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**PARKMAN CONSULTING ENGINEERS LTD**

**M62 IMPROVEMENTS (JUNCTION 6/7)**

**ECOLOGICAL AND ARCHAEOLOGICAL  
COMPARATIVE IMPACTS STUDY**

**FINAL REPORT**

**DECEMBER 1991**

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## 1. INTRODUCTION

In September 1990 the Environmental Advisory Unit of Liverpool University Ltd was commissioned by Parkman Consulting Engineers Ltd to undertake an ecological and environmental description and assessment of the land within the study corridor identified for the the proposed improvements to the M62 motorway between junctions 6 and 7. The results of the study including ecology, agriculture and archaeology are present in the report "M62 Improvements (Junctions 6/7), Ecological and Environmental Survey (EAU, December 1991)".

The brief also required a comparative assessment of the impact of five alternative schemes for the enhancement of junction 6. This second report considers the ecological and archaeological impact of the five alternatives.



## 2. ECOLOGICAL AND ARCHAEOLOGICAL IMPACTS

### 2.1 Introduction

Areas of ecological significance within the route improvement corridor were termed constraint sites and have been discussed in the first report. Nineteen constraint sites were identified and numbers 4, 10, 9, 6 and 7 (in that order) were considered to be the most important in ecological terms. Land lying outside of the constraint sites is generally of little ecological value. Specific comments on the ecological impacts of the five alternative junction 6 improvement proposals will therefore be restricted to their effect on constraint sites as it is assumed that land take outside of these sites will have a negligible ecological impact.

*Delete*  
A report describing archaeological features within and adjacent to the survey corridor is appended in the first report (and includes recommendations for further investigation in the event of impact.) Thirty eight of these sites lie within the survey corridor. Since absolute locations for archaeological sites and definite dimensions for the proposed road schemes are not known, potential impact has been assumed if the sites appeared to be in the vicinity of the routes. The features potentially impacted by each alternative are listed in Table 1. *AV 2.1*

It must be emphasized that a full assessment of archaeological sites has not been undertaken. No field work has been carried out and the assessment of potential impact is based solely on the information provided in the appendix of the first report. *AV 2.1*



**TABLE 1: Sites of potential archaeological importance which may be affected by each alternative of the proposed improvement of Junction 6, M62.**

<b>Alternative</b>	<b>Sites Affected</b>
1	12, 13, 14, 15, 16, 17, 18, 19, 21, 22, 23, 24, 26
2	3, 4, 5, 6, 12, 13, 14, 15, 16, 17
3	3, 4, 5, 6, 12, 13, 14, 15, 16, 17
4	12, 13, 14, 15, 16, 17, 20, 27, 28, 29, 30, 31
5	12, 13, 14, 15, 16, 17

*New*

## 2.2 Alternative 1 - S.I.S Scheme

A simplified diagram of this scheme is illustrated in Fig 1 (Appended). For a more detailed illustration refer to Parkman Consulting Engineers drawing no. 4629/0.A20/01.

The M62 eastbound link with the M57 northbound mainly crosses industrial land or commercial premises which were considered to be of little ecological value. However, the southern section of Roscoes Wood (constraint site 1) will be lost. This woodland is not considered to be one of the most important constraint sites and was not identified as a site of ecological importance during consultations (see first report). No fragmentation of the retained habitat will occur.

*New*  
The site of a C19th hamlet is crossed by this link but as most of the buildings (21,22,24) may have already been destroyed and would be low in archaeological importance if intact, very little impact will result. Near to the junction with the M62 the link passes close to C19th industrial workings which may hold potential importance and require further study.

The M62 westbound link with the M57 northbound passes through the middle of two areas of ecological significance namely Strettles Bog (constraint site 9) and Old Wood South (constraint site 10). Both are considered to be relatively important constraint sites and the proposed alignment of the link road will result in a significant loss of habitat and fragmentation at both sites. There may also be further pollution of the Chapel Brook which runs through constraint site 9.

*New*  
This link crosses the approximate location of a medieval chapel (18) mentioned in documents from that period. However, its precise location is very uncertain and could be within a radius of hundreds of metres of the position given. Therefore the

location and current state of the structure would have to be determined before the impact of the scheme can be assessed fully. The other two sites affected by this link (19,23) are of little importance and require no further action if this alternative went ahead.

The M57 southbound link with the M62 eastbound carriageway would pass through the middle of Windy Arbor Wood (constraint site 6), which is also considered to be one of the most important constraint sites, and will result in further habitat loss and fragmentation here. There would also be a small loss of habitat from the southern end of the disused mineral railway (constraint site 8), although such a loss would have a limited impact on the site as a whole.

Small amounts of arable land will be lost south-east and north-west of the existing junction with further losses of semi-improved grassland as a result of the construction of the M57 southbound link with the M62 eastbound.

This link potentially affects what is probably the most important archaeological area in the western end of the corridor. It is the site of a hamlet of the township of Whiston as mentioned in medieval documents even though the existing buildings (12,13,14,16,17) are post medieval. The majority of the buildings are occupied and would appear to be avoided by the carriageway. However, the site of C17th farm (14) would require evaluating if threatened. The link appears to pass to the south of the hamlet through areas which may contain evidence of previous settlement, particularly the area between sites 15 and 17 and possibly the sloping arable fields to the south-east of site 12 which are potentially attractive for prehistoric settlement. This area will need further investigation if this option is adopted.

### 2.3 Alternative 2 - Railway Route

A simplified diagram of this scheme is illustrated in Fig. 2 (Appended). For a more detailed illustration refer to Parkman Consulting Engineers drawing no. 4629/0.A20/02.

This alternative makes use of the alignment of a disused mineral railway. Part of the mineral railway was considered to be of some ecological importance (constraint site 8) and this will be lost if this alternative were to proceed. Furthermore the lake at Tushingham's Quarry (constraint site 4), considered to be the most important area within the survey corridor, will be crossed and thus completely altered. Old Wood South (constraint site 10), also considered to be one of the best sites encountered, will be bisected resulting in habitat loss and fragmentation of the remaining woodland. Areas of Old Wood North (constraint site 12) will also be lost with resultant fragmentation of remaining habitat.

This alternative will also result in the loss of a small amount of arable land to the south of the M62. Improved grassland will also be lost north of the M62, with a small triangle becoming isolated from adjacent land.

*Hand*  
The road linking the M57 southbound with the M62 eastbound passes to the north of the medieval hamlet site described above. It fringes the area but may affect fields containing evidence of previous settlement to the south-east of site 12. The link from the M62 westbound to the M57 northbound additionally crosses four sites (3,4,5,6) which are associated with C19th mining developments. These are of low archaeological value but will require a watching brief if developed.

## 2.4 Alternative 3 - Part Railway Route

A simplified diagram of this scheme is illustrated in Fig . 3 (Appended). For a more detailed illustration refer to Parkman Consulting Engineers drawing no. 4629/0.A20/03.

This alternative proposes to use the alignment of the disused mineral railway for a M62 westbound link with the M57 northbound and a similar link for the M57 southbound to M62 eastbound to that proposed in alternative 1. Consequently there will be damage and fragmentation to Windy Arbor Wood (constraint site 6) and Old Wood South (constraint site 10), both of which were considered to be important constraint sites, and the loss of the southern section of the mineral railway constraint site (constraint site 8). However, there should be no disturbance of the small lake at Tushingam's Quarry (constraint site 4) although the proposed alignment of the link passes very close to this site.

Small amounts of arable and semi-improved grassland will be lost during the construction works although this alternative appears to result in the loss of less agricultural land than the other possible junction improvement schemes.

*New*  
Both the M62 westbound to M57 northbound and M57 southbound to M62 eastbound links skirt the north and south of the site of the medieval hamlet respectively (sites 12-17), with both bisecting areas of potential importance. Further investigations would be required if this option was adopted.

*New*  
The M62 westbound to M57 northbound link also crosses sites 3,4,5 and 6. these are considered to be of low archaeological importance.

## 2.5 Alternative 4 - Loop Alternative

A simplified diagram of this scheme is illustrated in Fig. 4 (Appended). For a more detailed illustration refer to Parkman Consulting Engineers drawing no. 4629/O.A20/04.

Only one constraint site, Windy Arbor Wood (constraint site 6), would be effected by the proposed route alignments for alternative 4. This site would be bisected by the M57 southbound

~~X~~ link with the M62 eastbound resulting in habitat loss and the fragmentation of the remaining woodland.

*New* This link also crosses the southern part of the medieval hamlet (sites 12-17). Further archaeological studies would also be required.

The loop link between the M62 westbound and M57 northbound ~~carriageways crosses land of little ecological value.~~ There will however be a greater loss of agricultural land with this alternative although this may be minimised if the land inside the proposed loop is returned to agriculture following construction works. A small amount of semi-improved grassland will also be lost during the construction of the M57 southbound link with the M62 eastbound.

*New* Several archaeological sites are crossed or skirted by the proposed loop link. Most of these are of low priority (20, 27, 29, 30). However, the earthwork (28) marking the boundary of Halsnead Park may require further investigation to determine its date. Site 31 is a possible pottery/clay pipe dump, a watching brief is therefore recommended.

*(Is this not  
affected and  
by Knowsley  
Link.*

## 2.6 Alternative 5 - Conventional Links At Grade Connection Through Roundabout

A simplified diagram of this scheme is illustrated in Fig. 5 (Appended). For a more detailed illustration refer to Parkman Consulting Engineers drawing no. 4629/0.A20/05.

This alternative will result in the loss of woodland habitat from three constraint sites namely Windy Arbor Wood (constraint sites 6), Strettles Bog (constraint site 9) and Old Wood South (constraint site 10). Remaining woodland blocks will be much reduced in size and fragmented.

Areas of arable land to the south of the M62 will be lost during the construction of the M62 westbound link with the M57 northbound. A small amount of semi-improved grassland will again be lost during construction of the M57 southbound link with the M62 eastbound.

Potential archaeological impact of this alternative occurs where the M57 southbound to M62 eastbound link crosses the southern part of the site of the medieval hamlet (sites 12-17).

### 3. COMPARATIVE ASSESSMENT OF ECOLOGICAL IMPACTS

*All New?*

The proposed alternatives for the junction improvements can be ordered in terms of preference. Alternative 4, the loop alternative, appears to be the least damaging in ecological terms and this is the preferred option. Only one constraint site would be effected, although this was considered to be one of the areas of greatest ecological significance and its archaeological value has yet to be commented upon.

Alternatives 1, 3 and 5 are less desirable options. Each will result in a level of habitat loss at three or more constraint sites, including sites considered to be amongst the best within the survey corridor in terms of their ecology.

Alternative 2 is thought to be the least desirable option in ecological terms as it will result in the loss or severe alteration of the two most important sites within the survey corridor.

Four of the alternative junction improvements involve the construction of a slip road from the M57 southbound to the M62 eastbound in a 6m deep cutting, passing through Windy Arbor Wood (constraint site 6) and the southern end of the disused mineral railway (constraint site 8). If the link were placed on a 10m embankment the impact in ecological terms would be similar with fragmentation of the Windy Arbor Wood and the loss of a small length of the disused mineral railway, although the habitat loss due to a larger easement would be slightly greater. An embankment would also have a greater visual and noise impact than a cutting which would hide the road and traffic and also absorb much of the vehicle noise. A cutting is therefore preferable in environmental terms to an embankment.

All of the junction improvement alternatives will result in the loss of some agricultural land. In the context of the predominantly agricultural landscape between junction 6 and 7 of the M62 this loss will be negligible. Alternative 3 appears to result in the least agricultural land take while alternative 4 is at the other extreme although the difference between the two schemes is very small.



#### 4. COMPARATIVE ASSESSMENT OF ARCHAEOLOGICAL IMPACTS

All alternatives potentially affect the site of the medieval hamlet. Since this is likely to be the most important archaeological feature which may be affected alternatives crossing this area pose the greatest potential archaeological impact.

*W*  
*New*

The alternatives would appear to avoid existing buildings, although direct impact of site 14 would require further investigations. However, fields to the south-east of site 12 and an area between sites 15 and 17 have been identified as holding potential interest and would require further study if affected.

*not affected*

*Should be considered for*

Since all alternatives may affect the hamlet area but the extent of impact is not yet known a precise comparative assessment cannot be made. However, since alternative 3 passes to the north and south of the hamlet this probably involves the greatest potential impact.

Alternatives 1, 2, 4 and 5 pass on just one side of the hamlet, these are difficult to separate without further studies being undertaken. Alternative 1 may additionally affect site 18 which is a thought to be the site of a medieval chapel. Alternative 2 has two carriageways which may affect the fields to the south-east of site 12 thus increasing the potential for impact. Alternative 4 may additionally affects the earthwork 28 and site 31, a possible clay pipe dump. Further investigations are recommended if sites 28 and/or 31 are affected. Alternative 5 may result in less impact than 1, 2 or 4 since it would appear not to affect additional sites of importance. However, the extent of the impact on the hamlet is unclear.

## 5. MITIGATION PROPOSALS

All of the proposed options result in some loss and fragmentation of woodland habitat. The woodland blocks recorded within the survey corridor were all very small in size, generally disturbed and not prime examples of woodland habitat although some may be relicts of larger wooded areas. An additional reduction in the size of many would further limit their value to wildlife. To provide some compensation for habitat loss, initial land take should be kept to a minimum and the new road embankments could be planted with appropriate native tree and shrub species. /

*Area*

The lake at Tushingam's Quarry (constraint site 4) is not a prime aquatic habitat and has probably been established relatively recently. However, it was considered to be one of the most valuable sites in ecological terms within the survey corridor. Its loss would be significant both in terms of its ecology and its value as an environmental education resource. If affected, ~~mitigation measures to compensate for the loss of this habitat~~ <sup>should</sup> involve the construction of a replacement lake. *Revised*

New water bodies can often become vegetated relatively quickly provided there are suitable sources of seed, although they often go through a period when species of algae become dominant and suppress other aquatic vegetation. It will be some years before a new pond becomes suitable for the range of invertebrates, amphibians and bird species associated with older established areas of water. /

All of the schemes will involve the loss of lengths of existing motorway embankment which generally supports rank grassland and/or planted trees and shrubs. New embankments will have to be constructed and these may provide the opportunity for the establishment of habitats of equal or greater value to those lost. /

*Name Given*

?

For archaeological mitigation recommendations refer to the appendix of the first report.

*Delete.*



## 6. SUMMARY

1. The general ecological value of the land crossed by the five alternative junction improvement schemes is low although several sites of greater value, termed constraint sites, will be affected. /

2. None of the constraint sites affected is of high ecological value but their loss or disturbance will have a local significance. /

3. The best junction improvement scheme in ecological terms is alternative 4, the loop alternative. /

4. All five alternatives will result in the loss of some agricultural land. Alternative 4 may result in the greatest agricultural land loss unless the land inside the loop is returned to agricultural use. /

\*  
New  
5. Since all 5 alternatives potentially affect the site of the medieval hamlet, probably the most important archaeological feature within the survey likely to be affected, it is difficult to undertake an assessment of comparative impact without further information. However, it would appear that Alternative 3 may have the greatest archaeological impact and Alternative 5 the least. /

Does not appear to be affected.

**APPENDIX 1**



**environmental advisory unit**

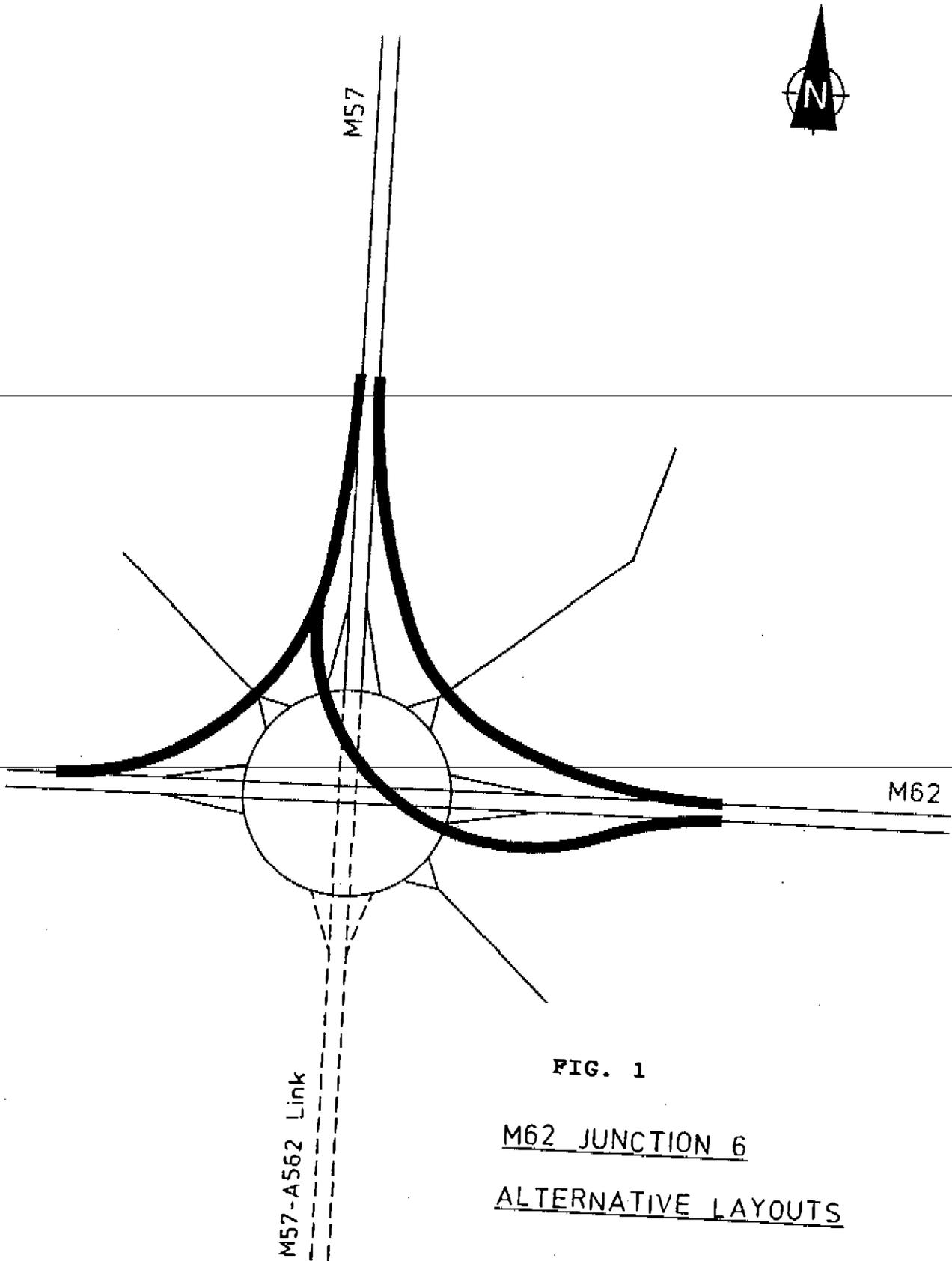


FIG. 1

M62 JUNCTION 6

ALTERNATIVE LAYOUTS

Alternative 1

S.I.S. Scheme

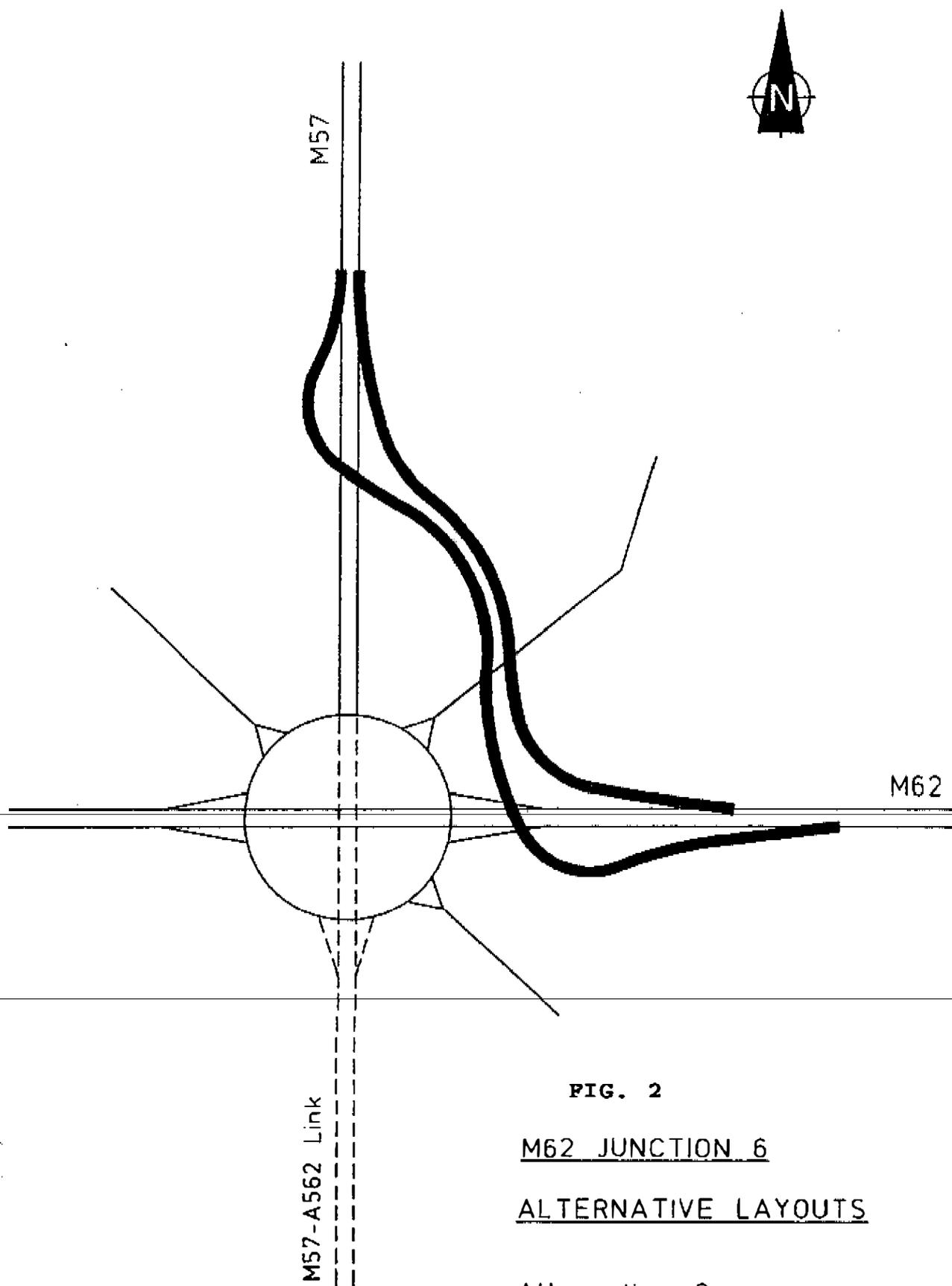


FIG. 2  
M62 JUNCTION 6  
ALTERNATIVE LAYOUTS

Alternative 2  
Railway Route

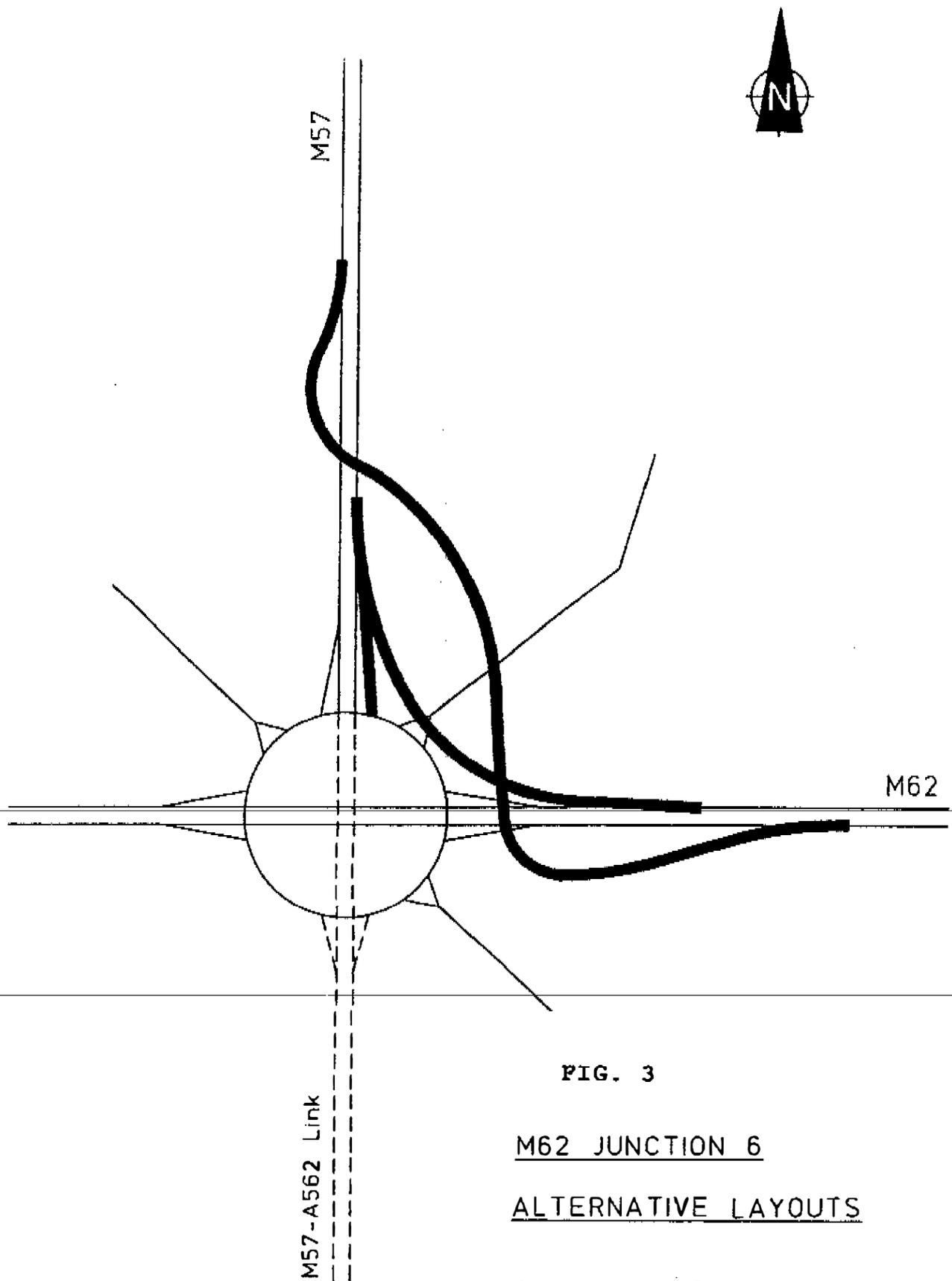


FIG. 3

M62 JUNCTION 6  
ALTERNATIVE LAYOUTS

Alternative 3  
Part Railway Route

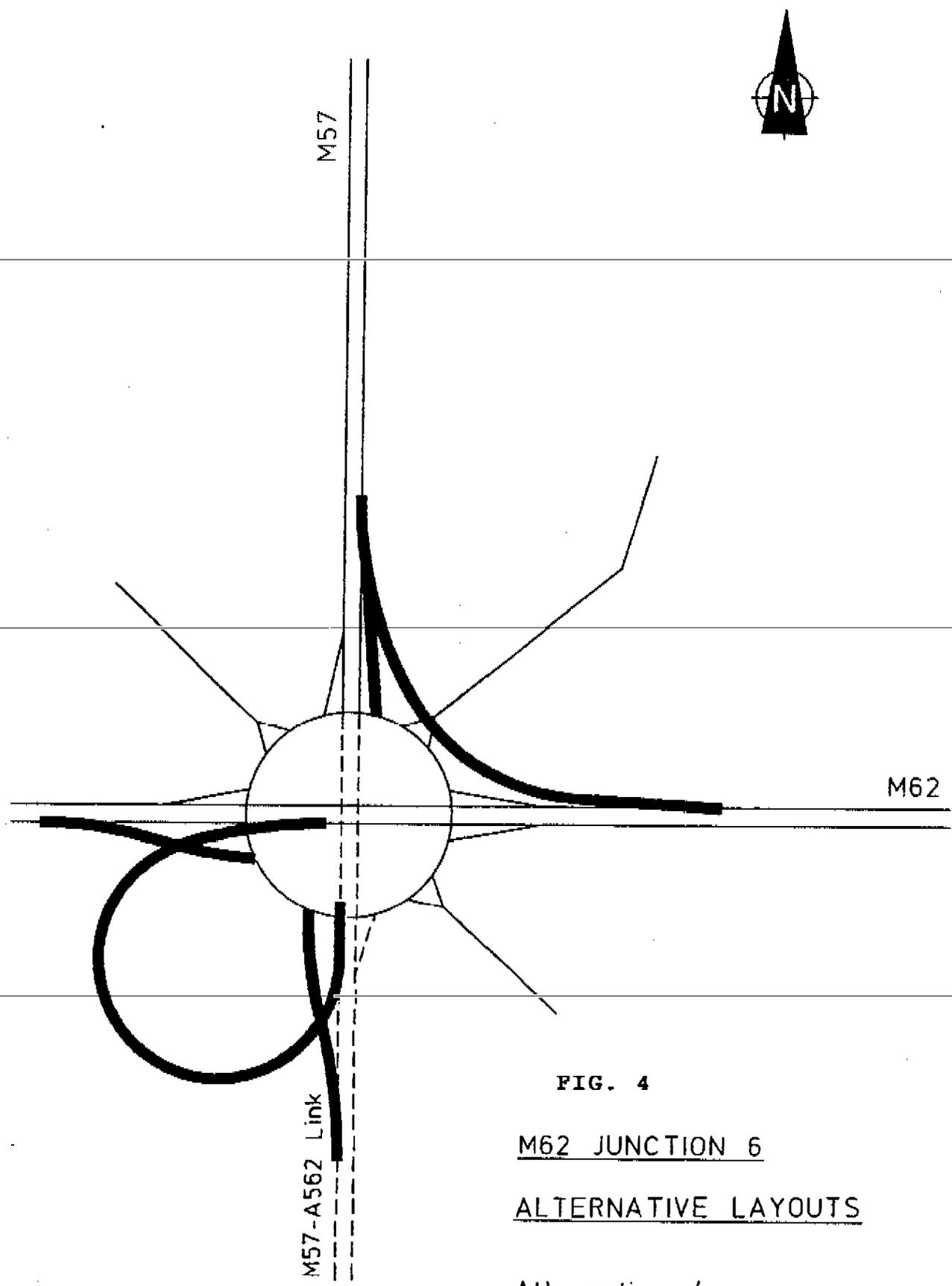


FIG. 4  
M62 JUNCTION 6  
ALTERNATIVE LAYOUTS  
Alternative 4  
Loop Alternative

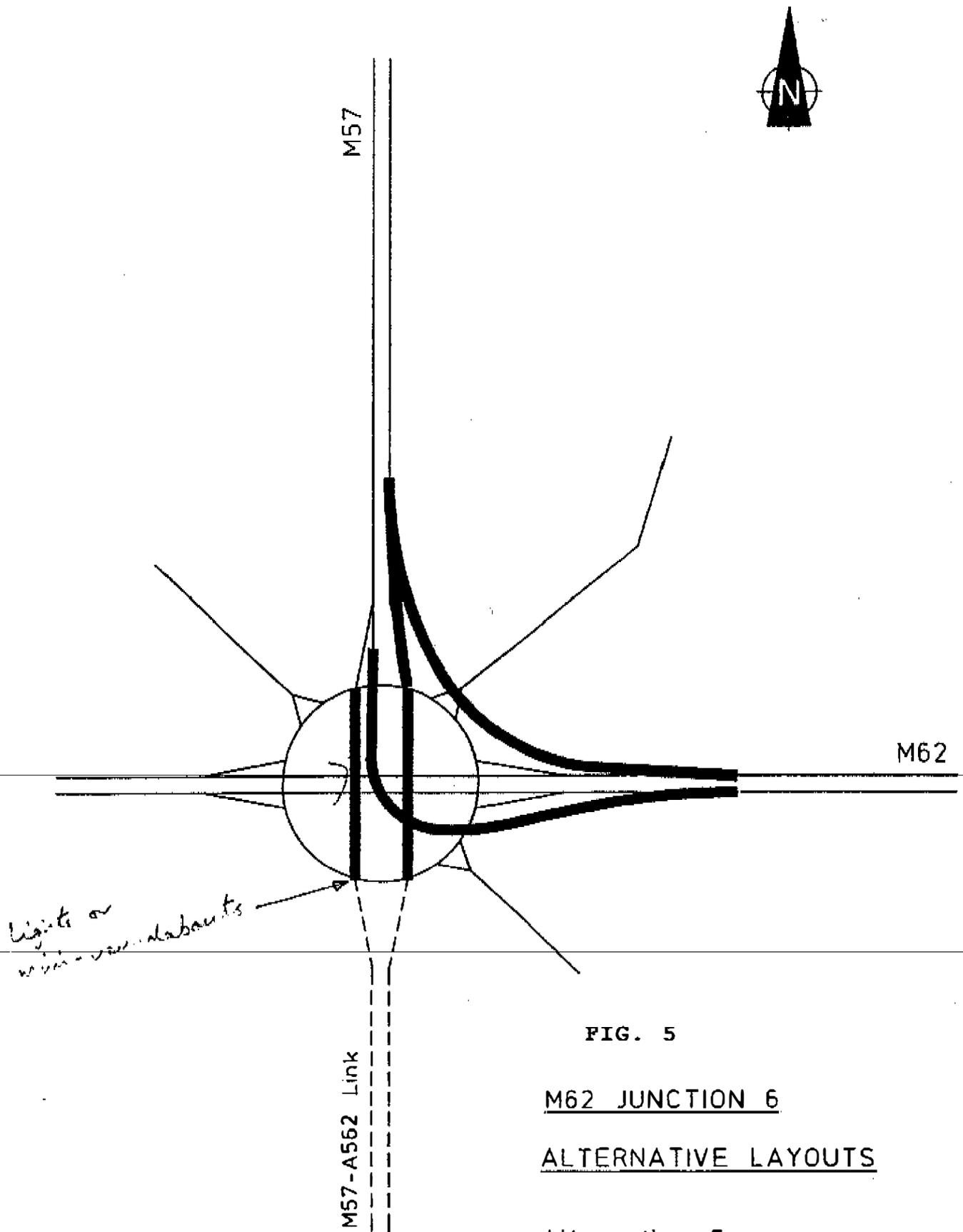


FIG. 5

M62 JUNCTION 6

ALTERNATIVE LAYOUTS

Alternative 5

Conventional Links  
At Grade Connection  
through Roundabout