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WELSH GOVERNMENT TRUNK ROAD MAINTENANCE MANUAL 2016 (WGTRMM 2016)

Part 2.2: NETWORK MANAGEMENT MANUAL; SERVICE AREA REQUIREMENTS AND GUIDANCE

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WELSH GOVERNMENT TRUNK ROAD MAINTENANCE MANUAL 2016 (WGTRMM 2016)

Part 2.2: NETWORK MANAGEMENT MANUAL; SERVICE AREA REQUIREMENTS AND GUIDANCE

2.2.1 Introduction

1 Part 1 of WGTRMM (the Service Code) contains the Service Requirements to be achieved by WG, its Service Providers and others carrying out works on the network. Part 2 of WGTRMM contains Guidance Information supporting and clarifying where necessary the other Parts of WGTRMM. This Part is intended to provide the following:

- Advice on legislation, policy, technical standards, WG Objectives or best practice;
- References to further information;
- Further clarification of Service Requirements;
- Specific process, procedure or methodology suggested by WG to achieve Service Requirements;
- Clarity on what is advisory or mandatory

It should be read in conjunction with the other Parts of WGTRMM and the further references given in Section 2.3.

2.2.2 – 2.2.6 Not Used

2.2.7 Paved Areas

2.2.7.1 General

1 Paved Areas are to provide a safe, even and comfortable surface for all users, including vehicles, pedestrians, cyclists and other vulnerable users such as equestrians. The surface should not allow standing water as this may produce hazardous conditions, particularly in freezing conditions. It is a statutory requirement to remove obstructions from trafficked surfaces. Satisfactory surfaces on footways and cycle tracks may encourage walking and cycling respectively.

2 The requirements for gratings, covers, frames and boxes relate to repairs and, where necessary, replacement of such items. Although the requirements do not relate to repairs to items that are the responsibility of other parties, it may be necessary on occasions, if there is a hazard to network users, to make such defects safe and to recover the costs incurred from the responsible parties or at very least inform the third party of the problem.

3 Only those types of defect likely to require routine maintenance rather than those to establish general structural condition should be recorded, although the defects recorded may indicate the need to bring forward a structural condition survey. Some defects recorded may be repaired within structural or renewal maintenance work.

2.2.7.2 Management Guidance

1 The requirements of this Section relate to minor repairs to the paved areas. The requirements do not relate to larger scale work needed to strengthen the carriageway or to work which would be classed as, or linked to, structural maintenance schemes.

2 Particular attention must be paid to potholes and other localised defects since these may often constitute an immediate or imminent hazard. Such localised defects must be dealt with by the Service Provider to protect road users and minimise user delays.

3 There is a need to differentiate between routine and structural maintenance activities because the funding for each is different. However, the Service Provider is to ensure that the repairs undertaken are done so in the most cost effective manner. It is usual, before carrying out surface dressing or resurfacing, to ensure that the underlying road structure is sound. This often requires repairs to potholes, rutting, open joints, etc., that would otherwise be carried out as routine maintenance operations, if there was no major structural work following.

4 The repair of defects reported from inspections may be absorbed into structural repairs already programmed, provided the repairs remain within WG's required timescale. However, structural repairs will usually be contained within a long term national programme, determined on the basis of national priorities and the availability of structural maintenance funds. These schemes sometimes have to be deferred and this may then make it necessary to carry out the originally identified routine maintenance repairs separately and at relatively short notice.

2.2.7.3 Defects

1 Identifying and categorising defects is fundamental to providing a safe and sustainable network whilst achieving a cost effective response. As a consequence training of inspectors

should be given a high priority such that consistent and repeatable standards are successfully applied across the whole network.

2 Category 1 defects and their identification in a timely manner will ensure that the safety objectives of the Welsh Government are achieved. Section1.1 lists a number of Category 1 defects that present either an Obstruction, an Immediate Safety Hazard or an Imminent Safety Hazard. Any defects encountered that are not listed should be subject to an evaluation utilising the Defect Risk Assessment procedure described in WGTRMM Part 1. The objective is to ensure that all defects identified are responded to in an appropriate timescale that protects the integrity of the network.

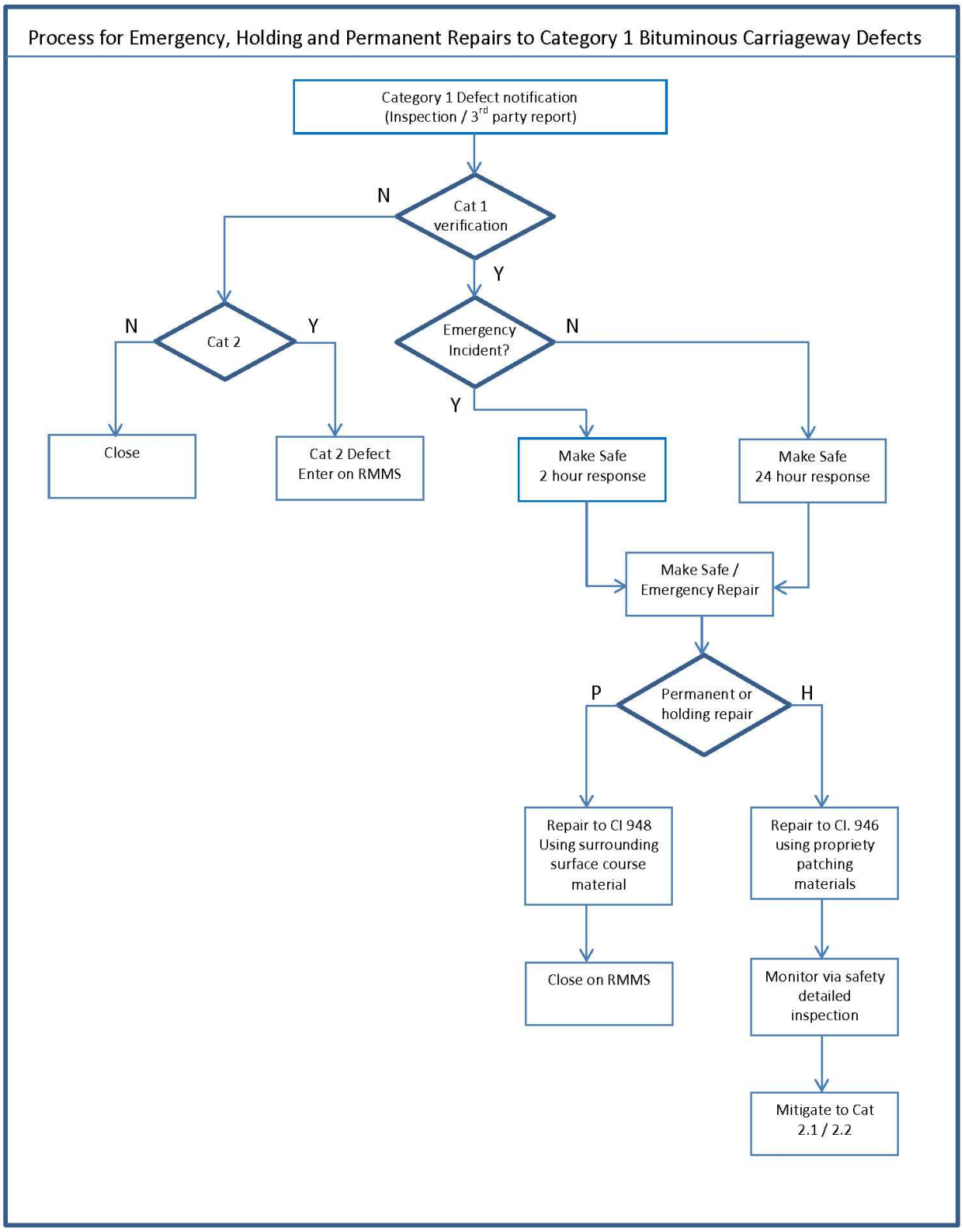
2.2.7.3 Hazard Mitigation

1 In the context of carriageway repairs it should be noted that 3 types of repair have been defined as follows:

Emergency Repair-	Typically a short term reinstatement generally in a proprietary carriageway repair material that may, depending upon the nature of the defect and risk assessment carried out, be replaced by a Holding Repair or a Permanent Repair within the timescales defined in the Minimum Performance Requirements for Paved Areas. During the period prior to the Permanent Repair the Emergency Repair must be subject to a safety inspection regime.
Holding Repair-	A mid to long term repair generally in accordance with Clause 946 of the DMRB and the requisite HAPAS approval for the material used but not necessarily in the same material as the existing surfacing.
Permanent Repair-	Action taken to effect a long term reinstatement in the same surfacing material as the existing carriageway or an appropriate alternative.

2 The process for making safe and holding repairs to potholes and Category 1 carriageway defects in bituminous surfacing is shown in Fig 2.2.7.3

Fig 2.2.7.3


Process for Emergency, Holding and Permanent Repairs to Category 1 Bituminous Carriageway Defects
Category 1 Defect notification (Inspection / 3rd party report)
Cat 1 verification
N
Y
Cat 2
N
Y
Close
Cat 2 Defect Enter on RMMS
Emergency Incident?
N
Y
Make Safe 2 hour response
Make Safe 24 hour response
Make Safe / Emergency Repair
Permanent or holding repair
P
H
Repair to Cl 948 Using surrounding surface course material
Close on RMMS
Repair to Cl. 946 using propriety patching materials
Monitor via safety detailed inspection
Mitigate to Cat 2.1 / 2.2

2.2.7.4 Emergency Incidents

1 For definitions and further information on emergencies refer to Traffic Incident Management and Contingency Planning.

2.2.7.5 Carriageways

1 The requirements of this section relate to minor repairs to the carriageway. The requirements do not relate to larger scale work needed to strengthen the carriageway or to work which would be classed as, or linked to, structural maintenance schemes

2 Conditions that are likely to prevent the achievement of the performance requirements include:

All Carriageways

- Difference in level between items (such as covers, gratings, frames and boxes) and the abutting carriageway, or differential levels between different components, exceeding 40mm.
- Parallel gullies and other gratings in carriageways, which have gaps more than 20mm wide parallel to the normal line of movement of pedal and motor cycles.
- Overgrown vegetation that is causing a hazard by encroaching on sight lines.

Flexible surfacing

- Localised cracking or breaking up (including edge deterioration) confined to a discrete area of the carriageway, or around a reinstated trench or patch and not associated with structural maintenance activities. This includes cracking or breaking up around ironwork, a difference in the level of a reinstated trench or patch with the surrounding carriageway and potholes.
- Depressions exceeding 40mm
- Fretting, or loss of material from the carriageway surface, or around a reinstated trench or patch
- Open or excessive surfacing joints wider than 20mm.

Concrete surfacing

- Spalling at joints and cracks, opening of longitudinal joints, failure of sealed cracks, vertical movement resulting in stepping at a joint or crack and also cracking.
- Dynamic movement under traffic at joints and cracks caused by lack of support from the sub-base or lack of, or ineffective, load transfer dowels or tie bars at joints. Dynamic movement is also associated with mud pumping, the usual signs of which are muddy stains on the surface of the slab.
- Vertical movement of slabs, observed in the form of settlement of the slab.
- Crazing or scaling of surface, and a loss of texture.
- Failed repairs, such as failure of overbanding or sealed cracks.

3 HD31 and HD32 give recommendations for the maintenance and repair of flexible and concrete pavements respectively.

4 Some minor carriageway repairs may be due to the activities of the Statutory Undertakers or licence holders who are governed by the New Roads and Street Works Act 1991. Since 1st

January 1993 if an excavation is still within its guarantee period and fails to meet the performance criteria, as defined in Paragraph S1.2 and Chapter S2 of the Specification for the Reinstatement of Openings in Highways, the relevant Statutory Undertaker must be informed of the defect, using the procedure contained in Chapter 4 of the Code of Practice for Inspections (New Roads and Streetworks Act 1991) and the defect inspection procedure invoked. If a potentially hazardous reinstatement is discovered, the reinstatement must be protected by signing, lighting and guarding while awaiting the Undertaker. In exceptional circumstances, where there are safety implications for the road users, the reinstatement may be made safe by the Service Provider. Any costs incurred in making safe a reinstatement must subsequently be recovered from the Undertaker. During the reinstatement guarantee period the Undertaker remains responsible for the maintenance and performance. However, defects at this stage may be picked up as a result of one of the inspection procedures.

2.2.7.6 Footways, Cycle Tracks and Bridleways

1 To meet the requirement for sustainable travel and accessibility, one objective is to provide safer and more acceptable facilities for pedestrians, cyclists and other vulnerable road users (such as horse riders). In the case of horse riders, particular emphasis is placed on the crossing of trunk roads using overbridges, and improving links to other destinations. Satisfactory surfaces on footways and cycle tracks may encourage walking, cycling, equestrian and other activities.

2 *Active Travel – Further information to follow*

3 A footway is a paved facility for pedestrians, usually within the highway boundary. Footways include the walking surfaces of subways, underbridges, overbridges and pedestrian rights of way which are the responsibility of the WG and which may occasionally fall outside the highway boundary. HD39 and HD40 give advice on the construction and maintenance of footways. The Performance Requirements utilise the “Well Maintained Highways” definitions for a hierarchy to categorise and establish inspection frequencies for footways. Service Providers should review all sections of footway on the network and categorise each such that the inspection frequency is specified and appropriate to the level of usage. Table 2.2.7.6 defines the footway categories.

Table 2.2.7.6 – Footway Hierarchy

Category	Category Name	Description
1	Prestige Walking Zones and Primary Walking Routes	Very busy areas of towns and cities with high public space and streetscene contribution and busy urban shopping and business areas and main pedestrian routes.
2	Secondary Walking Routes	Medium usage routes through local areas feeding into primary routes, local shopping centres etc.
3	Link Footways	Linking local access footways through urban areas and busy rural footways.
4	Local Access Footways	Footways associated with low usage, short estate roads to the main routes and cul-de-sacs.

4 A cycle track is a paved facility available for persons with pedal cycles, with or without a right of way on foot, usually within the highway boundary. The Performance Requirements utilise the

"Well Maintained Highways" definitions for a hierarchy to categorise and establish inspection frequencies for cycleways. Service Providers should review all sections of cycleway on the network and categorise each such that the inspection frequency is specified and appropriate to the level of usage. Table 2.2.7.6.1 defines the cycle route categories.

Table 2.2.7.6.1 – Cycle Route Hierarchy	
Category	**Description**
A	Cycle lane forming part of the carriageway, commonly 1.5 metre strip adjacent to the nearside kerb. Cycle gaps at road closure point (no entries allowing cycle access).
B	Cycle track, a highway route for cyclists not contiguous with the public footway or carriageway. Shared cycle/pedestrian paths, either segregated by a white line or other physical segregation, or un-segregated.
C	Cycle trails, leisure routes through open spaces. These are not necessarily the responsibility of the highway authority, but may be maintained by an authority under other powers or duties.

5 Defects on footways and cycle tracks affect safety, maintenance and serviceability and compensation claims may result from defects that have not been repaired. Therefore, a pro-active rather than a re-active approach is needed, to identify defects before they become categorised defects

6 Conditions that are likely to prevent the achievement of the overall requirements for Paved Areas include:

Footways and cycle tracks

- Unevenness, including ridges, projections, sharp edges (trips), cracks and gaps (>20mm). Block profiles, which include ridges, projections, sharp edges (trips) with a difference in level (>20mm), cracks and gaps (>20mm wide). Also a slab rocking that creates a hazardous upstand (>20mm).
- Potholes, loss of material or small areas of depression (>25mm) which are creating or are likely to create a hazard.
- Local cracking of the asphalt surface confined to a discrete area or extensive cracking affecting the major part of a footway/cycle track. Fretting (loss of material leaving the coarse aggregate proud of the matrix or causing loss of coarse aggregate). Failed patch with adjacent cracking, loss of material from an existing area of patching, and difference in level (>20mm) and depressions (>25mm) that are creating a hazard.
- Trench reinstatement and adjacent cracking, loss of material (fretting) from a reinstated trench, and difference in level, (which applies when a trench has subsided or has been left proud following reinstatement and includes ridges, projections, sharp edges (trips), cracks and gaps (>20mm) and also depressions (>25mm). A temporary reinstatement with a 10mm upstand or depression associated with a temporary reinstatement that poses a risk to users.
- Hazards such as fallen trees, unsafe signing, lighting or guarding of excavations, unsafe steps, persistent snow, ice or leaves, contaminants (such as oil) giving rise to slipping, a loose surface or encroachment by vegetation.

Footways Only

- Standing water (>10mm deep), which restricts the footway width to less than 500mm or is likely to cause pedestrians to use the adjacent carriageway. This is particularly a problem when the water freezes.
- Difference in levels between items (covers, gratings, frames and boxes) and abutting footway, or differential levels between different components (>20mm).

Cycle Tracks Only

- Standing water (>10mm deep), which restricts the cycle track width or is likely to cause cyclists to use the adjacent carriageway. This is particularly a problem when the water freezes.
- Parallel gullies and other gratings in cycle tracks with wide gaps (>20mm), parallel to the normal line of movement of pedal cycles.
- Difference in levels between items (such as covers, gratings, frames and boxes) and the abutting cycle track surface, or differential levels between different components (>20mm).

7 Particular consideration must be given to defects, such as trips, which may constitute an immediate danger to pedestrians and/or cyclists. It should be noted that some hazards are likely to be seasonal. HD39 and HD40 describe repair procedures for footways and cycle tracks.

8 Some defects may result from the activities of the Statutory Undertakers or licence holders who are governed by the New Roads and Street Works Act 1991. If defects occur, within the guarantee period, as defined in the Specification for the Reinstatement of Openings in Highways, the Undertaker must be informed of the defects, using the procedure contained in the Code of Practice for Inspections.

9 Damage to the footways may be caused by vehicle over-riding, particularly in urban areas and at road junctions where the footway may be immediately adjacent to the carriageway edge. Consideration should then be given to the provision of high strength in-situ concrete margins up to 1m wide behind the kerb or locally at road junction radii. Alternatively, consideration should be given to carrying out an improvement scheme to alleviate the problem in which case a report and proposal for action should be made to WG. HD40 provides further advice.

10 Pre-cast concrete footway slabs that have superficial cracks only must not be replaced as a routine maintenance operation unless there is a need to reset the slab because of other defects.

2.2.7.7 Covers, gratings, metal tree guards and grilles, frames and boxes

1 Conditions that are likely to prevent the achievement of the overall performance requirements for Paved Areas include:

- Covers, gratings tree guards or grilles that constitute an immediate hazard, particularly by a relative movement under load exceeding 10mm. In urban areas, rocking covers or gratings causing noise should be identified as a defect with a high priority for treatment.
- Cracked or broken items which may be in danger of collapse and thus liable to cause a hazard.

- Worn covers are a hazard for pedal and motor-cycles from skidding in wet conditions.
- Missing items are likely to constitute a hazard.

2 Covers situated in verges that are traversed by pedestrians must not be ignored, as they may pose a hazard. It may often be difficult to decide whether a cracked or broken item is in real danger of collapse. If in doubt, it must be replaced, irrespective of its position.
3 Defects in covers and gratings may pose particular danger to pedal and motor-cycle users. It should be remembered that occupancy of the road by these road users will not always be limited to the nearside lane and that the potential hazards affecting them may also occur in other lanes.

4 Rocking gratings or covers with only small movement under load may nevertheless be a nuisance in urban areas because of the intrusive noise they make. If complaints are received, they should be corrected.

5 When inspecting the gratings of gullies and other similar surface water catchment items, the opportunity should be taken to check that the item is functioning satisfactorily and is not partially or wholly blocked.

6 If hazards to road users are recorded which are not the responsibility of the WG it may still be necessary to make such defects safe. The costs incurred in repairing such hazards must be recovered from the other parties.

2.2.7.8 Kerbs, edgings and pre-formed channels

1 Conditions that are likely to prevent the achievement of the overall performance requirements for Paved Areas include:

- Vertical projections (>20mm) and horizontal projections (>50mm)
- Loose / rocking / damaged kerbs and/or damaged edgings and pre-formed channels of all types which are creating or are likely to create a hazard or lead to loss of support or protection.
- Poor local alignment of pre-formed channels which could give rise to danger or nuisance from standing water or damage to the highway structure caused by water penetration.
- Missing kerbs, edgings and pre-formed channels of all types

2 Although kerbs, edgings and pre-formed channels, tend to be stable by their nature and construction specification, hazardous conditions can develop quickly when either individual kerbs, or short lengths, are damaged or moved out of alignment by heavy vehicles, or by local subsidence. Frequent damage by heavy vehicles may suggest the need for local re-alignment or a more robust treatment. Short lengths of kerb serving gullies or grips must not be overlooked.

2.2.8 Drainage

2.2.8.1 General

1 The purpose of drainage is to both intercept and channel water runoff from adjacent land and to remove water from trafficked and other paved surfaces, where it may represent a hazard and disrupt the free flow of traffic, and from sub-layers of the pavement and adjoining earthworks, where its presence may damage the pavement or other structures. The drainage system must remain structurally sound so as to be safe and avoid subsidence and deterioration. In removing the water, the drainage system must be maintained to its design performance or similar to prevent pollution of ground and surface water, and flooding of adjoining property or services. This requirement includes drainage systems that interface with parts of the highway drainage system. The Service Provider should therefore adopt a proactive approach to identify potential defects in drainage systems owned by others that could affect the performance of the network.

2 To mitigate the effects of flooding from all sources, documented contingency plans for dealing with the flooding of any part of the network should be prepared in advance and implemented as soon as flooding occurs.

3 Parts of the drainage system may support wildlife therefore routine activities on drainage must take into account ecological requirements. All works should be screened by the Service Provider to determine whether the works are likely to have an impact on statutory protected or designated habitats and species and the outcome of the process must be recorded. Where works are likely to affect these, the relevant statutory body must be consulted and, where necessary the relevant protected species licences or assents obtained prior to the commencement of works.

4 A flexible approach based on operational experience should effectively target critical points in drainage systems.

5 The supply of clean water provided from the WG's facilities for flushing, cleaning and refilling operations cannot be guaranteed and the Service Provider must make his own additional arrangements for the supply of clean water.

6 The Service Provider shall give consideration to the likely presence of protected species in all drainage features. Appropriate advice must be sought from an ecologist or WG's Environmental Advisor, before commencing work.

2.2.8.2 Management Guidance

1 Adequate drainage facilities must be present and operate correctly to:

- Avoid the accumulation of water on the trafficked surfaces of the highway that reduces the safety of the highway user.
- Adequately drain the road pavement structure to reduce maintenance liabilities and help realise the design life of the road.

- Avoid disruption to the traffic flow caused by flooding.
- Prevent nuisance to adjoining landowners caused by flooding.
- Avoid polluted effluent, from the highway drainage facilities, being directed indiscriminately into watercourses.
- Avoid reuse/recycle of runoff effluent during drain cleansing operations

2 Conditions that are likely to prevent the achievement of the performance requirements are:

- Full or partial blockage
- Standing water
- Detritus /refuse / weed growth / roots are all likely to reduce flow, damage the structure and may appear unsightly.
- Cracking / deformation / alignment of components of the drainage system adversely affecting the structural or hydraulic performance or durability of components of the system.
- Complete structural failure of components of the drainage system.
- Removal of material in the invert (scour) adversely affecting the hydraulic or structural performance or durability of components of the system.
- Removal of material in sides/ banks / walls / bunds by erosion
- Complete or partial blocking of filter material.
- Displacement of surface filter material
- Inadequate flow of water prevents self-cleaning.
- Surcharge of water not contained within the drainage system.
- Inadequate facilities for the removal of water from the balancing pond
- Failure or incorrect operation of equipment associated with outfall regulating device pump / sluice / tidal flap / headwall / apron / penstock
- Damage to grassed surface water channels (e.g. by vehicle overrun).
- Loose, rocking, ridges, projections, sharp edges (trips), cracks and gaps that result in an element of the linear drainage system projecting >20mm.
- Flooding of the highway, adjoining property or services caused by the inadequate provision or operation of highway drainage, or other facilities.

3 Any routine (or other) maintenance work should be carried out in accordance with:

- Current legislation, including Water Framework/Groundwater Directives and equivalent UK regulations
- WG Policies and Strategies
- WG Technical Guidance, including DMRB
- WG Procedural Advice and Instructions
- River Basin Management Plans
- TREBAP. Surveys may also be required for protected species
- EMP
- Relevant best practice

4 The Service Provider should confer with relevant statutory organisations (NRW, IDB and unitary authorities) and obtain all licences and consents that are required to meet environmental and other legislation.

5 During Winter maintenance periods, any areas of water seepage / standing water must be addressed as a matter of priority where such conditions have the potential to lead to the formation of ice. Winter maintenance decision makers and managers are to be made aware of any such conditions in informing the decision making process.

6 Whenever vegetated drainage systems are implemented, maintenance should be carried out in accordance with the relevant technical guidance. 6 Any queries that arise from the environmental requirements detailed should be directed to the Service Provider's Environmental Co-ordinator.

7 All drainage details (plans (old and current), 'as-built' drawing, outfall details etc.) shall be recorded on WGDDMS.

2.2.8.3 Piped drainage systems

1 A record of piped drainage systems excluding gully connections, slot drains and piped grip connections shall be maintained by the Service Provider. The record, preferably in the form of layout plans, will supplement information held on the IRIS RMMS inventory by providing details of pipe runs.

2 If properly designed and constructed, piped drainage systems should normally be self-cleansing and maintenance is only necessary when a blockage or another fault occurs. Those parts of a system that are problematic (e.g. are prone to flooding) will be known or faults can be identified from Safety Inspections, or reports and complaints received from other sources.

3 Symptoms of blockage or faults that prompt further investigation include: backing up and flooding at the entry points to the piped drainage system; dry outfalls; wet areas on verges; and the presence of lush vegetation.

4 Suitable methods of inspection include:

- Inspection of the facilities during gully, manhole, catchpit and interceptor emptying and cleansing operations
- Although the conventional method of pulling a mandrel through the pipeline may indicate if a pipe is broken, distorted, silted up or contains roots, it cannot be relied on to distinguish between these defects
- Video inspections need not be restricted to parts of the network having particular drainage problems. CCTV is currently the most informative inspection method and can be used as an inventory asset condition tool. The technique can indicate a wide range of defects (e.g. cracks, blemishes, encrustation, displaced or open joints, silt build up, debris, depressed or collapsed pipe sections, and root ingress) and may be carried out in conjunction with flushing. A library of reports and video recordings containing records for a period of 12 years may be needed to provide a comprehensive record of all the drainage facilities.

- Hand-rodding is a suitable technique for gully connections or short pipe connections where a mandrel or video inspection cannot be used. This method is not very informative but should indicate blockages and silt build up.
- Flushing of pipelines is less informative than using a mandrel but provides the best method of inspection in areas of subsidence and where the use of a mandrel is not appropriate. Flushing should be by means of high volume, low-pressure water.
- Inspections at manholes, catchpits and interceptors during or immediately following a period of prolonged rainfall can provide measurements of the depth of water within the entries of pipes, in successive manholes, catchpits or interceptors along a drain run may indicate any blockage or fault.

5 Whilst these methods of inspection all can be utilised depending on the prevailing circumstances it is recommended that the "Quickview" proprietary process is used to undertake the 10 yearly system inspection. This process is cost effect and time efficient and whilst it may not always identify the extent of a defect it will point the need for further investigation utilising any of the above methods.

6 Maximum use shall also be made of gully, catchpit and interceptor emptying and cleansing operations, and of their inspection procedures, to check that piped drainage systems are operating satisfactorily

7 Flushing under pressure is not appropriate for filter drain and fin/narrow filter drainpipes. Also, structured wall thermoplastic pipes may not withstand high jetting pressures and the structural condition of much of the highway drainage network is unknown. Where the condition of any sewer or highway drain is not known, it is recommended that the maximum pressure does not exceed 130MPa (1900psi).

8Other sources of guidance on the maintenance of piped drainage systems include:

- Sewer Jetting Code of Practice (WRC, 1997).

2.2.8.4 Gullies, catchpits, grit traps, interceptors, soakaways and manholes

1 Experience has shown that the operation and maintenance of these items is effective if they are emptied of silt and other detritus at a frequency that is sufficient that solids do not enter the drainage system. The operation of soakaways, in particular the soakage rate, may be checked against their design for satisfactory working. The soakage rate can be measured after a period of prolonged rainfall using the falling head method described in BS5930.

2 Gullies, catchpits and interceptors shall be emptied **once per year**, although a need for a greater (or lesser) frequency may be established and agreed using the risk assessment process. The frequency of cleansing of oil interceptors will be a minimum of 6 month intervals but this may be increased depending upon their design and location.

3 Once the frequency of emptying has been decided, the exact timing of the emptying programme is a matter for determination by the Service Provider, so that local factors can be taken into account as far as possible.

4 Pollution may arise from gully cleaning and the decomposition of organic material in the gully sump. Material with a high biological oxygen demand (BOD), washed into a watercourse from the highway drain during periods of low base flow, can result in pollution with the consequent

impact on aquatic life forms. The re-use of water from the gully sump for flushing purposes may result in the pollution of downstream watercourse systems. Particular care will need to be taken in respect of health and safety for the cleaning of large diameter deep bored soakaways.

5 Silt and other solids arising from emptying and cleansing operations pose a potential threat of pollution and shall be disposed of in an appropriate manner to a licensed waste management facility.

2.2.8.5 Piped grips

1 The requirements of this section relate to repairs to piped grips (weirs or offsets), defined as short lengths of pipe, usually in rural areas, carrying water from a channel across the verge direct to a ditch, filter drain or soakaway, without a gully-pot, but sometimes with a grating. Where pipe lengths exceed 5m the requirements of Section 2.2.8.3 shall also apply. Gratings, where fitted, shall be dealt with as set out in Part 1.1 and Section 2.2.7.2.

2 The importance of piped grips should not be under-estimated. They have often been added some time after construction or re-alignment of the road, at known sensitive drainage points or as an alternative to a grip to provide safer passage along soft verges for pedestrians and equestrians. The connecting pipe is usually laid close to the surface and is therefore prone to damage. This in turn may result in a blockage. A waterlogged verge is often an indication of ineffective grips.

3 During the execution of cyclic maintenance of gullies, catchpits and interceptors, the opportunity shall be taken to check that piped grips are operating satisfactorily, and, where necessary, to carry out maintenance work. This check should include proving, by flushing or jetting with water, that the connecting pipe has sufficient fall and is not blocked.

4 Methods of checking the operation of piped grips include proving, by hand rodding and/or high volume low pressure flushing, or jetting with water.

2.2.8.6 Grips

1 The requirements of this section relate to repairs to grips, defined as open channels cut across rural verges and leading to ditches or filter drains, ending at an appropriate distance from the carriageway or hard shoulder. The principles set out in Section 2.2.8.5 apply equally to grips

2 Grips need to be re-cut to maintain their function fully, at a frequency established by experience. A frequency of once each year is normally necessary and is best carried out following verge cutting. This work should, as far as possible, be co-ordinated with other cyclic operations such as siding and gully emptying. Re-cutting the grips may cause excessively deep channels across the verge and these may be a safety hazard to other users of the verge (e.g. pedestrians and equestrians). Whenever a grip is cut to a depth that can accommodate a suitable pipe, the grip should be converted to a piped grip or another suitable drainage system should be considered.

2.2.8.7 Ditches

1 Within the boundaries of motorways, the maintenance of ditches is generally the responsibility of WG, but this may not apply to connecting ditches outside the motorway. In the case of APTRs, ditches along older sections outside the highway boundary are more likely to be the responsibility of adjacent landowners or occupiers, where the principle of riparian ownership would apply, while those on more recently constructed lengths (where land has been specifically purchased for the road), are likely to be WG's.

2 Ditches can become overgrown with vegetation, silted, blocked with debris/rubbish, or the banks may be eroded, to the extent that flow is impeded. Water in the ditch is not itself harmful unless stagnation (resulting in a health hazard) or flooding occurs, or a resulting high water table adversely affects the road or other structural foundations. Water in a ditch may be a nuisance to adjacent land users.

2.2.8.8 Filter Drains and Fin/Narrow Filter Drains

1 Filter drains act as a drain for surface water run-off from carriageways, hard shoulders, verges, cutting and embankment slopes, and adjacent land. Separately, or in combination, they also control the ground water level below the road and other structures, adjacent verges and land outside the highway.

2 The efficiency of filter drains and fin / narrow filter drains can be seriously impaired by the formation of a silt crust, with or without vegetation growth, on the top of the filter material, or by the accumulation of trapped silt in the lower layers.

3 The surface condition of filter drains can be detected easily by inspection at ground level, but the deeper accumulations can only be confirmed by excavation, usually by means of trial pits. Where the filter drain performs the dual role of surface and sub-surface water collection, ponding at the surface will occur if the drains are not performing adequately. If there is no obvious surface defect, ponding will almost certainly indicate silt in the lower layer. Defects in fin/narrow filter drains are not easily detected and usually can only be confirmed by the excavation of trial pits. Pavement vibration during the passage of a heavy vehicle may indicate a water logged foundation caused by a defective fin/narrow filter drain.

4 Detailed inspections of filter drains may involve excavation of trial holes if there is surface evidence of existing or potential blockage or some other fault.

5 It is probable that, unless there is an obvious cause for a localised defect, a length of filter drain or fin/narrow filter drain will show a consistent defect. The replacement of the filter media, by either new or cleaned existing material, will usually be carried out as part of the planned programme of maintenance works. Where alternative surface finishes have been used for filter drains, e.g. pre-coated chips, tar spray or bitumen bonded shredded tyres, an appropriate cleaning method will need to be chosen.

6 Where work is carried out on filter drains care should be taken to preserve the integrity of geotextile liners if present.

7 Failure of fin and narrow filter drains can have a detrimental effect on the longevity of the pavement. Where the performance is not adequate, the installation of a catchpit at, say, every 200m along the line of the filter or fin drain has been found to be an effective action.

2.2.8.9 Culverts

1 The requirements of this section relate only to examination for scour and the maintenance of free flow of water through culverts. Routine maintenance is therefore largely a matter of inspection and clearance when the need arises.

2 Larger culverts, as defined in 2.2.10 (Structures), shall be inspected and maintained as highway structures.

3 Many culverts can tolerate some silting and vegetation growth before efficiency is impaired to the point where the culvert needs clearing. Grills fitted across the ends of some culverts are however particularly prone to blockage, restricting the free flow of water through the culvert. Video inspections have been found to be suitable for determining the structural condition of culverts.

2.2.8.10 Vegetated drainage systems for highway runoff

1 The requirements of this section relate to repairs to vegetated drainage systems including balancing ponds. They do not relate to any associated feeder pipes or ditches.

2 Balancing ponds and associated feeder pipes, or ditches, are sometimes provided for flood control purposes where the storm run-off from highway surfaces is too rapid to be safely dealt with by the receiving water courses. This important provision and the need for maintenance can easily be overlooked since the ponds are sometimes some distance from the highway. Flooding and/or damage to installations downstream of the pond can be a serious matter and maintenance should not be neglected.

3 Vegetated drainage systems are examples of systems described elsewhere as sustainable drainage systems that are suitable for highway use for the conveying, storing and treating highway runoff. They are designed to enable the WG to comply with pollution protection legislation so as not to pollute receiving watercourses. As a consequence of this, maintenance of these systems is essential for the continuing protection and must take priority.

4 DMRB standard HA 103 includes requirements and advice for the maintenance of such systems. Although specific maintenance regimes are suggested, the Service Provider shall adopt a proactive approach based on local knowledge and site specific issues to fulfil the performance requirements.

5 The effectiveness of vegetated drainage systems can be easily and seriously impaired. There are some common faults that have been found to significantly affect their performance including:

- Blockage of the feeder pipes or ditches
- Silting in ponds causing a loss of storage capacity and an accumulation of heavy metals that may increase the risk of pollution
- Damage or erosion to pond banks, walls or bunds
- Damage or obstruction to pond outlet, which affects the controlled rate of discharge
- Loss or damage to vegetated drainage systems which renders pollutant removal ineffective

6 Pond operating systems may be quite complex and further planning is needed before

- Operation and maintenance manuals may describe procedures for the effective management of the pond

- Balancing ponds may often become important sites for nature conservation. Prior to commencing maintenance it is advised that relevant ecological issues are addressed.
- Planned replacement of pond vegetated drainage systems (e.g. on a cyclic basis) can be planned as part of the maintenance activities.

2.2.8.11 Ancillary Items

1 The requirements of this section relate to maintenance and repairs to ancillary drainage items including headwalls, aprons, trash screens, sluices, tidal flaps, penstocks, valves and pumps.

2 A schedule of the more important ancillary items for highways drainage, including all sluices, tidal flaps, trash screens and pumps, shall be prepared and maintained by the Service Provider.

3 A complete drainage system may include many ancillary items and these should be inspected for erosion damage and operational efficiency. It is particularly important that sluices, tidal flaps and pumps operate as intended because a fault can result in extensive damage and flooding. Retention tanks and pump wet wells are prone to silt accumulation which will affect the storage and operational efficiency of the installation. Failure of pumps and other specialist equipment can lead to flooding, pollution and excessive water on the highway. The manufacturer's advice on maintenance schedules for this equipment must be followed.

4 Effective operation of the ancillary equipment is maintained if the items are emptied of silt, grit and other detritus at intervals sufficient to avoid solids entering the equipment.

2.2.8.12 Linear Drainage Systems

1 Linear drainage systems are shallow in depth and are generally at the edge of pavements, in nosings to slip roads and in central reserves. These systems are prone to accumulation of silt where the flow speed is insufficient to self-clean the system. Therefore, these items may need to be emptied of silt and other detritus to avoid solids entering the drainage system. Cleaning is normally carried out by large volume, low pressure, water flushing.

2 Silt and other solids arising, from emptying and cleaning operations may cause pollution. Material must be disposed of in accordance with the relevant waste management regulations and legislation.

2.2.8.13 Road-edge Surface Water Channels

1 Road-edge surface water channels are now a widely used technique for dealing with surface water run-off from the road surface. Designers consider they often have advantages, including ease of maintenance, over filter drains and kerbs / gullies. Further information covering the design of drainage systems and of such channels is available in DMRB standards HD33 and HA 37.

2 Although road-edge surface water channels are designed to be low maintenance aspects that have been found to affect their performance include:

- Build-up of sediment or pollutant (particularly in areas where the channels are not self-cleansing)
- Blocked outfalls creating areas of ponding water

- Silt removal from the channel can be carried out by either water flushing or by manual or machine sweeping.
- Silt and other solids arising from cleaning operations may cause pollution. Material must be disposed of in accordance with the relevant waste management regulations and legislation.

2.2.8.14 Grassed Surface Water Channels

1 Channels may become blocked with arisings from grass cutting of the verge. The cuttings may need to be removed around outlets and for the first 5 metres of channel upstream of the outlet. The outlet is deemed to be the end of the channel or the point at which the channel reaches the highway boundary/ boundary of WG land. Elsewhere it is not usually necessary to remove the arisings.

2 Vehicle rutting may change the direction of flow of water run-off. Where extensive rutting has occurred, it may be necessary to reshape and re-seed the verge with an approved grass seed type but other options (e.g. conversion to a hardened verge) may also be considered.

2.2.8.15 Flooding

1 The requirements of this section relate to flooding of the highway caused by the inadequate provision or operation of highway drainage facilities, by abnormally high river and tidal water or by inadequacies in the non-highway drainage system.

2 The advantages of and need for an accurate, location referenced inventory system for gullies and other drainage items is further highlighted by the problems which are often experienced when dealing with flooding. Such drainage items are often submerged and may be the cause of flooding. Their easy location will help to speed relief and reduce the extent of the hazard and any related interference with traffic flow and consequential claims and complaints.

3 Monitoring of national and local weather forecasts and flood warnings from Natural Resources Wales / Environment Agency can aid the initiation of preventative maintenance of drainage systems if it is considered that adverse conditions may lead to flooding or disruption of traffic.

4 Additional Safety Patrols shall be undertaken during or immediately after periods of very heavy/prolonged precipitation to identify areas which may be prone to flooding and also to take limited immediate action should blockages arise. Where flooding occurs, causing hazardous conditions and it is not possible to take immediate action to resolve the problem then the appropriate warning signs shall be placed in position as quickly as possible.

5 Gullies may be blocked (e.g. by leaves) but gullies and other drainage items are often submerged and it may be difficult to confirm they are the cause of flooding. Covers may be dislodged particularly on hills where surcharging occurs. Reliable information on location and type of gullies through the availability of an up to date inventory would ease considerably the actions to be undertaken at the time of flooding.

6 The cause of the flooding shall be ascertained and given prompt attention, in order to restore the highway to a reasonable condition. Where it is determined that the flooding is attributable to inadequate infrastructure, given the nature of the weather conditions under which it occurred, the necessary action to permanently relieve the problem shall be the subject of a prompt report, and proposal for action, to WG. If the cause is attributable to the actions of a third party, the matter should be taken up with them at the earliest opportunity.

7 The responsibility for the maintenance and inspection of structures, drainage ditches and watercourses that interface with highway drainage systems must be established through consultation withal relevant organisations (eg unitary authorities, Natural Resources Wales and riparian owners). Provision of these details to appropriate maintenance staff will aid the effective organisation of the works in advance and at the time of flooding.

8 Alterations or improvements to the highway drainage system may prevent carriageway flooding caused by water being shed from adjacent land. It is not appropriate in all cases just to take the matter up with the adjacent landowner and positive advance actions may be a more efficient approach to the provision of adequate drainage.

2.2.9 Geotechnical Assets

2.2.9.1 General

1 The requirements for Geotechnical Asset Management relate to the establishment of an asset register, identifying potential problems (defects) and carrying out routine maintenance only. Any large scale maintenance work that is needed would be classed as Renewal Maintenance. Asset details shall be recorded and managed within the Welsh Government Geotechnical Data Management System (WGGDMS) database.

2 Failures of geotechnical assets may create hazards to network users, cause damage to paved areas, structures, services or other property (including outside the highway boundary) and disrupt the free flow of traffic and other network users. Identifying failures in their early stages of development is advantageous as they can often be remediated before more serious consequences occur. The DMRB sets out a Risk Assessment Framework which identifies features that may affect these assets and considers the effect that a failure may have on other principal assets. The procedures to be followed for risk management of geotechnical assets are those detailed in HD22 (Managing Geotechnical Risk).

3 Geotechnical defect features may be identified as a result of routine activities, such as Safety, Annual or Principal Inspections, inspections of other assets or following other reports or complaints. On identifying any such defects, the Service Provider shall undertake appropriate action in accordance with HD41 (Maintenance of Highway Geotechnical Assets).

4 The geotechnical assets are likely to incorporate areas which may be protected sites for their geological interest, incorporate measures to provide landscaping and visual interest and support wildlife habitats and species; therefore routine activities on geotechnical assets must take into account ecological and other environmental requirements.

2.2.9.2 Management Guidance

1 HD41 sets out the requirements for the management of geotechnical assets, including Annual and Principal Inspections. However geotechnical defect features may also be identified as a result of routine activities or following other reports or complaints.

2 Principal inspections shall be carried out every five years at a rate of at least 20% of the network per year so as to phase any necessary remedial work. Thereafter the frequency of re-inspection may be reduced or increased to reflect the risk to the network in accordance with the DMRB.

2.2.9.3 Geotechnical Asset Management

1 Providing a systematic and ordered approach to geotechnical asset management allows realisation of the following objectives:

- Integration of maintenance management with higher level business objectives;
- Integration of geotechnical asset management with other related parts of the asset (particularly structures, drainage and pavements) and to management of the asset as a whole;
- Maintenance of the asset in a safe, serviceable and sustainable condition;
- Demonstration of ‘best-value’ and minimisation of whole life costs and,
- Development of longer-term indicators of condition performance.

2 Geotechnical asset management comprises a suite of inter-related processes which are required to operate on a rolling cycle based on a comprehensive inventory of all geotechnical assets within the Service Providers area of responsibility. Each process contributes to the primary objective of providing a safe, sustainable and serviceable network. The principal processes are:

- Provision of the Geotechnical Asset Management Plan (GAMP);
- Development of the asset inventory via detailed inspection, recording and reporting;
- Strategic risk assessment of geotechnical features;
- Data management;
- Programming and prioritisation of maintenance activities;
- Financial planning and,
- Review of outcomes against original asset management plan to recommence cycle.

3 Historically the individual processes have tended to be viewed discretely and the understanding of their integration into the wider process not fully developed. It needs to be appreciated that asset management, as a wider over-arching process and within the geotechnical sectors, has not yet reached maturity.

4 The following takes a more detailed view of geotechnical asset management planning and details the standards and guidance that relate to the processes of asset inventory provision, asset inspection, data management and strategic risk assessment of geotechnical hazards.

2.2.9.4 Provision of the Geotechnical Asset Management Plan

1 It is widely recognised that a key facet of any successfully managed project is project planning; geotechnical asset management is no exception. Planning is an important element that will add structure to the wide-ranging scope of activities required of the Service Provider and is embodied in the provision of the Service Provider's Geotechnical Asset Management Plan (GAMP).

2 The GAMP can be viewed as a project-management tool and a strategic planning document to assist in the management of the geotechnical asset. Whilst greater adherence to project and business management techniques is important, it is crucial that the Service Provider maintains or secures access to appropriate levels of geotechnical knowledge, competence and resource levels. There may be some need to diversify skills, but the most important requirement will be for geotechnical staff to liaise with other disciplines to realise the whole process.

3 Requirements for the submission of the GAMP at prescribed intervals are set out in HD 41. A further one-off mandatory requirement is included at 2.2.9.5 below.

4 The GAMP should include:

- Outline of the contract requirements;
- Standards and specifications relevant to the contract;
- Environmental checks (SSSI, SAC and RIGS)
- List of key geotechnical personnel;
- Asset inventory and condition assessment;
- Underlying geology of the asset and particular geotechnical hazards;

- Maintenance strategies for the long-term based on sustainable use of physical resources and whole life costing;
- Programme development to include inspections, surveys and any wider programmes of maintenance and improvement relating to the geotechnical asset;
- Network management information requirements and status;
- Operational consequences of outstanding maintenance obligations;
- Identification of future funding requirements to maintain required levels of service and,
- Performance reporting.

5 Differences in geology, geomorphologic influences and hydrogeology at both a regional and national scale mean that the materials comprising the asset will vary significantly as will their physical properties. Geotechnical Assets will be constructed of a diverse range of natural geological strata and man made materials, many of which may have been reworked, mixed or modified to render them as suitable engineering materials. These materials may also be supported, strengthened or drained to aid stability or reduce subsidence. Consequently the mechanisms controlling and influencing the failure or degradation of the asset will vary both regionally and locally. Maintenance strategies will need to reflect these variations and must be set out in the GAMP.

2.2.9.5 GAMP Submission

1 The GAMP will be used to prioritise spending when allocating budgets in this element of the non-pavement capital expenditure. In support of this, completion of GAMPs to a consistent standard is required.

2.2.9.6 Standards and Guidance

1 HD41, ‘Maintenance of Highway Geotechnical Assets’ provides requirements and guidance for Service Providers.

2 The reporting requirements set out in HD41 for the submission of the Geotechnical Principal Inspection Form, Geotechnical Maintenance Form and any reporting as part of ‘survey requirements’ to assess geotechnical defects are subject to the quality and risk management system which is set out in HD22. Geotechnical Certification shall be completed as detailed in HD 22 with detailed certification procedures agreed between the Designers (Service Providers) Geotechnical Adviser and the WG Geotechnical Adviser.

2.2.10 Structures

2.2.10.1 General

1 The structures manuals maintained by the Service Provider must contain the routine service schedules as required by DMRB. For the avoidance of doubt, any electrical installations contained within a structure will be subject to the requirements contained within WGTRMM Road Lighting.

2 A structure manual should exist for all structures in accordance with DMRB and shall be reviewed and updated in line with inspections programme. The specific requirements for each structure should be followed, along with any recommendations from the manufacturers of components used on the structure. However, manufacturer's recommendations are often at set time intervals, rather than as a function of the degree of use to which the items are subjected. These may vary with time and from location to location. Therefore, with competent judgement, manufacturer's recommendations may be varied in the light of local conditions and experience.

3 The cyclical maintenance requirements for structures do not relate to repairs or to work that would be classed as or linked to Renewal Maintenance.

4 For structures or parts of structures over, under or alongside the network but not owned, or maintained by the WG; the Service Provider should adopt a proactive approach to those structures that could affect the safety of the motorway and trunk road network and define the responsibilities for their maintenance within the structures manual.

5 Structures and their foundations must remain structurally safe and sound and should remain within tolerable levels (as defined within the BD62 structures manual) of deformation, vibration and settlement likely to affect the performance or durability of the structure. The preservation of structures by cyclical maintenance contributes to avoid later, more expensive repairs or the replacement of structures and disruption of network users. The appearance of structures should also be considered as it contributes to the image of the network and structures with poor appearance may undermine public confidence in the safety of the network. However, aesthetic defects should not be treated ahead of safety and legislative requirements.

6 The requirements for non-structural elements are contained in other sections of WGTRMM. However any immediate or imminent structural hazard observed during these activities should be treated as a Category 1 defect.

7 Parts of structures may support wildlife; therefore routine activities on structures must take into account ecological requirements. **The Service Provider is reminded that consideration needs to be given to the likely presence of protected species, in particular bats, in structures. Appropriate advice must be sought from the Service Provider's Environmental Co-ordinator or an ecologist, before commencing work which may be subject to licensing if protected species presence is confirmed. If bats are discovered during maintenance work, work must cease immediately and advice sought.**

2.2.10.2 Inspections

2.2.10.2.1 General Inspections

1 A General Inspection comprises a visual inspection of all parts of a structure that can be inspected without the need for special access equipment or traffic management arrangements. General Inspections are fully described in BD63 and are undertaken every 2 years.

2.2.10.2.2 Principal Inspections

1 A Principal Inspection is more comprehensive and provides more detailed information than a General Inspection. A Principal Inspection comprises a close examination, within touching distance, of all 'inspectable' parts of a structure. Principal Inspections are fully described in BD63. The frequencies of Principal Inspections shall be determined through a risk based approach which could potentially extend the frequency to a period of 12 years.

2 When undertaking Structures Principal Inspections, consideration should also be given to the co-ordination of BS 7671 inspections and testing of electrical installations contained within the structure. Details of the electrical requirements are contained within Section 2.2.17 – Road Lighting.

2.2.10.2.3 Special Inspections

1 A Special Inspection of a structure may comprise a close visual inspection, testing and/or monitoring and may involve a one-off inspection, a series of inspections or an on-going programme of inspections. As such, Special Inspections are tailored to specific needs. Special Inspections are fully described in BD63.

2.2.10.3 Management Guidance

2.2.10.3.1 General

1 Many of the maintenance activities for structures are minor in themselves, but failure to carry them out may lead to the deterioration of the structure, and the need for more serious and costly repair operations in the future. Generally, it is considered cost effective in whole life cost terms, to undertake timely cyclical and repair activities. These form an important component in the development of a coherent ongoing structures management strategy. In general the structure must be maintained to a condition that gives assurance of safety and serviceability until the next inspection unless local conditions or experience has shown more regular monitoring is required.

2 The cyclical activities for structures are regarded as those which relate to servicing rather than repair and which will usually be undertaken regularly at pre-determined intervals in accordance with any operating manual, log book or routine maintenance schedule. Routine activities do not cover the repair or renewal of structural elements or components which have become unserviceable because of general wear and tear or have deteriorated for other reasons. Such work must be identified during the regular inspection process described in BD63, and included in a planned structural maintenance programme. Service Providers can get further guidance on classification of defects from the *'Inspection Manual for Highway Structures'*.

3 The inspection and maintenance requirements for the structure must be followed, along with any recommendations from the manufacturers of components used on the structure.

However, manufacturer's recommendations are often at set time intervals, rather than as a function of the duty to which the items are subjected. These may vary with time and from location to location. Therefore, with competent judgement, manufacturers' recommendations may be varied in the light of local conditions and experience.

4 If there is a need to carry out frequent routine operations (e.g. if drains regularly block), consideration should be given to the implementation of planned renewal maintenance works, to reduce the necessity for such frequency.

5 The Service Provider is reminded that it is expected to diligently implement all of the requirements for the management of sub-standard structures (as BD79), concrete half joint and hinge deck structures and that auditable records and monitoring information is to be input into IRIS/EDDMS and kept up to date, to enable the structure history to be clearly documented.

2.2.10.4 Maintenance Responsibilities

2.2.10.4.1 Overbridges

1 The Service Provider is responsible in virtually all instances for the maintenance of all structural elements below and including the waterproofing membrane, together with the parapet and any protective safety fence. However, there may be instances where local agreements have been made and the responsibility for maintaining these items may be with a third party (Unitary Authority or landowner). The Service Provider shall check the Structure Manual for the structure and the structures database before any work is planned.

2 If the road carried is also a trunk road then the Service Provider is also responsible for the inspections and maintenance of the highway elements in accordance with the procedures set out in other sections of this document. If the road carried is not a trunk road then the maintaining authority for that road will be responsible for the highway elements. Service Providers shall note that there may be local (sometimes informal) agreements in place in relation to the connection between the parapet and adjacent safety fence. Service Providers shall be proactive in clarifying the situation at these locations and subsequently update the as-built records, Structure Manual and structures database accordingly. The identification of 'gaps' in structures records and closing them is a requirement of BD62.

2.2.10.4.2 Underbridges

1 The Service Provider is usually responsible for the maintenance of all structural elements of the bridge and for the inspections and the maintenance of the highway elements in accordance with the procedures set out in other sections of this document. However, there may be instances were local agreements have been made and the responsibility for maintaining these items may be with a third party (Unitary Authority or landowner); the Service Provider shall check the Structure Manual for the structure and the structures database before any work is planned. Service Providers shall be proactive in clarifying the situation at these locations and subsequently update the as-built records, Structure Manual and structures database accordingly. The identification of 'gaps' in structures records and closing them is a requirement of BD62.

2 If a road through an underbridge is a trunk road the Service Provider is also responsible for the inspection and maintenance of that road. If a road through an underbridge is not a trunk road then the maintaining authority for that road will normally be responsible for its highway elements.

2.2.10.4.3 Subways

1 The Service Provider is responsible for the maintenance of structural elements of the subways. The maintaining authority for the footway through the subway is normally responsible for all routine activities which relate to the finishings, footway surfacing, drainage and lighting. Failure to carry out regular maintenance of these items does not normally prejudice the structural integrity of the subway. However particular attention is drawn to the maintenance of drainage pumps which may exist in subways (and also underpasses). The Structure Maintenance Manual for the structure will contain the details of maintenance responsibility.

2.2.10.4.4 Footbridges and Cycle Bridges

1 The Service Provider is usually responsible for all maintenance activities on all items on such structures, including those which on an overbridge are deemed to be highway elements. However there may exceptionally be a special agreement with a local highway authority or other party, for maintenance of the footbridge surfacing and/or lighting on the bridge. The maintenance responsibility must be clarified and details included within the Structure Manual for the structure.

2.2.10.4.5 Accommodation Bridges

1 The Service Provider shall in the first instance check the Structure Manual for the structure and the structures database before any work is planned; the references above may apply. In instances where responsibilities for maintenance are not defined within the Structure Manual for the structure or the structures database advice should be sought from WG regarding responsibilities and the Structure Manual updated accordingly

2.2.10.4.6 Retaining walls

1 The ownership and maintenance responsibility for all retaining walls must be clarified by the Service Provider before any work is undertaken. If the retaining wall is not the responsibility of the WG, the Service Provider must ensure that the appropriate person or organisation is aware of their responsibilities.

2.2.10.4.7 Ancillary Structures

1 WG may require some ancillary assets to be managed as Highway Structures. Such assets could include drainage sumps and chambers, service buildings with electrical and mechanical equipment, rock fall protection etc. The Technical Approval Authority (TAA) will instruct the Service Provider when a specific asset or type of asset should be subject to the inspection and maintenance regimes for Highway Structures. In addition, the Service Provider shall identify to the TAA any ancillary asset he considers would benefit from being managed as a Highway Structure. The Service Provider is responsible for defined maintenance activities associated with agreed ancillary structures, the details of which should be set out within the Structure Manual. Each ancillary structure must be provided with a Structure Number and recorded in IRIS and EDDMS.

2.2.10.4.8 Sign and Signal Gantries

1 The Service Provider is responsible for maintaining the gantry structure and any associated lifting equipment. Electrical and technology maintenance will be undertaken by the ITS Service Provider. It is important that maintenance activities on these gantries by Service Providers and ITS contractor are co-ordinated. It is the responsibility of the Service Providers to ensure that whenever possible maintenance works are co-ordinated.

2.2.10.4.9 Access Systems and Gantries

1 The Service Provider is responsible for maintaining any access systems, gantries and lifting equipment associated with structures where they form an integral feature.

2.2.10.4.10 Mast Structures

1 The Service Provider is responsible for maintaining the structural elements of masts as defined by BD 63. Masts include cantilever masts for traffic signals, high mast for lighting, masts for camera, radio, speed camera and telecommunication transmission equipment.

2 Where masts support equipment maintained by the ITS Service Provider, it is important that inspection and maintenance responsibility for these masts is agreed and clearly recorded in the relevant structure file.

3 BD 63 identifies Highway signs on posts as mast structures. The criterion for managing a sign as a Highway Structure shall be where the height of any post is more than 7m. The Service Provider shall identify all signs on posts that are more than 7m in height and record these in IRIS and EDDMS.

4 Service Providers are to note the application of the Lifting Operations and Lifting Equipment Regulations 1998 (LOLER) in relevant situations (eg cantilever poles for variable speed limit signs).

2.2.10.5 Cyclic Maintenance

2.2.10.5.1 General

1 Typical cyclical maintenance activities include (refer to individual schedules for each structure):

- Remove graffiti
- Remove vegetation, e.g. that blocks drainage, may cause structural damage or restricts access
- Remove debris, bird droppings and other detritus that blocks drainage and promotes corrosion or other deterioration
- Clear and ensure correct operation of drain holes, drainage channels and drainage systems
- Repair defective gap sealant to movement joints
- Check operation of flap valves and grease where required
- Remove general dirt and debris from bearings and bearing shelves. Where appropriate, clean sliding and roller surfaces if accessible and re-grease. Follow any additional advice contained in the bearing manufacturer's recommendations in the Structure Manual. Where bearings cannot be accessed without specialist equipment, the Service Provider shall employ judgement to determine the appropriate frequency of bearing cleansing to minimise whole-life cost. This may mean combining the Principal Inspection with bearing maintenance or vice-versa as a minimum frequency. The decision shall be recorded in the Structure Manual.
- Ensure free flow of water through culverts
- Ensure correct operation of ancillary equipment (e.g. drainage pumps and associated sumps and pipework) and maintain certification of lifting devices. The Service Provider should assume that the operation of ancillary equipment and maintaining the certification of lifting devices will be done under cyclic maintenance. However, if the Service Provider considers there is a more appropriate frequency and delivery

mechanism the Service Provider should present a proposal for agreement by the TAA. The default minimum shall be that included in the operation manual.

- Check (and rectify where necessary) seating of drainage gratings or covers, replace missing or defective items
- Check, clean and repair where necessary pedestrian security and safety measures (e.g. mirrors, handrails, non-slip surfaces)
- Check for scour damage. This may be limited to inspection from the bridge deck and river bank if a particular structure is subject to a regime of underwater inspections in accordance with BD 63 and agreed with the WG.
- Check holding down assemblies for loose or missing bolts
- Superficial defects in surface protection systems (defects to be reported for specialised repairs)
- Ensure special finishes are clean and perform to the appropriate standards
- Remove all loose debris from overbridges that could be used as missiles to drop on traffic or the carriageway below.

2.2.10.5.2 Graffiti

1 Obscene and/or offensive graffiti is a Category 1 defect and shall be removed as soon as practicable after it has been observed. However, discretion is required in the handling and timing of the removal of other graffiti. Where graffiti is persistent and widespread in environmentally sensitive areas, consideration can be given to alternative options, other than the frequent removal or obliteration. Possible strategies are initiatives involving local schools, Neighbourhood Watch, Local Councils and the Police. Physical measures include the use of anti-graffiti coatings and the provision of alternative surfaces such as tiling, and murals.

2 Care must be taken to ensure the compatibility of applied materials and cleaning techniques, with the structural substrate, and to avoid surface deterioration. Chemicals used to remove graffiti shall not be toxic to the environment and shall not be allowed to get into watercourses. The remedial action should not encourage further graffiti (e.g. overpainting with light coloured coatings is often seen as providing a 'new blank canvas').

2.2.10.5.3 Drainage

1 The correct operation of drains or drainage holes in a structure is essential to avoid the accumulation of water that promotes either corrosion or other deterioration. The correct operation of flap valves and other components must be checked and they must be greased where required. It is essential that weep holes and other forms of ground drain function correctly to avoid the build-up of ground water pressure and, hence, structural instability. Particular attention must be paid to the free drainage of drainage holes in the base of HDA, BACO and other aluminium parapets, to guard against the risk of exposure by inspection and maintenance personnel to localised explosion posed by a build up of hydrogen gas. Any posts that show signs of pressure build-up must be treated by an approved method unless it is safe to clear the blocked drainage hole in the post above the weld line.

2 It is advisable to clear drainage channels after leaf fall and ensure they are working properly before the winter starts (e.g. December). Access restrictions may prevent the effective rodding of all drainage pipes and consideration should be given to the implementation of capital maintenance works to facilitate this operation.

3 It is advisable to clear vegetation before the growing season (e.g. April). In some areas it may be more appropriate and effective to apply a chemical spray on to the vegetation. Expert guidance on the chemicals available must be obtained

4 The complexity and accessibility of below deck drainage systems will vary considerably and a maintenance interval must be agreed with WG.

2.2.10.5.4 Cleaning

1 Attention should be paid to clearing debris from bearings, bearing shelves and flanges. For cleaning large expansion joints with provision for access from below the deck, low pressure water jetting should generally be used. Cleaning is to be undertaken if possible at the same time as a Principal Inspection at the baseline cleaning frequency if frequencies differ.

2.2.10.5.5 Culverts

1 Many culverts can tolerate some silting and vegetation growth before efficiency is impaired to the point where the culvert needs to be cleared. Indeed disturbance of the natural stream bed may interfere with promoting natural conditions for fish etc. Before cleaning takes place, advice from an ecologist on the possible presence of protected species, including the locations of SSSI and SACs, must be sought.

2 Similarly the replacement of gap sealants is often difficult to undertake in water carrying structures. For example, the widest gaps will be found in the invert caused by longitudinal settlement and will be covered by the stream bed and water. Replacement is often only feasible during major refurbishment works.

3 Grilles fitted across the ends of some culverts are particularly prone to blockages, restricting the free flow of water through the culvert. This may be due to seasonal effects such as build up of leaves or debris that accumulates on a periodic basis. Particular attention should be paid to the maintenance of culverts with this arrangement to ensure that the free flow of water is maintained.

2.2.10.6 The Management of Sub-Standard Highway Structures, Concrete Half Deck and Hinge Deck Structures

2.2.10.6.1 Sub-Standard Highway Structures

1 The requirements for the identification, assessment and management of sub-standard structures are defined in DMRB standard BD79 (The Management of Sub-standard Highway Structures) and BD21 (The Assessment of Highway Bridges and Structures).

2.2.10.6.2 Concrete Half Joint and Hinge Deck Structures

1 The vulnerability of concrete half joint and hinge joint structures has long been recognised. The assessment of reinforced concrete half joints is covered by BA39 and IAN 53/04 (W) and the management of hinge joint structures is covered by BA93.

2 Further vulnerable structural details or forms may be identified from time to time. These may be covered by DMRB standards or Interim Advice Notes. The Service Provider shall manage and report on these areas as instructed by WG.

3 Such structures may also benefit from the use of non corrosive de icing materials in carrying out winter maintenance activities. Provision in these circumstances should be with the agreement of WG.

2.2.11 Tunnels

2.2.11.1 General

1 The requirements for Tunnels relate to highway tunnels and portals, associated equipment, service buildings, drainage sumps and plant rooms. For the purpose of classification, BD2 defines a road tunnel as any subsurface highway structure enclosed for a length of 150 metres or more. In addition to the requirements that are unique to tunnels, where appropriate, requirements for items contained in other sections of WGTRMM (e.g. paved areas) apply within tunnels.

2 Specific requirements for the operation, emergency response and maintenance activities are to be determined for each tunnel and set out in the Operation and Maintenance Manuals (O&MM) for the tunnel. These requirements are subject to continuous review, risk assessment and improvement during the life of the tunnel. In general, an efficient, safe operation and a rapid response in the event of equipment failure or other incident within the tunnel is required. Due to the difficulty of gaining access to equipment in an operational road tunnel, equipment must operate correctly at all times with the aim of being 100% available. This contributes to the safety and comfort of road users and those who work in the tunnel under both normal and emergency conditions as well as avoiding unnecessary risk and disruption to road users from unscheduled tunnel closures.

3 Equipment must operate efficiently. Evacuation facilities must function as intended at all times. The tunnel structure and equipment must remain structurally and electrically safe, so as not to present a hazard to the road users or workers in the tunnel. Repair or the replacement of tunnels and equipment are costly and therefore effective maintenance is the best way of preserving the value of the tunnel and equipment contained within it in order to secure the best value for money.

4 Consideration must to be given to the likely presence of protected species, in particular bats, in tunnels. **Appropriate advice must be sought from the Service Provider's Environmental Co-ordinator or an ecologist, before commencing work, which may be subject to NRW licensing, if their presence is confirmed.** If bats are discovered during maintenance, work must cease immediately and advice sought.

2.2.11.2 Requirements

2.2.11.2.1 Operation and Maintenance Manual

1 An O&MM should exist for each tunnel and its specific requirements should be followed, along with any system manufacturer's recommendations. However, the Service Provider shall review the tunnel operational, emergency and maintenance procedures and update the O&MM accordingly. This should be carried out on a continuous basis and linked to changes in risk assessment and analysis. Records of tunnel performance should be reviewed by the Service Provider and WG and be an integral part of the inspection entity regime. The review process should include updating risk assessments, reviewing emergency procedures and liaising with emergency services and the O&MM. The O&MM includes the tunnel related documents required by other sections of the WGTRMM such as the Structures Manual and should be maintained within IRIS/EDDMS.

2 The tunnel safety documentation, required by the Road Tunnel Safety Regulations, should be included as a part of the Tunnel O&MM.

2.2.11.3 Management Guidance

1 Road tunnels are classed by HM Government as transport premises and facilities under the *Regulatory Reform (Fire Safety) Order 2005, SI 2005/1541*. WG retains the duties of the Responsible Person under the Order but the requirements are to be discharged by the Service Provider.

2 This section contains a summary of the main aspects of tunnel operation and routine activities. For further advice on operational, maintenance and emergency procedures, reference should be made to BA72 Maintenance of Road Tunnels and BD78 Design of Road Tunnels. Requirements for the inspections, records, recording incidents and emergency exercises are contained in BD53, Inspection and Records for Road Tunnels, BD62 As-Built, Operational and Maintenance Records for Highway Structures and BD63 Inspection of Highway Structures.

3 All reporting by the Service Provider must now be in accordance with BD62 or other local agreements.

4 Aspects of condition that may affect the performance of the structure and mechanical and electrical equipment are covered in BA72 and those of other components (e.g. highway and geotechnical infrastructure) are contained within other sections of this Manual.

2.2.11.3.1 The Road Tunnel Safety Regulations 2007

1 Tunnels that are over 500m in length and that are on a TERN (Trans European Road Network) route are subject to The Road Tunnel Safety Regulations (RTSR) including amendments and must be managed accordingly. The statutory requirements in these regulations are additional to those in this Manual, BD53, BD62, BD63, BA72 and BD78 however, in principle, all tunnels are managed in the same manner.

2 Table 2.2.11.3 below provides a list of the tunnels which exist on the WG network along with details of the standards which apply.

Table 2.2.11.3 Tunnel Standards
All the tunnels listed below are located on TERN routes

Route	Tunnel Name, Length	Does TRMM Apply?	Does RTSR Apply?
A55	Conwy Tunnel, 1060m	Yes	Yes
A55	Penmaenbach Westbound Tunnel, 658m		Yes
A55	Penmaenbach Eastbound Tunnel,		No (<500m length)

	172m		
A55	Pen y Clip Westbound Tunnel, 930m		Yes
M4	Brynglas Tunnel, 366m		No (<500m length)
A40	Monmouth Tunnel, 185m		No (<500m length,)

3 The RTSR introduces the statutory roles and duties of:

- Administrative Authority – Welsh Government as Highway Authority;
- Tunnel Manager –Service Provider;
- Tunnel Safety Officer – Service Provider;
- Inspection Entities – Service Provider
- Technical Approval Authority – Welsh Government.

4 In addition, the Regulations set out the requirements for Annex II safety documentation (this is synonymous with the O&MM, design approval, modifications, reporting and also the minimum safety requirements to be met by road tunnels that are governed by the Regulations, including the process where those requirements can not practically be achieved.

5 Notwithstanding the limits of legal compliance but as a measure of continual improvement and performance best practice, Welsh Government seeks to harmonise the application of RTSR as a management system across all the trunk road and motorway tunnels in Wales.

2.2.11.4 Operation

1 Contingency plans for emergencies should be managed within the context of the Service Provider's Contingency Plan and WG Traffic Officer Service. Management arrangements should include plans or procedures for Standard, Critical and Major Incident Emergencies.

2 Regular contact with the Emergency Services is essential, especially where changes are being implemented to the tunnel design or mode of operation.

2.2.11.5 Cleaning

1 Cleaning of the tunnel structure (including any cladding systems) is necessary to maintain the required level of light reflectance from the tunnel walls, to reduce the build up of corrosive, toxic and flammable deposits and create a favourable impression for the road user.

2 The majority of tunnels are fitted with lane control signals as well as other signs such as evacuation signage which are designed to inform and guide the actions of drivers using the tunnel in normal operation and persons evacuating the tunnel when an incident occurs. It is

important that these signs are kept clean and legible; recommended maximum intervals for cleaning of tunnel equipment are given in BD78 with further guidance being given in BA72, however, in some locations these intervals may not be adequate and more frequent cleaning may be required. This should be indicated within the tunnel O&MM.

3 There may also be a need to periodically clean the carriageway surface, road markings and studs in order to maintain the light reflective properties.

4 General sweeping, cleaning, debris and litter clearing needs to be co-ordinated as fully as possible with wall washing.

2.2.11.6 Tunnel Power Supplies and Electrical Distribution

1 A Road Tunnel relies on the availability of numerous tunnel safety systems to ensure a safe environment for the road user and for the emergency services when responding to a tunnel incident. All such systems rely upon the availability of electrical supplies to provide the intended function. The Tunnel Power Supplies and Electrical Distribution systems are likely to include HV and LV supplies, Uninterruptible Power Supplies (UPS) and generators. Many of the tunnel safety systems will be supplied with electricity from a UPS which should be included within the electrical isolation instructions for such equipment. All such systems should be calibrated, tested and maintained in accordance with the manufacturers' recommendations.

2.2.11.7 Evacuation Systems

1 The safety equipment inventory of road tunnels includes a variety of tunnel safety systems. The Road Tunnel Safety Regulations also permit the use of "innovative" safety systems so as to improve or enhance tunnel safety. Each such specialist system has its own particular maintenance requirements and should be calibrated, tested and maintained in accordance with each of the manufacturer's maintenance recommendations so as to maintain compliance with the tunnels' Minimum Safe Operating Requirement

2 The equipment includes, for example, ventilation, public address, fire hydrants, extinguishers, sign systems. For emergency lighting see paragraph 2.2.11.11 and for emergency telephones, Section 2.2.13 Technology Systems.

3 The presence of a fully functioning, correctly operated evacuation system can have a critical impact on the preservation of life and early resolution of an incident in a tunnel, allowing time for the safe evacuation of motorists and providing access routes for the Fire and Rescue Service to the incident. Regular monitoring and maintenance of the evacuation systems and timely rectification of defects should be given the highest priority. The tunnel O&M manual should provide guidance on the inspection and maintenance requirements and incorporate the advice contained in BA72.

2.2.11.8 Ventilation

1Tunnel mechanical ventilation systems are designed to supply fresh air to all parts of the tunnel, maintain vehicle exhaust pollutants below prescribed limits of exposure (both inside the

tunnel and in the vicinity of portals) and visibility and to control smoke and heat in the event of a fire. Trigger levels for the tunnel sensors for carbon monoxide (CO) and visibility (carbon particle) will be set out in the O&MM, based on the exposure limits given in BD78. There is a requirement to control exposure to oxides of nitrogen (NO_X).

2.2.11.9 Fire Fighting Systems

1 In the event of a tunnel fire it is imperative that the water supplies to the tunnel are available for the Fire & Rescue Services. The tunnels will contain fire fighting equipment which could range from the provision of fire extinguishers in emergency panels to a foam based fire suppression system within sumps and a dedicated fire main and hydrants or water suppression system in the tunnel bore. Fire–mains and hydrants should be routinely tested to ensure all valves work correctly, there are no leaks from hydrants and that the fire-main pressure and flow rates remain within limits of the specified design. Active fire suppression systems and sump fire protection systems should be calibrated, tested and maintained in accordance with the manufacturer's recommendations for the design of the particular system.

2 The tunnel service buildings may also be equipped with a fire suppression system, normally a gaseous system utilising CO_2 or other inert gas.

3 Consideration should be given to ensuring continuity of cover while maintenance is being undertaken, for example where one bore of a twin bore tunnel is still open to traffic during maintenance, the provision of fire fighting water for that bore should be maintained, either by only partially isolating the fire main or providing water bowsers at suitable adjacent locations. The Fire and Rescue Service should be notified if complete isolation of the fire main can not be avoided. They may alter their response, for example by sending an increased number of appliances, if an incident should occur while the fire main is isolated.

2.2.11.10 Evacuation Signs

1 Evacuation signs are independently illuminated and must be kept clean and legible at all times.

2.2.11.11 Lighting

1 Tunnel lighting is required to maintain a base level of lighting within a tunnel and enhanced lighting in the tunnel entrance and exit zones in daytime, such that design traffic speeds can be safely maintained to enable users of the tunnel to see their way and to identify potential hazards quickly. As such, lighting has a major contribution to make to both the comfort and safety of tunnel users. Emergency 'low level lighting (no higher than 1500mm above ground level) is normally provided to assist in evacuation and should be cleaned, tested and maintained so as to maintain the provision of the designed lighting levels

2 Visual flicker created by tunnel lighting is considered undesirable as it can cause discomfort to drivers. The tunnel lighting system should be designed to eliminate this effect, however, where luminaries have failed in significant numbers or at regularly spaced intervals it is possible that flicker can be created. This should be a consideration when programming maintenance. Tunnel lighting is automatically controlled according to the exterior light levels.

3 Current standards for lighting of highway tunnels are defined by BS5489. A regime of cleaning luminaries and lamp replacement is necessary to maintain the required levels of lighting. The tunnel O&MM should provide guidance on the inspection and maintenance requirements. BA72 suggests that a suitable interval between cleaning should be established by carrying out a trial on a small number of luminaries. The interval between cleaning events should not, however, exceed twelve months. When cleaning or any other maintenance work is undertaken, the deposited dust should be considered hazardous to health as it may contain particles of exhaust soot and heavy metals.

2.2.11.12 Drainage

1 Due to their enclosed nature, tunnel drainage systems can experience low flows of run-off water, this can encourage solids to settle out and be deposited within the drainage system. This should be borne in mind when carrying out inspections and may result in jetting operations being required more frequently than would be expected for the rest of the network.

2 Discharges into the tunnel drainage system following tunnel cleaning or an accidental spillage may contain pollutants. The drainage system normally includes a separate system for the containment of spillages and discharge of tunnel cleaning effluent to foul sewers or impounding sumps. The maintenance and operation of these facilities play a key role in preventing the pollution of ground and surface water. The tunnel O&MM should provide guidance on the inspection and maintenance requirements.

3 Where there is the facility to discharge tunnel wash water into a foul sewer or other waste management system appropriate discharge consents or waste transfer requirements must be obtained and any restrictions complied with.

4 The pollution of ground and surface water from discharges into the tunnel drainage system following tunnel cleaning or an accidental spillage must be prevented.5 Where there is no separate containment system for environmentally damaging substances/spillages, suitable procedures should be in place and environmental response materials (e.g. spill kits) should be readily available to assist with the containment of any spillages until they can be dealt with by an appropriate specialist contractor. Key operational staff should also receive basic training in environmental response and ‘Hazchem’ both to ensure their own safety and to assist with identification of the substance and sourcing information on it. This may contribute to a more effective response from the Emergency Services when they arrive on site.

6 Where the drainage is by pumping, the regular cleaning of sumps associated with the drainage system is essential to protect the pumping equipment from the entry of solids and also to ensure the sumps maintain their designed capacity. It may be advantageous to co-ordinate structural and M&E inspections of the sumps with cleaning operations.

7 Separate drains may have been fitted to collect ground water from behind the tunnel lining or any cladding which may require specific maintenance.

8 The drainage system may extend beyond the portals of the tunnel to include drains and sumps intercepting carriageway run–off and incoming groundwater, while not within the tunnel bore itself, these elements of the drainage system are equally important to the safe operation of the tunnel and should be inspected and maintained as such.

2.2.11.13 Paved areas

1 The running surfaces in tunnels need to receive particular attention during inspections. The tunnel O&MM should provide guidance on any specific inspection and maintenance requirements. Occurrences to consider are rutting (flammable liquids may accumulate following a spill), lane centre oil drop accumulation and areas where leakage drips or runs onto the carriageway may reduce skid resistance. In general where water leakage within the tunnel bore does occur, efforts should be made to eliminate it by sealing the source of ingress or, where this is not possible, diverting it away from the carriageway surface. Carriageway covers may be lockable, provide access to structure monitoring, drainage or communications systems and may be frequently accessed.

2 The condition of the carriageway on the approaches to the tunnel is particularly important as there may be requirements to stop vehicles before they enter the tunnel where an incident has occurred within the tunnel bore. These areas of carriageway surface are likely to experience vehicles braking heavily in order to stop in an emergency and/or when required to do so by signs or signals. There may also be queuing traffic in these areas where the tunnel is closed for all but the shortest of periods.

2.2.11.14 Slope and ground stability adjacent to portals

1 Some tunnels have natural or cutting slopes in the area adjacent to or above the tunnel portal. Any instability of these slopes may pose a threat to the road user and to the integrity of the portal zone of the tunnel. Procedures for geotechnical assets need to be followed as appropriate. See also Section 2.2.9 Geotechnical Assets.

2.2.11.15 Tunnel corrosive environment

1 In planning maintenance activities, it is necessary to take account of the corrosive nature of the tunnel environment. This can be caused by the concentration of vehicle exhaust fumes, the use of strongly alkali detergents, ingress of saline water where the tunnel crosses under an estuary and corrosive anti-icing/de-icing salts which become deposited as a fine powder in all parts of the tunnel, having been blown in or carried into the tunnel by vehicles. To minimise the corrosive effects, it is recommended that spreading of corrosive anti-icers/de-icers is interrupted near to and within tunnels such that no corrosive material is spread within the tunnel. Further guidance is given within the Winter and Adverse Weather section of WGTRMM.

2 Electrical Distribution Panels and other system panels should be inspected and maintained to prevent corrosion and maintain a high quality aesthetic appearance.

3 BA72 provides further requirements and advice. The tunnel O&MM should provide guidance on the inspection and maintenance requirements.

2.2.11.16 Anchors and mechanical supporting systems

1 Regular inspection of anchors and mechanical supporting systems used to support equipment is necessary. Failures could occur from corrosion, local structural deterioration, vehicle strike or vibration.

2 BD62, BD63 and BA72 provide further requirements and advice. The tunnel O&MM should provide guidance on the inspection and maintenance requirements.

2.2.11.17 Temporary Traffic Management (TTM) and Emergency Traffic Management (ETM) within the tunnel and approaches, including diversions.

1 ETM and TTM arrangements will normally require combinations in the use of Variable Message Signs, Lane Control Signs, Matrix Signs and fixed or portable signing prescribed by Chapter 8 of the Traffic Signs Manual and WGTO Manual. Traffic management must be designed to consider workforce and road user risks in accordance with the roles and responsibilities in Chapter 8.

2 As a principle, roadspace for works in the tunnel should be used to safely and efficiently maximise the amount of inspection, maintenance and project tasks undertaken whilst minimising traffic disruption.

3 Service Providers are to ensure that ETM / TTM plans, procedures and risk assessments form part of the O&MM for routine maintenance and emergency operations. This will include lane closure, contraflow TTM arrangements and minimum operating TTM procedures to be implemented when critical tunnel systems (e.g. lighting) fail.

4 As part of the contingency plans for the tunnels and should a full bore closure be required, then tactical (via trunk to county to trunk road) and strategic (trunk to trunk road) diversions should form part of the O&MM as appropriate.

2.2.11.18 Tunnel / Traffic Management & Control Systems

1 This includes the Traffic Management Centre, Tunnel Service Building and associated operational management and communication systems including SCADA, Airwave, Variable Message Signs, Lane Control Signs, Matrix Signs and other tunnel related systems. (Refer to 2.2.13 Technology Systems).

2.2.12 Road Restraint Systems

2.2.12.1 General

1 The requirements for Road Restraint Systems (RRS) includes both vehicle restraint systems and pedestrian restraint systems and relates to all types of vehicle safety barriers, crash cushions, end terminations, transitions and pedestrian guard rails. They also relate to parapets and guard rails on bridges and other structures.

2 The purpose of RRS is to avoid danger to network users as well as the protection of structures and other roadside features. For this reason, they must be operational at all times in accordance with the intended design and performance described in the manufacturer's recommendations. Particular service requirements may be covered in the manufacturer's recommendations. Reference should be made to TD/19 – Requirement for Road Restraint Systems.

3 Site uniformity should be retained by maintaining the vehicle restraint systems and pedestrian restraint systems to the same physical appearance as the adjacent RRS, unless the adjacent systems are obsolete or not in accordance with the relevant standard.

2.2.12.2 Management Guidance

1 Examples of conditions that are likely to affect the performance requirements of RRS include:

- Rotten wooden components that affect the function of the RRS (wooden post safety barriers must be replaced) and be subject to a full RRRAP assessment.
- Corroded metal that affects function or promotes deterioration.
- Concrete cracking, spalling or reinforcement corrosion that affects the function or promotes deterioration.
- Missing components.
- Broken, deformed or cracked components that affect function or promote deterioration.
- Loose nuts, bolts and other components may represent a hazard or promote deterioration.
- Lack of tension in tensioned systems.
- Incorrect height.
- Excessive under growth, weeds or build up of detritus in verge or central reserve.
- Ingress of water to post sockets.

2 Site uniformity should be retained by maintaining the RRS to the same physical appearance as the adjacent RRS, unless the adjacent systems are obsolete.

3 Intervention levels and elements that should be checked for RRS include:

- Road Restraint Systems are installed at the correct height in accordance with the manufacturers' recommendations.
- Components are the correct type.
- Nuts and bolts are to the required torque.
- Hollow sections drain freely.

- Tensioned vehicle restraint systems are tensioned in accordance with the manufacturers' recommendations.

4 Checks on the advance length of a RRS in front of or around a hazard are required to determine whether the RRS is in accordance with standard (there is always the possibility that the hazard may have been re-sited following accident damage and the length of RRS on the approach and departure do not meet standards).

5 In the process of tensioning RRS, anchorages must be inspected for evidence of movement which can result from a change in ground conditions.

6 The set-back distance determines the reference datum for measurement of the mounting height of safety barriers. For more details on these parameters reference should be made to the relevant standards and the manufactures recommendations.

2.2.12.3 Repairs and Maintenance

2.2.12.3.1 Background

1 For detailed advice on the installation, repair and maintenance to RRS types untensioned Corrugated Beam, Tensioned Corrugated Beam, Open Box Beam, and Rectangular Hollow Section refer to BS7669 Part 3 'Guide to the installation, inspection and repair of safety barriers' and the manufacturers recommendations. Retensioning of Tensioned Corrugated Beam must be carried out at two year intervals and preferably in conjunction with two yearly detailed inspections. Note that when retensioning Tensioned Corrugated Beam all post screws must be replaced. Retensioning must be carried out in accordance with the procedures set out in BS 7669-3. Any specific requirements for repairs and maintenance should be contained within the Route Management Plan as authorised by WG. For information relating to proprietary systems, the manufacturer's recommendations should be referred to.

2 There have been a number of incidents on busy motorways where there have been significant delays to traffic resulting from repairs to central reserve barriers. The cases which have caused concern are those resulting in damage to the central reserve barrier which had been classed as Category 1 damage requiring immediate attention within 24 hrs, but where this was not possible (due to lack of resource or availability of the barrier) in most cases, an immediate lane 3 closure was imposed, even where the damage had been relatively minor, with the barrier still standing, and little risk to traffic on either carriageway or to WG assets. In addition, where repairs were put into action overnight they were not always completed in time to remove the traffic management before the morning peak hours. The service providers' decisions, in each case, were that full lane 3 closure restrictions were necessary to protect a barrier that was not fully effective.

3 The resulting loss of capacity and congestion was substantial at each site, caused by closing one of the three lanes for the morning and following evening peak periods, thus affecting both directions of flow all day. There were a number of complaints regarding the delays and consequential secondary accident risks within the extended traffic queues and also the visible lack of work occurring at the site.

4 These cases call into question the adequacy or appropriateness of the dynamic risk assessment made at the time. The actions taken at these locations needed to reflect an appropriate balance of risks between protecting road users passing the ineffective barrier and

minimising the creation of consequential additional risks (including those that may occur away from the immediate locality of the works) and the delay during busy traffic periods.

2.2.12.3.2 Risks

1 Barriers are required to either mitigate the risk that a hazard may pose to the travelling public, third parties or to protect an asset from being damaged. Safety barriers in the central reserve protect the travelling public from hazards as well as from opposing traffic, whereas verge barriers normally only protect traffic from hazards (unless near a bridge approach which protects a railway/road).

2 If a central reserve barrier is damaged, but is still operative, it will retain some of its protective ability, and it may be appropriate to leave it until its repair or replacement can be carried out at a time that will cause minimal disruption or delay to traffic, and minimal risk to road workers, i.e. off peak, or combine the repairs with other planned works.

3 A risk assessment approach to identify an appropriate repair time should be used and statistics support this. Over a 20m length of barrier, accident data suggests, the probability of an accident in the central reserve that causes injury is roughly 1 in 2000 per day. The probability of a damage only accident is roughly 1 in 300 per day. Depending on the nature of the damage to the central reserve barrier the risks of not repairing the barrier for 1 to 3 days is quite low (i.e. after 3 days the probability of an accident causing injury at the same 20m section of barrier is roughly 1 in 500). Similarly, probability of accidents are dependent upon the length of the barrier damaged, with the shorter the length affected the lower the probability. Data gathered has shown that the lengths of accident damaged sections of barrier is typically short, falling into the following length bands:

64% <10m

18% 10-20m and

18% >20m

2.2.12.3.3 Guidance

1 All Service Providers must ensure that works sites are as safe as practicable for all staff, road users and others, both before works can start, during works and when activities are suspended for any reason. They must also ensure that any disruptions are minimised, which may create new delays and/or dangers to traffic flow or other parties, even where these disruptions may occur at some distance from an incident site.

2 Whilst damaged sections of safety fence and barrier should be corrected or made safe as soon as possible, rigidly trying to carry out the work within a 24 period may not give the best balance of risk to road users or road workers. The time period in which the barrier is repaired or temporary mitigation measures used should be based on a risk assessment of the site. The probability of an accident causing injury at the same 20m section of barrier increases the longer that barrier is left and the higher the initial risk. Permanent repairs at high and medium risk sites should therefore ideally be carried out within 7 days but at a time that will cause

minimal disruption or delay to traffic, and minimal risk to road workers, i.e. off peak, or combine the repairs with other planned works. Where it is expected to be impractical to carry out the permanent repairs within 7 days, the risk assessment and any associated mitigation measures must be reviewed and recorded to ensure they are still appropriate.

3 The risk based decision process in Annex A is intended to provide a recommended basis for making a judgement about the balance of risks at individual road works sites, involving associated traffic management, when repairing damaged safety barriers. The risk based decision process is to be used in order to ensure a wide and balanced assessment of the potential risks. The aim is to ensure that the WG's roads are kept as safe and congestion free as possible for users and risks to the workforce and third parties are minimised.

4 The risk based decision process for replacement of damaged barriers replaces the 24- hour rule for category 1 repairs in the WGTRMM.

2.2.12.3.4 Timing

1 All service providers are required to carry out suitable and sufficient risk and safety assessments for any personnel on site, for the road users during and after works and for any consequential effects on third parties. These assessments of risks, associated management and mitigating actions are part of existing requirements.

2.2.12.3.5 Mounting Heights for Safety Fence

1 The specified limits of the mounting heights for the various forms of safety fence, outside which a defect shall be recorded, are as follows:(Note that these limits are not necessarily identical to the tolerances for new construction).

(a) Tensioned Corrugated Beam, Open Box Beam and Rectangular Hollow Section Safety Fences;

535 mm to 685 mm to the centre of the beam

(b) Untensioned Corrugated Beam Safety Fence;

(i) 500 mm to 560 mm to the centre of the beam (when the safety fence was erected to a nominal height of 530 mm to centre of the beam).

(ii) 535 mm to 685 mm to the centre of the beam (when the safety fence was erected to a nominal height of 610 mm to the centre of the beam)

(c) Inclined Tensioned Corrugated Beam with Off-Set Brackets;

655 mm to 715 mm to the top edge of the beam.

(Note that this design of safety fence is no longer included in the DfT's standard types of safety fence).

(d) Wire Rope Safety Fence;

575mm to 595mm to the centre of the upper pair.

2.2.12.3.6 Dealing with fluid & gas build-up in aluminium parapets

1 Inspection and maintenance personnel may be exposed to a localised explosion risk due to the presence of hydrogen gas when drilling or dismantling an affected area.

2 Structures maintenance manuals will identify the location of potential sites and examine any posts that exhibit or have the potential to exhibit signs of pressure build-up e.g. wall bulging, blocked drainage holes, white fluid or horizontal cracks above the base plate.

3 If a post exhibits any signs of pressure build-up it needs to be treated using an approved method unless it has been possible to safely clear the blocked drainage hole in the post above the weld line. It may be possible to safely drill at the base of the post using compressed air tools, suitable spark free equipment and PPE but in any event it will need to be carried out under an approved method statement.

2.2.12 ANNEX A

1 Risk is a combination of the probability of an accident occurring and the severity of that accident should it occur.

2 The table below should be used to record the factors that can affect the risk at a site and assess the associated risk levels and repair priorities for Category 1 damage. The scores from the table for the risk factors for a particular incident location should be added to give an indication of the risk as high, medium or low. The Supplementary Guidance at the end of this memo summarises the appropriate initial response and prioritisation of permanent repairs to damaged barrier based on the risk level.

3 This Annex and the methodology therein in basically adopted from HA AMM 68.

Date, location, nature and scale of damage*.	Parts required to repair damage, i.e. number of rails and posts	Date/time parts can be made available
		Date/time of permanent repair

Description of hazards and 3rd parties protected by the barrier

	Risk Factor	Risk Factor Scores	Applicable factors**	Allocated score
	Probability Factors			
1	High traffic flow: >30k/carriageway/day	3		
2	- - - : 20-30k/carriageway/day	2		
3	- - - : <20k/carriageway/day	1		
4	Length of barrier affected >80m***	5		
5	Length of barrier affected 50-80m***	3		
6	Length of barrier affected <50m***	2		
7	Accident history at site/location - High	5		
8	Accident history at site/location – Medium	3		
9	Accident history at site/location - Low	1		
10	Location near a major junction or tight curve	3		
	Probability Score			
	Severity Factors			
11	Feature behind barrier would be vulnerable (e.g. weak structure) and if struck could cause a secondary incident	2		
12	System used to protect 3rd parties, i.e. (central reserve barrier, bridge approach over road/rail, embankment near school etc)	5		
13	Barrier flattened: gap >20m	5		
14	- - : gap 5-20m	3		
15	- - : gap <5m	2		
16	HGV Flow: High (>15%)****	3		
17	- - : Average (12-15)****	2		
18	- - : Low (<12%)****	1		
19	Traffic speeds: Cars – Ave ≥120kph (75mph)	3		
20	- - : Cars – Ave 80-120kph (50-75mph)	2		
21	- - : Cars – Ave <80kph (50mph)	1		
	Severity Score			
	Total Risk Score (Probability + Severity scores)			
	Risk Classification******* (high ≥24, medium 13-23, low <13)			

* Take photos at the location if possible to record damage and record features at the location and attach to the form. Use to help prioritisation decisions.

** Tick those that apply

*** This is the total length of barrier affected by category 1 damage and rendered sub-standard, rather than just the length of the visible damage. For untensioned barrier, the total length affected is the minimum before and after lengths of barrier specified in Table 3-1 TD19 plus

the length of visible damage; the table is reproduced below. For other types of barrier, such as tensioned barrier, it may be necessary to consult manufacturer's recommendations to establish the affected length; this is likely to be the length of the tensioned sections.

**** Note: quite often freight/HGV flow is highest off-peak and therefore this should be taken into consideration.

***** High if aggregate score ≥24, medium if aggregate score between 13 and 23, low if aggregate score <13.

NB Accident history will be determined from the All Wales accident map which will designate each route with a score of 1, 3 or 5.

Table 3-1 from TD19 for minimum lengths of barrier

Safety Barrier Containment Level	MINIMUM "full height" lengths of safety barrier1	
	In advance of hazard	Beyond hazard
Normal (N2 or N2)	30 m	7.5 m
Higher (H1 or H2)	30 m	10.5 m
Very High (H4a)	45 m	18 m

The table below should be used to record the prioritisation given to the damaged barrier whilst waiting for permanent repair.

Timescale from occurrence or detection of damage	Priority position relative to other damaged barriers (x^{th} out of y)	Number of outstanding damage barriers at time		
		High risk	Medium risk	Low risk
At time of occurrence or detection				
After 24 hours				
After 2 days				
After 3 days				
After 4 days				
After 5 days				
After 6 days				
After 7 days				
Beyond 7 days				

High Risk Sites: Where the aggregate score for an incident is ≥ 24 points then the location is classed as high risk (high consequence and probability) and some immediate mitigation measure should be considered, ideally repair to the barrier within 24hrs. It is important to ensure that both the resource and barrier stock is available to ensure this can happen. If this is not possible then the most appropriate mitigation measure must be taken, this may be in the form of lane closure (or hard shoulder closure) and temporary speed limit. It should be noted that a lane closure, whilst it may provide some mitigation due to the additional distances to be travelled by an errant vehicle, is not a substantive protection and may be little difference from close coning of a site. At peak times a lane closure can cause associated congestion and accidents and public dissatisfaction and ideally should not be used if no work is to be carried out. Another solution if repair cannot take place promptly is to install a temporary barrier; this can offer an overall lower risk solution. If a temporary barrier is required, it may be preferable to locate it adjacent to the damaged section to allow full lane usage and then relocate it when works need to be carried out.

The solution should ensure that the resultant risk at the site is as low as is reasonably practicable to the road users, any maintenance operatives and any 3rd parties that may be affected. The probability of an accident increases the longer the site is left but this increase in risk needs to be balanced against immediate repair during peak times and road worker safety if carrying out the repairs at night / in poor weather when maintenance operatives are most vulnerable.

The solution will depend on the length of time to repair / replace the affected system.

Medium Risk Sites: Where the aggregate score for an incident is between 23-13, the risk is medium and the probability of a secondary incident is much reduced. The aim should still be to repair the barrier as quickly as possible but this may be in excess of 24hrs. If immediate repair cannot be carried out, appropriate mitigation until this can occur may include; fully cone the gap, advance warning and/or advisory speed limit signs when left to await repair works (this will reduce the severity of an incident). A full lane closure in this situation could increase the overall risk by increasing the risk of associated accidents due to increased congestion.

Low Risk Sites: Where the aggregate score for an incident is <13 then the site is classed as low risk (the probability and severity are both low). Examples are, the central reserve barrier has minor damage over a small section or a short section of verge barrier is damaged. Immediate repair may offer little benefit and mitigation may include coning the gap only or may include no action until traffic is low.

Examples:

Example (A)

Date, location, nature and scale of damage*.	**Parts required to repair damage, i.e. number of rails and posts**	**Date/time parts can be made available**
4 panels of a central reserve barrier on a busy motorway are flattened and the gap is approx 25m (normally only occurs when there is a cross over accident). The HGV usage is average. There are no other hazards in the central reserve, no accident history.		**Date/time of permanent repair**
Description of hazards and 3rd parties protected by the barrier		

	Risk Factor	**Risk Factor Scores**	**Applicable factors****	**Allocated score**
	Probability Factors			
1	High traffic flow: >30k/carriageway/day	3	✓	3
2	- - - : 20-30k/carriageway/day	2		
3	- - - : <20k/carriageway/day	1		
4	Length of barrier affected >80m***	5		
5	Length of barrier affected 50-80m***	3	✓	3
6	Length of barrier affected <50m***	2		
7	Accident history at site/location - High	5		
8	Accident history at site/location - Medium	3		
9	Accident history at site/location - Low	1	✓	1
10	Location near a major junction or tight curve	3		
	Probability Score			7
	Severity Factors			
11	Feature behind barrier would be vulnerable (e.g. weak structure) and if struck could cause a secondary incident	2		
12	System used to protect 3rd parties, i.e. (central reserve barrier, bridge approach over road/rail, embankment near school etc)	5	✓	5
13	Barrier flattened: gap >20m	5	✓	5
14	- - : gap 5-20m	3		
15	- - : gap <5m	2		
16	HGV Flow: High (>15%)****	3		
17	- - : Average (12-15)****	2	✓	2
18	- - : Low (<12%)****	1		
19	Traffic speeds: Cars – Ave ≥120kph (75mph)	3		
20	- - : Cars – Ave 80-120kph (50-75mph)	2	✓	2
21	- - : Cars – Ave <80kph (50mph)	1		
	Severity Score			14
	Total Risk Score (Probability + Severity scores)			21
	Risk Classification*** (high ≥24, medium 13-23, low <13)			medium

Example (B)

Date, location, nature and scale of damage*.	**Parts required to repair damage, i.e. number of rails and posts**	**Date/time parts can be made available**
4 panels of a central reserve barrier on a busy motorway are flattened and the gap is approx 25m. The HGV usage is high. There are no other hazards in the central reserve; the site has had 2 previous accidents.		**Date/time of permanent repair**

Description of hazards and 3rd parties protected by the barrier

	Risk Factor	**Risk Factor Scores**	**Applicable factors****	**Allocated score**
	Probability Factors			
1	High traffic flow: >30k/carriageway/day	3	✓	3
2	- - - : 20-30k/carriageway/day	2		
3	- - - : <20k/carriageway/day	1		
4	Length of barrier affected >80m***	5		
5	Length of barrier affected 50-80m***	3	✓	3
6	Length of barrier affected <50m***	2		
7	Accident history at site/location - High	5	✓	5
8	Accident history at site/location - Medium	3		
9	Accident history at site/location - Low	1		
10	Location near a major junction or tight curve	3		
	Probability Score			11
	Severity Factors			
11	Feature behind barrier would be vulnerable (e.g. weak structure) and if struck could cause a secondary incident	2		
12	System used to protect 3rd parties, i.e. (central reserve barrier, bridge approach over road/rail, embankment near school etc)	5	✓	5
13	Barrier flattened: gap >20m	5	✓	5
14	- - : gap 5-20m	3		
15	- - : gap <5m	2		
16	HGV Flow: High (>15%)****	3	✓	3
17	- - : Average (12-15)****	2		
18	- - : Low (<12%)****	1		
19	Traffic speeds: Cars – Ave ≥120kph (75mph)	3		
20	- - : Cars – Ave 80-120kph (50-75mph)	2	✓	2
21	- - : Cars – Ave <80kph (50mph)	1		
	Severity Score			15
	Total Risk Score (Probability + Severity scores)			26
	Risk Classification*** (high ≥24, medium 13-23, low <13)			high

Example (C)

Date, location, nature and scale of damage*.	**Parts required to repair damage, i.e. number of rails and posts**	**Date/time parts can be made available**
2 panels of a central reserve barrier on a busy motorway are damaged and the area is approx 10m. The HGV usage is average. The location is near a junction; the site has had no previous accidents.		**Date/time of permanent repair**

Description of hazards and 3rd parties protected by the barrier

There is a weak bridge support upstream of damaged system

	Risk Factor	**Risk Factor Scores**	**Applicable factors****	**Allocated score**
	Probability Factors			
1	High traffic flow: >30k/carriageway/day	3	✓	3
2	- - - : 20-30k/carriageway/day	2		
3	- - - : <20k/carriageway/day	1		
4	Length of barrier affected >80m***	5		
5	Length of barrier affected 50-80m***	3		
6	Length of barrier affected <50m***	2	✓	2
7	Accident history at site/location - High	5		
8	Accident history at site/location - Medium	3		
9	Accident history at site/location - Low	1	✓	1
10	Location near a major junction or tight curve	3	✓	3
	Probability Score			9
	Severity Factors			
11	Feature behind barrier would be vulnerable (e.g. weak structure) and if struck could cause a secondary incident	2	✓	2
12	System used to protect 3rd parties, i.e. (central reserve barrier, bridge approach over road/rail, embankment near school etc)	5	✓	5
13	Barrier flattened: gap >20m	5		
14	- - : gap 5-20m	3		
15	- - : gap <5m	2		
16	HGV Flow: High (>15%)****	3		
17	- - : Average (12-15)****	2	✓	2
18	- - : Low (<12%)****	1		
19	Traffic speeds: Cars – Ave ≥120kph (75mph)	3		
20	- - : Cars – Ave 80-120kph (50-75mph)	2	✓	2
21	- - : Cars – Ave <80kph (50mph)	1		
	Severity Score			9
	Total Risk Score (Probability + Severity scores)			18
	Risk Classification*** (high ≥24, medium 13-23, low <13)			medium

Example (D)

Date, location, nature and scale of damage*.	**Parts required to repair damage, i.e. number of rails and posts**	**Date/time parts can be made available**
2 panels of a verge barrier on a busy motorway are damaged, and the area is approx 10m. The HGV usage is average.. The site has had 1 previous accident.		**Date/time of permanent repair**

Description of hazards and 3rd parties protected by the barrier
There is a signpost that is exposed (but if struck would cause no secondary incident).

	Risk Factor	**Risk Factor Scores**	**Applicable factors****	**Allocated score**
	Probability Factors			
1	High traffic flow: >30k/carriageway/day	3	✓	3
2	- - - : 20-30k/carriageway/day	2		
3	- - - : <20k/carriageway/day	1		
4	Length of barrier affected >80m***	5		
5	Length of barrier affected 50-80m***	3		
6	Length of barrier affected <50m***	2	✓	2
7	Accident history at site/location - High	5		
8	Accident history at site/location - Medium	3	✓	2
9	Accident history at site/location - Low	1		
10	Location near a major junction or tight curve	3		
	Probability Score			7
	Severity Factors			
11	Feature behind barrier would be vulnerable (e.g. weak structure) and if struck could cause a secondary incident	2		
12	System used to protect 3rd parties, i.e. (central reserve barrier, bridge approach over road/rail, embankment near school etc)	5		
13	Barrier flattened: gap >20m	5		
14	- - : gap 5-20m	3		
15	- - : gap <5m	2		
16	HGV Flow: High (>15%)****	3		
17	- - : Average (12-15)****	2	✓	2
18	- - : Low (<12%)****	1		
19	Traffic speeds: Cars – Ave ≥120kph (75mph)	3		
20	- - : Cars – Ave 80-120kph (50-75mph)	2	✓	2
21	- - : Cars – Ave <80kph (50mph)	1		
	Severity Score			4
	Total Risk Score (Probability + Severity scores)			11
	Risk Classification*** (high ≥24, medium 13-23, low <13)			low

Area Management Memo No 68/06 – Supplementary Guidance on Responding to Total Risk Scores

Table 1: Suitable Responses to AMM68/06 Annex A Risk Assessment Scores

<table>
<tr><th rowspan="2">Phase</th><th rowspan="2">Potential Action</th><th colspan="3">Suitability of Potential Actions to Total Risk Scores</th></tr>
<tr><th><13
(Low Risk)</th><th>13-24
(Medium Risk)</th><th>>24
(High Risk)</th></tr>
<tr><td rowspan="10">Initial Response</td><td>Immediate Permanent Repair</td><td colspan="2" rowspan="2">Preferred[1] if TM has been set out to deal with the incident[2] provided repair to barriers with higher risk scores elsewhere are not jeopardised, parts are available and significant congestion is not caused.</td><td>Required[1] if TM has been set out to deal with the incident[2] and parts are available.</td></tr>
<tr><td>Acceptable[1] if TM has to be set out specifically, provided it is not at times of peak flow.</td></tr>
<tr><td>Leave lane/hard shoulder closures and/or speed restrictions in place until repairs can be made</td><td>Not acceptable</td><td>Acceptable, provided the repair is given priority over other medium risk repairs and a critical lane[3] is not closed.</td><td>Acceptable, only if a critical lane[3] is not closed.</td></tr>
<tr><td>Fully/close cone the gap</td><td>Not acceptable because of the risks from cones being scattered compared to risks of the damaged barrier</td><td colspan="2">Acceptable, provided they are set out before the site of the incident is re-opened [4] and the repair will be made within 7 days[5].</td></tr>
<tr><td>Install Temporary barrier[6]</td><td>Not required</td><td colspan="2">Acceptable[7] if repair can't be made within 24 hours</td></tr>
<tr><td>Advance warning signs</td><td colspan="3">Permissible on verge[4]</td></tr>
<tr><td>No immediate repair or mitigation</td><td>Permissible</td><td colspan="2">Not acceptable if the damage will not be repaired within 24 hours</td></tr>
<tr><td>Marker cone the gap</td><td colspan="3">Permissible only as means of identifying the location of damage to maintenance crews. To be placed in the hard shoulder, unless placed in the central reserve before the incident is cleared[4].</td></tr>
<tr><td rowspan="3">Completion of Repairs</td><td>Permanent repair within 24 hours[1]</td><td>Acceptable if it can be done outside of peak flow provided repairs to barriers with higher risk scores elsewhere are not jeopardised</td><td>Preferred if it can be done outside of peak flow provided repairs to barriers with higher risk scores elsewhere are not jeopardised</td><td>Required if it can be done outside of peak flow</td></tr>
<tr><td>Permanent repair within 7 days[1]</td><td>Preferred if resources and materials are available, provided repairs to barriers with higher risk scores elsewhere are not jeopardised</td><td>Required if resources and materials are available, provided repairs to barriers with higher risk scores elsewhere are not jeopardised</td><td>Permissible only on grounds of resource and material constraints.</td></tr>
<tr><td>Permanent repair after 7 days[1]</td><td colspan="3">Permissible only on grounds of resource and material constraints, provided:
1 risk assessment and mitigation measures have been reviewed and updated as necessary, and
2 repairs to barriers with lower risk scores elsewhere are not given higher priority</td></tr>
</table>

[1] Lane closures and/or speed restrictions must be used as necessary to ensure road worker safety.

[2] Avoids risks of setting out TM again later.

[3] A critical lane is a lane which needs to remain open to satisfy predicted traffic demand, and, if closed, would lead to over saturation of the remaining carriageway capacity.

[4] To save road workers having to cross live traffic lanes, but do not delay the incident clearance solely to place marker cones.

[5] Due to the increasing risk of cones being scattered.

[6] May be implemented as an initial response or later in the repair.

[7] Use temporary barrier decision tool to help make the decision.

The potential actions listed in the second column should be considered in descending order down the table. The meanings of the terms used to describe suitability are summarised in the table 2.

Table 2: Meaning of terms describing suitability of responses to AMM68/06 Annex A Risk Assessment Scores

Priority for Action	Meaning
Required	Must be done if resources and materials are available, unless there are extenuating circumstances
Preferred	Should be done unless there are good grounds
Acceptable	Can be done if required or preferred approaches have been ruled out
Permissible	A low priority and should not be chosen instead of required, preferred or acceptable approaches.
Not acceptable	Must not be done unless there are extenuating circumstances

2.2.13 Technology Systems

2.2.13.1 General

1 The Service Providers primary responsibility is to ensure that access to Technology Systems is safe and clear at all times and that structural condition is not defective to the extent that the operation is impaired.

2.2.13.2 Requirements

1 The overall requirement is to provide assistance to the specialist contractor and ensure that the technology systems equipment is readily accessible, adequately labelled and clean

2.2.13.3 Traffic Management Centres

1 WG has two Traffic Management Centres (TMCs) located at Conwy and Coryton. The TMCs cover all trunk roads and motorways. The technology employed in the TMCs may be split into two types: - that employed to manage and control the roadside equipment and other technology used to provide communications with and manage the on-road resources of the Traffic Officer Service.

2.2.14 Road Markings and Road Studs

2.2.14.1 General

1 Road markings and road studs contribute to the safety and convenience of road users by providing regulation, warning and direction. Worn markings are likely to be poorly visible and have inadequate skid resistance.

2 Certain markings may be used only if supported by a traffic regulation order or other statutory provision (direction 7), whilst others, eg Give Way markings (Diagram 1003) have legal implications in that not complying with them could constitute a traffic offence under Section 36 of the Road Traffic Act 1998 (regulation 10). Some road markings may be placed only in conjunction with certain other markings or with specified signs (direction 18).

3 The legal status of markings may be affected by undue wear or damage. In some cases the use of retro-reflective road studs is to give effect to the regulatory provisions of the TSRGD and their legal status may be affected by their inadequacy due to loose or missing studs or aspects such as degradation damage. The condition of road markings and road studs is particularly important in wet conditions, when road markings are generally much less effective, but drivers rely on them for visual guidance.

4 It should be noted that road studs comply with the statutory requirements of TSRGD are listed in Advice Note SA1 of MCHW, although this may not be completely up-to-date as it is not practicable to reissue it whenever new products are certified. In case of doubt, WG should be consulted.

2.2.14.2 Requirements

1 Displaced road studs lying on the carriageway, hard shoulders or lay-bys and loose road studs, if judged to be a hazard, shall be removed immediately if reasonably practicable, otherwise road users shall be protected as far as is possible. As a normal minimum, the aim should be to display notices warning of the hazardous conditions before reporting the defect at the earliest opportunity with a request for immediate action to make the defect safe. Such action, including the filling of any cavities left following removal of the road studs, shall be completed within the shortest possible time and in any case within 24 hours of notification.

2 Replacement of defective or missing road studs associated with road markings shall be carried out when there is greater than **25% loss** on straight or large radius curves, or greater than **10% loss** on bends. Replacement shall be completed within 3 **months** of the appropriate defect threshold being exceeded or within **24 hours** if the road studs are required to maintain the legality of road markings.

2.2.14.3 Management Guidance

1 Road markings and studs are defined and prescribed in TSRGD and further detailed in supporting documents (e.g. Working Drawings and Chapter 5 of the Traffic Signs Manual). Markings outside the scope of these Regulations (e.g. speed camera calibration markings) are treated as special markings but for maintenance purposes are dealt with in the same manner as normal markings.

2 Many road markings are used to give effect to regulatory provision; it is important that their legal status is not affected by undue wear or damage. Examples of Category 1 and Category 2 defects are stated in TD26.

3 Details of the requirements for inspection type and frequency and reporting of the condition and any defects of road markings and road studs are specified in TD26.

2.2.14.3.1 Road Markings

1 Aspects of condition that may affect the performance of road markings (paint or thermoplastic) and are required to be inspected are contained in TD 26 and summarised as:

- Retro reflectivity (R_L)
- Wear
- Discoloration and reduction in the luminance factor
- Skid resistance (SRT)

2 Inspections shall initially be visual and condition shall be assessed against the criteria set out in TD 26. Any suspect areas identified by the visual inspections shall be noted and further testing as described in TD 26 shall be instigated. Recording and Inventory requirements are given in TD 26 Section 5 and Service Providers should note that annual reports are required

3 Annually approved high speed monitors must be used for longitudinal road markings in long lengths of the network.

4 When installing edge of carriageway markings (in particular raised rib lines), consideration shall be given to the provision of drainage features to avoid adversely affecting the free draining of the carriageway.

5 Many road markings are used to give effect to regulatory provisions and it is important that their legal status is not affected by undue wear and tear.

6 NB: For further information see BS EN 1436.

2.2.14.3.2 Road Studs

1 Aspects of condition that may affect the achievement of the performance of road studs and are required to be inspected are contained in TD 26.

2 Inspections to check for loose studs and inserts, wherever possible, should be carried out when traffic management for other activities are in operation. Where evidence of significant groupings of defects are noted, indicative of a general fault condition, specific closures for road stud inspection should be arranged as a high priority.

2.2.15 Road Traffic Signs

2.2.15.1 General

1 Road traffic signs contribute to the safety and convenience of the network user by providing regulation, warning, information and direction. Many signs must be illuminated and their legal status may be affected if their lighting is ineffective. Satisfactory electrical functioning is required to avoid hazards and maintain the economic life of components. Deterioration of the structure and components may result in a hazard or a reduction in component life.

2 Some signs are required by the regulations to be illuminated by means of reflectivity, that is, they are dependent on reflecting enough light back to source (vehicle headlights and the driver) in order to be seen during the hours of darkness. If the reflective surface of the sign is degraded or compromised in any way, the amount of light reflected back is unlikely to meet the requirements of the standard.

3 To aid referencing during servicing activities and for recording performance, all signs should be clearly and uniquely identified within the asset inventory. The provision and maintenance of an up-to-date inventory of all items of illuminated street furniture is to enable satisfactory implementation and management of maintenance operations and ensure accurate assessment of electrical energy consumption. Signs should be accessible and free from obstruction.

4 Temporary signs placed on the network may create a hazard by their structural condition or position and may mislead users if they remain in place when no longer required.

2.2.15.2 Requirements

1 The Service Provider shall ensure that the general performance requirements for maintenance of road traffic signs are aligned with guidance document TD25: Inspection and Maintenance of Traffic Signs on Motorway and All-Purpose Trunk Roads.

2.2.15.3 Management Guidance

1 The standards and full advice for maintenance of road traffic signs installations are contained in TD25.

2 Statutory requirements for signs, including the removal of temporary signs, are stated in the Traffic Signs Regulations and General Directions.

3 Many signs are required to be lit and their legal status is affected if the illumination has failed. It is important that such failures are detected and rectified in accordance with defect category and associated risk management criteria. Defects affecting the legality of regulatory or mandatory signs shall be treated as Category 1 defects.

4 Structural Non Destructive Testing of steel Traffic Signs shall be carried out initially at 120 months (max) from new; the timing of subsequent testing should be indicated by the testing organisation which undertakes the test.

5 Signs shall be cleaned at intervals agreed with WG to suit inspection frequencies and not exceed 2 years.

6 Moving parts of variable message signs under the Service Providers control shall be cleaned and lubricated once per year, at the time of inspection.

7 Loose brackets, bolts and fittings shall be tightened and adjusted at the time of inspection.

8 Electrical testing of illuminated traffic signs along with the network cabling shall be carried out at intervals of 6 years in accordance with BS7671.

9 Sign luminaires shall be cleaned once per year-this may be amended in line with manufacturers instructions in the case of self-cleaning luminaires.

10 Bulk lamp changes shall be carried out at intervals appropriate to the type of lamp used (See Table 2.2.15.3).

Table 2.2.15.3 Bulk Change Intervals for Road Traffic Sign Lamps

Lamp Type	Designation	Bulk Change Interval (Max)	
		Burning Hours	Period (1)
High pressure sodium	SON SON-T	12000	36 months
High pressure mercury	MBFU	12000	36 months
Fluorescent	MCFE, SL & PL	8000	24 months
Tungsten Filament	Long life GLS	4000	12 months

(1) Equivalent period for "dusk to dawn" operation.
Sign lanterns shall be cleaned at the time of the bulk lamp change operation.

11 Missing traffic cylinders across gaps in the central reserve safety fence at emergency crossing points on dual carriageways shall be treated as Category 1 defects.

12 Aspects of condition that may affect the performance of road traffic signs are contained in TD25.

2.2.15.4 Categorisation of Defects and Response Times

1 Category 1 Defects for road traffic signs shall be deemed to be those categories of Defects as referred to in Chapter 3 of TD 25 of the DMRB as “Category 1” and “Category 2 (High and Medium Priority)”.

2 Category 2 Defects for road traffic signs shall be deemed to be the category of Defect referred to in Chapter 2 of TD 25 of the DMRB as “Category 2 (Lower Priority”.

3 Response times for completion of permanent repairs shall be as referred to in Chapter 4 of TD 25 of the DMRB. For “Category 2 (High and Medium Priority)” an urban trunk road shall be any trunk road subject to a speed limit less than the National speed limit for that type of road.

2.2.15.5 Maintenance of Traffic Signs with Dew & Graffiti Resistant Coatings

1 Traffic signs with dew resistant coatings must be maintained in accordance with the requirements of TD 25. They are identifiable by a label on the rear of the sign that reads: “Warning: Sign face coated with self cleansing dew resistant overlay & should not require cleaning.”

2.2.15.5.1 Required Action

1 The Service Provider shall be responsible for cleaning traffic signs and must ensure that under no circumstances detergents, abrasive sponges, high pressure water jet or brushes be used to clean signs with dew resistant coatings. When such signs require cleaning only clean water from a low pressure hose must be used. Signs with dew resistant coatings are unlikely to require cleaning as frequently as other signs

2.2.16 Road Traffic Signals

2.2.16.1 General

1 The requirements for road traffic signals relate to maintenance for permanent traffic signals sited at junctions, outside emergency vehicle stations or at controlled pelican crossings. They also relate to associated monitoring equipment installed at or remote from the site and to regulatory signs associated with traffic signals.

2 Traffic signals are expected to operate correctly at all times because failure creates a significant hazard and can lead to major traffic congestion. To facilitate servicing, access to signals should be clearly designated and free from debris. To aid referencing during servicing and for recording performance, all signals should be clearly and uniquely identified within the asset inventory . 'Critical Locations' for urgent response to failures should be identified in the Route Management Plan or otherwise agreed as modifications to WGTRMM with WG.

2.2.16.2 Management Guidance

2.2.16.2.1 General

1 The standards currently utilised for maintenance of road traffic signal installations are detailed in TD 24 and TA84. Statutory requirements for signals are stated in TSRGD. Reference should also be made to the Guidance on signal head optics for advice in connection with light source replacement and innovation. During emergencies or incidents it may be necessary to reduce response times. There may be instances where the maintenance of traffic signals on the network is not the responsibility of the Service Provider, but an adjacent highway authority. The responsibility for such maintenance must always be clarified.

2 Structural Non Destructive Testing of steel Road Traffic Signals shall be carried out at the lesser of 120 months (max) from new or the recommendations of TR22. The timing of subsequent testing should be indicated by the testing organisation which undertakes the test.

3 Aspects of condition that may affect the achievement of the performance requirements for road traffic signals are contained in TD24 and TA84.

4 Modern signal equipment is expected to operate correctly without regular routine adjustments. The purpose of the inspection regime is to detect defects, which might lead to failure or which might otherwise render installations ineffective, in order to keep traffic signal installations as fully operational at all times as is reasonably possible.

5 Some Service Providers may carry out the specialised maintenance on traffic signal installations themselves, others will rely on specialised contractors. In the latter case it is important to make sure that the contract reflects the requirements of WG.

6 Electrical testing in accordance with the relevant British Standard must be undertaken by completing the recommended periodic testing as required by Traffic Control Users Group Guidance note 1. It should be noted that if problems arise that cannot be resolved then advice should be sought from a competent person with the necessary expertise in traffic signals and control systems.

2.2.17 Road Lighting

2.2.17.1 General

1 Road lighting provides night time illumination for the safety, security, comfort and visual guidance for network users. Efficient road lighting reduces energy consumption contributing to lower operating costs and reduced environmental damage.

2 Road lighting must remain structurally and electrically safe so as not to present a hazard to network users or workers as damage to components or their deterioration may result in a hazard or loss of economic life.

3 To facilitate servicing, access to road lighting should be clearly designated with provision for safe access free from debris or obstruction. To aid referencing during servicing activities and for recording performance, all road lighting units should be clearly and uniquely identified within the asset inventory.

4 The provision and maintenance of an up-to-date inventory of all items of illuminated street furniture is to enable satisfactory implementation and management of maintenance operations and ensure accurate assessment of electrical energy consumption.

2.2.17.2 Requirements

1 The Service Provider shall ensure that the general performance requirements for maintenance of road lighting are aligned with guidance document TD23: Trunk Roads and Trunk Road Motorways Inspection and Maintenance of Road Lighting.

2.2.17.3 Management Guidance

1 The following Maintenance Requirements are in addition to those referred to in TD 23 of the DMRB :

- The maximum response time for a Category 1 defect shall be as referred to in Chapter 4 of TD 23 of the DMRB. The permanent repair of the Category 1 defect in any road lighting unit shall be carried out within 28 days (max)
- Lanterns shall be **cleaned** at the intervals given in **Table 2.2.17.3**
- Structural Non Destructive Testing of steel Road Lighting Columns shall be carried out initially at 12 years (max) from new or in accordance with manufacturers recommendations. The timing of subsequent testing should be indicated by the testing organisation which undertakes the test.
- Electrical testing of the network cabling along with associated feeder pillar electrical tests shall be carried out at intervals of 6 years in accordance with BS7671.

Lantern IP Rating[1]	Pollution Category [2]		
	High	Medium	Low
Less than IP 54	12 months	12 months	24 months
IP 54 or greater	36 months	36 months	36 months

[1] IP Rating as defined in British Standard BS EN 60529, Specification for degrees of protection provided by enclosures (IP code), 1992.
[2] High pollution occurs in the centre of large urban areas and in heavy industrial areas. Medium pollution occurs in semi-urban, residential, and light industrial areas. Low pollution occurs in rural areas.

Table 2.2.17.3 – Cleaning Interval for Lanterns

1 The requirements for maintenance of lighting installations are aligned with the guidance document TD23: Trunk Roads and Trunk Road Motorways Inspection and Maintenance of Road Lighting. The suite of standards currently utilised for design and operation of road lighting installations incorporate the above standard and are listed at the end of this section.

2 With advances in Lamp technology and the increased use of Light Emitting Diode (LED) luminaire units combined with the Central Management System (CMS). All lamps will be operated under a burn to extinction strategy.

3 Service Providers are to utilise British Standards / European Norms to design lighting installations and shall follow procedures in the latest edition of the publications listed at the end of this section

4 There will be cases for departures and the Method for Departure from standard is given in DMRB Volume 0 GD01/08.

5 In general, the lantern cleaning and associated servicing maintains the optical performance of the luminaire. However, other aspects will need to be considered to ensure that overall (whole life) maintenance costs are minimised.

- Standardisation of components, where possible, to minimise the number of different components of different manufacture and types are used.
- Replacement and repair materials and equipment should have the same physical, photometric and aesthetic characteristics as existing, except where the existing is obsolete or due for replacement.
- Lights are maintained in a way that enables a continuing rapid and economic maintenance response including replacement of power factor correction capacitors.
- Lamps containing materials that can be recycled should be utilised with an aim of achieving 70% recycling. Additionally, mercury free lamps should also be used where practicable. The minimum requirements shall be full compliance with the Waste Electrical and Electronic Equipment Directive (WEEE)

6 Aspects of condition that may affect the achievement of the performance requirements for Lighting can be summarised as:

- Lamp failure, photoelectric circuit or time switch failure, electricity supply failure, lamp damage
- CMS Node failure or failure of the CMS base station
- Lamp output low due to lamp being dirty, lamp ageing, voltage drop
- Lamp on during day due to photoelectric circuit or time switch failure
- Obscuring by foliage, or other signs and structures
- Incorrect orientation of the lamp due to damaged or misaligned mountings
- Wiring deterioration, discontinuity of protective conductors, earth electrode failure, earth loop impedance failure, inadequate insulation resistance, condition of sealant, polarity failure, protective current device failure, thermostat or heater failure
- Wiring in hazardous condition
- Access for maintenance blocked or security of equipment breached
- Deterioration or damage to column, brackets or other supports - corrosion, damage or missing parts that affect function or promote deterioration

2.2.17.4 Categorisation of Defects and Response Times

1 Category 1 Defects for road lighting shall be deemed to be those referred to in TD 23 as "Category 1". In addition single lamp outages within 30 mph speed limits shall be categorised as "Category 1" but risk assessed in determining the time in which to be repaired.

2 Category 1 Defects shall also include any damage, loss of electrical power or lack of communication on the external data network for any Central Management System (CMS) base station on the network.

3 Category 2 Defects for road lighting shall be deemed to be those as referred to in TD 23 of the DMRB as "Category 2 (High and Medium Priority)" and "Category 2 (Low Priority)".

4 Response times for completion of permanent repairs shall be as referred to in Chapter 4 of TD 23 of the DMRB. For "Category 2 (High and Medium Priority)" an urban trunk road shall be any trunk road subject to a speed limit less than the National speed limit for that type of road. Additional guidance on defects, their categorisation and response times may be found in TD23.

2.2.18 Fences, Walls, Screens and Environmental Barriers

2.2.18.1 General

The WG operational objective for fences, walls, screens and environmental barriers (including noise) is that they should serve the purpose for which they were intended. When sections of fencing have to be replaced then the purpose for which they were originally intended should be reviewed and the appropriate type of barrier installed.

2.2.18.2 Management Guidance

1 There is a need to maintain a record of the purpose of fences, walls, screens and environmental barriers, so that their performance can be verified as required by the EnvIS system. The intended design and performance requirements may be described in the original "as constructed" documentation.

2 A record of all fences, walls, screens and environmental barriers which are the responsibility of the WG (this information should be sought from 'as-built' drawings and/or maintenance manuals) should be held either on the IRIS/RMMS database or on the soft estate database.

3 Aspects of condition that may affect the achievement of the performance requirements for fences, walls, screens and environmental barriers are:

- Rotten wooden elements that affects function or promotes deterioration
- Corroded metal that affects function or promotes deterioration
- Concrete cracking, spalling or reinforcement corrosion that affects the function or promotes deterioration
- Brickwork cracking, spalling or loss of mortar that affects the function
- Missing, broken, deformed or cracked components that affect function or promote deterioration
- Loose nuts, bolts and other components may represent a hazard or promote deterioration
- Lack of tension in a strained wire fence
- Too low fence or barrier (caused by subsidence or otherwise)
- Loss of paint, galvanising or other protective system
- Effects of spray and pollutants degrading colour or transparency
- To note defects and issues such as blocked, damaged and flooded culverts/tunnels, damage/deterioration of ramps and ledges, and scour that may affect function.

4 The appearance of fences, walls, screens and environmental barriers is important and any repairs or replacement sections must maintain the uniformity of their appearance, unless the existing is obsolete.

5 On all-purpose trunk roads unless fencing is required as an essential mitigation measure the decision to fence land rests with the owner or occupier of the land fronting on to the highway, although in most locations they will be liable for negligence if damage is caused by their animals straying on to the highway. Where fencing is required as essential mitigation the ownership would be with the WG.

6 The WG has no general obligation to fence off the highways to which there is a public right of access, although there is power to fence highways in Section 80, as modified, of the Highways Act 1980.

7 Any fencing along the boundaries of APTRs is therefore generally the responsibility of the adjoining landowner/user following any agreed maintenance period after installation on new schemes. In some circumstances however, fencing for the protection of wildlife may remain the property of the WG. Where fencing and its maintenance remains the responsibility of the WG, the details shall be included within the handover and operational management plan.

8 Because of their special status restricting general access, and high-speed characteristics, motorways need to be fenced to avoid the hazard to traffic presented by trespassers and wandering animals. It is the WG's practice to accept responsibility for the construction or erection and maintenance of the fencing along the motorway boundaries. This does not, however, absolve the adjoining landowner/occupier from the statutory obligations under the Animals Act 1971 to prevent stock from straying.

9 Although it is the WG's practice to provide and maintain adequate fencing, the WG does not accept responsibility for alterations to the fence necessitated by adjoining landowners/occupiers changing requirements after installation. In those circumstances it is for the landowners/occupiers to provide and maintain any additional rails/netting/wire needed to prevent the egress of animals on to the highway. Where wildlife fencing has been installed, its integrity shall be maintained to meet its function. Relevant information relating to the maintenance of wildlife fencing shall be recorded in the handover and maintenance environmental management plan.

10 In the interests of safety, the Service Provider is expected to use discretion in carrying out minor/holding repairs on any part of the fence added by the landowner/occupier, where such parts are found to be defective as a result of inspection or reports from the Police or public. Serious defects will need to be reported to the landowner/occupier with a request for them to be rectified. If the repairs need to be carried out immediately, in the interests of safety, the Service Provider will carry out the necessary work and make a request to the landowner/occupier for reimbursement of any substantial expenditure incurred.

11 Where there is persistent vandalism and theft, consideration should be given to replacing the existing fence with a more substantial type.

2.2.19 Soft Estate and Environmental Management

2.2.19.1 Introduction

1 The Welsh Government Trunk Road Maintenance Manual (WGTRMM), Environmental Management and Maintenance of the Soft Estate, technical guidance relates to the maintenance, and where appropriate design, of all landscape and environmental elements and functions within the soft estate and within the responsibility of Welsh Government Transport (WG). This guidance is intended to outline the requirements of, and support the Service Providers in meeting their legal requirements and comply with health and safety, relevant legislation, WG policy and guidance, and current good practice.

2 Welsh Government Transport's vision for the management and operation of the environmental aspects of the strategic road network is:

"To work to protect, conserve and, when appropriate, enhance the historic and unique character of Wales' natural and built environments".

3 In managing and operating our road network WG aims to work in partnership with their Service Providers and engage with key stakeholders. With this approach of working together, recognising the contributions of partners and stakeholders and through the application of the Trunk Road Maintenance Manual, WG seeks to continually improve environmental management standards through;

- Identifying and addressing risks.
- Ensuring that environmental management and performance are integrated across all management activities in the operation of the network.
- Improving environmental asset information and developing an environmental information database (EnvIS)
- Providing systems for the management of environmental asset information that will enable efficient and appropriate operational management of the soft estate.
- Producing Route Environmental Management Plans with specific management objectives for the 3,000 hectares of environmental resource and the specific environmental features we are responsible for.
- Encouraging innovative management and design solutions.
- Seeking cost effectiveness.
- Facilitating and encouraging collaborative partnership working.
- Ensuring effective environmental performance through reporting on Key Performance Indicators (KPI's) and agency Area Performance Indicators (API's).

2.2.19.2 General description and minimum requirements for compliance.

1 The soft estate is defined as: The natural part of the highway estate including verges, embankments, cuttings, planted areas, water bodies, hedges and woodlands. The soft estate contains, any cultural heritage assets together with hard landscaping areas, environmental fencing and environmental engineering features installed for mitigation, such as mammal passes.

2 In addition to the general advice indicated below, reference should be made to Volume 10 'Environmental Design and Management' and Volume 11 'Environmental Assessment' of the DMRB.

3 All inspections, maintenance and improvement works should be undertaken in accordance with current legislation and WG policies; ensuring compliance with commitments and targets (e.g. scheme specific environmental commitments or targets contained within the Trunk Road Estate Biodiversity Action Plan (TREBAP)[1] that may be relevant).

4 Maintenance will be the responsibility of the Service Provider (SP) and should be in accordance with the objectives of the Route Environmental Management Plans (REMPs), (as they are developed), Handover Environmental Management Plans (HEMP's), (from road improvement projects) or in accordance with the maintenance objectives of designed environmental mitigation features. Where no formalised management objectives have been defined for the soft estate, maintenance should be in accordance with the risk management principles identified and set out in the Trunk Road Inspection and Maintenance Policy Review (March 2010), and appropriate to the landscape and environmental elements present and the functions they perform.

5 Maintenance of the soft estate includes:

- inspection of the soft estate;
- maintenance of hard and soft landscape elements;
- checking, monitoring, repair and maintenance of environmental mitigation and special ecological measures.

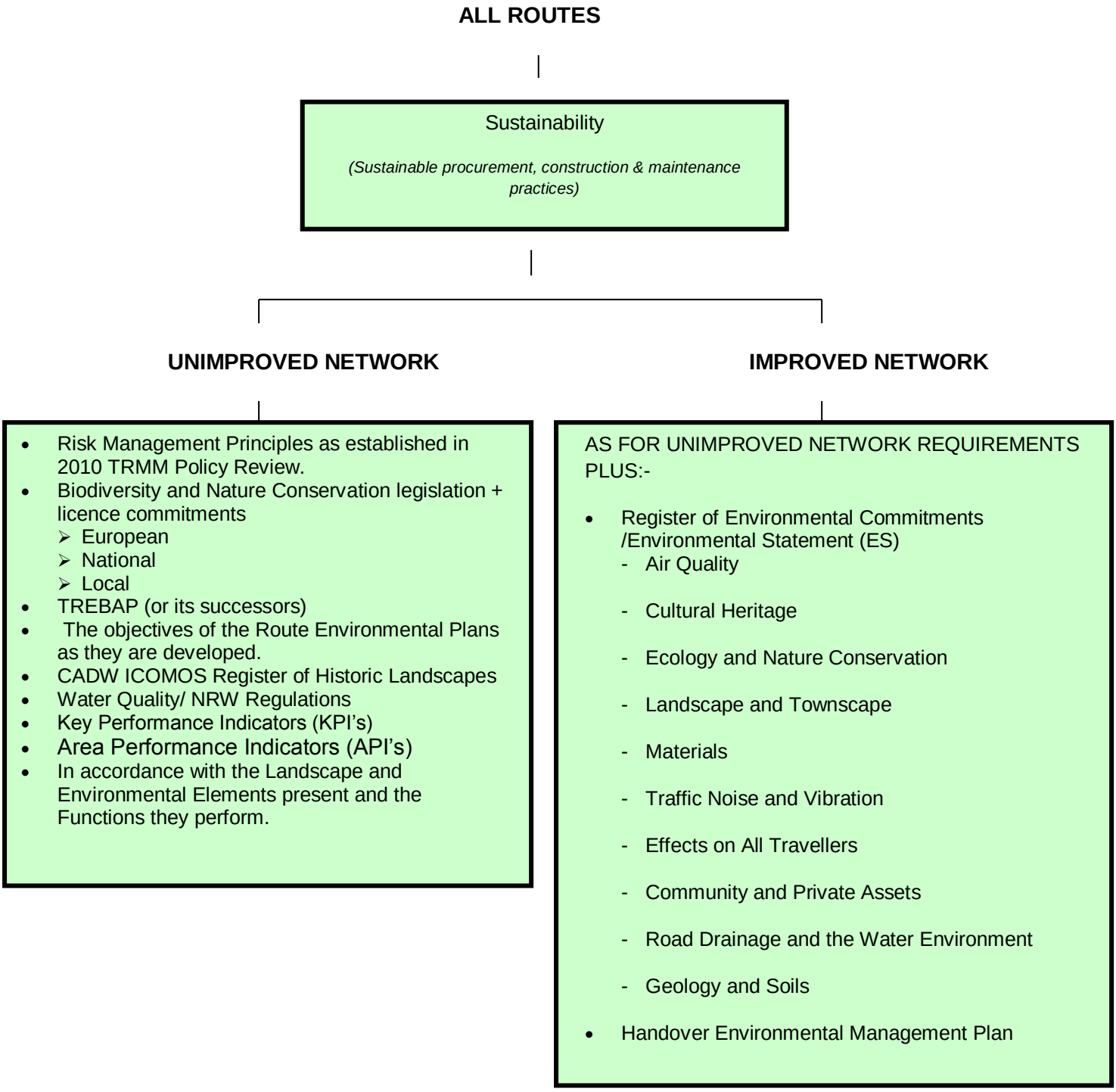
6 There are 2 distinct elements of the network, refer to Figure 1:

a) the **unimproved network** where the SP needs to identify the operations required to manage and keep the network safe. Generally there is little or no information on objectives or functions of the soft estate for these areas

b) **improved sections** of the network, some of which have a landscape report, Environmental Statement, Record of Environmental Commitments, environmental and landscape functions and elements, a Maintenance or Handover Environmental Management Plan and/or a Landscape and Ecology Management Plan.

[1] The current WG Trunk Road Estate Biodiversity Action Plan (TREBAP) is a 10 year plan due to be completed in 2014. Reference to the TREBAP in the TRMM and any associated guidance will include its successors.

.**Figure 1 Minimum Requirements For Compliance**



2.2.19.3 Inspection and Survey of the asset, recording asset information and planning.

2.2.19.3.1 Soft Estate - General Inspection

1 The general inspection primarily focuses on the identification of defects of both landscape and environmental elements to prioritise and inform annual works programmes. Additionally, inspection of environmental assets should be undertaken to identify any obvious causes which might be preventing them performing their designed function e.g. blocked or flooded mammal underpasses, defective otter ledges or breaches in acoustic or mammal proof fencing. General Inspections comprise of visual inspection of the whole of the asset and would not necessarily need to be undertaken by an environmental specialist.

2.2.19.3.2 Soft Estate - Detailed Survey

1 Soft Estate Detailed Surveys must comprise 20% coverage of the network each year, ensuring that the whole network is surveyed every five years. Detailed Surveys must be undertaken by an environmental specialist and should consider whether the environmental asset is performing in accordance with its environmental function. This consideration of performance against function should be recorded using a Red/ Amber/Green (RAG) condition rating.

2 A condition rating of Red indicates the asset is in poor condition and is either not performing according to its function or is doing so at limited capacity. Red indicates that corrective action should be prioritised and that early action is required.

3 An Amber condition indicates that the asset is in satisfactory condition and is, therefore, operational, but is not fully meeting its intended function. An Amber condition rating indicates that non-urgent corrective action is required, and either the relevant maintenance works should be undertaken, prioritised against other requirements, or further inspections are required to monitor condition.

4 A Green condition rating indicates that the asset is in good condition and is meeting its intended function. A Green condition rating indicates that no corrective action is required; however the next inspection should be programmed accordingly.

5 Soft Estate Detailed Surveys must also collect and update EnvIS data, in accordance with the principles set out in IAN 84/10, relating to the 20% of the network being inspected. All relevant inventory and environmental management information must be recorded in accordance with the EnvIS data specification and submitted as required. Data collected in the first 5 year cycle will primarily relate to Landscape and Nature Conservation and Ecology assets, but any available data relevant to other environmental topics (including non-natives and invasive species) should also be collected and recorded.

6 The detailed survey must also seek to establish the extents of the soft estate to provide a definitive reference for the Service Provider's land management and maintenance responsibilities. To determine this, reference needs to be made to WG's land terrier function of the IRIS or through Land Registry enquiries. Where information is inconclusive, assumptions will need to be made based on the position of highway boundary/landscape features, adjacent boundaries (that might demonstrate or indicate a contiguous line), historic maintenance records/activities or land topography where it provides a logical reference for what should be maintained. Any areas where land ownership determination is inconclusive will be logged and collated in an issues table for further investigation/ determination (for example to determine whether it might be deemed surplus).

7 Following the annual Detailed Surveys, route specific environmental management plans (REMPs) must be prepared using the information collected on the environmental assets and their condition, and in accordance with the objectives of the Route Management Plans. The REMP should set out the RAG condition rating for the environmental asset and the follow up action that is required. The REMP should be used to record, prioritise and plan maintenance activities and future surveys. Available information from capital schemes (for example the objectives contained within a Handover Environmental Management Plan) should be incorporated into the route specific REMP.

2.2.19.3.3 Requirements

1 The Detailed Surveys should be undertaken annually covering 20% of the network. An initial five year plan should be prepared and agreed with WG, to identify the areas to be inspected each year. The plan should consider the following issues as part of prioritising the sequence of the routes to be surveyed:

- Route Safety Inspection Category
- Risks associated with the known poor condition of the soft estate on certain routes.
- Other risks associated with the proximity or presence of other environmental 'features' e.g. a route where there is a high proportion of SSSI's adjacent or close to the network.
- Potential cost savings e.g. by surveying routes within a similar location, or combining surveys with other schemes and activities
- Route Management Plan requirements and priorities, and the linked National Transport Plan objectives.

2.2.19.3.4 Hazardous Tree Surveys

1 All trees within the soft estate and third party trees within falling distance of the carriageway will be surveyed every 5 years to assess and record their condition by qualified and experienced tree inspectors or arboriculturalists. Defects and hazards will be assessed against the risks they represent and prioritised for remedial action in accordance with the appropriate defect category. Tree survey records will be maintained and updated in the IRIS and be made available to WG for audit and inspection on request.

2.2.19.3.5 Process for recording asset condition, populating the environmental inventory and developing the management objectives.

1 Routine maintenance and improvements to the soft estate will be undertaken in accordance with the following process. This is shown diagrammatically in Figure 13.16.7.

2 The first stage of this process is to establish an agreed plan with WG that determines how the 5 year Detailed Survey programme will be prioritised.

3 **In Year 1**, the Detailed Surveys will generate EnvIS data and asset performance information relating to 20% of the network. The Detailed Survey informs the preparation of the REMP and will show the works that are required to be undertaken in response to the surveys and the longer term management objectives. The Service Provider should aim to start to deliver the work programme and objectives for the 1st 20% in year 2. During year 1 the Service Provider should continue to deliver soft estate and environmental asset management in accordance with the risk based approach developed in 2009/2010[2], and following DMRB guidance. As these works are undertaken, revised EnvIS data will be collected to record the revised condition rating and information relating to any new or updated assets.

4 Detailed surveys of the network, as described in WGTRMM, will provide asset information for the soft estate. The information will:

- Record the elements present.
- Determine and record the function of those elements.
- Provide an assessment of the condition of the asset element in meeting its designed (or naturally developed) function.

5 The asset information will be recorded in the EnvIS database and will inform the management objectives for soft estate.

6 Route Environmental Management Plans (REMPs) will set the context for, and provide a record of the management objectives for specific routes, as determined by the Route Management Plans. Environmental management objectives are to be developed by the Service Providers and agreed with WG. In developing the environmental management objectives the Service Provider will take into account;

- The route context.
- Constraints and opportunities (operational, financial, partnership arrangements etc.)
- The legal and regulatory context of the route.
- The landscape and environmental elements present.
- The functions of those elements.
- Risk management.
- Environmental Commitments.
- Any relevant management plans or agreements.
- Stakeholder requirements.
- TREBAP targets.
- Future planned work programmes or infrastructure improvements which might affect or influence the REMP objectives.

7 In preparing the REMP and setting objectives for the future management of the soft estate and other environmental assets, the SP must consider:

[2] Welsh Government's 'New Trunk Road Inspection and Maintenance Policy Review' (March 2010)

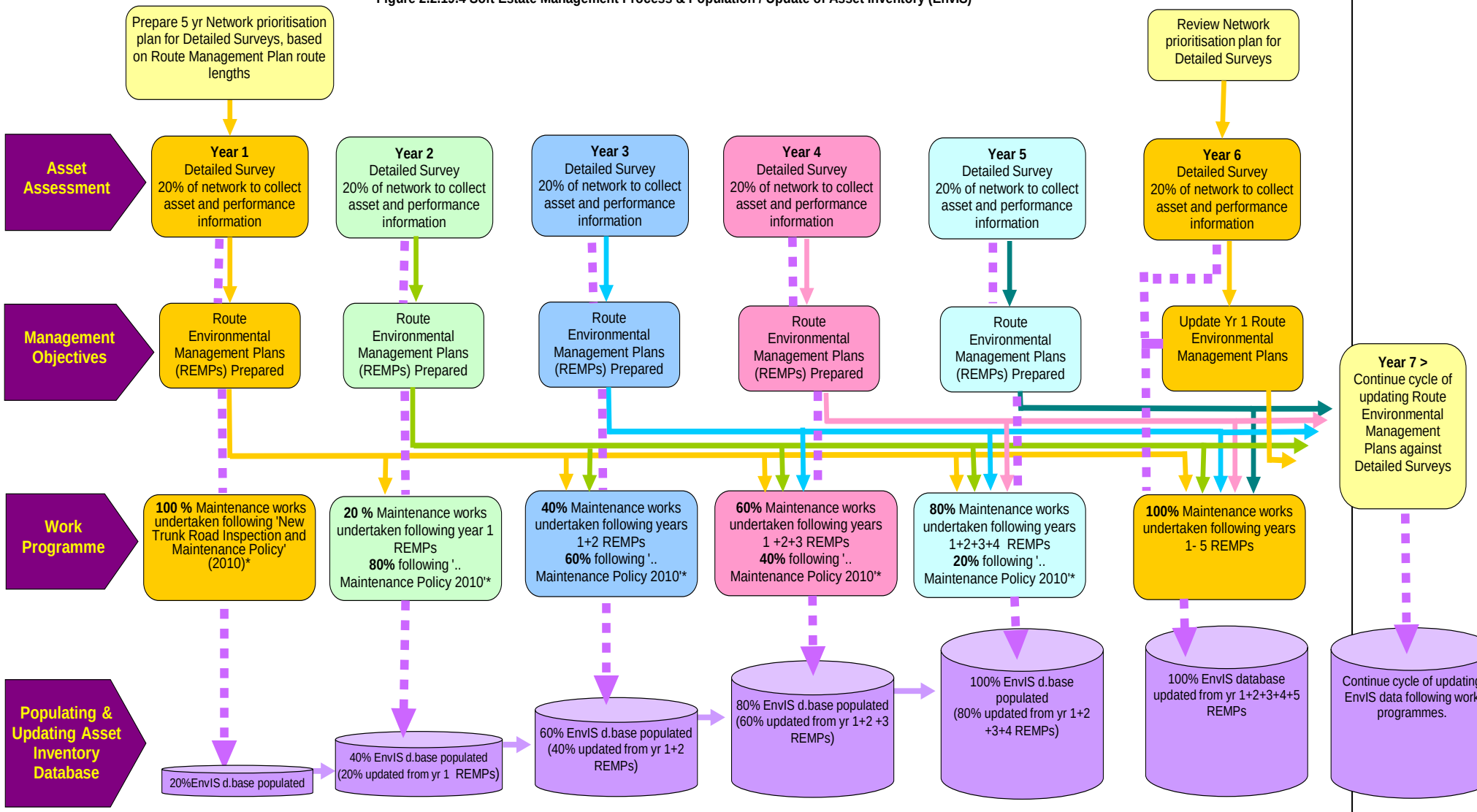
- The previous risk based approach to maintenance developed, and how the improved and updated asset information can refine the risk management process.
- That the levels of maintenance should be consistent with the context of Routes and the objectives of the Route Management Plans i.e. in certain circumstances, where risks have been assessed, it might be considered that a reduced standard of maintenance is appropriate.
- The financial implications of setting the objectives as they relate to;
    - demonstrating value for money,
    - the level of available Revenue funding (both historic allocations and known future trends should also inform the decision making process),
    - The level of available Capital funding (both historic allocations and known future trends should also inform the decision making process).

8 **In Year 2**, the Detailed Surveys will generate further EnvIS data and asset performance information as for Year 1. In addition, any works undertaken in accordance with the REMPs prepared in Year 1 will also generate updated EnvIS data.

9 This process will continue for Years 3, 4 and 5 until there is a full coverage of the whole network. At year 6 all of the network will be being managed according to the objectives of the REMPs. At and after year 6 the Detailed Surveys will record any new or updated asset and condition information and the REMPs will be updated and implemented accordingly.

10 Where Network Management improvement schemes or programmes of work are undertaken on a section of the network that has not yet been subject to a Detailed Survey, it is likely that there would be a limited amount of EnvIS data available and no environmental management plan (EMP). In this instance the relevant information should be collected to allow completion of the works in accordance with relevant legislation and policy requirements. The data should be collected in accordance with the EnvIS guidance and where appropriate an EMP should be prepared.

Figure 2.2.19.4 Soft Estate Management Process & Population / Update of Asset Inventory (EnvIS)



* 'New Trunk Road Inspection and Maintenance Policy' (2010) refers to the approach the Trunk Road Agents employed in managing the environmental asset during the years 2010 - 2014, following the baseline established from the risk based policy review, DMRB guidance and WG 'Maintenance of the Soft Estate- Interim Guidance' (2008).

2.2.19.4 Soft Estate Management Guidance (Fig 2.2.19.4)

1 Many of the management activities required for the maintenance of the soft estate are relatively minor, but failure to carry these out could result in deterioration of the condition of the asset, requiring more costly intervention in the future. Generally, it is considered cost effective in whole life cost terms, to undertake timely cyclical maintenance activities. These form an important component in the development of a coherent and efficient Route Environmental Management Plan and the resulting annual work programmes.

2 Where objectives have been set for managing the soft estate through road improvements or new road construction these should be identified within, and met through, an annual programme of routine and cyclic operations. These may include Environmental Objectives set out in Handover Environmental Management Plans, or commitments made within Environmental Statements or at public inquiries.

3 The objectives of the Route Environmental Management Plans (REMPs) will be met through a combination of cyclical maintenance, planned interventions or specific projects/initiatives, where they have been developed and adopted.

4 Where no design plans or REMP exist for sections of road the Service Provider shall ensure that maintenance operations conform to overall design objectives and in accordance with WG Risk Management Principles (2010)[3] for these route sections.

5 Where agreed with a statutory body such as NRW or CADW, or advised by a Wildlife Trust or body with vested authority, management of areas of conservation interest shall be maintained in accordance with the agreed system.

6 The SP should confer with relevant statutory organisations and obtain all licences and consents that are required to meet environmental and other legislation

7 **Routine maintenance** covers activity where the work is usually short term or cyclical and necessary to keep the network safe, minimise the need for costly and disruptive future works, and maintain the appearance of the network. It is split into two components:

- Cyclic maintenance - work that is undertaken at regular and programmed intervals;
- Reactive maintenance - a prompt response that addresses incidents and hazards normally identified during General Inspections or Safety Patrols.

8 Generally, routine maintenance is funded through Revenue budget allocations.

9 **Infrastructure renewal** is required when the asset has deteriorated and repairs interventions or improvements, or a combination of them, are required, (collectively the term used for the various aspects of infrastructure renewal of the soft estate is Soft Estate Rehabilitation) These works would generally follow from a Detailed Survey and the identification of a Red or Amber condition rating.

[3] Welsh Government's 'New Trunk Road Inspection and Maintenance Policy Review' (March 2010)

10 Infrastructure renewal of the soft estate (Rehabilitation) will generally be funded through Capital budget allocations.

11 It should be noted that any work to the soft estate is likely to encounter the presence of protected species (flora and fauna) or designated sites, which may require licences or assents to be in place before work can start. Appropriate advice should be sought from a suitably qualified ecologist, before commencing work. It is likely that if protected species found then survey and assessment work, and licences may be required prior to undertaking the work.

12 Any routine (or other) maintenance work should be carried out in accordance with:

- Current legislation, including Water Framework/Groundwater Directives and equivalent UK regulations
- WG Policies, Strategies and Initiatives.
- WG Technical Guidance, including DMRB and in accordance with the Elements present and the Functions they perform.
- WG Procedural Advice and Instructions
- River Basin Management Plans
- TREBAP (or its successors).
- The objectives of the Route Environmental Management Plans.
- Scheme specific environmental commitment in accordance with the Handover Environmental Management Plan (HEMP).
- Relevant good practice.

2.2.19.5 Performance Requirements

2.2.19.5.1 Reporting Requirements

1 The Service Provider will provide annual reports relating to their environmental management activities and in meeting;

- the objectives of the Route Management Plans,
- progress on the compilation and delivery of the REMPs,
- any relevant KPI's / API's,
- wider WG strategic aims,
- financial targets,
- risk management objectives,
- existing environmental commitments.

2.2.19.5.2 Environmental and Landscape Functions and Elements- Performance requirements

1 The performance of the environmental assets is demonstrated by an achievement of the environmental function that has been attributed to the asset (the Element). Environmental functions (or objectives) are defined in the EnvIS guidance (IAN 84/10) and provide a consistent system for considering performance of environmental assets.

2 Functions and elements methodology as set out in Section 0, Parts 2, 3 and 4 of DMRB Volume 10, has been developed to provide a consistent system for defining and achieving the environmental objectives. This should include policy or route-specific objectives. The main aims of the system as they relate to maintenance of the soft estate are as follows:

- To enable the design and implementation of Infrastructure Delivery Division (IDD) projects, Network Management (NM) improvement schemes, and NM operations and maintenance, taking full account of the need to protect and, where practicable, enhance the existing environment.
- To enable the designer to provide design data and performance requirements to contractors in a consistent format, to enable them to detail and implement the various environmental features such that they meet the stated objectives, in the short and long term.
- To enable constructed scheme or existing network data to be handed over to succeeding service providers in a consistent format and content.
- To enable environmental data to be utilized in analysing its interaction with other technical data.

3 By applying the co-ordinated multi-disciplinary teamwork approach, the overall environmental performance of the highway estate will be significantly improved over time. This methodology has been used in the development of EnvIS and the DMRB Volume 10 Landscape Management Handbook.

4 The Environmental and Landscape Functions and Elements as described in DMRB Volume 10 Section 0 Parts 2-4 include the following Elements and Functions.

Landscape Element		**Environmental Element**		**Environmental Function**	
LE1	Grassland	E1	Noise	EFA	Visual Screening
LE2	Native Planting	E2	Water	EFB	Landscape Integration
LE3	Ornamental Planting	E3	Nature Conservation and Biodiversity	EFC	Enhancing the Built Environment
LE4	Hedges	E4	Pests and Injurious Weeds	EFD	Nature Conservation and Biodiversity
LE5	Trees			EFE	Visual Amenity
LE6	Wetland Elements			EFF	Heritage
LE7	Hard landscape Features			EFG	Auditory Amenity
				LFH	Water Quality

Landscape Elements: codes and descriptive text for the core ‘Elements’ of the soft estate such as grass, planting, wetland, hedges and hard landscape features where

these are provided for specific landscape reasons such as feature paving. For scheme specific purposes additional sub-types may be added to further define the requirements for maintenance but without altering the numbering of core elements.

Environmental Elements: non landscape features which include elements such as noise attenuation measures, water quality controls, protected species and legislated elements such as injurious weeds and pests. For scheme specific purposes elements may be subdivided to achieve specific performance requirements. Recording the location of existing features will be an ongoing process, with the SP recording them within the Environmental database as and when they are identified or installed as improvement.

Environmental Functions: codes and descriptive text to enable users to attach objectives to the various features of the highway estate. This includes the ability, when appropriate, to ascribe highway and structural elements an environmental function that will inform its design and influence maintenance techniques. Features may have multiple functions and in this case it is necessary to decide on the Primary and Secondary code to prioritise maintenance of the feature.

5 It should be noted that features can have multiple Functions and Elements.

6 Applicable in Wales, there is an additional Element with an additional assigned Function, outside of those in the DMRB, for safety cutting and visibility splays; to both geospatially define these areas and record the functional objectives of them. Service Providers must collect and record this inventory information when carrying out the Detailed Surveys.

7 **Additional Element and Function (Wales only)**

Safety Element (vegetated areas)		**Safety Function (vegetated areas)**	
SE1	Vegetated areas requiring safety cuts.	SFA	Vegetation that must not impede or impair visibility, or accessibility.

Safety Element: code and descriptive text for vegetated areas, such as the 1metre strip of verge adjacent to the carriageway, planted areas or trees in front of signs or safety cameras; or visibility splays at junctions or accesses that will need cyclical or periodic cutting for safety purposes.

Safety Function: code and descriptive text assigned to the Safety Element, recording the objectives that will inform its design and influence maintenance techniques.

8 It should be noted that whilst there might be some secondary functional benefits to vegetated areas assigned ‘Safety Element’ (such as landscape integration or nature conservation and ecology), the primary function will always be safety and maintenance will planned and carried out on that basis.

Table 2.2.19.5.2: Environmental Functions and the objectives of that Function.

Environmental Function	Definition and objectives.
Landscape Integration	Integrate the strategic road with the character of the surrounding landscape by maintaining the matrix of local vegetation patterns, blending with local landform and softening views of the strategic road, its infrastructure and its traffic.
Visual Screening	Mitigation against adverse visual impacts by screening views of the strategic road and associated infrastructure from properties and public viewpoints, including rights of way and public open space.
Visual Amenity	Maintain interest, variety and an acceptable visual appearance for both road users and adjacent public viewers by creating / maintaining views to the wider landscape, providing seasonal variation and creating a 'sense of place' via landmark features, either plant species, landform / geology, the design and materials used for structures and furniture, and the special arrangements.
Auditory Amenity	Reduce the adverse noise impact of highway traffic or construction on adjacent properties or publicly accessible areas by providing and maintaining measures to reduce noise pollution.
Nature Conservation and Ecology	Protect, manage and enhance the nature conservation value of the highway estate and integrate with and protect adjacent habitats and locations containing protected species, or other locally important species or habitats.
Enhancing the Built Environment	Enhance the landscape and built elements of the highway with surrounding features, to reflect the scale, character and materials of the local townscape or community through which the highway passes. The needs and amenity of the public living / working in or utilising areas within or adjacent to the highway, including pedestrians, cyclists and those using public transport and local facilities.
Protect Cultural Heritage	Conserve and enhance the physical nature and appearance and setting of existing features within and adjacent to the highway, where they are afforded statutory protection, or make a material contribution to the quality and character of the local area.

Manage Water Quality	To undertake and maintain appropriate measures to mitigate impacts on local water courses, groundwater and other areas sensitive to runoff of pollutants from the strategic road network.
Manage Drainage	To undertake and maintain appropriate measures, to minimise impacts on areas sensitive to flooding or hydrological changes, arising from highway construction, operation and maintenance.
Manage Air Quality	Implement measures to reduce air emissions and improve air quality, during highway construction, maintenance and operation.
Manage Material Usage	To minimise the production of waste, particularly hazardous waste, and maximise the reuse and recycling of waste.

2.2.19.5.3 Soft Estate Maintenance Operations – Performance Requirements

1 The performance requirements relating to landscape maintenance operations cover all areas of the WG's soft estate, or areas which (although the responsibility of others) cause a nuisance or danger to the highway user.

2 Maintenance operations shall be carried out in accordance with the principles of the functions and elements methodology as described in Section 2, Part 2 of DMRB Volume 10, Landscape Management Handbook and appropriate design drawings. The SP shall ensure that all operations are in keeping with the long term objectives for the route where applicable.

3 The following outline guidance for maintenance of the soft estate should be used as a guide to required operations. Specifications for maintenance should reflect the surrounding landscape, landscape character, biodiversity, functions and elements. A higher standard of maintenance for amenity may be appropriate in built-up areas where housing and businesses front the highway, at the entrance to some cities, towns and villages, and on important "gateway" routes into Wales.

A) Performance Requirements: Maintenance as it relates to Safety & Environmental Functions

Safety Function – Vegetated Areas (SFA)
• All areas identified as SFA on environmental masterplans, or as identified and recorded in the inventory, or areas known to be important where vegetation management is needed to maintain safety. • Cutting, clearing or removal of vegetation to ensure it does not impede, restrict or otherwise compromise safety as it relates to forward visibility and accessibility for road users, operatives or inspection teams, or the views of safety cameras.
Visual Screening (EFA)

- All areas identified as EFA on environmental masterplans, or as identified and recorded in the inventory, or as defined in the REMP, or of known visual screening importance shall be maintained for visual screening
- Thinning, coppicing or other maintenance shall be carried out in such a way to ensure that it does not open up views to and from the highway where these have been identified for screening.
- Screening structures and earthworks shall be maintained to minimise their visual impact on the landscape.

Landscape Integration (EFB)

- All areas identified as EFB on environmental masterplans, , or as identified and recorded in the inventory, or as defined in the REMP or of known landscape integration importance shall be maintained to enhance landscape integration
- Maintenance operations shall be carried out to soften the appearance of earthworks, environmental barriers and engineering features from both the surrounding landscape and the road users
- Planting shall be designed and managed to appear as integral to the existing vegetation structure
- Maintenance operations shall be carried out in accordance with the landscape character of the area as described in DMRB Vol 10, Roads in Upland Areas, Roads in Lowland Areas and appropriate technical guidance and design drawings.
- Maintenance of the soft estate shall consider the conservation and legal duties to have regard for landscape conservation in or adjacent to the site in a way which does not compromise the broader objectives or safety requirements of the road, especially in relation to National Parks, historic landscapes and Areas of Outstanding Natural Beauty (AONB)

Enhancing the Built Environment (EFC)

- All areas identified as EFC on environmental masterplans, or as identified and recorded in the inventory, or as defined in the REMP shall be maintained to enhance the built environment
- Planting adjacent to pedestrian ways in urban areas shall be managed in consonance with its surroundings, to maintain the aesthetics and coherence of the local landscape character balanced against value for money considerations.
- Hard landscape and materials shall be selected and maintained to suit local character and retain visual amenity.

Nature Conservation and Biodiversity (EFD)

- All areas identified as EFD on environmental masterplans, , or as identified and recorded in the inventory, or as defined in the REMP or of known biodiversity importance shall be maintained for nature conservation and biodiversity value
- All maintenance shall contribute where relevant to TREBAP (or its successors), local Biodiversity Action Plans actions and targets and with due regard to conservation of biodiversity in accordance with the requirements of Section 40 of the Natural Environment and Rural Communities Act 2006 (NERC Act).
- Maintenance of the soft estate shall comply with the legal duties for species and their habitats which are protected or of high nature conservation interest in or adjacent to

the site in a way which does not compromise the broader objectives or safety requirements of the road, while complying with the relevant wildlife legislation. Protected and high value sites include:

- Special Areas of Conservation (SACs), Candidate SACs, Special Protection Areas (SPA) and potential SPAs, designated under the EC Habitats Directive 92/43EEC and the UK Conservation (Natural Habitats, etc.) Regulations 1994 as amended.
- Ramsar Sites and Biosphere reserves
- National Nature Reserve
- Sites of Special Scientific Interest (SSSI)
- Sites of Importance for Nature Conservation (SINCs) or equivalent
- Local Nature Reserves
- Areas designed as Habitat Creation or Wild Flower areas; or Roadside Nature Reserves
- Areas of naturally occurring wild flowers

Protected and high value species include those covered in the Wildlife and Countryside Act 1981, Section 42 of the Natural Environment and Rural Communities Act 2006, and the Conservation of Habitats and Species Regulations 2010.

- Where designated sites lie within or adjacent to the highway boundary, the soft estate shall be maintained in consultation with the relevant Statutory Body or Wildlife Trust in such a way which will not compromise other objectives of the road or countermanding requirements e.g. safety, visibility, while complying with the relevant legislative requirements.
- Where agreed with , Wildlife Trusts or other managing body, that a system of management is required for the biodiversity interests, maintenance shall be carried out in accordance with the agreed system subject to them being appropriate in the highway and in such a way which will not compromise other objectives or countermanding requirements e.g. safety, visibility, while complying with the relevant biodiversity requirements. NRW shall be consulted where maintenance activities are likely to affect EU and UK protected habitats and species
- Land drainage characteristics necessary to support a diverse flora and fauna or particular species of interest already found on the site shall be conserved.
- Habitats including, but without limitation, native woodland, woodland edge, wetlands, species rich grasslands and heathland, rock and scree, shall be managed to conserve and enhance their nature conservation value.

Visual Amenity (EFE)

- All areas identified as EFE on environmental masterplans, or as identified and recorded in the inventory, or as defined in the REMP or of known visual amenity importance shall be maintained to enhance visual amenity
- Planting shall take into consideration shape, form, seasonal colour to provide visual interest and shall be appropriate to the local landscape character of the area
- Amenity planting shall be maintained to enhance visual amenity
- Landform structural finishes and highway furniture shall be designed and maintained to provide visual interest

Cultural Heritage (EFF)
• All areas identified as EFF on environmental masterplans, or as identified and recorded in the inventory, or as defined in the REMP or of known cultural importance shall be maintained to retain and enhance the heritage value including sites/areas identified within the CADW ICOMOS Register of Landscapes of Outstanding Historic Interest in Wales, Register of Landscapes of Special Historic Interest In Wales • All works shall be undertaken in accordance with appropriate maintenance and management regimes as agreed with CADW, the WG Soft Estate Manager (SEM) and the relevant Archaeological Trust • Where work is required to Scheduled Ancient Monuments (SAMs), listed buildings etc CADW shall be consulted and relevant consents obtained in accordance with current legislation and policy • Where trees or other vegetation or physical features of local importance have to be removed or altered for safety reasons they shall be replaced by similar features in an appropriate safe location. Where possible replacement shall be done prior to removal. • Viewpoints to local landmarks or important landscape settings shall be retained. Maintenance of the soft estate in historical and cultural areas should pay particular attention to ecological and biodiversity issues.
Auditory Amenity (EFG)
• All areas identified as EFG on environmental masterplans, or as identified and recorded in the inventory, or as defined in the REMP or of known importance to reduce noise impact shall be maintained to enhance the auditory amenity.
Water Quality (LHF)
• All areas identified as LFH on environmental masterplans, or as identified and recorded in the inventory, or as defined in the REMP or of known importance to maintain water quality shall be maintained to enhance the water quality • All maintenance operations shall adhere to NRW guidelines and shall ensure that there is no detrimental effect on water quality.

B) Performance Requirements and Guidance: maintenance of Safety, Landscape and Environmental Elements

General – Soft Estate and Environmental Management.
All maintenance operations must give due consideration to safety, visibility, impacts on protected species and habitats, designated sites, injurious and non native invasive species, use of chemicals, value for money, traffic management requirements and sustainability issues.
The SP will ensure compliance with requirements of current legislation, WG policies and guidance, the actions and targets of the TREBAP, DMRB Volumes 10 and 11, the Landscape Management Handbook, WG instructions/procedural advice, British Standards, Technical Directives and latest good practice. New planting shall be made with reference to TD19/06 for guidance on planting distances.
The soft estate shall be managed in an environmentally sensitive manner consistent with policies and good practice which may be subject to change over time.
The soft estate shall be managed in accordance with the REMP, environmental management plans and other relevant plans for the areas where they exist.
Where environmental databases exist they should be used to inform works to be carried out.
All operations shall be cross linked with EnvIS for data collection and ELMS for landscape management.
All landscape and environmental functions and elements shall be maintained as appropriate unless otherwise agreed with WG.
All planting shall be undertaken in accordance with Forestry Commission Practice Note August 1999 "*Using Local Stock for Planting Native Trees and Shrubs*" and shall be obtained from the relevant bio-geographical regions unless otherwise agreed with WG.
All works shall be undertaken in accordance with protected species licences, and Environmental Assessment processes where applicable
The SP shall ensure all necessary licences are in place for operations undertaken.
NRW shall be consulted where important habitats and species may be affected e.g. bat roost trees. This shall be done well in

advance of the work to allow for seasonal factors.
All works shall be undertaken in accordance with relevant ecological timetables constraints. (E.g. bird nesting season).
Standards of maintenance should reflect the surrounding landscape, landscape character, functions and visual context. A higher standard of maintenance for amenity may be appropriate in built-up areas where housing and businesses front the highway at the entrance to some cities, towns and villages, and on important entry points into Wales. .
Arisings from thinning operations shall be disposed of in a manner that does not compromise environmental objectives.
All planting shall be maintained and protected from pests and disease in accordance with current good practice.
All operations should be considered on a site specific basis, **the following performance requirements are for guidance only**.

Safety Element - Vegetated Areas(SE1)		
See also: o LMH Chapter 6 Sections 6.2, 6.5, 6.6, 6.7 & 6.8		
Specification	**Performance Requirement**	**Technique**
Safety Cuts and vegetation clearance.	Vegetation shall not restrict visibility at junctions, access points and bends. Sight lines and minimum stopping distances must be kept clear.	One or two cuts a year in the form of a swathe cut to maintain vegetation to a height not exceeding 300mm, should normally be sufficient to maintain verges for safety but amenity and nature conservation requirements must be considered and the regime adapted accordingly. Additional cuts may be required depending upon growing conditions and on the instruction of WG.
		Mowing shall take place over the specified grass area up to its boundaries. There shall be an even sward height across the area.
		Safety cuts will be undertaken irrespective of the maintenance regime for adjacent grassland
		Appropriate herbicide or manual removal may be used as appropriate. Where chemicals are used ensure that these are carefully targeted to prevent unsightly areas of dead vegetation and prevent damage to valuable species. For use of herbicide refer to E4.

		Arising to be evenly dispersed or removed offsite
	Barriers and other verge installations e.g. signs, safety cameras, lighting, marker posts etc shall be managed to ensure visibility whilst maintaining the landscape character/aesthetics and ecological impacts as far as is possible.	In the case of the visibility of marker posts, and on motorways, a swathe cut may not be adequate. It may be necessary to use a total herbicide around the base of the post once a year or other appropriate mechanical means. For use of herbicide refer to E4.
	Ensure that use of footpaths, bridleways and cycleways is not restricted by overhanging vegetation.	Where a footpath or cycleway occurs in a rural verge, a swathe cut on either side of the footpath/cycleway may be required to prevent overhanging vegetation, which might otherwise deter use of the footway/cycleway.
	Maintain sight lines for minor accesses.	At minor accesses to farms, industrial sites and other properties, where growth restricts visibility, cutting may be desirable but the extent will depend upon the usage of the access and the traffic density and speeds on the highway.
	Ensure access for pedestrians where there is continuous frontage development.	Local variations may be appropriate on lengths of road network with continuous frontage development and/or where pedestrians are able to cross the carriageway at any point. Grass shall be maintained to approximately 150 mm.
Landscape Element - Grassland (LE1)		
LE1.1 Amenity Grassland	Road verges and central reservations shall be maintained to ensure that pedestrians	A single width swathe cut shall be made on verges or central reservations adjacent to the carriageway once in

(LMH Section 5.2)	and inspections/survey parties are not at risk.	a growing season where: ○ the type and density of growth is such that pedestrians and inspection/survey parties would be at risk; ○ the adjacent traffic lane is less than 3.0 m, or where growth, if not cut, would reduce the effective lane width to less than this. Where there is vigorous growth 2 cuts may be required.
	Maintenance of general amenity areas, to include the general highway verge and outside of the operational area should be carried out to maintain aesthetics and local landscape character, balanced against value for money considerations.	Minimum of one cut per year between September and early October unless otherwise agreed with the WG SEM. Cuttings shall be evenly distributed or removed from site where there is good floristic content or arisings constitute a hazard. Advice should be sought from WG
	Urban amenity grassland areas should be managed in consonance with its surroundings, to maintain the aesthetics and coherence of the local landscape character, balanced against value for money considerations.	Cutting up to 4 times a year may be required in urban areas. In exceptional circumstances, where visual and operational benefits can be demonstrated, certain key areas may warrant more frequent cutting.
Specification	**Performance Requirement**	**Technique**
LE1.2 Grassland with Bulbs (LMH Section 5.3)	Grassland shall be maintained to ensure effective local environment for bulbs to prosper	Grass cutting regimes must take into account the flowering times and the need for plants to build food reserves and should not be done straight after flowering.

LE1.3 Species Rich Grassland (LMH Section 5.4)	Areas of wildflower grassland shall be managed to maintain floristic diversity appropriate to the soil type, aspect and the desirable species range and abundance.	Species rich grassland shall be managed in accordance with DMRB Volume 10 Section 4 Part 1 - The Wildflower Handbook.
		Grassed areas where wild flower sowing or planting has been undertaken require cutting accompanied by the removal of all arisings either at the time of cutting or within 72 hours. The frequency of cuttings depends on the type of wild flowers. Advice should be sought from WG.
		On verge areas where the existing sward has developed botanical and/or nature conservation interest it may be considered for grass cutting if it can be demonstrated that this represents value for money and visual and conservation benefits. Advice should be sought from WG.
LE1.4 Rock and Scree (LMH Section 5.5)	Maintenance shall be undertaken to ensure safety of rock and scree. Where possible this should be undertaken in conjunction with other maintenance and remedial safety operations. The SP shall liaise with WG regarding operations.	Operations to be determined by the SP based on site specific survey information.
	Rocks and scree may contain protected species especially reptiles and may require specific measures or timing of operations.	Operations to be determined by the SP based on site specific survey information.

Specification	Performance Requirement	Technique
LE1.5 Heath and Moorland (LMH Section 5.6)	Management shall aim to maintain a mosaic of age structures and diversity of the desirable plant species.	Gorse and other woody species shall be controlled to minimize encroachment and potential fire hazard.
		Where heath and moorland have been cut the arisings shall be removed within 72 hours of cutting or windrowed with agreement of WG to allow cut areas to regenerate effectively.
	Heath and moorland may contain protected species especially reptiles and may require specific measures or timing of operations.	Operations to be determined by the SP based on site specific survey information
LE1.6 Open Grassland (LMH Section 5.7)	Retain open grassland landscape in accordance with the Landscape Element where identified or in keeping with the local landscape character.	Methods and frequency of cutting will depend upon landscape objectives. Minimum of one cut per year between September and early October unless otherwise agreed with WG. Cuttings shall be evenly distributed or removed from site where there is good floristic content or arisings constitute a hazard. Advice should be sought from WG.
	Where there are large areas of open grassland and no environmental management plans exist, it may be appropriate to undertake intermittent intervention to remove self sown woody species and/or injurious weeds.	Operations and locations to be determined by the SP based on site specific survey information

	Where large areas of open grassland have, by default, developed a diverse flora they should be reclassified as LE1.3 and maintained accordingly.	Operations and locations to be determined by the SP based on site specific survey information
	Where large areas of open grassland have, by default, reverted to scrub, bramble, gorse and self-sown trees consideration should be given to reclassification and maintained accordingly.	Operations and locations to be determined by the SP based on site specific survey information and an assessment of the surrounding landscape and shall be in agreement with WG.
Specification	**Performance Requirement**	**Technique**
LE 1.7 Grass reinforced Walls (LMH Section 5.8)	Grass reinforced walls shall be maintained in safe condition. On structures where grass is intended to contribute to structural integrity it shall be maintained in accordance with the design objectives.	Maintenance should be undertaken as appropriate to prevent invasive or vigorous species affecting the fabric of the structure.
	This element could include soil nailed slopes and shall be maintained to promote effective green cover without compromising the structural integrity of the slope.	Operations and locations to be determined by the SP based on site specific survey information.
	Pest/rodent control shall be undertaken as appropriate to ensure they do not affect the fabric of the structure	Operations and locations to be determined by the SP based on site specific survey information

Landscape Element - Native Planting (LE2)
Refer to functions and specifications identified for Native Planting in the Landscape Management Handbook, DMRB Volume 10, Section 3, Part 2, Chapters 5 and 6 (HA 108/04) and DMRB Volume 10 Section 0 Part 3 Chapter 2 Native Planting LE2.
Reference shall be made to WG and NRW guidance on legally protected species and licensing, where there is a risk that damage disturbance or killing etc could result.
The regeneration of native tree and shrub species in amenity areas shall be encouraged where appropriate, in a controlled manner and in accordance with the area's biodiversity, without compromising the safety of road users.
The colonisation of locally invasive (e.g. Sycamore, Ash, Bramble) or hazardous species, especially those that pose a fire hazard (e.g. Gorse, Broom, Bracken), shall be controlled and managed as appropriate depending upon local conditions, context and other species present.
Road verges and central reservations shall be maintained to ensure that pedestrians and inspections/survey parties are not at risk.
In the event of a hedge or tree, which is not the responsibility of WG, becoming a hazard or potential hazard to the highway, in accordance with Section 154 of the Highways Act 1980, the SP shall order the owner to carry out such work as may be required to remedy the hazard. If this is not carried out by the owner within 14 days the SP shall carry out the work, even to the extent of entry onto private land if required. If there are issues of bats, Tree Preservation Orders or other relevant reasons for delay, the SP shall inform the owner of relevant legal requirements and the length of time for undertaking the works shall be revised accordingly.
An annual walkover inspection shall be undertaken for trees within the Soft Estate and those within falling distance of the highway as part of their annual inspection. Condition information of large trees and trees in danger to the highway shall be retained in a database available for inspection by WG.
A Detailed Inspection of all scheduled hedges and trees shall be made by a qualified arboriculturist at intervals of 5 years to check growth, soundness, and stability.
In the case of planting associated with new construction a detailed inspection shall be undertaken prior to the final year of maintenance

before handover.

See also:

- Hedges (LE4)
- Trees LE5)
- Wetland Elements (LE6)
- Nature Conservation and Biodiversity (E3)
- Pests and Injurious Weeds (E4)
- LMH Chapter 6 Sections 6.3, 6.4, 6.5, 6.6, 6.7, 6.8, 6.9, 6.10, 6.11, 6.12, 6.13, 6.14 & 6.15

Specification	**Performance Requirement**	**Technique**
LE2.1 Woodland (LMH Section 5.9)	Ensure visibility and easy access to all vehicles travelling along the carriageway	Hedges and trees overhanging carriageways shall be trimmed to provide a minimum of 5.2m headroom above carriageway and 2.5m above a footpath.
		Trees and hedges should be pruned to maintain the overall natural form of the plants, as commensurate with their function (e.g. screening, landscape integration).
LE2.2 Woodland Edge (LMH Section 5.10)	In line with SE1, vegetation shall not restrict visibility at junctions, access points and bends. Sight lines and minimum stopping distances must be kept clear and signs, lights, safety cameras and marker posts must not be obstructed.	Cutting or clearance should be undertaken only as needed within sight lines determined in accordance with the latest standards and advice issued by WG. The normal criterion will be to maintain desirable minimum stopping sight distance, but in some potentially dangerous locations full overtaking sight distance shall be maintained.
LE2.3 High Forest (LMH	Trees shall be maintained to ensure the	Operations and locations to be determined by the SP

Section 5.11)	safety of the network.	based on site specific survey information
LE2.4 Linear Belts of Trees and Shrubs (LMH Section 5.12)	Refer to LE2.2 above	Operations and locations to be determined by the SP based on site specific survey information
LE2.5 Shrubs with Intermittent Trees (LMH Section 5.13)	Refer to LE2.2 above	Operations and locations to be determined by the SP based on site specific survey information
LE2.6 Shrubs (LMH Section 5.14)	Refer to LE2.2 above	Operations and locations to be determined by the SP based on site specific survey information
LE2.7 Scattered Trees (LMH Section 5.15)	Trees shall be maintained to ensure the safety of the network	Operations and locations to be determined by the SP based on site specific survey information
LE2.8 Scrub (LMH Section 5.16)	Refer to LE2.2 above	Operations and locations to be determined by the SP based on site specific survey information

Landscape Element - Ornamental Planting (LE3)		
Refer to functions and specifications identified for Ornamental Planting in the Landscape Management Handbook, DMRB Volume 10, Section 3, Part 2, Chapters 5 and 6 HA 108/04 and DMRB Volume 10 Section 0 Part 3 Chapter 3 Ornamental Planting LE3.		
Ornamental planting will generally require more frequent management than native planting and periodic localised replanting may be required.		
Maintenance shall ensure that the objectives of the original scheme design are met and where there are no objectives design shall seek to be low maintenance.		
Effects of salt and vandalism shall be monitored appropriate to location.		
See also: ○ Hedges (LE4) ○ Trees LE5) ○ Nature Conservation and Biodiversity (E3) ○ Pests and Injurious Weeds (E4) ○ LMH Chapter 6 Sections 6.3, 6.4, 6.5, 6.6, 6.7, 6.8, 6.9, 6.10, 6.11, 6.12, 6.13, 6.14, 6.15 & 6.16		
Specification	**Performance Requirement**	**Technique**
LE3.1 Amenity Tree and Shrub Planting (LMH Section 5.17)	Ornamental planting shall be maintained to ensure growth rates and form typical to the species, be free from weed species and shall not encroach upon or overhang footpaths, bridleways, cycleways or carriageways.	Operations and locations to be determined by the SP based on site specific survey information
LE3.2 Ornamental Shrubs	Maintenance operation shall ensure the	Operations and locations to be determined by the SP

(LMH Section 5.18)	aesthetic appearance of planting	based on site specific survey information
LE3.3 Groundcover (LMH Section 5.19)	Road verges and central reservations shall be maintained to ensure that pedestrians and inspections/survey parties are not at risk.	As appropriate to the size, function and species of planting.
		Arisings should be removed from urban locations unless otherwise agreed with WG.
LE3.4 Climbers and Trailers (LMH Section 5.20)	Maintenance operation shall ensure the aesthetic appearance of planting is maintained.	Operations and locations to be determined by the SP based on site specific survey information

Landscape Element - Hedges (LE4)
Refer to functions and specifications identified for Hedges in the Landscape Management Handbook, DMRB Volume 10, Section 3, Part 2, Chapters 5 and 6 (HA 108/04) and DMRB Volume 10 Section 0 Part 3 Chapter 2 Hedges LE4.
This element refers to known areas of hedges, hedgerows or cloddiau.
Hedgerows not in the ownership of WG shall be maintained by the owner so as not to encroach onto the highway or otherwise cause a nuisance. The SP shall inform the owner of his duties as required.
Hedgerows shall be maintained in a manner suited to the relevant objectives (e.g. screening, biodiversity etc) and location.
Maintenance of hedges including hedge laying shall be consistent with local good practice where it contributes to the landscape character of the relevant area.
Maintenance of Cloddiau shall be consistent with local good practice. Repair and rebuilding of cloddiau shall be undertaken where they have collapsed.
Hedgerows shall be maintained in accordance with the Hedgerow Regulations 1997.
The removal of the whole or a section of important hedgerow as defined under the Hedgerow Regulations 1997 shall only be considered under exceptional circumstances and subject to expert ecological assessment.
Where required, hedge translocation shall be carried out in accordance with best practice for similar locations in Wales.
Ornamental planting will generally require more frequent management than native planting and periodic localised replanting may be required.
See also: o Native Planting (LE2) o Ornamental Planting (LE3) o Trees (LE5)

○ Nature Conservation and Biodiversity ○ Pests and Injurious Weeds (E4) ○ LMH Chapter 6 Sections 6.3, 6.4, 6.5, 6.6, 6.7, 6.8, 6.9, 6.10, 6.11, 6.12, 6.13, 6.14, 6.15 & 6.16		
Specification	**Performance Requirement**	**Technique**
LE4.1 Ornamental Species Hedges (LMH Section 5.21)	Ensure visibility at junctions, bends and accesses and of signs, street furniture and other relevant structures and services	Cutting or clearance shall be carried out only as needed and at a time which gives maximum effect and avoids permanent damage to the hedge or tree.
LE4.2 Native Species Hedges (LMH Section 5.22)	Where appropriate hedges shall be laid for stock proofing	Laying of specific hedges shall be carried out at intervals of 7 years or as agreed with WG.
Specification	**Performance Requirement**	**Technique**
	Unlaid hedges to be maintained to encourage new growth and bushy habit.	Unlaid hedges shall be trimmed every 2-3 years subject to local conditions. Trimming should be undertaken during January – February unless subject to overriding reasons including safety. If for any reason cutting has to be undertaken during the nesting season approval must be first obtained from WG and appropriate surveys undertaken.
LE4.3 Native Species Hedgerows (LMH Section 5.23)	Refer to LE4.2 above	Operations and locations to be determined by the SP based on site specific survey information.
LE4.4 Native Hedgerows with	Refer to LE4.2 above	Operations and locations to be determined by the SP based on site specific survey information.

Trees (LMH Section 5.24)		

Landscape Element - Trees (LE5)
Functions and specifications identified for Trees in the Landscape Management Handbook, DMRB Volume 10, Section 3, Part 2, Chapters 5 and 6 (HA 108/04) and DMRB Volume 10 Section 0 Part 3 Chapter 5 Trees LE5.
The SP shall inspect trees as part of their Safety Inspections and Safety Patrols; any defects identified will be categorised and actioned in accordance with the MSR for managing defects. The SP shall check whether there is a biodiversity or landscape/cultural interest, or TPO involved.
An annual General Inspection shall be undertaken for trees within the Soft Estate and those within falling distance of the highway as part of their annual inspection. Condition information of large trees and trees in danger to the highway shall retained in a database available for inspection by WG. The inspector shall identify potentially hazardous trees and those requiring detailed inspection and other relevant action.
A Detailed Survey of all scheduled hedges and trees shall be made by a qualified arboriculturist at intervals of 5 years to check growth, soundness, stability and pests and diseases.
In the case of planting associated with new construction a detailed inspection shall be undertaken prior to the final year of maintenance before handover.
The SP has a duty to report to WG any dangerous or potentially dangerous tree to the highway and to take action to alleviate the danger. (The responsibility lies with the SP to take action as this responsibility has been delegated from WG).
Following each inspection or survey the SP shall prepare and make available to WG a report detailing the locations of any problem areas and the recommended actions that shall be taken. This information shall then be used by the SP to develop and update the REMP and inform the Adverse Weather Plan.
Under the TPO procedures, if a tree covered by a TPO either needs surgery or felling, the Tree Officer of the appropriate local authority shall be informed of the intent to carry out the works before the commencement of the works.
Tree removal shall be carried out as determined by a qualified arboriculturist as a result of detailed or safety inspections subject to

compliance with Tree Preservation Orders and the relevant EC and UK wildlife and landscape legislation.
Vigorous and/or invasive tree species shall be removed from drains and other relevant services.
Tree felling shall be undertaken outside the bird nesting season and in accordance with the Wildlife Countryside Act 1981, TREBAP and other WG policies and guidance. If for any reason tree felling has to be undertaken during the nesting season approval must be first obtained from WG and appropriate surveys undertaken.
The SP shall consult with NRW of any action on a tree where bats are known to roost. If mature trees are to be felled they must first be checked to determine whether they could be suitable for bat occupation of whatever type e.g. roost, feeding roost, nursery, hibernacular. All activities on trees where bats are known to roost shall be undertaken in accordance with the relevant licence, and any obligations imposed by NRW. Where work is undertaken to a tree in or adjacent to private land, the land owner shall be notified.
See also ○ Native Planting (LE2) ○ Ornamental Planting (LE3) ○ Hedges (LE4) ○ Nature Conservation and Biodiversity (E3) Pests and Injurious Weeds (E4) ○ LMH Chapter 6 Sections 6.3, 6.4, 6.5, 6.6, 6.7, 6.8, 6.9, 6.10, 6.11, 6.12, 6.13, 6.14 & 6.15

Specification	**Performance Requirement**	**Technique**
Individual Trees (LMH Section 5.25)	Trees shall be maintained to ensure the safety of the network	Operations and locations to be determined by the SP based on site specific survey information.

Landscape Element - Wetland Habitat (LE6)
Refer to functions and specifications identified for Wetland Habitats in the Landscape Management Handbook, DMRB Volume 10, Section 3, Part 2, Chapters 5 and 6 (HA 108/04) and DMRB Volume 10 Section 0 Part 3 Chapter 6 Wetland Habitats LE6.
Reference shall be made to DMRB Volume 4 Section 2 Part 1 “Vegetated Treatment Systems for Highway Runoff” for those features designed and constructed under this advice.
Operations shall be undertaken in conjunction with ditch clearing and drainage works wherever possible.
Techniques used shall reflect the functions of the water bodies such as water retention, water treatment and flood storage etc.
Areas of wetland shall be maintained to retain and develop habitats and species of ecological value or importance where this does not conflict with the requirements of the area to act as a flood relief storage area, balancing pond or other engineering function allied to the safety of the network. Maintenance which is likely to damage, disturb or kill protected habitats and species shall be carried out after consultation with NRW and if necessary the granting of the relevant licence.
Water quality in wetland habitat shall be maintained to encourage wildlife where appropriate.
All seasonal and biodiversity (protected species) constraints shall be adhered to in the maintenance of all wetland habitat
NRW shall be consulted where maintenance operations affect a SAC, SPA, Ramsar, SSSI or other sensitive water course.
Use of chemicals shall only be applied in or near water only after permission has been obtained from NRW.
See also: o Native Planting (LE2) o Ornamental Planting (LE3) o Trees (LE5) o Nature Conservation and Biodiversity (E3) o Pests and Injurious Weeds (E4) o LMH Chapter 6 Sections 6.3, 6.4, 6.7, 6.9, 6.12, 6.13 & 6.17

Specification	**Performance Requirement**	**Technique**
LE6.1 Water Bodies and Associated Plants (LMH Section 5.26)	Areas of wetland shall be maintained to retain and develop habitats and species of ecological value or importance where this does not conflict with the requirements of the area to act as a flood relief storage area, balancing pond or other engineering function allied to the safety of the network.	Operations and locations to be determined by the SP based on site specific survey information
Specification	**Performance Requirement**	**Technique**
LE6.2 Banks and Ditches (LMH Section 5.27)	Banks and ditches shall be maintained to ensure their structural integrity and biodiversity	Operations and locations to be determined by the SP based on site specific survey information
		Ash and other invasive and/or non native invasive species shall be removed from ditches
LE6.3 Reed Beds (LMH Section 5.28)	Where reed beds are located primarily for water treatment they shall be maintained in accordance with the designers requirements for maintenance.	Operations and locations to be determined by the SP based on site specific survey information
	Reed beds shall be maintained to prevent encroachment into open water areas	Operations and locations to be determined by the SP based on site specific survey information
	Where adjacent vegetation invades an area designated as a reed bed, this shall be remove to ensure the integrity of the reed	Operations and locations to be determined by the SP based on site specific survey information

	bed is maintained.	
LE6.4 Marsh and Wet Grassland (LMH Section 5.29)	Marsh and wet grassland shall be maintained to prevent encroachment by woody species especially willow and alder carr	Operations and locations to be determined by the SP based on site specific survey information
	The water table is important for these habitats, the SP's Environmental Coordinator should liaise with the SP's Route Manager should any changes occur in these habitats	Operations and locations to be determined by the SP based on site specific survey information

Landscape Element - Hard Landscape Elements (LE7)

Refer to functions and specifications identified for Hard Landscape Elements in the Landscape Management Handbook, DMRB Volume 10, Section 3, Part 2, Chapters 5 and 6 (HA 108/04) and DMRB Volume 10 Section 0 Part 3 Chapter 7 Hard Landscape Elements LE7.

Hard elements include:

a) features required for engineering reasons which also have an Environmental Function requiring consideration of their setting, form and appearance e.g. stone walls
b) landscape features not specifically required for the highway but incorporated to achieve an Environmental Function such as screening or visual amenity

Hard elements are specific to a particular scheme or location and only hard surfaces are detailed below. Other elements include stone walls, slate fencing, raised beds, railings, security fencing, crib walling.

All walls, fences and other structures shall be maintained to ensure visual and structural integrity, safety and in accordance with the original design

Operations and locations shall be determined by the SP based on site specific survey information and in liaison with the engineers

See also:

- Grass (LE1)
- Ornamental Planting (E3)
- Pests and Injurious Weeds (E4)
- LMH Chapter 6 Sections 6.3, 6.4 & 6.18

Specification	**Performance Requirement**	**Technique**
Hard Surfaces (LMH Section 5.30)	Hard surfaces shall be kept free of	Operations and locations to be determined

	undesirable vegetation	by the SP based on site specific survey information. Use of chemicals to be undertaken in accordance with E4.
	Central reservations that have been specifically constructed to be free of all vegetation shall be treated as necessary with a suitable chemical spray or mechanical means to check unwanted growth.	Operations and locations to be determined by the SP based on site specific survey information
Specification	**Performance Requirement**	**Technique**
	Minor accesses to farms, industrial sites and other properties, shall be maintained appropriate to the usage of the access and the traffic density and speeds on the highway.	Operations and locations to be determined by the SP based on site specific survey information. Use of chemicals to be undertaken in accordance with E4.
	Footpaths, bridleways and cycleways shall be inspected and maintained to ensure accessibility. Access shall be maintained appropriate to the location, usage and traffic density. Where a footpath occurs in a rural verge, maintenance either side of the footpath may be required to prevent overhanging vegetation from making a footpath unusable.	Operations and locations to be determined by the SP based on site specific survey information. Use of chemicals to be undertaken in accordance with E4.
	Criblock walls and gabion walling which	Maintain to ensure its purpose. Prevent

	include planting as part of the structure	woody vegetation which could affect passing pedestrians or vehicles. Refer to LE 1.7.

Environmental Element - Noise (E1)		
Refer to functions and specifications identified for Noise in the Landscape Management Handbook, DMRB Volume 10, Section 3, Part 2, Chapter 5 (HA 108/04) and DMRB Volume 10 Section 0 Part 4 Chapter 1 Noise E1.		
The main elements for consideration of the soft estate management include noise attenuating fences, walls and earth bunds		
Operations and locations shall be determined by the SP based on site specific survey information and in liaison with the relevant route engineers		
See also: LMH Chapter 6 Sections 6.3, 6.4, 6.7, 6.8, 6.9 & 6.13		
Specification	**Performance Requirement**	**Technique**
Noise Barriers (LMH Section 5.31)	Where vegetation hinders the performance of a noise barrier it shall be removed. However, visual screening of the barrier may be a consideration to maintenance	Operations and locations to be determined by the SP based on site specific survey information and shall be specific to meet the noise attenuation requirements of the location and commitments made by the WG in Environmental Statements or as part of statutory processes.

Environmental Element - Water (E2)
Refer to functions and specifications identified for Water in the Landscape Management Handbook, DMRB Volume 10, Section 3, Part 2, Chapters 5 and 6 (HA 108/04) and DMRB Volume 10 Section 0 Part 4 Chapter 2 Water E2.
The main elements for consideration of the soft estate management include water pollution control measures, surface water outfalls and soakaways.
Operations and locations shall be determined by the SP based on site specific survey information and in liaison with the relevant route engineers.
See also: o Grass (LE1) o Wetland Habitat (LE6) o Nature Conservation and Biodiversity (E3) o Pests and Injurious Weeds (E4) o LMH Chapter 6 Sections 6.3, 6.4 & 6.17

Environmental Element - Nature Conservation and Biodiversity (E3)
Refer to functions and specifications identified for Nature Conservation and Biodiversity in the Landscape Management Handbook, DMRB Volume 10, Section 3, Part 2, Chapters 5 and 6 HA 108/04 and DMRB Volume 10 Section 0 Part 4 Chapter 3 Nature Conservation and Biodiversity E3.
E3 refers only to the specific protected species and special ecological measures, maintenance of relevant habitats is covered in Landscape Elements above.
Protected species may occur anywhere in the soft estate, or the wider estate. Licences or other permissions may be required.
Special ecological measures (e.g bat boxes, fencing, green bridges, badger tunnels etc) shall be maintained to operate as per its designed function.
Where ecological mitigation measures include translocation of reptiles, reptile refugia, wetland for amphibians etc appropriate maintenance and monitoring must be undertaken to ensure the success of these habitats.
All works to be undertaken in accordance with relevant legislation and good practice. Works may contribute to TREBAP and local Biodiversity Action Plans actions and targets.
An annual General Inspection shall be undertaken to ensure that the measure and works is in good functional order.
See also: o Grass (LE1) o Native Species (LE2) o Ornamental Planting (LE3) o Hedges (LE4) o Trees (LE5) o Wetland Habitat (LE6) o Pests and Injurious Weeds (E4) o LMH Chapter 6 Section 6.19

Specification	Performance Requirement	Technique
Protected Species (LMH Section 5.33)	All maintenance operations shall be appropriate for the protected species known within the location	Operations and locations to be determined by the SP based on site specific survey information
Ecological Protection Measures (LMH Section 5.33)	All ecological protection measures shall be monitored and maintained to ensure good working order	Operations and locations to be determined by the SP based on site specific survey information
		All operations shall be in accordance with the relevant licence(s) as appropriate

Environmental Element - Pests and Injurious Weeds (E4)
Refer to functions and specifications identified for Pests and Injurious Weeds in the Landscape Management Handbook, DMRB Volume 10, Section 3, Part 2, Chapters 5 and 6 (HA 108/04) and DMRB Volume 10 Section 0 Part 4 Chapter 4 Pests and Injurious Weeds E4.
The SP has a responsibility to control and respond to complaints with regard to injurious weeds on the soft estate e.g. species covered in the Weeds Act.
An integrated approach should be applied to the control of injurious weeds and pests such as rabbits, especially with local landowners.
Transportation and disposal of injurious weeds shall be undertaken in accordance with NRW/WG guidelines and current good practice
Control of ragwort (*Senecio jacobaea*) shall be in accordance with Welsh Government's "*Code of Practice to Prevent and Control the Spread of Ragwort*". http://wales.gov.uk/docs/drah/publications/100713ragwortcodeofpracticeen.pdf, or relevant WG codes of practice, policies or guidance that succeeds it.
WG aims to take a proactive approach to the control of alien weed species in particular Japanese Knotweed (*Fallopia japonica*), Himalayan balsam (*Impatiens glandulifera*), Giant Hogweed (*Heracleum mantegazzianum*) in accordance with current guidance and good practice. Advice should be sought from WG.
Locally alien and invasive species e.g. Rhododendron shall be maintained according to specific local conditions and with the agreement of WG.
Where Method Statements are included in Construction Environmental Management Plans (CEMP), Environmental Management/Action Plans or the equivalent environmental management systems, these should be updated and applied as required.
The operatives shall adhere to the NRW Pollution Prevention Guidelines: *Prevention of Pollution by Pesticides: PPG9*
The use of chemicals shall be in accordance with sustainable construction, operational best practice and strictly in accordance with

label recommendations.

All operatives shall be qualified under relevant Pesticides Directives.

Only chemicals approved by the Pesticides Safety Directorate under the Control of Pesticides Regulations 1986 and the Plant Protection Products Regulations 1995 may be used.

Inspectors shall identify and record areas of injurious weeds and non native invasive species as part of the soft estate Detailed Survey.

See also:

- Grass (LE1)
- Native Species (LE2)
- Ornamental Planting (LE3)
- Hedges (LE4)
- Trees (LE5)
- Wetland Habitat (LE6)
- Water (E2)
- Nature Conservation and Biodiversity (E3)
- LMH Chapter 6 Sections 6.3, 6.4 & 6.20

Specification	**Performance Requirement**	**Technique**
Injurious Weeds (LMH Section 5.34)	A balanced approach shall be taken for the control of injurious weeds	Operations and locations to be determined by the SP based on site specific survey information
Legislated Pests (LMH Sections 5.34, 6.3 & 6.4)	Pests shall be controlled as necessary using chemical or mechanical methods as appropriate to the location	Operations and locations to be determined by the SP based on site specific survey information
General weed and pest control	Weeds and pests, both those included in legislation for control and other incidental	Operations and locations to be determined by the SP based on site specific survey information

	outbreaks shall be controlled according to relevant legislation and/or prevailing local concerns.	
Notifiable pests and diseases	Where a notifiable pest or disease is suspected or present, or where a Plant Health Order has been served, the SP will work with the relevant plant health regulatory body in taking any recommended remedial actions or in carrying out the actions required under the Plant Health Order.	

Soft Estate-Applicable Standards, Advice Notes and WG policy

DMRB	Volumes 10 and 11
TD19/06	New Road Restraints Standard (for guidance on planting distances).
IAN 116/08	Nature conservation advice in relation to bats
IAN 84/10	Environmental Information System (EnvIS)
	Part 1 Introduction
	Part 2 Environmental Inventory
	Part 3 Environmental Management Inventory
	Part 4. Data Management. Amendment 1

Incorporating Errata No. 1 (Jan 11)

TREBAP	Trunk Road Estate Biodiversity Action Plan (2004 – 2014)

2.2.20 Sweeping and Cleaning

2.2.20.1 General

1 The requirements for sweeping and cleaning relate to the WG's responsibility under the Environmental Protection Act 1990 (EPA) where levels of cleanliness after cleaning are specified.

2 The WG has retained the duty for cleaning litter and refuse or detritus on the following routes:

M4	Junction 23 to Junction 49
M48	Junction 2 to M4 Junction 23
A48(M)	Junction 29 to Junction 29A
A55	Llanddulas to Junction 17 Conwy Morfa (Special Road Section)

3 It should be noted that there is nothing in the Environmental Protection Act that removes the responsibility of the WG to keep its trunk roads safe for the travelling public. There is, therefore, a need for cleaning to be carried out to deal with incident related requirements including shed loads, spillages, accident debris and other detritus.

2.2.20.2 Management Guidance

1 The Environmental Protection Act 1990: Code of Practice on Litter and Refuse, which can be downloaded from the internet, seeks to encourage duty bodies, those with duties imposed by the EPA to maintain their land within acceptable cleanliness standards with the emphasis being on consistent and appropriate management to keep it clean rather than how often it is cleaned. It details four grades of cleanliness for which the Code defines the performance requirements.

2 There are four grades of cleanliness given in the EPA: Code of Practice on Litter and Refuse:

Grade A	No litter or refuse;
Grade B	Predominantly free of litter and refuse apart from small items;
Grade C	Widespread distribution of litter and refuse with minor accumulations;
Grade D	Heavily littered with significant accumulations.

3 Where possible litter picking and cleansing activities (including traffic management) should be coordinated with local authorities adjoining the trunk road network to ensure interfaces are cleaned thoroughly and to avoid litter being blown back into previously cleaned areas.

4 The Service Provider shall be mindful of the possible occurrence of hazardous materials in fly tipping and debris and take appropriate precautions.

2.2.20.3 Meeting the Performance Requirements

1 The Service Provider must adopt a proactive approach to the removal of litter and other debris from the network in order to meet the Performance Requirements. This may be achieved using a combination of programmed scavenges, as need dictates, together with "black spot" scavenges as required in specific locations where the highway has become heavily littered as a result of other factors such as debris from vehicles or wind blown litter. If a particular source of regular litter, wind blown or otherwise, can be identified then those

responsible should be requested to exercise control of their site more effectively. Such requests must be documented.

2 On occasions it will be necessary for emergency vehicles to drive along the hard shoulder, often at speed. It has been noted that debris on the hard shoulder, particularly metal objects can cause punctures to emergency vehicles. Therefore the use of magnetic cleaning is required, preferably combined with the fortnightly maintenance runs of WGs winter maintenance spreaders.

3 Weed and vegetation growth that is likely to obstruct the flow of water in channels or cause structural deterioration does not fall within the scope of the EPA. Such growth must be treated in accordance with the appropriate standards.

4 The WG's policy is that litter bins are provided only at designated picnic sites and those lay-bys with toilets and/or picnic tables. Those sites must be scavenged as necessary.

5 Examples of condition that are likely to prevent the achievement of the Performance Requirements include:

- Detritus, litter, refuse, animal carcasses, debris and other objects anywhere on the network
- Growth of grass or other vegetation between the channel and kerb, which is likely to obstruct the flow of water or cause structural deterioration.

2.2.20.4 Scavenge Patrols

1 Scavenge patrols will be carried out on all motorways and associated slip roads every second week. The patrol will travel along the hard-shoulder of specified roads and collect all debris from the hardshoulder, slip road carriageways, lane-1 of main carriageways and verges but not central reserves.

2 Debris will include wood, plastic, polythene, metal, glass, rubber, vehicle components and the like that could present a hazard to road users and all carcasses and large objects in verges. Debris will be disposed of to a licenced tip off the highway. Carcasses should be incinerated.

3 Any dangerous debris identified in carriageway lanes other than lane-1 and in central reserves will be reported to the Service Provider immediately, otherwise debris in central reserves will be reported on return to the depot.

4 Any hazards or debris which cannot be removed from the carriageway or hard shoulder will if reasonably practical be made safe or recorded as defects and treated accordingly by the Service Provider. The Service Provider will prepare a written report of events and items collected by 1700hrs on the day of the patrol. The report will state the date, time, location and action taken during the patrol. Information will be recorded in WG's IRIS System.

5 Scavenging will include removal of debris where the weight of each item does not exceed 25kg. Scavenge patrols will clean from the carriageways and hardshoulders any debris which constitutes a potential hazard to highway traffic and does not exceed 25kg, up to a total of 250kg in any location. When the Service Provider encounters debris in excess of 25kg which constitutes a hazard to traffic he will, if reasonably practicable, remove it immediately to a safe location.

2.2.20.5 Managing & Identifying Domestic Cat and Dog Fatalities

(Provisional - inclusion to be confirmed following Ministerial Submission)

1 Service Providers shall arrange for the prompt removal of cats and dogs killed on Welsh Government's motorway and trunk road network. They shall have at least one microchip scanner available for use at each depot dealing with this aspect of service and must ensure that their staff know how to use them correctly.

2 Identification information must be collated and recorded using the Cat / Dog Fatalities form included at 2.2.20.5 Annex A.

3 The following processes must be followed when cat or dog carcasses or remains are found on the Network.

(**i) A search must be made at the site for a collar and disc.**

(ii) **Where the owner's details are found on a collar or disc**, the animal remains must be bagged separate from any debris, taken to the depot and the owner notified as soon as possible to be given the option of their collection. Notification of the owners should be done as sensitively as possible to minimise owner distress, particularly where injuries to the animal are severe.

(iii) **Where no collar/disc is found**, the remains must be bagged separately from any debris found and returned to the depot where the entire body must be scanned for microchips and the ears / body checked for tattoos. Any positive identification must be marked on the form.

4 **Following positive identification via a microchip or tattoo**, the appropriate bodies must be notified;

- Petlog / PETtrac for microchips
- National Dog Tattoo Register for ear tattoos.

5 **The police and local authority dog warden must also be notified** in all instances using the Cat / Dog Fatality form whether or not identification has been possible.

6 **Where remains cannot be positively identified**,

(i) The police and/or local authority dog warden must be notified of the details of the fatality via the Identification of Cat / Dog Fatality form.

(ii) The identification process should go as far as is reasonable however it is recognised that due to the high speed nature of our network it is impossible to guarantee that remains can be fully identified e.g. the microchip may have been lost in the collision

(iii) In this case, if the remains can be identified as those of a cat or dog they should be cold stored and as much information as can be collected should be included on the Cat / Dog Fatality form before passing to the local police or dog warden.

(iv) It must be noted that microchip scanners need to be used very close to the pet's body to register the presence of the chip although it should read the chip through a polythene bag.

7 **General**

(i) The remains must be cold-stored for at least fourteen days following notification as above unless instructed or otherwise removed by the animal's owner.

(ii) Owners shall where possible be given the opportunity to collect their animal's remains where appropriate and make their own arrangements for disposal.

(iii) If no owner has come forward at the end of this period or no alternative arrangements made, the remains should be disposed of.

(iv) Service providers should maintain records of information held on Fatality forms for unidentified cats and dogs to inform responses to enquiries which may arise directly from the public or other organisations.

(v) Contact details for Pet Log, PETtrac and the National Dog Tattoo Register can be found on the Identification of Cat / Dog Fatality form included at Annex A. It should be noted that registration with the site may be necessary for its use.

(vi) It should be noted that some police authorities may not wish to be notified of such fatalities and that some local authorities do not employ dog wardens.

2.2.20.5 Annex A

Cat / Dog Fatality form

1 Agent:…….. Reference …….

2 Recovery time and location

Date	
Time	
Location	

3 Fatality details

Cat or Dog		
Breed /Description		
Colour		
Size (Dogs only) Small	(Height to shoulder <300mm	
Medium	(=>300mm, <450mm)	
Large	(>450mm)	
Coat type		
Distinguishing Marks / Gender		
Collar type / colour		
Identity disc / owners details		
Ear / other tattoo details		
ID Microchip no		
Other details / comments		

4 Notifications

Owner notified	
Police notified	

LA Dog warden notified	
Registers notified *(see below)	
Others	

Registers

*PetLog	www.petlog.org.uk
*PETtrac	www.pettrac.co.uk
*National Tattoo dog Register	www.dog-register.co.uk

2.2.21 Traffic Management

1 The guidance information in this section relates to the design and operation of traffic management for trunk roads and motorways in Wales.

2.2.21.1 Chapter 8 of the Traffic Signs Manual

1 Chapter 8 of the Traffic Signs Manual (TSM) is the Welsh Government (WG) standard for all aspects of signing and management of traffic at static and mobile roadworks on the trunk road and motorway network carried out by Service Providers. It provides guidance for those responsible for the design and operation of temporary traffic management (TTM) arrangements for maintenance, inspection and emergency works.

2 Chapter 8 TSM makes recommendations based on good practice for the guidance of temporary traffic management designers and operators. It is not a prescriptive specification or a collection of model traffic management layouts. The guidance given cannot cover all situations and it is for the traffic management designer to adopt, adapt or develop the required traffic management to suit the actual conditions. Chapter 8 is not a DMRB standard; thus WG cannot provide a *Departure from Standards.* Variations from the prescribed good practice in Chapter 8 TSM are therefore to be derived on the basis of a safety risk assessment **for both the public and the workforce**.

3 Chapter 8 also includes guidance on the design and operation of emergency traffic management (ETM). For further guidance on the application of ETM refer to WGTRMM Section 2.2.23

4 Chapter 8 TSM D2.2 and D2.14 refer to roles and responsibilities. WG requires that Service Providers identify equivalent design and management roles and responsibilities matching those in Chapter 8 TSM for all Service Provider traffic management works on the trunk road and motorway in Wales. Workforce issues and training are dealt with in Chapter 8 TSM.

5 Refer to Chapter 8 TSM for all relevant reference documents, including DMRB.

6 Service Providers shall implement speed enforcement signs and systems, as appropriate, where there is a reduced maximum speed limit in force within the works site and the Police / Go Safe have agreed to the enforcement. Adequate notice must be given to WG in order to prepare Orders for temporary speed limits restrictions for which electronic submission forms are available.

2.2.21.2 Safety at Street Works and Road Works – A Code of Practice

1 This Code is issued by the Welsh Ministers under Section 65 of the New Roads and Street Works Act 1991 and Section 174 of the Highways Act 1980.

2 Failure to comply with this Code is a criminal offence and may lead to criminal prosecution in addition to any civil proceedings. Compliance with the Code will be taken as compliance with the legal requirements to which it relates.

3 Local highway authorities in Wales must comply with this Code for their own works.

2.2.21.3 The Manual of Contract Document for Highway Works (MCDHW)

1 Series 100 Preliminaries of MCDHW addresses some of the detailed requirements for traffic management implementation by the Service Provider under:

- Clause 104 - Standards, Quality Assurance, Agreement Certificates and Other Approvals
- Clause 117 - Traffic Safety and Management;
- Clause 118 - Temporary Diversions for Traffic;
- Clause 119 - Routeing of Vehicles;
- Clause 120 - Recovery Vehicles for Breakdowns.

2 The extent of the application of these clauses will vary considerably depending on the nature of the TTM / ETM and is for the Service Provider to determine.

3 Where the MCDHW refers to an Appendix requirement (e.g. Appendix 1/17), the Service Provider will instead provide the appropriate criteria to be taken into account by the traffic management contractor to achieve all the required operational outcomes. For larger projects, this may involve liaison with WG and the Emergency Services to determine the appropriate traffic management design.

2.2.21.4 National Highway Sector Schemes (NHSS)

1 The Service Provider is required to implement all TTM with traffic management contractors (and vehicle recovery operators) accredited against the appropriate NHSS. Further information on NHSS can be found at:

https://www.gov.uk/national-highway-sector-schemes-certification-for-contractors-and-subcontractors

2 All persons involved in the installation, maintenance and removal of temporary traffic management on the motorway and trunk road network must hold the relevant Highway Sector Scheme Certificates.

3 This requirement does not apply to ETM undertaken by WG Traffic Officers.

2.2.21.5 Trunk Road Service Provider All Wales Traffic Management Manual

1 The Service Provider is required to develop a Traffic Management Manual which contains appropriate operational and design guidance information for their own use and use by all Contractors and organisations undertaking works on the motorway and trunk road network in Wales. These will include for example:

- Location specific traffic management requirements based on risk assessment and agreed with WG:
    - tunnel maintenance;
    - risk rated sections of road (i.e. those requiring full closures and diversions for routine maintenance activities)
    - emergency tactical and strategic diversion signing for road closures;
    - dual carriageways traffic management without hard shoulders;
    - approaches to roundabouts on D2 (no hard shoulder) roads
    - ETM arrangements at specific interchange sites (NB. these are also variations to the WGTO Manual);

- Routinely applied variations to Chapter 8 TSM based on risk assessment and agreed with WG:
    - Issues not addressed by Chapter 8 TSM;
    - Use of 1m high cones rather than 750mm on D2 (no hard shoulder) roads;
    - Use of a 40mph temporary speed limit on 70mph D2 (no hard shoulder) roads;
    - Temporary closure of laybys;
    - Application of merge in turn signs;
    - Not using crash cushions as part of single carriageway mobile works >40mph.

- Management in relation to *New Roads & Street Works Act* requirements by the Service Provider;

2 The purpose of this Manual is to:

a) assist the harmonisation of approach to traffic management on trunk roads;

b) enable WG and all Service Providers to demonstrate to the Police, HSE or a Coroner that a safe system of work has been agreed with WG as Highway Authority for managing situations outside the scope of the generic design solutions given by Chapter 8 TSM.

3 A template for subject section headings to comprise the manual is given at Appendix A to this section as a starting point.

2.2.21.6 Constraints on Traffic Management Operations

1 Refer to WGTRMM Network Occupancy

2.2.21.7 Publicity / Communication

1 Refer to WGTRMM Network Occupancy

2.2.21.8 Driver Information Signs at Roadworks

1 A prime objective of WG is to provide road users with information that is relevant to their journey. Driver information signs at roadworks are designed to give drivers advance notice (chronologically and geographically) of future or current roadworks and to provide information about the works.

2 When investigating traffic management designs for roadworks, consideration should be given to the use of VMS to supplement the proposed signing. The Service Provider should discuss and develop such proposals in consultation with the WG. Electronic VMS (the Traffic Wales information website and conventional/social media) should be utilised to their full potential during the installation and removal of temporary traffic management.

3 Welsh Government has a number of temporary and permanently located Variable Message Signs (VMS) on the trunk road and motorway network which might be used as part of temporary traffic management designs, but are also subject to operational limitations. The VMS are managed by the Service Providers via the North and South Wales Traffic Management Centres in Conwy and Coryton. Alternatively, traffic management designers may wish to include site specific temporary VMS of their own as part of their works.

4 In either case, the list of VMS messages pre-approved by Welsh Government is available from WG. New VMS messages are to be submitted to the WG Service Provider for authorisation.

5 Signing principles and details of informatory signs are included within Chapter 8 TSM. Further details can be found at:

http://www.traffic-wales.com/traffic_signs.aspx#.

2.2.21.9 Bilingual Signing

1 Sign designs that do not conform with the prescribed signs in the current *Traffic Signs Regulations & General Directions* are to be authorised by Welsh Government and also conform as required to the *Traffic Signs (Welsh and English Language Provisions) Regulations 1985* and be in accordance with the current Welsh Government Language Scheme.

2 Arrangements for specific temporary or permanent non-prescribed sign authorisations will normally be via the Service Provider for verification / advice prior to submission to Welsh Government.

3 Welsh Government pre-authorised bilingual sign design drawings and information can be found online at :

http://www.traffic-wales.com/traffic_signs.aspx#.

2.2.21.10 Temporary Traffic Signals

1 Refer to 2.2.24 Network Occupancy

2.2.21.11 Optimising Traffic Management at Roadworks

1 Refer to 2.2.24 Network Occupancy .

2.2.21.1 Annex A: All Wales Traffic Management Manual Template

1. Introduction

2. Trunk Road Agents in Wales

2.1 Background

2.2 Purpose and Objectives of the Manual

3. Overseeing Organisation

3.1 Welsh Government

4. Consultation with other parties

4.1 Road space coordination and liaison

4.2 Event coordination and liaison

4.3 Traffic Wales information

4.4 Media Management

5. Traffic Management Providers

5.1 General

5.2 Competence of Traffic Management Providers – Sector Scheme Accreditation

5.3 Traffic Management Provider's Representative

6. Strategic Network Planning and Works Coordination

6.1 New roads & Street works Act 1991

6.2 Works for road purposes – notices for Service Providers/Third Parties

6.3 Roadspace reporting

6.4 Embargo Periods and traffic sensitivity

6.5 Inspection and audit TTM contractor – sampling, frequency/recording

6.6 Agent staff competence

7. Traffic Management Act 2004

7.1 Agent requirements

8. Road Traffic Regulation Act 1988

8.1 Temporary Traffic Regulation Orders – process

8.2 Emergency Closures by notice

8.3 Road closures and diversions

8.4 Motorway Permits

9. Traffic Signs Regulations and General Directions 2002

9.1 Information Boards – Citizen Charter Signs

9.2 Information Boards – Special Events Signing

9.3 Advance works signing – Information Boards

9.4 Non prescribed signs – translation and approval

10. Abnormal Indivisible Loads

10.1 General

10.2 Approval of alternative routes

10.3 Notice periods

10.4 Definitions

- 10.4.1 Weight
- 10.4.2 Width
- 10.4.3 Length

10.5 Dispensations

10.6 Movement restrictions

11. Traffic Management Centre Operations

11.1 Monitoring traffic management activities

11.2 Traffic Management support – VMS/Matrix

12. Other Site Specific Information

12.1 Tunnels

12.2 Safe taper locations

12.3 Three lane single carriageways

2.2:23 Incident Management and Contingency Planning

2.2.23.1 Traffic Incident Management

2.2.23.1.1 General

1 The Welsh Government (WG) is Highway Authority for the motorway and trunk road network in Wales and responsible for its safe, environmentally sensitive operation and maintenance in accordance with UK, Wales and EU legislation.

2 In the event of an incident occurring on the highway it is essential for personnel to respond as quickly as possible in order to minimise any safety risk, disruption or delay to the public. This Part is intended to:

- ensure consistency and appropriateness of standards and approach in responding to incidents on the motorway and trunk road network (hereafter referred to as trunk roads) by establishing the overall requirements for the network;
- support and promote subsidiarity in incident management and response;
- minimise the impact of incidents on the availability of the trunk road network to the road user;
- assist integration of the Service Provider response with that of the Emergency Services;
- provide a proportionate response

3 These general requirements may not be appropriate or achievable in all circumstances and there may be instances where they will have to be varied to take account of local conditions, events or risks. Any potential variations shall have appropriate risk assessments undertaken, applied in accordance with *WG Risk Essentials: A Risk Management Framework, October 2006.*

4 The basic context for management of incidents occurring on motorways and trunk roads is a system of contingency planning to deal with a wide range of credible risks in accordance with UK legislative and Welsh Government policy requirements. These services are primarily provided by the Emergency Services with support from Service Providers. Within that overall context a range of service provision, processes and procedures are required from Service Providers to provide an appropriate level of local and regional traffic incident management requirements.

2.2.23.1.2 Recording of incidents

1 All on-going traffic related incidents are recorded by North & South Wales Traffic Management Centres. Incidents may include, for example:

- Road Traffic Collisions (RTC);
- Vehicle breakdowns and recovery;
- Congestion;
- Adverse weather related incidents;
- Use of Traffic Officer powers;
- Significant delays in journey time;
- Others agreed with Welsh Government.

2 Given the current level of resources available for the management of the network in Wales (Service Provider and Emergency Services), it is anticipated that Inspection Category A and some B roads will have an increased level and scope of incident detection compared to single carriageway Category C roads in rural areas. In any event, and as a general guide, Service Providers are encouraged to report and record traffic related incidents.

2.2.23.1.3 Response Duration

1 The Response Duration for attendance at an emergency incident is defined as *the time taken from receipt of notification of the emergency by the Service Provider to commencement of appropriate action by the Service Provider at the site of the incident.* Response Durations should always be as short as practicable but in any event shall normally not exceed the maximum target duration of 2 hours. Routes covered by the Welsh Government Traffic Officers are subject to a 20min max target response between 0600 and 2000 hrs. The Response Duration will include the time for implementation of contingency plans and/or emergency processes affecting the site.

2 Table 1.1.3.2 (from WGTRMM Part 1) Maximum emergency Response Times

Inspection Category	Maximum Response Time	
	0700-1900 hrs	1900-0700 hrs
A and B	1hour	1.5hours
C	1.5 hours	2 hours

3 Appropriate action can include:

- Attendance at site by Service Provider in-house or supply chain resources capable of providing feedback information to a Service Provider on-call Duty Manager and / or Traffic Management Centre;
- Remote activation of emergency systems e.g. implementing VMS messages on the approach to an incident;
- Inspection of the infrastructure asset for defects (safety hazards or obstructions) as Part 3 WGTRMM;
- Attendance or provision of resources in support of the Emergency Services;
- Provision of Traffic Management to Chapter 8 Traffic Signs Manual or DfT Safety at Street Works and Road Works Code of Practice (as per WGTRMM Part 4) by appropriately trained and competent staff;
- Use of Traffic Officer powers at site;
- Collation of incident-related data for Third Party claims purposes;
- Collation of data for Fatal Collision reporting purposes;
- Re-opening of the road;
- Commencement of works or arrival at site for the recovery phase.

2.2.23.1.4 Re-Opening the Road Following an Incident

1 Required if road was closed by an obstruction or safety hazard (Category 1 defect), the Service Provider is normally responsible for re-opening, not the Emergency Services,

2 Reopening is to be managed by a Service Provider representative in accordance with processes locally agreed with Emergency Services, and the agreement of the police if actively involved.

3 Typically the following processes will occur:

- Structured handover from Emergency Services to Service Provider representatives (this may include the transition of powers from the Emergency Services to a Traffic Officer to the Service Provider);
- The undertaking of Site Inspections or structure Special Inspections where required;

- Implement safety risk mitigation measures (e.g. make safe / holding or permanent repair / clear up and removal)
- Service Provider representative to instruct re-opening of road when safe to do so.

4 However where Service Providers are not informed of the incident by the Emergency Services, a structured handover to the Service Provider representative may not take place and the road re-opened by default. In this instance:-

- A follow up Site Inspection is required by the Service Provider to ensure safety as soon as practicable;

5 This requirement applies also to highway infrastructure 'hit and run' incidents on all roads picked up by periodic planned safety patrols / inspections.

2.2.23.1.5 Provision of information in response incidents and emergencies

1 Traffic Management Centre *Clicatel* alerts should be considered for incidents that result in delays in excess of 30 minutes, dependant on the nature of the incident and congestion expected which would be determined by the Control Room. This may be incidents involving a road or carriageway closure, or a fatality.

2 These notifications shall be sent to Welsh Government. This notification shall provide an estimated duration for the incident, and shall be updated accordingly.

3 During exceptional incidents, the Service Provider shall submit a Situation Report (see SitRep Form in ANNEX A) giving details of the incident including a brief description, significant issues, and site conditions to Welsh Government.

4 Triggers to consider compiling a SitRep Form:

- An incident involving a fatality;
- An incident involving a closure of a Trunk Road ;
- Any incident declared as a Critical Incident as per Service Provider plans;
- Any incident which is attracting or is likely to attract high-profile media attention;
- Any incident which requires incident response from the WG Duty Manager.

5 Final SitReps should be issued within two days of the incident being resolved.

2.2.23.2 Contingency Planning

1 No additional information

2.2.23.3 Data Management for Fatal Collisions

1 When the Police request site attendance immediately following the collision, it is essential that the Service Provider's representative responds to the incident promptly and attends the site as soon as possible, and not normally longer than 2 hours from notification. On such occasions, the agreement of the senior Police officer at the scene must be sought prior to proceeding with any investigations and data collection. Compliance with any Police instructions (particularly if the site is a potential crime scene), is imperative to ensure that precedence is given to the work of the emergency services and the re-opening of the carriageway. however

the Service Provider is responsible for closing and re-opening the carriageway including signing of diversion routes as required.

2 An Initial Service Provider Statement including the Police Notification and all significant issues, site features and site conditions shall be forwarded to WG within two working days from the Service Providers receipt of Police official notification in the form of a Road Death Notification.

3 The Detailed Fatal Collision Report should (where possible) be prepared using information obtained from the Welsh Government IRS / PMS system and forwarded to WG within 14 days of receipt of notification.

4 Guidance and requirements relating to the level of information required in the Detailed Fatal Collision Report are given below.

5 The Service Provider must also ensure that any damaged or failed components of the highway infrastructure are recorded and dealt with in accordance with the procedures contained within this document for dealing with identified site defects. In addition, details of the damaged and failed components must also be included within the Detailed Fatal Collision Report.

2.2.23.3.1 Requirements for Detailed Fatal Collision Reports

1 The Detailed Fatal Collision Report shall comprise an account of the circumstances understood as surrounding collision, including all relevant information as discussed below. The Report shall also discuss the circumstances of the incident with particular reference to any implications for highway design or maintenance and consideration of any aspects for which the Welsh Government might be held liable.

2 Detailed Fatal Collision Reports shall include the following elements, with photographs where appropriate:

- precise location;
- date, hour, weather, road surface and lighting conditions at the time of the collision;
- information on area, road type, layout / alignment, junction type including signalling, number of lanes, markings, approaches to the site, road construction (including SCRIM values), lighting, signs, speed limit and roadside obstacles;
- traffic details, traffic management, winter service operations in progress (if appropriate);
- details of any malfunctioning highway equipment / failed components (including testing of any components involved if appropriate and / or notification when retained by Police);
- any “unusual” features and items with maintenance or design implications;
- information on the time elapsed between the time of the collision and the notification being received from the Police;
- collision history for the site and comparison with the fatal collision

3 A proforma to be used for Fatal Collision Reports together is provided at 2.1.6.2 Annex B

2.2.23.4 Liaison and Communications

1 No additional information

2.2.23.5 Incident Reporting for the Network

1 No additional information

Table 2.2.23.5 Incident Reporting

TERN Route	Biennial Strategic Route Safety Report
A40 English Border at Garnarew to Abergavenny	✓
A465 Abergavenny to Llandarcy	✓
M4 Second Severn Crossing to Pont Abraham	✓
M48 Severn Bridge to Magor	✓
A48 Pont Abraham to Carmarthen	✓
A477 Carmarthen to Pembroke Dock	✓
A40/A4076 Carmarthen to Fishguard / Milford Haven	✓
A55 English Border to Holyhead	✓
A5 English Border to Chirk	✓
A483 Chirk to A55 Gorstella	✓
A449 Raglan Junction to M4 Coldra	✓

2.2.23.6 Incident Reporting for Tunnels

1 No additional information

Table 2.2.23.6 Incident Reporting

	RTSR Regulation 9(3) Incident Report	RTSR Regulation 9(4) Investigative Report	Regulation 6 biennial report
A55 Penmaenbach westbound	✓	✓	✓
A55 Penmaenbach eastbound	✓	Not applicable	Not applicable
A55 Conwy westbound & eastbound	✓	✓	✓
A55 Penyclip westbound	✓	✓	✓

A40 Gibraltar northbound & southbound	✓	Not applicable	Not applicable
M4 Brynglas westbound & eastbound	✓	Not applicable	Not applicable

ANNEX A

Name of Service Provider MOTORWAY & TRUNK ROAD INCIDENT REPORT	Yn gweithio ar ran **Llywodraeth Cymru** Working on behalf of the **Welsh Government** Form: SITREP 2014 Page 1 of 1
Service Provider Ref No:	
DATE & TIME OF THE INCIDENT:	
ROUTE, LOCATION AND DIRECTION OF TRAVEL:	
BRIEF DESCRIPTION OF THE INCIDENT:	
SUMMARY OF TRAFFIC DELAYS AND DIFFICULTIES:	
ACTUAL OR ANTICIPATED TIME OF CLEARANCE:	
ADDITIONAL INFORMATION (WEATHER CONDITIONS ETC.)	
Compiled by: **Authorised by:**	
Next report to be issued at:	

2.2.24 Network Occupancy Management

2.2.24.1 Network Occupancy Management

2.2.24.1.1 Introduction

1 Road works and street works have a direct impact on roads with the potential to cause congestion, delays and safety issues for road users and any resultant disruption can have a detrimental impact on the Welsh economy. This section sets out the procedures and arrangements for the management of road space occupancy required for works activities on the Welsh Government's motorway and all-purpose trunk road network to address these issues.

2 The Welsh Government (WG) has a legal obligation under Section 59 of the New Roads and Street Works Act 1991 (NRSWA) to use its best endeavours to coordinate the execution of works of all kinds.

2.2.24.1.2 Legislation and Policy Context

1 Section 49 of NRSWA defines the term 'street authority'. On publicly maintainable highways, the street authority is the highway authority and usually this will be the relevant local authority. The Welsh Ministers are the highway authority for the motorway and trunk road network in Wales, which is managed on their behalf by Welsh Government, to whom notices should be sent in accordance with of the *Code of Practice for the Co-ordination of Street Works and Works for Road Purposes and Related Matters (January 2008)* as approved by the Welsh Ministers.

2 Similarly, Welsh Government has powers and duties under the Highways Act 1980 and the Road Traffic Regulation Act 1984. It has also been provided with a remit to manage trunk roads in order to reduce the impact of congestion and delays under the WG *Traffic Management Act 2004 - Network Management Guidance (November 2006).* Welsh Government also has additional powers and duties available under Part 4 (Street works) of the *Traffic Management Act 2004* including Fixed Penalty Notices, Permits and S74 over-run charges.

3 Directions 53 and 53A of the *Traffic Signs Regulations & General Directions 2002 (as amended 2011)* apply in relation to portable light signals for the control of vehicular traffic and pedestrians.

4 Welsh Ministers have transferred the discharging of a range of duties and a number of delegated functions to the Service Providers in Wales.

5 The Welsh Government has also been given a clear remit by Ministers to better manage its network with the objective of maximising reliability, improve journey times and the safety of the trunk road network. under the *Wales National Transport Plan 2010 (Intervention 34)*.

6 Under the Equality Act 2010, all works promoters also have a duty to have regard for the needs of disabled people and older people in the planning and execution of works.

7 The purpose of this chapter is to set out roles, responsibilities and procedures for the management of network occupancy.

2.2.24.1.3 Network Occupancy Management Plan (NOMP)

1 A 'Network Occupancy Management Plan', setting out the approach to managing the Network, will be required to be produced and maintained for each Service Provider's area. It will be used to demonstrate that the procedures detailed in WGTRMM are used to ensure the effective management of road space. The plan will remain under periodic review to ensure that the changing needs are embraced with effective network management. The key elements of the plan are detailed in Annex A - Network Occupancy Management Plan Template.

2.2.24.1.4 Network Occupancy Management Process

1 The process provides a set of procedures for the management of road space occupancy with the primary objective of reducing road user delay and the associated delay cost, through a structured evidence based decision making approach.

2 The management of network occupancy is a wide ranging task involving many parts of Welsh Government Service Provider organisations together with external stakeholders. This document is expected to have a similar wide ranging audience. The process is owned by Welsh Government but is primarily delivered by the Service Provider in consultation with Welsh Government.

3 The table below sets out the scope of the process and defines the activities covered, and those activities not covered by the network occupancy management arrangements and provide greater clarity on roles, responsibilities and objectives.

SCOPE
Primary Responsibilities The primary responsibility for coordinating and managing works activity on the network rests with Welsh Government. This duty and responsibility is delegated to the Service Provider under the Highways Act, NRSWA and the TMA. Other organisations promoting and undertaking works on the Network should act in a cooperative manner with the Welsh Government and Service Providers. This may be a direct contractual requirement for other Service Providers and is a legal obligation for statutory undertakers.
Activities Covered Any activity on the Network that may contribute, either directly or indirectly, to congestion on the Network is covered by this process. This includes activities on the hard shoulder, cycle tracks and footways. Activities covered by this process are categorised as follows: A. WG National Transport Plan Schemes B. Service Providers Planned Capital Schemes

C. Service Providers Planned Revenue Works

D. Service Providers Reactive Maintenance Works

E. WTTC Planned Capital Schemes

F. AWMC Planned Capital Schemes

G. AWMC Planned Revenue Works

H. AWMC Reactive Maintenance Works

I. A55 DBFO Works

J. Statutory Undertaker Works

K. Network Rail Works

L. Developer Works

M. Licensee Works

N. Highways Agency Works

O. Adjacent County Highway Authority Works

The following activities may provide further operational constraints to the network

Y. Public, Regional or National Important events

Z. Abnormal Load Movements

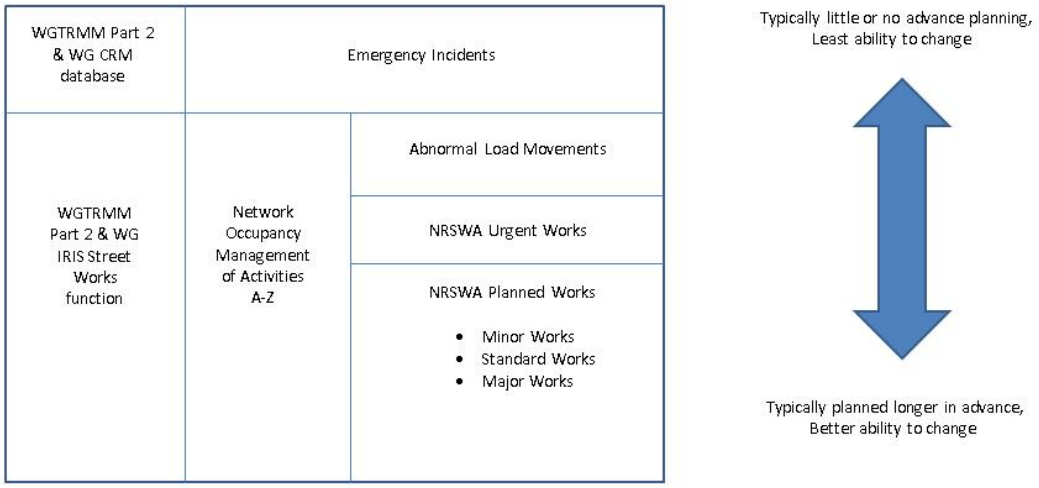
For Emergency Incidents refer to WGTRMM 2.2.23. Traffic Management associated with activities are covered by WGTRMM 2.2.21.

Although considered generally as ‘off network’, ‘public events’ are considered an ‘activity’ in respect of this process.

Context & Hierarchy

The management of network occupancy is all about coordinating activities on the Network. This requires that consideration is given to all planned activities so that adjustments can be made to the occupancy configurations of individual activities such that the Network operates in the most efficient manner possible.

The diagram below shows a hierarchy of activities. In general, the longer in advance the activity is planned the better the ability to change occupancy configurations as part of the coordination process. The obvious exceptions to this is events, which are generally fixed with limited scope for influencing change.



'Out of Scope' Activities

There are a number of specific activities that are explicitly outside of the scope of this process, these are:

1) Minor Traffic Incidents

It is already a requirement for details of minor traffic incidents to be recorded on the WG databases system by Service Providers as part of the inspection management, Traffic Officer and Emergency Response & Management roles. Minor traffic incidents such as short duration road traffic collisions are not normally considered within the Network Occupancy Management process. Operational requirements however, may require urgent changes to planned activities e.g. the implementation of strategic or tactical diversions for long duration or high consequence incidents may require minor or standard works to be temporarily suspended.

2) Activities that do not have an impact on congestion

These are any planned or un-planned activities where traffic management is not required. For example, short duration stops on the hard shoulder or mobile inspections not requiring a mobile lane closure.

Whenever possible, short-duration inspections of structures or particular features of highway infrastructure should be conducted at a safe distance from live traffic lanes, e.g. by making use of laybys, verges or overbridges; These activities normally do not have any impact on congestion. Similarly mobile Safety Patrol and Safety Inspections undertaken from vehicles will normally be designed to not have an impact on congestion. The requirements of *Chapter 8 Traffic Signs Manual* and *Safety at Street Works and Road Works: A Code of Practice 2013* will still apply to such activities. Authority to stop on a motorway for maintenance purposes (including inspections and surveys) is covered by *The Motorway Traffic (England & Wales) Regulations.*

Although the activities detailed above fall outside of the scope of the network occupancy management process, there are other obligations to manage those activities including specific requirements to populate relevant information on the WG CRM System or WG IRIS System, refer to WGTRMM.

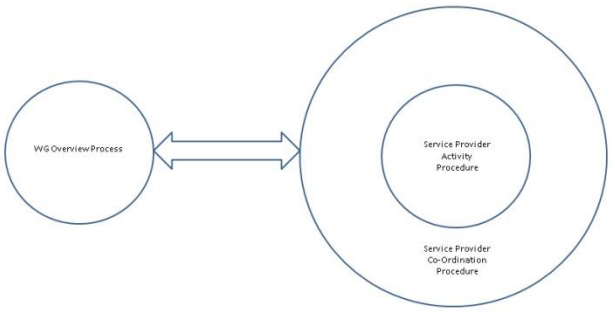
Relationship to Other Processes & Policies

The arrangements for management of network occupancy, as detailed in this chapter, do not remove the need to follow other processes or policies. The process provides an overarching framework for the management of planned activities on the Network.

There are existing arrangements in place for the evaluation and mitigation of delay impacts from specific schemes, particularly larger schemes, and these arrangements should continue to be applied. Examples include scheme specific cost benefit analysis such as QUADRO and value management processes.

Arrangements for management of abnormal load movements and traffic incidents should be followed The network occupancy management process is complementary to these existing arrangements.

The table below provides an overview of the activity based and periodic procedures that comprise the network occupancy management process.

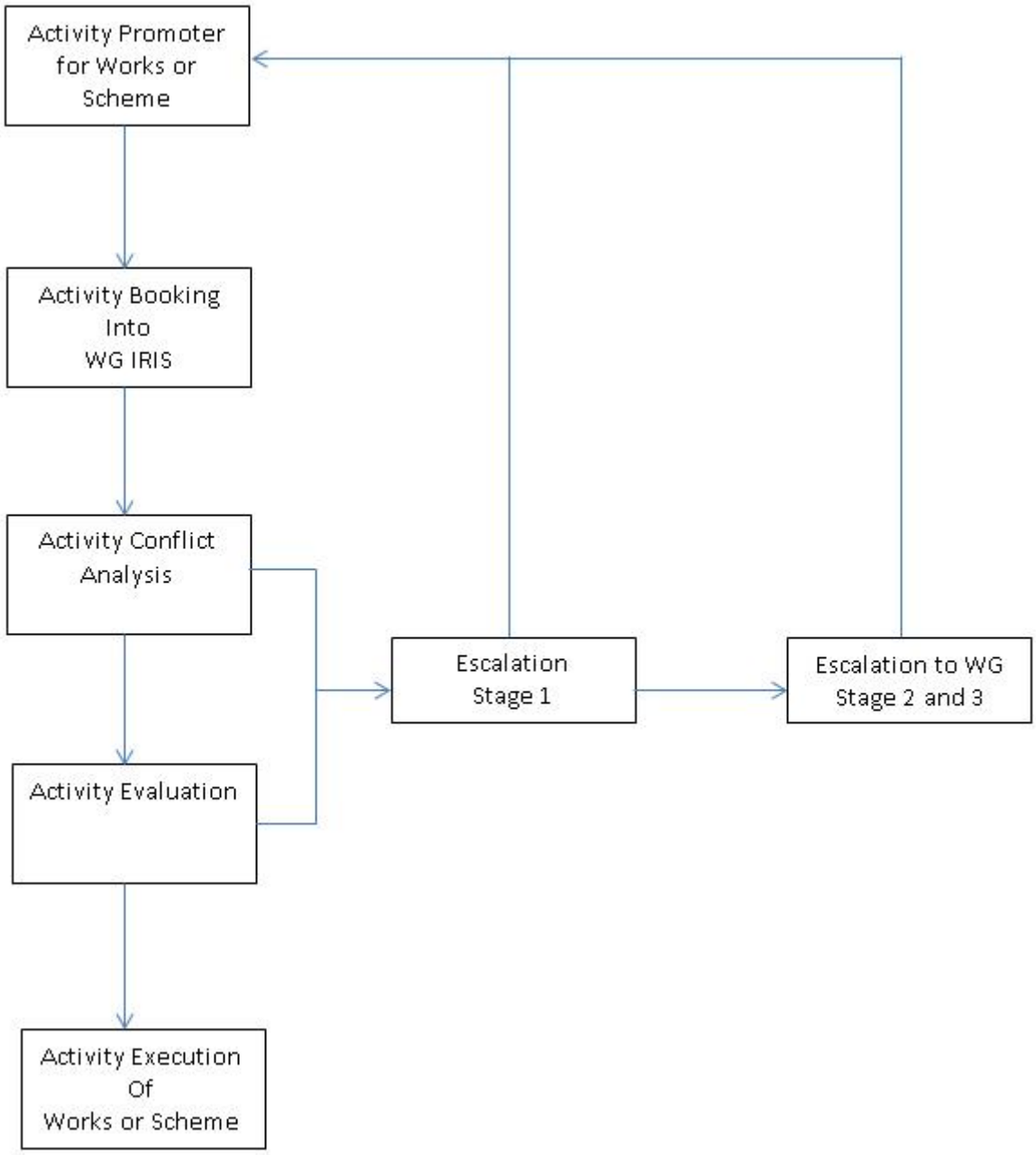
PROCESS OVERVIEW	
Introduction	 The colour coding used above is used in the remainder of the chapter. Light yellow denotes a function that is primarily the Service Provider's responsibility and green denotes a function that is primarily the WG's responsibility.
WG Overview Process	This procedure details the requirements and responsibilities to enable 'scrutiny' to be carried out in accordance with the network occupancy management process. This is: 1. an assessment of the Service Provider's approach to the forward planning of works activities on the Network. 2. it is a retrospective interrogation of the Service Provider's performance in respect of the coordination of works.
Service Provider Activity Procedure	This procedure details the requirements and responsibilities for ALL 'activities' which take place on the Network and that are within the scope of the network occupancy management process. This is primarily the management of activity booking and evaluation of activities on the network. The Service Provider is responsible for discharging this procedure for any activity taking place on the Network.
Service Provider Coordination Procedure	This procedure details the requirements and responsibilities to enable 'coordination' to be carried out in accordance with the network occupancy management process. This is primarily the management of road space occupancy to minimise road user delay through a structured procedure of coordinating multiple activities. The Service Provider is responsible for discharging this procedure for any activity taking place on the Network in consultation with WG.

Information Flows	Proper management of network occupancy requires complete knowledge of all planned activities. The WG IRIS Street Works module is intended as the single central repository for information on all planned activities. Although the primary use for the WG IRIS Street Works module is by the Service Provider in delivering their obligations under this process, there are many users of the information contained with the system.

2.2.24.1.5 Activity Procedure

1 This section sets out the activity level procedure which must be applied to all activities covered by the Network Occupancy Management process.

2 The following diagram depicts the elements of the Activity Procedure.



2.2.24.1.5.1 Activity Promotion

1 Every activity on the Network is as a result of an identified need. Activities are either promoted by (or for) the Welsh Government in order to improve or maintain the network infrastructure or they are promoted by third parties in order to place or maintain apparatus (statutory undertakers and private licence holders) or to accommodate a changed requirement

for access to the network (developers). In Wales it also includes abnormal load movements and public events.

2 In this process, Activity Promotion is the act of informing the Service Provider of the activities that are planned.

3 It should be noted that there may be a number of different promoters for activities within each category. In order to ensure consistency and clarity of roles the table below defines responsibility for notification as well as identifying the promoter.

4 The following table details responsibility for notifying the Service Provider of these activities and providing accurate booking details:

Activity		Promoter and Responsibility for Notification
A.	WG National Transport Plan Schemes	WG Infrastructure Delivery Division
B.	Service Provider Planned Capital Schemes	Service Provider
C.	Service Provider Planned Revenue Works	Service Provider
D.	Service Provider Reactive Maintenance Works	Service Provider
E.	WTTC Planned Capital Schemes	WTTC
F.	AWMC Planned Capital Schemes	AWMC
G.	AWMC Planned Revenue Works	AWMC
H.	AWMC Reactive Maintenance Works	AWMC
I.	A55 DBFO Works	UK Highways Ltd
J.	Statutory Undertaker Works	Statutory Undertaker
K.	Network Rail Works	External Party
L.	Developer Works	External Party
M.	Licensee Works	External Party
N.	Highways Agency Works	External Party
O.	Adjacent County Highway Authority Works	External Party
Y.	Public, National & Regionally Important Events	External Party
Z.	Abnormal Load Movements	External Party

5 The Service Provider must complete the Activity Promotion process for activities where they are required to assist external parties with the notification process.

6 In many cases day to day responsibility for promoting work to the Service Provider will be delegated to a contractor. For example, with technology works the responsibility might be delegated to the AWMC provider.

7 Delegation is also likely to occur with scheme works, private developer works and works undertaken under licence. In such cases the arrangements are to be clearly set out in the individual contract, agreement or licence.

8 In respect of DBFO contracts responsibility for promotion and notification rests with the DBFO Company (in the case of the A55, UK Highways Ltd), but is undertaken by their supply chain provider.

9 In the case of events, there is no legal duty to notify Welsh Government of events and therefore the Service Provider must proactively source information from the organiser or from other sources for example, NRSWA Coordination meetings, local authorities and relevant police authorities.

10 As each area will have different arrangements in delivering this element of the process, the 'flow of information', detailing the arrangements outlined in the above table will be included within the specific area Network Occupancy Management Plan. The plan will be prepared by the Service Provider and it will define the precise responsibilities for notification of the activities, including full details of delegations. These details will be made available to all parties mentioned within the plan.

2.2.24.1.5.2 Activity Booking into WG IRIS

1 Activities are to be booked (i.e. recorded) in the street works module of WG IRIS

Advanced Planning Liaison Stage

2 Every activity that falls within the scope of this process must be entered onto the WG IRIS system, firstly as an Advance Planning Notice (APN) and then as a NRSWA Notice, including any subsequent changes. An APN is made further in advance than a NRSWA Notice and may include less detail.

3 For Activity Promoters A to I, undertaking road works, preliminary planning liaison is required with appropriate Service Provider representatives prior to providing NRSWA notices. This will usually involve liaison with the Service Providers street works and/or route management teams to consider outline roadspace options and conflicts. This process will also inform the initiation of Temporary Traffic Order requirements.

4 Major Works will normally require preliminary planning liaison between Service Provider representatives and designers engaged in the works feasibility and detailed design stages.

5 The Service Provider must complete the activity booking in all cases for any activity which is to take place on the Network. The information is required to be entered onto the WG IRIS system and the information must be entered in accordance with the requirements detailed below.

Activity Data Entry Requirements

6 The following table defines the minimum requirements for advance entry of data onto the WG IRIS system by the Service Provider :

<table>
<tr><th>Activity</th><th>Advance Planning Notice</th><th colspan="3">NRSWA Notice</th></tr>
<tr><td rowspan="5">Activities A to O</td><td rowspan="5">Normally 3 Months or more ahead and provided via local HAUC meetings and / or by Temporary Traffic Order application</td><td>Works Category</td><td>s 54</td><td>s 55 / 57</td></tr>
<tr><td>Major Works</td><td>3 months</td><td>10 days</td></tr>
<tr><td>Standard Works</td><td>n/a</td><td>10 days</td></tr>
<tr><td>Minor Works</td><td>n/a</td><td>3 days</td></tr>
<tr><td>Immediate / Emergency</td><td>n/a</td><td>2 hours after</td></tr>
<tr><td>Y Public Events</td><td>Normally 3 Months or more ahead and provided via local HAUC meetings and / or by Temporary Traffic Order application</td><td colspan="3" rowspan="2"></td></tr>
<tr><td>Z Abnormal Load Movements</td><td>Refer to Section 7.5</td></tr>
</table>

7 The above table reflects the requirements of the *Code of Practice for the Co-ordination of Street Works and Works for Road Purposes and Related Matters (January 2008)* as approved by the Welsh Ministers

8 These requirements are dependent on knowledge of the activity being available and therefore endeavours must be made by the Service Provider to secure the necessary information from promoters. Nevertheless, there may be occasions where certain activities are not known about within the timescales above, although these will be relatively rare.

9 It is important to note that bookings can be amended at any time up to commencement of the activity. The firm booking does not mean that activity configurations cannot be subject to further refinement. This is likely to be the case as proactive coordination of activities is undertaken.

10 Roadworks activities such as rolling blocks undertaken by Traffic Officers or Police Officers assisting planned works are to be appropriately classed as minor works or immediate / emergency works for NRSWA noticing purposes.

Street Works

11 The timing of notifications given by Statutory Undertakers in respect of Street Works is defined in regulations under the New Roads and Street Works Act 1991 (NRWSA). Those timings are an absolute minimum.

Activities by Licensees

12 Activities of third parties working under Highways Act 1980 licences must be closely managed by the Service Provider and the requirements for the submission of information, including timing, should be detailed within the individual licence agreements.

Activities by Developers

13 Activities of third parties working under planning regulations should be closely managed by the Service Provider and the requirements for the submission of information, including timing of the works, should be detailed within the individual planning conditions and contract agreements.

2.2.24.1.5.3 Activity Conflict Analysis

1 As part of the activity booking procedure, the functionality of the WG IRIS system currently does not identify any direct conflict between competing demands for the same road space from different activities. Conflicts potentially occur when works affect WG operating policies that may have spatial, temporal or any other operational attributes that WG requires.

2 The WG *Traffic Management Act 2004 Network Management Guidance (November 2006) Annex A Good Practice Advice on Techniques and Approach* is to be applied by Service Providers.

3 The Service Provider is also required to undertake basic conflict analysis against the requirements in following non-prioritised table:

WG Requirements based on Traffic Signs Manual Chapter 8 D2.4.1 and Safety at Street Works and Road Works: A Code of Practice 2013	**References to be used by the Service Provider**
Minimum carriageway / lane availability requirements	• TSM Chapter 8 D3.5 relating to the length of the site and distance between sites
Local capacity, traffic flows and congestion issues	• WG Trunk Road Embargo Periods related to holidays and tourism. • see optimisation of roadworks • public events • traffic sensitive streets network • protected streets network • special engineering difficulty (SED)
Working hours and constraints	• WG Trunk Road Embargo Periods related to holidays and tourism. • Adverse weather forecasts likely to affect safety (NB risks are to be assessed by the Activity Promoter) • traffic sensitive streets network
Production of traffic regulation orders	• WG Temporary Traffic Regulation Orders

(Section D3.39);	and Notices
Road closures and diversion routes requirements (Section D3.15)	• Existing Road Closures and Diversion Routes for works or contingency plans
Co-ordination arrangements with other planned road works and street works (Section D2.7)	• TSM Chapter 8 D3.5 relating to the length of the site and distance between sites • see 7.8 optimisation of roadworks • Advance Planning Notices and NRSWA Notices under s 54, 55 & 57
Abnormal loads movement requirements	• WG Permanent or Temporary Traffic Orders (weight, width or height limits)
Risk assessments and method statements for works carried out by or on behalf of both highway authorities and statutory undertakers.	• WG Temporary Traffic Regulation Orders and Notices • Traffic Signal Control approval • Scaffold & Skip approval • Local Authority parking restrictions

4 The Service Provider must review the results and resolve identified conflicts with the activity promoter and if necessary utilise the Escalation procedure.

2.2.24.1.5.4 Activity Evaluation

1 Activity Evaluation is the core element of the Activity Procedure. The primary objective is to use the Activity Conflict Analysis to make informed decisions in respect of occupancy configurations.

2 At this stage of the process an evaluation is made on an individual works activity. Examining how adjustments may be made to one specific works in order to reduce conflicts.

3 Once activity details have been entered onto WG IRIS, the Service Provider must adjust occupancy configurations in order to produce an optimum configuration taking into account the evaluated constraints.

4 The evaluation stage should be used to test broad options for larger works. Where options have been identified by Activity Promoters and/or Service Providers that offer significant delay savings but where there are consequential increased works costs, the options must be presented to and discussed with the WG. A decision on which option to take forward will then be made based on consideration of the best overall value to Welsh Government.

5 For smaller works and routine operations, slight changes to occupancy configurations may result in delay savings without any significant consequential increase in works costs. For

example, moving the window for overnight works to start from 8pm rather than 7pm may produce a significant delay saving without the need to change shift patterns.

6 By using the evaluation information, a Service Provider will be able to demonstrate they are working to an evidence based decision making approach and also potentially be able to demonstrate tangible benefits resulting from changes to occupancy configurations.

7 The Service Provider must always take steps to change occupancy configurations to ensure that potential overall impacts are kept to a minimum.

8 The Service Provider must undertake Activity Evaluation at the time of Activity Booking.

2.2.24.1.5.5 Activity Execution

1 Activity Execution is the execution of the activity on the network.

2 It is the responsibility of the Activity Promoter (or nominated representative) executing the works to inform the Service Provider at three key stages of the activity:

i the start of the activity,

ii. at any significant change in occupancy configuration during the activity (which results in a change in capacity such as a change in the total number of lanes available), and,

iii. at the end of the activity.

3 The following diagram depicts the requirements for entry of data onto the WG IRIS system by the Service Provider.

4 These requirements are for entry of data onto the WG IRIS system and therefore the Service Provider must ensure that arrangements are put in place to ensure notification of information is undertaken in a timely fashion in order that the above requirements can be met.

5 In the case of immediate / emergency works NRSWA states a notice must be sent / served within two hours of work commencing on site

2.2.24.1.5.6 Escalation (Stage 1)

1 Escalation (Stage 1) is where a direct conflict is identified or where the evaluation indicates a significant consequential road user delay cost (and where mitigation may be possible). The Service Provider must escalate the issue to the Activity Promoter and request a change in the planned occupancy configuration to ensure road user delay is reduced. The Activity Promoter should then submit a revised configuration for the planned activity occupation to the Service Provider through the normal channels. The Service Provider must update the WG IRIS system with these subsequent changes. Where escalation has not resulted in a change, and the matter is not subject to further escalation, details shall be entered on the system explaining the resolution of the problem.

2 The Service Provider is responsible for Escalation (Stage 1).

3 Activity Category A projects are excluded from Escalation Stage 1 and should go directly to Escalation Stage 2 once identified.

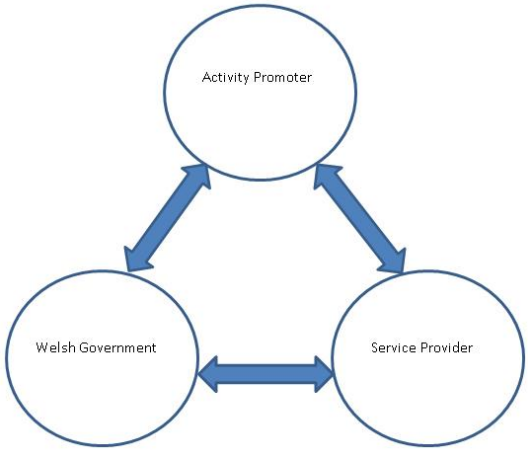
4 Activities that are likely to be politically sensitive because of the potential for Ministerial interest, the risk of adverse publicity or may have a potential significant effect on communities should go directly to Escalation Stage 2 once identified.

2.2.25.1.5.7 Escalation (Stage 2)

1 Escalation (Stage 2) is where an issue is not resolved at Escalation (Stage 1) or requires WG consideration. In such cases the Service Provider must initiate Escalation (Stage 2) by referring the issue to WG.

2 WG may discuss the issue with the Activity Promoter and seek agreement to the requested change. These discussions will usually involve the Service Provider and once the issue is resolved the Activity Promoter should then submit a revised configuration for the planned activity occupation to the Service Provider through the normal channels. The Service Provider must update the WG IRIS system with these subsequent changes.

3 Where escalation has not resulted in a change, and the matter is not subject to further escalation, details shall be entered on the system explaining the resolution of the problem.

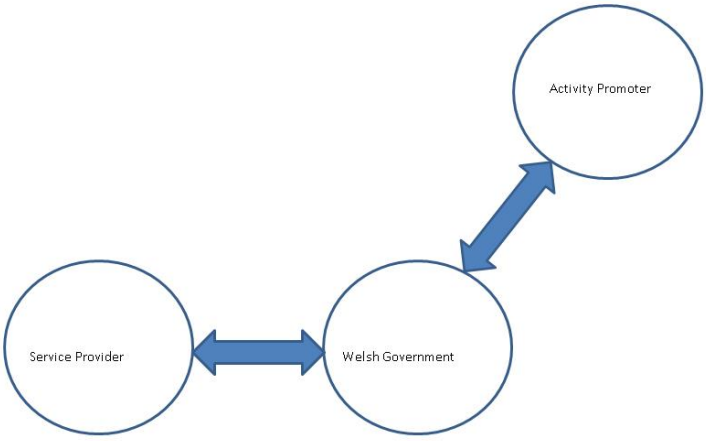


4 WG is responsible for Escalation (Stage 2).

2.2.24.1.5.8 Escalation (Stage 3)

1 Escalation (Stage 3) is where an issue is identified that cannot be resolved locally by WG at Escalation (Stage 2). Escalation (Stage 3) involves regional network management liaison or issues of Ministerial interest that are to be referred to WG. In all cases WG is responsible for initiating Escalation (Stage 3) by referring the issue to the relevant WG representative.

2 The appropriate WG representativer may discuss with the Activity Promoter to seek agreement on the proposed change. These discussions would normally involve WG and the Service Provider. Once the issue is resolved the Activity Promoter should submit a revised configuration for the planned activity occupation to the Service Provider through the normal channels. The Service Provider must update the WG IRIS system with these subsequent changes.



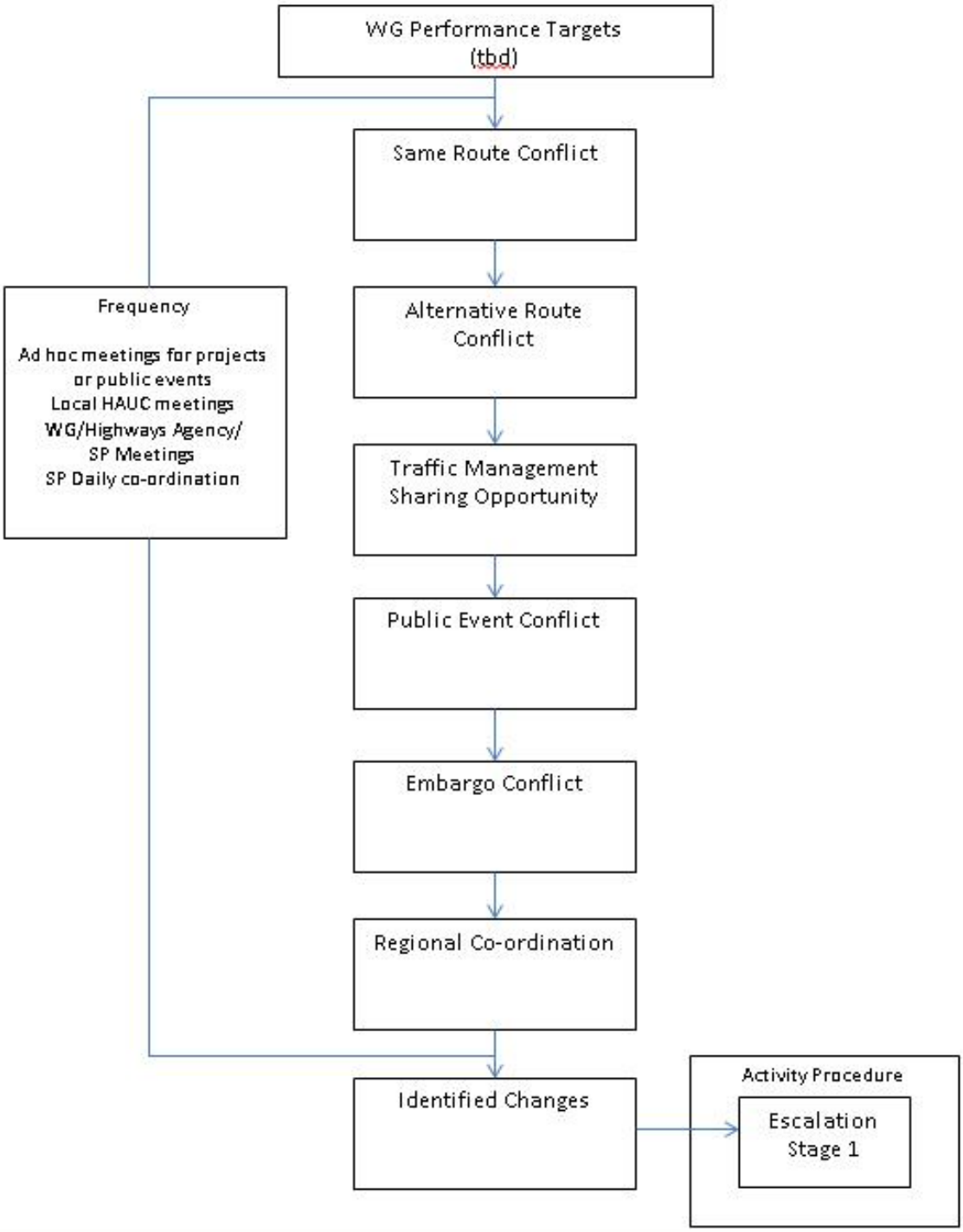
3 WG is responsible for Escalation (Stage 3).

4 Escalation to Stage 3 should only occur in exceptional circumstances. Escalation to Stage 3 is likely to relate to larger schemes which will generally have been notified well in advance.

5 Further levels of Escalation may occur internally within WG but are outside the scope of this document.

2.2.24.1.6 Coordination Procedure

1 Coordination is the review and management of road space occupancy, to ensure the minimum road user delay results from a given amount of activity on the network. The Service Provider must undertake the Coordination Procedure. The following diagram depicts the elements of the Coordination Procedure.



2 When undertaking the Coordination Procedure the Service Provider will need to consider the wider objectives, policies and obligations of the Welsh Government. These will include:

2.2.24.1.6.1 Considerations

a) Environmental Noise Considerations

1 Moving the occupancy period of a works activity to a time of day where road user delay may be reduced may have the negative impact of creating excessive noise at unsocial hours. Steps should always be taken to reduce detrimental environmental effects of works activities by effective planning, management and monitoring of the works. However, the greater benefit to society as a whole may outweigh the localised dis-benefit arising from works being carried out during unsocial hours.

b) Health & Safety Considerations

1 All activities undertaken on the network present potential health and safety risks to road work workers and the public alike. These risks are always evaluated and reduced however the risks can never be totally removed. In assessing potential opportunities to reduce road user delay through coordination of works activities it is necessary to consider fully the implications on health and safety although it should not be assumed that an increased health and safety risk will always result in any proposed changes being rejected. In every case the balance between all issues should be taken into account.

c) Economic Considerations

1 It will often be possible to improve the configuration of road space occupancy and reduce the impact on road users without increasing the works costs and this should always be the primary aim. There will be circumstances where, in order to reduce road user delay cost, it is necessary to reconfigure road space occupancy in such a way that there is a resultant increase in the direct cost of executing the works. In such circumstances WG will consider the costs and benefits.

d) Impacts on Other Stakeholders

1 There may be occasions where actions taken to reduce the impact of works on road users on the Welsh Government's own network may have a detrimental effect on road users on other highway authorities' networks. In such cases consideration should be given to the overall cost or benefit to society as a whole and appropriate action taken. Therefore it is essential to liaise with Local Highway Authority representatives at the earliest appropriate opportunity.

2 The role of coordination must be undertaken by the Service Provider with a wider remit than just the 'area' i.e. activity in adjacent areas. To fulfil this role the Service Provider must liaise with a range of personnel, specifically those of adjacent area service providers and local highway authorities. There are many groups providing platforms for the exchange of relevant advance coordination information, for example local NRSWA coordination meetings.

e) Legislative Compliance

1 Any legislative requirement, such as the EU Tunnel Regulations must be considered as they may dictate the priority of schemes to meet deadlines for compliance.

f) Holistic Assessment

1 In determining the road space requirements it is necessary for the Service Provider to consider all the implications of the proposed methods and assess their effects to the

surrounding network and traffic flows. Steps should always be taken to balance the effect of traffic management on all parts of the network.

2.2.24.1.6.2 Welsh Government Performance Targets

1 Performance targets may be set at a Ministerial level and cascaded down through Welsh Government so that the contribution required to meet the target at a regional, area or route level is clearly understood and visible to all.

2 In undertaking their role of coordination, the Service Provider must take into account the performance objectives of Welsh Government, alongside all of the other considerations detailed above.

3 Welsh Government may opt to implement statutory or guideline performance targets for all activity promoters. Performance targets for the Service Provider would be defined in *WGMA.* Currently there are no performance targets and the objective is to ensure statutory compliance. Performance will be analysed and reported as part of the WG IRIS System.

2.2.24.1.6.3 Same Route Conflict

1 This is an assessment of whether multiple activities may conflict with each other on the same route. Currently, a set of guidelines exist, within Chapter 8 regarding the proximity of works to each other which is based on a simple pre-defined distance. This should only be used as a simple guide when considering possible conflicts and should not be considered an absolute requirement. The Service Provider should look for occasions where there is merit in deliberately programming a number of activities to occur at different locations along the same route in order to concentrate the disruption in one clearly identified period. In such cases details of the route and time of the planned programme should be clearly notified by the activity promoter to enable coordination to take place.

2 The Service Provider must undertake the identification of ‘Same Route Conflicts’.

2.2.24.1.6.4 Alternate Route Conflict

1 This is an assessment of whether multiple activities may conflict with each other on potential alternative routes. This particularly addresses the need to ensure that major works are not carried out on routes where works are also being undertaken on their strategic diversion routes or other alternative routes. For example, in planning works on the M4 between Cardiff and Swansea consideration would need to be given to any works planned to be undertaken at the same time on the A465 Heads of the Valley Route. Service Providers should identify, for each route they manage, all of the other routes, both within and outside their area, where such consideration would be required and agreed with WG.

2 In cooperation with local highway authorities, and using information available from them, any potential conflict with works on strategic or tactical diversion routes (as defined in the Service Providers’ Traffic Management Manuals) should be considered. Information on other authorities’ works will only be included on the WG IRIS system for tactical diversion routes and therefore Service Providers will need to identify any other potential conflicts using the established lines of communications with other authorities.

3 During emergency incidents, tactical or strategic diversions may be set up at short notice as part of contingency plans. This may require the suspension of planned activities on the

diversion route where practicable and by agreement with the activity promoter. Minor traffic incidents are out of scope.

4 The Service Provider must undertake the identification of 'Alternate Route Conflicts.

2.2.24.1.6.5 Traffic Management Sharing Opportunity

1 This is an assessment of all planned activities at a specific location over a period of time to identify if there is any potential for changing the timings of activities so that traffic management arrangements can be shared.

2 This approach may appear to conflict with the existing proximity rules but these can be relaxed where an overall benefit can be demonstrated in terms of reduced road user delay. The aim is to reduce overall network occupancy duration.

3 The Service Provider must undertake the identification of a Traffic Management Sharing Opportunity.

2.2.24.1.6.6 Public Event Conflict

1 This is an assessment of potential conflict of works with planned off-network activities, such as cycling events, county shows, football or rugby matches or pop concerts. These will normally be notified via local HAUCs.

2 It should be noted that events are pre-planned activities that are generally 'fixed' in respect of timing and location and involve a number of diverse parties in their planning, for example the event organisers, the emergency services and local highway authorities. Therefore, the Service Provider must give consideration to other works activities on the network and the potential impact of the particular occupancy configurations planned to be deployed, as this may ultimately have an adverse impact on traffic.

3 In planning activities as part of the Network Occupancy Management process, consideration must be given to the potential changes to planned events such as a late kick off or the need to play extra time at a football match.

4 The Service Provider must identify and manage Public Event Conflicts.

2.2.24.1.6.7 Embargo Conflict

1 This is an assessment of whether activities are being undertaken at a time where there is an increased risk of additional delay arising due to increases in traffic volumes as a result of seasonal variations and national or local holidays. Normally consideration should be given to avoid undertaking works on public holidays where holiday traffic may significantly increase overall traffic volumes.

2 Welsh Government, as a policy, defines an annual calendar of embargo's for trunk roads and motorways in Wales when works activities are normally to be avoided. If embargo conflicts cannot be avoided by the activity promoter they are to be escalated to WG (Escalation Stages 2). WG Temporary Traffic Orders are a mechanism for WG to formally control access to the highway during embargo periods.

3 The risk of adverse publicity arising from undertaking works at inappropriate times must always be assessed by WG. Overnight works or slip road only works may be appropriate

during the embargo period. Similarly, certain public holidays will see a reduction in overall traffic volumes: works should not be restricted simply because it is a public holiday although a balance will always need to be struck between the benefit gained from reducing overall delay and delay cost and the potential adverse publicity. In general, decisions should be made based on a demonstrable and defendable reduction in delay and delay cost.

4 It is important that this issue is taken into consideration when planning network occupancy. The Service Provider must assess Embargo Conflict.

2.2.24.1.6.8 Traffic Sensitivity Conflicts

1 This is an assessment of whether activities are being undertaken at a time where there is an increased risk of additional delay or safety risk arising at traffic sensitive locations or routes designated by WG as traffic authority under Section 64 [Traffic-sensitive streets] of NRSWA.

2.2.24.1.6.9 Regional Coordination

1 The Service Provider must carry out Regional Coordination which takes into consideration activities in adjacent areas and on the adjoining local road network.

2 This will include reviewing and assessing activities on the adjacent road networks and particularly considering any potential regional implications and impacts arising from specific individual activities, or from the interaction between different activities.

3 Effective Regional Coordination will require the Service Provider to work closely with the neighbouring Agent, Highways Agency and their service providers, DBFO and Local Highway Authority representatives as appropriate. Liaison arrangements and contact details will be set out in the Network Occupancy Management Plan for the area.

4 Where the Service Provider considers an activity meets the definition of a 'Nationally Significant Activity' (those activities requiring extensive co-ordination and planning beyond adjacent areas or across multiple regions – see Annex B they must notify the WG and provide all relevant information. WG will confirm whether the activity in question is to be treated as a 'Nationally Significant Activity'. The Service Provider retains responsibility for coordination.

2.2.24.1.6.10 Identified Changes

1 If the procedure is being applied robustly, changes to the occupation configuration of activities will arise. This will result in Escalation (Stage 1) at the Activity Procedure stage.

2 The Service Provider is responsible for identifying any potential changes required as a result of a coordination conflict. The Service Provider will act on any conflict in accordance with the procedures in this Network Occupancy Management process and must update the WG IRIS system accordingly.

2.2.24.1.6.11 Frequency

1 The requirements for advance submission of information are driven by the need to facilitate the coordination procedure.

2 Coordination is undertaken on both a reactive basis in response to information received about specific activities and on a pro-active basis by periodically reviewing planned occupations. This is normally undertaken at:

- Local HAUC meetings;
- Ad hoc meetings for project schemes or public events;
- WG / Service Provider Route Management Meetings;
- WG / Service Provider Meetings;
- WG / Service Provider daily coordination (normally excluding Bank Holidays and Weekends)

3 Service Providers are to set out their coordination arrangements in the Network Occupancy Management Plan.

2.2.24.1.7 WG Overview Process

1 The WG Overview Process is made up of three specific elements.

a. WG representative attendance at meetings:

- Local and National HAUC meetings;
- Ad hoc meetings for project schemes or public events;
- WG / Service Provider Route Management Meetings;
- WG / Highways Agency / Service Provider Meetings;

b. Escalation (Stages 2 and 3)

As per 2.2.24.1.5

c. WG IRIS Reporting

2 WG is able to access appropriate performance reporting as part of the WG IRIS system. The WG Overview Process is a procedure which is the responsibility of the WG.

2.2.24.1.8 National Liaison

1 Given the socio-economic and political impacts, Nationally Significant Activities will normally be identified to Service Providers by WG (e.g. The Ryder Cup golf event, Olympic torch route). Such significant public events will necessarily involve detailed planning and involve the emergency services and the setting up of a specific command and control arrangements.

2 National Liaison can also take place via the Welsh HAUC (www.whauc.com) which involves Service Providers and WG representatives (e.g. the WG Superfast Cymru Broadband project). This also provides the appropriate national forum for implementing updates to legislation, policy and standards affecting street works.

3 Cross-border arrangements with England may be discussed at periodic WG / Highways Agency / Service Provider Meetings. The Service Provider is to identify any new Nationally Significant Activities to Welsh Government through the Escalation (Stage 2 and 3) processes.

4 Further information on Nationally Significant Activities can be found in Annex 7B

2.2.24.1.9 Mitigating Delays Arising from Street Works

1 Welsh Government is under a duty to manage its network and to ensure delay arising from all activities is minimised. The Welsh Government imposes on itself a strict regime of occupancy management with road user delay being a key consideration in the planning of its

own works. The principles applied to the management of the Welsh Government's own works should be broadly applied to the works of all third parties, including utility companies' street works.

2 This sub-chapter sets out guidance on the Welsh Government's policy on the general approach to the use of specific powers under Section 56 [Direction on Timing] and Section 66 [Avoidance of Delay or Obstruction] of the New Roads & Street Works Act 1991 (NRSWA). It does not however set down any detailed arrangements or define the procedures for use of these powers. The detailed requirements, as defined in the secondary legislation and Codes of Practice (particularly Co-ordination of street works and works for road purposes), should always be followed. Further guidance and assistance is available from the Welsh Government Network Management Division. The current Codes of Practice are available for download on the Welsh HAUC web site (www.whauc.com).

2.2.24.1.9.1 Coordination and Co-operation – Longer Term Planning

1 Welsh Government has a specific duty, delegated to the Service Provider under Section 59 [Duty to co-ordinate] of NRSWA, to coordinate works of all types. As part of its network occupancy management arrangements, 'Advance Planning Notice' bookings can be made however 'NRSWA Notice' bookings are required to provide the minimum notice periods as defined in the NRSWA '*Notices, Directions and Registers Regulations'*. Undertakers are not obliged to provide anything more than the legal minimum notice however they should be encouraged to provide longer notice on a 'best endeavours' basis.

2 Statutory Undertakers have a duty, under Section 60 [Duty to co-operate] of NRSWA, to co-operate with the street authority and this extends to providing advance information on planned works as detailed in the statutory Code of Practice on coordination. Clearly where an Undertaker has no advance knowledge of his works he cannot be expected to provide information on those works. The statutory Code of Practice, which Undertakers must follow in discharging their duty to co-operate, clearly states that the notice periods should be treated as a minimum. The document states that:

> *"works promoters are encouraged to give longer periods than the basic minimum in order to ensure that all street authorities have the capability to consider all proposed works, their effect upon traffic disruption, as well as any conflict with other street works or road works".*

3 Service Providers must work to ensure that Statutory Undertakers provide advance information of works in the timescales defined in the network occupancy management arrangements. Where Statutory Undertakers fail to co-operate they may be committing an offence under Section 60 [Duty to co-operate] of NRSWA and the Service Provider must provide WG with the relevant details so that a prosecution may be considered.

4 The giving of longer notice should always be actively encouraged but there may be occasions where consideration should be given to allowing an early start of works, particularly where there is a potential benefit to the road user in doing so.

2.2.24.1.9.2 Timing of Works – Power to Direct

1 The Welsh Government has delegated the function (to the Service Provider) to implement its power, under Section 56 [Power on Timing of Works] of NRSWA, to direct an Undertaker to

work at specified times of the day or on specified days. These directions can only be given where works have the potential to cause serious disruption to traffic.

2 When considering the use of directions under Section 56 [Power on Timing of Works] it is important to test the reasonableness of what is being considered. It would be considered reasonable to direct timings on the basis of the working time restrictions applicable to the Welsh Government's own works so, for example, if works are not allowed during peak hours, say between 06:00hrs and 10:00hrs and between 15:00hrs and 20:00hrs, it would be reasonable to direct an Undertaker not to work during these periods.

3 Another consideration is the interpretation of the meaning of 'serious disruption'. This term is used in the primary legislation however further guidance has not been provided in either the regulations or the Code of Practice. It is important to consider delay in the motorway and trunk road network in context with the local road network. For example, what might be considered to be a lightly trafficked road within the trunk road network could be one of the busiest roads when considered alongside the rest of the network in that locality. If the Service Provider identifies activities that are likely to be considered as 'serious disruption', politically sensitive or because of the potential for Ministerial interest, the risk of adverse publicity or may have a potential significant effect on communities they are to implement Escalation Stage 2.

4 Service Providers must ensure, by the use of directions issued under Section 56 [Power on Timing of Works] of NRSWA, that Statutory Undertakers adhere to Welsh Government's embargos. Where Statutory Undertakers fail to co-operate they may be committing an offence and the Service Provider must provide WG with the relevant details so that a prosecution may be considered by WG.

5 Section 56 [Power on Timing of Works] only relates to the timing of works. If it is considered that a particular traffic management is causing unnecessary delay, and it can be altered to reduce this delay without impacting on the safety of the operatives or the public, a direction under Section 66 [Avoidance of Unnecessary Delay] should be given.

6 TMA 2004 created amendments to Sections 56(1A) and 56A [Power to Give Directions] of NRSWA. The new powers under Section 56A allow the Welsh Government to direct an Undertaker not to place apparatus in the street. The opportunities to use such powers are going to be rather limited however, where a potential use of the direction is identified, WG should be notified under Escalation (Stage 2). The addition of subsection 1A to Section 56 extends the power to issue directions to include subsisting works. Clearly there will be circumstances where making such directions would not be appropriate, for example on-going emergency works. It should however be noted that Section 66 [Avoidance of Unnecessary Delay] could still be applied in these circumstances and therefore appropriate use should be made of this provision.

2.2.24.1.9.3 Avoidance of Unnecessary Delay

1 Statutory Undertakers have a duty, under Section 66 [Avoidance of Unnecessary Delay] of NRSWA, to " *. . . carry on and complete the works with all such dispatch as is reasonably practicable*.". Where street works are occupying road space on the trunk road and motorway network it is reasonable to expect that the utility deploys resources to work continuously until their works are completed and the road space is given back to use by the road user.

2 Service Providers must ensure that Statutory Undertakers are not executing works in such a manner that capacity on the Network is unnecessarily restricted. In particular, traffic management should not be in place unless works are actually being executed. Where a Statutory Undertaker fails to deploy sufficient resources on a job to ensure unnecessary delay is avoided the Service Provider must issue a notice, under Section 66 [Avoidance of Unnecessary Delay] of NRSWA, requiring the Undertaker to take steps to avoid the delay or obstruction. Where Statutory Undertakers fail to respond to the requirements of a Section 66 notice they may be committing an offence and the Service Provider must provide WG with the relevant details so that a prosecution may be considered.

3 There may be rare occasions where it is quite legitimate for traffic management to be in place when no works activities are being executed. The two specific examples are where gas needs to be vented from an excavation or a chamber and where materials cannot be trafficked until they have cured.

4 Where an Undertaker fails to respond to a Section 66 [Avoidance of Unnecessary Delay] notice the Welsh Government is entitled to intervene and take direct action to mitigate the disruption by, for example, backfilling or plating an excavation. In such circumstances all costs are recoverable from the offending utility company.

2.2.24.1.9.4 Other general considerations

1 A balanced and even handed approach should always be taken when dealing with Statutory Undertakers. Wherever possible, agreement should be reached on an informal co-operative basis. Full use of the powers available should however be made where a Statutory Undertaker fails to act in a co-operative manner.

2 Statutory Undertakers operate under strict regulatory regimes and, as public companies, work in a highly commercial environment. There will, understandably, be significant resistance to any impositions that result in increased costs. As long as the Welsh Government continues to act in a reasonable manner and takes a balanced view on the various considerations the commercial consequences on the utility companies should not be a concern. **Under no circumstances should any discussion on compensation be entered into.**

3 The powers under NRSWA discussed in this section have been delegated as functions to Service Providers and should therefore be used by them. If however it is necessary, the powers can still be used directly by the Welsh Government. Legal notices should generally be processed by the Service Provider on the Welsh Government's behalf however the Welsh Government should normally directly manage any prosecutions that need to be pursued.

4 It is important to remember that Statutory Undertakers have a right to place their apparatus in the highway and to maintain it (unless of course the street has 'protected' status). Any actions taken in managing street works activities should be discharged in a reasonable manner and under no circumstances should a utility company be obstructed in carrying out its obligation to place and maintain its infrastructure.

2.2.24.1.9.5 Offences and Prosecutions

1 Where a Statutory Undertaker is considered to have committed an offence the Welsh Government may take forward a prosecution.

2 In managing street works activities, and particularly when using the powers available under Section 56 [Power to Give Directions] and Section 66 [Avoidance of Unnecessary Delay] of NRSWA, Service Providers must work on the assumption that there is the potential need for a prosecution to be pursued.

3 Welsh Government has also decided, as a matter of policy, not to delegate Section 74 [Works Over-run Charges] of NRSWA & Part 4 of the TMA on trunk roads and motorways in Wales. Similarly, Welsh Government has not delegated the various offences that may be committed under the Highways Act.

4 Service Providers must therefore ensure that all legal procedures are followed rigorously and that evidence is collected at every stage in order to support a successful prosecution by WG.

2.2.24.1.9.6 Section 58 Restrictions

1 Welsh Government invests significant sums of money in maintaining and improving the highway network infrastructure. The control of street works activities is essential to maintain the integrity and condition of the highway asset. Under Section 58 [Restrictions] of the New Roads and Street Works Act 1991 the Welsh Government as the street authority (and Service Providers who have delegated functions) are able to place restrictions on the work that can take place in a street following substantial road works. This is intended to prevent an utility company or other third parties from excavating in a road shortly after it has been resurfaced.

2 Section 58 [Restrictions] of the New Roads and Street Works Act 1991 is a legal notice which is served on all the statutory undertakers who carry out work on trunk roads.

3 Restrictions apply only to the length of the street on which such substantial street works have been carried out. The street authority may decide not to exercise its powers under Section 58.

4 When major resurfacing work is planned for a street utility companies are to be consulted 3 months before the work is due to start. If they have any work planned they and the street authority work together to co-ordinate the timing of the work. The street authority issue utilities a formal "Section 58" notice. If they fail to respond, the newly surfaced street is protected from undertaker intrusion for a minimum period of one year or longer, depending on circumstances. However, emergency works and new customer services are exempt from the description.

5 If an excavation in recently surfaced areas of road is unavoidable, then the utility company or third party would be required to discuss the reinstatement options for the area with the street authority. To avoid recently resurfaced sections of road from being excavated then forward planning and communication of such works is essential. Planning and co-ordination meetings are to be held regionally on a regular basis throughout the year and it is essential that effective liaison is undertaken with all stakeholders.

6 Further information is given in the *Code of Practice Co-ordination of Street Works & Works for Road Purposes & Related Matters.*

2.2.24.2 WG IRIS Street Works Management Module

1 WG IRIS is a system for the improved management of information about lane closures on the motorway and all-purpose trunk road network. WG IRIS improves the accuracy, quality and currency of road closure information in order to help ensure that the Traffic Wales Information Line, the Traffic Wales website, Welsh Government Traffic Officer Service, the North & South Wales Traffic Control Centres meet customer requirements as well as providing a resource for network occupancy management.

2 Service Providers must enter street works data into WG IRIS Street Works Management module from which Welsh Government are then able to report on the data loaded. In the case of Welsh Government staff, access is provided to all data in the system, whilst Service Provider staff will be restricted to information pertinent to their areas. A principle of WG IRIS is that only the Service Providers can enter or amend data in WG IRIS. The WG IRIS Street Works management module provides WG with a fully compliant Electronic Transfer of Notices (EToN) system. It also enables the Service Provider to effectively manage:

- the street works register;
- co-ordination of works ;
- maintain the gazetteer for trunk roads and motorways in Wales.

3 A street authority should record all works notified by activity promoters in accordance with the regulations. Practically, any works which are not notified in this way are unlikely to be picked up by the street authority. NRSWA does not require local authority, Agency / WG Service Provider road works to be notified in the same way, although they do need to be registered. Works from Activity Promoters A to I are referred to as Internal Notices

4 The WG as street authority has a duty to hold information on all works and activities carried out on the motorway and trunk road network. Registering road works is the first and most important step to achieving that.

5 Section 53 [The Street Works Register] of NRSWA requires ~~an~~ the street authority to place information about its own works on the street works register and this should be done in similar timescales to.other activity promoters The WG IRIS system facilitates this via works ordering in the Routine Maintenance Management Function (RMMF) module. Internal notices will be communicated to the Street Works Management module effectively in the same way as other activity promoters works and thus assists identification of any potential conflicts.

2.2.24.2.1 What information to store in WG IRIS

1 With the development of the Traffic Manager role within the Welsh Government, in accordance with the Traffic Management Act, the Welsh Government requires input of all closures -planned or unplanned, irrespective of the expected impact, is expected. The classification of closures must be as defined below: *(To be confirmed)*

Severe	Estimated delay of over 30 minutes per vehicle at peak times
Moderate	Estimated delay of between 10 and 30 minutes per vehicle at peak times

Slight	Estimated delay of less than 10 minutes per vehicle at peak times
No Delay	Closures that are expected to cause no delay to road users

2 It is recognised that the effect of different closures will have a different impact on the travelling public and therefore Service Providers must provide information that is appropriate to the severity of the impact of the closure. Detailed Closure Record must be used to record required information when:

- Number of lanes closed/opened varies within different components (e.g. contraflows)
- Number of lanes closed/opened varies within the length of the closure
- Rolling/Mobile closures
- Layout varies over time – unless any lane closure is for only part of each day (e.g. overnight) and the period over which it is in place matches the definition of peak, off-peak and/or night.

3 Summary Closure Records may be used in other cases.

4 All other closures may be entered using the 'Summary closure entry route'. This applies to all planned and unplanned lane closures. Records must also be provided for off Network events that are considered to impact on traffic using the Welsh Government's Network.

5 The WG IRIS user guide indicates the approved approach to the population of WG IRIS records.

2.2.24.2.1.1 Terms of Reference

1 The term "*planned lane closure*" is used herein to refer to traffic management modifying the normal flow of traffic in relation to works planned by the Service Providers to undertake their normal activities on the Network. These include all items of routine and non-routine maintenance, refurbishment and construction but does not relate to works being performed to rectify damage to infrastructure as the result of an incident although some more extensive repairs may be the subject of programmed activities.

2 The term "*incident lane closure*" is used herein to refer to unplanned lane closures directly resulting from an incident on the Network. Incidents normally involve road traffic collisions, disabled, damaged or abandoned vehicles, obstructions in the carriageway, or significant unplanned roadside events that are causing disruption to the normal flow of traffic. Incident recovery is managed by the Service Provider or by the Welsh Government Traffic Officer Service or by the Police or Local Highway Authority with or without the support of the Service Provider. WG TO CONFIRM The duration of the incident is considered to be from the time of the incident itself until the time at which the site is vacated by all personnel from the emergency services, vehicle recovery agents, or the Service Provider WG TO CONFIRM.

3 The term "*emergency lane closure*" is used herein to refer to lane closures put in place by the Service Provider to make safe or make reactive maintenance repairs to damage resulting from an incident on the Network (e.g. road restraint system repair). Emergency lane closures

may run continuously from the end time of an incident (for example, if lanes have remained closed from safety reason after the departure of all personnel) or may occur at a discrete period sometime after the end time of an incident (for example, the Service Provider plans later lane closures to make repairs to infrastructure).

2.2.24.2.1.2 Incident Lane Closures

1 Where the Service Provider is required to provide lane closure and other traffic management or other services directly, or in assisting the emergency services in the management of an incident, and/or the undertaking of work to render the road safe for further use, the Service Provider must notify the relevant Traffic Control Centre

2.2.24.2.1.3 Emergency Lane Closures

1 Where the Service Provider is required to provide traffic management to undertake unscheduled emergency works, the Service Provider must notify the relevant Traffic Control Centre.

2.2.24.2.1.4 Other real-time events

1 The Service Provider must supply details of anticipated or actual consequences of severe weather affecting lane availability or vehicle speeds (e.g. flooding, winter weather) and any other events that can reasonably be expected to affect any part of the Network managed by the Service Provider. This will normally be managed by Traffic Control Centre implementation of VMS signs or ‘made safe’ as defects (refer to WGTRMM).

2.2.24.2.1.5 Records of actual road or lane closures

1 To ensure accurate record keeping the Service Provider must create or update records within appropriate WG databases reflecting the actual times, lanes closed and location etc for all road or lane closures within 72 hours of their removal from the road.

2.2.24.3 Temporary Traffic Signs - Special Events

1 This refers to granting permission for the AA, RAC, and others to erect temporary signs on the Network to notify of special events.

2.2.24.3.1 Policy

1 Current policy is set out in the *Department of Transport Traffic Advisory leaflet 04/11, "Temporary Traffic Signs for Special Events" dated October 2011.* In the case of motorways, agreed temporary signs must be erected by the Service Provider. On other trunk roads, however, there is no reason to prevent other reputable organisations from carrying out the work providing they comply with the requirements in the leaflet.

2 A code of practice for the erection of temporary traffic signs to special events is included in Annex 7C.

2.2.24.4 Decriminalised Parking

1 In Wales this is the responsibility of local authorities which may apply Permitted Parking Areas or Special Parking Areas. to single carriageway all-purpose trunk roads in urban areas. This includes enforcement by parking attendants of on-street parking offences which are de-criminalised.

2 Breaches of the parking restrictions associated with Clearways, Special Roads or Motorways are criminal offences to be enforced by the Police.

2.2.24.5 Abnormal Loads Management

2.2.24.5.1 Introduction

1 An abnormal load is a vehicle that has any of the following:

a) a weight of more than 44,000 kilograms;
b) an axle load of more than 10,000 kilograms for a single non-driving axle and 11,500 kilograms for a single driving axle;
c) a width of more than 2.9 metres; or
d) a length of more than 18.65 metres.

2 Management of abnormal loads on the trunk road network in Wales is undertaken by the Service Provider, in consultation with WG.

2.2.24.5.2 Legislation and Policy Context

1 The Road Vehicles (Construction and Use) Regulations 1986 (C&U) set out maximum dimensions for vehicles using the public highway.

2 The Road Vehicles (Authorised Weight) Regulations 1998 (AW) set out maximum weight limits for vehicles using the public highway.

3 The Road Vehicles (Authorisation of Special Types) (General) Order 2003 (STGO) permits the use of vehicles which cannot comply with C&U or AW.

4 Special Orders under Section 44 of the Road Traffic Act 1988 are required for vehicles not fully permitted by C&U or outside the scope of STGO.

5 Vehicles not covered by C&U or AW are considered to be abnormal loads.

6 C&U, AW and STGO are UK legislation that covers Wales.

2.2.24.5.2.1 Notification Requirements

1 Abnormal load movements must be notified in advance to the relevant police, highway and bridge authorities.

2 Notification requirements vary depending on the size and weight of the load; a summary is given in Table 1. The full explanation is given in C&U and STGO.

3 There is no notification requirement for high loads.

4 The highway and bridge authority must be indemnified against any potential damage caused by the abnormal load movement as part of the notification procedure.

Table 1: Abnormal Load Notification Requirements

Loaded Vehicle Dimensions	Action
Gross Vehicle Weight	
C&U < Gross Weight > 80,000 kg	2 clear days notice with indemnity to highway and bridge authorities
80,000 kg < Gross Weight > 150,000 kg	2 clear days notice to Police *and* 5 clear days notice with indemnity to highway and bridge authorities
150,000 kg < Gross Weight	Highways England Special Order form *and* 5 clear days notice to Police *and* 5 clear days notice with indemnity to highway and bridge authorities
Loaded Vehicle Width	
2.9m < Width > 5.0m	2 clear days notice to Police
5.0m < Width > 6.1m	Highways England VR1 permit *and* 2 clear days notice to Police
6.1m < Width	Highways England Special Order *and* 5 clear days notice to Police *and* 5 clear days notice with indemnity to highway and bridge authorities
Loaded Vehicle Length	
18.65m < Rigid Length > 30m	2 clear days notice to Police
30m < Length	Highways England Special Order *and* 5 clear days notice to Police *and* 5 clear days notice with indemnity to highway and bridge authorities

2.2.24.5.2.2 Authorisation Requirements

1 Highways England (formerly the Highways Agency) approves VR1 and Special Order applications for abnormal load movements in Wales covered by STGO. Highways England consults with highway and bridge authorities prior to approving Special Orders. There is no formal consultation process for VR1 permits in Wales.

2 Vehicles not fully permitted by C&U or outside the scope of STGO require a Special Order under Section 44 of the Road Traffic Act 1988. Applications for these Special Order movements in Wales are approved by the Vehicle Certification Agency.

3 The police can issue directions in relation to the time, date or route of an abnormal load movement in response to a notification. The police can also issue directions to an abnormal

load driver to stop on or adjacent to the highway in the interests of road safety or in order to avoid undue traffic congestion.

4 WG as highway authority has no power under the STGO to enforce an alternative time, date or route of an abnormal load movement. However, WG can implement Traffic Regulation Orders to limit the maximum gross vehicle weight on a structure. WG is also Technical Approval Authority for any capacity assessments.

2.2.24.5.3 Notifications Procedure

1 The Service Provider shall accept, assess and respond to notifications, pre-notification enquiries and consultations on behalf of WG.

2 Pre-notification enquiries can include planning applications, pre-planning enquiries and general enquiries.

3 Sources of notifications and pre-notification enquiries can include hauliers, developers, planning applicants, local authorities, police forces, Highways England, WG or any other third party.

4 The Service Provider shall liaise with hauliers, the police, Highways England and any other third party regarding notifications, pre-notification enquiries, consultations and authorisations on behalf of WG.

5 The Service Provider shall file and store for future reference all correspondence and documentation received from and sent to Highways England, the police, hauliers, WG and any other third party in relation to abnormal load movements. Documentation held on the Electronic Service Delivery for Abnormal Loads (ESDAL) database does not require separate filing.

2.2.24.5.3.1 Acceptance of Notifications

1 The Service Provider shall accept notifications, pre-notification enquiries and consultations received via email, fax, letter or through ESDAL.

2 ESDAL is a website-based tool developed for Highways England. It is designed to help all parties, including hauliers and structure owners, plan and manage abnormal load movements across the UK.

3 ESDAL uses an on-line mapping system. Hauliers can plot their route, and the system will automatically generate an up-to-date list of the authorities they need to contact. Highway and bridge authorities can upload details of structures and constraints on the network. Once the haulier submits a notification, ESDAL identifies which structures and constraints are affected.

4 WG has delegated notifications received through ESDAL to the Service Provider. The Service Provider can further delegate notifications to third parties through ESDAL.

5 STGO states that notifications must be in a form acceptable to the receiving authority and should be agreed by both parties. WG and the Service Provider will encourage hauliers to use ESDAL, but are obliged to accept other forms of notification.

2.2.24.5.3.2 Assessment of Notifications

1 The Service Provider shall check notifications, pre-notification enquiries and consultations in terms of:

a) Structural capacity;
b) Height and width restrictions;
c) Other constraints;
d) Roadspace coordination; and
e) Traffic management.

Further details are provided in the following sections.

2.2.24.5.3.2.1 Structural Capacity

1 On receipt of a notification, pre-notification enquiry or consultation, the Service Provider shall use the loading and vehicle configuration given by the haulier or enquiring party to undertake simple checks, referring to existing certification.

2 If these checks identify any structures that would not be able to carry the load, an alternative route may be suggested by the Service Provider or put forward by the haulier or enquiring party. The haulier or enquiring party must submit any such alternative route to all other relevant highway authorities for approval.

3 If an alternative route cannot be found, the Service Provider shall use the loading and vehicle configuration given by the haulier or enquiring party to undertake further checks using influence line software or similar.

4 If these checks identify any structures that would not be able to carry the load with the initial vehicle configuration, the haulier or enquiring party may propose alternative vehicle configurations until a suitable configuration is found.

5 If an alternative suitable vehicle configuration or an alternative route cannot be found and the load cannot therefore be accommodated, a detailed analytical assessment will be required. The haulier or enquiring party would be required to pay for any such assessment.

6 The haulier or enquiring party shall decide how to procure the work, i.e. whether they wish to use the Service Provider or a third party to undertake the assessment.

7 Irrespective of whether the haulier or enquiring party chooses to use the Service Provider or a third party organisation, if a detailed analytical assessment is to be pursued, Technical Approval is required from the Technical Approval Authority (TAA). The TAA for trunk roads in Wales is WG.

8 If a detailed analytical assessment is to be pursued, the Service Provider shall inform WG and provide the haulier or enquiring party with contact details for the TAA. The TAA will explain what is required, which will include an Assessment AIP (Approval In Principle), Assessment Report and Certification.

9 If the haulier or enquiring party is to procure the detailed analytical assessment through the Service Provider, the Service Provider shall provide the haulier or enquiring party with a cost breakdown and programme for completing the work.

10 If the haulier or enquiring party is to procure the detailed analytical assessment through a third party, the Service Provider should advise that the third party organisation must liaise fully with the TAA to ensure requirements are understood and the necessary Technical Approvals are sought from, and provided by, the TAA.

11 Once the TAA has completed approvals, the Service Provider can respond to the notification (where appropriate), pre-notification enquiry or consultation giving agreement for the load to move across the structure.

12 The Service Provider shall upload the Technical Approval documents to EDDMS and/or IRIS and shall update ESDAL's records.

13 The Service Provider is responsible for ensuring that the structures data on IRIS and ESDAL is up to date.

2.2.24.5.3.2.2 Height and Width Restrictions

1 On receipt of a notification, pre-notification enquiry or consultation, the Service Provider shall use the loading and vehicle configuration given by the haulier or enquiring party to undertake simple checks, referring to known height and width restrictions at structures and other temporary and/or permanent constraints on the network.

2 If these checks identify any locations of concern, an alternative route may be suggested by the Service Provider or put forward by the haulier or enquiring party. The haulier or enquiring party must submit any such alternative route to all other relevant highway authorities for approval. The haulier may also propose alternative vehicle configurations.

3 The Service Provider may request the haulier or enquiring party provides horizontal and/or vertical swept path analysis as necessary, based on topographical survey data. The Service Provider must satisfy itself that any submitted swept path analysis and topographical survey is adequate. Any requests for swept path analysis should be copied to the WG abnormal loads mailbox.

4 If the submitted swept path analysis is considered inadequate, the Service Provider may request the haulier or enquiring party undertakes a trial run to mimic the movement of the abnormal load vehicle through the constraint. The trial run vehicle should demonstrate the extent of the load envelope in terms of width and height in a clearly visible manner using a collapsible template. The Service Provider shall witness any such trial runs, and shall inform WG of the proposals in advance. A trial run may require a police escort.

5 If the Service Provider is not satisfied that the constraint can be negotiated by the load, having explored alternative routes, alternative vehicle configurations, swept path analysis and trial runs, the Service Provider shall inform WG, the haulier or enquiring party, the police and Highways England (as appropriate) that the load cannot be moved.

6 Although there is no notification requirement for high loads, the Service Provider shall advise hauliers or any enquiring parties that any load greater than 4.95m should not be moved without first checking with the Service Provider.

7 The Service Provider is responsible for ensuring that the height and width restriction information on IRIS and ESDAL is up to date.

2.2.24.5.3.2.3 Other Constraints

1 On receipt of a notification, pre-notification enquiry or consultation, the Service Provider shall review the proposed route against other known constraints, such as level crossings and locations susceptible to high winds.

2 If this review identifies any locations of concern, the Service Provider shall provide details of the constraint and any recommended mitigation measures to the haulier or enquiring party.

3 An alternative route may be suggested by the Service Provider or put forward by the haulier or enquiring party. The haulier or enquiring party must submit any such alternative route to all other relevant highway authorities for approval.

4 The Service Provider is responsible for ensuring that the constraints data on IRIS and ESDAL is up to date.

2.2.24.5.3.2.4 Roadspace Coordination

1 On receipt of a notification or consultation, the Service Provider shall request a completed roadspace booking form from the haulier for any load that may affect the safety and free flow of trunk road traffic, or any load greater than the following:

a) Width > 3.7m on a single carriageway
b) Width > 4.0m on a dual carriageway or 2-lane motorway
c) Width > 5.0m on a 3-lane motorway 3.5m wide

2 The Service Provider shall identify and action any potential network occupancy conflicts in accordance with the Network Occupancy Management Process.

3 The Service Provider shall inform the haulier of any action that must be taken to mitigate potential conflict with planned roadworks or other events affecting the route. If conflicts cannot be resolved, the Service Provider shall inform WG.

2.2.24.5.3.2.5 Traffic Management

1 The Service Provider must satisfy itself, as far as is reasonably practicable, that any planned abnormal load movement will not adversely affect the safety and free flow of trunk road traffic. Abnormal loads may encroach into oncoming traffic on single carriageways if wider than a standard lane, or if loads need to cross the centreline at bends. Following traffic may be delayed on single carriageways, and on dual carriageways or motorways if wider than a standard lane.

2 Depending on the size, route and number of abnormal loads, WG or the Service Provider may request the haulier or enquiring party submits a Traffic Management Plan (TMP) to support a notification, pre-notification enquiry or consultation. The purpose of a TMP is to:

- demonstrate that there is a viable route for the load(s); and
- set out a strategy for maintaining safety and minimising disruption to other highway users.

3 The Service Provider shall review the suitability of any TMP submitted in support of a notification, pre-notification enquiry or consultation and provide feedback to WG. WG may request the Service Provider liaises directly with the haulier or enquiring party as necessary.

4 The police decide whether an abnormal load requires a private or police escort within its force area. For pre-notification enquiries, hauliers or enquiring parties should liaise with the relevant police force.

2.2.24.5.3.2.5.1 Temporary Traffic Regulation Orders

1 If a police escort is required, the police decide whether a Temporary Traffic Regulation Order (TTRO) is necessary to allow officers to stop and direct moving traffic.

2 TTROs are not generally required for movements on the M4 or the dual carriageway sections of the A465 and A55, although the haulier or enquiring party should obtain confirmation from the police.

3 The Service Provider is responsible for coordinating the submission of TTRO applications on the trunk road.

4 Hauliers should be advised that applications for TTROs on the county road network should be made through the relevant local authority.

5 Hauliers should be advised that TTROs can take up to 12 weeks to process.

2.2.24.5.3.3 Responses to Notifications

1 For pre-enquiry notifications, the Service Provider shall provide feedback to the enquiring party regarding the acceptability of the proposals within 2 weeks of receipt. Feedback should be copied to the WG abnormal loads mailbox.

2 For notifications, the Service Provider shall only provide feedback to the notifying party if there are concerns with the proposals. Concerns should be raised as early as possible prior to the date of the planned movement. Feedback should be copied to the WG abnormal loads mailbox.

3 For consultations from the police or Highways England, the Service Provider shall provide feedback to the police or Highways England regarding the acceptability of the proposals within the prescribed timescales. Feedback should be copied to the WG abnormal loads mailbox.

2.2.24.5.4 Abnormal Loads Officer

1 The Service Provider shall nominate an Abnormal Loads Officer to:

a. have overall responsibility for management of abnormal loads;
b. act as the first point of contact for WG and third parties in relation to all abnormal load issues and queries;
c. liaise with WG, Highways England, the police, hauliers and developers regarding abnormal load notifications, pre-notification enquiries, consultations and authorisations;
d. attend industry liaison meetings and forums as directed by WG;

e. provide assistance to WG as necessary in relation to abnormal load policy development;
f. notify Traffic Wales of any movements that should be publicised on the website and/or Variable Message Signs; and
g. manage the Service Provider's ESDAL account.

2 Contact details for the Service Provider's Abnormal Loads Officer shall be publicised on its website and provided to WG, Highways England and the relevant police forces.

2.2.24.5.5 High and Heavy Load Routes

1 The Service Provider shall liaise with WG and Highways England regarding the suitability of high and heavy load routes on the Welsh trunk road network.

2 The Service Provider shall identify new high and heavy load routes in response to new developments in conjunction with WG.

2.2.24.6 NRSWA Recovery of Inspection Fees from Statutory Undertakers

1 Under Section 72 [Powers in relation to reinstatement] of the New Roads and Street Works Act 1991 a Highway Authority is empowered to carry out investigatory works to check on whether or not an Undertaker has complied with the duties placed on it in respect of reinstatement of the street. If the reinstatement is found to be substandard, Section 72 makes provision for inspection (e.g. coring) of the remedial works at three stages, at the Undertaker's expense. Under Section 75 [Inspection fees] an undertaker executing street works is required to pay the Highway Authority a prescribed fee in respect of each sample inspection of works carried out by the authority. The fees under Section 75 do not apply to investigatory works under Section 72. Both Section 72 and 75 are delegated functions to the Trunk Road Agency.

2 Full details can be found in "*Code of Practice for Inspections October 2006*" issued by Welsh Government on behalf of Welsh HAUC.

3 It is essential for Welsh Government and Service Providers to have a copy of the Code of Practice (CoP) and familiarise themselves with the contents. Further advice for the Inspection of Statutory Undertaker's Works is provided in Annex 7D and includes advice on undertaking sample, routine, investigatory, defect and inadequacy inspections, and the collection of fees.

4 There are two strands to charging potential; inspections and works:-

2.2.24.6.1 Inspections

1 Dealing with inspections first, there are three distinct sub strands (i) sample, (ii) defect and (iii) investigatory

(i) Sample inspection, the CoP for Inspections gives a detailed explanation of how this regime applies. The charging rate per inspection is determined by a Statutory Instrument – *The Street Works (Inspection Fees) (Wales) (Amendment) Regulations 2009*,

(ii) Defect inspections derive from the sample, inspection procedure, investigatory works, or routine highway inspections. Although these fees are not set by regulation the Welsh Highways Authorities Utilities Committee (HAUC) recommends that the fee should be double the rate set for sample inspections.

(iii) Investigatory inspections can be triggered by a member of the public informing the Service Provider to bring their attention to a potential hazard. Again, these fees are not set by regulation although Welsh HAUC recommends that the fee should be the same rate set for sample inspections

2 The types and requirements for each type of inspection are contained in Annex 7D.

2.2.24.6.2 Works

1 The street authority has power to carry out such investigatory works (e.g. coring) as appear to them to be necessary to ascertain whether an Undertaker has complied with his duties with respect to works and reinstatement. If a defect is disclosed, the street authority is entitled to recover their reasonable relevant costs and carry out three defect inspections at the Undertaker's expense under Section 72 [Powers in relation to reinstatement]

2.2.24.6.3 Section 72 Charging

1 Service Providers are to arrange charging of an Undertaker, where it is cost effective to do so by using random sample charge percentages This is the process by which the Service Provider can regularly establish the overall performance of each statutory undertaker operating on the trunk road network. It involves inspection of a structured random sample of works at various stages during the works and reinstatement guarantee period. The number of sample inspections for any year shall be based on the actual number of units of inspection averaged over the previous three financial years for that undertaker. This is to enable the annual charge to be determined. It will enable the Service Provider to monitor the level of compliance with the relevant prescribed standards in the Codes of Practice.

2 Invoices for these charges are to be issued by the Service Provider.

2.2.24.7 Motorway Passes (*currently under review)*

1 This section relates to the access requirements prior to working (e.g. maintain, inspect, survey) on the network.

2.2.24.7.1 Motorway Passes

1 Motorway Passes are issued for two purposes. They record that the Welsh Government has granted exemption from *The Motorway Traffic (England & Wales) Regulations 1982* to persons in connection with “any inspection, survey, investigation or census”.

2 Motorway passes also record that the holder is a person engaged in duties for which a general exemption to the Motorway Regulations exists. Such duties include “the maintenance, repair, cleaning, clearance, alteration or improvement of any part of the motorway” and “the erection, laying, placing, maintenance, testing, alteration, repair or removal of any structure, works or apparatus, in, on, under or over any part of a motorway”.

3 Motorway passes state the name of the holder, their employer and detail the purpose of the pass together with mandatory instruction on safety requirements. To enhance network security all new passes issued by the Welsh Government include a digital passport style photograph of the holder.

4 All passes are currently issued for a maximum duration of one year and must be returned to the Welsh Government upon expiry or if no longer needed.

2.2.24.7.1.1 Motorway pass holders

1 Service Provider staff undertaking “any inspection, survey, investigation or census” on the motorway must hold a valid motorway pass.

2 Service Providers are encouraged to issue motorway passes to their staff and any sub-contractors, safety inducted suppliers etc engaged in those duties for which the general exemption applies, as detailed above, to demonstrate they have the authority to be on the motorway.

2.2.24.7.1.2 Motorway passes for third parties

1 Third parties may also be granted authority to exemption from the Motorway Regulations for “any inspection, survey, investigation or census”. Service Providers must direct any enquiries for motorway passes from third parties to Welsh Government.

2 Staff within the Welsh Government will arrange for third parties to be vetted to ensure that there is a genuine need for motorway passes to be issued. As part of this vetting process the third party will be appraised on the need to liaise with the Service Provider before the motorway is accessed.

2.2.24.8 Optimising Traffic Management at Road works

1 Traffic management is required for operations associated with inspection or maintenance. Further information can be found within WGTRMM. Traffic Management can be planned to occur during day time or night time. Emergencies by their nature can occur at any time.

2 The prevailing traffic conditions will vary by time of day. Traffic management operations can therefore be generically classed in terms of the effect on traffic flow caused by implementing the traffic management.

3 In the context of roadworks on the motorway and trunk road network, the following terms are used:

Term	Description
Peak Time working	These operations are the most disruptive for traffic flow and should normally be avoided for planned works if possible.
Weekday Daytime Off-Peak working	These are the conventional traffic management arrangements for the bulk of Service Provider planned works as they normally have the lowest direct cost for implementation.
Night-time only working	Describes activities which commence after the evening peak traffic flow has subsided, and are completed prior to the build-up of the morning peak traffic flow on the following day. In such circumstances, lane closures reduce the traffic carrying capacity of a road during the night, but all lanes are available for traffic use during the day. A major objective in the planning of roadworks is the reduction of overall traffic delays, however, the works cost associated with minimising traffic delays by using night-time working can be higher than the works costs incurred for the same work undertaken in daytime. Experience in night-time only working tends to reduce this premium.
24 hour working	Describes roadworks where the conventional daytime working is extended into a 24 hour operation by the use of shift working. The essential difference between 24 hour working and night-time only working is that during 24 hour working there is no specific requirement for the full carriageway to be restored to live traffic at the beginning of each day. This may be implemented because of safety risk mitigation reasons i.e. making safe Category 1 defects.
Weekend working	Traffic management operations undertaken at weekends either daytime or night-time. This may be appropriate at some locations or arising from emergency works. There are usually increased costs associated with such work.

Embargo working	Traffic management operations undertaken during WG embargo periods including Bank Holidays either daytime or night-time. This may be appropriate at some locations or arising from emergency works. There are usually increased costs associated with such work. Works on slip roads or at night-time may be permitted by WG.

4 Off peak working may bring additional management issues that the Service Provider should consider:

- specific additional safety risks for the workforce and public;
- additional complaints of disruption from neighbours may be received;
- there are usually increased costs associated with such work;
- planning of the night-time programme should allow for factors such as lower temperatures which can affect materials;
- the availability of materials such as concrete and asphalt may be compromised by off peak working;
- some maintenance or inspection activities, particularly those requiring high levels of skill and involving fine visual judgement can, if poorly controlled, result in lower quality outcomes during night-time only working;
- Noise and vibration requirements in MCDHW Clause 109 may apply to specific locations to ensure compliance with statutory requirements.

2.2.24.9 Managing Builders' Skips, Scaffolding & Materials on the Highway

1 In order to place a builders' skip on the highway a permit for each location must be obtained from the Welsh Government who are the Highway Authority. Welsh Government has delegated functions to the Service Provider related to the following Sections of the Highways Act 1980:

- Section 139 [Control of builders' skips]
- Section 140 [Removal of builders' skips]
- Section 169 [Control of scaffolding on highways]
- Section 171 [Control of deposit of building materials and making of excavations in streets]
-

2 Other applicable legislation includes

- Road Traffic Regulations Act 1984, Section 65 [Powers and duties of highway authorities as to placing of traffic signs]
- Builders' Skip (Markings) Regulations 1984
- Local Authorities (Transport Charges) Regulations 1998

2.2.24.9.1 Applications to Deposit a Builders' Skip on the Trunk Road

1 Service Providers may grant permission to an Applicant to deposit a builders skip onto a trunk road by issuing a Trunk Road Skip Licence.

2 Service Providers may charge a fee of £x for the issue of a Trunk Road Skip Licence.

2.2.24.9.2 Applications to Install Scaffolding on the Trunk Road

1 Service Providers may grant permission to an Applicant to install scaffolding onto a trunk road by issuing a Trunk Road Scaffold Licence.

2.2.24.9.3 Applications to Deposit Builders' Materials on the Trunk Road

2 Service Providers may grant permission to an Applicant to deposit builders' materials or plant onto a trunk road by issuing a Trunk Road Builders' Materials Licence.

2.2.24.10 Publicity / Communication of Roadwork Events

1 The Service Provider is to implement the requirements of *WGMA Service Information - 2.6.2 Publicity and Public Relations and WGMA Annex S5 Traffic Management Centres*

2 Publicity and communications during an incident is covered by WGTRMM Traffic Incident Management & Contingency Planning

2.2.24.10.1 Publicity

1 Publicity for roadworks should be planned and consistent and not be the result of crisis management. Well directed publicity prior to the commencement of works can be beneficial. In particular, AM's, MPs and local councillors should always be included in advanced publicity. Residents often display greater tolerance of noise and disruption of which they have prior knowledge concerning timing and duration. Experience indicates that the distribution of leaflets to all affected residents and other helpful information should always be considered. For more intrusive works, personal visits to affected homes can produce higher levels of acceptance and co-operation; such courteous advice to members of the public should always be considered and normally provided.

2 Publicity for significant activities such as Major Works or Public Events (for all activity promoters) will normally be provided by WG press releases created by WG and will be managed through the WG Press Office regional contacts and the Traffic Wales web site www.traffic-wales.com. The Service Provider is to support WG with the design and management of press releases.

3 Minor and Standard Works will normally be covered by the communications requirements of this section. Publicity for activities on trunk roads is also given through the media and Welsh Government website by the issue of Temporary Traffic Orders.

2.2.24.10.2 Communications

1 The Service Provider is to provide information for all planned and approved roadworks to Welsh Government for use by WG as well as publishing to the Traffic Wales web site www.traffic-wales.com).

2 In due course, the functionality of WG IRIS will automatically provide relevant data to the Traffic Wales website.

2.2.24.11 Temporary Traffic Orders (TTO) & Notices (TTN)

1 A TTO and TTN is the legal instrument by which traffic authorities implement most traffic management controls on their roads. Under Section 14 of the *Road Traffic Regulation Act 1984 (as amended by the Road Traffic [Temporary Restrictions] Act 1991),* Welsh Government can implement Temporary Traffic Orders or Notices, designed to regulate, restrict or prohibit the use of a road or any part of the width of a road by vehicular traffic or pedestrians. A TTO or TTN may take effect at all times or during specified periods, and certain classes of traffic may be exempted.

2 Temporary Traffic Orders may last for up to 18 months on trunk roads and may be extended in certain circumstances.

3 A Temporary Traffic Notice, which involves a much shorter processing period, is only appropriate for a short-term restriction/prohibition where urgent action is needed. A Temporary Traffic Notice issued through reason of works has a maximum duration of five days and cannot be continued by another Notice. A Temporary Traffic Notice issued because of danger to the public or serious damage to the highway has a maximum duration of twenty-one days and may be continued by one further Notice.

4 Temporary Traffic Orders and Notices are required by *Chapter 8 Traffic Signs Manual*, *Safety at Street Works and Road Works: A Code of Practice* or may be required in certain other circumstances. Further information also is given in the *Code of Practice Co-ordination of Street Works & Works for Road Purposes & Related Matters.*

5 Service Providers and other applicants must submit requests for Temporary Traffic Orders or Notices in hard signed copy on WG *Form TO/N (revised Oct11)* and must **allow at least 12 weeks** for the preparation and publication of the necessary orders. The procedure is described in Form TO/N.

6 It is important that all TTO & TTN requests are managed via the Service Provider to allow the Network Occupancy Management processes to be integrated for all works. All applications for TTO & TTN are to follow Escalation (Stage 2).

2.2.24.12 Temporary Traffic Signals

1 Multi-way temporary traffic signals (three and four way temporary traffic signals) on trunk roads require approval by the Welsh Government under TSRGD 2002 (as amended 2011) Direction 53 and 53A.

2 The service provider will forward information to Welsh Government including; the location, start date and end date on an application form/covering letter and a plan showing the location of the signals.

3 Approval from Welsh Government is required before the work can commence on site. The response letter is a site approval letter, under the terms of TSRGD 2002 as of the date the letter is written and will specify the expiry date of the traffic signals which is given on the application.

4 The approval of the use of temporary traffic signals does not include checking specific site risk assessments or the proposed traffic management layouts and the Service Provider will need to agree these details and the dates for the intended works with the service provider.

5 The provision, operation and maintenance of all signing, lighting and guarding associated with portable signals must be in accordance with the New Roads and Street Works Act 1991, "Safety at Street Works and Road Works - A code of practice" which should be read in conjunction with the Chapter 8 of the "Traffic Signs Manual". The supervisor of the works must be qualified as required under Section 67 of the New Roads and Street Works Act 1991. All portable traffic signals to be operated in accordance with DfT booklet "An Introduction to the use of Vehicle Actuated Portable Traffic Signals".

5 All portable traffic signal equipment must conform to the latest issue of DfT Specification TR0111 for traffic controllers and MCE 0114 for detectors. All items of equipment (controllers, signal heads and microwave detectors) must be fitted with a label showing DfT type approval.

2.2.24 Annex A Network Occupancy Management Plan (NOMP) Template

Introduction & Purpose

The purpose of the Network Occupancy Management Plan is to set out the approach to managing the area or route network.

This document is a template against which individual Service Providers can base their own individual network occupancy management plans.

1.1 Route Details

Routes	*Routes managed by Service Provider*
WG	*Name and contact number*
WG	*Name and contact number*
Service Provider / WG Service Provider NOM Contact	*Name and contact number*

1.2 Coordination Arrangements - Contact Details

Adjacent Agents / WG Service Providers, Highways Agency, Local Highway Authorities Routes

Contact (Names and Numbers)

WTTC, AWMC, DBFO and other WG Service Providers

Contact (Names and Numbers)

1.3 Implementation Management

Provide details in this section of the arrangements for implementing the NOM processes

coordination, inspection and forward planning, undertaken by the Service Provider.

2.2.24 Annex B Management of Nationally Significant Activities

1. Introduction & Purpose

This annex to the Network Occupancy Management process chapter sets out the definition of Nationally Significant Activities, provides an overview of the suggested management arrangements and sets out a simple checklist of considerations to be made when planning and preparing for such activities.

2. Definition of Nationally Significant Activity

A Nationally Significant Activity is an activity that is likely to cause significant disruption across the network extending beyond an individual area or route. Nationally Significant Activities are those that require particular planning at a regional and national level which goes beyond the 'regional coordination' undertaken by Service Providers.

An event of national significance would not necessarily need to be considered as a Nationally Significant Activity unless it had an impact on the network extending beyond a particular area and its immediate neighbouring areas.

Nationally Significant Activities could be works activities or off-network events. An example of a works activity that might be considered a Nationally Significant Activity would be the closure of a motorway for demolition of a structure. An example of an off-network event that might be considered a Nationally Significant Activity would be the 2012 Olympic Torch Relay.

Nationally Significant Activities will typically require extensive long term planning and involve a wide range of stakeholders.

3. Management of Nationally Significant Activities

Welsh Government are responsible for taking an oversight on all Nationally Significant Activities.

It is not possible, or appropriate, to prescribe the way Nationally Significant Activities should be managed as the arrangements will depend on the particular details of the planned activity. Clearly the Welsh Government's role will depend on whether the activity is its direct responsibility, such as a road scheme, or one where then Welsh Government is simply one of a number of stakeholders, such as an off-network event.

2.2.24 Annex C – Code of Practice for the Erection of Temporary Traffic Signs to Special Events

1. Temporary signs should be provided only for events expected to attract a considerable volume of traffic from outside the local area and where there is adequate car parking for vehicles directed to the event. They should not be used on routes where there are already permanent local direction or tourist signs to the site although for some major events it may be desirable to indicate other routes to assist traffic management. Signs should not normally be erected more than 48 hours before an event or retained more than 48 hours after it has ended.

2. The signs must comply with the provisions of the Traffic Signs Regulations and General Directions (currently set out in Regulation 53 of the 2002 Regulations) and The Traffic Signs (Welsh and English Language Provisions) Regulations and General Directions 1985 and must give clear information about the route to be followed in a size appropriate to the speed of traffic.

3. The badge of the road user organisation erecting the sign may be included. Commercial names of event sponsors should not be included unless similar events in the same areas at the same time make such identification necessary for traffic management purposes. Dates and times should not normally be included since the signs are not intended to advertise an event but are for people who know about it and need guidance to the site. Such information may however be included if the traffic authority considers it would be helpful to other road users to have advance information about likely congestion and is satisfied that it would not make signs too complicated to be easily legible and so endanger road safety.

4. The design, construction, mounting and siting of signs should be in accordance with the advice given in TSM Chapter 8 The signs should be built to sound engineering principles and be of robust construction but the materials used need not be as durable as those used for permanent or portable signs. The fixings used must not damage the posts to which signs are fixed.

5. Signing proposals should be put to the appropriate traffic authority in time for them to be given proper consideration and for the police to be consulted where necessary. This should normally be at least 4 weeks before the event. Proposals should include information about the nature of the event, the expected number of visitors and the provisions for car parking and full details of all the proposed signing including locations and legends. The distance from which signs should be provided and the number of routes to be indicated depends on the nature of the event and the volume of traffic anticipated but once signing has commenced adequate continuity should be provided along the route. Signing for up to 5 miles or from the nearest A or B road should usually be adequate. More extensive signing may be appropriate for events which are expected to attract very large numbers of visitors (e.g. major air shows) but it is very rarely appropriate for signs to temporary events to be erected on motorways. The traffic authority is the final arbiter of the signing appropriate for any event and may remove or re-site any signs which have not been approved at the cost of the body which erected them.

6. Organisations erecting temporary traffic signs on the highway must take all necessary measures to avoid danger to the public or obstruction of traffic during the operation as specified in *TSM Chapter* 8 and the booklet "*Safety at Street Works and Roads Works a Code of Practice*". These organisations are responsible for the cost of making good any

damage to street furniture and Statutory Undertakers' equipment resulting from the erection of the signs and must have adequate public liability insurance cover. They will be required to indemnify the traffic authority against any claim arising out of an accident alleged to have been caused by the inadequacy of a temporary sign whether in siting, visibility, insecure mounting or other cause.

2.2.24 Annex D Inspection of Statutory Undertaker's Works

Introduction

It is accepted that reinstatements, even when undertaken to the required standard, have a long-term detrimental effect on the structure of the highway. This effect is significantly increased where the reinstatement is not undertaken to the correct standard. Deficiencies in reinstatements, and in signing and guarding, can present a danger to road users.

The importance of the inspection regime implemented by Service Providers cannot be understated. Although responsibility for reinstatement lies with the Undertaker, liability resulting from deficiencies can fall to the street authority where appropriate actions have not been taken following identification of a defect. This liability may also extend to situations where deficiencies in street works are not identified during the street authority's routine activities on the street.

It is the responsibility of all Service Providers to implement appropriate measures to ensure the safety of road users and protect the Welsh Government from any potential liability resulting from deficiencies on the Network. A regime for undertaking inspections, and robust procedures for dealing with deficiencies identified must satisfy both of these requirements.

Relevant Documentation	
NRSWA	• Section 65 [Safety Measures] • Sections 70 [Duty of Undertaker to Reinstate] • Sections 72 [Powers of Street Authority in relation to reinstatement] • Section 73 [Avoidance of Unnecessary Delay] • Section 75 [Inspection Fees]
Regulations	• The Street Works (Reinstatement) Regulations 1992 (and amendments) • *The Street Works (Inspection Fees) (Wales) (Amendment) Regulations 2007*
Codes of Practice	• Code of Practice for Inspections October 2006 • Specification for the Reinstatement of Openings in Highways 2006 (version 2) **WG to confirm** • Safety at Street Works and Road works -A Code of Practice

1. General Arrangements

1.1 The Act places a clear responsibility on the Undertaker executing the work to meet the statutory standards specified for both reinstatement of those works and the signing and guarding of the works while they are in progress. Undertakers are expected to supervise and inspect their own works, identify deficiencies, and instigate corrective action as required. The street authority's role is not one of supervisor but powers are available under the Act to take certain actions when deficiencies are identified.

- ‘Deficiencies’ are either a failure to meet the standard defined within the *Specification for the Reinstatement of Openings in Highways* (known as a ‘defect’) or the failure to meet the signing and guarding requirements specified within the *Safety at Street Works Code of Practice* (known as an ‘inadequacy’).

In this respect the Service Provider undertakes an audit role. **WG to clarify requirements**

1.2 It is clear from evidence gathered by many Service Providers that a small proportion of work executed by Undertakers on trunk roads fails to meet the required standards in respect of both reinstatement and signing and guarding. WG TO CONFIRM

1.3 The consequences of deficiencies in reinstatement and signing and guarding of street works will be greater on motorways and trunk roads due to the higher volumes of traffic carried on this Network. The Welsh Government therefore expects that a minimum 30% of each Statutory Undertaker’s works to be inspected and any subsequent defect and improvement notice procedure vigorously pursued, to ensure that the impact of street works is kept to a minimum. **WG to confirm** The relatively low levels of street works activity on motorways and trunk roads, coupled with the high level of routine inspection undertaken on the Network, means that a more rigorous, pro-active inspection regime can be easily implemented by Service Providers.

1.4 It should also be noted that Undertakers are expected to regularly inspect all their own works, to identify any deficiencies and initiate corrective measures as required. Where defects are identified they must notify the street authority and provide a timetable for carrying out remedial works. The defect regime does not apply and the charges for additional inspections cannot be levied unless the Undertaker fails to carry out the work within the specified timescale.

2. Sample Inspections

2.1 Sample inspections are carried out on a specific number of inspection units as agreed with the Undertaker on a random basis at 3 specific stages in the Undertaker’s works as defined in the Code of Practice and as shown below. Any defects or inadequacy found as a result of these inspections should be notified to the Undertaker immediately. The results of all sample inspections should be reported by the Service Provider to each Undertaker via HAUC processes.

WG to confirm

- Cat A - During the works
- Cat B - Within the six months following interim or permanent reinstatement
- Cat C - Within the three months preceding the end of the guarantee period.

2.2 To enable large and small works to be inspected at the same rate, sample inspections are based on inspection units. One inspection unit is 200m or part of 200m of trench or a number of none trench excavations within 500m, as laid down in the code of practice.

2.3 The main purpose of the sample inspection regime is to provide a performance measure on the Undertakers’ works. If more than 10% of the sample inspections in a 3-month period reveal a defect or inadequacy an improvement notice should be issued (if the Undertaker carries out 50 or less inspection units in a year this is at the discretion of the street authority).

Separate improvement notices must be issued for defects or inadequacies. Where an improvement notice has been issued the Undertaker concerned must develop an action plan to satisfy the street authority that the necessary actions are being taken to rectify the problem.

2.4 Significant failures in an Undertaker's works resulting in the need to issue an improvement notice should be reported to the Welsh HAUC so that the issue can be made known to other HAUC members. The results of all sample inspections should be reported to Regional HAUC representatives, to enable Undertaker performance to be compared with other highway authorities in that Regional HAUC.

2.5 Defective reinstatements have a detrimental effect on the surrounding structure and fabric of the highway and the long-term resultant repair costs, although perhaps not directly attributable to street works, are significant. Service Providers should ensure a pro-active regime of street works inspections is implemented.

3. Routine Inspections

3.1 These are inspections of the Network for the Welsh Government's own purposes such as Safety Patrols, Safety Inspections or Detailed Inspections as required by WGTRMM. These routine inspections should be actively used to inspect any Undertaker's works in the vicinity. Procedures should be in place to notify the Undertaker of any defects or inadequacy found during these inspections and take any follow up action as may be necessary.

4 Investigatory Inspections

4.1 When a report is received from a third party, for example the police or a member of the public, a site visit may be undertaken to confirm the defect. Any defects or inadequacies found as a result of these inspections should be notified to the Undertaker.

4.2 Investigatory works can be undertaken to determine whether a reinstatement has been carried out to the required standard. These works could typically include material testing, texture depth measurement, skidding resistance measurement and compaction testing. Investigatory works, such as testing and measurement can be undertaken during the reinstatement process but more often they will be done following completion of the reinstatement using intrusive methods such as coring or excavating trail holes.

4.3 In order to protect the fabric of the highway, Service Provider may undertake core sampling of all permanently reinstated carriageway excavations of Statutory Undertaker's works. If such a programme of coring is undertaken the cost of the coring for those that are subsequently found to be defective is recoverable from the Statutory Undertaker.

5 Defect and Inadequacy Inspections

5.1 When a reinstatement defect is identified from any of the above inspections, the following further inspections can be undertaken:

Joint inspection with the Undertaker to agree the defect

- An inspection during execution of the remedial works.
- An inspection on completion of the remedial works.

5.2 When an inadequacy in signing and guarding is identified there is no provision for further inspections of the corrective action taken by the Undertaker. Further inspections can be undertaken if considered appropriate but the Undertaker will not be liable to pay inspection fees (as detailed following).

A non-chargeable Section 65 [Safety Measures] Notice is to be formally issued by Service Providers to record the request to undertake remedial action.

6 Collection of Inspection Fees

The Service Provider estimates the likely number of inspection units based on an average of the undertakers previous three years inspections. The annual charge will be based on this figure.

6.1 Inspection fees are reviewed by Welsh HAUC on a periodic basis and then defined by regulation. The following table details the charges that can be levied

Inspection Type	Charges allowed
Sample inspections	Charges will only be made for inspections carried out at the rate in the regulations for a sample inspection.
Routine inspections	No charge is made for these inspections.
Investigatory inspections	If the site is visited and a defect/inadequacy exists a fee as prescribed in regulations for a sample inspection may be claimed.
Inspection of Section 50 works	Payment should not be claimed for these inspections as the Welsh Government obtain the fee from the licence holder at the time the licence is granted.
Defect Inspections	Payment will only be made for inspections carried out at twice the sample fee in the regulations.
Inadequacy inspections	If a joint meeting is required to resolve the problem HAUC recommends a defect fee be payable if an inadequacy is confirmed
Investigatory Works	If a defect is found the actual costs of works at that site may be recovered.

6.2 Information on the results from inspections should be sent directly to the relevant Undertaker on a monthly basis.

7 Reporting Procedures

7.1 WG IRIS will provide reports on street works performance as required by Welsh Government.

2.2.24 Annex E – Abnormal Loads - Special Order Movements (pending)

2.2.24 Annex F - Abnormal Loads - Standard text of letter to be sent to Movement route applicant by the Welsh Government (pending)

2.2.24 Annex G - Abnormal Loads - Form to be sent to Welsh Government providing appraisal of the route for a proposed SO Vehicle movement (pending)

2.2.25 Welsh Government Owned Assets

2.2.25.1 General

2.2.25.1.1 General Requirements

1 The Welsh Ministers or Welsh Government (WG) are the owners and landlords of property assets associated with the motorway and trunk road network in Wales and are responsible for the safe occupation, operation and maintenance in accordance with UK, Wales and EU legislation.

2 This Section is intended to ensure consistency of approach for co-ordinating the management of WG property assets and leased properties occupied by Service Providers to meet legislation and WG policy requirements.

3 The scope of this Part covers operations undertaken directly by the Service Provider for or on behalf of WG as Owner/Landlord, and those activities lawfully undertaken by other parties at the WG property assets associated with the motorway and all purpose trunk road network and the properties occupied by the Service Provider.

4 The assets included in this Part include:

Offices
Motorway Maintenance Depots and strategic salt storage facilities
Picnic Amenity areas
Public Toilets
Buildings Housing Pumping Chambers
Ancillary buildings and Transmission Stations

5 The Service Provider shall produce an an office / facility management plan for each asset and further keep it updated and available at each location. The content will vary according to the nature of the facility but the provisions made in Section 2.2.25 shall be followed where relevant to the activities / operations carried out from those facilities.

6 This section sets out the procedures and arrangements required for the monitoring and management of works activities at the Welsh Government's property assets associated with the motorway and all-purpose trunk road network

7 It further sets out roles, responsibilities and procedures for the management of the Welsh Government's property assets associated with the motorway and all-purpose trunk road network, and the premises occupied by the Service Provider.

2.2.25.1.2 Landlord Responsibility

1 The Welsh Government (WG) has landlord responsibility for the motorway maintenance depots and other WG properties associated with the motorway and all-purpose trunk road network. A list of these properties is included at Appendix 1. The Service Provider will be responsible, on behalf of the Welsh Government, for ensuring that these are fit for the operations to be carried out at or within the assets.

2 The WG has legal obligations towards those undertaking works directly for or on behalf of WG as Owner/Landlord to the WG's property assets, and those who are undertaking activities at the WG's property assets or affected by them.

3 The Service Provider shall take responsibility for monitoring the operations, the day to day co-ordination and health and safety of the operations in the motorway maintenance depots and other WG properties identified in Appendix 1 and for ensuring compliance with agreed policies, standards and procedures applicable to the assets.

2.2.25.1.3 Responsible Person

1 The Service Provider on behalf of WG have responsibility for carrying out the 'Responsible Person' actions at the properties, including asbestos surveys, legionella surveys, services and electrical inspections, and fire risk assessments.

2.2.25.1.4 Offices

1 The Welsh Government (WG) as landlord with responsibility for the Traffic Management Centres at Coryton and Conwy, liaise with the Service Providers and the other occupants regarding the day to day management and maintenance of the Traffic Management Centres, the Emergency arrangements for fire and evacuation and the provision of first aid facilities.

2 Traffic Officer Cabins at Coryton, and the Portacabin Offices at Wilcrick are owned by WG, and the Service Provider has the responsibility for the day to day management and maintenance of the Traffic Management Centre, the Emergency arrangements for fire and evacuation and the provision of first aid facilities.

3 Likewise for the leased offices occupied by the Service Provider, the owners retain Landlord responsibility for the external fabric of the offices and any internal Landlord spaces, the Service Provider has responsibility for the day to day management and maintenance of the internal spaces occupied by the Service Provider, the Emergency arrangements for fire and evacuation and the provision of first aid facilities.

2.2.25.1.5 Operational Maintenance Depots

1 The Service Provider shall assist the WG to comply with their responsibilities as Landlord by carrying out the role of "Responsible person", managing the facilities on a day to day basis, procuring specialist surveys and arranging for maintenance works to the structures and infrastructure of the depots as delegated by the WG.

2.2.25.1.6 Picnic Areas, Public Toilets and Buildings Housing Pumping Chambers Transmission Stations and Ancillary Structures

1 The Service Provider shall assist the WG to comply with their responsibilities as Landlord by carrying out the role of "Responsible person", managing the facilities on a day to day basis, procuring specialist surveys and arranging for maintenance works to the structures and infrastructure of the facilities as delegated by the WG.

2.2.25.1.7 Strategic Salt Storage Facilities

1 The Service Providers shall assist the WG to comply with their responsibilities as Landlord by carrying out the role of "Responsible person", managing the facilities on a day to day basis, procuring specialist surveys and arranging for maintenance works to the structures and infrastructure of the facilities as delegated by the WG.

2.2.25.1.8 Major, Minor and Emergency Works to Property Assets

Offices

1 WG retain responsibility for funding improvement and capital renewal works at the offices owned by WG. The landlords of the offices occupied by the Service Provider are responsible for the repair and maintenance of the external envelope of the offices and any landlord areas within the offices such as stairwells. The Service Provider is responsible for the repair and maintenance of the interior of the offices occupied by the Service Provider.

2 Improvements or changes to the offices by the Service Provider are to be agreed and approved by the Landlords.

2.2.25.1.9 Operational Maintenance Depots

1 WG retain responsibility for the funding of improvement and capital renewal works at the operational maintenance depots other than those required by the negligence of those parties operating within the depot.

2 The Service Provider has the responsibilities set out in the Performance Requirements. The Service provider is responsible for the routine maintenance of the motorway maintenance depots including painting and general minor repairs.

2.2.25.1.10 Picnic Areas, Public Toilets and Buildings Housing Pumping Chambers

1 WG retain responsibility for funding the improvement and capital renewal works at the picnic areas. The Service Provider is responsible for ensuring the cyclical maintenance and inspection of the picnic areas is undertaken.

2 Improvements or changes to the picnic areas are to be identified by the Service Provider, with proposals included in the Service Providers annual bids for approval and funding by the WG.

Statutory Requirements

2.2.25.1.11 Asbestos (This section subject to CJ approval)

1. The Control of Asbestos Regulations (CAR12) came into force on 6 April 2012. These replaced Control of Asbestos Regulations 2006 which brought together three previous set of regulations covering the prohibition of Asbestos, the control of Asbestos at work and the Asbestos licensing regulations.

2. Asbestos Containing Materials (ACMs) are known to exist within the highway boundary, in roads, drainage, structures, associated buildings and other Assets. Some roads tunnels, depots and other buildings are considered to pose the highest risk for highway works. However, ACMs only pose a risk to health if the material is disturbed and the fibres become airborne and can then be inhaled.

3. Regulation 4 of CAR12 places a duty on those persons (the Dutyholder(s)) who have responsibility for maintenance or repair, to ensure that a suitable and sufficient assessment is carried out as to whether ACMs are likely to be present in their premises, a written plan

should then be prepared detailing the controls required to effectively manage any risk. A "premises" is defined as any Asset.

4. To comply with the duty imposed by Regulation 4, the HSE publication INDG223 – *Managing Asbestos In Buildings: A Brief Guide*, identifies the steps to be followed

Step 1 Find out if asbestos is present

Step 2 Assess the condition of any ACMs

Step 3 Survey and sample for asbestos

Step 4 Keep a written record or register

Step 5 Act on the findings

Step 6 Keep records up to date

5. ACMs in WG Assets will be managed by:

- finding out if there is Asbestos in the premises (asset), its location and condition, or assessing if ACMs are liable to be present and making a presumption that ACMs are present unless there is strong evidence that they do not;
- making and keeping an up-to-date record of the location and condition of the ACMs or presumed ACMs in the premises [asset];
- making a suitable and sufficient assessment of the risk from the material;
- preparing a written plan that sets out in detail how the risks from this material are going to be managed;
- taking the steps needed to put the plan into action;
- reviewing and monitoring the plan and the arrangements made to put it in place; and
- setting up a system for providing information on the location and condition of the material to anyone who is liable to work on or disturb it.

6. The management and maintenance record of every asset will be noted with its status regarding ACMs using a traffic lights system as follows:

- **RED:** Asbestos condition for asset unknown **or** asset inspected, found to contain asbestos but Asbestos Management Plan does not yet exist;
- **AMBER**: asset inspected, found to contain asbestos and Asbestos Management Plan exists;
- **GREEN:** constructed post 2000 and assumed not to contain Asbestos **or** inspected and found to not contain Asbestos (in the former case, appropriate checks should always be carried out prior to any operation involving the asset, likely to disturb any asbestos if present, to confirm that this assumption is valid) assets generically assessed has having a very low probability for containing Asbestos / ACMs, e.g. the soft estate.

7. Every identified location of Asbestos / ACMs will have an Asset Asbestos Action Plan describing the arrangements for managing that incidence of Asbestos / ACMs in a way that will prevent loose fibres becoming airborne.

8. The inspection of assets and creation of records will be prioritised into three categories:-

- **HIGH:** comprising all highway road tunnels, highway associated maintenance and winter service compounds, other depots, stores, workshops, offices, picnic site facilities and buildings;
- **MEDIUM:** comprising all other assets that are subject to a routine inspection and maintenance regime;
- **LOW:** comprising any assets not contained in the above categories.

Duty Holder's use of survey information

9 WG Service Providers and their supply chain commissioning surveying companies should follow the standard specification for Asbestos in the SGAMP and ensure that it is fully agreed with those commissioned to carry out the work.

REPORTING

10 On a quarterly basis WG Service Providers shall complete a report and forward to WG.

11. Service Provider Project Managers and Managers of discrete planned maintenance scheme or operations requiring a Scheme Asbestos Management Plan (SAMP) shall obtain / update information in relation to the SAMP and associated Asset Asbestos Action Plans (AAPs). Service providers shall advise WG of such changes.as they occur.

AUDITS

12. WG will maintain a register of Asbestos issues identified by this process and take action to address them in liaison with WG Service Providers. In addition WG will agree with them a set of requirements for regular self-auditing by WG Service Providers and will sample audit a selection of schemes compliance each year.

TRAINING

13. WG and Service Providers shall both nominate one or two key staff in their organisations to jointly deliver the Dutyholder responsibility in conjunction with WG and are expected to maintain an appropriate number of trained key staff, to allow for staff changes. Service Providers' key staff are also to act as the Named Plan Owner. Service Providers, in addition those likely to come into contact with Asbestos within the Service Providers team or others, will require training in accordance with Regulation 10 of CAR12. All Service Providers are responsible for ensuring that within their organisations there is an appropriate number of adequately trained staff. This training must meet the requirements of the relevant legislation and guidance. A range of courses can be found such as those accredited by the British Occupational Hygiene Society.

14. Nominated Plan Owners shall have undertaken training to cover Asbestos awareness and the requirements of the duty to manage relating to Asbestos in the Asset and non-domestic premises covered by their duties.

15. The WG Asbestos Management Plan (WGAMP) follows on from the development of Interim Advice Note IAN63 (not adopted in Wales) by the Highways Agency and the agreements they reached with the Health and Safety Executive (HSE) to cover all trunk road

network assets with Asset Asbestos Action Plans (Asset AAPs) within a 20 year timescale from April 2005.

DUTYHOLDER RESPONSIBILITIES

16. Service Providers are responsible for discharging the Dutyholders responsibilities and co-operating or co-ordinating with other Dutyholders e.g. utilities.

17. Where the WG premises is controlled by Service Providers, Private Finance Initiative (PFI), Design, Build, Finance and Operate company (DBFO), or Private Project Provider (PPP) the Dutyholder is that Company or Organisation and it is their responsibility to fulfil obligations of the Dutyholder.

18. As an Asset owner and joint Dutyholder, WG will audit and monitor Service Providers compliance with the WG policy.

ASBESTOS ACTION PLAN

19. Service Providers are required to submit their proposals in the form of an Asbestos Action Plan, for the completion of surveys, the updating of records and the implementation of management actions in accordance with the following table 1 below.

20. The Action Plan shall include:

a. A schedule of the assets to be investigated;

b. A programme with key milestones demonstrating that all the required actions will be completed by the target completion date;

c. The annual financial implications of achieving the management actions by the target completion date (a bid, clearly marked 'Asbestos Action Plan Implementation' shall be made by the Service Provider by 31st of October each year for funding to complete actions contained in all agreed Asbestos Action Plans for the following financial year); and

d. Details of Service Providers key persons and their responsibilities for the completion of Asbestos Action Plan actions.

21. The progress with the implementation of Asbestos Action Plans shall be the subject of a report to all Service Provider / WG joint steering group meetings.

Table 1: Asbestos Action Plan – Target Completion Dates

	Submit Action Plan by:	**Completion of Actions by:**
High Risk Assets (Tunnels, maintenance compounds, depots,	1st April 2012	1st April 2014

stores, workshops, offices, picnic sites & facilities owned or leased by Welsh Government and managed/ operated by its service providers)		
Medium Risk Assets (Other assets that may contain asbestos and were constructed prior to 2000 e.g. bridges with permanent formwork, drainage systems etc)	1st September 2012	1st April 2019
Low Risk Assets (assets constructed after 2000)	1st April 2013	1st April 2022

22. All inspections/ investigations required as part of the implementation of Asbestos Action Plans shall be integrated where ever possible with those already required for compliance with national standards and/or this Welsh Government Trunk Road Maintenance Manual.

REFERENCE AND FURTHER READING

23. A list of relevant Legislation and Guidance Documents is available at the HSE website www.hse.gov.uk/asbestos.

24. Definitions

Premises: WG interpret the term 'premises' in CAR12 to mean every trunk road Asset and associated infrastructure within and outside the trunk road boundary where the WG Service Provider is responsible for inspection, management and maintenance or design work on these assets as part of a contract WG hold with the Service Provider and for which the Welsh Minister is the Highway Authority under Section 1 of the Highways Act 1980.

Trunk Road Asset: includes but are not limited to: roads, bridges and other trunk road structures, masts, communications and electrical items, control rooms, maintenance compounds, depots, stores, weather stations, workshops and picnic sites (including toilet bocks).

The above refer to definitions in the context of this section not otherwise covered in the CAR(12) Regulations or the WGAMP.

General definitions used in WGTRMM can be found in Part 0 Section 0.9 of this document.

FURTHER INFORMATION

25. If you have any questions or enquiries on this document please refer to the Welsh Government General Asbestos Management Plan or contact

Welsh Government Transport Division

Crown Buildings

Cathays Park

Cardiff CF10 3NQ

2.2.25.1.12 Legionella

1 Legionella is the abbreviated name for Legionella pneumophila bacteria that is responsible for the illness commonly known as Legionnaires' disease.

2 Legionella bacteria are commonly found naturally in low concentrations, in rivers, lakes and reservoirs where they do not cause any harm. Legionella bacteria can also be found in purpose-built water systems including cooling towers, evaporative condensers, hot and cold water systems and whirlpool spas. In these types of water systems the water can be maintained at an optimum temperature for the legionella bacteria to grow.

3 Conditions which increase the risk of legionella being present and causing a risk to health include water being stored in any part of the system at temperatures between 20ºC and 45ºC, stagnation or low flow, the presence of nutrients for the bacteria to grow on, such as rust, sludge, scale and organic matter and where there is the potential for aerosols to be produced by the water system.

4 Legionella is normally contracted by inhaling legionella bacteria, either in tiny droplets of water (aerosols) or in droplet nuclei (the particles left after the water has evaporated) contaminated with legionella.

5 The Health and Safety Executive published a revised and simplified Approved Code of Practice L8 (ACOP) in December 2013. The main changes are the removal of Part 2 the technical guidance of the original ACOP, which is published separately as HSG274 Legionnaires' disease: Technical guidance, and giving the following issues ACOP status

- Risk assessment
- The specific role of an appointed competent person, known as the 'responsible person'
- The control scheme
- Review of control measures
- Duties and responsibilities of those involved in the supply of water systems.

6 The ACOP gives guidance on the requirements of the Health and Safety at Work etc Act, The Control of Substances Hazardous to Health and The Management of Health and Safety at Work Regulations. HSG274 parts 1, 2 and 3 provides practical advice on :

- Part 1 – The control of legionella bacteria in evaporative cooling systems
- Part 2 – The control of legionella bacteria in hot and cold water systems, Interim guidance (New guidance on hot and cold water systems will be published in 2014)
- Part3 – The control of legionella bacteria in other risk systems

7 The Service Provider is responsible for ensuring that the water distribution systems are, maintained and inspected periodically in accordance with HSG274 and that a record of the inspections, maintenance, faults and repairs are maintained in an electronic format. The record shall show any faults identified or work carried out.

2.2.25.1.13 Fire

1 The Fire Regulatory Reform Order of 2005 replaced the former legislation on fire and introduced general duties on employers and persons in control of work, the "responsible person", for the safety of employees and to take fire precautions to ensure premises are safe for non employees, a duty to carry out a fire risk assessment and specific duties in relation to the precautions to be taken.

2 The Service Provider shall:

- ensure that employees and those affected by their business are protected against the risk of injury from fire
- take general fire precautions
- carry out appropriate fire risk assessment/s, the risk assessments need to cover building safety and consideration of the environment around the site
- ensure that suitable fire safety arrangements are in place (policy and procedures)
- eliminate and reduce the risk of fire
- provide staff training and to carry out fire drills
- ensure clear means of escape, provide signs, notices and emergency lighting, fire detection and alarm, and extinguishers
- inspect, maintain, repair and replace fire equipment, signs and fire escapes.

2 The assessments are to give an overall view of the present fire safety standards of the properties and highlight any urgent remedial works that need to be carried out to safeguard employees and other users of the premises.

2.2.20.1.14 Electricity

1 The Electricity at Work Regulations of 1989 introduced a controlled framework incorporating principles of electrical safety, and imposed actions to prevent danger and injury from electricity the Regulations apply to a wide range of plant, systems of work, places of work and electrical systems, and work alongside The Provision and Use of Work Equipment Regulations 1998.

2 The Service Provider shall:

- ensure activities involving electricity are be carried out to prevent danger so far as is reasonably practicable
- ensure only those who are competent are able to work with electricity, and are suitable supervised,
- ensure no work is undertaken near a live conductor, unless insulated to prevent danger, or it is unreasonable for it to be dead, unless it is reasonable to work near it while it is live and that suitable precautions are taken to prevent injury
- ensure electrical systems and equipment are constructed and maintained to prevent danger so far as is reasonably practicable, and protected against excessive current by means of devices such as fuses and circuit breakers
- ensure a suitable means of cutting off and isolating a power supply is available other than the source

3 The Service Provider is responsible for ensuring that "portable" electrical equipment is safe, maintained and inspected periodically, and that a record of the inspections, maintenance, faults and repairs are maintained in an electronic format. The record shall show any faults identified or work carried out. This should include power tools, domestic appliances and office equipment.

4 The Service Provider is responsible for ensuring that the Landlord has ensured that "fixed" electrical installations are safe, maintained and inspected periodically, and that a record of the inspections, maintenance, faults and repairs are maintained in an electronic format. The record shall show any faults identified or work carried out.

2.2.25.1.15 Gas

1 The Gas Safety (Installation and Use) Regulations of 1998 address issues relating to the installation and use of gas appliances, fittings and pipes, and prevent any person doing anything which could affect the safety of a gas fitting, flue or means of ventilation. From 1st April 2009, the HSE commenced a new registration scheme with CAPITA

2 The Service Provider must

- ensure that gas appliances (to include portable gas appliances such as heaters), pipe work and flues within the workplace are safe and maintained. Landlords also have duties of inspection and maintenance.
- not allow an appliance to be used if there is a suspicion of a defect.
- take reasonable steps to ensure that workers are CAPITA registered.

3 The Service Provider is responsible for ensuring that gas appliances/equipment are safe, maintained and inspected periodically, and that a record of the inspections, maintenance, faults and repairs are maintained in an electronic format. The record shall show any faults identified or work carried out.

4 The Service Provider is responsible for ensuring that the Landlord has ensured that gas installations are safe, maintained and inspected periodically, and that a record of the inspections, maintenance, faults and repairs are maintained in an electronic format. The record shall show any faults identified or work carried out.

2.2.25.1.16 Pressure Systems

1 The Pressure Systems Safety Regulations of 2000 impose safety requirements on the design, construction, installation and operation of certain pressure systems. Pressure systems under these Regulations means a system comprising one or more pressure vessels of rigid construction, any associated pipework and protective devices or pipework with its protective devices to which a pressure receptacle, an old pressure receptacle or transportable pressure equipment is, or is intended to be, connected; or a pipeline and its protective devices all of which contain specific gases or steam.

2 The Regulations provide that pressure systems or articles must be properly designed and constructed so as to prevent danger, allow for suitable examination, access and be provided with protective devices.

3 The user of an installed system or owner of a mobile system must not operate it or allow it to be operated unless he has a written scheme for the periodic examination, by a competent person, of the following parts of the system:

- All protective devices
- Every pressure vessel and every pipeline in which (in either case) a defect may give rise to danger
- Those parts of the pipework in which a defect may give rise to danger, and such parts of the system shall be identified in the scheme.

4 The Service Provider must ensure that the content of the scheme is drawn up by a competent person and is reviewed by a competent person at periodic intervals, to ensure the system is suitable for the current conditions of use. The person drawing up the scheme must ensure it is suitable, specifies the frequency of inspection, the steps required to allow safe inspection and ensure that the system is tested before first use.

5 Examinations in accordance with the written scheme must be conducted at therequired intervals. The competent person must make a written report of the examination, which must be passed to the user as soon as possible after the examination and in any event within 28 days of the examination.

6 The Service Provider is responsible for ensuring that compressed air appliances / equipment are safe, maintained and inspected periodically, and that a record of the inspections, maintenance, faults and repairs are maintained in an electronic format. The record shall show any faults identified or work carried out.

7 The Service Provider is responsible for ensuring that compressed air installations are safe, maintained and inspected periodically, and that a record of the inspections, maintenance, faults and repairs are maintained in an electronic format. The record shall show any faults identified or work carried out.

2.2.25.1.17 Hazardous Materials

1 The Control of Substances Hazardous to Health Regulations of 2002 as amended imposes duties on employers to protect employees and other persons who may be exposed to substances hazardous to health. It also imposes duties on employees concerning their own protection from exposure to hazardous substances. Similar duties are also imposed on the self-employed.

2 The Regulations require the assessment of the risk to health created by work involving substances hazardous to health, and all employers to seek to prevent exposure to substances hazardous to health, and where exposure cannot be prevented it must be adequately controlled by reference to the following control measures:

- design and use of appropriate work processes, systems and engineering controls
- the provision and use of suitable work equipment and materials;
- the control of exposure at source, including adequate ventilation system
- the provision of suitable personal protective equipment (in addition to the above measures).
- specific requirements are made for controlling the risk for carcinogens and biological agents.
- ensuring that exposure levels are kept within approved maximum exposure limit or approved occupational exposure standards.

2.2.25.2 Offices and other Facilities

2.2.25.2.1 General Requirements

1 The Service Provider shall monitor the operations, the day to day co-ordination and health and safety of works undertaken at the offices occupied by the Service Provider.

2 The Service Provider shall appoint a named individual, competent in matters relating to health and safety, who must liaise with the Landlords of the offices occupied by the Service Provider.

2.2.25.2.2 Management Procedures

1 The Service Provider shall ensure that a Property Management Plan is prepared for the offices occupied by the Service Provider and is kept up to date, and that a copy is kept available at each office occupied by the Service Provider.

2 The Property Management Plan should set out the approach to managing the Offices will be required to be produced and maintained for each Service Provider. It will be used to demonstrate that the procedures detailed in WGTRMM are used to ensure the effective management of the offices. The plan will remain under periodic review to ensure that changing needs are embraced with effective property management.

3 The Service Provider shall ensure

- the security and the safe operation of the offices
- health and safety standards within the offices are maintained
- health and safety standards for their sub-contractors are co-ordinated and enforced
- co operation and communication on matters of health and safety is maintained with other users
- an appropriate level of health and safety management which at least attains current legislative requirements
- comply with all relevant statutory provisions applicable to their work in the offices
- the offices are maintained

2.2.25.2.3 Identification of Workplace Hazards

1 The Service Provider shall prepare risk assessments for each office, occupied by the Service Provider detailing likely hazards that may be encountered and the control measures required to mitigate the associated risks, the control measures identified in the risk assessments must be conveyed to all relevant staff and others working in the offices.

2 The Service Provider shall ensure employees co-operate, inform and exchange relevant information concerning the risks arising out of, or in connection with, the Service Provider undertakings.

3 The Service Provider shall undertake a Health and Safety induction with all visitors and that the visitors are always made aware of potential risks to their health, safety and welfare, and the mitigation methods in place.

2.2.25.2.4 Inspections

1 The Service Provider is responsible for conducting regular inspections of the offices structure, fabric and equipment and maintaining a record of the inspections, maintenance, faults and repairs in an electronic format. The record shall show any faults identified or work carried out on the office structures, fabric and equipment.

2.2.25.3 Operational Maintenance Depots and Strategic Salt Storage Facilities

2.2.25.3.1 General Requirements

1 Service Providers are responsible for maintaining depots and strategic salt storage facilities and for co-ordinating health and safety within those depots and facilities for which they are responsible.

2.2.25.3.2 Service Providers Duties and Responsibilities

1 The Service Provider must appoint a named individual, competent in matters relating to health and safety (particularly in depots and facilities), who must liaise with WG.

2 Service Providers are also responsible for developing and maintaining compliance with policies, standards and procedures applicable to the depots and facilities and for maintaining meaningful communication on matters of health and safety with other users.

3 Whenever a depot or facility is provided and operated by a third party, the Service provider shall make every effort to ensure that the depot complies with statutory requirements under health and safety

4 At any depot or facility managed by the Service Provider, the Service Provider must provide a notice board permanently and prominently affixed to an internal wall near the entrance to the office, dedicated to health and safety matters.

5 It is the responsibility of the Service Provider to ensure that all relevant health and safety information and instructions, including statutory notices are displayed on the notice board and that it is kept up to date.

6 The Service Provider must prepare and permanently display on the notice board a 1:500 scale plan of that depot or facility managed by them showing the following:

- access/egress arrangements;
- boundary fences;
- roadways including traffic and pedestrian routes;
- parking areas for plant, employees and visitors;
- building outlines;
- storage area(s) including the content, where hazardous substances are stored;
- fixed plant and equipment;
- allocation of storage space;
- building maintenance responsibilities;
- fire arrangements;
- other pertinent features.

2.2.25.3.3 Access Requirements

1 Service Providers are responsible for security and the safe operations at WG depots and facilities. WG expects that, irrespective of ownership/leasing arrangements access to a depot by any third party, including operational partners, contractors and sub-contractors, is prohibited without first obtaining written permission from WG. Access to depots and facilities by third parties shall be restricted to activities associated with the maintenance of the motorway and trunk road network or the management and distribution of strategic salt stocks.

2 Operational Partners, contractors and sub-contractors wishing to access or make use of a depot or facility must liaise with the Service Provider indicating their programme of works including:-

- access, working hours, signing in and out;
- parking areas;
- use of welfare facilities;
- use of depot or facility equipment.

3 During operational hours all visitors to depots or facilities must sign in and out using a visitor's book (normally kept in the reception area at the depot). If a depot / facility does not have a reception area which is occupied throughout operational hours then alternative arrangements shall be made to manage access. All depot /facility entrances shall indicate these arrangements.

4 The Service Provider is responsible for co-ordinating and enforcing health and safety standards for their sub-contractors.

5 Access arrangements must be made for specialist motorway communication and signalling maintenance contractors and the WG staff who have authority to enter into transmission stations located within a depot (such personnel have the authority only to undertake activities within transmission stations, associated equipment cabinets and their immediate vicinity).

6 The most direct, safe route to the transmission station must be followed in accordance with the site specific risk assessment. Keys to the transmission stations are issued by WGs Technology Service Provider to authorised personnel only.

2.2.25.3.4 Management Procedures

1 The responsibility for maintaining health and safety standards within depots and facilities lies with the Service Provider. It is the responsibility of the Service Provider to ensure that an appropriate level of health and safety management is being met which at least attains current legislative requirements.

2 The Service Provider shall ensure that a Depot / Facility Management Plan is produced and maintained for each depot /facility and is kept up to date, and that a copy is kept available at each Depot.

3 The Depot / Facility Management Plan should set out the approach to managing the depots / facilities, it will be used to demonstrate that the procedures detailed in WGTRMM are used to ensure their effective management.

4 The Depot / Facility Management Plan will remain under periodic review to ensure that changing needs are embraced with effective property management. The key elements of the plan are to be;

- Security Arrangements and Emergency Information
- Premises Management
- Contact Details and Management Responsibilities
- Environmental Issues
- Asbestos
- Legionella
- Fire
- Services
- Hazardous Materials
- Auditing

5 The Service Provider shall monitor and ensure that

- Third parties are following procedures so as not to compromise the security and the safe operation of the depot / facility
- health and safety standards within the depots / facilities are being managed and maintained
- health and safety is being coordinated
- health and safety standards for sub-contractors is being co-ordinated and enforced
- communication on matters of health and safety with others is being maintained
- an appropriate level of health and safety management which at least attains current legislative requirements is being met
- all relevant statutory provisions are complied with

6 The Service Provider will ensure that the depots / facilities

- are maintained
- are developing and are maintaining compliance with policies, standards and procedures applicable to the depot
- provide a secure weather proof notice board near the entrance/s of the depot, dedicated to health and safety matters, with another permanently and prominently affixed to the external wall near the entrance to the maintenance building.
- ensure all relevant health and safety information and instructions, including statutory notices are displayed on the notice boards and are kept up to date.
- prepare and permanently display on the notice board a 1:500 scale plan of the depot managed by them showing the following
    - Access/egress arrangements;
    - Boundary fences;
    - Roadways including traffic and pedestrian routes;
    - Parking areas for plant, employees and visitors;
    - Building outlines;
    - Storage area(s) including the content, where hazardous substances are stored;
    - Fixed plant and equipment;
    - Allocation of storage space;

- Building maintenance responsibilities;
- Fire arrangements;
- Other pertinent features.

7 WG reserve the right to visit/inspect any depot which is involved in WG activities to ensure that health and safety standards are being achieved. As part of the inspection the WG Safety Advisor will consider:

- access, working hours, signing in and out;
- parking areas;
- use of welfare facilities;
- use of depot equipment;
- storage arrangements;
- unauthorised equipment being stored onsite;
- traffic routes on site and segregation of pedestrians
- maintenance and housekeeping
- site security

2.2.25.3.5 Identification of Workplace Hazards

1 The Service Provider must comply with all relevant statutory provisions applicable to their work in depots.

2 In addition to the duties indicated previously in this chapter, The Management of Health and
Safety at Work Regulations (MHSWR) places a duty on employers to identify hazards, make appropriate risk assessments and manage the risks accordingly.

3 The Service Provider must prepare comprehensive risk assessments for each depot or strategic salt storage facility detailing likely hazards that may be encountered and the control measures required to mitigate the associated risks; these control measures must be conveyed to all relevant staff working in the depot or facility and to ensure employees co-operate, inform and exchange relevant information concerning the risks arising out of, or in connection with, their undertakings.

4 In addition, visitors to the depot or facility must undertake a health and safety induction which will include being made aware of potential risks to their health, safety and welfare, and mitigation..

5 Regulation 9 of the MHSWR identifies particular duties on employers who share a workplace, whether on a temporary or permanent basis, requiring them to co-operate and co-ordinate in the carrying out of their statutory obligations, including the exchange of information and the assessment of shared risks. Depots are often shared workplaces.

6 Hazards and associated risks identified within the four broad areas of the Workplace Regulations which may be typically found in depots include:-

- slips, trips and falls caused by the accumulation of waste material, debris and obstructions or slippery floors in garages, workshops and pedestrian routes;
- inadequate levels of lighting around machines in the depot yard, near stockpiles, and elsewhere;
- inhalation of toxic gases, fumes and particulates due to inadequate ventilation in

garages and workshops;
- hazardous substances;
- falls into/from unguarded open inspection pits/winter maintenance hopper ramps:
- plant and vehicular movements
- incorrect use of equipment
- poorly maintained equipment
- entanglement in machinery
- instability of salt stockpiles
- ejection of salt particles from moving parts of winter maintenance vehicles and equipment

2.2.25.4 Winter Maintenance Equipment and Other Vehicles

2.2.25.4.1 Snow Plough Blades

1 Snow plough blades must be kept in designated areas within garages and on the carrier frame provided to allow safe movement and attachment to the vehicle. The area around snow plough blades must be kept clear at all times to allow unhindered and safe access to the blades. Movement and attachment of snow plough blades must only be carried out by relevantly experienced/qualified personnel.

2.2.25.4.2 Salt Loading Equipment, Storage and Handling

1 Hazards associated with salt in depots and facilities include potential instability of salt stockpiles, the hazardous effects of operatives' prolonged exposure to salt, the effects of adverse weather conditions and dangers accompanying the movement and ascent/descent of hoppers by persons at work.

2 The Service Provider must take reasonable steps to ensure that every aspect of work associated with salt storage, handling and loading is considered by the employees and employer involved in such work. Appropriate risk assessments must determine the measures to be taken to comply with relevant statutory provisions and the ensuing control measures must incorporate the instructions for specific items and operations identified.

3 The Service Provider must ensure the cooperation and exchange of relevant information including risk assessments prepared by all employers concerning their undertakings involving salt in depots and storage facilities.

2.2.25.4.3 Salt Loading Equipment (Hoppers)

1 Operatives must keep clear of moving parts and ensure that all guards, screens and ladder loops are in place and remain closed or locked, as appropriate, during operations. Operatives must keep clear of the underside of hoppers when salt is being loaded or dispersed to avoid injury from falling salt.

2 The soundness and security of all guards must be checked. Maintenance Operations in WG hopper bins must only be carried out by competent contractors using a formal permit to work issued by the Service Provider.

3 Ascents and descents of the hopper during normal operations must be by the ladders or stairs. Loose items must not be left on the hopper and lightweight items of large area e.g. inspection hatches, must be properly secured.

4 All personnel movements and activities during exceptionally strong winds and other adverse weather conditions must be assessed and restricted particularly before they ascend hoppers.

2.2.25.4.4 Salt Storage and Handling

1 Work in the vicinity of the salt storage area must only be undertaken by persons who are trained in and aware of the hazards and associated risks involved with the handling of salt and its associated stockpiles (particularly where salt is stored in the open). Hazard data sheets shall be obtained from the supplier and shall be kept at each depot. The Hazard data sheet shall be made available to personnel upon request.

2 Salt must, wherever possible, be stored in salt barns. When stored in the open, salt piles must be formed to ensure that when sheeted there are no valleys formed as seepage of rain through cracks or joins in the sheeting may form crevices in the salt leading to potential collapse of the salt pile.

3 When storing salt in barns, the barn must not be overstocked putting pressure on the structure and must be placed to avoid pollution and spillage.

4 As salt is removed from the stockpile a positive slope, not exceeding 60 degrees to the horizontal, must be maintained to avoid risk to staff and vehicles from the collapse of cliff walls of salt.

5 High winds create further risks to existing control measures in the safe storage of salt. Sheeting, weights and anchorages must be properly secured at all times to mitigate these risks.

2.2.25.4.5 Operations Plans and Manuals

1 Operations plans and manuals developed from the equipment manufacturers' recommendations must be taken as a starting point for scheduling equipment maintenance.

2 These schedules are normally described as time intervals based on maximum use but actual use may be less. Conversely, the environment may be more aggressive than is assumed by manufacturers at the time of installation and this may act to shorten the life of equipment. Before amending the operations plan, an appropriately qualified person must gather and analyse operational information based on past performance and the Health and Safety files.

3 Other means of identifying the need for servicing, such as remote monitoring, may also be adopted. The reasons for any variations to the maintenance schedules to achieve the performance requirements must be recorded and the effects of the changes monitored and reviewed.

2.2.25.5 Picnic Amenity Areas, Public Toilets and Buildings Housing Pumping Chambers

2.2.25.5.1 General

1 The Service Provider shall monitor the operations, the day to day co-ordination and health and safety of the operations at the picnic amenity areas and associated lay-bys, public toilets and buildings housing pumping chambers identified in Appendix 1. The Service provider shall make provision for maintenance emergency response.

2.2.25.5.2 Picnic Amenity Areas

1 For the picnic amenity areas and associated lay-bys the Service Provider will ensure that

Picnic amenity areas and waste paper bins are cleaned;

- twice daily Saturday and Sunday June to September inclusive
- twice daily Monday to Friday, June to September inclusive
- twice daily on all Bank Holidays, April to August inclusive
- twice per week, October to May inclusive

2 In addition the Service Provider will ensure that:

- the picnic amenity area grass is cut so that its maximum length does not exceed 100mm.
- daily safety checks are undertaken
- weekly inspections are undertaken to check for vandalism and damage to furniture, fences and trees
- weekly reports are prepared of the inspections that summarises the inspection and condition of the picnic amenity areas
- damage or vandalism to the picnic amenity areas are reported within 48 hours
- that records of the inspections, maintenance, faults and repairs to the picnic amenity areas, are maintained in an electronic format, the record shall show any faults identified or work carried out

2.2.25.5.3 Public Toilets

1 The Service Provider will ensure that

- toilet block buildings are cleaned
    - i) twice daily every day of the year including Bank Holidays
- the toilet block facilities are cleansed
    - i) twice daily every day of the year including Bank Holidays
- effluent is disposed of
    - i) twice per month September to May inclusive
    - ii) three times per month June to August inclusive
- sewage treatment systems are maintained
    - i) once per month September to May inclusive
    - ii) twice per month June to August

- daily safety checks are undertaken
- weekly inspections are undertaken to check for vandalism and damage to the public toilet buildings and facilities
- weekly reports are prepared of the inspections that summarises the inspection and condition of the public toilet buildings and facilities
- damage or vandalism to the public toilet buildings and facilities are reported within 48 hours
- that records of the inspections, maintenance, faults and repairs to the public toilet buildings and facilities, are maintained in an electronic format, the record shall show any faults identified or work carried out.

2.2.25.5.4 Buildings Housing Pumping Chambers

1 For the buildings housing pumping chambers the Service Provider will ensure

- that major services of the pumps and pumping equipment are carried out at 12 monthly intervals
- that general services of pumps and pumping equipment are carried out at 6 months after the major service (at 12 monthly intervals).
- that the pumps fitted with fault warning devices linked to a radio communication system are monitored for faults, and if necessary, provide equipment to receive fault warning from the devices
- that the fabric of the buildings housing pumping chambers and associated control cabinet/s are inspected in conjunction with the major and general services
- that records of the inspections, maintenance, faults and repairs to the pumps and pumping equipment, and the fabric of the pumping chamber and associated control cabinet/s are maintained in an electronic format, the record shall show any faults identified or work carried out.

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2.2.25.6 Records

2.2.25.6.1 General

1 The Service Provider shall maintain and continually update records of the Motorway Maintenance Depots and other WG property assets associated with the motorway and all-purpose trunk road network within the Service Providers area into the Welsh Government's Electronic Drawing and Document Management System (EDDMS)

2.2.25.6.2 Statutory Records

1 The records are to include

- the CDM Health and Safety Files
- the Asbestos risk assessments
- the Legionella risk assessments, record of the inspections, records of the temperature checks, records of hose reel and vehicle wash systems, maintenance, faults and repairs
- the Fire risk assessments, records of the inspections, maintenance, faults and repairs
- records of the Electrical inspections, maintenance, faults and repairs of the portable equipment, and the records of the Electrical inspections, maintenance, faults and repairs of the fixed electrical installations
- records of the inspections, maintenance, faults and repairs of the gas appliances and installations
- records of the inspections, examinations, maintenance, faults and repairs of the compressed air installations

2.2.25.6.3 Offices, Operational Maintenance Depots, Strategic Salt Storage Facilities, Buildings Housing Pumping Chambers, Picnic Amenity Areas, Public Toilets:Records

1 The records are to include

- the office property management plans
- the inspections, maintenance, faults and repairs of the offices structure, fabric and equipment
- the depot management plans
- the inspections, maintenance, faults and repairs of the depot infrastructure, the structures, fabric and equipment
- the inspections, maintenance, faults and repairs of the pumping chambers, fabric and equipment
- the inspections, maintenance, faults and repairs of the picnic amenity areas
- the inspections, maintenance, faults and repairs of the public toilet fabric and facilities

2.2.25.7 Security

2.2.25.7.1 General

1 The Service Provider is responsible for ensuring that the offices, motorway maintenance depots, strategic salt storage facilities, building housing pumping chambers and public toilets and other ancillary buildings are secure to prevent unauthorised access, and that the security arrangements and equipment are maintained and fit for purpose.

2 Improvements or changes to the security arrangements and equipment are to be identified by the Service Provider, with proposals included in the Service Providers annual bids for approval and funding by the WG.

2.2.25.8 Major, Minor and Emergency Works

2.2.25.8.1 Major works

1 The Service Provider will ensure that third parties who undertake major improvements and capital works at the motorway maintenance depots and other WG property assets associated with the motorway and all-purpose trunk road network shall in accordance with 2.2.25 and statutory requirements maintain a record of the works in an electronic format. The record shall show information required to update the CDM Health and Safety File of the depot or individual structures within the depot, and be passed to the Service Provider for updating or the creation of the CDM Health and Safety File for the depot or individual property asset.

2.2.25.8.2 Minor Works

1 The Service Provider will ensure that third parties who undertake routine maintenance and general minor repairs at the motorway maintenance depots and other WG property assets associated with the motorway and all-purpose trunk road network shall in accordance with 2.2.25 and statutory requirements maintain records of the works in an electronic format. The record shall show information required to update the CDM Health and Safety file of the depot or individual structures within the depot, and be passed to the Service Provider for updating or the creation of the CDM Health and Safety File for the depot or individual property asset.

2.2.25.5.1 Emergency Works

1 The Service Provider will ensure that third parties who undertake emergency works at the motorway maintenance depots and other WG property assets associated with the motorway and all-purpose trunk road network shall in accordance with statutory requirements and maintain a record of the works in an electronic format. The record shall show information required to update the CDM Health and Safety file of the depot or individual structures within the depot, and be passed to the Service Provider for updating or the creation of the CDM Health and Safety File for the depot or individual property asset.

Appendix 1 List of WG Owned Property Assets

Area	Offices	Operational Maintenance Depots	Buildings Housing Pumping Stations	Picnic Areas	Public Toilets
West	None	Pont Abraham	None	Penblewin A40 (W/bound) Pope Hill A4076 (S/bound) Bristol House Lay-by Day-Y Dderwen A487 (W/bound)	Penblewin A40 (W/ Pope Hill A4076 (S/ Bristol House Lay-b (E/bound) nr Pont A Dan-Y Dderwen A4 (W/bound)
Central	None	Ynysforgan Pencoed	North Cornelly B4283 Porthcawl Road (4 pumps) Welfare Road Underpass, Hirwaun (1 pump)	None	None
East	Coryton Wilcrick	Coryton Malpas Wilcrick	M4 Summerway Reen (nr Second Severn Crossing Toll Plaza)	Newbridge on Usk A449 (N/bound) Newbridge on Usk A449 (S/bound) Mitchell Troy A40 (N/bound)	Mitchell Troy A40 (N/bound)

Service provider to complete

2.2.26 Inventory Management, Asset Management Records and Planning

2.2.26.1 Introduction to Network Referencing.

1 The Welsh Government (WG) as Highway Authority is responsible for the operation and maintenance of an Approved Network. The Approved Network includes the all the motorways and all-purpose trunk roads in Wales and is held in a digital format as the Network Referencing. The Approved Network is not static. Roads may be de-trunked and passed to Local Authorities; they may occasionally be re-classified as trunk roads and added to the Welsh Minister's portfolio; new roads may be built and added to the Network.

2 The Welsh Government and its Service Provider (WDM) provide and maintain the WG IRIS (Integrated Roads Information System) Pavement Management System (PMS) which contains the definitive Referencing. The process of defining the Approved Network to a high quality has involved a considerable amount of effort on the part of the Welsh Government, Trunk Road Service Providers and WG Service Provider (WDM). All parties must therefore regard the Approved Network Referencing as a valuable asset that must be maintained.

3 The Approved Network must be used as the definitive location reference for:

- Safety, Detailed and Specialist Inspections and Defect Reporting to Part 1 of WGTRMM
- Visual surveys (of both flexible and concrete surfaced pavements);
- Deflectograph;
- Sideways Force Coefficient Routine Investigation Machine (SCRIM) and;
- Surface Condition Assessment of the National Network of Roads (SCANNER) system.

4 In addition to the Network definition and condition data, WG IRIS contains data that describes the physical characteristics of the Network and its makeup.

5 The traditional use of Link/Section/xsp locational referencing is gradually being supplemented with GPS based systems which are reliant on eastings and northings. The Service Provider Asset Manager should ensure that all newly collected data, across all asset types, is referenced to both systems unless otherwise agreed with the Asset Manager.

2.2.26.2 Pavement Management System (PMS)

2.2.26.2.1 General

1 The management system for the carriageway pavements of the motorway and all-purpose trunk road network, the Pavement Management System, was developed and continues to be enhanced to meet WG policies.

2 The PMS has the capability for :-

- Data management by holding network, construction, traffic, accident (described in Chapter 2.6.8) and condition data against a single referenced network.
- Enhanced analysis and reporting of the data both in map-based and textual formats;

3 The data sets that are currently available to Service Providers are:

- Mapping Software
- Visual Surveys
- Forward Facing Video footage
- WG IRIS Scheme Manager

2.2.26.2.2 The Importance of Up-to-Date Data

1 WG IRIS PMS is an online system from which national, regional and area reports are extracted. It is essential that all data is kept up to date.

2 WG and its Service Provider (WDM) are responsible for the accuracy of the road condition survey data, the traffic and accident data, the integrity of the network referencing and the workings of the PMS. Through the Service Provider WG are to provide the Service Provider with a SCRIM Skid Resistance survey coverage report detailing the surveyable network and an explanation for the missing or invalid data.

3 The Service Provider is required to report annually to WG on the completeness of the data within the PMS and to supply updated information on pavement construction data and any network referencing edits that are required.

2.2.26.3 Introduction to Section Referencing

1 Section Referencing provides a consistent and robust location referencing system, enabling the accurate and reliable allocation of data to the motorway and all-purpose trunk road network for which the WG is responsible. The use of section referencing has resulted in the derivation of a nationally consistent, high quality Approved Network.

2 WG will designate a member of staff as the "Network Referencing Manager" (NRM). This individual will be responsible for checking and reporting on the accuracy, completeness and timeliness of the Approved Network and for liaison with the WG Service Provider (WDM) on matters relating to section referencing.

3 WG will undertake periodic audits of information provided by Service Providers.

2.2.26.3.1 Section Referencing Principles

1 Section referencing divides the Network into sections, each having fixed start and end positions and road alignment. Each section also has certain constant characteristics along its length, for example, the number of permanent lanes and environment (rural / urban).

2 Sections must be terminated at the following locations:

- Major road junction;
- End of slip road taper (sections on both the slip road and main carriageway must terminate);
- Change from one-way to two-way traffic or vice versa
- Change in the number of permanent lanes (short lengths of additional or reduced lanes at or around junctions may be ignored);
- Rural/urban boundary;
- Trunk Road Agency, Highways Agency & DBFO boundary
- Change of road number (including, for example, a change from A5 to A55);
- End of trunk road, e.g. the road becomes a local road;
- Construction type (e.g. concrete and flexible pavements).

3 In addition, care should be taken to select practical section lengths because accuracy is essential to all aspects of section referencing. When selecting sections, account should also be taken of the recommendations on network referencing contained in the RMMS Survey Procedures Manual. Note that:

- Each side of a dual carriageway must be referenced separately;
- Lay-bys separated from the main carriageway (known as ox-bow lay-bys) are sections in their own right. It is not necessary to split sections on the main carriageway to form a junction between the main carriageway and the lay-by;
- Roundabouts are referenced as separate sections
- Bellmouth junctions with splitter islands.

2.2.26.3.2 Section labels

1 Each section is assigned a section label formulated as follows:

- A one digit area code which is 1 for Trunk Roads and motorways;
- A four digit code representing the road number e.g. M4 would be 0004, A470 would be 0470 [NB the only exception to this is the A48(M) which has be allotted the number 0148];
- The road number of up to four digits, followed by a two digit link number. These two digits identify the individual link and each link has been awarded numbers rising sequentially from south to north and east to west;

- A zero followed by a section number of up to two digits.

The following are all examples of syntactically valid section labels:

1005529/05 or 1005529005

1000466/05 or 1000466005

1014810/58 or 1014810058

2 Each section label is individual to that section, irrespective of surrounding sections. There is a requirement to maintain sequential labelling of sections along a road wherever possible.

2.2.26.3.3 Section start and end dates

1 Each section has a start date, i.e. the date on which it is considered to have become part of the Approved Network. Initially each section will not have an end date – it will be known as a "Live" section. An end-date will be defined when the section is no longer considered to be part of the Approved Network. This will be either because the length of road no longer exists, has been de-trunked or has been re-referenced.

2.2.26.3.4 Nodes

1 Within WG IRIS, nodes can be recorded against sections within the Approved Network. A node is a known point starting or terminating a section. Nodes may be classified as either:

- **An embedded node** where there is something physically marking the point, typically a pair of studs, or **Section Reference Marker** in the centre of a lane.
- **A ghost node** where there is nothing physically marking the point.

2 Each node is given a unique label (dependent upon road number and original trunk road agent) and is defined by chainage, a cross-section position (XSP) and a pair of coordinates. As a minimum, a node must be defined by the Service Providers for the start and for the end of each section, each with a pair of coordinates to a target resolution of 1m. The recorded coordinate for the node at the start or end of the section may be taken at any point on the cross-sectional line passing through the node within the extent of the carriageway, and be within 1m that cross-sectional line. In all other cases the coordinate of a node must have a target resolution and an accuracy of 1m.

2.2.26.3.5 Geographic Representation

1 The requirement is for the Service Provider and WG Service Provider (WDM) to identify geographic errors in the link and node system when compared to true geographic position. These should be reported to the WG who will determine appropriate measures.

2.2.26.3.6 Section Reference Markers (SRM)

1 Section start and end node points are referenced on the ground by one or more pairs of cored thermoplastic markers positioned in the left-hand lane of dual carriageways or one-way single carriageways and on one side of two-way single carriageways (see Annexes B & C). The markers are 100mm in diameter and placed 175mm apart. They have a depth of between 10mm and 20mm, and the top surface is level with the road surface. The material is a plastic resin with white filler that contains reflective glass particles. It conforms to British Standard BS EN 1436.

2 The design of the SRM's referred to in this paragraph are patented and the former Welsh Office obtained a patent licence to permit Service Providers to install them on the Approved Network. Annex D refers.

3 They cannot be used for any other purpose (e.g. delineating zebra or pelican crossings) or on any other roads without the patent being infringed. The patent number is GB2179385B and is administered by:

East Midlands Diamond Drilling Ltd.,
Churchfields House,
1 Lockwood Close,
Top Valley,
Nottingham.
NG5 9JN

Tel: 0115-967-9000
Website: http://www.emdd.co.uk

4 The section reference markers form the first order of surveying reference for all maintenance assessment surveys. They must be positioned with a longitudinal tolerance of ±0.25m. The centres of the 100mm diameter holes used to form the section reference markers must be 175mm ±5mm apart (See Annex B).

2.2.26.4 Section Referencing Procedures

2.2.26.4.1 Introduction

1 Section referencing is primarily a desk exercise, but should be supported by site visits if necessary. Changes to section referencing proposed by the Service Provider are to be incorporated with the agreement of WG.

2.2.26.4.2 Section Length Changes – Re-referencing / Re-calibrating a Section

1 Before changing a section's length, the Service Provider must measure the distance between the start and end nodes using a calibrated measuring device, capable of measuring to an accuracy of ±1m. If the section reference markers are not in place, these must be re-instated before the length is measured. If a section length is found to be wrong, adjacent sections must be investigated to ensure that the overall Network length is consistent with identifiable physical features, for example, roundabouts.

2 **Re-calibrating** a section causes associated condition data to be stretched (or shrunk) in length. Sections should only be re-calibrated when correcting a section length that was found to be wrong.

3 If a section's measured length is more than 10% for sections shorter than or equal to 500m in length) or 50m (for sections over 500m) of the current PMS length, and other data is located on that section (for example, condition data) the section must be re-referenced not re-calibrated.

4 **Re-referencing** means end-dating an old section and creating a new one – it should happen only when sections change or are outside the recalibration tolerance. The new section created should be populated with any condition and wheeltrack information from the original section -copied and assigned to the relevant lanes -ensuring that survey data remains assigned to the correct real-world location.

5 A section must be re-referenced by agreement with WG under the following circumstances:

- The start and/or end point of the section has moved (for example, the location of speed limits has moved). This may also result in a length change;
- A change in section function or direction, or;
- A change in the number of permanent lanes, environment or one-way or two-way status;
- Re-calibration is not possible because the recalibration tolerances are exceeded.

2.2.26.4.3 Changes associated with schemes

1 WG will carry out the section referencing resulting from improvement schemes.

2 WG and their consultant / designer will provide a set of geo-referenced highway layout plans at the time of the scheme opening to traffic in order that Safety Inspections to Part 1 of WGTRMM . This will be initiated by WG's Network Referencing Manager, who is responsible for the section referencing, including creating any new sections within PMS.

3 The Service Provider should consider the effect of the scheme on existing sections, i.e. consider which sections need to be modified, retired or replaced in consultation with the NRM. Existing sections must be retained where the road alignment and other characteristics remain intact, e.g. where the section is only reconstructed and its alignment remains unchanged. Otherwise sections must be retired or created as appropriate.

4 The installation / reinstallation of section reference markers and the removal of any redundant markers must be undertaken as part of the improvement scheme contract to ensure the correct section reference markers are in place before the new or improved road opens.

2.2.26.4.4 Changes not associated with schemes

1 For changes that the Service Provider considers may be necessary and which are not associated with any scheme, the Service Provider should inform WG accordingly for consideration. If these include changes to the extent of the section(s), the installation of new section reference markers and the removal of any redundant markers must be carried out to match the new section referencing.

2.2.26.4.5 Changes instigated by the WG

1 Where WG may deem it necessary to modify the section referencing, WG will discuss any changes required with the Service Provider before implementing.. The WG reserves the right to make changes to section referencing.

2.2.26.4.6 Creation and Retirement Data

1 When any section is created or retired, the reason (and other supporting data) must be entered into PMS.

2.2.26.4.7 Section Nodes at Trunk Road Agency Boundaries

1 Sections must terminate at a Trunk Road Area boundary. A common node will therefore be located at the boundary between Service Providers. Both Service Providers must use a common node number at this point. This number must therefore be unique within both Areas.

2 When changes are made to nodes located at boundaries, one Service Provider is to be responsible for the placement and recording of the Section Reference Marker(s) for this node.

2.2.26.4.8 Installation of Section Node Reference Markers

1 Section reference markers must be installed midway between the wheel tracks of the appropriate lane. If the wheel tracks are not clearly defined by wear or colour then the section reference markers should be installed following observation of passing traffic. The section reference markers must be installed in accordance with Annex B.

2 Examples of typical layouts for section reference markers are shown in Annex C.

3 Section reference markers must be installed clear of all carriageway markings, e.g. “Give Way” lines, lane arrows and junction markings. Metal studs previously used as section reference markers must be replaced by cored thermoplastic section reference markers and the road surface made good, where necessary, when lane closures are in use for other reasons (e.g. maintenance works).

2.2.26.4.9 Recording of Section Reference Markers

1 In order to enable the accurate replacement of lost or damaged section reference markers, the Service Provider must keep records of their locations. Service Providers must record this information within WG IRIS as nodes. The Service Providers are then responsible for the completeness, accuracy and timeliness of that node data.

2.2.26.5 Cross Section Positions

2.2.26.5.1 Definition of Cross Section Positions

1 Each reference section represents a strip of road including both the carriageway and off-carriageway features (e.g. footways and verges) up to the highway boundary. The section therefore may be considered to consist of a number of longitudinal strips that correspond to features such as lanes, and lines that indicate the edge of the carriageway etc. These longitudinal strips and lines are referred to as Cross Section Positions (XSPs). It should be noted that each strip does not have to have a constant width. The XSPs that may be used within WG IRIS are shown in Table 2.5.1 below with the numbering and position of the XSPs across the highway:

***Table 2.5.1* – Cross Section Positions that may be used within WG IRIS**

Key	Position
1	Left Outside Verge (including side slopes)
2	Left Footway
3	Left Verge
4	Lane 1 (hard shoulder on motorway)
5	Lane 2 (Left lane on motorway)
6	Lane 3 (Middle lane on motorway)
7	Lane 4 (Right lane on motorway)
8	Right Verge
9	Right Footway
0	Right outside Verge (including side slopes)
Q	Acceleration Splay
W	Lane for left turning traffic*
E	Lane for right turning traffic* or lane 5 on motorway
R	Bus Lane – other traffic prohibited at all times* or lane 6 on motorway
T	Crawler Lane*
Y	Other - undefined
*	To be used where extra width is created (not where existing lane is re-designated)

2 It should be noted that the XSP conventions assume that the two sides of a dual carriageway are modelled independently. Thus, any details relating to the central reservation must be modelled by Right Off Carriageway XSPs.

3 Examples of typical use of on-carriageway XSPs are shown in the diagram in Annex C.

2.2.26.6 WG IRIS / PMS & RMMS Data

2.2.26.6.1 Carriageway Construction

1 WG IRIS contains the record of pavement construction for the Approved Network. The pavement record is stored against each XSP and is to be updated from as-built records following all new construction / maintenance actions.

2.2.26.6.2 SCRIM Investigation Levels (IL)

1 The SCRIM investigation levels are set in accordance with the WG document -WG Skid Resistance Strategy and Guidance on the Implementation of HD 28/04, October 2007 – together with DMRB HD28 *Skid Resistance.*

2.2.26.6.3 Speed Limits

1 The legal speed limit is stored against each section or parts therein, where speed limits differ over the length of the section.

2.2.26.6.4 Carriageway Inventory

1 The carriageway inventory provides the definitive record of non-pavement carriageway assets. The Routine Maintenance Management System (RMMS) Manual sets out the list of items that WG requires to be stored in WG IRIS.

2.2.26.6.5 Forward Facing Video

1 A forward facing video had been produced from the SCANNER surveys. Images of the road network at 5m intervals are accessed through viewing software that links the images to their position on a map.

2.2.26.6.6 Machine Survey Pre-processing (MSP)

1 The WG Service Provider (WDM) validates, route fits and processes all machine survey data provided to WG IRIS. WG is the manager and owner of the data

2.2.26.6.7 Scheduled Road Works

1 Refer to WGTRMM Part 2 Network Occupancy for further information.

2.2.26.6.8 Accident Data

1 The Welsh Government is committed to improving safety on its network and provides guidance for managing safety and provides injury accident data at both national and local levels. With the inclusion of accident data within the WG IRIS system, those individuals working in the fields of road safety and maintenance on the trunk road network have desktop access to data on injury and fatal accidents.

2.2.26.6.8.1 Source of the accident data

1 The data is from the WG Statistics Division all-Wales injury accident database which is based on data from the STATS 19 returns of the 4 Welsh Police Forces. The STATS 19 contains all the objective information recorded by the police when a road traffic accident is reported. The STATS19 form consists of attendant circumstances, a vehicle record for each accident-involved vehicle and a casualty record for each casualty. The WG Statistics

Division will validate the data only in regard to inconsistencies in the data contained within the form and its constituent records.

2 Every effort must be made to identify and eliminate the errors which have sometimes occurred when making the correct locational assignment of accidents.

2.2.26.6.8.2 Limitations on the Use of the Accident Data.

1 There are three main types of data set, validated, unvalidated and provisional or operational data. It is important that WG, with it's Service Providers, uses all the data available but it must be borne in mind that some data sets have limits as to their use.

2 When unvalidated, provisional or operational data has been used in the production of any document, a clear statement that highlights the nature of the data, gives a caveat that it has not been fully validated and consequently may be incomplete or inaccurate (eg accidents not included, reported late or casualty status changed) is required.

3 An example caveat is :-

> " The statistical accident data referred to in this document (or named sections) was not derived from the National validated accident statistics but was sourced from (*insert source*). As this data has not yet been fully validated by WG it cannot be assumed to be a complete data set as it may be found to be incomplete or contain inaccuracies. The requirement for up to date information for (operational purposes, road safety audit) was a consideration in the decision to use this data and as it was sourced from (*insert source*) who (*insert collection method*) it is sufficiently robust to be used in this context."

2.2.26.6.8.3 Other Sources of Trunk Road Accident Information

1 The WG CRM Database contains incident event information from the North & South Wales Traffic Management Centre Control Rooms.

2 The accident database maintained by the Local Authorities and their database provider (KeyAccidents) provides validated accident information.

2.2.26.7 Pavement Condition Surveys

2.2.26.7.1 Background

1 This section describes the strategy for Pavement Condition Surveys, which is fully supported by the facilities provided in WG IRIS. For the purpose of clarity, a differentiation is made between surveys and inspections:

> **Surveys -** Defined as the collection of data either by machine or visually. Machine surveys are the collection by machine of measurements. Visual surveys are a mixture of assessments and measurements, with data capture possibly by hand-held computer;
>
> **Inspections** - Defined as viewing of the relevant length of road, either on foot or from a slow moving vehicle, to apply and to record data.

2.2.26.7.2 Pavement Condition Survey Strategy

1 There are two levels of pavement condition survey:

- Network level
- Scheme level

2 All network level pavement issues (for example, network level reporting, budget planning, targeting of priority lengths for treatment) will be based on the data collected by the Network level surveys. See Figure 2.2.26.7.1.

3 Any additional data required to define / design individual maintenance scheme will be collected by the scheme level surveys. The actual scheme level condition surveys required to be undertaken for each individual scheme will vary from scheme to scheme.

4 Lengths of road that will be candidates for treatment will be defined by the relevant Service Provider's maintenance engineer, and will include those lengths identified by the Network surveys and any other lengths that the Service Provider maintenance engineer wishes to consider for other reasons.

5 After the Network level surveys, and prior to the confirmation that any length of road is considered a candidate for treatment and subject to scheme level surveys, an inspection must be carried out by an engineer (or experienced Inspector). This inspection must formally confirm that the length identified from the Network surveys, or by other means, is a proper candidate for treatment and give the engineer or Inspector's considered views of other elements of the proposed work, which are currently considered as part of the WG Value Management exercise.

2.2.26.7.3 Network Level Surveys

1 The network level machine surveys are:

- SCANNER undertaken on the entire network every other year;
- SCRIM currently carried out each year in the most heavily trafficked lane, usually lane 1.
- Deflectograph being undertaken on 20-30% network each year.

2 WG (via Transport Scotland) centrally procures and manages the annual SCANNER and SCRIM surveys.

2.2.26.7.4 Scheme Level Surveys

1 The range of scheme level surveys includes:

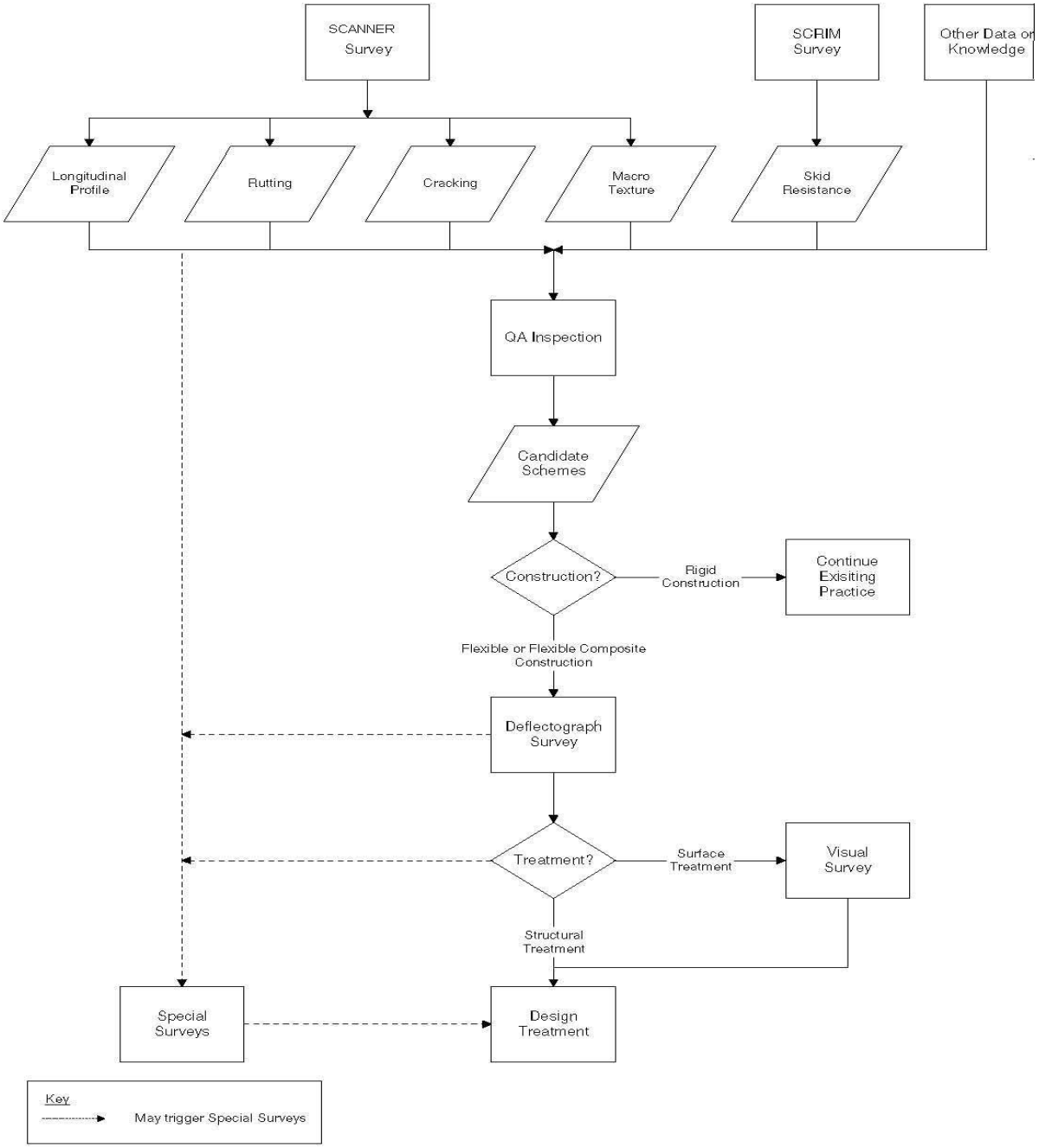
- **Deflectograph** for all schemes other than existing rigid construction, providing data that is needed to assess the structural condition of the pavement and to determine whether the pavement is, or remains, long life.

- **Visual Condition** for flexible pavements requiring surface treatment, providing data to Surveys establish the preferred option for surface treatment for the scheme. The survey will vary in content depending on the existing pavement construction. If possible, the visual condition survey should be undertaken at the same time as other Scheme level surveys to limit the number of lane closures.

2 In addition, special surveys that are relevant to a particular scheme, or options for a scheme, may be undertaken including:

- Falling Weight Deflectometer (FWD);
- Ground Penetrating Radar (GPR)/Seismic;
- Dynamic Cone Penetrometer (DCP);
- Coring or trial pits (including any subsequent laboratory testing of samples);
- CCTV surveys of drainage pipe runs;
- Topographical surveys.

Figure 2.2.26.7.1 Pavement Condition Survey Strategy



3 It is intended that data from scheme level surveys (including Special surveys) will supplement the data available from the Network level surveys, which will be available (other than crack intensity) at a disaggregated level for scheme consideration. It should be noted that the data from the Special surveys cannot be stored in IRIS PMS for storage of this information.

2.2.26.7.5 Survey Procedures

1 All surveys must be carried out in accordance with Volume 7 of the Design Manual for Roads and Bridges.

2.2.26.7.6 Submission of Bids for Pavement Condition Surveys

1 Requirements for the preparation and prioritisation of Major Road Maintenance Schemes and Skid Resistance Schemes, and accompanying surveys, are provided by WG.

2.2.26.7.7 Visual Condition Surveys

1 A surface condition scoring matrix is considered as part of the VM process and detailed in the WG VM Guidance document, " New Value Management Approach to the Preparation and Prioritisation of Major Maintenance Road Maintenance and Skid Resistance Schemes, September 2013". (Under review in respect of interventions)

2.2.26.7.8 Detailed Inspections

1 In order to support the design, evaluation and audit of potential maintenance schemes on flexible carriageway pavements the Service Provider undertakes Detailed Surveys in accordance with WGTRMM to identify defects in paved areas, footways, cycletracks and hard-paved verges for reporting on performance of that network.

2.2.26.7.9 National Road Maintenance Condition Survey (NRMCS)

1 The Welsh Government does not actively participate in the NRMCS.

2.2.26.8 Records in relation to Highway Structures

2.2.26.8.1 General

1 The overarching principles for the provision and maintenance of records for trunk road structures throughout the UK are set out in

- BD62 'As Built, Operational and Maintenance Records for Highway Structures',
- BD63 'Inspection of Highway Structures',
- WG Structures Inspection Manual (proposed document)
- BD53 'Inspection and records for Road Tunnels'
- Road Tunnel Safety Regulations 2007, amended 2009.
- WGTRMM

2 Records for new build, modifications and renewals works to trunk road highway structures in Wales are required to be supplied in accordance with BD62 Annex C.

3 The acceptance into WG structures databases of records for new build, modifications and renewal works, together with the upkeep of operational records in WG structures databases, is the responsibility of WG. The Service Provider is responsible for inputting BD63 reports of General, Principal and Special Inspections into the structures database. The Service Provider should take reasonable steps to satisfy themselves that the WG structures database is correctly populated correctly at all times.

2.2.26.8.2 Records of Highway Structures

1 The scope of highway structures for which records must be held and maintained in WG structures databases, and inspections undertaken is given in BD62 Table 1 (and Annex C5). The normal maintenance inspection regime of General, Principal and Special Inspections in accordance with BD63 must apply to each Structure Type shown in the Table.

2.2.26.8.3 Type of Records required

1 The type of as built, operational and maintenance structure records to be held are described in Section 4 of BD62.

2.2.26.8.4 Records at the Transfer of Existing Third Party Structures to the Ownership of the Welsh Government

1 When transfer of ownership from a third party to the WG is to take place, WG must create a suitable inventory in WG structures databases. Following the handover inspection (refer to Acceptance Inspections in BD63), the Service Provider must provide the inspection records to WG for inputting into the structures databases in accordance with 2.2.26.8.1

2.2.26.8.5 Supply of Records for Structures on the WG Network Owned by Others

1 For newly built structures over, under or adjacent to the highway but owned by others the Owner should supply to WG, copied to the Service Provider, summary information about the structure for inputting into WG structures databases, comprising:

I Minimum headroom information for each span over the road, rail or navigable waterway.

Ii Three electronic Report Images required for the Form ROADS 277. These are a 1:2500 scale map of the vicinity, a general elevation photograph and a general arrangement drawing. WG and the Service Provider should agree the format of these images with the Owner.

2.2.26.8.6 Identification Markings

1 Service Providers must carry out the identification marking of highway structures in accordance with BD45. Identification markings for new structures must be carried out at the same time as the first Principal Inspection. For new structures the identification marking should be installed in advance of the Pre-Opening Inspection.

2.2.26.9 Drainage Records & Inspections

2.2.26.9.1 General

1 It is essential to have accurate data on the location and condition of highway drainage assets in order to plan ordered and cost effective maintenance. Data gathered must be stored in a manner that permits quick and easy access and in a format that is readily understandable to the Service Provider and Welsh Government irrespective of the data source.

2 HD43 defines the data to be collected and the way in which it should be recorded. Data storage software is not specified, but a Geographical Information System (GIS) **MUST BE USED**. The Welsh Government currently provides the Welsh Government Drainage Data Management System (WADDMS) to ensure national uniformity within its network.

2.2.26.9.2 Data Collection & WADDMS

1 Information relating to highway drainage items can be obtained from a number of sources and in a variety of formats.

2 The Service Provider is responsible for collating drainage data from all available sources and also selecting which data is to be included within WADDMS.

2.2.26.9.3 Inventory

1 HD43 identifies the types of drainage inventory items to be included and are classified as either ‘point’, ‘continuous’ or ‘region’ items.

2 Definitions are provided for point items e.g. manholes, continuous Sub-surface items e.g. culvert, continuous surface channels e.g. swales, continuous surface water & sub-surface channels & drain Items e.g. filter drains, and region Items e.g. sedimentation pond.

2.2.26.9.4 Record Types

1 HD43 also identifies the attributes to be recorded for all inventory items be they ‘point’, ‘continuous’ or ‘region’ items.

2.2.26.9.5 Data Referencing

1 HD43 lays down the requirements for the referencing of each item based on its position relative to the Ordnance Survey Grid.

2.2.26.10 Geotechnical Asset Information Management

2.2.26.10.1 General

1 The operational database for the management of geotechnical asset information is the Welsh Government's Geotechnical Data Management System (WAGDMS). It is important that all parties recognise the importance of the data and take steps to ensure that decisions taken as part of the day-to-day management of the Network are supported by up to date and accurate information.

2 This section provides guidance on the general roles and responsibilities with regard to data management and sets out the general allocation of such roles and responsibilities between the Welsh Government and the Service Provider.

2.2.26.10.2 Overview of System

1 The primary purpose of the system is as an electronic data and risk management system to support the overall management of the geotechnical asset. For Service Providers, WAGDMS acts as the repository and means to manage the information required by HD41/03, 'Maintenance of the Highway Geotechnical Assets'.

2 It comprises a Geographical Information System (GIS) and the following component databases and datasets:

Geotechnical Asset Database (GAD): A national database functioning as an inventory of the geotechnical asset and its condition for the whole of the Network. It also contains functions to log geotechnical defects, manage their risk to the Network and provide records of remedial measures.

Historic Reports Database: A national database of the listing of historic geotechnical reports and ground investigation data (but not the actual data/reports). Reports relate to the construction, improvement and maintenance of the entire Network prior to 2010.

Reports Database: A national database of the listing of geotechnical reports and ground investigation data (but not the actual data/reports). Reports relate to the construction, improvement and maintenance of the entire Network. The Reports Database is also the repository for geotechnical reports and records that are stored in electronic (.pdf) format and are available to view on-line.

Boreholes Database: A national database of the listing of borehole locations abstracted from the archive of geotechnical reports. Some electronic records are attached to a number of these in the form of borehole logs and AGS data (Association of Geotechnical and Geo-environmental Specialists).

Contacts Database: A database of registered WAGDMS users, British Geological Survey (BGS) Regional Geologists and key geotechnical contacts.

Third Party Datasets: The front-end user interface of the Geographical Information System (GIS) allows access to third-party datasets e.g. from the Ordnance Survey (OS), British Geological Survey (BGS), airborne laser scanning (LiDAR) surveys and

high-resolution aerial ortho-photography. Compressed versions of digital aerial photo images of the whole network, extending approximately 1km either side of the highway, are a recent addition to the system.

2.2.26.11 Environmental Information System

2.2.26.11.1 General

1 The operational database for the management of environmental asset information is the Welsh Government Environmental Information System (EnvIS). EnvIS consists of specific environmental data which is used to assist in managing the environment, within and surrounding the trunk road network.

2.2.26.11.2 Overview of System

1 EnvIS data is categorised as either environmental inventory or environmental management information, which together, provide important details on the characteristics and management of Environmental Elements located within and surrounding the trunk road network. Environmental Elements are defined in IAN 84/07 as part of EnvIS environmental inventory and are man-made or natural assets comprising the environment within and surrounding the trunk road network.

2 **Environmental Inventory** – contains data relating to the characteristics of specific Environmental Elements within the following environmental topics:

- Landscape;
- Nature Conservation and Ecology;
- Water;
- Cultural Heritage;
- Air Quality;
- Noise, and;
- Waste and Material Resources.

3 Environmental inventory specifically records the following information (where appropriate):

- an Element's classification and the status of that Element (what it is);
- an Element's specific location (where it is located), and;
- an Element's intended functional objective(s) and environmental objective(s) (why it is there).

4 **Environmental management information** – is data attached to individual Environmental Elements and assists in informing both the Welsh Government and Service Provider of the broad environmental management requirements of the trunk road network, and corresponding environmental performance.

5 For each Environmental Element, environmental management information specifically records the following information (where appropriate):

- details of any environmental commitments entered into;
- type of management actions required for each Environmental Element in line with its functional and environmental objective(s);
- status of each management action planned / actual date for completion of each management action; and
- condition and / or performance rating of each Environmental Element against its function.

2.2.26.12 WG Electronic Drawing and Data Management System (EDDMS)

1 The purpose of EDDMS is:

- To facilitate the storage, retrieval and amendment of drawings that are crucial for the safe operation, maintenance and improvement of the motorway and trunk road network in Wales; and
- To hold key documents/ service information in a consistent format in a single central repository that can be accessed quickly in the event of emergencies.

2 The EDDMS system is located at wag.causeway.com and is managed via the EDDMS Protocol.

2.2.26.13 WG Requirements for Building Information Modeling (BIM)

1 BIM is a process involving the generation and management of digital representations of physical and functional characteristics of places.

To be developed

2.2.26.14 Asset Management involving WG Major Projects and Road Improvement Schemes.

2.2.26.14.1 Process

1 As and when completed major projects and road improvements are handed over to the Service Provider it is expected that maintenance and as-built inventory information will be provided to the Service Provider within 12 months of the handover. The information is to include:

- CDM Health & Safety file;
- Structures Records as DMRB BD62
- Roads Maintenance Manual;
- Street Lighting Maintenance Manual;
- Operational manuals for ancillary items such as Interceptors, Pumping Stations etc;
- As-built design drawings in an electronic format compatible with industry standard computer aided design and also GiS formats used by IRIS (a schedule of selective as-built drawings required by the Service Provider may be agreed between WG and the Service Provider);
- Drainage schedules to DMRB HD43 format;
- Pavement construction records compatible with IRIS;
- Land Reference Schedules and Plans;
- Accommodation Works Schedules and Plans;
- CPO Schedules and Plans;
- Line, Side Roads and Stopping-up Orders;
- Derestriction, Speed Limit and any other Traffic Regulation Orders;
- Details of all Departures from Standard;
- Details of all DMRB HD19 Road Safety Audits.

2 On the basis that any new soft estate areas are handed over after a 5 year period, the following information is to be handed over at 5 years:

- As-built design drawings in an electronic format compatible with industry standard computer aided design and also GiS formats used by IRIS
- As-built landscaping drawings;
- Environmental Mitigation Schedules and Plans;
- Environmental Maintenance Manual;
- Environmental Statement;
- Environmental Impact Assessment;
- Any Licenses associated with environmental and statutory consent processes.

3 WG are to provide the Service Provider with the date from which any new major project or road improvement scheme will become the responsibility of the Service Provider for Safety Inspections to Part 1 of WGTRMM. This date is subject to agreement between WG and the Service Provider.

4 WG are to provide the Service Provider with the date of the initial Acceptance Inspection (which should be the Pre-Opening Inspection to BD63 Section 5) of a new structure, following which, subject to agreement between WG and the Service Provider, the programme for General and Principal Inspections, to BD 63, will commence.

Annex A Section Creation and Retirement Data

Introduction

This annex describes the data requirements within WG IRIS

Data Requirement

Within WG IRIS the section data fields required for network attributes are:

- Road
- Section label
- Start date
- End date
- Length
- Section Function
- Operational Area
- Permanent Lanes
- Single or Dual
- Environment
- Local Authority
- Speed Limit
- Location description
- Start Node
- End Node

Sections Creation (not stored at present)

Creation Type is to be selected from the following:

- **New Build**. For all section creations resulting from a construction or improvement scheme. This includes modified sections – e.g. where they are widened or lengthened.
- **Trunking**. When the section addition results from a local authority road being brought into the Welsh Government's ownership.
- **Re-referencing.** The new section has been created solely due to re-referencing – this is most common following a road number change.
- **Data Cleansing.** When a section is 'found' i.e. the section has been in existence and under the control of Welsh Government but has not previously been recorded.

Retired Sections (not stored at present)

Retirement Type is to be selected from the following:

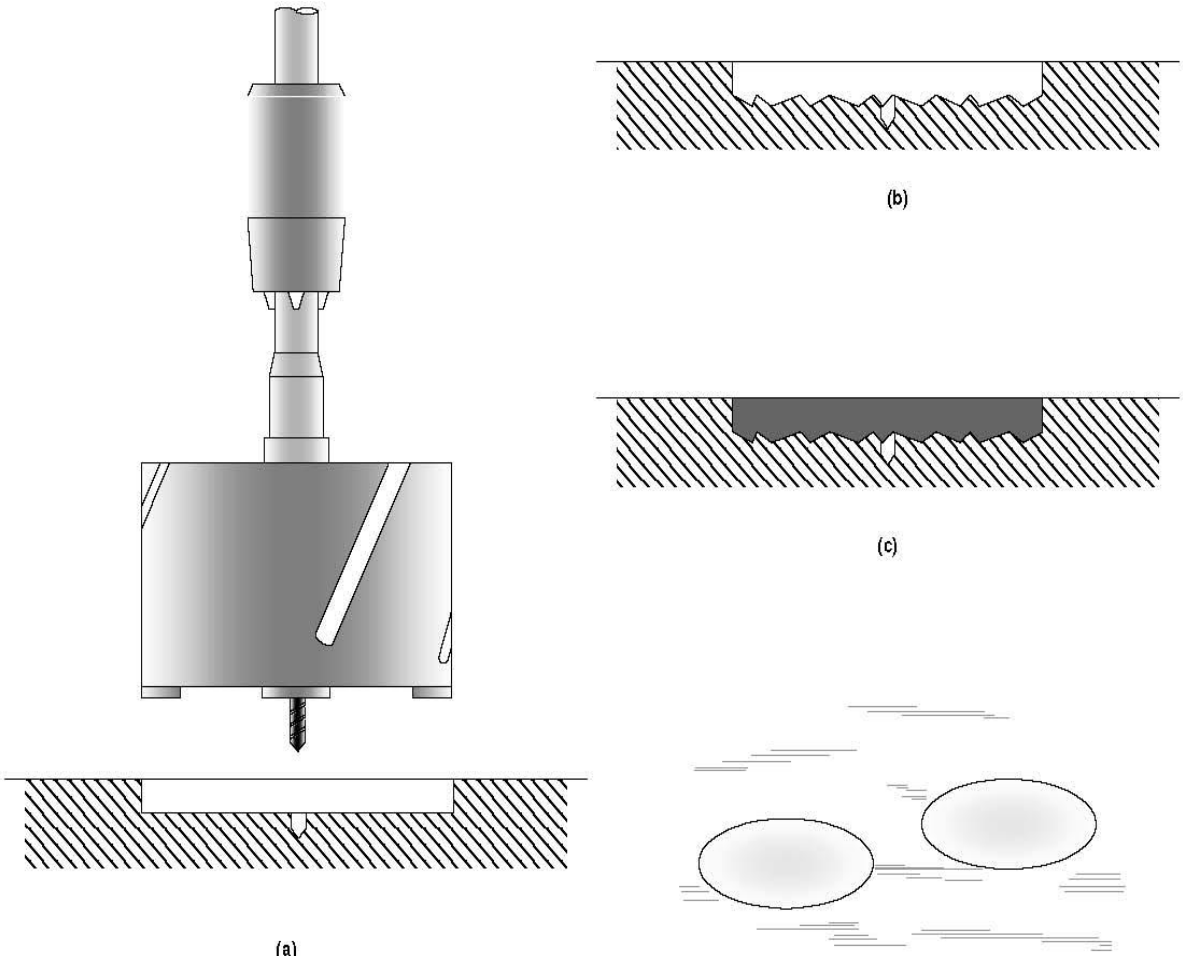
- **Demolition**. For all section retirements resulting from a construction scheme, e.g. an existing pavement section is demolished as part of a bypass scheme.
- **De-trunking**. When the section retirement results from the section being transferred to local authority management.
- **Re-referencing.** The section has been retired solely due to re-referencing – this is most common following a road number change.
- **Data Cleansing.** This type should be selected when a section is retired due to the fact that it should not be recorded as a section e.g. a single physical section has been recorded twice.

Annex B Method of Installation of Section Reference Markers

Extract from patent number GB2179385B

A pocket is formed in the road surface by a drilling technique. A drill is used comprising a central pilot bit surrounded by an annular bit. The pilot bit permits drilling of an annulus by the annular bit in a precise location by guiding the annular bit. The annulus has an outer diameter of approximately 100mm and a depth of between 5 and 15mm. An annular recess is formed in the road surface and a pocket is filled with a heated fluid thermoplastic material to the uppermost edge of the pocket and the material allowed to cool and set to form a stud. The jagged base of the pocket keys the stud in the pocket. The stud projects slightly above the top of the pocket, the amount of the projection being determined by the surface tension of the fluid material during the forming of the stud. See (a) to (d) below.

Figure B1: Method of Installation of Section Reference Markers



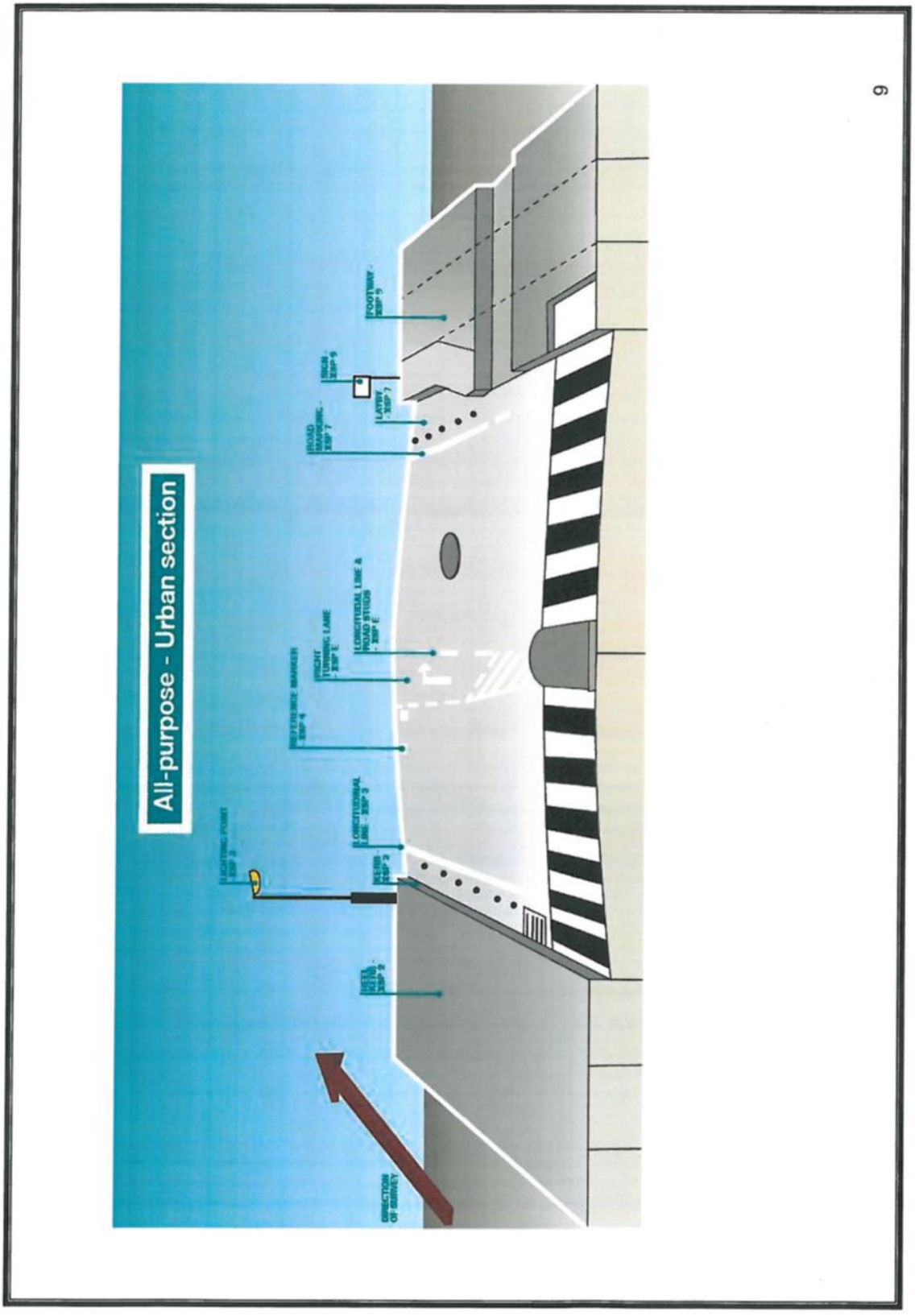
(a) Drilling of pocket

(b) Annular recess formed by drilling

(c) Filling of pocket with thermoplastic

(d) Finished Section Reference Markers (or Studs)

Annex C Typical use of on-carriageway XSPs and layouts for Section Node Reference Markers



These notes apply to all Figures in this Annex

1. On dual carriageways, section reference markers must be positioned in the centre of the wheeltracks of the left hand lane.
2. On single carriageways section reference markers must be positioned in the centre of the wheeltracks in the left hand lane in one direction only.
3. Section reference markers must be installed at staggered crossroads as if it is two separate ‘T’ junctions.
4. The cored thermoplastic markers must be installed on a line perpendicular to the nearside kerb, edge line or projected kerb line passing through the notional position of the end of the sections(s). Markers must be installed clear of all carriageway markings.

Figure C1 Position of Markers of Two Lane Dual Carriageway

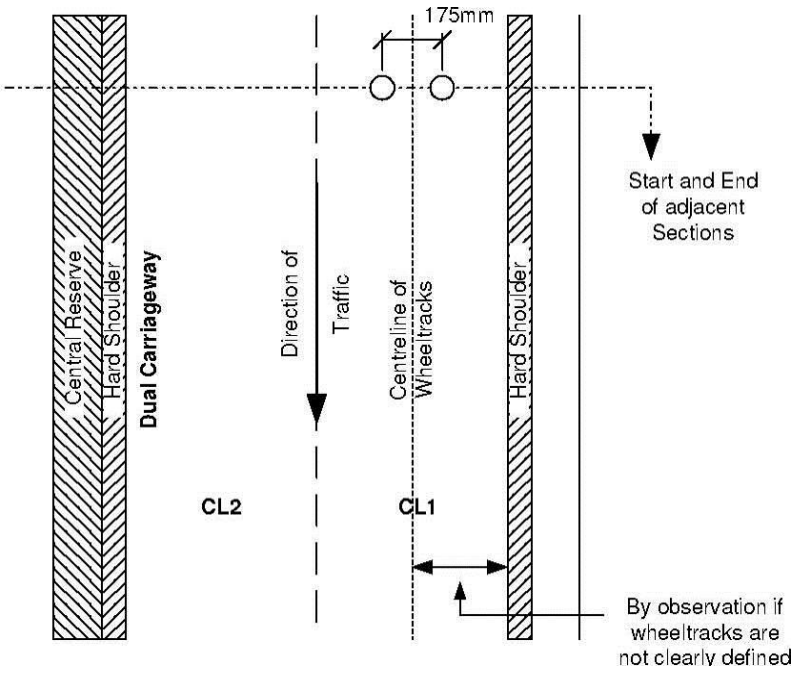


Figure C2 Position of Markers on Two Way Single Carriageway

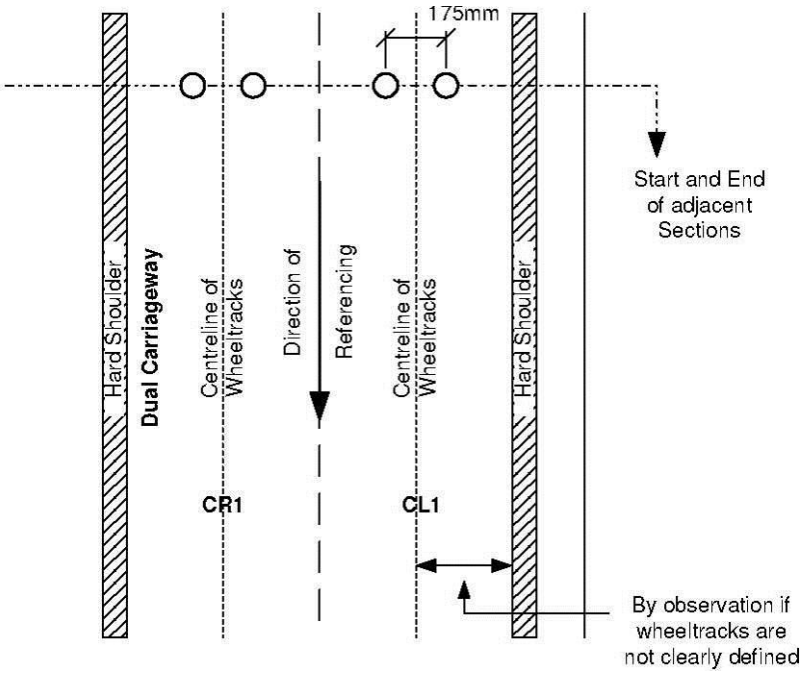


Figure C3 Start of Dual Carriageway

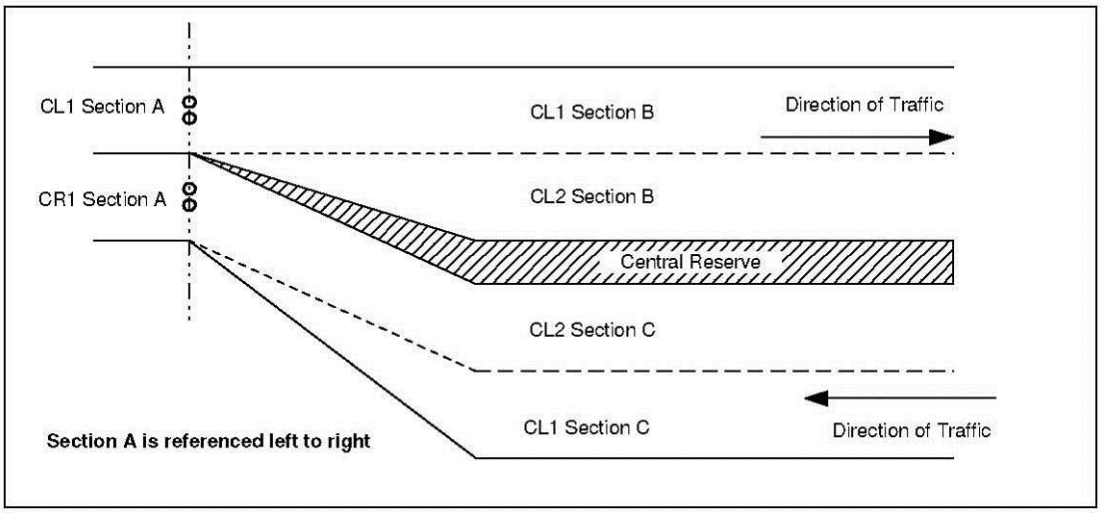


Figure C4 Slip Road entering Main Carriageway

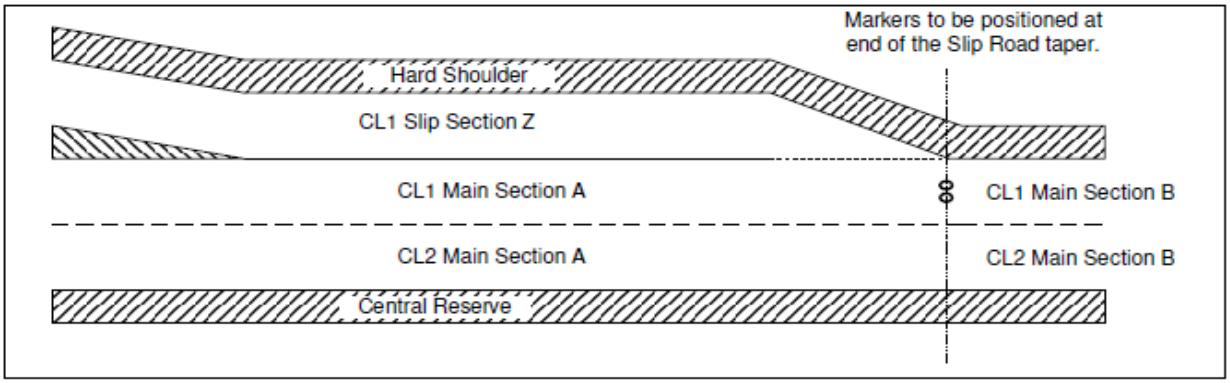


Figure C5 Main Line Addition at a Ghost Island Merge

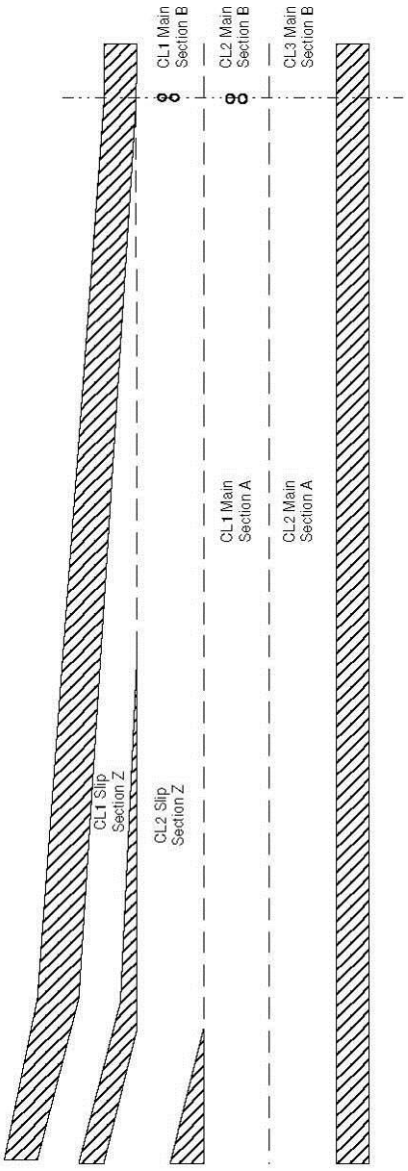
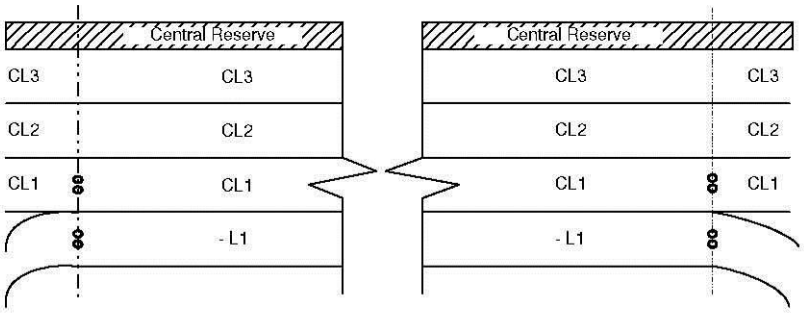
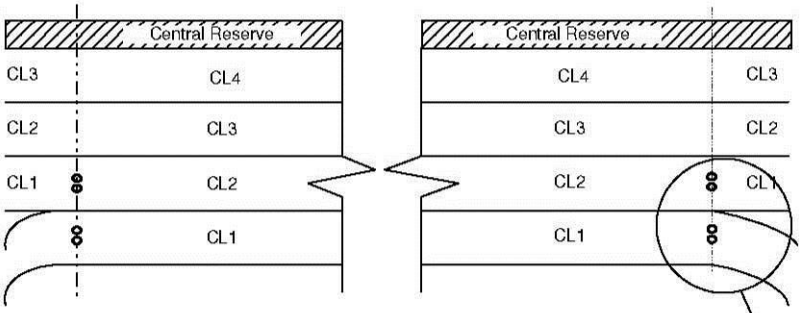


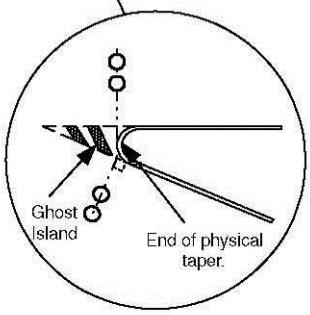
Figure C6 Lane Gain and Drop



a. **Lane gain and drop where only entering / leaving traffic is likely to use the additional left hand lane**



b. **Lane gain and drop where through traffic is likely to use the additional left hand lane.**



Note: All Section Referencing Markers for lane gain / drop are to be positioned according to the adjacent detail. In the case of the "lane drop" scenario the end of the physical 'nosing' is to be used to position the markers.

Figure C7 Trunk Roads meeting at a 'T' Junction

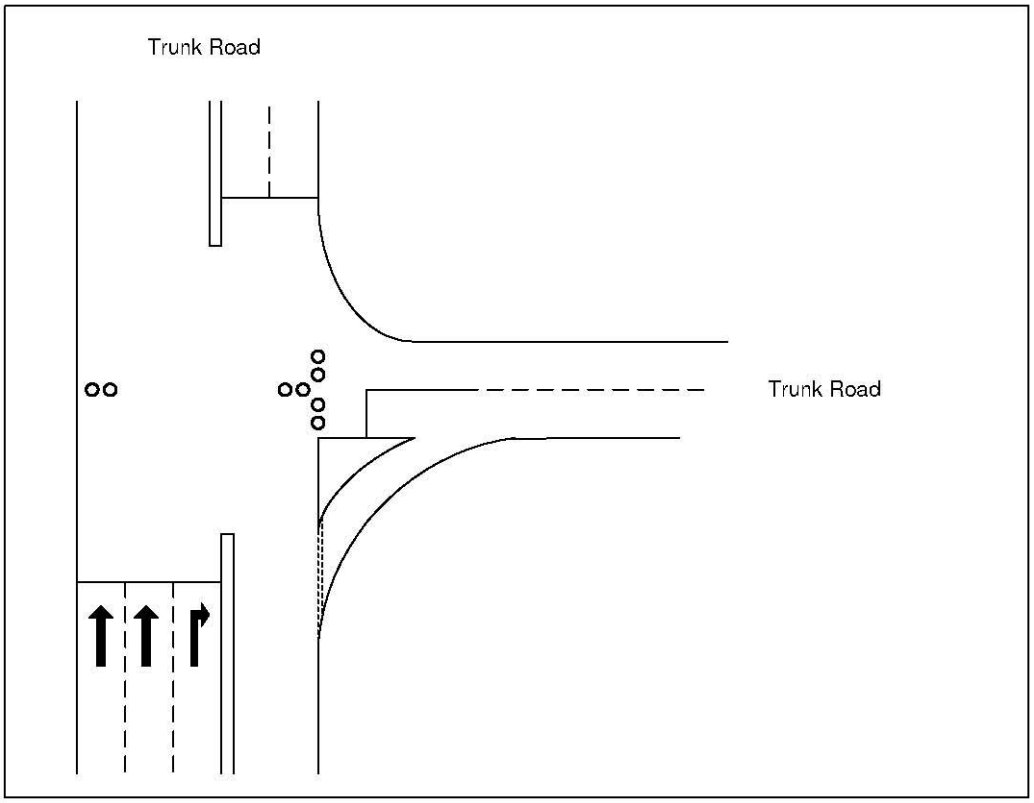


Figure C8 Trunk Roads meeting at a Cross Roads

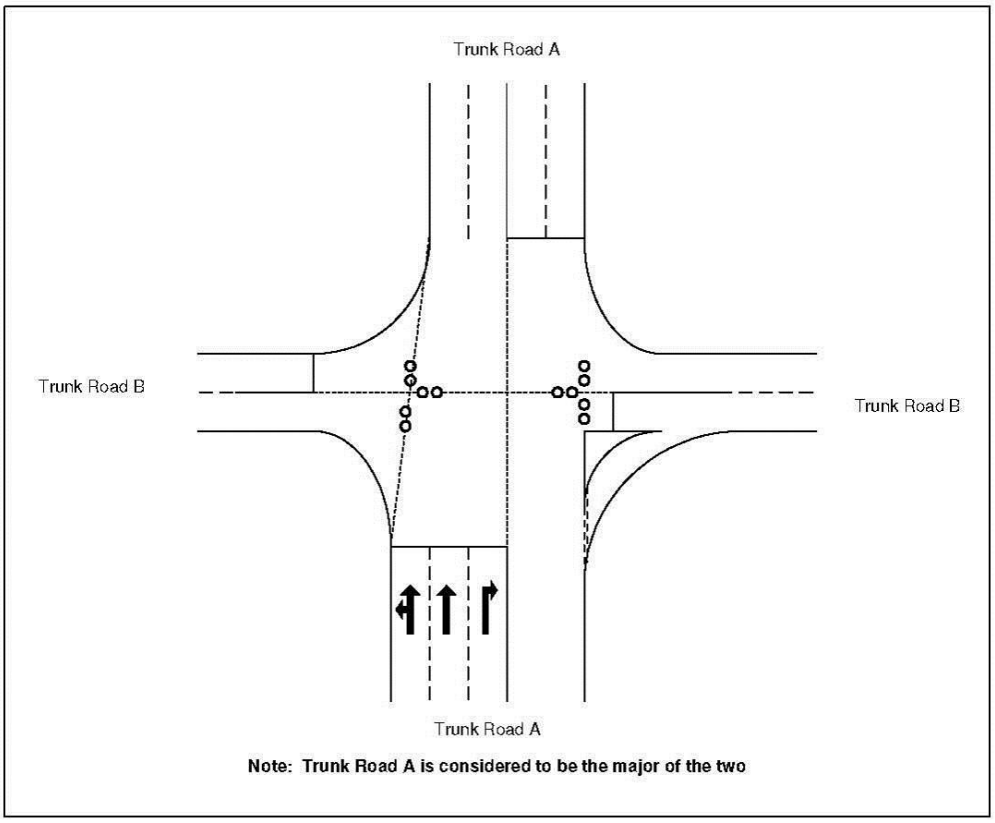
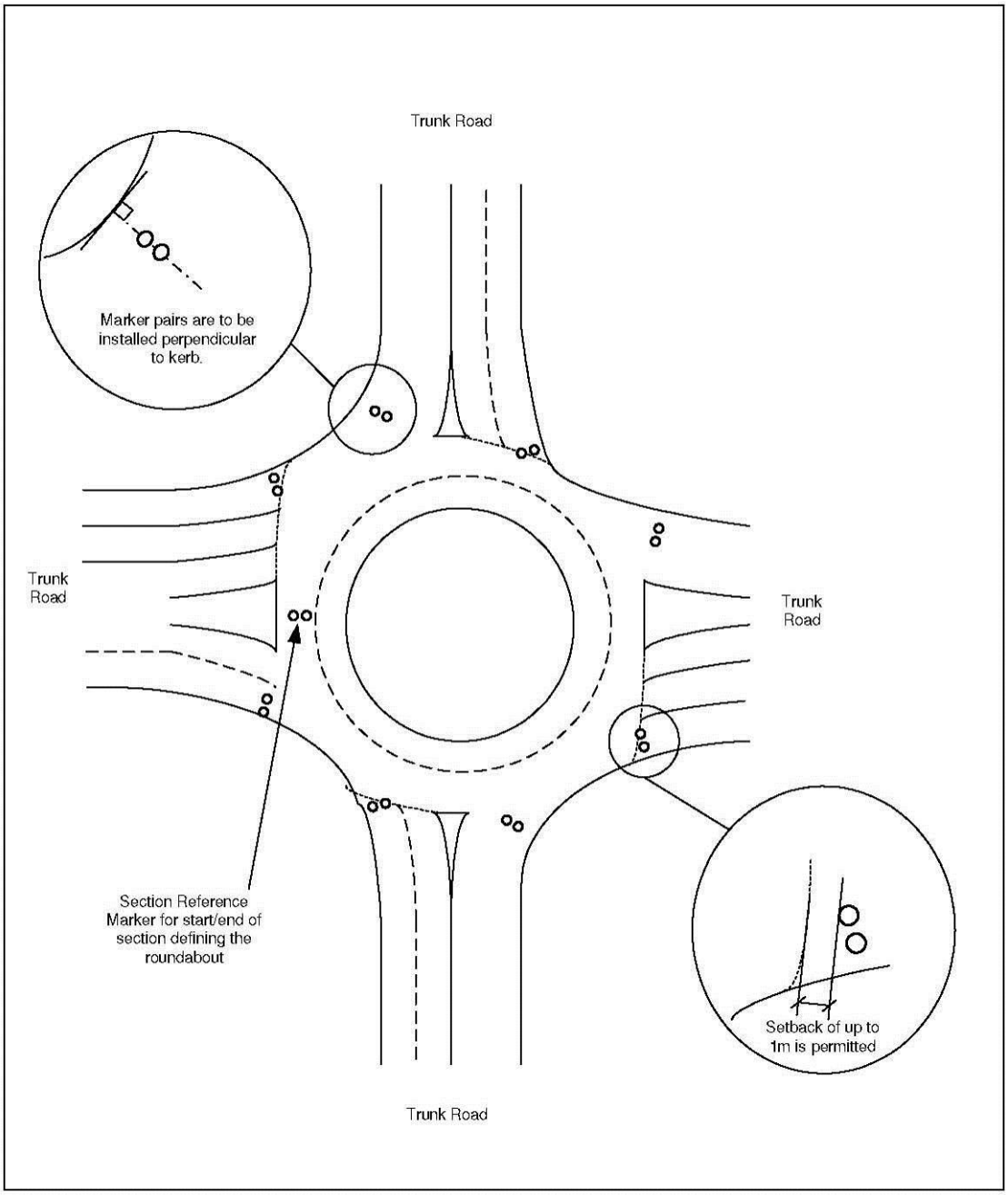


Figure C9 Trunk Roads meeting at a Roundabout



ANNEX D

Y Swyddfa Gymreig
Adran Y Cyfarwyddwr Priffyrdd
Parc Cathays
Caerdydd CF1 3NQ

Welsh Office
Highways Directorate
Cathays Park
Cardiff CF1 3NQ

All correspondence to be addressed to the Director of Highways quoting our reference

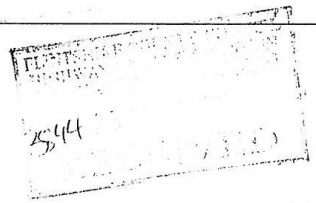
Telephone (Switchboard) 01222 825111 (Direct Line) 01222 82 6444 or GTN Code 1208

Mr R Cookson
North East Wales Partnership Agency
Highways and Transportation & Engineering
Flintshire County Council
County Hall
Mold
Flintshire CH7 6NF

Eich cyf/Your ref

Ein cyf/Our ref ZA4 7-5-

Dyddiad/Date 20 September 1996



Dear Sir

CHART NODE STUDS

The above subject is covered in Annex 9 of the Procedural Advice for Agent Authorities and Welsh Office Staff, which has recently been ammended.

The Highways Directorate of the Welsh Office have now purchased a patent from East Midland Diamond Drilling (EMDD) for "Thermostud" Road Markers. These studs should therefore now be used on any road improvements/constructions where the Node Studs need replacing, or where new studs need to be installed.

We have confirmed in an agreement with EMDD that we will inform all our Agents, who in turn will notify all their contractors, that this patent applies only to Welsh trunk roads and that the patent is controlled by:-

Vickers Highbank Group Limited
T/A East Midlands Diamond Drilling
Churchfields House
1 Lockwood Close
Top Valley
Nottingham NG5 9JN

This company should also be allowed to tender competitively for the installation of the Thermostud on Welsh roads, and that assistance, methodology and general information are available free of charge from them on request. Special tools are available at a cost.

I f you have any query or require any further information concerning this arrangement, please do no hesitate to get in touch.

Yours faithfully

pp K J Alexander
for Director of Highways
Network Management 4

2.2.27 Third Party Claims

2.2.27.1 Definitions

1 A Third Party (TP) Claim is a claim made either by:

- a third party against the Welsh Ministers, arising out of the condition of the Agency Area or the performance of the Services, referred to as 'Claims Against' in this document.

- the Welsh Ministers against a third party for damage to or interference with any trunk road (including motorways/and associated infrastructure and amenities), referred to as 'Rechargeable Claims' in this document.

2.2.27.2 Claims Against

1 This Section of WGTRMM should be read in conjunction with the relevant provision in the Service Providers Agreement or Contract which covers indemnities and the Service Provider's obligations.

2 Where a TP Claim Against is received by the Service Provider which includes formal or informal notification of the commencement of legal proceedings, or service of proceedings are effected directly on the Service Provider, the Service Provider will immediately inform the Claims Investigation Unit (CIU) of the Welsh Government. If the Service Provider is named as a defendant in the action, the Service Provider should also forward the papers to their Insurers immediately.

3 If proceedings are 'Served' against the Welsh Ministers they should be forwarded to CIU immediately

4 Within 21 days of the receipt of a Claim (whether including notification of legal proceedings or not) the Service Provider will supply the following information to the Welsh Government:

- Copies of the particulars of the claim including any original claim correspondence;
- A copy of the Police or Traffic Officer's accident report if available;
- A completed form TR137;
- The appropriate completed Matters in Issue form to include where relevant, observations made at the site on the cause of the claim, photographs of the alleged defect, measurements of the defect, a view as to how the defect has been caused, whether it could have been formed between inspections and whether the defect represents a hazard to the highway; all other pertinent / relevant information should be contained in the ' Comments ' section of the form;
- Particulars of the inspection history prior to the incident giving rise to the claim;
- Particulars of the Enquiry summary history prior to the incident giving rise to the claim;
- Other such information as the Welsh Government's CIU may request

5 The Service Provider retains records of all of the information sent to the Welsh Government's CIU together with correspondence with the public, records of work, maintenance carried out and any discussions of maintenance problems with the Welsh Government and / or the Police. Such records are to be held for a period of not less than twenty one years from the date of issue. Where appropriate the Service Provider passes the records to the Incoming Service Provider in a readily accessible format.

2.2.27.3 Rechargeable Claims

1 Rechargeable claims are claims by the Welsh Ministers against third parties for damage to or interference with any trunk road (including motorways/and associated infrastructure and amenities) which is part of the Agency Area and any property of the Welsh Ministers in or on such a trunk road associated infrastructure or amenities or used in conjunction with it or any rights or duties in or over it or for damage to or interference with any land which has been acquired by the Welsh Ministers in connection with such a trunk road (including motorways) under sections 239(2) or (4) or section 246 of the Highways Act 1980 and additionally or independently interruption of the working of the said Agency Area.

2 Immediately on becoming aware of any incident which may give rise to a TP Rechargeable Claim, the Service Provider takes all necessary steps to obtain the name, address, vehicle particulars and insurance details of the driver responsible. Where the Service Provider attends the incident, if possible it obtains the details directly from the responsible party. In all other cases the Service Provider obtains the details from the Police, Traffic Officers, or DVLA.

3 Where the estimated cost of the relevant repair exceeds £100,000 or the incident has resulted in a fatality or serious injury, the Service Provider does not issue the letter of intent, but immediately issues a completed form TR430 to the Welsh Government's CIU.

4 Where the Service Provider becomes aware that:

- the injury has or may have resulted in a serious injury or fatality,
- a counterclaim is anticipated or has been received,
- liability is disputed,
- the incident resulting in the claim involves the armed forces, NATO forces or another Government Department,
- estimated costs are likely to exceed £100,000

then the Service Provider immediately ceases any actions relating to the issue of a letter of intent and issues a completed form TR430 to the Welsh Government's CIU.

5 If none of the above applies, the Service Provider conducts such further correspondence with the third party (or his insurers) in pursuit of the claim as is required and a final costs invoice as soon as it becomes available. Reminder letters are sent until payment is made or 12 months expire.

6 The Service Provider issues a letter of intent to claim in accordance with the sample letter attached (to be obtained from WG) to the responsible third party.

7 The Service Provider conducts such further correspondence with the third party (or his insurers) in pursuit of the claim as is required and includes a final costs invoice as soon as it becomes available. Reminder letters are sent until payment is made or 12 months expire.

8 Where cases proceed to litigation, or the recharge remains unsettled twelve months after the incident date, the Service Provider will cease any action in pursuit of the claim and issue a completed form TR430 to the Welsh Government’s CIU.

9 Each completed form TR430 issued by the Service Provider is accompanied by a copy of the Police or Traffic Officer’s report on the accident (if available), an estimate of the cost of repair and any other pertinent information such as maps and photographs. The Service Provider provides such breakdowns and supporting information to justify the cost of repair as

the Welsh Government or the insurers of the third party responsible may reasonably require. Should the Service Provider be unable to complete all the details in form TR430 at the time required the Service Provider completes such details as he is able. Upon receipt of outstanding information, such as final costs invoices, the Service Provider submits to the Welsh Government's CIU.

10 All income recovered from Third Party Claims is to returned as a credit to the Welsh Government Routine Maintenance account, netting off against the cost of repair incurred.

2.2.27.4 Standard Letter Templates and Checklists

1 Standard forms and letter templates are included at Annex A to this section.

2 Checklists for information to be provided in order that claims may be assessed and processed are included at Annex B. These should be completed as comprehensively as possible with further guidance sought from WG CIU where required.

ANNEX A

Trunk Roads and Motorways
Third Party Damage and Personal Injury Report

Llywodraeth Cymru
Welsh Government

Important

- If you wish to report an incident which has caused damage to your property, vehicle and/or personal injury and make a compensation claim against the Welsh Ministers, completion of this form will help process your case as quickly as possible.
- **Please read the accompanying document "Information for Claimants" before completing this form.**

Note

- If you are under 18 years old, please have your parent/guardian complete and sign this form
- **The provision of this form does <u>not</u> constitute an admission of liability on behalf of the Welsh Ministers or imply that you will receive compensation.**
- **Persons who make fraudulent claims are liable to prosecution.**
- Please print the details, and use capital letters and tick boxes where appropriate.
- Please complete all relevant sections of this form. You should complete and return this form to the address shown on **Page 7**. It may be returned to you if incomplete.
- If you have any queries in respect of your claim, please contact the Claims Investigation Unit of the Welsh Government on 029 2082 6473.

1. Details of Claimant

Title Mr ☐ Mrs ☐ Miss ☐ Ms ☐ Other ☐

Surname _____ Forename(s) _____

Address _____

Telephone number: Home _____ Work _____

Address for correspondence if different from above

_____

Details of Claimant (continued)

Note: Details of your date of birth, national insurance number and employer must be given if you have suffered injury for which you are claiming (or intend to claim) compensation.

Date of Birth

Employer

National Insurance Number

Hospital Details (accident cases only)

Was the accident a Road Traffic Accident (RTA)? ☐ Yes ☐ No

If Yes, did you attend an NHS hospital because of the RTA? ☐ Yes ☐ No

If Yes, please give details of the hospital(s) or trust(s) attended in order of attendance:

2. Details of Claimants Agent (if applicable)
(e.g. solicitor, insurance company, or other representative)

Name

Address

Reference (if known)

Telephone number

3. Particulars of incident

Trunk Road or Motorway Number (e.g. M4)

Location

Date

Time (24 hour clock)

Description of incident and of the defect to the highway (if any) which caused it.

N.B. If the incident was caused by a defect such as uneven paving, broken paving, sunken or raised tarmac or a pothole, please state height/depth of the defect as appropriate. If the incident was not caused by any defect to the highway, please state why you consider the Welsh Ministers are be liable for the incident.

Particulars of incident (continued)

Speed of vehicle (if applicable)

If the incident was caused by a defect to the highway, were you previously aware of it? If so, please give details of how you knew about it.

Sketch Plan of Location

Please indicate as appropriate:-

(1) direction of travel;
(2) position of any other vehicles;
(3) position of sign and road markings;
(4) position of hazards (e.g. trips, pothole, debris etc);
(5) place names;
(6) what warning signs were in place;

Photographs of the accident site would also be helpful, if available.

4. **Type of Claim**

Amount Claimed £

Type A – Injury to person

Please describe any personal injury that you have sustained

Type B – Damage to vehicle

Please describe any damage to your vehicle

Vehicle Registration Number

Make

Year of Registration

Model

Have repairs been carried out? Yes ☐ No ☐

Original invoices and/or 2 estimates attached Yes ☐ No ☐

Are you VAT registered? Yes ☐ No ☐

Are you the registered owner?* Yes ☐ No ☐

*If No, please explain why you are claiming

Type C – Damage to other property

Description of property and/or situation

Details of damage

Is the damaged property available for inspection? Yes ☐ No ☐

5. Were there any witnesses to the incident? Yes ☐ No ☐

If Yes, please supply their details as we may wish to approach them for a statement.

1. Name

Address

Telephone No.

2. Name

Address

Telephone No.

Were the police involved? Yes ☐ No ☐

If Yes, please provide officer details, police station and/or an incident number.

Please state when the police and/or highway authority were first contacted about the incident

6. Conditions and Visibility

Please give as much information as you can about the following:-

Visibility

Was visibility good ☐ or poor ☐

Did the accident happen after lighting-up time? Yes ☐ No ☐

If Yes, were street lamps lit ☐ or unlit ☐

Did the accident happen on an unlit section of road? Yes ☐ No ☐

Were road works present? Yes ☐ No ☐

Weather & Road Conditions

7. **If the incident was at the site of roadworks please give the name, if known, of the contractor carrying out these works.**

8. **Any other comments that you would like to make**

I declare that these particulars are true to the best of my knowledge and belief.

Claimant's Signature _____ Date _____

Please complete and return to:-

South Wales Trunk Road Agent Unit 12 Llandarcy House The Courtyard Llandarcy Neath SA10 6EJ	or	North & Mid Trunk Road Agent Unit 91 Bowen Court Ffordd William Morgan St Asaph Business Park St Asaph LL17 0JE
For the attention of: Leanne Cook – 3rd Party Claims Officer		For the attention of: Rhodri Jones - 3rd Party Claims Officer

Cefnffyrdd a Thraffyrdd
Adroddiad Difrod Trydydd Parti
ac Anaf Personol

Llywodraeth Cymru
Welsh Government

Pwysig

- Os ydych yn dymuno rhoi gwybod am ddigwyddiad sydd wedi achosi difrod i'ch eiddo, i'ch cerbyd, ac/neu anaf personol, a gwneud cais am iawndal yn erbyn Gweinidogion Cymru, bydd llenwi'r ffurflen hon yn helpu'ch cais i gael ei brosesu cyn gynted ag y bo modd.
- **Cyn cwblhau y ffurflen hon, dylech ddarllen y ddogfen gysylltiedig 'Gwybodaeth i Hawlwyr'**

Nodwch

- Os ydych yn iau na 18 oed, rhaid i'ch rhiant/gwarcheidwad lenwi a llofnodi'r ffurflen hon.
- **<u>Nid</u> yw darparu'r ffurflen hon yn golygu bod Gweinidogion Cymru yn addef atebolrwydd nac ychwaith y byddwch yn derbyn iawndal.**
- **Gall y sawl sy'n gwneud cais twyllodrus gael ei erlyn.**
- Argraffwch y manylion, a defnyddiwch briflythrennau, gan roi tic yn y blychau, lle y bo hynny'n briodol.
- Llenwch bob adran berthnasol o'r ffurflen hon. Dylech lenwi a dychwelyd y ffurflen hon i'r cyfeiriad a ddangosir ar **dudalen 7**. Mae'n bosibl y caiff ei hanfon yn ôl atoch os nad yw pob adran wedi'u llenwi.
- Os oes gennych unrhyw ymholiadau ynghylch eich cais, cysylltwch â Uned Hawliadau Llywodraeth Cymru ar 029 2082 6473.

1. Manylion yr hawlydd

Teitl Mr ☐ Mrs ☐ Miss ☐ Ms ☐ Arall ☐

Cyfenw _____ Enw(au) cyntaf _____

Cyfeiriad _____

Rhif ffôn: Cartref _____ Gwaith _____

Cyfeiriad ar gyfer gohebiaeth, os yw'n wahanol i'r un uchod

_____

Manylion yr hawlydd (parhad)

Nodwch: Rhaid i chi roi dyddiad eich geni, eich rhif yswiriant gwladol, ac enw a chyfeiriad eich cyflogwr os ydych wedi dioddef anaf yr ydych yn hawlio (neu yn bwriadu hawlio) iawndal amdano.

Dyddiad geni

Cyflogwr

Rhif Yswiriant Gwladol

Manylion am yr ysbyty (damweiniau yn unig)

Ai Damwain Traffig ar y Ffordd oedd y ddamwain? ☐ Ie ☐ Nage

Os 'Ie', a aethoch i un o ysbytai'r GIG o ganlyniad i'r ddamwain hon? ☐ Do ☐ Naddo

Os 'Do', rhowch fanylion yr ysbyty (ysbytai) neu'r ymddiriedolaeth(au) yr aethoch iddynt yn ôl eu trefn:

2. Manylion Asiant yr Hawlydd (os yw'n berthnasol)
(e.e. cyfreithiwr, cwmni yswiriant, neu gynrychiolydd arall)

Enw

Cyfeiriad

Cyfeirnod (os yw'n hysbys)

Rhif ffôn

3. Manylion y digwyddiad

Rhif y Gefnffordd neu'r Draffordd (e.e. M4)

Lleoliad

Dyddiad Amser (cloc 24 awr)

Disgrifiad o'r digwyddiad ac o'r nam ar y briffordd (os oes un) a achosodd y ddamwain.

N.B. Os cafodd y ddamwain ei hachosi gan nam, megis palmant anwastad, palmant wedi'i dorri, tarmac a oedd yn pantio neu a oedd wedi codi, neu dwll yn y ffordd, rhowch wybod uchder/dyfnder y nam, fel y bo'n briodol. Os na chafodd y ddamwain ei hachosi gan nam ar y briffordd, rhowch wybod pam yr ydych o'r farn bod Gweinidogion Cymru yn atebol am y digwyddiad.

Manylion y digwyddiad (parhad)

Cyflymder y cerbyd (os yw'n berthnasol)

Os cafodd y ddamwain ei hachosi gan nam ar y brifffordd, a oeddech yn ymwybodol o'r nam cyn y digwyddiad? Os oeddech, rhowch wybod sut yr oeddech yn ymwybodol o'r nam.

Bras Gynllun o'r Lleoliad

Nodwch yn ôl yr hyn sy'n briodol:-

(1) cyfeiriad y daith;
(2) safle unrhyw gerbydau eraill;
(3) safle arwyddion a marciau ar y ffordd;
(4) safle'r peryglon (e.e. man baglu, twll, ysbwriel etc);
(5) enwau lleoedd;
(6) pa arwyddion rhybudd a oedd yno;

Byddai ffotograffau o'r man lle y digwyddodd y ddamwain yn ddefnyddiol hefyd, os oes rhai ar gael.

4. **Y math o hawliad**

Y swm sy'n cael ei hawlio £

Math A – Anaf i'r person

Disgrifiwch unrhyw anaf personol a gawsoch

Math B – Difrod i'r cerbyd

Disgrifiwch unrhyw ddifrod i'ch cerbyd

Rhif cofrestru'r cerbyd

Gwneuthuriad

Blwyddyn cofrestru'r cerbyd

Model

A yw'r cerbyd wedi'i drwsio? Ydy ☐ Nac ydy ☐

A oes anfonebau gwreiddiol a/neu ddau ddyfynbris wedi'u hatodi? Oes ☐ Nac oes ☐

A ydych wedi cofrestru at ddibenion TAW? Ydw ☐ Nac ydw ☐

Ai chi yw'r perchennog cofrestredig?* Ie ☐ Nage ☐

*Os 'Nage', eglurwch pam yr ydych yn hawlio iawndal

Math C – Difrod i eiddo arall

Disgrifiad o'r eiddo ac/neu o'r sefyllfa

Manylion am y difrod

A yw'r eiddo sydd wedi'i ddifrodi ar gael i'w archwilio? Ydy Nac ydy

5. A oedd unrhyw dystion i'r digwyddiad? Oedd ☐ Nac oedd ☐

Os 'Oedd', rhowch eu manylion, gan ei bod yn bosibl y byddwn am gysylltu â nhw i gael datganiad.

1. Enw

Cyfeiriad

Rhif ffôn

2. Enw

Cyfeiriad

Rhif ffôn

A oedd yr heddlu'n gysylltiedig â'r digwyddiad? Oedd ☐ Nac oedd ☐

Os 'Oedd', rhowch wybod manylion y swyddog, swyddfa'r heddlu a/neu rif y digwyddiad.

Nodwch pryd y cysylltwyd â'r heddlu ac/neu â'r awdurdod cefnffyrdd am y digwyddiad yn y lle cyntaf.

6. Yr Amodau a'r Gwelededd

Rhowch gymaint o wybodaeth ag y gallwch am y canlynol:-

Gwelededd

A oedd y gwelededd yn dda ☐ neu yn wael? ☐

A ddigwyddodd y ddamwain ar ôl adeg oleuo? Do ☐ Naddo ☐

Os 'Do', a oedd Goleuadau'r Stryd wedi'u Goleuo ☐ neu heb eu Goleuo? ☐

A ddigwyddodd y ddamwain ar ddarn o'r ffordd a oedd heb ei oleuo? Do ☐ Naddo ☐

A oedd gwaith yn cael ei gynnal ar y ffordd? Oedd ☐ Nac oedd ☐

Y tywydd a chyflwr y ffordd

7. **Os digwyddodd y ddamwain ar safle gwaith ffordd, rhowch wybod enw'r contractiwr, os yw'n hysbys.**

8. **Unrhyw sylwadau eraill yr hoffech eu cynnig.**

Rwyf yn datgan bod y manylion hyn yn wir hyd eithaf fy ngwybodaeth a'm cred.

Llofnod y person sy'n hawlio

Dyddiad

Asiant Cefnffyrdd De Cymru
Uned 12
Tŷ Llandarcy
Y Cwrt
Llandarcy
Castell-nedd
SA10 6EJ

At sylw:

Leanne Cook - Swyddog Hawliadau Trydydd Parti

or

Asiant Cefnffrydd Gogledd a Chanolbath Cymru
Uned 91
Cwrt Bowen
Ffordd William Morgan
Parc Busnes Llanelwy
Llanelwy
LL17 0JE

At sylw:

Rhodri Jones - Swyddog Hawliadau Trydydd Parti

Llywodraeth Cymru
Welsh Government

INFORMATION FOR CLAIMANTS

The Welsh Ministers are the highway authority for the trunk road and motorway network in Wales. Claims relating to incidents on this network will be dealt with by the Welsh Government, although you may initially receive correspondence from the Trunk Road Service Provider who maintains the network on behalf of the Welsh Government. You will be informed when the claim is passed to the Welsh Government, and will be made aware of who to contact should you have any queries regarding your claim.

HAS THE INCIDENT CAUSED DAMAGE OR INJURY?

If you have been injured or your property has been damaged while you were using the road, you may be entitled to compensation. However, there is no automatic right to compensation and the Welsh Government will only offer to meet your claim if the circumstances are such that it is legally liable to do so. By completing the attached form and providing as much detail as possible, you will help us to decide whether you have a valid claim.

WHAT HAPPENS WHEN I MAKE A CLAIM?

A report will be compiled by the Trunk Road Service Provider, who will pass it on to the Welsh Government. The circumstances leading to the incident and the information you have provided will then be investigated by the Welsh Government.

You may be asked to come to a site meeting with either a member of the Welsh Government or of the Trunk Road Service Provider. You might also need to provide extra evidence to support your claim.

When the investigation is complete, the Welsh Government will inform you whether your claim has been accepted.

It may be that we consider someone else to be responsible for causing the incident or for the land on which the incident occurred. If this is the case, we will let you know and your claim should be re-directed to them.

HOW IS A CLAIM DECIDED?

The Welsh Government's decision will be based on the facts and the law, and will always reflect what is believed to be the way in which a court of law would rule if it had to decide whether the Welsh Ministers were was liable. (If we believe the courts would reject a claim, we will do the same. If, on the other hand, we believe that the courts would award compensation, we will offer to settle the claim.)

IS EVIDENCE OF FINANCIAL LOSS OR INJURY REQUIRED?

Original documents and receipted invoices will always be needed to support a claim for damage to property, and should accompany the claim form. These will be returned in due course if requested. You may want to take copies for yourself before sending us your original documents.

If you have been injured, the Welsh Government or its Solicitors may ask for medical evidence from your doctor or may request that you be examined by an independent medical expert. You may also be asked to provide other supporting evidence if you have an additional claim for associated losses e.g. loss of earnings.

By law you must take reasonable steps to keep your losses to a minimum. For cases involving damage to property, it will usually be advisable to repair the damaged property as quickly as possible as any party paying compensation may not be liable for any further deterioration in its condition or increase in the cost of repair, nor for any loss of the ability to make use of the damaged property.

WILL THE PROFESSIONAL FEES I INCUR BE MET BY THE WELSH GOVERNMENT?

Whilst we have well-established procedures for dealing with third party claims we recognise the right of any claimant to obtain legal or similar professional advice about a claim. We cannot advise you whether or not to get legal help. If you do ask a solicitor or other professional adviser to act, and if liability is accepted by the Welsh Ministers, the reasonable cost of their fees will be met by the Welsh Government.

Why might the Welsh Government not accept the claim?

If the Welsh Government does not accept that the incident has resulted from any negligence or breach of its statutory duty, compensation is not offered. **We set out below some of the factors on which our decision whether or not the Welsh Ministers should accept liability may be based. This is to help you understand how we approach claims. You should not treat it as a full statement of your legal rights and if you are in any doubt as to whether we have set out the legal position correctly then you should seek independent advice on the question.**

IS THE WELSH GOVERNMENT RESPONSIBLE FOR EVERY DEFECT?

No. The existence of a defect does not in itself constitute a legal liability. The courts have accepted that the Welsh Government cannot be on hand at all times to repair or put right each and every defect the moment it arises on the trunk road (including motorway) network. Our Trunk Road Service Provider inspects the network at regular intervals and they arrange for the repair of defects. Hazards are repaired as a matter of urgency, and non-hazardous defects are dealt with within a reasonable time. The courts have accepted that highway authorities like the Welsh Government is not liable if it has taken reasonable preventative measures.

WHY IS COMPENSATION NOT ALWAYS PAID?

Compensation is not automatic. Just because you have had cause to claim does not by itself mean that you are entitled to receive compensation. The Welsh Government considers and decides on claims according to current law. Ultimately, it is only courts that can tell the Welsh Government to pay compensation. If, having weighed all the evidence provided by you and from elsewhere against statutory and common-law duties, we believe that the courts would find the Welsh Ministers free of liability, then the Welsh Government cannot use public money to settle a claim.

THE DEFECT WAS REPAIRED AFTER THE INCIDENT – IS THIS AN ADMISSION OF LIABILITY?

The repair of any defect is not an admission of liability. The Welsh Government has a statutory duty to repair or make safe any safety defect within a reasonable time, once it has been reported. It may be, however, that the defect was not reported until after your incident. The fact that a defect has been repaired does not imply that it was a hazard. Many repairs are carried out purely as a precautionary measure to ensure that hazards do not develop.

CAN THE DECISION TAKEN BY THE WELSH GOVERNMENT TO REJECT MY CLAIM BE REVIEWED?

Reviews are carried out where significant new evidence is provided or facts are contested. Although a claim may be reviewed, this does not mean that the original decision is going to be altered.

If you are dissatisfied with our decision on your claim, then you can ask the courts to rule on it. This can be done with or without a solicitor. This is a matter for you to decide, and is not something on which the Welsh Government can give any advice. You should remember that if you want to ask the courts to consider your claim you must normally start your claim in the courts within the relevant time limit which is 3 years from the date of the incident if the claim includes an element of personal injury and 6 years in other cases.

Can the Welsh Administration Ombudsman review the outcome of my claim?

The Ombudsman will not consider whether the Welsh Ministers are liable or not. Nor will the Ombudsman, generally, consider matters for which you can obtain a remedy by proceedings in a

court of law. The Ombudsman can, however consider complaints of maladministration by the Welsh Government. Examples of this are failing to follow correct procedures, unfairness, delay or mistakes in handling your claim. More information is available on the Ombudsman's website: www.ombudsman.org.uk or by telephoning 0845 601 0987.

If you have any questions in connection with your claims please write to the:

Welsh Government
Claims Investigation Unit
Transport
Economy Science and Transport (EST)
Cathays Park
Cardiff
CF10 3NQ

Llywodraeth Cymru
Welsh Government

GWYBODAETH I HAWLWYR

Gweinidogion Cymru yw'r awdurdod priffyrdd ar gyfer y rhwydwaith cefnffyrdd a thraffyrdd yng Nghymru. Llywodraeth Cymru fydd yn delio â hawliadau'n ymwneud â digwyddiadau ar y rhwydwaith hwn, ond ar y cychwyn mae'n bosibl y cewch ohebiaeth gan yr Asiantaeth Gefnffyrdd sy'n cynnal y rhwydwaith ar ran Llywodraeth Cymru. Cewch eich hysbysu pan fydd yr hawliad yn cael ei drosglwyddo i Lywodraeth Cymru a chewch wybod â phwy y dylech gysylltu os bydd gennych ymholiadau am eich hawliad.

A achoswyd difrod neu niwed gan y digwyddiad?

Os cawsoch niwed neu os difrodwyd eich eiddo pan oeddech yn defnyddio'r ffordd, efallai y bydd gennych hawl i iawndal. Fodd bynnag, nid oes hawl awtomatig i iawndal, ac ni fydd Llywodraeth Cymru yn cynnig talu yn unol â'ch hawliad oni bai bod yr amgylchiadau'n golygu bod ganddi rwymedigaeth gyfreithiol i wneud hynny. Trwy lenwi'r ffurflen amgaeedig a rhoi cynifer o fanylion â phosibl, byddwch yn ein helpu i benderfynu a yw eich hawliad yn un dilys.

Beth fydd yn digwydd ar ôl i mi wneud hawliad?

Bydd yr Asiantaeth Gefnffyrdd yn paratoi adroddiad ac yn ei drosglwyddo i Lywodraeth Cymru. Yna bydd Llywodraeth Cymru yn ymchwilio i'r amgylchiadau a arweiniodd at y digwyddiad, ac i'r wybodaeth a ddarparwyd gennych.

Efallai y gofynnir ichi ddod i gyfarfod safle - naill ai gydag aelod o Lywodraeth Cymru neu gydag aelod o'r Asiantaeth Gefnffyrdd. Mae'n bosibl hefyd y bydd angen ichi ddarparu rhagor o dystiolaeth i ategu'ch hawliad.

Pan fydd yr ymchwiliad wedi'i gwblhau, bydd Llywodraeth Cymru yn rhoi gwybod ichi a dderbyniwyd eich hawliad.

Efallai y byddwn yn ystyried mai rhywun arall sy'n gyfrifol am achosi'r digwyddiad neu am y man lle digwyddodd. Os felly, byddwn yn rhoi gwybod ichi, a dylai eich hawliad gael ei ailgyfeirio atynt hwy.

Sut y penderfynir ynglŷn â hawliad?

Bydd penderfyniad Llywodraeth Cymru yn seiliedig ar y ffeithiau a'r gyfraith, a bydd bob amser yn adlewyrchu'r hyn y credir y byddai llys barn yn ei ddyfarnu pe bai gofyn iddo benderfynu a oedd Gweinidogion Cymru yn atebol. (Os credwn y byddai'r llysoedd yn gwrthod hawliad, byddwn ninnau'n gwneud yr un fath. Ar y llaw arall, os credwn y byddai'r llysoedd yn dyfarnu iawndal, byddwn yn cynnig setlo'r hawliad.)

A oes angen tystiolaeth o golled ariannol neu niwed?

Bydd angen *dogfennau gwreiddiol ac anfonebau wedi'u derbynebu* i ategu pob hawliad am ddifrod i eiddo, a dylid eu hanfon gyda'r ffurflen hawlio. Bydd y rhain yn cael eu dychwelyd maes o law, os gofynnwch amdanynt yn ôl. Efallai y byddwch am wneud copïau i chi eu cadw cyn anfon y dogfennau gwreiddiol atom.

Os cawsoch niwed, mae'n bosibl y bydd Llywodraeth Cymru neu ei Chyfreithwyr yn gofyn am dystiolaeth feddygol gan eich meddyg neu'n gofyn ichi gael archwiliad gan arbenigwr meddygol annibynnol. Efallai y gofynnir hefyd ichi ddarparu tystiolaeth ategol arall os byddwch yn gwneud hawliad ychwanegol am golledion cysylltiedig, ee colli enillion.

Yn ôl y gyfraith, rhaid ichi gymryd camau rhesymol i gadw'ch colledion mor isel â phosibl. Mewn achosion sy'n cynnwys difrod i eiddo, byddai fel arfer yn ddoeth trwsio'r eiddo a ddifrodwyd cyn gynted â phosibl, gan ei bod yn bosibl na fydd unrhyw barti sy'n talu iawndal yn atebol am ddirywiad pellach yn ei gyflwr nac am gynnydd yn y costau trwsio nac am golli'r gallu i ddefnyddio'r eiddo a ddifrodwyd.

A fydd Llywodraeth Cymru yn ad-dalu'r ffioedd proffesiynol a delir gennyf?

Er bod gennym weithdrefnau sefydledig ar gyfer ymdrin â hawliadau trydydd parti, rydym yn cydnabod hawl unrhyw hawliwr i geisio barn gyfreithiol neu farn broffesiynol debyg ynglŷn â hawliad. Ni allwn ddweud wrthych a ddylech gael cymorth cyfreithiol ai peidio. Os byddwch yn gofyn i gyfreithiwr neu gynghorydd proffesiynol arall weithredu, ac os bydd Gweinidogion Cymru yn derbyn cyfrifoldeb, bydd Llywodraeth Cymru yn talu cost resymol eu ffioedd.

Pam na fydd Llywodraeth Cymru, o bosibl, yn derbyn yr hawliad?

Os na fydd Llywodraeth Cymru yn derbyn bod y digwyddiad yn ganlyniad i unrhyw esgeulustod neu achos o dorri ei dyletswydd statudol, ni chynigir iawndal. **Rydym yn nodi isod rai o'r ffactorau y byddwn yn eu defnyddio yn sail i'n penderfyniad ynghylch a ddylai Gweinidogion Cymru dderbyn atebolrwydd. Diben hyn yw eich helpu i ddeall sut yr ydym yn mynd ati i ystyried hawliadau. Ni ddylech ei drin fel datganiad llawn o'ch hawliau cyfreithiol, ac os ydych yn amau o gwbl nad ydym wedi pennu'r sefyllfa gyfreithiol yn gywir, dylech geisio barn annibynnol ynglŷn â'r cwestiwn.**

A yw Llywodraeth Cymru yn gyfrifol am bob diffyg?

Nac ydyw. Nid yw bodolaeth diffyg ynddi'i hun yn golygu atebolrwydd cyfreithiol. Mae'r llysoedd wedi derbyn na all Llywodraeth Cymru fod wrth law drwy'r amser i drwsio neu gywiro pob diffyg yr eiliad y bydd yn codi ar y rhwydwaith cefnffyrdd (gan gynnwys traffyrdd). Bydd ein Hasiantaethau Cefnffyrdd yn archwilio'r rhwydwaith yn rheolaidd ac yn trefnu i ddiffygion gael eu trwsio. Caiff diffygion peryglus eu trwsio fel mater o frys, ac eir i'r afael â diffygion nad ydynt yn beryglus o

fewn amser rhesymol. Mae'r llysoedd wedi derbyn nad yw awdurdodau priffyrdd fel Llywodraeth Cymru yn atebol os ydynt wedi cymryd camau ataliol rhesymol.

Pam na thelir iawndal bob tro?

Ni thelir iawndal yn awtomatig. Nid yw'r ffaith bod gennych reswm dros wneud hawliad ynddi'i hun yn golygu bod gennych hawl i iawndal. Bydd Llywodraeth Cymru yn ystyried hawliadau ac yn penderfynu arnynt yn unol â'r gyfraith gyfredol. Yn y pen draw, dim ond y llysoedd a all ddweud wrth Lywodraeth Cymru am dalu iawndal. Os credwn – wedi pwyso a mesur yr holl dystiolaeth a ddarparwyd gennych chi ac eraill yn erbyn dyletswyddau statudol a'r gyfraith gyffredin – y byddai'r llysoedd yn penderfynu nad yw Gweinidogion Cymru yn atebol, ni fydd yn bosibl i Lywodraeth Cymru ddefnyddio arian cyhoeddus i setlo hawliad.

Trwsiwyd y diffyg ar ôl y digwyddiad – a yw hyn yn cyfaddef atebolrwydd?

Nid yw trwsio unrhyw ddiffyg yn cyfaddef atebolrwydd. Mae gan Lywodraeth Cymru ddyletswydd statudol i drwsio neu ddiogelu unrhyw ddiffyg o fewn amser rhesymol, ar ôl cael gwybod amdano. Mae'n bosibl, fodd bynnag, na chafwyd gwybod am y diffyg tan ar ôl eich digwyddiad. Nid yw'r ffaith bod diffyg wedi'i drwsio yn golygu bod y diffyg hwnnw'n beryglus. Mae llawer o waith trwsio yn cael ei wneud er mwyn gwneud yn siŵr nad yw peryglon yn datblygu.

A all penderfyniad Llywodraeth Cymru i wrthod fy hawliad gael ei adolygu?

Cynhelir adolygiadau pan ddarperir tystiolaeth newydd o bwys neu pan gaiff ffeithiau eu herio. Os caiff hawliad ei adolygu, nid yw hynny'n golygu bod y penderfyniad gwreiddiol yn mynd i gael ei newid.

Os nad ydych yn fodlon â'n penderfyniad ynglŷn â'ch hawliad, gallwch ofyn i'r llysoedd ddyfarnu yn ei gylch. Gellir gwneud hyn gyda chyfreithiwr neu heb un. Mater i chi benderfynu arno yw hyn, ac ni all Llywodraeth Cymru roi cyngor ichi ynglŷn ag ef. Cofiwch, os ydych eisiau gofyn i'r llysoedd ystyried eich hawliad, y bydd rhaid ichi fel arfer ddechrau eich hawliad yn y llysoedd o fewn y terfyn amser perthnasol, sef 3 blynedd o ddyddiad y digwyddiad os yw'r hawliad yn cynnwys elfen o anaf personol, a 6 mlynedd mewn achosion eraill.

A all Ombwdsmon Gweinyddiaeth Cymru adolygu canlyniad fy hawliad?

Ni fydd yr Ombwdsmon yn ystyried a yw Gweinidogion Cymru yn atebol ai peidio. Ni fydd yr Ombwdsmon ychwaith, fel arfer, yn ystyried mater y gallwch fynd i'r afael ag ef drwy gamau mewn llys barn. Er hynny, gall yr Ombwdsmon ystyried cwynion am gamweinyddu gan Lywodraeth Cymru. Enghreifftiau o hyn fyddai methu â dilyn gweithdrefnau cywir, annhegwch, oedi neu gamgymeriadau wrth ymdrin â'ch achos. Mae rhagor o wybodaeth ar gael ar wefan yr Ombwdsmon: www.ombudsman.org.uk neu drwy ffonio 0845 601 0987.

Os oes gennych gwestiynau ynglŷn â'ch hawliadau ysgrifennwch at:

Llywodraeth Cymru
Yr Uned Ymchwilio i Hawliadau
Trafnidiaeth
Adran yr Economi, Gwyddoniath a Thrafnidiaeth
Parc Cathays

Caerdydd
CF10 3NQ

Asiant Cefnffyrdd Gogledd a Chanolbarth Cymru
North & Mid Wales Trunk Road Agent

Uned Rheoli Cefnffyrdd / Trunk Road Management Unit

Gofynnwch am/Ask for: **XXXXX** ☎(**01xx xxx xxx**)	Ein Cyf / Our Ref: **(Please quote in all replies)** Eich Cyf / Your Ref:
✉ Claims@nmwtra.org.uk	
ADDRESS, **,** **,** **POSTCODE.**	**Date, Year**

Location: [A* - ROAD NUMBER & LOCATION]**

Dear **[Sir / Madam]**,

It has been reported to me that on the **[DATE]**, a vehicle registration **[REG NO]**, which I understand is owned by you, was responsible for **[DETAILS OF DAMAGE]** following a road traffic accident at the above location.

As Agents acting on behalf of the Welsh Government which is the Highway Authority for the **[A*** TRUNK ROAD]** we are responsible for the recovery of the full costs of the repair work.

I should be obliged if you could confirm whether you intend to incur the costs yourself or whether you will be referring this matter to your Insurers. If the latter, can you please provide details of your Insurers and Policy Number to this office - should you wish to email your response, please ensure that the reference noted at the top of this letter is quoted.

The Final Costs are currently being collated and an invoice will be issued to you/your Insurers in due course.

For your information I also attach a copy of our "Frequently Asked Questions".

Should you have any queries regarding the above please contact **[CONTACT DETAILS @ NMWTRA]**.

Yours faithfully,

Tom Brown - Trunk Road Agency Manager

Partneriaeth rhwng Awdurdodau Lleol Ceredigion, Conwy, Sir Ddinbych, Sir Fflint, Gwynedd, Powys, Wrecsam ac Ynys Môn ar ran Llywodraeth Cymru.

A Partnership between the Local Authorities of Ceredigion, Conwy, Denbighshire, Flintshire, Gwynedd, Powys, Wrexham and Isle of Anglesey on behalf of Welsh Government.

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

Unit 91
Bowen Court
St Asaph Business Park
St Asaph
Denbighshire
LL17 0JE
01745 536393

Asiant Cefnffyrdd Gogledd a Chanolbarth Cymru
North & Mid Wales Trunk Road Agent

Uned Rheoli Cefnffyrdd / Trunk Road Management Unit

Gofynnwch am/Ask for: **XXXXX** ☎(**01xx xxx xxx**)	Ein Cyf / Our Ref: **(Please quote in all replies)** Eich Cyf / Your Ref:
✉ Claims@nmwtra.org.uk	
CYFEIRIAD, **,** **,** **CÓD POST.**	**DYDDIAD,**

Lleoliad: [A* - RHIF Y FFORDD A LLEOLIAD]**

Annwyl **[Syr / Madam]**,

Rwyf wedi cael fy hysbysu o ddigwyddiad ar y **[DYDDIAD]**, ble y bu i gerbyd yr ydych chi yn berchennog ohonno, rhif cofrestru **[RHIF COFRESTRU]**, fod yn gyfrifol am **[MANYLION O'R DIFROD]** yn dilyn damwain ffordd yn y lleoliad uchod.

Fel Asiant yn gweithredu ar ran Llywodraeth Cymru sydd yn Awdurdod Ffordd ar y **[GEFNFORDD A***]** rydym ni yn gyfrifol am ad-ennill y costau atgyweirio llawn, yn sgil y ddamwain.

Buaswn yn ddiolchgar pe byddech yn cadarnhau os ydych am dalu'r costau eich hun yntau ydych am gyfeirio'r mater i'ch cwmni yswiriant. Os ydych am gyfeirio'r mater i'ch cwmni yswiriant a fedrwch gadarnhau manylion eich yswirwyr a rhif y polisi i'r swyddfa yma – os ydych am ebostio'r manylion a fedrwch sicrhau fod y cyfeirnod ar y llythyr yma yn cael ei nodi os gwelwch yn dda.

Mae'r costau terfynnol yn y broses o gael eu casglu a bydd anfoneb yn cael ei anfon atoch /eich yswirwyr maes o law.

Amgaeaf gopi o "Gwestiynau a Ofynnir Amlaf" er eich gwybodaeth.

Os ydych angen unrhyw wybodaeth neu eglurhad pellach ynglyn a'r uchod, yna cysylltwch a **[MANYLION CYSWLLT @ NMWTRA]**.

Yours faithfully,

Tom Brown – Rheolwr Asiantaeth Cefnffyrdd

Partneriaeth rhwng Awdurdodau Lleol Ceredigion, Conwy, Sir Ddinbych, Sir y Fflint, Gwynedd, Powys, Wrecsam ac Ynys Môn ar ran Llywodraeth Cymru.

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Unit 91
Bowen Court
St Asaph Business Park
St Asaph
Denbighshire
LL17 0JE
01745 536393

Damage to Highway Property - Frequently Asked Questions

Please ensure that our reference is quoted in all correspondence

1. What if I am not the person responsible?

Answer: Although every effort is made to ensure that the correct person is contacted, if you were not responsible you should write a letter/email to the address noted explaining why you believe that you should not be held liable for any damage caused. Should you have details of the person/s responsible then please state the details in your letter.

2. What if I dispute liability for the claim made against me?

Answer: If you dispute liability can you please note in a letter/email to this office your reason for disputing liability. As Service Provider for the Welsh Government all disputed claims are referred to the Welsh Government Claims Investigation Unit who will then contact you to discuss the claim.

3. How were my details obtained?

Answer: Details are obtained from a number of sources such as the Police, Fire & Rescue Service and Agency personnel (Assistant Route Managers/ Traffic Officers) or Local Authority Officers who attended the incident. If you did not provide your details following the incident then details are requested from the DVLA and/or Police.

4. What happens if I have no Insurance?

Answer: If you were uninsured at the time of incident you will need to notify this office by means of a letter/email. Please note that all claims involving uninsured drivers will be referred to the Welsh Government Claims Investigation Unit.

5. What happens if I do not respond to this letter / provide Insurance details?

Answer: If no response is received then we will contact the Motor Insurance Bureau to obtain your Insurance details. We will then deal directly with your insurers. **Note: All claims involving uninsured drivers will be referred to the Welsh Government Claims Investigation Unit**.

6. Why do I have to pay to repair the damage?

Answer: It is Welsh Government Policy that cost resulting from damage caused to its assets on the Trunk Road Network is recovered from the responsible party or their Insurers. As Service Provider for the Welsh Government for the Trunk Road Network we are responsible for implementing this policy.

7. I have already claimed from my insurers for damage resulting from the accident?

Answer: The costs invoiced by the Welsh Government Service Provider on behalf of the Welsh Government will form part of the whole claim resulting from your accident and will be treated as such by your insurers.

8. What if the vehicle reported is registered to me however I was not the driver at the time of the accident?

Answer: Please provide details to this office by letter/email of the driver at the time of incident. Should no details be provided by you then we will contact the Insurance Company whom the vehicle was insured by at the time of the accident. **Note: All claims involving uninsured drivers will be referred to the Welsh Government Claims Investigation Unit**.

Difrod i eiddo Llywodraeth Cymru – Cwestiynau a Ofynnir Amlaf

A fedrwch sicrhau fod y cyfeirnod yn cael ei nodi mewn unrhyw ohebiaeth

1. Beth os mai nid y fi oedd yn gyfrifol?

*Ateb:*Er fod pob ymdrech yn cael ei wneud i sicrhau ein bod yn cysylltu á'r person cyfrifol, os ydych o'r farn mai nid y chi sydd yn gyfrifol a fedrwch ebostio neu ddanfon llythyr i'r swyddfa yma yn egluro pam. Os oes ganddoch fanylion o'r person cyfrifol yna a fedrwch nodi'r manylion hynny yn eich llythyr/ebost.

2.Beth os nad ydwyf yn cytuno gyda'r hawliad sydd yn cael ei wneud yn fy erbyn?

Ateb: Os nad ydych yn cytuno gyda'r hawliad yn eich erbyn yna a fedrwch ebostio neu ddanfon llythyr i'r swyddfa yma gan nodi y rhesymau pam nad ydych yn cytuno gyda'r hawliad. Fel Asiant i Lywodraeth Cymru bydd unrhyw hawliad ble mae anghydfod yn eu cylch yn cael ei gyfeirio at Uned Ymchwilio Hawliadau Llywodraeth Cymru a fydd yn cysylltu á chi i drafod yr hawliad.

3. Sut ydych wedi cael fy manylion?

Ateb: Mae gwybodaeth yn cael ei gasglu o nifer o ffynhonellau megis Yr Heddlu, Gwasanaeth Tán ac Achub, Swyddogion yr Asiantaeth (Rheolwyr Llwybr Cynorthwyol / Swyddogion Traffig) neu Swyddogion o'r Cynghorau Lleol a wnaeth fynychu'r digwyddiad. Os na wnaethoch roi eich manylion i'r swyddogion yn dilyn y digwyddiad yna fe ydym yn gwneud cais am y gwybodaeth gan y DVLA neu/ac Yr Heddlu.

4. Beth sydd yn digwydd os nad oedd gen i yswiriant?

Ateb: Os nad oedd ganddoch yswiriant pan gaswoch y ddamwain yna dylech hysbysu'r swyddfa yma drwy lythur neu ebost. Dyler nodi fod unrhyw hawliadau sydd yn ymwneud a gyrrwyr heb yswiriant yn cael eu cyfeirio at Uned Ymchwilio Hawliadau Llywodraeth Cymru.

5. Beth sydd yn digwydd os na wnaf ymateb i'r llythyr yma / roi manylion fy nghwmni yswiriant?

Ateb: Os nad ydych yn ymateb fe fyddem yn cysylltu á'r "Motor Insurance Bureau" i ganfod manyion yswiriant y cerbyd ar ddyddiad y ddamwain. Yn dilyn hyn byddem yn delio yn uningyrchol gyda'ch yswirwyr. *Noder: bydd unrhyw hawliadau sydd yn ymwneud a gyrrwyr heb Yswiriant yn cael eu cyfeirio at Uned Ymchwilio Hawliadau Llywodraeth Cymru*.

6. Pam fod yn rhaid i mi dalu am y difrod a achoswyd?

Ateb: Mae yn bolisi gan Llywodraeth Cymru i ad-ennill yn llawn unrhyw gostau yn sgil difrod i'w asedau gan y person cyfrifol neu eu yswirwyr. Fel Asiant i Lywodraeth Cymru rydym ni (Asiant Cefnffyrdd Gogledd a Chanolbarth Cymru) yn gyfrifol am weithredu'r polisi yma.

7. Rwyf eisioes wedi hawlio gan fy yswirwyr yn dilyn y ddawmain?

Ateb: Bydd y costau sydd yn cael ei hawlio gan Asiant Cefnffyrdd Gogledd a Chanolbarth Cymru ar ran Llywodraeth Cymru yn cael ei drin gan eich yswirwyr fel rhan o'r un hawliad sydd yn gysylltiedig á'r digwyddiad.

8. Beth os mai fi oedd perchennog y cerbyd on nid y gyrrwr ar ddiwrnod y digwyddiad?

Ateb: Bydd angen i chi hysbysu'r swyddfa hon drwy lythyr neu ebost gan roi manylion y gyrrwr ar ddiwrnod y ddamwain. Os nad ydych yn rhoi manylion y gyrrwr yna byddem yn cysylltu á'r cwmni yswiriant oedd yn gyfrifol am yswirio'r cerbyd ar y diwrnod ac amser y ddamwain. *Noder: bydd unrhyw hawliadau sydd yn ymwneud a gyrrwyr heb Yswiriant yn cael eu cyfeirio at Uned Ymchwilio Hawliadau Llywodraeth Cymru*

ANNEX B

CLAIMS AGAINST WELSH MINISTERS

CHECKLIST

1. TR137 attached.
2. Matters in Issue attached.
3. IRIS Inspection Records attached.
4. Incident Report Form attached.
5. Incident Response Form attached.
6. Details of site visit provided if applicable.
7. Report of Traffic Officers, Route Steward or Highway Inspector if applicable.
8. Relevant Reports attached (e.g. drainage, winter maintenance)
9. Colour photographs of defect/locus taken and attached.
10. Measurements of defect taken and details provided.
11. Departure from Standard information provided if relevant.
12. Police Report and/or information attached if available.

CLAIMS BY WELSH MINISTERS

CHECKLIST

1. TR430 attached with all relevant and available information included.
2. Incident Report Form attached if applicable.
3. Incident Response Form attached if applicable.
4. Works Order attached if relevant.
5. Relevant Reports attached (e.g. drainage, winter maintenance)
6. Details of site visit provided if applicable.
7. Report of Traffic Officers, Route Steward or Highway Inspector if applicable.
8. Colour photographs of damage and vehicle at locus if available.
9. Measurements of damage if applicable.
10. Costs in a clear and legible format attached.
11. Police Report and/or information attached if available.