of concrete or on a race of fresh concrete with backing concrete cast monolithically.

520 Adverse weather

1. Conditions: Do not construct if the temperature is below 3°C on a falling thermometer or 1°C on a rising thermometer. Adequately protect foundations, bedding and haunching against frost and rapid drying by sun and wind.

530 Concrete for foundations, races and haunching

1. Standard: To BS 8500-2.
2. Designated mix: Not less than GEN0 or Standard mix ST1.
3. Workability: Very low.

540 Cement mortar bedding

1. General: To section Z21.
2. Mix (Portland cement:sand): 1:3.
   2.1. Portland cement: Class CEM I 42.5 to BS EN 197-1.
   2.2. Sand: to BS EN 12620, grade 0/4 or 0/2 (MP).
3. Bed thickness: 12-40 mm.

547 Bedding/ Backing of units on fresh concrete races

1. Standard: To BS 7533-6.

560 Haunching dowels

1. Dowels: Steel bar to BS 4482.
   1.1. Size: 12 mm diameter, 150 mm long.
2. Installation of dowels: Vertically into foundation while concrete is plastic.
   2.1. Centres: 450 mm.
   2.2. Distance from back face of kerb: 50 mm.
   2.3. Projection: 75 mm.
3. Haunching: Rectangular cross section, cast against formwork, fully enclosing and protecting dowels.

600 Radius kerbs/ channels

1. Usage: Radii of 15 m or less.

610 Angle kerbs

1. Usage: Internal and external 90° changes of direction.
2. Cutting of mitres: Not permitted.

620 Accuracy

1. Deviations (maximum)
   1.1. Level: ± 6 mm.
   1.2. Horizontal and vertical alignment: 3 mm in 3 m.

625 Regularity of paved surfaces

1. Maximum undulation of (non-tactile) paving surface: 3 mm.
    1.1. Method of measurement: Under a 1 m straight edge placed anywhere on the surface (where appropriate in relation to the geometry of the surface).
2. Difference in level between adjacent units (maximum)
    2.1. Joints flush with the surface: Twice the joint width (with 5 mm max difference in level).
    2.2. Recessed, filled joints: 2 mm.
        2.2.1. Recess depth (maximum): 5 mm.
    2.3. Unfilled joints: 2 mm.
3. Sudden irregularities: Not permitted.

630 Narrow mortar joints

1. Jointing: Ends of units buttered with bedding mortar as laying proceeds. Joints completely filled, tightly butted and surplus mortar removed immediately.
    1.1. Joint width: 3 mm.

Ω End of Section

Q20
Granular sub-bases to roads/ pavings

To be read with preliminaries/ general conditions.

110 Thicknesses of sub-base/ subgrade improvement layers

1. Thicknesses: See sections:
   1.1. …….

120 Checking of subgrades

1. Anticipated subgrade conditions
   1.1. Soil type:
   1.2. Plasticity index:
   1.3. CBR (minimum):
   1.4. Depth below formation level to groundwater table:
2. Subgrade variation: If material appears to vary from anticipated conditions, or if there are extensive soft spots, …….
3. Submit: Results and obtain instructions before proceeding.

130 Herbicides

1. Type:
2. Application: To subgrade of …….

140 Excavation of subgrades

1. Final excavation to formation or subformation level: Carry out immediately before compaction of subgrade.
2. Soft spots and voids: Give notice.
3. Old drainage and service trenches:
4. Wet conditions: Do not excavate or compact when the subgrade may be damaged or destabilized.

145 Preparation and compaction of subgrades

1. Timing: Immediately before placing sub-base.
2. Soft or damaged areas:
3. Compaction: Thoroughly, by roller or other suitable means, adequate to resist subsidence or deformation of the subgrade during construction and of the completed roads/ pavings when in use. Take particular care to compact fully at intrusions, perimeters and where local excavation and backfilling has taken place.

150 Subgrades for vehicular areas

1. Preparation and treatment: To Highways Agency ‘Specification for highway works’, clauses 616 and 617.

170 Geotextile filter/ separator membrane

1. Description:
2. Manufacturer:
   2.1. Product reference:

3. Jointing:
4. Protect from
   4.1. Exposure to light, except during laying (maximum five hours).
   4.2. Contaminants.
   4.3. Materials listed as potentially deleterious by geotextile manufacturer.
   4.4. Damage, until fully covered by fill.
   4.5. Wind uplift, by laying not more than 15 m before covering with fill.
5. Preparation: Remove humps and sharp projections and fill hollows before laying.

175 Impermeable membrane

1. Description:
2. Manufacturer:
   2.1. Product reference:
3. Jointing:
4. Protect from:
   4.1. Exposure to light, except during laying (maximum five hours).
   4.2. Contaminants.
   4.3. Materials listed as potentially deleterious by geotextile manufacturer.
   4.4. Damage, until fully covered by fill.
   4.5. Wind uplift, by laying not more than 15 m before covering with fill.
5. Preparation: Remove humps and sharp projections and fill hollows before laying.
6. Other requirements:

180 Notice

1. Give notice:
   1.1. Period of notice:

200 Subgrade improvement layer (capping)

1. Material: To Highways Agency ‘Specification for highway works’, table 6/1, Class …….
2. Standard: Placed and compacted to Highways Agency ‘Specification for highway works', table 6/1, clauses 612 and 613.3, 613.8, 613.9, 613.10 and 613.13.

205 Highways agency Type 2 unbound mixture for sub-base

1. Material: Type 2 unbound mixture to Highways Agency ‘Specification for highway works’, clauses 801 and 804.
   1.1. Recycled aggregate:
   1.2. CBR (minimum):

210 Highways agency Type 1 unbound mixture for sub-base

1. Material: Type 1 unbound mixture to Highways Agency ‘Specification for highway works’, clauses 801 and 803.
   1.1. Recycled aggregate:

211 Granular material

1. Quality: Of a known suitability for use in sub-bases, free from excessive dust, well graded, all pieces less than 75 mm in any direction, minimum 10% fines value of 50 kN when tested in a

soaked condition to BS 812-111 or a resistance to fragmentation of LA50 for the Los Angeles test to BS EN 1097-2, and in any one layer only one of the following:

1.1. Crushed rock (other than argillaceous rock) or quarry waste with not more binding material than is required to help hold the stone together.

1.2. Crushed concrete, crushed brick or tile, free from plaster, timber and metal.

1.3. Gravel or hoggin with not more clay content than is required to bind the material together, and with no large lumps of clay.

1.4. Natural gravel.

1.5. Natural sand.

2. Filling: Spread and levelled in 150 mm maximum layers, each layer thoroughly compacted.

213 Blinding protection for membranes

1. Location:
2. Material:
3. Thickness (minimum):
4. Compaction: Moisten as necessary before final rolling to provide a flat, closed, smooth surface.
5. Permissible deviations on surface level:

215 Coarse graded aggregate for permeable paving

1. Description:
2. Material:
   2.1. Standard: To BS EN 13242 …….
   2.2. Aggregate size:
   2.3. Grading:
   2.4. Other properties:
3. Testing
   3.1. Materials:
   3.2. Sub-base:
4. Laying:
5. Protection: Prevent damage by traffic and contamination by mud and soil.

217 Additional requirements for hydraulically bound coarse graded aggregate for permeable paving

1. Standard: To BS EN 14227-1 …….
2. Aggregate and general requirements:
3. Mixture
   3.1. Binder type: Cement.
   3.2. Binder content by mass (minimum):
4. Water content (range):
5. Mechanical properties:
6. Mixing
   6.1. Batch by weight and mix using a forced action mixer to thoroughly distribute the binder.
   6.2. Aggregate to be free from contamination at time of mixing.
7. Transporting/ placing: Protect mixture from segregation, weather and contamination. Place and compact mixture within …….
8. Protection: Prevent damage from frosting and protect from traffic …….

9. Testing
    9.1. Sample preparation/ testing: Prepare and test three 150 mm cubes to BS EN 13286-41 from each sample of mixture. Cure cubes at 20° C …….
    9.2. Preliminary:
    9.3. Project testing:

220 Frost susceptible granular material

1. Definition (non frost susceptible material): To Highways Agency 'Specification for highway works' clause 801.8.
2. Depth of frost susceptible material below final surface of paving (minimum):
3. Testing: Test materials used if required and supply certificates.

225 Placing of material with high sulfate content

1. Standard: To Highways Agency 'Specification for highway works', clauses 801.2 and 801.3.
    1.1. Separation distance (minimum):

230 Placing granular material generally

1. Preparation: Loose soil, rubbish and standing water removed.
2. Structures, membranes and buried services: Ensure stability and avoid damage.

240 Laying granular sub-bases for vehicular areas

1. General: Spread and levelled in layers. As soon as possible thereafter compact each layer.
2. Standard: To Highways Agency ‘Specification for highway works’ clause 802.
3. At drainage fittings, inspection covers, perimeters and where local excavation and backfilling has taken place: Take particular care to compact fully.

241 Laying granular sub-bases for vehicular areas

1. Proposals: Well in advance of starting work submit details of:
    1.1. Maximum depth of each compacted layer.
    1.2. Type of plant.
    1.3. Minimum number of passes per layer.
2. General: Spread and levelled in layers. As soon as possible thereafter compact each layer.
3. At drainage fittings, inspection covers, perimeters and where local excavation and backfilling has taken place: Take particular care to compact fully.
4. Defective areas: Remove loose, segregated or otherwise defective areas to the full thickness of the layer and lay and compact new material.
5. Sub-base surface after compaction and immediately before overlaying: Uniformly well closed and free from loose material, cracks, ruts or hollows.

250 Laying granular sub-bases

1. Description:
2. General: Spread and levelled.
3. Compaction
    3.1. Timing: As soon as possible after laying.
    3.2. Method: By roller or other suitable means, adequate to resist subsidence or deformation of the sub-base during construction and of the completed paving when in use. Take particular care to compact fully at intrusions, perimeters and where local excavation and backfilling has taken place.

310 Accuracy

1. Permissible deviation from required levels, falls and cambers (maximum)
   1.1. Subgrades
      1.1.1. Roads and parking areas: +20 -30 mm.
      1.1.2. Footways and recreation areas: ± 20 mm.
   1.2. Sub-bases
      1.2.1. Roads and parking areas:
      1.2.2. Footways and recreation areas:

315 Accuracy for sub-bases to sports surfacing

1. Profile: Lay sub-base to levels shown on drawings and with a …… .
2. Maximum gradient in any direction:
3. Degree of evenness: As specified by …… .
4. Deviation from finished plane:
5. General accuracy: Sufficient to ensure that the surface will not cause a hazard or a ball to deflect from its true path.

320 Surfaces to receive sand bedding for paving

1. Description:
2. Blind surface: As necessary before compaction to ensure that surface is tight and dense enough to prevent laying course sand being lost into it during construction or use.
3. Material:

330 Cold weather working

1. Frozen materials: Do not use.
2. Freezing conditions: Do not place fill on frozen surfaces. Remove material affected by frost. Replace and recompact if not damaged after thawing.

340 Protection

1. Sub-bases: As soon as practicable, cover with subsequent layers, specified elsewhere.
2. Subgrades and sub-bases: Prevent degradation by construction traffic, construction operations and inclement weather.

Ω End of Section

Q22
Asphalt roads/ pavings

Types of paving

112 Asphalt Tarmac paving Hard surfacing Type 1

1. Contractor to provide & lay tarmac hard surfacing to new stairs hardstanding, new foot paths, existing modified foot paths, and general making good to all effected tarmac surfaces as a consequence of the proposed scope of works.
2. ASPHALT CONCRETE PAVING TYPE 02 SURFACE - New stairs hardstanding, new foot paths, existing modified foot paths, and general making good
   Item: Contractor to allow for providing and laying new Tarmac surface course layer to all areas as indicated on Proposed External Works Plan 6000 series Drawings and making good to all surface affected by the installation the proposed scope of works. Location: Refer to Drawing No. 6000 Proposed External Works.
   Standard: To BS EN 13108-1.
   Subgrade improvement layer: Retain existing subgrade layer where existing.
   - Compacted thickness: As existing. Geotextile: Not required.
   - Manufacturer: Not required. Product reference: Not required.
   Existing Granular sub-base To be a minimum of 150mm deep, add additional sub-base as required and compact and consolidate to maintain existing finished path levels.
   New Granular base course
   - Compacted thickness: 125mm. Base: AC 32 dense base.
   - Paving grade: 40/60.
   Binder course: Type: Minimum 20mm nominal size aggregate Dense Bitumen Macadam to BS4987..
   - Compacted thickness: 75mm.
   Surface course: Type: Minimum 10mm nominal size aggregate Dense Bitumen Macadam to BS4987 .
   - Compacted thickness: 30mm.
   Surface treatment: Not required.
   Other requirements: New making good surfacing to be levelled to tie in with existing foot paths finish levels.
   All levels and drainage falls are to be maintained as existing arrangement .

Preparatory work/ requirements

220 Bituminous materials generally

1. Suppliers' names: Submit.
   1.1. Timing (minimum): Two weeks before starting work.
2. Test certificates: At the time of delivery for each manufacturing batch submit certificate:
   2.1. Confirming compliance with this specification and the relevant standard.
   2.2. Stating full details of composition of mix.

230 Samples

1. Submit: Main contractor to lay sample for review & comment by C.A prior to the works.

240 Acceptance of surfaces

1. Surface: Sound, clean and suitably close textured.
2. Level tolerances: To BS 594987.
3. Kerbs and edgings: Complete, adequately bedded and haunched and to the required levels.

250 Abutments

1. Vertical edges of manholes, gullies, kerbs and other abutments: Clean and paint with a thin uniform coating of …….
2. Finishing: Tamp surface around projections.
   2.1. Level: Flush or not more than 3 mm above projections.

Laying

310 Laying generally

1. Preparation: Remove all loose material, rubbish and standing water.
2. Adjacent work: Form neat junctions. Do not damage.
3. Channels, kerbs, inspection covers etc: Keep clean.
4. New paving
   4.1. Keep traffic free until it has cooled to prevailing atmospheric temperature.
   4.2. Do not allow rollers to stand at any time.
   4.3. Prevent damage.
   4.4. Lines and levels: With regular falls to prevent ponding.
   4.5. Overall texture: Smooth, even and free from dragging, tearing or segregation.
   4.6. State on completion: Clean.

320 Adverse weather

1. Frozen materials: Do not use.
2. Suspend laying
   2.1. During freezing conditions
   2.2. If the air temperature reaches 0°C, or in calm dry conditions -3°C, on a falling thermometer.
   2.3. Hot rolled asphalt: During periods of continuous or heavy rain or if there is standing water on the base.

330 Levels

1. Permissible deviation from the required levels, falls and cambers (maximum): In accordance with BS 594987, clause 5.2.

340 Flatness/ Surface regularity

1. Deviation of surface: Where appropriate in relation to the geometry of the surface, the variation in gap under a 3 m straightedge placed anywhere on the surface to be not more than:
   1.1. Base:
   1.2. Binder course:
   1.3. Surface course:
   1.4. Where a straightedge cannot be used the surface must be of a comparable standard of accuracy when judged by eye.

350 Contractor's use of pavements

1. Before use
   1.1. Timing: allow newly laid sections to cool before trafficking.
   1.2. Open-grained surface: Fill with 0/4 mm size coated grit. Remove surplus.
   1.3. Finish: Uncoated chipping and binder surface treatment.
2. Preparation for final surfacing

2.1. Timing: Defer laying until as late as practicable.

2.2. Immediately before laying final surfacing: Clean and make good the base/ binder course. Allow to dry.

2.3. Adhesion:

2.3.1. Application rate:

2.3.2. Accuracy: Uniform, without puddles.

2.4. Finishing: Allow emulsion to break completely before applying surface.

351 Contractor's use of pavements

1. Preparation for final surfacing

1.1. Timing: Defer laying until as late as practicable.

1.2. Immediately before laying final surfacing: Clean and make good the base/ binder course. Allow to dry.

1.3. Adhesion:

1.3.1. Application rate:

1.3.2. Accuracy: Uniform, without puddles.

1.4. Finishing: Allow emulsion to break completely before applying surface.

Completion

390 Documentation

1. Standard:

1.1. Declaration of conformity: Submit.

2. Number of copies:

3. Submission:

Ω End of Section

Q25
Slab/ brick/ sett/ cobble pavings

General

120 Concrete flag paving system

1. Description: Main contractor to provide and lay concrete flay paving system to new foot paths, modified and adapted existing foot paths and general making good to existing foot paths effected by the proposed scope of works.
2. Subgrade improvement layer: Type 1 unbound mixture, as section Q20
   2.1. Compacted thickness: As required to match exiting foot paths
3. Granular sub-base: Type 1 unbound mixture, as section Q20
   3.1. Compacted thickness: 120 mm
4. Base: In accordance with manufactures instructions
   4.1. Thickness: In accordance with manufactures instructions
5. Laying course: Sand/ fine aggregate
   5.1. Accessories: None
6. Paving units: Concrete flags
7. Jointing: Submit proposals to match existing adjoining foot paths.
   7.1. Bond: Straight line and half lap staggered to match existing adjoining foot paths.
8. Accessories: Concrete edgings as Section Q10

System performance - Not Used

Products

316 Concrete flags Hard surfacing Type 2

1. Manufacturer: Charcon Hard Landscaping
   1.1. Web: www.aggregate.com/our-businesses/charcon
   1.2. Email: landscaping@aggregate.com
2. Product Reference: British Standard Paving
3. Size: To match existing adjoining foot paths
4. Thickness: 63 mm
5. Finish : Standard
6. Colour: Grey (Best to match existing adjoining foot paths)
7. Laying patten : Generally: Stack bond or stretcher bond to match existing adjoining foot paths.

Execution

610 Material samples

1. Samples representative of colour and appearance of designated materials: Submit before placing orders.
   1.1. Designated materials: Contractor to provide concrete flag prior to order

620 Adverse weather

1. General

1.1. Temperature: Do not lay or joint paving if the temperature is below 3°C on a falling thermometer or below 1°C on a rising thermometer.

1.2. Frozen materials: Do not use. Do not lay bedding on frozen or frost covered bases.

2. Paving with mortar joints and/ or bedding

2.1. Protect from frost damage, rapid drying out and saturation until mortar has hardened.

3. Paving laid and jointed in sand/ fine aggregate

3.1. Stockpiled laying course sand/ fine aggregate: Protect from saturation.

3.2. Exposed areas of unbound laying course and uncompacted areas of unbound paving: Protect from heavy rainfall.

3.3. Saturated unbound laying course: Remove and replace, or allow to dry before proceeding.

3.4. Laying dry sand/ fine aggregate jointed paving in damp conditions: Brush in as much jointing sand as possible. Minimize site traffic over paving. As soon as paving is dry, top up joints and complete compaction.

625 Laying pavings – general

1. Appearance: Smooth and even with regular joints and accurate to line, level and profile.
2. Falls: To prevent ponding.
3. Bedding of paving units: Firm so that rocking or subsidence does not occur or develop.

3.1. Bedding/ Laying course: Consistently and accurately graded, spread and compacted to produce uniform thickness and support for paving units.

4. Slopes: Lay paving units upwards from the bottom of slopes.
5. Paving units: Free of mortar and sand stains.
6. Cutting: Cut units cleanly and accurately, without spalling, to give neat junctions with edgings and adjoining finishes.

630 Levels of paving

1. Permissible deviation from specified levels

1.1. Generally: ± 6 mm.

2. Height of finished paving above features

2.1. At gullies: +6 to +10 mm.

2.2. At drainage channels and kerbs: +3 to +6 mm.

635 Regularity of paved surfaces

1. Maximum variation in gap under a 3 m straight edge placed anywhere on the surface (where appropriate in relation to the geometry of the surface)

1.1. Precast concrete paving blocks and clay pavers for flexible pavements: 10 mm.

1.2. Precast concrete flags or natural stone slabs: 3 mm.

2. Difference in level between adjacent paving units (maximum): 2 mm.
3. Sudden irregularities: Not permitted.

637 Regularity of paved surfaces

1. Maximum undulations in the surface of pavings (except tactile paving surfaces) under a 1 m straight edge placed anywhere on the surface (where appropriate in relation to the geometry of the surface): 3 mm.
2. Joints between paving units or utility access covers

2.1. Joints flush with the surface: difference in level between adjacent units to be no more than twice the joint width (with a 5 mm max difference in level).

2.2. Recessed, filled joints: difference in level between adjacent units to be no greater than 2 mm; the recess to be no deeper than 5 mm.

2.3. Unfilled joints: difference in level between adjacent units to be no greater than 2 mm.

3. Sudden irregularities: Not permitted.

645 Protection

1. Cleanliness: Keep paving clean and free from mortar droppings, oil and other materials likely to cause staining.
2. Materials storage: Do not overload pavings with stacks of materials.
3. Handling: Do not damage paving unit corners, arrises, or previously laid paving.
4. Mortar bedded pavings: Keep free from traffic after laying:

   4.1. Pedestrian traffic (minimum): 2 days

   4.2. Vehicular traffic (minimum): No vehicular traffic
5. Access: Restrict access to paved areas to prevent damage from site traffic and plant.

650 Cementitious bases and sub-bases

1. General: Protect from moisture loss, if not covered by another pavement course within 2 hours of completion.

655 Condition of sub-bases/ bases before spreading laying course

1. Trenches and excavation of soft or loose spots in subgrade: Fill and thoroughly compact.
2. Granular surfaces: Lay and compact so as to be sound, clean, smooth and close-textured enough to prevent migration of bedding/ laying course materials into the sub-base during compaction and use, free from movement under compaction plant and free from compaction ridges, cracks and loose material.
3. Prepared existing and new bound bases (roadbases): Sound, clean, free from rutting or major cracking. Remove sharp stones, projections and debris.
4. Sub-base/ Roadbase level tolerances: To BS 7533-7, Annex A.
5. Levels and falls: Accurate and within the specified tolerances.
6. Drainage outlets: Within 0-10 mm of the required finished level.
7. Features in unbound paving (including mortar bedded restraints and drainage ironwork): Complete to required levels; adequately bed and haunch in mortar.
8. Sub-bases containing cement/ hydraulic binder: Cure for minimum times specified in BS 7533-4.

Completion - Not Used

Ω End of Section

Q30
Seeding/ turfing

General information/requirements

115 Seeded and turfed areas

1. Growth and development: Healthy, vigorous grass sward, free from the visible effects of pests, weeds and disease.
2. Appearance: A closely knit, continuous ground cover of even density, height and colour.

120 Climatic conditions

1. General: Carry out the work while soil and weather conditions are suitable.

145 Watering

1. Quantity: Wet full depth of topsoil.
2. Application: Even and without displacing seed, seedlings or soil.
3. Frequency: As necessary to ensure the establishment and continued thriving of all seeding/turfing.

146 Watering

1. Quantity: Wet full depth of topsoil.
2. Application: Even and without displacing seed, seedlings or soil.
3. Frequency:

150 Water restrictions

1. Timing: If water supply is or is likely to be restricted by emergency legislation do not carry out seeding/turfing until instructed. If seeding/turfing has been carried out, obtain instructions on watering.

170 Setting out

1. Boundaries: Mark clearly.
2. Delineation: In straight lines or smoothly flowing curves as shown on drawings.

Preparation

212 Seed bed cleaning before sowing

1. Description: ALL GRASSED AREAS
2. Operations: As seed supplier's recommendations.

250 Soil requirements

1. Type
   1.1. Seeded areas: Existing topsoil

Seeding

310 Grass seed

1. Description: FOR ALL GRASSED AREAS

2. Mixture: 35% Chewings fescue, 35% Slender red fescue, 20% Smooth stalked meadow grass, 10% Brown top bent
3. Application rate: 5-10 g/m²

319 Quality of seed

1. Description: FOR ALL GRASSED AREAS
2. Freshness: Produced for the current growing season.
3. Certification: Blue label certified varieties.
   3.1. Standard: EC purity and germination regulations.
   3.2. Official Seed Testing Station certificate of germination, purity and composition: Submit when requested.
4. Samples of mixtures: Submit when requested.

330 Sowing

1. General: Establish good seed contact with the root zone.
2. Method: To suit soil type, proposed usage, location and weather conditions during and after sowing
   2.1. Distribution: 2 equal sowings at right angles to each other

335 Grass sowing season

1. Grass seed generally: August to October

336 Wildflower sowing season

1. Wildflower seed generally:

Turfing - Not Used

Protecting/cutting

530 First cut of grassed areas

1. Timing: When grass is reasonably dry.
   1.1. Height of initial growth: 50 mm
2. Preparation
   2.1. Debris and litter: Remove.
   2.2. Stones and earth clods larger than 25 mm in any dimension: Remove
3. Height of first cut: 40 mm
4. Mower type: Rotary
5. Arisings: Remove from site

590 Cleanliness

1. Soil and arisings: Remove from hard surfaces.
2. General: Leave the works in a clean, tidy condition at Completion and after any maintenance operations.

Maintenance

610 Failures of seeding/ turfing

1. Duration: Carry out the following operations from completion of seeding/ turfing until: practical completion.

2. Defective materials or workmanship: Areas that have failed to thrive.
   2.1. Exclusions: Theft or malicious damage.
3. Method of making good: Recultivation and reseeding/ returfing.
4. Timing of making good: The next suitable planting season

620 Maintaining

1. Description:
2. Duration: Carry out the following operations from completion of seeding/ turfing until: practical completion.
3. Maximum height of growth at any time:
4. Preparation: Before each cut remove all litter and debris.
5. Cutting: As and when necessary to a height of 35 mm.
   5.1. Arisings: Remove
6. Bulb planting areas: Do not cut until bulb foliage has died down.
7. Trimming: All edges.
   7.1. Arisings: Remove.
8. Weed control: Substantially free of broad leaved weeds.
   8.1. Method: Application of a suitable selective herbicide.
9. Stones brought to the surface: Remove regularly.
   9.1. Size: Exceeding 25 mm in any dimension.
10. Areas of settlement: Make good.
11. Watering: When instructed

Ω End of Section

Q41
Barriers/ guardrails

Types of barriers/ guardrails

131 Protective barriers Foot path & ramp guarding

1. Main contractor is to provide and install new 2 Rail Post System guarding to new foot paths and ramps as indicated on Proposed External Works drawings.
2. Location: Refer to Drawing No's 200421-600 series Proposed External Works Plan for general arrangement and location of new guard railing to St Mary's (Ramp & landing) and Berthon House & Ashley house to new foot path general arrangements.
3. Manufacturer: Marshalls plc.
   Product reference: Ferrocast® Harbour 2 Rail Post and Rail System.
   Web: www.marshalls.co.uk
   Colour: RAL 9006 White Aluminium.
   Finish: Gloss.
   Accessories: A swivel post and socket to allow adjustment up to 37° to match the gradient of any ramp, and site topography.
   Design: Systems to suit individual requirements.
   Fixings: Ground (root) fixed: The posts design to be situated directly into a C30, medium slump grade concrete mix.

Performance/ inspection/ testing - Not Used

Installation

405 Competence

1. Operatives: Contractors must employ competent operatives.
2. Qualifications: Submit certification of training.
   2.1. UKAS Sector Scheme 2A sub-categories:
   2.2. UKAS Sector Scheme 2C sub-categories:

410 Work on or adjacent to highways

1. Requirement: Comply with the Department for Transport's 'Safety at street works and road works. A code of practice'. Retain a copy of this document on site at all times during the course of the works.

420 Alignment

1. Erection: Fences/ barriers to present a flowing alignment. Tops of posts to follow ground profile.
2. Tolerance: ±30 mm of prescribed alignment and, within any 10 m length, ±15 mm from the straight or required radius.

430 Erection generally

1. Protection: Coat all internal and external surfaces of aluminium and steel posts below and up to 150 mm above ground level, with two coats of bituminous paint to BS 6949 type 2, unless other applied surface finish is specified.
2. Prevention of electrolytic corrosion: Isolate dissimilar metals.
3. Steel components: Do not drill, cut or weld after galvanizing.

480 Concrete foundations for posts

1. Excavations: To have vertical sides. Dispose of all arisings. Blind excavation bottoms with a 50 mm layer of concrete.
2. Concrete mix: To BS 8500-2, Designated mix not less than GEN 4 or Standard mix not less than ST5. Do not use admixtures.
3. Placing concrete: Fill holes to the specified depth and fully compact. Do not backfill for at least four days.
4. Temporary support to posts: Provide for a at least four days after placing concrete.

490 Damage repair to galvanized surfaces

1. Areas of repair: Minor damage, including fixings and fittings.
   1.1. Total area of repair not to exceed 0.5% of total surface area.
   1.2. Each area not to exceed 1000 mm².
2. Renovation: Use low melting point zinc alloy repair rods or powders or at least two coats of zinc-rich paint to BS 4652.

Completion - Not Used

Ω End of Section

R10
Rainwater drainage systems

General

110 Gravity rainwater drainage system

1. Rainwater outlets: Metal sheet trapezoidal roof panels with bespoke metal hidden gutter liner tray and metal flashing rainwater outlet spigot.
2. Gutters: Aluminium bespoke tray to form hidden gutter.
3. Pipework: Aluminium circular.
4. Below ground drainage: As section R12
5. Disposal: To soakaway as section R12
6. Controls: Not applicable
7. Accessories: Sealant for gutters

System performance

210 Design

1. Design: Complete the design of the rainwater drainage system.
2. Standard
   2.1. To BS EN 12056-3, clauses 3–7, Annex A and National Annexes.
   2.2. To BS EN 12056-5, clauses 3, 4, 6 and 11.
3. Proposals: Submit drawings, technical information, calculations and manufacturers' literature.

221 Collection and distribution of rainwater

1. General: Complete, and without leakage or noise nuisance.

230 Design parameters - general

1. Roof and gutter construction and finish: Metal sheet trapezoidal roof panels with bespoke metal hidden gutter liner tray and metal flashing rainwater outlet spigot
2. Design rate of rainfall: As BS EN 12056-3, National Annex NB.2.
   2.1. Category: 1
3. Design life of building: 30 years
4. Available capacity of existing below ground drainage (maximum): New soakaway

Products

311 Aluminium gutters

1. Standard: Not applicable
2. Manufacturer: CDP Item: Bespoke gutter to satisfy Design Intent Stair Detail drawings.
   2.1. Product reference: Main contractor to submit specialist subcontractors design/ fabrication drawings to C.A for review and comment prior to procurement and fabrication.
3. Profile: Hidden type gutter as indicated on Design Intent Stair Detail drawings.
4. Type/ Thickness: Minimum 0.9 mm thickness, subject to specialist subcontractors design.
5. Nominal size: Notionally 200x75 mm. As drawing on Design Intent Stair Detail drawings - Proposed Section.
6. Finish: Polester powder coated

7. Colour: To match metal sheet trapezoidal roof panels.
8. Brackets: Lapped tray profile as specialist subcontractors design.
   8.1. Fixings: Roofing system waterproof fixing stainless steel screws and washers.
      8.1.1. Size: Not applicable
9. Accessories: Stop ends, leaf guards & jointing clips

365 Proprietary rainwater outlets

1. Manufacturer: CDP Item: Bespoke rainwater outlets to satisfy Design Intent Stair Detail drawings.
   1.1. Product reference: Main contractor to submit specialist subcontractors design/ fabrication drawings to C.A for review and comment prior to procurement and fabrication.
2. Roof construction: Metal sheet trapezoidal roof panels fixed on galvanised 'Z' profile purlins (CDP Item)
   2.1. Roof insulation thickness: None
3. Type of grate/ Fittings: Flange and clamping collar for roof membrane
4. Outlet: Type and direction to suit pipework with suitable adaptors and connections.
5. Accessories:

370 Aluminium pipework

1. Standard: RWP system to have Agrément certified or equal.
   Manufacture: Alumasc or equal.
2. Manufacturer: CDP Item: Bespoke rainwater downpipes to satisfy Design Intent Stair Detail drawings.
   2.1. Product reference: Main contractor to submit specialist subcontractors design/ fabrication drawings to C.A for review and comment prior to procurement and fabrication.
3. Type/ Thickness : Minimum 0.9 mm
4. Section: Round
5. Nominal size: 76 mm
6. Finish Polyester powder coating.
7. Colour: To match stair structure - TBC
8. Brackets: Extruded aluminium pipe clips coated as pipes
   8.1. Fixings: Stainless steel screws
      8.1.1. Size: To suit fixing to main structure SHS column.
9. Accessories: Rainwater shoes

Custom made products - Not Used

Execution

600 Preparation

1. Work to be completed before commencing work specified in this section
   1.1. Below ground drainage. Alternatively, make temporary arrangements for dispersal of rainwater without damage or disfigurement of the building fabric and surroundings.
   1.2. Painting of surfaces which will be concealed or inaccessible.

605 Installation generally

1. Electrolytic corrosion: Avoid contact between dissimilar metals where corrosion may occur.
2. Plastics and galvanized steel pipes: Do not bend.

3. Allowance for thermal and building movement: Provide and maintain clearance as fixing and jointing proceeds.
4. Protection
   4.1. Fit purpose made temporary caps to prevent ingress of debris.
   4.2. Fit access covers, cleaning eyes and blanking plates as the work proceeds.

616 Setting out eaves gutters - level

1. Setting out: Level and as close as practical to the roof.
2. Outlets: Aligned with connections to below ground drainage.

630 Installing rainwater outlets

1. Fixing: Secure. Fix before connecting pipework.
   1.1. Method: Support plate and clamp
2. Junctions between outlets and pipework: Accommodate movement in structure and pipework.

635 Fixing pipework

1. Pipework: Fix securely, plumb and/ or true to line.
2. Branches and low gradient sections: Fix with uniform and adequate falls to drain efficiently.
3. Externally socketed pipes and fittings: Fix with sockets facing upstream.
4. Additional supports: Provide as necessary to support junctions and changes in direction.
5. Vertical pipes
   5.1. Provide a loadbearing support at least at every storey level.
   5.2. Tighten fixings as work proceeds so that every storey is self supporting.
   5.3. Wedge joints in unsealed metal pipes to prevent rattling.
6. Wall and floor penetrations: Isolate pipework from structure.
   6.1. Pipe sleeves: As section P31.
   6.2. Masking plates: Fix at penetrations if visible in the finished work.
7. Expansion joint pipe sockets: Fix rigidly to buildings. Elsewhere, provide brackets and fixings that allow pipes to slide.

640 Fixing vertical pipework

1. Bracket fixings:
2. Distance between bracket fixing centres (maximum):

650 Jointing pipework and gutters

1. General: Joint with materials and fittings that will make effective and durable connections.
2. Jointing differing pipework and gutter systems: Use adaptors intended for the purpose.
3. Cut ends of pipes and gutters: Clean and square. Remove burrs and swarf. Chamfer pipe ends before inserting into ring seal sockets.
4. Jointing or mating surfaces: Clean and, where necessary, lubricate immediately before assembly.
5. Junctions: Form with fittings intended for the purpose.
6. Jointing material: Strike off flush. Do not allow it to project into bore of pipes and fittings.
7. Surplus flux, solvent jointing materials and cement: Remove.

660 Jointing external pipework

1. Jointing: Low modulus silicone sealant over a polyethylene foam backing insert

675 Cutting coated pipework and gutters

1. Cutting: Recoat bare metal.

690 Electrical continuity - pipework

1. Joints in metal pipes with flexible couplings: Clips (or suitable standard pipe couplings) supplied for earth bonding by pipework manufacturer to ensure electrical continuity.

695 Electrical continuity - gutters

1. Joints in metal gutters: Purpose made links supplied by the gutter manufacturer to ensure electrical continuity.

700 Access for testing and maintenance

1. General: Install pipework and gutters with adequate clearance to permit testing, cleaning and maintenance, including painting where necessary.
2. Access fittings and rodding eyes: Position so that they are not obstructed.

Completion

900 Testing generally

1. Dates for testing: Give notice.
   1.1. Period of notice (minimum): 7 days
2. Preparation
   2.1. Pipework: Complete, securely fixed, free from defects, obstruction and debris before testing.
3. Testing
   3.1. Supply clean water, assistance and apparatus.
   3.2. Do not use smoke to trace leaks.
4. Records: Submit a record of tests.

910 Gutter test

1. Preparation: Temporarily block all outlets.
2. Testing: Fill gutters to overflow level and after 5 minutes closely inspect for leakage.

915 Maintenance instructions

1. General: At completion, submit printed instructions recommending procedures for maintenance of the rainwater installation, including full details of recommended inspection, cleaning and repair procedures.

920 Immediately before handover

1. Construction rubbish, debris, swarf, temporary caps and fine dust which may enter the rainwater system: Remove. Do not sweep or flush into the rainwater system.
2. Access covers, rodding eyes, outlet gratings and the like: Secure complete with fixings.

Ω End of Section

R12
Below ground drainage systems

General

110 Below ground drainage system

1. Description: New below ground drawing to rainwater pipe serving new stair structure roof. Main contractor to provide and install new complete below ground drainage pipework to connect new rainwater downpipes to new soakaway to include but not limited to rwp roddable gulley, plastic drainage pipework with push-fit polypropylene couplings all pipework radius bend spigots, rodding points, etc to complete the fallout to the new soakaway.
2. Surface water and rainwater drainage sources: Rainwater downpipes (nonsiphonic), as section R10
3. Foul drainage sources: Not applicable.
4. Land drainage sources: Not applicable.
5. Pressure relief drainage sources: Not applicable.
6. Pipes, bends and junctions: PVC-U - solid wall
   6.1. Accessories: Access points, Flexible couplings, Rodding points, Root barriers,
7. Manholes, inspection chambers, traps, and separators: None required - Straight connection from RPW gulley to soakaway.
8. Disposal: To soakaways, as section R17

122 Soakaway system – plastics units

1. Description: Main contractor to provide and install new soakaway to 6 No. new stair structures. Refer to Proposed External Works Plan drawings for general arrangement.
2. Percolation test:: The main contractor must allow to arrange and complete a soakaway percolation test in accordance with BRE Digest 365 *Soakaway test* to demonstrate full compliance with Building Regulations Approved Document Part H Drainage & waste disposal - Section 3: Surface water drainage prior to the works.
3. Rainwater drainage sources: Below ground rainwater pipelines.
4. Foul drainage sources: None
5. Soakaway units: As section R17
   5.1. Accessories: None
6. Pipes, bends and junctions: Plastics - structured wall perforated, as section R17

System performance

211 Design – below ground drainage systems

1. Design: Complete the design of the below ground drainage system in accordance with BS EN 752, BS EN 1295-1 and BS EN 1610.
2. Ground conditions: Gravel, sand - compact
3. Performance criteria: To BS EN 1295-1:1997
4. Proposals: Submit drawings, technical information, calculations and manufacturers' literature.

221 Design – soakaway systems

1. Design: Complete the design of the soakaway system in accordance with BRE Digest 365.
2. Ground conditions: Gravel, sand - compact
3. Required percolation rate: 50 L/s

4. Design life of system: 30 years
5. Proposals: Submit drawings, technical information, calculations and manufacturers' literature.
6. Maintenance requirements: Submit details.

Products

329 Pipes, bends and junctions – supply

1. Pipes and fittings: From same manufacturer for each pipeline.

346 Pipes, bends and junctions – pvc-u – solid wall

1. Description: - SURFACE WATER DRAINAGE
2. Standard: BS EN 1401-1 with flexible joints.
   2.1. Class: SN4 or SN8
3. Manufacturer: Marley
   3.1. Product reference: Solid Wall Drainage
4. Recycled content: None permitted
5. Sizes: DN 100
6. Application area code: UD.

409 Manholes – concrete – additional components for deep manholes

1. Standards
   1.1. To BS 5911-3 and BS EN 1917 and Kitemark certified; or
   1.2. To BS 5911-4 and BS EN 1917.
2. Manufacturer:
3. Cement type and content:
4. Landing slabs
   4.1. Product reference:
   4.2. Sizes:
5. Reducing slabs
   5.1. Product reference:
   5.2. Sizes:
6. Straight backed tapers
   6.1. Product reference:
   6.2. Nominal sizes:
7. Shaft sections
   7.1. Product reference:
   7.2. Sizes:

481 Foamed concrete

1. Description:
2. Manufacturer:
   2.1. Product reference:
3. Density (minimum): 1050 kg/m².
4. Compressive strength (maximum): 10 N/mm².
5. Ground conditions:

492 Geotextile membranes – filter

1. Description:
2. Manufacturer:
   2.1. Product reference:

498 Granular sub-base material

1. Description:
2. Standard: To Highways Agency Volume 1, 'Specification for Highway Works', Type 1 Unbound mixtures for sub-base.
3. Recycled content:

Fabrication - Not Used

Execution

616 Selected fill for backfilling

1. Selected fill: As-dug material, free from vegetable matter, rubbish, frozen soil and material retained on a 40 mm sieve.
   1.1. Compaction: By hand in 100 mm layers.

635 Formation for beddings

1. Timing: Excavate to formation immediately before laying beddings or pipes.
2. Mud, rock projections, boulders and hard spots: Remove. Replace with consolidated bedding material.
3. Local soft spots: Harden by tamping in bedding material.
4. Inspection of excavated formations: Give notice.

641 Pipes at different levels in common trench

1. Subtrench: Permissible provided soil of step is stable and unlikely to break away.
   1.1. Subtrench not permissible: Trench depth as required for lower pipe. Increase thickness of bedding to upper pipe as necessary.
2. Lower pipe: Backfill with compacted granular material to at least half way up higher pipe.
3. Clear horizontal distance between pipes (minimum)
   3.1. Pipes up to DN 700: 350 mm.
   3.2. Pipes exceeding DN 700: 500 mm.

653 Class B support

1. Description:
2. Type of subsoil:
3. Granular material:
   3.1. Sizes: To Water Industry Specification WIS 4-08-02 (as amended by WIS 4-08-02A, 2008).
4. Bedding
   4.1. Material: Granular, compacted over full width of trench.
   4.2. Thickness (minimum): 50 mm for sleeve jointed pipes, 100 mm for socket jointed pipes. If trench bottom is uneven, increase thickness by 100 mm.
5. Pipes: Dig slightly into bedding, rest uniformly on barrels and adjust to line and gradient.
6. Initial testing before placing support:

7. Support
   7.1. Material: Granular.
   7.2. Depth: Halfway up each side of pipe.
   7.3. Compaction: By hand.
8. Backfilling
   8.1. Material: Protective cushion of selected fill.
   8.2. Depth: To 150 mm (250 mm for adoptable sewers) above crown of pipe.
   8.3. Compaction: By hand in 100 mm layers.

655 Class D bed

1. Description:
2. Type of subsoil:
3. Trench: Excavate slightly shallower than final levels.
   3.1. Trimming: By hand to accurate gradients. Replace overdig with compacted soil.
4. Pipes: Rest uniformly on barrels, adjust to line and gradient. Do not use hard packings under pipes.
5. Initial testing before backfilling:
6. Backfilling
   6.1. Material: Protective cushion of selected fill.
   6.2. Depth: 150 mm (250 mm for adoptable sewers) above crown of pipe.
   6.3. Compaction: By hand in 100 mm layers.

657 Class F bedding

1. Description:
2. Type of subsoil:
3. Granular material:
   3.1. Sizes: To Water Industry Specification WIS 4-08-02 (as amended by WIS 4-08-02A, 2008).
4. Bedding
   4.1. Material: Granular, compacted over full width of trench.
   4.2. Thickness (minimum): 50 mm for sleeve jointed pipes,
5. 100 mm for socket jointed pipes. Where trench bottom is uneven, increase thickness by 100 mm.
6. Pipes: Dig slightly into bedding, rest uniformly on barrels and adjust to line and gradient.
7. Initial testing before backfilling:
8. Backfilling
   8.1. Material: Protective cushion of selected fill.
   8.2. Depth: 150 mm (250 mm for adoptable sewers) above crown of pipe.
   8.3. Compaction: By hand in 100 mm layers.

661 Class O support

1. Description:
2. Type of subsoil:
3. Granular material:
   3.1. Sizes: To Water Industry Specification WIS 4-08-02 (as amended by WIS 4-08-02A, 2008).
4. Bedding
   4.1. Material: Granular, compacted over full width of trench.

4.2. Thickness (minimum): 100 mm.

5. Pipes: Dig slightly into bedding, rest uniformly on barrels and adjust to line and gradient.
6. Initial testing before placing support:
7. Support
   7.1. Material: Granular.
   7.2. Depth: To slightly above crown of pipe.
   7.3. Compaction: By hand.
8. Backfilling
   8.1. Material and depth
      8.1.1. Protective cushion of selected fill to 300 mm above crown of pipe; or
      8.1.2. Additional granular material, to 100 mm above crown of pipe.
   8.2. Compaction: By hand in 100 mm layers.

669 Class T surround

1. Description:
2. Type of subsoil:
3. Granular material:
   3.1. Sizes: To Water Industry Specification WIS 4-08-02 (as amended by WIS 4-08-02A, 2008).
4. Bedding
   4.1. Material: Granular, compacted over full width of trench.
   4.2. Thickness (minimum): 100 mm.
5. Pipes: Dig slightly into bedding, rest uniformly on barrels and adjust to line and gradient.
6. Initial testing before placing surround:
7. Surround
   7.1. Material: Granular.
   7.2. Depth: To 100 mm above crown of pipe.
   7.3. Compaction: By hand.

671 Class V surround

1. Description:
2. Type of subsoil:
3. Granular material:
   3.1. Sizes: To Water Industry Specification WIS 4-08-02 (as amended by WIS 4-08-02A, 2008).
4. Width of trench (minimum): External diameter of pipe plus
5. 600 mm.
6. Bedding
   6.1. Material: Granular, compacted over full width of trench.
   6.2. Thickness (minimum): 200 mm.
7. Pipes: Dig slightly into bedding, rest uniformly on barrels and adjust to line and gradient.
8. Initial testing before placing surround:
9. Surround
   9.1. Material: Granular.
   9.2. Depth: To 150 mm above crown of pipe.
   9.3. Compaction: By hand.

673 Class W surround

1. Description:
2. Type of subsoil:
3. Timing: Excavate trench after hardcore has been laid and compacted.
4. Granular material:
   4.1. Sizes: To Water Industry Specification WIS 4-08-02 (as amended by WIS 4-08-02A, 2008).
5. Bedding
   5.1. Material: Granular, compacted over full width of trench.
   5.2. Thickness (minimum): 100 mm.
6. Pipes: Dig slightly into bedding, rest uniformly on barrels and adjust to line and gradient.
7. Initial testing before placing surround:
8. Surround
   8.1. Material: Granular.
   8.2. Depth: To 100 mm above crown of pipe.
   8.3. Compaction: By hand.
9. Backfilling
   9.1. Material: Hardcore as section D20, or granular.
   9.2. Depth: Up to slab formation.
   9.3. Compaction: In 300 mm (maximum) thick layers.

676 Class Y surround

1. Description:
2. Type of subsoil:
3. Timing: Excavate trench after hardcore has been laid and compacted.
4. Blinding
   4.1. Material: Concrete.
   4.2. Thickness (minimum): 25 mm.
   4.3. Width: Full width of trench.
   4.4. Allow to set before proceeding.
5. Pipes
   5.1. Temporary support: Folding wedges of compressible board. Prevent flotation.
   5.2. Clearance under pipes (minimum): 100 mm.
   5.3. Adjust pipes to line and gradient.
6. Initial testing before placing surround:
7. Surround, cast integrally with slab
   7.1. Material: Concrete of same mix as slab.
   7.2. Width (minimum): External diameter of pipe plus 200 mm.
8. Extent of surround: To within 150 mm of nearest flexible joint.

678 Class Z surround

1. Description:
2. Type of subsoil:
3. Blinding
   3.1. Material: Concrete.

3.2. Thickness (minimum): 25 mm.

3.3. Width: Full width of trench.

3.4. Allow to set before proceeding.

4. Pipes

4.1. Temporary support: Folding wedges of compressible board. Prevent flotation.

4.2. Clearance under pipes (minimum): 100 mm.

4.3. Adjust pipes to line and gradient.

5. Initial testing before placing surround:

6. Surround

6.1. Material: Concrete.

6.2. Depth: To 150 mm above crown of pipe.

6.3. Width: Full width of trench.

7. Vertical construction joints

7.1. Location: At face of flexible pipe joints.

7.2. Material: 18 mm thick compressible board precut to profile of pipe.

7.3. Socketed pipes: Fill gaps between spigots and sockets with resilient material to prevent entry of concrete.

680 Concrete surround for pipe runs near foundations

1. Class Z surround: Provide in locations where bottom of trench is lower than bottom of foundation and as follows (horizontal clear distance between nearest edges of foundations and pipe trenches):

1.1. Trenches less than 1 m from foundations: Top of concrete surround not lower than bottom of foundation.

1.2. Trenches more than 1 m from foundations: Top of concrete surround not lower than D mm below bottom of foundation, where D mm is horizontal distance of trench from foundation, less 150 mm.

683 Laying pipelines

1. Laying pipes: To true line and regular gradient on even bed for full length of barrel with sockets (if any) facing up the gradient.
2. Ingress of debris: Seal exposed ends during construction.
3. Timing: Minimize time between laying and testing.

685 Jointing pipelines

1. Connections: Durable, effective and free from leakage.
2. Junctions, including to differing pipework systems: With adaptors intended for the purpose.
3. Cut ends of pipes: Clean and square. Remove burrs and swarf. Chamfer pipe ends before inserting into ring seal sockets.
4. Jointing or mating surfaces: Clean and, where necessary, lubricate immediately before assembly.
5. Allowance for movement: Provide and maintain appropriate clearance at ends of spigots as fixing and jointing proceeds.
6. Jointing material: Do not allow to project into bore of pipes and fittings.

687 Concrete surround for crossovers

1. Class Z surround: Provide where two pipelines (other than plastics pipes) cross with less than 300 mm separation.

1.1. Extent, on both pipes: 1 m centred on the crossing point, and beyond as necessary to come within 150 mm of nearest flexible joints.

689 Pipelines passing through structures

1. Pipelines that must be cast in or fixed to structures (including manholes, catchpits and inspection chambers): Provide 600 mm long rocker pipes adjacent to the external face of the structure (or both faces where appropriate, e.g. walls to footings), with flexible joints at both ends.
   1.1. Distance to rocker pipe from structure (maximum):150 mm.
2. Provision for movement for pipelines that need not be cast in or fixed to structures (e.g. walls to footings)
   2.1. Rocker pipes as specified above; or
   2.2. Openings in the structures to give 50 mm minimum clearance around the pipeline. Closely fit a rigid sheet to each side of opening to prevent ingress of fill or vermin.

691 Bends at base of soil stacks

1. Type:
   1.1. Radius to centreline of pipe (minimum):
2. Height of invert of horizontal drain at base of stack below centreline of lowest branch pipe (minimum):
3. Bedding: Do not impair flexibility of pipe couplings.
   3.1. Material: Concrete.

693 Direct connection of ground floor wcs to drains

1. Drop from crown of WC trap to invert of drain (maximum):
2. Horizontal distance from the drop to a ventilated drain (maximum): 6 m.

726 Foamed concrete backfill

1. Preparation: Seal off openings in, and ends of, abandoned pipelines and ducts. Seal off cavities in or next to the excavation which are not to be filled.

741 Installing inspection chambers – plastics

1. Bedding
   1.1. Material:
   1.2. Thickness (minimum):
2. Surround
   2.1. Material:
   2.2. Thickness (minimum):
3. Backfilling:
   3.1. Compaction: By hand in 100 mm layers.
4. Concrete collar
   4.1. Material:
   4.2. Thickness (minimum):
   4.3. Width (minimum):
5. Seating:

759 Laying preformed plastics channels, branches and benching

1. Main channel: Bed solid in 1:3 cement:sand mortar.

1.1. Branches: Connect to main channel at or slightly above invert level, but not higher than half channel level, so that discharge flows smoothly in direction of main flow.

1.2. Connecting angles more than 45° to direction of flow: Use three-quarter section channel bends.

2. Bedding: 1:3 cement:sand mortar. Use clips or ensure adequate mechanical key.

3. Benching

3.1. Material: Concrete.

3.2. Profile: Rise vertically from top of main channel to a level not lower than soffit of outlet pipe, then slope upwards at 10% to walls.

3.3. Topping

3.3.1. Material:

3.3.2. Application: Before benching concrete has set, and with dense smooth uniform finish.

761 Laying sealed access fittings, branches and benching

1. Unused branches: Fit caps.

2. Bedding: 1:3 cement:sand mortar.

3. Benching

3.1. Material: Concrete.

3.1.1. Profile: 10% fall from manhole walls to component rim.

3.2. Topping

3.2.1. Material:

3.2.2. Application: Before benching concrete has set, and with dense smooth uniform finish.

771 Installing outfalls

1. Pipe outflow invert (minimum): Seasonal peak level or 150 mm above normal water level, whichever is the higher.

2. Pipe surround and backfill to the last 2 m run of drain: Excavated subsoil, rammed home.

Completion

901 Removal of debris and cleaning

1. Preparation: Lift covers to manholes, inspection chambers and access points. Remove mortar droppings, debris and loose wrappings.

1.1. Timing: Before cleaning, final testing, CCTV inspection if specified, and immediately before handover.

2. Cleaning: Thoroughly flush pipelines with water to remove silt and check for blockages. Rod pipelines between access points if there is any indication that they may be obstructed.

3. Washings and detritus: Do not discharge into sewers or watercourses.

4. Covers: Securely replace after cleaning and testing.

903 Temporary measures

1. Water used to stabilize tanks and the like during installation: Drain.

Ω End of Section

R17
Soakaway, septic tank and sewage treatment units

Products

305 Below ground drainage systems – products

1. Products generally: As section R12.

316 Modular plastics soakaway units

1. Manufacturer: Wavin Ltd
   1.1. Web: www.wavin.co.uk
   1.2. Email: info@wavin.co.uk
2. Product Reference: 6LB025
3. Accessories: 6LB105
4. Description : Contractor to allow to provide and install new soakaways.
   2 No. double stack 6LB025 Aquacell Plus-R Soakaway plastic crates.
   Soakaway to be installed in accordance with manufactures instructions and recommendations.
5. Size: Crate size: 1m x 0.5m x 0.4m.

Execution

605 Below ground drainage systems – execution

1. Execution generally: As section R12.

650 Backfilling with as-dug material

1. Material: As excavated from the trench.
2. Placing and compaction: Maximum 300 mm thick layers, up to finished ground level. Compact each layer before placing the next.
3. Heavy compactors: Do not use before there is 600 mm of material over pipes.

Completion - Not Used

Ω End of Section

Z11
Purpose made metalwork

To be read with preliminaries/ general conditions.

310 Materials generally

1. Grades of metals, section dimensions and properties: To appropriate British Standards. When not specified, select grades and sections appropriate for the purpose.
2. Prefinished metal: May be used if methods of fabrication do not damage or alter appearance of finish, and finish is adequately protected.
3. Fasteners: To appropriate British Standards and, unless specified otherwise, of same metal as component being fastened, with matching coating or finish.

320 Steel long and flat products

1. Hot rolled structural steels (excluding structural hollow sections and tubes): To BS EN 10025-1.
2. Fine grain steels, including special steels: To BS EN 10025-3 and -4.
3. Steels with improved atmospheric corrosion resistance: To BS EN 10025-5.

330 Steel plate, sheet and strip

1. Plates and wide flats, high yield strength steel: To BS EN 10025-6.

340 Hot rolled steel plate, sheet and strip

1. Flat products, high yield strength for cold forming: To BS EN 10149-1, -2 and -3.
2. Carbon steel sheet and strip for cold forming: To BS EN 10111.
3. Narrow strip, formable steel and steel for general engineering purposes: To BS 1449-1.8 and BS 1449-1.14.

350 Cold rolled steel plate, sheet and strip

1. Steel sections: To BS EN 10162.
2. Flat products, high yield strength micro-alloyed steels for cold forming: To BS EN 10268.
3. Carbon steel flat products for cold forming: To BS EN 10130 and BS EN 10131.
4. Uncoated carbon steel narrow strip for cold forming: To BS EN 10139 and BS EN 10140.
5. Narrow strip steel for general engineering purposes: To BS EN 10132-1, -2, and -3.
6. Carbon steel flat products for vitreous enamelling: To BS EN 10209.

360 Coated steel flat products

1. Hot dip zinc coated carbon steel sheet and strip for cold forming: To BS EN 10346 and BS EN 10143.
2. Hot dip zinc coated structural steel sheet and strip: To BS EN 10143 and BS EN 10346.
3. Hot dip zinc-aluminium (za) coated sheet and strip: To BS EN 10346.
4. Hot dip aluminium-zinc (az) coated sheet and strip: To BS EN 10346.
5. Organic coated flat products: To BS EN 10169.

370 Steel structural hollow sections (SHS)

1. Non alloy and fine grain steels, hot finished: To BS EN 10210-1 and -2.
2. Non-alloy and fine grain steels, cold formed welded: To BS EN 10219-2.
3. Weather resistant steels, hot finished: To BS 7668.

380 Other steel sections

1. Equal flange tees: To BS EN 10055.
2. Equal and unequal angles: To BS EN 10056-1 and -2.
3. Wire, carbon steel for general engineering purposes: To BS 1052.
4. Wire and wire products, general: To BS EN 10218-2.
5. Tubes
   5.1. Seamless circular: To BS EN 10297-1.
   5.2. Seamless cold drawn: To BS EN 10305-1.
   5.3. Welded and cold sized square and rectangular: To BS EN 10305-5.
   5.4. Welded circular: To BS EN 10296-1.
   5.5. Welded cold drawn: To BS EN 10305-2.
   5.6. Welded cold sized: To BS EN 10305-3.

400 Stainless steel products

1. Chemical composition and physical properties: To BS EN 10088-1.
2. Sheet, strip and plate: To BS EN 10088-2.
3. Semi-finished products bars, rods and sections: To BS EN 10088-3.
4. Wire: To BS EN 1088-3.
5. Tubes
   5.1. Welded circular: To BS EN 10296-2.
   5.2. Seamless circular: To BS EN 10297-2.

410 Aluminium alloy products

1. Designations
   1.1. Designation system, chemical composition and forms: To BS EN 573-1, -2, -3 and -5.
   1.2. Temper designations: To BS EN 515.
2. Sheet, strip and plate: To BS EN 485-1 to -4.
3. Cold drawn rods, bars and tubes: To BS EN 754-1 and -2.
4. Extruded rods, bars, tubes and profiles: To BS EN 755-1 and -2.
5. Drawn wire: To BS EN 1301-1, -2 and -3.
6. Rivet, bolt and screw stock: To BS 1473.
7. Structural sections: To BS 1161.

420 Copper alloy products

1. Sheet, strip, plate and circles for general purposes: To BS EN 1652.
2. Sheet and strip for building purposes: To BS EN 1172.
3. Rods: To BS EN 12163.
4. Profiles and rectangular bars: To BS EN 12167.
5. Wire: To BS EN 12166.
6. Tubes: To BS EN 12449.

Fabrication

515 Fabrication generally

1. Contact between dissimilar metals in components: Avoid.

2. Finished components: Rigid and free from distortion, cracks, burrs and sharp arrises.
   2.1. Moving parts: Free moving without binding.
3. Corner junctions of identical sections: Mitre.

520 Cold formed work

1. Profiles: Accurate, with straight arrises.

525 Adhesive bonding

1. Preparation of surfaces of metals to receive adhesives
   1.1. Degrease.
   1.2. Abrade mechanically or chemically etch.
   1.3. Prime: To suit adhesive.
2. Adhesive bond: Form under pressure.

527 Welding

1. Description: General welding requirements.
2. Welding procedures
   2.1. Method and standard: Refer to structural engineer's drawings & specification tender package contained with in Tender Specification - Document 1 Volume 3 - Structural Specification and Drawings.
   2.2. Welding Procedure Specification (WPS): Refer to structural engineer's drawings & specification tender package contained with in Tender Specification - Document 1 Volume 3 - Structural Specification and Drawings.
3. Preparation
   3.1. Joint preparation: Clean thoroughly.
   3.2. Surfaces of materials that will be self-finished and visible in the completed work: protect from weld splatter.
4. Jointing
   4.1. Joints: Fully bond parent and filler metal throughout with no inclusions, holes, porosity or cracks.
   4.2. Dissimilar metals: Refer to structural engineer's drawings & specification tender package contained with in Tender Specification - Document 1 Volume 3 - Structural Specification and Drawings.
   4.3. Strength requirements: Welds to achieve design loads.
   4.4. Heat straightening: Refer to structural engineer's drawings & specification tender package contained with in Tender Specification - Document 1 Volume 3 - Structural Specification and Drawings.
   4.5. Complex assemblies: Agree priority for welding members to minimize distortion caused by subsequent welds.
   4.6. Tack welds: Use only for temporary attachment.
   4.7. Jigs: Provide to support and restrain members during welding.
   4.8. Filler plates: Refer to structural engineer's drawings & specification tender package contained with in Tender Specification - Document 1 Volume 3 - Structural Specification and Drawings.
   4.9. Lap joints: Minimum 5 x metal thickness or 25 mm, whichever is greater.
   4.10. Weld terminations: Clean and sound.

530 Stainless steel fabrication

1. Guillotining or punching: Do not use for metal thicknesses greater that 10 mm.
2. Thermal cutting
   2.1. Carbonation in the heat affected zone: Remove, after cutting.
3. Bending
   3.1. Plates or bars: Cold bending radius not less than material thickness.
   3.2. Tubes: Cold bending radius not less than 2 x tube diameter.
4. Welding: In addition to general welding requirements:
   4.1. Protect adjacent surfaces from weld spatter.
   4.2. Pickle all welds before post fabrication treatments.
5. Protection: Provide protection to fabricated components during transit and on site.

555 Brazing

1. Standard: To BS EN 14324.
2. Testing
   2.1. Destructive testing: To BS EN 12797.
   2.2. Nondestructive testing: To BS EN 12799.

610 Testing

1. Description: Refer to structural engineer's drawings & specification tender package contained with in Tender Specification - Document 1 Volume 3 - Structural Specification and Drawings.
2. Testing standard:
3. Welding records and test results: Submit Electronic copies.

Finishing

710 Finishing welded and brazed joints visible in complete work

1. Standard: To BS EN ISO 8501-3.
   1.1. Preparation grade: Refer to structural engineer's drawings & specification tender package contained with in Tender Specification - Document 1 Volume 3 - Structural Specification and Drawings.
2. Butt joints: Smooth, and flush with adjacent surfaces.
3. Fillet joints: Neat.
4. Grinding: Grind smooth where indicated on drawings.

745 Preparation for application of coatings

1. General: Complete fabrication, and drill fixing holes before applying coatings.
2. Paint, grease, flux, rust, burrs and sharp arrises: Remove.

750 Liquid organic coating for aluminium alloy components

1. Standard: To BS 4842.

760 Zinc and cadmium plating of iron and steel surfaces

1. Zinc plating: To BS EN ISO 2081.
2. Cadmium plating: To BS EN ISO 2082.

770 Chromium plating

1. Standard: To BS EN ISO 1456.

780 Galvanizing

1. Standard: To BS EN ISO 1461.
2. Preparation
   - 2.1. Vent and drain holes: Provide in accordance with BS EN ISO 14713-1 and -2. Seal after sections have been drained and cooled.
   - 2.2. Components subjected to cold working stresses: Heat treat to relieve stresses before galvanizing.
   - 2.3. Welding slag: Remove.
   - 2.4. Component cleaning: To BS EN ISO 8501-3.
   - 2.5. Grade:

790 Vitreous enamelling

1. Standard: To BS EN ISO 28722.
2. Substrate metal: Steel to BS EN 10209.

Completion

910 Documentation

1. Submit
   - 1.1. Manufacturer's maintenance instructions.
   - 1.2. Guarantees, warranties, test certificates, record schedules and log books.

920 Completion

1. Protection: Remove.
2. Cleaning and maintenance: Carry out in accordance with procedures detailed in fabricators' guarantees.

Ω End of Section

Specification created using NBS Chorus