

General

- All works by the contractor should be carried out in strict accordance with the 'Health and Safety Act' requirements.
- All works to be in accordance with the 'Building Regulations 2010' and all relevant British Standard Specifications and Codes of Practice.
- All dimensions in millimeters unless otherwise noted
- No dimensions are to be scaled from this drawing
- All dimensions and levels shown to be checked on site by the contractor.
- Where any dimensions, ground conditions, existing structures vary on site, the engineer must be notified immediately
- The Contractor is to ensure they are aware of the implications of changes which either they or the sub-contractor make with regard to the structural integrity of the building and the engineer notified of any such changes.
- This drawing to be read in conjunction with all relevant architectural and engineering services drawings.
- Structural members including slabs, beams, columns and walls are designed for their strength and lateral stability, assuming that all of these components are connected and constructed in their final position. The contractor is responsible for the stability of the building structure and excavations during the construction period i.e. its temporary state. All temporary propping must be carried down to a firm bearing and be agreed with the engineer prior to duntakings.
- The engineer must be notified prior to construction loads or temporary loads being applied to complete or partially complete structures.
- All materials and proprietary systems to be installed in strict accordance with the manufacturer's recommendations.
- Structural design based on and drawings to be read in conjunction with Architect's drawing numbers

Concrete

- Structural Concrete to be C35/45 with a minimum cube crushing strength of 35N/mm² at 28 days, 20mm max size of aggregates and ordinary portland cement (slump 50mm±25mm: min cement content 300kg/m³ max water:cement ratio 0.6
- All reinforced concrete work shall be in accordance with BS8110:Parts 1,2 & 3 and engineers specifications.
- Cover to reinforcement to be 50mm cover, unless otherwise noted.

Car Park Specification

- 75mm Breedonporous 14 surf 40/60 to BS EN 13108-1.
- 150mm Breedonporous close 20 base/bin to BS EN 13108-1.

- 450mm Thick Granular Sub-Base (Attenuation blanket). 20/40mm Type B Filter Media in accordance with SHW Volume 1 Series 500 and BS EN 13242 (Grading Category Gc80/20).

- Impermeable geotextile to surround base of carpark.

- 6F2 Capping Layer Thickness To Be Determin Following Insitu CBR Testing refer To Capping Table)

Permeable Paving Specification:

- 80mm tobermore permeable block paving. colour and pattern as per landscaping contractor drawings.
- 50mm permeable laying course in accordance with BS 7533-13, table a.2.
- Permeable upper geotextile.
- 125mm hydraulically bound course graded aggregate in accordance with interpave guidance cl 7.4.
- 255mm coarse graded aggregate in accordance with bs 7533-13, table a.1 (4/20), table a.3 with 30% min voids & cl 6.2.
- Permeable membrane in accordance with BS 7533-13
- Capping in accordance with specification for highway work, series table 6f1 or 6f2 or 6f3. (see table on Drwg 005)

Drainage:

- Sewerage installation works to be carried out in accordance with " Sewers for Adoption, a design and construction guide for developers" 7th edition. 100mm, 150mm and 225mm diameter sewers to be pcvu structured wall gravity sewer pipes with manufacturers flexible joints and comply with the relevant provisions of BS 4660 and BS EN 1401-1, BS EN 1852 AND BS EN 12666-1. Thermoplastic chambers and rings shall comply with BS EN 13598-1 and BS EN 13598-2 and be kite marked. (stiffness classification sn8)
- Concrete protection to sewers to be in accordance with the current sewers for adoption specifications and drawings.
- Disconnecting chambers to be provided on the foul and surface water drains before connecting to sewers, chambers to be 450mm dia. non-entry pvcu where depth to invert is less than 3m.
- House ffl to be verified with architects final layouts and checked prior to commencement of works.
- Tree planting adjacent to sewers is to be restricted.
- Drainage should be constructed based on the invert levels provided, invert levels shown are for outlet pipes only.
- Manhole cover levels should be checked against final landscaping levels prior to construction.

Sewer Construction and Adoption:

- Sewers should be constructed by competent contractor and in accordance with sewers for adoption, a design and construction guide for developers" 7th edition.
- Appropriate notice and a programme of works should be provided to the local water authority in order to allow them to programme site audits and testing.
- Once works are completed the line should be de-silted with "as built" drawings and a cctv survey of the works recorded and then submitted prior to application for completion certificate.
- Local water authority should also carry out joint inspection of the works with developer or site agent.
- A defects liability period (minimum 12 months)

Footpath Construction:

- All dimensions are in millimetres.
- Except where otherwise shown on layout drawings, kerbs and edging shall be in accordance with clause 1101.
- Unless otherwise stated, footway surface and binder course materials shall be as follows:
- Surface course 20mm dense asphalt concrete ac6 dense surf 100/150 to bs en 13108-1. min psv to be 45 for footways and 55 for cycleways & shared use routes.
- Binder course 90mm dense asphalt concrete ac20 dense bin 100/150 to bs en 13108-1 quick hydraulic hydraulically bound material (hbmqh) to clause 894ar.
- Subbase for footway to be 150mm quick hydraulic hydraulically bound material (hbmqh) to cl. 894ar. where hbmqh is laid for the binder course (as above) as well as subbase it must be laid and sealed in separate layers in accordance with the specification. subject to the approval of the overseeing organisation, materials included in note below may be used if conditions are not suitable for laying hbmqh.
- Unless otherwise stated in appendix 11/1, subbase for type 6a and 6b footway shall be 150 material complying with clause 803 or clause 891ar, 892ap, 893ar as specified in works information.
- Bed and backing of kerbs and edgings shall be mix of st1 concrete to 2602sr. standard details of kerbs, bed and backing are as per this drawing.
- Treatment of bituminous surfaces and vertical joints shall be in accordance with clause 903.
- Blocks or flags to have min. pptv = 45. if the crossfall is >5% or the footway is likely to be used for vulnerable pedestrians, the min pptv should be 55.

Vehicle Crossings / Driveway:

- Crossings must be constructed from bituminous materials only.
- surface course 30mm thick surface course:- 6mm size asphalt concrete dense surface 100/150 surface course to clause 7.6 BS 4987.7 to be laid and compacted to 30mm.
- the surface course shall be laid on the base and rolled to a compacted thickness of 30mm. the finished surface shall be at least level with, but not exceeding 3mm above the level of, the kerbs, edgings, and any manhole covers, stopcocks, boxes, etc
- base course 70mm thick binder course:- 10mm size asphalt concrete close binded 100/150 binder course to clause 6.1 bs4987.1 to be laid and compacted to 70mm.
- sub-base 300mm thick cat a sub base to clause 803, 806 or 816 to be laid and compacted to 150mm Max. Layers.

Precast Concrete Road Kerbs:

- All dimensions are in millimetres
- precast concrete road kerbs 125mm x 255mm HALF batter pattern 11101
- unless specified elsewhere for drop kerb type pc4 (flush), 125x150x914 or cs2 square channels are to be used.
- Kerb details to comply with BS.EN.1340:2003.
- Kerb size 125mm x 255mm.
- Kerbs to be hydraulically pressed.
- Kerb found and haunch to be mix ST4 concrete weathering resistance: class 3 bending strength: class 2 abrasion resistance: class 3 slip/resistance: min p.p.t.v. 45 to bs 7932.
- mix st1 concrete kerb bedding to clause 2602sr shall be laid on subbase and shall be minimum thickness of 150mm. subbase shall be excavated where necessary to achieve 150mm thickness of concrete. recompact disturbed subbase prior to construction of kerb base.
- kerbs may be laid and bedded on mortar in accordance with clause 2601 or laid directly onto the concrete bed. the type of mortar shall be approved by the overseeing organisation.
- the appropriate 914 long precast concrete transition kerb shall be installed at each change in kerb type, tie-ins to existing and at terminations.
- the minimum length of any cut kerb shall be 450mm..
- Kerbs to be laid and bedded on a layer of designation (i) mortar not less than 10mm and not more than 40mm thick. Alternatively, kerbs may be laid directly on the concrete foundation while it is still plastic.
- All kerbs to be abutted, except kerbs laid to a radius of less than 40m, which shall be laid with an average gap of 6mm and pointed with designation (i) mortar.

Rainwater Garden & Planting Suggestions:
(Actual Selection TBC by Landscape Architect)

Common name	Scientific name	Habit	Sunlight and Aspect	Origin
Guelder rose	<i>Viburnum opulus</i>	Perennial shrub	Any	Native. Flowers attract insects and berries are eaten by birds.
Dogwood	<i>Cornus sanguinea</i>	Perennial shrub	Any	Native. Leaves are larval food for vase bearer moth and berries eaten by birds. Often planted for attractive winter stems.
Culvers root	<i>Veronicastrum virginicum</i>	Herbaceous perennial	Full sun or partial shade	Non-native. Tall with long terminal blue flower spikes. On the RHS 'plants for pollinators' list.
Aster	<i>Aster spp.</i>	Herbaceous perennial	Full sun or partial shade	Non-native. Often late flowering. Clump forming. Several species on the RHS 'plants for pollinators' list.
Black eyed susan	<i>Rudbeckia birta</i>	Herbaceous annual or biennial	Full sun or partial shade	Non-native. Spectacular yellow and black flowers. On RHS 'plants for pollinators' list.
Stinking hellebore	<i>Helleborus foetidus</i>	Herbaceous perennial	Full sun or partial shade	Native. Winter flowers.
Montbretia	<i>Crocosmia spp.</i>	Deciduous rhizomatous perennial	Partial shade	Naturalised. Red flowers. Thrives in most conditions.
Bugle	<i>Ajuga reptans</i>	Rhizomatous perennial	Partial shade	Native. Low growing and will form a mat.
Columbine	<i>Aquilegia spp.</i>	Herbaceous perennial	Full sun or partial shade	Non-native. Clump forming with tall flower spikes. On RHS 'plants for pollinators' list.
Inula	<i>Inula hookeri</i>	Herbaceous perennial	Partial shade	Tall clump forming with yellow flowers. On RHS 'plants for pol-linators' list.
Hemp agrimony	<i>Eupatorium cannabinum</i>	Herbaceous perennial	Full sun or partial shade	Native. Sub-shrubs with pink flowers.
Bellflower	<i>Campanula glomerata</i>	Herbaceous perennial	Full sun or partial shade	Native. Clumps bearing violet-blue bell shaped flowers.
Sneezeweed	<i>Helenium sp.</i>	Herbaceous perennial	Full sun	Non-native. Clump forming with red flowers. On RHS 'plants for pollinators' list.
Lesser periwinkle	<i>Vinca minor</i>	Perennial sub-shrub	Any	Non-native. Ground cover with blue flowers.
Elephants ear	<i>Bergenia sp.</i>	Rhizomatous perennial	Full sun or partial shade	Non-native. Large leaves and pink flowers.
Plantain lilies	<i>Hosta spp.</i>	Herbaceous perennial	Part shade	Non-native. Attractive light coloured flowers.
Yellow flag	<i>Iris pseudocorus</i>	Rhizomatous perennial	Full sun or partial shade	Native. Likely to prefer wetter areas near inlet.
Siberian flag	<i>Iris sibirica</i>	Rhizomatous perennial	Full sun or partial shade	Non-native. Blue flowers. Prefers moist but well drained soil.
Garlic and onions	<i>Allium spp.</i>	Bulbous perennials	Full sun	Non-native. On RHS 'plants for pollinators' list.
Soft rush	<i>Juncus effusus</i>	Evergreen perennial	Full sun or partial shade	Native. Form tussocks – likely to prefer wetter areas.
Pendulous sedge	<i>Carex pendula</i>	Rhizomatous perennial	Full sun or partial shade	Native. Nodding flower spikes. Likely to prefer wetter areas near inlet.
Zebra grass	<i>Miscanthis sinensis</i>	Perennial, deciduous grass	Full sun	Non-native. Tussock forming ornamental grass with silky flowers.
Switch grass	<i>Panicum virgatum</i>	Deciduous perennial grass	Full sun	Non-native. Tussock forming ornamental grass.
Royal fern	<i>Osmunda regalis</i>	Deciduous fern	Any	Native. Large clump-forming plants.
Male fern	<i>Dryopteris felix-mas</i>	Deciduous or evergreen fern	Partial shade or full shade	Native. Large shuttlecock-like form.
Broad buckler fern	<i>Dryopteris dilatata</i>	Deciduous or evergreen fern	Partial shade or full shade	Native. Large shuttlecock-like form.

SUDS Management & Maintenance:

- The Storm water SUDS scheme has been designed such that maintenance of the SUDs areas is anticipated to be minimal and only requires ad-hoc inspection and monitoring rather than a regular inspection period.
- Maintenance of the rainwater planters and rainwater garden areas should be inspected routinely (Daily/Weekly) to remove surface rubbish/debris and to tend to the plants as required to ensure they remain healthy with suitable soil coverage.
- Replace plants should they become damaged or die as required.

Permeable Driveway

- The permeable gravel driveway does not require regular maintenance other than ensuring surface rubbish or debris is removed if present and that an adequate coverage of gravel is maintained.

Inspection Chambers & Flow Control Devices

- Remove cover and inspect ensuring water is flowing freely and that the exit route for water is unobstructed. Remove debris and silt.
- Undertake inspection after leaf fall in Autumn.

REV	DATE	BY	DESCRIPTION	CHK	APPD
DRAWING STATUS:					
HCE Civil Engineering Structural Engineering Structural Surveys Project Management Petrochemical HCE Limited Canolfan Gorseion Centre Millers Drive Gorseion SA4 4QN Tel: 01792 805010 Email: info@hcelimited.com Web: www.hcelimited.com					
CLIENT: URBAN PROPERTY GROUP					
ARCHITECT: HURLEY & DAVIES					
PROJECT: RESIDENTIAL DEVELOPMENT COMMERCIAL STREET, YSTALYFERA SWANSEA					
TITLE: GENERAL NOTES					
SCALE @ A3: 1:1		CHECKED: IH		APPROVED: IH	
CAD FILE: HCE-1333-001		DESIGN/DRAWN: WJ		DATE: JAN 2020	
PROJECT No: 1333		DRAWING No: 001			REV: R01