

# South Wales Trunk Road Agent

Managing and Improving  
Motorways and Trunk Roads  
through South Wales



# Asiant Cefnffyrdd De Cymru

Rheoli a Gwella'r Traffyrdd  
a'r Cefnffyrdd yn Ne  
Cymru

## **9025 - M4 J23a Magor Interchange Temporary Signals Combined Stage 1 & 2 Road Safety Audit**



***Left blank intentionally***

**9025-M4 J23a Magor Interchange Temporary  
Signals  
Combined Stage 1 & 2 Road Safety Audit**

|                     |                                     |            |     |
|---------------------|-------------------------------------|------------|-----|
| Document Reference: | UK0029359.3987-ROAD SAFETY AUDIT1-2 |            |     |
| Prepared by:        | WSP                                 |            |     |
| On behalf of:       | SWTRA                               |            |     |
| Scheme Reference:   | 25/SW/CSI/005                       | Programme: | CSI |

|          |          |                         |
|----------|----------|-------------------------|
|          |          |                         |
|          |          |                         |
| P01      | 13/10/25 | Redacted Personal Data  |
| Revision | Date     | Author Checked Approved |
|          |          | Service provider        |

***Left blank intentionally***



## Contents

|          |                                                                            |          |
|----------|----------------------------------------------------------------------------|----------|
| <b>1</b> | <b>Introduction.....</b>                                                   | <b>1</b> |
| 1.1      | Road Safety Audit Brief.....                                               | 2        |
| 1.2      | Road Safety Audit Team Membership .....                                    | 2        |
| 1.3      | Site Visit.....                                                            | 2        |
| 1.4      | Terms of Reference .....                                                   | 3        |
| <b>2</b> | <b>Items Raised at Previous Combined Stage 1/2 Road Safety Audit .....</b> | <b>3</b> |
| <b>3</b> | <b>Items Raised at this Road Safety Audit .....</b>                        | <b>4</b> |
| <b>4</b> | <b>Audit Team Statement.....</b>                                           | <b>9</b> |

List of Documents and Drawings .....Appendix A

Problem location plan .....Appendix B

**25/SW/CSI/005**  
**9025 - M4 J23a Magor Interchange Temporary**  
**Signals**  
**Combined Stage 1 & 2 Road Safety Audit**



Yn gweithio ar ran  
**Llywodraeth Cymru**  
Working on behalf of the  
**Welsh Government**



*Left blank intentionally*



# **1 Introduction**

WSP has been commissioned by the South Wales Trunk Road Agent (SWTRA) on behalf of the Welsh Government to undertake a Combined Stage 1 & 2 Road Safety Audit of the proposed M4 J23a Magor Interchange Temporary Signals Scheme.

## **Scheme Details**

As a result of weight restriction and diversion route to be imposed on the M48 old Severn Bridge, all vehicles above 7.5 tonne will have to use J23a Magor Interchange as a diversion route if they wish to travel in the direction to and from Chepstow and surrounding areas.

The scheme proposed works include the installation of temporary traffic signals on M4 J23a Magor Interchange for an estimated period of 18 months as a temporary traffic control solution for managing traffic at the interchange and any joining roads, whilst National Highways undertake repair/remedial works on the M48 Old Severn Bridge.

There are currently three options being considered for this temporary solution. This Road Safety Audit assesses all three options, which are:

- Option 1 – Signalisation of M4 westbound exit slip road junction with the roundabout circulatory carriageway;
- Option 2 - Signalisation of M4 westbound exit slip road and the A4810 junctions with the roundabout circulatory carriageway; and
- Option 3 - Signalisation of A4810 junction with the roundabout circulatory carriageway
- The permanent speed limit for the M4, slip roads and circulatory carriageway at Magor Interchange and the immediate approach on the A4810 is national speed limit. The A4810 south of the existing speed limit terminal signs is subject to a 40mph. A temporary 40mph speed limit will be implemented throughout the site for the duration of installation, maintenance (operation) and removal of the temporary traffic signals.



## 1.1 Road Safety Audit Brief

Supplied by:

[REDACTED] (WSP) in an email dated 23rd September 2025.

Road Safety Audit Brief was approved on 22<sup>nd</sup> September 2025 by  
[REDACTED] South-East Wales Area Manager, Welsh Government

## 1.2 Road Safety Audit Team Membership

|                                                                                                                          |                                                                                                                                 |
|--------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| <br>(Road Safety Audit<br>Team Leader)  | <br>Principal Engineer<br>WSP                 |
| <br>(Road Safety Audit Team<br>Member) | <br>Associate Road Safety Engineering<br>WSP |

No member of the Road Safety Audit Team has had any previous input into the design of the scheme.

Both members of the Road Safety Audit Team have the relevant training, skills and experience recommended for Road Safety Audit Team Leader and Road Safety Audit Team Member in accordance with the guidance stated in the Design Manual for Roads and Bridges (DMRB) document GG 119.

## 1.3 Site Visit

The Road Safety Audit Team undertook a site visit together on Monday 29th September 2025 during daylight conditions (between 10:15am and 11:00am) when the weather was dry and the road surface was dry. The traffic was free-flowing, and no pedestrians or cyclists were observed using the route.

As there were no appropriate facilities for the Road Safety Auditors to inspect the proposed highway layout on foot, therefore this section of the M4 was inspected and videoed/photographed by the Road Safety Auditors from a moving vehicle travelling along the road in both directions at normal traffic speeds.



This methodology for the site visit was implemented as it was considered that the road safety risks associated with the provision of temporary traffic management on the M4, to enable the Road Safety Auditors to walk along the extents of the scheme, would outweigh the benefits of carrying out an inspection of the proposed highway works on foot.

## 1.4 Terms of Reference

The terms of reference of the Road Safety Audit are as described in DMRB Standard GG 119. The Road Safety Audit Team has examined and reported only on the road safety implications of the scheme as present and has not examined or verified the compliance of the design to any other criteria.

## 1.5 Departures from Standard

There are no known Departures from standard declared by the designer.

## 2 Items Raised in Previous Road Safety Audits

The Road Safety Audit Team are aware that no previous Road Safety Audits have been carried out on this scheme.



### 3 **Items Raised at this Road Safety Audit**

This section covers the issues raised as part of this Combined Stage 1 & 2 Road Safety Audit.

#### 3.1 **Problem (General)**

|                                                                                                                                                                                                                                                    |                    |                                                                                                                             |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------------------------------------------------------------------------------------------------------------------|
| <b>Location:</b>                                                                                                                                                                                                                                   | Options 1, 2 and 3 |                                                                                                                             |
| <b>Summary:</b> Temporary traffic signal cables a collision hazard.                                                                                                                                                                                |                    | <b>Recommendation</b>                                                                                                       |
| The temporary signals will result in large cables being provided as part of these works, with some of these cables being overhead. In the worst-case sagging cables could be hit by larger high sided vehicles, increasing the risk of collisions. |                    | It is recommended that any overhead cables provided are in excess of high sided vehicles height and are adequately secured. |

#### 3.2 **Problem (Traffic signs, Road markings and Lighting)**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    |                                                                                                                                                                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Location:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Options 1, 2 and 3 |                                                                                                                                                                                     |
| <b>Summary:</b> Temporary traffic signals restricting forward visibility towards traffic signs and restricted forward visibility to traffic signals                                                                                                                                                                                                                                                                                                                                                                             |                    | <b>Recommendation</b>                                                                                                                                                               |
| The temporary signals may restrict forward visibility to several existing signs, namely End of Motorway signs and No Entry signs this may lead to poor compliance to the restrictions increasing the risk of road users undertaking inappropriate manoeuvres, sudden lane changing increasing the risk of side swipe collisions. Also, some existing direction signs may restrict forward visibility towards traffic signal heads leading to harsh braking, rear end shunt collisions on the approach to the temporary signals. |                    | It is recommended that the proposed traffic signals do not obscure visibility to other traffic signs and there is appropriate forward visibility towards temporary traffic signals. |



### 3.3 Problem (General)

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                       |                                                                                                                                     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| <b>Location:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Options 1 and 2                                       |                                                                                                                                     |
| <b>Summary:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>Lack of carriageway width for larger vehicles.</b> | <b>Recommendation</b>                                                                                                               |
| On the westbound off slip road approach to the roundabout the carriageway width narrows to 7m in close proximity to the stop line. With the increase in heavy vehicle movements on this approach, if two larger vehicles approach the signals side by side, they may be a potential for side impact collisions or collisions with adjacent street furniture including temporary signals. There is also visible evidence of adjacent verges being overrun by traffic indicating that these manoeuvres take place. |                                                       | It is recommended that swept path analysis is undertaken, and the approach is modified if necessary to accommodate larger vehicles. |

### 3.4 Problem (Traffic signs, Road markings and Lighting)

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                            |                                                                            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|----------------------------------------------------------------------------|
| <b>Location:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Options 1 and 2                            |                                                                            |
| <b>Summary:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>Lack of information for road users.</b> | <b>Recommendation</b>                                                      |
| On the westbound off slip road approach to the roundabout the adjacent hard shoulder area is marked with hatched road markings, with the road markings being barely visible. As a result, vehicles may choose to park in the hard shoulder (as observed during the site visit). Parked vehicles, particularly larger side vehicles may restrict forward visibility towards the temporary signals leading to late recognition of the signals and rear end shunt collisions. |                                            | It is recommended to reapply the hatch road markings in the hard shoulder. |



### 3.5 Problem (Traffic signs, Road markings and Lighting)

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                     |                                                                                                                                                                                                                                                                                                                   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Location:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Options 1 and 2                                     |                                                                                                                                                                                                                                                                                                                   |
| <b>Summary:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Inappropriate speeds approaching temporary signals. | <b>Recommendation</b>                                                                                                                                                                                                                                                                                             |
| <p>It is not clear precisely where terminal 40mph signs will be positioned on the westbound off slip road approach. Traffic approaches the interchange on the off-slip road from the national speed limit and if the speed limit reduces to 40mph too close to the signals, it will unlikely slow down the traffic sufficiently before the junction. The collision records demonstrate a concerning pattern with 4 collisions on this approach in 5 years. This arrangement may lead to rear end shunt collisions.</p> |                                                     | <p>It is recommended that the temporary 40mph terminal signs should be positioned further back from the traffic signals, prior to the gantry to give motorists more time to slow down on the approach to the signals. In addition, warning signs of traffic signal ahead/queuing vehicles should be provided.</p> |

### 3.6 Problem (Traffic signs, Road markings and Lighting)

|                                                                                                                                                                                                                                                         |                                                                                     |                                                                                                                                                                                                                                                                                                                                           |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Location:</b>                                                                                                                                                                                                                                        | Options 1 and 2                                                                     |                                                                                                                                                                                                                                                                                                                                           |
| <b>Summary:</b>                                                                                                                                                                                                                                         | Lack of forward visibility towards vehicles queuing on the circulatory carriageway. | <b>Recommendation</b>                                                                                                                                                                                                                                                                                                                     |
| <p>Traffic queues forming on the circulatory carriageway back from the temporary traffic signals may lead to rear end shunt collisions due to the road curvature and vegetation in the offside verge restricting forward visibility to the signals.</p> |                                                                                     | <p>It is recommended that a mean maximum length of traffic queue should be calculated on the circulatory carriageway approach to the proposed signals and forward visibility toward the end of the queue should be cleared. In addition, warning signs of traffic signal ahead/queuing vehicles should be provided on the roundabout.</p> |



### 3.7 Problem (Traffic signs, Road markings and Lighting)

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                     |                                                                                                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| <b>Location:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Options 1 and 2                     |                                                                                                                     |
| <b>Summary:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Lack of information for road users. | <b>Recommendation</b>                                                                                               |
| On the eastern roundabout circulatory carriageway there is no direction signing provided showing route A4810, whilst there is associated road markings provided for this destination. Queueing traffic may cover the worded road markings resulting in vehicles taking incorrect lanes when exiting towards the A4810. In the worst case, road users not familiar with the area may miss the information shown on the road markings and undertake sudden lane changing manoeuvres leading to side swipe collisions. |                                     | It is recommended to provide a wicket type sign incorporating the A4810 destination on the circulatory carriageway. |

### 3.8 Problem (Traffic signs, Road markings and Lighting)

|                                                                                                                                                                                                                                                                         |                                       |                                                    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|----------------------------------------------------|
| <b>Location:</b>                                                                                                                                                                                                                                                        | Option 2                              |                                                    |
| <b>Summary:</b>                                                                                                                                                                                                                                                         | Traffic queuing leading to conflicts. | <b>Recommendation</b>                              |
| No MOVA detection zones are shown on the circulatory carriageway on the approach to the traffic signal junction with the A4810 entry. Traffic queuing at the red signal for stage C may block the exit to the A4810 leading to inappropriate manoeuvres and collisions. |                                       | It is recommended to provide MOVA detection zones. |



### 3.9 Problem (Traffic signs, Road markings and Lighting)

|                                                                                                                                                                                                                                                                                                                                                     |                                       |                                                                                                                                                                                                                                     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Location:</b>                                                                                                                                                                                                                                                                                                                                    | Option 3                              |                                                                                                                                                                                                                                     |
| <b>Summary:</b>                                                                                                                                                                                                                                                                                                                                     | Traffic queuing leading to conflicts. | <b>Recommendation</b>                                                                                                                                                                                                               |
| <p>There are proposed virtual MOVA detection zones on the circulatory carriageway approach to the traffic signals. However, vehicles in the traffic queue reaching the zone AX1 could be obscured from vehicles circulating the roundabout in the inside lane due to the extensive vegetation in the offside verge, leading to rear end shunts.</p> |                                       | <p>It is recommended to clear visibility on the inside of the circulatory carriageway by cutting back all vegetation and provide additional traffic signals ahead/queuing traffic warning signs on the circulatory carriageway.</p> |



## 4 Audit Team Statement

We certify that this safety audit has been carried out in accordance with GG 119.

### Road Safety Audit Team Leader

|              |                                |
|--------------|--------------------------------|
| Name         |                                |
| Signed       |                                |
| Position     | Principal Road Safety Engineer |
| Organisation | WSP                            |
| Date         | 13/010/2025                    |

### Road Safety Audit Team Member

|              |                                   |
|--------------|-----------------------------------|
| Name         |                                   |
| Signed       |                                   |
| Position     | Associate Road Safety Engineering |
| Organisation | WSP                               |
| Date         | 13/10/2025                        |



*Left blank intentionally*



## Appendix A

### List of Documents and Drawings

#### **DOCUMENTS**

| DOCUMENT TITLE                      | REFERENCE                                       | DATE       |
|-------------------------------------|-------------------------------------------------|------------|
| Stage 1 & 2 Road Safety Audit Brief | UK0029359.3987-ROAD<br>SAFETY AUDIT1-2-Brief-01 | 23/09/2025 |
|                                     |                                                 |            |
|                                     |                                                 |            |
|                                     |                                                 |            |

#### **DRAWINGS**

| DRAWING NUMBER     | REV | DRAWING TITLE                                      |
|--------------------|-----|----------------------------------------------------|
| UK0029359.3987-001 | P01 | Option 1 – Signalise M4<br>Westbound Off Slip Road |
| UK0029359.3987-002 | P01 | Option 2 – Signalise M4 W/B<br>Off Slip A4810      |
| UK0029359.3987-003 | P01 | Option 3 – Signalise A4810                         |

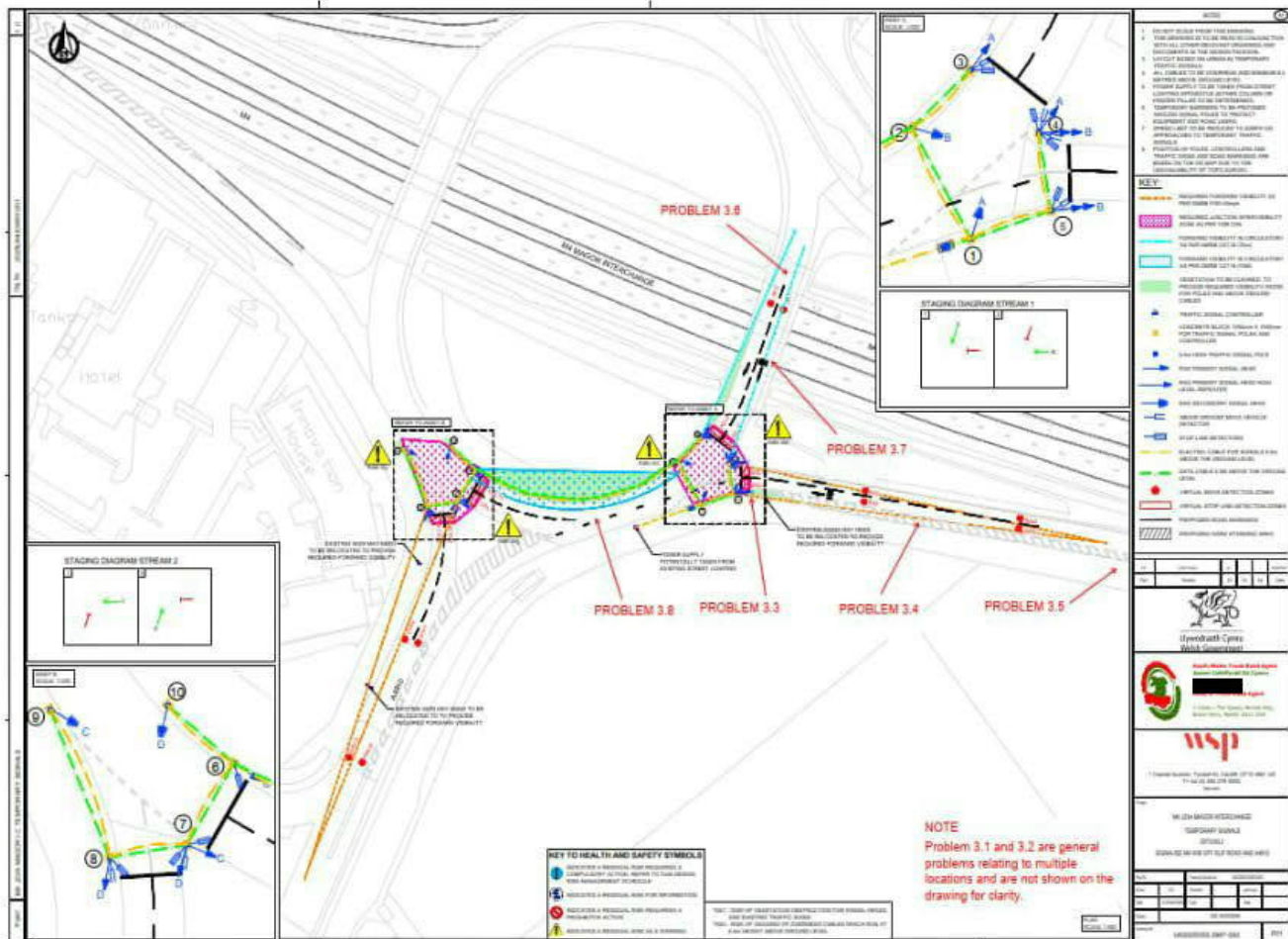
## Problem Location Plans



25/SW/CSI/005  
9025 - M4 J23a Magor Interchange Temporary  
Signals  
Combined Stage 1 & 2 Road Safety Audit



Yn gweithio ar ran  
Llywodraeth Cymru  
Working on behalf of the  
Welsh Government

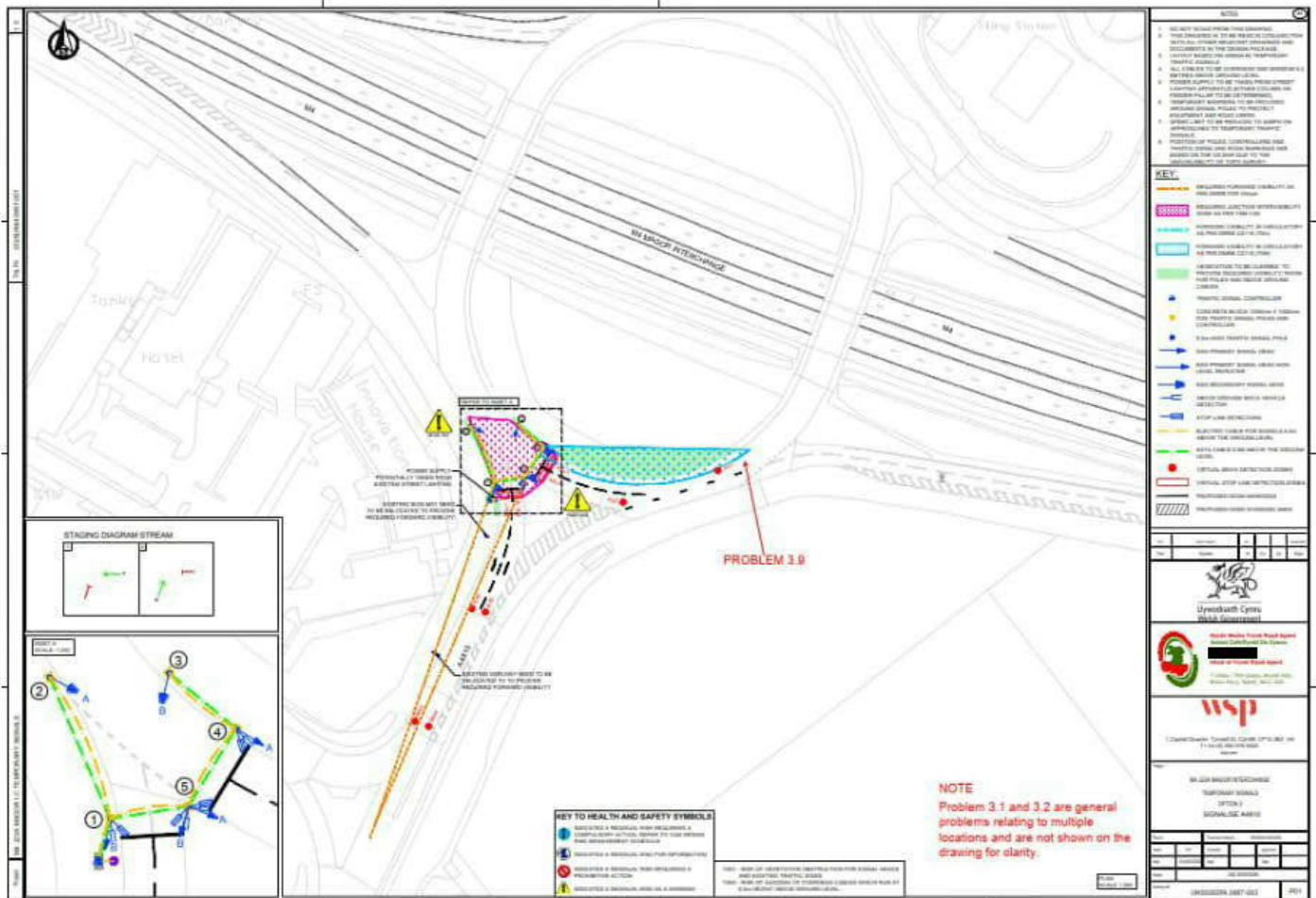


Option 2

25/SW/CSI/005  
9025 - M4 J23a Magor Interchange Temporary  
Signals  
Combined Stage 1 & 2 Road Safety Audit



Yn gweithio ar ran  
Llywodraeth Cymru  
Working on behalf of the  
Welsh Government



Option 3

**25/SW/CSI/005**  
**9025 - M4 J23a Magor Interchange Temporary**  
**Signals**  
**Combined Stage 1 & 2 Road Safety Audit**



Yn gweithio ar ran  
**Llywodraeth Cymru**  
Working on behalf of the  
**Welsh Government**



*Left blank intentional*



South Wales Trunk Road Agent  
Asiant Cefnffyrdd De Cymru

Y Ceiau / The Quays  
Brunel Way, Briton Ferry  
Neath. SA11 2GG

[www.swtra.wales](http://www.swtra.wales)