A13 MOVERS LANE JUNCTION IMPROVEMENT

ENVIRONMENTAL STATEMENT

Volume 1 - ENVIRONMENTAL STATEMENT



UNCLASSIFIED

TOLLGATE HOUSE

HA 044/027/000035 1

ENVIRONMENT & LANDSCAPE Environmental Statement

11/03/2001 13:38:22

A13 MOVERS LANE JUNCTION IMPROVEMENT — ENVIRONMENTAL STATEMENT VOL.1: ENV. STATEMENT & NON — TECHNICAL SUMMARY 04/94





London Office

A13 MOVERS LANE JUNCTION IMPROVEMENT

ENVIRONMENTAL STATEMENT

VOLUME 1

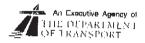
AND

NON-TECHNICAL SUMMARY

APRIL 1994

Acer Environmental

Acer Consultants Ltd Riverview House Beavor Lane Hammersmith London W6 9BL Highways Agency London Office 2 Marsham Street LONDON SW1P 3EB



HIGHWAYS

AGENCY London Office Room C6/08 2 Marsham Street London SW1P 3EB

A13 MOVERS LANE JUNCTION

ENVIRONMENTAL STATEMENT

This document relates to the proposal to construct an improved grade separated junction on the A13 at Movers Lane. The Environmental Statement is an assessment of the environmental effects of the proposal. Anyone wishing to comment on, or object to, any aspect of the published proposals should write to the Secretary of State for Transport at the office of the Highways Agency shown above, not later than 9th September 1994. The Highways Agency is an Executive Agency of the Department of Transport.

This Environmental Statement consists of two volumes which are bound as 7 individual documents. The Non Technical Summary leaflet is also available separately.

VOLUME 1: ENVIRONMENTAL STATEMENT

Environmental Statement

Non-Technical Summary

VOLUME 2: SPECIALIST REPORTS

- 2.1 TRAFFIC
- 2.2 NOISE
- 2.3 AIR QUALITY
- 2.4 LANDSCAPE AND VISUAL EFFECTS
- 2.5 WATER QUALITY
- 2.6 ECOLOGY AND NATURE CONSERVATION

A13 Movers Lanc Junction Improvement Environmental Statement Volume 1

Page 1 of 94

RT-LTP0610-047-03

A13 MOVERS LANE JUNCTION IMPROVEMENT

ENVIRONMENTAL STATEMENT

VOLUME 1 AND NON-TECHNICAL SUMMARY

CONTENTS

			Page No
	SUM	MARY	7
1.0	INTF	RODUCTION	9
	1.1	General	9
	1.2	Scheme Location	9
	1.3	The Environmental Statement	9
	1.4	Structure of the Environmental Statement	10
2.0	THE	NEED FOR THE IMPROVEMENT WORKS	13
	2.1	Introduction	13
	2.2	The Local Road Network	13
	2.3	Existing Traffic Problems	13
	2.4	Predicted Traffic Problems	14
	2.5	Traffic Impacts on the Environment	15
	2.6	The Need for Improvement	16
3.0	THE	EXISTING ENVIRONMENT	18
	3.1	Introduction and General Description	18
	3.2	Geology, Topography, Soils and Drainage	18
	3.3	Archaeology and Cultural Heritage	20
	3.4	History and Development	22
	3.5	Land Use	23
	3.6	Townscape and Visual Appraisal	24
	3.7	Ecology and Nature Conservation	25
	3.8	Planning Background and Policy Framework	27
	3.9	Existing Traffic Flows	29
	3.10	Existing Air Quality	30
	3.11	Existing Noise Levels	32
	3.12	Summary of Existing Conditions	35
	3.13	Environmental Implications of Unimproved Junction	35

			Page No
4.0	ТШТ	E PROPOSED JUNCTION IMPROVEMENT	39
	4.1	Background	39
	4.2	Development of Proposals	40
	4.3	Public Consultation	42
	4.4	The Proposed Scheme	43
5.0	MIT	IGATION MEASURES	46
	5.1	Introduction	46
	5.2	Engineering Design	46
	5.3	Water Quality and Drainage	47
	5.4	Archaeology and Cultural Heritage	49
	5.5	Landscape and Visual Effects	50
	5.6	Ecology and Nature Conscrvation	51
	5.7	Air Quality	52
	5.8	Noise	52
	5.9	Disruption Due to Construction	53
6.0	ENV	IRONMENTAL EFFECTS	56
	6.1	Introduction	56
	6.2	Geology and Soils	56
	6.3	Water Quality and Drainage	57
	6.4	Archaeology and Cultural Heritage	58
	6.5	Demolition	59
	6.6	Land Use	59
	6.7	Townscape and Visual Effects	61
	6.8	Ecology and Nature Conservation	64
	6,9	Policies and Plans	65
	6.10	Traffic	66
	6.11	Air Quality	67
	6,12	Noise	69
	6.13	Pedestrians, Cyclists and Community Effects	72
	6.14	Vehicle Travellers	74
	6.15	Summary of Significant Effects	75

			Page No
7.0	EFF	ECTS DURING CONSTRUCTION	77
	7.1	Introduction	77
	7.2	Effects on People in Their Homes or Places of Work	78
	7.3	Effects on Traffic	79
	7.4	Effects on Cyclists and Pedestrians	80
	7.5	Effects on Areas of Ecological Value	81
	7.6	Effects of Transport and Deposition of Fill	81
	7.7	Effects on Air Quality	83
	7.8	Effects on Noise	83
	7.9	Effects on Water Quality	84
8.0	RES	IDUAL EFFECTS	86
	8,1	Introduction	86
	8,2	Long Term Benefits of the Scheme	86
	8.3	Long Term Disbenefits of the Scheme	87
	8.4	Conclusions	87
9.0	SUN	IMARY	89
	9.1	The Existing Environment	89
	9.2	The Scheme	89
	9.3	Mitigation Measures	90
	9.4	Environmental Effects	90
	9,5	Conclusion	91
GLO	SSAR	Y	92
REF	EREN	CES	93
APPI	ENDIX	A - ENVIRONMENTAL IMPACTS TABLE	

NON-TECHNICAL SUMMARY

List of Figures

Figure 1.1	London Primary Route Network
Figure 1.2	Strategic Road Network
_	
Figure 2.1	Local Road Network
Figure 2.2	Study Area
Figure 2.3	Accident Distribution by Severity
Figure 3.1	Geology
Figure 3.2	Drainage Features
Figure 3.3	Archaeology
Figure 3.4	Tithe Map of 1847
Figure 3.5	Historical Map of Barking 1921
Figure 3.6	Existing Land Use
Figure 3.7	Observed 18 hour Traffic Flows at the Junction (1990)
Figure 3.8	Existing Peak Hour Traffic Flows (1990)
Figure 3.9	Pedestrian Movement over 12 Hours (August 1993)
Figure 3.10	Pedal Cycle Movement over 12 Hours (August 1993)
Figure 3.11	Ambient Noise Survey Results (March 1993)
Figure 3.12	Noise Levels and Traffic Flows at Barking Fire Station
Figure 4.1	Proposed Scheme
Figure 5.1	Landscape Proposals
Figure 6.1	Existing Townscape
Figure 6.2	Existing Landscape
Figure 6.3	Visual Envelope Map
Figure 6.4	Visual Impact on Residential Property First Winter after Opening
Figure 6.5	Visual Impact on Residential Property Summer 15 Years after Opening
Figure 6.6	Ecology - Habitat Types
Figure 6.7	Modelled Traffic at the Junction - Do-Minimum 2015
Figure 6.8	Modelled Traffic at the Junction - Do-Something 2015
Figure 6.9	Carbon Monoxide - Existing 1991
Figure 6.10	Carbon Monoxide - Do-Minimum 2000
Figure 6.11	Carbon Monoxide - Do-Minimum 2015
Figure 6,12	Carbon Monoxide - Do-Something 2000
Figure 6.13	Carbon Monoxide - Do-Something 2015
Figure 6.14	Carbon Monoxide - Do-Minimum - Do-Something 2000
Figure 6.15	Carbon Monoxide - Do-Minimum - Do-Something 2015
Figure 6.16	Nitrogen Dioxide - Existing 1991
Figure 6.17	Nitrogen Dioxide - Do-Minimum 2000
Figure 6.18	Nitrogen Dioxide - Do-Minimum 2015
Figure 6 19	Nitrogen Dioxide - Do-Something 2000

Figure 6.20 Figure 6.21 Figure 6.22 Figure 6.23 Figure 6.24	Nitrogen Dioxide - Do-Something 2015 Nitrogen Dioxide - Do-Minimum - Do-Something 2000 Nitrogen Dioxide - Do-Minimum - Do-Something 2015 Sample Noise Levels Change of Noise Levels at Properties
List of Table	s
Table 3.1	Noise in Road Environments
Table 3.2	Noise in Various Environments
Table 3.3	Base Year and Forecast 18 Hour Traffic Flows
Table 4.1	Comparison of Schemes Considered in Detail
Table 4.2	Environmental Comparison of Schemes Considered in Detail
Table 6.1	Summary of Visual Effects on Private Property
Table 6.2	Planning Policy Objectives
Table 6.3	Predicted Accident Reductions due to Scheme Implementation over 30 Years
Table 6.4	Percentage Change in Total Emissions Following Construction of the Scheme
Table 6.5	Predicted Noise Changes at Residential Properties
Table 6.6	Predicted Noise Nuisance Changes at Residential Properties

Summary of Significant Effects

Table 6.7

A13 MOVERS LANE JUNCTION IMPROVEMENT

ENVIRONMENTAL STATEMENT

VOLUME 1

SUMMARY

This document presents the summary of the environmental assessment work undertaken for the proposed A13 Movers Lane Junction Improvement Scheme. It is prepared in accordance with EC Directive 85/337 as applied by Section 105A of the Highways Act.

An abbreviated non-technical summary is bound at the back of this document.

The Scheme would be of net environmental benefit from its opening year, and the degree of this benefit should increase over time. The demolition of 75 properties would be offset by the removal of the intrusive flyover, the realignment away from Greatfields Park and Alfred's Gardens, the visual improvement of placing the A13 through traffic in an underpass, the improvement to air quality, improvement of watercourses, and the extensive landscaping mitigation. In additional to the local environmental benefits, conditions would be improved for motorists, passengers, pedestrians and cyclists by the reduction of strain and frustration with the prospect of more reliable and safer journeys.

CHAPTER

- The methodology for the assessment of environmental effects has been based on Volume 11 of the Design Manual for Roads and Bridges (Reference 3), which sets out procedures and guidelines for the assessment of the full range of environmental effects which it is anticipated could arise from a road scheme. This document is referred to in the Environmental Statement as the DMRB.
- The Environmental Statement does not aim to make any judgements about the merits or otherwise of the Scheme, but rather to make an objective assessment of its effects to inform the decision by the Secretaries of State for Environment and Transport on whether or not to proceed to construction of the Scheme. This decision will only be made after consideration of the Environmental Statement, any objections or representations and an Inspector's Report and recommendations following any Public Inquiry.

1.4 Structure of the Environmental Statement

- 1.4.1 The content of Volume 1 of the Environmental Statement is summarised below:
 - O Chapter 2, The Need for the Improvement Works, describes the local road network, existing and predicted traffic problems and why the Scheme is required to solve these problems.
 - Chapter 3, The Existing Environment, describes the environment of the area around the Scheme in terms of its physical (geology, soils, drainage, ecology etc.) and human (cultural heritage, townscape, land use, development plans etc.) environments. It also sets out information on existing levels of traffic, noise and air quality.
 - Chapter 4, The Proposed Junction Improvement, sets out the background to the Scheme and the reasons for the choice of the preferred option. It summarises the results of the consultation exercises carried out to date and also includes a detailed description of the Scheme.
 - Chapter 5, Mitigation Measures, describes the various measures which have been incorporated into the Scheme proposals in order to minimise environmental effects. These measures include the engineering design and alignment of the Scheme itself, the inclusion of environmental barriers and substantial areas of planting and other measures to minimise potential effects on aspects such as archaeology, ecology and water quality. Mitigation measures are described before the anticipated environmental effects are set out in Chapter 6 as these would be the net effects resulting from the Scheme including the various and extensive mitigation measures.

- Chapter 6, Environmental Effects. This Chapter sets out the environmental effects, both beneficial and adverse, which it is anticipated would result from the construction of the Scheme, and makes judgements as to the significance of those effects. Effects considered include those on local residents (air quality, noise and visual effects in particular), on the local environment (water quality, ecology and townscape) and on people moving through the area, whether on foot, bicycle or by public or private vehicular transport.
- O Chapter 7, Effects During Construction, considers those effects which are expected to arise during the construction of the Scheme.
- Chapter 8, Residual Effects, considers those effects, both beneficial and adverse, which it is anticipated would persist into the future, once the landscape proposals have matured and the Scheme is effectively integrated with its surroundings.
- O Chapter 9, Summary, provides a concise summary of the Environmental Statement and draws together the main effects which it is expected would arise from the Scheme, and the degree to which these effects are likely to be diminished by the mitigation measures included in the Scheme.
- The Environmental Impact Tables are contained in Appendix A and summarise the environmental impacts on various appraisal groups.
- Non-Technical Summary a Non-Technical Summary of the Environmental Statement is included at the end of this document, and is also available separately.
- 1.4.2 Volume 2 of the Environmental Statement is bound as six separate documents covering the following subjects in detail:-
 - Volume 2.1 Traffic
 - O Volume 2.2 Noise
 - O Volume 2.3 Air Quality
 - Volume 2.4 Landscape and Visual Effects
 - Volume 2.5 Water Quality
 - O Volume 2.6 Ecology and Nature Conservation

N YELLY IV

- The Do Minimum situation is predicted to be considerably worse than the existing, for both 2000 and 2011, with congestion and journey times increasing. In contrast, the Do Something option is predicted to improve conditions on the A13, particularly in the evening peak period, with over five minutes cut from average journey times. Conditions on the local road network would also be improved, with five minutes saved by vehicles travelling eastbound on the A123 (Ripple Road) in the evening peak, and the transfer of some traffic onto the A13 route.
- 2.4.4 Traffic growth forecasts are based on the predicted growth in the adjacent East of River Lea Strategic Traffic Model (ERLM), prepared in 1993 for the Department of Transport. This model is in turn based on the growth forecasts contained in the London Transportation Study which considers all forms of transport across the whole of the city.
- 2.4.5 During peak hours traffic congestion at the junction is already substantial. With the forecast growth in traffic this situation will become much worse and will lead to the junction exceeding its capacity causing severe traffic congestion and an increase in road accidents.

2.5 Traffic Impacts on the Environment

- 2.5.1 The Movers Lane junction suffers the effects of high volumes of often slow-moving traffic with a large proportion of HGVs. As a result there is a generally poor environment for pedestrians, cyclists and nearby residents.
- The environment is poor in visual terms, being dominated by the flyover and the constantly moving traffic, particularly the HGVs. It also suffers from high noise levels, with properties directly fronting the A13 being the worst affected. Traffic noise is also discernible up to 200 metres from the road in some areas. Significant levels of air pollution are created by the traffic passing through the junction, and deposits of dust and dirt are noticeable on and around the buildings adjacent to the A13.
- Due to the high volumes of traffic, the high percentage of HGVs and the substandard aspects of the existing junction layout, accident figures for the area around the junction are significantly higher than the national average. Accident statistics for the period from January 1988 to October 1993 record that there were two fatalities (one vehicle occupant and one pedestrian), 38 serious injury accidents (31 in vehicles, one cyclist and 6 pedestrians) and 160 slight injury accidents (127 in vehicles, 19 motorcyclists, 8 pedestrians and 6 cyclists). This is a total of 200 accidents involving death or injury an average of just under one per week. Accidents occurred most frequently at the ends of the flyover, the crest of the flyover, around the roundabout and at the side road junctions on the A13. Figure 2.3 shows the locations of accidents by the severity of casualty.

A13 Movers Lane Junction Improvement Environmental Statement Volume 1 Page 15 of 94

KT-DTP0610-047-03

2.5.4 The existing environmental problems of noise, air quality and visual effects are discussed in further detail in Chapter 3 of this document.

2.6 The Need for Improvement

• • • • •

- 2.6.1 The need for the Scheme has so far been discussed principally in terms of relief of local traffic congestion and its related environmental effects. However, the improvement to this junction is one of a series of schemes designed to improve the whole length of the A13 between Limehouse and the M25, in recognition of its strategic importance as a radial route and to help facilitate the regeneration of Docklands. As such the Scheme is an important link in a chain of improvements to the A13 which are recognised as being of national importance.
- In summary, there is a need for improvements to the existing A13 Movers Lane junction for the following reasons:
 - O the A13 is an important strategic route connecting Central London with the A406, the M25 and Essex;
 - traffic flows on the A13 are already high, with a significant proportion of HGVs, and are predicted to increase;
 - the existing junction is already over capacity at certain times, leading to local congestion which is predicted to worsen;
 - a structural assessment of the flyover has led to the imposition of a load restriction and the structure has a limited life;
 - accident rates are higher than the national average due to the conflicts between pedestrians, cyclists and the large volumes of traffic using the junction, and the fact that the existing junction layout does not conform to current standards;
 - traffic using the junction gives rise to a variety of inter-related environmental problems which diminish the overall quality of the local environment for both residents and people passing through the area; and
 - the improvement to this junction is one of a series of schemes on the A13 to provide an improved service to traffic using the trunk road which, if not built, would reduce the advantages of the route.

AHLAVED

- 3.2.7 The existing surface water drainage from Movers Lane flows northwards into the network of surface water sewers. Drainage from the A13 and River Road passes into Roundabout Drain and Mayes Brook. There are no oil interceptors or other measures to control or filter flows from the carriageway drainage into the watercourses.
- 3.2.8 The Water Quality study (Environmental Statement Volume 2.5 Water Quality) observes that, while no gross or continuous pollution of the watercourses has been noted, the biological water quality was judged to be "very poor". Flows in the watercourses are generally very low, particularly during dry weather, tending to further decrease water quality and lessen the extent to which pollution incidents can be diluted. The Water Quality study also notes that some of the vegetation in the streams was found to be indicative of brackish or marine environments, suggesting that some water from Barking Creek does enter Mayes Brook at times, possibly as ground water through the gravel layers.

3.3 Archaeology and Cultural Heritage

Archaeology

- 3.3.1 The Movers Lane junction lies within the London Borough of Barking and Dagenham (LBBD)'s designated Area of Archaeological Significance, which covers approximately 19 square kilometres of the Borough, representing those areas which past finds and documentary evidence indicate are most likely to be of archaeological interest. This area is shown in Figure 3.3. The context given in the Borough's Unitary Development Plan (UDP) (Reference 4) for this designation is; "The archaeological heritage of the Borough has considerable potential. It includes historic centres and ancient monuments, archaeological sites and findspots and areas of geology and topography especially attractive for early settlement."
- There are four sites of archaeological finds recorded in the Greater London Sites and Monuments Record (SMR) (Reference 5) located in the area around the junction. The references are listed below and are shown on Figure 3.3.
 - A) SMR Ref: 060 174
 - Grid Ref: TQ4512 8323 Alfred's Way, 12 Park View Gardens
 - Date of Find: c. 1985/86. Isolated Find.
 - Material: Wood (Stake revetment?), may be the remains of early land consolidation. No dating evidence found.
 - D) (1) (1) (1)
 - B) SMR Ref: 060 189
 - Grid Ref: TQ 450 830 Creeksmouth
 Date of find: Prior to 1916. Isolated Find.

Age.

Material: Stone (Axc). Date: Late Neolithic or Early Bronze

A13 Movers Lane Junction Improvement Environmental Statement Volume I

Page 20 of 94

RT-DTP0610-047-03

- 3.5.3 Other land uses in the vicinity of the junction include:
 - a small area of open space (approximately 0.8 hectare) located south east of Riverside Cottages and north of Roundabout Drain;
 - O an area of open space (approximately 0.17 hectare) between Kingsbridge Road and Roundabout Drain;
 - an area of open space (approximately 0.39 hectares) forming the southern west embankment to the A13 bridge over the London to Tilbury railway line and adjacent to Mayes Brook, located 230-460 metres east of the Movers Lane junction;
 - O an area of open space (approximately 0.33 hectares) adjacent to the Charlton Crescent flats, located to the south of Mayes Brook; and
 - an area of open space (approximately 0.25 hectares) forming the northern embankment of the A13 bridge over the railway line.

All the areas referred to above are owned by LBBD.

- A number of planning permissions for development or change in the use of land have been granted by LBBD in the vicinity of the Movers Lane junction, as follows:
 - O Volunteer Public House: consent granted on 05/09/89 for a one and two storey extension to the existing building for hotel facilities;
 - east of County Gardens: consent granted for a widening of the existing access for NRA to the north side of Mayes Brook; and
 - O the Alba Site: temporary consent granted for advertisement hoardings. A previous application to develop the site was withdrawn in November 1992. The reason given for withdrawal was the impact that the Al3 Movers Lane improvement scheme would have on the site.

3.6 Townscape and Visual Appraisal

3.6.1 The existing townscape of the area around the junction is assessed in detail in the Landscape and Visual Effects study (Environmental Statement Volume 2.4 - Landscape and Visual Effects). The main findings of this study are summarised below.

Townscape

- 3.6.2 The townscape character of the area immediately surrounding the junction is dominated by the A13 and its traffic, and especially by the existing steel flyover. This is an unappealing structure which elevates the almost continuous flow of traffic, particularly in views from Movers Lane and River Road.
- 3.6.3 The area contains few buildings of any note, with Barking Fire Station being the only one of any visual distinction. The residential areas are typical of suburban East London, including Thames View Estate which has been laid out to a plan based on sequences of spaces and vistas, albeit in a somewhat unsympathetic manner. The industrial and commercial uses adjacent to the A13 west of the junction are a mixture of inter and post-war buildings with generally mixed quality frontages which do not contribute to the visual character or quality of the area.

Visual Assessment

- 3.6.4 The generally poor visual quality is relieved only by a limited number of mature trees, by the linear green spaces of Mayes Brook, Roundabout Drain and the Mayes Brook Relief Sewer and, in particular, by Greatfields Park. The park although severely affected by visual and noise impacts from the A13, provides a valuable local resource and relief from the generally harsh urban environment.
- 3.6.5 The visual effects of the existing A13 and the Movers Lane junction, while locally severe, are not felt particularly widely due to the flat topography and the screening effect of the buildings immediately next to the road. Similarly, there are few longer distance views out of the area around the junction, with only tall buildings such as the Canary Wharf tower and the Barking Creek Barrier providing visual interest further afield.

3.7 Ecology and Nature Conservation

- 3.7.1 The existing ecology and nature conservation interest of the area around the junction is described in detail in the Ecology and Nature Conservation study (Environmental Statement Volume 2.6 Ecology and Nature Conservation). The main findings of this study are summarised below.
- 3.7.2 The majority around the area of the Scheme contains little of nature conservation interest, being either commercial or residential buildings, roads or the open space of Greatfields Park which, although a valuable amenity, contains no semi-natural plant or animal communities. The only areas of interest are those associated with Mayes Brook and its tributaries (see Figure 3.2), an area of rough grassland behind the Gascoigne Road Pumping Station, and the area of abandoned allotments south of Park View Gardens. These are described in more detail below.

- The section of Mayes Brook between River Road and Barking Creek is of limited interest, with vertical steel and concrete walls, but the section upstream of River Road, running to the south of the existing A13 between broad grassy banks, supports a range of marginal and aquatic vegetation. The London Ecology Unit (in their publication Nature Conservation in Barking and Dagenham Reference 6) have noted the presence of kingfishers along this stretch of the brook in winter. An insect survey in 1991 recorded a diverse range of species, including some with restricted distributions.
- The Mayes Brook Relief Sewer is a similar watercourse, running in an engineered channel and joining Mayes Brook just south of the A13, at the east end of the Scheme. It is largely choked with aquatic and marginal vegetation and has little open water. Roundabout Drain, joining Mayes Brook on the east side of River Road, is similarly choked with vegetation, and supports a variety of marginal plants, some of them with restricted distribution in the London area. The section of Roundabout Drain between River Road and Kingsbridge Road does not appear to have been regularly maintained by the NRA, and is largely overgrown. The stretch to the west of Kingsbridge Road has more open access, and both the banks and the watercourse itself appear to have been cleared periodically, creating better habitats for aquatic vegetation, but reducing the visual appeal of the bankside vegetation.
- Mayes Brook and its tributaries represent a scarce wildlife resource in an urban context, and have accordingly been designated in the LBBD UDP as "Nature Conservation Areas". The London Ecology Unit have classified the watercourses (with the exception of Mayes Brook between River Road and Barking Creek) as "Sites of Borough Importance, Grade II". Mayes Brook is also recognised as a wildlife corridor and as a potential link in the Borough's proposed 'Green Chain' network.
- 3.7.6 The area of rough grassland forming part of the Thames Water Gascoigne Road Pumping Station site is recognised by the London Ecology Unit as being of local importance, and is also designated as a Nature Conservation Area in the UDP. Again, it is recognised more for its rarity as a local habitat type than for its intrinsic interest.
- 3.7.7 The area of disused allotments carries no designation, partly because it has developed only recently as the allotments have been abandoned. This area contains a range of typical wasteland herb species, some isolated trees and areas of recent invasion by scrub.

3.8 Planning Background and Policy Framework

- 3.8.1 There are a number of sources of information on current planning policies which apply to the Scheme. A schedule of these policies is set out in Table 6.1 in Chapter 6, together with an assessment of the possible impact of the Scheme on the achievement of the various policy objectives. A brief summary of the content of relevant national, regional and local planning policies is set out below.
- National planning guidance is given in the form of White Papers or Planning Policy Guidance Notes (PPG). The following documents are of relevance:
 - O White Paper: "Trunk Roads, England: Into the 1990s" (Reference 7):

This reported on the Government's trunk road building plans. The DOT has put forward a programme of improvements to the A13, of which the Movers Lane junction is one, with a current estimated start of construction in 1997.

O Trunk Roads in England 1994 Review (Reference 8):

This review of the road programme confirmed that the Movers Lane Junction Improvement is a Priority 1 Scheme.

O PPG9: Regional Guidance for the South East (Reference 9):

The A13 is recognised by the Government as an important radial route for London, linking Docklands with the M25, as well as assisting economic growth for East London generally.

- Regional planning issues for the south east of England are covered by SERPLAN. This is a local government organisation comprising the London Borough Councils and the County and District Councils in the region.
 - O Action in the East Thames Corridor (Reference 10):

This report recognises the strategic importance of the A13 as a commercial artery for the East Thames Corridor. The report sees the upgrading of the A13 as an integrated route.

- Figure 3.10 gives cycle movements in the study area. All cyclists using the junction have to negotiate the roundabout, or divert from it and use the Pelican crossings. Sixty percent of the cycle movements occur during the morning and evening peak periods. The existing junction presents problems for cyclists in terms of potential conflict with heavy vehicles, especially at the roundabout, and also the fact that the bus stops on the A13 slip roads do not have lay-bys, forcing cyclists to pull out to pass stationary buses.
- Cyclist movements in the area are generally low. There are no dedicated cyclist facilities at the Movers Lane junction, but there is a segregated cycle facility on the footpath to the south of the existing A13, west of Gascoigne Road. Part of the Strategic Cycle Route Network identified by the Traffic Director for London is proposed to run along the existing A13 and down River Road. (Reference 11).

3.10 Existing Air Quality

- 3.10.1 The current traffic using the A13 generates a significant amount of air pollution. This is primarily from exhaust emissions in the form of either gaseous pollutants or particulate matter. The Environmental Statement Volume 2.3 Air Quality, gives more details of the major exhaust pollutants, and describes the existing levels of pollution more fully.
- A summary of the principal chemical compounds found in vehicle exhaust emissions, based on the DMRB (Air Quality, Section 3, Part 1, Chapter 2) is given below:
 - O the combustion of a hydrocarbon fuel with air produces or releases carbon dioxide (CO₂), nitrogen (N₂) and water (H₂O);
 - unburnt and partially burnt fuel results in the presence of hydrocarbons (HC), carbon monoxide (CO) and carbon (soot);
 - high temperatures and pressures in the engine oxidise some of the nitrogen in the air and fuel, forming nitric oxide with some nitrogen dioxide. These are referred to as total oxides of nitrogen (NOx);
 - tetra-alkyl lead compounds in leaded petrol are used to improve its combustion properties. These are cleared from the engine by scavengers and expelled in the exhaust gases as either inorganic or organic lead compounds, the latter being very toxic but forming a smaller proportion of total emissions; and

- O CO₂, HC, CO, NOx, soot and lead are regarded as the most serious pollutants. Some of these, when released into the atmosphere, take part in chemical reactions, influenced by sunlight, producing secondary pollutants whose environmental effects are different, and in some cases more severe, than those of the original primary pollutant.
- 3.10.3 The last decade has seen the implementation of methods to control vehicle exhaust emissions. A summary of the most significant controls is given below:
 - changes in the specification of the fuel which vehicles use, principally the limiting of leaded petrol and the introduction of unleaded petrol. The Motor Fuel (Lead Content of Petrol) Regulation 1981, came into force in December 1985 to limit the maximum amount of lead in petrol to 0.15 g/l;
 - as from April 1991 all new petrol engined vehicles must be capable of using unleaded petrol; and
 - as from January 1993 all new petrol engined cars require catalytic converters in order to be able to meet more stringent exhaust standards. Reductions in rates of emissions of 70 80% for NOx, HC and CO from individual vehicles have been estimated. However CO₂ rates will not be reduced.
- The amount of pollution present adjacent to a road depends on a number of factors, principally the amount and composition of the traffic on the road. Also important is the speed of the traffic, as CO and HC levels are highest where the traffic is slow moving and NOx levels highest where vehicle speeds are higher. The concentration of pollutants declines rapidly with distance from a road, the rate of this decrease varying with factors such as wind direction and speed, the degree of enclosure of the road and vehicle-created turbulence.
- 3.10.5 Local air quality is normally assessed in terms of the CO concentration as this most clearly reflects the traffic conditions. It is a single compound, can be considered chemically inert and is produced almost entirely by road traffic.
- 3.10.6 There is currently no UK or EC standard for CO. Instead the United States National Ambient Air Quality Standard is adopted by the DMRB. This states that CO concentrations of 9 parts per million (ppm) and 35 ppm should not be exceeded more than once a year for exposure periods of eight hours and one hour respectively.
- 3.10.7 The UK Air Quality Standard for nitrogen dioxide (NO₂) is the mandatory limit of 200 μgm⁻³ which must not be exceeded by 98% of the mean hourly NO₂ values recorded throughout the year.

There is limited available data on existing air quality in the area around the Scheme, but monitoring carried out as part of the environmental assessment for the proposed A13/A117 junction improvements in 1992 found that CO levels around that junction were as high as 14 ppm for a maximum eight hour average. Concentrations around the Movers Lane junction would be expected to be broadly similar. However, this is not untypical of urban locations - the Urban Air Quality in the United Kingdom report (Reference 12) states that: "The 8-hour guideline (of 9 ppm) is frequently exceeded at UK urban or kerbside locations. One or more exceedences have been observed for 9 out of 20 (45%) of urban site years and 5 out of 7 (71%) of kerbside site years since 1980 at the sites operated by Warren Spring Laboratory. It is interesting to

note that all exceedences at these urban sites have occurred since 1988/89".

- Computer modelling techniques are used to predict the levels of pollution likely to be generated by given amounts of traffic. These techniques can be applied to either observed or predicted traffic flows, and models known as CALINE 3 and CALINE 4 have been applied to 1991 traffic flows at the Movers Lane junction to calculate levels of CO and NO₂. The results are shown on Figure 6.9 for carbon monoxide and Figure 6.16 for nitrogen dioxide. Carbon monoxide concentrations are highest along the A13 and currently the maximum predicted values at dwellings are in the 5 to 7 ppm band, below the 9ppm adopted standard. The highest nitrogen dioxide concentrations are also aligned along the A13 and the maximum predicted values at dwellings are in the 180-200 μgm⁻³ range, below the Air Quality Standard.
- 3.10.10 Particulate matter, (dust and dirt), is noticeable in the vicinity of the junction as well as on building frontages located along the A13.
- 3.10.11 People principally affected by exhaust pollutants are the residents in properties fronting the A13 and pedestrians and cyclists moving along or across it.

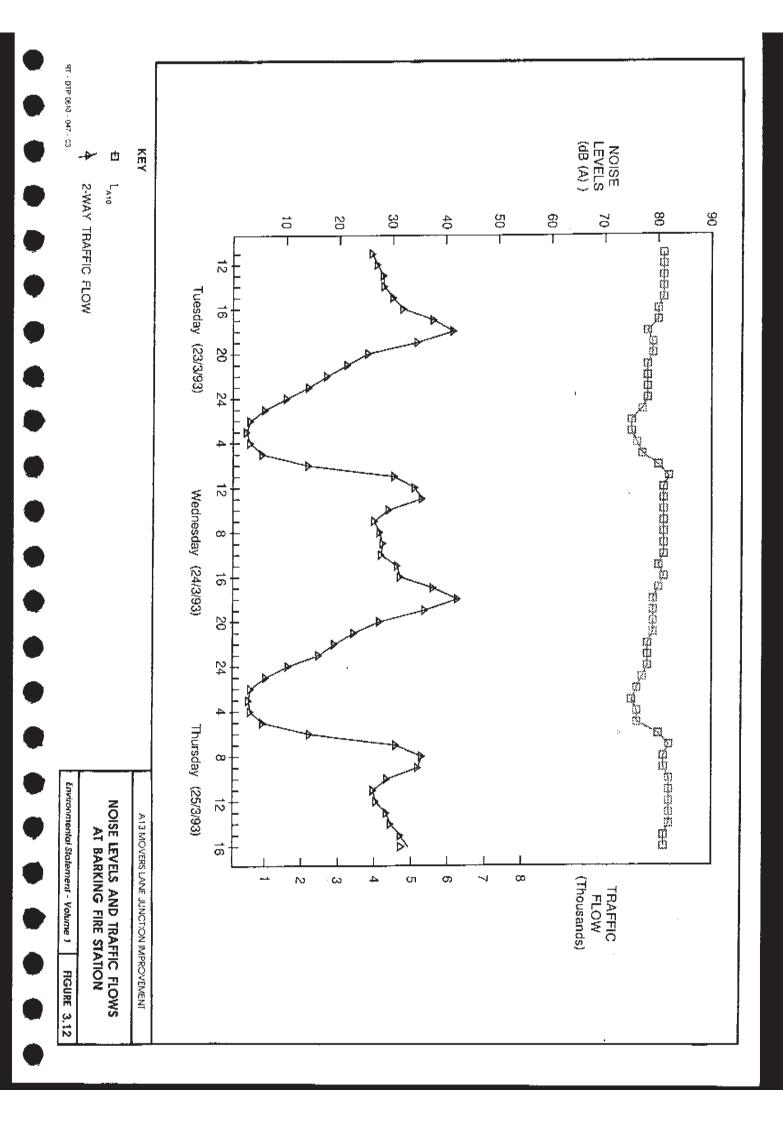
3.11 Existing Noise Levels

- 3.11.1 A brief explanation of the terminology used in measuring noise levels is given below: (for more details see the Environmental Statement, Volume 2.2 Noise).
 - The human ear has an approximately logarithmic response to sound; for example, every doubling or halving in sound pressure gives an apparently equal step increase or decrease in loudness. However, the ear is more sensitive in the frequency range of the human voice than at higher or lower frequencies. When measuring sound, compensation for these effects can be made by applying a frequency weighting. In measuring or assessing traffic noise, sound levels are therefore stated in terms of a logarithmic unit known as a decibel (dB) to which the so called A weighting is applied. This unit is termed dB(A).

TABLE 3.2: Noise in Various Environments

Environment	Sound Level dBLAcq
Inside a noisy factory	90 -100
Inside a bus	80 -90
Average traffic on a street corner	70 - 80
Conversational speech	60 - 70
Busy shopping area without road traffic	65
Typical business office (internal noise)	50 - 60
Quiet suburban office (internal noise)	50
Living room (suburban area)	40 - 50

- 3.11.3 An ambient noise survey was carried out in the vicinity of the Movers Lane junction in March 1993 at 13 selected locations. The results and measurement locations are shown on Figure 3.11 and indicate that the existing noise levels alongside the A13, while high, are not significantly higher than typical kerbside levels for a busy road. Noise levels away from the A13 are reduced by the effects of distance, screening effects of intervening buildings, and also by the effect of absorbent (soft) ground surfaces. These effects reduce noise levels in the bulk of the residential areas to levels typical of suburban areas.
- The fluctuations in traffic noise throughout the day adjacent to the A13 can be judged from the hourly readings taken at Location 1 (Barking Fire Station). These are shown in Figure 3.12. Noise levels were between 80 and 82 dBL_{A10,18hr} for the hours from 0600 to 1700, and around 75 dBL_{A10,18hr} for 0200 to 0300 hours, indicating that traffic noise was still significant, even in the middle of the night.
- 3.11.5 In summary, noise levels around the existing junction are high, consistent with what would normally be expected alongside an urban trunk road. While high peak levels of noise can be experienced adjacent to any road as vehicles pass, consistently high levels of noise (as represented by L_{A10,18hr}) are found only in properties fronting directly onto the existing A13. Noise levels away from the Al3 are significantly lower, due to distance and the barrier screening of the intervening buildings. While the noise survey did not take any measurements in Greatfields Park, it can be expected that noise levels would, for the southern part of the park, be equivalent to the high levels experienced by properties bordering the A13. These levels would then gradually decrease towards the northern areas of the park due to the increased distance and absorption from the park vegetation. A subjective response to the noise generated around the junction is that a significant proportion of the noise disturbance (if not necessarily the actual loudness of the noise) is generated by the braking and acceleration of HGVs negotiating the roundabout, with consequent intermittent peak noise levels.



3.12 Summary of Existing Conditions

- 3.12.1 The existing environment around the Movers Lane junction is typical of densely developed, urban locations, and contains no features of wider environmental value or interest. However, a number of features are of local interest, in particular the archaeology and ecology of the area which both have LBBD designations.
- The quality of the existing environment is poor in many respects due to the prominence of the A13 and the effects of its vehicle traffic on local residents, vehicle travellers, pedestrians and cyclists, with the following points being particularly significant:
 - existing vehicle traffic is heavy with a high percentage of HGVs. The junction suffers congestion at peak periods;
 - existing vehicle induced noise and air pollution create an unpleasant and unhealthy environment immediately around the junction;
 - the townscape is undistinguished, with a large number of residential properties facing directly onto the A13; and
 - Greatfields Park is a locally important open space which is significantly affected by noise and visual intrusion from the A13.
- 3.12.3 The existing A13 and its traffic are the most significant elements within the area. The road's strategic importance and potential to facilitate regeneration in the East Thames Corridor (ETC) and the Borough are recognised by both central and local government. The adjacent Barking Reach area, to the south east of the junction, is a major development site within the ETC.

3.13 Environmental Implications of Unimproved Junction

It is generally estimated that UK motor traffic will double by the year 2025. In order to assess the environmental implications which would arise if the junction is not improved, reference needs to be made to forecast traffic flows at the junction. A traffic analysis and forecasting exercise was undertaken in 1993 using data derived from the existing London Transportation Study (LTS), London Area Transport Survey (LATS) and the East of River Lea Model (ERLM) which is a comprehensive study of traffic in the general area. Additional studies and surveys specific to the Scheme were also carried out to refine this data, and the forecast flows were then assigned to the future traffic network using a localised Simulation and Assignment of Traffic to Urban Road Networks (SATURN) model. SATURN is also validated for the Base Year flows, 1991 being the base year.

- 3.13.2 Traffic forecasts were made for the opening year of the Scheme (2000) and also for 2011. This year was chosen instead of the normal practice of using the "Design Year" of the Scheme (15 years after opening, i.e. 2015) because the LTS model has not provided flows beyond 2011, and the assumption was made that there would be no further traffic growth in the area due to the restraining capacity of the network. The 2011 forecasts are therefore taken as the Design Year (2015) flows.
- 3.13.3 Forecasts were made for the situation with the Scheme (Do-Something) in 2000 and 2011, and also the situation if the Scheme were not to be built. This is known as the Do-Minimum situation, as it would be unrealistic to assume that the existing highway network would persist unaltered into the future. The Do-Minimum situation in this case therefore assumes construction of the East London River Crossing and an interchange with the A13, the Eastern Gateway Access Road link to the East London River Crossing, and the widening of the existing A13 bridge over the River Roding.
- Table 3.3 gives a comparison between the observed 18 hour traffic flows in 1990 and the Design Year flows for 2015 in both Do-Minimum and Do-Something cases. Forecasts for the year 2015 show a significant increase in traffic flows at the junction in the Do-Minimum. The forecasts give an overall 49% increase in traffic flow at the junction, which would produce severe delays and congestion at the junction itself, and continuous queuing along the A13, westbound in the morning peak and eastbound in the evening in both the opening year and the Design Year.

TABLE 3.3: Base Year and Forecast 18 Hour Traffic Flows

Direction of Traffic	Tot	al Vehicles in 18 hour flow	W
	Base Year	Do-Minimum	Do-Something
	(1991)	(2015)	(2015)
A13: WEST OF M	OVERS L <u>ane juncti</u>	ON	
Eastbound	41,508	62,854	61,538
Westbound	33,867	55,597	64,584
A13: EAST OF MO	OVERS LANE JUNCTION	ON	
Eastbound	39,448	53,701	56,521
Westbound	33,017	51,891	56,940
RIVER ROAD			
Northbound	9,817	10,626	13,616
Southbound	10,174	13,266	14,427
MOVERS LANE			
Northbound	5,012	4,502	4,861
Southbound	5,033	7.750	9,822
TOTAL TRAFFIC	FLOWS INTO MOVER	S LANE JUNCTION	
TOTAL	89,375	133,121	141,916
Increase	_	+49%	+59%

- 3.13.5 The environmental implications of the forecast flows for the year 2015, if the junction is not improved, are that there would be a further reduction in the quality of the existing poor environment for people living adjacent to the junction or who travel through it. The following points are of particular significance:
 - increased traffic flows would create worse congestion, and for longer periods during the day;
 - O increased vehicle noise and exhaust emissions would result;
 - of further deterioration in the local townscape and a greater impact from the A13 on the adjacent residential properties and Greatfields Park would also result;
 - congestion at peak times would be such that traffic would be likely to attempt to divert to alternative routes, spreading the environmental effects; and
 - accidents would continue to increase.
- 3.13.6 The implications can be summarised by the following extract from the White Paper, Trunk Roads, England: Into the 1990s.

"The forecasts of traffic demand indicate that congestion will get much worse unless action is taken. Action is necessary because congestion imposes higher costs on the consumer and reduces the competitiveness of British Industry, it leads to more accidents, it encourages traffic to use unsuitable roads, and it wastes fuels thereby increasing exhaust emissions".

CHAPTER 4

CHAPTER 4

THE PROPOSED JUNCTION IMPROVEMENT

Background Development of Proposals Public Consultation The Proposed Scheme

A13 Movers Lane Junction Improvement Environmental Statement Volume 1 Page 38 of 94

RT-DTP0610-047-03

4.0 THE PROPOSED JUNCTION IMPROVEMENT

4.1 Background

- 4.1.1 The strategic importance of the A13 and the need for improvements along it have been recognised for some time, with studies on traffic conditions in the A13 corridor undertaken since the 1960s.
- As part of a wider programme of improvements to the A13, Acer Consultants Ltd were commissioned by the DOT in 1990 to examine options for improving the Movers Lane junction. The objectives of this commission were:

"To improve the flow of traffic on and across this section of the A13 and access into the Docklands, whilst providing optimum economic benefits, environmental benefits for residents and the users of local facilities and safety for all road users" (Reference 13).

- The improvement of this junction, as entered into the National Roads Programme, was based on grade separation (ie. with through and local traffic on different levels, to permit free flow of through traffic) of the A13 and Movers Lane/River Road, but the brief prepared by DOT indicated that other solutions, including traffic management, should be considered.
- 4.1.3 Amongst other things, the brief required consideration of:
 - the needs of local traffic, pedestrians, cyclists and other road users, including the effects on existing and proposed public transport services in the area;
 - the need to minimise traffic disruption during construction;
 - O other planned road improvement schemes in the area;
 - O local development proposals, including Docklands and Barking Reach;
 - existing and proposed local authority schemes for development, traffic management or changes to the local road network;
 - existing data on the numbers of accidents around the junction;
 - O effects on the environment of the area; and
 - consultation with the London Borough of Barking and Dagenham.

4.2 Development of Proposals

- 4.2.1 The development of options for the junction improvement took into account the brief requirements and also took into account the following key constraints:
 - to provide sufficient capacity for the Design Year (ie. 15 years after opening) traffic flows;
 - to minimise the effects of the scheme on residential properties and to improve the local environment;
 - o to maintain and enhance local access, especially for pedestrians and cyclists;
 - to minimise disruption to existing services and thus diversion costs; and
 - O to design in sympathy with the local landscape/townscape.
- 4.2.2 A number of options were considered but rejected at an early stage as they did not comply with the above key constraints. These options included:
 - Schemes where access to the A13 at the Movers Lane junction would be curtailed in a variety of ways which would decrease congestion at the junction but would introduce significant levels of severance and would not provide for all traffic movements at the junction;
 - a scheme for a flyover along the Movers Lane/River Road axis to take north-south traffic over the A13 - this would have produced adverse environmental effects and would again have produced a junction which would not cater for all movements;
 - an off-line scheme with the A13 moved much further to the south this option would have been very expensive to construct, would have taken a large amount of land and would have led to widespread demolition of industrial properties;
 - more localised off-line schemes with the A13 diverted approximately 100m to the north or south of the existing road -these would have led to the demolition of large numbers of properties away from the present line of the A13 and would have severely affected either Greatfields Park or the Mayes Brook; and

TABLE 4.1 : COMPARISON OF SCHEMES CONSIDERED IN DETAIL

Scheme 3A	Scheme 4A-TS	Scheme 4A-RB	Scheme 4B	Scheme 7	Do-Minimum
,					Scheme
Dual 3	Dual 3	Dual 3	Dual 3	Dual 3	Dual 3 Lane
3.65m Lanes	3.65m Lanes	3.65m Lanes	3.65m Lanes	3.65m Lanes	3.3/3.65m East
					3,00m West
85kph (53mph)	85kph (53mph)	85kph (53mph)			60 kph (37mph)
Underpass -	Underpass -	Underpass -	7	1956 400m	Existing Substandard
497m long	497m long	522m long	593m long	4 0m deen	Floorer Coostanuary
7.1m deep	7.1m deep	7.6m deep	7.6m high	Movers I and Overbridge	Refurbished
North 21m	South 21m	South 21m	South 21m	South 21m	No Change
Traffic Signals	Traffic Signals	Roundabout	Traffic Signals	Traffic Signals	Evicting Doundshout
1.King Edwards Road	1 Westminster Gardens	1. Westminster Gardens	1. Westminster Gardens	Westmingter Gardons	No Change
2. Westminster Gardens					Tag Crienge
97 dwellings	74 dwellings	74 dwellings	74 dwellings	74 dwellings	No Change
Fire Station	Public House	Public House	Public House	Public House	- Grand
	2 Commercial	2 Commercial	2 Commercial	2 Commercial	
Pedestrians cross via	Pedestrians cross via			- 1	No Change
Traffic Signals on their	Traffic Signals on their	Pelican Crossings	Traffic Signals on their	Traffic Signals on their	Co
own phase	own phase		own phase	own phase	
No special facilities -	No special facilities -	No special facilities -	No special facilities -	No special facilities -	No Change
cyclists use traffic signal	cyclists use traffic signal	cyclists use roundabout	·-	cyclists use traffic signal	
junction	junction		signal junction	Junction	
	ss (53 als and ster Garde Road ster Garde s gnals on gnals on traffic	Lanes Lanes (53mph) pass - long leep 2lm 2lm Signals Edwards Road trainster Gardens sillings ation rians cross via Signals on their hase pecial facilities - s use traffic signal	Lanes Commercial rians cross via suse traffic signal suse traffic signal and suspensions on their cross use traffic signal and suspensions on their cross use traffic signal pulsas suse traffic signal pulsas suse traffic signal pulsas suse traffic signal punction pulsas public House punction pulsas suse traffic signal punction pulsas suse traffic signal punction pulsas pulsas public House pecial facilities pulsas punction pulsas	Lanes Cosmph) 85kph (53mph) 85	Lanes Commercial rians cross via Signals on their Signal Signal son their suse traffic signal suse suse signal suse suse suse suse suse suse suse sus

- a scheme involving widening of the A13 on each side (ie. symmetrically) was also considered this would have required demolition of properties on both sides of the existing A13, significant effects on Greatfields Park and also the demolition of the existing flyover before the new scheme had provided replacement capacity, leading to increased congestion and delays during construction.
- 4.2.3 A number of the various options considered during the early stages of the study did meet the majority of the criteria set out in section 4.2.1, and were therefore considered in more detail.
- 4.2.4 Schemes were examined which involved either an underpass or flyover, either to the north or the south of the existing A13 (with the centre of the road moving by approximately 21m). A hybrid scheme was also investigated which involved the raising of Movers Lane/River Road to minimise the depth below existing ground required for the A13 underpass.
- 4.2.5 Five schemes were taken forward for detailed consideration (Reference 13). These were:
 - Scheme 3A A13 moved to north in an underpass with an atgrade traffic signal junction.
 - Scheme 4A-TS A13 moved to south in an underpass with an atgrade traffic signal junction.
 - Scheme 4A-RB A13 moved to south in an underpass with an atgrade roundabout junction.
 - Scheme 4B Al3 moved to south on a flyover with an atgrade traffic signal junction.
 - Scheme 7 Hybrid scheme, with A13 moved to the south in a shallow underpass and Movers Lane/River Road raised above it.

A summary of the main features and effects of these schemes is shown in Table 4.1 opposite.

4.2.6 These schemes were evaluated in terms of environmental effects, structural viability, traffic effects, costs, ease of construction and their rating in terms of Cost Benefit Analysis. Cost Benefit Analysis is a technique which compares the construction cost of a scheme with its benefits in time and accident savings. In this analysis, schemes 4A-TS and 4A-RB were found to have similar costs, but with significantly higher benefits for 4A-TS, which was identified as the most beneficial scheme by this method.

A13 Movers Lane Junction Improvement Environmental Statement Volume I

Page 41 of 94

TABLE 4.2 : ENVIRONMENTAL COMPARISON OF SCHEMES CONSIDERED IN DETAIL

				ŀ				
Of the properties included in visual intrusion approximately 220 also experience visual obstruction to some degree	241 93 38	130 98 61	244 43 19	13 <i>7</i> 60 82	129 68 82	162 55 138	High Medium Low	Number of properties experiencing the following levels of visual intrusion for each scheme
Property demolition exposes new properties to visual obstruction	61 140 28	11 133 68	23 148 68	5 135 73	5 132 70	59 129 46	High Moderate Slight	VISUAL OBSTRUCTION Number of properties the experiencing the following levels of visual obstruction for each scheme
	no change	0 12 34	0 27 21	0 29 19	0 29 19	0 61 6	10-15dB(A) 5-10dB(A) 3-5dB(A)	Number of properties experiencing a decrease in noise in the following range by each scheme
Noise analysis includes for environmental barriers and 2m high environmental barriers on the flyover	no change	0 55 200	0 116 141	0 40 128	0 40 128	0 67 91	10-15dB(A) 5-10dB(A) 3-5dB(A)	NOISE Number of properties experiencing an increase in noise in the following range by each scheme
COMMENTS	DO NOTHING	7	48	4A-RB	4A- TS	3A		SCHEME

Note: Methodology for all environmental assessments has now changed; this exercise was carried out in 1992 under the then current Manual of Environmental Appraisal (Reference 14).

A13 Movers Lane Junction Improvement
Environmental Statement
Volume 1

- 4.2.7 The key environmental effects of the options were also assessed in accordance with the then current DOT Manual of Environmental Appraisal (MEA) (Reference 14). A summary of the main features of this assessment is shown in Table 4.2.
- 4.2.8 It was concluded that, on environmental grounds, the alignments to the south of the existing A13 would be preferable as they would require less property demolition, would not affect Greatfields Park and would, following the demolition of the housing on Park View Gardens and the Volunteer Public House, provide an increased area for landscape screening and improvements. The flyover scheme was not favoured due to its greater visual and noise effects.
- Having considered all of the information gathered during the comparative assessment of the five options, a decision was taken that schemes 4A-TS and 4A-RB should be taken forward and presented at a Public Consultation. The schemes not taken forward were rejected for the following main reasons:
 - Scheme 3A higher costs, greater demolition of residential property, greater impact on Greatfields Park, greater environmental effects and less opportunities for their mitigation;
 - Scheme 4B significantly greater environmental effects and little opportunity for their mitigation; and
 - Scheme 7 failure to provide all turning movements during construction and greater environmental effects with less opportunity for their mitigation.
- 4.2.10 Schemes 4A-TS and 4A-RB were considered to be generally similar in their benefits and effects, but with 4A-TS providing better facilities for pedestrians and cyclists, less north-south severance, slightly less environmental effects and better opportunities for their mitigation.

4.3 Public Consultation

• • • •

- In order to inform local people of the options under consideration and to be able to take account of their views, a Public Consultation exercise was held between 26 May and 10 July 1992. This included a Public Exhibition at Greatfields Hall, King Edward's Road, on 11, 12 and 13 June 1992. Two thousand brochures describing the options were distributed locally and to public bodies, and approximately 630 people visited the exhibition, with 257 written responses being received.
- 4.3.2 The exhibition included information on the background to the schemes, drawings and details of each option, landscape proposals for each option, information on anticipated changes in traffic noise and a model at 1:500 scale of each option.

A13 Movers Lane Junction Improvement Environmental Statement Volume 1

Page 42 of 94

- A detailed analysis was made of responses both at the exhibition and in questionnaires or written responses this is set out in the Public Consultation Report (Preliminary Report Part 2, October 1992) prepared by Acer Consultants Ltd. (Reference 15). A brief summary of the main points arising from the consultation is given below:
 - O no viable alternative options were put forward;
 - substantial support for the junction improvement scheme was expressed;
 - a number of detailed points were raised which were subsequently addressed in the design review work;
 - Support for scheme 4A-TS (referred to at the consultation as the Green Option) was expressed by a majority of local members of the public (104 to 92), by the London Borough of Barking and Dagenham and by the London Regional Passengers Committee.
- Following the completion of the Public Consultation the Department of Transport considered all of the information concerning economic, environmental, engineering and traffic aspects of the alternative options and formally announced on 23 March 1993 that its Preferred Route was Scheme 4A-TS. This option has now been worked up in more detail and forms the Scheme upon which this Environmental Statement is based. In September 1993 the limit of the Scheme was extended approximately 300 m to the west, to link up with the eastern end of the scheme to improve the A13 Roding Bridge over Barking Creek. As it is already a dual three-lane road, this additional stretch of road requires minor widening and modification to bring it up to current standards.

4.4 The Proposed Scheme

••••••••••••

- 4.4.1 The proposed Scheme for the improvement of the Movers Lane junction involves the construction of a dual three-lane underpass to carry A13 through traffic beneath an at-grade traffic signal junction. Traffic travelling north-south along Movers Lane and River Road would therefore be separated from the A13 traffic, and all turning movements would be catered for by east and westbound on and off slip roads to and from the A13. The layout of the Scheme is shown on Figure 4.1.
- 4.4.2 It is presently anticipated that construction of the Scheme would take 30 months, with commencement of work programmed for 1997. During the construction period, 3 lanes of traffic in each direction on the A13 would be maintained, and all turning movements at the junction would be permitted, apart from some short term temporary lane closures for special operations.

The Scheme has been chosen in preference to the other options considered because of its lesser environmental effects and because it was possible to incorporate within it substantial measures to further minimise those effects. These measures are described in Chapter 5 of the Environmental Statement, and the environmental effects which are likely to result from the construction and functioning of the Scheme and its integral mitigation measures are described in Chapters 6,7, and 8.

•

NARIANIO NARIANIO

CHAPTER 5

MITIGATION MEASURES

Introduction
Engineering Design
Water Quality and Drainage
Archaeology and Cultural Heritage
Landscape and Visual Effects
Ecology and Nature Conservation
Air Quality
Noise
Disruption Due to Construction

A13 Movers Lane Junction Improvement Environmental Statement Volume I Page 45 of 94

RT-DTP0610-047-03

5.0 MITIGATION MEASURES

5.1 Introduction

- Measures to mitigate the potential environmental effects of the Scheme have been progressively incorporated into the proposals as they have developed. These measures are an integral part of the Scheme and are therefore described in this Chapter before the net environmental effects likely to result from the implementation of the Scheme are considered in Chapter 6.
- 5.1.2 The measures described below range from the alignment and design of the Scheme itself, to other detailed measures now incorporated within it, to restrictions which it is proposed would be placed on the contractor for the work to minimise disturbance arising from construction operations. It should also be noted that the Scheme, while not without its own environmental effects, is to a large extent justified by the need to reduce the existing environmental problems around the junction (see section 2.6). Any effects of the Scheme must therefore be judged against the generally poor existing situation, which the Scheme is designed to alleviate.

5.2 Engineering Design

• • • •

•

- 5.2.1 The Scheme was chosen amongst other reasons for its environmental advantages (see section 4.2). Its principal benefits are considered to be:
 - O no land take at Greatfields Park;
 - A13 traffic routed beneath the junction in an underpass;
 - better facilities for pedestrians and cyclists;
 - o increased opportunity for mitigation of noise and visual effects, particularly in the south west quadrant of the junction;
 - O opportunity for provision of new landscape areas; and
 - reduction in severance effects.
- 5.2.2 It can therefore be seen that the key, initial measure taken to mitigate the environmental effects of the Scheme has been in the choice of option to be taken forward. The more detailed design which has followed has also sought to further mitigate effects in a number of different categories, as described below.

5.3 Water Quality and Drainage

Drainage

- 5.3.1 The existing surface water drainage from the A13 and River Road runs into Roundabout Drain and Mayes Brook. Movers Lane drains northwards into a network of surface water sewers. There is in addition a 1.8 metre diameter combined foul sewer along the A13, but this is running at capacity and would not be able to take any additional flows. It is therefore proposed that the majority of the carriageway drainage is discharged into Roundabout Drain, and the remainder (from the east end of the Scheme) into Mayes Brook via an existing culvert.
- As the surrounding area is generally flat, and the Scheme involves an underpass roughly 7 metres below surrounding ground level (maximum depth 4.95m AOD) and approximately 5 metres below the ground water table, a pumping station is proposed to remove surface water from the underpass. It is also proposed that drainage from the parts of the Scheme at or near existing ground level would be directed to the pumping station, in order to achieve adequate gradients and flow velocities within the pipes. The pumping station would be located in the landscape area just to the west of River Road (see Figure 4.1). The sump for the pumping station would be below ground level and there would be a building to house power supply, control and monitoring equipment.

Flood Storage

- As the overall area of hard surface following implementation of the Scheme would be greater than that existing, and as the pumps would discharge water to Roundabout Drain more rapidly than at present, it is possible that there would be some raising of water levels within Roundabout Drain during and immediately after periods of heavy rain. This situation would be accentuated during high tides, when the Kingsbridge Sluice between Mayes Brook and Barking Creek would be closed and there would be temporary backing-up of flows in Mayes Brook. It is not presently anticipated that significant problems would result, but further investigations into the flood storage capacity of the existing watercourses are under way.
- As water from Mayes Brook cannot enter Barking Creek during high tides, it is recognised as an area of possible flooding. In order to cope with such events, an area just to the north of the A13 and another area immediately behind County Gardens, in the south east quadrant of the existing junction, has been set aside by the NRA as balancing ponds for additional flood storage, to help prevent other nearby areas from flooding. Although the Scheme has some effects on the northern edge of this flood storage area, the detailed design will ensure that there is no loss of storage capacity and that the existing hydrological situation is therefore maintained.

Water Quality

- 5.3.5 The water quality and ecology studies carried out as part of the preparation for this Environmental Statement (see sections 3.2 and 3.7) indicate that Mayes Brook and Roundabout Drain are not of particular interest or sensitivity. In addition, they already receive the existing surface water drainage from River Road and the A13 any changes in water quality arising from the Scheme would therefore be likely to be incremental in nature, resulting from the higher anticipated traffic flows through the junction.
- Possible adverse effects on water quality arising from road schemes can be due to effects during construction, contamination of surface water run-off or accidents and other circumstances leading to pollution incidents. Pollutants produced by traffic can accumulate on the road surface and be washed into local watercourses by rainfall and surface water drainage. As the Scheme will reduce general levels of pollution by alleviating congestion and facilitating more even traffic flows with fewer accidents, levels of pollution in the road run-off would decrease as a result of the Scheme. A risk assessment of a spillage due to an accident indicates that this risk will be reduced by at least one third with the Scheme.
- The Scheme will incorporate an oil interceptor between the pumping station and the outfall to Roundabout Drain. This would help to remove any oily materials from the water and it would also provide a minimum of six minutes storage of maximum drainage flows. The combined capacities of the pumping station sump and the interceptor means that, in the event of a spillage of liquid on the A13 or the side roads, sufficient storage capacity should be available to contain the spill and prevent it reaching the watercourse. The capacity to intercept and hold spilt pollutants is a substantial improvement on the existing situation. Any spilt substances would initially be collected in the sump of the pumping station, which would provide an initial opportunity for control of any incident prior to possibly hazardous material being pumped to the oil interceptor. Oil interceptors will also be installed at the east and west ends of the Scheme where drainage discharges direct to Mayes Brook and Roundabout Drain.
- 5.3.8 Detailed measures would be built into the contract for the construction of the Scheme to reduce the risk of any contamination of Mayes Brook and Roundabout Drain during the works. These would be likely to include the construction of the interceptor at an early stage, detailed controls on the means by which excavations can be de-watered and possibly the use of temporary settling lagoons to remove sediment. The underpass itself would be constructed as a scaled box, to prevent contamination of the groundwater from within it.

• • • •

5.4 Archaeology and Cultural Heritage

- 5.4.1 The construction of the Scheme would not affect any known features of archaeological interest. However, the area around the Movers Lane junction is one in which archaeological finds have been made in the past, and it has therefore been designated by LBBD as an Area of Archaeological Significance (see section 3.3).
- Reference is made in the local UDP (Reference 4) to preservation or investigation of archaeological features as follows:
 - "... the Council will seek to ensure that an early evaluation is carried out and that preservation in situ is given first consideration. However, if preservation in situ is not possible and the nature of the remains does not warrant a planning refusal, the Council will require that adequate time, funding and resources are provided to enable archaeological investigation by the Passmore Edwards Museum or another acceptable agent to take place during the process of development."
- In order that a clearer picture of the possible archaeological interest of the area affected by the Scheme can be obtained, and so that any archaeological features encountered can be recorded, a methodology for archaeological investigation has been developed in consultation with the Passmore Edwards Museum. This methodology has also been passed to English Heritage, for their confirmation that the proposed level of assessment is appropriate in this case.
- 5.4.4 The proposed methodology is as follows:

••••••••••

- o trial trenches near Borchole 11 (near the east end of County Gardens, and excavated as part of the ground investigation work undertaken in 1991 this area was identified by the Passmore Edwards Museum as meriting further investigation) to be undertaken at an early stage in the engineering contract, or in the period following land acquisition and prior to commencement of work, if this can be arranged. Timing would be arranged to give the longest possible period for inspection and sampling prior to major engineering work at this point;
- the new channel for the Mayes Brook to be excavated at an early stage in the engineering contract to allow a period for inspection before the old channel is removed and the brook diverted; and
- arrangements to be made for a general watching brief to be kept during the remainder of the excavation work required for the implementation of the scheme.

This provision would enable some investigation work to be undertaken before major construction operations commence, and would also facilitate further inspection during the excavations required for the Scheme, so that any features of interest could be recorded and, if necessary, investigated.

5.5 Landscape and Visual Effects

•

• • • •

- A range of measures have been incorporated into the Scheme in order to minimise its visual effects, including environmental barriers, screen planting and mounding. These are described in detail in the Environmental Statement Volume 2.4 Landscape and Visual Effects, and are briefly summarised below. It should also be noted that the Scheme, which would replace the existing obtrusive steel flyover with a below ground underpass, would in itself lead to a significant improvement in the appearance of the area around the junction. The mitigation measures described below can therefore be seen as detailed measures designed to lessen the visual effects of a Scheme which would in itself lead to a major visual improvement.
- 5.5.2 The Scheme incorporates substantial landscape proposals, designed to mitigate its visual effects and also to help integrate it into the existing townscape and provide visual and amenity benefits where possible. The specific measures are shown on Figure 5.1 and include:
 - the creation of a new open space of about two and half acres in the south west quadrant of the junction;
 - screen planting in all four quadrants, but chiefly to screen views of the
 Scheme from Greatfields Park, Alfred's Gardens and Charlton Crescent;
 - o mounding in the south west quadrant to provide screening to properties in Waverley Gardens this mounding would also assist in mitigation of noise effects;
 - environmental barriers in a number of locations, which would provide visual and noise mitigation;
 - a total of seven acres of new landscaping will be provided;
 - the use of off-site planting, on land which would not be purchased for the Scheme, but upon which planting would help to further lessen its effects such planting is proposed within Greatfields Park and along Charlton Crescent and would be by agreement with the landowners.

- 5.5.3 Some of these measures would be effective immediately, while the full effects of the planting would not be felt for a number of years. For this reason, the assessment of visual effects in Chapter 6 considers two situations: one in the winter of the opening year of the Scheme, when the proposals would be at their least effective, and the other in the summer fifteen years later, when they would be approaching maturity.
- Advances in lighting technology will permit the Scheme to be illuminated efficiently for road safety and security whilst minimising the amount of light spill and reducing obtrusion at night.

5.6 Ecology and Nature Conservation

•

•

- The ecological survey work carried out during 1991 and August 1993 has indicated that the area around the existing junction contains no species or habitats of significant interest. However, Mayes Brook and Roundabout Drain constitute habitats of local significance in an urban context and are designated in the LBBD UDP as "Nature Conservation Areas". In addition, Mayes Brook is recognised as a wildlife corridor and as a potential link in the proposed Green Chain network. The Scheme contains a number of measures designed to limit its impact on these habitats and to enhance them where possible. These are considered in the Environmental Statement Volume 2.6 Ecology and Nature Conservation, and are summarised below.
- The Scheme as a whole is likely to be of net ecological benefit as it would lead to an increase in the area of permanent green space around the junction (the disused allotments to the south of Park View Gardens are scheduled for development by LBBD and would therefore be unlikely to remain as green space). Some of the landscape areas would be designed and planted with nature conservation enhancement in mind, other areas would be designed primarily for visual screening or amenity benefits.
- There are also more detailed, specific measures designed to mitigate specific effects, as follows:
 - the provision of a new access for the Bulgin works at the extreme west end of the Scheme would involve the culverting of approximately 43 metres of the open channel of Roundabout Drain. This stretch of Roundabout Drain, from Riverside Cottages to Kingsbridge Road, is roughly 340m in length. It has been agreed in principle with the NRA that mitigation for this loss of open channel should take the form of compensatory waterside planting to enhance the nature conservation interest of the remainder of this stretch of watercourse:
 - O the treatment of the proposed landscape areas alongside Roundabout Drain and Mayes Brook would include waterside and other planting to enhance nature conservation interest;

- the detailed option which is selected for the construction of the new banks to the diverted sections of Mayes Brook will be one which maximises vegetation growth and enables a natural vegetation cover to be re-established as soon as possible, and
- the possibility for salvage of existing vegetation along the parts of Mayes Brook which are to be diverted will also be investigated. It should be possible to excavate, store and reposition blocks of soil complete with vegetation, but as a minimum provision, the soil from the banks would be stored separately and carefully respread on the new banks so that the seed bank in the soil assists in revegetation.

5.7 Air Quality

- 5.7.1 The effect of pollution emission from motor vehicle traffic on urban air quality is a source of increasing public concern. In the UK vehicle traffic is estimated to double by the year 2025. Legislation to control vehicle exhaust emissions has been introduced and is described in the Environmental Statement Volume 2.3 Air Quality. The effects of this legislation are likely to be countered to some extent by the increases in vehicle traffic.
- 5.7.2 The proposed junction improvement at the A13 Movers Lane junction would result in improved flow of traffic along the A13. If no improvements take place long queues would be expected to form at the junction. Therefore concentrations of most vehicle related pollutants would be expected to increase around the junction in the Do-Minimum situation.

5.8 Noise

•

- A number of specific measures have been incorporated into the Scheme to mitigate its effects on noise levels, and these are summarised below. In addition, the design of the Scheme itself would help to minimise high noise levels for the following reasons:
 - O the distance of some properties from the A13 would increase, by 11 metres in the case of Alfred's Gardens; and
 - O the introduction of free flow for A13 traffic, reducing the noise produced by vehicles (particularly HGVs) accelerating and decelerating at the junction.
- The specific measures incorporated into the Scheme include the use of environmental barriers up to 3 metres high and also mounding in the south west quadrant both of which reduce noise levels.

A13 Movers Lane Junction Improvement Environmental Statement Volume 1

Page 52 of 94

- There is provision under the Noise Insulation (Amendment) Regulations, 1988 (Reference 16) for noise insulation to be installed in properties which would otherwise experience significant noise increases as a result of a road scheme. An initial assessment for the Scheme has been carried out (see the Environmental Statement Volume 2.2 Noise) which indicates that up to 180 properties may qualify for insulation, but that some of these may have already been provided with insulation due to previous road schemes. This assessment is only preliminary, and would be refined during the detailed design stage of the Scheme.
- Traffic passing through the underpass would produce multiple noise reflections from the underpass walls and much higher noise levels would emanate to affect adjacent properties. To mitigate this effect the walls of the underpass would have a noise absorbent surface. Investigations are continuing on the benefits of using the noise absorbent surface on the environmental barriers.

5.9 Disruption Due to Construction

5.9.1 The design of the Scheme incorporates a number of measures to minimise the disruption caused to local residents and road users during the construction of the Scheme. In addition, a range of measures will be built into the contract for the works to control the actions of the contractor to minimise the nuisance which his operations may cause.

Scheme Design

- 5.9.2 Measures built in to the design of the Scheme include the following:
 - disruption to traffic on the A13 would be kept to a minimum by the retention of three lanes of traffic in each direction at all times, apart from short term lane closures for special operations;
 - similarly, closure of the King Edward's Road footbridge would be kept to an absolute minimum period of time; and
 - where practicable the installation of environmental barriers is envisaged at an early stage during construction to screen the works as well as the completed scheme.

Control of Contractor's Operations

- 5.9.3 Certain limitations can be placed on the contractor, some of which are statutory obligations, these controls could include the following;
 - ocontrol of hours of work (excluding special, short-term operations) to avoid disturbance at night or on Sundays;
 - O noise suppression on plant and equipment; regular maintenance and careful siting will also minimise noise effects;
 - watering of work areas and access routes to minimise dust nuisance;
 - measures to control accidental spillage and discharge of oil or other substances into adjacent watercourses (see section 5.3.8);
 - O control of access to the site, this would be principally along the A13, and use of residential roads would be strictly controlled; and
 - O cleaning of site and delivery vehicles before they are allowed onto public roads.
- There is provision under the Noise Insulation (Amendment) Regulations, 1988 (Reference 16) for properties likely to suffer high levels of construction noise to be provided with sound insulation prior to the commencement of construction work. An assessment would be made in conjunction with LBBD's Environmental Health Department to determine which properties would be eligible for insulation measures due to construction noise.

CHAPTER 6

CHAPTER 6

ENVIRONMENTAL EFFECTS

Introduction
Geology and Soils
Water Quality and Drainage
Archaeology and Cultural Heritage
Demolition
Land Use
Townscape and Visual Effects
Ecology and Nature Conservation
Policies and Plans
Traffic
Air Quality
Noise
Pedestrians, Cyclists and Community Effects
Vehicle Travellers
Summary of Significant Effects

A13 Movers Lane Junction Improvement Environmental Statement Volume 1 Page 55 of 94

RT-DTP0610-047-03

6.0 ENVIRONMENTAL EFFECTS

6.1 Introduction

- 6.1.1 Extensive measures to mitigate the potential environmental effects of the Scheme have been incorporated into the proposals during their development. These measures are described in Chapter 5, and the effects described in this Chapter are therefore the net environmental effects likely to result from the implementation of the Scheme complete with mitigation.
- The environmental effects of the Scheme have been assessed in accordance with current HA guidance, as set out in Volume 11 of the Design Manual for Roads and Bridges (Reference 3). The effects are generally compared to the existing situation (see Chapter 3) so that the net effects of implementing the Scheme can be assessed, and also where appropriate to the Do-Minimum situation (see section 3.13.3) so that the environmental consequences of not implementing the Scheme can also be taken into account. The effects are summarised in the Environmental Impact Tables set out in Appendix A, and can be either beneficial or adverse.
- Temporary effects arising from the construction works required for the Scheme are considered separately in Chapter 7 as these effects, while sometimes significant, are essentially transient. Similarly, effects which are expected to persist long into the future are highlighted in Chapter 8. Again, these effects can be either beneficial or adverse.
- A brief summary of the principal effects and their significance (whether negligible, moderate or significant) is highlighted at the end of each subsection of this Chapter, as a clear and concise explanation of the anticipated effects of the Scheme is central to the purpose of the Environmental Statement.

6.2 Geology and Soils

- 6.2.1 The assessment required by the DMRB is principally concerned with the potential effects of a road scheme on sites of geological interest or on areas of contaminated land.
- There are no known sites of geological interest in the vicinity of the Scheme and the information derived from the geotechnical survey (see section 3.2.2) indicates that no features of interest are likely to be encountered during construction works.
- 6.2.3 There are no sites known to be contaminated in the vicinity of the Scheme, and what information there is indicates that levels of contamination on non-industrial land are likely to be within the limits set for disposal of any excavated

material. There is some possibility that material on one or more of the industrial sites affected by the Scheme could be contaminated, and soil testing on these sites would be carried out at an early stage during the construction of the Scheme to determine whether this problem exists.

6.2.4 The NRA have observed that Roundabout Drain suffers from pollution at the point where it discharges from the existing culvert just to the south of the A13. Tests have indicated that the pollution source is an industrial discharge. The pollution is the subject of continuing studies to identify what measures needs to be taken during construction.

Summary

- 6.2.5 No effects are anticipated, and any contaminated material encountered would be dealt with in the normal way by licence from the London Waste Regulation Authority.
- 6.3 Water Quality and Drainage
- 6.3.1 The anticipated effects of the Scheme on local water quality and drainage are discussed in detail in the Water Quality study (Environmental Statement Volume 2.5 Water Quality). These effects are summarised below.
- 6.3.2 The Scheme would reduce congestion and together with the effects of emission control legislation there would be an overall reduction in pollution levels at the junction. This lowering of pollution levels would in turn reduce the level of pollutants being washed into the adjacent watercourses by rain. It should also be noted that neither Roundabout Drain nor Mayes Brook can be regarded as sensitive in water quality terms, as both watercourses have poor existing water quality. In addition, the points at which the Scheme discharges into the Mayes Brook system are very close to its confluence with Barking Creek and then the River Thames, meaning that flows in the Mayes Brook rapidly become insignificant in the wider context. The portion of Mayes Brook between River Road and Barking Creek is also less ecologically sensitive and excluded from the London Ecology Unit designation (see section 3.7.5).
- The proposed drainage system would incorporate silt traps, sumps in the pumping station and oil interceptors between the drainage system and the outfall into local watercourses. All these facilities (see section 5.3) would provide improved capacity to intercept and control any accidental spillage of hazardous material onto the road surface. In addition, it is anticipated that the likelihood of a hazardous spill accident would be reduced by at least one third as a result of the improved traffic conditions produced by the Scheme.

The overall chance of polluted material finding its way into local watercourses as a result of accidental spillage would therefore be reduced both by the decreased likelihood of such an accident and the improved measures available to control it. These provisions are the subject of continuing consultation with NRA.

Due to the increased rate at which surface water would be transferred to Roundabout Drain as a result of the Scheme (because of the increased area of hard surface and the pumped drainage) there would be some raising of water levels in this watercourse during and immediately after periods of heavy rain. It is not presently anticipated that this effect would be significant, as Roundabout Drain is not known to flood, and flows could be improved by clearance of the vegetation at present growing within it. The Scheme would provide better access for the maintenance of the watercourses leading to a potential improvement in the quality and frequency of maintenance provided.

Summary

- 6.3.5 The overall impact of the Scheme would be to improve water quality in Roundabout Drain and Mayes Brook and to reduce the possibility of pollution from accidental spillage. The effects would be beneficial, and of moderate significance in a local context.
- 6.4 Archaeology and Cultural Heritage
- There are no known sites of archaeological interest which would be affected by the Scheme, but it does lie within an area known to be of general archaeological interest and which is designated as such by LBBD. It must therefore be a possibility that some sites, as yet unknown, could be disturbed during the construction of the Scheme. Such disturbance would enable any finds to be studied and recorded as set out in the proposed methodology for archaeological investigation, but would be regarded as unfavourable in archaeological terms. This is because the general preference is for any sites of archaeological interest to remain undisturbed for the future, rather than exposing and studying them, and consequently destroying them in the process of that study.

Summary

6.4.2 The Scheme could affect sites of archaeological interest which are not yet known. Any such effects would be significantly mitigated by the provision for investigation early in the contract for the construction of the Scheme and for a watching brief thereafter, and could not reasonably be avoided in the absence of any prior knowledge. Effects would therefore be potentially adverse, but of negligible significance.

6.5 Demolition

- Demolition of property is not a category which is treated separately by the DMRB, but it is considered appropriate to report it separately from Land Use in this case because of the relatively large number of properties which would require demolition in a small geographical area.
- A total of 75 residential properties (8 of which are flats) and 3 commercial properties would need to be demolished, all of them abutting the existing A13 on the south side. The commercial properties are the Volunteer public house (employing 20 part-time and 10 full-time staff), Barking Auto Electrics, 29 Park View Gardens (employing 5 full-time staff) and the newsagents at 28 Park View Gardens, where the numbers employed are not known.
- The property demolition is necessitated by the design decision to move the centre-line of the Scheme to the south of the existing A13 centre-line by about 20 metres. This provides some environmental relief for properties on the north side of the road and Greatfields Park, and avoids the situation which would have been created by improvements on the existing alignment, of greater demolition and severe environmental effects on both sides. The properties have been in place for up to 60 years, during which time the A13 has grown in size, importance and traffic flows, resulting in an environment which is seriously affected by the road and its traffic, with heavy traffic flows only 11 metres from the front doors of houses in County Gardens.

Summary

6.5.4 The extent of property demolition is the absolute minimum necessary and considerable care has been taken to mitigate the effect of the removal of these properties. Without the Scheme, those properties would experience further deterioration of the local environment due to the forecast increase in traffic. Demolition of Park View and County Gardens would expose other properties to the road and the southern realignment of the A13 would mean those properties would be closer to the road than at present. Such properties would however benefit from the A13 traffic being in the underpass. In addition the Scheme offers extensive landscaping opportunities, and environmental barriers would be provided to further screen properties from the road. Compensation for property acquired for the Scheme would be paid in line with current legislation.

6.6 Land Use

6.6.1 The majority of the land required for the construction of the Scheme would be provided by the acquisition and demolition of the properties referred to above. However, some land would also be taken from other areas and uses, and these are described below.

Land-take from Business Premises

- Some land would be required from the A13 frontage of Maurice Phillips and Co. Ltd., and also a small amount from the north east corner of the A.F. Bulgin and Co. Plc. site. Both sites would have their existing accesses from the A13 stopped up, and alternative access provided. In the case of Maurice Phillips, this would be from the east via Kingsbridge Road, parallel to the A13, and in the case of A F Bulgin an access would be created from the west, via the industrial access opposite Gascoigne Road.
- The alternative accesses proposed have been studied in detail and discussed with the businesses concerned. A report (Reference 17) on this subject concluded that the effects on the two businesses would not be significant, but that some internal reorganisation of parking provision and turning areas may be required.
- Some land would also be taken from the westernmost corner of the developing Lyon Business Park to accommodate the realignment of Mayes Brook at this point. This part of the Business Park is at present awaiting development, and any future plans for development should therefore be able to conform with the reduced amount of land available.

Loss of Land Used by the Community

- 6.6.5 No land in active public use would be taken by the Scheme Greatfields Park would not be affected and the following areas, though affected, are not in active use:
 - the former allotments to the south of Park View Gardens are not in use and have been scheduled for development by LBBD;
 - the small triangle of land to the south east of Riverside Cottages is owned and maintained by LBBD and is in occasional use by residents of Riverside Cottages. Some of this land would be lost to the new A F Bulgin access, but there would be the possibility of temporary replacement provision on the small derelict site immediately to the north. However, LBBD have indicated that they do not see a long-term future for housing on this site and such replacement provision is not therefore currently proposed; and
 - the strip of open space between Kingsbridge Road and Roundabout Drain is not actively used or maintained. The north west corner of this strip would be taken for the realignment of Kingsbridge Road.

Effects on Development Land

- 6.6.6 The purpose of this assessment is to enable future changes in land use which would have been likely to take place in the absence of the Scheme to be considered. These changes could be as a result of planning approvals already granted, or changes anticipated as a result of land use planning designations.
- The only LBBD designation which would be affected by the Scheme is that of the Lyon Business Park as a "Barking Reach Gateway Site" (see section 3.8.6). These sites are intended to provide a series of high profile, high quality entrances to the major development of Barking Reach. The Scheme, with its substantial landscape proposals and opportunity to provide a high quality urban environment, would assist in achieving the objectives of this policy, though the replacement of the flyover with an underpass would result in the site being less visible to passing A13 traffic.
- Three planning approvals have been granted in recent years in the area around the Scheme (see section 3.5.4). Of these, the one which the Scheme would affect most significantly is that to extend the Volunteer public house and part convert it into a hotel. The other two approvals are for minor developments relating to improved access for NRA and temporary advertising hoardings. Land would be required from potential development sites (the Alba site, to the west of Kingsbridge Road and the former allotments site), but there are no current, specific proposals for the development of these areas.

Summary

- 6.6.9 The Scheme would require land-take from various sources, chiefly from residential areas and derelict sites. There would be some land-take from active business premises but the viability of these businesses would not be adversely affected. No land in active use by the community would be lost, and no exchange land would therefore be required. One development with current planning approval would be frustrated, while the implementation of one LBBD planning designation would be assisted. In general, these effects can be considered minimal.
- 6.7 Townscape and Visual Effects
- The general effects of the Scheme on the local townscape character and quality, together with its specific effects on individual properties and areas of open space, are assessed in the Landscape and Visual Effects study (Environmental Statement Volume 2.4 Landscape and Visual Effects). These effects are summarised below.

A13 Movers Lane Junction Improvement Environmental Statement Volume 1



Barking Fire Station, the A13 and Park View Gardens from King Edwards Road footbridge.



The flyover, roundabout and Alfreds Gardens.

A13 MOVERS LANE JUNCTION IMPROVEMENT

EXISTING TOWNSCAPE

Environmental Statement - Volume 1

FIGURE 6.1

Existing Character and Quality

6.7.2 The existing character and quality of the area around the junction is undistinguished. The only relieving elements are Greatfields Park, the green corridors of Mayes Brook and Roundabout Drain, and a number of mature trees. The only building of any architectural merit is the Barking Fire Station. The townscape is further affected by the presence of the A13 and the large volumes of traffic passing along it, and in particular by the existing flyover structure at the junction. The existing townscape and landscape are illustrated in Figures 6.1 and 6.2.

Landscape Proposals

6.7.3 The Scheme incorporates substantial landscape proposals to mitigate its potential visual effects. The proposals are designed to provide screening, to integrate the Scheme into the existing townscape fabric and to provide some local townscape enhancement. The measures proposed are described in section 5.5 and illustrated on Figure 5.1.

Effects on Character and Quality

- The proposals are extensive (the main landscape areas total 2.8 hectares or 7 acres) and would provide valuable local open space. These proposals, together with the basic effect of the Scheme in replacing the unsightly flyover with an underpass for all A13 through traffic, would lead to a major improvement in local townscape quality, both through the screening of the A13 traffic and by the provision of new, high quality landscape features.
- 6.7.5 The demolition of 75 properties in two rows to the south of, and parallel to the A13 would open up new views towards the road from the properties previously behind them. This effect would be mitigated by the following considerations:
 - the A13 traffic would be substantially hidden in the underpass at the point where the new views would be created;
 - the space made available by the demolition and not required for the road would be used to provide extensive screening and new landscape features;
 - the removal of complete rows of housing would leave the urban fabric relatively undisturbed, with no properties left severed or standing alone; and
 - the remaining properties would be in a more appropriate relationship with the new road; they would on average be further away from it than existing properties are from the existing A13, and would be better screened.

A13 Movers Lane Junction Improvement Environmental Statement Volume 1

Page 62 of 94

RT-DTP0610-047-03



Existing flyover looking from Greatfields Park



Mayes Brook and Charlton Crescent properties from the A13 footpath looking west.

A13 MOVERS LANE JUNCTION IMPROVEMENT

EXISTING LANDSCAPE

Environmental Statement - Volume 1

FIGURE 6.2

Summary

6.7.12 The existing townscape of the area around the Scheme is undistinguised and is further diminished by the existing junction and flyover. The landscape proposals included in the Scheme would significantly improve this quality, and would also mitigate the visual effects of the Scheme. The properties adversely affected would be mostly those which were previously screened from the A13 by the buildings which would be demolished. The effects on these properties would decrease over time such that only three properties are expected to be adversely affected fifteen years after the opening of the Scheme. The effects of the Scheme can therefore be seen as of significant local benefit, with the degree of benefit increasing over time.

6.8 Ecology and Nature Conservation

- 6.8.1 The anticipated effects of the Scheme on local ecology and nature conservation interest are discussed in detail in the Ecology and Nature Conservation study (Environmental Statement Volume 2.6 Ecology and Nature Conservation). These effects are summarised below.
- The majority of the present nature conservation interest in the area of the Scheme is associated with Mayes Brook and Roundabout Drain. Also of some interest are the area of abandoned allotments to the south of Park View Gardens and the rough grassland behind the Gascoigne Road Pumping Station. These are shown on Figure 6.6.
- 6.8.3 The area behind the pumping station is not affected by the Scheme. The area of former allotments, however, would be incorporated into the proposed open space in the south west quadrant of the new junction. While this would result in some short term loss of minor nature conservation interest, it should be of long term benefit due to the following considerations:
 - its present value is likely to be temporary only as it would probably be developed at some time in the future; and
 - the new open space would be permanent and would, particularly in its southern half, be designed with nature conservation enhancement in mind.
- Roundabout Drain would be affected principally by the outfall into it of the majority of the highway drainage from the Scheme, at a point just to the west of River Road. The Water Quality study (see section 6.3) concludes that the Scheme would have generally beneficial effects on water quality in Roundabout Drain and Mayes Brook, thereby benefitting their freshwater ecology interest.

Planning			Effe	Effects of	
Authority	Policy	Objective	Sch	Scheme	Comments
•			Helps	Hinders	
Government	White Paper:	To promote a programme of trunk road	*		The Scheme is one of the
(DOI)	coads, England, Into the 159	TOYCHICHIS.	,		miprovenients nated.
Government (DOE)	PPG9: Regional Guidance for the South East	To provide strategic regional planning guidance	>		PPG9 recognises the importance of the A13
SERPLAN	Action in the East Thames Corridor	To provide guidance and promote action for development in the East Thames	*		Report recognises the need to improve the A13
		Corrigor			
CBBD	UDP (deposit draft, May 1992).	To provide a framework for development			
	45	within the Borough			
	relevant:				
	1. Policy T23	To improve strategic traffic routes through	>		The Scheme is one of the
		the Borough			improvements which the policy supports in principle
	2. Barking Reach	To integrate Barking Reach into the rest of	^		Scheme provides improved
	Policy BR3	the Borough			access across the A13
	Policy BR8	To provide high quality development on	>		Lyon Business Park is a
		Barking Reach Gateway sites			Gateway site
	Policy BR11	To provide landscape improvements along	>		The Scheme provides one of
		the A13 corridor			these junctions.
	Policy BR13	To provide improved junctions on the A13	>		
		to access Darking Keacii			
	3. Design and Environment	To ensure protection and evaluation of any			The Scheme allows for
	Policy ENV 35	sites of archaeological significance			investigation and evaluation of archaeological interest.
	4. Leisure and Recreation	To promote river corridors as areas for			The Scheme improves access to
	Policy LAR14	informal recreation	>		Mayes Brook and Roundabout
					Drain
	The UDP also contains a number of ot	of other policies on Landscape, Planting of Native Trees, Diversity of Habitats, Wildlife Corridors and Design	Trees, Divers	sity of Habit	ats, Wildlife Corridors and Design
	which, while not specifically applicable	which, while not specifically applicable to the Scheme, do have some relevance. The Scheme would in general assist with the achievement of all of	scheme would	in general	issist with the achievement of all of
	these Policy objectives.	A DESCRIPTION OF THE PERSON OF			

A13 Movers Lane Junction Improvement Environmental Statement Volume 1

Further benefits could also be derived from the improved access for maintenance works by the NRA created as a result of the Scheme. This would enable the channel of Roundabout Drain to be cleared more frequently, improving flows and increasing the amount of open water, but may lessen the visual appeal of the watercourse if bank-side vegetation were to be regularly cut down.

- An additional length of about 43 metres of Roundabout Drain, downstream of the existing culvert, would need to be culverted. It is proposed that compensatory waterside planting alongside the remaining stretch of Roundabout Drain, towards Kingsbridge Road, should be undertaken to help replace the lost nature conservation interest.
- 6.8.6 The proposed landscape treatment alongside both Roundabout Drain and Mayes Brook would provide additional, complementary habitats that would add to the nature conservation interest of these watercourses.
- Mayes Brook would be principally affected by the re-alignment of around 255 metres of its course, including an 70 metre section with sheet-piled banks which is at present of little nature conservation interest. It is probable that any vegetation lost as a result of this disturbance would quickly recolonise the new banks, which would be designed to aid this process, with existing vegetation and soil salvaged and re-used where possible.

Summary

•••••••••

- 6.8.8 The adverse effects of the Scheme are limited and would be quickly outweighed by the beneficial effects of improved water quality and additional areas of landscape designed to maximise nature conservation benefits and also enhance the watercourses as an amenity resource.
- 6.9 Policies and Plans
- 6.9.1 The objective of this assessment is to determine the significance of any impacts which the Scheme may have on the achievement of national, regional and local planning objectives.
- 6.9.2 A brief summary of relevant planning policies is given in section 3.8. Table 6.2 sets out the anticipated effects of the Scheme on the achievement of the policy objectives, and provides comments where appropriate.

Summary

6.9.3 The need for the Scheme has been recognised for some time at all levels from national to local, and it has been included in planning policy objectives at these levels. The Scheme would therefore have significant effects on furthering the achievement of the objectives which specifically relate to it, and would also further the objectives of relevant local policies.

6.10 Traffic

6.10.1 An assessment of the offects of the Scheme on strategic and local traffic movement, and of consequential effects on pedestrians, cyclists and safety has been made, and is reported in the Environmental Statement Volume 2.1 - Traffic. A summary of this report is set out below.

Effects on Traffic Flows

- 6.10.2 Predictions of future traffic flows have been made using the SATURN computer model. This model was calibrated against observed flows and validated to demonstrate that it accurately reflected actual traffic behaviour. The results of the model were used to provide data for the traffic noise and air quality studies.
- 6.10.3 The study shows that the following changes in traffic flows would result from the implementation of the Scheme:
 - provision of the underpass and improved junction would lead to the transfer of traffic from alternative, parallel routes, thereby increasing traffic volumes on the A13;
 - traffic on one such alternative route, Ripple Road, would decrease by roughly 3200 vehicles for a 12 hour flow;
 - King Edwards Road would carry 2800 vehicles less in a 12 hour period, chiefly due to the closure of the left turn onto the A13;
 - O Movers Lane and River Road flows would increase by 2900 and 3500 vehicles respectively, as traffic would be attracted to use the improved junction to access the A13;
 - O traffic on the junction slip roads in 2015 would reduce by 64% compared to the Do-Minimum forecast; and
 - oreduced congestion at the junction will benefit the bus services and there will be improved facilities for passengers at bus laybys.

•

- The existing air quality around the junction is described in section 3.10, together with a summary of the main pollutants produced by vehicles. The air quality assessment has predicted concentrations of carbon monoxide (CO) and nitrogen dioxide (NO₂) by means of computer modelling techniques for the existing situation (1991), the opening year (2000) and the Design Year (2015), with and without the Scheme. The general methodology followed was that suggested by the DMRB (Reference 3) though the modelling techniques used were more sophisticated. An area 200 metres to either side of the Scheme was studied, as recommended by the DMRB. The models used in the assessment were modified version of the CALINE 3 model for CO and CALINE 4 for NO₂.
- An assessment was also made, as required by the DMRB, of the effects of the Scheme on the total emissions of pollutants from the local road network.
- 6.11.4 The assessment compared predicted levels of CO and NO₂ to the DMRB adopted guideline of 9ppm (parts per million) as a maximum 8 hour average for CO and the UK Air Quality Standard of 200 μgm⁻³ (microgrammes per cubic metre) as a 98th percentile of hourly means values over one year-

Predicted Air Quality

- 6.11.5 The results of the modelling exercise for CO are shown on Figures 6.9 to 6.13. The figure for existing (1991) air quality is shown here, rather than in Chapter 3, for ease of comparison.
- In general, the Scheme would lead to a reduction in levels of CO emissions by 2015 when compared to the Do-Minimum Scenario. The comparison of Do-Something (Scheme) and Do-Minimum is shown on Figures 6.14 and 6.15. This is because rates of CO emission are higher for slow moving or stationary traffic, and lower for freely flowing traffic. The Scheme would reduce congestion, improve traffic flows and therefore reduce CO emissions. Under the DMRB assumptions for the effects of emission controls, together with an allowance for the inefficiency of the catalytic converters of reducing emissions, no residential properties would experience CO concentrations of greater than 9ppm in the both 2000 and 2015. In 2015, 51 dwellings would have an improvement in CO concentrations and none would have a deterioration.
- 6.11.7 The modelling results for NO₂ are shown on Figures 6.16 to 6.20, with the effects of the DMRB assumptions on reduced emission rates similar to the CO modelling.
- 6.11.8 The overall effects of the Scheme on NO₂ emissions would be less pronounced than those for CO, because the rate of NO₂ emission tends to increase with vehicle speed, and the effects of the Scheme in reducing congestion would therefore not be beneficial in this case. However overall decreases of 15% by

Table 6.5 Predicted Noise Changes at Residential Properties

				7	Ambient Noise Band (dBLA10,1830as)	and (dBLA10	18 beur)		
		Less	Less than >50	50	50 to <60	09	60 to <70	Grea	Greater than 70
		43	Do-Minimum	ده	Do-Minimum	Scheme	Do-Minimum	Scheme	Scheme Do-Minimum
		2015	2015	2015	2015	2015	2015	2015	2015
Increase in	> 15	0	0	0	0	0	0	0	0
Noise	10 to 15	0	0	0	0	0	0	0	0
Level	5 to 10	0	0	10	0	[0	0	0
(dB)	3 to 5	6	0	316	0	104	0	22	0
	1 to 3	36	0	541	11	377	10	58	0
No Change		0	45	45	911	48	646	25	329
Decrease in	1 to 3	0	0	9	0	78	0	58	0
Noise	3 to 5	0	0	4	0	7	0	21	0
Level	5 to 10	0	0	0	0	40	0	99	0
(dB)	10 to 15	0	0	0	0	0	0	6	0
	> 15	0	0	0	0	0	0	0	0

A13 Movers Lane Junction Improvement Environmental Statement Volume 1

Table 6.6 Predicted Noise Nuisance Changes at Residential Properties

				¥	Ambient Noise Band (dBian, 1810)	and (dBы	16 hour)		
		Less	Less than 50	20	50 to <60	09	60 to <70	Grea	Greater than 70
		Scheme 2015	Scheme Do-Minimum 2015	Scheme 2015	Scheme Do-Minimum 2015	Scheme 2015	Do-Minimum 2015	Scheme 2015	Do-Minimum 2015
Increase in	> 40%	0	0	3	0	0	0	0	0
Noise Nuisance 30 to 40%	30 to 40%	0	0	248	0	40	0	4	0
Level	20 to 30%	45	0	591	0	415	0	76	0
	< 20%	0	45	51	922	67	959	19	329
Decrease in	< 20%	0	0	19	0	14	0	9	0
Noise Nuisance	20 to 40%	0	0	9	0	78	0	58	0
Level	40 to 50%	0	0	4	0	26	0	21	0
	> 50%	0	0	0	0	91	0	69	0
	-								

- Do-Minimum noise levels for 2015 would not be expected to change significantly from the values in 2000, due to the small differences in traffic flows. Properties close to the A13 would continue to receive very high levels of traffic noise.
- 6.12.8 It is estimated that 180 properties would meet the requirements for the provision of noise insulation due to traffic noise, though some of these may already have been provided with insulation due to previous road schemes.

Predicted Noise Nuisance

- This assessment is intended to refine the predictions of noise levels by including a measure of how people react to noise change. In some circumstances a relatively small change can produce a lot of dissatisfaction. The assessment of nuisance has been made in accordance with the DMRB, which includes a graphical method for relating noise changes to changes in levels of noise nuisance.
- A summary of predicted changes in noise nuisance for the four ambient noise bands is set out in Table 6.6. This table shows that more properties are expected to experience an increase than a decrease in noise nuisance as a result of the Scheme. In the Do-Minimum situation, no properties would experience a decrease, and a greater number would experience an increase than with the Scheme.

Traffic Induced Vibration

- The DMRB gives guidance on the assessment of traffic induced vibration on buildings and their occupants. It concludes that ground-borne vibration is unlikely to be significant for new roads where properties are more than a few metres from the edge of the road, especially in the assumed absence of any irregularities in the new road surface. For airborne vibration, the DMRB states that a good correlation exists between levels of noise and vibration, and that there is little evidence to suggest that noise levels lower than 60dB(Λ) have significant vibration effects.
- The DMRB suggests that noise level changes on the Laio, (18 hour) index can be used as an appropriate indicator of vibration nuisance. The anticipated vibration nuisance would therefore follow a similar distribution to the noise nuisance described above. The areas with an ambient noise level below 60dB(A) shown on Figure 6.23 would not have significant vibration effects.

Summary

• • • • • • •

•

The Scheme would produce significant benefits for properties close to the existing line of the A13, due to the replacement of the flyover by an underpass, and the provision of environmental barriers. These properties presently experience very high levels of traffic noise. Properties further from the existing line, particularly to the south, would experience noise increases, though these would be of a smaller magnitude than the decreases, and the absolute noise levels for these properties would still be fairly low. A total of 278 properties would experience noise decreases and 1480 would experience increases as a result of the Scheme. The overall effects of the Scheme must therefore be seen as adverse, due to the greater number of properties receiving noise increases. However 109 properties would receive substantial reductions out of the 278 and only 17 properties would receive a substantial increase. If the Scheme were not built there would not be any noise benefits.

6.13 Pedestrians, Cyclists and Community Effects

- 6.13.1 The objective of this assessment is to determine the effects of the Scheme on pedestrians and cyclists and their ability to use local community facilities in terms of the Scheme's effects on journey times and the amenity of those journeys.
- Details of existing pedestrian and cyclist movements around the junction are given in sections 3.9.7 to 3.9.10. Pedestrian movements across the A13 in the area (at the junction, across the King Edwards Road and Gascoigne Road footbridges and under the Charlton Crescent subway) are significant, and these flows are largely explained by an analysis of community facilities in the area, as follows.
- 6.13.3 The Thames View Estate and the streets around Waverley Gardens, to the south of the A13, are to some extent isolated from Barking town centre by the A13. These areas have some basic community facilities such as doctors and dentists, local shops, one library, pubs, schools and churches (mostly within the Thames View Estate), but residents of the area need to cross the A13 to gain access to:
 - secondary Schools;
 - Barking Town Centre and Town Hall;
 - Greatfields Park or any other formal park;
 - mainline and underground stations;

- O sports centres and entertainment sites; and
- Unemployment Benefits Office/Job Centre.

Some residents of the area to the north of the A13 need to travel in the opposite direction to get to work in the industrial areas between the A13 and Barking Creek and the River Thames.

- There is only one doctors' surgery and one dental practice in the area to the south of the A13, both are in the Thames View Estate. In contrast, 10 doctors' surgeries and four dental practices have been identified in the area close to the Scheme and to the north of the A13. A sample of 4 surgeries and one dental practice have indicated that at least 10% of their total patient lists is made up of people living south of the A13.
- No formal survey of the catchment areas of community facilities has been undertaken because of the magnitude of such a task in a dense urban area. Schools no longer operate a defined catchment area system. The survey of public amenities in Barking has established that there is a need for residents living south of the A13 to cross the road to access a full range of community facilities.
- The existing A13 presents a considerable barrier to such movement, as it is a wide road with heavy traffic flows and a partially fenced central reserve. Most crossing movements therefore take place at the footbridges, subway and the junction itself. The existing journey across the junction for a pedestrian, using at least two pelican crossings, is unpleasant, intimidating and slow. Levels of noise and air pollution are high, accident levels are higher than average, and pedestrians need to walk underneath the steel flyover to cross the A13. Cyclists also find the roundabout difficult and intimidating to negotiate, as is shown by the numbers of them using the pelican crossings instead (see Figure 3.10). In the absence of the Scheme, crossing conditions would be likely to deteriorate further over time, as traffic flows and congestion increase.
- The Scheme would result in significant improvements in ease of access for pedestrians and cyclists across the A13 at the junction. The A13 traffic would be segregated, leading to a 64% reduction in traffic flows on the slip roads in 2015. The roundabout would be replaced by an at grade, signal-controlled junction. This would result in an increase in the amenity of journeys for pedestrians and cyclists, and also a decrease in the degree of perceived severance created by high volumes of traffic passing across the existing junction at grade or elevated on the flyover, obstructing views from one side of the junction to the other. The simpler structure of the proposed junction (River Road and Movers Lane would become, in effect, one straight road with the A13 passing beneath them) would lead to a decrease in walking distances and

•

•

times for pedestrians. An assessment in 1992 (Reference 19) concluded that walking distances and times across the eastern arm of the junction would be reduced by 35 metres and 30 seconds and by 30 metres and 25 seconds for the western arm, as a result of the Scheme.

One clear adverse effect of the Scheme on community facilities would be in the demolition of the Volunteer public house. There are public houses in Bastable Avenue and towards Barking Town Centre. The newsagents/corner shop at 28 Park View Gardens would also be demolished as a result of the Scheme. The nearest alternative facilities are at the petrol station shop next to Longreach Court, in the Gascoigne Estate, on Movers Lane opposite the north end of Greatfields Park and in the Thames View shopping centre, off Bastable Avenue.

Summary

There is a significant degree of existing severance, created by the A13, for residents of the areas to the south of the A13. These residents need to cross the A13 to gain access to a full range of community facilities. This severance would be significantly reduced as a result of the Scheme, which would reduce journey times and improve amenity for pedestrians and cyclists crossing the A13 at the new junction. There would be no change for the other A13 crossing points. Two local community facilities, a public house and a newsagent, would be lost as a result of the Scheme.

6.14 Vehicle Travellers

- 6.14.1 The DMRB requires an assessment under this heading of the effects of the Scheme on vehicle travellers in terms of the levels of stress they experience and the view they obtain from the road.
- Driver stress is defined as having three main components: frustration, fear of potential accidents and uncertainty relating to the route being followed. While this is essentially a subjective area in which to make judgements, the effects of the Scheme are anticipated to be as follows:
 - O Frustration delays would be reduced as a result of the Scheme, leading to significant decreases in the levels of frustration.
 - Fear of Potential Accidents the Scheme is expected to significantly reduce levels of accidents at the junction and, by segregating pedestrians from A13 through traffic, should also reduce the fear of potential conflict with pedestrians which is likely to affect some drivers.

Table 6.7 Summary of Significant Effects

H = high, M = medium, L = low

Effects of Scheme on:		Sum	mary	of Ef	fects		Comments
	В	enefici	al		dvers	se	
	H	M	L	L	M	Н	
Geology and Soils							No Effects
Water Quality and Drainage		V					Local Effects
Archaeology and Cultural heritage				/			Effects are potential only.
Demolition						V	Demolition allows room for mitigation of other effects.
Land Use				1			Local Effects.
Landscape and Visual Effects: Townscape Effects on Properties Effects on Open Space	V	\ \					Beneficial effects would increase over time, as proposed planting matures.
Policies and Plans	1						Local and regional effects.
Traffic	1				[Local and regional effects.
Public Transport	~						Improved reliability and facilities.
Air Quality	•						Significant beneficial effects by 2015, though the majority of this benefit likely to be as a result of emission controls.
Noise				~			Greater number of increases roughly balanced by decreases of greater magnitude.
Pedestrians, Cyclists and Community Effects	*						Local Effects.
Vehicle Travellers		V					Local Effects.

- O Uncertainty the junction arrangement with the Scheme should be much clearer than the existing, with the removal of the flyover and three lanes in each direction continuing through the junction. It would be to full design standards.
- The view from the road, for traffic passing straight along the A13, would change substantially as a result of the Scheme. At present, traffic on the A13 has a clear view of the townscape alongside the road (the residential areas, conversely, have a clear view of the traffic) with a wider, elevated view from the flyover. This view would change to a concentrated one of the underpass walls and the Movers Lane/River Road overbridge. The intention is to achieve a high quality of design and finishes for the underpass and overbridge. For users of the at-grade roads new landscaping would provide an improved environment.

Summary

- 6.14.4 Levels of driver stress should be reduced from their existing comparatively high levels to a moderate or low level as a result of the Scheme. The view from the road would change in nature for traffic using the underpass and would improve in quality for traffic using at-grade roads.
- 6.15 Summary of Significant Effects
- 6.15.1 This section provides a concise summary of the effects described in this Chapter, highlighting those which are particularly significant, and stating whether the effects are beneficial or adverse. The effects are summarised in Table 6.7 opposite.

ABEAVED PARTICIPATED

CHAPTER 7

EFFECTS DURING CONSTRUCTION

Introduction
Effects on People in Their Homes or Places of Work
Effects on Traffic
Effects on Cyclists and Pedestrians
Effects on Areas of Ecological Value
Effects of Transport and Deposition of Fill
Effects on Air Quality
Effects on Noise Levels
Effects on Water Quality

A13 Movers Lane Junction Improvement Environmental Statement Volume 1 Page 76 of 94

RT-DTP0610-047-03

7.0 EFFECTS DURING CONSTRUCTION

7.1 Introduction

- 7.1.1 The construction of a road scheme can cause disruption at any time from start of pre-construction to the end of the contract maintenance period and may affect people in their homes or places of work, including pedestrians, cyclists and vehicle travellers, as well as areas of ecological value in the vicinity of the scheme.
- Disruption due to construction is generally a localised problem, but it can take a number of forms depending on the nature and location of any particular scheme. A study for one road scheme (Reference 20) showed that beyond 100 metres either side of a site boundary less than 20% of people were seriously bothered by construction nuisance, but within 50 metres of the works, this figure was over 50%.
- 7.1.3 The effect the site works have on the surrounding environment can be, to a certain extent, mitigated by imposing contractual working constraints. Conditions written into the contract can include the following:
 - prevention of storage of materials in particular areas;
 - limits on noise from the construction site;
 - control of working hours;
 - good construction practice to minimise dust nuisance and the spread of mud onto public roads;
 - restriction of construction traffic to suitable routes;
 - O monitoring of noise, vibration and dust during construction; and
 - measures to control accidental discharge into adjacent watercourses.
- 7.1.4 Mitigation can also be in the form of the early provision of environmental barriers where feasible, or noise insulation for adjoining properties if eligible.

••••••••••

7.2 Effects on People in Their Homes or Places of Work

- 7.2.1 In accordance with the recommendations of the DMRB, this aspect of the assessment is based on an estimate of the number of properties within 100 metres of the Scheme which would be affected by the construction works, with those particularly sensitive to disruption highlighted in Section 7.2.4.
- 7.2.2 When assessing the above, the 100 metre criterion was interpreted flexibly, with consideration given to a number of issues. These included the degree of openness of view, as well as the effect some properties have in screening those behind.
- 7.2.3 It is estimated that 410 residential, 9 individual commercial properties and the Lyon Business Park, all within 100 metre of the scheme, would, to a varying degree, be affected by the construction works. Some mitigation of effects on these properties could be achieved by the early erection of the environmental barriers which are proposed as part of the Scheme. These barriers would then screen the construction works as well as the road itself following completion. However, it is not at present possible to determine which barriers could be erected in advance, so the following assessments have assumed that this would not happen, and so represent a "worst case" scenario, which could be improved upon if some of the barriers were to be erected at an early stage of the works.
- 7.2.4 The following site operations would have a significant impact on properties which are within 50 metres of the particular activity, and which would therefore be particularly sensitive to construction effects:
 - O Site Clearance This entails the demolition of properties in Park View Gardens, County Gardens and the Volunteer Public House. The anticipated duration of the work is two months. The likely effects are noise and dust nuisance to 108 residential properties and the Lyon Business Park to the south.
 - Mayes Brook Diversion The work would require the excavation of a new channel. The anticipated duration of the work is two months. This activity would have some effect on 54 residential properties and the Lyon Business Park.
 - King Edwards Road Footbridge The whole activity would take one month, including the night-time placing of the new bridge deck. Noise and night-time disturbance to 56 residential flats to the north is therefore anticipated, though this would be for one night only.

•••••••••

- Excavation and Completion of Underpass This activity would require the excavation and removal from site of roughly 75 000 m³ of material. The whole activity is estimated to take 6-7 months. The excavation work involved is likely to create dust and mud, affecting 126 residential properties to the north and south and the Lyon Business Park; the retaining wall construction for the underpass and pumping station would affect a similar number of properties.
- O Dismantling of the Existing Flyover This activity would involve the breaking-up of reinforced concrete and the dismantling of metal support frames. The activity is estimated to take about two months. Noise would affect 30 residential properties at Alfred's Gardens to the north.
- North and South Slip Roads The anticipated duration of this activity is 3-4 months to complete. The work would be in close proximity to 38 properties at Alfred's Gardens to the north, and about 50 properties in Westminster Gardens, River Road and Charlton Crescent to the south.
- 7.2.5 The effects of dust and noise from the construction works are considered in Sections 7.7 and 7.8 below.

7.3 Effects on Traffic

- 7.3.1 In order to minimise disruption to the existing heavy flows of traffic on the A13, the construction works have been reviewed with the intent of making the following provisions:
 - three lanes of traffic in both directions on the A13 to be maintained for the duration of the main works contract (approximately 30 months);
 - use of the existing flyover structure at the Movers Lane junction until the new underpass is opened to through traffic, probably for eastbound traffic only; and
 - all existing turning movements at the junction.
- 7.3.2 There would however be operations which require lane reductions or complete closure of the A13 for short periods. These operations are summarised below:
 - King Edwards Road Footbridge The one major problem for this operation is the requirement for night closure of a section of the A13 between King Edwards Road and Movers Lane to allow installation of the main span. The diverted traffic would use the main A-road network to the north of the A13: eastbound traffic would use the A406 (South Woodford to Barking Relief Road) and rejoin the A13 via the A123;

westbound traffic would use the same route in reverse, diverting from the A13 at Lodge Avenue junction. This closure would be for one night only.

- Movers Lane Bridge It is anticipated that some sequences of work in this operation would require alterations to the general traffic management at the junction. A more appropriate traffic management solution might be to introduce a temporary signal controlled junction or adopt a long island roundabout system encompassing the whole underpass construction. The lifting in of the bridge beams may require some traffic restrictions and possible road closure during night time operations.
- Connection to Existing A13 the connection of the new underpass carriageway and slip roads to the existing A13 would necessitate individual lane closures for carriageway construction. Additionally pavement reconstruction may require lane closures.
- 7.3.3 One of the main reasons for selecting the present option for the Scheme against other alternatives was to minimise traffic disruption.

7.4 Effects on Cyclists and Pedestrians

•••••••••••

- 7.4.1 The Movers Lane/River Road junction is an important access route to and from residential and industrial properties south of the A13, with over 400 pedestrian movements on each working day. Much of the flow is related to the bus stops around the junction.
- 7.4.2 The existing cycle facilities at the junction are poor, though over 190 cycle movements for each working day have been observed. Approximately 40% of these movements are in a north-south direction, and 60% of all cycle movements occur during the morning and evening peak periods.
- 7.4.3 Construction work in association with the Movers Lane Bridge would have an effect on pedestrians and cyclists who cross the A13 at this point, though all main pedestrian or cyclist movements through the junction will be maintained.
- 7.4.4 Pedestrians using the King Edwards Road footbridge would not be affected by the bridge closure required for installation of the main span, as provision would be made for a temporary crossing in the vicinity of the bridge during the road closure.
- 7.4.5 There would also be some effects on users of Greatfields Park, with likely noise effects, particularly in the southern half of the park, and some disturbance to access to the park during resurfacing of the adjacent footpath and relocation of the park entrance.

7.5 Effects on Areas of Ecological Value

- 7.5.1 Mayes Brook and Roundabout Drain form the southern limit to the Scheme. Some diversion work would be required to Mayes Brook at two locations, one 250-500 metres east of the junction and the other adjacent to River Road.
- 7.5.2 The watercourses and their banks are designated sites of nature conservation importance. Damage to the sites could mean a significant loss to the Borough.
- 7.5.3 The Scheme makes provision for the retention and, where possible, enhancement of the ecological interest of these watercourses. Measures to control accidental spillages due to construction would be built into the contract for the works (see section 5.3.8).

7.6 Effects of Transport and Deposition of Fill

Quantities of Surplus and Imported Material

- 7.6.1 The construction of the Scheme would produce surplus material for removal off-site and would require the import of building materials:
 - O The total volume of surplus material would be approximately 100 000 m³, comprising demolition and site clearance debris and excavations from made ground, soft alluvium, flood plain gravel and some London Clay.
 - Imported building materials would include 15,000m³ of concrete, 25,000m³ of fill material and 15,000m³ of asphaltic materials.

Construction Vehicle Movements

- 7.6.2 The volume of material to be removed from or brought to the site would require a significant number of lorry movements. This would represent about 1% increase in the existing total number of HGV movements on the A13 in the vicinity of the junction (based on 1990 figures).
- 7.6.3 The beams for the Movers Lane bridge deck would require special transportation arrangements because of their 29 metre length. (The maximum size of beam which can be transported by road without the need for special arrangements is 27.4 metre). Some temporary and localised disruption would therefore be likely.

Access for construction traffic to the site would generally be along the primary road network. The principal points of access would be via the existing A13 throughout the construction programme. Access via Renwick Road and River Road may be possible, but use of other side roads would be strictly controlled. All HGV movements arising from construction works would have to comply with the LBBD policies on minimising the environmental damage caused by HGVs. In particular, the control on night-time and weekend lorry movements and area lorry bans would be relevant.

Contaminated Surplus Material

• • •

•

••••••••••

- 7.6.5 The possibility of any quantity of surplus material being contaminated, and therefore requiring restrictions to be imposed on its disposal, has been investigated by studying available records. These suggest that contamination levels on non-industrial land in the vicinity of the junction are low and within the limits set for disposal.
- 7.6.6 Land-take for the Scheme would principally be from areas which are residential, on land which was used for agriculture or allotments until the interwar years, when it was developed for housing. Such areas are therefore unlikely to be contaminated.
- 7.6.7 The Scheme would involve some land-take adjacent to and from industrial and commercial sites to the south of the existing A13, west of Kingsbridge Road. The four sites involved are:
 - A F Bulgin Plc The firm has been on the site since the 1930s manufacturing electrical components.
 - O Maurice Philips & Co Ltd The company has been on the site for five years. It is primarily a cash and carry operation, and former uses on the site are unknown.
 - Alba Plc The site (adjacent to Kingsbridge Road) is derelict, and former uses of the site are unknown.
 - Culvert work at Roundabout Drain a pollution incident has been recorded and further studies are being undertaken.
- 7.6.8 There is some possibility that contamination could have arisen during present or past uses of these sites and it will be a requirement of the contract for the construction of the Scheme that soil testing should be carried out at an early stage of the main works to determine the precise nature of the material to be excavated and removed from site. The quantity of material arising from these sites is anticipated to be less than 2000 m³.

Location of Disposal Sites

- 7.6.9 The decision on the choice of disposal sites for surplus material from the works would ultimately be one for the contractor to take, but the information below would be made available to contractors tendering for the work to assist them in selecting suitable sites for disposal.
- 7.6.10 Disposal sites within the London Boroughs are regulated by the London Waste Regulation Authority (LWRA). However, their location is a matter for the London Boroughs to determine by considering planning applications through the development control system.
 - Within LBBD, the Council has examined the availability of sites for landfill waste disposal and no suitable sites have been identified.
 - O The LWRA have advised that there are only a limited number of licensed landfill sites within East London, and that some of these may not be able to accept material at the rate likely to be required during the main excavation operations. An alternative may be for a number of sites to be used in rotation, or for sites further afield in Kent and Essex to be considered.
- 7.6.11 There is the possibility that at least some of the flood plain gravel excavated during the construction of the Scheme could have a commercial use elsewhere and would not therefore need to be tipped at a disposal site.

7.7 Effects on Air Quality

- 7.7.1 The principal effect of the construction of the Scheme on local air quality would be in the possible generation of dust by construction machinery and vehicles. This could be a problem during dry and windy weather, particularly in summer, but effective mitigation by watering of haul routes and other affected areas would be included in the construction contract.
- 7.7.2 It is not anticipated that any pollution generated by construction plant, machinery and vehicles would add significantly to the existing pollution levels around the junction, nor are there expected to be any construction operations which would generate any other type of air pollution.

7.8 Effects on Noise Levels

7.8.1 A preliminary assessment of the impact of the construction noise associated with the Scheme has been carried out. A brief summary of the relevant effects is given below.

A13 Movers Lane Junction Improvement Environmental Statement Volume 1 Page 83 of 94

- 7.8.2 The construction activities which would be likely to result in short periods of relatively high levels of noise at a number of residential properties are listed below:
 - demolition of properties at Park View Gardens, County Gardens and the Volunteer public house;
 - O diversion of Mayes Brook and utilities;
 - work on King Edwards Road Footbridge; and
 - O construction of slip roads.
- 7.8.3 There is provision under the Noise Insulation (Amendment) Regulations, 1988 (Reference 16) for properties likely to suffer high levels of construction noise to be provided with sound insulation prior to the commencement of construction work. An assessment would be made in conjunction with LBBD's Environmental Health Department to determine which properties would be eligible for insulation measures due to construction noise. Some may already have insulation as a result of previous highway schemes.
- 7.9 Effects on Water Quality
- 7.9.1 Construction of the Scheme would involve an extensive range of construction techniques which could potentially give rise to surface water and ground water contamination.
- 7.9.2 The proposed method of construction of the underpass and the pumping station is to create a sealed box into the top of the London Clay. This would eliminate the risk of groundwater contamination during excavation and finishing of the underpass structure.
- 7.9.3 Construction impacts on the water quality in the Mayes Brook and Roundabout Drain would be minimised through controls established in the construction contract and administered by site management. Where feasible the installation of silt traps and interceptors in the drainage system would be constructed as soon as possible in the contract to control discharges or contaminated run-off.

CHAPTER 8

CHAPTER 8

RESIDUAL EFFECTS

Introduction
Long Term Benefits of the Scheme
Long Term Disbenefits of the Scheme
Conclusions

A13 Movers Lane Junction Improvement Environmental Statement Volume 1

Page 85 of 94

RT-DTP0610-047-03

8.0 RESIDUAL EFFECTS

8.1 Introduction

8.1.1 This Chapter highlights those effects, described in Chapter 6, which are expected to persist into the future, beyond the time at which the landscape and other mitigation measures would become fully effective. Other effects, while significant at the time (such as demolition and disruption due to construction) would be relatively short-lived, and others would gradually decline in significance.

8.2 Long Term Benefits of the Scheme

- 8.2.1 The following beneficial effects would persist into the future and would still be significant in the design year of the Scheme (2015) and beyond:
 - Improved water quality and flows in Roundabout Drain and Mayes Brook: this would be a permanent improvement and the Scheme would reduce the number of accidental discharges of hazardous materials into the watercourses over a period of time.
 - Landscape and visual effects: the effects of the Scheme on the local townscape and on views from properties would still be significant in 2015. Further improvement would be expected after this time as the planting proposals continued to mature.
 - O Transport policy: local and regional transport policy requires improvements to the A13 to provide better access to London and Docklands, and also to the area around the Scheme and the Barking Reach development. The benefits of the Scheme in facilitating this improved access would be permanent.
 - Traffic: the benefits of the Scheme in reducing congestion and journey times would continue into the future and reductions in accidents would also be a long term benefit.
 - O Public Transport : reduced congestion would continue to benefit the public transport services which use the junction.
 - Air Quality: whatever improvements in air quality are assumed as a result of emission controls, the Scheme would provide further enhancement for most pollutants as a result of the increase in vehicle speeds and more uniform traffic flows.
 - Noise: substantial benefits for properties close to the A13 would continue into the future.

O Pedestrians and Cyclists: reduced severance and increased ease of access across the A13 at the junction would be a permanent improvement.

8.3 Long Term Disbenefits of the Scheme

- 8.3.1 The following adverse effects would persist into the future, and would still be significant in 2015 and beyond:
 - O Visual Effects: three properties on River Road would continue to experience adverse effects on their view.
 - Noise: noise increases for properties set back from the existing A13 would continue to be felt. However, most of these increases would be relatively small, and once the Scheme is open, there would be little further increase in noise levels up to the year 2015.

8.4 Conclusions

- 8.4.1. Most of the adverse effects of the Scheme would be felt at the time of its construction and soon after. These effects include demolition and disruption due to construction. Of the effects persisting into the future, most would be beneficial, and the balance between benefits and disbenefits of the Scheme would gradually change over time:
 - during construction, the Scheme would clearly be of net disbenefit in environmental terms, as no beneficial effects would yet have been produced;
 - o in the opening year of the Scheme (2000), it would be expected to be of clear net benefit, with improvements in visual effects, traffic flows and safety and for pedestrians and cyclists; and
 - in the design year of the Scheme (2015), the balance would be shifted further in favour of beneficial effects, with further improvements in visual effects and the benefits of long term improvement in water quality.

CHAPTER 9

CHAPTER 9

SUMMARY

The Existing Environment
The Scheme
Mitigation Measures
Environmental Effects
Conclusion

A13 Movers Lane Junction Improvement Environmental Statement Volume 1

Page 88 of 94

RT-DTP0610-047-03

9.0 SUMMARY

9.1 The Existing Environment

- 9.1.1 The existing environment of the area around the junction is typical of densely developed, urban locations, and contains no features of wider environmental value or interest. It does contain some features of local interest which are valuable more for their relative scarcity in the local area than for their intrinsic quality, these are:
 - O Mayes Brook and Roundabout Drain; ecological value and visual relief from the hard urban landscape;
 - Greatfields Park; recreational resource and visual relief; and
 - O the potential of the area for the discovery of sites of archaeological interest.
- 9.1.2 The existing environment is dominated by the adverse effects of the A13 and its traffic, particularly the flyover. These effects include:
 - visual effects on properties and Greatfields Park;
 - effects of noise and air pollution on properties and people moving through the area;
 - congestion at the junction; and
 - an accident rate at the junction significantly higher than the national average.

9.2 The Scheme

• • • •

• • • • •

- 9.2.1 Because of the adverse effects outlined above, and because of the importance of the A13 as a radial route from central London, the need for improvements at the junction has been recognised for some time. The Scheme has been developed with the need to minimise its environmental effects very much in mind, and has been the subject of an extensive public consultation exercise.
- 9.2.2 The proposed Scheme involves the removal of the existing flyover and replacement with a dual three-lane underpass to carry A13 traffic beneath an at-grade traffic signal junction.

9.3 Mitigation Measures

- 9.3.1 The Scheme incorporates a range of measures designed to mitigate its potential environmental effects. These include:
 - the alignment of the Scheme itself, which was chosen largely for this reason;
 - measures to minimise effects on local water quality, these are expected to lead to an improvement on the existing situation;
 - extensive landscape proposals, including planting, environmental barriers and a new open space;
 - various measures for the local mitigation of effects on nature conservation value, these should also lead to a long term improvement; and
 - the provision of environmental barriers and noise absorbent cladding to the underpass walls to minimise noise levels.

9.4 Environmental Effects

- 9.4.1 There would, however, inevitably be some adverse environmental effects from a major road improvement scheme of this type. These are summarised below:
 - demolition of 75 residential and 3 commercial properties;
 - a range of effects during the construction period, including noise, dust and local congestion;
 - possible effects on sites of archaeological interest;
 - some landtake from two local businesses;
 - views from some properties would be affected adversely in 2000 (the opening year) and 3 properties would remain adversely affected in 2015; and
 - increases in noise levels for 1480 residential properties, in the year 2015, however only 17 would be in the substantial increase category.

- 9.4.2 The Scheme would also produce a range of beneficial environmental effects, as set out below:
 - water quality and flow in Mayes Brook and Roundabout Drain would be improved;
 - the local townscape would be significantly improved;
 - views from properties would be improved, by 2015, 237 properties would receive visual benefits;
 - O traffic flows would improve, leading to benefits for vehicle travellers and reductions in accident levels;
 - air quality would improve, partly as a result of the Scheme and partly due to emission controls;
 - o noise levels would decrease for 278 properties 109 of these properties would experience substantial decreases; and
 - access across the junction and other facilities for pedestrians and cyclists would be greatly improved.

9.5 Conclusion

9.5.1 This report has shown that the Scheme would give a net environmental benefit from its opening year. The demolition of 75 properties would be offset by the removal of the intrusive flyover, the realignment away from Greatfields Park and Alfred's Gardens, the visual improvement of placing the A13 through traffic in an underpass, the improvement to air quality, improvement of watercourses, and the extensive landscaping mitigation, all summarised in the preceding pages. In addition to the local environmental benefits, conditions would be improved for motorists, passengers, pedestrians and cyclists by the reduction of strain and frustration with the prospect of more reliable and safer journeys.

GLOSSARY

ΛOD	:	Above Ordnance Datum (ie. mean sea level)
CALINE 3	:	Californian Line Source Dispersal Models (computer programmes
CALINE 4		for modelling and predicting levels of air pollution)
CO	:	carbon monoxide
CO_2	:	carbon dioxide
dB(A)	:	unit of measurement for noise
DMRB	:	Design Manual for Roads and Bridges
DOE	:	Department of the Environment
DOT	:	Department of Transport
ERLM	:	East of River Lea Model (A traffic model for the East London area)
ETC	:	East Thames Corridor
HA	:	Highways Agency
HC	:	hydrocarbons, fuels
HGV	;	heavy goods vehicle
Laio	:	The level of noise exceeded for 10% of a given time period
La10.18hr	1	The average of the 18 LAIGHT values between 06.00 and 24.00 hours
I_Aeq	;	The equivalent continuous noise level, effectively an average noise level
		over a given time period
LAgg,17hr	:	The average noise level over a 12 hour time period, usually 0700 to
		1900 hours
LATS	:	London Area Transport Survey
LBBD	:	London Borough of Barking and Dagenham
LEU	:	London Ecology Unit
LTS	:	London Transportation Study
LWRA	:	London Waste Regulation Authority
MEA	:	Manual of Environmental Appraisal
m^3	:	cubic metre
NO_2	:	Nitrogen Dioxide
NRA	:	National Rivers Authority
N_2	:	nitrogen
os	:	Ordnance Survey
PPG	:	Planning Policy Guidance Note
ppm	;	parts per million
QUARG	:	Quality of Urban Air Review Group
ROADNOISE	Ξ:	Computer programme for traffic noise calculation
SATURN	:	Simulation and Assignment of Traffic to Urban Road Networks (a
		computer traffic model)
SMR	:	Sites and Monuments Record
TAR	:	Technical Appraisal Report
Tertiary	:	Geological time period
TRRL	:	Transport and Road Research Laboratory
		Links - December Dien

Unitary Development Plan

milligram per cubic metre

vehicles per hour

UDP

 $\mu g m^{-3}$

vph

Page 92 of 94

REFERENCES

- 1. EC Directive 85/337, The assessment of the effects of certain public and private projects on the environment.
- 2. Highways Act 1980 (England and Wales), HMSO.
- 3. Design Manual for Roads and Bridges, Volume 11: Environmental Assessment. Department of Transport, June 1993.
- 4. London Borough of Barking and Dagenham, Unitary Development Plan, Deposit Draft (May 1992).
- 5. Greater London Sites and Monuments Record, English Heritage (London Region).
- 6. Nature Conservation in Barking and Dagenham, London Ecology Unit, 1992.
- 7. White Paper, Trunk Roads, England: Into the 1990s, Department of Transport, 1990
- 8. Trunk Roads in England, 1994 Review, Department of Transport, March 1994
- 9. PPG 9: Regional Guidance for the South East, Department of the Environment, February 1989.
- 10. Action in the East Thames Corridor, SERPLAN, October 1990.
- 11. Network Plan, Traffic Director for London, March 1993.
- 12. Urban Air Quality in the United Kingdom, Quality of Urban Air Review Group, January 1993.
- 13. A13 Movers Lane Junction Improvement, Technical Appraisal Report (Preliminary Report Part 1), Acer Consultants Ltd., November 1992
- 14. Manual of Environmental Appraisal, Department of Transport, 1983
- 15. A13 Movers Lane Junction Improvement, Public Consultation Report (Preliminary Report Part 2), Acer Consultants Ltd., October 1992
- 16. Noise Insulation (Amendment) Regulations 1988.
- 17. A13 Movers Lane Junction Improvement, Access in the South West Quadrant. Acer Consultants Ltd., June 1993
- 18. Calculation of Road Traffic Noise, Department of Transport 1988.

A13 Movers Lane Junction Improvement Environmental Statement Volume 1 Page 93 of 94

- 19. A13 Movers Lane Junction Improvement, Pedestrian and Bus Evaluation Report. Acer Consultants Ltd., October 1992
- 20. Transport and Road Research Laboratory. Report SR 562, Nuisance from road construction, a study of the A31 Poulner Lane Diversion, Ringwood, C J Baughan.

A13 Movers Lanc Junction Improvement Environmental Statement Volume 1 Page 94 of 94

APPENDIX

APPENDIX A

ENVIRONMENTAL IMPACTS TABLE

Group 1: Local People and Their Communities

Group 2: Travellers

Group 3: The Cultural and Natural Environment

Group 4: Policies and Plans

A13 Movers Lane Junction Improvement Environmental Statement Volume 1

Page 1 of 15

RT-DTF0610-047-03

A13 Movers Lane Junction Improvement - Environmental Impacts Table Group 1: Local People and Their Communities

Sub Group	Effects	Units	Scheme	Do-Minimum	Comments
Residential	Properties demolished.	Number	67 houses	I	Compensation for property
buildings.			8 flats		reflecting market values will be
					made in accordance with HA
					procedures.
	Noise Changes	No. of properties			Noise analysis takes into
		experiencing an			account the environmental
	dB L _{MB libe}	increase of:			barriers and the noise
					absorbent cladding in the
		1<3	1012	21	underpass.
		3<5	451	0	 180 properties are estimated
	201	5 < 10	17	0	to qualify for noise
		10 < 15	0	0	insulation, though some may
		> 15	0	0	already have received it.
		No. of properties			
		experiencing no	118	1931	· ·
		change.			
		No. of properties			There is little change in Do-
		experiencing a			Minimum relative to the existing
		decrease of:			noise levels due to very small
					changes in forecast traffic flows.
		1<3	142	0	
		3 < \$	27	0	
		5 < 10	100	0	
		10 < 15	6	0	
		> 15	0	0	
	Noise Nuisance	No. of properties			No properties experience nuisance
-, ,,	Changes	with change in			benefits and more have a nuisance
		noise nuisance:			increase in the Do-Minimum.
		Increase	1559	1952	
		Decrease	317	0	
_					

A13 Movers Lanc Junction Improvement Environmental Statement Volume 1

Appendix A Page 2 of 15 RT-DTPMSA-047-03

Residential Visual Impact No. of properties subject to change Subject to change Substantial Substantial Moderate Slight	No. of propertics subject to change: Beneficial Substantial Moderate	Winter Summer 2000 2015		
) Lighting	Subject to change: Beneficial Substantial Moderate		Visual quality will	Property demolition will
) Lighting	Beneficial Substantial Moderate		remain poor for	expose at least 50 properties
	Substantial Moderate		properties opposite	to new visual impact
No Com	Moderate	0 53	flvover as a result of the	Substantial improvements for
No C		53 90	traffic dominated	properties presently opposite
No Com	Slight	121 94	environment.	the flyover following its
No C				replacement by the
Adve	No Change	161 140		underpass.
Adve				Visual quality will be further
Com	Adverse			enhanced by the
Com	Substantial	0		environmental barriers.
Comm	Moderate	т т		mounding and landscape
	Slight	42 0		buffers which are part of the
				Scheme.
		New improved lighting	No change	
	<u> </u>	facilities will be installed.		
	<u> </u>	These will be less obtrusive		
•	=	than the present lighting for the		
	j i	junction and A13.		

Appendix A
Page 3 of 15
RT-DTP8000003

Sub Group	Effects	Units	Scheme	Do-Minimum	Comments
Residential Buildings (continued)	Severance: (a) Relief to existing severance. (b) Imposition of new	Comment	ough the underpass and stallation of traffic signals und improve crossing nditions, reduce journey nes and therefore improve cessibility across the A13.	Continued congestion associated with high traffic flows, including HGVs, would cause an increase in severance.	A degree of severance would remain but severance would significantly decrease as a result of the Scheme.
	Changes to amenity in the general residential environment.	Comment	Reduced direct contact with A13 traffic; most significantly with HGVs. Generally more pleasant crossing conditions. General improvements due to landscaping adjacent to the A13.	Continued deterioration with the junction becoming more intimidating due to heavier traffic flows.	
,	Air Quality	Соттеп	All properties adjacent to the Junction would experience significant reductions in traffic related air pollution compared to the existing situation. No residential properties would be exposed to pollution in excess of Air Quality Standards.	While traffic conditions would deteriorate with Do-minimum, any associated problems with air quality would be substantially reduced by the impact of emission controls.	The impact of emission control legislation would significantly improve air quality in the future for all scenarios.

Appendix A
Page 4 of 15
RT-DTP9619-047-03

A13 Movers Lane Junction Improvement Environmental Statement Volume 1

Sub Group	Effects	Units	Scheme	Do-Minimum	Comments
Commercial	Properties demolished	Number	£	•	Two shops and one public house. Two
buildings			(see comments)		electricity sub-stations and a dereliet building would be demolished
	Severance:	Comment			Businesses would not be adversely
** ****	(a) Relief to existing		a) Severance would be reduced due		affected.
	severance;		to improved junction operation.		
	(b) Imposition of new		b) Existing accesses to A13 would	2 20	
	severance.		be stopped up and alternatives		
			required.		
Community	Noise	Comment	Scheme should result in noise	Further deterioration in existing	
facilities:			benefits for southern part of park.	situation.	
Open Space	Severance	Comment	Access to the park from south of the	Further deterioration in existing	
Greatfields Park			A13 would improve.	situation.	
	Amenity	Comment	General amenity of park would	Further deterioration in existing	
			improve.	situation.	
	Visual Impact	Comment	Significant decrease in visual	Further deterioration in existing	
10 to			impact, particularly in southern half of park.	situation.	
5	Air Quality	Comment	Improvements in air quality in	As "Scheme", due to catalytic	
			Southern part of park.	converiers.	
Disruption	No of residential	Number	410	•	
during Construction:	properties affected				
1. Residential	Temporary noise	Comment	Northern end of Westminster	1	Sound insulation would be
Properties.	increases		Gardens, eastern end of Waverley		installed in eligible properties prior
			Gardens and River Road (nos.2-6)		to work commencement.
			may experience high noise levels for		The early construction of
			short durations during construction.		environmental barriers would help
					to reduce the impact of noise
					during construction.

Appendix A
Page 5 of 15
RT-DTPM:0-04-03

A13 Movers Lane Junction Improvement Environmental Statement Volume 1

Sub Group	Effects	Units	Scheme	Do-Minimum	Соттептя
Disruption	Temporary Visual	Comment	Some adverse effects likely.	ń	The erection of environmental barriers
during	Impact				would help to screen views during
construction 1 Desidential					construction.
Properties					
(continued):					
	Temporary Severance	Comment	Temporary loss of King Edward's	-	
			Road footbridge for one night only,		
			possibly some other local access difficulties		
	Temporary changes to	Comment	Dust generation due to construction		Watering of haulage routes would limit
	air quality		vehicles and the demolition of		the amount of suspended dust. It is not
			properties and the flyover.		anticipated that there would be a
					significant effect on general air quality.
2. Commercial Buildings	No. of properties affected.	Number	9, plus the Lyon Business Park.	•	
	Temporary noise	Comment	Some temporary increases likely.	h	
	increases.				
3. Community	Temporary severance.	Comment	Southern entrance to Greatfields		Work would be scheduled to minimise
Facilities			Park may be affected as a result of		disruption.
			re-paving and repositioning.		

Appendix A Page 6 of 15 RT-DPWGGM7-03

A13 Movers Lane Junction Improvement - Environmental Impacts Table Group 2: Travellers

Commente																		
Do-Minimum	Congestion is likely to increase	with a corresponding increase	in delays and driver frustration	and stress.				No change to an already poor,	undistinguished townscape			Disruption will occur during the	work to refurbish the existing	flyover which is expected to	take place in 2002.			
Scheme	Reduction in driver frustration	due to improved traffic flows	and fewer delays.	A clearer junction layout and	the segregation of pedestrians	from A13 traffic would reduce	the fear of accidents.	Substantial changes in the nature of No change to an already poor,	the view due to the underpass, but undistinguished	no overall change in the quality of view.	views.	3 lanes and existing turning	movements would be	maintained on the A13.	Al3 traffic would be diverted to	A-road network north of A13	during brief night closures for	construction.
Units	Comment							Comment				Comment						
Effects	Driver Stress							View from the Road				Disruption during	construction					
Sub Group	Traveller	Amenity:	,	1. Vehicle Users														

Appendix A
Page 7 of 15
RT-DTPMID-24-03

Sub Group	Effects	Units	Scheme	De-Minimum	Comments
Traveller Amenity:	Severance:	Comment		Increase in existing severance.	
2. Pedestrians and Cyclists.	a) Relicf to existing severance.		(a) Separation of A13 traffic in underpass would result in significant reduction in		
	b) Imposition of new severance.		severance caused by A13. (b) New severance may be caused on local scale due to forecast increases in local traffic using Movers Lane and River Road.		
	Change in Amenity (Pedestrians)	Comment	Significant improvements due to: improved lighting; improved landscaping of the	Deterioration of already unpleasant and intimidating conditions with increasing	
			 area; better segregation of vehicles and pedestrians; 	traffic flows and congestion.	
			 reduction of venicle flows at the junction; reduced journey lengths and delays in crossing the junction. 		

Appendix A
Page 8 of 15
RT-DIPMOROM-03

Sub Group	Effects	Units	Scheme	Do-Minimum	Comments
Traveller Amenity: 2. Pedestrians and Cyclists (continued).	Cyclists)	Comment	Significant improvements due to: • reduced traffic conflicts; • reduced interaction with HGVs; • bus lay-bys reducing need for cyclists to pull out; • improved environment and amenity encouraging more cyclists. • alternative route options	Deterioration of already poor conditions.	A complete network of cycles routes using shared and segregated facilities with pedestrians is provided in the Scheme.
Traveller Amenity: 3. Bus Passengers.	Change in Amenity (Bus Passengors)	Comment	Significants improvements in: • location of bus stops away from A13 through traffic; • less congestion leading to improved journey times.	Deterioration in conditions as congestion worsens.	
Traveller Safety: Pedestrians' and Cyclists' Safety		Comment	Improvements expected as a result of: • reduced vehicle/non vehicle conflicts at the junction; • separation of HGV traffic; • better crossing conditions.	Further deterioration of already poor conditions, with an increased risk of accidents.	Cyclists accidents expected to reduce by half.
All Vehicle Travellers' Safety	Reduction in casualties for 30 years after Scheme implementation; Fatal Scrious Slight	Number	1 104 656	0	 Total number of injuries in the Scheme area would be reduced by 761 as a result of the Scheme. There would also be an estimated reduction of 4500 damage only accidents.

Appendix A
Page 9 of 15
RT-DTP0010-03-03

A13 Movers Lane Junction Improvement Environmental Statement Volume 1 A13 Movers Lane Junction Improvement - Environmental Impacts Table Group 3: The Cultural and Natural Environment

Sab Group	Effects	Units	Scheme	Do Minister	
Heritage	Sites of archaeological	000000		DO-JAILDIMIEM	Comments
Ç	significance.	Comment	There are no known sites of archaeological significance affected	1	Provision has been made for
			by the Scheme, but it is in an area of		Investigation and evaluation of any sites of archaeological interest that man
			general archaeological interest.		be discovered during construction.
Townscape	Townscape impact	Comment	With the exception of	Existing near quality towards	
			demolition along A13	would be likely to deteriorate	
			frontage no afteration to	further.	
			fabric of streets, housing and		
			open spaces.		
			 Main benefits due to removal 		
			of flyover and the realignment		
			of the A13 away from houses.		
			 Townscape quality enhanced 		
	•		by integrated road		
			arrangements and new hard		
			and soft landscape features.		
			 Landscaping would buffer 		
-			properties, provide new open		
			space and complement	THE STATE OF THE S	
			existing open spaces.		

Appendix A
Page 10 of 15
RI-DIPMOGRADS

A13 Movers Lane Junction Improvement

Environmental Statement Volume 1

Sub Group	Effects	Units	Scheme	Do-Minimum	
Nature Conservation	General Effects	Comment	Freshwater ecological interest should benefit from improved water quality.	Part of area to be incorporated into proposed open space could otherwise be subject to future	The adverse effects initially caused by the Scheme would be quickly outweighed by the long term benefits
,			Proposed landscape treatment would maximise conservation benefits Enhanced value of the area as a potential educational and amenity resource.	development.	for nature conservation interest.
	Disruption during construction	Comment	Potential for adverse effects on aquatic flora and fauna through contaminated runoff.	•	Careful site management with construction of drainage interceptors early on in programme would minimise adverse innect
water Quanty	Mayes brook and Roundabout Drain Disruption due to	Comment	luction in the potential for idental spillage of hazardous terials, uced levels of pollution in off, anced capability to cope h spillages, woved water flow and lity.	The already poor water quality would deteriorate further due to increased congestion and traffic levels and there would be a greater potential for spillage of hazardous materials.	Benefits as a result of the Scheme would be significant on a local scale. Careful site management with
	Construction		courses through sediment laden runoff.	.,	construction of drainage interceptors early on in programme would minimise adverse innect
Geology and Soils	Contaminated Land	Comment	There is one possible area of contaminated land, investigations are continuing in coordination with		Any requirement to dispose of contaminated material would be dealt with under license from the London
			the Industrial Kivers Authority.		Waste Regulation Authority.

Appendix A
Page 11 of 15
RT-DIDNIO-M-03

A13 Movers Lane Junction Improvement - Environmental Impacts Table Group 4: Policies and Plans

Policy	Authority	Interest	Scheme	Do-Minimum	Comments
White Paper:	Government (DOT)	To provide a	ne of the	Improvement would not be	General: Need for the Scheme has
England: Into		road improvements	tinprovencine instea.	ACINEVEL.	policy objectives prior to its
the 1990s.		,			development. Therefore the Scheme
					would have a significant enect on the achievement of these policies.
Trunk Roads in	Government (DOT)	Review of the trunk	The Scheme is listed as	Improvement would not be	
England 1994 Review		road programme.	Prionity 1.	achieved.	
PPG9: Regional	Government (DOE)	To provide strategic	PPG9 recognises the need to	Improvement would not be	
Guidance for the		regional planning	improve the A13.	achieved.	
South East.		guidance			
Action in the	SERPLAN	To provide	Report recognises the need to	Improvement would not be	
East Thames		guidance and	improve the A13.	achieved.	
Corridor		promote action for			
		development in the			
		East Thames			
		Corridor			
LBBD UDP					
+	London Borough of	To improve	The Scheme is one of	Improvement would not be	The Scheme would also assist in the
Transportation	Barking and	strategic traffic	improvements supported by the	achieved.	achievement of other policy objectives
and Movement;	Dagenham	routes through the	Policy.		for a number of issues which are not
Policy T23		Borough.			specifically related to this Scheme.
2. Barking	London Borough of	To integrate	The Scheme would provide	Improvement would not be	
Reach;	Barking and	Barking Reach into	improved north/south access	achieved.	
Policy BR3	Dagenham	the rest of the	across the A13.		
		Borough			

Appendix A
Page 12 of 15
RT-DTPMR10-04-03

Policy	Authority	Interest	Scheme	Do-Minimum	Comments
Policy BR8	London Borough of	To provide high	The Scheme would provide a	Improvement would not be	
	Barking and	quality development	high quality urban landscape.	achieved.	
	Dagenham	on Barking Reach			
		Gateway sites.			
Policy BR11	London Borough of	To provide	The Scheme would provide	Improvement would not be	
	Barking and	landscape	landscape improvements.	achieved.	
	Dagenham	improvements along			
		the A13 corridor			
Policy BR13	London Borough of	To provide	Scheme provides one of these Improvement would not be	Improvement would not be	
	Barking and	improved junctions		achieved.	
	Dagenham	on the Al3 to			
		access Barking			
		Reach			
3. Design and	London Borough of	To ensure	Scheme allows for investigation		
Environment;	Barking and	protection and	and evaluation of any sites of		
Policy ENV35	Dagenham	evaluation of any	archaeological interest		
	•	sites of			
		archaeological			
		significance			
4. Leisure and	London Borough of	To promote river	Scheme improves access	Improvement would not be	
Recreation;	Barking and	corridors as areas	alongside Mayes Brook and	achieved.	
Policy LAR14	Dagenham	for informal	Roundabout Drain.		
		recreation.			

Appendix A
Page 13 of 15
REDIPMONEN

A13 Movers Lane Junction Improvement Environmental Statement Volume 1

A13 Movers Lane Junction Improvement - Environmental Impacts Table Land Use

	An	Area Required Permanently	<u> </u>		
Existing Land Use	Area for	Area for verges,	Total Area	Arca Required	Comments
	carriageway,	embankments,	(ha)	Temporarily During	
	footways and other	cuttings and other		Construction (ha)	
	hard surfaces (ha)	landscaping (ha)		•	
Commercial/Industrial	0.32	0.25	0.57	0	Viability of businesses affected would not
					be adversely affected.
Private Open Space	0.05	,	0.05	0	
Private Land and Property				0	
	1.37	0.44	1.81	1	
Dereifet Land	0.24	0.44	0.68	0	Not actively need
Development Land	90'0		90.0	0	moon to transport
TOTAL	2.04	1.13	3.17		

A13 Movers Lane Junction Improvement - Environmental Impacts Table Mitigation

Mitigation Measure	Location, Purpose and Forecast	Canital	Forceast Maintenance Remirement	Commente
	Benefit	Cost £(000)	Method and Cost	
Pumping Station and Control	West of River Road. To remove			Pumping station would assist in
Building.	surface water from the underpass and	674	£ 8,000 per annum.	Rood control and prevention of
	at-grade roads.		•	pollution.
Oil interceptors.	Between pumping station and			Improvement on existing situation
	Roundabout Drain to remove oily	15	£ 1,000 per annum.	
	materials in runoff. To improve the		•	
	o interce			
	accidental spillage of hazardous			
	materials. Also provided at other			
	discharge points to open watercourses.			
New open space,	South west quadrant of junction	223	£ 10,000 per annum	
Screen planting.	All 4 quadrants.	87	£ 4,000 per annum	
Mounding.	South west quadrant. To protect			
	properties in Waverley Gardens from	19	0	
	noise and maintain visual quality.			
Environmental barriers,	3m high.	758	£ 1,000 per annum.	
Waterside planting.	Roundabout Drain and Mayes Brook.	15	£ 500 per annum.	Should be covered by existing
				maintenance regime.
Salvage existing vegetation.	Mayes Brook. To assist revegetation	10	£ 250 per annum.	Should be covered by existing
	of new banks.			maintenance regime.
Noise insulation.	For up to 180 properties	180	0	
Noise absorbent surfaces for	To reduce the reflection and	490		Annual wash down to maintain
underpass.	reverberation of noise from the		£ 3,000 per annum	acoustic efficiency.
	underpass.		•	

NOTE: The costs, particularly for maintenance, are outline estimates only.

A13 Movers Lane Junction Improvement Environmental Statement Volume 1

Appendix A
Page 15 of 15
RT-DIPKIGHTOR

NON TROUNDAR SUMMARY

ACER CONSULTANTS LIMITED

000003

QUALITY ASSURANCE APPROVAL SHEET

Project: A13 Movers Lane Junction Improvement

Report Title : Environmental Statement

Volume 1

Client : Department of Transport

Highways Agency London Office

ISSUE AND REVISION RECORD

Project No : 5130 DTP0610

Report No : RT - DTP0610 - 047

Revision : 03

Date : April 1994

Originator : Acer Environmental

Checked By : KMWh_0 0 JOOW 1715194

Approved By :

Description : Final Version

CHAPTER 1

INTRODUCTION

General
Scheme Location
The Environmental Statement
Structure of the Environmental Statement

A13 Movers Lane Junction Improvement Environmental Statement Volume 1 Page 8 of 94

RT-DTP0610-047-03

Reproduced from the Ordnance Survey Map with the permission of the Controller of Her Majesty's Crown Copyright Reserved Potters Bar A1 Chesham **Epping** (M) M25 Amersham A12 M25 Brentwood A404 **Enfield** Watford A413 M25 Barnet A406 A404 A10 Romford Harrow A12 A127 M25 A40(M) **Uxbridge** Slough Ealing Central London **M4** Woolwich Dartford Windsor Gravesend A205 A316 A20 A205 Kingston upon Thames A2 A24 A21 Staines **Bromley** A232 M20 Croydon M25 M26 A23 Woking A247 A25 M25 Leatherhead M25 M23 Guilford Sevenoaks **Dorking** A13 MOVERS LANE JUNCTION A13 MOVERS LANE JUNCTION IMPROVEMENT LONDON PRIMARY ROUTE NETWORK

Environmental Statement - Volume 1

FIGURE 1.1

1.0 INTRODUCTION

1.1 General

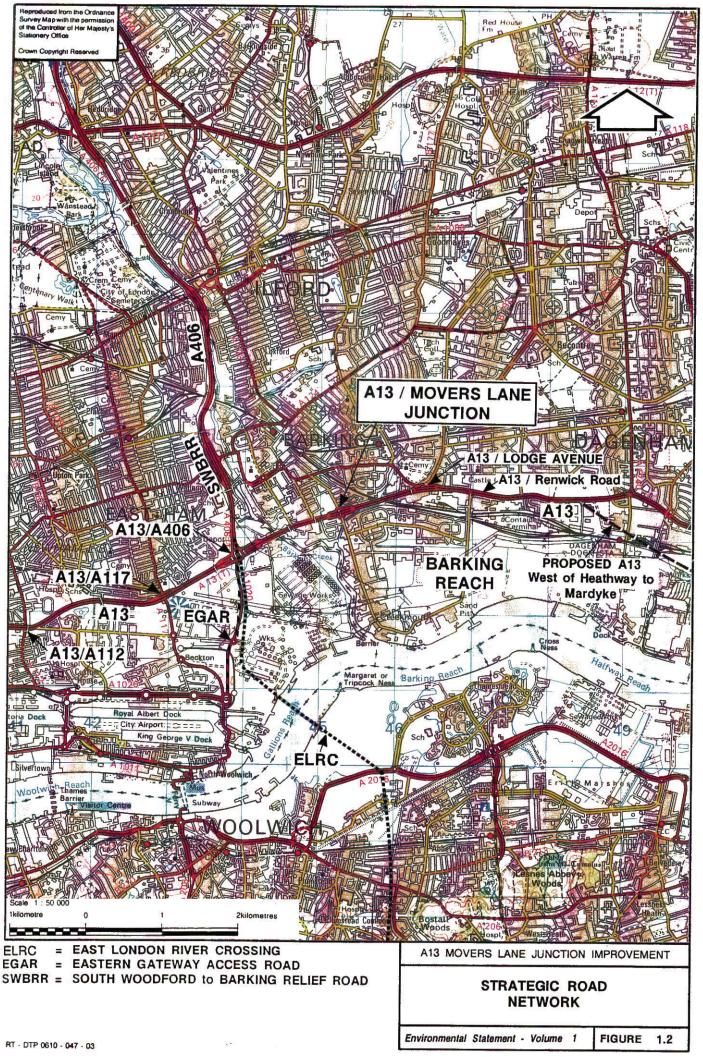
- 1.1.1 This document comprises the Environmental Statement for the A13 Movers Lane Junction Improvement (the Scheme).
- 1.1.2 The Environmental Statement has been prepared for the Highways Agency (London Office) by Acer Consultants Ltd., who were retained by the Highways Agency (HA) to carry out engineering design and environmental assessment for the Scheme. Acer Consultants Ltd. have been assisted by Chris Blandford Associates (Landscape) and Ashdown Environmental Ltd. (Air Quality).
- The Environmental Statement assesses the environmental effects of the proposal to replace the existing A13 Movers Lane junction arrangement with an underpass and traffic signal junction.

1.2 Scheme Location

1.2.1 The Scheme is located in the London Borough of Barking and Dagenham. Its location on the A13 trunk road on the London Primary Route Network is shown on Figure 1.1 and a more detailed location is shown on Figure 1.2. The junction connects Movers Lane to the north and River Road to the south with the A13 trunk road. It lies to the south east of Barking town centre.

1.3 The Environmental Statement

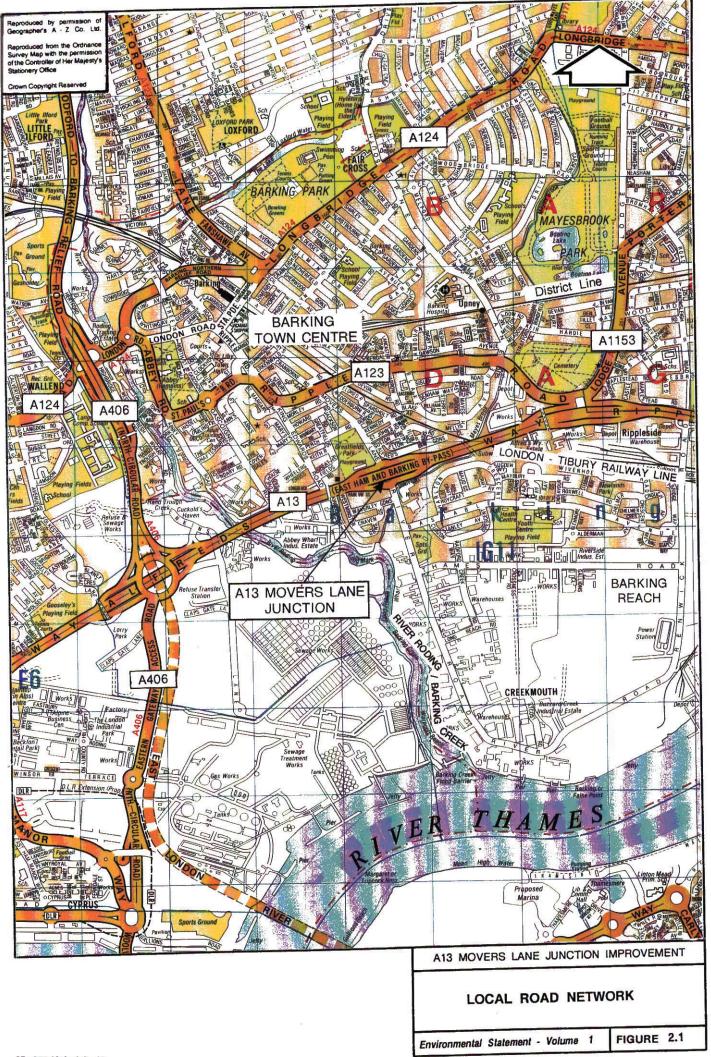
- The Environmental Statement is in two Volumes. Volume 1 (this document) is the main Environmental Statement, including a Non-Technical Summary, which is also available separately. Volume 2 consists of six specialist reports on the Traffic, Noise, Air Quality, Landscape and Visual Effects, Water Quality and Ecology and Nature Conservation aspects of the Scheme and its effects. The contents of these specialist reports are summarised in Volume 1.
- The Environmental Statement aims to provide a concise, systematic and objective account of the significant environmental effects which are likely to result from the proposed Scheme. It has been prepared in accordance with EC Directive 85/337 (Reference 1) as applied by Section 105A of the Highways Act, 1980 (Reference 2). The Directive requires that all schemes which are likely to have a significant effect on the environment must be subject to the process of environmental assessment.



CHAPTER 2

THE NEED FOR THE IMPROVEMENT WORKS

Introduction
The Local Road Network
Existing Traffic Problems
Predicted Traffic Problems
Traffic Impacts on the Environment
The Need for Improvement



2.0 THE NEED FOR THE IMPROVEMENT WORKS

2.1 Introduction

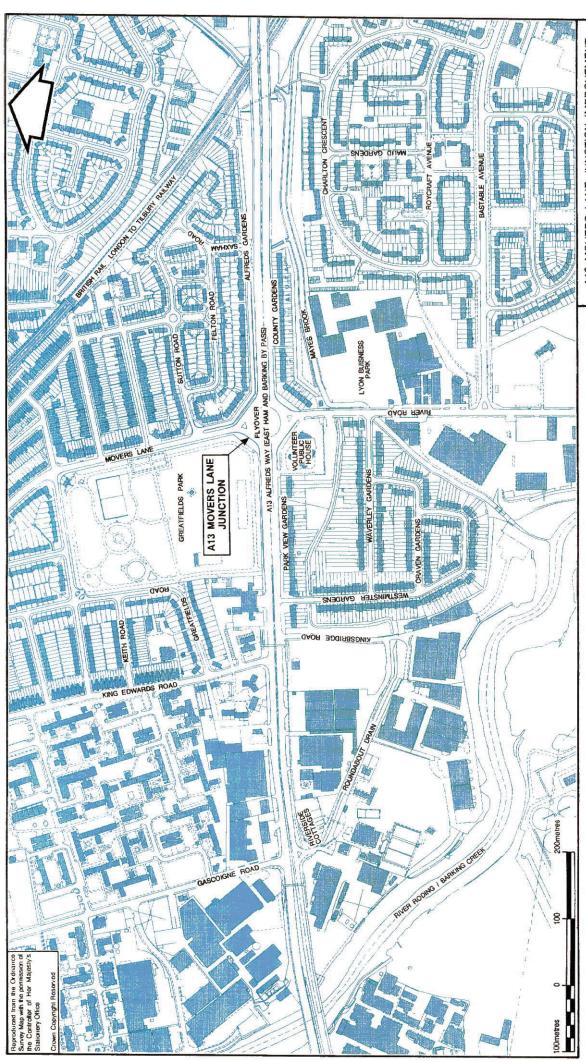
2.1.1 This Chapter describes the local road network and its current traffic problems, and how these problems are expected to worsen over time. It sets out why a solution to these problems is required.

2.2 The Local Road Network

- 2.2.1 The A13 Trunk Road is one of London's main radial routes connecting central London with the A406 North Circular Road, the M25 and Essex. It passes through East London, providing the main access to Docklands and the industrial developments along the north bank of the Thames between Barking and Tilbury. In recognition of its present and future importance the National Roads Programme contains schemes to improve the A13 between Limehouse and the M25. The local road network is shown in Figure 2.1.
- 2.2.2 The length of A13 under consideration extends from the Roding Bridge crossing Barking Creek in the west to the bridge over the London to Tilbury railway line in the east.
- 2.2.3 The junction of the A13 with Movers Lane (to the north) and River Road (to the south) comprises a substandard two-lane two-way temporary steel flyover carrying A13 traffic over an at-grade roundabout. Two-lane slip roads parallel to the flyover connect the A13 to the roundabout to provide all turning movements at the junction. The study area is shown in Figure 2.2.
- To the east and west of the Movers Lane junction, the existing A13 is a dual three-lane carriageway road. The width of each carriageway is 11 metres (westbound) and 10 metres (eastbound) to the east and 9 metres in each direction to the west of the junction. Movers Lane and River Road are two-way single carriageway roads of 8 metres and 9 metres overall widths respectively. There is a 50mph speed limit on the A13 to the east and west of the junction, and a 40mph speed limit around the junction itself. There is a vehicle weight restriction of 7.5 tonnes on the flyover, all heavy goods vehicles (HGV) therefore need to use the ground level roundabout.

2.3 Existing Traffic Problems

2.3.1 The A13 carries large volumes of through traffic, in addition to catering for local movements within East London. Typical weekday traffic flows in September 1993 were up to 3750 vehicles per hour (vph) in the peak hour primary direction (westbound in the morning and eastbound in the evening) and up to 2350 vph in the secondary direction. The flow in off-peak periods was typically 2650 vph eastbound and 1950 vph westbound. The peaks extend



A13 MOVERS LANE JUNCTION IMPROVEMENT

STUDY AREA

Environmental Statement - Volume 1

FIGURE

2.2

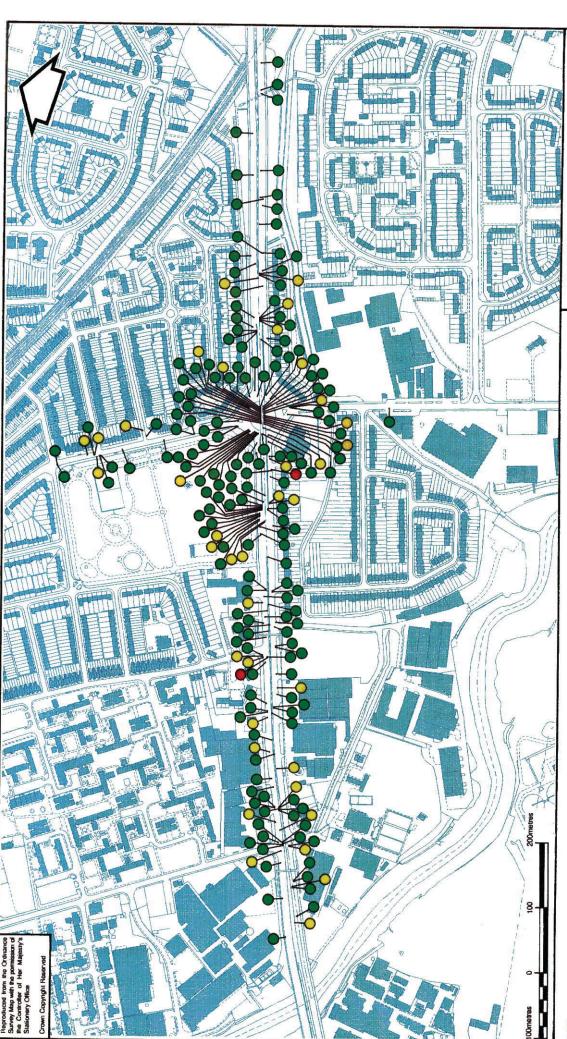
RT - DTP 0610 - 047 - 03

over several hours and an average of 80,000 vehicles use this stretch of the A13 on each weekday. Traffic congestion occurs frequently at the Movers Lane junction, especially in the morning peak period when westbound traffic tails back from the flyover, causing vehicles to reroute through the roundabout (see section 3.9 of this document for more detail on existing traffic flows).

- The A13 also carries a high proportion of HGVs. Typical proportions during the working day in 1990 were 6% 32% westbound and 6% 28% eastbound. The proportion varied from 10% 32% in the period between the peaks. In terms of absolute numbers of HGVs, flows were consistently high throughout the day, ranging from 760 to 1260 HGVs per hour (both directions combined) during the period from 6am to 4pm. This represents up to 20 HGVs per minute passing through the junction. At the Movers Lane junction this heavy flow is accentuated by the fact that HGVs are prohibited from using the flyover and therefore have to use the at-grade roundabout, with consequent stopping and starting, noise, air pollution and traffic congestion causing environmental problems for other road users.
- During traffic surveys undertaken in 1990 and 1991, it was observed that traffic queues form on the approaches to the junction in the direction of peak flow. Congestion is such that, for movements along the A13, vehicles using the roundabout and the flyover take the same time to traverse the junction. In peak periods the River Road approach also experiences congestion, with vehicles queuing back to the south of Waverley Gardens.

2.4 Predicted Traffic Problems

- In order to predict how the existing traffic problems are likely to develop over time, a computer traffic model known as SATURN (Simulation and Assignment of Traffic to Urban Road Networks) has been used. The SATURN model takes into account alternative existing routes for traffic and the possibility of it being transferred to, or transferring from the A13. The model considered the area bounded by the London Underground District Line in the north, Renwick Road in the east, the River Thames in the south and the A406 South Woodford to Barking Relief Road in the west. More details of this model are given in the Environmental Statement Volume 2.1 Traffic.
- The model was validated with traffic count information collected in 1990 and 1993, and produced predicted flows for 2000 (the anticipated opening year of the scheme) and 2011 for both a "Do Minimum" and "Do Something" scenario. The Do Minimum situation assumed that relatively minor improvements such as resurfacing and replacement of the flyover will be required when the existing structure reaches the end of its life span. The Do Something situation assumed that the Scheme would be constructed.



A13 MOVERS LANE JUNCTION IMPROVEMENT

ACCIDENT DISTRIBUTION BY SEVERITY

Environmental Statement - Volume 1

FIGURE

RT - DTP 0610 - 047 - 03

- SERIOUS INJURY ACCIDENT - SLIGHT INJURY ACCIDENT

- FATAL INJURY ACCIDENT

CHAPTER 3

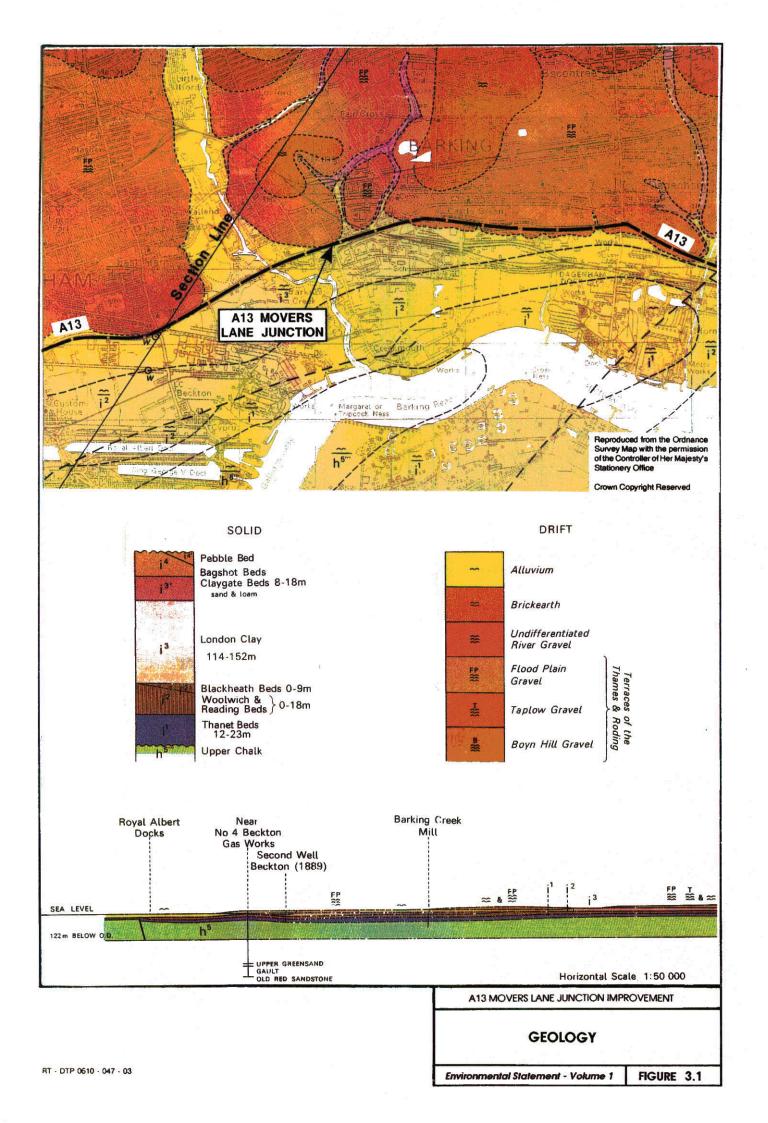
THE EXISTING ENVIRONMENT

Introduction and General Description
Geology, Topography, Soils and Drainage
Archaeology and Cultural Heritage
History and Development
Land Use
Townscape and Visual Appraisal
Ecology and Nature Conservation
Planning Background and Policy Framework
Existing Traffic Flows
Existing Air Quality
Existing Noise Levels
Summary of Existing Conditions
Environmental Implications of Unimproved
Junction

Page 17 of 94

A13 Movers Lane Junction Improvement Environmental Statement Volume 1

RT-DTP0610-047-03



3.0 THE EXISTING ENVIRONMENT

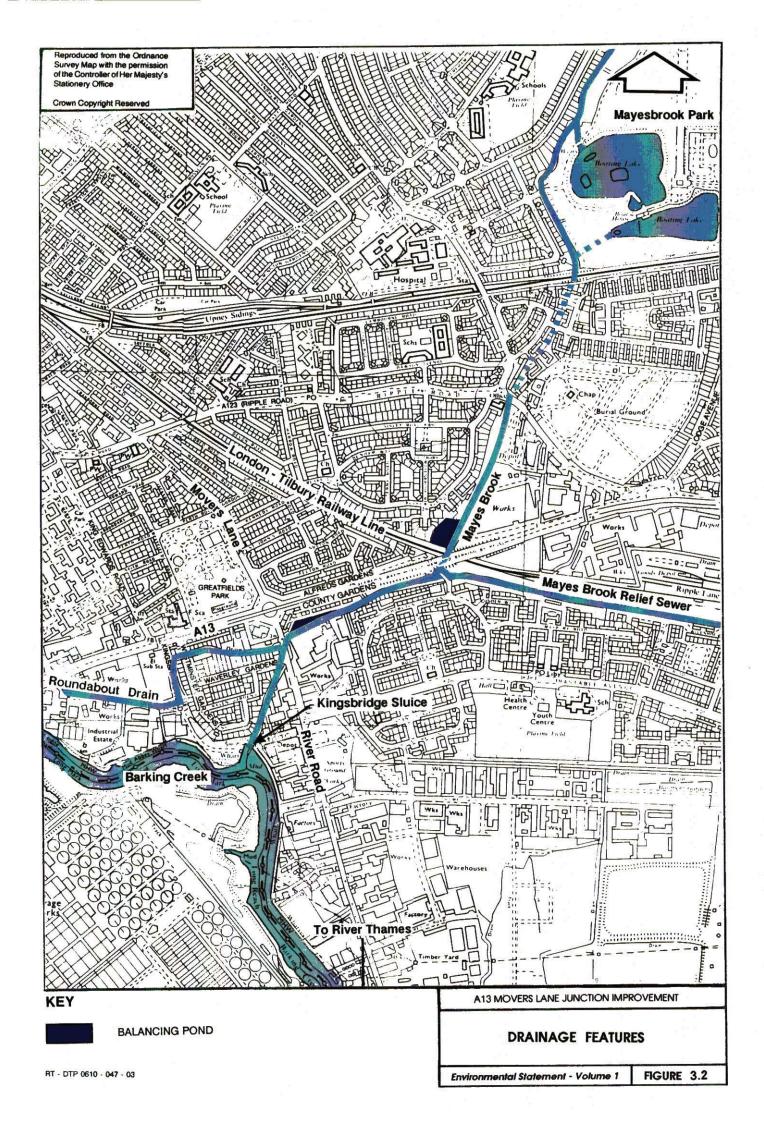
3.1 Introduction and General Description

- 3.1.1 This Chapter gives a brief description of the main characteristics of the existing environment around the junction. This information will then form a base-line against which the predicted effects of the junction improvement can be judged.
- The area around the junction is densely developed and visually undistinguished, with predominantly residential land uses to the north, and a mix of residential (particularly to the east) and industrial (particularly to the west) uses to the south. It is generally flat, with any significant features being man-made, the bridge carrying the A13 over the railway line to the east of the junction, the flyover at the junction itself, several tower blocks of flats and, in the distance, the Canary Wharf tower in Docklands.
- 3.1.3 The area is dominated by the A13 and its traffic, both in terms of the noise and visual prominence of the sheer volume of traffic using it, which in some areas is discernible several hundred metres away, and also functionally, with a number of commercial uses sited alongside the road for the degree of access which it provides.

3.2 Geology, Topography, Soils and Drainage

Geology

- The Movers Lane junction is located approximately 2km north of the River Thames on flat, low-lying land. Its location in the historic Thames flood plain accounts for the underlying deposits of Alluvium and Flood Plain Gravels. These in turn are underlain by London Clay and the Woolwich and Reading Beds. The geology of the local area is shown in Figure 3.1.
- This information was confirmed by a geotechnical survey undertaken in Spring 1991, which involved 19 boreholes and 3 trial pits in the area around the junction. These investigations revealed a layer of made (ie. disturbed) ground at the surface of between 0.3 and 2.7 metres in thickness. Beneath this, the alluvial layer varied in thickness from 2.0 to 5.4 metres, and typically consisted of soft brown and grey organic silty clays with occasional peat layers reflecting past waterlogging. The present water table was found to typically occur at 2.5 metres below ground level. Below the alluvium a layer of yellow or orange brown sands and gravels was found, with an average thickness of 4.5 metres. The underlying Tertiary sediments beneath the sand and gravel were found to be stiff dark brown-grey silty clays (London Clay), becoming more sandy with depth. The sandy clay Woolwich and Reading Beds were found at depths of around 30 metres.



Topography

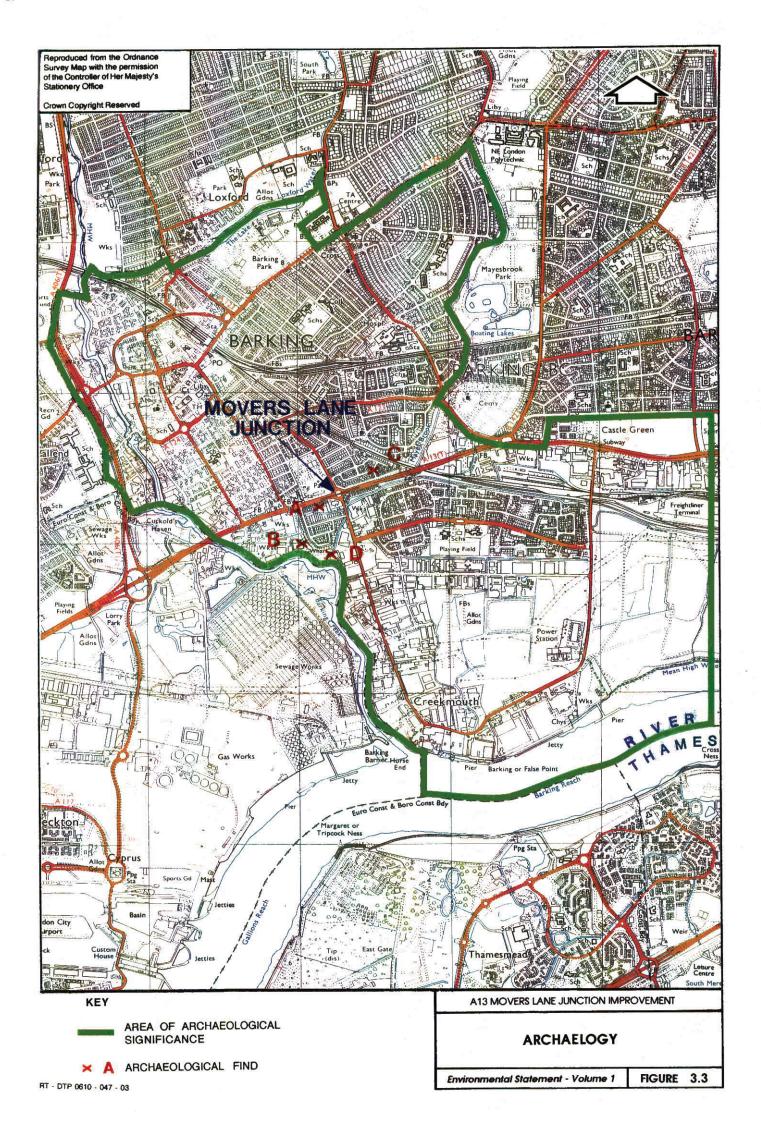
3.2.3 The topography of the area around the junction is generally flat, reflecting its original marshland state prior to drainage for agricultural use and subsequent development. Levels range from about 1 metre AOD (Above Ordnance Datum, approximately mean sea level) to 2.5 metres AOD.

Soils

There are no naturally occurring soils in the area around the junction, as they have all been subject to disturbance and development in the past 50-70 years. Any remnants of natural soils remaining in the domestic gardens or Greatfields Park would be likely to be based on the surface alluvial layer and be relatively rich in nutrients, but poorly drained.

Drainage

- There are three main watercourses in the area, Mayes Brook and its tributaries, 3.2.5 Roundabout Drain, which joins it at River Road, (see Figure 3.2) and the Mayes Brook Relief Sewer. Mayes Brook originates roughly 3 kilometres to the north of the junction and flows into Barking Creek (the lower, tidal reach of the River Roding, itself a tributary of the Thames) via the Kingsbridge Sluice. This is a mechanism to prevent backflow into Mayes Brook during high tides in Barking Creek. However, it also traps flows in Mayes Brook during high tides, and Mayes Brook is therefore liable to flood. In order to cope with this situation, the National Rivers Authority (NRA) has established, and maintains, two grassed balancing ponds just to the south of County Gardens and north of the London-Tilbury Railway Line. Mayes Brook is classified as a Main River by the NRA, and as such, its water quality is periodically monitored and its banks are cut once or twice a year. There is no such monitoring or maintenance of the eastern portion of Roundabout Drain, partly due to present difficulties of access.
- Roundabout Drain emerges from a culvert just to the south of Riverside Cottages and follows a dog-leg path to its confluence with Mayes Brook. The Mayes Brook Relief Sewer runs parallel, and to the south of, the London to Tilbury railway line before joining Mayes Brook just to the south of the point at which it passes beneath the A13. All three watercourses flow in semi-artificial channels, either straightened and regulated, with evenly-graded banks or, in the case of the southern portions of Mayes Brook, with concrete or sheet-piled banks. Both Mayes Brook and Roundabout Drain would appear to have been diverted in the past to facilitate development. This lengthening of channels, particularly in the case of Roundabout Drain, has probably contributed to the extremely low flow velocities currently observed.



C) SMR Ref:

060 191

Grid Ref:

TQ455 835

Date of Find:

Documentary evidence (Smart Lethieullier's History of

Barking, 1736-60). Isolated Find.

Material:

Silver (Coin). Saxon, 852 - 874 AD.

D) SMR Ref:

061 085

Grid Ref:

TQ4523 8294 River Road, Barking

Date of Find:

Documentary evidence.

Material:

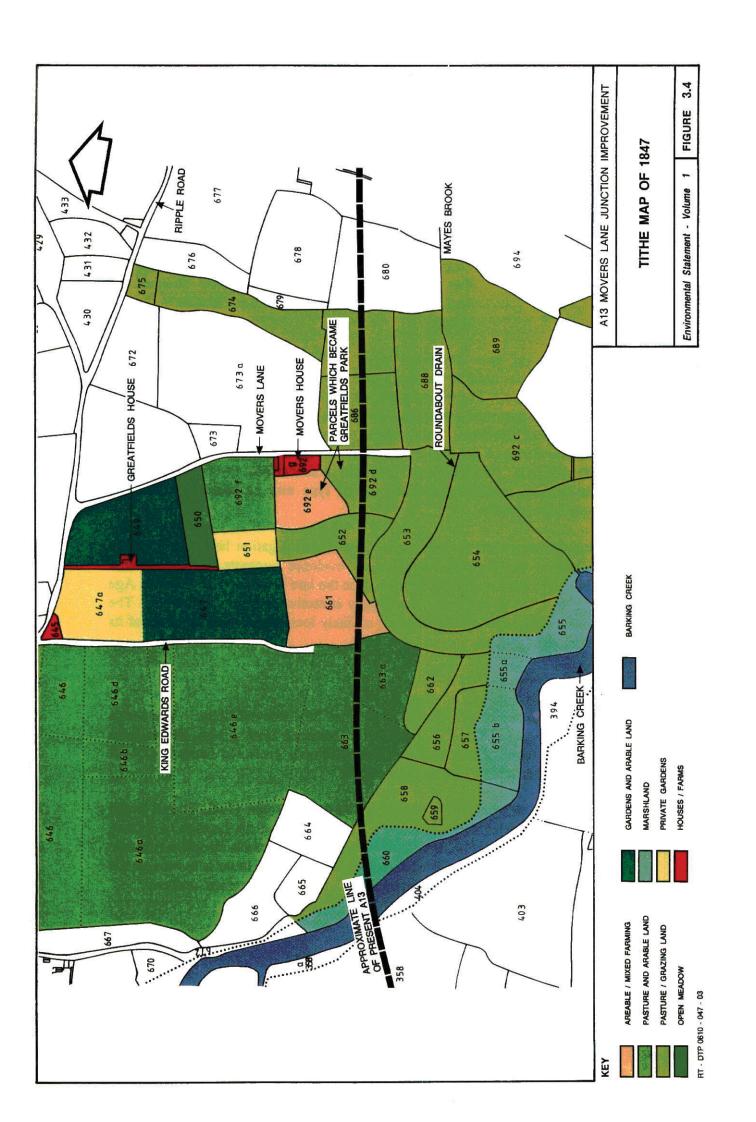
Unspecified (Bridge). Documentary evidence shows that Kingsbridge existed by 1608 and spanned an "unknown tributary of the River Roding" (Mayes

Brook).

- Information on two additional sites of archaeological finds in similar environments but outside the study area has been provided by the Passmore Edwards Museum. The museum provides advice to LBBD on archaeological matters. The two sites are at the Tesco store, Bridge Road, Rainham, and on Tollgate Road, Beckton. Both sites, excavated during development work, revealed evidence of late Neolithic or Bronze Age activity in timbers preserved in layers of peat. The occasional presence of similar peat layers in the vicinity of the Scheme indicates that finds of this type may be possible around the Movers Lane junction.
- To summarise, although little archaeological investigation has taken place in the area of the Scheme, documented evidence suggests there has been continuous human activity in the area since the late Neolithic/Early Bronze Age period, with the geology and topography attractive for early settlement. The area is therefore recognised as being of likely local significance in terms of its archaeological interest.

Listed Buildings

- 3.3.5 LBBD has under its jurisdiction a total of 28 listed buildings. The list is compiled by the Secretary of State for National Heritage on advice from English Heritage. Listed buildings are statutorily protected because of their special architectural or historic importance.
- The nearest listed building is the Tudor Eastbury Manor House (listed Grade 1), lying 600 metres north east of the junction beyond the London to Tilbury Railway line (refer to Figure 3.6). Some of its garden walls also date from the sixteenth century, and are listed Grade 1. The Manor House is owned by the National Trust and currently used by LBBD as an arts centre and museum.

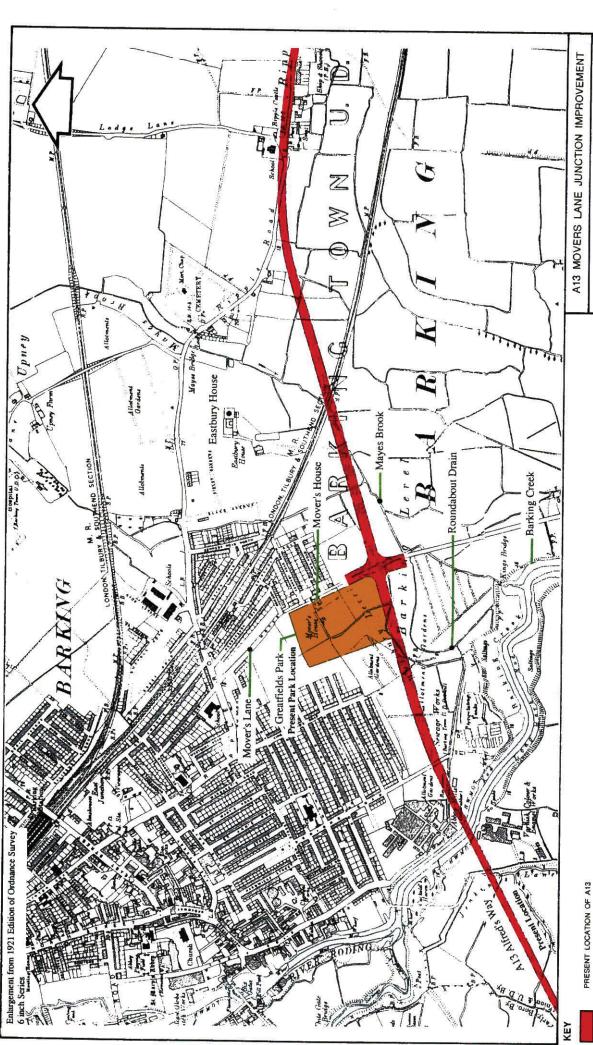


Conservation Areas

- 3.3.7 Conservation areas are local designations to cover areas of land or buildings of special architectural or historic interest, whose character or appearance are desirable to be preserved or enhanced.
- 3.3.8 LBBD contains one designated conservation area. This is within the Barking town centre area located 1.2 kilometres north west of the junction. A further two areas are under consideration, but as yet are not designated. These areas are the Becontree Estate, with its nearest point being 1.1 kilometres east of the junction beyond the London to Tilbury railway line, and another area in the vicinity of Dagenham town centre, located 4 kilometres east of the junction.

3.4 History and Development

- 3.4.1 The Movers Lane junction lies 1.2 kilometres south east of Barking town centre. Barking is a settlement of Saxon origin, sited on the east bank of the River Roding. Within the town centre are the remains of Barking Abbey, founded in AD 666.
- A tithe map of 1847 (see Figure 3.4) shows the land around the junction as drained marshland pasture, probably for sheep grazing. Until the 1920's the land around the junction was still primarily in agricultural use. The 1921 Ordnance Survey (OS) map 6 inch series (see Figure 3.5) shows the land to the west of Movers Lane and River Road as allotment gardens.
- Immediately north west of the junction is Greatfields Park open space. The park was laid out in 1923 by the Barking Town Urban District Council, and opened in 1926.
- Much of the industrial development in the area dates from the 1920's and 1930's. Industrial sites were generally developed on the marshland along the east bank of Barking Creek and south of Mayes Brook, 300-400 metres south and west of the existing junction.
- Residential development in the area largely took place in the 1930's, on former pasture or allotment gardens land. Park View Gardens, Alfred's Gardens, County Gardens and Riverside Cottages all date from this period.
- 3.4.6 Movers Lane predates the A13, and is shown on a 1799 estate map. The A13 itself did not exist at the time of publication of the 1921 Edition of the OS 6" series map (see Figure 3.5), and this section of the road, known as the East Ham and Barking Bypass, was not completed until 1938. It was built as a single carriageway road and has been improved to dual carriageway in the study area by several schemes over the period 1966 to 1987, including the flyover construction.



A13 MOVERS LANE JUNCTION IMPROVEMENT

HISTORICAL MAP OF BARKING 1921

Environmental Statement - Volume

FIGURE

RT - DTP 0610 - 047 - 03

PRESENT LOCATION OF GREATFIELDS PARK

RIVER RODING I BARKING CREEK

3.5 Land Use

- 3.5.1 Land use around the Movers Lane junction is primarily residential, with some large-scale commercial/industrial sites, and is described below for each of the four quadrants of the junction and is illustrated in Figure 3.6.
 - to the north west of the junction is the public open space of Greatfields Park, extending 300 metres north along Movers Lane and 200 metres west to the Barking Fire Station. The approximate area of the park is 5 hectares (14 acres). West of the Fire Station are two blocks of flats (Fiske Court and Longreach Court), located either side of King Edwards Road, 550 metres west of the junction. Further to the west and adjacent to the A13 are a variety of industrial and commercial properties;
 - O to the north east of the junction are the residential streets of Alfreds Gardens, Saxham Road, Felton Road and Sutton Road, extending 450 metres eastwards to the London to Tilbury railway line;
 - O to the south east of the junction is the residential area of County Gardens, extending 230 metres eastwards from the junction to open land through which flows the Mayes Brook watercourse. South of County Gardens, and beyond Mayes Brook is the Lyon Business Park, currently being developed on former industrial land. To the east of the Business Park is the residential street of Charlton Crescent with the remainder of Thames View Estate beyond; and
 - Gardens, Westminster Gardens, Waverley Gardens, Craven Gardens and also the Volunteer Public House. This area extends 280 metres westwards from the junction to Kingsbridge Road, beyond which are a number of commercial and industrial sites, and an isolated group of 6 houses at Riverside Cottages. Park View Gardens includes two business premises located at the junction with Westminster Gardens. South of Park View Gardens and north of Roundabout Drain is an area of disused allotment gardens.
- There are three derelict sites in the area: the allotment site referred to above, covering roughly 0.26 hectare; the Alba Plc site, located immediately west of Kingsbridge Road, which covers an approximate area of 1.2 hectares, and a site immediately east of Riverside Cottages which covers an area of less than 0.1 hectare. All three sites are owned by LBBD.



EXISTING LAND USE

PLANNING CONSENT FOR DEVELOPEMENT

WATERWAYS

DERELICT ALLOTMENTS RELIGIOUS BUILDINGS

INDUSTRIAL AND COMMERCIAL

PUBLIC UTILITIES

PRIVATE OPEN SPACE / RECREATION PUBLIC OPEN SPACE / RECREATION

SCHOOLS AND COLLEGES

Environmental Statement - Volume 1

FIGURE 3.6

RT - DTP 0610 - 047 - 03

RESIDENTIAL AND AMENITIES NATIONAL TRUST PROPERTY

- 3.8.4 The Movers Lane junction is within the London Borough of Barking and Dagenham. Local planning guidance for London Boroughs is provided by their respective Unitary Development Plans (UDPs).
 - the LBBD UDP (Deposit Draft, May 1992 Reference 4) is the current document which forms the basis of all local planning and development control decisions within the Borough. However, some of the policies within the UDP have been revised by "pre-inquiry" (January 1993) and "post pre-inquiry" (July 1993) changes; and
 - O the UDP has been examined at a Public Inquiry (which closed on 14th September 1993). The possible date for adoption of the UDP is mid 1994.
- 3.8.5 A number of UDP policies relate to the A13 and the Movers Lane junction. Policies of particular interest are summarised below:

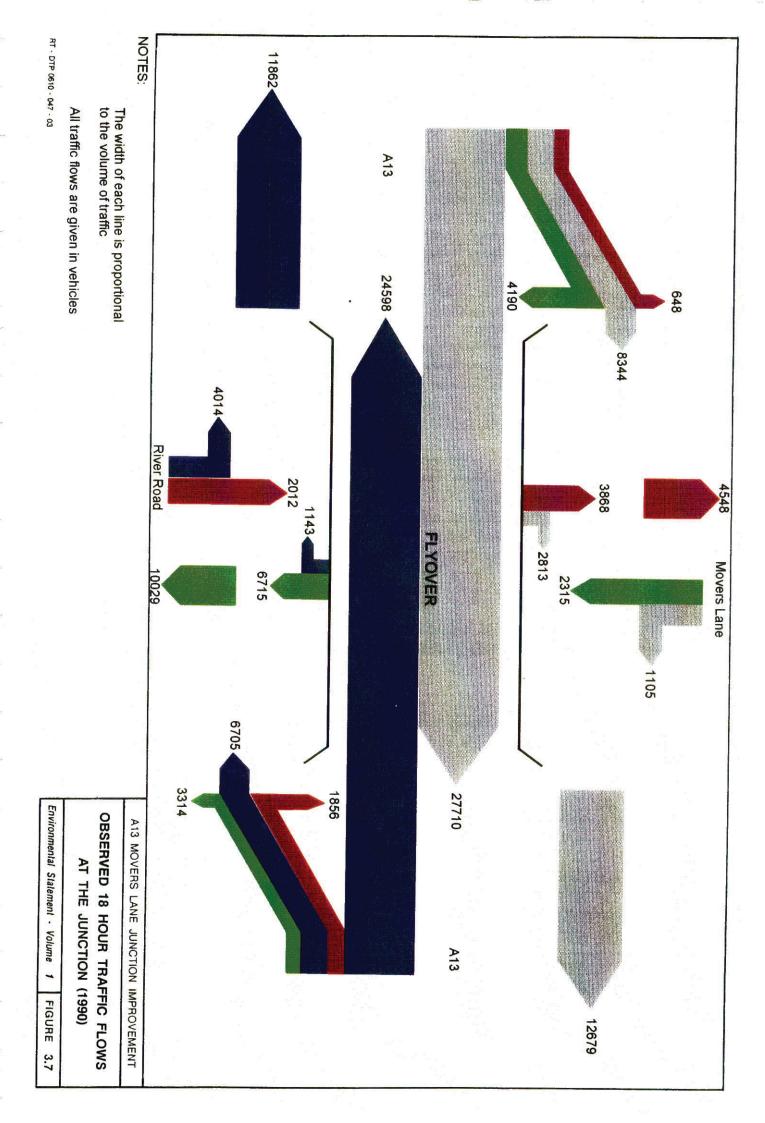
O Transportation and Movement:

The Council recognises the strategic importance of the A13 to the Borough and the need to improve the Movers Lane junction.

O Barking Reach:

The Borough has within its area Barking Reach, one of the key sites in the East Thames Corridor for major residential and employment development. The A13 will be the principal link for Barking Reach, with the Renwick Road junction on A13 being the main access point to the development. The development area is situated around Renwick Road to the south east of the study area.

- The UDP also makes reference to land located to the south east of the junction, adjacent and to the south of Mayes Brook. This land is designated as one of four "Barking Reach Gateway Sites". These are sites which are intended to form distinctive entrances to Barking Reach from the A13, for high profile employment based development. The site covers an approximate area of 3.2 hectares. The land is at present principally occupied by the Lyon Business Park, and industrial units to the south, off River Road extending to the junction of Bastable Avenue, located 300 metres south of Movers Lane junction.
- Other policies in the UDP on Green Issues, Design and Environment, and Leisure and Recreation cover the general principles and guidelines for development within the Borough and have been taken into account in the design of the landscape proposals for the Scheme (reference the Environmental Statement Volume 2.4 Landscape and Visual Effects).



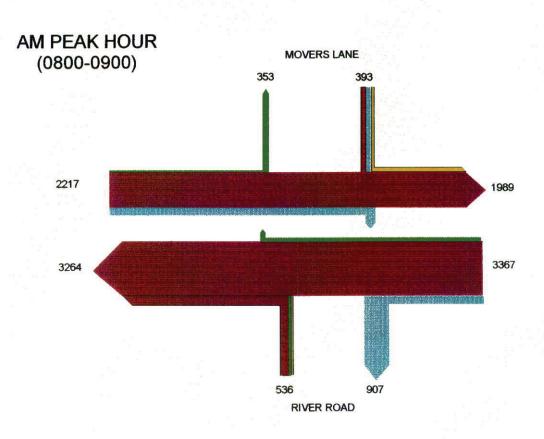
3.9 Existing Traffic Flows

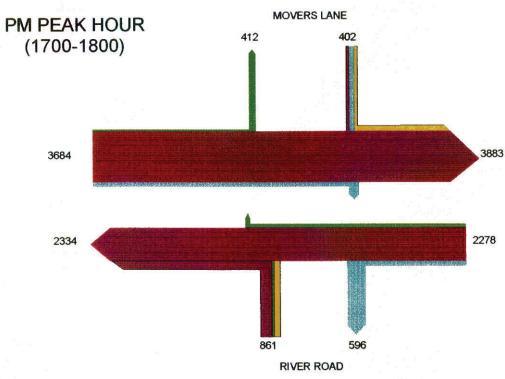
Vehicle Traffic

- 3.9.1 Typical weekday 18 hour vehicle traffic flows observed at the A13 Movers Lane junction in 1990 are illustrated on Figure 3.7.
- Existing vehicle traffic flows into the Movers Lane junction observed in an 18 hour period (1990) exceeded 89,000 vehicles. Much of this traffic used the A13 flyover (67% 69% of all A13 through traffic or 57% of the total traffic flow using the junction).
- 3.9.3 The existing vehicle traffic flow at the junction has a high proportion of HGVs, throughout the day:
 - O the roundabout has a ratio of one HGV in every four vehicles; and
 - a weight restriction on the flyover means that all A13 through traffic HGVs should use the roundabout. Despite this ban HGVs have been observed to use the flyover.
- 3.9.4 Typical weekday peak period vehicle traffic flows at the A13 Movers Lane junction are shown in Figure 3.8.
- 3.9.5 At peak periods congestion frequently occurs at the junction, with queuing to the extent that vehicle movements across the junction for the flyover and the roundabout (for straight ahead movement along the A13) take the same time.
- In peak periods the River Road approach can also experience congestion with vehicles queuing beyond Waverley Gardens, 120 metres south of the junction.

Pedestrians and Cyclists

- Pedestrians crossing the A13 in the vicinity of the Movers Lane junction are concentrated at four locations. A breakdown of pedestrian movements on an August weekday is shown in Figure 3.9.
- Pedestrian movements in the area are significant. Most of the pedestrians use the crossing facilities at peak hours to access the industrial premises on the south side of the A13, the adjacent bus stops, or the residential area and Greatfields Park north of the A13. Total movements observed in August 1993 were broadly similar to those noted in a previous survey in March 1992.





NOTES:

The width of each line is proportional to the volume of traffic

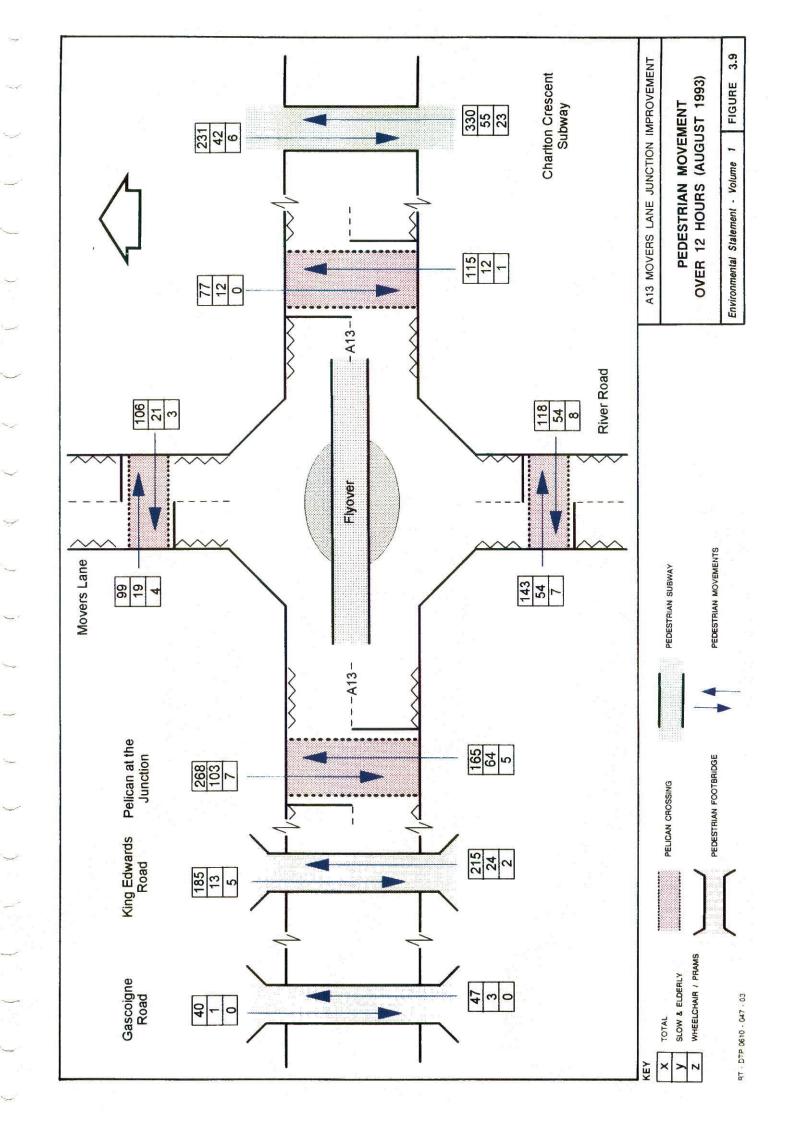
All traffic flows are given in vehicles per hour

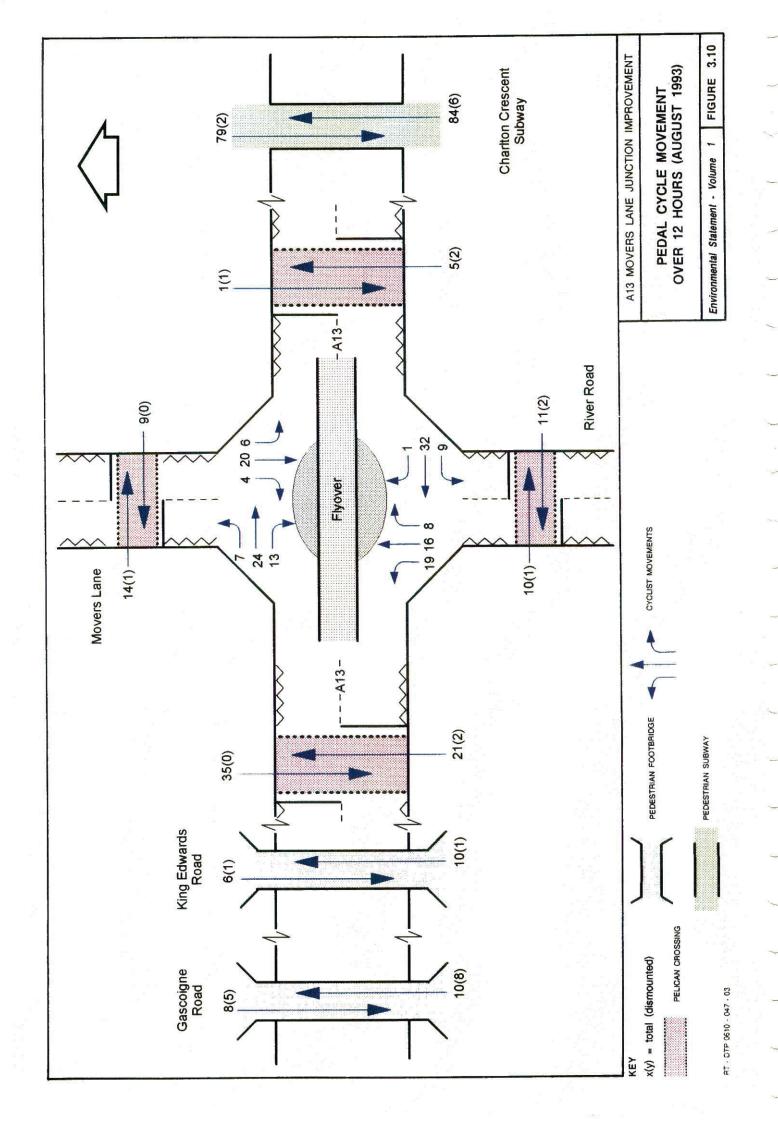
A13 MOVERS LANE JUNCTION IMPROVEMENT

EXISTING PEAK HOUR TRAFFIC FLOWS (1990)

Environmental Statement - Volume 1

FIGURE 3.8





Depending upon the method of presentation of two sounds, the human ear may detect differences as small as 0.5 dB(A). In the period following a change in traffic flow people may find appreciable noise differences where changes are as small as 1 dB(A). A 10 dB(A) change in noise level corresponds, subjectively, to an approximate doubling or halving of loudness. Similarly, a subjective quadrupling of loudness corresponds to a 20 dB(A) increase in noise. When two sounds of the same noise level are added together the resultant noise level is approximately 3 dB(A) higher than each of the individual sounds. It would require approximately nine equal sources to be added to an original source before the subjective loudness is doubled.

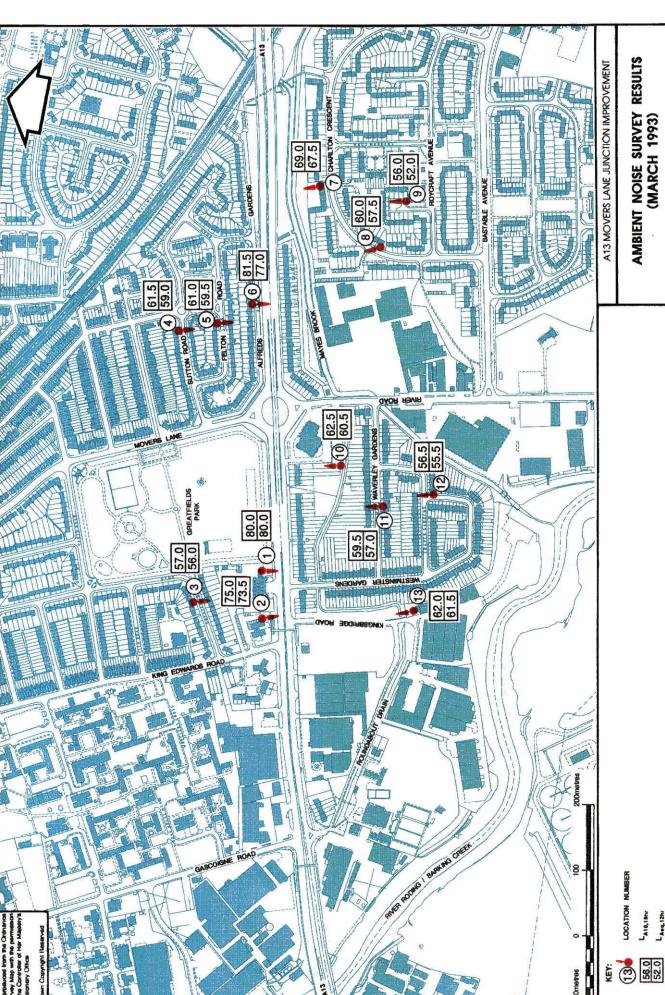
O L_{A10} and L_{Aeq} values

Noise from road traffic is continually fluctuating. The busier the road, the less the fluctuations tend to be, but the higher the overall noise level. Human response to these fluctuating levels may be described by the L_{A10} level, defined as the noise level in dB which is exceeded for 10% of a given period of time. L_{A10} (18 hour) is the arithmetic average of all hourly L_{A10} values during the period 0600 to 2400 hours on a normal working day, and is the index most often used for assessments of road traffic noise because it most accurately reflects people's response to the noise.

- L_{Aeq} (Equivalent Continuous Noise Level) is effectively an average noise level, which is used for fluctuating noises. The index is quoted for a given time period. Therefore, L_{Aeq} (12 hours) is the average noise level over a 12 hour period. This index is often used for assessing construction noise over the working day from 0700 to 1900.
- 3.11.2 The two tables below give an indication of the typical noise levels with which the L_{A10} and L_{Aeq} values may be compared.

TABLE 3.1: Noise in Road Environments

Environment	Sound Level dBL _{A10,18hr}
Kerbside of busy street	80
Kerbside of relatively quiet 'A' road	70 - 75
Busy suburban side road	65 - 70
Quiet suburban street	50 - 55



AMBIENT NOISE SURVEY RESULTS (MARCH 1993)

Environmental Statement - Volume 1

FIGURE 3.11

RT - DTP 0610 - 047 - 03

Page State of the CASATEMAX BETOM CROWN TEAST OUTUBE SHIPTINGS

WHEN DATES OF THE SHIPTINGS

WHEN DATES OF THE SHIPTINGS DANDONDITA DANDR

DANS DANS

PARK BANKS

OLISE BOARDS FBGE Environmental Statment - Volume 1 A13 MOVERS LANE JUNCTION IMPROVEMENT SCHEME LAYOUT FIGURE 4.1

Com Copy of the same FATURE PANNS

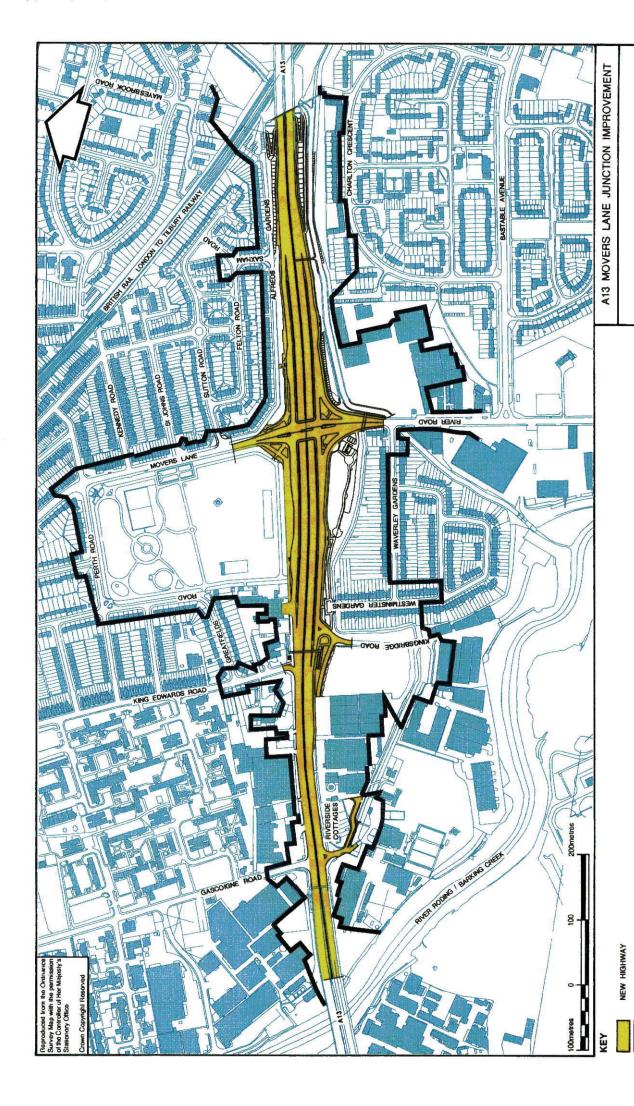
RASED PLANTESS HAD LAUSLANG COLORET SETS

GRASS
GRASS
GRASS TRE MO SRUB
STREEM PLATING
TREE MO SRUB
DRAWBITH, PLATING PASK PALACS

OLDS: BOADED FOICE nvironmental Statement - Volume 1 A13 MOVERS LANE JUNCTION IMPROVEMENT:

LANDSCAPING

PROPOSALS 4111 FIGURE 5.1



RT - DTP 0610 - 047 - 03

VISUAL ENVELOPE BOUNDARY

6.3

FIGURE

Environmental Statement - Volume 1

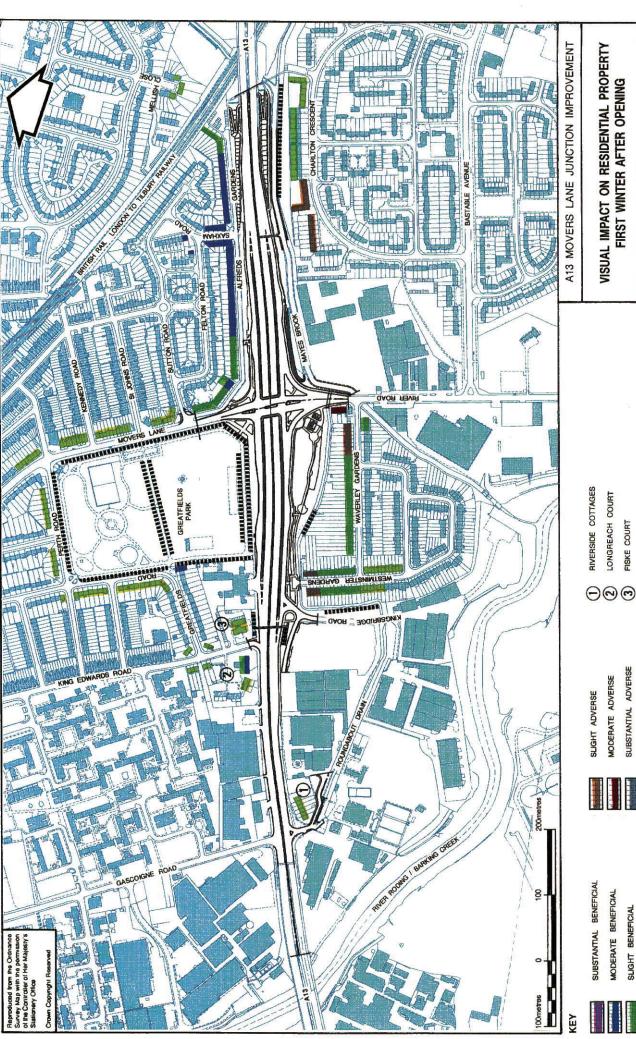
VISUAL ENVELOPE MAP

Table 6.1: Summary of Visual Effects on Private Property

PRIVATE PROPERTY SUMMARY		NORTH OF THE	SOUTH OF THE	TOTAL
		A13	A13	
Substantial Beneficial Impact	Winter after opening	0	0	0
	Summer 15 years after opening	53	0	53
Moderate Beneficial Impact	Winter after opening	53	0	53
•	Summer 15 years after opening	36	54	90
Slight Beneficial Impact	Winter after opening	46	75	121
	Summer 15 years after opening	20	74	94
No Change	Winter after opening	119	42	161
	Summer 15 years after opening	109	31	140
Slight Adverse Impact	Winter after opening	0	42	42
	Summer 15 years after opening	0	0	0
Moderate Adverse Impact	Winter after opening	0	3	3
	Summer 15 years after opening	0	3	3
Substantial Adverse Impact	Winter after opening	0	0	0
	Summer 15 years after opening	0	0	0

Effects on Properties and Open Space

- The assessment of the visual effects of the Scheme on individual properties and areas of open space has been carried out in accordance with the DMRB methodology (Reference 3). This requires an assessment of effects for both a winter day in the opening year of the Scheme (2000) and a summer day in the Design Year, fifteen years later (2015). The opening year assessment is intended to provide a "worst-case" scenario, and the Design Year assessment is made for a time at which the landscape proposals should be approaching their full effectiveness. For each year, effects are categorised as either adverse or beneficial (or no change) and whether slight, moderate or substantial.
- 6.7.7 The first stage of the assessment is to establish the visual envelope (i.e. the extent of the area from which views of the Scheme or the existing junctiion would be possible) of the Scheme. This area is restricted by the screening effect of adjoining buildings, and is shown on Figure 6.3.
- 6.7.8 The results of the assessment are shown in Table 6.1. This shows that 380 properties were assessed for visual impact. Of these, 174 would experience an improvement, 161 no change, and 45 an adverse impact in the opening year of the Scheme. The properties with an adverse impact would be in Charlton Crescent, Westminster Gardens, River Road and Waverley Gardens.
- On a summer day fifteen years later, when the proposed planting would have a substantial effect, 237 properties are predicted to receive beneficial effects, with no change for 140 properties and adverse effects for only 3 in River Road. The properties affected for each year are shown on Figures 6.4 and 6.5.
- 6.7.10 The Scheme would also produce beneficial effects for users of Greatfields Park, although these effects would decline further away from the junction, where the existing effects are felt less strongly. The southern half of the park would receive a substantial benefit in the winter of the opening year of the Scheme, but only a slight benefit in the summer fifteen years later, due to the screening effects of the existing trees. The northern half of the park would receive a moderate benefit in the opening year, with no discernible change fifteen years later.
- 6.7.11 The night time visual impact of the Scheme would be reduced in comparison with the existing situation, as the lights of vehicles using the flyover would no longer be a problem, and the use of the latest lantern designs should ensure the minimum amount of the light spillage beyond the immediate areas of the road and footpaths.



VISUAL IMPACT ON RESIDENTIAL PROPERTY FIRST WINTER AFTER OPENING

Environmental Statement - Volume 1

6.4 FIGURE

RT - DTP 0610 - 047 - 03

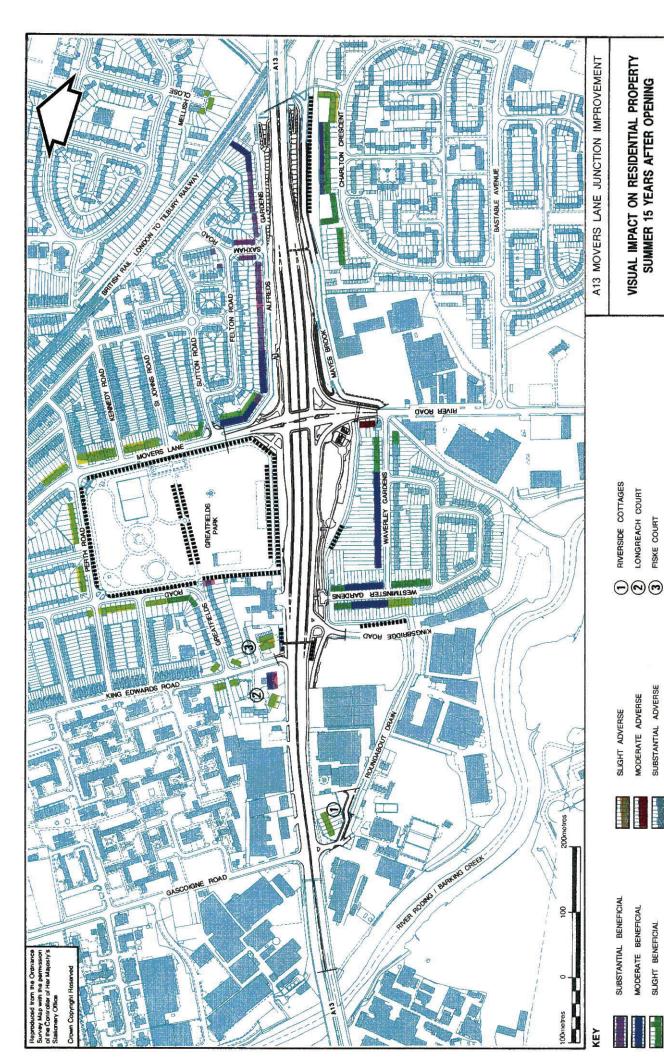
MODERATE BENEFICIAL SLIGHT BENEFICIAL NO CHANGE

MODERATE ADVERSE

LONGREACH COURT FISKE COURT

VISUAL BARRIER

SUBSTANTIAL ADVERSE



VISUAL IMPACT ON RESIDENTIAL PROPERTY SUMMER 15 YEARS AFTER OPENING

LONGREACH COURT

FISKE COURT

Environmental Statement - Volume

6.5

FIGURE

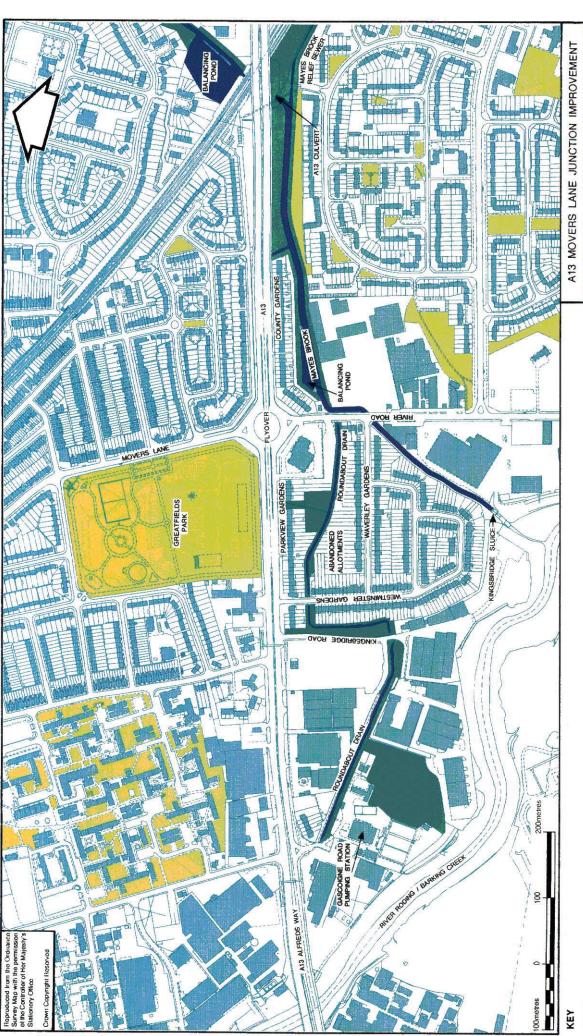
VISUAL BARRIER

SUBSTANTIAL ADVERSE MODERATE ADVERSE

NO CHANGE

MODERATE BENEFICIAL SLIGHT BENEFICIAL

RT - DTP 0610 - 047 - 03



ECOLOGY - HABITAT TYPES

Environmental Statement - Volume

9.9 FIGURE

RT - DTP 0610 - 047 - 03

WETLAND

ROUGH GRASSLAND / WASTELAND

THE BUILT ENVIRONMENT

AMENITY PARKLAND

6.10.4 Traffic flows at the junction for the year 2015 with and without (i.e. Do-Minimum) the Scheme are shown on Figures 6.7 and 6.8.

Accidents and Safety

- 6.10.5 Existing accident levels at the junction are set out in section 2.5.3 and shown on Figure 2.3. The Scheme would lead to significant reductions in these levels due to the following:
 - O improved highway layout and standards;
 - separation of through and turning traffic;
 - better facilities for pedestrians and cyclists, with separation from A13 through traffic; and
 - O reduced frontage access onto the A13.
- 6.10.6. The predicted changes in personal injury accident levels for the proposed Scheme are shown in Table 6.3.

Table 6.3 Predicted Accident Reductions due to Scheme Implementation over 30 Years.

	TOTAL NUMBER OF ACCIDENTS	CASUALTIES			TOTAL
		Fatal	Serious	Slight	
Do-Something Minus Do-Minimum	-708	-1	-104	-656	-761

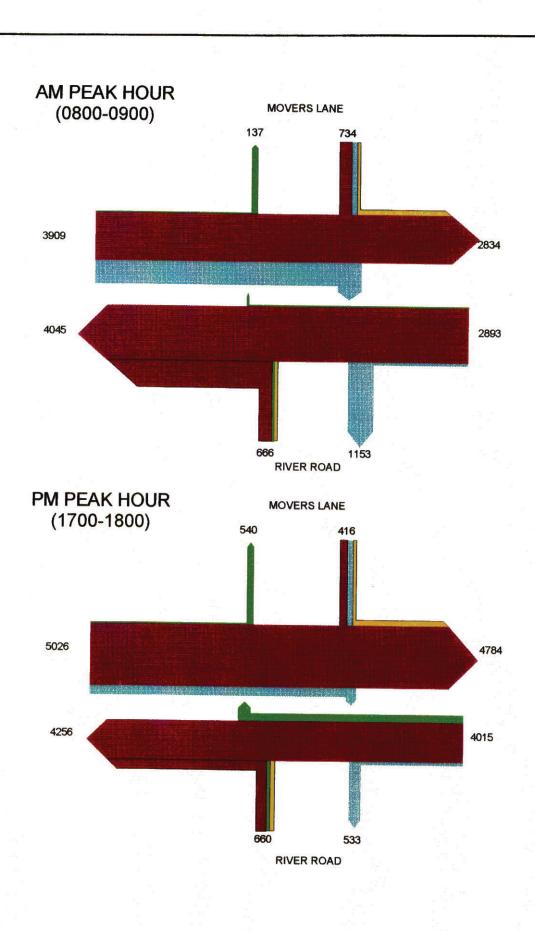
Note:

Figures are totals for 30 years after scheme opening and for links and junction combined.

6.10.7 In addition to the reduction in accidents resulting in injuries it is estimated that there will also be a reduction of 4,500 damage only accidents.

6.11 Air Quality

6.11.1 The anticipated effects of the Scheme on the air quality of the surrounding area have been assessed and the results are set out in the Environmental Statement Volume 2.3 - Air Quality and are summarised below.



NOTES:

The width of each line is proportional to the volume of traffic

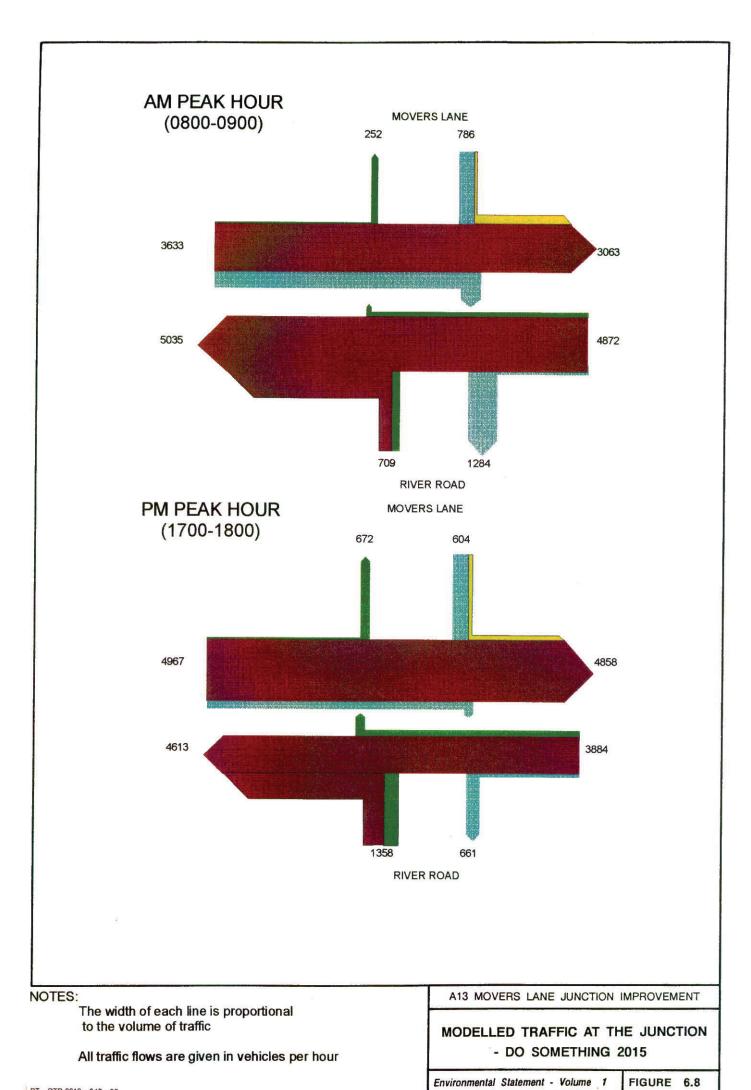
All traffic flows are given in vehicles per hour

A13 MOVERS LANE JUNCTION IMPROVEMENT

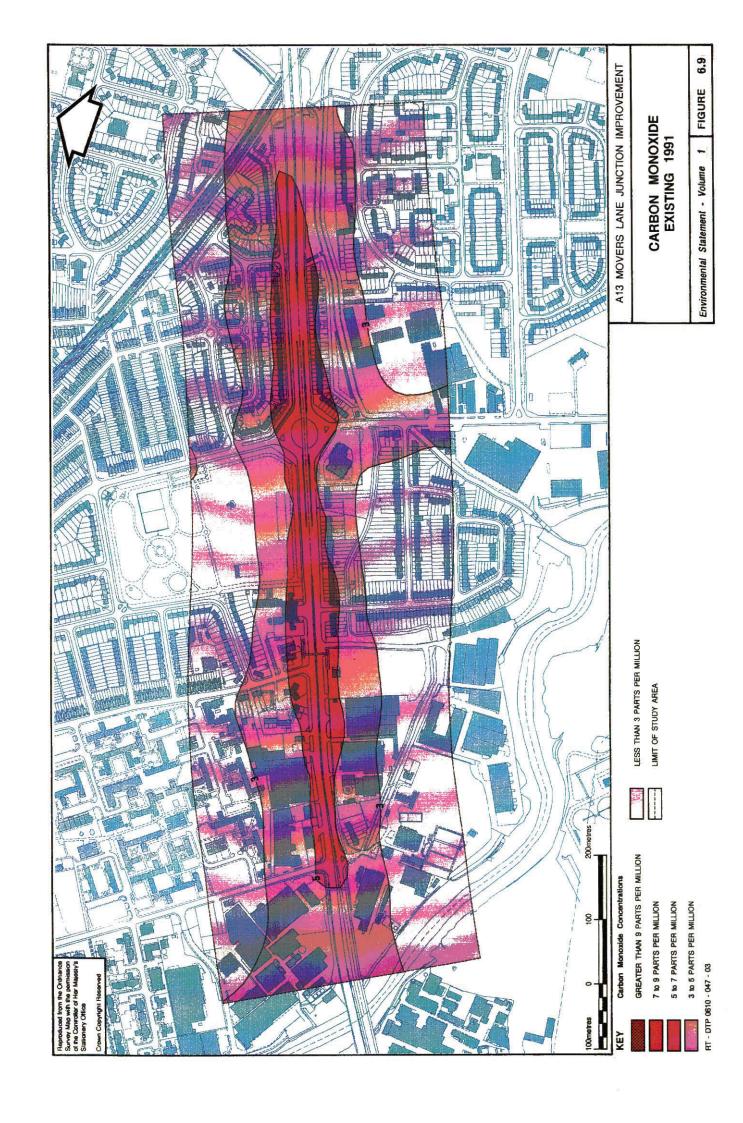
MODELLED TRAFFIC AT THE JUNCTION
- DO MINIMUM 2015

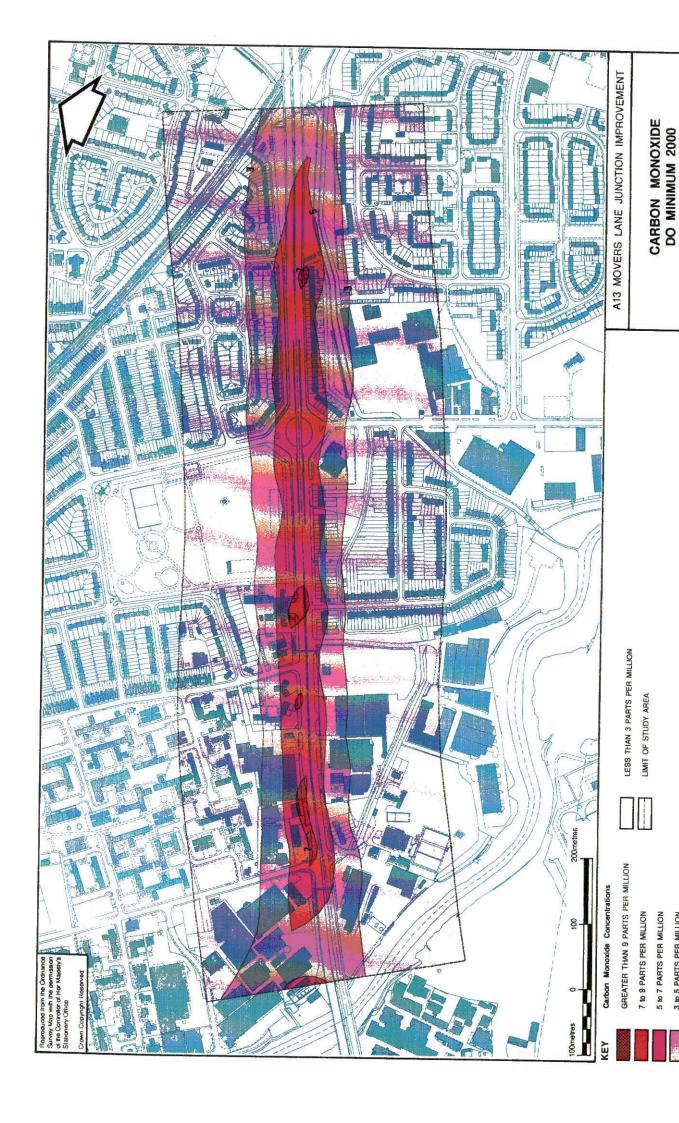
Environmental Statement - Volume 1

FIGURE 6.7



RT - DTP 0610 - 047 - 03





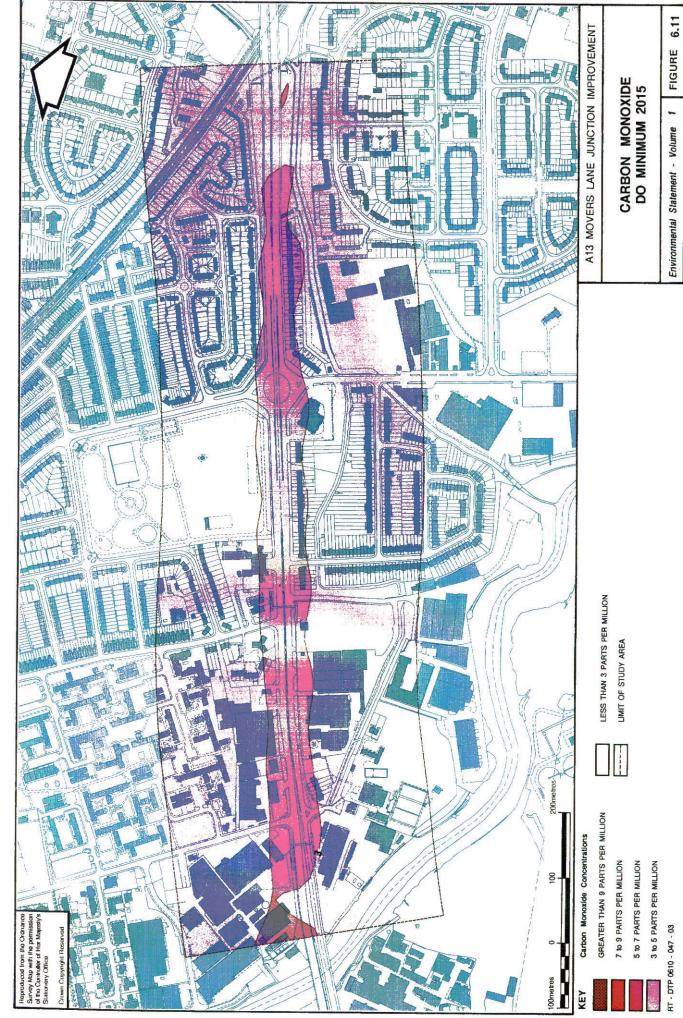
Environmental Statement - Volume 1

6.10

FIGURE

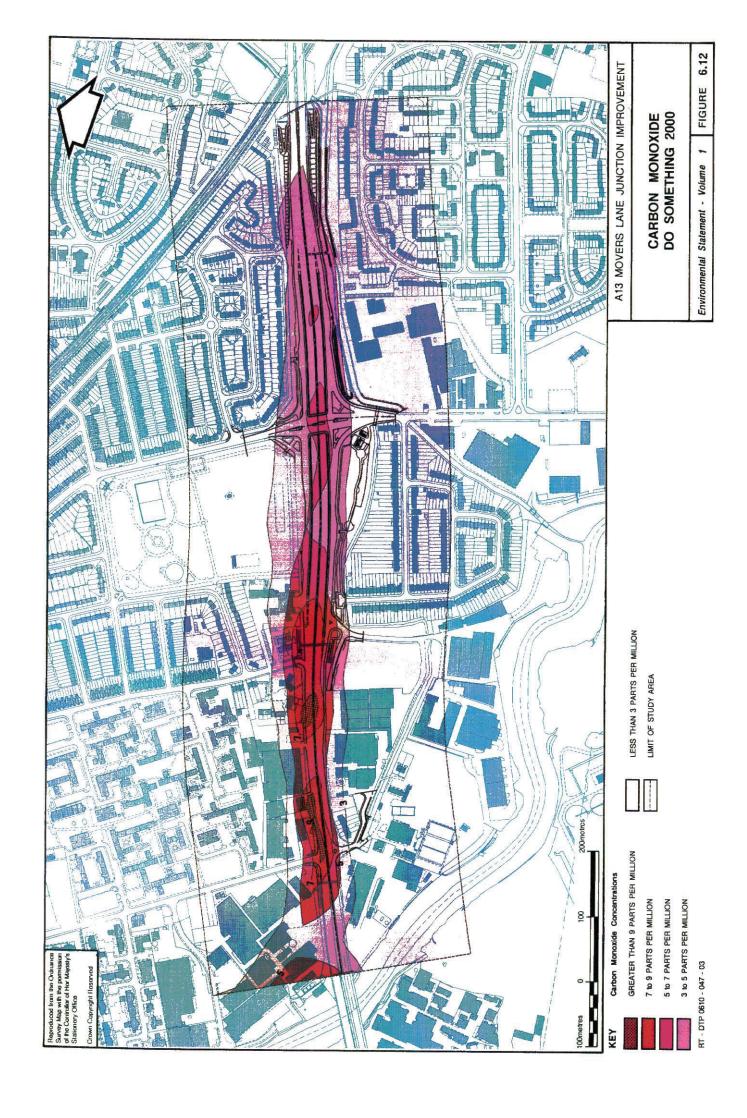
RT - DTP 0610 - 047 - 03

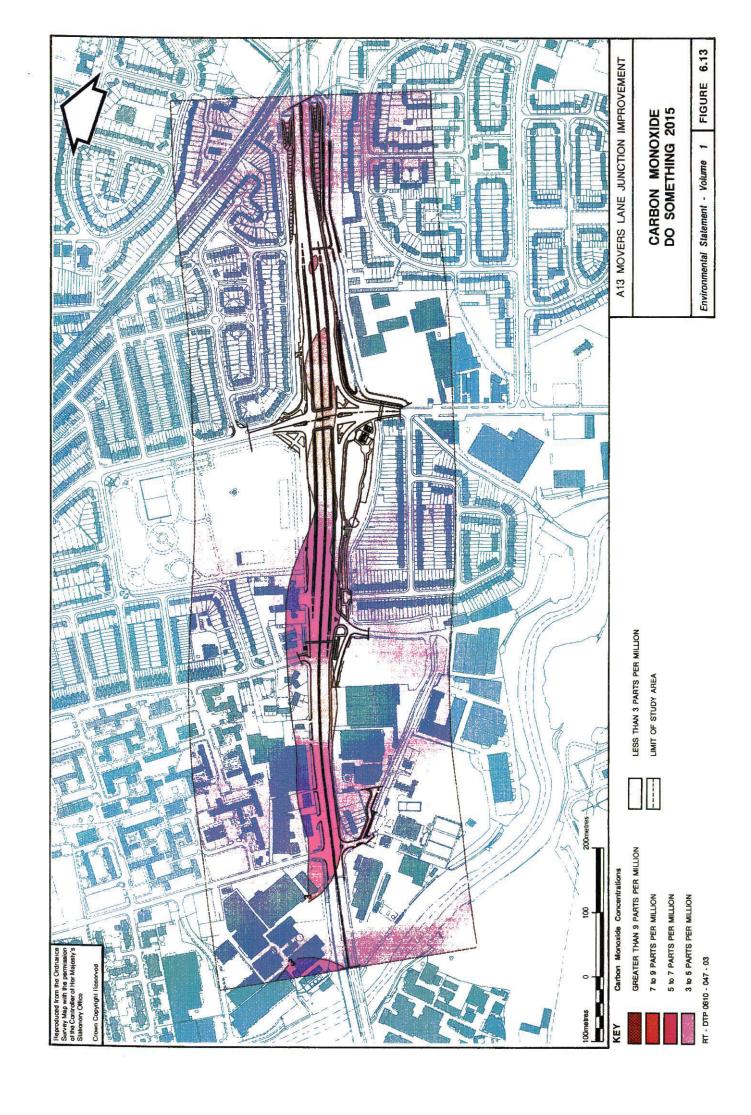
5 to 7 PARTS PER MILLION 3 to 5 PARTS PER MILLION

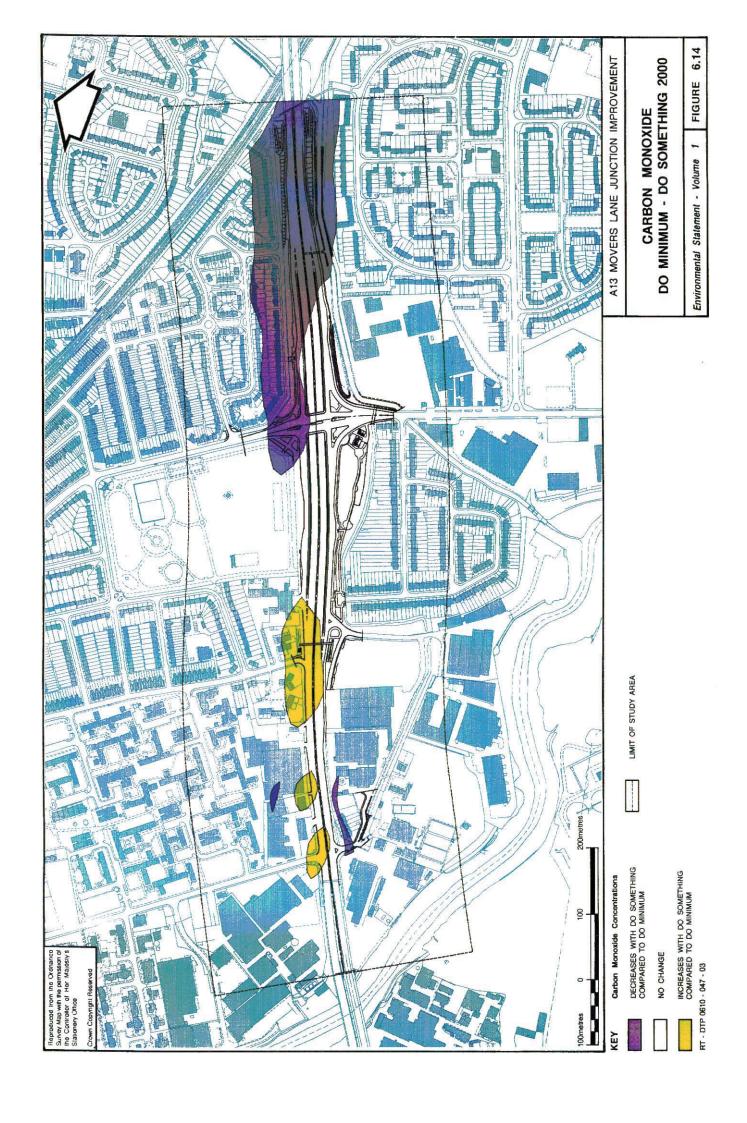


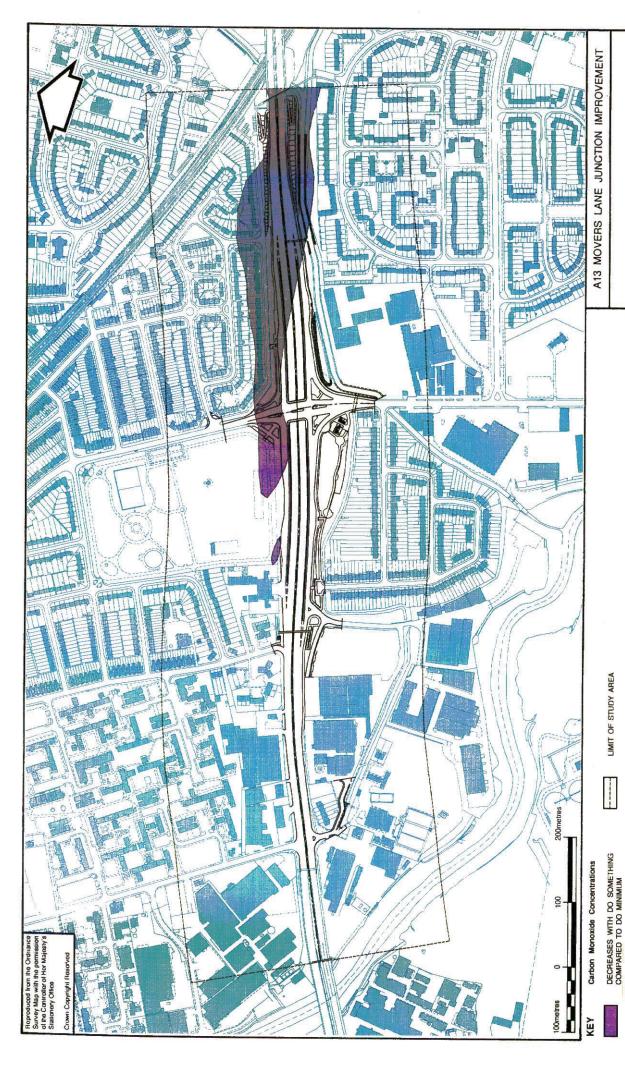
· ·

)









CARBON MONOXIDE DO MINIMUM - DO SOMETHING 2015

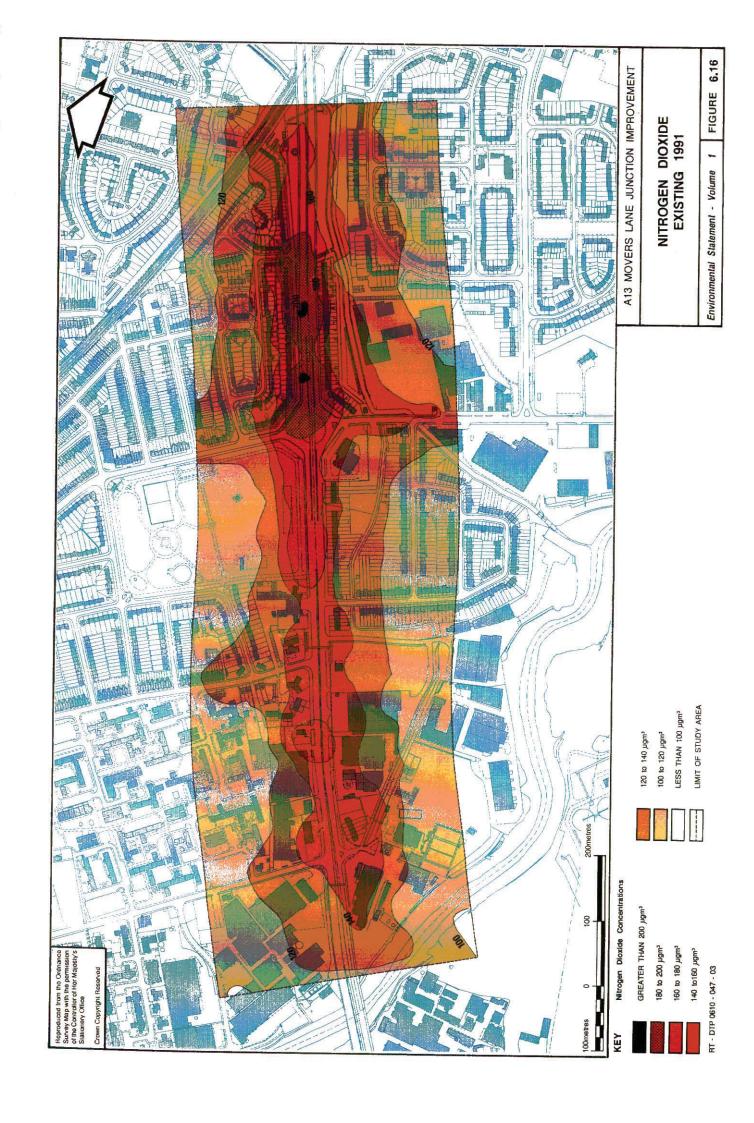
Environmental Statement - Volume 1

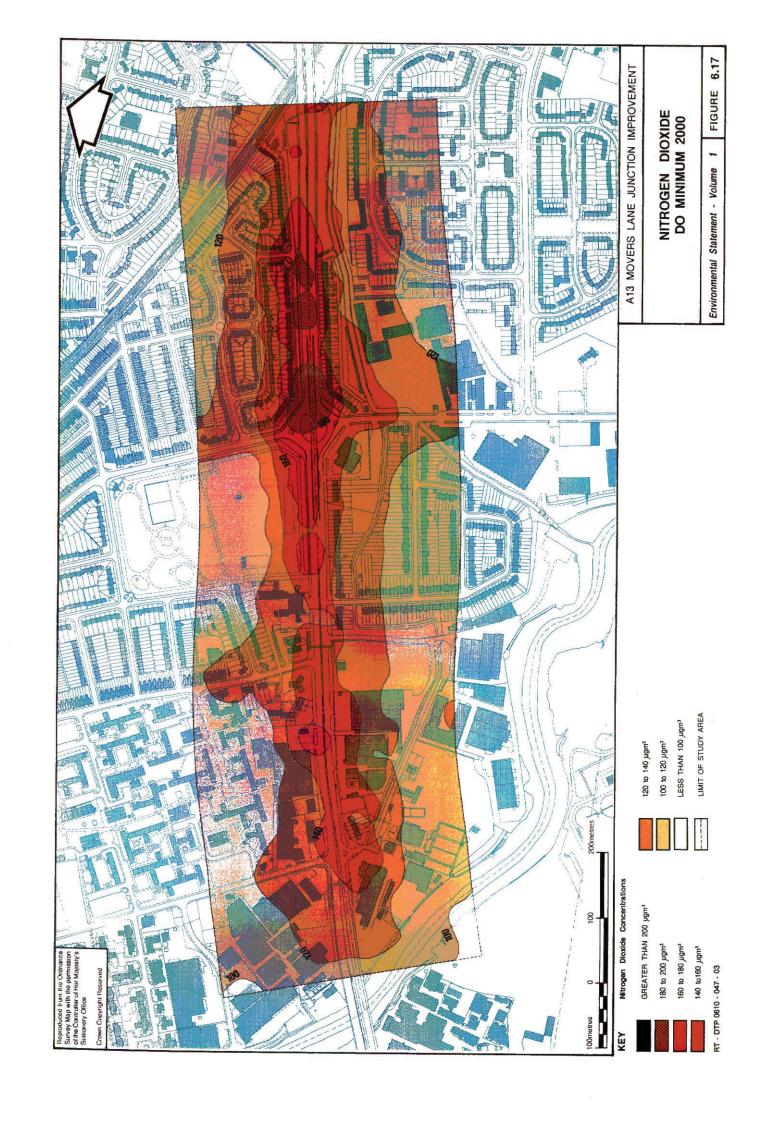
FIGURE 6.15

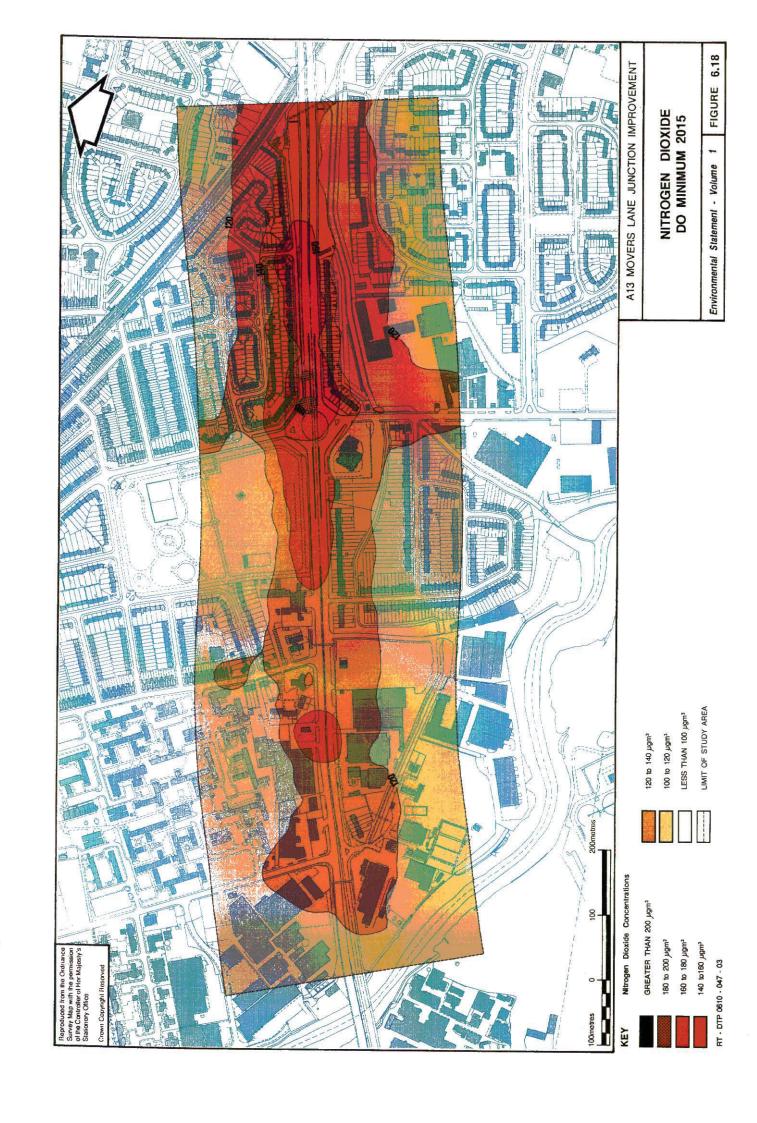
HT - DTP 0610 - 047 - 03

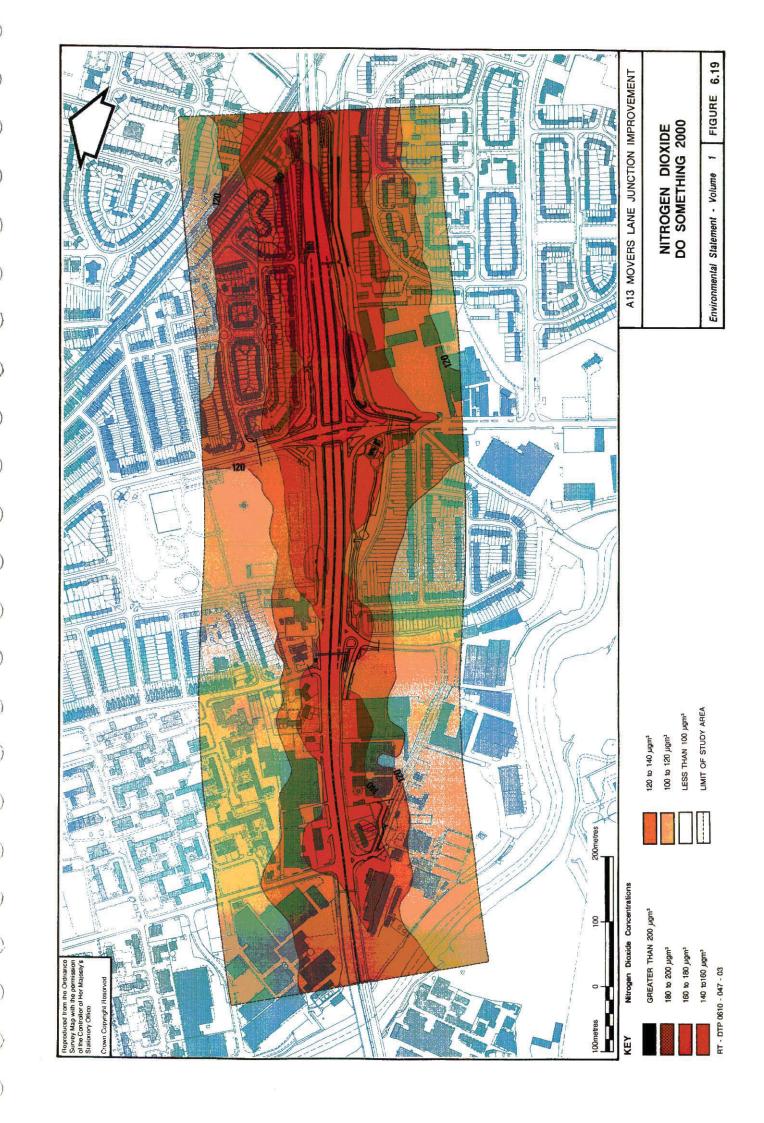
INCREASES WITH DO SOMETHING COMPARED TO DO MINIMUM

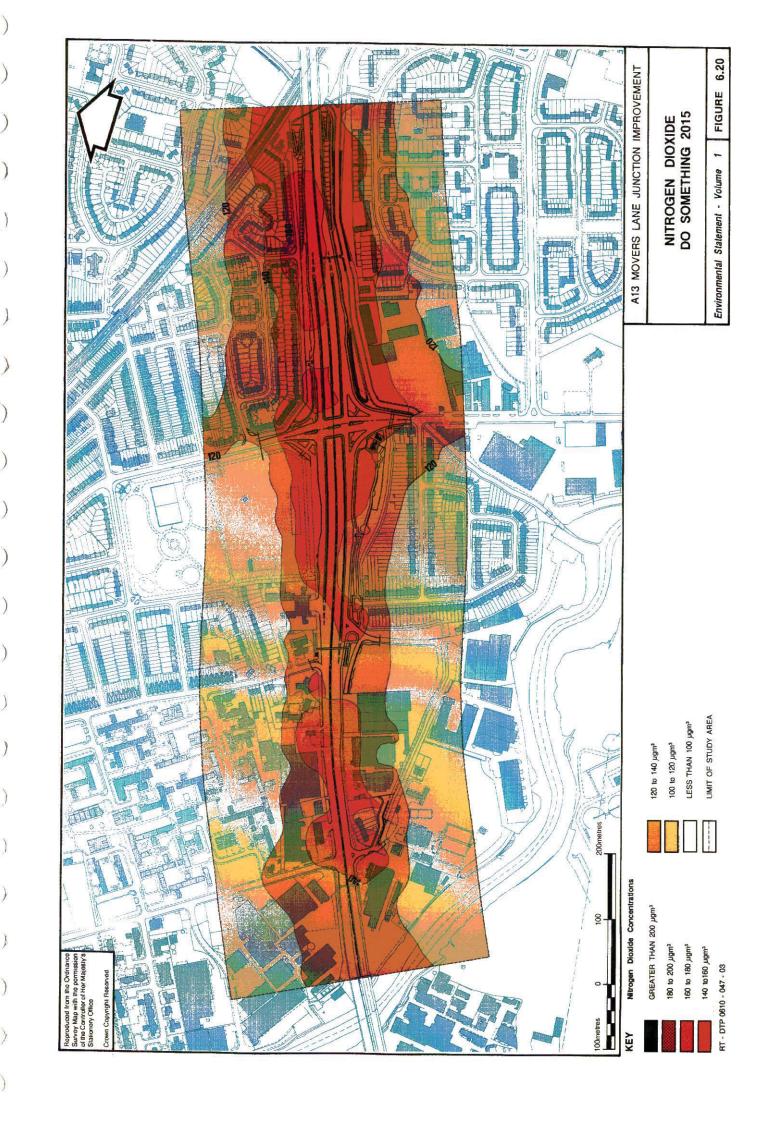
NO CHANGE

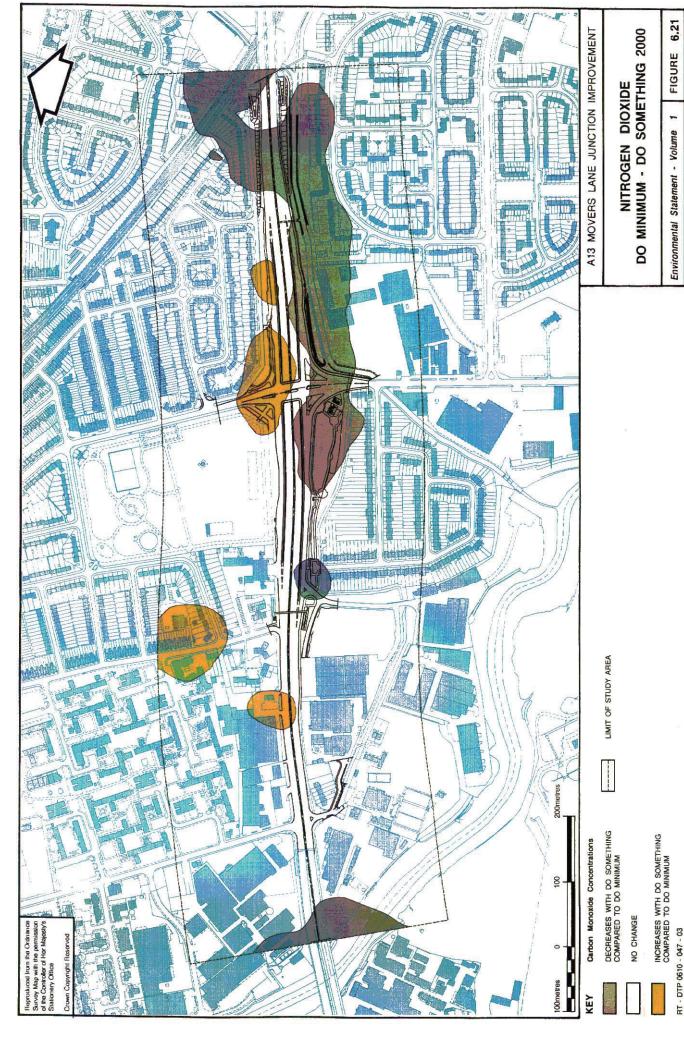


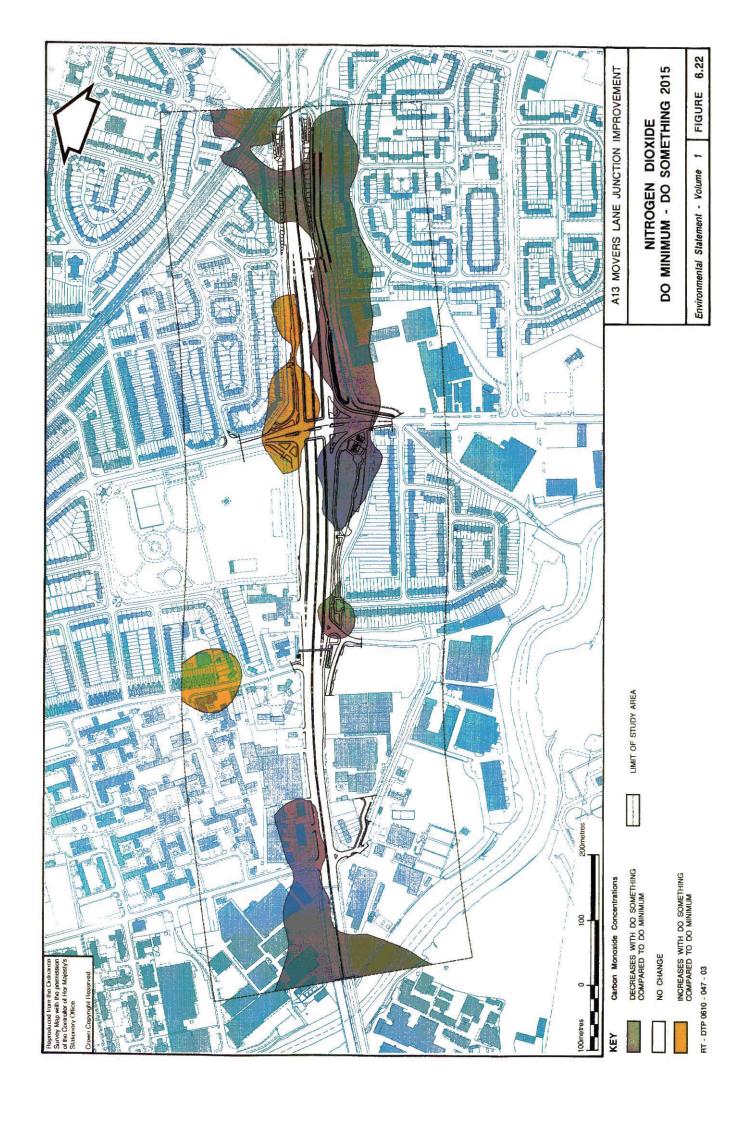












2015 are anticipated and no properties will exceed the Air Quality Standard. The comparison of Do-Something and Do-Minimum is shown on Figures 6.21 and 6.22. In 2015, 88 properties will have an improvement in NO₂ concentrations and 42 will have a deterioration.

Predicted Total Emissions

6.11.9 The results for the modelling of total emissions are shown in Table 6.4. This table shows that the amount of carbon monoxide and hydrocarbons would be significantly reduced as a result of the Scheme, whilst carbon dioxide and nitrogen oxides (NO_x) would increase slightly. These figures allow for the anticipated effects of emission controls.

Table 6.4 Percentage Change in Total Emissions Following Construction of the Scheme.

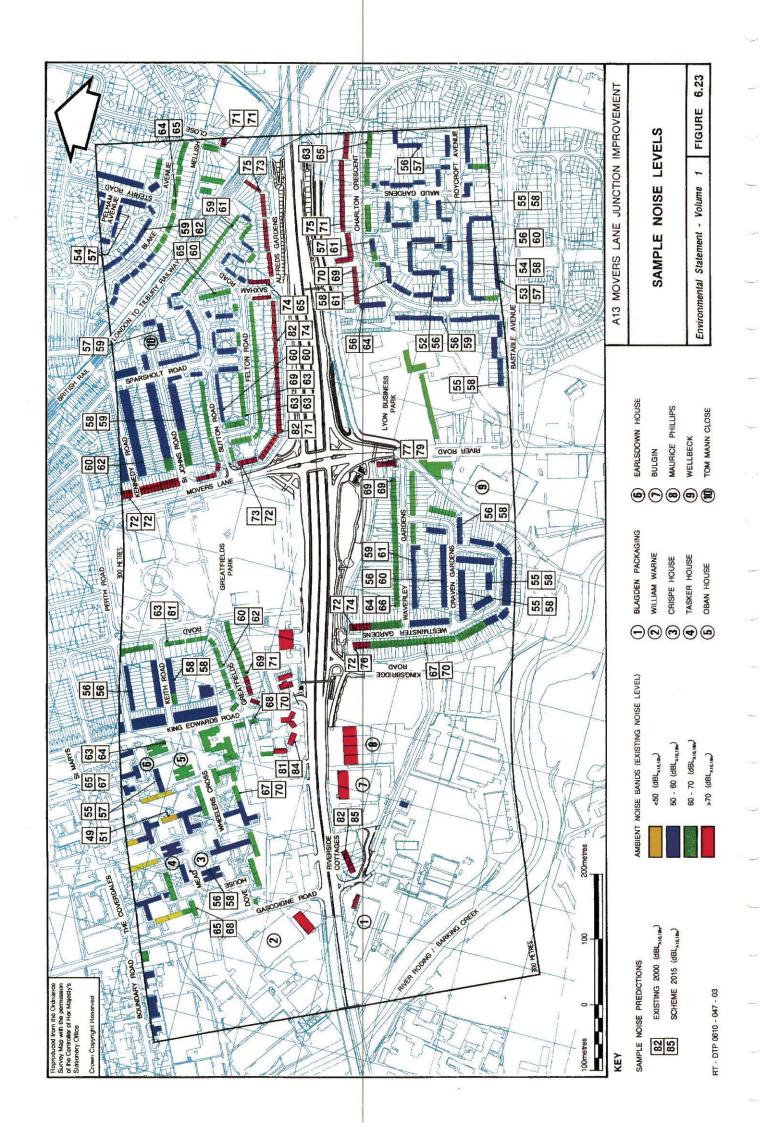
Year	Percentage Decrease (Do Something/Do Minimum)					
	Carbon Dioxide	Carbon Monoxide	Nitrogen Oxides	Hydrocarbons		
2000	+6%	-37%	+5%	-15%		
2015	+6%	-37%	+3%	-12%		

6.11.10 Summary

Although it is not yet clear at what rate levels of pollutant emission from vehicles will decline as a result of emission control legislation, it is likely that the major effects on air quality in the Scheme area by 2015 would arise as a result of such legislation, rather than as a result of the Scheme. However, whatever absolute levels result from the progressive effects of emission controls, the relative effects of the Scheme, both around the junction and in terms of total emissions, are predicted to be beneficial for all pollutants except NO2, which would only diminish marginally.

6.12 Noise

- 6.12.1 The anticipated effects of the traffic noise and vibration from the Scheme on the local area are considered in the Environmental Statement Volume 2.2 Noise. These effects are summarised below.
- 6.12.2 Existing noise levels are described in section 3.11, together with a general description of the characteristics and measurement of noise from road traffic.
- 6.12.3 The assessment of predicted noise levels has been carried out in accordance with the DMRB methodology (Reference 3). This involves classification of properties and other locations into four ambient noise level bands. For each

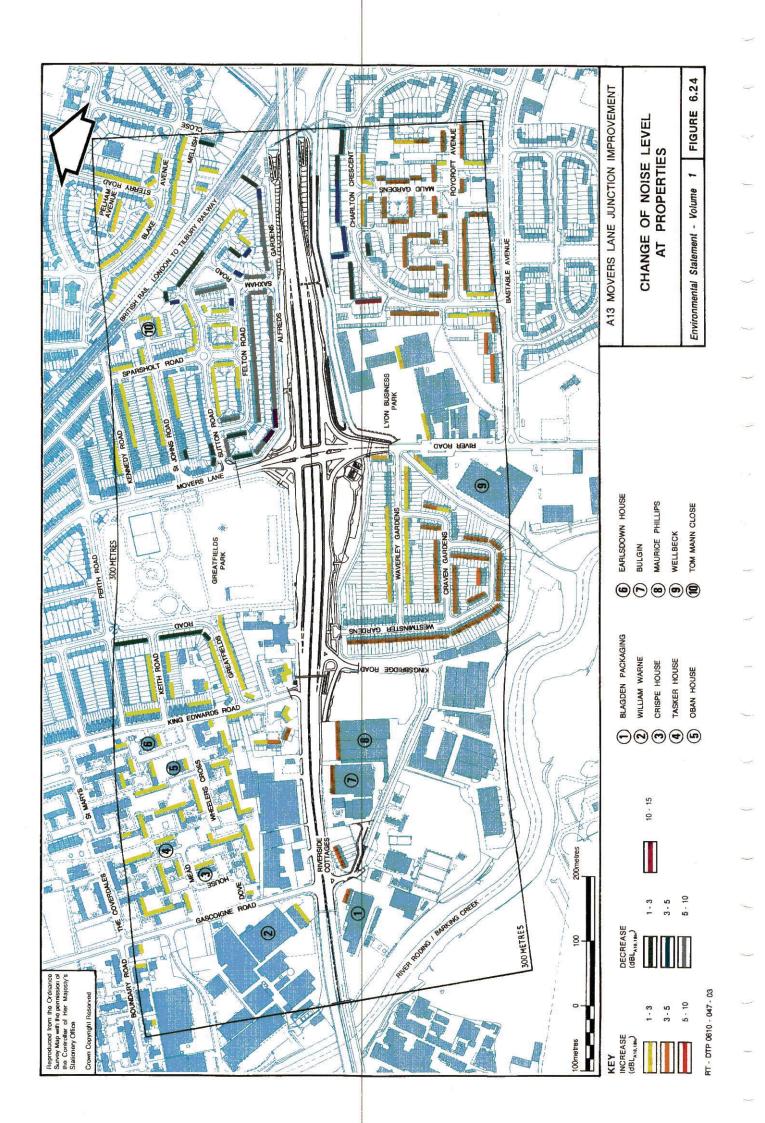


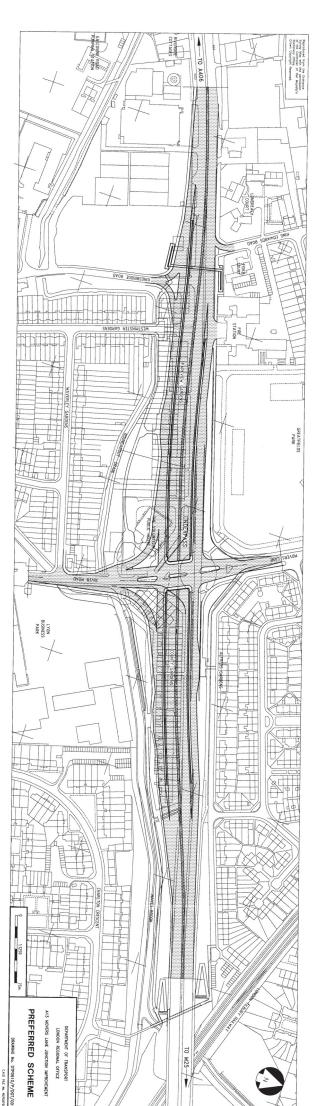
band, properties and other locations are grouped according to several categories of noise level increase or decrease, and also different categories of noise nuisance increase or decrease. This assessment is made for the existing road layout in the opening year of the Scheme (2000) and for the Do-Minimum and with-Scheme situation in the Design Year, 2015. The study area is shown on Figure 6.23 and extends for 300 metres either side of the A13. Properties to the north east of the London Tilbury Railway line have been included in the study but the effect of railway noise will change the response to traffic noise making these properties different to the rest of the study area.

6.12.4 The noise predictions were made using the methodology described in the Calculation of Road Traffic Noise (Reference 18), with the calculations being carried out using the ROADNOISE computer programme. This method predicts the noise at a specific location by firstly calculating the noise produced by the road traffic at a reference point 10 metres from the edge of the carriageway. This level is then adjusted to take into account such factors such as the distance from the road, the nature of the intervening ground, the presence of any barriers and reflections. The contribution of noise from all roads used by more than 1000 vehicles per day is summed to obtain the overall noise at a property. Small changes in traffic flows do not significantly affect noise levels. It takes a doubling of traffic, travelling at the same speed, to produce a 3 dB(A) increase in noise levels.

Predicted Noise Levels

- Noise levels predicted for the year 2000 without the Scheme, and 2015 with the Scheme are shown on Figures 6.23 and 6.24. Figure 6.23 shows sample noise levels and also the ambient noise band for each property. Figure 6.24 shows the predicted noise changes for all properties affected by the Scheme. A summary of the noise changes predicted for the Scheme and the Do-Minimum situation in 2015 is set out in Table 6.5.
- The effect of the Scheme would be to increase overall noise levels from the A13 by roughly 2.5 dB(A), due to the increase in traffic flows and speed anticipated by 2015 compared to the Do-Minimum scenario. Properties close to the line of the road which would be newly screened by environmental barriers would receive substantial decreases in noise levels. This is shown by most of the decreases being in the highest ambient noise band. These decreases would be felt immediately the Scheme opened. For properties further back from the Scheme, which are already well screened and in lower ambient noise bands, the new barriers bring little benefit, and such properties are expected to experience noise increases though their absolute noise levels would still be quite low. These effects are felt more strongly on the south side of the A13, as the alignment of the Scheme is further south than the existing A13, and as intervening properties would be demolished.





.