Stewart Paton Associates

# AUDITING TEMPORARY TRAFFIC MANAGEMENT


PRESENTED BY

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**Stewart Paton Associates Ltd**

**Consulting Engineers & Forensic Investigation Specialists**


Contra-flow
Normal traffic route

# What is being audited?

- Hands up all who have audited TTMS?
- Mostly related to a new road scheme or mostly related to maintenance operations?
- Mostly Motorway and Trunk Roads or local schemes?
- On average, how many TTMS Audits per year?

1 or 2 5 to 10 greater than 10

# What, when, who & how?

- HD 19/03 ‘The standard is not generally required for application to TTMS’
  - “*Exceptional*” “*Considerable Period*”
- Guidance for Safer Temporary Traffic Management
  - *Upon completion of the detailed design,.....*

    *At this stage a Road Safety Audit should be undertaken in accordance with the requirements of the Design Manual for Roads and Bridges*
- Overall Project Designer or TM Contractor?
- Full Audit to HD 19/03 or modified to suit circumstances?

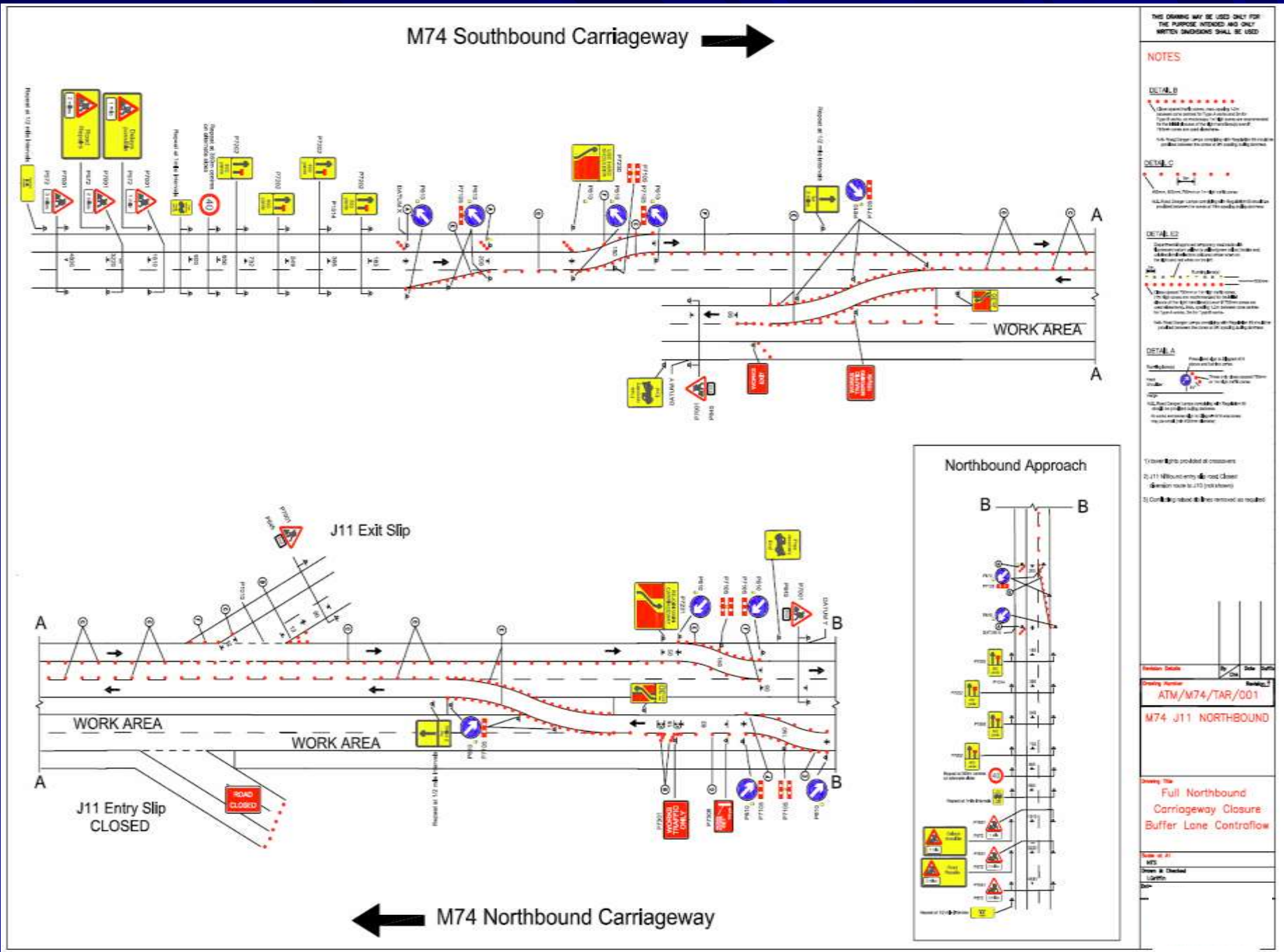
# Differences

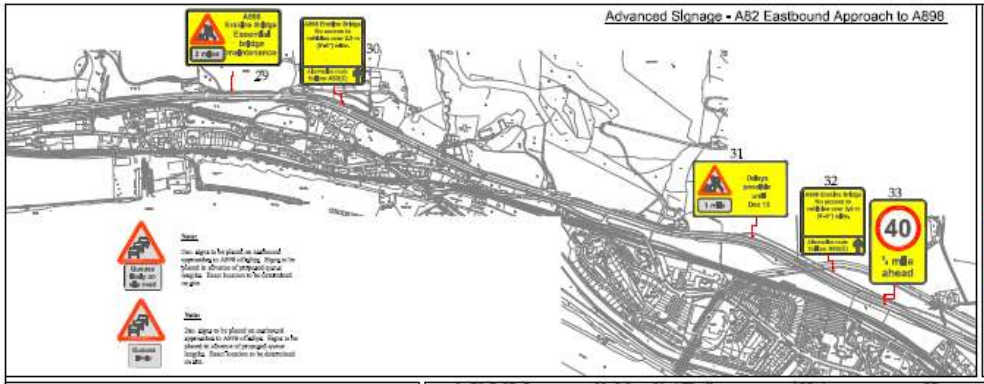
- Safety of Workforce as well as Road Users
- Lateral and longitudinal safety zones / no obstructions in safety zones / width of work areas / works accesses & exits
- Are temporary safety barriers required
  - Type / Set back / Working width / No intrusion of works into working width
- Chapter 8 compliant?
- Unusual and non-standard layouts

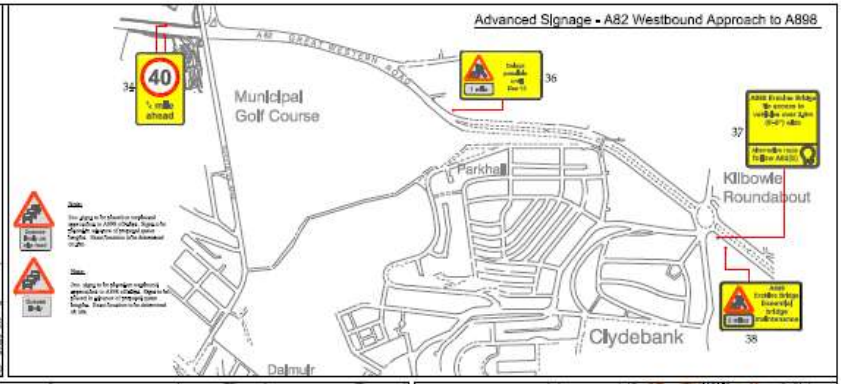
# Differences

- Diversion Routes (official and unofficial) and impact on local roads
- Impact on regular users
- Not just the drivers – Remember
  - Pedestrians –Barriers, ramps trips, gullies
  - Cyclists – Width, conflict points, gullies
  - Accessibility – Loss of facilities on a route
  - Equestrians – Noise, proximity to traffic, containment

# QUALITY OF INFORMATION / BRIEF


M74 Southbound Carriageway
WORK AREA
A
A
J11 Exit Slip
WORK AREA
WORK AREA
J11 Entry Slip
CLOSED
ROAD CLOSED
B
B
Northbound Approach
M74 Northbound Carriageway
THIS DRAWING MAY BE USED ONLY FOR THE PURPOSE INTENDED AND ONLY WRITTEN DIMENSIONS SHALL BE USED
NOTES
DETAIL B
DETAIL C
DETAIL D
DETAIL A
ATM/M74/TAR/001
M74 J11 NORTHBOUND
Full Northbound Carriageway Closure Buffer Lane Controflow



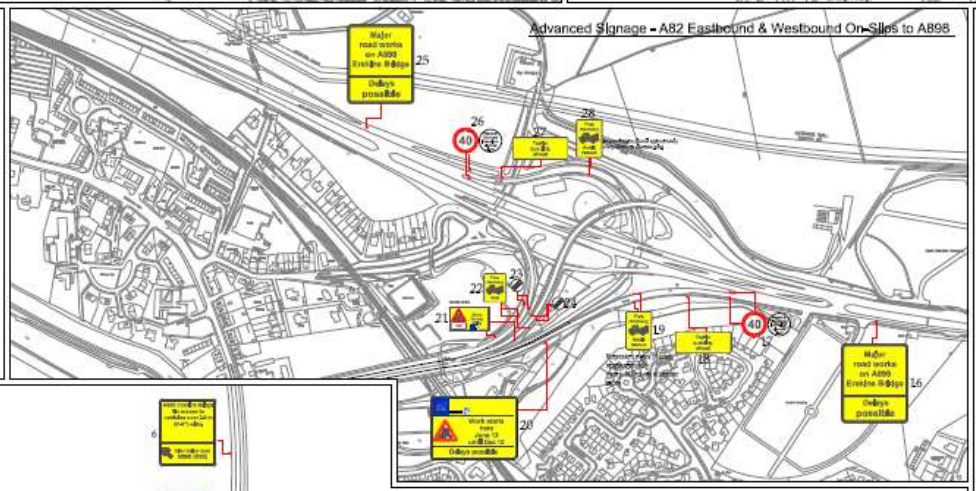

## Additional Signage

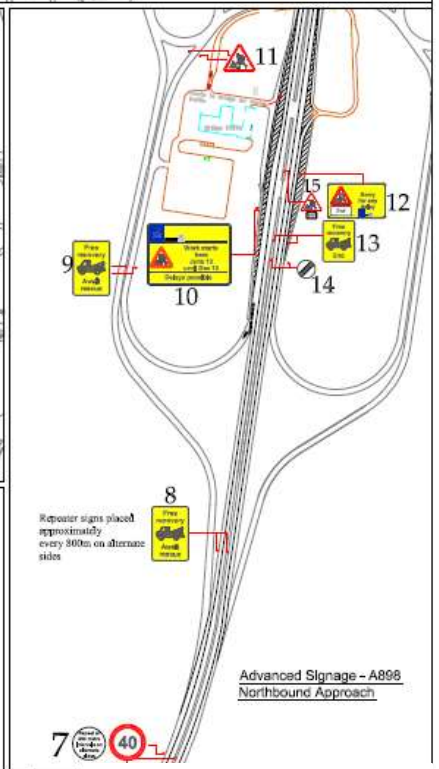
39 A898,ERSKINE,BRIDGE REPLACING VEHICLE SAFETY BARRIERS

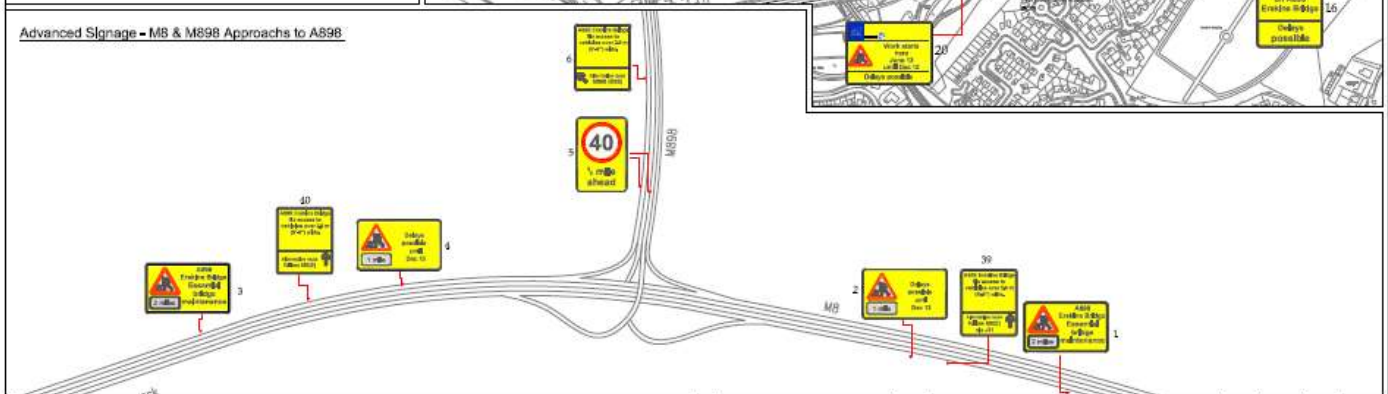
Note:
Site such signs to be supplied for erection, maintenance & dismantling through the duration of the contract arrequested by the engineer

40 A898,ERSKINE,BRIDGE VEHICLE,BARRIER REPLACEMENT HIGHWAY,BARRIER,SOLUTIONS Emergency Telephone 00442890708280 SORRY,FOR,ANY INCONVENIENCE

Note:
Right such signs to be supplied for erection, maintenance & dismantling through the duration of the contract arrequested by the engineer




Notes:

1. All signs will comply with Traffic Sign regulations In General Directions (TSRGD) 2002.
2. All traffic management to be in accordance with Chapter 8.
3. Installation, maintenance & removal of traffic management will be carried out by Sector Scheme 12A/B trained staff
4. Minimum 3.0m running lanes to be maintained

| NO. | REVISION | DATE |
|---|---|---|
| | | |

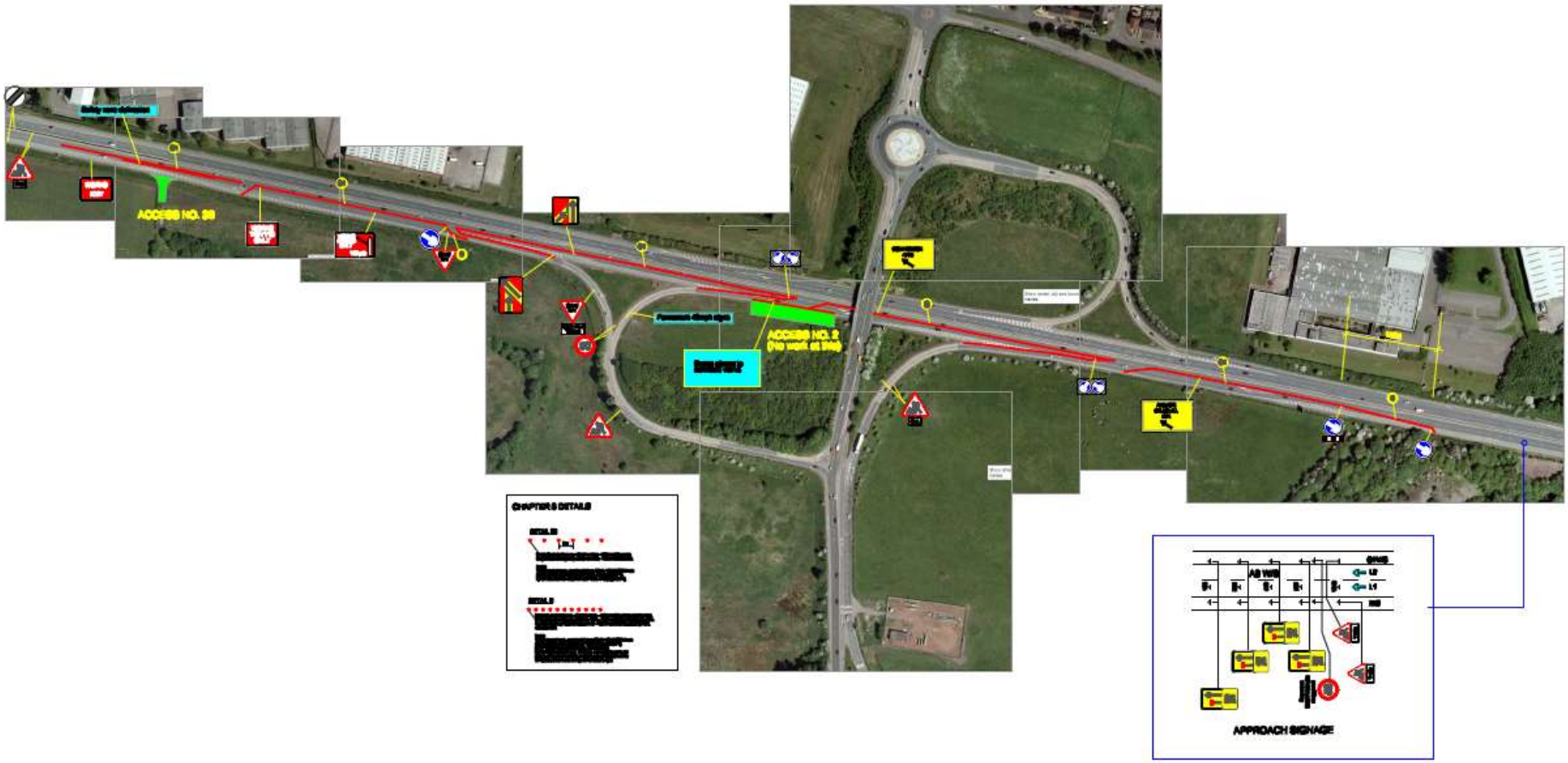
PROJECT A898 ERSKINE BRIDGE VEHICLE BARRIER REPLACEMENT

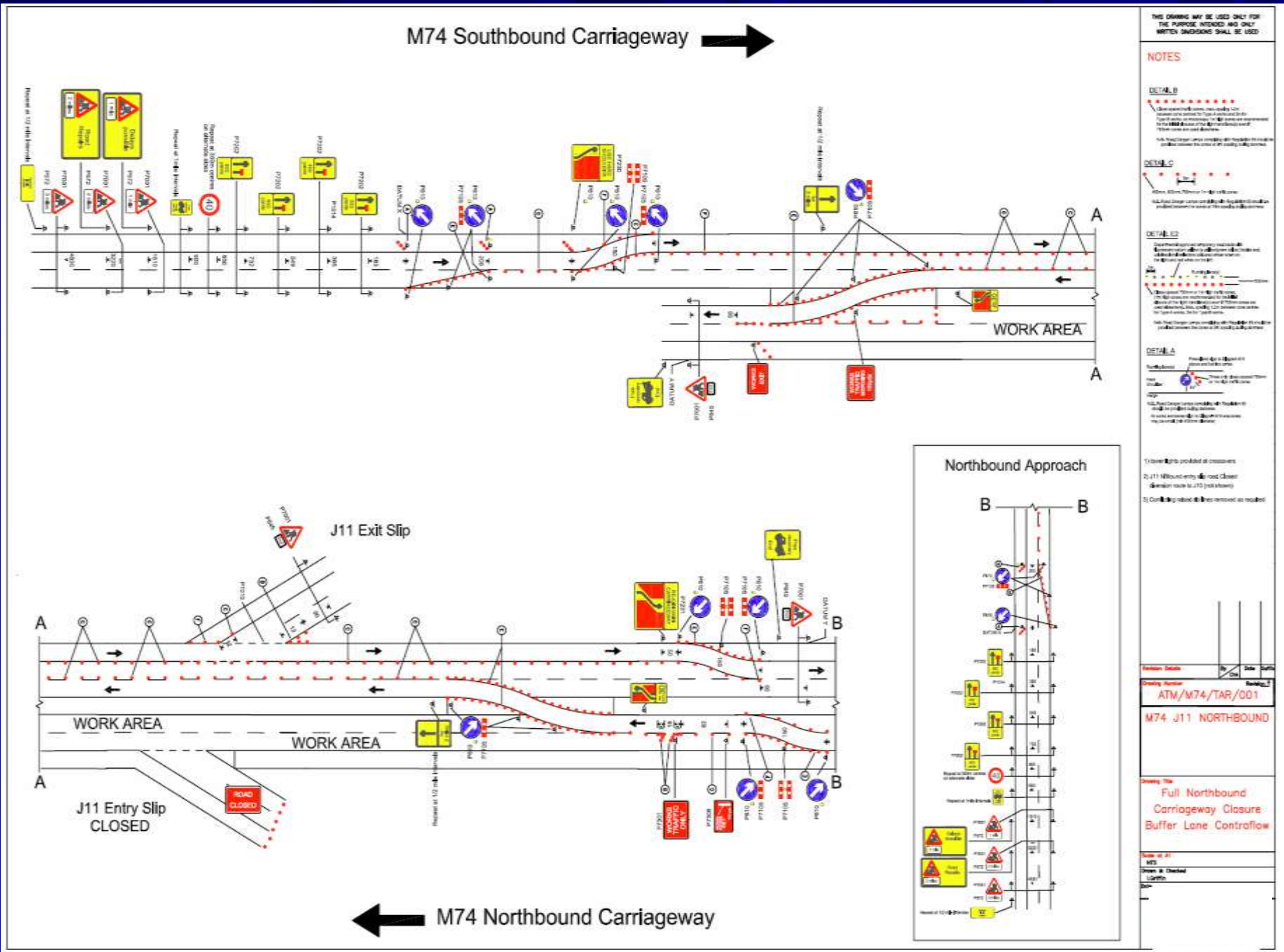
TITLE Traffic Management - Advanced Signage

| | | | | | |
|---|---|---|---|---|---|
| FILE No. | | DRAWN. | SB | DATE. | 01/07/13 |
| DESIGNED. | | CHECKED. | | DATE. | |
| WAS No. | | APPROVED. | | DATE. | |

Drg. No. TM-A898-01 Revision B

SCALES: NOT TO SCALE


ACCESS NO. 2
CHAPTER 8 DETAILS
APPROACH SIGNAGE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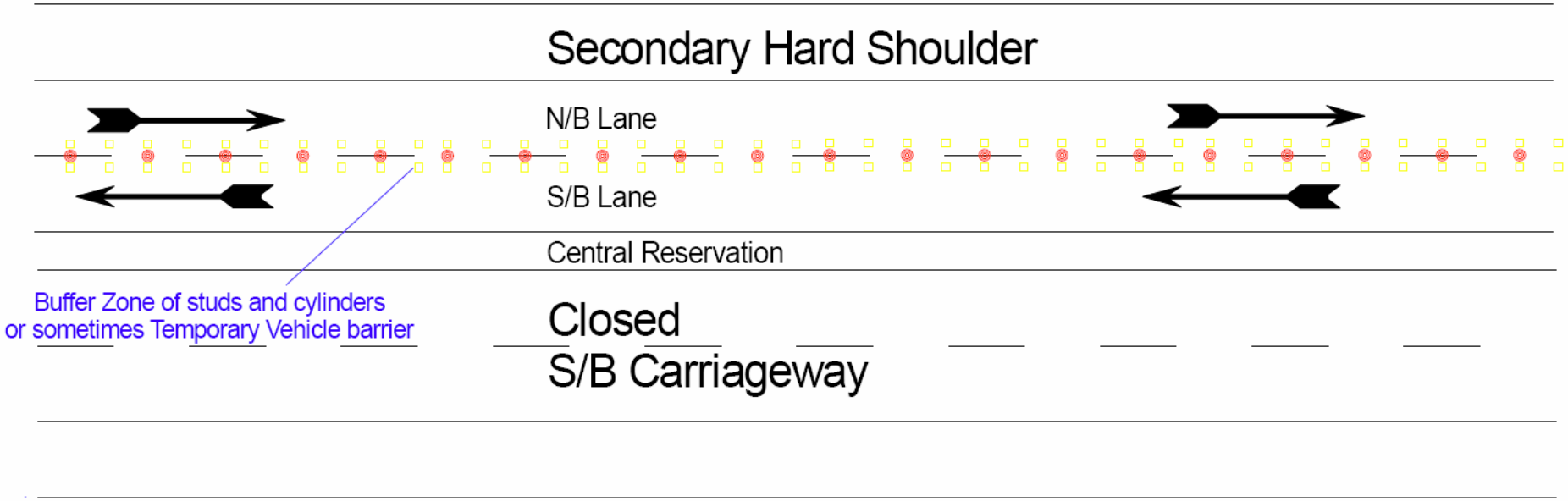
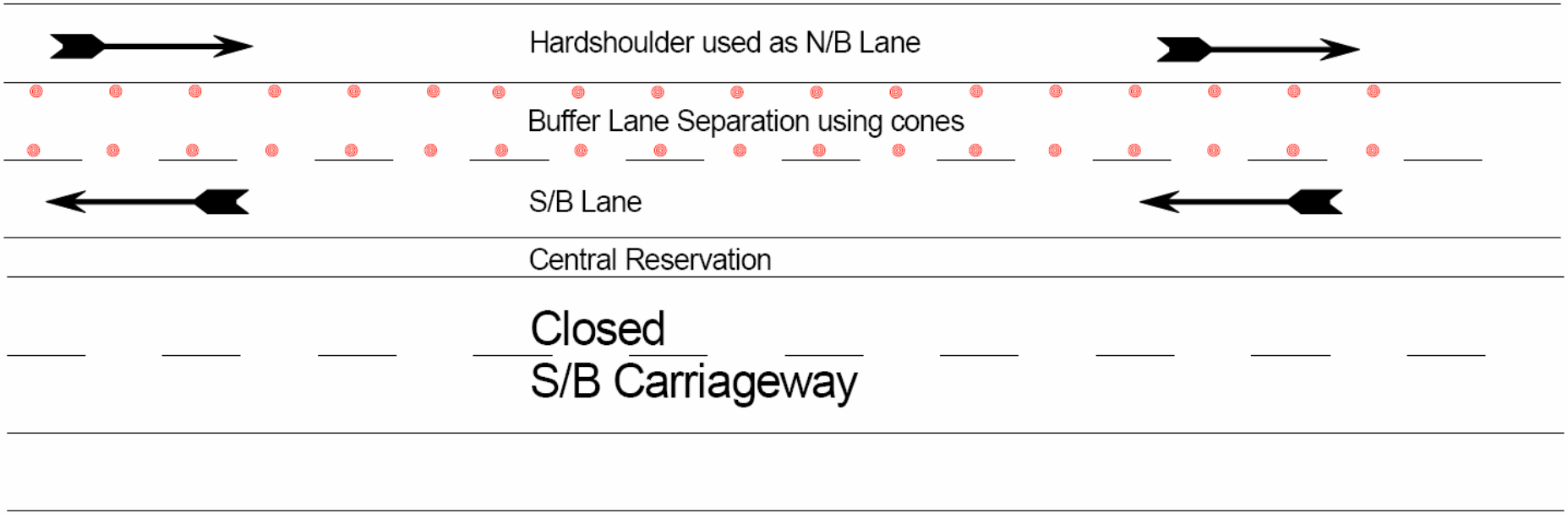
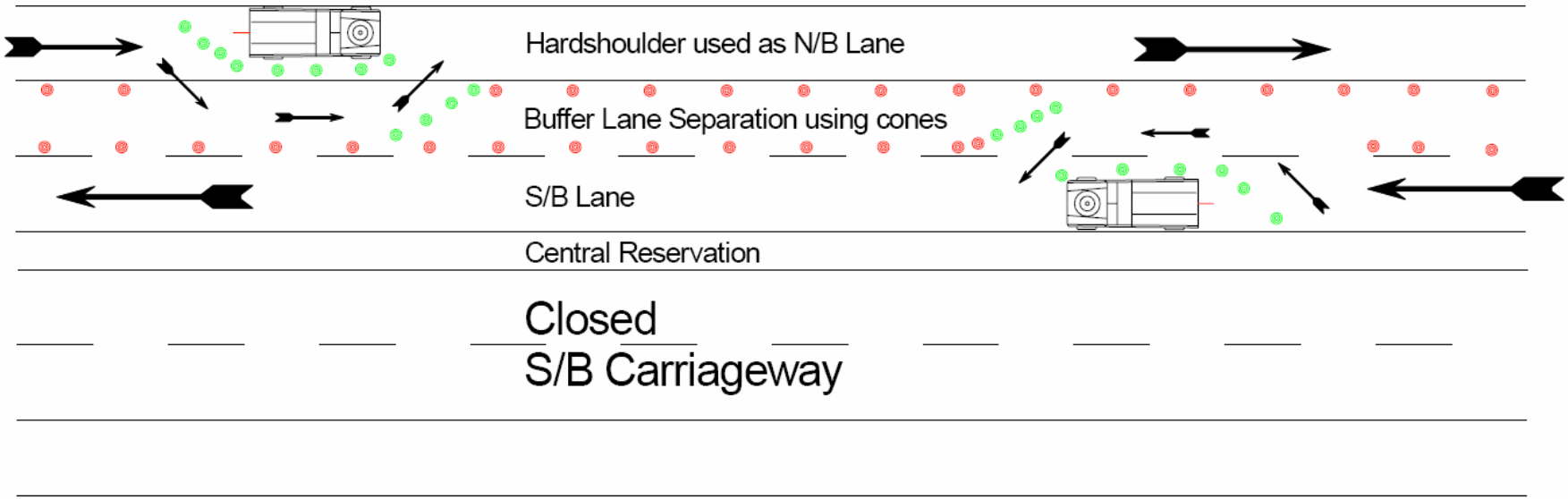
# RELAXATIONS & ALTERNATIVES



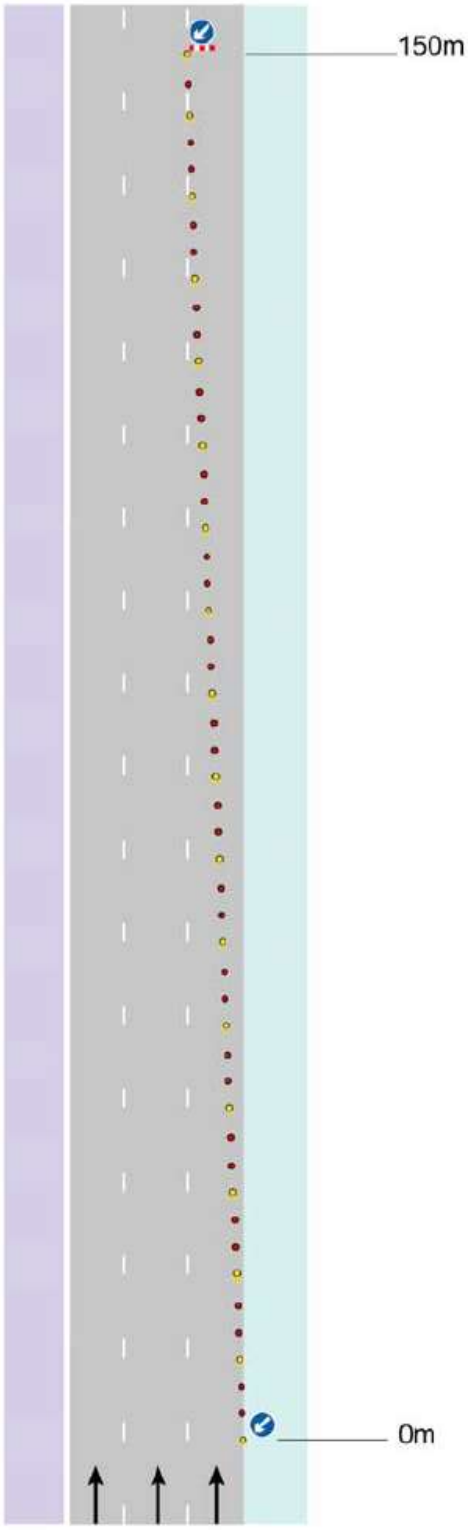

2-Lane Motorway with Hardshoulder - Typical 1+1 Contraflow Layout Most Popular and Frequently Used Method



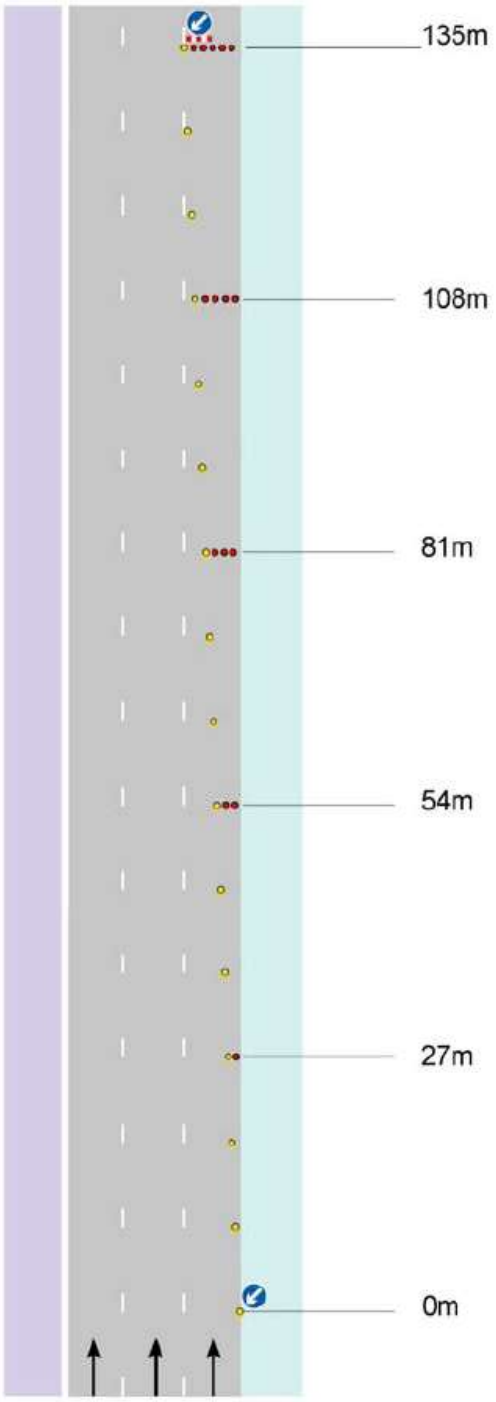

2-Lane Motorway with Hardshoulder - Buffer Lane Layout is More Commonly Specified Now



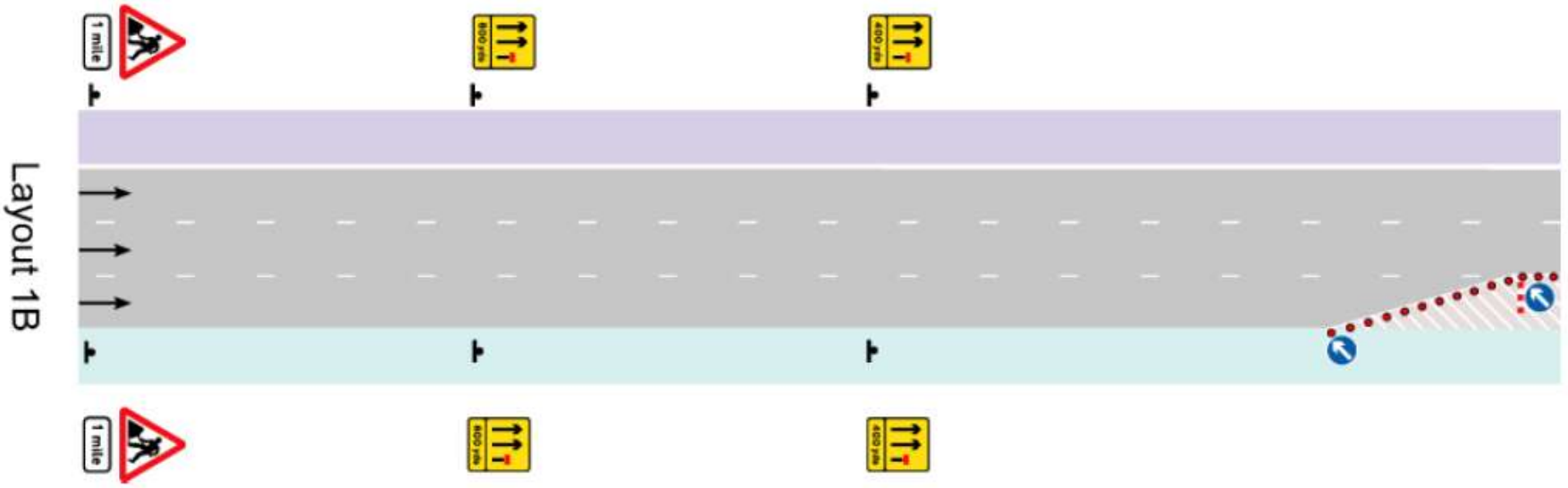

Big Advantage is it can allow for passage of broken down vehicles in either direction and prevent gridlocking and also removes the need for temporary studs and cylinders which are very problematic to install in poor weather conditions and will always fail to adhere on poor or heavy chipped surfaces and surface dressed roads. Also prevents problem tar spots remaining on good surfaces




Chapter 8 (Relaxation)




135m taper (alternative)




Layout 1B

# TYPICAL PROBLEMS

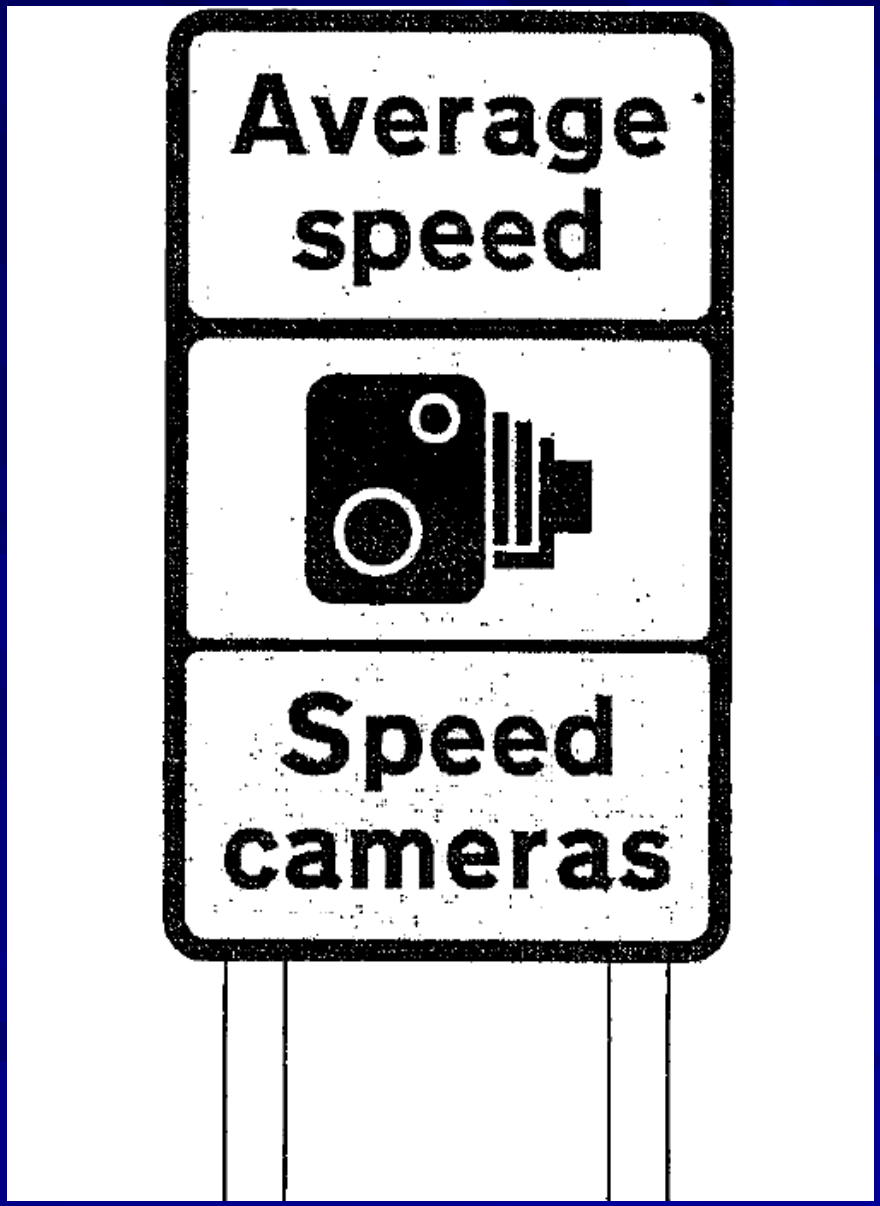

JARVIE PLANT
JARVIE PLANT
MOTORWAY
MD04 TYV


DELAYS POSSIBLE


Normal traffic
Works traffic


Traffic lane
Works exit lane


40
Average
speed


Average
speed
Speed
cameras


WHEN RED
LIGHT SHOWS
WAIT HERE


2
B762 Pshaws Pollok
City Centre M77 (M8)
Gl'w Airport Edinburgh


STAR RENTALS
www.star-rentals.com
IVECO
TO LET


AREHOUSE


City Centre
Edinburgh
A814
30
30
NARROW LANES
A814 A814

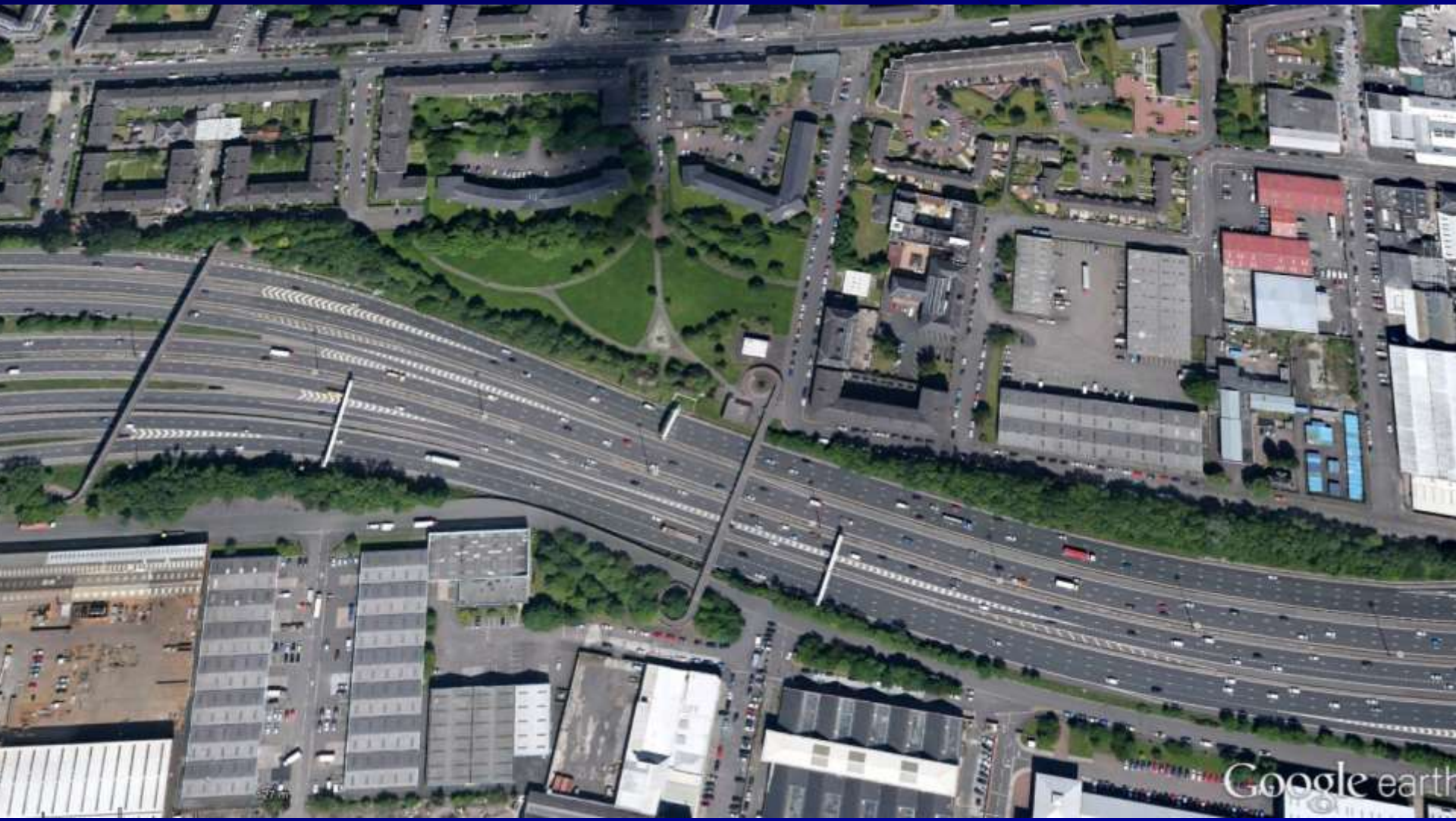

CARRIER
SCANIA

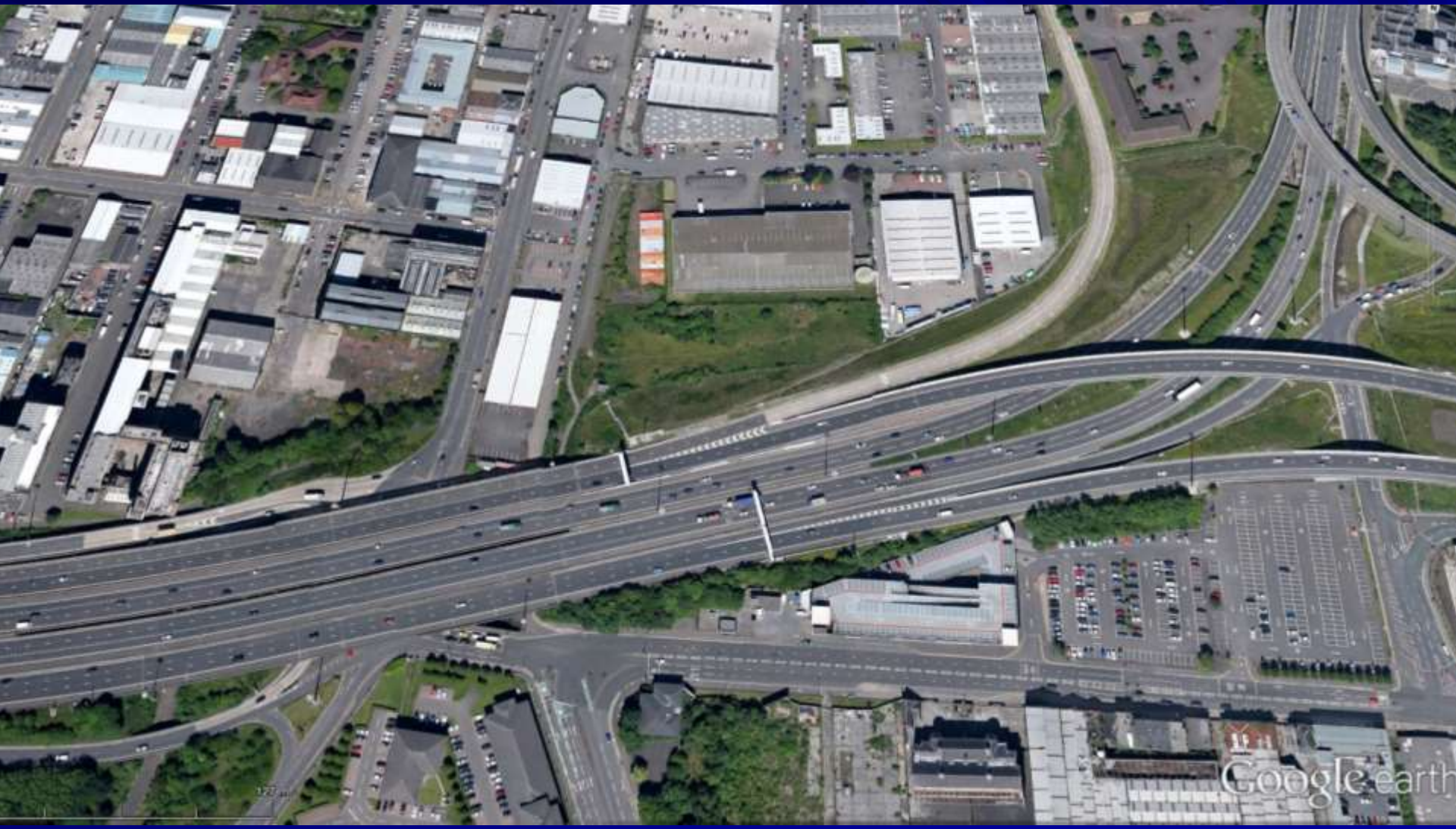

In event of
breakdown call
028 38310111
& await rescue

# UNUSUAL LAYOUTS & SOLUTIONS


Google earth


Google earth


Google earth


Google earth


M8
Google earth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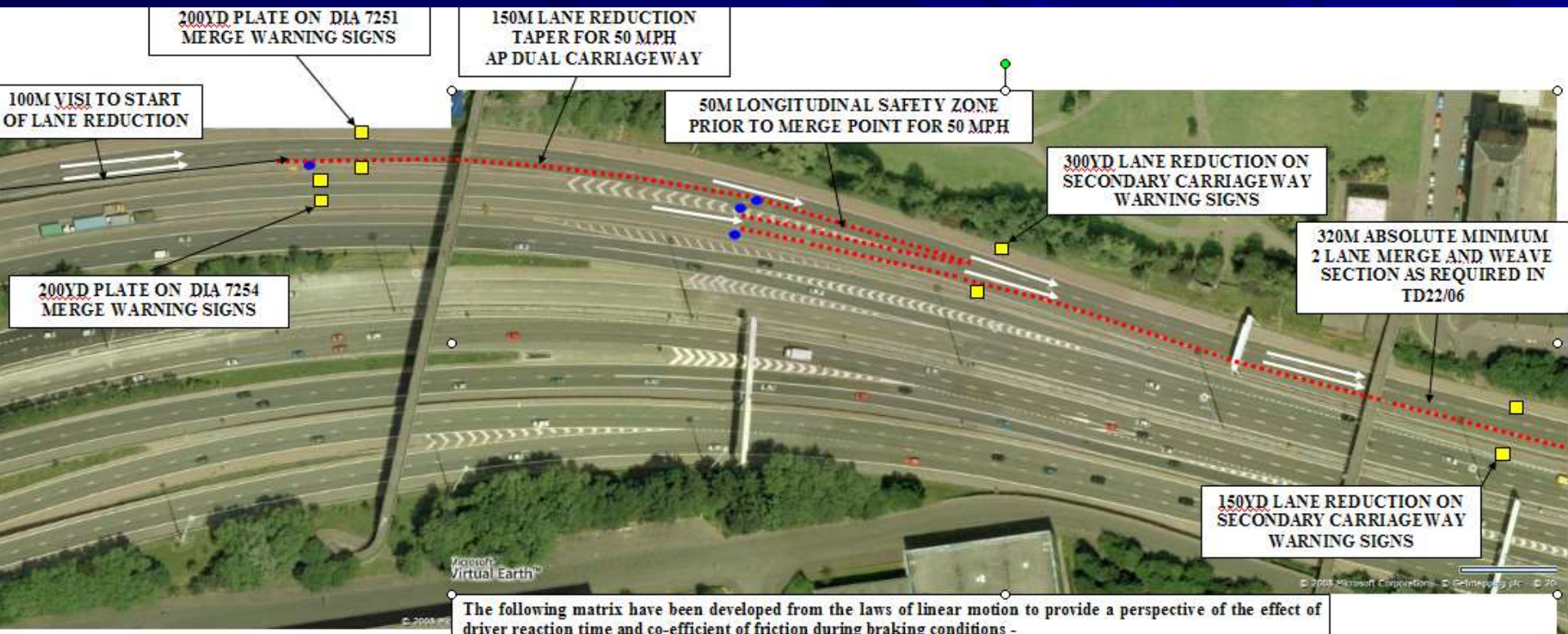


The following matrix have been developed from the laws of linear motion to provide a perspective of the effect of driver reaction time and co-efficient of friction during braking conditions -

| Speed m/sec | | Reaction Time seconds | μ | Stopping Distance m |
|---|---|---|---|---|
| 22.4 | (50mph) | 1 | 0.4 | 86 (Normal braking) |
| 22.4 | | 2 | 0.4 | 109 (Normal braking) |
| 22.4 | | 1 | 0.55 | 69 |
| 22.4 | | 2 | 0.55 | 91 |
| 22.4 | | 1 | 0.7 | 59 (Emergency braking) |
| 22.4 | | 2 | 0.7 | 81 (Emergency braking) |

A co-efficient of friction of 0.45 is adopted in accident investigations as a reasonable value on a good road in wet conditions.

It is therefore a reasonable conclusion that a driver could stop from a speed on 50mph within the 100m SSD available to the first cone if required to do so in wet weather.

# CONCLUSIONS

- Process not transparent
- Lack of consistency
- TTMS often planned late in the day
- Cut & paste from Chapter 8
- Bespoke solutions sometimes required
- All users need to be considered and, as with permanent works, the Road Safety Audit remains the one process that does this.

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