Table 1 - Construction Details of Paved Areas (NHBC 2019 Tables 2A, 2B, 2C, 2D)

		Sub-base course	Base Course		Binder course	Surface course				Surface Dressing	Bedding course	Pavers
		Granular sub base material Type 1 to clause 803 Table 8/2 M.C.H.W. Vol 1 Series 800 (See Note 2)	Dense bituminous Macadam (100/150 Pen Paving grade bitumen) with crushed rock aggregate to BS 4987 (Group 1 Mix)	Concrete designation (BS 8500-2 Table 7)	Dense bituminous Macadam (100/150 Pen Paving grade bitumen) with crushed rock aggregate to BS 4987 (Group 2 Mix)	Dense bituminous Macadam (100/150 Pen Paving grade bitumen) with crushed rock aggregate to BS 4987 (Group 3 Mix)	Hot rolled asphalt to BS 594-1	Mastic asphalt to BS 1447	Concrete designation (BS 8500-2 Table 7)	10mm size golden gravel (round stone) with tar spray, TS&S	Sharp sand to BS 7533-3 Category 2 of Annex D	Block pavers to BS 6717 of class markings W2, A2 and S3 (weathering, abrasion and slip/skid classes) (see note 6)
Shared drives having infrequent use by commercial vehicles	Bituminous Macadam	Refer to Table 2	Refer to Note 5	N/A	80mm (0/32mm size to Clause 6.4) or (0/20mm size to Clause 6.5)	30mm (0/10mm size to Clause 7.4)	40mm (designation 30% 0/14mm)	30mm (grade S 40% 0/10mm)	N/A	TS&S as required	N/A	N/A
	Concrete	Refer to Table 2	N/A	N/A	N/A	N/A	N/A	N/A	150mm grade PAV2	N/A	N/A	N/A
	Block pavers / Tegula pavers	Refer to Table 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	50mm	80mm
	Gravel	Refer to Table 2	N/A	N/A	N/A	Refer to Note 7	N/A	N/A	N/A	N/A	N/A	N/A
Private drives and parking areas having use by cars and light vehicles	Bituminous Macadam	Refer to Table 2	N/A	N/A	60mm (0/20mm size to Clause 6.5)	20mm (0/6mm size to Clause 7.5)	N/A	N/A	N/A	TS&S as required	N/A	N/A
	Concrete	Refer to Table 2	N/A	N/A	N/A	N/A	N/A	N/A	100mm grade PAV1	N/A	N/A	N/A
	Block pavers / Tegula pavers	Refer to Table 2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	50mm	50mm
	Gravel	Refer to Table 2	N/A	N/A	N/A	Refer to Note 7	N/A	N/A	N/A	N/A	N/A	N/A

NOTES

1. Names of pavement layers show both the European harmonised names and in brackets the names traditionally used in the UK
2. If a capping layer is specified then sub-base thickness can be reduced. D.M.R.B. Volume 7 Section 2 Part 2 HD 25/95 Foundations Chapter 3 Capping and Sub-base gives guidance on capping and sub-base thickness design based on CBR values and with and without a capping layer
3. Thickness is based on the provision of a Geotextile membrane underneath the sub-base. If no Geotextile membrane is provided refer to Table 2
4. Bond and tack coat should be provided for bituminous mixtures in accordance with BS 4987-2 or BS 594-2
5. Asphalt based materials can be used as partial replacement of full thickness of granular sub-base Type 1 material
6. When laid to either 90 or 45 degrees herringbone pattern then the edge perimeter to be laid with one single row of stretcher bond set parallel to the edge restraint. Where block pavers are laid abutting drainage channels, gully grates and the like, the upper surface of the block pavers shall be set between 3 and 6mm above the grating. Manufacturers declared value markings W3 and S4 are acceptable if W3 is 1.0kg/m² or less and S4 is 45 or more based on 'C scale unit' (with regard to abrasion, Class A2, no test result is greater than 23mm and Class A1 = No Performance Determined)
7. Use 38mm thickness of graded 15/20mm unbound aggregate to BS EN 13242 (gravel) well rolled and compacted
8. N/A = Not Applicable
9. CBR = California Bearing Ratio

Table 2 - Minimum Sub-Base Thickness for Paved Areas (NHBC 2019 Table 3)

California Bearing Ratio (CBR) Values	Minimum thickness (mm) of sub-base (consolidated in accordance with MCHW Volume 1 Clause 801, table 8/1)	
	Without Geotextile underneath	With Geotextile underneath
Less than 2%	N/A	300mm
2% - 3%	325mm	225mm
3% - 5%	250mm	150mm
5% - 7%	150mm	
7% - 20%	100mm	

Note:

1. The thickness of any required capping layer and the sub-base should be determined after investigations and on-site tests have been carried out relating to the CBR value and frost susceptibility of the sub-grade. Refer to Table 2.
2. Where the tests indicate that the sub-grade is frost susceptible a suitable capping layer should be included below the sub-base, to a depth that will ensure that the construction will not be affected by frost heave.
3. Sub-base to be open graded crushed rock or open graded crushed gravel with 10/20mm size aggregates to BS EN 13242.

Road Gully Notes:

1.0 Load class
Installation recommendations shown are aco minimum recommendations for BS EN 1433:2002 load class requirements.

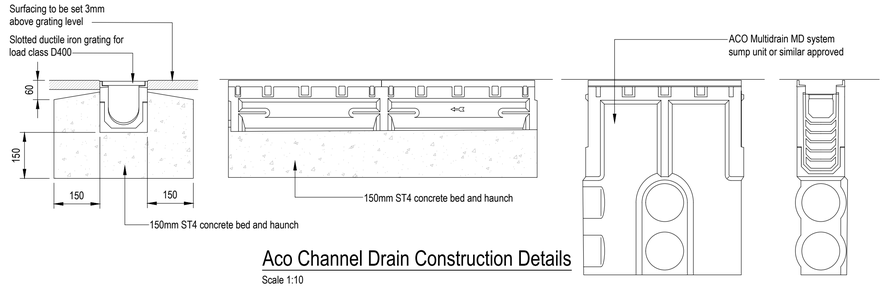
2.0 Ground conditions
The long term performance of a channel installation to sustain vertical and lateral loads depends upon a) ground conditions b) stability of the adjacent pavement and c) a durable concrete bed and surround. The recommended installation detail may require the minimum dimensions to be revised to achieve site specific load class requirements (referred to in 1.0 above).

3.0 Temporary installation
A channel installation is not complete until the final surfacing is laid. in any temporary condition, i.e. with the channel walls projecting above adjacent ground, site traffic should not cross channels. Loose boards, stone fill or cover plates will not protect the channel walls or grating. A temporary channel crossing should be formed by raising the ground level locally, to 3-6mm above top of edge rail, either side of a channel for a distance of 750-1000mm, to form ramps. Note that the channel load class should be adequate to carry the site traffic.

4.0 Block pavements
The channel must be supported laterally. Blocks laid directly against a channel must be laid as a soldier course and restrained from movement by bedding securely on the concrete haunch e.g. by using a polymer modified mortar for bed and perpendicular joints (e.g. ronafix mortar mix c or similar). Blocks or slabs bedded on sand remote from the channel should be set at a higher level to compensate for possible settlement of the paving in service.

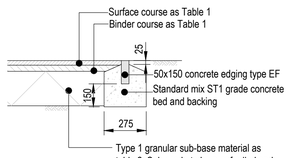
5.0 Channel protection
Avoid contact between compaction equipment and top of aco channel edge rail. The installer must ensure that the finished surface level lies above the top of the edge rail (by at least 3-6mm). Covering or protecting the grating, before concreting the haunch or laying blocks, removes the time and cost associated with clearing the channel and grating of cement material and embedded stones. (Please note that aco channels must be installed with the grating in place to prevent deformation of the channel).

6.0 Watertight installation to BS EN 1433:2002
Where aco channel joints/fittings and channel/pavement interfaces are to be sealed, an appropriate sealant should be used (e.g. sikaflex 1 1ffc or similar). Guidance on the necessary surface preparation and/or priming should be sought from the sealant manufacturer.



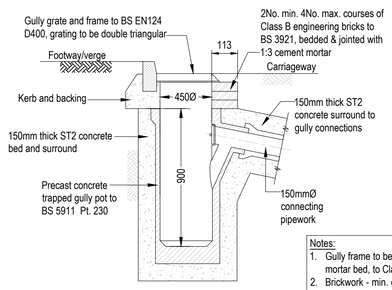
Aco Channel Drain Construction Details

Scale 1:10



Individual Private Drive

Scale 1:20

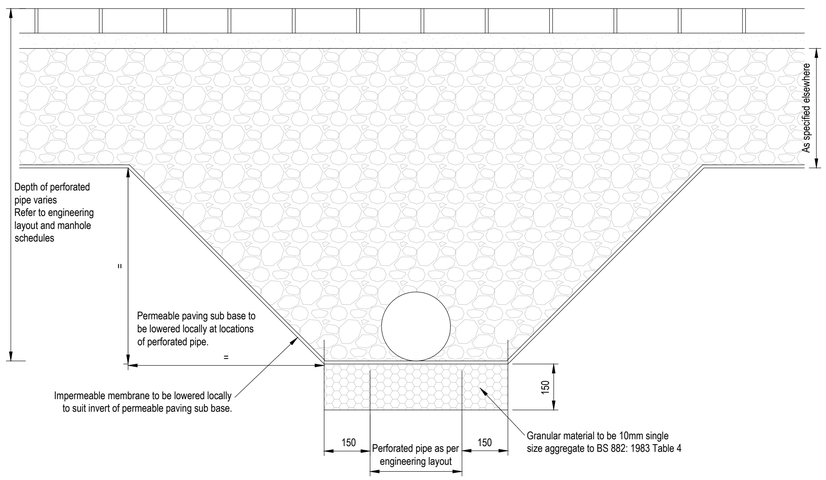


Road Gully Detail

Scale 1:20

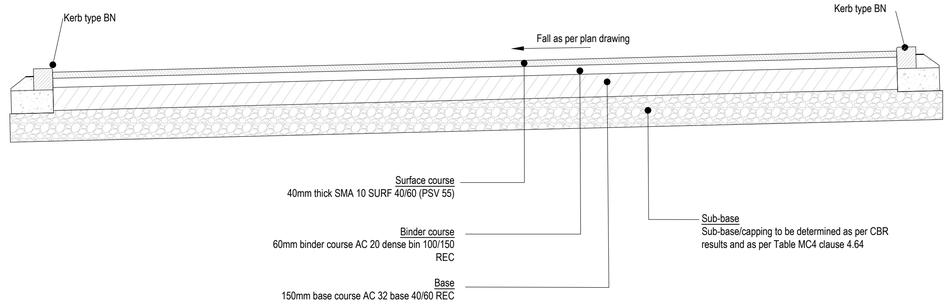
Notes:

1. Gully frame to be set on 10-20mm thick Class 1 cement mortar bed, to Clause 2404.
2. Brickwork - min. one and not more than four courses of Class B engineering brickwork laid square. Change in profile from square to circular to be shaped in Class 1 mortar.
3. Where the gully connection pipe passes under the carriageway the invert of the pipe at the outlet shall be set at least 175mm below formation level. The invert shall be at least 315mm below the top of the sub-base
4. The grating and frame shall be set 5mm below the carriageway surface and flush with the kerb face, any gap to be filled with class 1 mortar.



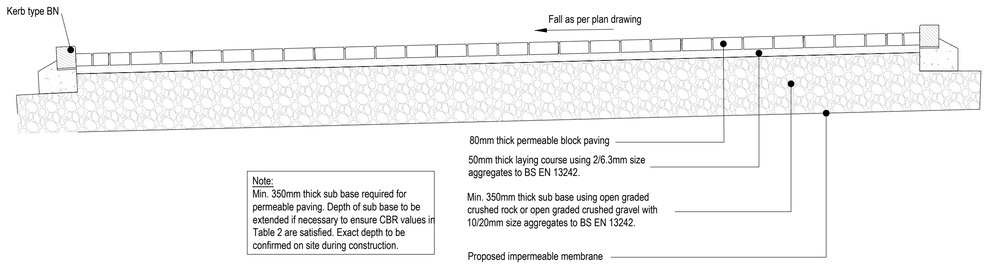
Perforated Pipe Bedding

Scale 1:10



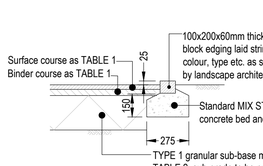
Section through Access Road

Scale 1:20



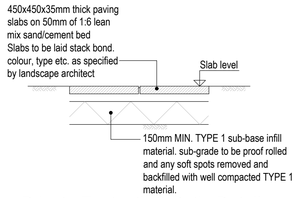
Typical Section through Permeable Paving Road

Scale 1:20



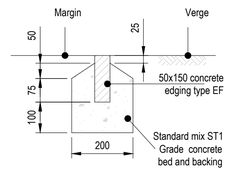
Shared Private Drive

Scale 1:20



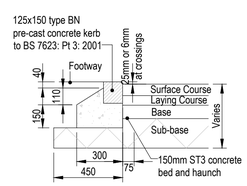
Private Footpath & Patio Details

Scale 1:20



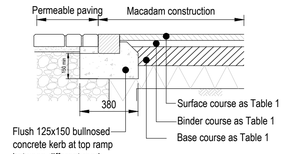
Footway Edging Detail

Scale 1:10



125x150 BN Kerb

Scale 1:20



Transition from Permeable Paving to Asphalt

Scale 1:20

Scale
As Shown

Issue	Notes	Drawn	Approved	Date
P1	Preliminary Issue	AH	PG	30.11.2023

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Drawing Title
Pavement and Drainage Construction Details

Project No.	Drawing No.	Issue
CO23/0201/03	204	P1

PRELIMINARY

Original Sheet Size: A1