

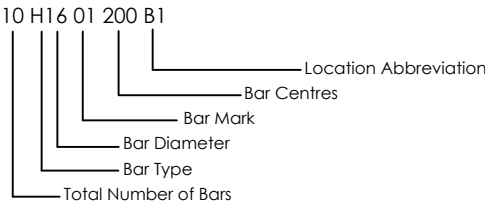
NOTES

PILING

- The Piling Contractor shall be responsible for the design of the piling system and shall be deemed to have taken due account of the proposed loads and any effects on adjacent structures or features.
- Due regard shall be taken of all relevant information noted within the Ground Investigation Report for the design of the piling system.
- In the absence of a project specific Piling Specification the base specification for piling works shall be the Specification for Piling and Embedded Retaining Walls published by the ICE and BS8004 British Standard Code of Practice for Foundations.
- The nature, extent and level of the piling platform shall be agreed with the Main Contractor.
- Setting out dimensions, as indicated on this drawing, relate to centre of piles unless noted otherwise.
- Cut off levels for piles are noted on the drawing.
- The method of breaking down piles shall be approved by the Engineer prior to the commencement of works.
- Following 'breaking down' pile reinforcement shall be bent over and secured to pile/beam reinforcement a minimum of 325mm or 40d whichever is greater.
- All piles shall be capable of resisting forces/moments due to effects of settling out/rake tolerances etc. The piling contractor shall allow for the effects of any existing/future negative skin friction due to the ground conditions within their design.
- The Engineer shall be immediately notified of any broken piles/obstructions to allow the Engineer to specify any necessary remedial work.
- The following testing shall be carried out:-
 - Static Load tests (Kentledge) Y/N maintained proof load test.
 - Dynamic tests (CAPWAP analysis) Y/N
 - Integrity tests. Y/N
 - Such other testing as deemed necessary to validate their design to be determined by the Piling Contractor.
- NB* For sites governed by a building warranty, the Principle Contractor is to ensure the warranty provider is consulted and approves the proposed testing regime at tender stage.
- All test piles shall be nominated by the Engineer and shall be clearly marked on site.
- The Principal Contractor is responsible for removing any known obstructions prior to piling and backfilling resultant excavations as directed by the Engineer. Should unknown obstructions be encountered, then the Engineer shall be informed immediately so that he may consider any necessary remedial work. The Engineer shall also be notified immediately of any broken piles.

REINFORCED CONCRETE NOTES

- Reinforcement shown is listed on schedule.
- Cover to reinforcement Unless Shown Otherwise
100mm Bottom
50mm Sides
50mm Top
- The Contractor shall provide all necessary proprietary spacers to achieve the required cover.
- Reinforcement is shown thus:



- Abbreviations relating to Reinforcement:
Far face F1 (Outer Layer) F2 (Second Layer)
Near face N1(Outer Layer) N2 (Second Layer)
Bottom face B1(Outer Layer) B2 (Second Layer)
Top face T1(Outer Layer) T2 (Second Layer)

EF Each Face. EW Each Way
ABR Alternate Bars Reversed
ABS Alternate Bars Staggered
H = Grade B500A, B500B or B500C in accordance with BS 4449:2005
- For all setting out refer to General Arrangement Drawings and Architects Details
- No bars shall be cut or bent to suit without the Engineers prior approval
- All concrete workmanship/execution to be in accordance with:
 - BS 8000 or BS EN 13670
- Minimum Laps to bars as follows unless noted otherwise:
H8 = 400 H10 = 500mm H12 = 600 H16 = 800
H20 = 1000 H25 = 1250 H32 = 1650 H40 = 2000

FOUNDATIONS

- All organic material / topsoil / made ground shall be stripped from within the area of the building and external works, levels to be taken after site stripping and agreed with the Supervising Officer as the work proceeds.
- All foundations shall be a minimum 600mm wide unless noted otherwise.
- Cohesive soils have been classified as **LOW/MEDIUM/HIGH** volume change potential, and as such minimum foundation depths below existing ground level are **750/900/1000**mm.
- Foundations have been designed using an allowable net bearing pressure of: **??? kN/m²**. To be founded on an undisturbed, naturally occurring strata that is to be inspected and approved by the Building Control Officer prior to concrete pour.
- Formation to be blinded with minimum 50mm concrete or Foundation Concrete poured within one working day. The excavations shall be kept free from water, loose material, and rubbish etc.
- It is the responsibility of the Landscape Architect (or planting specifier) in accordance with BS 5837:2012 to consider an impact assessment of new planting. Any new planting that could cause direct or indirect effect on the proposed structure should be communicated to the Engineer for approval.
- Construction Joints and steps in foundations shall be in accordance with NHBC standards chapter 4.4 (latest revision).
- All foundations shall have a common top level unless noted otherwise.
- Foundation concrete to be cast against vertical earth faces. Any over excavation to be filled to the appropriate levels indicated, monolithically, and with the appropriate grade of concrete as specified.
- Any services passing through the structure shall be sleeved and waterproofed to the Service Engineers details.
- Sufficient cover and protection to be provided to all services in accordance with the service providers and Services Engineers requirements. Final service location/routes to be agreed and recorded.
- Refer to Architects drawings for layout and locations of penetrations through slab.
- All concrete generally to be in accordance with BS EN 206 and BS 8500.
- Aggressive Chemical Environment for Concrete (ACEC) site classification.
 - Design Chemical Class - **DC-1**
 - Design Sulfate Class - **DS-1**
 - ACEC Class - **AC-1s,AC-1**
- Mass concrete to strip/trench fill footings and concrete pad foundations shall be designated mix **FND2** Aggregate Industries ECOPact mix or similar approved.
- Reinforced foundations to be designated mix **RC25/30** Aggregate Industries ECOPact mix or similar approved.
- Mesh and Bar Reinforcement in foundations where shown, shall have a minimum of:
 - 75mm Bottom Cover where blinding is not used.
 - 75mm Cover against ground.
 - 50mm Cover exposed external conditions.
 - 40mm Cover against DPM on Sand Blinding.
 - 40mm Cover against Concrete Blinding.
- Consideration shall be given to the suitability of reinforcement supports bearing on the formation prior to the start of work.
- Spacers shall be either concrete blocks (no more than 50 x 50mm) or approved, purpose made steel or plastic. Supports shall be placed no more than 1m spacing. Spacers for parallel bars shall be staggered to avoid creating a plane of weakness in the concrete. Supports for top steel shall be chairs, or other proprietary products. Spacers and Chairs shall comply with the requirements of BS 7973-1:2001 and be fixed in accordance with BS 7973-2:2001
- All concrete workmanship/execution to be in accordance with:
 - BS 8000 or BS EN 13670

MASONRY

- All masonry to comply with BS EN 771-1, requirements for normal category of manufacturing control.
- All Blockwork below DPC to have a compressive strength not less than 7.3N/mm² and density exceeding 1500kg/m² laid in Class M6 Mortar Designation (ii).
- All Brickwork below DPC to be minimum crushing strength of 35N/mm² Type FL or FN quality bricks Category II HD clay masonry units. Durability - F2, Active Soluble Salt content - S2 laid in class M6 Mortar Designation (ii).
- Ground to First Floor Blockwork shall have minimum compressive strength of 7.3N/mm² Unless Shown Otherwise.
- First Floor and above shall have minimum compressive strength of 3.6N/mm²
- Unless noted otherwise all Mortar to be either:-
 - Mortar designation (iii) According to BS EN 1996-1-1:2005+A1:2012.
 - Strength Class M4 according to BS EN 998-2:2016.
 - 1:1:5 to 6 CEM I, lime, and fine aggregate measured by volume of dry materials
- All External Blockwork to be 100mm thick unless noted otherwise.
- All Internal Blockwork to be 100mm thick unless noted otherwise.
- All Ancillary Components for masonry to be in accordance with BS EN 845-1:2013+A1:2016.
- Cavity wall ties to be in accordance with PD6697:2019
 - Cavity insulation manufacturers requirements may reduce wall tie spacing.
 - For external cavity walls use Ancon RT2 ties. Ties to be spaced at 900mm centres horizontally and 450mm centres vertically. Insulation retaining discs by Ancon or equivalent.
 - Additional wall ties at 300mm centres vertically to be placed not more than 225mm from the edges of all openings and at vertical unreturned or unbonded edges, for example at movement joints.
 - All wall ties to have 62.5mm minimum embedment into each leaf of the cavity wall.
 - Areas of wall ties to be debonded by plastic sleeves is indicated on drawings.
 - Wall ties must not be omitted if obstructed by other structural members. The Contractor shall report all significant occupancies otherwise placed at the next available space.
 - The Architect to specify the requirement for acoustic ties in party walls. If Acoustic Tie Type 3 is required use Ancon ACOU Range i.e. SP-SD ties.
- All masonry dimensions, details and setting out to be provided and verified by the Architect, all insulation, joint fillers / sealants and fire stopping to Architect / Specialist Details and Specifications.
- Refer to the Architects Details, Drawings and Specifications for details of Damp Proof Membranes and Damp Proof Courses, insulation, cavity trays etc.
- Protection and Workmanship is to BS 8000-0:2014 and BS 8000-3:2020.

GROUND GAS PROTECTION

- Ground Gas Classification Amber CS2 in accordance with the recommendations of the Site Investigation report. Provide Validated Gas Resistant Membrane, resistant to Carbon Dioxide with Passive Vents All Installed in Accordance with Manufactures Specification and Details. Contractor to Provide an Independent Testing and Validation Report Prior to Installation of Screed & Finishes.
- For Gas situation CS-2, BBA accredited Gas membrane (Corden EPS universal gas barrier with welded joints or similar approved) installed in accordance with BS 8485:2015+A1:2019, BRE report BR212 and BRE report BR414, by suitably qualified installer and verified in accordance with CIRIA report C735.

RADON

- BASIC radon protection requirements where required shall be in accordance with BRE report BR211 (2015).

STEELWORK

- This drawing to be read in conjunction with all relevant Engineers, Specialist's Drawings and Specification.
- Set out and erection of steelwork frame to be to ISO 10721-2. The Steelwork Contractor is responsible for providing the design and installation of all temporary bracing necessary to ensure stability of the structure during erection.
- Safe erection of structural steel shall be in accordance with BCSA guidance.
- The Steelwork Contractor shall ensure that no part of the structure is permanently distorted by excessive loads during erection.
- The Steelwork Contractor will be responsible for accurately positioning, levelling, and plumbing all steelwork in accordance with the drawings.
- All stanchion bases, beam and girder bearings etc. are to be securely supported on suitable steel packs of sufficient size to avoid local crushing of concrete. Unless specified, packing shall not exceed 50mm.
- The Main Contractor shall be responsible for the execution of the works in accordance with the drawings and the specification, also for the accuracy of all dimensions and setting out on site.
- The Steelwork Fabricator is responsible for checking and determining all dimensions on site prior to fabrication of any steelwork.
- In the absence of a project specific specification the 'National Structural Steelwork Specification for Building Construction 7th Edition' is to be used. In the event of conflict in specific requirements the full text of BS EN 1090-1 and BS EN 1090-2 takes precedence.
- Structural steelwork has been designed to BS EN 1993-1-1.
- Design and detailing of steel to steel connections to be by Steelwork Contractor in accordance with BS 5950-1 or BS EN 1993-1-8.
- Connection forces and moments indicated are ULS values.
- Rolled sections to be **S355 J0** (J2 for external steel) to BS EN 10025-2 unless noted otherwise.
- Hot finished hollow sections to be **S355 JOH** (J2H for external steel) to BS EN 10210-1 unless noted otherwise.
- Cold formed hollow sections to be **S355 J2H** to BS EN 10219-1.
- Flat plate and connections to be **S275**.

FIXINGS

- All steel products to be specifically tested in accordance with the relevant product standard as noted in table 2.1 of the NSSS 7th edition and an inspection certificate type 3.1 to BS EN 10204 provided.
- Preloaded bolt assemblies or HSFG bolts must not be used.
- All structural fasteners are to be CE/UKCA marked.
- Holding down bolts to be grade 8.8 to BS.7419.
- Ordinary bolt and nut (and washer if used) are to be a min of Grade 8.8 (zinc coated) and conform to the requirements of BS EN 15048.
- All connections to have a minimum of 4 No. M16 bolts and be designed for a minimum 75 kN tensile force in accordance with BS EN 1991-1-7 unless noted otherwise.
- All bolted connections are to be visually checked following alignment and missing bolts installed. and coordinated by a Responsible Bolting Coordinator.
- No holes are to be formed through steel members other than those for connections, without the written approval of the Engineer.
- Where dissimilar steels are to be connected a suitable isolating material shall be incorporated.
- All steel receiving timber wall plates, bearers etc are to be predrilled with 12mm Diameter holes at 450mm centres, staggered (900mm pitch in line) or as indicated on the Engineers drawing.
- Debris and moisture to be removed from hollow sections prior to sealing ends and openings.
- Welding shall be a metal arc process in accordance with BS EN 1011-1.
- Welds to be a minimum of 6mm Continuous Fillet Weld unless noted otherwise.
- The Steelwork Contractor's system for the management of welding will meet the standard quality requirements described in BS EN ISO 3834-3 for Execution Class 2 and the comprehensive quality requirements described in BS EN ISO 3834-2 for Execution Class 3.

STEELWORK FINISHES

- Galvanized steel is identified on drawings. Steelwork to be chemically cleaned and galvanized to BS EN ISO 1461 with a min average coating thickness of 85µm.
- Where possible protective coatings should be water-based and compliant to PG 6/23 in accordance with CIRIA R174.
- All Steelwork below ground level to receive a minimum 100mm concrete encasement (mix as for foundations) with D49 wrapping fabric or by the application of a high build epoxy coating to 450µm after suitable blast cleaning.
- For details of fire protection to steelwork refer to Architect's details. Where corrosion protection and fire protection are required together, advice should be sought from the manufacturer of the fire protection system.
- Unless noted otherwise protective treatments are to atmospheric corrosivity categories C3 (medium risk) for external steel and C2 (low risk) for internal steel to BS EN ISO 12944-2.
- Exterior steel corrosion protection treatment:
 - Surface preparation - Blast clean to Sa2½
 - Factory applied coating - High build zinc phosphate epoxy primer 100µm, immediately followed by High solid aliphatic polyurethane finish 60µm.
- Interior steel corrosion protection treatment:
 - Surface preparation - Blast clean to Sa2½
 - Factory applied coating - Water based acrylic or Water based epoxy zinc phosphate primer 2 coats 2x60µm=120µm total.
- Internal steel within masonry cavities should also receive an application of high build bitumen coating of 150µm to the faces of steelwork within the cavity, this shall be applied before or during construction.

GENERAL

- Do not scale from drawings.
- All drawings are to be read in conjunction with all relevant Architects, Engineers and Specialists drawings and specifications.
- The Contractor is to check all dimensions on-site prior to commencing work.
- All dimensions are in millimetres unless noted otherwise.
- For setting out refer to Architects detail. Foundations are located centrally beneath wall construction unless noted otherwise.
- The Contractor shall be responsible for the execution of the works in accordance with the drawings and the specification and for the accuracy of all dimensions and setting out on site.
- Any discrepancies to be reported to the Engineer prior to construction.

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION BOX



In addition to the normal hazards/risks associated with the types of work detailed on this drawing, note the following risks and information

RESIDUAL RISKS

For information relating to Use, Cleaning and Maintenance risks refer to Health and Safety File.

It is assumed that all works on this drawing will be carried out by a competent Contractor working, where appropriate, to an approved method statement.

C01	31 07 25	LB	CONSTRUCTION ISSUE
P01	03 02 25	LB	Preliminary Issue
REV	DATE	BY	DESCRIPTION

CLIENT	PROJECT	DRAWING TITLE	JOB REF	DRAWING NUMBER		REVISION	SHEET SIZE	CE UK CA UKCA UK CONFORMITY ASSESSED REGISTERED IN ENGLAND AND WALES: 14994969 23 WHITFIELD ROAD, KIDSGROVE, ST7 4YD Info@D20one.com +44(0) 7876 495 691 www.D20one.com © D20-ONE STRUCTURAL DESIGN LTD 2023 D20-ONE STRUCTURAL DESIGN
LM BATEMAN & CO LTD	PROPOSED NEW WAREHOUSE	STRUCTURAL NOTES	0724-08	D20-XX-XX-DR-S	900	P01	A2	
		DRAWING STATUS	DATE (dd mm yyyy)	DRAWN BY	CHECKED BY	AUTH BY	SCALE	
		PRELIMINARY ISSUE	03 02 2025	LB	Jl	Jl	NA	