# Contents

**Introduction**

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0 - Section 104 and Section 38 Drawings</td>
<td>1</td>
</tr>
<tr>
<td>1.1 - S104 General Principles of Design:</td>
<td>1</td>
</tr>
<tr>
<td>1.2 - S38 General Principles of Design:</td>
<td>1</td>
</tr>
</tbody>
</table>

**2.0 - External Works**

<table>
<thead>
<tr>
<th>Subsection</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 - Hierarchy of design (most preferred to least preferred):</td>
<td>2</td>
</tr>
<tr>
<td>2.2 - General Principles of External Works Design:</td>
<td>2</td>
</tr>
<tr>
<td>2.3 External Works: Good &amp; Bad Practice</td>
<td>3</td>
</tr>
<tr>
<td>2.31 External Works Good Practice</td>
<td>3</td>
</tr>
<tr>
<td>2.31 External Works Bad Practice</td>
<td>4</td>
</tr>
</tbody>
</table>

**3.0 - Private Drainage**

<table>
<thead>
<tr>
<th>Subsection</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1 - General Principles of Private Drainage Design:</td>
<td>5</td>
</tr>
<tr>
<td>3.2 Private Drainage: Good &amp; Bad Practice</td>
<td>5</td>
</tr>
<tr>
<td>3.21 Private Drainage: Good Practice</td>
<td>5</td>
</tr>
<tr>
<td>3.22 Private Drainage: Bad Practice</td>
<td>6</td>
</tr>
</tbody>
</table>

**4.0 - Presentation of drawings**

<table>
<thead>
<tr>
<th>Subsection</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1 Staged Drawing submissions</td>
<td>7</td>
</tr>
</tbody>
</table>

**5.0 - List of Standardised Materials**

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.0 - List of Standardised Materials</td>
<td>8</td>
</tr>
</tbody>
</table>

**6.0 - As-Builts**

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.0 - As-Builts</td>
<td>9</td>
</tr>
</tbody>
</table>
Introduction

The purpose of this document is to set out generic standardised practices to ensure quality construction throughout a project, from design to handover. Whilst it aims to cover generic items, site-specific constraints should always be taken into account.

As Barratt Homes North Midlands division is classed as Principal Designer under the CDM Regulation 2015 for the majority of projects, altering designs without prior consent from BDW could result in a breach of legislation. Should any contractor (consultant or otherwise) deviate from this standardised specification and/or design without prior approval from the Development Engineer for the site, this will be done at their own risk and any costs of altering work/remediation as a result of this deviation will be at the contractors expense. This document should be read in conjunction with the current Ground trade specification (Plot groundworks Rev O, Roads and Sewers to Binder Rev L & Roads and Sewers Stage 2 Rev G).

To reaffirm, any change on site MUST be approved by the Development Engineer, failure to do so will result in the works being rectified at the contractors cost.

If in doubt, ask.
1.0 - Section 104 and Section 38 Drawings

1.1 - S104 General Principles of Design:
- Pipes should be laid as flat as possible and as shallow as possible – unless fill for site required. Where pipes are overly deep – consider upsizing pipe. Consider clashes with mains services.

- When positioning manholes, avoid clashes with fence lines or boundary issues – keep wholly in or out of ownership.

- Discharge rates to be less than or equal to the current QBAR Greenfield runoff rate, unless otherwise specified by the Development Engineer.

- Assume 40% variable for climate change, unless otherwise specified.

- Gabion basket headwalls to be utilised within attenuation basins/ponds wherever possible, alternatives such as precast headwalls to be agreed with Development Engineer

- Clay and Concrete Pipework to be used within systems, unless otherwise specified.

- Dry weather flow channels to be detailed on basin/pond drawing

- Maximum 1 in 3 batter slopes on pond. Retaining Walls to be considered thereafter.

- Early meeting with Water Authority, Consulting Engineer and Development Engineer required.

1.2 - S38 General Principles of Design:
- Drawings to be in accordance with local authority guidance (i.e. 6c’s, Warwickshire County Council Design Guide etc.).

- Street lighting to be shown on Section 38 legal plan, where street lights are within block paved area, a build out will be required behind the back edging.

- CBR table to be shown on appropriate drawings.

- Include vis-splays within adoptable highway (i.e. within footpath). This should be brought to the development engineer’s attention for review of the site layout. Additionally, Vis-splays to be shown on General Arrangement.

- The pattern and sizes of any adoptable block paving must be detailed on the drawings (e.g. if Tegula - what size and what bond is it laid to).

- Early meeting with Highways Authority, Consulting Engineer and Development Engineer required.

- Hard paved (i.e. tarmac) service margins preferred over grass margins.
2.0 - External Works

2.1 - Hierarchy of design (most preferred to least preferred):

1) Ideally, Finished Floor Level 150mm above back edging with garage 150mm below plot FFL, with garden not exceeding 1 in 20 gradient, with no steps.

2) If necessary roll back garden (minimum 4 meters away from house at a maximum of 1 in 3)

3) If necessary, increase height of retaining walls/gravel boards to achieve flatter scenario

4) If necessary, tank garages

5) If necessary utilise steps in back garden

6) If necessary utilise steps to front access (must meet part M requirements i.e. cannot be stepped front and back, unless otherwise advised by Development Engineer)

7) If necessary reduce level difference between garage and plot FFL to less than 150mm

8) If necessary use Edging detail with concrete fillet (max. 150mm) as shown in Appendix A.

9) If absolutely necessary, step plot finished floor levels 450mm (subject to approval from Architectural Technician).

NOTE: Where show homes and sales centres are indicated on site layout – extra attention must be given to ensure that driveways and gardens are as level as practicable, there are no steps to front or back access and there is no step in plot FFL.

2.2 - General Principles of External Works Design:

- Steps to frontage access are not to be used unless otherwise agreed with BDW. A 900mm x 900mm landing should be given at a gradient of no steeper than 1:40. Avoid steps immediately behind/in front of fencing gates.

- Garden gradients should begin 2 metres from patio/house at a maximum of 1 in 15 for private, and 1 in 10 for social.

- No Gravel Boards on front elevation; rear and side of gardens only. Gravel boards not to exceed 450mm for private or 600mm on a social plot or on site boundary.

- Retaining wall should be to latest detail or site specific designs and a minimum of 450mm high, with a maximum standard height of 1450mm (Special and standard designs available on request).

- Under build to be shown in millimetres and worked out in courses of brick.

- Garage Finished Floor Level to be shown not Garage DPC level.

- AVOID SLAB ON EDGE, unless in back garden – to be discussed with Development Engineer.
### 2.3 External Works: Good & Bad Practice

#### 2.3.1 External Works Good Practice

<table>
<thead>
<tr>
<th>Good Practice</th>
<th>Good practice explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Item</strong></td>
<td><strong>Description</strong></td>
</tr>
</tbody>
</table>
| Plot Set 150mm above back edging | - Design consideration allowed for finished floor level (FFL) of plot to be set 150 mm than the back of footpath level which prevents the flow of surface waters into the plot.  
- By ensuring that as-built levels of the plot FFL were taken, it ensures that the external levels can be achieved. |
| Garage set 150mm below the plot finished floor level | - By setting the garage 150mm below the plot FFL this reduces the requirement for offset driveway edgings *see Appendix A* and ensures that the 150mm distance from DPC level to ground level is met. |
## 2.31 External Works Bad Practice

<table>
<thead>
<tr>
<th>Item</th>
<th>Bad practice explanation</th>
</tr>
</thead>
</table>
| Gravel infill between path levels | • Development Engineer was not informed of design issue and therefore contractor liable for making good  
• Not suitable for use  
• Aesthetically very poor  
• The design should have allowed for a step or the gradient to back garden could have been changed after approval from the Development Engineer |
| 800mm level difference between plot FFL and existing property | • Designer had not accounted for level differences between existing dwelling and new build plot therefore retrospective retaining wall had to be constructed  
• This area on the drawing is an access route and therefore requires clear access  
• The designer should have allowed for either a retaining wall or lifting of the new plot’s finished floor level |
| Slab-on-edge at front door | • This is very poor aesthetically, as it looks like a second thought. Again, the Development Engineer was not informed of a drawing error and therefore contractor was liable for remedial works  
• This is both a trip and fall hazard for the plot owner  
• This could have been overcome by lowering the plot FFL or using a small retaining wall |
3.0 - Private Drainage

3.1 - General Principles of Private Drainage Design:
- Maximum of 3 connections in and 1 out for foul/surface private bins. Where connections are tight, sweeping connections should be used.
- No “Y-Junctions” underneath slab
- Private pipes are to be laid as flat as possible, if pipes are overly deep at 100mm dia. consider using 150mm pipework subject to conversation with Development Engineer.
- Foul and Surface Water Bins to be located away from hard landscaping (i.e. paths) wherever possible and situated within the soft where practicable. If no other option but to place within hard landscaping they should be placed centrally. Additionally, inspection covers in driveways should be positioned centrally away from the running line of the vehicle.
- Combined Approach of ACO and dished channels can be used. Ideally, dished channels are to be used, however, ACOs are fine when required providing they are an appropriate specification where they are in the running line of a vehicle. Where driveways fall towards adoptable highway, dished channels or ACOs should be used at the front of the drive. Suitable yard gully to be used otherwise.
- Private drives to be adequately drained by appropriately placed and sized gullies. Road gullies only where capacity or position requires.

3.2 Private Drainage: Good & Bad Practice

3.21 Private Drainage: Good Practice

<table>
<thead>
<tr>
<th>Good Practice</th>
<th>Good practice explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item</td>
<td></td>
</tr>
<tr>
<td>Dished gully</td>
<td>Not only aesthetically more pleasing but is more functional, as there is no lip for surface waters to be trapped against</td>
</tr>
</tbody>
</table>

Dished gully used with dished channel
### 3.22 Private Drainage: Bad Practice

<table>
<thead>
<tr>
<th>Item</th>
<th>Bad practice explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="image">Circular gully grate</a></td>
<td>• Not suitable for use</td>
</tr>
<tr>
<td></td>
<td>• Contractor should have used square gully grate to allow dish channels to abut right up to the gully grate</td>
</tr>
<tr>
<td><a href="image">Private drainage situated on extent of drive</a></td>
<td>• Poor co-ordination between private drainage and extent of driveway</td>
</tr>
<tr>
<td></td>
<td>• Incorrect inspection chamber cover used. Plastic is not suitable for use within trafficked areas</td>
</tr>
<tr>
<td></td>
<td>• Drainage cover should have been positioned centrally to driveway and an appropriate class of cover should have been installed</td>
</tr>
</tbody>
</table>
4.0 - Presentation of drawings

- Standard Key must be used (available on request from Development Engineer)
- Standard Barratt Drawing Templates must be used, to be sent by Development Engineer
- Always state size of drawing within title block
- Conject Drawing numbers to be used as provided by Development Engineer
- No A2 drawings to be provided
- Revision comments to be specific (i.e. not as simplistic as “updated to client’s request”).
- Sheet splits to be shown on multi-sheet drawings

4.1 Staged Drawing submissions

**Pre-Planning Submission:**
- Vis-splays (horizontal & vertical)
- Tracking (with appropriate refuse vehicle used)
- Finished Floor Level drawing for all plots

**S38/S104 pack, including but not limited to:**
- Section 38 Legal Plan (maximum 2 sheet split)
- Section 38 General Arrangement (maximum 2 sheet split)
- Engineering Layout (maximum 2 sheet split)
- Updated Vehicle Tracking & Vis-Splay
- Road Setting Out Layout & Data
- Highway Cross Sections
- Highway Long Sections (can be incorporated into S104 Long Sections)
- Typical Highway Details
- Kerbing and Surfacing Drawing
- Centreline Levels
- Section 104 Plan (maximum 2 sheet split)
- Section 104 General Arrangement (maximum 2 sheet split)
- Surface Water & Foul Water Schedules (including setting out information)
- Flood Routing Plan
- Impermeable Area Plan
- Headwall Details
- Detention Basin Details (Layout & Sections)
- Manhole Type Sections
- Hydrobrake manhole details
- S104 Long Sections
- S104 Standard Details

**External Works/Private Drainage**
- External Works to be shown on same drawing as private drainage. Sheet splits to be shown.
5.0 - List of Standardised Materials

All materials should be fit for purpose. For more information on the standardised materials please contact the Development Engineer responsible for the site.

General:
- Block paving to be ‘Burnt Ochre’ unless otherwise stated/specified

Gullies, Manholes and ACO drainage classification requirements – minimum use stated and must be adhered to, as per NHBC Guidance:

Group 1 (A15):
- For use with pedestrian and cycle ONLY areas – these are typically plastic. Not to be used on driveways.

Group 2 (B125):
- For use with pedestrian and light vehicular (infrequent) access ONLY. Not to be used at the fronts or rears of driveways – these are typically metal.

Group 3 (C250):
- For use with pedestrian and vehicular (frequent) access. Can be used within highway; but only within 500mm of the kerb – these are typically metal.

Group 4 (D400):
- For use within highways and shared driveways.

Other (i.e. E600):
- For consideration in commercially trafficked areas
6.0 - As-Builts

The Road and Sewer Contractor & Ground worker (where applicable) will provide the information specified below to the Development Engineer prior to the release of the final payment for the contract, the provision of this information is in line with CDM Regulations 2015. The Development Engineer will approve the adequacy of the information which must be provided in 1 x folder hard copy and 1 x CD ROM or USB

• **Contractor/Testing/Warranty Information**
  - Sub-Contractors and Supplier details
  - Certificates, Warranties and Test Results
  - Quarry and Material Compliance certificates
  - CBR and NDM (Nuclear Density Meter) Results
  - Surfacing and Anti-Skid Warranties (if undertaking Stage 2 works)

• **Product Information – Specific Information on Products Used Within the Construction**
  - Concrete Mixes
  - Concrete Products
  - Bituminous Mixes
  - Natural and Recycled Products
  - Drainage Materials
  - Ducting
  - Manhole and Gully Covers
  - Brickwork
  - Steel Reinforcement

• **As Built Survey In Hard Copy and CAD to Include**
  - Road Centre Line and Channel Levels Stage 1 Base course
  - Gully Positions
  - Sewer Chambers
  - Cover and Invert Levels
  - Top of Kerb level
  - **FFLs (Ground worker only)**
  - Duct positions
  - Lighting Columns, Bollards
  - Traffic Signs
  - Control Boxes
  - Verges
  - CCTV Survey of Foul and Storm Drainage Runs
  - Air Pressure Test Results on Drainage
  - UDAMS Sewer Record Cards
  - Electrical Testing Certificates (Where Adoptable) BS7671:2008 IEE Wiring Regs.
  - White Lining (Stage 2 only)
  - Any other Relevant Feature
Appendix A – Driveway Edging Detail (When driveway is level with DPC)

50mm x 150mm Pre-Cast Edging
Surface Course
Binder Course
Sub-Base

GEN 2 Concrete with S2 Slump
Coursing blocks to be used when fully submerged below ground. Facing bricks to be used everywhere else.

DPC Level

Notes:
- Edging detail only to be used when driveway is at same level as damp proof course
- Chamfered concrete must be into 150mm below damp proof course
- Maximum depth of detail is 150mm
- Detail to be read in conjunction with all other group standard drawings. Only for reference to external works, not brickwork or slab construction.