

BITUMINOUS SURFACING MATERIALS

Many of the County's roads and footways are surfaced with bituminous material or 'black top' and this is an entirely appropriate and traditional product.

Originally, the vast majority of roads in Suffolk would have been consolidated earth reinforced with local stones, flint and gravel. Tar was then used to bond crushed stone together to form a smooth surface. With the rapidly increasing demands of vehicular traffic the use of bituminous based materials became almost universal for roads in both rural and urban areas, particularly with the use of surface dressings.

In general, the majority of surfacing on roads is machine laid. Contractors will charge by the weight of materials or the area to be laid. Materials laid by hand should be avoided and only considered on footways and areas of road inaccessible by a machine. Hand laying large areas can produce a varying degree of surface irregularities. Laying small areas on either road or footways will be more expensive when compared to larger areas because of the set up costs of equipment, transport and labour.



Historic photographs illustrate the simplicity of surface treatments as shown here in Wickham Market

Extensive use of bituminous surfacing for both footways and carriageway, in busy areas such as town centres, can create a lack of contrast between the two. This can cause conflict between pedestrians and vehicles. In order to improve these areas other materials should be considered for use alongside black top to give clear messages to the highway users.



The use of blacktop can be appropriate in many locations but it can emphasise the dominance of motor vehicles

In sensitive areas such as conservation areas or in the vicinity of listed buildings, the widespread use of bituminous finishes is sometimes inappropriate as the material may not complement or enhance the character of these important historic locations. The use of alternative products such as gravel surface dressing or stone paving should be considered especially in the more important spaces such as squares or along the main streets.

In some rural or village environments black top can be appropriate however given its low key nature.



In Easton a simple blacktop footway is enhanced by the grass verge and granite setts forming the kerb



A mix of surface dressing and wearing course with exposed gravel aggregate was used in order to improve the space for pedestrians at The Hill, Wickham Market

The appearance of black surfaces can be 'modified' by surface dressing or by specifying particular additives or aggregates in the mix. (For further advice on the use of surface dressing in enhancement schemes, see the Suffolk Surface Dressing Manual).

Traditionally, many of the roads and footways in the County would have been constructed using a gravel aggregate. However, its use on the carriageway is restricted because of its poor skid resistance and its durability in comparison with crushed rock aggregates.

The use of gravel in surface courses is only acceptable in areas where traffic speeds are sufficiently low and issues of durability are adequately addressed. Where it has been used in some enhancement schemes, clear epoxy coated gravel has been rolled into the gravel based surface course to provide an instant effect. Over time the gravel in the asphalt will 'wear' through further enhancing the surface.

The choice of stone colour to be applied to the wearing course surface or within the asphalt itself can have a significant impact on the visual appearance of the surface: both gravel and pink granite give a warm effect in contrast to blue or grey stone.

In the north east of the County, including Lowestoft, it is traditional to use limestone aggregate in the wearing course, especially for pavements. Over time, with wear, this produces a much lighter grey surface.

When adding aggregates to surface courses care should be taken that any reinstatements follow the original specification, otherwise patches will be clearly visible.

In general the use of pigments should be avoided; they are rarely appropriate, especially in sensitive areas because they often weather poorly and can cause maintenance problems.

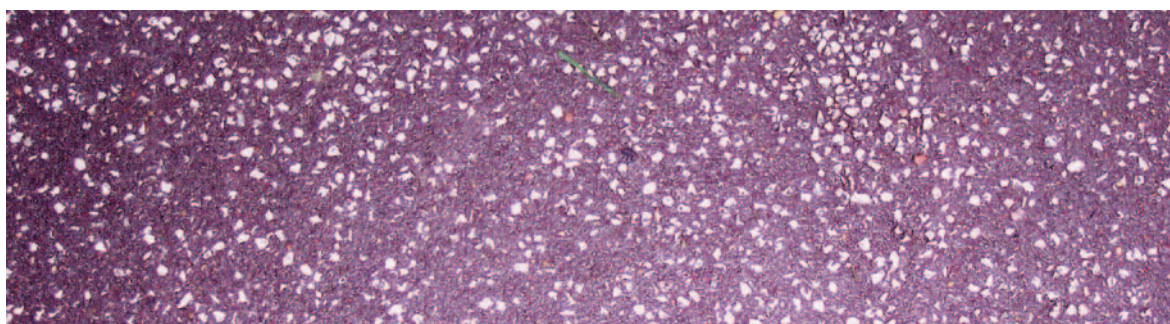
Stone colour can have a significant impact on the appearance of black surfaces:



Gravel



Red granite



Limestone

Technical Information

1. There are three principle surfacing materials used in Suffolk. Hot Rolled Asphalt (HRA), Dense Bituminous Macadam (DBM) and proprietary thin surfacings.
2. All tend to produce a uniform black surface appearance. Their appearance can be enhanced by a number of methods.

Limestone aggregate

3. Limestone from approved quarries in Derbyshire can be used as coarse aggregate. This will give a soft grey appearance to the finished surface. Limestone polishes readily and can produce a surface which is slippery in wet conditions and it should not be used where this would create problems.

Gravelled asphalt

4. Local flint gravel aggregate can be used to enhance the appearance of asphalt. Unfortunately flint gravel, like limestone,

has a very poor skid resistance and should only be used in areas where the speeds are normally not in excess of 10 mph or other locations where the risk of accident would be low. It can be used with other stones to increase the skid resistance of the finished product.

5. Gravel chippings can be used with a clear coat binder to enhance the look of the finished product although this is expensive. However this will also have low skid resistance.

Gravel tinted thin surfacing

6. Where a surface is to be trafficked by slow moving and/or heavy vehicles a thin surfacing may be laid using one of the proprietary thin surfacings but incorporating 50% of flint gravel. This would not be suitable for areas with fast moving traffic or hazardous locations.

KERBS

The separation of the carriageway from footways dates back to the mid 18th Century when the footway was surfaced with stone slabs set at a higher level and sometimes edged with a stone kerb. This could be granite or other stone such as Yorkstone. Stone drainage channels (or gutters) were often installed alongside.

Stone kerbs had to be transported to Suffolk and therefore were expensive. Large dressed kerbs were therefore usually only found in important streets with smaller rougher versions used elsewhere. In some urban areas, stone quadrants were used to turn corners.

Later, concrete kerbs were introduced, made locally from gravels or other aggregates. These were considerably cheaper than stone kerbs.

In some towns, such as Felixstowe, Sudbury and Bungay, Staffordshire blue clay kerbs and channels were laid with stable pavers to match.

Old kerbs should be retained wherever possible, if necessary relaid, or used elsewhere in the vicinity as they contribute greatly to the historic character of an area. Where additional reclaimed kerbs are required they should be chosen carefully to match the originals.

Even second hand modern concrete kerbs have a more weathered look and can help soften the impact of kerbing in comparison with new smooth concrete.



Historically, granite kerbs were used with riven Yorkstone flags (Sudbury)



Old granite



Blue clay kerbs and channels



Old concrete kerbs

In sensitive locations, new stone kerbs are preferable to concrete, even if concrete slabs are used.

Much of the natural stone kerbing now available is imported, often being transported from countries like China and Portugal. The sustainability issues involved in using these products should therefore be given careful consideration.

The technical specification for stone kerbs should be carefully considered – kerbs may be dressed on two faces only, the others being left rough in comparison, making them difficult to lay and creating a potential for movement to occur over time, especially if regularly over-run by heavy traffic.

Stone kerbs are available in a variety of colours ranging from pale to darker grey, pink and blue green. It may be difficult to match old kerbs with new if the original quarry has closed.



New granite



New Yorkstone



'Riven' concrete



Exposed aggregate concrete

A variety of exposed aggregate kerbs are available with varying colours and cross sections.

In sensitive areas and those of a more rural character, kerbs with a rectangular cross section will have a less urbanising effect than the modern half batter shape.

Concrete imitations of stone kerbs are also available: small module 'riven' or kerbs imitating dressed stone. These are normally rectangular in cross section.

Kerbs can be used in a variety of ways – normally as a raised edge of footway, or to enclose an area of grass or landscaping. In rural and village environments, kerbs should ideally be avoided but if absolutely necessary to protect, say, a village green, one option is to lay stone or riven concrete kerbs on a batter with the earth covering the top face to give a more natural look whilst still protecting the area from over-run and erosion.

Kerbs may also be laid flush to an area to demarcate an edge or contain an area of surface dressing. If flush kerbs are likely to be overrun by vehicles, careful laying is needed to avoid movement.



New granite kerbs and channel laid in the High Street, Saxmundham



Flush exposed aggregate concrete kerbs in Lowestoft



New granite kerbs reinforce the historic character of The Thoroughfare in Woodbridge



Kerbs laid on a batter so that soil can be laid over the top (where over running is a problem the kerb can be laid at a steeper angle)

Technical Information

1. Natural stone kerbs should be supplied from a single source for each project to ensure consistency from both a visual and technical aspect.
2. The rock type should be granite or similar igneous rock. Other rock types may only be used where approved by the SCC Area Maintenance Manager in consultation with the SCC Conservation Officer.
3. If reclaimed natural rock kerbs are used they shall be redressed before use. If there is a variation in sizes in the supply of kerbs the equivalent sized kerbs must be used together.
4. If reused concrete kerbs are to be laid they shall be examined for frost, scuffing and other damage and any kerbs damaged such that the structural integrity, durability or appearance is impaired shall be rejected.
5. Kerb heights should generally be 125mm or 160mm at bus stop locations.
6. Kerb heights at vehicle accesses shall be 25mm and at cycle and pedestrian crossings should be 0- 6mm.
7. Foundation depth shall be at least 150mm.
8. Concrete grade of foundation to be C12/15.
9. Kerbs shall be laid on a wet concrete bed or mortar bed. Kerbs with less than 90% contact area shall be rejected.
10. Radii or quadrant kerbs shall be used. The cutting of short lengths of straight kerbs for forming curves shall not be permitted.
11. Where flush concrete kerbs are likely to be overrun by vehicles, they should generally be no longer than 450mm.

TACTILE PAVING

Tactile (or “Blister”) is a term given to a range of paving that bears a discernible raised surface profile which aids the partially sighted and blind people in locating pedestrian crossing points. They are also used as a hazard warning on flights of steps or where footways are shared with cyclists.

The colour of tactile paving is also used to denote different meanings to the partially sighted, normally red at controlled crossing points, buff at uncontrolled.



A small area of buff tactile laid in a narrow footway



Corduroy tactile paving at a bus stop in Lowestoft



In this scheme at Needham Market pink tactile paving was selected as it related to the chosen palette of materials



Changes in levels at crossing points can have a significant impact on the laying pattern of materials

In conservation areas and other environmentally sensitive locations, provided that there is a significant measure of visual contrast, it is acceptable to use alternative tactile materials which are less intrusive.

Traffic Advisory Leaflet 1/96 "Traffic Management in Historic Areas" produced by the Department of Transport states:

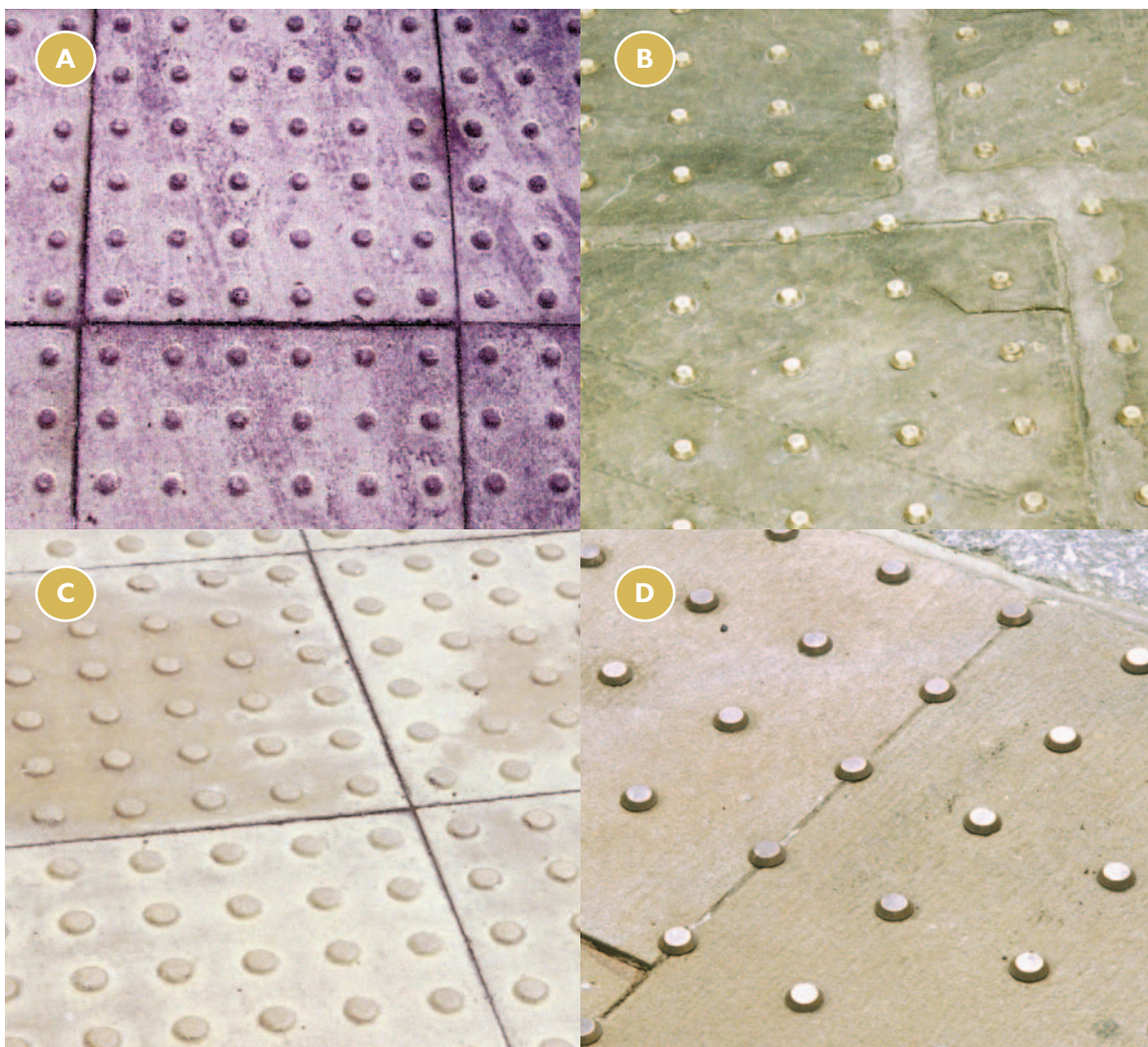
"It is accepted that in historic areas some colour contrasts may not be considered acceptable: buff

or grey materials can therefore be used as appropriate rather than pink."

Routed Yorkstone tactile slabs are manufactured as a standard product and steel or brass 'blisters' can be added to stone or concrete slabs that have already been laid or they can be installed by the supplier before delivery.

Guidance on the use of tactile paving is given by the Department of Transport, but careful consideration should always be given in every instance to the detailing and paving patterns to ensure a satisfactory design solution.

Some alternative tactile materials



A Black concrete cast with a tactile finish

C Routed Yorkstone

B Brass studs in riven Yorkstone

D Steel studs in sawn Yorkstone

Technical Information

1. The layout of tactile paving should normally comply with DfT 'Guidance on the use of Tactile Paving'.
2. Generally buff paving should be used at uncontrolled crossings and red paving at controlled crossings.

3. In conservation areas the colour of the tactile paving can be altered to suit the surrounding built environment. Preferably the paving should be of a contrasting colour to the surrounding footway material. Traffic Advisory Leaflet 1/96: 'Traffic management in Historic Areas' also provides guidance on the use of tactile paving in these areas.