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Leominster Industrial Relief Access Road

Feasibility Study

Northern Option

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Report No. 622185/1

February 1995

**Leominster Industrial Relief Access Road
Feasibility Study - Northern Option**

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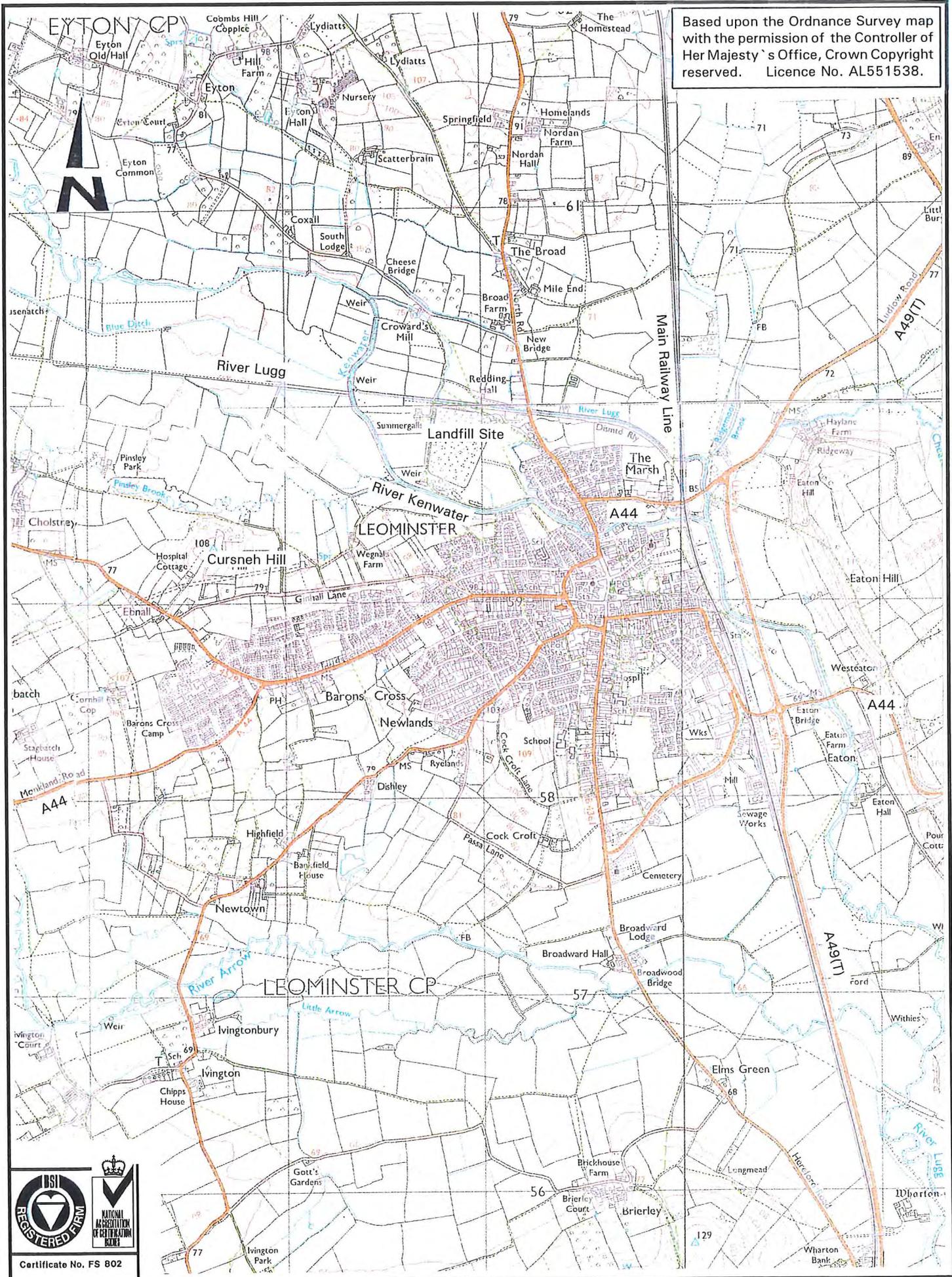


FIGURE 1
LOCATION PLAN
SCALE 1 : 25000

1.0 INTRODUCTION

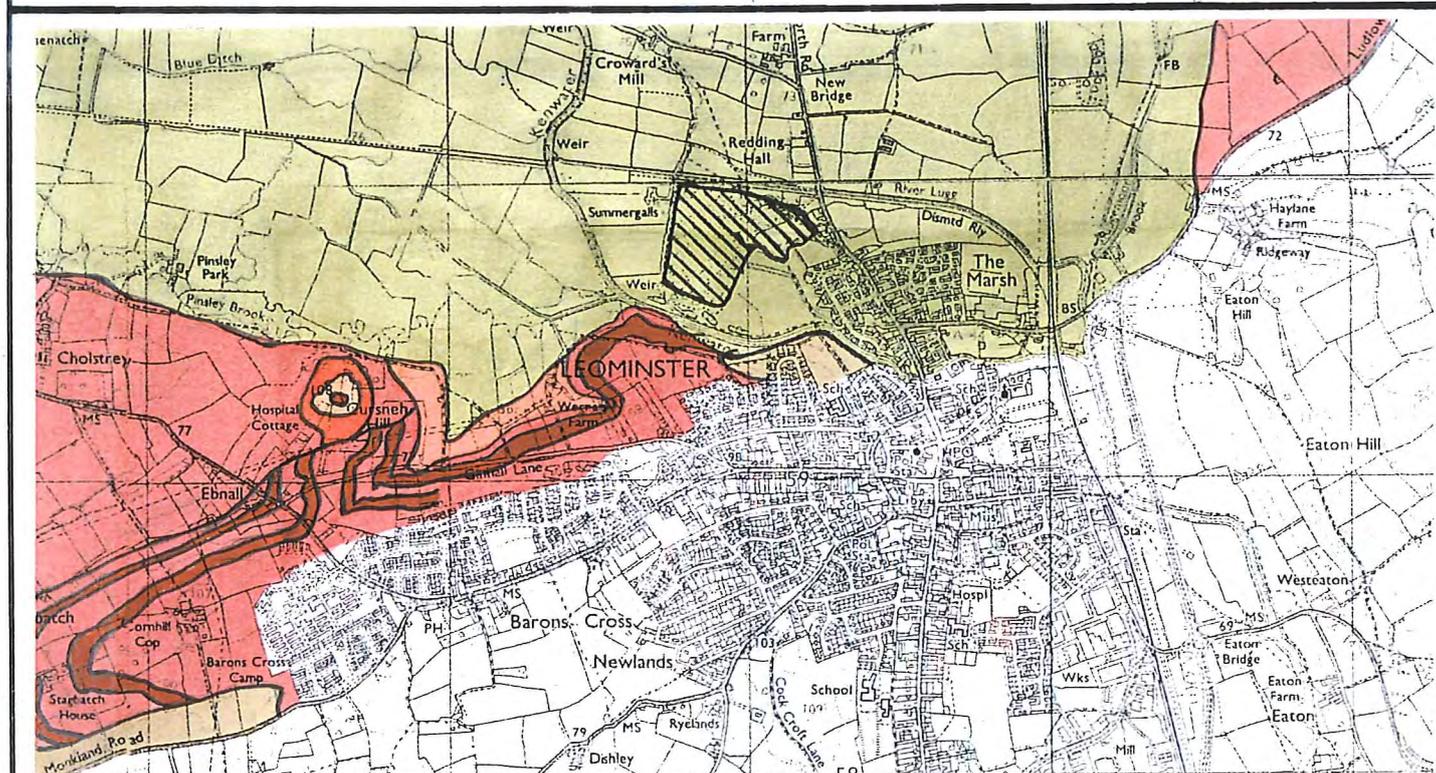
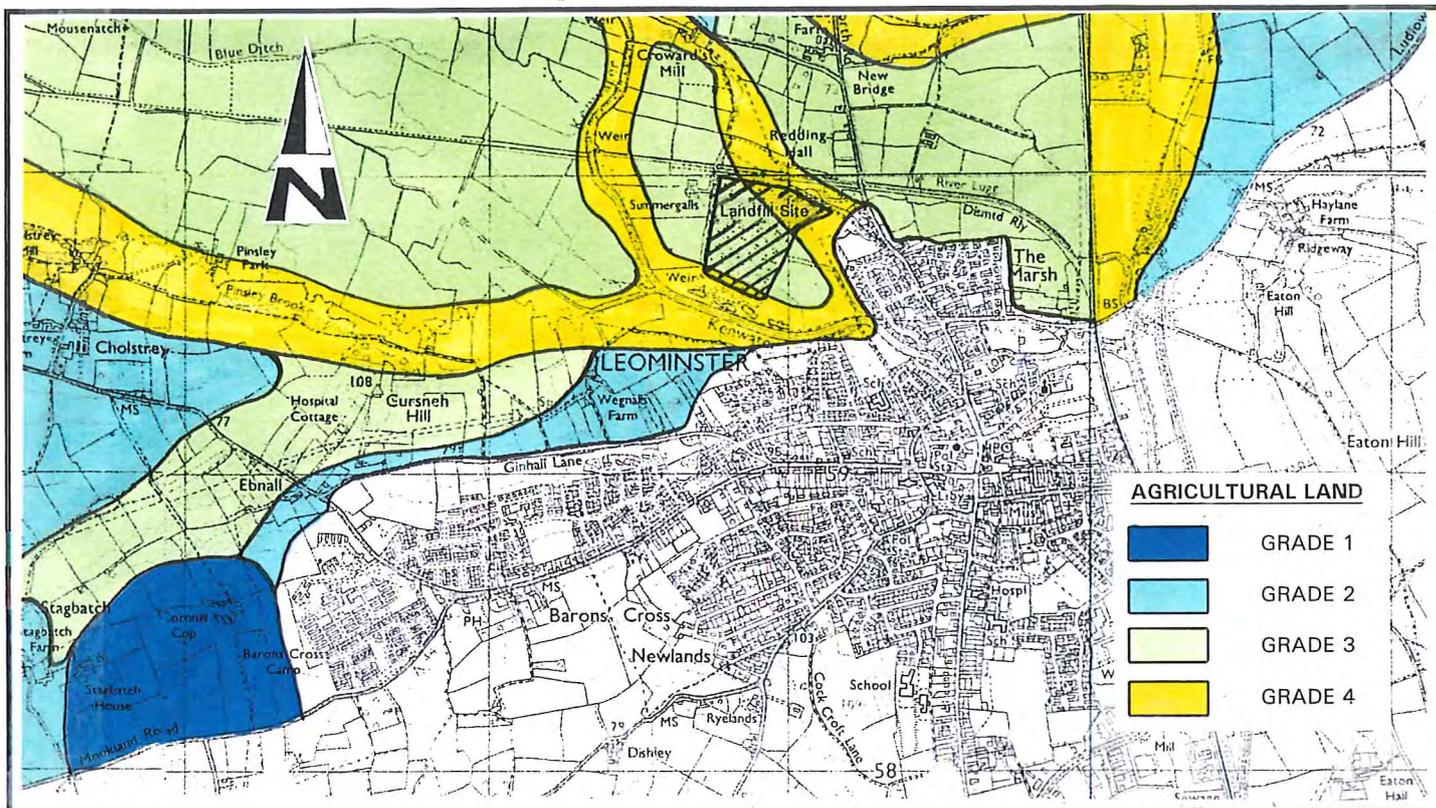
1.1 Allott and Lomax were appointed, in a letter dated 20th January 1995, to extend the scope of the Feasibility Study in order to consider the implications of a route which passes to the north of the town as opposed to previously considered route options all of which pass to the south of the town. To that extent this report may be considered as an addendum to the earlier "Feasibility Study - Interim Report" dated December 1994.

1.2 The objective of this study is to identify the optimum route which would enable the A44 to be re-routed to the north of the town centre whilst taking consideration of the various physical constraints which exist to the north of the town. These include:-

- The River Lugg and Kenwater
- The main Hereford - Crewe railway line
- The Landfill Site
- Localised high ground at Cursneh Hill

See figure 1 opposite.

1.3 The study includes an environmental appraisal and an evaluation, in traffic terms, of the effectiveness of a northern route as east-west link.



GEOLOGY KEY

SOLID

- St. Maughan's Formation
- Raglan Mudstone
- Sandstone
- Calcrete Limestone
- Made Ground

DRIFT

- Alluvium
- Till
- Head Deposits



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FIGURE 2
AGRICULTURAL LAND & GEOLOGY
SCALE 1 : 25000

2.0 BACKGROUND

2.1 Agricultural Land

The majority of the area immediately to the north of the town is Grade 3 and Grade 4 agricultural land. However to the west of the town in the area where the east-west link would rejoin the A44 to the west of Barons Cross, Grade 1 and Grade 2 agricultural land is present. See figure 2 opposite.

2.2 Geology

The route is underlain by the Raglan Mudstone deposits, which is the characteristic strata of the area. However east of Plinsley Brook, i.e. for the majority of the route, the mudstone is overlain by the alluvial deposits associated with the River Lugg/Kenwater floodplains - see Figure 2 opposite.

2.3 Public Utilities (Drawing No 62218/G/04)

Numerous overhead low voltage electricity cables (Midlands Electricity) criss-cross the area immediately north of the River Lugg which represents the limit of the built up area to the north of the town. To the west two overhead high voltage electricity lines emanate from a sub station north of Ginhill Lane and run in a westerly direction but one of these veers to the south crossing Monkland Road to the west of Barons Cross Camp. British Telecom overhead lines also pass through open countryside to the north and west of the town but apart from these, the only locations where public utilities are likely to conflict with the route option will be at the crossing points of North Road (B4361) and Cholstrey Road (B4529).

3.0 PLANNING AND ENVIRONMENTAL CONSTRAINTS

(Drg No 62218/G/03)

3.1 Land Use

The land within the study area, to the north and west of the developed boundaries of Leominster, is almost entirely agricultural land. The land is given over to both pasture and arable use with the lower ground being mainly pasture.

3.2 Nature Conservation

The River Lugg, Kenwater, Crowards Mill Leat and Broad Farm Book have all recently been designated (1/2/95) as a Site of Special Scientific Interest (SSSI). The main interest relating to these sites is breeding otters, a protected species which are becoming re-established in western parts of England. The Pinsley Brook is a Special Wildlife Site designated by the Herefordshire Nature Trust.

3.3 Heritage

There are isolated listed buildings within the area of the route corridor at the Wharf (Ludlow Road), Broad Farm, Ebnall Farm, Bedford Cottages, Stagbatch House, Snowdale Cottages and Stagbatch Farm. There are no known sites of archaeological interest within the study area.

3.4 Landfill Site

A landfill site exists to the north of the town between the Rivers Lugg and Kenwater.

4.0 ROUTE DESCRIPTION (Drg No 62218/G/02)

4.1 Factors Influencing Alignment of Route

4.1.1 The existing roundabout junction of the A49(T) with the A44 is the preferred location of the eastern extremity of the route. It cannot be further south because of development and if it were further north the route would become onerously long as the A49(T) veers away to the north-east of Leominster.

4.1.2 New development and the presence of the landfill site constrain the route to pass north of Summergalls. It is considered that the engineering problems involved in passing through the landfill site would be too onerous to contemplate.

4.1.3 Cursneh Hill represents both a physical and environmental constraint and the route must pass either to the south or north of it. The corridor to the south will almost entirely be barred by new housing development and associated landscape features. The route is therefore constrained to pass to the north of Cursneh Hill.

4.1.4 Beyond Cursneh Hill the presence of residential properties, including the listed Bedford Cottages and Ebnall Farm and the presence of overhead power lines virtually rule out any possibility of passing between Cornhill Cop and Barons Cross Camp. The obvious location for the western extremity of the route would therefore be a roundabout junction with the A44 Monkland Road at the existing Newtown Lane junction location.

4.1.5 For the above reasons it is considered that the selected option is the shortest practical route which can be proposed for a northern A44 bypass of Leominster.

4.2 The Route - Ludlow Road the North Road

The route would form a fourth arm to the existing A49(T)/A44 roundabout at Ludlow Road. The alignment from this point would take the route through a grassed area within the existing service station complex. It is understood that the grassed area is the site of a proposed roadside restaurant facility although there is some doubt as to whether this development option would be pursued by the promoter. Beyond the service station complex the route would cross Ridgmoor Brook on an embankment 1 metre above ground level rising to 7 metres above ground level as it crosses the main Hereford - Crewe railway line. After crossing the railway line the route would descend rapidly and continue on shallow embankment to its junction with North Road, which is likely to be a roundabout. The route would pass to the north of the poultry houses as virtually the whole area between Portley House and the poultry houses is now developed with agricultural buildings. The area to the west of the railway line and to the east of North Road, immediately to the north side of the route has been identified as the probable location of the proposed industrial area which would be served by this route option. It is considered that two access points, one off the North Road roundabout and one to the west of the railway line would be required to feed a loop road system to service the industrial area.

4.3 The Route - North Road to Monkland Road

In the stretch between North Road and Cholstrey Road the route would cross four watercourses in quick succession all of which are designated as sites of Special Scientific Interest (SSSI's). These are Broad Farm Brook at the roundabout on North Road, Cowards Mill Leat, The River Lugg and the River Kenwater. The former two will require culverts and the latter two bridges and great care would be required to minimise adverse effects on the SSSI's. A further watercourse, the Pinsley Brook, which is a Special Wildlife Site would require a culvert. In all this section the route would be on shallow embankment, 1-1.5 metres above ground level, in order to be above the maximum recorded flood level. The route would skirt around the northern edge of Cursneh Hill and form a roundabout junction with the B4529 Cholstrey Road.

Beyond Cholstrey Road the route would cross the line of an overhead electric power line, which would require to be raised as the road would be on 2 metre high embankment at this point. As the route climbs the hill close to Cornhill Cop it would enter a section of cutting up to 3 metres deep before forming a roundabout junction at Monkland Road where Newtown Lane joins it.

5.0 COST ESTIMATE

An estimate of the cost of the route option has been made using approximate quantities derived from 1/2500 drawings according to the simplified methodology described in the July 1992 Estimating Manual prepared by Lincolnshire County Council for highway schemes which is an appropriate basis for preparing estimates of this type. It gives unit rates for carriageway construction costs with additional allowances to take account of CBR of the sub-grade and volume of traffic in commercial vehicles per day. The methodology used and the rates applied are illustrated by the accompanying proformas included in this report. These proformas demonstrate the costs assumed for each part of the route, treating eastern and western sectors as independent to reflect the fact that sections to the east and west could be let as separate contracts. (As such balance of earthworks has been assessed as a self-contained exercise - the balancing of earthworks along an entire east-west route would reduce costs slightly compared with simply summing the cost of the two sectors of each route.) The proformas are set out in terms of Works Costs, Statutory Undertakers, and Land Costs. In the case of Works Costs and Statutory Undertakers, where rates are based on Lincolnshire's July 1992 rates, these have been rebased on Q1/1994 using the Road Construction Price Index (RPI) and adjusted where necessary to take account of regional variations - particularly with regard to material costs. Additions for Preliminaries to the works costs vary according to the complexity of the works between 10% for general rural work to 15% for work involving extensive traffic control. A standard 10% addition has been used for contingencies throughout. In terms of Land Costs, local land agents have intimated that these are typically £5000/ha for agricultural land. For Statutory Undertakers diversion works notional rates based on the Lincolnshire document have been used.

**Cost Estimate Summary Sheet
Northern Route Option**

	<u>East of North Road</u>	<u>West of North Road</u>
(Length km)	(1.22)	(3.4)
Works Cost (£)	2,161,000	3,457,000
Statutory Undertakers (£)	36,000	79,000
Land (£)	200,000 *	23,000
TOTAL	£2,397,000	£3,559,000

NOTES

1. Costs are based on Q1/1994 prices
2. Preparation and supervision costs are excluded.

* Land cost for eastern section is very notional because of uncertainty about the cost to the scheme of utilising a potentially developable corridor through the service station.

Cost Estimate Proformas

The methodology used for estimating the cost of the road construction items is as follows:-

A. Carriageway

Cost assuming CBR > 5% (total area including side roads)

Additional cost assuming CBR 2-5% (appropriate proportion of total area)

Additional cost assuming CBR 0-2% (appropriate proportion of total area)

Additional cost for traffic 200-1000 cv/d (total area excluding side roads)

B. Edge Construction

Cost assuming CBR > 5% (appropriate proportion)

Cost assuming CBR 2-5% (appropriate proportion)

Cost assuming CBR < 2% (appropriate proportion)

Road construction costs are thus assessed on the basis of area (carriageway) and linear measurement to identify additional costs associated with forming the road edges. The appropriate quantities, taken from 1/2500 drawings, have been apportioned according to anticipated CBR values on the basis of the Geotechnical Desk Study (reference 1).

**Leominster Industrial Access Relief Road
Feasibility Study
Works Cost Estimate Proforma**

Route: North Route - East Section

Drawing No: 62218/G/02

	Quantity	Unit	Rate	Cost
Carriageway (CBR > 5%)	8906	m ²	20.6	184,000
Extra CBR 2-5%	-	m ²	3.4	-
Extra CBR < 2%	8906	m ²	6.8	61,000
Traffic 200 - 1000 cv/d	8906	m ²	8.6	77,000
Edge Construction (CBR < 2%)	2360	m	17.85	42,000
Edge Construction (CBR 2-5%)	-	m	13.65	-
Edge Construction (side roads)	-	m	10.15	-
Kerbing	2450	m	8.00	20,000
Concrete edging	-	m	5.50	-
Edge treatment- soil & seed	2360	m	1.0	2,000
Gullies	53	Nr	402	21,000
Carrier Drain in verge	1640	m	27.0	44,000
Drainage Outfall Requirements		Sum		
Earthworks - Topsoil strip 150mm deep	2250	m ³	4.0	9,000
Excavate 450mm deep	6750	m ³	5.0	34,000
Fill (place & compact)	41500	m ³	5.0	207,000
Dispose of surplus	6750	m ³	4.75	32,000
Imported fill	39250	m ³	11.5	451,000
Landscaping	2400	m	5.25	12,000
Street Lighting	40	Nr	690	28,000
Roundabout Junction	1	Nr	75,000	75,000
Structures -		Sum		330,000
Retaining Walls -		Sum		-
Floodplain works -		Sum		50,000
Culverts -				-
Accommodation Works -		Sum		20,000
Ancillary Works - Demolitions building		Sum		-
Demolitions bridge				-
SUB-TOTAL				1,700,000
Preliminaries (at 12.5 %)				213,000
Contingency Sum (10%)				191,000
TOTAL (at July 1992 prices)				2,104,000
TOTAL (at Q1/1994 RPI = 1.027)				2,161,000

Length of new carriageway (excluding side roads) = 1.220km

**Leominster Industrial Access Relief Road
Feasibility Study
Statutory Undertakers/Land Cost Proforma**

Route: North Route - East Section

Drawing No: 62218/G/02 & 04

STATUTORY UNDERTAKERS

Service Diversion/Specify	Length (m)	Rate	Cost
Electricity - Low voltage overhead	100	110	11,000
Gas - medium pressure	150	60	9,000
British Telecom - underground	200	60	12,000
SUB-TOTAL			32,000
Contingencies (10%)			3,000
TOTAL (at Q1/1994 RPI = 1.027)			36,000

LAND

	Area (ha)	Rate	Cost
Agricultural Land	1.4	5,000	7,000
Other - specify			
Land on North Side of A44/A49 Roundabout *	-	175,000	175,000
SUB-TOTAL			182,000
Contingencies (10%)			18,000
TOTAL			200,000

* Note: This value is notional - there is uncertainty about the cost to the scheme of utilising a potentially developable corridor through the service station.

**Leominster Industrial Access Relief Road
Feasibility Study
Works Cost Estimate Proforma**

Route: North Route - West Section

Drawing No: 62218/G/02

	Quantity	Unit	Rate	Cost
Carriageway (CBR > 5%)	24820	m ²	20.6	511,000
Extra CBR 2-5%	-	m ²	3.4	-
Extra CBR < 2%	14235	m ²	6.8	97,000
Traffic 200 - 1000 cv/d	24820	m ²	8.6	214,000
Edge Construction (CBR < 2%)	3740	m	17.85	67,000
Edge Construction (CBR 2-5%)	2900	m	13.65	40,000
Edge Construction (side roads)	-	m	10.15	-
Kerbing	-	m	8.00	-
Concrete edging	6640	m	5.50	37,000
Edge treatment- soil & seed	6640	m	1.0	7,000
Gullies	142	Nr	402	57,000
Carrier Drain in verge	6500	m	27.0	175,000
Drainage Outfall Requirements		Sum		
Earthworks - Topsoil strip 150mm deep	6273	m ³	4.0	25,000
Excavate 450mm deep	28777	m ³	5.0	144,000
Fill (place & compact)	29581	m ³	5.0	148,000
Dispose of surplus	21300	m ³	4.75	101,000
Imported fill	16000	m ³	11.5	184,000
Landscaping	6800	m	5.25	36,000
Street Lighting	25	Nr	690	17,000
Roundabout Junction	2	Nr	75,000	150,000
Structures -		Sum		520,000
Retaining Walls -		Sum		-
Floodplain works -		Sum		50,000
Culverts -		Sum		50,000
Accommodation Works -		Sum		90,000
Ancillary Works - Demolitions building		Sum		-
Demolitions bridge				-
SUB-TOTAL				2,720,000
Preliminaries (at 12.5 %)				340,000
Contingency Sum (10%)				306,000
TOTAL (at July 1992 prices)				3,366,000
TOTAL (at Q1/1994 RPI = 1.027)				3,457,000

Length of new carriageway (excluding side roads) = 3.4km

**Leominster Industrial Access Relief Road
Feasibility Study
Statutory Undertakers/Land Cost Proforma**

Route: North Route - West Section

Drawing No: 62218/G/02 & 04

STATUTORY UNDERTAKERS

Service Diversion/Specify	Length (m)	Rate	Cost
Electricity - Low voltage overhead	400	60	24,000
Electricity - High voltage overhead	200	110	22,000
Gas - medium pressure	150	60	9,000
British Telecom - underground	200	60	12,000
Water	50	60	3,000
SUB-TOTAL			70,000
Contingencies (10%)			7,000
TOTAL (at Q1/1994 RPI = 1.027)			79,000

LAND

	Area (ha)	Rate	Cost
Agricultural Land	4.2	5,000	21,000
Other - specify			
SUB-TOTAL			21,000
Contingencies (10%)			2,100
TOTAL			23,000

6.0 TRAFFIC EFFECTS

6.1 In order to assess the traffic impact of route options and the relief to existing roads a traffic model has been constructed. Model assignments have already been produced and reported for nine options in Feasibility Study - Interim Report.

6.2 An additional route option known as the Northern Route is now being considered. This proposed route passes from the A49(T)/A44 junction across the north of the town to the A44 at Monkland Road. There are proposed intermediate junctions with B4529, B4361.

6.3 With the Northern Route option it is proposed that an alternative new industrial estate would be constructed on the northern side of the town. The proposed industrial estate is to have access to the Northern Route option via a junction at The Marsh.

6.4 The results of the assignment for the Northern Route option demonstrate some degree of relief afforded to the town centre, but this is significantly less than for previous routes investigated to the south of the town.

6.5 Interrogation of the paths built by the traffic model showed that some of the trips which are assigned to remain on A44 through the town centre are more likely in practice to transfer to the proposed scheme. This is because the traffic model is a fixed speed link based model and delays at junctions are not specifically simulated.

6.6 A sensitivity test was thus undertaken to assess the magnitude of the additional trips likely to transfer to the proposed route. This was done by reducing the generalised cost of travel ($D/T = 0.72$) along the proposed scheme which resulted in increases of up to 40% in the amount of trips assigned on different sections of the North Route option.

6.7 The results of the traffic assignments are indicated on Figures 3 and 4.

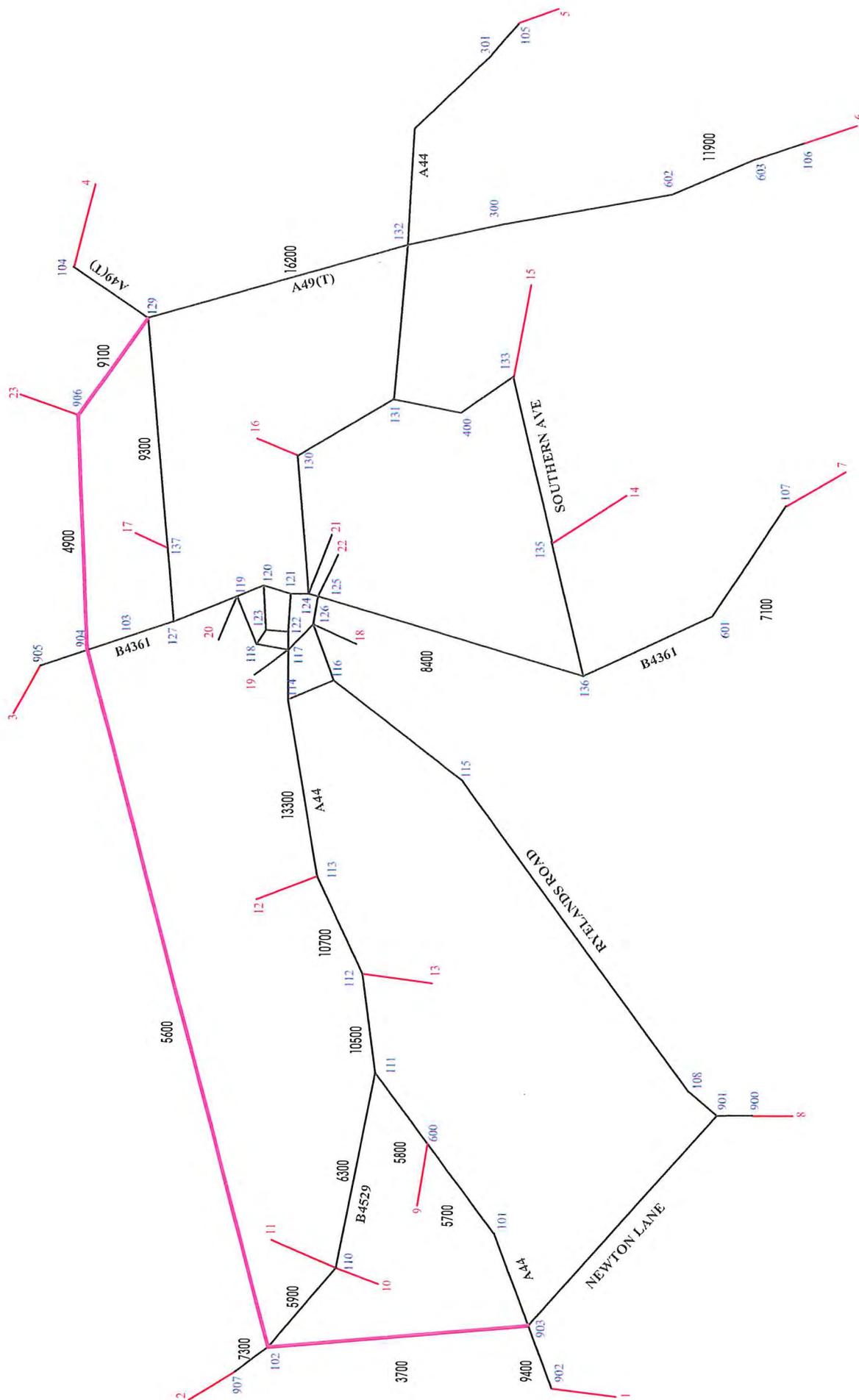
6.8 The existing highway network at North Road would be seriously affected by increase in traffic flows and particularly commercial vehicles associated with the development of the industrial area. It is not considered that North Road is of an adequate standard to cope with this change of conditions.

6.9 Traffic Flows attached to the Northern Route Option (see table 1)

The only section of the bypass which attracts significant flows is at the extreme east end of the route in the section linking the A49(T) to the proposed industrial estate. Elsewhere the route attracts substantially lower (20-50%) flows than the Preferred Southern Option (Yellow Route).

6.10 Relief to existing roads in the network

There is generally less relief to existing roads because flows on this bypass option are lower as stated above. However on the A44 at Barons Cross the degree of relief is actually greater because this section of road, in combination with a southern option, redirects traffic onto the bypass. This effect would not occur with the northern option.



LEOMINSTER INDUSTRIAL RELIEF ACCESS ROAD : **NORTH ROUTE OPTION (2)**
24HR AADT 2011 FLOWS (D/T=0.72)

FIGURE 4

**LEOMINSTER INDUSTRIAL RELIEF ACCESS ROAD
SUMMARY OF ESTIMATED DESIGN YEAR TRAFFIC FLOWS ON SELECTED LINKS
NORTHERN ROUTE OPTION (Compared to Do Min. & Preferred Route)**

Route Options	Proposed new routes		Barons Cross Junct.			Existing A44		A49/A44/Worcs Rd. R'bout B4361		
	Ind. Relief Access Rd.	A44 bypass (west)	A44 East (Barons Cross)	A44 West (Monkland Rd.)	B4529	Bargates	Mill Street	A49 North of R'bout	A49 South of R'bout	South Street
DO MINIMUM (without Industrial Development)	-	-	14700	8500	7300	17700	10000	11800	10600	8400
DO MINIMUM (with Industrial Development)	-	-	15600	9400	7800	19000	10500	13700	11900	8400
NORTHERN ROUTE	4900-9100	3700-5600	10500	5800	6300	13300	9300	16200	11900	8400
PREFERRED SOUTHERN ROUTE	6800-8000	7100	11100	9000	7800	12000	11100	14300	15900	6500

NOTES: 2011 Design Year

All flows AADT and rounded up to the nearest 100

Northern Route Option Flows generated with a reduced cost of travel factor (D/T = 0.72 as opposed to 1.0)

East/west split at proposed roundabout junction of route options with B4361

Preferred Southern Route is Yellow Route option (flows as Green route east and Red route west)

Barons Cross' refers to existing A44 between its junctions with Safeways roundabout and B4529 Cholstrey Road

7.0 ENVIRONMENTAL APPRAISAL

7.1 The Environmental Appraisal has been undertaken generally in accordance with the Design Manual for Roads and Bridges Volume 11. In particular the issues addressed at this stage are those which would have an influence on route selection. The issues addressed in the appraisal are as follows:-

- a. Traffic Noise/Air Quality
- b. Cultural Heritage - Built & Archaeological
- c. Disruption due to construction
- d. Ecology and Nature Conservation
- e. Landscape Effects
- f. Land Use - General and Agricultural

7.2 A brief statement of the above effects, in the form of a comparison between the Northern Route and the Preferred Route (Yellow Route) is included on the following page.

7.3 More detailed comments on matters relating to Landscape Effects, Ecology and Nature Conservation and Cultural Heritage are included in the Appendix to this report.

7.4 In terms of Landscape Effects the Northern Route option would have a more significant visual impact than the Preferred Route.

7.5 In terms of Ecology and Nature Conservation the impact of the Northern Route on the SSSI's at the River Lugg and associated watercourses is likely to be very serious and would require a full ecological assessment in order to quantify it.

7.6 In terms of impact agricultural land alone would the Northern Route option have an advantage over the Preferred Route in as much as it affects farmland of a generally lower quality.

ENVIRONMENTAL APPRAISAL

SUMMARY TABLE

Effect	East of B4361		West of B4361	
	Preferred Option	Northern Option	Preferred Option	Northern Option
<u>Traffic Noise/Air Quality</u> Properties within 200m Properties within 300m	0 1 residential	3 residential & 3 commercial Approx. 50 residential & 2 commercial	21 residential 13 residential	4 residential & 3 commercial 8 residential & 5 commercial
Comments	No significant impact	Significant impact on many properties as proposed route is on embankment with a steep gradient at railway bridge	Moderate impact on Cock Croft Cottages.	High impact on The Waltons, Hospital Cottage & Summergalls. Cutting reduces impact on Cornhill Cop & Stagbatch House
<u>Cultural Heritage</u>	No impact	Slight impact on The Wharf & Historic Listed Parklands of Eaton Hill.	Slight impact on 2 grade II listed buildings.	Slight effect on the setting of Stagbatch House
<u>Disruption due to Construction</u>	No properties affected but some delays to A49(T) traffic	Severe to Garage where route ties into at A49 R'bout and to Redding Hall & property just to north due to construction of R'bout on North Road. Movement of construction plant will disrupt local road network (esp. on North Rd)	Disruption due to noise and dust to Orchard & Cock Croft Cottages, Dishley Court & White & Waldin House. Traffic delays at Ivington Road and A44.	Slight impact to isolated properties. Construction plant movements will cause significant increase in noise & vibration to properties on Cholstrey Rd, also disrupting the local road network
<u>Ecology / Nature Conservation</u>	No impact	Roundabout to be built over SSSI of Broad Farm Brook. Further study required to determine the extent of impact.	No sites of ecological interest affected	Route within 250m of areas of SSSI of River Lugg & tributaries for 2km. Crosses the SSSI's 4 times & a Special Wildlife Site at Pinsley Brook once. Further study required to determine the extent of impact.
<u>Landscape Effects</u>	Slight visual impact on properties at Eaton Hill. Distant views of railway crossing from Stoke Prior.	Substantial Visual Intrusion (V.I.) for Redding Hall & another property. Moderate V.I. for 9 properties plus more being developed on south side of River Lugg most notably due to high embankment over railway line.	Fits in well with landform and does not result in loss of any significant landscape features	High for Summergalls, Ebnal Farm & Long Acre. Moderate / Slight V.I. for development at Ginhall Lane & at least 5 farmsteads. Cutting in ridge at Cornhill Cop will create a 'notch' in this prominent skyline.
<u>Impact on Landscape setting</u> (Low / Moderate / High)	Low/Moderate	High / Moderate	Low	High / Moderate
<u>Land Use - General</u>	Facilitates expansion of industrial area	Facilitates development of new industrial area. Loss of land for commercial development north of A49(T) roundabout	Facilitates use of land for housing and provides suitable urban edge.	No major effect
<u>Land Use - Agricultural</u>	Loss of Grade 1 / 2 land but this is land already earmarked for development. Other land loss would be grade 3 east of railway line.	Land loss is grade 3 / 4. Approx. 18ha of Grade 3 land on south side of route becomes enclosed by rail, road and river reducing its accessibility.	Loss of Grade 1 / 2 land which may tend to fragment future farming activities.	Causes severance to agricultural estates and many fields Fragmentation of approx. 2.5 ha of land enclosed by road & River Lugg.
Agricultural land take (ha)				
Grade 1	2.25	-	1.60	2.00
Grade 2	0.50	-	2.80	-
Grade 3	2.85	1.80	-	3.47
Grade 4	-	0.61	-	1.71

8.0 CONCLUSIONS

8.1 In overall terms the Northern Route is the most expensive of the route options considered. Although the eastern section (east of North Road) is less expensive than the other options in terms of highway related costs, it is unlikely to be attractive in cost terms when taking account of additional sewerage costs relating to the proposed industrial site (not quantified or addressed in this report). The western section (west of North Road) is very much longer and far more expensive than any of the other routes considered.

8.2 The Northern Route option attracts less traffic and affords less traffic relief to existing roads in the network than the other complete east-west routes considered. In terms of access for industrial development it is not considered that North Road would be of a suitable standard to cater for the flows which would be generated.

8.3 In terms of Environmental Impact the Northern Route has much more serious implications than the Preferred Route, particularly in terms of Landscape Effects and Ecology.

8.4 For the above reasons the Northern Route option cannot be considered as a viable alternative to the Preferred Route, on the basis of its Environmental Impact alone, it should be regarded as a rejected route option.

Appendix

LEOMINSTER INDUSTRIAL
RELIEF ACCESS ROAD
NORTHERN OPTION
LANDSCAPE EFFECTS

Associated Architects
February, 1995

**Leominster Industrial Relief Access Road Northern Option
Landscape Effects**

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Leominster Industrial Relief Access Road Northern Option Landscape Effects

1 INTRODUCTION

The town of Leominster in the county of Hereford and Worcester lies on high ground between the Rivers Lugg and Arrow. A new bypass east of the town follows the Lugg Valley. Opened in 1989, this road forms part of the A49 trunk road. In October 1994 Associated Architects carried out a landscape assessment of various options for a link from the A49 to the A44 forming a southern bypass of Leominster. This study looks at a northern route from the A49 to the A44. It will examine the existing or baseline conditions and then describe the effect the route would have on those conditions and the extent to which adverse effects could be mitigated. It will then summarise the advantages and disadvantages of this northern option over the Yellow Route which was the preferred route south of Leominster in landscape terms.

The study follows the guidelines set out for Stage 1 assessments in The Department of Transport's Design Manual for Roads and Bridges, Volume 11 Environmental Assessments and was carried out by Associated Architects as sub-consultant for Allott & Lomax in February 1995

2 METHODOLOGY

2.1 Landscape Character

Figure 2 shows the route corridor broken up into broadly homogeneous units of character based chiefly on landform and land cover. Each area is considered under four main headings and various sub-headings as appropriate. The factors taken into account are shown below:

PHYSICAL	HUMAN	AESTHETIC	ASSOCIATIONS
geology	archaeology	proportion	history of settlement
landform	landscape history	scale	special events
drainage	land use	enclosure	well known personalities
soils	buildings	texture	literature
ecology	settlements	colour	painting
		views	music
		sounds	
		smells	

The method adopted for landscape classification is based on those described in Volume 11 of the DMRB section 3 part 5 chapter 3 and The Countryside Commission advisory booklet "Landscape Assessment Guidance" 1993, CCP 423. Using ordnance survey maps and the topography plan the land use and vegetation patterns were mapped over different landforms to give initial draft character units. These were confirmed by site visits and are described in section 4.

The study area was drawn to include all areas falling within the visual envelope of the alternative routes to a limit of 1km where the horizon is further than this away. The urban areas were excluded from the general landscape assessment although traditional rural settlements were deemed to be part of the landscape character zones.

Leominster Industrial Relief Access Road Northern Option Landscape Effects

2.2 Landscape Quality

Landscape quality is essentially a subjective matter and there will always be a degree of variation in personal preference. However there is clearly a general consensus throughout the population which is demonstrated in the distances people will travel to visit particular places. The factors found in such highly valued landscapes are those which give a powerful character such as steep and irregular topography, mature trees, water, rocky outcrops and interesting and varied ground vegetation. Other characteristics which give a local flavour are also prized such as dry stone walls, sunken lanes or distinctive vernacular building or settlement forms. Ecological diversity and evidence of a rich archaeological or cultural heritage add a further dimension.

Landscape quality has been assessed on a five point scale: highest, very attractive, good, ordinary and poor, taking into account the factors listed above. This is done by comparing the land use and vegetation cover with the topography by using ordnance survey maps and the coloured topography plan. Rough boundaries are mapped and then checked on site in the course of visits throughout the route corridor by a landscape architect experienced in such assessments. In this instance, landscape quality coincided with the landscape character zones and is described in section 4.

Highest quality landscapes are defined as areas which are perceived as special in a regional or national context, and which people will travel some distance to visit. There is usually a combination of natural features which results in this designation and these areas often carry a protected status in one form or another.

Very attractive landscapes are likely to be well known locally but may either be limited in extent or of less pronounced character than highest quality.

Good landscapes are those which are more interesting than the general run of farmland, usually by virtue of a more pronounced topography or a higher proportion of semi-natural vegetation.

Ordinary landscapes are the run of the mill agricultural areas where the predominant land use is usually arable or where attractive features are offset by detractors.

Poor landscapes normally contain detractors such as power lines, substations and inappropriate built forms of development, without enough of the qualities which contribute to the higher value landscapes to rescue them. They may consist of derelict land which has not been recolonised by nature or of intensively farmed landscape which has lost most of its natural features.

Landscape quality, as it has been described here, is mainly a visual attribute, although important cultural or historical associations form part of the assessment. However the value placed on a particular landscape may be greater than its visual quality when other factors such as rarity are taken into account. Areas which are easily accessible are always valued more highly by people living near to them and conversely remoteness can also increase the value of a landscape.

Leominster Industrial Relief Access Road Landscape Effects

2.3 Visual Impact

The Route has been assessed for its impact on the landscape character and landscape quality. The assessment takes into account the extent to which the scheme would affect the landscape character and quality both directly, as a result of the loss of features of importance, and indirectly by means of intrusive elements. The scale and complexity of the landscape and the degree to which the route could be integrated into it are important, together with the distance over which its effects would be felt. Any existing trends for change which might be accelerated or altered are noted as evidence of potential vulnerability. The loss of existing features which contribute to the character or quality of the landscape will be described together with any mitigation proposals which would enhance the landscape or offset damage caused by the route, and their relative importance will be assessed.

A survey has also been carried out of the visual impact which would be caused to various groups of people. This survey was carried out by a single landscape architect experienced in visual surveys to ensure consistency. The method adopted was to walk the roads and public footpaths and to note visual horizons and properties and other facilities from which there would be views of the road taking into account its level relative to the existing ground and any earthworks proposed. The nature of the existing view and any changes which might be expected by the opening year were noted together with the effects the proposals would have. In this context the following factors were taken into consideration in assessing the level of intrusion: whether the view is open or interrupted by buildings, vegetation or landform, the arc of view and whether it is face on or oblique, whether the view is from principal rooms, upstairs or downstairs or outdoors, the distance and relative levels involved.

Visual impact is defined as a beneficial or adverse effect on a view arising from the construction of the road and is thus the difference between the view in winter with or without the road at the opening year. Visual impact is categorised as substantial (where the scheme would cause a significant deterioration or improvement in the existing view) moderate (where it would cause a noticeable change) and slight (where it would cause a barely perceptible change).

The visual impact surveys were carried out in February 1994.

3 BASELINE CONDITIONS

3.1 Landform and Watercourses

The town of Leominster occupies a strategic position on high ground between the River Lugg which lies north and east of the town and the River Arrow to the south. Both rivers have broad expanses of water meadows on either side from which the surrounding hills rise. South and east of Leominster these hills are steep sided, linear and flat topped but west and north of the town they are a softer version of this form. The Arrow and Lugg valleys are only separated from each other by a narrow neck of land north west of Leominster, which has Cholstrey Road running along its crest. The high ground occupied by the town is thus almost an island with the old town on its eastern slopes facing the confluence of the Lugg and Arrow, and newer development spreading west along the skyline towards Barons Cross. Figure 1 shows the topography within the visual envelope.

Leominster Industrial Relief Access Road Landscape Effects

3.2 Land Use and Existing Vegetation

Outside the built-up areas of Leominster which is expanding in several places to the north of the town, the study area is almost all agricultural land. The fields are generally small and less regular on the higher ground, with good hedges and hedgerow trees. In the valley the land use is mainly improved pasture or meadow with bands of willow and alder along the many ditches and hawthorn and hazel hedges. On higher ground there is more oak and ash and the occasional orchard, and a small proportion of arable land.

3.3 Nature Conservation

The River Lugg, Kenwater, Crowards Mill Leat and Broad Farm Brook are all designated a Site of Special Interest, partly due to their importance for otters, a protected species making a comeback from the west of England.

The Pinsley Brook is a Special Wildlife Site designated by Herefordshire Nature Trust. No other sites of potential nature conservation value were noted in the walkover survey although because it was carried out from public roads and footpaths an area between Cursneh Hill and Summergalls was not directly accessible.

3.4 Heritage

The historic core of Leominster is a conservation area, an area in Bridge Street has recently been designated and further proposals exist to extend the conservation area. However these areas are divided from the proposed road corridor by the housing estates and industrial and commercial buildings, and the route's impact on them would be minimal.

Outside the town there are listed buildings at The Wharf Ludlow Road, Broad Farm, Ebnall Farm, Bedford Cottage, Stagbatch House, Snowdale Cottages and Stagbatch Farm. These are shown on Figure 2. There are no sites of archaeological interest known within the study area.

3.5 Footpaths and Rights of Way

There are a number of footpaths throughout the study area and these are shown on figure 3. These are well signposted and have good way marking and stiles and are generally well used.

3.6 Planning Issues

There are no landscape designations within the study area and the only Tree Preservation Order relates to trees between Ginhall Lane and Barons Cross Road nearly a kilometre from the proposed route. Leominster District Council have requested an assessment of how access might be provided off the new road to 12 hectares of industrial land east of the B4361. It is suggested that this land might be to the north of the proposed route with the land between the route and the northern boundary of Leominster acting as a visual and environmental buffer.

4 LANDSCAPE CHARACTER AND QUALITY

The site divides into four landscape character zones shown on Figure 2:

Leominster Industrial Relief Access Road Northern Option Landscape Effects

Lugg Floodplain

The fields on either side of the River Lugg form a wide flat valley floor divided by tall hedges and well sprinkled with trees. Even in winter views are restricted by vegetation. Most of the fields are improved pasture and there are few dwellings; not surprisingly most old farmsteads lie above the flooding level. The River Lugg and Kenwater are both mainly canalised rivers, lying well below ground level in regular, straightened channels with few bankside trees. In addition the area is criss crossed by a number of drainage ditches. Flooding has clearly been substantially reduced as a result of these measures.

Mainly as a result of its hedges and trees the Lugg floodplain has been assessed as good quality landscape, but is vulnerable to agricultural intensification.

The Rural Zone

This area includes all the land outside the Lugg floodplain except the Leominster Ridge. The ridges are gently sloping into the floodplain, becoming steeper near the top. The northern ridge is broken at Eyton where the valley containing the hamlet separates two parts of the ridge. The Cholstrey ridge is lower. This area contains the scattered rural settlements strung out along sunken lanes typical of Herefordshire, together with a number of isolated farmsteads. Typical building materials are a mixture of timber frame and stone with some brick; many buildings are rendered. There are a few remnant orchards and some commons, notably at Eyton. This area has been assessed as Very Attractive Landscape, its settlements feel remote and unspoilt and are well contained by both the landform and trees and hedges.

Leominster Ridge

The high ground south of the River Lugg between Stagbatch and Leominster has similar physical characteristics to The Rural Zone, but is subject to urban pressures, particularly where the edge of the new development off Barons Cross Road has encroached over the skyline. Although the built forms at Stagbatch would mostly place their surroundings into The Rural Zone, the bareness of this ridge seems to relate it more to the edge of the town. This area has been categorised overall as Ordinary quality landscape despite a few very attractive features.

5 THE ROUTE

Only one route is proposed.

From the roundabout at the northern end of the A49 eastern bypass the route would run briefly north before swinging west to cross the railway on a seven metre high embankment. Although it is a relatively tidy example, the existence of a service area immediately opposite Eaton Hill park and at the main access into this important historic town does itself contribute to visual intrusion in the immediate area. The impact of the proposed route would therefore not be as great when compared with the existing situation as might otherwise be the case. A group of trees east of the service area and along Ridgemoor Brook would offer some screening for the listed buildings at the Wharf and this and four other properties including Eaton Hill would suffer slight visual impact, which would be difficult to mitigate further because of the height of the railway crossing. Eaton Hill would also suffer from night time headlight glare. There would be little additional impact on the setting of the listed park at Eaton Hill. Between the railway and North Road the route would descend from the railway crossing to a roundabout one metre above existing ground level, running through a series of small fields parallel to the River Lugg.

Leominster Industrial Relief Access Road Northern Option Landscape Effects

A bungalow associated with some poultry houses would be screened by the outbuildings and a good hedge, suffering only slight visual intrusion, but the edge of Leominster is being developed up to the River Lugg here and nine existing houses and an unknown number of others under construction would suffer moderate visual intrusion. Space has not been included south of the river to enclose these properties with planting.

North of the route here a scattered settlement called The Broad is well enclosed by orchards and good hedges and the route would have no significant visual effect here. However, the area of possible industrial development could encroach into their view. This industrial area would occupy an area of more attractive landscape than that south of Leominster, needing a buffer from the residential edge of the town and thus encroaching into the unspoilt rural area, for the River Lugg is the boundary at present.

Redding Hall and another property would lie close either side of the roundabout and would both suffer substantial visual intrusion, and possibly some landtake on the roundabout approaches. Broad Farm is better protected by a tall hedge and is gable end on to the route. It would suffer slight visual intrusion.

From North Road to Cholstrey Road, the route would lie in an area of small fields and ditches, crossing a mill leat from Crowards Mill, the River Lugg and Kenwater in quick succession. These streams and the Broad Farm Brook which runs next to Norton Road are all Sites of Special Scientific Interest. The route would run within 250 metres of the designated area for over two kilometres and cross it four times. A full ecological study would be required if this route was deemed suitable for further consideration. The many good hedges here would break up views from properties on the same level; Crowards Mill, Summergall, Wegnalls Farm and Waltons (otherwise Figure of Eight Cat hotel), so that they would suffer slight visual intrusion. However, this area is overlooked by almost 100 houses which form part of the new development on the skyline between Ginhall Lane and Barons Cross Lane. This development is continuing and these properties would suffer moderate or slight visual intrusion.

At Cholstrey Road, Lower Ebnal Farm and Long Acre would suffer substantial, Bedford Cottages and Hospital Cottage moderate and The Gables, Primrose Cottage and Sunny Bank slight visual intrusion. These last two properties would also suffer nighttime headlight glare from both directions. Cholstrey village lies over the crest of a local ridge and would be largely unaffected.

Up to Cholstrey Road, apart from the railway crossing, the route would run close to the ground level, skirting the steep sided Cursneh Hill. Beyond Cholstrey Road it would cut through the ridge between Cornhill Cop and Stagbatch in cutting up to 3 metres deep, its alignment insufficiently curved to prevent a notch in this prominent skyline.

Leominster Industrial Relief Access Road Northern Option Landscape Effects

On the crest of this ridge Cornhill Cop would suffer substantial, and Stagbatch House and the modern dwelling near it moderate visual intrusion. Stagbatch House is listed and the route would have a slight effect on the setting of this fine house. At the roundabout on the A44, Roseland Cottage would suffer substantial visual intrusion from the route and headlight glare at night.

Over the whole route six public footpaths would be affected. Two of these, near Cursneh Hill and Summergall could not easily be diverted and would have to cross the route. Users of all 6 footpaths would suffer visual intrusion near the route.

6 SUMMARY

The northern route would have a substantial visual impact on five properties and a moderate or slight impact on about 120 properties, of which four are listed buildings. There would also be a slight impact on the scheduled Park of Special Historic Interest at Eaton Hill. It would cross a Site of Special Scientific Interest four times and run parallel to it for over two kilometres. At the western end it would cut a skyline notch through a prominent ridge. It would lie mostly within an area assessed as Good quality landscape in the Lugg Valley with a short section in Ordinary quality landscape at the eastern end. Further ecological assessments are essential before this route could be considered further.

7 COMPARISON WITH THE YELLOW ROUTE

Assuming it was not continued east of the A49 junction, the Yellow Route would affect less than thirty properties in total, including 3 listed buildings. It would run mostly through Ordinary quality landscape with some Good at the western end. It would not affect the River Lugg SSSI nor any Park or Garden or Special Historic Interest. On all these counts it is therefore to be preferred to the northern option. In addition, the proposed industrial zone associated with the Yellow Route is in an area of lower landscape quality and better protected from residential properties than that associated with the northern option. Finally, and most importantly, the northern option's effect on the River Lugg SSSI would carry a strong presumption against this option particularly since a viable alternative exists.

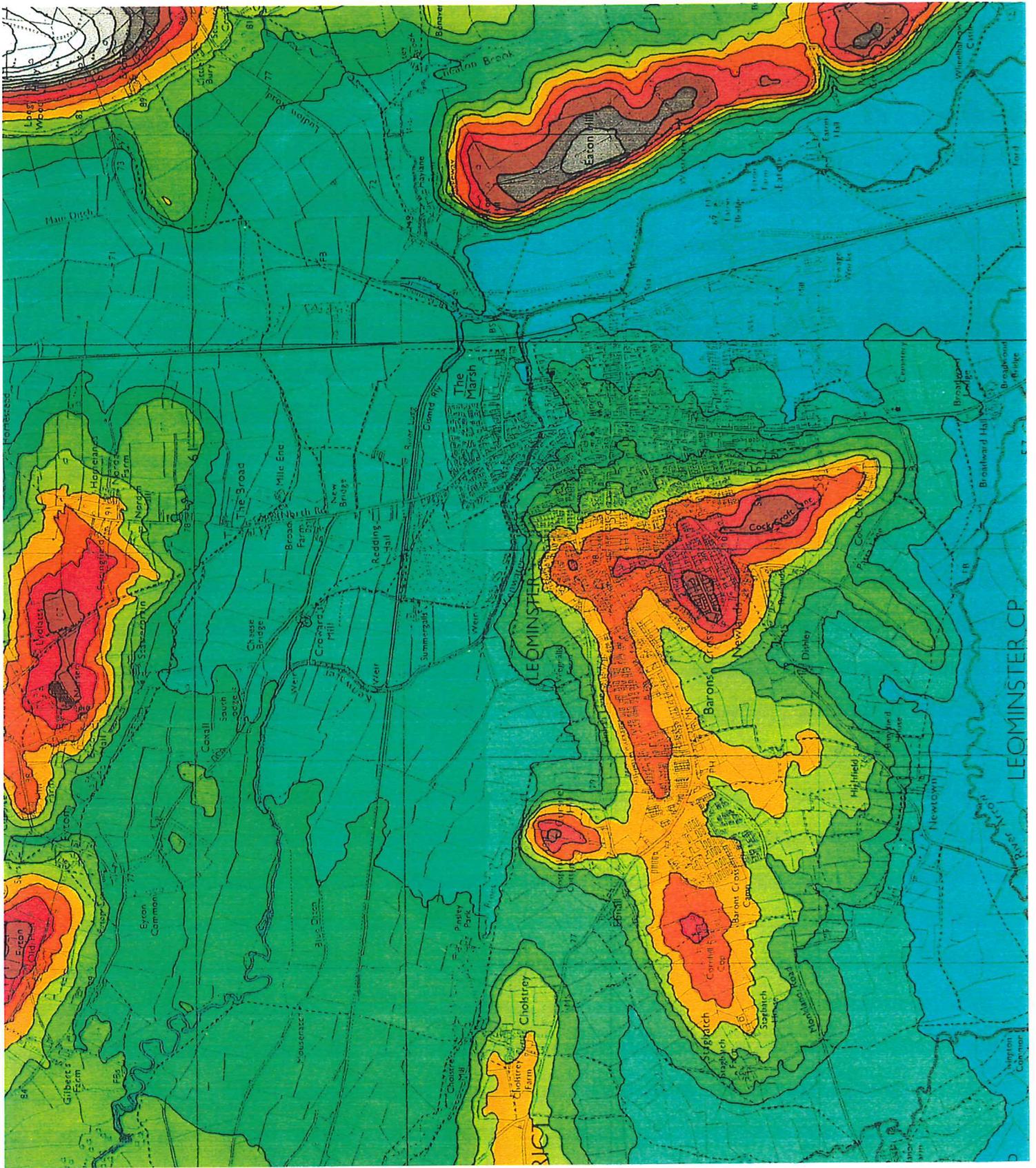
8 CONCLUSION

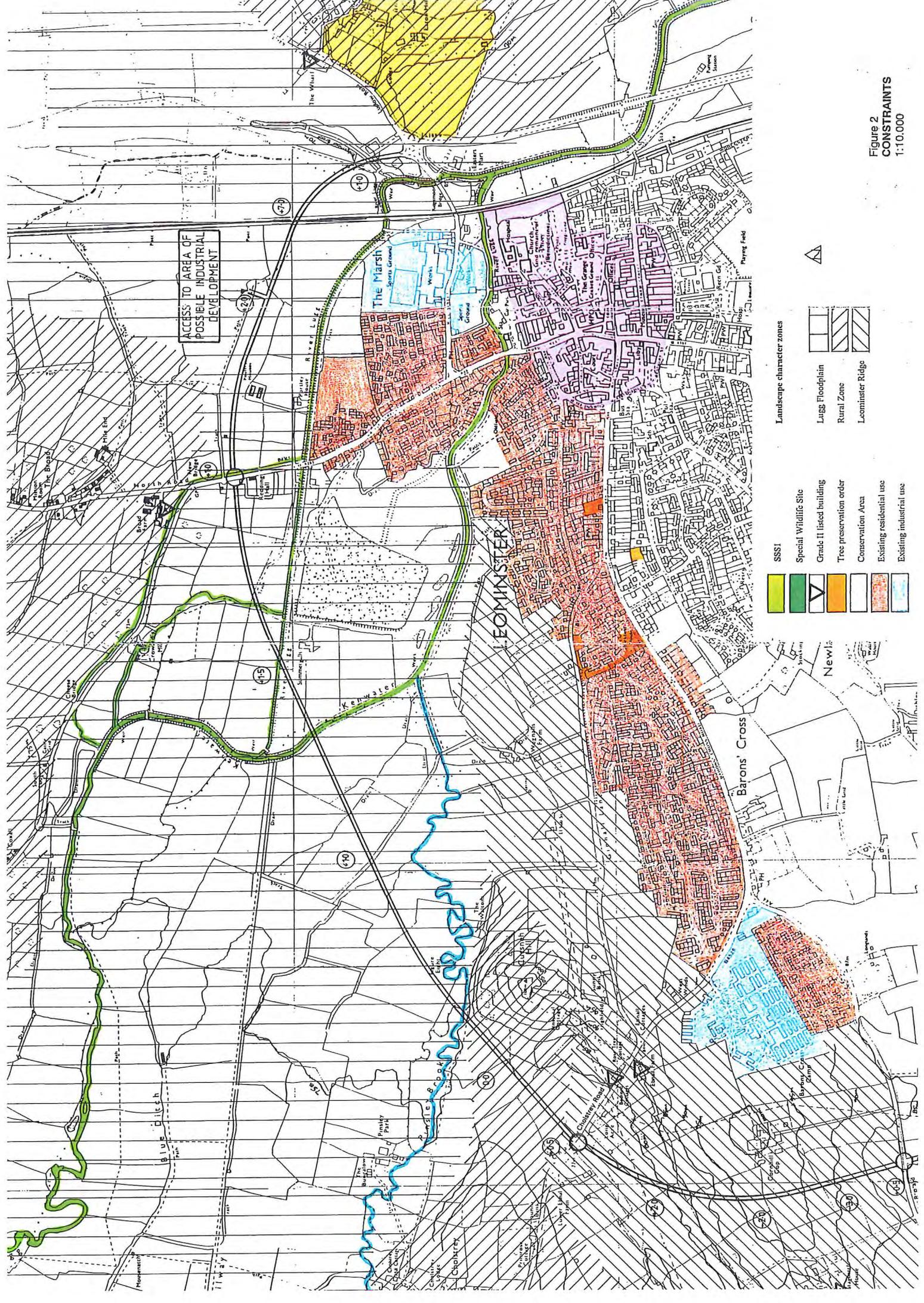
The Yellow Route south of Leominster is preferred to the northern option in landscape and visual terms. The northern option should not be carried further until a full ecological assessment had been carried out to determine its effect on the River Lugg SSSI, if other factors should outweigh the landscape balance described here.

- 165-170
- 160-165
- 155-160
- 150-155
- 145-150
- 140-145
- 135-140
- 130-135
- 125-130
- 120-125
- 115-120
- 110-115
- 105-110
- 100-105
- 95-100
- 90-95
- 85-90
- 75-80
- 70-75
- 65-70
- 60-65



Figure 1
TOPOGRAPHY
 1:25,000



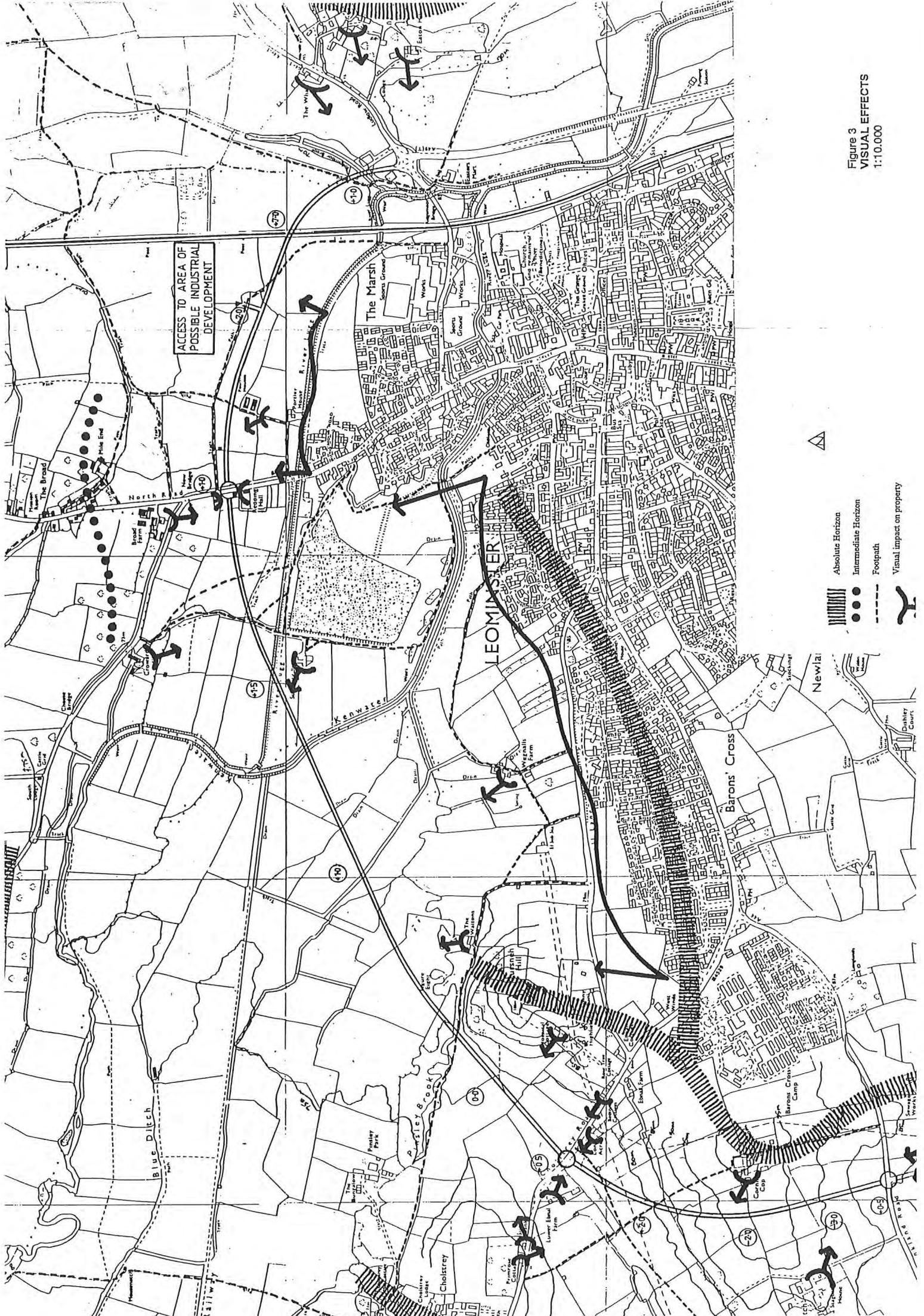


ACCESS TO AREA OF POSSIBLE INDUSTRIAL DEVELOPMENT

- SSSI
- Special Wildlife Site
- Grade II listed building
- Tree preservation order
- Conservation Area
- Existing residential use
- Existing industrial use

- Landscape character zones
- Lugg Floodplain
- Rural Zone
- Leominster Ridge

Figure 2
CONSTRAINTS
1:10,000



ACCESS TO AREA OF
POSSIBLE INDUSTRIAL
DEVELOPMENT

-  Absolute Horizon
-  Intermediate Horizon
-  Footpath
-  Visual impact on property

Figure 3
VISUAL EFFECTS
1:10,000



View from the rural zone
towards the Lugg flood-
plain near Crowards Mill

Figure 4
THE RURAL ZONE



View of the Lugg flood-
plain near Cursneih Hill.

Figure 5
**THE LUGG
FLOODPLAIN**



View from Cursneh Hill
towards the Leominster
Ridge

Figure 5
**THE LEOMINSTER
RIDGE**