STANDARD DETAIL DRAWINGS

ISSUE: JANUARY 2016

Highways and Transport
Council Offices
Market Street
Newbury
RG14 5LD
# Index of Standard Drawings Sheet 1 of 2

1. The standard drawings are copyright of West Berkshire Council and shall not be changed in any way without prior approval of the overseeing organisation.
2. The standard drawings shall be read in conjunction with the Highways and Transport Council Offices, Market Street, Newbury, RG14 5LD.
3. The manual of contract documents for highway works; design guides and all relevant current codes of practice.
4. Any variations to the standard drawings shall be approved by the overseeing organisation before construction.
5. The use of recycled materials is encouraged and shall be approved by the overseeing organisation.

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## Fencing

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W O O D E N  F O O T B R I D G E S
NOTES:
1. ALL DIMENSIONS IN MILLIMETRES.
2. STEEL TUBING SHALL COMPLY WITH BS EN 10255:2004 OR SIMILAR APPROVED BY THE OVERSEEING ORGANISATION.
3. FITTINGS SHALL BE PURPOSE MADE OF MALLEABLE STEEL OR ALUMINIUM WITH CASE HARDENED SCREW FITTING TIGHTENED WITH A HEXAGONAL KEY.
4. RAILINGS SHALL BE GALVANISED TO BS EN ISO 1461: 2009 OR PAINTED WHITE AS INSTRUCTED BY THE OVERSEEING ORGANISATION. CLAUSE 411 SHW STATES THAT GUARDRAILS AND ALL COMPONENTS ARE TO BE GALVANISED. SHW 5000 (MAINTENANCE) DISCUSSES PAINTING.
5. ONLY FLUSH FITTINGS SHALL BE USED.
6. FITTING DETAILS SHALL BE SUBMITTED TO THE OVERSEEING ORGANISATION FOR APPROVAL.
7. CONCRETE FOR POST FOOTINGS SHALL COMPLY WITH CLAUSE 2602 SHW.
8. POST FOOTINGS SHALL BE SQUARE.
1. All dimensions in millimetres.
2. All timber shall be air seasoned, free of defects including drying defects, insects/fungus attack and warping/twisting.
3. Timber fencing quality and durability shall comply with clause 304 SHW.
4. Timber finish shall be: natural timber finish, class 1 or class 2 to comply with clause 304.1 SHW.
5. Concrete for post footings shall comply with clause 2602 SHW.
6. Height of rail shall run parallel with hard surface levels, sudden deviations in height must be avoided.
7. Major changes of direction: butt angled sections of rail.
8. Minor changes of direction: accommodate at post under straps.
9. Fence offset from kerb edging shall be 200mm average ± 25mm.
10. Fixings shall comprise mild steel galvanized strap 50mm width 8mm fixed with 2 no. (bright zinc plated) screws.
11. Timber post 100mm sq, notch cut to fit rail, posts at 1m centres.
12. Post footings shall be square.
NOTES
1. ALL DIMENSIONS IN MILLIMETRES.
2. THE STANDS SHALL BE FERROCAST RED ROUTE CYCLE STANDS COLOUR BLACK OBTAINED FROM MARSHALLS LTD. TEL. 0870 600 2425, OR SIMILAR APPROVED.
3. CYCLE STANDS SHALL BE COMPLETE WITH 110MM YELLOW REFLECTIVE BANDS AND "P" AND CYCLE SIGNS FIXED TO RAIL.
4. ALTERNATIVE SETTING OUT CONFIGURATIONS FOR CYCLE STANDS SHALL BE APPROVED BY THE OVERSEEING ORGANISATION.
5. CONCRETE FOR POST SURROUND SHALL COMPLY WITH CLAUSE 2602 SHW.
6. POST FOOTINGS SHALL BE SQUARE.

Rad.100-250
THICKNESS OF TUBE WALL 2.5MM MIN.
ADDITIONAL RAIL FOR VISUALLY IMPAIRED
MIN 100MM WIDE YELLOW REFLECTIVE BAND
KERB LINE
BOUNDARY/BUILDING LINE
CLASS ST2 CONCRETE SURROUND
1000 MIN.
1200 RECOMMENDED
CYCLE STAND
LAYOUT A. ECHelon (45°)
CYCLE STAND
125

Highways and Transport Council Offices Market Street Newbury RG14 5LD
NOTES

1. ALL DIMENSIONS IN MILLIMETRES.

2. CONCRETE FOR POST FOUNDATION SHALL COMPLY WITH CLAUSE 2602 SHW.

3. BOLLARD TYPE A AND B SHALL BE NATURAL ROUND SOFTWOOD DRAGONS TEETH STYLE 450 HEIGHT AND 125 MAX DIAMETER. BOLLARD TYPE B SHALL BE A DRIVEN POST.

4. TIMBER BOLLARDS SHALL BE PRESSURE TREATED TO CLAUSE 311 SHW USING ORGANIC SOLVENT AND A 30 YEAR GUARANTEE. DETAILS SHALL BE SUPPLIED TO THE OVERSEEING ORGANISATION FOR APPROVAL.

5. BOLLARD TYPE C POLYURETHANE (DURAPOL) THE BOLLARD SHALL BE GLASDON, VICTORY STYLE 967MM HIGH AND 200MM MAX DIAMETER OR SIMILAR APPROVED.

6. BOLLARD TYPE D POLYURETHANE. THE BOLLARD SHALL BE FERROCAST, MORPETH STYLE 900MM HIGH AND 110MM MAX DIAMETER OR SIMILAR APPROVED.

7. ALL METAL BOLLARDS SHALL BE SUPPLIED GALVANISED COATED WITH 2 PROTECTIVE COATINGS OF BLACK GLOSS PAINT TO CLAUSE 1911 SHW ALTERNATIVE PAINT SYSTEMS SHALL BE APPROVED BY THE OVERSEEING ORGANISATION.

8. OTHER TYPES OF BOLLARDS SHALL NOT GENERALLY BE APPROVED BY THE OVERSEEING ORGANISATION. CONCRETE BOLLARDS ARE NOT ACCEPTABLE.

9. ANY 'POLETEC' OR SIMILAR SOCKET BASE OPTIONS SPECIFIED BY THE MANUFACTURER SHALL BE APPROVED BY THE OVERSEEING ORGANISATION BEFORE ORDERING.

10. BOLLARDS SHALL HAVE APPROPRIATE REFLECTIVE BANDING ATTACHED AS SPECIFIED BY THE OVERSEEING ORGANISATION. THE DETAILS SHALL BE CONFIRMED BEFORE ORDERING.

11. FOUNDATIONS ARE SQUARE IN PLAN.
SECTION A-A

GUARDRAIL ACROSS DITCH HEADWALL

H = SEE TABLE 1

150 MAX.

300

300 MIN.

FIXING DEPTH

2000

LENGTH TO SUIT

STANDARD PANEL

NON-STANDARD PANEL

TABLE 1 MINIMUM HEIGHT OF PEDESTRIAN RESTRAINT (GUARDRAIL) (SEE NOTES 4 & 5)

GUARDRAIL

L

C

FINISHED SURFACE LEVEL

25 X 50 X 2.5 RECTANGULAR HOLLOW SECTION

VISIBILITY GAP

12 DIA. STEEL INFILL BARS AT A MAXIMUM PITCH OF 110

POSTS SURROUNDED WITH STA CONCRETE

450 MIN.

Standard Panel

Continuous Concrete Detail

Brushed Finish

Footpath Construction

Footpath Construction

Standard Foundation 300x300x600 STA Concrete (See Note 13)

Section A-A

Guardrail Across Ditch Headwall

NOTES

1. ALL DIMENSIONS IN MILLIMETRES.

2. GUARDRAIL DESIGN AND INSTALLATION SHALL COMPLY WITH BS 7818:1995 AND CLAUSE 411 SHW.

3. TYPE, STYLE AND CLASS OF BARRIER SHALL MATCH THE LOCATION AND USE. CLASS 2 IS NORMAL DUTY AND THE MINIMUM STANDARD USED.

4. GUIDANCE FOR USING ENHANCED VISIBILITY INFILL PANELS IS IN BS 7818:1986 (ANNEX B).

5. MINIMUM HEIGHT OF BARRIER IN TABLE 1 (REF BS 7818:1986) SHALL MATCH THE DESIGN USE.

6. USE OF PEDESTRIAN RESTRAINT SYSTEMS ON BRIDGES SHALL BE APPROVED BY THE OVERSEEING ORGANISATION.

7. ALL GUARDRAILS SHALL HAVE A HOT DIP GALVANISED FINISH TO BS EN 15261:2003.

8. ALL BOLTS, NUTS AND WASHERS SHALL BE STAINLESS STEEL.

9. THE GUARDRAIL SHALL BE ERECTED ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.

10. THE GUARDRAIL SHALL BE FABRICATED TO SUIT THE LAYOUT AND LEVELS AND BE ERECTED TRUE TO LINE AND LEVEL THROUGHOUT ITS LENGTH.

11. FOR ALL CHANGES OF DIRECTION OF GUARDRAILS AND FOR RADII LESS THAN 30M THE INTERMEDIATE PANELS SHALL BE SPECIALLY FABRICATED.

12. PANELS SHALL BE TILTED TO ACCOMMODATE GRADIENTS UP TO 1 IN 6. FOR STEEPER GRADIENTS THE PANELS SHALL BE STEPPED.

13. FOUNDATION SHALL BE 300X300X600 DEEP FOR H > 1500. BS 7818:1986 (TABLE 6).

14. WHERE BRICKWORK OR BLOCKWORK THICKNESS IS IN EXCESS OF 225 THE PANELS SHALL BE INCORPORATED INTO THE CONSTRUCTION OR GROUTED INTO SUITABLY PREPARED HOLES. DETAILS SHALL BE SUBMITTED FOR APPROVAL TO THE OVERSEEING ORGANISATION.

15. FOUNDATIONS SHALL BE SQUARE IN PLAN.
1. ALL DIMENSIONS ARE IN MILLIMETRES
2. WATER AUTHORITIES GUIDE SEwers FOR ADOPTION LATEST EDITION SHALL APPLY EXCEPT WHERE MODIFIED BY THIS DRAWING.
3. PIPES FOR DRAINAGE SHALL COMPLY WITH CLAUSE 501 SHW (TABLE 5/1).
4. PIPES FOR DRAINAGE SHALL BE EITHER VITRIFIED CLAY PIPES OR CONCRETE PIPES AS SPECIFIED BY THE OVERSEEING ORGANISATION.
5. ALL JOINTS ON ALL PIPES SHALL ONLY BE USED WITH THE APPROVAL OF THE OVERSEEING ORGANISATION AND SHALL BE BBA CERTIFICATE APPROVED STRUCTURED WALL PIPES TO BS EN 1401; STIFFENED TO CLASS B20 AND RESISTANT TO JETTING PRESSURE OF 400 PSI TO WS 4.486.
6. COMPRESSIBLE BOARD/JOINT FILLER SHALL BE 25 MM THICK WITH 1.5MM TOLERANCE ACCORDING TO CLAUSE 1015-1 SHW.
7. DRAWING SHALL BE READ IN CONJUNCTION WITH SPECIFICATION.
8. PIPES BEDDING LAYING AND SURROUND TO COMPLY WITH CLAUSE 503 SHW.
9. MINIMUM COVER WITHOUT CONCRETE PROTECTION SHALL BE 1300 CONCRETE PROTECTION AND SHALL TERMINATE AT A SUITABLE PIPE JOINT.
10. DETERMINATION OF PIPE AND BEDDING COMBINATIONS SHALL BE IN ACCORDANCE WITH HA 40/01 DMRB (4.2.5) WITH THE APPROVAL OF THE OVERSEEING ORGANISATION.
11. FLEXIBLE JOINTS SHALL BE PROVIDED IN PIPE INFILL USING CONCRETE BED AND SURROUND OR REINFORCED COVER SLAB.
12. ALL PIPE MATERIALS SHALL NOT CHANGE BETWEEN CHAMBERS.
13. MINIMUM PIPE DIAMETER SHALL BE 225 FOR CARRIER DRAINS.
14. SADDLE CONNECTIONS SHALL ONLY BE USED WITH THE APPROVAL OF THE OVERSEEING ORGANISATION.
15. EXISTING CARRIAGEWAY SHALL BE REINSTATEd IN ACCORDANCE WITH STANDARD DETAIL DRAWING SD/700/1 OR WITH HAUC SPECIFICATION FOR REINSTATEMENT OF OPENINGS IN HIGHWAYS.
16. ALL CONCRETE SHALL HAVE SRPC UNLESS OTHERWISE DIRECTED BY THE OVERSEEING ORGANISATION.
Pipes and Filter Drains Under Vergees

STANDARD DRAWINGS

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**Notes:**
1. All dimensions are in millimeters.
3. Pipes for drainage shall comply with Clause 501 SHW (Table 5/1).
4. Pipes for drainage shall be either vitrified clay pipes or concrete pipes as specified by the overseeing organisation.
5. PVCU / ThermoPlastic pipes shall only be used with the approval of the overseeing organisation and shall be BBA certificate approved structured wall pipes to BS EN 1401; stiffened to Class 8KN/M2 and resistant to Jetting Pressure of 4000 PSI to WIS 4-35-01.
6. Compressible board/joint filler shall be 25mm thick with 1.5mm tolerance according to CL 1015-1 SHW.
7. Pipe bedding, cover, and surround to comply with Clause 503 SHW, filter drains to Clause 505 SHW.
8. Minimum cover without concrete protection shall be 1200.
9. Concrete protection shall terminate at a suitable pipe joint.
10. Determination of pipe and bedding combinations shall be in accordance with HA 40/01 DMRB (4.2.5) with the approval of the overseeing organisation.
11. Flexible joints shall be provided in pipe infill using concrete bed and surround or reinforced cover slab.
12. Concrete ST2 pipe surround shall comply Clause 503.3 (iii) SHW.
13. RC 25/30 concrete slab with A193 reinforcement fabric (or alternative approved) shall be used as an alternative trench infill only with approval of the overseeing organisation.
14. Carrier drains shall not normally be permitted in footways or cycleways.
15. When the maximum trench width is exceeded, it shall be necessary to increase the strength of the pipe.
16. Pipe materials shall not change between chambers.
17. Minimum pipe diameter shall be 225 for carrier drains.
18. Saddle connections shall only be used with the approval of the overseeing organisation.
19. Existing carriageway shall be reinstated in accordance with Standard Detail Drawing SD/700/1 or with HAUC Specification for reinstatement of openings in Highways.
20. All concrete shall have SRPC unless otherwise directed by the overseeing organisation.

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**Diagram Details:**
- Plan View
- Section A
- Section B
- Plan View with Connection Details (See Note 12)

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**Contact Information:**
Highways and Transport Council Offices
Market Street
Newbury
RG14 5LD
**SERVICE DUCTS**

**SERVICE DUCTS (COLOURS USED):**
- **GAS** = YELLOW.
- **WATER** = BLUE.
- **ELECTRICITY** = BLACK.
- **TELECOM** = WHITE.
- **COMMS** = GREY, GREEN.
- **HIGHWAY STREET LIGHTING** = ORANGE.
- **TRAFFIC SIGNAL** = ORANGE.

**NOTES:**
1. **ALL DIMENSIONS ARE IN MILLIMETRES**
2. **SERVICE DUCTS SHALL COMPLY WITH CLAUSE 501 SHW (TABLE 5/1).**
3. **SERVICE DUCTS SHALL BE EITHER VITRIFIED CLAY OR GLASS REINFORCED PLASTIC OR THERMOPLASTIC PVCU AS SPECIFIED BY THE OVERSEEING ORGANISATION.**
4. **THERMOPLASTIC PVCU DUCTS SHALL COMPLY WITH BS 4660: 2000 OR BS EN 50086 AND A BRITISH BOARD OF AGREEMENT CERTIFICATION IN ACCORDANCE WITH ELECTRICITY BOARD COUNCIL ESI 12-24 SDR 41 MIN. OR OTHER TO THE APPROVAL OF THE OVERSEEING ORGANISATION. SINGLE WALL DUCT SHALL NOT BE USED.**
5. **THE POSITION OF DUCT ROUTES AND THE NUMBER OF DUCTS IN EACH TRENCH SHALL BE SHOWN ON THE 'AS BUILT' DRAWINGS.**
6. **DUCTS UNDER EMBANKMENTS SHALL EXTEND 1000 BEYOND THE TOE OF EMBANKMENT.**
7. **INTERNAL DIAMETER OF ALL SERVICE DUCTS SHALL BE 100 UNLESS OTHERWISE STATED.**
8. **EXISTING CARRIAGEWAY SHALL BE REINSTATED IN ACCORDANCE WITH HACU SPECIFICATION FOR REINSTATEMENT OF OPENINGS IN HIGHWAYS.**
9. **THE LINE OF ALL DUCT ROAD CROSSINGS MUST BE MARKED WITH A MARKER POST OR PVC MARKER TAPE.**
10. **ORANGE DUCTS SHALL BE USED FOR STREET LIGHTING AND TRAFFIC SIGNAL CABLES.**
11. **PVC CABLE MARKER TAPE SHALL BE USED WITH STREET LIGHTING AND TRAFFIC SIGNAL CABLE DUCTS.**
12. **CONCRETE PROTECTION SHALL BE USED FOR DUCTS UNDER THE CARRIAGEWAY AND WHERE DEPTH OF COVER IS LESS THAN 600. ST2 CONCRETE TO CLAUSE 2602 SHW.**
13. **ALL CONCRETE SHALL HAVE SRPC UNLESS OTHERWISE DIRECTED BY THE OVERSEEING ORGANISATION.**
14. **FLEXIBLE JOINTS SHALL BE PROVIDED IN REINFORCED CONCRETE SURROUND. REFER TO SD/500/1 AND SD/500/2 FOR DETAIL.**
15. **ALTERNATIVE DUCT DETAILS FROM THE MCHW VOLUME 3 SHALL ONLY BE USED WITH THE APPROVAL OF THE OVERSEEING ORGANISATION.**
16. **PROPRIETRY FITTINGS SHALL BE USED FOR CONNECTING DUCTS TO TRAFFIC SIGNAL POLES.**

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**Highways and Transport Council Offices**

**Newbury**

**West Berkshire Council**

**Project:**

**STANDARD DRAWINGS**

**SERVICEDUCTS**

**Drawn:**

**Checked:**

**Drawn No.:** SD/500/3
1. All dimensions are in millimetres.
2. Service ducts shall comply with Clause 501 SHW (Table 5/1).
3. Service ducts shall either be vitrified clay or glass reinforced plastic or thermoplastic PVC, as specified by the overseeing organisation.
4. Thermoplastic PVC ducts shall comply with BS 4660:2000 or BS EN 50386 and a British Board of Agreement Certification in accordance with Electricity Board Council ESI 13-24 SB: 41 MIN, OR OTHER TO THE APPROVAL OF THE OVERSEEING ORGANISATION. SINGLE WALL DUCT SHALL NOT BE USED.
5. The position of duct routes and the number of ducts in each trench shall be shown on the 'as built' drawings.
6. Ducts near embankments shall extend 1000 beyond the toe of embankment.
7. Internal diameter of all service ducts shall be 100 unless otherwise stated.
8. Existing carriageway shall be reinstated in accordance with HAUC Specification for reinstatement of openings in highways.
9. The line of all duct road crossings must be marked with a marker post or PVC marker tape.
10. Orange ducts shall be used for street lighting and traffic signal cables.
11. PVC cable marker tape shall be used with street lighting and traffic signal cable ducts.
12. Concrete protection shall be used for ducts under the carriageway and where depth of cover is less than 600. ST2 concrete to Clause 2602 SHW.
13. All concrete below ground shall have SRPC unless otherwise directed by the overseeing organisation.
14. Flexible joints shall be provided in reinforced concrete surround.
15. Alternative duct details from the MCHW Volume 3 shall only be used with the approval of the overseeing organisation.
16. Proprietary fittings shall be used for connecting ducts to traffic signal poles.
STANDARD DRAWINGS

Notes:
1. All dimensions are in millimetres except where stated otherwise.
2. Gully and installation to Clause 508 SHW shall apply except where modified on this drawing.
3. Gully pots shall be concrete to BS 5911-6:2004: 450 DIA. X 900 DEEP in carriageways; 375 DIA. X 750 DEEP in footways. PVCU insitu gully, brick gully (Type 3) and insitu (Type 4) shall not be used without approval of the overseeing organisation.
4. Grating and frames shall be:
   - Class D400, 100 deep in normal trafficked areas.
   - Class D400, 150 deep for vulnerable HGV overrun or for block paving areas.
   - Class C250, 100 deep in normal footway.
5. Double triangular gratings minimum waterway area 1200cm² shall be used for Class A or B roads.
6. Hinged captive gratings minimum waterway area 950cm² shall be used for all other roads or where specified by the overseeing organisation.
7. End hinged gratings shall be set with hinge towards approaching traffic.
8. Slots in gratings shall not be parallel with the direction of the traffic.
9. Brickwork Class B shall comply with Clause 507 SHW (including Cl. 507.3, Cl. 507.18 & Cl. 2406.3).
10. The maximum overhang on each course of brick corbelling shall be 25mm.
11. Reinforced concrete gully cover slabs to BS 5911 Part 230 or reinforced concrete lintels shall be used where brick corbelling gives insufficient support to frame.
12. Connections to carrier drains shall use 'Y' junctions.
13. Each gully shall have a separate connection to the carrier drain or chamber.
14. Finish to internal concrete shall be F1 on formed surfaces and U2 on unformed surfaces.
15. Rapid hardening cementitious mortar systems shall be used in making up and bedding ironwork in carriageways to be opened to traffic within 2 days.
16. Concrete foundation and surround to gully pot shall comply with Clause 2602 SHW.
17. All concrete shall have SRPC unless otherwise directed by the overseeing organisation.
18. Kerb offsets and weir shall only be used with agreement by the overseeing organisation.
100
150
300
300 MIN
10 MIN - MAX MORTAR BED
15 DISH
HINGED SIDE
C8/10 (S3) CONCRETE
CAST INSITU CONCRETE GULLY
TYPE 4 - (SEE NOTE 3)
SHOWN WITH FOOTWAY GRATING

NOTES
1. ALL DIMENSIONS ARE IN MILLIMETRES EXCEPT WHERE STATED OTHERWISE.
2. GULLY AND INSTALLATION TO CLAUSE 508 SHW SHALL APPLY EXCEPT WHERE MODIFIED ON THIS DRAWING.
3. GULLY POTS SHALL BE CONCRETE TO BS 5911-229/94
   450 DIA. x 900 DEEP IN CARRIAGEWAYS
   375 DIA. x 750 DEEP IN FOOTWAYS
4. PVC-U THERMOPLASTIC GULLY POTS (TYPE BBA APPROVED) OF THE ABOVE DIMENSIONS
   SHALL ONLY BE USED IN CIRCUMSTANCES WITH THE APPROVAL OF THE OVERSEEING
   ORGANISATION.
5. THE INSTALLATION OF THIS GULLY POTT SHALL BE COMPLY WITH THE BBA APPROVAL
   CERTIFICATE REQUIREMENTS.
6. THE INSTALLATION OF ANY OTHER GULLY POTS SHOWN IN THIS DRAWING SHALL
   INCORPORATE SUITABLE PROVISIONS TO PREVENT THE POT FLOATING AND DISTORTING
   (EG GULLY POTS TO BE FILLED WITH WATER WHEN PLACING AND COMPACTING THE CONCRETE
   SURROUND).
7. A CONCRETE BASE SLAB FOR THE GULLY POTT SHALL USE EITHER 65 DEEP PAVING SLAB
   65 DIA. X 100 DEEP (CL. 2602 SHW) OR 100 DEEP SLAB CONCERNING CL. 2602 SHW.
8. PVC-U THERMOPLASTIC GULLY POTS SHALL HAVE 100 DEEP CONCRETE AND 200
   DEEP SURROUNDING USING C8/10 (S3 SLUMP) CONCRETE WITH SRPC AND COMPACTED
   USING A VIBRATING POKER.
Notes

1. All dimensions are in millimetres.
2. Water Authorities Association guide Sewers for Adoption applies except where modified by this drawing.
3. Installation of Catchpit, Inspection Chamber and Soakaways shall comply with Clause 507 SHW.
4. Cover and frame shall be Class D400 Badge marked, HD and Kitemarked with a protective coating, Clause 507.9 SHW.
5. Catchpits shall be positioned so that no part of the structure is under the line of kerbs.
6. The access cover to catchpits shall be positioned with consideration for safety.
8. Brickwork Class B shall comply with Clause 507 SHW (including Cl. 507.3, Cl. 507.18 & Cl. 2406.3).
9. Mortar to designation (i) SHW Series 2400 or a proprietary sealant shall be used in all joints between precast concrete units.
10. Finish to internal concrete shall be F1 on formed surfaces and U2 on unformed surfaces. In accordance with clause 1708.4 SHW.
11. All voids beneath the catchpit structure shall be backfilled with ST1 concrete.
12. Precast Concrete Chambers shall be backfilled using General Fill (Table 6/1 SHW) or ST2 concrete, Clause 507.7 SHW. ST4 concrete surround 150 min. shall be used at access shafts.
13. All concrete below ground shall have SRPC unless otherwise directed by the Overseeing Organisation.
14. Ends of pipes shall be neatly built into the chamber and finished flush with mortar to designation (i) SHW Series 2400.
15. The nearest pipe joint to chamber shall not be restricted by concrete backfill.
16. Safety chains or grills shall be provided where pipe diameter exceeds 600.
17. Surface level/cover tolerance shall be +6 -15 in paved areas, -15 min. -50 max. in verges.
18. Pipe level difference permitted inside chamber, the outlet may be 50 mm lower than inlet.
19. The articulated length of pipe (Rocker Pipe) to Clause 507.17 SHW shall be selected for pipe diameter either smaller or larger than 450 diameter.
20. Precast concrete heavy duty cover slabs can be used in place of straight back taper chamber section.

### CATCHPIT SIZES

<table>
<thead>
<tr>
<th>Internal diameter of chamber</th>
<th>Diameter of largest pipe in chamber</th>
</tr>
</thead>
<tbody>
<tr>
<td>1200</td>
<td>Less than 375</td>
</tr>
<tr>
<td>1350</td>
<td>375 - 450</td>
</tr>
<tr>
<td>1500</td>
<td>500 - 700</td>
</tr>
<tr>
<td>1800</td>
<td>750 - 900</td>
</tr>
</tbody>
</table>

### CATCHPIT TYPE 1 - PRECAST CONCRETE CONSTRUCTION

(Permitted Range of Depths - Cover to sump 1.2m-3.0m)
1. All dimensions are in millimetres.
2. Water Authorities Association guide Sewers for Adoption applies except where modified by this drawing.
3. Installation of Catchpit, Inspection Chamber and Soakaways shall comply with Clause 507 SHW.
4. Cover and frame shall be Class D400 Badge marked, HD and Kitemarked with a protective coating. Clause 507.9 SHW.
5. Catchpits shall be positioned so that no part of the structure is under the line of kerbs.
6. The access cover to catchpits shall be positioned with consideration for safety.
8. Brickwork Class B shall comply with Clause 507 SHW (including Cl. 507.3, Cl. 507.18 & Cl. 2406.3)
9. Mortar to designation (i) SHW Series 2400 or a proprietary sealant shall be used in all joints between precast concrete units.
10. Finish to internal concrete shall be F1 on formed surfaces and U2 on unformed surfaces. In accordance with clause 1708.4 SHW.
11. All voids beneath the catchpit structure shall be backfilled with ST1 concrete.
12. Precast Concrete Chambers shall be backfilled using General Fill (Table 6/1 SHW) or ST2 concrete, Clause 507.7 SHW. ST4 concrete surround 150 min. shall be used at access shafts.
13. All concrete below ground shall have SRPC unless otherwise directed by the Overseeing Organisation.
14. Ends of pipes shall be neatly built into the chamber and finished flush with mortar to designation (i) SHW Series 2400.
15. The nearest pipe joint to chamber shall not be restricted by concrete backfill.
16. Safety chains or grills shall be provided where pipe diameter exceeds 600.
17. Surface level/cover tolerance shall be +6 -15 in paved areas, -15 min. -50 max. in verges.
18. Pipe level difference permitted inside chamber, the outlet may be 50 mm lower than inlet.
19. The articulated length of pipe (Rocker Pipe) to Clause 507.17 SHW shall be selected for pipe diameter either smaller or larger than 450 diameter.
20. Precast concrete heavy duty cover slabs can be used in place of straight back taper chamber section.

<table>
<thead>
<tr>
<th>Internal diameter of chamber</th>
<th>Diameter of largest pipe in chamber</th>
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</thead>
<tbody>
<tr>
<td>1200</td>
<td>Less than 375</td>
</tr>
<tr>
<td>1350</td>
<td>375 - 450</td>
</tr>
<tr>
<td>1500</td>
<td>500 - 700</td>
</tr>
<tr>
<td>1800</td>
<td>750 - 900</td>
</tr>
</tbody>
</table>
1. All dimensions are in millimetres.
2. Water Authorities Association guide Sewers for Adoption applies except where modified by this drawing.
3. Installation of Catchpit, Inspection Chamber and Soakaways shall comply with Clause 507 SHW.
4. Rectangular catchpits shall only be used where pipes enter and leave on the same axis. The pipe run must be parallel to the longer wall.
5. Cover and frame shall be Class D400 Badge marked, HD and Kitemarked with a protective coating, Clause 507.9 SHW.
6. Catchpits shall be positioned so that no part of the structure is under the line of kerbs.
7. The access cover to catchpits shall be positioned with consideration for safety.
9. Brickwork Class B shall comply with Clause 507 SHW (including Cl. 507.3, Cl. 507.18 & Cl. 2406.3).
10. Mortar to designation (i) SHW Series 2400 or a proprietary sealant shall be used in all joints between precast concrete units.
11. Finish to internal concrete shall be Class D400 badge marked and Kitemarked with a protective coating, Clause 507.9 SHW.
12. All voids beneath the catchpit structure shall be backfilled with ST1 concrete.
13. Precast Concrete Chambers shall be backfilled using General Fill (Table 6/1 SHW) or ST2 concrete, Clause 507.7 SHW. ST4 concrete surround 150 min. shall be used at access shafts.
14. All concrete below ground shall have SRPC unless otherwise directed by the Overseeing Organisation.
15. Ends of pipes shall be neatly built into the chamber and finished flush with mortar to designation (i) SHW Series 2400.
16. The nearest pipe joint to chamber shall not be restricted by concrete backfill.
17. Safety chains or grills shall be provided where pipe diameter exceeds 600.
18. Surface level/cover tolerance shall be +6 -15 in paved areas, -15 min. -50 max in verges.
19. Pipe level difference permitted inside chamber, the outlet may be 50 mm lower than inlet.
20. The articulated length of pipe (Rocker Pipe) to Clause 507.17 SHW shall be selected for pipe diameter either smaller or larger than 450 diameter.
21. Precast concrete heavy duty cover slabs can be used in place of straight back taper chamber section.

CATCHPIT SIZES

<table>
<thead>
<tr>
<th>Minimum internal dimensions of chamber</th>
<th>Diameter of largest pipe in chamber</th>
</tr>
</thead>
<tbody>
<tr>
<td>675 x 900</td>
<td>300 or less</td>
</tr>
</tbody>
</table>

STANDARD DRAWINGS

CATCHPIT TYPE 3 - BRICKWORK CONSTRUCTION

(Permitted Range of Depths - Cover to sump up to 1.2m)
1. All dimensions are in millimetres.
2. Water Authorities Association guide Sewers for adoption applies except where modified by this drawing.
3. Installation of Catchpit, Inspection Chamber and Soakaways shall comply with Clause 507 SHW.
4. Cover and frame shall be Class D400 Badge marked, HD and Kitemarked with a protective coating, Clause 507.9 SHW.
5. Catchpits shall be positioned so that no part of the structure is under the line of kerbs.
6. The access cover to catchpits shall be positioned with consideration for safety.
8. Brickwork Class B shall comply with Clause 507 SHW (including Cl. 507.3, Cl. 507.18 & Cl. 2406.3).
9. Mortar to designation (i) SHW Series 2400 or a proprietary sealant shall be used in all joints between precast concrete units.
10. Finish to internal concrete shall be F1 on formed surfaces and U2 on unformed surfaces. In accordance with clause 1708.4 SHW.
11. All voids beneath the catchpit structure shall be backfilled with ST1 concrete.
12. Precast Concrete Chambers shall be backfilled using General Fill (Table 6/1 SHW) or ST2 concrete, Clause 507.7 SHW. ST4 concrete surround 150 min. shall be used at access shafts.
13. All concrete below ground shall have SRPC unless otherwise directed by the Overseeing Organisation.
14. Ends of pipes shall be neatly built into the chamber and finished flush with mortar to designation (i) SHW Series 2400.
15. The nearest pipe joint to chamber shall not be restricted by concrete backfill.
16. Safety chains or grills shall be provided where pipe diameter exceeds 600.
17. Surface level/cover tolerance shall be +6 -15 in paved areas, -15 min. -50 max. in verges.
18. Pipe level difference permitted inside chamber, the outlet may be 50 mm lower than inlet.
19. The articulated length of pipe (Rocker Pipe) to Clause 507.17 SHW shall be selected for pipe diameter either smaller or larger than 450 diameter.
20. Precast concrete heavy duty cover slabs can be used in place of straight back taper chamber section.

Section A-A
Notes

1. All dimensions are in millimetres.
2. Standard ditches shall be unlined with the existing profile. Scour protection at outfalls is always required.
3. All work to existing ditches shall have consent from the Environment Agency, Local Authority and the Landowner, as required.
5. Formed surfaces shall be Class F1 finish. In accordance with clause 1708.4 SHW.
6. Unformed surfaces shall be Class U2 plain finish. In accordance with clause 1708.4 SHW.
7. Outfall Type 2 shall be constructed using Class B engineering bricks laid in English Bond in mortar to designation (i) SHW Series 2400. Brickwork shall be finished with a brick on edge coping.
8. All concrete below ground shall have SRPC unless otherwise directed by the Overseeing Organisation.
1. All dimensions are in millimetres.
2. The Piping of ditches shall have the consent of the Environment Agency and the Landowner.
3. Brickwork shall be constructed using English Bond in Class B Engineering Bricks to BS EN 771 and BS EN 772 flush pointed with mortar to designation (i) SHW Series 2400.
4. Brickwork shall be:
   225 Thick for H < 1.2m
   337 Thick for H > 1.2m
5. Concrete shall be grade ST4 to Clause 2602 SHW.
6. All concrete below ground shall have SRPC unless otherwise directed by the Overseeing Organisation.
7. Unformed surfaces shall be U2 plain finish. In accordance with clause 1708.4 SHW.
8. Protective Grills shall be fitted for where pipes over 300 dia. are accessible to children.
9. Grill assembly shall be pre drilled and have hot dip galvanised finish to BS EN ISO 1460 after fabrication.
10. Purpose made Grills shall be designed for use with the approval of the Overseeing Organisation.
Notes

1. All dimensions are in millimetres.
2. The Piping of ditches shall have the consent of the Environment Agency and the Landowner.
3. Brickwork shall be constructed using English Bond in Class B Engineering Bricks to BS EN 771 and BS EN 772 flush pointed with mortar to designation (i) SHW Series 2400.
4. Brickwork shall be:
   - 225 Thick for H < 1.2m
   - 337 Thick for H > 1.2m
5. Concrete shall be grade ST4 to Clause 2602 SHW.
6. All concrete below ground shall have SRPC unless otherwise directed by the Overseeing Organisation.
7. Unformed surfaces shall be U2 plain finish. In accordance with clause 1708.4 SHW.
8. Protective Grills shall be fitted for where pipes over 300 dia. are accessible to children.
9. Grill assembly shall be pre drilled and have hot dip galvanised finish to BS EN ISO 1460 after fabrication.
10. Purpose made Grills shall be designed for use with the approval of the Overseeing Organisation.
Notes

1. All dimensions are in millimetres.
2. Concrete Bagwork Walling shall be used with approval of the Overseeing Organisation.
3. Installation of Concrete Bagwork Wall shall comply with Clause 519 SHW except where modified by this drawing.
4. Bagwork construction may also be used for outfalls.
5. Bagwork Wall shall be constructed using natural hessian sand bags, Clause 519.2 SHW.
6. Reinforcement 15 x 450 mm mild steel bars shall be used at 800 centres.
7. Concrete ST4 shall comply with Clause 2602 SHW.
1. All dimensions are in millimetres unless shown otherwise.
2. Piping of ditches shall have the consent of the Environment Agency and the Landowner.
3. Brickwork shall be constructed using Class B engineering bricks laid in English Bond flush pointed with mortar to designation (i) SHW Series 2400.
4. Brickwork shall be:
   - 225 Thick for H < 1.2m
   - 337 Thick for H > 1.2m
5. Concrete shall be grade ST4 to Clause 2602 SHW.
6. Formed surfaces shall be Class F1 finish. Unformed surfaces shall be U2 plain finish. In accordance with clause 1708.4 SHW.
7. All concrete below ground shall have SRPC unless otherwise directed by the overseeing organisation.
Notes

1. All dimensions are in millimetres
2. Concrete to be Class C32/40 and shall conform to BS 8500 pt 1 and pt 2.
3. Formed surfaces shall be Class F2 finish. Unformed surfaces shall be Class U1 plain finish.
4. Reinstatement to river bed and banks shall be to approval of the Overseeing Organisation.
5. Dimensions A, D and invert level shall be provided with the Headwall Schedule.
6. All concrete below ground shall have SRPC unless otherwise directed by the Overseeing Organisation.
7. Structural Concrete Headwall design shall be approved by the Overseeing Organisation. The design shall be checked for structural stability, structural detailing and structural calculations.

Design shown as example
Full structural design required
1. All dimensions are in millimetres.
2. All chambers shall be located in footway, traffic island or verge. The position of all chambers and ducts to be agreed with the Overseeing Organisation.
3. Size of chamber used shall depend on the depth and number of ducts to be accommodated.
4. Standard Units shall be as manufactured by Glandel Ltd, or similar approved.
5. Chamber Type Sp shall be constructed in English Bond Class B Engineering bricks to comply with SHW series 2400.
6. The courses shall be laid in horizontal and vertical alignment. Joints shall not exceed 10 and shall be flush pointed internally as work proceeds.
7. Base units for all chambers may be replaced with cast-in-situ ST4 concrete 150 thick. Formed surfaces shall be Class F1. Unformed surfaces shall be Class U2 plain finish. In accordance with clause 1708.4 SHW.
8. All joints between chamber and ducts shall be made good with Class 1 mortar. The duct shall be surrounded by 150 min thick ST4 concrete.
9. Covers shall be galvanised with an unlock and lift device and badgemarked Traffic Loop, Traffic signals or Street Lighting as appropriate.
10. Surface level tolerances shall be +60 or -15 in paved areas or -15 to -50 maximum in verges.
11. Electrical chamber detail see Electrical Standard Detail Drawings Chamber Detail SD/1400/033 and SD/1400/034.
Notes

1. All dimensions are in millimetres.
2. Refer to Appendix 7/2: Excavation and Reinstatement of Existing Surfaces, for details.
3. A temporary reinstatement using Type 1 sub-base may be used if carriageway is trafficked before asphalt surfacing is laid.
4. Crushed gravel aggregate shall not be used in the top 150mm below binder course level unless permitted by the Overseeing Organisation.

TYPE PR1 - Carriageway
For use where ducts and drains are laid in existing carriageway.
Proposed carriageway level between 0 to 100mm above existing carriageway level.
(For ducts see SD/500/3)

TYPE PR2 - Footways, Cycleways, and asphalt paving
For use where drains are laid in existing paved footways.
(For ducts see SD/500/3)

TYPE PR3 - Footways, Cycleways comprising paved areas
For use where drains are laid in existing paved footways.
(For ducts see SD/500/3)

TYPE PR4 - Light or domestic Vehicular crossings
For use where drains are laid in existing paved footways.
(For ducts see SD/500/3)

Note:
Where trench reinstatement is in the carriageway area which will be finally reconstructed or resurfaced. Asphalitic concrete material can be used for temporary reinstatement as approved by the Overseeing Organisation.
Notes

1. Alternative or lower grade binders may only be used with the approval of the Overseeing Organisation.

2. Where the nominal size of the aggregate has not been specified the developer shall comply with the particular requirements regarding depths of course and size of aggregates in the appropriate British Standard.

3. When the Surface Course is not laid immediately after the Binder Course the Binder Course shall be blind with coated grit complying with BS EN 13108 and BS 594987.

4. Tack Coats shall be as specified in BS 594987:2015 and BS 434-2 unless approved by the Overseeing Organisation.

5. Tack Coat shall be applied between all asphalt layers at the correct rate of spread for overlaying with New Asphalt or Cold Milled surfaces.

6. New Asphalt surface; Tack Coat shall comply with Class K1-60 of BS 434-2 and applied at a uniform rate of spread of 0.33litre/m² (leaving 0.20kg/m² residual binder).

7. Cold Milled surface; Tack Coat shall comply with Class K1-60 of BS 434-2 shall be applied at a uniform rate of spread of 0.42litre/m² (leaving 0.25kg/m² residual binder).

8. The aggregate in Surface Course material shall have a minimum PSV (Polished Stone Value) of 50 and a maximum AAV (Aggregate Abrasion Value) of 14.

9. Gravel aggregates shall not be permitted in Asphaltic Concrete.

10. Limestone aggregate or Limestone filler shall not be permitted in Surface Course material or Binder Course material which is to be trafficked.

11. Asphaltic Concrete shall be laid in accordance with BS EN 13108 and BS 594987.

12. Type 1 sub-base material using crushed gravel aggregate shall not be used in the top 150mm below the Base layer unless permitted by Overseeing Organisation. Then the developer shall demonstrate its suitability together with the compaction plant he proposes to use by completing a trial area. The Overseeing Organisation shall reserve the right to reject any material which is outside the specified grading and any costs in relation to trial areas, whether the material and the method of compaction is approved or rejected, shall be met by the developer.

13. Manhole covers shall not be re-set until the Binder Course is laid.

14. Base material shall have a minimum stiffness modulus of 2.5 GPa when using performance specified material.

15. 150 Concrete Roadbase CBGM class C3 /4 to BS EN 14227 may be used in areas where the use of a paving machine is not practicable.

16. Design life for all pavement options shall be 40 years HD24 (DMRB 7.2.1)

17. Any different design shall comply with HD26 (DMRB 7.2.3) the Carriageway construction thickness to be designed for predicted MSA values.

18. Where required by the Overseeing Organisation a coated grit shall be applied to the Surface Course (note 3).
PAVEMENT CONSTRUCTION THICKNESS MUST BE SUITABLE FOR THE ANTICIPATED TRAFFIC LOADINGS AND LOCATION

Notes
1. Alternative or lower grade binders shall only be used with the approval of the Overseeing Organisation.
2. Where the nominal size of the aggregate has not been specified the developer shall comply with the particular requirements regarding depths of course and size of aggregates in the appropriate British Standard.
3. When the Surface Course is not laid immediately after the Binder Course the Binder Course shall be blinded with Coated Grit complying with BS EN 13108 and BS 594987. Coated Grit to be applied to the Surface Course where directed by the Overseeing Organisation.
4. Bond Coats shall be used in preference to Tack Coats as specified in BS 594987:2015 (5.5.1) unless approved by the Overseeing Organisation. Bond Coat shall be applied between all asphalt layers at the correct rate of spread for overlaying either New Asphalt or Cold Milled surfaces.
5. New Asphalt surface; Bond Coat shall comply with Class K1-70 of BS 434-2 and applied at a uniform rate of spread to 0.50 litre/m² (leaving 0.35kg/m² residual binder).
6. Cold Milled surface; Bond Coat shall comply with Class K1-70 to BS 434-2 and applied at a uniform rate of spread of 0.86 litre/m² (leaving 0.60kg/m² residual binder).
7. The aggregate in Surface Course material shall have a minimum PSV (Polished Stone Value) of 60 and a maximum AAV (Aggregate Abrasion Value) of 14.
8. Gravel aggregates shall not be permitted in Asphaltic Concrete.
9. Limestone aggregate or Limestone filler shall not be permitted in Surface Course material or Binder Course material which is to be trafficked.
10. HRA shall comply with and be laid in accordance with BS EN 13108 and BS 594987.
11. Asphaltic concrete must comply and be laid in accordance with BS EN 13108 and BS 594987.
12. Pre-Coated chippings for HRA Surface Course shall have a minimum PSV of 65 and a maximum AAV of 14.
13. Type 1 sub-base material using crushed gravel aggregate shall not be used in the top 150mm below the Base layer unless permitted by the Overseeing Organisation. Then the developer shall demonstrate its suitability together with the compaction plant he proposes to use by completing a trial area. The Overseeing Organisation shall reserve the right to reject any material which is outside the specified grading and any cost in relation to trial areas, whether the material and the method of compaction is approved or rejected, shall be met by the developer.
14. Manhole covers shall not be re-set until the Binder Course is laid.
15. Base material shall have a minimum stiffness modulus of 2.5 GPa when using performance specified material.
16. 150 concrete road base CBGMC class C 3/4 to BS EN 14227 may be used in areas where the use of a paving machine is not practicable.
17. Design life for all pavement options shall be 40 years. HD24 (DMRB 7.2.1).
18. Any different design to comply with HD26 (DMRB 7.2.3), the Carriageway construction thickness shall be designed for predicted MSA values.
19. Where required by the Overseeing Organisation Coated Grit shall be applied to the Surface Course (note 3).
20. Alternative Surface Course system may be used with the approval of the Overseeing Organisation provided an appropriate HAPAS certificate is supplied. Only modified binders shall be used. Minimum wheel tracking Class shall be Level 4.
21. Laybys and Hardstandings shall be surfaced with block paving design to the approval of the Overseeing Organisation.
Section
Construction to be to the approval of the overseeing organisation

TYPE 1

450mm

A 30mm AC 10 Close surface course (100/150 Pen Binder)
B 70mm AC 20 Dense binder course (40/60 Pen Binder)
C 100mm AC 32 Dense base (40/60 Pen Binder)
D 250mm Granular sub–base material Type 1 (minimum) see note 4

TYPE 2

480mm

A 40mm AC 10 Close graded bitumen macadam surface course (100/150 Pen Binder)
B 60mm AC 20 Dense binder course (40/60 Pen Binder)
C 130mm AC 32 Dense base (40/60 Pen Binder)
D 250mm Granular sub–base material Type 1 (minimum) see note 4

TYPE 3

490mm

A 50mm HRA 35/14f surface course with 14/20mm pre–coated chippings to (40/60 Pen Binder)
B 60mm AC 20 Dense binder course (40/60 Pen Binder)
C 130mm AC 32 Dense base (40/60 Pen Binder)
D 250mm Granular sub–base material Type 1 (minimum) see note 4

Notes
1. All dimensions are in millimetres.
2. Materials specification see SD/900/1 and 2
3. Where required by the overseeing organisation coated grit shall be applied to the surface course
4. Crushed gravel aggregate shall not be used in the top 150mm below base course level unless permitted by the overseeing organisation
5. Sub–base material type 1 or type 1/capping layer depth may vary and shall be as directed by the overseeing organisation
6. See design tables in DWRB Vol 7
Notes
1. All dimensions are in millimetres.
2. All Precast Concrete Kerb, Channel, Edging and Quadrant shall comply with Clause 1101 SHW except where modified on this drawing.
3. All in-situ concrete to foundation and haunch shall be minimum slump ST4 concrete.
4. Kerb foundation shall be laid on compacted Type 1 sub-base of minimum thickness 100.
5. The kerb bed and backing shall normally be laid in one operation.
6. Where bed is laid in advance of kerbs 200 x 20 dia mild steel dowel bars shall be required in backing at 450 centres and kerbs shall be bedded on 10 mm mortar designation (J) SHW Series 2400.
7. Dowel bars shall be required with standard kerbs in circumstances where the kerbs are vulnerable.
8. 300 x 16 dia dowel bars at 450 centres shall be used with Safety Kerbs unless the backing concrete is brought level with top of kerb.
9. Kerbs shall be laid with dry joints and closely butted to adjacent kerbs and channels.
10. Transition kerbs shall be used at all changes in kerb type.
11. Channel kerb blocks shall be used where gradient is flatter than 1:150.
12. For radii of 12m or less kerbs and channels of the appropriate radius shall be used.
13. For radii between 12m and 18m straight kerbs 600 long shall be used.
14. Cutting of kerbs and channels shall be by approved mechanical means.
15. The length of any kerb or channel shall not be less than 300.
16. Where channel kerb blocks are laid to false falls the kerb face must be 100 min – 150 max.
17. All kerbing supporting verge areas shall be backed as shown for SP kerb.
18. Where edgings are laid at the top of an earth embankment concrete bed shall be 150 min on Type 1 material.
19. Where paviers are to be laid adjacent to the kerb, the kerb and channel backing shall be adjusted accordingly.
20. Kerb faces at crossings shall be:

<table>
<thead>
<tr>
<th>Pedestrian</th>
<th>Tolerances</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>+ or – 6</td>
</tr>
<tr>
<td>Tactile paver</td>
<td>0</td>
</tr>
<tr>
<td>Vehicular</td>
<td>20</td>
</tr>
</tbody>
</table>

21. Where a risk assessment shows large kerbs cannot be mechanically handled small element kerbs weighting no more than 20Kg shall be permitted with the approval of the Overseeing Organisation. Plastic kerbs are not permitted.
22. Minimum number of Bullnosed kerbs at crossing points shall be:
   Pedestrian 2 (full sized).
   Vehicular 4 (full sized).

STANDARD DRAWINGS
PRECAST CONCRETE KERBS
(BN, HB2, SP)
Notes
1. All dimensions are in millimetres.
2. All Precast Concrete Kerb, Channel, Edging and Quadrant shall comply with Clause 1101 SHW except where modified on this drawing.
3. All in situ concrete to foundation and haunch shall be minimum slump ST4 concrete.
4. Kerb foundation shall be laid on compacted Type 1 sub-base of minimum thickness 100.
5. The kerb bed and backing shall normally be laid in one operation.
6. Where bed is laid in advance of kerbs 200 x 20 dia mild steel dowel bars shall be required in backing at 450 centres and kerbs shall be bedded on 10 min mortar designation (I) SHW Series 2400.
7. Dowel bars shall be required with standard kerbs in circumstances where the kerbs are vulnerable.
8. 300 x 16 dia dowel bars at 450 centres shall be used with Safety Kerbs unless the backing concrete is brought level with top of kerb.
9. Kerbs shall be laid with dry joints and closely butted to adjacent kerbs and channels.
10. Transition kerbs shall be used at all changes in kerb type.
11. Channel kerb blocks shall be used where gradient is flatter than 1:150.
12. For radii of 12m or less kerbs and channels of the appropriate radius shall be used.
13. For radii between 12m and 18m straight kerbs 600 long shall be used.
14. Cutting of kerbs and channels shall be by approved mechanical means.
15. The length of any kerb or channel shall not be less than 300.
16. Where channel kerb blocks are laid to false falls the kerb face must be 100 min – 150 max.
17. All kerbing supporting verge areas shall be backed as shown for SP kerb.
18. Where edgings are laid at the top of or on earth embankment concrete bed shall be 150 min on Type 1 material.
19. Where pavements are to be laid adjacent to the kerb, the kerb and channel backing shall be adjusted accordingly.
20. Kerb faces at crossings shall be:
   - Pedestrian: 10 + or - 6
   - Tactile paved: 0 + or - 6
   - Vehicular: 20 + or - 6
21. Where a risk assessment shows large kerbs cannot be mechanically handled small element kerbs weighting no more than 20Kg shall be permitted with the approval of the Overseeing Organisation. Plastic kerbs are not permitted.
22. Minimum number of Bullnosed kerbs at crossing points shall be:
   - Pedestrian 2 (full sized).
   - Vehicular: 4 (full sized).
All dimensions are in millimetres.

All Conservation Concrete Kerb, Channel, Edging and Quadrant shall be silver grey Granite aggregate fine textured and shall comply with BS EN 1340:2003.

All in situ concrete to foundation and haunch shall be minimum slump ST4 concrete.

Kerb foundation shall be laid on compacted Type 1 sub-base of minimum thickness 100.

The kerb bed and backing shall normally be laid in one operation.

Where bed is laid in advance of kerbs 200 x 20 dia mild steel dowel bars shall be required in backing at 450 centres and kerbs shall be bedded on 10 min mortar designation (I) SMM Series 2400.

Dowel bars shall be required with standard kerbs in circumstances where the kerbs are vulnerable.

300 x 16 dia dowel bars at 450 centres shall be used with Safety Kerbs unless the backing concrete is brought level with top of kerb.

Kerbs shall be laid with dry joints and closely butt to adjacent kerbs and channels.

Transition kerbs shall be used at all changes in kerb type.

Channel kerb blocks shall be used where gradient is flatter than 1:150.

For radii of 12m or less kerbs and channels of the appropriate radius shall be used.

For radii between 12m and 18m straight kerbs 600 long shall be used.

Cutting of kerbs and channels shall be by approved mechanical means.

The length of any kerb or channel shall not be less than 300.

Where channel kerb blocks are laid to false falls the kerb face must be 100 min – 150 max.

All kerbing supporting verge areas shall be backed as shown for SP kerb.

Where edgings are laid at the top of an earth embankment concrete bed shall be 150 min on Type 1 material.

Where pavements are to be laid adjacent to the kerb, the kerb and channel backing shall be adjusted accordingly.

Kerb faces at crossings shall be:
- Pedestrian: 10 + or – 6
- Tactile paving: 0 + or – 6
- Vehicular: 20 + or – 6

Where a risk assessment shows large kerbs cannot be mechanically handled small element kerbs weighing no more than 20kg shall be permitted with the approval of the Overseeing Organisation. Plastic kerbs are not permitted.

Minimum number of Bullnosed kerbs at crossing points shall be:
- Pedestrian 2 (full sized).
- Vehicular 4 (full sized).
Notes
1. All dimensions are in millimetres.
2. Granite Setts shall be silver grey coarse textured to BS EN 1342.
3. Granite Kerbs shall be silver grey fine textured to BS EN 1343.
4. All in situ concrete to foundation and backfill shall be minimum slump ST4 concrete.
5. Kerb foundation shall be laid on compacted Type 1 sub-base of minimum thickness 100.
6. The kerb bed and backing shall normally be laid in one operation.
7. Where bed is laid in advance of kerbs 200 x 20 dia mild steel dowel bars shall be required in backing at 450 centres and kerbs shall be bedded on 10 mm mortar designation (I) SHW Series 2400.
8. Dowel bars shall be required with standard kerbs in circumstances where the kerbs are vulnerable.
9. 300 x 16 dia dowel bars at 450 centres shall be used with Safety Kerbs unless the backing concrete is brought level with top of kerb.
10. Kerbs shall be laid with dry joints and closely butted to adjacent kerbs and channels.
11. Transition kerbs shall be used at all changes in kerb type.
12. Channel kerb blocks shall be used where gradient is flatter than 1:150.
13. For radii of 12m or less kerbs and channels of the appropriate radius shall be used.
14. For radii between 12m and 18m straight kerbs 600 long shall be used.
15. Cutting of kerbs and channels shall be by approved mechanical means.
16. The length of any kerb or channel shall not be less than 300.
17. Where channel kerb blocks are laid to false falls the kerb face must be 100 mm - 150 max
18. All kerbing supporting verge areas shall be back as shown for SP kerb.
19. Where edgings are laid at the top of an earth embankment concrete bed shall be 150 mm on Type 1 material.
20. Where paviors are to be laid adjacent to the kerb, the kerb and channel backing shall be adjusted accordingly.
21. Kerb faces at crossings shall be: Tolerance
   Pedestrian 10  + or - 6
   Tactile paved 0  +6
   Vehicular 20  + or - 6
22. Where a risk assessment shows large kerbs cannot be mechanically handled small element kerbs weighting no more than 23kg shall be permitted with the approval of the Overseeing Organisation. Plastic kerbs are not permitted.
23. Minimum number of Bullnosed kerbs at crossing points shall be: Pedestrian 2 (full sized).
   Vehicular 4 (full sized).
24. Timber edging and pegs shall be pressure treated to Clause 311 SHW. Timber pegs shall be 50x50x600 fixed at 900 centres. Double pegs to be used at joints. 2 no galvanised 68mm nails per peg.
LIGHT DUTY FOOTWAY / FOOTPATH

DOMESTIC VEHICULAR CROSSOVER

20 AC 6 Dense surface course to Clause 909
40 AC 20 Dense binder course to Clause 906 (0/20 nominal size)
100 lean concrete base, or 150 Type 1 sub base material to Clause 803 or 806 (See notes 15 and table 1.1)
150 Type 1 sub base material (see Notes 12, 15 and table 1.1)

HEAVY DUTY FOOTWAY/CROSSOVER AND HEAVY VEHICLE OVERUN

20 AC 6 Dense surface course to Clause 909
60 AC 20 Dense binder course to Clause 906
Type 1 - sub base material to Clause 803
(see Table 1.1 and note 12 and 15)

25 AC 6 Dense surface course to Clause 909
90 AC 20 Dense binder course to Clause 906
Type 1 - sub base material to Clause 803
(see Table 1.2 and note 12 and 15)

150 unreinforced air-entrained concrete C32/40 to BS EN 13877 and BS 8500.
Type 1 sub-base material to Clause 803.
(see Table 1.2 and note 15)

* It may be necessary to stabilise the Subgrade or replace with granular Capping if CBR <2%.

Notes
1. All dimensions are in millimetres.
2. For Cycleway detail see SD/1100/6.
3. Footways and verges shall both be 2000 wide except where otherwise approved. A 2000 wide verge shall be provided behind footways and cycleways in embankments.
4. All Precast Concrete kerbs shall comply to BS EN 1340:2003.
5. Kerbing details shall be to drawing SD/1100/1, 1100/2, 1100/3 or 1100/4 except where modified by this drawing.
6. Standard Kerb faces shall be:
   - Half batter kerbs
     - HB2 125
     - Splay kerbs
     - SP 100
7. Crossing points shall be constructed as shown in section B-B. Construction thickness shall be increased at vehicular crossing points, see Tables on this drawing.
8. Kerb faces shall be:
   - Tolerance
     - Pedestrian 10 ±0 – 6
     - Cycleway/Traffic paved 0 ±0 - 6
     - Vehicular 20 ±0 – 6
9. Minimum number of full closed kerbs at crossing points shall be:
   - Pedestrian 2 (full sized)
   - Cycleway 3 (full sized)
   - Vehicular 4 (full sized)
10. Taper kerbs shall be used at changes in kerb face at crossing points.
11. Edging kerbs shall be provided on all free edges of paved areas not confined by a kerb or boundary wall.
12. An additional 150 of Type 1 material shall be laid to footways and cycleways when on embankment.
13. Footway and highway verges shall normally fall at 1:40 towards the highway.
14. Vertical alignment of back edging shall be maintained at crossing points and the crossing graded from edging to carriageway level.
15. Asphaltic Concrete shall comply with BS 5949/87. Sub-base shall be Clause 803 or 806. Asphalt plantings to the approval of the Overseeing Organisation may be used.
16. For block paved construction see SD/1100/8.
17. All soft spots and organic material shall be removed before construction.
18. An approved residual weedkiller which does not contain atrazine or simazine applied to the formation shall require approval of the Overseeing Organisation.
19. Verge areas shall have 150 deep topsoil spread 25 above top of kerb or edging to allow for settlement and shall be seeded in accordance with the Specification.
20. Existing verges adjacent to new kerbing shall be regraded and seeded.
21. Alternative designs incorporating flags and pavions shall be to the approval of the Overseeing Organisation.
NOTES
1. All dimensions are in millimetres
2. For details of segregated cycleway layout see cycling in Berkshire.
3. For signal controlled crossing points see SD/1100/8
4. Minimum 3 full size Bullnosed kerbs shall be used at cycleway crossing point.
5. Crossing points shall be constructed as shown on Section B-B. Kerb face at cycleway crossing shall be 0 to +6.
6. Asphaltic Concrete shall comply with BS 594987. Sub-base shall be Clause 803 or 806. Asphalt planings to the approval of the Overseeing Organisation may be used.
7. Kerbing details are shown on drawings SD/1100/1, 1100/2, 1100/3, 1100/4.
8. Footway details are shown on drawings SD/1100/5.
9. Block paviers and flags see SD/1100/8.
10. Traffic Islands see SD/1100/9.
11. Traffic sign erection see SD/1200/1.
12. Height to under edge of signs on cycleways shall be 2.4m.
13. Half size ‘Give Way’ markings shall be laid at uncontrolled crossings.
14. The laying arrangements shown for tactile slabs are indicative only and shall be in accordance with the ‘Guidance on the Use of Tactile Paving Surfaces’ DETR. Tactile slabs shall be laid 1200 deep when laid to crossings in direct line of pedestrian travel otherwise they shall be laid 800 deep.
15. An additional 150 Type 1 Sub-base material shall be laid to footway or cycleway when laid on embankment.
16. Manholes and other covers within tactile areas shall be heavy duty recessed trays.
17. All soft spots and organic material shall be removed before construction.
NOTES

1. All dimensions are in millimetres.
2. For details of segregated cycleway layout see cycling in Berkshire.
3. For signal controlled crossing points see SD/1100/8.
4. Minimum 3 full size Bullnosed kerbs shall be used at cycleway crossing point.
5. Crossing points shall be constructed as shown on Section B–B. Kerb face at cycleway crossing shall be 0 to +6.
6. Asphaltic Concrete shall comply with BS 5949, Sub–base shall be Clause 803 or 806. Asphalt plantings to the approval of the Oversewing Organisation may be used.
7. Kerbing details are shown on drawings SD/1100/1, 1100/2, 1100/3, 1100/4.
8. Footway details are shown on drawings SD/1100/5.
9. Block paviors and flags see SD/1100/8.
10. Traffic Islands see SD/1100/9.
11. Traffic sign erection see SD/1200/1.
12. Height to under edge of signs on cycleways shall be 2.4m.
13. Half size 'Give Way' markings shall be laid at uncontrolled crossings.
14. The laying arrangements shown for tactile slabs are indicative only and shall be in accordance with the 'Guidance on the Use of Tactile Paving Surfaces' DETR. Tactile slabs shall be laid 1200 deep when laid to crossings in direct line of pedestrian travel otherwise they shall be laid 800 deep.
15. An additional 150 Type 1 Sub–base material shall be laid to footway or cycleway when laid on embankment.
16. Manholes and other covers within tactile areas shall be heavy duty recessed trays.
17. All soft spots and organic material shall be removed before construction.
STANDARD DRAWINGS

CONCRETE PAVERS AND FLAGS

FOR SIGNAL CONTROLLED CROSSING POINTS

NOTES
1. All dimensions are in millimetres.
2. This drawing shall be read in conjunction with SD/1100/5.
3. Block paving shall comply with BS 7533, BS 6717 and BS 6677.
4. Clay pavers shall not be permitted.
5. Precast concrete flags shall be 400 x 400 and shall comply with BS EN 1339:2003.
6. 60 or 65 thick blocks shall only be used in areas not subjected to vehicular traffic elsewhere the blocks shall be 80 thick.
7. Block pavers shall be laid in square herringbone pattern for footways and 45° herringbone pattern in areas subjected to vehicular traffic.
8. Blocks shall normally be bedded on 30 sharp sand complying with BS 7533:3 Table D2 Category 1A.
9. In areas where the blocks may be trafficked, or narrow strips of paving are used as a feature, the sand shall be substituted by 30 mortar to designation (i) or (ii) laid on 150mm ST4 concrete.
10. Flags shall be bedded on 30 mortar to designation (i) or (ii).
11. All mortar pointing shall be colour matched to the blocks or flags.
12. Manholes and other covers within tactile paving areas shall be heavy duty recessed trays.
13. Sanded joints shall be sealed down with a stabilising compound.
14. Red tactile paving flags shall be laid at all controlled pedestrian crossing points.
15. The laying arrangement shown of tactile slabs are indicative only and shall be in accordance with Guidance on the use of Tactile Paving Surfacing DETR. When the dropped kerb is in direct line of travel the tactile surface shall be laid to a depth of 1200mm.
16. The siting of the signal pales shall be the responsibility of the signal engineer.
17. Crossing kerbs shall be flush with the carriageway where tactile flags are used. Elsewhere footway crossings shall be as shown on SD/1100/5.
18. Care shall be taken to ensure adequate drainage when the crossing kerb is flush with the carriageway.
19. Tactile paving shall be 65 thickness.
1. All dimensions are in millimetres.
2. This drawing shall be read in conjunction with Drg No SD/1100/1 and 1100/2.
3. All concrete blocks shall comply with BS EN 1338:2003.
4. The colour of concrete blocks shall be approved by the Overseeing Organisation. Red colour preferred for edge strips.
5. Block paving shall be laid in stretcher bond.
6. Width of paved edge strip may be increased to suit other design considerations.
7. Concrete pavements shall be constructed in 5000 bays with flexcell joints.
8. Topsoil shall be seeded in accordance with the Specification.
9. Island design shall be approved by the Overseeing Organisation.
10. Chevron paving shall only be used with the approval of the Overseeing Organisation.
11. Gradients shall be suitable for the design.
HD (Fig 7) kerb

C32/40 air
entrained
concrete

Granular Type 1 sub-base
thickness dependent on
CBR of sub-grade

Dowel bar coated
with anti-breaking
compound

Joint filler
board

Reinforcement to be
terminated 125±25
from joint

30 x 100 long
waterproof cap
containing 40 thick
compressible material
at closed end

Footway

SLIDING DOWEL JOINT

Note
1. All dimensions are in millimetres unless
otherwise stated.
2. Concrete shall be to BS EN 8500.
3. Surface treatment of concrete layby shall be
brush finished.
4. Exposed surfaces of concrete pavement
shall be cured immediately after surface

Notes
1. All dimensions are in millimetres unless
otherwise stated.
2. Concrete shall be to BS EN 8500.
3. Surface treatment of concrete layby shall be
brush finished.
4. Exposed surfaces of concrete pavement
shall be cured immediately after surface

Notes
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otherwise stated.
2. Concrete shall be to BS EN 8500.
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Notes
1. All dimensions are in millimetres unless
otherwise stated.
2. Concrete shall be to BS EN 8500.
3. Surface treatment of concrete layby shall be
brush finished.
4. Exposed surfaces of concrete pavement
shall be cured immediately after surface
STANDARD DRAWINGS

STEPS
(Remote from the carriageway)

Notes
1. All dimensions in millimetres.
2. Tactile paving is indicative only and reference shall be made to Guidance on the Use of Tactile Paving Surfaces published by DETR.
3. Steps shall not be permitted in footways alongside carriageways.
4. Where steps are necessary provision shall be made for a complimentary ramp.
5. Width of steps shall be 2000 or 1200 mm in restricted areas.
6. There shall be a minimum of 3 steps in a flight.
7. Level resting places shall be provided at intervals every 12 steps in flights of steps.
8. Resting places to stairs shall be 1800 long (1200 mm) and resting places to ramps shall be 1200 long (1500 mm).
9. Treads of steps shall have a non-slip finish.
10. Noses of treads shall be finished with a colour contrasting non-slip strip.
11. Handrails shall be provided on both sides of steps and ramps.
12. Handrails shall be fixed to adjacent walls with 50 clearance.
13. Handrails shall be finished with a solid end piece.
14. Handrails shall be fixed according to the manufacturers instructions.
15. Subgrade type and load bearing shall be to the approval of the Overseeing Organisation.
16. For footway construction see SD/1100/5 and 1100/6.
2 No. Diag. 1062 white thermoplastic road markings with applied ballotin to extend to top of slope 1850 max. on either side of hump. See note 11 and 12 for additional road markings.

Surface course (min. thickness 50) to carriageway surface course specification.

Kerb height normally 20mm and shall be laid in accordance with SD/1100/3.

Notes:
1. All dimensions are in millimetres.
2. Position of humps shall comply with the Highways (Road Humps) Regulations 1999.
3. Position of humps and gullies shall be approved by the Overseeing Organisation prior to construction.
4. Length of hump shall be determined by the overall road layout and bus traffic.
5. Minimum length of round top hump shall be 3700.
6. Minimum length of plateau of flat topped hump 'L' shall be 2500.
7. On bus routes 'L' shall be 6000 min.
8. Where humps are installed at pedestrian crossing points 'L' shall be 3000 min.
9. For kerb detail see SD/1100/1, 2, 3 and 4 and for footway details see SD/1100/5 and 6.
10. Gullies shall be installed where hump impedes the flow in the channel.
11. Continuous edge of carriageway lines 100 wide shall be required on both sides of the carriageway and shall extend for 6000 either side of hump where required.
12. Centre line markings shall be to Diag. 1004, 6000 module, 150 wide and the 4000 mark shall be centred over hump.
13. Height of ramp shall be approved by the Overseeing Organisation. Heights between 50 and 75 according to situation. On bus routes the height shall be 50.
Gullies to be provided on high side of hump

Optional use of Bishops Mitre block along kerb

Concrete block paving 80 thick laid in herringbone pattern. See note 11, 18 & 19

SECTION A-A

Granite sets 100x150x200 (see note 17)

Conservation or Granite kerb

Concrete blocks 80 thick laid in herringbone pattern on 30 bed (See note 18)

SECTION B-B

2 No. Diag. 1062 white thermoplastic road markings with applied ballottini to extend to top of slope 1850 max. on either side of hump

See note 14 and 15 for additional road markings

PLAN

Carriageway width (varies)

Kerb height normally 20mm and shall be laid in accordance with SD/1100/3

CK5 Conservation kerb

Concrete blocks 80 thick laid in herringbone pattern on 30 bed (See note 18)

DETAIL 'C'

Granite sets 100x150x200 (see note 17)

CK5 Conservation kerb set flush

Regulating course

Normal road surface

15 min. 10 min.

150 150

150

300 SF4 concrete bed

Notes
1. All dimensions are in millimetres
2. Position of humps shall comply with the Highways (Road Humps) Regulations 1999.
3. Position of humps and gullies shall be approved by the Overseeing Organisation prior to construction.
4. Length of hump shall be determined by the overall road layout and bus traffic.
5. Minimum length of plateau of flat topped hump 'L' shall be 2500.
6. On bus routes 'L' shall be 6000 min.
7. Where humps are installed at pedestrian crossing points 'L' shall be 3000 min.
8. For kerb details see SD/1100/1, 2, 3 and 4 and for footway details see SD/1100/5 and 6.
9. Gullies shall be installed where hump impedes the flow in the channel.
11. Block paving shall be 80 thick laid in 45° herringbone pattern with Bishops Hot type edge blocks or similar approved and sealed with the manufacturers recommended sand.
12. Blocks shall be colour grey, buff, red or brindle.
13. The sanded joints shall be sealed with a stabilising compound.
14. Continuous edge of carriageway lines 100 wide are required on both sides of the carriageway and shall extend for 6000 either side of hump.
15. Centre line markings shall be to Diag. 1004, 6000 module, 150 wide and the 4000 mark shall be centred over hump.
16. Height of ramp shall be approved by the Overseeing Organisation. Heights between 50 and 75 according to situation. On bus routes the height shall be 50.
17. Granite sets shall be laid in mortar designation (i) with 100% sharp sand and 15mm joints, or in a rapid hardening cementitious material. Sets shall be to BS EN 1342 coarse textured, silver grey.
18. Sand bed to blocks shall be laid with adequate sub-surface drainage through lower bituminous layers.
19. Block Paving design shall comply with BS 7533:3 Table D2 category 1A.
Notes
1. All dimensions are in millimetres.
2. Carriageway construction see drawings SD/900/1.
3. Kerb details see drawing SD/1100/1, 2, 3 and 4. Footway details see drawing SD/1100/5 and 6.
4. Gateway sets shall be laid level where there is no change in kerb height.
5. The gateway rumble strip shall terminate 750 mm from kerb on either side for the benefit of cyclists.
6. Granite sets shall be laid and pointed in mortar designation (i) see Table 24/1 Clause 2404 SHW with 100% sharp sand and 15mm joints or rapid hardening cementitious material.
7. Sets shall be to BS EN 1342 course textured, colour silver grey.

100x150x200 granite sets or purpose made sets laid flush with carriageway either side of ramp.
Notes
1. All dimensions are in millimetres
2. The layout of Estate roads shall have the approval of the Planning and Highway Authorities.
3. These construction details shall also be used at other speed control features included in the design guide.
4. For kerbing details see SD/1100/1, 2, 3 and 4 and for Road Construction details see SD/900/1 and SD/900/2.
5. Granite setts shall be laid and pointed in mortar designation (i) see Table 24/1 Clause 2404 SHW with 100% sharp sand and 15mm joints or set in rapid hardening cementitious material.
6. Setts shall be to BS EN 1342 course textured colour silver grey. Alternatively, 100X100X200 buff coloured Tegula concrete blocks may be used for speed control bend type A.

TYPICAL SECTION A.A OF OVER—RUNNABLE AREA FOR SPEED CONTROL BEND TYPE A
Sides not steeper than 1 in 4

Section A–A

Max gradient: 1:8

Max Gradient 1:8, Min Gradient 1:25

Diag No 1012.1 100mm wide

Diag 1062 with applied ballast

Width of Carriageway

Notes
1. All dimensions are in millimetres.
2. The dimensions of road humps shall be to this specification and shall be approved by the Overseeing Organisation prior to construction.
4. Any centre hatching shall be optional as directed by the Overseeing Organisation.
5. Cushions shall be constructed using: Surface Course HRA 35/44 surf 40/60 and Pre-Coated Chippings to BS EN 13108 and BS 59497. The minimum PSV, AAV shall be as stated in SD/900/1.
6. Speed cushions shall be constructed 75 high and a height tolerance of +5mm and -10mm.
7. The speed cushions shall be set out in relation to the centre of the carriageway. The channel width shall be equal on both sides and shall dependant on carriageway width.
1. All dimensions are in millimetres unless otherwise stated.
2. Profile kerbing for the bus boarder shall be KASSEL kerb or similar as approved by Overseeing Organisation.
3. Existing kerb/channels shall be removed for the length of the bus boarder and voids reinstated with ST2 concrete.
4. Paving shall be to standard detail drawing SD/1100/5 light duty footway to match existing paving.
5. Bus Boarder kerb types:
   TK160 Left ramp,
   TK160 Left ramp,
   TK160 Full height kerbs.
6. Where the footway edging cannot be raised to provide a fall out to the road, suitable footway drainage shall be provided as directed by the Overseeing Organisation.
7. The length of the bus boarder shall be agreed with the Overseeing Organisation.
1. All dimensions are in millimetres unless otherwise stated.
2. Profile kerbing for the bus boarder shall be KASSEL kerb or similar approved by the Overseeing Organisation.
3. Existing kerb/channels shall be removed for the length of the bus boarder and voids reinstated with ST2 concrete.
4. Paving shall be to standard detail drawing SD/1100/S light duty footway to match existing paving.
6. Where the footway edging cannot be raised to provide a fall out to the road, suitable footway drainage shall be provided as directed by the Overseeing Organisation.
7. C31, C41 or C44 channel shall be laid for the full length of the bus boarder where required by the Overseeing Organisation.
8. Bollard shall be type D to standard detail drawing SD/500/4.
9. Shall provide on carriageway bus stop road marking to diagram 1025.1 to Traffic Signs Manual as directed by Overseeing Organisation.
10. Generally 1000mm, distance shall be as directed by the Overseeing Organisation.
11. The length of the bus boarder shall be agreed with the Overseeing Organisation.
20 AC 6 Dense surface course to Clause 909
60 AC 20 Dense binder course to Clause 906
100 lean concrete base, or 150 Type 1 sub-base material to clause 803 or 806
See notes and Tables below

Type 1 - sub base material to Clause 803
(See table 1.1 and note 10)

20 AC 6 Dense surface course
60 AC 20 Dense binder course to Clause 906
100 lean concrete base, or 150 Type 1 sub-base material to clause 803 or 806
See notes and Tables below

Type 1 sub-base material to Clause 803.
(See table 1.2 and note 10)

150 unreinforced air-entrained concrete C32/40 to BS EN 13877 and BS 8500
Type 1 sub-base material to Clause 803.
(See table 1.2 and note 10)

Notes
1. All dimensions are in millimetres.
2. All Precast Concrete kerbs shall comply with BS EN 1340:2003.
3. Kerbing details shall be as drawing SD/1100/1 and 1100/2 except where modified by this drawing.
4. Standard Kerb face shall be:
   Half batter kerbs HB2 125mm
   Splay kerbs SP 100mm
5. Crossing points shall be constructed as shown and construction thickness increased at vehicular crossing points, see Tables.
6. Kerb faces shall be:
   Tolerance Vehicular 20mm + or – 6
7. Taper kerbs shall be used at changes in kerb face at crossing points.
8. Edging kerbs shall be provided on all free edges of paved areas not confined by a kerb or boundary wall.
9. Vertical alignment of back edging shall be maintained at crossing points and the crossing graded from edging to carriageway level.
10. Asphaltic concrete shall comply with BS 5949-7. Sub-base shall be to Clause 803 or 806. Asphaltic pavements to the approval of the Overseeing Organisation may be used.
11. All soft spots and organic material shall be removed before construction.
12. An approved residual weedkiller which does not contain atrazine or simazine applied to the formation shall require approval of the Overseeing Organisation.
13. Verge areas shall have a 150 covering of topsoil spread 25 above top of kerb or edging to allow for settlement and shall be seeded in accordance with the Specification.
14. Existing verges adjacent to new kerbing shall be regraded and seeded.
15. Alternative designs incorporating flags and pavours shall be to the approval of the Overseeing Organisation.
Notes

1. All dimensions are in millimetres unless otherwise stated.

2. The minimum available Distance 'D' between the Garage door and the Highway/Property boundary shall be reduced from 6m to 5.5m if a vertical sliding Garage door is used.

3. Refer to Standard Detail SD/1100/20 for Access construction details.

4. For acceptable crossfall at access see Standard Detail drawing SD/1100/18.

5. Additional space required to swing open the up and over garage door.
Surface water infiltration

Marshall's paviors 200mm x 100mm x 80mm thick, Type Priora laid in Herringbone pattern

50mm (+10mm / -5mm) Laying Course. See note 2 & 4

250mm of sub-base material 4/40 course aggregate. See note 5.

Cross Section Of Paving System

N.B. The system shall only be used in verges.

Notes:
1. All dimensions are in millimetres.
3. Laying course material (1/10 aggregate) shall conform to BS 7533:13:2009 para 6.7 and the grading in Table A2.
4. The jointing & void filling material should be checked with the paving unit manufactures.
5. Increase the sub-base thickness for traffic loadings greater than domestic vehicle loading. See Table 7 and 8 in BS 7533–13:2009.
N.B. The system shall only be used in verges and car parking areas subject to light traffic loading. Where construction is likely to be subject to heavy vehicles and or a CBR less than 5; Type 1 shall be 100mm thick, Type 8 filter material shall be 200mm thick over a non woven geogrid to provide a barrier to pollutants and provide structural integrity.
Golpla reinforcement system 640x330x38 (pre-grown)

25 sharp sand

Quicklay Geogrid

Existing footway level

Existing ground

EF edging size 250 x 50
Concrete backing leave 100 from top of block.

Notes
1. All dimensions are in millimetres.
2. Golpa grass reinforcement is available from Geosynthetics Limited or other manufacturer with the approval of the Overseeing Organisation.
3. The Method of laying shall comply with the recommendations of the supplier / manufacturer.
4. Laying course material shall be sharp sand or the alternative permeable laying course described in BS7533:13:2009 Table A2.
5. The permeability of the existing sub-soil shall be checked for suitability with the Overseeing Organisation.
Carrigeway level

600 desirable min
450 absolute min
see notes 4 & 5

Foundation height
Footways 2100
Cycleways 2400
Verges and traffic islands as directed

Edging kerb

150

Varies

75 PVC cable duct depth to suit manufacturer's cable slot

ST2 concrete

ST4 concrete

Foundation for sign post with electrical base housing

(Straight post similar - duct omitted)

Notes

1. All dimensions in millimetres.
2. All signs shall comply with the Traffic Signs regulations and General Directions 2002.
3. Sign positions shall comply with the requirements of the Overseeing Organisation.
4. Single posts shall normally be sited at the back of footway or highway verge.
5. Clearance to the edge of signs shall be increased where there is a severe camber, or crossfall, or sign is in a central reservation or bend.
6. Traffic signal poles shall be set back 800mm from edge of carriageway or 500mm where swan neck poles are used. The Overseeing Organisation shall be consulted if a pole in this position will affect a footway or is otherwise impractical.
7. Mounting heights of all signs shall be approved by the Overseeing Organisation.
8. Not more than two signs shall be mounted on one post.
9. Illuminated signs or signs greater than 0.36sq.m wide shall not be fitted to lamp columns.
10. Post height shall allow for sloping ground.
11. Posts shall be galvanised steel and comply with BS EN ISO 1461. In a conservation area posts shall be black and the bodies of signs shall be black.
12. Standard signs shall be mounted on a 76 diameter post with a wall thickness of 3.2.
13. Open ended poles shall be provided with internal sealed caps.
14. All post foundations shall be designed unless shown on standard drawing SD/1200/2. Foundation depth D shall be 600 min. unless stated otherwise in the sign schedule.
15. Overdig shall be backfilled with Type 1 sub-base material in paved areas.
16. Min. 150 deep topsoil required over foundations in verges.
17. Posts with electrical housing shall be sited so that the door faces away from oncoming traffic.
18. For illuminated signs supported on more than one post the electrical housing shall be in the post farthest from the carriageway.
19. Lighting units shall be approved and will be dependant on size of sign.
20. All illuminated signs shall be identified by a unique number which will be provided by the Overseeing Organisation.
21. All signs shall be fixed with bolted clamp brackets only.
22. All details shall be in accordance with specification.
### TABLE 1: POST/FOUNDATION DETAILS

<table>
<thead>
<tr>
<th>Sign Height h (mm)</th>
<th>SINGLE POST</th>
<th>TWIN POST</th>
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<tr>
<td></td>
<td>300</td>
<td>450</td>
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<tr>
<td>Sign Shape</td>
<td></td>
<td></td>
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<td>A</td>
</tr>
<tr>
<td>(see Table 3)</td>
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### TABLE 2: POST/FOUNDATION DETAILS

<table>
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<tr>
<th>Sign Height h (mm)</th>
<th>300</th>
<th>450</th>
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<tr>
<td>Sign Shape</td>
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<td></td>
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<td>No. of Signs on Single Post</td>
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<td>2</td>
<td>2</td>
<td>2</td>
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<td>B</td>
</tr>
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<td>(see Table 3)</td>
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### TABLE 3: STANDARD FOUNDATION SIZES

<table>
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<tr>
<th>Foundation Type</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
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<td>350</td>
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<tr>
<td>Length y</td>
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<td>350</td>
<td>350</td>
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<td>350</td>
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<td>Depth z</td>
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<td>750</td>
<td>800</td>
<td>850</td>
<td>900</td>
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### TABLE 4: POST INSETS

<table>
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<th>Sign Height h (mm)</th>
<th>1200</th>
<th>1500</th>
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</thead>
<tbody>
<tr>
<td>Post inset p</td>
<td>200</td>
<td>250</td>
</tr>
</tbody>
</table>

---

**NOTE**

1. All dimensions are in millimetres unless otherwise stated.
2. All details shall be in accordance with specification.
1. All dimensions in millimetres.
2. All concrete shall comply with BS 8500-1:2006.
3. Post retention socket shall be set in 600x600x900 ST4 concrete base in accordance with NAL Ltd installation sheet.
4. The NAL stump pole shall be used for setting the vertical alignment of the socket in the concrete base. After compacting concrete remove stump pole carefully and tighten the NAL adjustment bolt.
5. Signal post positions shall comply with the requirements of the Overseeing Organisation.
6. Traffic signal posts shall be set back min. 800 from edge of carriageway or min. 500 where swan neck posts are used. The Overseeing Organisation must be consulted if the post position will affect a footway or is otherwise impractical.
7. Overdig shall be backfilled with ST2 concrete in paved areas.
8. A Post retention socket is not required in verges. Foundation shall comply with post standard detail drawing SD/1200/1.
9. Use NAL RS115 740 socket for 4m poles.
10. All details shall be in accordance with the specification.
1. All dimensions in millimetres.

2. Cabinet shall be mounted in ST2 concrete CL.141B.8 SHW.

3. Cable entry shall be a 100mm dia. uPVC duct.

4. All equipment shall be to specification and/or approval of the Overseeing Organisation.

5. All equipment shall be sited within the highway boundary.

6. Top of damp sand sealed with C.I.B.A. Geigy XD 4133 resin and hardener to level the internal base of cabinet, min. thickness 6mm.

7. Reinstatement to excavations in paved areas shall use Type 1 Sub-base CL.B03 SHW up to formation level.

8. A hard standing area comprising Concrete paving slabs or similar approved shall be laid in front of door in verges.

9. Cabinet shall be painted with two coats of gloss paint to BS4800. Colour as specified by Overseeing Organisation.

10. Cabinet shall be type Philips Communication or similar approved.

11. Copper earth electrode shall be installed when required by the Overseeing Organisation. See standard drawing SD/1400/032.

12. All details shall be in accordance with the specification.

Cabinet to be bolted to foundation using 4No.12 x 100 Ragbolts or rawlbolts

Notes
Notes

1. All dimensions in millimetres.
2. Cabinets shall be installed in ST2 concrete CL 1418.8 SHW.
3. Cable entry shall be a 50mm dia. uPVC duct.
4. All equipment shall be to specification and/or approval of the Overseeing Organisation.
5. All equipment shall be sited within the highway boundary.
6. Top of damp sand sealed with C.H.B.A. Geigy XD 4133 resin and hardener to level of internal base of cabinet, min. thickness 6mm.
7. Reinstatement to excavations in paved areas shall use Type 1 Sub-base CL803 SHW up to formation level.
8. A hard standing area comprising Concrete paving slabs (min. 2 nr 600 x 600) or similar approved shall be laid in front of the traffic signal controller door in verges.
9. Cabinets sited in a conservation area shall be painted with two coats of black gloss paint to BS4800.
10. Telecom Feeder Pillar for Traffic Signal controller shall be galvanised Haldco No. E31000 912K155X175 or galvanised Tofo No. FP385 700X150X150 or similar approved by the Overseeing Organisation.
11. Electrical Feeder Pillar for Traffic Signal controller shall be galvanised Haldco No. E33000 or galvanised Tofo No. FP33-3 size 100X250X500 or similar approved by the Overseeing Organisation.
Notes
1. All dimensions in millimetres.
2. All equipment shall be to specification and/or approval of the Overseeing Organisation.
3. All equipment shall be sited within the highway boundary.
4. Bollards shall be Simmonsigns Simbol (F) with global illuminated base unless otherwise approved by the Overseeing Organisation.
5. Bollards shall be fitted according to the manufacturers instructions.
6. Bollards shall be aligned with the retainer bolts in line with the traffic flow.
7. Bollards shall be aligned with the hinged side facing approaching traffic.
8. An infra-red photocell, shall be factory fitted to all bollards.
9. All illuminated signs shall be identified by a unique number stencilled in black point on the rear. The numbers shall be provided by the Overseeing Organisation.
Checked Drawing No.  
Drawing title: Non Illuminated Glasdon Rebound Bollard

Project: Highways and Transport Council Offices
Market Street
Newbury
RG14 5LD

Notes
1. All dimensions in millimetres.
2. All equipment shall be to specification and/or approval of the Overseeing Organisation.
3. All equipment shall be sited within the highway boundary.
4. Bollard type Glasdon Rebound Signmaster with bolt down base option unless otherwise approved by the Overseeing Organisation.
5. Bollards shall be installed according to the manufacturer’s instructions.
6. Bollard colour option (black or white) shall be specified by the Overseeing Organisation before ordering.
7. Glasdon Retroreflective Patch option B shall comprise: 1nr yellow retroreflective front panel, 2nr right side panels & 2nr left side panels.
8. Bollard signface option shall be confirmed with the Overseeing Organisation before ordering eg; keep left arrow (610) or keep right arrow (810) or plain white face.

Diag No. 610 (300mm)  
(White arrow on blue background fitted to one side only)

VIP Flourescent yellow conspicuous panels (front & 2 sides)

Footway construction

Surface mounted with bolts into ST4 concrete base (150x200x200)
1. All setting out dimensions in feet and inches (required for speed markings).

2. The markings shall be central in all running lanes.

3. All markings shall be 4 inches in width.

4. All markings shall be of reflective material in accordance with Traffic Signs Regulations and General Directions 2002.

5. There shall be five sets of (5 x 5 feet groups) therefore total distance covered = 126 feet.
Notes

1. All dimensions in millimetres
2. All road markings to comply with The Traffic Signs Regulations and General Regulations 2002.
3. The speed roundel dimensions shall be selected for the road speed – see TSRGR 2002.
4. * The drawing shows the roundel for a 30mph entry limit. The actual speed required shall be confirmed by the Overseeing Organisation.

Diagram 1065
size to match design speed
(see note 4)