



*Meeting at
Holley Bae.*

A417 BROCKWORTH BYPASS

ENVIRONMENTAL STATEMENT

January 1991

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OF TRANSPORT





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**A417 BROCKWORTH BYPASS
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January 1991

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**A417 BROCKWORTH BYPASS
ENVIRONMENTAL STATEMENT**

This Environmental Statement summarises an assessment of the environmental effects of the proposed Brockworth Bypass, in accordance with sub-section 105A(2) of the Highways Act 1980 as amended by the Highways (Assessment of Environmental Effects) Regulations 1988.

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1.0 INTRODUCTION (See Figure 1)

1.1 The Brockworth Bypass forms part of the A417/A419 Trunk Road between Swindon and Gloucester providing an important link between the M4 and the M5 Motorways. The National Roads Programme includes a number of improvement schemes on this road of which the Brockworth Bypass is an essential component.

1.2 Subject to satisfactory progress through the statutory procedures, construction of the Bypass is planned to begin in 1993 opening to traffic approximately 2 years later.

2.0 SITE DESCRIPTION

2.1 SETTLEMENTS

- 2.1.1 The village of Brockworth (population 7000) sits astride the former Roman Road, Ermin Street, approximately 6km east of the city of Gloucester and 8km south west of Cheltenham. The growth of Gloucester in recent years through the suburbs of Barnwood and Hucclecote extends as far as Brockworth such that the village itself may now be considered an outer suburb of the city. The hamlets of Little Witcombe and Benthams lie to the east at the foot of the Cotswold escarpment.

2.2 ROAD NETWORK

- 2.2.1 The M5 Motorway runs north/south through the area between Gloucester and Brockworth. Access to the motorway is available locally at Junction 11 (Golden Valley) on the A40(T) between Gloucester and Cheltenham and at Junction 12 (Quedgeley) on the A38/B4008 south of Gloucester. Currently access to the M5 at Quedgeley is restricted to the southbound direction only, but a scheme which would add north facing slip roads to this junction was recently added to the Roads Programme. Through Brockworth, Ermin Street forms the A417 Trunk Road. The A417, together with the A419, forms an important link between the M4 at Swindon and the M5 at Junction 11 near Gloucester. To the east of Brockworth the A46 runs north/south between Cheltenham and Stroud and intersects the A417 at the Cross Hands Roundabout.

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2.2.2 Through Brockworth the A417 is generally a single two lane carriageway subject to a 40 mph speed limit. There are numerous junctions and accesses and narrow footways with many properties close to the road. The alignment of the trunk road to the east of the village is poor and features a series of sharp bends. These bends coincide with a westbound priority downhill overtaking section which provides the first opportunity for several kilometres for vehicles to overtake. Whilst this section of road has not historically exhibited a poor accident record, during 1990 there have been a number of fatal accidents here. The layout and general standard of the trunk road through the area are shown in detail on Figure 2.

2.3 LAND USE

2.3.1 The A417 Barnwood Bypass and the northern edge of the urban area at Brockworth form the southern boundary of the Gloucester and Cheltenham Green Belt, designated to prevent the coalescence of settlements, to protect open countryside and agriculture and to restrict development.

2.3.2 The A417 trunk road completely severs the village of Brockworth. The old centre of the village lies on the northern side, whilst to the south lies mid 1960's residential development and a large industrial area known as the Gloucester Trading Estate. The Brockworth Airfield site, which contains the Trading Estate, is identified in the County Structure Plan as a suitable location for further residential and industrial development. About 2500 people are currently employed on the Estate and planning applications for extensive residential and industrial development have been made.

- 2.3.3 At Bentham there is a factory known as the Bentham International Pipeworks which employs approximately 75 people. Nearby is the Bentham Country Club, an establishment consisting mainly of two large inflatable domes which are visible from a wide area of the Gloucester Vale and the Cotswold Hills. Planning permission has now been granted for replacement of the domes by a 28 bed hotel on the site. Elsewhere the land use is predominantly agricultural, generally pasture, with some small intensive agricultural operations. An area of allotment gardens exists at Little Witcombe.

2.4 LANDSCAPE CHARACTER

- 2.4.1 The A46 Shurdington Road forms the western boundary of the Cotswolds Area of Outstanding Natural Beauty (AONB), a designation for landscape of national importance. The settlements at Bentham and Little Witcombe thus fall within this area.

- 2.4.2 Brockworth lies within the Vale of Gloucester at the foot of the escarpment forming the western edge of the Cotswold Hills, which rise some 200m above the plain in a distance of approximately 1km to the east and south of the village. Churchdown Hill (height 154m), an attractive outlier of the Cotswold Hills, lies to the north west of the village immediately west of the M5 motorway. The landscape of Churchdown Hill and the Cotswold escarpment is characterised by steep side slopes, small field patterns and prominent woodland belts. From publicly accessible viewpoints on the Cotswolds there are extensive views of the city of Gloucester and west across the Vale beyond Churchdown Hill into Wales. There are also significant but less extensive views from Churchdown Hill back towards the Cotswold escarpment. In contrast to this upland landscape, the Vale of Gloucester is gently undulating in nature featuring large open fields delineated by low hedgerows.

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2.4.3 Locally, within the plain the most significant topographical feature is Henley Bank, running north from the A46. Despite rising to only just over 70m, it is prominent in local views especially from the west where it rises from a small valley. There is a prominent belt of mature vegetation located along the course of the Horsbere Brook which defines much of the northern edge of development at Brockworth and screens the houses from the open countryside. South of Churchdown Hill the plain is bisected by a 400KV overhead pylon line which dominates the landscape in local views from the east as it crosses M5 and approaches Brockworth.

2.5 HERITAGE

2.5.1 There are no conservation areas within the study area but there are several Listed Buildings (shown on Figure 3) which are generally Grade II but including two Grade II* and one Grade I. The most important group locally is located at Brockworth Court and features a church (Grade I), manor house and tithe barn (Grade II*) and a number of other buildings, structures and artefacts. There is another notable group west of M5 comprising The Noake, The Barn at Noake Court Farm and two of the three dwellings known as Millbridge Cottages.

2.5.2 A Scheduled Ancient Monument, a Roman Villa, exists in the grounds of The Hucclecote Centre. Further excavation and recording of the area around the scheduled site as part of an Archaeological Survey undertaken for the scheme has revealed other remains of interest associated with the villa. Elsewhere along the route excavation of other sites of potential interest has failed to reveal any significant archaeological deposits. Full details of the archaeological survey undertaken are available for reference at Council Office inspection points.

2.6 ECOLOGY

- 2.6.1 There are no designated Sites of Special Scientific Interest (SSSI's) potentially affected by the bypass. The Horsbere Brook, which forms the northern boundary of the Brockworth urban area for much of its length, has been listed in the Gloucestershire Trust for Nature Conservation's Schedule of Rivers and Streams as a Key Site and is the most important area for ecology within the route corridor. Elsewhere certain hedgerows and ditches are of local ecological significance and one field pond may support the Great Crested Newt (a protected species). Woodland at Crickley Hill Farm has been identified as a sensitive local habitat, principally for its riparian interest. Scrub below Crickley Hill is of value for its function as a buffer between the A417 and the SSSI on the scarp slope above. An ecological survey has been undertaken for the scheme and this is available for reference purposes at Council Office inspection points.

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3.0 DESCRIPTION OF PUBLISHED SCHEME (See Figure 3)

- 3.1 A key feature of the bypass proposals is a new junction with the M5 which will enable trunk road traffic to access the motorway directly thereby replacing the circuitous existing route via the A417 and A40 around Gloucester. Not only will this ease traffic pressures on the road network around Gloucester but it will also allow an alternative motorway access via A436 and A417 for traffic on the A40 Trunk Road from Oxford. In due course, following construction of the Brockworth Bypass and new motorway junction it is the Department's intention to trunk the A436 between the A40 at Shipton Solers and the A417 at the Air Balloon roundabout and to detrunk the A40 through Cheltenham.
- 3.2 The published route, which is generally an all purpose dual two lane 7.3m wide carriageway with 1m hardstrips, starts at a new roundabout junction with A417 Barnwood Bypass located approximately 800m north west of the existing M5 bridge. It is intended that this roundabout be superseded by continued improvements to the trunk road between the M5 and Elmbridge Court roundabout, currently programmed for 2 to 3 years after opening of the Brockworth Bypass. The roundabout would be in a shallow cutting, and lit by means of 12m high lighting columns.
- 3.3 From the interim roundabout, the route runs eastwards and passes beneath the M5 Motorway. To the east, a grade separated roundabout designed to accommodate slip road connections with the M5 would be bridged over the bypass. The junction with the M5 Motorway would provide free flow connections for the major traffic movements between the bypass east and the motorway north. Connections between the bypass west and motorway north are not provided as these movements are available via the existing junction 11 on the M5. Other turning movements are generally made by way of the grade separated roundabout to the east of the motorway.

This roundabout, would be on a 7m high embankment and lit by means of 10m high lighting columns. The slip road from the M5 southbound to the grade separated roundabout would lead to the demolition of the premises of the agricultural suppliers known as Agrisales. The slip road from the M5 northbound to the bypass westbound would necessitate the demolition of the three dwellings known as Millbridge Cottages, two of which are Grade II Listed. As this slip road diverges from the motorway, which is itself on a 7m high embankment alongside the Hucclecote Centre, the earthworks would remove the semi-mature landscape planting on the motorway embankment and would also require the relocation of a noise barrier, currently sited at the back of the motorway verge. Throughout this section the bypass itself would run in a shallow cutting except across the hollow formed by the course of the Horsbere Brook adjacent to Millbridge Cottages, which would be crossed on a 6m high embankment.

- 3.4 To the east of the M5 junction the route runs between 300m and 400m north of the Brockworth urban area, would pass beneath Brockworth Road, which would be bridged over, and would climb gently towards the A46. For safety and operational reasons this section of the bypass would feature dual three lane 11.0 metre wide carriageways. Although generally in cutting between 2m and 4m deep, the route would emerge onto a 2m high embankment near Brockworth Rugby Club playing fields before cutting through Henley Bank at a maximum depth of 13m.
- 3.5 At the A46 a grade separated roundabout providing full turning movements with the bypass would be constructed on a 1m high embankment, whilst the route, now reduced once more to a dual two lane carriageway width, would pass beneath in a 6m deep cutting. In common with the remainder of the A46 in the area, the new roundabout would be lit by means of 10m high lighting columns.

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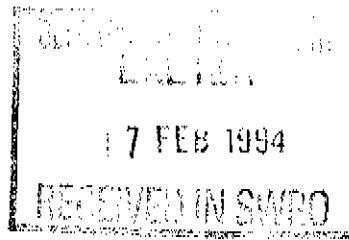
- 3.6 East of the A46 the route enters the Cotswolds AONB and continues initially in a 6m deep cutting as far as the Allotment Gardens, which it skirts to the north, and then on a low embankment approximately 1m high past the poultry houses north of Witcombe Court. A vehicular access and public footpath would be bridged over the bypass immediately to the north of the Allotment Gardens. Near Bentham the route crosses the existing A417 on a 2m high embankment. The old trunk road would not be connected to the bypass at this point but would be lowered to pass beneath it in a 5m deep cutting. From here the route continues to the foot of Crickley Hill where the gradient would steepen and the bypass would enter a shallow cutting. In this area, the bypass would cause the demolition of the farmhouse and outbuildings of Crickleigh Farm before tying in with the existing trunk road at Crickley Court.
- 3.7 There are a number of accesses direct onto the trunk road in the vicinity of the eastern tie-in. For safety reasons it is proposed that these all be stopped up and replaced by new access roads connecting to the old trunk road.
- 3.8 Throughout its length the bypass intersects a number of public rights of way, particularly around Bentham and the M5 junction, the maintenance of which are provided for by diversion and/or pedestrian bridges. The existing pedestrian tunnel which also carries the Horsbere Brook beneath the M5 Motorway, would be stopped up and replaced with a diversion route utilising the existing Barnwood Bypass bridge. Details of pedestrian routes and diversions are shown in Figure 3.

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- 3.9 The construction contract period for the bypass is likely to be 2 years. It is proposed that site access for construction traffic be permitted only from A417 Barnwood Bypass, A46 Shurdington Road and A417 at Bentham. The bypass and one of the slip roads would entail the construction of bridges beneath a live motorway. It is likely that contraflow working for a 12 to 14 month period would be required on the motorway whilst the bridges are built. Temporary diversions of Brockworth Road and A417 at Bentham are likely to be required to maintain traffic flows during the construction period.

To: Mr B Lewis
SWNMD
Room B7
Falcon Road
EXETER

From: Roger Park



Date: 16 February 1994

A417 BROCKWORTH BYPASS
Landscape area south of Holly Brae

1. As you may know the "Start of Works" public meeting for the Brockworth scheme was held at Brockworth Primary School between 7.30 and 9.30pm on Thursday 10 February 1994.

2. At the above meeting a Mr David Field of 206 Bath Road, Cheltenham, Gloucestershire, GL53 7NE (Office Tel No: 0242 528884; Home Tel No: 0242 575597) asked us for details of the planting within the landscape area immediately south of the property known as Holly Brae (area shown on the attached sketch). Apparently Mr Field is the son of the current owner of Holly Brae. At the meeting Mr E Daisley suggested that as SWCPD's Landscape Architect you would be the most suitable person to describe the landscaping proposals for the scheme. I would be grateful if you would contact Mr Field and briefly describe our landscaping proposals for the area south of Holly Brae.

0831-587937
0242-250339

Brian

This is additional copy of
minute. I forgot to attach
sketch to previous minute.

Roger

R A PARK
SWCPD
Room 515
Tollgate House
Bristol
GTN 1374 8348

1

4.0 TRAFFIC EFFECTS

- 4.1 The construction of a bypass for Brockworth and a new junction with the motorway is likely to affect traffic flows on roads over a wide area. Figure 5 gives traffic figures on those roads where the existing annual average daily traffic (AADT) is predicted to change by 30% or more by the opening year of the scheme. The major traffic flow changes relate to Ermin Street through Brockworth village where there is predicted to be a reduction in flow of more than 70% when the bypass is open. The detrunking of A40(T) through Cheltenham is not likely to reduce traffic flows by as much as 30% but should nevertheless lead to a modest reduction in traffic, whilst the reduction in HGV's would be particularly beneficial through the urban area of this important Regency town.

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5.0 MITIGATION MEASURES

5.1 HIGHWAY LAYOUT

The horizontal and vertical alignments of the bypass have been designed so as to mitigate, as far as possible, the adverse effects of the road construction and of traffic using the bypass. Particular areas where mitigation of effects has influenced the road layout are as follows:

- 5.1.1 At the M5 junction generally, the mass of the interchange is reduced by not providing for those turning movements between the bypass and the motorway which can otherwise be accommodated satisfactorily elsewhere. Its visual impact is minimised by the form of junction proposed and by its physical location. None of the engineering works would appear on the sky-line above the M5. This is particularly important in middle and short distance views across the plain of the Gloucester Vale. In long distance views the junction would be seen at the foot of Churchdown Hill contained by the landform and by the edge of the developed area. The junction site is restricted mainly to a contained 'bowl' of landscape already badly affected by major roads and a 400kV overhead pylon line. The interchange proposed is a two level layout with the bypass and slip roads passing beneath the M5 which will separate views of one half of the junction from the other. To the west of the M5, roadworks would be contained in the hollow bounded by the motorway, existing A417 and Churchdown Lane; east of the motorway the site is contained by vegetation along Horsbere Brook, by the existing motorway embankment and by the hedgerow pattern to the north east.
- 5.1.2 Around the urban area of Brockworth the route would run in cutting where the topography permits and would be aligned so as not to affect the course of the Horsbere Brook to the east of the motorway.

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5.1.3 At the A46 junction, whilst the new roundabout would be on a low embankment (approximately 1m high) the bypass itself would be in a 6m deep cutting as it passes between residential properties in the vicinity.

5.1.4 At the eastern end of the scheme, the superseded A417 at Bentham would pass beneath the bypass via an underbridge and cutting. This would not only maintain the integrity of the local settlement but would also reduce the impact on nearby properties, including St Peter's Church, and on views from the Cotswolds AONB generally.

5.2 LANDSCAPING

General

5.2.1 The landscaping proposals are designed to reduce the impact of the scheme:

1. In the broad landscape, particularly from elevated positions
2. In local views, particularly from properties

This will be achieved principally by planting works which would break up the visual bulk of the roadworks and help to separate elements of the scheme thereby reducing overall impact. The planting would be supplemented by ground profiling and shaping to modify the more angular profiles of the earthworks and relate the new road more closely to the existing land forms.

Planting

5.2.2 There would be three principle types of planting:

1. Tall screen planting between 0.6m and 1.5m height when planted with an anticipated height of 15m after 15 years. As the Vale of Gloucester is generally lightly wooded, it is important that planting should not draw attention to the scheme by introducing extensive woodland running parallel to the road. Instead it should be concentrated on the rising ground such as at the foot of Crickley Hill, on Henley Bank and against the M5 Motorway where it would be seen in context with the more extensive areas of existing vegetation.
2. Low screen planting between 0.6m and 1.5m tall when planted maturing to scrub woodland with an anticipated height of 10m after 15 years. This would be used where screening is required but where forest height planting would draw attention to the line of the road or emphasise the height of embankments.
3. Intermittent planting comprising small groups of trees and shrubs in grass which relate to features in the open landscape.

Principal landscape proposals (see Figure 4)

5.2.3 Between the interim roundabout at the western end of the scheme and the proposed M5 junction, land isolated between the existing and proposed A417 and severed field corners to the north would be acquired and planted with woodland. This would tie the new planting and hence the road into the existing vegetation pattern and separate the two dual carriageways. The effect of this separation would be enhanced as the new road enters a cutting and by the inclusion of a bund as part of the ground shaping proposals.

- 5.2.4 At the M5 junction it is proposed to acquire a length of the Horsbere Brook and thus the riparian woodland along its course would form an established boundary to the south. In a similar way the acquisition of fields and severed field corners would provide boundaries which are already part of the field pattern. Planting on these parcels of land combined with highway land would provide a comprehensive block of woodland which would be a strong feature at the foot of Churchdown Hill, reflecting the woodlands and hedgerows on the higher ground. The woodland would be large enough in scale to integrate both the proposed junction and the existing M5 into the landscape in local views from properties, in elevated middle distance views from Churchdown Hill and in long distance views from the Cotswold escarpment. Substantial ground shaping around the junction would ease the gradients of the earthworks required for the road construction and provide new land forms which would appear to extend the foot of Churchdown Hill around the junction, integrating the engineering with the contours and enhancing the effects of the planting. In view of the importance of the vegetation along Horsbere Brook in screening the junction from the south, land between the junction and the brook would be acquired for new woodland planting to reinforce this effect.
- 5.2.5 East of the M5 junction the embankments leading to the bridge which would carry Brockworth Road over the bypass would be planted with low screen planting, tying the feature into the pattern of hedges and screening the abutments. Offsite planting north of Brockworth Court would, if agreed, reinforce the existing hedge separating the group of listed buildings from the new road and the bridge crossing.

- 5.2.6 In the vicinity of the A46 junction it is proposed to acquire the corners of fields adjacent to the cutting to allow woodland planting to extend beyond the highway boundary, thereby concealing the crest of the earthworks, tying into the existing field pattern and restricting views through the cutting. The redundant length of Green Lane which defines the ridge line along Henley Bank would be acquired to ensure its retention. Additional woodland would be planted between the hedgerows to reinforce this feature. Strong belts of planting between the junction and properties on the Shurdington Road would be established to screen the roadworks from local view, and to integrate planting within the junction and through Henley Bank, thus forming a significant block of woodland in long distance views of this locally elevated land form.
- 5.2.7 East of the A46 junction two severed field corners would be acquired for woodland planting and a management agreement entered into to ensure the retention of certain hedgerows as a screen for local views from the north. Generally however the planting would be intermittent to avoid emphasising the line of the road when seen from elevated viewpoints along the Cotswolds.
- 5.2.8 At the foot of Crickley Hill land between the existing and proposed trunk roads would be acquired and planted extensively to separate the settlement at Bentham from the bypass. The setting of St Peter's Church which is a Grade II Listed Building would be screened from the bypass by ground shaping and woodland planting. Roadside planting, supplemented by offsite planting by agreement, would protect views from properties on Crickley Hill where the new and existing trunk roads merge.

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5.3 ARCHAEOLOGY

- 5.3.1 The slip road from M5 northbound to the bypass westbound would cross the area of archaeological interest in the grounds of The Hucclecote Centre associated with the Roman villa site, although the scheduled ancient monument itself would not be affected. Discussions will be held with English Heritage to allow the opportunity for rescue archaeology.

5.4 ECOLOGY

- 5.4.1 In view of the identified ecological value of the Horsbere Brook which relates to its riparian habitats, careful consideration will be given to the detailed design of the drainage system which outfalls into this watercourse to prevent pollution by road washings.
- 5.4.2 Within the M5 junction area the opportunity exists for the creation of a range and gradation of habitat types. Notwithstanding the loss of existing habitat along the Horsbere Brook to the north west of the motorway, it is proposed to develop new marginal and semi-aquatic habitats in the parcels of land isolated within the slip road system. The greatest opportunities for this would probably be in the north east quadrant of the junction. Elsewhere on the route the landscaping plots are substantial in area and when planted would be managed to extend the diversity of habitat as well as achieving the landscape objectives.

5.5 ROAD LIGHTING

- 5.5.1 In view of the sensitivity of the local landscape, and its visibility from or within the Cotswolds AONB, consideration will be given to the use of full 'cut-off' lanterns for the road lighting proposed at the roundabout locations.

5.6 NOISE

- 5.6.1 An existing noise barrier, atop the M5 embankment south of the bridge over Barnwood Bypass, would be relocated adjacent to the northbound slip road from M5 and extended as far as Churchdown Lane bridge, to protect properties on Churchdown Lane on the west side of the grounds of The Huoclecote Centre. An earth bund would be formed between the new road and the existing Barnwood Bypass to the west of Churchdown Lane to emphasise the separation of the two dual carriageways. In addition to the visual benefits arising from this feature it would also assist in protecting the residential properties south of the Barnwood Bypass from increased traffic noise. This protection would be reinforced by the provision of a new noise barrier on the west side of the Barnwood Bypass between Churchdown Lane and Zoons Court bridge. Elsewhere along the scheme a number of individual properties would be eligible for insulation against traffic noise. Such insulation could be installed prior to road construction so the benefits would be available during the construction period itself.

5.7 PUBLIC RIGHTS OF WAY

- 5.7.1 A number of public footpaths would be affected by the bypass particularly in the vicinity of the M5 junction and near Bentham. In all cases footpath diversions or facilities for pedestrians to cross the roads would be provided to maintain pedestrian routes. Detailed proposals for all affected footpaths are shown on Figure 3.
- 5.7.2 All public highways crossed by the bypass would be maintained by means of bridges and/or diversions, thereby minimising community severance.

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5.8 AGRICULTURE

- 5.8.1 There is a complex land ownership pattern in the vicinity of the A46 junction, and access tracks on the north west and south east sides of the bypass would be provided to mitigate the effects of agricultural severance caused by the route. A bridge over the bypass would maintain vehicular access to the Allotment Gardens and would also reduce farm severance in the area. A track would be provided from the old trunk road near Little Witcombe to maintain access to the Crickley Hill Farm. The access tracks proposed as part of the bypass works are shown on Figure 3.
- 5.8.2 Prior to construction of the bypass, negotiations would be held with individual landowners to agree accommodation works necessary to mitigate further the effects of the new roads on agricultural operations.

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6.0 DATA ON ENVIRONMENTAL EFFECTS

- 6.1 This information is contained in the Assessment Framework which follows overleaf.

A417 BROCKWORTH BYPASS**ASSESSMENT FRAMEWORK****GROUP 1: TRAVELLERS**

SUB GROUP	EFFECT	UNITS	PUBLISHED ROUTE		DO MINIMUM		COMMENTS
			High	Low	High	Low	
Car Users	Time savings	£m (PVB)	68.723	43.435	0	0	A. Each column shows the improvements of the Published Route over the 'Do Minimum'. Hence the 'Do Minimum' entries are zero.
	Vehicle Operating Cost Savings	£m (PVB)	- 12.977	- 13.187	0	0	
Users of Light Goods Vehicles	Time savings	£m (PVB)	11.408	6.486	0	0	B. Present value of benefits (PVB) are for a 30 year period from the expected date of opening and discounted to 1988 prices at 8% pa.
	Vehicle Operating Cost Savings	£m (PVB)	- 2.455	- 2.236	0	0	
Users of Other Goods Vehicles	Time savings	£m (PVB)	9.239	5.170	0	0	C. It is assumed that national average figures for vehicle occupancy and for accident rates and costs will apply.
	Vehicle Operating Cost Savings	£m (PVB)	- 9.321	- 9.066	0	0	
Bus Operators and Passengers	Time savings	£m (PVB)	1.269	0.901	0	0	The figures indicate the probable total reduction in casualties over the whole of the 30 year assessment period if the national average rates and distribution between groups apply.
	Vehicle Operating Cost Savings	£m (PVB)	- 0.293	- 0.327	0	0	
All Vehicle Travellers	Vehicle Operating Cost Savings	£m (PVB)	15.741	10.765	0	0	They take no account of the safety implications of the detailed design of the new route.
	Reduction in Casualties:-						
	Fatal	Number	40	33	0	0	
	Serious	Number	586	491	0	0	
	Slight	Number	1856	1545	0	0	
	View from the road	-	Mainly agricultural. Restricted by cutting at Henley Bank. Scenic at foot of Cotswold escarpment and at Churchdown Hill		Residential, commercial and industrial along Ermin Street. Agricultural and scenic at foot of Cotswold escarpment and at Churchdown Hill		Land to the east of A46 lies within the Cotswolds Area of Outstanding Natural Beauty
	Driver Stress	-	Moderate at peak times otherwise low		High along Ermin Street		At weekends, traffic congestion frequently extends from Brockworth eastwards to Little Witcombe.
	New severance	-	All existing public highways crossed by the bypass will be maintained. Direct access from Bentham and Little Witcombe to the improved trunk road will not be provided		Continued traffic growth will worsen the existing severance of Brockworth Village and other settlements currently separated by the trunk road		

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ASSESSMENT FRAMEWORK

GROUP 1: TRAVELLERS (CONTINUED)

SUB GROUP	EFFECT	UNITS	PUBLISHED ROUTE	DO MINIMUM	COMMENTS
All Vehicle Travellers (Continued)	Accessibility to motorway network	-	New M5 junction will provide direct access from the bypass to the motorway. It is proposed to detrunk A40 eastwards from M5 junction 11 through Cheltenham when new M5 junction is opened; the A40 trunk route will be maintained via A438 from Shipton Solers to Air Balloon where it will join A417 trunk route	A417(T) access to motorway remains via M5 junction 11. A40(T) continues to route through Cheltenham	The changes in road user costs resulting from these reroutings are included in the economic analysis
	Traffic delays during construction	-	Slight at scheme extremities, A46 Junction, Churchdown Lane and Brockworth Road. Construction of bridges under M5 will require contraflow working on motorway for a 12 to 14 month period. This is likely to cause delays at peak times	Improvements at GTE and Cross Hands roundabouts and ongoing future maintenance of Ermin Street will lead to significant delays throughout the day at these times; no suitable local diversion routes are available	A 2 year construction period will be stipulated for the main works contract
Pedestrians	Change in amenity	-	Amenity on certain cross country footpaths will be reduced due to presence of new roads and traffic. General improvement in amenity within Brockworth due to the diversion of trunk road traffic from Ermin Street.	Pedestrian amenity in entire Brockworth urban area will continue to deteriorate due to increasing traffic congestion along Ermin Street and consequent diversion through other residential roads	Construction of the bypass is predicted to lead to a 70% reduction in traffic using Ermin Street in the year of opening.
	Safety	-	Diversion of trunk road traffic from Ermin Street will improve pedestrian safety	Traffic growth on existing roads will lead to increased risk of vehicle/pedestrian conflict	
	New Severance	-	Slight to moderate. Whilst footpath diversions or facilities for pedestrians to cross the new roads will be provided certain footpath routes will be lengthened.		
	Relief from existing severance		Moderate to substantial relief. Diversion of trunk road traffic from Ermin Street will reduce existing community severance of Brockworth.	Existing community severance caused by the trunk road through Brockworth will worsen as the growth of traffic leads to peak hour traffic conditions extending	Construction of the bypass is predicted to lead to a 70% reduction in traffic using Ermin Street in the year of opening.

A417 BROCKWORTH BYPASS**ASSESSMENT FRAMEWORK****GROUP 1: TRAVELLERS (CONTINUED)**

SUB GROUP	EFFECT	UNITS	PUBLISHED ROUTE	DO MINIMUM	COMMENTS
Cyclists	Amenity and Safety	-	Increase in amenity on existing A417. Cyclists will be encouraged to use the existing road network rather than the bypass by the provision of dedicated access points to and from the trunk road at the foot of Crickley Hill. Diversion of trunk road traffic from Ermin Street will reduce the conflict between cyclists and other road traffic	Cyclist amenity and safety is likely to worsen as traffic growth leads to peak hour traffic conditions extending for longer periods of the day and causes more traffic to divert through residential roads in the village	Construction of the bypass is predicted to lead to a 70% reduction in traffic using Ermin Street and more than 90% reduction in traffic on Cirencester Road in the year of opening.

A417 BROCKWORTH BYPASS

ASSESSMENT FRAMEWORK

GROUP 2: OCCUPIERS

SUB GROUP	EFFECT	UNITS	PUBLISHED ROUTE	DO MINIMUM	COMMENTS
Residential	Properties Demolished	Number	Crickleigh Farm Nos 4, 5 and 6 Millbridge Cottages	Nil	Crickleigh Farm is owned by DTP. Nos 4 and 5 Millbridge Cottages are Grade II Listed Buildings
	Noise	Number of houses experiencing an increase of: more than 15dB(A) 10-15dB(A) 5-10dB(A) 3-5dB(A) Number of houses experiencing a decrease of: more than 15dB(A) 10-15dB(A) 5-10dB(A) 3-5dB(A) Number of properties likely to be eligible for insulation.	 0 0 21 57 0 33 75 115 13	 0 0 0 0 0 0 0 0 NIL	The changes in noise are the difference between the forecast for 2010 (high growth) and the existing (1990) levels. The units are dB(A)L10 18 hour, 6am to midnight
	Visual Obstruction	Properties subject to visual obstruction	'Droylsden' - moderate 'Chosen View' - high 'The Noake' - moderate 'Ramleh' - slight 'Courtleigh' - slight 'Holly Brae' - slight	No change	'Chosen View' is owned by DTP

A417 BROCKWORTH BYPASS

ASSESSMENT FRAMEWORK

GROUP 2 : OCCUPIERS (CONTINUED)

SUB GROUP	EFFECT	UNITS	PUBLISHED ROUTE	DO MINIMUM	COMMENTS
Residential (continued)	Visual Intrusion	-	<p>The loss of semi-mature landscape planting on the M5 motorway embankment and construction of the new road works will cause slight visual intrusion at 33 properties along Churchdown Lane west of the Hucclecote Centre. The M5 junction slip roads will cause high intrusion at the Noake and Noake Court Farm.</p> <p>Earthworks at Henley Bank and A46 junction will lead to moderate visual intrusion at nearby residential properties.</p> <p>The new roadworks will lead to generally slight intrusion at Bentham although 2 properties will be subject to moderate intrusion.</p>	No change	<p>Planning permission has been granted for new housing development in the grounds of the Hucclecote Centre between the M5 and properties along Churchdown Lane.</p> <p>The bypass proposals include extensive ground moulding, tree and shrub planting to reduce the visual impact of the new road works, particularly around the proposed motorway junction</p> <p>The acquisition and planting of field corners adjacent to the works, the strengthening of existing lines of vegetation and the establishment of along belts of new planting will help to screen the road from local view.</p>
	Relief from existing severance	-	Moderate relief for Brockworth and substantial relief for Little Witcombe due to diversion of trunk road traffic	No change	
	Access	-	Access to the bypass for local residents will be available via the local road network and the new junctions on A46 and Barnwood Bypass	No change	
	Disruption during construction	-	There are 54 houses within 100m of the site of which 17 will be affected by disruption during the contract period.	Improvements at GTE and Cross Hands roundabouts and ongoing future maintenance of Ermin Street will lead to significant disruption at these times.	A two year construction period will be stipulated for the main works contract.
	Air Quality	CO concentration parts per million (ppm)	The peak hour levels in the year 2010 are predicted to be less than 4ppm at all properties adjacent to the new road.	Peak hour levels at 149 properties on Ermin Street are predicted to exceed 4ppm by 1995 indicating an air pollution problem.	A peak hour exposure of 4ppm or more indicates that an air pollution problem exists.
Industrial Premises	Access: 1. Bentham International	-	Direct access from side roads at Bentham to the bypass not provided. Access from the Bentham International works to the east will be available via existing A417 to Cross Hands Roundabout and A46	Existing congestion affecting journey times for factory shipments will worsen as a result of traffic growth	Approx 10 shipments per day are made to and from the factory. The economic analysis includes travel costs and benefits of the revised access arrangements
	2. Gloucester Trading Estate ICI Fibres	-	Diversion of trunk road traffic from Ermin Street will facilitate access to ICI and GTE factories both for employees and shipments	Existing congestion affecting journey times both for employees and shipments will worsen as traffic growth leads to peak hour conditions extending for longer periods of the day	Factories on the GTE currently employ approx. 2500 people

A417 BROCKWORTH BYPASS

ASSESSMENT FRAMEWORK

GROUP 2 : OCCUPIERS (CONTINUED)

SUB GROUP	EFFECT	UNITS	PUBLISHED ROUTE	DO MINIMUM	COMMENTS
Commercial Premises					
a) Suppliers	Demolition	-	Agrisales	NII	The cost of property acquisition is included in Group 6
b) Hotels, Guest Houses & Public Houses	Noise decrease	Number subject to a decrease of more than 3dB(A)	7 Refs 1 to 7	NII	Premises considered are: 1. Cross Hands Garage 2. Twelve Bells Public House 3. Cross Hands Public House 4. Ermin Way Filling Station 5. The Victoria 6. The Flying Machine 7. Ty Gorseo Guest House Hucclecote Centre; planning permission has been granted for new housing development in part of this area
c) Garages & Service Stations	Air Quality	CO concentration (ppm)	-	3 public houses are predicted to be exposed to peak hour concentrations in excess of 4ppm by 1995. Ref. 1, 5 & 6	
	Landtake	Hectares	0.6 from grounds of Hucclecote Centre	NII	
	Disruption during construction		Slight at Hucclecote Adult Training Centre	NII	
Agricultural Land	Landtake	Number of units affected Area (hectares) Grade 2 Grade 3 Grade 4	13 0 67.8 (167 acres) 0	NII NII	Based on MAFF Land classification. Cost of land acquisition and compensation included in Group 6. Areas include land to be acquired for landscaping purposes.
	Severance	Number of units affected	7	No change	Units affected: 1. The Noake 2. Elm Farm 3. Benthams Manor 4. Brockworth Court Farm 5. Court Farm 6. Crickley Hill Farm 7. A&A Fruit Farm
	Disruption during construction	-	Slight to moderate generally. Severe effect on the smallholding known as Trapalanda.	NII	Effects on Trapalanda result from excavation of adjacent cutting, construction of new access and the A46 roundabout.

A417 BROCKWORTH BYPASS

ASSESSMENT FRAMEWORK

GROUP 3: USERS OF FACILITIES

SUB GROUP	EFFECT	UNITS	PUBLISHED ROUTE	DO MINIMUM	COMMENTS
Court Road Shopping Centre Brockworth School Brockworth Junior and Infant Schools St Patricks Catholic Church and Church Hall Brockworth Library Brockworth Youth and Community Centre	Severance	-	Diversion of trunk road traffic from Ermin Street will greatly reduce severance	Existing severance caused by the trunk road through Brockworth will worsen as the growth of traffic leads to peak hour traffic conditions extending for longer periods of the day.	The catchment areas for users of these facilities extend to both sides of the trunk road. Construction of the bypass is predicted to lead to a 70% reduction in traffic using Ermin Street in the year of opening.
St Patricks Catholic Church and Church Hall	Noise	-	Decrease of 3dB(A)L10	Increase of 2 dB(A)L10	
	Air Quality	CO Concentration	-	Predicted to be exposed to peak hour concentrations in excess of 4ppm by 1995.	
Brockworth School	Noise	-	Playing fields subject to noise increase of 3-5 dB(A)L10.	No change	Predicted change in noise at edge of playing field closest to bypass
Brockworth RFC	Noise	-	Playing fields subject to noise increase of 10-15 dB(A)L10	No change	Predicted change in noise at approximate centre of playing fields
	Visual Obstruction	-	Slight	No change	Assessment of views from pitch closest to bypass.
Bentham Country Club	Noise	-	Increase of 10-15dB(A)L10	No change	
	Access	-	Direct access from Bentham Lane to the trunk road no longer available	No change	
Allotment Gardens adjacent to Middle Pig Farm	Access	-	All existing vehicular and pedestrian access routes maintained	No change	All allotments tenants live in Bryerland Road estate.
	Noise	-	Increase of more than 15 dB(A)L10	No change	Predicted change in noise at approximate centre of allotments
	Visual Obstruction	-	Moderate	No change	Obstruction caused by access bridge and approach ramps.
	Disruption during construction	-	Moderate during earthworks operations	No change	
St Peter's Church, Bentham	Access/Amenity	-	Direct access from the trunk road no longer available leading to improved amenity for churchgoers	Continued use of Bentham Lane 'rat-run' between A46 and A417	Bentham Lane 'rat-run' avoids peak hour congestion on trunk road at Brockworth
Countryside access areas: Crickley Hill Barrow Wake Churchdown Hill	Visual intrusion	-	Long views of bypass	No change	Extensive ground moulding, tree and shrub planting is proposed to screen and reduce the visual impact of the bypass

A417 BROCKWORTH BYPASS

ASSESSMENT FRAMEWORK

GROUP 4 : POLICIES FOR CONSERVING AND ENHANCING THE AREA

POLICY	AUTHORITY	INTEREST	PUBLISHED ROUTE	DO MINIMUM	COMMENT
To protect listed buildings	Department of Environment Gloucester CC Tewkesbury BC	Mill Farmhouse, Mill Lane (Grade II)	450m from bypass	No effect	
		Dovecote at Bridge House, Bentham (Grade II)	380m from bypass	No effect	
		Little Witcombe House (Grade II)	350m from bypass	10m from existing trunk road.	Traffic flow on existing trunk road reduced by more than 90% in year of opening.
		St Peters Church, Bentham (Grade II)	180m from bypass	85m from existing trunk road.	-
		The Nooke, Churchdown Lane (Grade II)	60m from slip road	175m from existing trunk road	-
		Barn at Nooke Court Farm, Churchdown Lane (Grade II)	30m from slip road	430m from existing trunk road 200m from M5	-
		Noe 4 and 5 Millbridge Cottages, Churchdown Lane (Grade II)	Demolished	45m from existing trunk road 250m from M5	See also Group 2 Occupiers, sub-group Residential
		Complex of listed buildings and structures at Brockworth Court: Brockworth Court (Grade II*)	380m	No effect	
		Well head (Grade II)	-		
		Wall south of Brockworth Court (Grade II)	-		
		Tithe Barn (Grade II)	330m	No effect	
		Outbuilding and horse engine house (Grade II)	-		
		Open fronted shelter shed (Grade II)	-		
		Church of St George (Grade I)	380m	No effect	
		Monument in churchyard (Grade II)	-		
		Chest tomb in churchyard (Grade II)	-		
		6 monuments in churchyard (Grade II)	-		
		Cross shaft base in churchyard (Grade II)	-		

A417 BROCKWORTH BYPASS

ASSESSMENT FRAMEWORK

GROUP 4 : POLICIES FOR CONSERVING AND ENHANCING THE AREA (CONTINUED)

POLICY	AUTHORITY	INTEREST	PUBLISHED ROUTE	DO MINIMUM	COMMENT
To protect listed buildings (cont.)	Department of Environment Gloucester CC Tewkesbury BC	Bentham Manor (Grade II)	300m	No effect	Traffic flows on trunk road reduced by more than 90% in year of opening.
		Crickley Hill Farmhouse (Grade II)	80m	80m from existing trunk road	
		Witcombe Court (Grade II)	200m from bypass	45m from existing trunk road.	
To protect the landscape in the Cotswolds AONB	Countryside Commission Gloucestershire County Council Tewkesbury Borough Council	Length of Route within AONB	1.9km	-	AONB designated in 1966
		View of route from AONB	Close and middle distance views from Crickley Hill; long distance views from Barrow Wake and Cotswold Way	-	The detailed landscaping proposals include extensive ground moulding, tree and shrub planting to reduce the visual impact of the new road works and to tie it into the existing landscape.
To minimise development in the statutory Gloucester/Cheltenham Green Belt	Department of Environment Gloucestershire County Council Tewkesbury Borough Council	Length of Route in Green Belt	4.8km	No change	Construction of bypass may lead to increased planning pressures within the Green Belt.
To protect areas of importance for nature conservation	Department of Environment Nature Conservancy Council Gloucestershire CC	Important areas are: i Slopes below Crickley Hill and Barrow Wake SSSI	No direct effect	No change	Provides a buffer to the habitats of the adjacent SSSI
		ii Riparian woodland near Crickley Hill Farm	Small area of scrub at western end taken, riparian woodland unaffected	No change	Of local importance for its flora and fauna
		iii Horsbere Brook	250m length between M5 motorway and Barnwood Bypass taken by new M5 junction. Further 400m length acquired for retention within landscaping plots	No change to existing status although future retention cannot be guaranteed.	Of County interest for its riparian habitats
		iv Hedgerows and ditches east of M5	Intermittent lengths totalling approx 250m taken by bypass and slip roads at M5 junction. Further 300m length acquired for retention within landscaping plots.	No change to existing status although future retention cannot be guaranteed.	Of local importance for supporting common plant and animal species and for providing wildlife routeway.

A417 BROCKWORTH BYPASS

ASSESSMENT FRAMEWORK

GROUP 4 : POLICIES FOR CONSERVING AND ENHANCING THE AREA (CONTINUED)

POLICY	AUTHORITY	INTEREST	PUBLISHED ROUTE	DO MINIMUM	COMMENT
To protect areas of importance for nature conservation (continued)	Department of Environment Nature Conservancy Council Gloucestershire CC	Habitat creation	15ha of land to be acquired at M5 junction as landscaping plots. Major opportunity will exist for strengthening existing habitats and for new habitat creation, particularly riparian and woodland habitats. Elsewhere significant areas of land will be acquired for landscaping purposes, thus affording further opportunity for habitat creation.	No opportunity for habitat creation.	
To protect sites of Archaeological and Historic Interest	English Heritage Department of Environment Tewkesbury Borough Council Gloucestershire County Council	Sites of importance are: Hucclecote Roman Villa complex Glos 468	Whilst not affecting the villa site, the route crosses an area of land which contains remains related to the villa complex and would probably destroy all archaeological deposits contained there	No change	Glos 468 is the site of a Romano-British villa complex. The villa site itself is a Scheduled Ancient Monument (No. 188). Excavation in the area affected by the Preferred Route has revealed further Romano-British deposits although the level of archaeological preservation does not suggest that they are likely to merit further scheduling. Discussion with English Heritage will take place with a view to allowing rescue archaeology prior to road construction.
		Glos 5943	Site taken by proposed M5 motorway junction	No change	Glos 5943 identified as being of potential interest as an earthwork. Further study and excavation has identified the earthworks as naturally occurring features. No significant deposits were found and it is highly unlikely that any exist on this site
		Glos 8065	Site affected by proposed M5 motorway junction	No change	Glos 8065 identified as being of potential interest as a cropmark site. Excavation has revealed that the cropmarks are due to naturally occurring variations in soil type. No evidence for the existence of significant archaeological deposits was found

A417 BROCKWORTH BYPASS

ASSESSMENT FRAMEWORK

GROUP 4 : POLICIES FOR CONSERVING AND ENHANCING THE AREA (CONTINUED)

POLICY	AUTHORITY	INTEREST	PUBLISHED ROUTE	DO MINIMUM	COMMENT
To protect sites of Archaeological and Historic Interest (continued)	English Heritage Department of Environment Tewkesbury Borough Council Gloucestershire County Council	Glos 11093	Site affected by bypass and M5 junction works	No change	Glos 11093 identified as an 'earthwork'. Excavation of the site failed to record any detectable finds although remains of a ditch and bank were found and can be interpreted as elements of a former field boundary, probably of post medieval date
		Glos 11096	Site crossed by bypass	No change	Glos 11096 identified as a cropmark site, possibly associated with a nearby Romano-British Enclosure. Excavation of the site failed to reveal the existence of significant archaeological deposits. The cause of the cropmark cannot be accounted for with certainty but may result from the presence of medieval furrows

A417 BROCKWORTH BYPASS

ASSESSMENT FRAMEWORK

GROUP 5 : TRANSPORT DEVELOPMENT AND ECONOMIC POLICIES

POLICY	AUTHORITY	INTEREST	PUBLISHED ROUTE	DO MINIMUM	COMMENTS
To improve the trunk road network at Brockworth.	Department of Transport Gloucestershire CC Tewkesbury BC	To facilitate the movement of people and goods	Significant improvement in journey times	Increasing delays to trunk road traffic can be expected.	'Roads for Prosperity' and 'Trunk Roads, England into the 1990's' by DTp refer. GCC Policy T.2B TBC Policy T.2 refer
		To relieve other trunk road related problems.	Construction of new M5 junction and detrunking of A40 will reduce traffic volumes on A40 through Cheltenham at M5 junction 11, on A40 Golden Valley Bypass and at Elmbridge Court roundabout.	No relief for Cheltenham from trunk road traffic. Increasing congestion at M5 junction 11 and at Elmbridge Court roundabout can be expected with the growth of traffic through time.	GCC Policies T.2B and T.18 refer
		To relieve other important local roads	Construction of new M5 junction will lead to significant traffic flow reductions on A38 in south Gloucester and on A435 Cirencester to Cheltenham road.	No relief for A38 through south Gloucester nor to A435 through Cotswold Hills.	GCC policy T.2 and document 'Lorries in the Cotswolds' refer.
To facilitate planned industrial and housing development.	Gloucestershire CC Tewkesbury BC	To release the development potential at Brockworth Airfield.	Reduction in traffic on Ermin Street will allow the release of land for industrial and housing development at the Gloucester Trading Estate.	Existing traffic congestion in Ermin Street will preclude significant further development at the Gloucester Trading Estate.	Land releases dependant on new road infrastructure. GCC policy E.8 TBC policies E.1(B) and T3 refer.

A417 BROCKWORTH BYPASS

ASSESSMENT FRAMEWORK

GROUP 6: FINANCIAL EFFECTS

SUB GROUP	INTEREST	UNITS	PUBLISHED ROUTE		DO MINIMUM	COMMENTS
Department of Transport	Construction costs	£m (PVC)	£20.995		-	Costs are discounted from years of expected expenditure to 1988 at 1988 prices (PVC = present value of costs, PVB = present value of benefits, NPV = net present value).
	Land costs	£m (PVC)	£ 1.825		-	
	Maintenance costs	£m (PVC)	£ 0.361		-	Excess maintenance cost due to additional length of road.
	Total costs	£m (PVC)	£23.181		-	
Total Quantified Monetary Benefits		£m (PVB)	High 81.333	Low 41.846	-	Includes savings in time, vehicle operating costs and accidents taken from Group 1.
Net Present Value Compared to "Do-Minimum"		£m (NPV)	High 58.172	Low 18.785	-	

**A417 BROCKWORTH BYPASS
ENVIRONMENTAL STATEMENT**

7.0 ALTERNATIVES CONSIDERED (See Figures 6 and 7)

7.1 Three options were presented at the Public Consultation which was held in 1984. The Yellow Route, which passed to the south of Brockworth and incorporated sections of the existing trunk road and the Red and Blue Routes, which passed north of the village and shared a common alignment from east of Brockworth Road until merging with the existing trunk road at the foot of Crickley Hill.

7.1.1 At the western end of the scheme the Blue Route ran close to Brockworth village, crossed the Horsbere Brook and terminated at a roundabout junction with Barnwood Bypass at the M5 crossing point. Slip roads from the roundabout up to the motorway would have been provided.

7.1.2 The western end of the Red Route continued on the north side of the Horsbere Brook, a new roundabout would have been constructed at the M5 crossing with slip roads connecting to the motorway. New links were proposed to connect this roundabout to the Barnwood Bypass north of the M5 and to the existing roundabout outside the Gloucester Trading Estate at the start of the Barnwood Bypass.

7.2 From a new roundabout and motorway junction in a similar location to the equivalent Blue Route junction, the Yellow Route would have run initially on the existing Barnwood Bypass before continuing in a south easterly direction across part of the Gloucester Trading Estate. The route would have swung eastwards, skirting Brockworth to the south, before rejoining A417 at the Twelve Bells Public House. From here to the foot of Crickley Hill, the bypass would have been formed as an improvement of the existing trunk road.

**A417 BROCKWORTH BYPASS
ENVIRONMENTAL STATEMENT**

- 7.3 A number of alignment modifications were suggested by members of the public during the Public Consultation, some of which have been incorporated into the detailed design of the Published Route. None of the other routes suggested by the public was considered to provide as cost effective or environmentally acceptable a route for the bypass. Many alternative M5 junction layouts were suggested all of which have been overtaken by events since 1984 when the Public Consultation took place.
- 7.4 The bypass and junction proposals offered at Public Consultation were of course based on traffic predictions current at that time. Since 1984 traffic growth has been higher than was predicted and this, together with the current estimate of future traffic growth, has superseded much of the information on which the Public Consultation routes were designed, to the extent that none of the junction forms envisaged at the time of the consultation would now be operationally adequate. This applies equally to the junction alternatives suggested by the public.
- 7.5 A crucial factor in determining the acceptability of the bypass proposals is the form and operational adequacy of the M5 junction. A key change necessitated by the actual and predicted growth of traffic since 1984 is that 'at grade' junctions with the bypass would not be capable of dealing with the predicted traffic flows for more than a few years after the opening of the road. All of the layouts offered in 1984 included a motorway junction featuring a roundabout which was grade separated from the motorway but 'at grade' with the bypass. Current traffic predictions would, if applied to these junctions, lead to extensive queuing on the roundabout approaches extending up the motorway slip roads and onto the motorway itself. For road safety reasons it would not be defensible to proceed with such a proposal. Many alternative layouts which would provide grade separation with both the M5 and the bypass have been considered, including three level designs, and other free flow layouts; some of these are illustrated schematically in Figure 7.

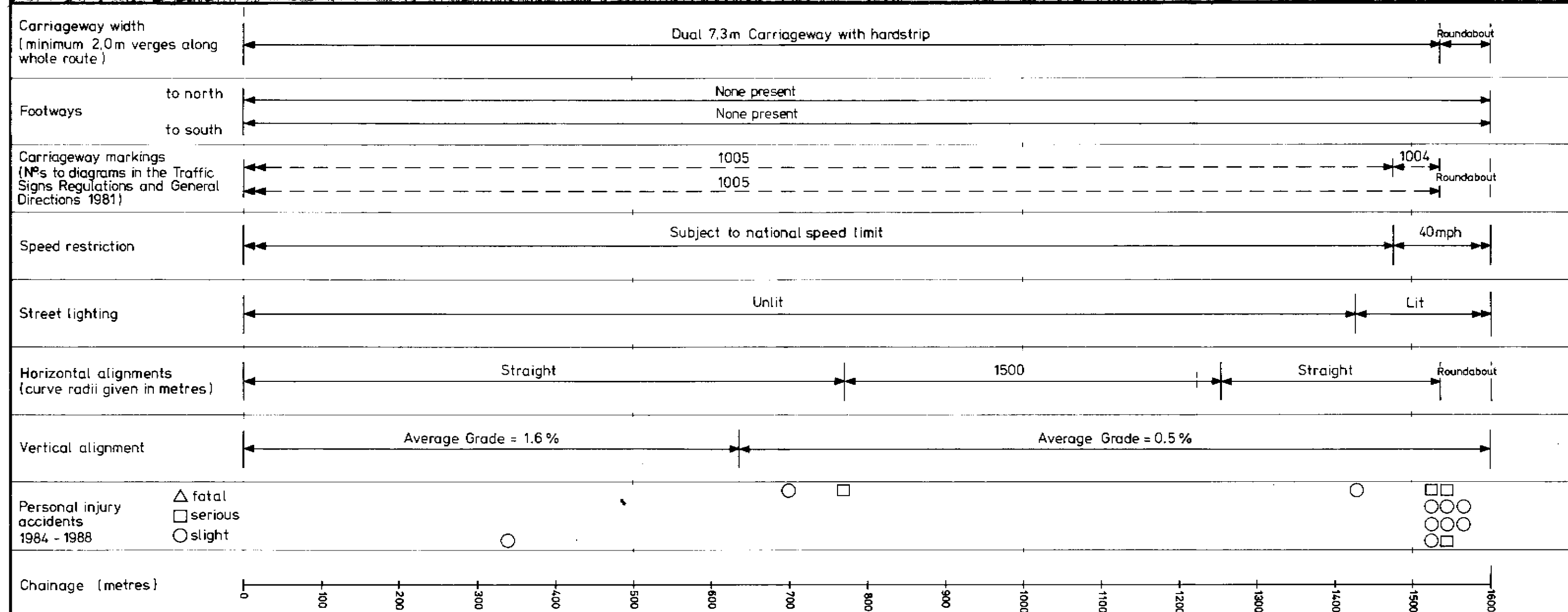
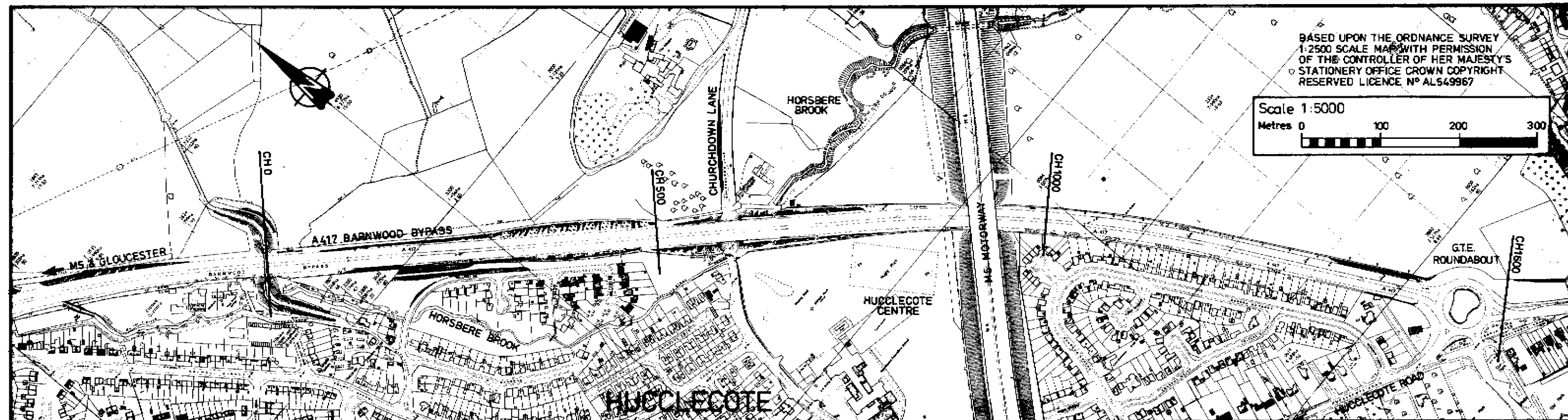
8.0 CHOICE OF PUBLISHED SCHEME

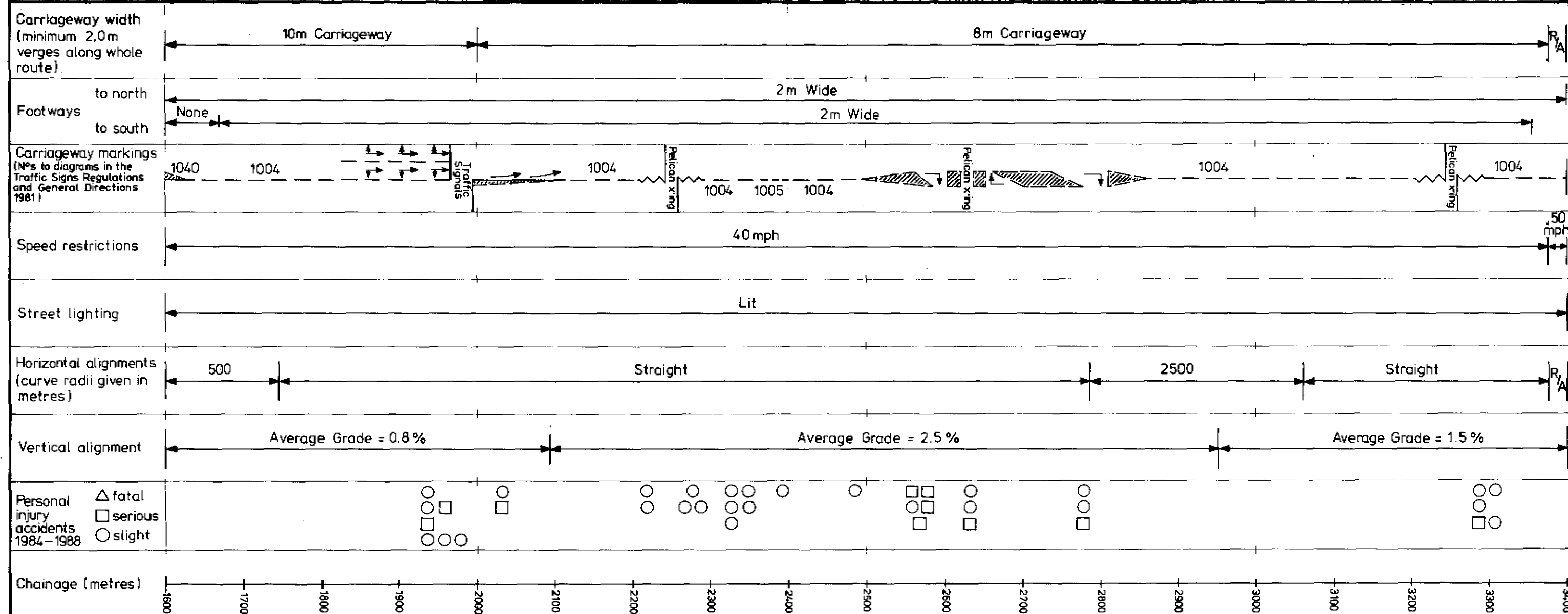
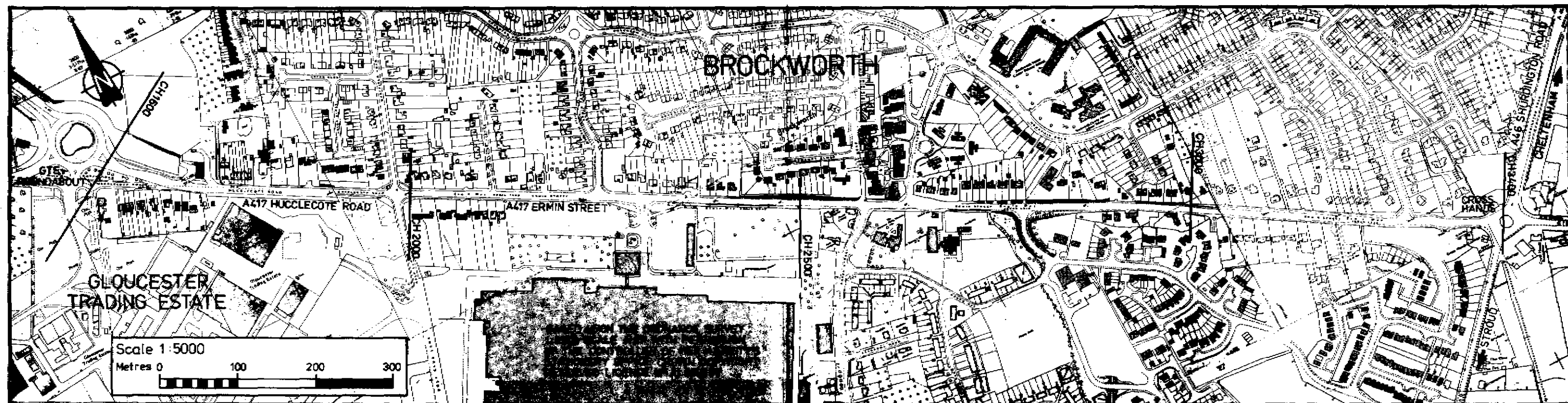
- 8.1 At the Public Consultation there was strong opposition to the Yellow Route, almost 80% of respondents considering it to be the 'worst choice offered'. It would have had by far the greatest impact on residential properties, would have produced less traffic relief through Brockworth, would have perpetuated the conflict between trunk road and local traffic and would have represented the poorest value for money.
- 8.2 For these reasons the Yellow route passing south of Brockworth was rejected.
- 8.3 In sharing a common alignment for the great majority of their length the differences between the Red and Blue Routes related solely to the location of the M5 junction. The Blue route was chosen by the Secretary of State for further development after Public Consultation, but the capacity of the M5 junction proposed at that time would no longer be adequate due to the growth in traffic. The provision of an operationally acceptable M5 junction on the Blue Route would be environmentally unacceptable in view of the close proximity of a large number of residential dwellings.
- 8.4 The Published Route approximates most closely to the Red Route, which was supported by approximately 70% of local respondents at Public Consultation, although the scale of the M5 junction now proposed is significantly larger than that exhibited in 1984.

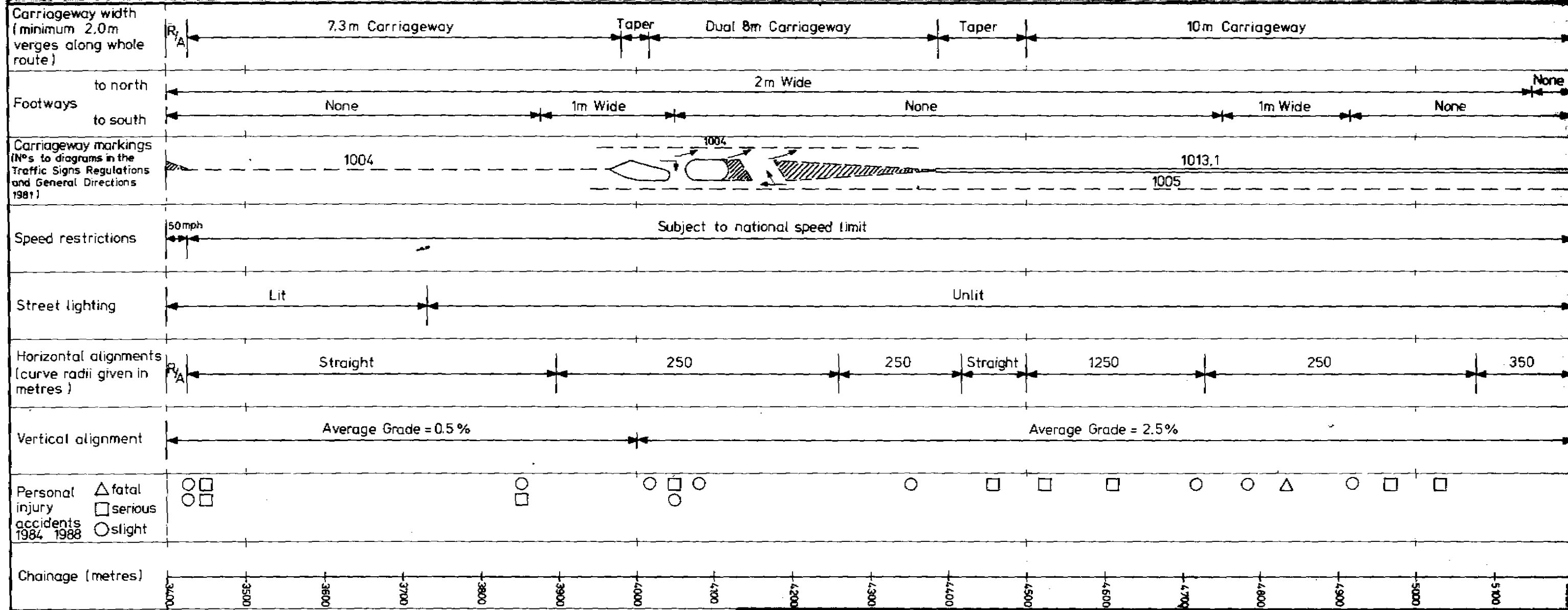
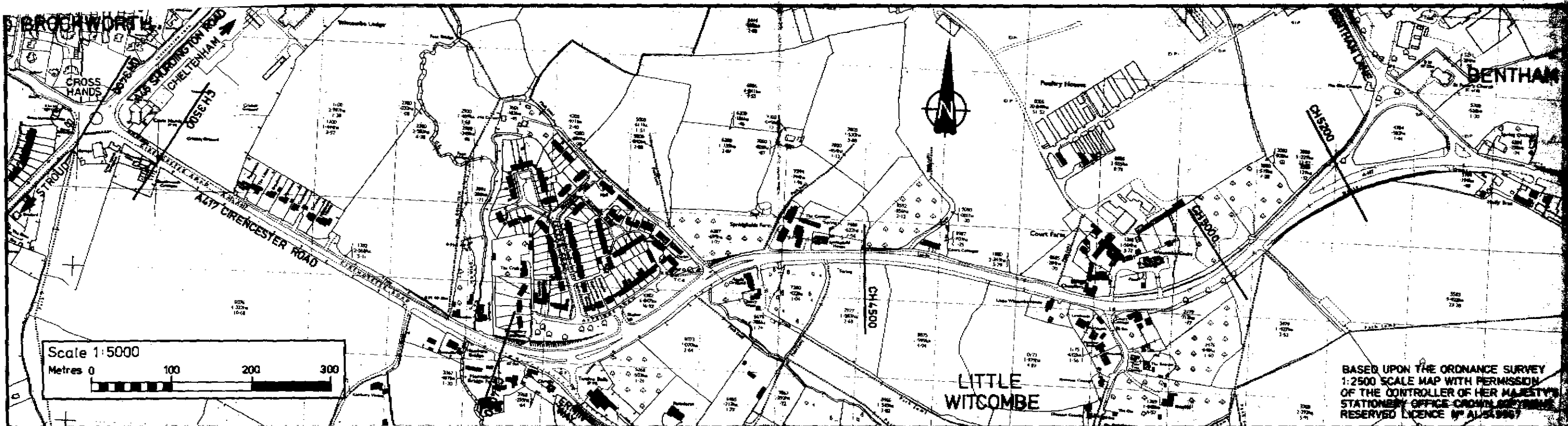
A417 BROCKWORTH BYPASS
ENVIRONMENTAL STATEMENT

- 8.5 Due the restricted nature of the M5 junction site it has been a design objective to contain the 'sprawl' of slip roads not only in the horizontal but particularly in the vertical plane. The current layout (Option D in Figure 7D) achieves this by the particular form of junction devised which does not provide for all turning movements between the motorway, the bypass and the local roads, thus avoiding an over concentration of traffic flows in a single location. The junction is a relatively compact two level layout with the bypass and slip roads passing beneath the M5, presenting a minimum of visual impact when viewed from the surrounding area.
- 8.6 To enhance the operational efficiency and cost effectiveness of the layout the major strategic traffic movement between the M5 north and the bypass east is achieved by means of free flow connections; secondary turning movements are catered for by means of a roundabout which is grade separated from the bypass. Connection to the local road network is not provided at the interchange but a link to the Gloucester Trading Estate could be accommodated via the grade separated roundabout if others choose to promote it.
- 8.7 None of the alternative layouts considered meets these design objectives in as effective a manner.

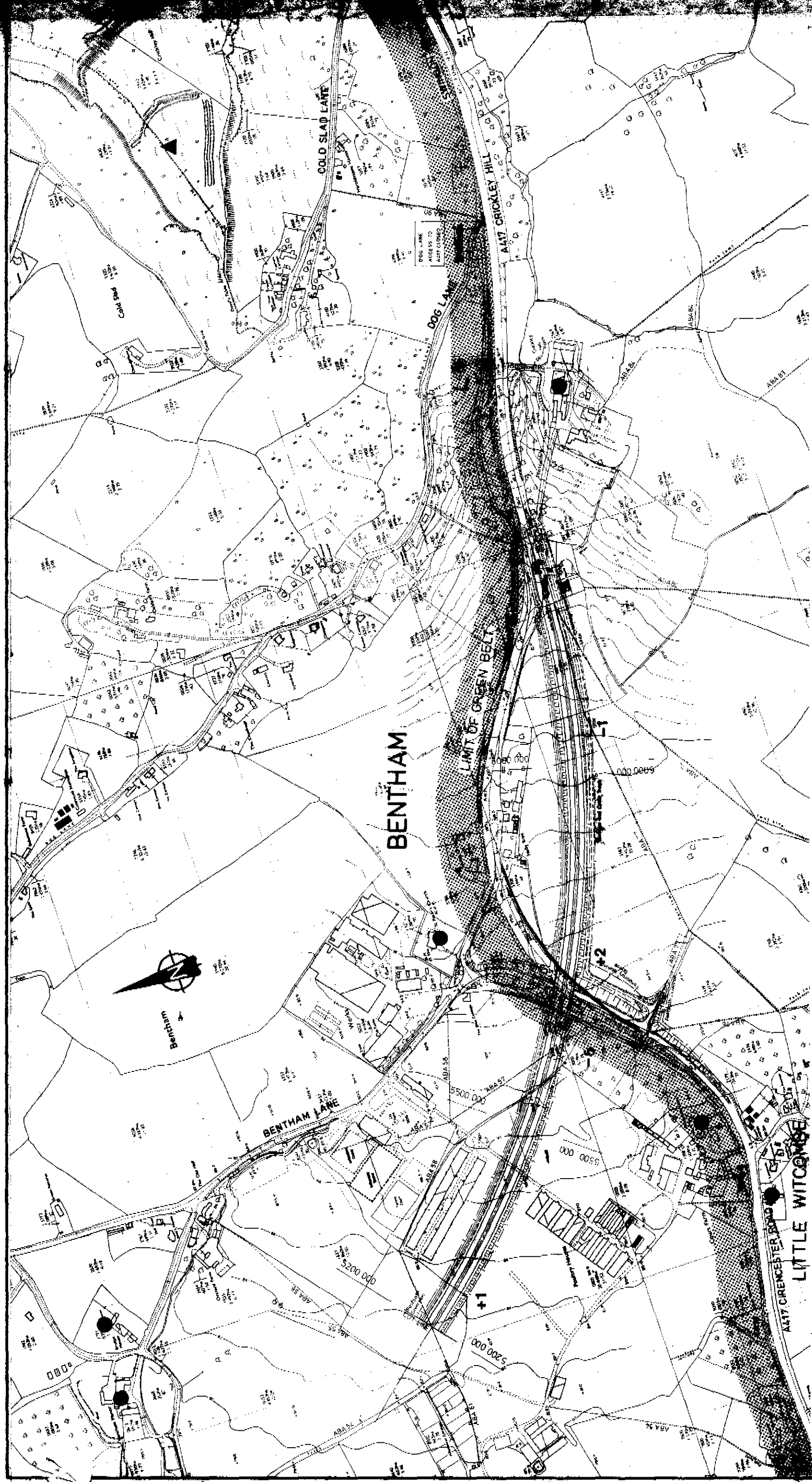








A47 EXISTING TRUNK ROAD STANDARDS CROSS HANDS TO BENTHAM SHEET 3



KEY

- +3 HEIGHT OF EMBANKMENT
- 3 DEPTH OF CUTTING
- LISTED BUILDING
- ▲ SCHEDULED ANCIENT MONUMENT

BASED UPON THE ORDNANCE SURVEY
1:2500 SCALE MAP WITH PERMISSION
OF THE CONTROLLER OF HER MAJESTY'S
STATIONERY OFFICE CROWN COPYRIGHT
RESERVED LICENCE NO AL545967

Scale 1:5000
Metres 0 100 200

12 Millfields,
Hucclecote,
Gloucester,
GL3 3NW

Jones,
Minister of Transport,
South West Construction Department, 11, 12, 13,
Tollgate House,
Houlton Street,
Bristol, BS2 9BB

21st June 1994

Dear Sir,

A417 Brockworth bypass

by whom?

On several occasions during the past year the Brockworth bypass inquiry, started by the Department of Transport to the effect that after the inquiry the DOT would arrange meetings with the affected parties in order to come to an agreement regarding planning of the road through the houses in Millfields. To be exact and live in numbers 8 - 10 are particularly concerned about this because it looks as though our houses are in the way of the bypass.

whose
road?

It is now well known that the conclusions of the Inspector's report are being used as a basis for the planning of the acoustic fence. The local people and the Gloucestershire Council therefore have to be kept informed on any such matters and any such meeting should be held at all times of the DOT.

Our main concern is that the road should be a straight line and could be agreed by the DOT. The road could take place this autumn and the houses could be moved to the new road until completion of the bypass.

Could you please let us know what the DOT is doing regarding the bypass and the road and the state which you have in mind for the road?

The second point is that we would like to know if the DOT is going to be taking the road from the local people and the public and giving it to the DOT. We would like to see the DOT papers, the DOT's contribution to the road and we were told on many occasions that the DOT is not going to be taking the road from the local people and the public and giving it to the DOT.

Roger Park assist pm.

Seek info from Graham's as to whether

Coopers have opened negotiations with C, CC and if not why not?

3643

about two years. We have now learnt that since the next section of road from Zoons Court bridge to Elmbridge Court has been abandoned, the temporary roundabout will become a permanent feature.

This is very worrying because it is expected that a considerable amount of extra noise from the new bypass will be generated from traffic slowing down, then starting up again and changing through the gears as they have to climb up a steep incline towards Churchdown Lane. Therefore since the permanent nature of this roundabout is not as was proposed in the public inquiry nor as recommended to the Minister in the inspectors report, could you please advise us of your proposals to protect our houses from what will now be a permanent rather than a temporary nuisance.

Yours faithfully,

A. E. Buck

D. E. Buck on behalf of:

8 Millfields

[Signature]

J. A. Smith

10 Millfields

S. G. W. Rice

C. G. McCree

12 Millfields

A. E. Buck

x Buck

14 Millfields

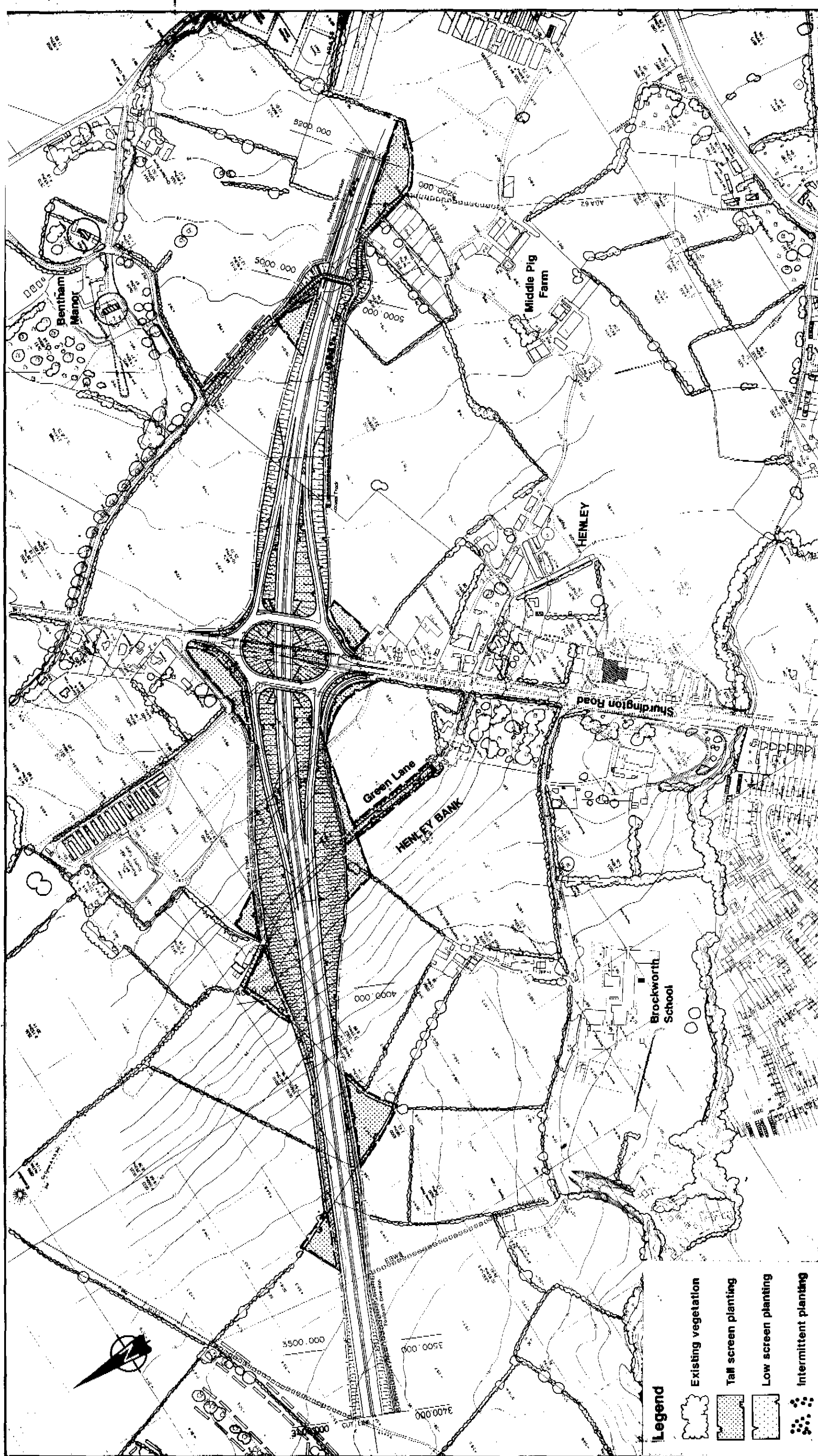
D. M. Sweeney

D. M. Sweeney










16 Millfields

P. Stone

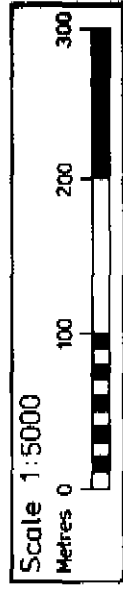
P. Stone

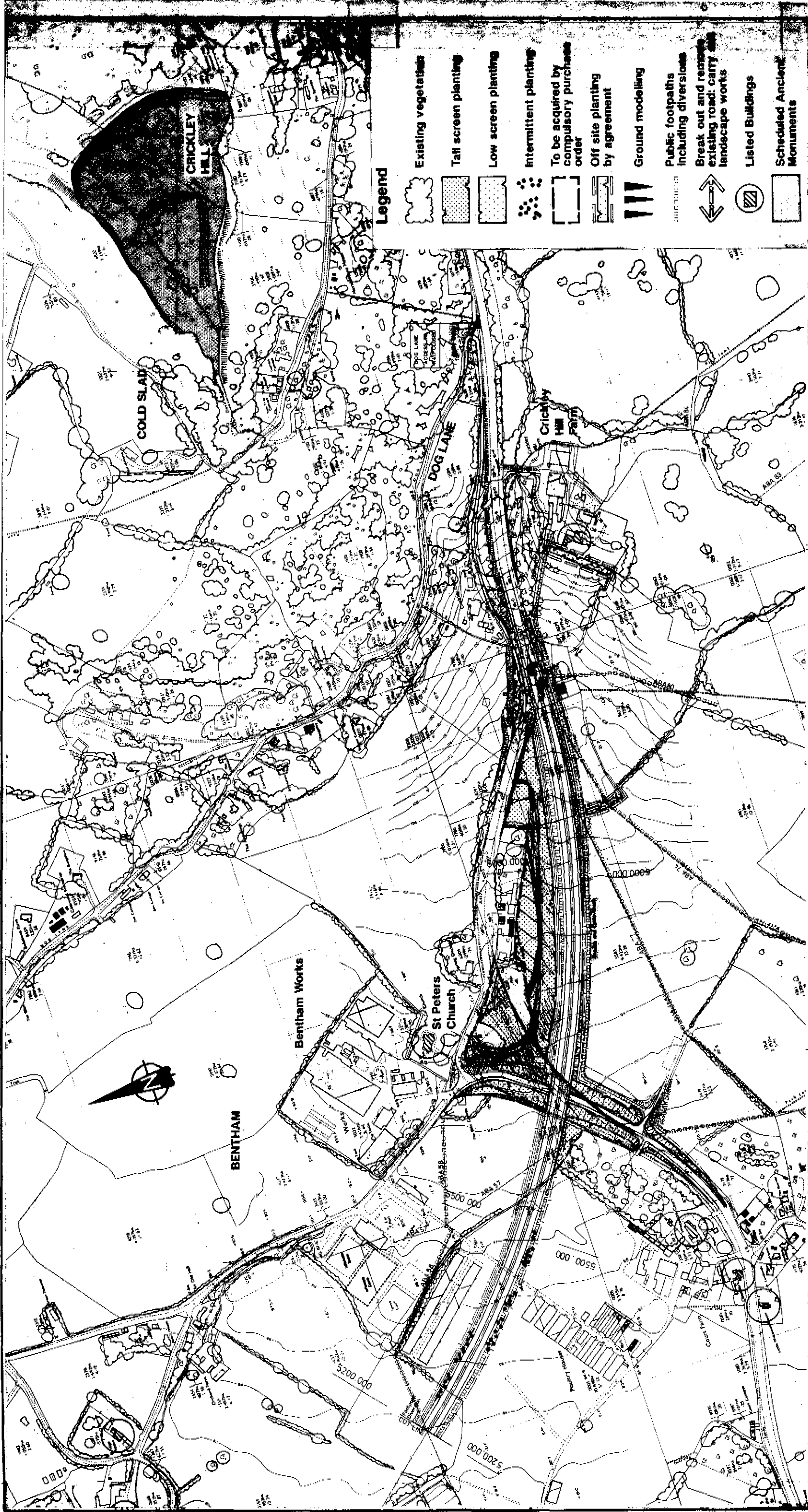


Legend

-  Existing vegetation
-  Tall screen planting
-  Low screen planting
-  Intermittent planting
-  To be acquired by compulsory purchase order
-  Management by agreement
-  Ground modelling
-  Public footpaths including diversions
-  Listed Buildings

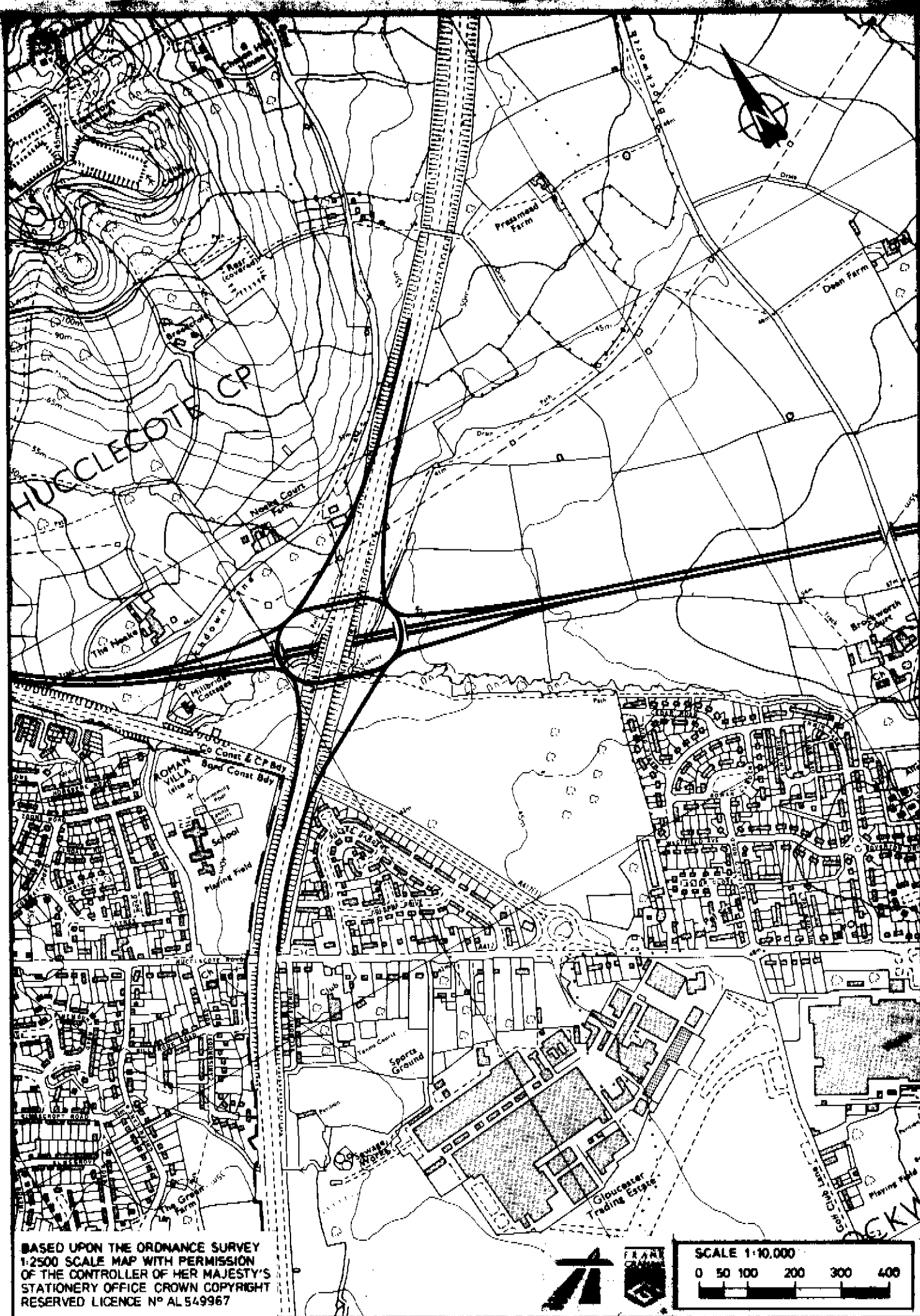
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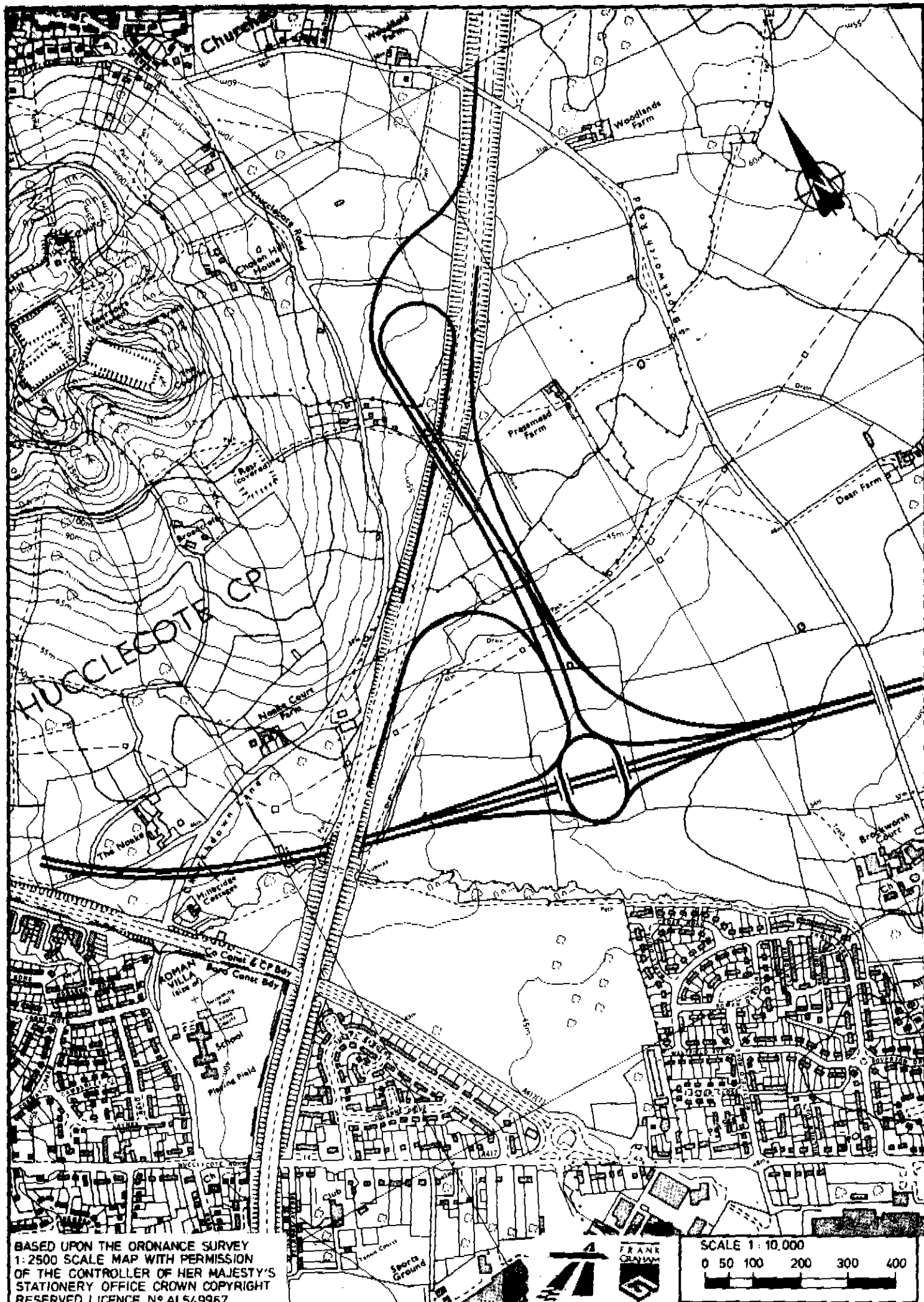
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A417 BROCKWORTH BYPASS
ALTERNATIVE M5 JUNCTION LAYOUT OPTION A

Figure 7A



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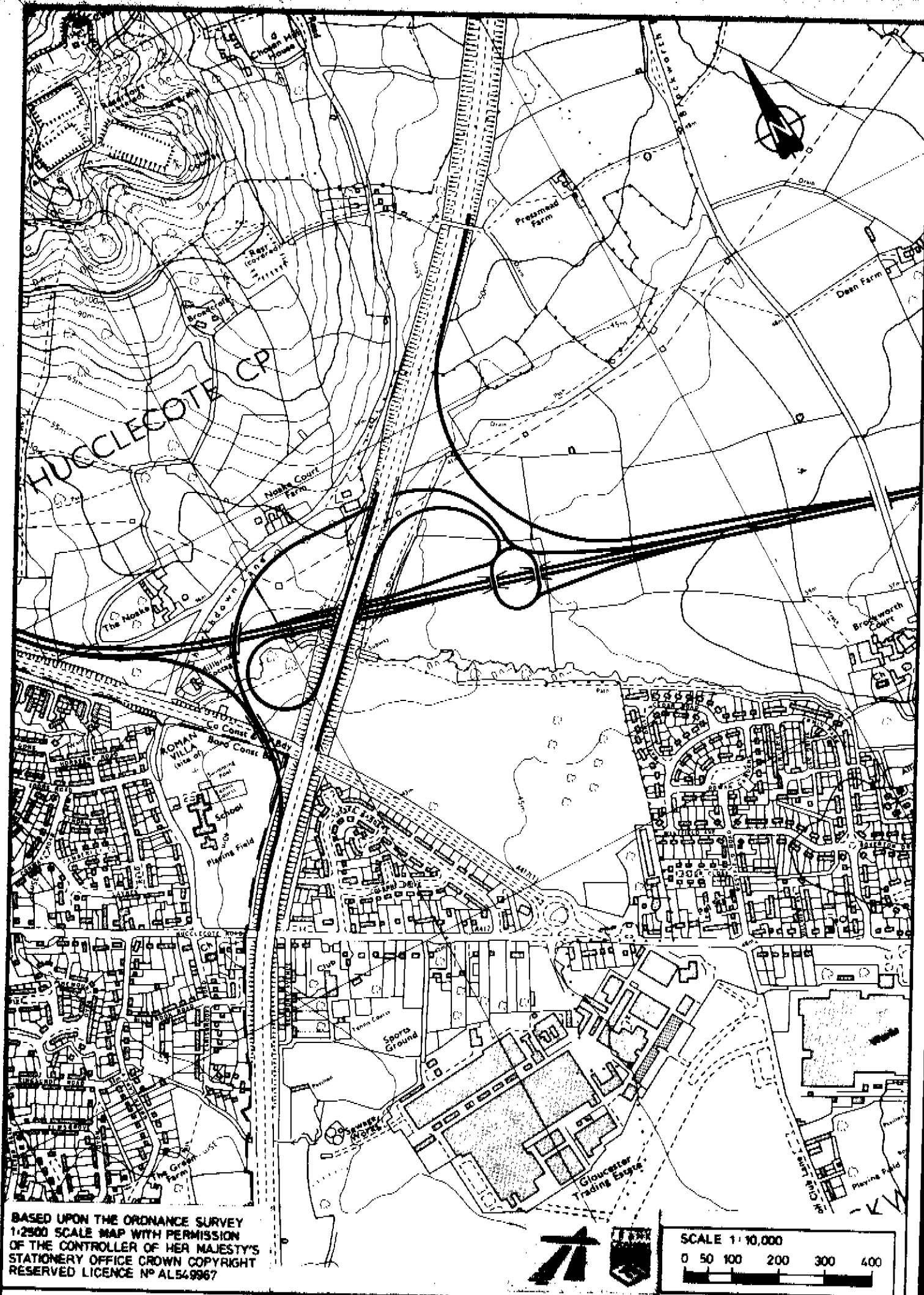
A 47 BROCKWORTH BYPASS
ALTERNATIVE M5 JUNCTION LAYOUT OPTION B

Figure 7B



A417 BROCKWORTH BYPASS
 ALTERNATIVE M5 JUNCTION LAYOUT OPTION C

Figure 7C



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A 417 BROCKWORTH BYPASS
ALTERNATIVE M5 JUNCTION LAYOUT OPTION D

Figure 7D



UNCLASSIFIED

TOLLGATE HOUSE

HA 044/027/000563 1

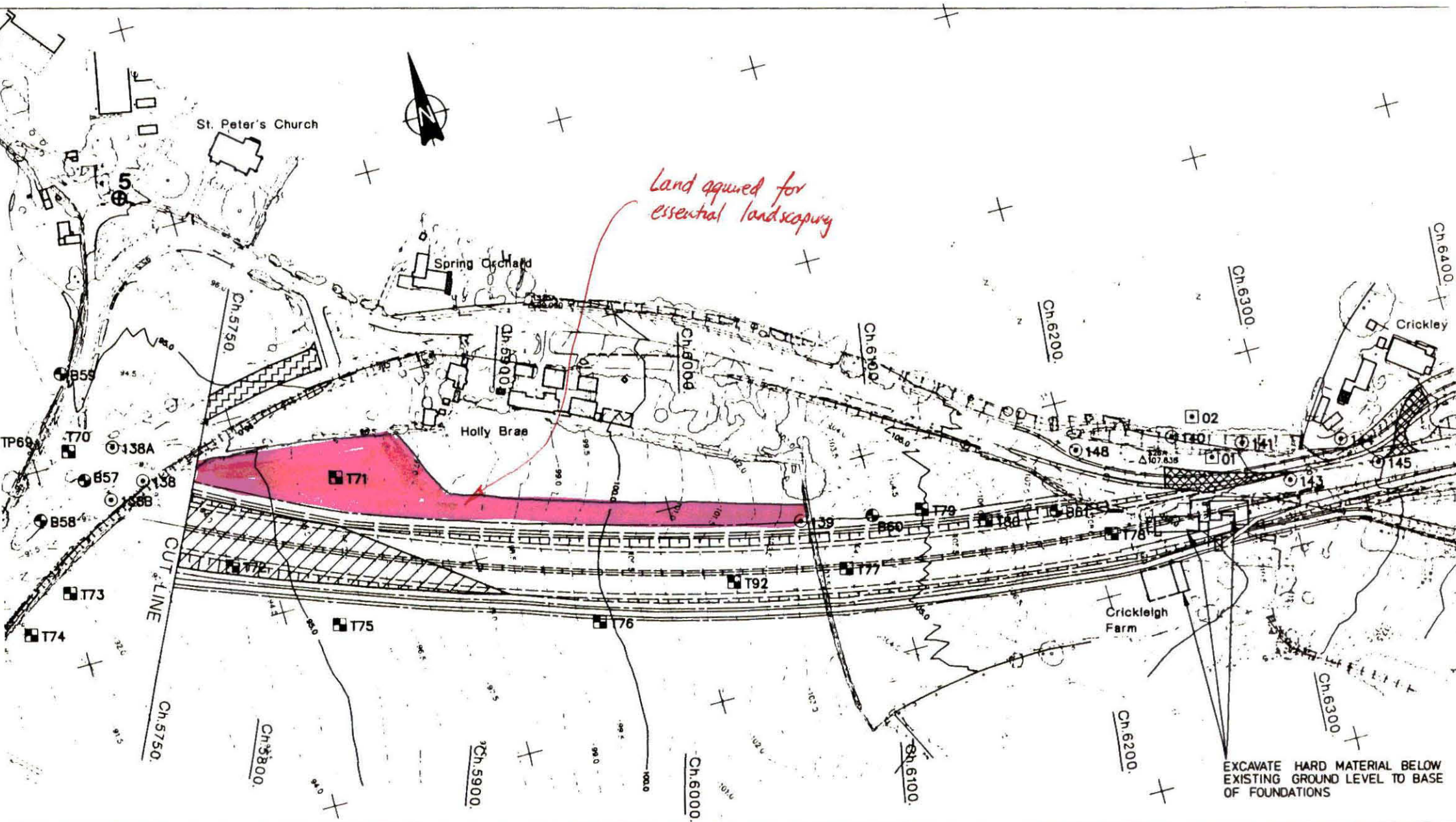
ENVIRONMENT & LANDSCAPE
Environmental Statement

08/04/2001 14:53:04

A417 BROCKWORTH BYPASS – ENVIRONMENTAL STATEMENT 01/91



HA 44/27/563# 1



Land acquired for
essential landscaping

Spring Orchard

Holly Bragg

Crickley

Crickleigh
Farm

EXCAVATE HARD MATERIAL BELOW
EXISTING GROUND LEVEL TO BASE
OF FOUNDATIONS

TOPSOIL STRIP 0.25m

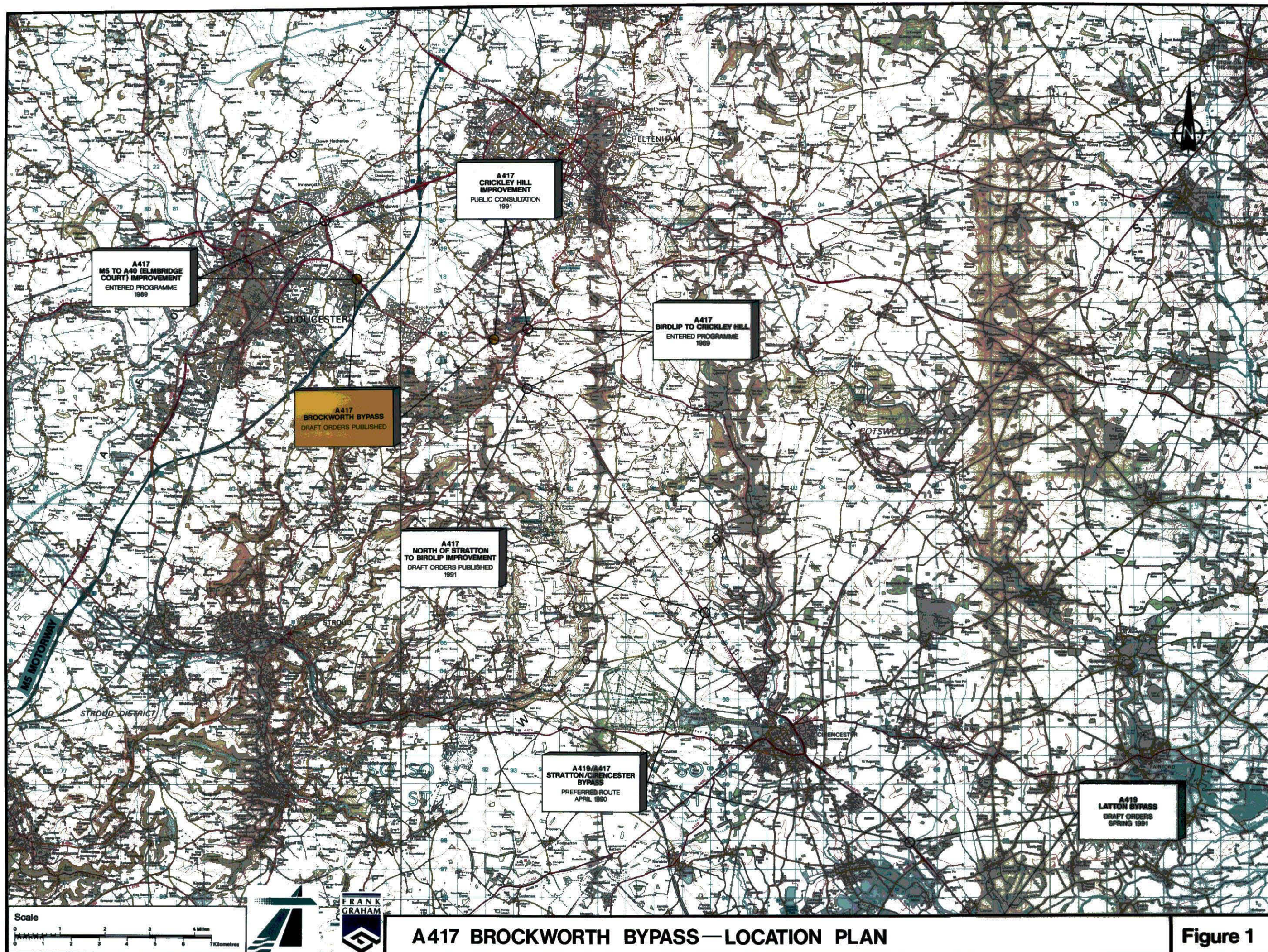
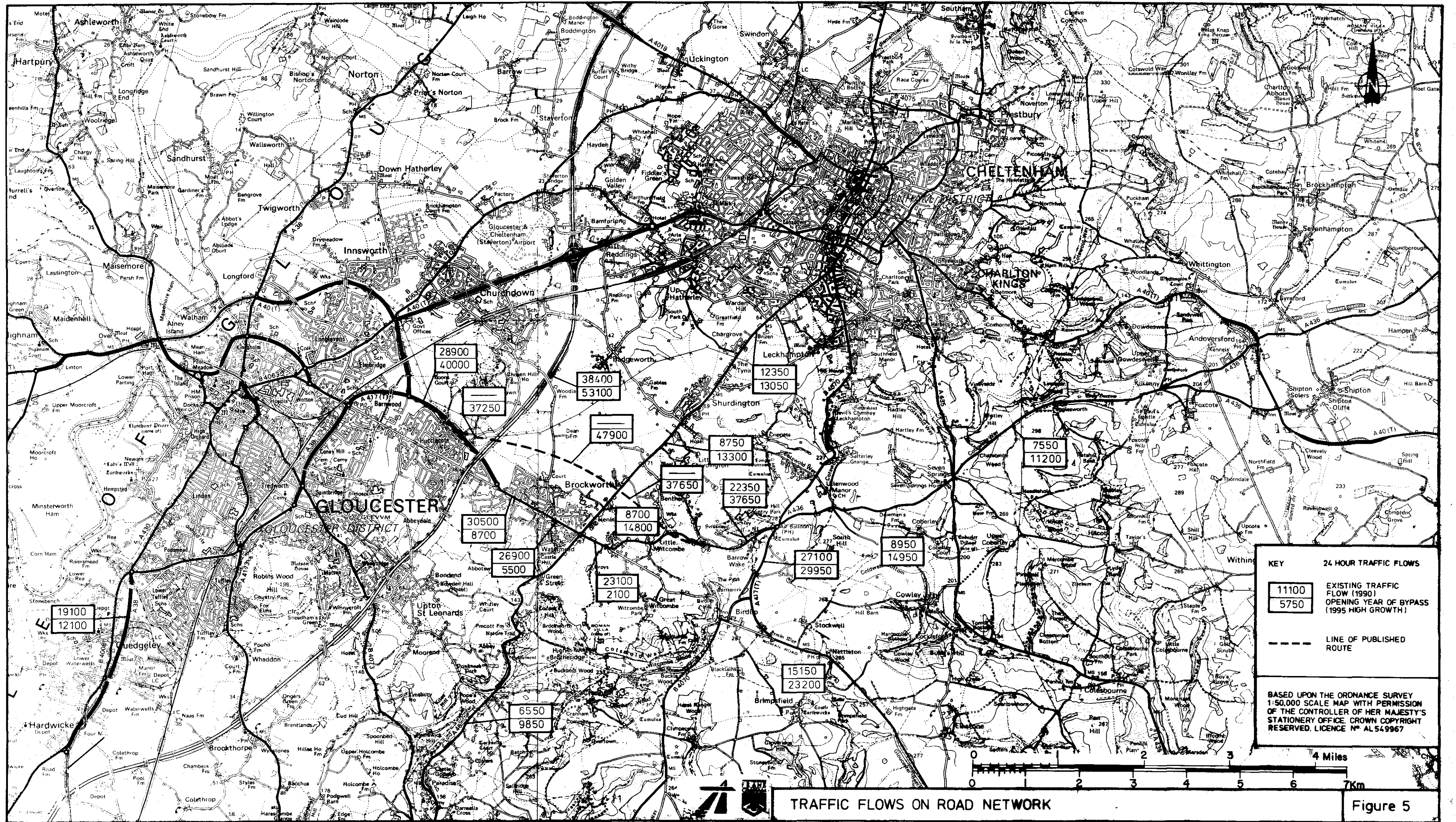
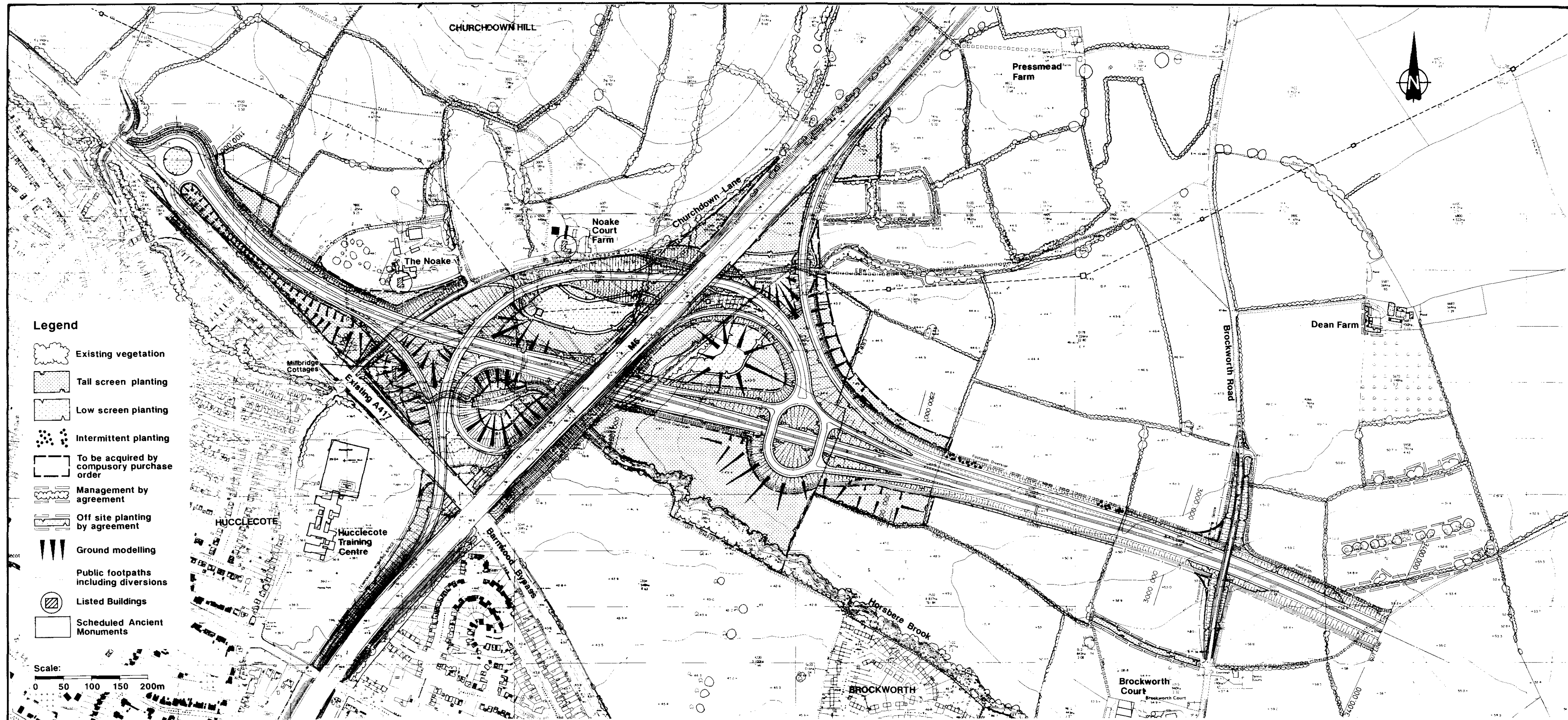


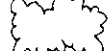

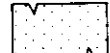

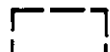
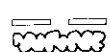
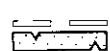




Figure 1







Legend

-  Existing vegetation
-  Tall screen planting
-  Low screen planting
-  Intermittent planting
-  To be acquired by compulsory purchase order
-  Management by agreement
-  Off site planting by agreement
-  Ground modelling
-  Public footpaths including diversions
-  Listed Buildings
-  Scheduled Ancient Monuments

Scale:
0 50 100 150 200m

Scale 1:5000
Metres 0 100 200 300

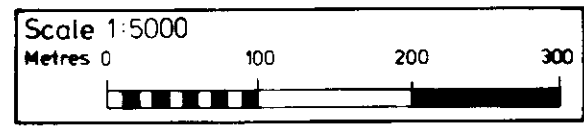
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- KEY
- +3 HEIGHT OF EMBANKMENT
 - 3 DEPTH OF CUTTING
 - LISTED BUILDING
 - ▲ SCHEDULED ANCIENT MONUMENT

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A417 BROCKWORTH BYPASS - PUBLISHED ROUTE SHEET 1

Figure 3A