Guidance for Developers/Consultants for S38, S184/278 MW

The following guidance below will put you in a good position to gain technical approval on development related highway works

A guide detailing the technical audit process in Warwickshire

New estate roads applications require a Section 38 agreement and works requiring adjustment to the existing highway such as development entrances (temporary/permanent accesses or bell mouths) will require either a S184 or S278 minor works agreement. More extensive improvements to the existing highway are dealt be with by our Engineering Design Service team as a major S278.

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This document aims to assist the production of an acceptable design in keeping with Warwickshire County Council specifications and the time taken during the technical approval process. WCC will expect a developer to appoint a competent consultant to carry out the design.

Step 1:

Application to enter into a highway works agreement

Once full planning approval has been granted the developer or representative may apply to S38admin@warwickshire.gov.uk for a

- Minor works S184 or 278
- S38

Agreement.

An application form will be issued to complete. Please find information on what to submit in your application pack below:

- A completed application form
- payment of the technical audit/review fee
- a copy of your full valid planning decision notice
- all drawings referred to in the planning decision notice
- a copy of the highway extent email (searches@warwickshire.gov.uk)
- a full drawing pack for review (see below)

A drawing pack should include:

Fully labelled PDF & paper drawings 1:200 scale & paper size, with a North point and drawing issue sheet
Hard copies to be sent to Shire Hall, Warwick, CV34 4RL
FAO the WCC engineer once allocated.

S184/278 minor works application (where applicable)

- Site location plan
- Original topographic survey
- Engineering layout
- Highway Construction details
- Legal plan
- Highway General arrangement
- Highway Setting out plan
- Contour plan
- Visibility splay envelope plan

- White lining and signing
- Highway Kerbing plan
- Highway surface finishes
- Highway vertical alignment/Long sections
- Highway Drainage plan (arrows showing direction of flow)
- Gully catchment plan
- Street lighting layout (you will need to contact the WCC streetlighting team to review separately)
- Landscaping plan (you will need to contact the WCC forestry team to review separately)
- Culvert & Headwall details
- Refuse vehicle tracking/swept path analysis

S38 application (where applicable)
Drawings required:

- Site location plan
- Engineering layout
- Highway Construction details
- Highway S38 adoption plan
- Highway General arrangement
- Highway Setting out a plan
- Contour plan
- Visibility plan
- White lining and signing
- Highway Kerbing plan
- Highway surface finishes
- Highway vertical alignment/Long sections
- Highway Drainage plan (arrows showing direction of flow)
- Gully catchment plan
- Street lighting layout (you will need to contact the WCC streetlighting team to review separately)
- Landscaping plan (you will need to contact the WCC forestry team to review separately)
- Culvert & Headwall details
- Refuse vehicle tracking/swept path analysis
- Construction management plan
- Manhole covers
- Street name plates

To enable WCC to assess the S184/278/38 Design Submissions as quickly as possible it is essential that the Developer's Consultant refers to the relevant S278 Submission Checklist for the application pack. This will guide the Developer's Consultant to ensure that they include **all** relevant information/documents within their Technical Submission.

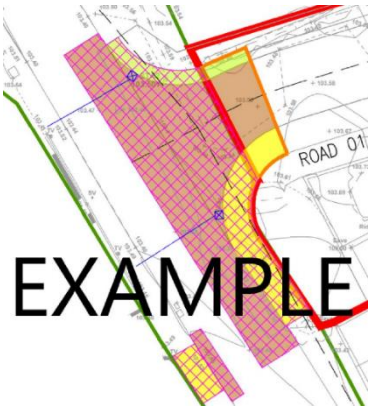
It is therefore in the Developers' and Consultants' interest to ensure all required documents are submitted together, as one, in their S278 Submission Package & the correct fee paid.

Any incomplete submission packages will be returned to the Consultant together with an explanation of the reasons why the Submission is incomplete and hence why the design checking procedure cannot commence.

Legal plan or S38 adoption plan

A highway works agreement requires a drawing showing the following (this drawing should show the road chainage)

Carriageways (asphalt & blocks)	**Brown**
Blockwork	**Brown with cross hatching**
Footways & drive crossings	**Yellow**
Verges and service strips	**Green**
Cycleways (shared or segregated)	**Grey**
Highway drains & gully connections	**Blue**
Land ownership boundary	**Edged red**
Works within the highway	**Edged and cross hatched pink above the carriageway, footway, or verge colouring.**
Highway drainage easement (gully connections)	**Cross hatched blue**
STW drainage easement	**Cross hatched purple**
Existing highway boundary	**Dark Green**
Proposed highway boundary	**Orange**
Proposed street lights	



Step 2:

You will receive initial comments from an engineer on the information and drawings submitted.

Drawing revisions: Please highlight with "Cloud markings" indicating amendments made.

Step 3:

Your revised submission will be reviewed, and any further comments made.

It is at this stage you will be asked to commission a stage 2 road safety audit. You may use an independent company to undertake your RSA, or you may choose WCC to do this. If you choose an independent audit team, both their review and the designer's response to any problems raised will need to be reviewed by the WCC road safety team.
Choosing WCC would reduce any delays as the process is more streamlined.

Step 4:

Once the RSA2 has been carried out a designer's response is required to safety issues raised and will be reviewed by the WCC audit review team. This process is iterative and may require amended proposals from the designer to satisfy the audit issues. Once the RSA2 process is complete amended designs are to be submitted to the engineer for further comment.

Step 5:

Your revised submission will be reviewed, and any further comments made. If no further comments are required technical approval will be granted (subject to any necessary streetlighting approval, ordinary watercourse consent, arboricultural approval**,** S59 survey, and consent for utility companies regarding your proposals and whether their services are to be lowered or diverted).

The bond, inspection fees, and any commuted sums will be calculated.

The agreement will then be sent to WCC legal team to draft and send to your legal representatives for disbursements to be paid and signed.

Step 6:

Once the highway works agreement has been signed and sealed by all parties, you may book your road space with Street Works (S184/278).

The technical review engineer should be informed when works are commencing on site, preferably with one week's notice, so that site inspections can be arranged. Works carried out without inspections by WCC, will be done so at **risk**.

It is an offence to undertake any work within the Highway that the Highway Authority has not approved.

It is emphasised that the WCC Highway Inspector acts solely for the County Council as the Highway Authority and must not be regarded as a Clerk of Works for the Developer.

S59 survey

As part of the s184/278/38, approval, you should be aware that full approval will not be granted until there is clear evidence that they have contacted County Highways with a view to making a s59 dilapidation survey. This will ensure that any remediation, that is required as a result of your construction, on the existing highway will be carried out, by yourselves, prior to adoption. It is recommended to arrange the s59 ASAP chsouth@warwickshire.gov.uk

Technical approval will not be granted without this.

Streetlighting

Please check the lighting levels meet the required standard. You will need a lighting engineer to check this for you.

Please see the link to WCC lighting guide and lighting checklist www.warwickshire.gov.uk/warwickshiredesignguide Warwickshire Design Guide – Warwickshire County Council

If your lighting engineer thinks lighting levels are acceptable given your proposals, you need to obtain/approval confirmation from our WCC streetlighting team.

Note: it is strongly recommended that this is pursued ***early*** by the Developer's Consultant as delayed approval of streetlighting will impact full technical approval.

Utilities

Please note that we require you or your client to ensure the depth of utilities is such they are below the road construction and that the utility companies are happy with the depths.

You must determine the Public Utility apparatus which is in the proposed footway and carriage way.

We require **the utility returns from the developer therefore if utilities need to be lowered, we must see the C4 detailed estimates of diversionary works under NRSWA 1991 New Road Street Act Diversionary Works.**

Note: Technical approval will **not** be granted without this.

Recommended Colour Coding and Depth of Underground Plant

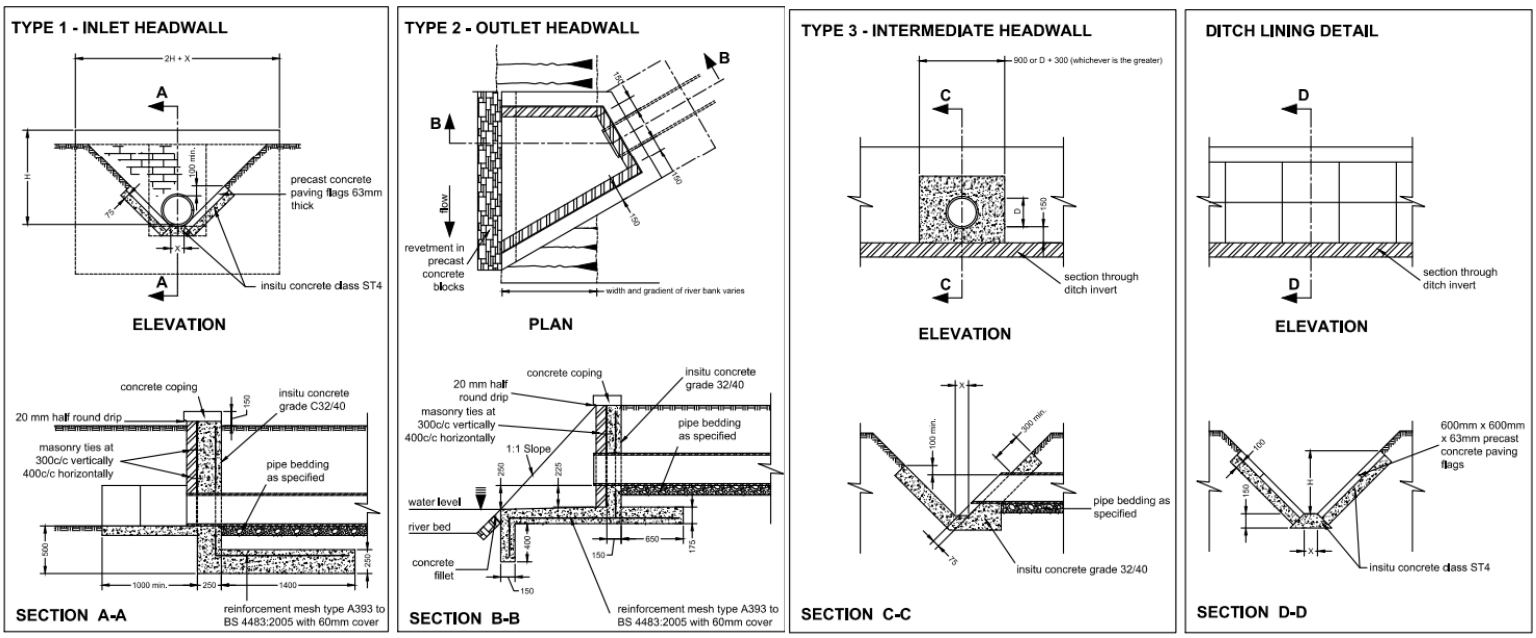
Utility	Duct	Pipe	Cable	Marker Systems	Recommended minimum depth	
					Footway / Verge	Carriageway
Electricity EHV (Extra High Voltage)	Black	N/A	Black	Yellow with Black and Red legend or concrete tiles	750 – 1200mm	750 – 1200mm
Electricity HV (High Voltage)	Black or Red	N/A	Red	Yellow with Black legend	450-600mm	750mm
Electricity LV (Low Voltage)	Black or Red	N/A	Black or Red	Yellow with Black legend	450mm	600mm
Gas	Yellow	Yellow or Yellow with coloured stripes that denote peel able skin. Pipe of various wall thickness	N/A	Yellow with Black Legend	600mm footway 750mm verge	750mm
Water non Potable & Grey Water	N/A	Black With Green Stripes	N/A	N/A	600-900mm	600-900mm
Water - Fire fighting	N/A	Black With Red Stripes or Bands	N/A	N/A	600-900mm	600-900mm
Oil / Fuel Pipelines	N/A	Black	N/A	Various surface Markers	900mm All work within 3m of oil fuel pipelines must receive prior approval	900mm All work within 3m of oil fuel pipelines must receive prior approval
Sewerage	Black or Brown	Typically Clay but can also be: Ductile Iron – Red, PVC may be Brown,	N/A	Red on Black Legend	Variable	Variable
Telecommunication	Grey, White, Green, Black or Purple	N/A	Black/Light Grey	Various	250-350mm	450-600mm
Water - Potable	Blue or Grey	Blue Polymer, Blue or uncoated Ductile Iron. Blue Polymer with Brown Stripe	N/A	Blue with Black Legend	750-900mm	750-900
Street Lighting – England & Wales	Black or Orange* *See Electricity Company first	N/A	Black	Yellow with Black legend	450mm	450mm
Street Lighting – Scotland	Purple	N/A	Purple	Yellow with Black legend or Purple	450mm	450mm
Street Lighting – Northern Ireland	Orange	N/A	Black or Orange	Various	450mm	450mm
Other						
Traffic Control	Orange	N/A	Orange	Yellow with Black legend		
Street Furniture	Black	N/A	Black	Yellow with Black legend	450mm	450mm
Telecommunication	Purple/Orange	N/A	Black	Various		
Motorway and Trunk Roads						
Communication– England & Wales	Purple	N/A	Grey	Yellow with Black Legend		
Communication Power– England & Wales	Purple	N/A	Black	Yellow with Black Legend		
Road Lighting – England & Wales	Orange	N/A	Black	Yellow with Black Legend		
Communications - Scotland	Black or Grey	N/A	Black	Yellow with Black Legend		
Road Lighting - Scotland	Purple	N/A	Purple	Yellow with Black Legend		

Note: Colour coding and depth detailed above shown be confirmed with local utility operator as they may have their own specifications and guidelines.

Watercourse consent

An Ordinary Watercourse is any passage through which water flows which is not part of a main river. This includes rivers, streams, ditches, drains, cuts, culverts, dikes, sluices and sewers (other than public sewers). Warwickshire County Council. As Lead Local Flood Authority, is responsible for consenting works (including temporary works) that affect the flow of an ordinary watercourse.

Main Rivers are typically larger streams and rivers, but some are smaller watercourse of local significance. Main Rivers are managed by the Environment Agency (EA). To identify whether your watercourse is a Main River visit the EA's website and view their flood maps (www.environment-agency.gov.uk).

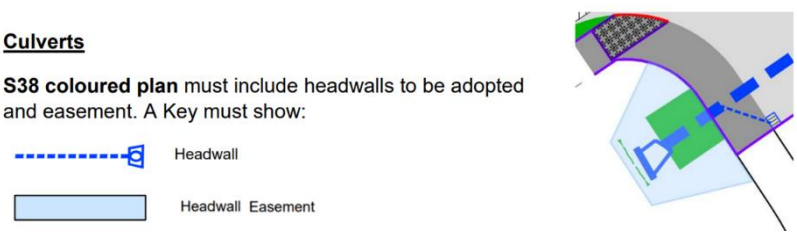


Note: These are separate regulatory process from the S278 Design Audit process and it is strongly recommended that these are pursued ***early*** by the Developer's Consultant if the works are going to impact on either Ordinary Watercourses or Main Rivers.

For any works on or near a Watercourse you should consult with WCC Flood Risk Management Team. We will require evidence of this prior to technical approval. Please see below the link to the guidance and application form for Ordinary Watercourse land Drainage Consent required under section 23 of the Land Drainage Act 1991.

https://www.warwickshire.gov.uk/watercourse

Culverts for ditch – Indicate pipe, headwalls and 3m Easement either side of the headwall on the adoption plan. Include in Key. Culvert details should be in line with WCC drawing F705.1



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A copy of which can be supplied by your engineer or can be downloaded here https://api.warwickshire.gov.uk/documents/WCCC-2066277159-1427

Swale with Gabion headwall at a development in Nuneaton

Arboriculture approval

The WCC Forestry team will review proposals including highway trees, works within a RPA or where shrub vegetation is included. Our arboriculture team can be contacted on forestry@warwickshire.gov.uk

Note: It is of the utmost importance to consult with forest ***early***, as delayed approval of landscaping will impact full technical approval.

Typical public open space example

Traffic regulation orders

A Traffic Regulation Order (TRO) is a legal instrument by which Highway Authorities control the use of the highway. TROs are made under the provisions of the Road Traffic Regulation Act 1984 and are designed to regulate, restrict or prohibit the use of a highway, or any part of the width of a highway, by vehicular or non-vehicular traffic.

TROs are commonly progressed for the following;

- Waiting / parking restrictions
- Speed Limit alterations
- Restricted turns at junctions
- Prohibition of driving
- Weight / width and height restrictions

Implementing a TRO requires a statutory procedure to be followed. This includes; Consultation, advertisement & producing the TRO.

To process a TRO application, the County Council will need to be provided with adequate information to complete the advertisement. Each TRO will require different information, but the following schedule provides guidance on

information requirements. You will be issued with a TRO application to be completed and it will be useful to provide a TRO pack including:

- Scheme drawing showing full scheme of highway works, and clearly identifying the Order sought (including relevant details)
- Clear Traffic Regulation Order Location Plan
- Draft Order Schedule (text format)
- Relevant supporting data (Speed data / accident reports etc)

A TRO fee will need to be paid.

As each TRO is different it is difficult to provide timescales. On average a TRO will take around 12-18 months.

Our TRO team can be contacted on chminorworks@warwickshire.gov.uk

Temporary Traffic regulation orders

Temporary Traffic Regulation Orders (TTROs) follow a similar process.

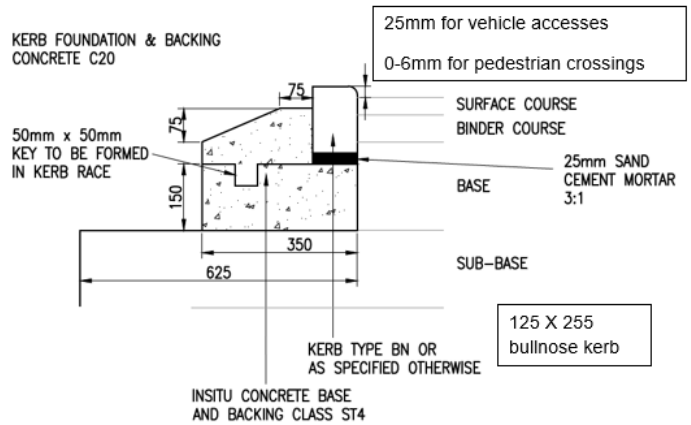
For TTROs please contact our Street works team streetworks@warwickshire.gov.uk

Note: it is strongly recommended that this is pursued ***early*** by the Developer's Consultant. **The relevant fee and paperwork for Traffic Regulation Orders needs to be submitted prior to technical approval.**

Warwickshire construction details S184/S278mw & S38

Kerb details

BN Kerb 125x255



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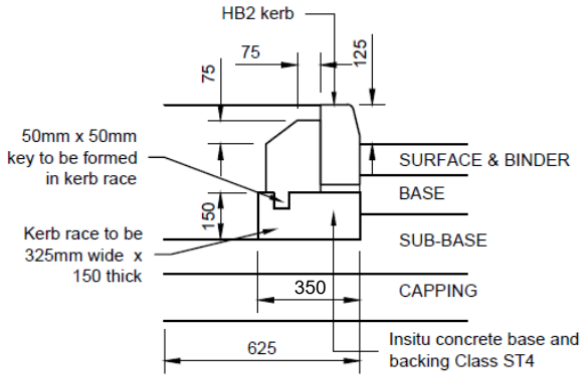
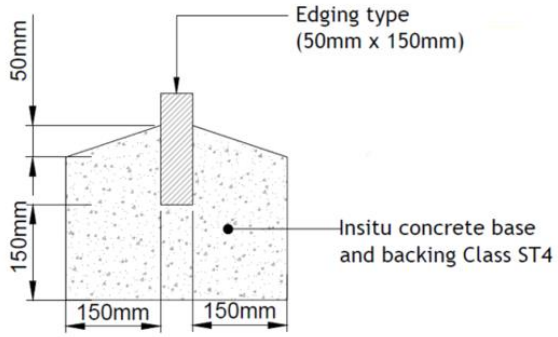
HB2 Kerb 125x255



Kerb Type HB2

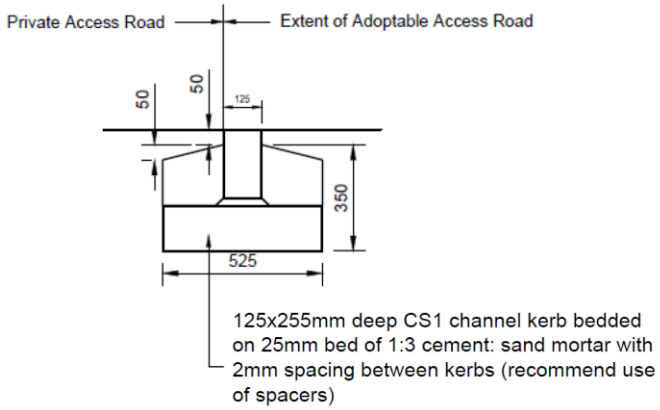
125x255mm Half batter kerb, bedded on 25mm bed of 1:3 cement: sand mortar with 2mm spacing between kerbs (recommend use of spacers)

EF edging Kerb 50x150



Edging Detail

CS1 Kerb 125x255



Straight Channel
Type 125 x255 CS1 (Laid Flush)

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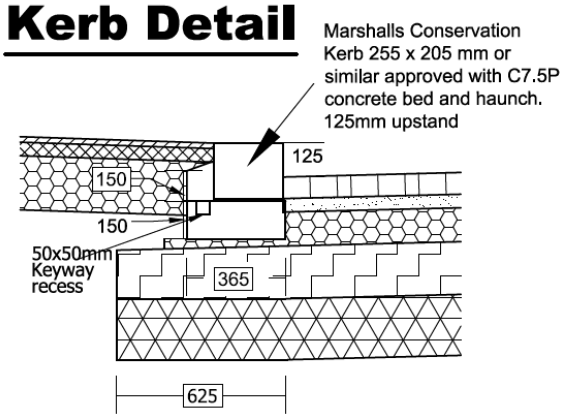
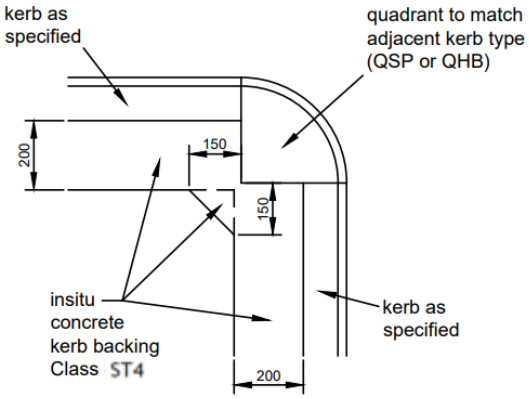
Conservation Kerb Detail

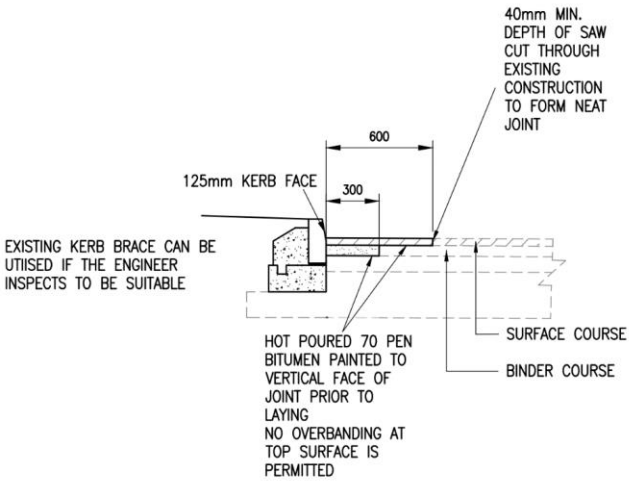




QUADRANT DETAIL

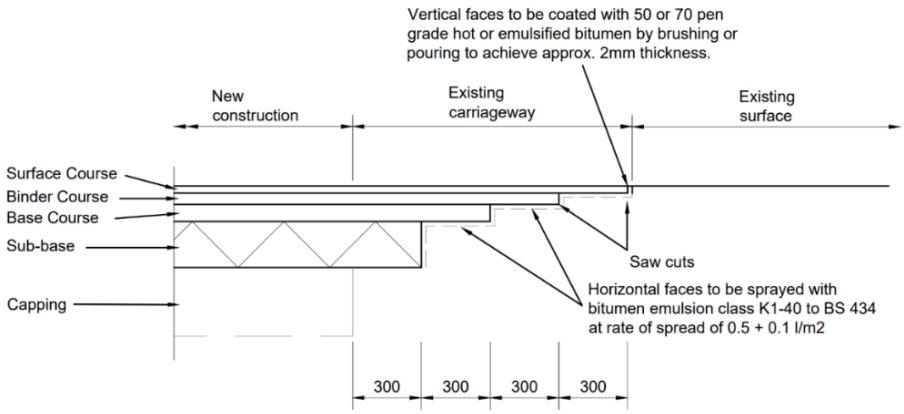
Tying in details

Around new kerbs



TYPICAL CARRIAGEWAY REINSTATEMENT AROUND NEW KERBS

Carriageway



Carriageway Tie-In Detail

Extents of carriageway tie-in and resurfacing to be confirmed on site by the WCC highway inspector

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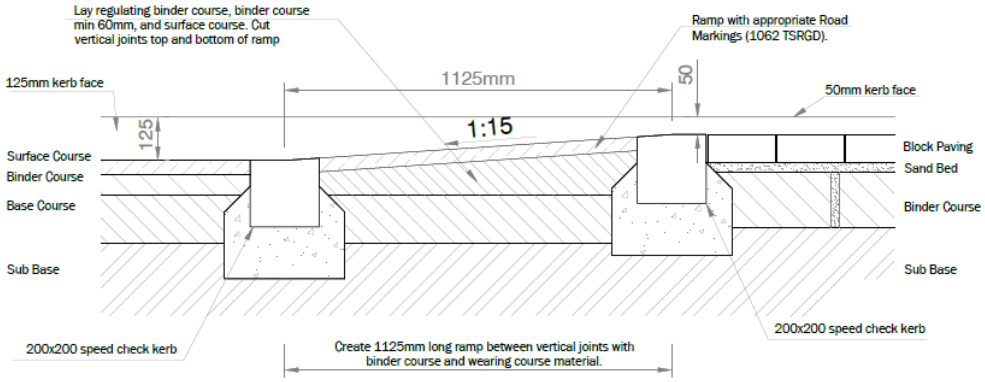
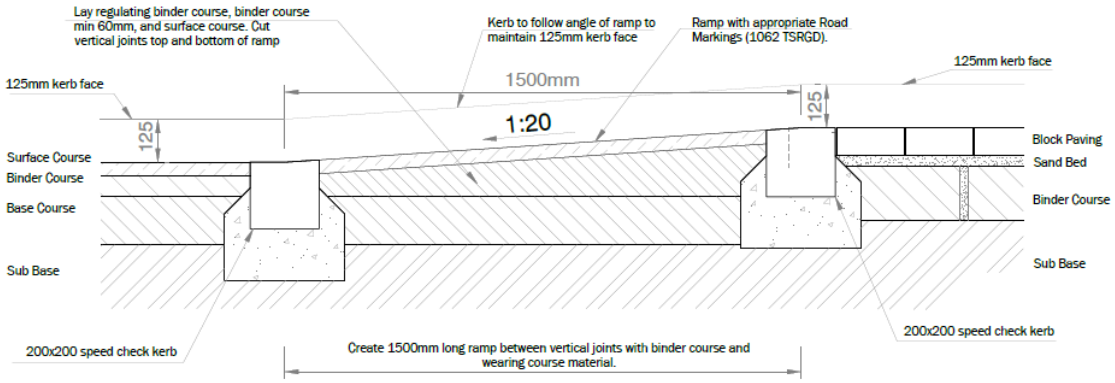
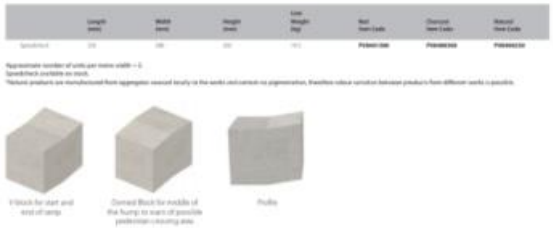
Ramps



Speed Ramp Construction (Domestic Vehicles)



Speed Ramp Construction (Bus Route)



Speed check blocks - Marshalls or similar

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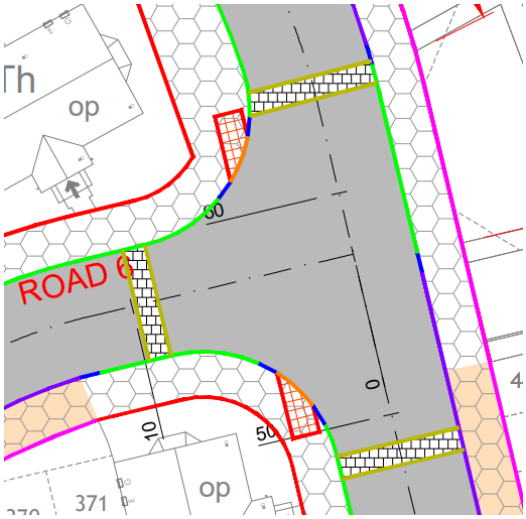
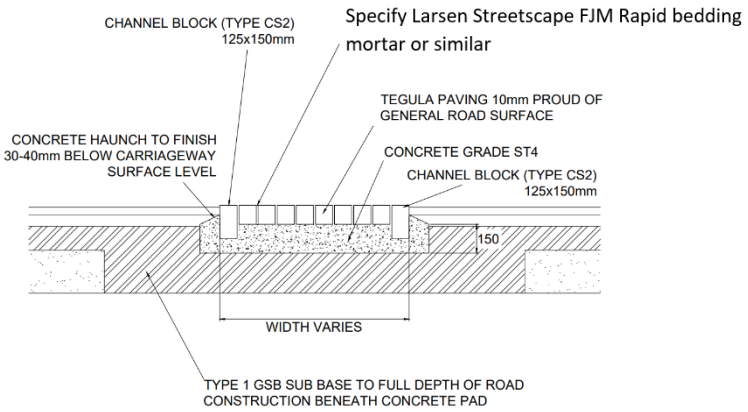
Change of surface 'features'

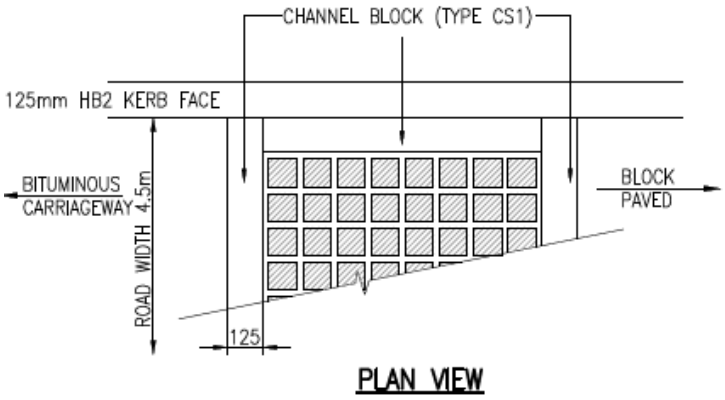
A flush feature in the carriageway with a CS2 kerb/tegula/CS2 kerb for a 'rumble' strip at these junctions.





Rumble Strip Construction Details

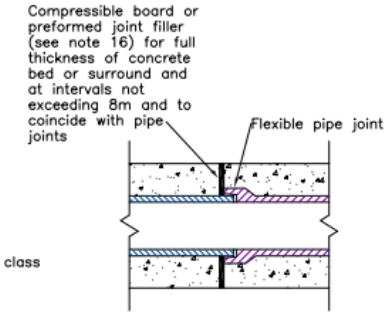
Specify Larsen Streetscape FJM Rapid bedding mortar or similar



PLAN VIEW

Drainage

Drainage – Pipe Concrete Protection & Joints



Thickness of Joint filler board shall be 18mm

EXPANSION JOINT FOR CONCRETE
(Bed or surround)

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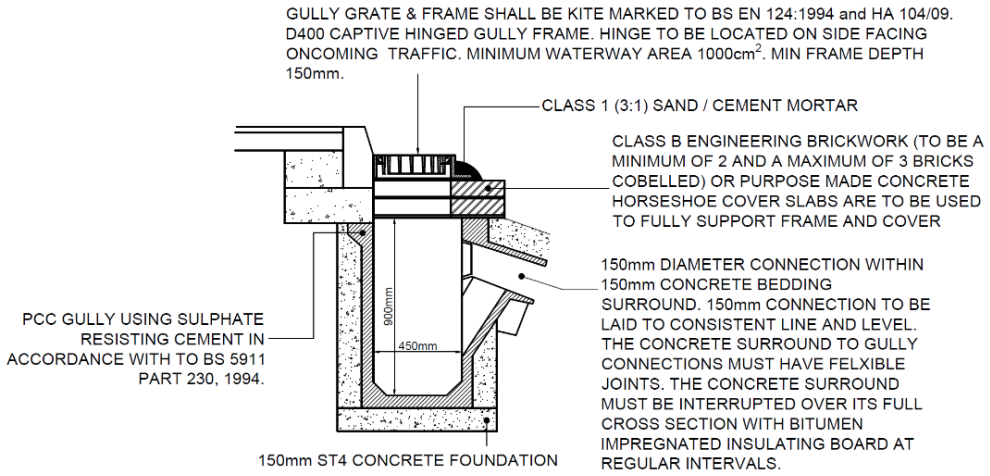
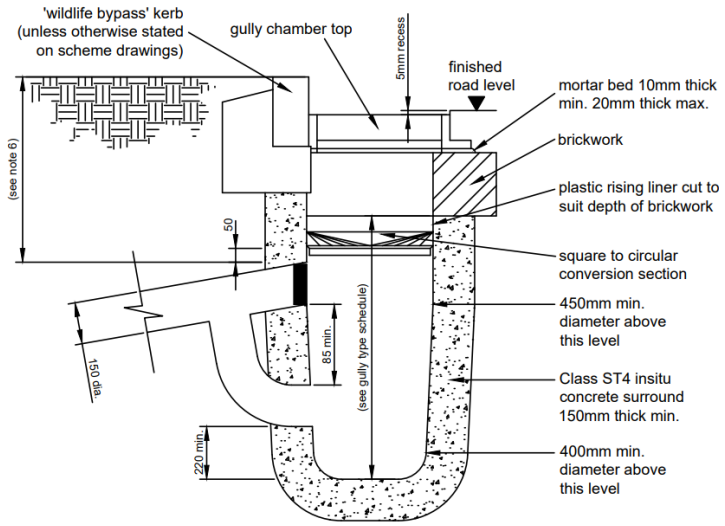


PRE-CAST CONCRETE KERB INLET GULLY



PLASTIC GULLY WITH INSITU-CAST CONRETE SURROUND

Prior to surface course: CCTV survey of gully connections into main run and any adoptable Highway Drainage will be requested by the Engineer.

Drainage

1. Please provide double gullies, each with own connection, at the low points and the end of carriageways.
2. Please ensure that no private drainage outfalls onto the adoptable highway and vice versa.
3. Is there any highway drainage to be adopted other than the gully connections?
4. Please provide evidence of S104 Agreement with Severn Trent Water including associated layout plans.

Uncontrolled pedestrian crossings

Marshalls or similar approved buff coloured blister block paving. These concrete block paving units are capable of withsatnding vehicular overrun from the heaviest loads on the roads.

The tactile paving arrangement for “inline” crossings should extend backwards from the kerb 1200mm deep at the shortest side with “EF” edging surround.

- The tactile arrangement must be installed in line with each other. The construction of the tactile should be:

200 x 133 x 60 mm buff coloured blister block paving.

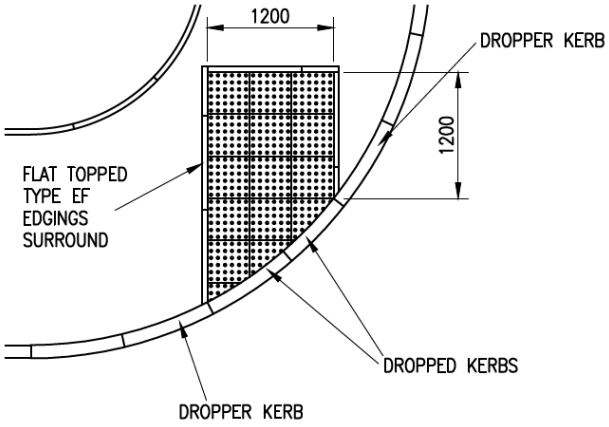
25mm thick class 2 cement mortar bed.

75mm thick compacted layer of ST4 concrete base.

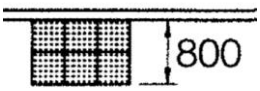
150mm thick compacted layer of Type 1 sub base.

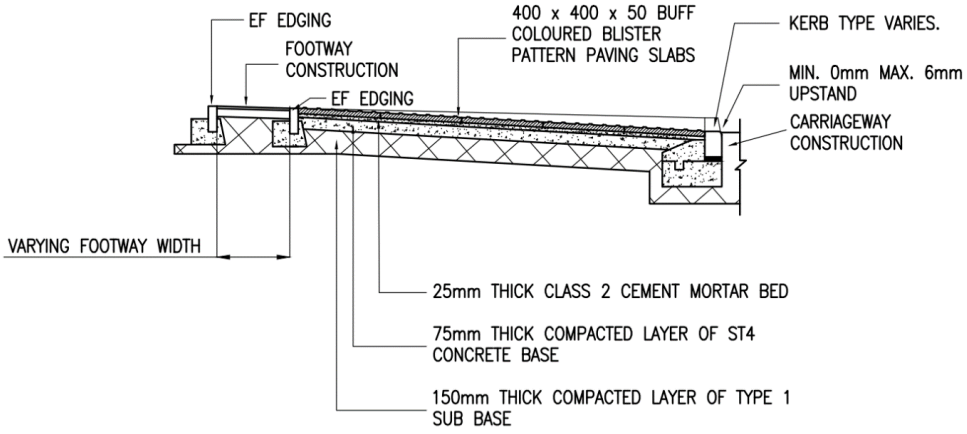
Flat top edgings to surround paving.

Bullnose dropped kerbs upstand 0mm to 6mm.



- For “offline” crossings only 800mm deep tactile are required.





TYPICAL SECTION THROUGH PEDESTRIAN CROSSING POINT

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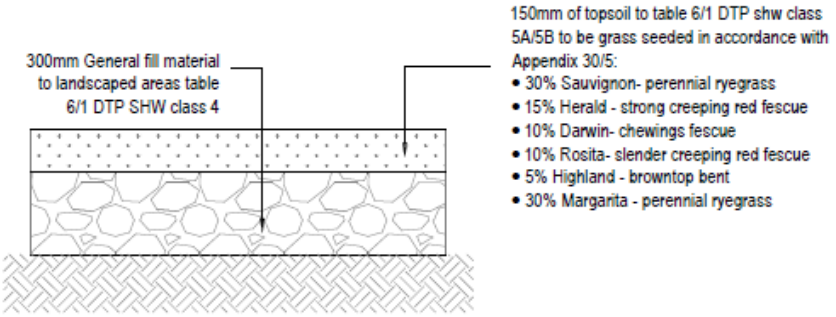
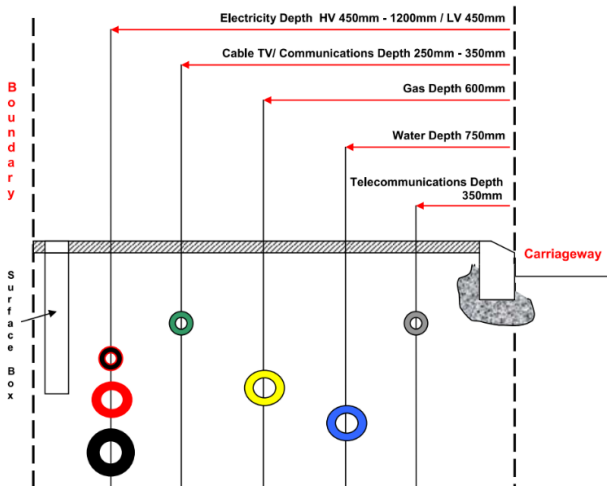
Verge



VERGE AND LANDSCAPE AREAS

Service margins

The service margin is a strip of land, approximately 1-2m wide, where the respective utility companies lay their apparatus. Utilities' equipment and apparatus, such as telecommunication cables, gas pipes, water pipes and electricity cables are buried at varying depths and locations within the service margins. A typical layout and content of service margin is shown:



It is necessary to always demarcate any service margin from its adjoining private land.

All service margins shall be edged at the back and ends (where it adjoins any private/nonadopted land) with a concrete or composite (conservation edging) secured with a suitable sub-base and concrete haunch. Permissible surface courses for all service margins are:

• Grass – Newly laid turf, or topsoil and seed

• Block paving – of an agreed style and finish, laid to the Local Authorities design specification for footways and/or vehicular crossovers.

• Bituminous Macadam – of an agreed specification, laid to the Local Authorities design specification for footways and/or vehicular crossovers.

Examples – Acceptable

Fig. 6 – Grass

Fig. 7 – Block Paving

Fig.8 – Suitable Planting

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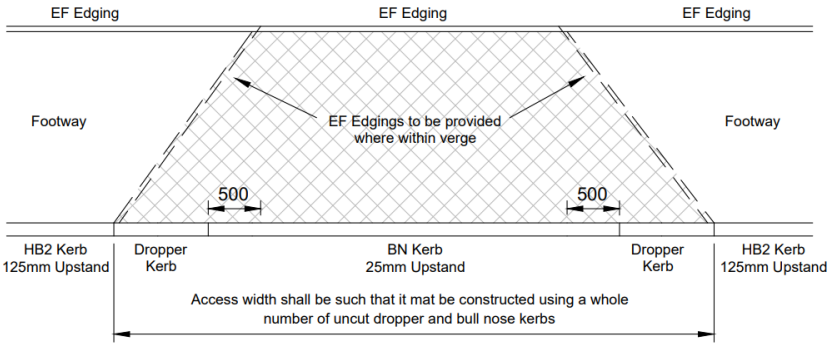
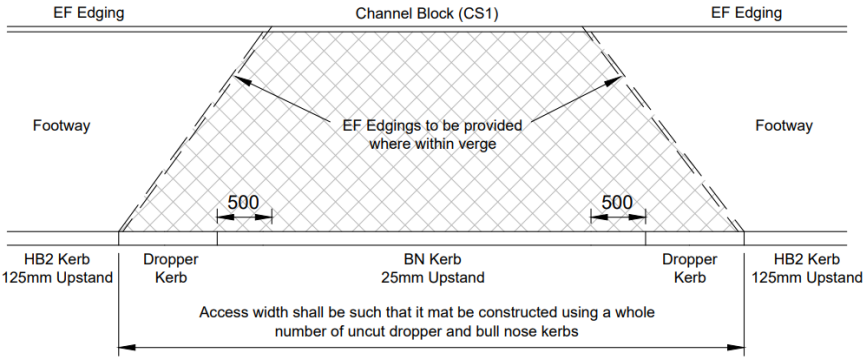
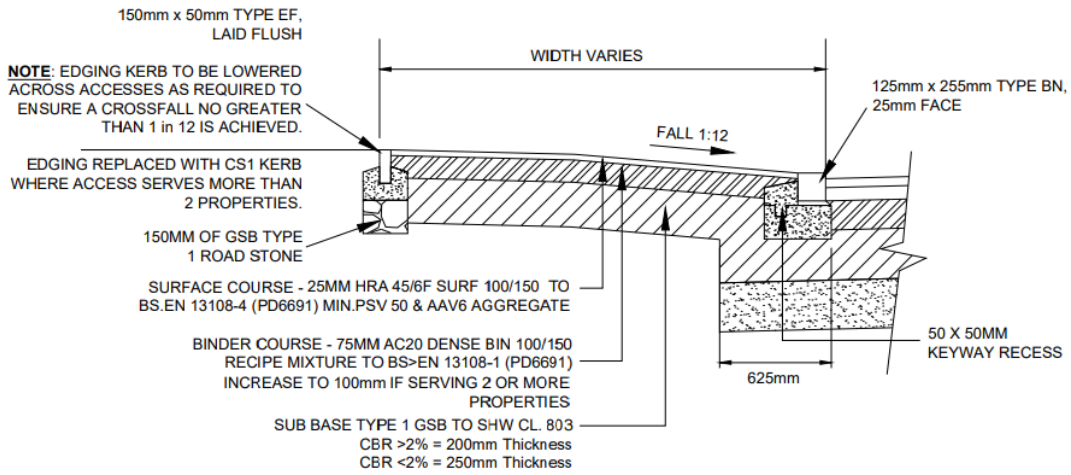


TYPICAL VEHICLE ACCESS DETAILS
(SINGLE VEHICLE)



TYPICAL VEHICLE ACCESS DETAILS
(2 OR MORE VEHICLES)

For long lengths of driveway parking, it may be necessary for the back edging to be dropped 100mm.

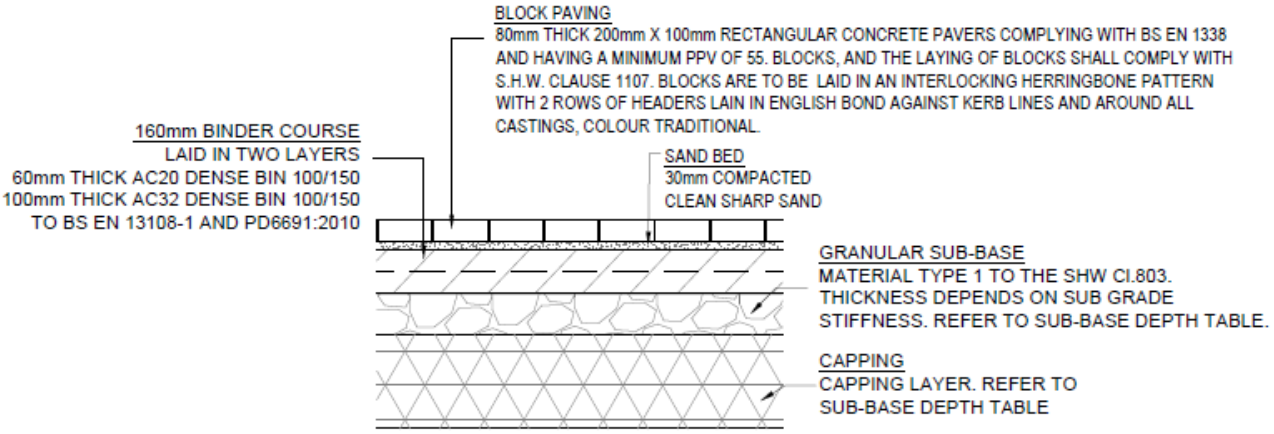


Vehicular Crossing Construction

Working for Warwickshire

Block paving

Segmental paving may be permitted for these roads with the following provisos: only rectangular pavers 200 mm x 100 mm and 80 mm thick in accordance with BS EN 1338 or BS EN 1344 are permitted. The paving shall be carried out in accordance with BS 7533. Special shaped blocks may not be used as they are impossible to re-lay satisfactorily after they have been removed to gain access to underlying services. Pavers shall be laid in a 45º herringbone pattern as shown in the ADEPT guidance on surfacing. Great care must be taken that the bedding material (sand) is well and permanently drained as any water logging of the sand with ensure rapid failure as the sand can no longer support the traffic loads. The minimum requirement for draining the sand with 30mm holes through the asphalt layers at 1m centres in each direction. These core holes shall be filled with 2.36/6 mm single size chippings and covered with Terram 1000 or similar prior to spreading the bedding sand.



CARRIAGEWAY CONSTRUCTION - BLOCK PAVING

Colour to be agreed with the Engineer.

Construction depths

Footway Construction (or single crossover)
Surface course 25mm compacted thickness of HRA 45/6C surf 100/150 to BS EN 13108-4
Binder course 75mm compacted thickness of AC 20 dense bin 100/150 to BS EN 13108-1
Sub base: CBR >2% - 200mm compacted thickness of Type 1 sub base.
CBR <2% - 250mm compacted thickness of Type 1 sub base.

Footway/ Crossover Construction (2 or more properties)
Surface course 25mm compacted thickness of HRA 45/6C surf 100/150 to BS EN 13108-4
Binder course 100mm compacted thickness of AC 20 dense bin 100/150 to BS EN 13108-1
Sub base 250mm compacted thickness of Type 1 sub base.

7.8 *6.7 m and 6.1 m wide roads*

Table 7.2

Layer	Thickness	Material
Surface Course	40 mm	Hot Rolled Asphalt 55/10F surf 100/150 to BS EN 13108-4 (PD 6691) with a PSV_{60} and AAV_{10} aggregate
Binder course	60 mm	AC 20 dense bin 100/150 recipe mixture to BS EN 13108-1 (PD 6691).
Base	150 mm*	AC 32 dense base 100/150 recipe mixture to BS EN 13108-1 (PD 6691)

* If the developer wishes to lay the base in two layers then AC 20 dense bin 100/150 may be used in place of the AC 32 dense base 100/150

7.9 *5.5 m wide and narrower roads and areas with shared use*

Table 7.3

Layer	Thickness	Material
Surface Course	40 mm	Hot Rolled Asphalt 55/10F surf 100/150 to BS EN 13108-4 (PD 6691) with a PSV_{60} and AAV_{10} aggregate
Binder course	60 mm	AC 20 dense bin 100/150 recipe mixture to BS EN 13108-1 (PD 6691).
Base	125 mm*	AC 32 dense base 100/150 recipe mixture to BS EN 13108-1 (PD 6691)

* If the developer wishes to lay the base in two layers then AC 20 dense bin 100/150 may be used in place of the AC 32 dense base 100/150.

Capping and Subbase:

CBR	Total sub-base thickness (nominal)	W sub-base	Type 1 or 3 Sub-base or bituminous road planings (type 2)
%	mm	mm (minimum)	mm (maximum)
<2 (Lias clay)	750	600	150
2-5 (Keuper Marl)	500	350	150
5-15 (non-plastic sands)	300	150	150
>15 (non-plastic gravels)	200	0	200

If there is no PI testing carried out, then a 600mm W150 capping shall be assumed.

CBRs

UKAS accredited companies to be used and carry out the CBRs at formation level with a **WCC engineer present**. Please contact your allocated engineer to arrange their attendance.

If using a rig it should be a non-axel static load with a minimum 20 tonne surcharge.

Dynamic cone penetrometer (DCP) may be acceptable, discuss with WCC engineer.

It is not acceptable to produce the CBR/DCP test results from the initial geotechnical assessment undertaken as these are a guide only.

For any schemes constructed prior to agreement of CBRs, capping and subbase several trial holes with be required to verify the construction and allow CBR & PI testing to be undertaken.

Table 2.2 Design CBR

Soil type	PI	Construction period	
	%	Winter	Summer
Heavy Clay (typically Lias)	70	1.5	2
	60	1.5	2
	50	1.5	2
(typically Mercia mudstone (marl))	40	2	2.5
Silty Clay	30	2.5	3
Sandy Clay	20	2.5	4
	10	1.5	3
Silt		1	1
Non-plastic Sands		10	20
Sandy Gravels		20	40

PI is plasticity index - see BS 1377:1990

Winter end of October – end of March

Longitudinal Gradients and vertical alignment

1: 20 maximum for no more than 30m length

1:50 maximum, for a distance of 15m along all approaches to junctions

Any issues achieving these gradients or close to them should be brought to the attention of the technical review engineer with a proposal to mitigate any issues.

Type 3b: Secondary Distributor Roads	
Road Width	6.7m – Bus route with on street parking 6.1m – Bus route no on street parking
Dwelling Limits	No defined limit but could be limited based on site specific constraints.
Design Speed	20mph
Shared Surface Acceptability	Not acceptable
Footway width	Absolute minimum of 2m (on each side of road). To increase in accordance with Warwickshire County Council requirements in areas of high footfall or shared cycle routes.
Verge/Service Margin Width	3m minimum
Crossfall	1:40
Longitudinal Gradients	1: 125 minimum 1: 20 maximum for no more than 30m length 1:80 minimum in blockwork 1:50 maximum, for a distance of 15m along all approaches to junctions
Vertical Curves	Minimum 'K' value of 6 Minimum length of curve – 25m
Pedestrian Visibility	2.4m x 2.4m
Horizontal Layout	The centre line radii, along with turning heads and shared surface streets, shall be prescribed by the swept path analysis of the relevant

	refuse vehicle used by the Local Planning Authority.
Speed Restraint Centres	Maximum of 70m
Vertical Heights	3m – the prescribed minimum effective height above ground level for any tree canopy within or overhanging a visibility splay.
Direct Vehicular Access	No

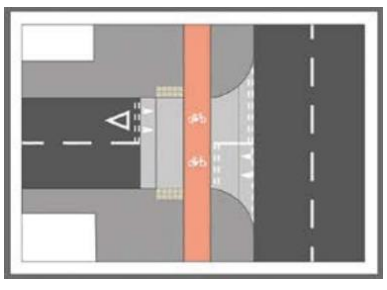
Type 4a: Link Road	
Road Width	5.5m
Dwelling Limits	Up to 500 (no more than cumulatively 150 from a single point of access)
Design Speed	20mph
Shared Surface Acceptability	Not acceptable
Footway width	Absolute minimum of 2m (on each side of road).
Verge/Service Margin Width	1.5m minimum
Crossfall	1:40
Longitudinal Gradients	1: 125 minimum 1: 20 maximum for no more than 30m length 1:80 minimum in blockwork 1:50 maximum, for a distance of 15m along all approaches to junctions
Vertical Curves	Minimum 'K' value of 4.5 Minimum length of curve – 25m
Pedestrian Visibility	2.4m x 2.4m
Horizontal Layout	The centre line radii, along with turning heads and shared surface streets, shall be prescribed by the swept path analysis of the relevant refuse vehicle used by the Local Planning Authority.
Speed Restraint Centres	Maximum of 70m
Vertical Heights	3m – the prescribed minimum effective height above ground level for any tree canopy within or overhanging a visibility splay.
Direct Vehicular Access	Yes; where demonstrably safe with turning space within a private drive to allow for a vehicle to re-enter the public highway in a forward gear.

Type 4b: Local Access Roads	
Road Width	5.0m
Dwelling Limits	Up to 50 (emergency point of access may be necessary for cul-de-sacs)
Design Speed	20mph
Shared Surface Acceptability	Not acceptable
Footway width	Absolute minimum of 2m (on each side of road. A footway may be substituted for a service verge in approval with Warwickshire County Council).
Verge/Service Margin Width	1.5 minimum
Crossfall	1:40
Longitudinal Gradients	1: 125 minimum 1: 20 maximum for no more than 30m 1:80 minimum in blockwork 1:50 maximum, for a distance of 15m along all approaches to junctions
Vertical Curves	Minimum 'K' value of 4.5 Minimum length of curve – 25m
Pedestrian Visibility	2.4m x 2.4m
Horizontal Layout	The centre line radii, along with turning heads and shared surface streets, shall be prescribed by the swept path analysis of the relevant refuse vehicle used by the Local Planning Authority.
Speed Restraint Centres	Maximum of 70m
Vertical Heights	3m – the prescribed minimum effective height above ground level for any tree canopy within or overhanging a visibility splay.
Direct Vehicular Access	Yes

Shared Surface Roads and Homezones are no longer accepted.

Shared footway/cycleway schemes

LTN1/20 sets out the minimum standards for Local Authorities and Highway Engineers when implementing new cycle infrastructure and includes but limited to cycle crossings and junctions, cycle lanes, cycle tracks, cycle networks and of course cycle parking.



Please refer to LTN1/20 for design guidance.

For junctions at side roads the preference is for a partial set back at the cycle priority crossing:

LTN1/20 – Cycling

Root barrier

For cycleway/footways in close proximity to heavy vegetation, hedge rows and trees. Helps to stop ground movement pulling the concrete and edgings causing extensive longitudinal cracking.

Using the root barrier will prevent this situation and the need for constant resurfacing.

ROOT BARRIER

PRODUCT: ReRoot 1000, product reference RER1000A, supplied in 10m long segments which will require jointing with ReRoot Joint Tape, product reference RERJTA. Root barrier and tape are manufactured by Green Blue Urban. www.greenblue.com 01580 830800.

TRENCH: Trench to be 300mm width minimum, contractor to make assessment of excavated material on site and to size trench accordingly to allow safe access for installation of 1000mm deep root barrier. Bottom of trench to be level.

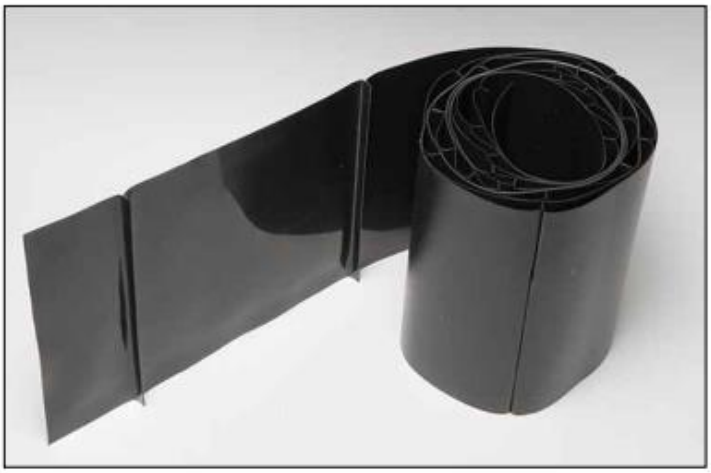
JOINTING: When jointing segments of ReRoot the following must be adhered to.

- Only use an approved ReRoot jointing tape. (RERJTA)
- Ensure barrier surfaces are clean and dry.
- Overlap the barrier by 300mm minimum.
- Apply tape over the join in a continuous length.
- Tape the joint down both sides of the barrier.
- After applying the tape make sure it is firmly attached without wrinkles and or air pockets which could allow a fine root hair through.

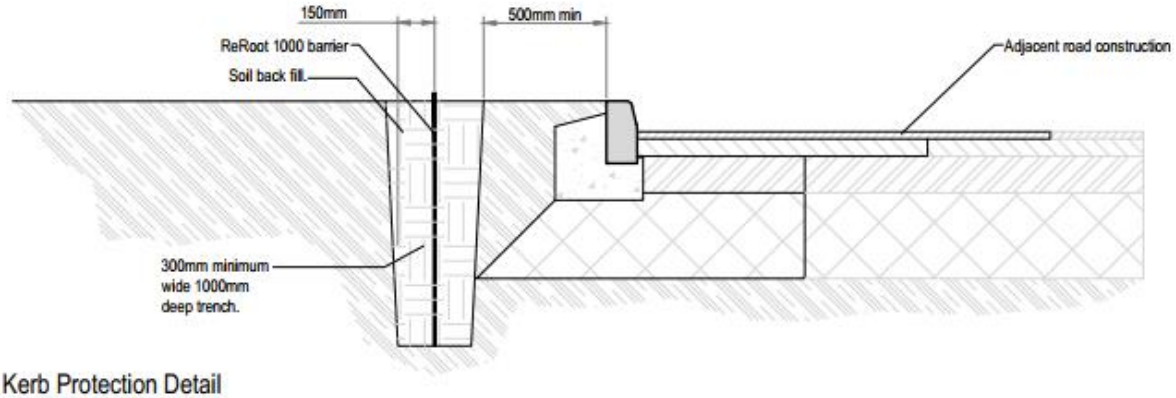
It is recommended to join the barriers on a firm level surface and once joined then lowered into the prepared trench and back filled.

INSTALLATION: For linear installations, care must be taken to ensure that the barrier is kept vertically upright in the trench when backfilled. If a slope is unavoidable then the top edge should slop very slightly towards the tree. It is important that the ribs face inwards towards the tree roots. The top edge of the barrier must protrude slightly above FFL but not more than 20mm. ie 5-10mm.

BACK FILL: Minimum 150mm of soil, clean of any roots, to be installed between the inside face of the barrier (ribbed side) and the edge of the trench. Soil or granular material to be installed to rear of barrier. Back fill both sides simultaneously in lifts of 150mm.



ReRoot 1000A Image



Kerb Protection Detail

Scale 1:20

Structures

Any structures to be adopted as part of the scheme will need approvals with our structures team and there will be additional charges for the AIP.

Commuted Sums

Any non-standard assets require a commuted sum for the maintenance in excess of the standard requirement in order to keep the highway in a safe and functional state.

WCC currently request commuted sums against the following assets:

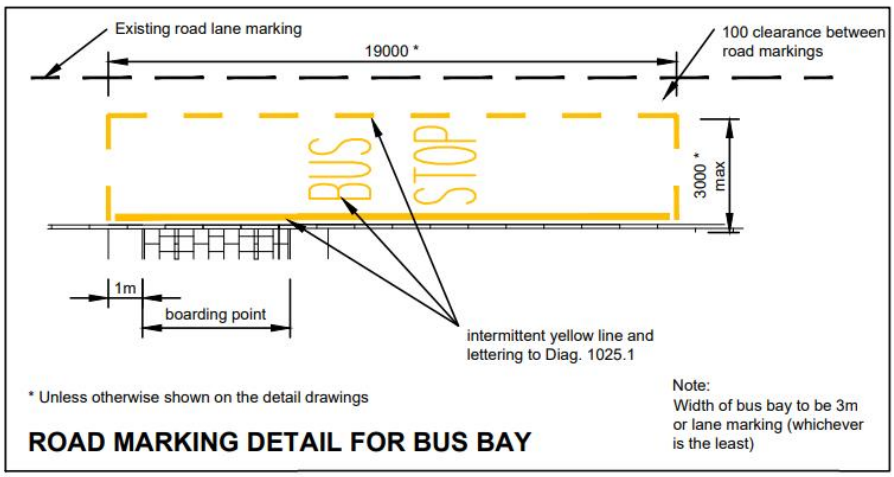
- Structures
- Soakaways
- Areas of special surfacing (for example block paving, coloured tarmac)
- Areas of special landscape/including trees
- Special street lighting installations
- Special street furniture (for example bollards)
- Noise fencing
- Sustainable drainage systems (SUDs)

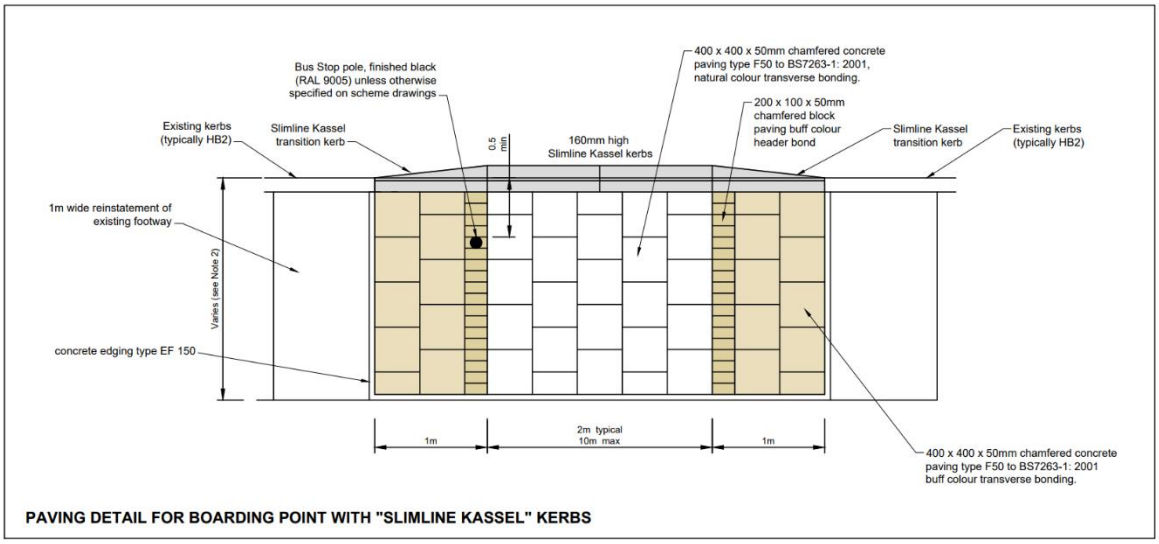
This list is not exhaustive.

Payment of commuted sums will be required prior to issue of final certificate of completion.

Bus Stops

The requirement for bus stops will be outlined in the conditions of the planning approval. The positions must be detailed on plans submitted for technical review.





Where Bus shelters have been specified please use:

- A 3-bay Cantilever bus shelter with a barrel roof and half end polycarbonate panels on either side;
- The bus shelter to be provided with perch seating and a double royal size display case attached to its interior; and
- The bus shelter, roof, perch seating and display case are to be provided in colour Black RAL 9005.

Surface Preparation best practice

If the binder course has been down for some time, been heavily trafficked and has become polished it may be necessary to scarify to avoid delamination of the surface course.

Prior to any tack or bond coat being applied, the previous layer must be clean and free from dust and detritus in order to ensure good adhesion. The

appropriate time must be allowed from application of tack coat and laying of asphalt (consistent with the time necessary for any emulsion to break unless an integral sprayer is used) and stopping of any trafficking of the coat not directly necessary for laying the asphalt.

5.2.5 Adhesion

Adhesion between two materials depends on the surface energy and the area of contact, which will be reduced by any detritus present

Design advice	Materials advice	Laying advice
• Inadequate bonding between layers can result in delamination (debonding) followed by longitudinal wheel-path cracking, alligator cracking and potholes.	• A bond or tack coat should have adequate stability and viscosity to properly penetrate the surface onto which it is applied.	• Tack or bond coats should be applied to areas that can be covered by the same day's paving.

Extract from RN42

Things to avoid

Laying Bitmac on slurry sub-base

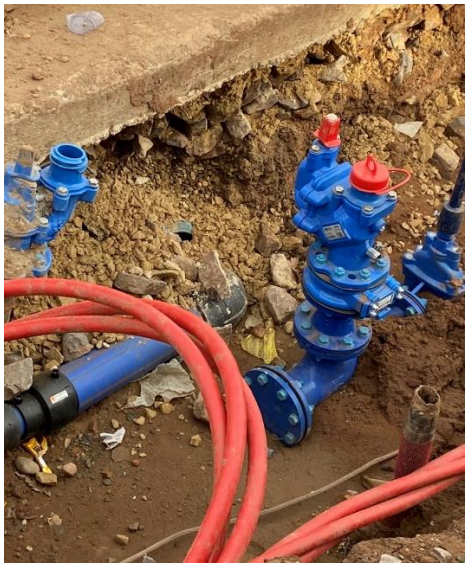
EF edging should not be placed within driveway

Poor workmanship around gully

Hedges should not be placed within the visibility splay

Utility covers should not be placed within the tactiles

Lack of backing on edging



Misplacement of utilities caused undermining of the footway

Please contact s38admin@warwickshire.gov.uk for any correspondence regarding your application.