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Maintenance Requirements Plan Area 10 Asset Support Contract

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1 Description of Area 10 Network

Balfour Beatty Mott MacDonald manages and operates the Area 10 Network covering the Motorways and All Purpose Trunk Roads in the North West Region of England. The area includes the motorway network around Greater Manchester, the main routes through Cheshire, Merseyside and West Lancashire.

The boundaries of the Area 10 network are shown in Figure 1.1 below.

The Area 10 network comprises of 440km (270 miles) of motorways, 80km (50 miles) of trunk roads within north-west England. This represents approximately 10% of the Highways Agency's Strategic Road Network (SRN).



Figure 1.1: Area 10 Network Map

2 Requirements under the ASC Contract

The maintenance requirements for Area 10 are outlined in the Asset Maintenance and Operational Requirements (AMOR) Version 1.7 July 2011, Area 10 Specific Requirements Parts 5 to 16 and Appendices 11 and 15. This plan must be read in conjunction with the following documents:

- Area 10 Contingency Plan
- Area 10 Severe Weather Plan
- Area 10 Incident Response Plan
- Area 10 Network Occupancy Plan
- Area 10 Geotechnical Asset Management Plan
- Area 10 Environmental Management Plan
- Area 10 Watchman Plan
- Area 10 Lighting Asset Management Plan

2.1 AMOR Performance Requirements

The AMOR Parts 5 to 16 identify the maintenance requirements, performance measures and performance level requirements for the asset groups as listed:-

- Part 5 Drainage Maintenance Requirement
- Part 6 Fences, Screens and Environmental Barriers Maintenance Requirement
- Part 7 Geotechnical Assets Maintenance Requirement
- Part 8 Lighting Maintenance Requirement
- Part 9 Paved Areas Maintenance Requirement
- Part 10 Road Markings and Road Studs Maintenance Requirement
- Part 11 Road Restraint Systems Maintenance Requirement
- Part 12 Road Traffic Signs Maintenance Requirement
- Part 13 Soft Estate Maintenance Requirement
- Part 14 Structures Maintenance Requirement
- Part 15 Sweeping and Cleaning Maintenance Requirement
- Part 16 Tunnels Maintenance Requirement (not used in Area 10)

The Maintenance Requirement Plan (MRP) structure has been centred on the approach outlined in AMOR, figure 0.3 whereby the service provider shall adopt a risk-managed approach to the inspection process; and figure 0.4, whereby the service provider shall adopt a risk-managed approach to a make safe and repair process.

The purpose of BBMM's MRP is to outline BBMM's intention for the delivery of maintenance taking into account the condition and age of the asset. System supplied sources of information provided by the Client, Provider and historic data have been utilised to develop this MRP. Strategy will be developed further, upon receipt and verification of previous service providers maintenance history. The MRP will be reviewed on an annual basis unless there is a significant change noted to the risk characteristics and frequencies.

The maintenance strategy has been and will continue to be derived from a robust risk-managed inspection process, through continual review and development of detailed risk assessments of all asset groups.

2.2 Procedures

This plan is produced in accordance with Annex 24 procedures 3.01 Develop Maintenance Requirements Plan. See Appendix A. The following processes and procedures also relate to the Maintenance Requirements Plan:-

Process

- 2.01 Inspect Asset Condition
- 2.02 Identify Maintenance Requirements
- 2.04 Manage Asset Data
- 2.05 Identify Schemes
- 3.01 Develop Maintenance Requirements Plan
- 3.04 Develop Schemes
- 4.01 Deliver Maintenance Requirements

Procedure

- 8 Defect Management Matrix (AMOR 0.4) Procedure
- 9 Departures From Standard (including AMOR 0.6) Procedure
- 22 Network Risk Model Procedure

OnePlace, the Business Management System is a BBMM management system which integrates all process groups. It is an extension of the quality management system. The Business Management System (BMS) ensures the deliverables meet the expectations of BBMM employees, customers and owners.

2.3 Asset Maintenance Objective

The aim of this MRP is to manage defects to secure the safe use of the network in accordance with Highway Agency policies. To enable effective maintenance management, consideration within this plan is given to inspection, [interventions] response and repair times, taking into account and maximising network occupancy opportunities. At the handover of Area 10 BBMM expect the network to be handed over in a safe and serviceable condition to enable continued maintenance and compliance with Annex 20.1.6. of the Area 10 ASC Contract Service Information.

This MRP also considers preventative maintenance, including frequencies, timescales and resources to undertake these operations to reduce residual risk to road users and operatives on the network. Our risk managed approach to both our inspection process and make-safe-and-repair procedure will be robust to ensure the condition of the asset meets the O&M requirements up to the end of its serviceable life. This will be demonstrated through sufficient documented evidence and assessment that HA/BBMM acted reasonably.

Additionally, BBMM will identify all life-expired assets that are due for renewal, prioritising the need, utilising our Network Risk Model, according to the scale of the problem and its potential impact, and will develop a prioritised forward renewals programme to extend the serviceable life of those parts of the asset. Where defects are contained within life-expired parts of the asset, and are deteriorating to an extent that the network is becoming unsafe for use, we will liaise with HA and look to review and revise the renewals programme, either to bring the renewal scheme forward or agree a "do minimum" option for speedy delivery through the in-year programme. Refer to Appendix C.

The Asset Manager, with support from the Asset Champions, will seek to prioritise the asset needs of the network, utilising our Network Risk Model (see Quality Plan Procedure 22 in support of Process 2.02 'Identify Maintenance Requirements'), to determine which schemes should be identified and taken forward via Process 2.05 (Identify Schemes). In this way the prioritised forward programme of renewals schemes will be developed for life-expired assets, or for extending the life of assets where it is better value for money to do so rather than waiting for them to become life-expired.

The above, is underpinned by an expectation that funding will be provided for all assets that become life expired, as determined by the Asset Champions. Decisions will be based upon, design life expectation, manufacturer's recommendations, lifetime maintenance requirements and expected rates of deterioration. Reactive maintenance can be defined as an activity that has been unplanned and sits outside of a planned forward cyclic programme, and as detailed in the activity notes contained within this MRP.

2.4 Asset Grouping

Asset strategies will be developed for each asset group. The strategies will be underpinned by an inspection regime to confirm asset condition and thus enable the prioritisation of need.

Each Asset Group is assigned an Asset Champion. The Champions in liaison with the Asset Manager will review the inventory and condition data, assess gaps in the data that need to be filled and a review of risks associated with maintaining the safe serviceability of the assets. From this analysis, the Champions will determine optimised risk-managed inspection regimes for each of the Asset Groups, tailored as necessary to suit the demands of particular locations on the network to ensure they are suitable for the purpose.

BBMM will follow the HA's strong lead in AMOR to challenge existing standards and find the optimal approach whilst not compromising safety. BBMM will propose a Departure from the Maintenance and Operational Requirements and submit in accordance with the Departures Submission guidance, as illustrated in AMOR Part 0, figure 0.6.

- Drainage - the use of gully floats reducing the need for inspection frequency, with the floats instead providing evidence of when maintenance treatment is needed. BBMM have successfully trialled the use of gully floats with other maintenance divisions.
- Pavement - Maintenance Response Teams (MRTs) undertaking inspections enroute to their maintenance activities to address safety defects, through find and fix regime of attending to potholes or delaying until safe to proceed.
- Lighting - combining inspection with maintenance activity comprising cleaning and bulk lamp change. Lighting outages will be risk assessed against the requirements of AMOR Part 11, however the geometry and complexity of road layout will be considered when determining the rectification of outages. This may often lead to a reduction in the repair criteria outlined in AMOR Part 11, thus in turn requiring an application for a departure to be applied and agreed with HA Service Delivery Team.

- Structures - General and Principal Inspections being outsourced with regular maintenance activities being undertaken by the MRTs. The inspection programme will take into account the historic data and the age of the structure when assessing the spacing between inspections. This in turn may lead to a reduction in inspections on certain structures from intervals of 6 years to 8 years, dependent upon risk assessment. Any deviation in prescribed intervals will be adopted through an agreed departure with the HA Service Delivery Team.
- Road Markings and Road Studs - monitoring to determine when markings have deteriorated to the point when a renewal scheme is needed and to locate the need for occasional missing or faulty studs to be replaced by the MRTs.
- Road Restraint Systems - barrier re-tensioning once, early during the contract and then re-tensioning locally following each repair to tensioned non proprietary systems or other innovative ways of checking subsequently that the barrier remains tensioned. Departure to current standards could required where identified throughout the cycle of maintenance, which will be pursued through HA Service Delivery Team. Current re-tensioning practice outlined in AMOR part 11 requires the shear pins to be replaced on tensioned non-proprietary systems.
- Soft Estate - essentially monitoring and management to ensure safety is maintained through sight lines, asset visibility and functionality. Injurious weeds will be treated as detailed in the EMP.
- Traffic Signs - undertaking a 2-yearly inspection and maintenance regime, with a relaxation on retro-reflectivity requirements so that testing is only undertaken when deemed necessary following a visual assessment and formally pending a departure.

This approach will provide the basis of our inspection regime at the start of the contract and we will continue its development as we acquire a more detailed working knowledge of the network assets and their associated risks.

3 Network Risk Model

3.1 Network Asset Risk Model

The Network Risk Model (NRM) is being developed by BBMM as part of its overall system capability. The model will take as inputs, HA objectives, inventory data, condition data and route service levels and through intelligence led risk analysis and prioritised need by asset group will feed an optimisation process for identifying schemes and maintenance requirements. This MRP is a stated output from the NRM; refer to procedure 22. This plan will be amended to fully align with the NRM as it is developed.

3.2 Risk Managed Inspection Process

The initial requirement of AMOR Part 0; figure 0.3 is to establish the risk characteristics for each of the asset groups to align with the Network Risk Model. This section explains how BBMM will Risk Assess each of the asset groups listed in section 2.1. Once the initial risk characteristics have been considered these will assist in establishing the inspection regime to support Highways Agency policies and leave the network in a safe condition.

To achieve this requirement, initial risk assessments will be undertaken identifying the hazards encountered with each asset group listed in section 2.1 and risk level scored based on the 5 x 5 IOSH risk matrix. These risk assessments will assist in determining the risk managed inspection process strategy and contribute in determining route inspection frequencies.

CONSEQUENCE	5	5	10	15	20	25
	4	4	8	12	16	20
	3	3	6	9	12	15
	2	2	4	6	8	10
	1	1	2	3	4	5
		1	2	3	4	5
		LIKELIHOOD				
17 – 25		Unacceptable – make immediate improvements				
10 – 16		Tolerable – improve within specified timescale				
5 – 9		Adequate – assess at next review				
1 – 4		Acceptable – Maintain controls				

Figure 3.1: 5 x 5 Risk Matrix

Likelihood Rankings:-

Very Unlikely	1 in a million chance of the hazardous event occurring
Unlikely	1 in 100,000 chance of hazardous event occurring
Fairly Unlikely	1 in 10,000 chance of hazardous event occurring.
Likely	1 in 1,000 chance of hazardous event occurring
Very Likely	1 in 100 chance of hazardous event occurring

Consequence Rankings:-

Insignificant	no injury, damage or loss
Minor	minor consequence, injury or loss
Moderate	consequence resulting in 3 day injury, damage or loss
Major	consequence resulting in injury, damage or loss beyond 3 days
Catastrophic	potential loss of life or property

All initial risk assessments for each of the asset groups listed in section 2.1 are located in Appendix A, and will be uploaded into BBMM BMS. These risk assessments will be subject to annual review, undertaken by the designated Asset Champion overseen by the Asset Manager:-

3.3 Develop a programme of Route inspections based on the risk characteristics.

Where the initial assessment identifies an unacceptable risk, mitigation will be pursued to ensure the risk is eliminated or sufficiently reduced to protect end users. The nominated Asset Champion shall establish the hazard mitigation measures required for each of the AMOR asset groups, parts 5 to 15.

Process activity notes are contained within Appendix A which outline the risk-managed inspection process to be adopted for each asset group listed in Section 2.1. These activity notes follow the inspection process detailed in figure 0.3, AMOR Part 0.

The Asset Champions will determine if the asset is beyond its serviceable life, through a review of condition data and design life of the asset. If that is the case a renewal scheme will be identified for inclusion in the forward programme.

Hazardous defects will be identified when carrying out Route inspections, with the MRT's contributing to these on a daily basis. The programme for these inspections will be developed utilising a risk strategy looking at trends over previous years from data provided by the previous service provider. The historic data utilised will include information obtained from the following sources:-

- Flood Hotspot Report
- VRS Strikes contained with RMMS
- Pothole reports contained within RMMS
- Area 10 Risk Register
- Traffic Volumes
- Network Condition

During the initial month after mobilisation the route inspections will be carried out by the MRT's at traffic speed, to verify and confirm historic data approach strategy is correct. The inspection will immediately identify record and enable hazardous defects to be made safe, where risk assessment will allow. The proposed initial frequencies for month one post access date are as follows:-

- All motorways, including slip roads to receive a daily inspection.
- APTR's to receive a weekly inspection to confirm data currently held
- Subways; footways and cycle ways – monthly.

Route inspection frequency, post month one, will be based on historic data to determine likelihood of a hazard occurring on a particular route, considering the main risks characteristics encountered. Figure 3.2 has grouped the historic data to determine proposed route inspection frequencies. Since access date a review of inspection frequencies has been undertaken, which in turn adjusted frequencies based on adjusted likelihood and local knowledge/intelligence. The review will then be on an annual basis unless there is a significant change noted to the risk characteristics and frequencies.

Data for VRS strikes and potholes obtained from RMMS data supplied by the previous service provider with figures based on 2010 data. Risk scores will be based on the following criteria for VRS strikes and potholes:-

- Greater than 20 per KM – Risk Factor 3
- Greater than 10, however less than 20 – Risk Factor 2
- Less than 10 – Risk Factor 1

Flooding Hot Spot data and entries in the risk register will assist in producing a balanced risk score:-

- Score of 2 to be applied for each risk highlighted
- Score of 1 for where a risk is not present

Traffic flow risk factor scores are based on the same principles as contained with Appendix 11 of AMOR document, with data obtained from HA traffic data 2010:-

- High traffic flow >30k/carriageway/day – Risk Factor 3
- Medium traffic flow 20-30k/carriageway/day – Risk Factor 2

- Low traffic flow <20k/carriageway/day – Risk factor 1

Resultant Risk Factor to determine frequency as follows:-

- Greater than or equal to 36 – Daily Route inspection
- Between 6 and 36 (inclusive) – Weekly Route inspection
- Less than 6 – Monthly Route inspection

Risk based methodology for determining risk based inspection frequencies has been based around a similar approach adopted in TRMM, whereby Category A roads were patrolled daily and inspected weekly, Category B roads were inspected weekly and Category C roads were inspected every 28 days.

3.4 Risk Characteristics Review

As Risk Assessments develop, it is likely the frequencies will change on routes. These frequencies may reduce through betterment of the asset or increase as other assets deteriorate. The overall impact on resources should remain balanced across the area network. BBMM will examine the risk characteristics at each review.

Route	Route Km	Number of VRS strikes over 5 years	Strikes per Route Km	Resultant strike rate per week (Risk Factor)	Strike rate per week per Route Km	Number of potholes over 5 years	Potholes per Route Km	Potential identified potholes per week (Risk Factor)	Potholes per week per Route Km	Number of flooding hot spots identified (Risk Factor)	Are there specific locations identified on Area 10 Risk Register, requiring inspection. (Risk Factor)	Traffic Volumes (apply same principle as AMM129)	Resultant Risk Factor	Proposed Route Inspection Frequency
M56	55.63 2	1147	20.62	3	0.08	758	13.63	2	0.05	3 (2)	1	3	36	Daily
M6	86.35 6	1807	20.93	3	0.08	1925	22.29	3	0.09	20 (2)	A10. 080 (2)	3	108	Daily
M60	58.13 6	1608	27.66	3	0.11	1243	21.38	3	0.08	0 (1)	A10. 127 Daily (2)	3	54	Daily
M62	51.50 4	1060	20.58	3	0.08	1286	24.97	3	0.10	1 (2)	A10. 126 Daily (2)	3	108	Daily
A41	0.628	5	7.96	1	0.03	12	19.11	2	0.07	1	1	1	1	Monthly
A483	4.177	26	6.22	1	0.02	22	5.27	1	0.02	0 (1)	1	2	2	Monthly
A494	4.488	17	3.79	1	0.01	0	0.00	1	0.00	1	1	1	1	Monthly
A503 6	5.249	70	13.34	2	0.05	406	77.35	3	0.30	0 (1)	1	2	12	Weekly
A510 3	2.003	9	4.49	1	0.02	26	12.98	2	0.05	0 (1)	1	3	6	Weekly
A511 7	1.759	0	0.00	1	0.00	0	0.00	1	0.00	0 (1)	1	2	2	Monthly
A55	13.53 3	76	5.62	1	0.02	53	3.92	1	0.02	0 (1)	1	2	2	Monthly
A550	7.896	1	0.13	1	0.00	15	1.90	1	0.01	0 (1)	1	1	1	Monthly
A556	6.753	10	1.48	1	0.01	151	22.36	3	0.09	0 (1)	1	2	6	Weekly
A56	15.08 4	168	11.14	2	0.04	95	6.30	1	0.02	0 (1)	A10. 078 (2)	2	8	Weekly
A59	1.255	2	1.59	1	0.01	22	17.53	2	0.07	1	1	1	2	Monthly
A627 (M)	6.606	160	24.22	3	0.09	87	13.17	2	0.05	0 (1)	1	2	12	Weekly
A663	4.361	64	14.68	2	0.06	243	55.72	3	0.21	0 (1)	1	1	6	Weekly
M67	7.656	154	20.11	3	0.08	64	8.36	1	0.03	0 (1)	1	2	6	Weekly
M53	32.03	369	11.52	2	0.04	737	23.01	3	0.09	16 (2)	1	3	18	Weekly
M57	16.08 9	189	11.75	2	0.05	156	9.70	1	0.04	0 (1)	1	3	6	Weekly
M58	18.65 7	148	7.93	1	0.03	142	7.61	1	0.03	1 (2)	1	2	4	Monthly
M602	6.958	177	25.44	3	0.10	72	10.35	2	0.04	0 (1)	1	3	18	Weekly
M61	43.59 3	798	18.31	2	0.07	365	8.37	1	0.03	3 (2)	1	3	12	Weekly

Route	Route Km	Number of VRS strikes over 5 years	Strikes per Route Km	Resultant strike rate per week (Risk Factor)	Strike rate per week per Route Km	Number of potholes over 5 years	Potholes per Route Km	Potential identified potholes per week (Risk Factor)	Potholes per week per Route Km	Number of flooding hot spots identified (Risk Factor)	Are there specific locations identified on Area 10 Risk Register, requiring inspection. (Risk Factor)	Traffic Volumes (apply same principle as AMM129)	Resultant Risk Factor	Proposed Route Inspection Frequency
M65	32.23 8	407	12.62	2	0.05	369	11.45	2	0.04	0 (1)	1	2	8	Weekly
M66	14.29 7	237	16.58	2	0.06	198	13.85	2	0.05	0 (1)	A10. 126 (2)	3	24	Weekly

Figure 3.2: – Route Inspection Matrix

A hazardous defect can be defined as damage to the asset that has a potential to cause loss, harm, danger or nuisance to persons or property.

Examples of hazardous defects are located in Appendix B.

3.5 Route and Condition Inspection Asset Group

The inspection regime will comprise of a programme of condition inspections at frequencies delivered through risk assessments, see Appendix A. For certain assets condition surveys will be necessary to supplement visual inspections. The following summaries both visual inspections and condition surveys for each asset group.

Surveys to assist in the confirmation of condition are currently subject to discussions within early warnings and will be clarified under subsequent versions of the MRP.

BBMM expect the MRT's to identify hazardous defects to be located during the route inspections. All other defects are to be identified through Asset Inspections, including establishment of monitoring regime.

Inspections will be carried out for each of the maintenance headings, with ownership within the specialist plans as detailed below:-

- Pt 5 – Drainage
 - Route inspections to monitor network risk areas
 - Specialist surveys such as CCTV will be undertaken and programme developed to determine future renewal schemes.
- Pt 6 – Fences, Screens and Environmental Barriers
 - Network hazards will be identified and monitored through route inspections
 - Specialist surveys will be carried out as specified within the Environmental Management Plan.
- Pt 7 – Geotechnical Asset
 - Network hazards will be identified through the Geotechnical Asset Management Plan and monitored through the route inspections
 - Specialist surveys will be carried out as specified with Geotechnical Asset Management Plan (GAMP)

- Pt 8 – Lighting Maintenance
 - Electrical and structural safety hazards will be identified through detailed inspections with frequencies determined in the LAMP. Route inspections will supplement detailed inspections and monitor potential network hazards or identify new hazards that occur outside the planned detailed inspections.
- Pt 9 – Paved Areas
 - Route inspections will identify hazardous defects with a defined AMOR performance level requirement.
 - Specialist surveys to assist in the condition assessment will be carried out, including TRACS; Scrim; Deflectograph and visual surveys.
- Pt 10 – Road markings and Road Studs
 - Route inspections will identify and monitor hazardous defects as defined in TD26/07, and highlight potential areas that may deteriorate to beyond serviceable life.
 - All specialist reflectivity surveys will be carried out to support future renewals programme.
- Pt 11 – Road Restraint Systems
 - Route inspections will identify and monitor hazardous defects that affect the structural integrity of the RRS and will be scored in accordance with Appendix 11 of the AMOR contract document.
 - Specialist surveys in accordance with BS 7669-3 and manufacturer's recommendations will be carried out with re-tensioning and combined with other maintenance activities.
- Pt 12 – Road Traffic Signs
 - Route inspections will identify and monitor hazardous defects as defined in TD25, night inspections will identify potential reflectivity issues. These inspections will highlight any potential equipment that is life expired for further specialist inspection.
 - All specialist surveys, inclusive of reflectivity testing will be undertaken to determine the condition of the asset and identify network issues as part of the condition assessments, as equipment will be deemed to be at the end of its serviceable life.
 - Electrical aspects of signs will be deemed specialist surveys and will be inspected in accordance with the LAMP.
- Pt 13 – Soft Estate
 - Route inspections will identify and monitor hazardous defects. These inspections will monitor hazard related issues that are identified within the Environmental Management Plan.
 - All specialist surveys will be managed through the Environmental Management Plan to assess stability of assets.
- Pt 14 – Structures
 - General Inspections and Principal Inspections will identify and monitor hazardous defects. These inspections will monitor hazard related issues that arise from the General and Principle inspections that are managed in SMIS.
 - All specialist surveys will be managed through the General and Principal Inspections programme within SMIS.
- Pt 15 – Sweeping and Cleaning
 - Route inspections will identify and monitor hazardous areas.

- Non hazard related issues will be monitored through the Watchman Plan; Environmental Amenity Index and Environmental Management Plan

3.6 Collection of Data, update of records and photographic evidence

A full suite of CONFIRM modules will be used to collect asset/condition data and capture maintenance activities. The use of BBMM tablets (running the Confirm Connect software) will allow BBMM to make use of the latest technologies, ensure accurate data capture, and achieve operational efficiencies. Photographs will be captured on-site using the BBMM tablets, transferred to the Confirm host system via 3G, and linked to the associated records. This will ensure BBMM operatives have access to information in a timely manner, and that all photographic records are geo-referenced or correctly tagged as required.

Information requirements for IAM IS will be met via a number of interfaces, ensuring compatibility and alignment of both systems. Confirm data will also be shared with OnePlace applications to support other BBMM operational requirements such as Customer Services and Red & Green Claims data capture. This will allow BBMM to benefit from maintaining a single source of truth, provide widespread access to information for all BBMM staff, and achieve a secure and fully auditable information asset.

Confirm is also the primary incident management system for the NCC.

3.7 Analysis of defect data, to establish make safe and repair process

The Asset Manager will be responsible for analysing all data captured through the inspections detailed in Appendix A. The Asset Manager will determine and prioritise maintenance that is required to mitigate hazards and prevent and further deterioration to the asset.

This will not apply to life expired assets. In the event the asset is life expired and there is a potential for the onset of a hazard the Asset Manager must ensure that safety is not compromised and remains first priority. If hazard mitigation has been invoked, which does not renew the asset, the Asset Manager will notify the Employer and Asset Management Leader to agree forward action. Refer to Appendix C.

Life expired assets will be determined based on manufacturers design life of asset, previous maintenance history, risk register and specific highlighted problems that affect the integrity of the asset. An example of a life expired asset could focus on the delamination of current thin surfacing products used on the motorway and trunk road networks.

BBMM expectation are that data appertaining to the asset condition together with previous maintenance history will be provided by the previous service provider. Noting any shortfalls that will be gathered through the gap analysis.

4 Risk-Managed Make Safe and Repair Process

Risk-managed make safe and repair process will be focused on defect prioritisation, preventative maintenance, make safe options, temporary and permanent repairs. All permanent repairs will be associated with defects within the serviceable life of the asset and that are not already captured within a forward renewals scheme, immediate hazard mitigation shall be addressed at all times by BBMM to support HA Policies.

Permanent repairs will be carried out, for example utilising HAPAS approved products, to assets within their serviceable life unless already included within a renewal scheme. Where a renewal scheme exists, assessment will be made dependent upon scheme deliverable timescale.

Process activity notes are contained within Appendix A which outlines the risk-managed make safe and repair process to be adopted for each asset group listed in Section 2.1. These activity notes follow the make safe and repair process detailed in figure 0.4, AMOR Part 0.

4.1 Assessment of defect.

Responsibilities for delivery and rectification will be identified, and captured within the delivery programme.

- Refer to Appendix C for defect management process.

All identified defects shall have any associated hazards mitigated within 24 hours of notification. Following hazard mitigation the defect shall be assessed to determine repair methodology and if temporary repair is required in the interim. Consideration shall be given to the defects as follows:-

- The Asset Champion will determine if the defect can be left until next round of programmed inspections without further detriment to the asset. The assessment will be based on previous network information, experience and manufacturers guidance to assess further deterioration of considered asset.
- Defect to be reviewed in conjunction with forward renewals programme, and assessment made to determine if it can be left until commencement of small works scheme, without further detriment to the asset. Small works schemes shall focus on renewal techniques which involve least disruption to the network and reinstate asset with a serviceable life, examples of which will include inlay schemes and joint infills.

4.2 Preventative Maintenance

Preventative maintenance will be undertaken to avoid deterioration to the asset where deemed practicable and will be covered within the Risk managed approach to the repair process and will be contained within the Activity notes in Appendix A. Preventative maintenance could comprise of either a cyclic based activity, for example gully emptying or a do minimum scheme to life expired assets, already within a forward programme, refer to defect process in Appendix C.

5 Roadspace Planning and Network Occupancy Opportunities

The MRP shall be read in conjunction with the Network Occupancy Plan, as referred to within AMOR Part 2; Managing Network Occupancy Operational Requirements. The Network Managers shall review delivery requirements based on the outcomes from the Risk managed methodology to make safe and repair defects for the maintenance requirements for AMOR Parts 5 to 15.

The defects shall be made safe and repaired through a robust planning and programming strategy, working closely with the Asset Champions. The programme shall consider the Network Occupancy Optimisation (Working Windows) Procedure, which will ultimately consider maximising all road space opportunities.

The Network Managers shall ensure resource is available prior to applying for road space approval; consideration shall be given to residual site specific health & safety risks and controls considerations to ensure that the works are able to continue upon approval of the closure restrictions. Site specific risks that could be considered may include the following:-

- Collaborative working with other contractors who are sharing closures.
- Overhead power lines
- Working adjacent to water
- Working at height
- Additional lighting
- Incident History
- Pedestrians
- Environmental Considerations
- Welfare

The Asset Champions will issue the approved closure restriction report to the ASC Depot Managers, Occupancy Teams and Construction Teams. Upon approval the Depot Managers shall ensure that the delivery programme is resourced and locked.

Appendix A Risk Assessments & Activity Notes

A.1 Part 5 – Drainage Risk Assessment

Assessors Name		Date of Assessment	Assessment of Risk (based on 5x5 Matrix)				Risk Controls	Residual Risk (based on 5x5 Matrix)				Date
Work Activity	Hazardous Event	Persons / Property Affected	Likelihood Level	Consequence Level	Risk Level	Risk Controls Required?		Probable Likelihood	Potential Consequence	New Risk Level	Further Controls Required?	Review Period
Part 5 - Drainage Maintenance Requirement (5.1)	Flood Impacts Flooding on trafficked surface due to blocked gully at low points and cross fall transition	Asset, Road User and Property	3	4	12	Yes	Route Inspection Frequencies as detailed in Figure 3.2 and Risk Managed Inspection Process in Appendix A.2. Introduction of gully floats and preventative maintenance programme will reduce the likelihood of occurrence, referred to within Appendix A.3.	2	2	4	No	Review 12 monthly to coincide with a full weather cycle or at recognised increase in flood events.
Part 5 - Drainage Maintenance Requirement (5.2)	Flood Impacts Flooding on trafficked surface due to blocked CD&K units, weir kerbs and Aquamax at low points and cross fall transition	Asset, Property and Environment	3	4	12	Yes	Route Inspection Frequencies as detailed in Figure 3.2 and Risk Managed Inspection Process in Appendix A.2. Structures preventative maintenance will address the Aquamax detritus, as identified in Appendix B.3.	2	3	6	No	Review 12 monthly to coincide with a full weather cycle or at recognised increase in flood events.

Assessors Name		Date of Assessment	Assessment of Risk (based on 5x5 Matrix)				Residual Risk (based on 5x5 Matrix)	Date				
Work Activity	Hazardous Event	Persons / Property Affected	Likelihood Level	Consequence Level	Risk Level	Risk Controls Required?	Risk Controls	Probable Likelihood	Potential Consequence	New Risk Level	Further Controls Required?	Review Period
Part 5 - Drainage Maintenance Requirement (5.3)	Flood Impacts Flooding on trafficked surface due to blocked or no drainage grips near low points	Road user and property	3	4	12	Yes	Route Inspection Frequencies as detailed in Figure 3.2 and Risk Managed Inspection Process in Appendix A2. Preventative maintenance will be detailed in Appendix A3.	2	3	6	No	Review 12 monthly to coincide with a full weather cycle or at recognised increase in flood events.
Part 5 - Drainage Maintenance Requirement (5.4)	Flood Impacts Flooding on trafficked surface due to detritus build up in channel preventing clear drainage path near low points, such as seasonal leaf fall.	Road user and property	4	4	16	Yes	Route Inspection Frequencies as detailed in Figure 3.2 and Risk Managed Inspection Process in Appendix A32 (Sweeping). Preventative maintenance will be detailed in Appendix A33 (Sweeping)	2	2	4	No	Review 6 monthly or issues raised from Environmental Amenity Index Surveys.
Part 5 - Drainage Maintenance Requirement (5.5)	Flood Impacts Flooding on trafficked surface due to detritus build up on / adjacent to filter drain	Road user and property	3	4	12	Yes	Route Inspection Frequencies as detailed in Figure 3.2 and Risk Managed Inspection Process in Appendix A2. Preventative maintenance will be detailed in Appendix A3.	2	2	4	No	Review 12 monthly to coincide with a full weather cycle or at recognised increase in flood events.

Assessors Name		Date of Assessment	Assessment of Risk (based on 5x5 Matrix)				Risk Controls	Residual Risk (based on 5x5 Matrix)				Date
Work Activity	Hazardous Event	Persons / Property Affected	Likelihood Level	Consequence Level	Risk Level	Risk Controls Required?		Probable Likelihood	Potential Consequence	New Risk Level	Further Controls Required?	Review Period
Part 5 - Drainage Maintenance Requirement (5.6)	Flood Impacts Flooding to property resultant from blocked ditch / watercourses/carrier drains/outfalls	Asset and Property	3	3	9	Yes	Identify hot spots from Watchman reports. Route inspection for visible watercourses, otherwise through programme of asset inspections, referred to in Appendix A2. Appendix A3 will deal with planned preventative maintenance to reduce the likelihood of occurrence.	2	2	4	No	Review 12 monthly to coincide with a full weather cycle or at recognised increase in flood events.
Part 5 - Drainage Maintenance Requirement (5.7)	Flood Impacts Statutory undertakers damage drainage assets leading to flood / other highway defects	Road user and property	2	3	6	No	Monitor through NRSWA notices and inspections.	2	2	4	No	Review 12 monthly
Part 5 - Drainage Maintenance Requirement (5.8)	Maintenance Requirement Struck by vehicle while attending to drainage assets	Operative	4	4	16	Yes	Safe System of Work to consider working methods and maximising network occupancy opportunities.	2	3	6	No	Review 12 monthly or in the event of a near miss
Part 5 - Drainage Maintenance Requirement (5.9)	Maintenance Requirement Slips, trips and falls attending to drainage assets	Operative	4	4	16	Yes	Safe System of Work to consider working methods and maximising network occupancy opportunities.	2	3	6	No	Review 12 monthly or in the event of a near miss

Assessors Name		Date of Assessment	Assessment of Risk (based on 5x5 Matrix)					Residual Risk (based on 5x5 Matrix)				Date
Work Activity	Hazardous Event	Persons / Property Affected	Likelihood Level	Consequence Level	Risk Level	Risk Controls Required?	Risk Controls	Probable Likelihood	Potential Consequence	New Risk Level	Further Controls Required?	Review Period
Part 5 - Drainage Maintenance Requirement (5.10)	Maintenance Requirement Working adjacent to water	Operative	3	4	12	Yes	Use of trained site inducted operatives will reduce the likelihood. Permit to work system to be implemented adjacent to water.	1	3	3	No	12 Months
Part 5 - Drainage Maintenance Requirement (5.11)	Pollution Impact Pollution to watercourses due to on network spillages	Property and wildlife	2	4	8	Yes	Risk assessment in accordance with HD45/09. Routine inspections and maintenance of drainage assets will reduce likelihood of occurrence.	2	3	6	No	Review 12monthly
Part 5 - Drainage Maintenance Requirement (5.12)	Structural Integrity Defective drainage causes undermining of adjacent asset e.g. bridge / pavement /headwall/ geotechnical feature. Resulting in shortened life span / failure of asset	Asset and Property	3	3	9	Yes	Route Inspection Frequencies as detailed in Figure 3.2. Supplement with structures inspections.	2	3	6	No	Review 12 monthly

A.2 Part 5 – Drainage Risk Managed Inspection Activity Note

Objective	To manage and maintain network free of flood events
Output	Network Condition Data
Executive Owner	Asset Management Leader
Local Owner	Asset Manager
Implementation Owner	Asset Champion (Drainage Liaison Engineer)
1. Activity	Assess Risk for Each Asset Type
<p>The Asset Management Leader and Drainage Liaison Engineer/Flood Champion will assess risk associated with drainage asset to develop inspection and maintenance programme. Consideration to be given to risk register, flood hot spot report and previous maintenance history. Risk Assessment for hazards associated with drainage are detailed in Appendix A.1.</p>	
2. Activity	Determine Inspection Frequencies
<p>Route inspections at per frequencies outlined in Figure 3.2 and inspections carried out during or immediately after a severe weather event with the potential to endanger safe passage or cause disruption on the Network, and includes snow, ice, heavy rain and high winds, will identify hazards associated with the following assets:-</p> <ul style="list-style-type: none"> • Gullies, in particular at low points and cross fall transitions • Combined Drain & Kerb Units and other drainage channels • Drainage grips adjacent to the carriageway <p>The Route inspections will identify locations of detritus build up in channels and adjacent to filter drains that is preventing the safe passage of surface water to the drainage inlet.</p> <p>There are currently 44 identified flood hotspots on Area 10, which will be inspected during periods of moderate rainfall to ensure risk is mitigated due to potential for flooding. Refer to Figure 3.2. For number of locations per route.</p> <p>Gully floats are being developed for introduction in to gullies which have limited visibility due to location, such as central reservations. The proposed device used will reduce unnecessary cleansing and traffic management and reduce the risk of surplus water on the carriageway.</p> <p>Outfalls and culverts with a clear span or internal diameter less than 0.9m will be inspected annually where a risk is associated with damage to property or deterioration of the asset as identified by the Asset Champion (Drainage Liaison Engineer).</p> <p>Location of pollution control pods are to be verified during the first month of the contract and inspected annually to ensure stocks are maintained, to comply with HD 45/09.</p>	
3. Activity	Are Relaxations or Enhancements Required
<p>As the risk mitigation is with the Service Provider, it is foreseen that no relaxations or departures will be required for the duration of the contract.</p>	
4. Hold Point	Obtain Relaxation or Enhancement Approval
<p>Asset Champion (Drainage Liaison Engineer/Flood Champion) to review inspection regime annual.</p>	

5. Activity	Update MRP as Required
There are currently no updates required.	
6. Activity	Undertake Inspections
<p>Route inspections are to be undertaken by the MRT's travelling at traffic speed in daylight hours.</p> <p>Outfall and culvert inspections will be undertaken by the Asset Inspector and will consider access arrangements and safe systems of work.</p> <p>Lone working will not be permitted to undertake inspections.</p>	
7. Activity	Record Asset Condition
<p>During the course of inspections data relating to the condition of the network will be collected graded and added to CONFIRM and other Highways Agency databases.</p> <p>Drainage defects will be graded between A and D as determined by the MRP, as follows:-</p> <ul style="list-style-type: none"> • A – Defect is causing flooding and may cause damage/pollution to person/property or asset, immediate response required and hazard mitigated within 24hrs. In any event flood events to be closed within 28 days. • B – Defect is likely to cause flooding, which may result in damage to person/property or asset. MRT to ensure hazard is mitigated prior to potential flooding, and closed within 28 days. • C – Defect is likely to cause deterioration to asset in the event of flooding, MRT to carry out routine maintenance, i.e. strimming of outfalls and removal of litter build up in watercourses. • D – Defect is superficial and unlikely to be detrimental to the asset. Defect to be monitored and reviewed at next inspection. 	
8. Activity	Non Compliance
Asset Champion (Drainage Liaison Engineer) to review inspection data and produce maintenance schedule for rectification, either through MRP or transfer to Scheme.	
9. Hold Point	Transfer to Maintenance Manager for Risk managed Rectification – Refer to Appendix A3.

A.3 Part 5 – Drainage Activity Notes for Risk managed Make Safe and Repair Procedure

Objective	To address Drainage maintenance requirements.
Output	Network free of Flood Events
Executive Owner	AMOR Service Leader
Local Owner	Maintenance Manager
Implementation Owner	Network Supervisor
10. Hold Point	Transfer from Asset Manager for Risk managed Rectification – Refer to Appendix B.2
Maintenance Manager will programme and rectify non-compliance as identified by the Asset Champion (Drainage Liaison Engineer/Flood Champion).	
11. Activity	Site specific Risk Assessment of non-compliance
<p>The Supervisor is to carry out a site specific assessment of non-compliance and adopt Risk managed approach to determine timescale for rectification for grade of defect. Safe system of work to be raised, taking into account site specific hazards likely to be present on site. To comply with gradings applied to the assessment, hazards are to be mitigated within 24 hours and flood events closed within 28 days (as per grade A and B defects). Grade C defects are to be programmed into MRT duties, and attended to with 6 months of identification. Grade D defects are superficial and can be re-assessed at next inspection.</p>	
12. Activity	Programme preventative maintenance and identify resource
<p>The Supervisor shall review current works programme within Area 10 to incorporate Drainage maintenance into other activities where achievable through Risk managed approach. The drainage maintenance will be carried out by a combination of Supply Chain and MRT, as follows:-</p> <ul style="list-style-type: none"> • Rectification of defects indentified by Asset Inspector. • Carry out full network Gully/Catchpit cleanse or assessment within 12 months of access date, adopting the following criteria:- <ul style="list-style-type: none"> ○ Supply Chain to carry to all gullies and catchpit attendance to record level of silt within traps. ○ Gullies to be emptied if silt level is at 50 % or greater within the trap. Results are to be recorded with CONFIRM. ○ Gully float to be installed to offside gullies and as directed by the Drainage Liaison Engineer. 	
13. Hold Point	Review training capabilities of assigned resource and issue Safe System of Work
Safe system of work (SSW) Permit to be produced by supervisor and to be approved by Network Manager prior to release of Hold Point.	
14. Activity	Handover Briefing
Supervisor to brief ganger into SSW at shift handover, ensuring all resource is available to undertake assigned task.	

15. Activity	Undertake drainage maintenance
Carry out activity in accordance with Safe System of Work and as directed by Maintenance Manager and in agreement with agreed procedures. All waste arisings are to be disposed off site and waste transfer notes filed centrally.	
16. Activity	Records Asset Condition
The following records are to be collated on site and transferred to CONFIRM at end of shift handover:-	
<ul style="list-style-type: none"> • Record of number of gullies or other drainage features attended • Extent of maintenance undertaken • Condition of surrounding assets • Any residual issues that were encountered. • Location of gully floats installed • Update HADDMS where applicable 	
17. Activity	End of shift Handover
Supervisor and Maintenance Manager to discuss operation undertaken and record any opportunities for improvement, taking into account the Task, Constraints of Individuals/Operatives and the Environment. All information to be returned to Network Manager for works sign off and forwarded to Asset Champion (Drainage Liaison Engineer) for review.	
18. Hold Point	Transfer to data to Asset Champion (Drainage Liaison Engineer) to review forward cyclic programme and strategy.

A.4 Part 6 - Fences, Screens and Environmental Barriers

Assessors Name		Date of Assessment	Assessment of Risk (based on 5x5 Matrix)					Residual Risk (based on 5x5 Matrix)				Date
Work Activity	Hazardous Event	Persons / Property Affected	Likelihood Level	Consequence Level	Risk Level	Risk Controls Required?	Risk Controls	Probable Likelihood	Potential Consequence	New Risk Level	Further Controls Required?	Review Period
Part 6 - Fences Screens and Environmental Barriers (< 3m high) Maintenance Requirements (6.1)	Structural Integrity Public or livestock gaining access to network.	Public and live stock.	3	3	9	Yes	Route inspection regime to identify immediate hazard of missing boundary fence rails or stock proofing. Frequencies detailed in Figure 3.2. Asset Inspection carried out, as per process in Appendix A5, to determine serviceable life of asset, for inclusion in forward programme.	2	2	4	No	Review every 12 months
Part 6 - Fences Screens and Environmental Barriers (< 3m high) Maintenance Requirements (6.2)	Structural Integrity Fence/Wall collapse resulting in injury to persons or damage to property.	Public and live stock.	3	3	9	Yes	Route inspection regime to identify immediate hazard of missing boundary fence rails or stock proofing. Frequencies detailed in Figure 3.2. Asset Inspection carried out, as per process in Appendix A.5, to determine serviceable life of asset, for inclusion in forward programme.	2	2	4	No	Review every 12 months

Assessors Name		Date of Assessment	Assessment of Risk (based on 5x5 Matrix)					Residual Risk (based on 5x5 Matrix)				Date
Work Activity	Hazardous Event	Persons / Property Affected	Likelihood Level	Consequence Level	Risk Level	Risk Controls Required?	Risk Controls	Probable Likelihood	Potential Consequence	New Risk Level	Further Controls Required?	Review Period
Part 6 - Fences Screens and Environmental Barriers (< 3m high) Maintenance Requirements (6.3)	Maintenance Requirement Slips, trips and falls while attending to fences, screens and environmental al barriers	Operative	4	3	12	Yes	Use of trained site inducted operatives, traffic management, advance planning and appropriate plant will reduce the likelihood. The Risk managed make safe and repair process is detailed in Appendix A.6.	2	2	4	No	Review every 12 months
Part 6 - Fences Screens and Environmental Barriers (< 3m high) Maintenance Requirements (6.4)	Maintenance Requirement Working at height	Operative	3	4	12	Yes	Identify locations and reduce risk with site specific safe systems of work. The Risk managed make safe and repair process is detailed in Appendix A.6	2	3	6	No	Review every 12 months
Part 6 - Fences Screens and Environmental Barriers (< 3m high) Maintenance Requirements (6.5)	Maintenance Requirement Working adjacent to water	Operative	3	4	12	Yes	Use of trained site inducted operatives will reduce the likelihood. Permit to work system to be implemented adjacent to water. The Risk managed make safe and repair process is detailed in Appendix A.6	1	3	3	No	12 Months

A.5 Part 6 - Fences; Screens and Environmental Barrier Risk Managed Inspection Activity Note

Objective	To provide an accurate record of the condition of the asset in accordance with AMOR Part 6 and mitigate any hazards associated with public, property or live stock;
Output	Network Condition Data
Executive Owner	Asset Management Leader
Local Owner	Asset Manager
Implementation Owner	Asset Champion
1. Activity	Assess Risk for Each Asset Type
The Asset Manager will assess risk associated with fences; screens and environmental barriers as identified in Appendix A.4. Consideration to be given to risk register; previous maintenance history, forward renewals programme and value management data.	
2. Activity	Determine Inspection Frequencies
<p>Route inspections will be undertaken at frequencies outlined in Figure 3.2. These inspections will be carried out at traffic speed, in daylight hours and will identify defects that can be seen from the main carriageway. It is anticipated that these inspections will identify hazard defects as follows:-</p> <ul style="list-style-type: none"> • Missing rails and stock proofing. • Fences, screens and walls in imminent danger of collapse. <p>The Asset Manager will identify locations on the network that cannot be addressed by the route inspections and establish a regime to identify hazardous defects. This non driven inspection will be undertaken within the asset inspection, unless specific areas are identified through the watchman process or from the risk register.</p> <p>The detailed Asset Inspection will be undertaken within the first 12 months of the contract and will be undertaken by the Asset Inspector. The Asset Inspection will consider the serviceable life of the asset during the asset inspection, recording both the defect encountered and the longevity of the asset.</p> <p>Asset Inspection intervals beyond the initial 12 months will be based upon findings from the initial inspection and be determined by the Asset Manager.</p>	
3. Activity	Are Relaxations or Enhancements Required
As the risk mitigation is with the Service Provider, it is likely that no relaxations or departures will be required for the duration of the contract.	
4. Hold Point	Obtain Relaxation or Enhancement Approval
The Asset Manager inspection programme review and strategy is to be agreed in advance by the Asset Management Leader.	
5. Activity	Update MRP as Required
Update MRP with revised inspection intervals and defect management strategy.	

6. Activity	Undertake Inspections
<p>Route inspections are to be undertaken by the MRT's travelling at traffic speed in daylight hours.</p> <p>Outfall and culvert inspections will be undertaken by the Asset Inspector and will consider access arrangements and safe systems of work.</p> <p>Lone working will not be permitted to undertake outfall inspections.</p>	
7. Activity	Record Asset Condition
<p>During the course of inspections data relating to the condition of the network will be collected and recorded on CONFIRM.</p>	
8. Activity	Non Compliance
<p>The Asset Manager is to review inspection data and produce maintenance schedule for rectification, either through MRP or transfer to Value Management Scheme.</p>	
9. Hold Point	Transfer to Maintenance Manager for Risk managed Rectification – Refer to Appendix A.6

A.6 Part 6 – Fences, Screens and Environmental Barriers - Risk managed Make Safe and Repair Procedure

Objective	To address Fences Screens and Environmental Barriers maintenance requirements.
Output	Resilient
Executive Owner	AMOR Service Leader
Local Owner	Maintenance Manager
Implementation Owner	Network Supervisor
10. Hold Point	Transfer from Asset Manager for Risk managed Rectification – Refer to Appendix A.5.
<p>The Maintenance Manager will programme and rectify non-compliance as identified by the Asset Manager. All hazards that will allow access to the motorway network by persons or livestock are to be mitigated with 24 hours, permanent repair shall be followed up within 28 days (life expired asset defects are to be assessed in accordance with Value Management and Small Works programme). All other superficial defects are to be re-assessed at next Asset Managed inspection.</p>	
11. Activity	Site specific Risk Assessment of non-compliance
<p>The Supervisor is to carry out a site specific assessment of non-compliance and adopt Risk managed approach to determine timescale for rectification for grade of defect. Safe system of work to be raised, taking into account site specific hazards likely to be present on site. The hazards will include the following:-</p> <ul style="list-style-type: none"> • Livestock • Working adjacent to water • Working in long vegetation, resulting in slips trips and falls. • Leptospirosis 	

12. Activity	Programme and identify resource
<p>The Supervisor shall review current works programme within Area 10 to incorporate Fence, Screen and Environmental Barrier maintenance into other activities where achievable through Risk managed approach. The defect maintenance will be carried out by the MRT or specialist sub-contractor, where a hazard is present to public, property or asset.</p> <p>Life expired fences, screens and environmental barriers will be managed through the VM process.</p>	
13. Hold Point	Review training capabilities of assigned resource and issue SSW
<p>Safe System of Work (SSW) Permit produced by supervisor and to be approved by Network Manager prior to release of Hold Point.</p>	
14. Activity	Handover Briefing
<p>Supervisor to brief ganger into SSW at shift handover, ensuring all resource is available to undertake assigned task.</p>	
15. Activity	Undertake Fences Screens and Environmental Barriers maintenance
<p>Carry out activity in accordance with Safe System of Work and as directed by Network Manager and agreed process.</p>	
16. Activity	Records Asset Condition
<p>The following records are to be collated on site and passed to supervisor at end of shift handover:-</p> <ul style="list-style-type: none"> • Record type, length and stock / wildlife proofing repaired • Nature of maintenance undertaken • Condition of surrounding assets • Any residual issues that were encountered. <p>In the event that a temporary repair to third party fencing was carried out to maintain safety exact location and nature of repair is to be recorded and forwarded to the Asset Manager.</p>	
17. Activity	End of shift Handover
<p>Supervisor and Maintenance Manager to discuss operation undertaken and record any opportunities for improvement, taking into account the Task, Constraints of Individuals/Operatives and the Environment. All information to be returned to Network Manager for works sign off and forwarded to Asset Manager for review.</p>	
18. Hold Point	Transfer to Asset Manager for approval and signing off defect.

A.7 Part 7 – Geotechnical

Assessors Name		Date of Assessment	Assessment of Risk (based on 5x5 Matrix)					Residual Risk (based on 5x5 Matrix)				Date
Work Activity	Hazardous Event	Persons / Property Affected	Likelihood Level	Consequence Level	Risk Level	Risk Controls Required?	Risk Controls	Probable Likelihood	Potential Consequence	New Risk Level	Further Controls Required?	Review Period
Part 7 - Geotechnical Assets (7.1)	Embankment or cutting slope failure.	Public, property and infrastructure asset	3	4	12	Yes	Identify safety critical defects while on route inspection, refer to fig 3.2.1 for frequencies and Risk Managed Inspection process in Appendix A.8. All physical works (inc. surveys and renewals) will be managed in the GAMP and in accordance with HD 41 to develop a robust Tactical Asset Management, Annual or Principal Inspection regime.	2	3	6	No	Review 12 monthly
Part 7 - Geotechnical Assets (7.2)	A56 Woodcliffe cutting, potential land slips as identified on Area 10 Risk Register (A10.078).	Result in closure of A56	4	3	12	Yes	Continue with weekly route inspection routine, to mitigate hazard. Review contingency plan in place. Risk Register report as of 11th Sept 2012 states that main ground investigation complete, phase 2 out for pricing.	2	2	4	No	Progress update weekly

Assessors Name		Date of Assessment	Assessment of Risk (based on 5x5 Matrix)					Residual Risk (based on 5x5 Matrix)				Date
Work Activity	Hazardous Event	Persons / Property Affected	Likelihood Level	Consequence Level	Risk Level	Risk Controls Required?	Risk Controls	Probable Likelihood	Potential Consequence	New Risk Level	Further Controls Required?	Review Period
Part 7 - Geotechnical Assets (7.3)	M66 Woodcliffe cutting, embankment slip has resulted in exposure of bank seat piled foundations as identified on Area 10 Risk Register (A10.079).	Result in closure of M66, risk of pedestrian injury and infringement onto 3rd party land.	3	3	9	Yes	Continue with weekly route inspection routine, to mitigate hazard. Risk Register report as of 11th Sept 2012 states that main ground investigation completed and feasibility study in progress, monitoring ongoing. Insufficient data to draw any meaningful conclusions at this point.	2	3	6	No	Progress update weekly
Part 7 - Geotechnical Assets (7.4)	M6 J29/M65 J1 - Landslip at River Lostock as identified on Area 10 Risk Register (A10.080).	Short term closure of M6, risk of to 3rd parties and interruption of gas supply.	3	4	12	Yes	Continue with daily route inspection routine, to mitigate hazard. Risk Register report as of 11th Sept 2012 states that EA consent has been obtained, majority of remedial work has been undertaken, with landscaping outstanding.	1	3	3	No	Progress update weekly
Part 7 - Geotechnical Assets (7.5)	M53 J11/M56 Slip Road and emergency access road land slip. Safety Fence is compromised and restricted emergency access to M56 and M53, as identified on Area 10 Risk Register (A10.094)	personal injury accident	2	3	6	No	Continue with weekly route inspection routine, to mitigate hazard. Gateway 0 has been submitted awaiting HA agreement. Submit scheme through VM. Ground Investigation contractor on site 4th July 2012.	2	2	4	No	Progress update weekly

Assessors Name		Date of Assessment	Assessment of Risk (based on 5x5 Matrix)					Residual Risk (based on 5x5 Matrix)				Date
Work Activity	Hazardous Event	Persons / Property Affected	Likelihood Level	Consequence Level	Risk Level	Risk Controls Required?	Risk Controls	Probable Likelihood	Potential Consequence	New Risk Level	Further Controls Required?	Review Period
Part 7 - Geotechnical Assets (7.6)	M66 MP 02/09 Landslip as identified on Area 10 Risk Register (A10.096)	Personal injury accident	2	3	6	no	Continue with weekly route inspection routine, to mitigate hazard. Gateway 0 has been accepted by HA, investigation to be conducted and submitted to VM. Continue with Inspection Routine. Risk Register update as of 4th July 2012 detailed that survey due later in July.	2	2	4	no	Progress update weekly

A.8 Part 7 - Geotechnical Risk Managed Inspection Procedure

Objective	To carry out short term management of safety critical defects
Output	Network Condition Data
Executive Owner	Asset Management Leader
Local Owner	Asset Manager
Implementation Owner	Asset Champion
1. Activity	Undertake Inspections
Identify safety critical defects on route inspections, frequencies are detailed on Figure 3.2. Route inspections will be utilised to monitor safety critical issues highlighted on the risk register. Hazards are identified and assessed in Appendix A.7.	
2. Activity	Record Asset Condition
The GAMP will record condition during the course of inspections data relating to the geometry, condition/performance of the earthworks will be collected on PocketGAD and uploaded to HAGDMS in accordance with HD41/03. Safety critical issues will also be recorded on CONFIRM and escalated to Area 10 Risk Register. The risk register provided during mobilisation identified 5 geotechnical entries that require monitoring.	
3. Activity	Identify assets that require immediate attention
Where the condition of the asset is deemed unsafe or to impact on the safe operation of another highway asset, the appropriate Network Manager shall be notified and appropriate action taken, either remove spoil or install traffic management to manage risk.	
4. Activity	Identify defective assets
Physical Works (including surveys and renewals) are outside the scope of the MRP and will be managed through the GAMP	
5. Hold Point	Obtain Approval from AMOR Service Leader
Approval by the AMOR Service Leader required to confirm action of safety critical defects is acceptable.	
6. Activity	Feedback - Update GAMP inspection regime
The safety critical defect to be escalated to the Asset Management Leader.	

A.9 Part 7 – Geotechnical - Risk managed Make Safe and Repair Procedure

The MRP has a duty to carry out short term management of Safety Critical Defects. Existing defects will be monitored through Route inspections, undertaken by the MRT's and the Area 10 Risk Register. Geotechnical defects that cause a hazard to persons or property shall have hazard mitigated with 24 hours, and early warning notice raised. Solution to be agreed with the Employer and managed in the GAMP.

The Geotechnical Maintenance Plan will manage inspections as detailed in HD 41. All physical works (including surveys and renewals) will be managed in the GAMP.

A.10 Part 8 – Lighting

Assessors Name		Date of Assessment	Assessment of Risk (based on 5x5 Matrix)					Residual Risk (based on 5x5 Matrix)				Date
Work Activity	Hazardous Event	Persons / Property Affected	Likelihood Level	Consequence Level	Risk Level	Risk Controls Required?	Risk Controls	Probable Likelihood	Potential Consequence	New Risk Level	Further Controls Required?	Review Period
Part 8 - Lighting Maintenance Requirement (8.1)	A defect which may result in an unacceptable structural or electrical hazard to persons or property.	Public, highway assets, 3rd party asset owners, Maintenance personnel	3	5	15	Yes	Undertake route inspections in accordance with frequencies identified in Figure 3.2. Carry out scouting, initial 7 times per annum, as outlined in AMOR and as referenced in Appendix A.11 and to maintain to an appropriate level. Principal Inspections in accordance with LAMP. Manage defects through regular maintenance, monitoring and renewal, referring to Appendix A.12.	2	3	6	No	Review every 2 years
Part 8 - Lighting Maintenance Requirement (8.2)	A defect which results in an unacceptable level of lighting.	Road user, highway assets, 3rd party asset owners, Maintenance personnel	3	4	12	Yes	Undertake route inspections in accordance with frequencies identified in Figure 3.2. Carry out scouting, initial 7 times per annum, as outlined in AMOR and as referenced in Appendix A.11 and to maintain to an appropriate level. Principal Inspections in accordance with LAMP. Manage defects through regular maintenance, monitoring and renewal, referring to Appendix A.12.	2	3	6	No	Review every 2 years

Assessors Name		Date of Assessment	Assessment of Risk (based on 5x5 Matrix)					Residual Risk (based on 5x5 Matrix)				Date
Work Activity	Hazardous Event	Persons / Property Affected	Likelihood Level	Consequence Level	Risk Level	Risk Controls Required?	Risk Controls	Probable Likelihood	Potential Consequence	New Risk Level	Further Controls Required?	Review Period
Part 8 - Lighting Maintenance Requirement (8.3)	Vehicle Strikes during maintenance operations	Maintenance personnel	3	4	12	Yes	Carry out maintenance at low traffic flows and with appropriate traffic management, site specific risk assessments to be undertaken	2	3	6	No	Review 12 monthly
Part 8 - Lighting Maintenance Requirement (8.4)	Working at Height	Maintenance personnel	3	5	15	Yes	Ensure MEWP is maintained and certificates in place to comply with HSWA Lifting Regulations. Site specific Risk Assessments and Safe Working Procedures to be recorded and implemented.	1	4	4	No	Review 6 monthly
Part 8 - Lighting Maintenance Requirement (8.5)	Risk of electric shock/electrocution	Maintenance personnel	3	5	15	Yes	Ensure all personnel are trained to comply with Electrical Regulations, and safe systems of work in place and reviewed. Site specific Risk Assessments and Safe Working Procedures to be recorded and implemented.	2	3	6	No	Review 6 monthly
Part 8 - Lighting Maintenance Requirement (8.6)	Risk of slips, trips falls and injury from working on Sloped verges with long grass/vegetation and unlit areas	Maintenance personnel	3	4	12	Yes	Site specific risk assessments and safe working procedures required to highlight and eliminate hazards.	2	3	6	No	Review 6 monthly

A.11 Part 8 – Lighting - Risk Managed Inspection Procedure

Objective	To maintain lighting to a standard that does not present a hazard to road user, road worker or third parties. Road lighting is to continue to fulfil its intended purpose as an accident reduction intervention. Other lighting continues to fulfil its intended purpose: road traffic signs lighting to highlight the location of a road traffic sign, gantry lighting to highlight the presence of the sign and to help read the sign, and other lighting (subway & access) is to provide route guidance and hazard identification.
Output	Network Condition Data
Executive Owner	Asset Management Leader
Local Owner	Asset Manager
Implementation Owner	Asset Champion
1. Activity	Assess Risk for Each Asset Type
The Asset Manager will assess risk associated with lighting as identified in Appendix A.10. Consideration to be given to risk register; previous maintenance history, forward renewals programme and value management data.	
2. Activity	Determine Inspection Frequencies
<p>Route inspections will be undertaken at frequencies outlined in Figure 3.2. These inspections will be carried out at traffic speed, in daylight hours and will identify defects that can be seen from the main carriageway. It is anticipated that these inspections will identify hazardous defects as follows. For assets that are not visible while undertaking route inspections at traffic speed, supplementary inspections will be undertaken during maintenance operations (including lamp scouting and lighting maintenance), such as strimming to assess and identify network hazards:-</p> <ul style="list-style-type: none"> • Damaged columns and lit signs. • Missing doors. • Damaged feeder pillars. <p>The Asset Manager will programme Lighting Operational Performance Surveys (“scouting”) as scheduled in AMOR, deliverable 5. A survey will be undertaken in each of the following months, April; August; October; November; January and February amounting to 6 per annum, plus one additional undertaken within 5 days following 26th December. All results are to be reported to Employer by the third working day the following month, with the exception of the 26th December scout, which shall be with the Employer within 10 working days after 26th December.</p> <p>The Asset Manager shall develop and implement an annual Lighting Asset Management Plan (LAMP), to demonstrate how the outcomes and deliverables will be achieved in the forthcoming year.</p>	
3. Activity	Are Relaxations or Enhancements Required
The Asset Manager will arrange for scouts to be undertaken in the first 12 months of the contract to comply with Amor deliverable 5. The results will be analysed in conjunction with LAMP and maintenance deliverables to determine revised scouting regime, based on risk and consequence.	
4. Hold Point	Obtain Relaxation or Enhancement Approval

The Asset Manager will obtain approval to proceed with relaxation through Asset Management Leader and Employer.	
5. Activity	Update MRP as Required
Update MRP with revised inspection intervals and defect management strategy. In any event the MRP will be subject to a review every 2 years.	

6. Activity	Undertake Inspections
<p>Route inspections are to be undertaken by the MRT's travelling at traffic speed in daylight hours.</p> <p>Scouting will be undertaken by street lighting team.</p>	
7. Activity	Record Asset Condition
<p>During the course of inspections data relating to the condition of the network will be collected and recorded on CONFIRM.</p>	
8. Activity	Non Compliance
<p>The Asset Manager is to review inspection data and produce maintenance schedule for rectification, either through MRP or transfer to Value Management Scheme. The lighting shall be maintained to performance levels in AMOR part 8, as follows:-</p> <ul style="list-style-type: none"> • By last week in October <ul style="list-style-type: none"> ○ Max no of sequential lamp failures – 1 No ○ Max no of failures per no of lamps on Motorways 4 per 100; APTR's 1 per 24. ○ Overall lamp failures on Motorways and APTR's – 2% • During operation of Greenwich Mean Time <ul style="list-style-type: none"> ○ Max no of sequential lamp failures – 2 No ○ Failure rectification by next scouting survey – 100% ○ Max no of failures per no of consecutive lamps – 6 per 20 ○ Failure rectification within 7 days – 100% ○ Overall lamp failures on Motorways and APTR's – 3% • During operation of British Summer Time <ul style="list-style-type: none"> ○ Max no of sequential lamp failures – 2 no ○ Failure rectification by next scouting survey – 100% ○ Max no of failures per no of consecutive lamps – 6 per 20 ○ Failure rectification within 7 days – 100% <p>The above performance levels are subject to relaxation with the agreement of the Employer if the following criteria can be demonstrated:-</p> <ul style="list-style-type: none"> ○ There has been a failure by 3rd party to facilitate or co-operate with fault rectification, excluding sub-contractors and equipment suppliers. ○ The cause of the fault is such that fault rectification required substantial remedial works requiring extensive planning and scheduling. ○ Access to site is not possible due to circumstances wholly outside the control of the contractor. ○ The Employer has requested that the fault is not rectified. ○ A risk assessment has shown that the most appropriate action is to switch off all or the vast majority of lights within the lighting scheme. ○ Adverse weather conditions prevent setting out of traffic management, operation of equipment or effective fault rectification. 	
9. Hold Point	Transfer to Maintenance Manager for Risk managed Rectification – Refer to Appendix A.12.

A.12 Part 8 – Lighting - Risk managed Make Safe and Repair Procedure

Objective	To implement the MRP with regards to Lighting Maintenance Requirements. This will include how lighting condition will be maintained to the appropriate level over the following five years. The Lighting Maintenance section within the MRP must be reviewed every two years. Develop and implement an annual Lighting Asset Management Plan (LAMP) to demonstrate how the outcomes and deliverables will be achieved in the forthcoming year. Review this annually.
Output	Resilient
Executive Owner	AMOR Service Leader
Local Owner	Network Manager
Implementation Owner	Network Supervisor
10. Hold Point	Transfer from Asset Manager for Risk managed Rectification – Refer to Appendix A.11.
The Maintenance Manager will programme and rectify non-compliance as identified by the Asset Manager from the Risk Managed Inspection Process identified within Appendix A.11. Lighting hazards that are likely to cause harm to public or property shall be mitigated within 24 hrs. Non compliance defects (see B.11.8) to be rectified within 7 days (subject to relaxation), all other defects deemed superficial and rectified through either Bulk Lamp Change or planned renewals programme. Life expired equipment shall be subject to VM review and rectification through the Renewals Programme. Accident damage repairs that are not covered by B.11.8 shall be repaired within 6 months of incident.	
11. Activity	Site specific Risk Assessment of non-compliance
The Supervisor is to carry out a site specific assessment of the identified non-compliance and adopt Risk managed approach to determine timescale for rectification dependent upon the grade of defect. Safe system of work to be raised, taking into account site specific hazards likely to be present on site. The hazards will include the following:-	
<ul style="list-style-type: none"> • Working with electricity • Working at height • Working in long vegetation, resulting in slips trips and falls. • Leptospirosis • Lone working will not be permitted, inclusive of scouting 	
12. Activity	Programme and identify resource
The Supervisor shall review current works programme within Area 10 to incorporate lighting maintenance (including scouting) into other activities where achievable through Risk managed approach. The defect maintenance will be carried out by electrical specialist sub-contractor.	
Life expired lighting defects will be managed through the VM process.	
13. Hold Point	Review training capabilities of assigned resource and issue SSW
Safe System of Work (SSW) Permit produced by supervisor and to be approved by Maintenance Manager prior to release of Hold Point.	
14. Activity	Handover Briefing
Supervisor to brief ganger into SSW at shift handover, ensuring all resource is available to undertake assigned task.	
15. Activity	Undertake lighting maintenance

Carry out activity in accordance with Safe System of Work and as directed by Maintenance Manager and to specified rectification period as agreed with Asset Manager. Bulk Lamp Change and asset inspection maintenance, shall be at prescribed intervals in the LAMP, determined by the previous providers maintenance programme in line with the RWSC. The BLC, electrical testing and asset inspection will be undertaken once during the life of the contract.	
16. Activity	Records Asset Condition
The following records are to be collated on site and passed to supervisor at end of shift handover:- <ul style="list-style-type: none"> • Nature of maintenance undertaken inclusive of materials • Condition of surrounding assets • Any residual issues that were encountered. 	
17. Activity	End of shift Handover
Supervisor and Maintenance Manager to discuss operation undertaken and record any opportunities for improvement, taking into account the Task, Constraints of Individuals/Operatives and the Environment. All information to be returned to Network Manager for works sign off and forwarded to Asset Manager for review.	
18. Hold Point	Transfer to Asset Manager for approval and signing off defect.

A.13 Part 9 – Paved Areas

Assessors Name		Date of Assessment	Assessment of Risk (based on 5x5 Matrix)					Residual Risk (based on 5x5 Matrix)				Date
Work Activity	Hazardous Event	Persons / Property Affected	Likelihood Level	Consequence Level	Risk Level	Risk Controls Required?	Risk Controls	Probable Likelihood	Potential Consequence	New Risk Level	Further Controls Required?	Review Period
Part 9 - Pavement Areas Maintenance Requirement (9.1)	Carriageway failure resulting in injury or damage to person or property	Road users	3	4	12	Yes	Route inspections as per frequencies detailed in Figure 3.2 and review of Asset information held on databases, such as HAPMS and TRACS. Inspection process referred to in Appendix A.14 and make safe process referenced in Appendix A.15.	2	3	6	No	12 monthly
Part 9 - Pavement Areas Maintenance Requirement (9.2)	Surface skidding resistance below standards	Road users	3	4	12	Yes	Annual SCRIM surveys. Follow the HD 28 process. Follow the IAN 49 process for newly laid TSCS. Erect slippery road warning signs where necessary, as detailed in Appendix A.15.	2	3	6	No	12 monthly
Part 9 - Pavement Areas Maintenance Requirement (9.3)	Footway/cycleway surface causing trip hazards	Pedestrians/ cyclists	3	4	12	Yes	Route inspections as per frequencies detailed in Figure 3.2. Supplement with an asset inspection as detailed in Appendix A.14.	2	3	6	No	12 monthly
Part 9 - Pavement Areas Maintenance Requirement (9.4)	Struck by vehicle while undertaking maintenance activity	Operatives	3	5	15	Yes	Site specific risk assessment and safe system of work required to reduce risk to operatives working near live lanes.	2	3	6	No	12 monthly

Assessors Name		Date of Assessment	Assessment of Risk (based on 5x5 Matrix)				Residual Risk (based on 5x5 Matrix)	Date				
Work Activity	Hazardous Event	Persons / Property Affected	Likelihood Level	Consequence Level	Risk Level	Risk Controls Required?	Risk Controls	Probable Likelihood	Potential Consequence	New Risk Level	Further Controls Required?	Review Period
Part 9 - Pavement Areas Maintenance Requirement (9.5)	Localised failures on bridge decks associated with use of TSCS as recorded on risk register (A10.068)	Road users	3	4	12	Yes	Monitor through route inspections, as per frequencies detailed on Figure 3.2. Escalate to Employer to instigate "do minimum" repair through renewals programme. Sign accordingly to warn public.	2	3	6	No	Review monthly
Part 9 - Pavement Areas Maintenance Requirement (9.6)	M60 J22 to 24. Risk register records structural pavement failure. Uneven surface and water spray due to excess surface water may lead to accidents (A10.090)	Road users	3	4	12	Yes	Monitor through route inspections, as per frequencies detailed on Figure 3.2. Escalate to Employer to instigate "do minimum" repair through renewals programme. Sign accordingly to warn public.	2	3	6	No	Review monthly.
Part 9 - Pavement Areas Maintenance Requirement (9.7)	M62 Jct 11 to 12. Bumps present with risk of RTC due to loss of control from unexpected pavement geometry. (A10.089)	Road users	3	4	12	Yes	Monitor through route inspections, as per frequencies detailed on Figure 3.2. Escalate to Employer to instigate "do minimum" repair through renewals programme. Sign accordingly to warn public.	2	3	6	No	Review monthly.

Assessors Name		Date of Assessment	Assessment of Risk (based on 5x5 Matrix)				Residual Risk (based on 5x5 Matrix)	Date				
Work Activity	Hazardous Event	Persons / Property Affected	Likelihood Level	Consequence Level	Risk Level	Risk Controls Required?	Risk Controls	Probable Likelihood	Potential Consequence	New Risk Level	Further Controls Required?	Review Period
Part 9 - Pavement Areas Maintenance Requirement (9.8)	Rapid failure of TSCS as identified in risk register (A10.128)	Road users and operatives	3	4	12	Yes	Monitor through route inspections, as per frequencies detailed on Figure 3.2. Escalate to Employer to instigate "do minimum" repair through renewals programme. Sign accordingly to warn public.	2	3	6	No	Review monthly.
Part 9 - Pavement Areas Maintenance Requirement (9.9)	M60 Jct 19 to 22. Structural pavement failures arising from issues relating to design and construction (A10.091)	Road users	3	4	12	Yes	Monitor through route inspections, as per frequencies detailed on Figure 3.2. Escalate to Employer to instigate "do minimum" repair through renewals programme. Sign accordingly to warn public.	2	3	6	No	Review monthly
Part 9 - Pavement Areas Maintenance Requirement (9.10)	Localised failure of asphalt overlay to the continuously reinforced concrete pavement between M60 Jct 1 to 2	Road users	3	4	12	Yes	Monitor through route inspections, as per frequencies detailed on Figure 3.2. Escalate to Employer to instigate "do minimum" repair through renewals programme. Sign accordingly to warn public.	2	3	6	No	Review monthly.

A.14 Part 9 – Paved Areas - Risk Managed Inspection Procedure

Objective	To provide a safe and even surface for all road users.
Output	Network Condition Data
Executive Owner	Asset Management Leader
Local Owner	Asset Manager
Implementation Owner	Asset Champion
1. Activity	Assess Risk for Each Asset Type
The Asset Manager will assess risk associated with paved areas as identified in Appendix A.13. Consideration to be given to risk register; previous maintenance history, forward renewals programme and value management data.	
2. Activity	Determine Inspection Frequencies
<p>Route inspections will be undertaken at frequencies outlined in Figure 3.2. These inspections will be carried out at traffic speed, in daylight hours and will identify hazardous defects associated with the main carriageway and footways. It is anticipated that these inspections will identify hazardous defects (refer to Appendix B for examples of defects) as follows:-</p> <ul style="list-style-type: none"> • Potholes >150mm diameter of > depth than that of the surface course thickness or of > depth than 40mm. • Deformation >40mm • Ironwork with difference in level of >25mm. • Potholes >25mm deep or >150mm, outside of trafficked areas • Deformation >25mm outside of trafficked areas • Any step change resulting in trip hazard >25mm outside of trafficked areas. <p>The Asset Manager will programme asset inspections to record defects that are not hazardous as part of the value management and renewals programmes. To comply with AMOR procedure and the requirements of HD 40 a full footway inspection will be undertaken within the duration of the contract.</p>	
3. Activity	Are Relaxations or Enhancements Required
The Asset Manager will agree with the Asset Management Leader relaxations or enhancements as required through the length of the contract.	
4. Hold Point	Obtain Relaxation or Enhancement Approval
The Asset Manager will obtain approval to proceed with relaxation through Asset Management Leader and Employer.	
5. Activity	Update MRP as Required
Update MRP with revised inspection intervals and defect management strategy. In any event the MRP will be subject to a review every 2 years.	
6. Activity	Undertake Inspections
<p>Route inspections are to be undertaken by the MRT's travelling at traffic speed in daylight hours.</p> <p>Asset Inspections will be walked or surveyed inspections as directed by the Asset Manager.</p>	
7. Activity	Record Asset Condition
During the course of inspections data relating to the condition of the network will be collected and recorded on CONFIRM. Asset Manager will be responsible for updating Employer systems following technical surveys.	
8. Activity	Non Compliance

<p>The Asset Manager is to review inspection data and produce maintenance schedule for rectification, either through MRP or transfer to Value Management Scheme. Refer to Appendix E for the Risk Managed Inspection process. Areas of pavement that do not comply with HD 28 in relation to SCRIM co-efficiencies shall have appropriate interventions to mitigate risk to road user implement, through VM process (usually through temporary signing).</p>	
9. Hold Point	Transfer to Maintenance Manager for Risk managed Rectification – Refer to Appendix A.15.

A.15 Part 9 – Paved Areas - Risk managed Make Safe and Repair Procedure

Objective	To repair carriageways defects as directed by Asset Manager to allow safe and even surface for all road users
Output	Resilient
Executive Owner	AMOR Service Leader
Local Owner	Network Manager
Implementation Owner	Network Supervisor
10. Hold Point	Transfer from Asset Manager for Risk managed Rectification – Refer to Appendix A.14
<p>The Maintenance Manager will programme and rectify non-compliance as identified by the Asset Manager from the Risk Managed Inspection Process identified within Appendix A.14. In all cases hazard shall be mitigated while solution is being reviewed, on occasion it may be necessary to temporary sign a hazard.</p>	
11. Activity	Site specific Risk Assessment of non-compliance
<p>The Supervisor is to carry out a site specific assessment of the identified non-compliance and adopt Risk managed approach to determine timescale for rectification dependant upon the grade of defect. Safe system of work to be raised, taking into account site specific hazards likely to be present on site. Hazards to be mitigated and made safe within 24 hours, and strategy for long term solution reviewed through defect management process.</p>	
12. Activity	Programme and identify resource
<p>The Supervisor shall review current works programme within Area 10 to incorporate paved area maintenance into other activities where achievable through Risk managed approach. The defect maintenance will be carried out by MRT to mitigate any hazardous defects, through the use of HAPAS approved bituminous materials, such as instamac, rhinopatch and diamond patching</p> <p>It the event of an area requiring planing and machine laying, this will be arranged by the Network Manager through the supply chain.</p> <p>Areas of concern as identified on the risk register and locations that are life expired and incorporated in a forward programme, works will be agreed with the Employer, often resulting in a “do minimum” renewals scheme.</p>	
13. Hold Point	Review training capabilities of assigned resource and issue SSW
<p>Safe System of Work (SSW) Permit produced by supervisor and to be approved by Network Manager prior to release of Hold Point.</p>	

14. Activity	Handover Briefing
Supervisor to brief ganger into SSW at shift handover, ensuring all resource is available to undertake assigned task.	
15. Activity	Undertake pavement maintenance
Carry out activity in accordance with Safe System of Work and as directed by Network Manager and to specified rectification period as agreed with Asset Manager.	
16. Activity	Records Asset Condition
The following records are to be collated on site and passed to supervisor at end of shift handover:- <ul style="list-style-type: none">• Nature of maintenance undertaken inclusive of materials• Condition of surrounding assets• Any residual issues that were encountered.	
17. Activity	End of shift Handover
Supervisor and Maintenance Manager to discuss operation undertaken and record any opportunities for improvement, taking into account the Task, Constraints of Individuals/Operatives and the Environment. All information to be returned to Network Manager for works sign off and forwarded to Asset Manager for review.	
18. Hold Point	Transfer to Asset Manager for approval and signing off defect.

A.16 Part 10 – Road markings and Road Studs

Assessors Name		Date of Assessment	Assessment of Risk (based on 5x5 Matrix)					Residual Risk (based on 5x5 Matrix)				Date
Work Activity	Hazardous Event	Persons / Property Affected	Likelihood Level	Consequence Level	Risk Level	Risk Controls Required?	Risk Controls	Probable Likelihood	Potential Consequence	New Risk Level	Further Controls Required?	Review Period
Part 10 – Road Markings and Road Studs Maintenance Requirement (10.1)	Road marking failure resulting in lack of visibility and direction.	Road users	4	4	16	Yes	Route inspections as per frequencies detailed in Figure 3.2 and review of Asset information to comply with TD 26. Inspection process referred to in Appendix A.17 and make safe process referenced in Appendix A.18. Review reflectivity as part of night scouting.	2	3	6	No	Review 12 monthly.
Part 10 – Road Markings and Road Studs Maintenance Requirement (10.2)	Missing road studs resulting in lack of direction.	Road users	3	4	12	Yes	Route inspections as per frequencies detailed in Figure 3.2 and review of Asset information to comply with TD 26. Inspection process referred to in Appendix A.17 and make safe process referenced in Appendix A.18. Review reflectivity as part of night scouting.	2	3	6	No	Review 12 monthly.

Assessors Name		Date of Assessment	Assessment of Risk (based on 5x5 Matrix)					Residual Risk (based on 5x5 Matrix)				Date
Work Activity	Hazardous Event	Persons / Property Affected	Likelihood Level	Consequence Level	Risk Level	Risk Controls Required?	Risk Controls	Probable Likelihood	Potential Consequence	New Risk Level	Further Controls Required?	Review Period
Part 10 – Road Markings and Road Studs Maintenance Requirement (10.3)	Struck by vehicle	Operative	4	4	16	Yes	Ensure safe system of work in place for stud replacement and roadmarking recovery.	2	4	8	No	Review 12 monthly.
Part 10 – Road Markings and Road Studs Maintenance Requirement (10.4)	Hot works	Operatives	3	3	9	Yes	Ensure safe system of work in place including hot works permit, employ competent supply chain.	2	2	4	No	Review 12 monthly

A.17 Part 10 – Road Markings and Road Studs - Risk Managed Inspection Procedure

Objective	Road markings and road studs are safe and visible.
Output	Network Condition Data
Executive Owner	Asset Management Leader
Local Owner	Asset Manager
Implementation Owner	Asset Champion
1. Activity	Assess Risk for Each Asset Type
The Asset Manager will assess risk associated with road markings and road studs as identified in Appendix A.16. Consideration to be given to risk register; previous maintenance history, forward renewals programme and value management data.	
2. Activity	Determine Inspection Frequencies
<p>Route inspections will be undertaken at frequencies outlined in Figure 3.2. These inspections will be carried out at traffic speed, in daylight hours and will identify hazardous defects associated with the main carriageway. It is anticipated that these inspections will identify hazard defects (refer to Appendix B and TD 26 for examples of defects) as follows:-</p> <ul style="list-style-type: none"> • Defects (Cat 1) that require prompt attention because they represent an immediate or imminent hazard, there is a breach of statutory duty (e.g. a badly worn STOP or GIVE WAY line, double white lines) or a slippery road marking. • All other defects shall be deemed as Cat 2 as per TD 26. <p>Route inspections will be supplemented with night time inspections to visually inspect reflectivity of road markings and road studs. The night time inspections will be carried out 6 times per year as follows:-</p> <ul style="list-style-type: none"> • April; August; October; November; January and February. <p>Annual technical surveys will be carried out utilising a High Speed Monitor to measure reflectivity as part of the roads renewal programme.</p>	
3. Activity	Are Relaxations or Enhancements Required
The Asset Manager will agree with the Asset Management Leader relaxations or enhancements as required through the length of the contract.	
4. Hold Point	Obtain Relaxation or Enhancement Approval
The Asset Manager will review inspection/survey results and determine locations that may require an increased frequency of inspection and vice-versa identify locations where relaxations are applied.	
5. Activity	Update MRP as Required
Update MRP with revised inspection intervals and defect management strategy. In any event the MRP will be subject to a review every 2 years.	

6. Activity	Undertake Inspections
<p>Route inspections are to be undertaken by the MRT's travelling at traffic speed in daylight hours.</p> <p>Night time inspections will be undertaken using scouting crews as assigned.</p> <p>Asset Inspections to measure reflectivity will usually be instructed through programmed schemes often using Ecodyn surveys.</p>	
7. Activity	Record Asset Condition
<p>During the course of inspections data relating to the condition of the network will be collected and recorded on CONFIRM. Asset Manager will be responsible for updating Employer systems following technical surveys.</p>	
8. Activity	Non Compliance
<p>The Asset Manager is to review inspection data and produce maintenance schedule for rectification, either through MRP or transfer to Value Management Scheme. To comply with TD 26, the Asset Manager will arrange appropriate signage to mitigate any hazard associated with road markings and road studs, all life expired road markings shall be rectified as part of forward renewals programme. Cat 1 defects shall require mitigation within 24 hours, Cat 2 defects shall be incorporated into a future renewals programme.</p>	
9. Hold Point	Transfer to Maintenance Manager for Risk managed Rectification – Refer to Appendix A.18.

A.18 Part 10 – Road Markings and Road Studs - Risk managed Make Safe and Repair Procedure

Objective	To repair carriageways defects as directed by Asset Manager to allow safe and even surface for all road users
Output	Resilient
Executive Owner	AMOR Service Leader
Local Owner	Maintenance Manager
Implementation Owner	Network Supervisor
10. Hold Point	Transfer from Asset Manager for Risk managed Rectification – Refer to Appendix A.17.
<p>The Maintenance Manager will programme and rectify non-compliance as identified by the Asset Manager from the Risk Managed Inspection Process identified within Appendix A.17. On occasion mitigation to erect temporary signs on the network could be required.</p>	
11. Activity	Site specific Risk Assessment of non-compliance
<p>The Supervisor is to carry out a site specific assessment of the identified non-compliance and adopt Risk managed approach to determine timescale for rectification dependent upon the grade of defect. Safe system of work to be raised, taking into account site specific hazards likely to be present on site. Road marking and road stud hazards will be mitigated within 24hrs, either by temporary signing or replacement of asset.</p>	
12. Activity	Programme and identify resource

<p>The Supervisor shall review current works programme within Area 10 to incorporate paved area maintenance into other activities where achievable through Risk managed approach. The defect maintenance will be carried out by MRT to mitigate any hazardous defects.</p> <p>Areas of concern as identified on the risk register and locations that are life expired and incorporated in a forward programme, works will be agreed with the Employer, often resulting in a “do minimum” renewals scheme.</p>	
13. Hold Point	Review training capabilities of assigned resource and issue SSW
<p>Safe System of Work (SSW) Permit produced by supervisor and to be approved by Maintenance Manager prior to release of Hold Point.</p>	
14. Activity	Handover Briefing
<p>Supervisor to brief ganger into SSW at shift handover, ensuring all resource is available to undertake assigned task.</p>	
15. Activity	Undertake pavement maintenance
<p>Carry out activity in accordance with Safe System of Work and as directed by Maintenance Manager and to specified rectification period as agreed with Asset Manager.</p>	
16. Activity	Records Asset Condition
<p>The following records are to be collated on site and passed to supervisor at end of shift handover:-</p> <ul style="list-style-type: none"> • Nature of maintenance undertaken inclusive of materials • Condition of surrounding assets • Any residual issues that were encountered. • Location of temporary signs 	
17. Activity	End of shift Handover
<p>Supervisor and Maintenance Manager to discuss operation undertaken and record any opportunities for improvement, taking into account the Task, Constraints of Individuals/Operatives and the Environment. All information to be returned to Network Manager for works sign off and forwarded to Asset Manager for review.</p>	
18. Hold Point	Transfer to Asset Manager for approval and signing off defect.

A.19 Part 11 – Road Restraint Systems

Assessors Name		Date of Assessment	Assessment of Risk (based on 5x5 Matrix)					Residual Risk (based on 5x5 Matrix)				Date
Work Activity	Hazardous Event	Persons / Property Affected	Likelihood Level	Consequence Level	Risk Level	Risk Controls Required?	Risk Controls	Probable Likelihood	Potential Consequence	New Risk Level	Further Controls Required?	Review Period
Part 11 Road Restraint Systems Maintenance Requirements (11.1)	RRS incorrect height	Road user, third parties, major infrastructure and property.	3	4	12	Yes	Route inspection regime, Asset Inspections in accordance with BS 7669 and Appendix A.20 will reduce the likelihood of occurrence.	2	4	8	No	Every 2 years
Part 11 Road Restraint Systems Maintenance Requirements (11.2)	Corroded metal that affects functionality	Road user, third parties, major infrastructure and property.	3	3	9	Yes	Route inspection regime, Asset Inspections in accordance with BS 7669 and Appendix A.20 will reduce the likelihood of occurrence.	2	3	6	No	Every 2 years
Part 11 Road Restraint Systems Maintenance Requirements (11.3)	Concrete cracking, spalling or reinforcement corrosion that affects function	Road user, third parties, major infrastructure and property.	2	4	8	Yes	Route inspection regime, Asset Inspections in accordance with BS 7669 and Appendix A.20 will reduce the likelihood of occurrence.	1	3	3	No	Every 2 years
Part 11 Road Restraint Systems Maintenance Requirements (11.4)	Loose nuts, bolts or missing / broken components	Road user, third parties, major infrastructure and property.	4	3	12	Yes	Route inspection regime, Asset Inspections in accordance with BS 7669 and Appendix A.20 will reduce the likelihood of occurrence.	2	3	6	No	Every 2 years
Part 11 Road Restraint Systems Maintenance Requirements (11.5)	Lack of tension	Road user, third parties, major infrastructure and property.	3	4	12	Yes	Route inspection regime, Asset Inspections in accordance with BS 7669 and Appendix A.20 will reduce the likelihood of occurrence.	2	3	6	No	Every 2 years

Assessors Name		Date of Assessment	Assessment of Risk (based on 5x5 Matrix)					Residual Risk (based on 5x5 Matrix)				Date
Work Activity	Hazardous Event	Persons / Property Affected	Likelihood Level	Consequence Level	Risk Level	Risk Controls Required?	Risk Controls	Probable Likelihood	Potential Consequence	New Risk Level	Further Controls Required?	Review Period
Part 11 Road Restraint Systems Maintenance Requirements (11.6)	Ingress of water to post sockets resulting in corrosion and failure	Road user, third parties, major infrastructure and property.	3	4	12	Yes	Route inspection regime, Asset Inspections in accordance with BS 7669 and Appendix A.20 will reduce the likelihood of occurrence.	2	3	6	No	Every 2 years
Part 11 Road Restraint Systems Maintenance Requirements (11.7)	Damages that affect the integrity of the Road Restraint System	Road user, third parties, major infrastructure and property.	3	4	12	Yes	Route inspection regime, Asset Inspections in accordance with BS 7669 and Route inspection regime, Asset Inspections in accordance with BS 7669 and Appendix A.20 will reduce the likelihood of occurrence. Assess rectification against scoring matrix in AMOR appendix 11.	2	3	6	No	Every 2 years
Part 11 Road Restraint Systems Maintenance Requirements (11.8)	Functionality of terminals / crash cushions do not perform as required.	Road user, third parties, operatives, major infrastructure and property.	2	4	8	No	Route inspection regime, Asset Inspections in accordance with BS 7669 and planned preventative maintenance will reduce the likelihood of occurrence.	2	4	8	No	Every 2 years
Part 11 Road Restraint Systems Maintenance Requirements (11.9)	Maintenance / emergency cross over gates malfunction	Road User and operative / emergency services	3	4	12	Yes	Route inspection regime, Asset Inspections in accordance with BS 7669 and planned preventative maintenance will reduce the likelihood of occurrence.	2	3	6	No	Every 2 years

Assessors Name		Date of Assessment	Assessment of Risk (based on 5x5 Matrix)					Residual Risk (based on 5x5 Matrix)				Date
Work Activity	Hazardous Event	Persons / Property Affected	Likelihood Level	Consequence Level	Risk Level	Risk Controls Required?	Risk Controls	Probable Likelihood	Potential Consequence	New Risk Level	Further Controls Required?	Review Period
Part 11 Road Restraint Systems Maintenance Requirements (11.10)	Slips, trips and falls associated with working in long vegetation and night working	Operatives	3	4	12	Yes	Use of trained site inducted operatives, traffic management and appropriate plant will reduce the likelihood	2	3	6	No	Every 12 months
Part 11 Road Restraint Systems Maintenance Requirements (11.11)	Struck by vehicles	Operatives	4	4	16	Yes	Use of trained site inducted operatives, traffic management and appropriate plant will reduce the likelihood	2	3	6	No	Every 12 months

A.20 Part 11 – Road Restraint Systems - Risk Managed Inspection Procedure

Objective	Road restraint systems are managed and maintained to function in accordance with their intended design and performance requirements
Output	Network Condition Data
Executive Owner	Asset Management Leader
Local Owner	Asset Manager
Implementation Owner	Asset Champion
1. Activity	Assess Risk for Each Asset Type
The Asset Manager will develop a framework for the inspection programme and re-tensioning programme by reviewing manufacturer's requirements for proprietary systems and in accordance with BS 7669-3 for non-proprietary systems. Refer to Appendix A.19 for risk assessment and controls identified for this maintenance requirement.	
2. Activity	Determine Inspection Frequencies
The Asset Manager will arrange for Route inspections to be undertaken as per the frequencies detailed in Figure 3.2. The route inspections will highlight defects associated with the integrity of the Road Restraint System. Asset Inspections will be carried out in accordance with manufacturer's recommendations to record height; corrosion and missing components.	
3. Activity	Are Relaxations or Enhancements Required
All RRS Defects which affect the integrity of the system will be scored and prioritised in accordance with AMOR appendix 11.	
4. Hold Point	Obtain Relaxation or Enhancement Approval
Relaxations through risk assessment and mitigation measures will be reviewed in accordance with AMOR appendix 11.	
5. Activity	Update MRP as Required
Where an improvement opportunity has been approved the MRP shall be updated accordingly	
6. Activity	Undertake Inspections
Route inspections will be undertaken as per frequencies detailed in Figure 3.2. These will be undertaken by the MRT at traffic speed and in daylight hours. A full asset inspection will be carried out once throughout the contract, with programme continued through from previous service provider records. The full asset inspection will be supplemented with inspections carried out during network closures to maximise network occupancy opportunities and reduced operative time spent in vulnerable locations.	
7. Activity	Record Asset Condition
During the course of inspections data relating to the condition of the network will be collected and added to CONFIRM.	
8. Activity	Non Compliance
Asset Manager to determine if non compliance is present and if it affects the integrity of the RRS. Damage related defects will be scored in accordance with AMOR appendix 11 and rectification timescales will be determined. Life expired asset or defects not affecting the integrity of the RRS will be added to forward renewals programme and monitored	
9. Hold Point	Transfer to Maintenance Manager for Risk managed Rectification – Refer to Appendix A.21.

A.21 Part 11 – Road Restraint Systems - Risk managed Make Safe and Repair Procedure

Objective	To address Road Restraint Systems maintenance requirements.
Output	Resilient
Executive Owner	AMOR Service Leader
Local Owner	Maintenance Manager
Implementation Owner	Network Supervisor
10. Hold Point	Transfer from Asset Manager for Risk managed Rectification – Refer to Appendix A.20
<p>The Maintenance Manager will programme and rectify non-compliance as identified by the Asset Manager. The rectification of non-compliance defects will be scored in accordance with AMOR appendix 11, High Risk >24 required to be repaired within 24hrs if it can be done outside of peak flow. Medium Risk 13-24 Required to be repaired within 7 days, low risk <13 preferred to be repaired within 7 days (consider within 28 days). All the scoring scenarios are permissible to be extended beyond 7 days, as referred to within AMOR appendix 11.</p>	
11. Activity	Site specific Risk Assessment of non-compliance
<p>The Maintenance Manager is to carry out a site specific assessment of non-compliance and adopt Risk managed approach to rectify within timescale instructed by Asset Manager.</p>	
12. Activity	Programme and identify resource
<p>The Maintenance Manager shall review current works programme within Area 10 to incorporate Road Restraint Systems re-tensioning into other activities where achievable through Risk managed approach, bringing other works forward if necessary. The road restraint system re-tensioning will be carried out by the supply MRT crews</p>	
13. Hold Point	Review training capabilities of assigned resource and issue SSW
<p>Safe System of Work (SSW) Permit and re-tensioning programme produced by Network Manager to be approved by AMOR Service Leader prior to release of Hold Point.</p>	
14. Activity	Handover Briefing
<p>Supervisor to brief ganger into SSW at shift handover, ensuring all resource is available to undertake assigned task.</p>	
15. Activity	Undertake drainage maintenance
<p>Carry out activity in accordance with Safe System of Work and as directed by Maintenance Manager and agreed procedures.</p>	
16. Activity	Records Asset Condition
<p>The following records are to be collated by MRT on site and passed to supervisor at end of shift handover:-</p> <ul style="list-style-type: none"> • Exact location and type of asset, including type of product • Works undertaken • Any issues unresolved • Condition of asset • Condition of surrounding assets • Any residual issues that were encountered. 	

17. Activity	End of shift Handover
Supervisor and MRT to discuss operation undertaken and record any opportunities for improvement, taking into account the Task, Constraints of Individuals/Operatives and the Environment. All information to be returned to Maintenance Manager for works sign off	
18. Hold Point	Transfer to Maintenance Manager for approval and signing off defect. Maintenance Manager to update re-tensioning register and review outstanding programme.

A.22 Part 12 – Road Traffic Signs

Assessors Name		Date of Assessment	Assessment of Risk (based on 5x5 Matrix)					Residual Risk (based on 5x5 Matrix)				Date
Work Activity	Hazardous Event	Persons / Property Affected	Likelihood Level	Consequence Level	Risk Level	Risk Controls Required?	Risk Controls	Probable Likelihood	Potential Consequence	New Risk Level	Further Controls Required?	Review Period
Part 12 - Road Traffic Signs Maintenance Requirement(12.1)	Maintenance Requirement Access to signing restricted due to soft verges	Operative	3	4	12	Yes	Use of trained site inducted operatives, traffic management and appropriate plant will reduce the likelihood	2	3	6	No	12 Months
Part 12 - Road Traffic Signs Maintenance Requirement (12.2)	Maintenance Requirement Struck by vehicle	Operative	3	5	15	Yes	Use of trained site inducted operatives, traffic management and appropriate plant will reduce the likelihood	2	3	6	No	12 Months
Part 12 - Road Traffic Signs Maintenance Requirement (12.3)	Maintenance Requirement Working at height	Operative	3	5	15	Yes	Use of trained site inducted operatives, traffic management and appropriate plant will reduce the likelihood	2	4	8	No	12 Months
Part 12 - Road Traffic Signs Maintenance Requirement (12.4)	Structural Integrity Damage / corrosion to fittings / posts / plates resulting in possible collapse / falling objects.	Road user	3	3	15	Yes	Route inspection as detailed in Figure 3.2. Asset review, utilising previous provider records, asset inspections as per Appendix A.23 and as review with TD25/01, and planned preventative maintenance, will reduce the likelihood.	2	2	4	No	12 Months

Assessors Name		Date of Assessment	Assessment of Risk (based on 5x5 Matrix)				Residual Risk (based on 5x5 Matrix)				Date	
Work Activity	Hazardous Event	Persons / Property Affected	Likelihood Level	Consequence Level	Risk Level	Risk Controls Required?	Risk Controls	Probable Likelihood	Potential Consequence	New Risk Level	Further Controls Required?	Review Period
Part 12 - Road Traffic Signs Maintenance Requirement (12.5)	Visual Performance Signs obscured by overgrown vegetation	Road user	4	3	12	Yes	Route inspection as detailed in Figure 3.2. Rectification as per Appendix A.24.	2	3	6	No	12 Months
Part 12 - Road Traffic Signs Maintenance Requirement (12.6)	Visual Performance Missing regulatory or warning signs resulting in speed infringements / accident.	Road user	3	4	12	Yes	Route inspection as detailed in Figure 3.2. Inspection review as Appendix A.23. Rectification as per Appendix A.24.	2	4	8	No	12 Months
Part 12 - Road Traffic Signs Maintenance Requirement (12.7)	Structural Integrity Moving parts of secret / variable signs malfunction rendering sign unusable	Road user and operative	4	4	16	Yes	Asset Inspections as per Appendix B.8. and TD25/01. Planned preventative maintenance will reduce the likelihood.	2	4	8	No	12 Months
Part 12 - Road Traffic Signs Maintenance Requirement (12.8)	Visual Performance Reduction of retro-reflectivity of white sign face material resulting in indistinct signage causing drive confusion	Road user	4	3	12	Yes	Night time inspection as detailed in Figure 3.2. Asset review, utilising previous provider records, asset inspections as per Appendix A.23 and as review with TD25/01, and planned preventative maintenance, will reduce the likelihood.	2	3	6	No	6 Months

A.23 Part 12 – Road Traffic Signs - Risk Managed Inspection Procedure

Objective	Road signs are safe and clearly legible and give effect to regulatory provision.
Output	Network Condition Data
Executive Owner	Asset Management Leader
Local Owner	Asset Manager
Implementation Owner	Asset Champion
1. Activity	Assess Risk for Each Asset Type
The Asset Manager will develop a framework for the inspection programme by reviewing the risk assessments in Appendix A.22, previous providers inspection records and requirements of TD25/01.	
2. Activity	Determine Inspection Frequencies
<p>The route inspections will be undertaken as scheduled in Figure 3.2, and will identify hazards relating to visibility of signs or if any sign faces are missing.</p> <p>Night time scouting will identify issues associated with lit signs and reflectivity and will be carried out 7 times per year as per lighting scouts. A survey will be undertaken in each of the following months, April; August; October; November; January and February amounting to 6 per annum, plus one additional undertaken within 5 days following 26th December. All results are to be reported to Employer by the third working day the following month, with the exception of the 26th December scout, which shall be with the Employer within 10 working days after 26th December.</p> <p>The asset inspections for traffic signs will be Risk managed and assessed from inspection records provided by the previous service provider. This will be applied to assess the structural integrity and electrical elements of the traffic signs.</p>	
3. Activity	Are Relaxations or Enhancements Required
<p>TD 25/01 requires a 28 day inspection of lit signs on motorways, increasing to 14 days for lit signs on APTR's in the winter. As a number of signs are linked to feeder pillars and in turn linked to the street lighting switch off, a relaxation will be requested to adopt scouting regime linked to AMOR pt 8 for lighting.</p> <p>The structural integrity of signs will be assessed from inspections provided by the previous service provider, based on the RWSC requirements. Relaxation to be proposed to deviate from TD 25/01 to fall in line with AMOR part 8, which is to adopt the same principles applied to lighting.</p>	
4. Hold Point	Obtain Relaxation or Enhancement Approval
The Asset Management Leader is to agree and implement relaxation after discussing with the Employer.	
5. Activity	Update MRP as Required
Where an improvement opportunity has been approved the MRP shall be updated accordingly	

6. Activity	Undertake Inspections
<p>Route inspections will be undertaken by the MRT at frequencies specified in Figure 3.2. Night time scouts and electrical inspections will be undertaken by supply chain.</p> <p>Structural sign inspections will be undertaken by RMMS inspectors, with all life expired inspections undertaken as part of value management specialist inspections.</p>	
7. Activity	Record Asset Condition
<p>During the course of inspections data relating to the condition of the network will be collected graded and added to CONFIRM.</p>	
8. Activity	Non Compliance
<p>Asset Manager is to determine if non compliance is to be repaired or hazard mitigated by the Network Management team or if the defect is to be repaired through forward renewals programme.</p>	
9. Hold Point	Transfer to Network Manager for Risk managed Rectification – Refer to Appendix A.24.

A.24 Part 12 – Traffic Signs - Risk managed Make Safe and Repair Procedure

Objective	To address Road Traffic Signs maintenance requirements.
Output	Resilient
Executive Owner	AMOR Service Leader
Local Owner	Maintenance Manager
Implementation Owner	Network Supervisor
10. Hold Point	Transfer from Asset Manager for Risk managed Rectification – Refer to Appendix A.23.
<p>The Maintenance Manager will programme and rectify non-compliance as identified by the Asset Manager.</p>	
11. Activity	Site specific Risk Assessment of non-compliance
<p>The Maintenance Manager is to carry out a site specific assessment of non-compliance and adopt Risk managed approach to rectify in given timescale as outlined in Appendix A.23 of the MRP.</p> <p>Non compliance defects as per TD 25 are to be rectified within set timescales for Cat 1; Cat 2 LP and Cat 2 HM, i.e. 24 hrs, 6 months and 7/14 days. This will not apply to life expired equipment, which will be subject to VM review. Note that AMOR part 8: Lighting has been relaxed against TD 26; it is therefore proposed that the requirements of TD 25 are relaxed accordingly.</p>	
12. Activity	Programme and identify resource
<p>The Maintenance Manager shall review current works programme within Area 10 to incorporate Road Traffic Signs maintenance into other activities where achievable through Risk managed approach, bring other works forward if necessary. The Road Traffic Signs general maintenance will be carried out by the supply chain and MRT crews. General maintenance will include strimming of vegetation and sign face cleaning to restore sign visibility.</p> <p>The Maintenance Manager will oversee and instruct the supply chain to restore lighting levels to non-hazardous levels as defined in TD25/01.</p>	

13. Hold Point	Review training capabilities of assigned resource and issue SSW
Safe System of Work (SSW) Permit produced by supervisor and to be approved by Maintenance Manager prior to release of Hold Point.	
14. Activity	Handover Briefing
Supervisor to brief ganger into Safe System of Work (SSW) at shift handover, ensuring all resource is available to undertake assigned task.	
15. Activity	Undertake drainage maintenance
Carry out activity in accordance with SSW and as directed by Area Manager.	
16. Activity	Records Asset Condition
<p>The following records are to be collated by MRT on site and passed to supervisor at end of shift handover:-</p> <ul style="list-style-type: none"> • Asset reference attended • Works undertaken • Any issues unresolved • Condition of asset • Condition of surrounding assets • Any residual issues that were encountered. 	
17. Activity	End of shift Handover
Supervisor and MRT to discuss operation undertaken and record any opportunities for improvement, taking into account the Task, Constraints of Individuals/Operatives and the Environment. All information to be returned to Area Manager for works sign off	
18. Hold Point	Transfer to Maintenance Manager for approval and signing off defect.

A.25 Part 13 – Soft Estate

Assessors Name		Date of Assessment	Assessment of Risk (based on 5x5 Matrix)					Residual Risk (based on 5x5 Matrix)				Date
Work Activity	Hazardous Event	Persons / Property Affected	Likelihood Level	Consequence Level	Risk Level	Risk Controls Required?	Risk Controls	Probable Likelihood	Potential Consequence	New Risk Level	Further Controls Required?	Review Period
Part 13 – Soft Estate Maintenance Requirement (13.1)	Signs obscured by overgrown vegetation affecting visual performance	Road user	4	3	12	Yes	Route inspection as detailed in Figure 3.2 and Appendix A.26. Rectification as per Appendix A.27.	2	2	4	No	12 Months
Part 13 – Soft Estate Maintenance Requirement (13.2)	Junctions and accesses obscured by overgrown vegetation affecting visual performance	Road user	4	4	16	Yes	Route inspection as detailed in Figure 3.2 and Appendix A.26. Rectification as per Appendix A.27.	2	3	6	No	12 Months
Part 13 – Soft Estate Maintenance Requirement (13.3)	CCTV obscured by overgrown vegetation affecting visual performance	Employer	4	3	12	Yes	Route inspection as detailed in Figure 3.2 and Appendix A.26. Rectification as per Appendix A.27.	2	2	4	No	12 Months
Part 13 – Soft Estate Maintenance Requirement (13.4)	Injurious Weeds creating hazard to wildlife and property.	Public, property and wildlife	3	3	9	Yes	Route inspection as detailed in Figure 3.2 and Appendix A.26. Rectification as per Appendix A.27. Management as per EMP.	2	3	6	No	12 Months
Part 13 – Soft Estate Maintenance Requirement (13.5)	Telecommunication equipment becomes overgrown, presenting trip hazard to 3rd party contractors	Contractors	4	3	12	Yes	Route inspection as detailed in Figure 3.2 and Appendix A.26. Rectification as per Appendix A.27.	2	2	4	No	12 Months

Assessors Name		Date of Assessment	Assessment of Risk (based on 5x5 Matrix)					Residual Risk (based on 5x5 Matrix)				Date
Work Activity	Hazardous Event	Persons / Property Affected	Likelihood Level	Consequence Level	Risk Level	Risk Controls Required?	Risk Controls	Probable Likelihood	Potential Consequence	New Risk Level	Further Controls Required?	Review Period
Part 13 – Soft Estate Maintenance Requirement (13.6)	Slips, trips and falls working in long vegetation.	Operatives	4	3	12	Yes	Route inspection as detailed in Figure 3.2 and Appendix A.26. Rectification as per Appendix A.27. Risk assessment for all activities required to be undertaken and site specific safe system of work to include localised strimming if required.	2	2	4	No	12 Months

A.26 Part 13 – Soft Estate - Risk Managed Inspection Procedure

Objective	Soft Estate condition is managed and maintained to minimise risks to road users, road workers and adjacent affected parties.
Output	Network Condition Data
Executive Owner	Asset Management Leader
Local Owner	Asset Manager
Implementation Owner	Asset Champion
1. Activity	Assess Risk for Each Asset Type
The Asset Manager will develop a framework of route inspections to ensure visibility is not compromised to junctions, visibility splays and signs	
2. Activity	Determine Inspection Frequencies
<p>The route inspections will be undertaken as scheduled in Figure 3.2, and will identify hazards relating to the following aspects:-</p> <ul style="list-style-type: none"> • Visibility of junctions and splays • Visibility of signs • Access to Telecommunication equipment • Access to lighting columns and signs • CCTV visibility • Injurious weeds affecting wildlife, persons, property or watercourses. (All other injurious weeds will be managed through plot management programme, within the Environmental Management Plan (EMP)). <p>Further inspections affecting stability of the soft estate asset and management of plot areas will be undertaken as specialist inspections in the EMP.</p>	
3. Activity	Are Relaxations or Enhancements Required
The likelihood is that no relaxations will be applied for.	
4. Hold Point	Obtain Relaxation or Enhancement Approval
Not applicable	
5. Activity	Update MRP as Required
MRP will be updated with hot spot locations as they arise	
6. Activity	Undertake Inspections
Route inspections will be undertaken by the MRT at frequencies specified in Figure 3.2. and in daylight hours	
7. Activity	Record Asset Condition
During the course of inspections data relating to the condition of the network will be collected graded and added to CONFIRM.	
8. Activity	Non Compliance
Asset Manager is to determine if non compliance is hazardous, requiring mitigation by the Network Management team or if the defect is to be repaired through forward renewals programme. The MRT will rectify and record as a find and fix.	
9. Hold Point	Transfer to Maintenance Manager for Risk managed Rectification – Refer to Appendix A.27.

A.27 Part 13 – Soft Estate - Risk managed Make Safe and Repair Procedure

Objective	To address Soft Estate Maintenance Requirements.
Output	Resilient
Executive Owner	AMOR Service Leader
Local Owner	Maintenance Manager
Implementation Owner	Network Supervisor
10. Hold Point	Transfer from Asset Manager for Risk managed Rectification – Refer to Appendix A.26.
The Maintenance Manager will programme and rectify non-compliance as identified by the Asset Manager.	
11. Activity	Site specific Risk Assessment of non-compliance
The Maintenance Manager is to carry out a site specific assessment of non-compliance and adopt Risk managed approach to rectify in given timescale as outlined in Appendix A.26 of the MRP. All visibility and injurious weed related hazards are to be mitigated within 24hrs; with follow up treatment within 28 days.	
12. Activity	Programme and identify resource
<p>The Maintenance Manager shall review current works programme within Area 10 to incorporate soft estate maintenance into other activities where achievable through Risk managed approach, bringing other works forward if necessary. The general maintenance will include strimming of vegetation, application of growth retardant and local weed spray by the MRT on a find and fix regime.</p> <p>Previous service provider’s maintenance history will be subject to review, and will be used to determine forward programme. It is also envisaged that access to equipment will be inevitable outside of planned maintenance programme. It would be expected that others carrying out works on the network will undertake a risk assessment prior to access and at times arrange for their own clearance regimes.</p> <p>Strategy is to carry out 2 visibility splays cuts per season and growth retardant applied after each cut, preventing re-growth.</p> <p>A blanket spray will be applied to specific areas such as adjacent to RRS and structures as directed in the Environmental Management Plan.</p>	
13. Hold Point	Review training capabilities of assigned resource and issue SSW
Safe System of Work (SSW) Permit produced by supervisor and to be approved by Maintenance Manager prior to release of Hold Point.	
14. Activity	Handover Briefing
Supervisor to brief ganger into Safe System of Work (SSW) at shift handover, ensuring all resource is available to undertake assigned task.	
15. Activity	Undertake drainage maintenance
Carry out activity in accordance with SSW and as directed by Area Manager.	
16. Activity	Records Asset Condition

The following records are to be collated by MRT on site and passed to supervisor at end of shift handover:-

- Asset reference attended
- Junctions cut
- Weed hot spot locations monitoring records

17. Activity	End of shift Handover
Supervisor and MRT to discuss operation undertaken and record any opportunities for improvement, taking into account the Task, Constraints of Individuals/Operatives and the Environment. All information to be returned to Area Manager for works sign off	
18. Hold Point	Transfer to Maintenance Manager for approval and signing off defect.

A.28 Part 14 – Structures

Assessors Name		Date of Assessment	Assessment of Risk (based on 5x5 Matrix)					Residual Risk (based on 5x5 Matrix)				Date
Work Activity	Hazardous Event	Persons / Property Affected	Likelihood Level	Consequence Level	Risk Level	Risk Controls Required?	Risk Controls	Probable Likelihood	Potential Consequence	New Risk Level	Further Controls Required?	Review Period
Part 14 - Structures Maintenance Requirement (14.1)	Removal of graffiti to structures - working at height; working adjacent to live traffic	Operative and Road User	3	4	12	Yes	Planned and safety methods of working will reduce the consequence level. Refer to Appendix A.29 and B.30 for inspection and maintenance regime.	3	2	6	No	Review 12 monthly
Part 14 - Structures Maintenance Requirement (14.2)	Blockages to drains, culverts and weep holes causing flooding, including all ancillary equipment	Road user and property	3	3	9	Yes	Asset Inspections and planned preventative maintenance will reduce the likelihood and severity of consequence, refer to Appendix A.29 and B.30 and Figure 3.2.	4	2	6	No	Review 12 monthly
Part 14 - Structures Maintenance Requirement (14.3)	Removal of debris, bird droppings and other detritus that blocks drainage and promotes corrosion and other deterioration; working at height, working adjacent to live traffic, working with hazardous material	Operatives, Road user and property	3	4	12	Yes	Asset Inspections and planned preventative maintenance will reduce the likelihood and severity of consequence, refer to Appendix A.29 and B.30 and Figure 3.2. Refer to HSE guidance note for handling bird droppings	3	2	6	No	Review 12 monthly

Assessors Name		Date of Assessment	Assessment of Risk (based on 5x5 Matrix)					Residual Risk (based on 5x5 Matrix)				Date
Work Activity	Hazardous Event	Persons / Property Affected	Likelihood Level	Consequence Level	Risk Level	Risk Controls Required?	Risk Controls	Probable Likelihood	Potential Consequence	New Risk Level	Further Controls Required?	Review Period
Part 14 - Structures Maintenance Requirement (14.4)	Loose parapet connections and other defects that affect the integrity of the containment system	Road user	3	4	12	Yes	Asset Inspections and planned preventative maintenance will reduce the likelihood and severity of consequence, refer to Appendix A.29 and B30 and Figure 3.2.	3	2	6	No	Review 12 monthly
Part 14 - Structures Maintenance Requirement (14.5)	Working adjacent to water	Operative	4	5	20	Yes	Plan and risk assess maintenance activities	3	2	6	No	Review 12 monthly
Part 14 - Structures Maintenance Requirement (14.6)	Confined Space Entry to beams	Operative	3	5	15	Yes	Plan and risk assess maintenance activities	3	2	6	No	Review 12 monthly

A.29 Part 14 – Structures - Risk Managed Inspection Procedure

Objective	Structures and their constituent parts are managed and maintained to minimise risks to road users.
Output	Network Condition Data
Executive Owner	Asset Management Leader
Local Owner	Asset Manager
Implementation Owner	Asset Champion
1. Activity	Assess Risk for Each Asset Type
The Asset Manager will develop a framework of route inspections, general inspections and principal inspections to ensure safety to the road user and identify maintenance issues that may cause detriment to the structure.	
2. Activity	Determine Inspection Frequencies
<p>The route inspections will be undertaken as scheduled in Figure 3.2, and will identify hazards relating to the following aspects:-</p> <ul style="list-style-type: none"> • Flooding to the carriageway or property • Damage to parapets • Any other safety related issue visible at the time of the inspection. <p>General Inspections will be focussed on the requirements of BD63 and AMOR Pt 14. The frequency of general inspections will be Risk managed and initial assessment will be based on the inspection data provided by the previous service provider and data in SMIS. It is anticipated that GI will be carried out at frequencies of between 2 to 4 years.</p> <p>Principal Inspections will be focussed on the requirements of BD63 and AMOR Pt 14. The frequency of principal inspections will be Risk managed and initial assessment will be based on the inspection data provided by the previous service provider and data in SMIS. It is anticipated that PI will be carried out at frequencies of between 6 to 8 years.</p>	
3. Activity	Are Relaxations or Enhancements Required
Risk managed relaxations will be required to reduce or enhance frequencies away from the requirements of BD63. To relax Principal Inspection frequencies greater than 6 years intervals, a risk assessment must be undertaken in accordance with IAN 171/12 (issued November 2012). In any event the frequency shall not exceed 12 years.	
4. Hold Point	Obtain Relaxation or Enhancement Approval
To be confirmed	
5. Activity	Update MRP as Required
MRP will be updated with Risk managed frequencies as they arise	
6. Activity	Undertake Inspections
<p>Route inspections will be undertaken by the MRT at frequencies specified in Figure 3.2. and in daylight hours at prevailing traffic speed.</p> <p>General Inspections are likely to be undertaken by the supply chain. These inspections will be undertaken from ground level, often under a short duration stop and as per structure specific risk assessment and safe system of work.</p> <p>Principal inspections will be undertaken by the supply chain and will involve working at height, adjacent to water and possibly in confined spaces. These will often be undertaken with Traffic Management, at all times a structure specific risk assessment and safe system of work is to be in place.</p>	

7. Activity	Record Asset Condition
During the course of inspections data relating to the condition of the network will be collected graded and added to SMIS and on occasion CONFIRM for damage related defects.	
8. Activity	Non Compliance
Asset Manager is to determine if non compliance is hazardous, requiring mitigation by the Network Management team or if the defect is to be repaired through forward renewals programme, and monitored in SMIS. The MRT will rectify and record as a find and fix, where practicable.	
9. Hold Point	Transfer to Maintenance Manager for Risk managed Rectification – Refer to Appendix A.30.

A.30 Part 14 – Structures - Risk managed Make Safe and Repair Procedure

Objective	To carry out maintenance
Output	Resilient
Executive Owner	AMOR Service Leader
Local Owner	Maintenance Manager
Implementation Owner	Network Supervisor
10. Hold Point	Transfer from Asset Manager for Risk managed Rectification – Refer to Appendix A.29.
The Maintenance Manager will programme and rectify non-compliance as identified by the Asset Manager. The Network Manager will also programme a maintenance review and rectification plan to comply with the requirements of BD62. Generally hazardous defects relating to structures maintenance, relate to other relevant sections of AMOR, for example, criteria for flooding will sit alongside drainage, and parapet damage will sit within RRS.	
11. Activity	Site specific Risk Assessment of non-compliance
The Maintenance Manager is to carry out a site specific assessment of maintenance requirements, taking into account the specific hazards encountered working on structures, which may include:-	
<ul style="list-style-type: none"> • Working at height • Working adjacent to water • Confined Space Entry • Bird Droppings • Leptospirosis • Struck by vehicles • Electrocutation • Asbestos 	
12. Activity	Programme and identify resource
The Maintenance Manager shall review current works programme within Area 10 to incorporate maintenance into other activities where achievable through Risk managed approach, bring other works forward if necessary. The general maintenance will be carried out by the MRT on a find and fix regime.	
The MRT will review each structure on or around a 12 month cycle to determine if the following maintenance activities are required:-	
<ul style="list-style-type: none"> • Identify and treat graffiti (offensive graffiti to be over sprayed within 24hrs, other graffiti will be subject to planned intervention). • Identify and remove vegetation likely to block drainage or cause structural damage 	

<p>or limit access.</p> <ul style="list-style-type: none"> • Remove bird droppings that are causing blockages to drainage or corrosion • Unblock weep holes that are likely to cause flooding or damage to the structure. • Identify gap sealants, expansion joints that are to be added to forward renewals programme • Ensure flap valves are operational • Check and tighten loose bolts • Remove dirt from bearings when access allows • Inspect culverts to ensure free flowing • Check covers are seated • Report any superficial damage and scouring 	
13. Hold Point	Review training capabilities of assigned resource and issue SSW
<p>Safe System of Work (SSW) Permit produced by supervisor and to be approved by Network Manager prior to release of Hold Point.</p>	
14. Activity	Handover Briefing
<p>Supervisor to brief ganger into Safe System of Work (SSW) at shift handover, ensuring all resource is available to undertake assigned task.</p>	
15. Activity	Undertake drainage maintenance
<p>Carry out activity in accordance with SSW and as directed by Area Manager.</p>	
16. Activity	Records Asset Condition
<p>The following records are to be collated by MRT on site and passed to supervisor at end of shift handover:-</p> <ul style="list-style-type: none"> • Asset reference attended • Maintenance carried out • Create checklist of items in Appendix A30.12 have been reviewed • Identify any potential areas of concern 	
17. Activity	End of shift Handover
<p>Supervisor and MRT to discuss operation undertaken and record any opportunities for improvement, taking into account the Task, Constraints of Individuals/Operatives and the Environment. All information to be returned to Area Manager for works sign off</p>	
18. Hold Point	Transfer to Maintenance Manager for approval and signing off maintenance.

A.31 Part 15 – Sweeping and Cleaning

Assessors Name		Date of Assessment	Assessment of Risk (based on 5x5 Matrix)					Residual Risk (based on 5x5 Matrix)				Date
Work Activity	Hazardous Event	Persons / Property Affected	Likelihood Level	Consequence Level	Risk Level	Risk Controls Required?	Risk Controls	Probable Likelihood	Potential Consequence	New Risk Level	Further Controls Required?	Review Period
Part 15 - Sweeping and Cleaning Maintenance Requirement (15.1)	Detritus build up on trafficked areas, could lead to slips trips and falls for pedestrians and skidding for vehicles.	Road user	4	3	12	Yes	Inspection regime to comply with CoP on Litter and Refuse for all Motorways; A56 and A5103. Utilise API 4 and EAI to monitor other routes maintained by Local Authorities	2	2	2	No	Review 12 monthly
Part 15 - Sweeping and Cleaning Maintenance Requirement (15.2)	Detritus build up on trafficked areas, could contribute to blockages of drainage asset and flooding	Road user and property	4	3	12	Yes	Inspection regime to comply with CoP on Litter and Refuse for all Motorways; A56 and A5103. Utilise API 4 and EAI to monitor other routes maintained by Local Authorities	2	2	4	No	Review 6 monthly
Part 15 - Sweeping and Cleaning Maintenance Requirement (15.3)	Detritus build up on non-trafficked areas (C/Res paved areas), could lead to slips trips and falls for operatives.	Operatives and errant vehicles	3	3	9	Yes	Provide adequate lighting for night time operations and commit to inspection regime to ensure compliance with CoP on litter and refuse for all Motorways; A56 and A5103. Utilise API 4 and EAI to monitor other routes maintained by Local Authorities	1	2	4	No	Review 6 monthly
Part 15 - Sweeping and Cleaning Maintenance Requirement (15.4)	Vehicle strike during sweeping operations	Sweeper Operator	3	3	9	Yes	Sweep in existing closures where possible or carry out site specific risk assessment	1	2	2	No	Review 12 monthly

Assessors Name		Date of Assessment	Assessment of Risk (based on 5x5 Matrix)				Residual Risk (based on 5x5 Matrix)				Date	
Work Activity	Hazardous Event	Persons / Property Affected	Likelihood Level	Consequence Level	Risk Level	Risk Controls Required?	Risk Controls	Probable Likelihood	Potential Consequence	New Risk Level	Further Controls Required?	Review Period
Part 15 - Sweeping and Cleaning Maintenance Requirement (15.5)	Deposition of litter leads to hazards for environment and encourages rodent activity.	Environment	3	3	9	Yes	Inspection regime to comply with CoP on Litter and Refuse for all Motorways; A56 and A5103. Utilise API 4 and EAI to monitor other routes maintained by Local Authorities. Concentrate efforts at service areas, watercourses, urban areas and known hot spots.	2	2	4	No	Review 6 monthly
Part 15 - Sweeping and Cleaning Maintenance Requirement (15.6)	Slips, trips and falls associated with collecting litter in long grass/vegetation and unlit areas	Property and wildlife	4	3	12	Yes	Challenge grading associated with CoP, review methods of litter collection to extract loose elements from long grass/vegetation.	2	2	4	No	Review 6 monthly
Part 15 - Sweeping and Cleaning Maintenance Requirement (15.6)	Collection of litter blocking drain outfalls and culverts	Property	3	3	9	Yes	Inspection regime to concentrate efforts at culvert locations adjacent to property.	1	2	2	No	Review 12 monthly

A.32 Part 15 - Sweeping and Cleaning - Risk Managed Inspection Procedure

Objective	To provide an accurate record of the condition of the asset in accordance with AMOR Part 15; MRP; CoP for Litter and Refuse and EAI.
Output	Network Condition Data
Executive Owner	Asset Management Leader
Local Owner	Asset Manager
Implementation Owner	Asset Champion
1. Activity	Assess Risk for Each Asset Type
The Asset Manager will develop a framework for the inspection programme by reviewing the contractual requirements and risk assessment and controls identified within risk matrix.	
2. Activity	Determine Inspection Frequencies
<p>The Asset Manager will use all recommendations to develop a robust inspection programme. Where appropriate this should include a review of historic data for the purposes of identifying opportunities for relaxations or enhancements under the terms of AMOR. The CoP does not outline an inspection regime, but rather is outcome based with restoration periods highlighted.</p> <p>With reference to the Code of Practice on Litter and Refuse, motorways and APTRs fall into 2 categories for both litter and detritus build up, as follows:-</p> <ul style="list-style-type: none"> • Low intensity of use – Is applied to motorway and trunk road roundabouts and lay-bys, approach and slip roads connecting to these roads. These locations are subject to a 14 day restoration period to restore the network to grade A standard, if the standard falls to grade C. Working practice through continued patrols and by targeting hot spots, such as service areas will be to maintain standard at grade B. • Special Circumstances – Are applied to carriageway, verges and central reservations of motorways and trunk roads. These locations are subject to a 28 day restoration period or as soon as reasonably practicable, if the standard falls below grade B. Examples where it is considered impracticable to clear within duty timescales include:- <ol style="list-style-type: none"> a) when there are severe weather conditions; b) when special events present practical difficulty in meeting response times; c) health and safety considerations; d) to avoid damage to sensitive areas (can include natural habitats and heritage sites as well as, for example, the need to preserve forensic evidence at a crime scene) e) where advance notice is required for traffic management or roadspace booking. <p>Litter Grading Definitions are as follows:-</p> <ul style="list-style-type: none"> • Grade A – No litter or refuse • Grade B – Predominately free of litter and refuse apart from some small items • Grade C – Widespread distribution of litter and /or refuse with minor accumulations • Grade D – Heavily affected by litter and/or refuse with significant accumulations. <p>Detritus Grading Definitions, are as follows:-</p> <ul style="list-style-type: none"> • Grade A – No Detritus • Grade B - Predominately free of detritus except for some light scattering • Grade C - Widespread distribution of detritus with minor accumulations • Grade D - Heavily affected by detritus with significant accumulations. <p>There will not be a separate inspection for sweeping and litter, however the inspection will</p>	

<p>be incorporated into the route inspections. Additional sources of information will be available from EAI monitors and watchman process.</p> <p>The Code of Practice for Litter and Refuse, also refers to graffiti, basing the grading system A to D on the extent that is visible to the public. The MRP will address graffiti as follows:-</p> <ul style="list-style-type: none"> • Graffiti deemed to be offensive or affecting visibility will be over sprayed, using grey masking paint, on structures and removed from sign faces within 24hrs. • All other graffiti will be programmed to be addressed within the structures maintenance programme or the sign cleaning programme. 	
3. Activity	Are Relaxations or Enhancements Required
<p>The Asset Manager will liaise with relevant stakeholders to identify departures (relaxations and enhancements) from contractual requirements at site specific locations that are not detrimental to the asset. Current known locations can be associated with areas of long grass and vegetation that pose a risk to the individual associated with carrying out the activity. Relaxation to applied for until vegetation has died back and the risk of slips, trips and falls has been reduced.</p>	
4. Hold Point	Obtain Relaxation or Enhancement Approval
<p>Robust evidence of enhancements will be forwarded to the Asset Manager. The Asset Manager will review changes to identify any adverse effects on safety and consider re-allocating resources to prone hot spot locations. All approved relaxations will be regarded as improvements and be subjected to periodic review as identified in risk assessment matrix. Release of this hold point will be via written approval from the Asset Manager.</p>	
5. Activity	Update MRP as Required
<p>Where an improvement opportunity has been approved the MRP shall be updated accordingly</p>	
6. Activity	Undertake Inspections
<p>As previously highlighted there will not be an individual inspection associated with the Sweeping and Cleaning Maintenance Requirement, information will be obtained by Asset Manager from route inspections, EAI reports and Watchman process.</p>	
7. Activity	Record Asset Condition
<p>During the course of inspections data relating to the condition of the network will be collected and graded in accordance with CoP for litter and refuse.</p>	
8. Activity	Non Compliance with CoP
<p>Asset Manager to determine if non compliance is subject to departure, otherwise confirm grading and forward to Maintenance Manager for rectification within forward programme, associated with motorways, A56 and A5103. Non compliance with CoP on other APTR's are the responsibility of Local Authorities and Asset Manager shall notify relevant Authority, ensuring the Client is made aware.</p>	
9. Hold Point	Transfer to Maintenance Manager for Risk managed Rectification – Refer to Section B.33

A.33 Part 15 Sweeping and Cleaning - Risk managed Make Safe and Repair Procedure

Objective	To address sweeping and cleaning maintenance requirements of Motorways, A56 and A5103.
Output	Resilient
Executive Owner	AMOR Service Leader
Local Owner	Maintenance Manager
Implementation Owner	Network Supervisor
10. Hold Point	Transfer from Maintenance Manager for Risk managed Rectification – Refer to Section 3
The Maintenance Manager will programme and rectify non-compliance as identified by the Asset Champion.	
11. Activity	Site specific Risk Assessment of non-compliance
<p>The Maintenance Manager is to carry out a site specific assessment of non-compliance and adopt Risk managed approach to determine timescale for rectification utilising the thought process outlined with Section 4 of the MRP.</p> <p>Non compliance will be rectified within the timescales outlined in the Code of Practice for Litter and Refuse, as follows if required:-</p> <ul style="list-style-type: none"> • Grade C to A - 14 days for Low intensity areas • Grade C to A – 28 days for special circumstance areas <p>It is the intention for the MRT to maintain standard at Grade B, as such these intervention levels will not be required.</p> <ul style="list-style-type: none"> • Offensive Graffiti – Mitigate/overspray within 24 hrs. 	
12. Activity	Programme and identify resource
The Maintenance Manager shall review current works programme within Area 10 to incorporate sweeping and cleaning into other activities where achievable through Risk managed approach, bring other works forward if necessary. The sweeping operations will be carried out by the supply crews and the litter/graffiti issues addressed by the MRT crews. Waste shall be controlled as outlined in the EMP.	
13. Hold Point	Review training capabilities of assigned resource and issue SSW
SSW/Permit produced by supervisor and to be approved by Area Manager prior to release of Hold Point.	
14. Activity	Handover Briefing
Supervisor to brief ganger into SSW at shift handover, ensuring all resource is available to undertake assigned task.	
15. Activity	Undertake sweeping and cleaning
Carry out activity in accordance with Safe System of Work and as directed by Area Manager.	
16. Activity	Records Asset Condition
<p>The following records are to be collated by MRT on site and passed to supervisor at end of shift handover:-</p> <ul style="list-style-type: none"> • Returned SSW permit • Record of no of bags of litter collected off network, including location. • Lengths of sweeping undertaken 	

<ul style="list-style-type: none">• Waste transfer notes• Any residual issues that were encountered.	
17. Activity	End of shift Handover
Supervisor and MRT to discuss operation undertaken and record any opportunities for improvement, taking into account the Task, Constraints of Individuals/Operatives and the Environment. All information to be returned to Maintenance Manager for works sign off	
18. Hold Point	

Appendix B

Appendix C Examples of Hazardous Defects

Part 5 – Drainage Related Hazards



Blocked gully at low point will result in flooding to carriageway



Detritus build up in channel will prevent passage of water into Aquamax/Combined Drain & Kerb Units.



Blocked ditches and culverts adjacent to property or carriageway have potential to flood and result in damage.



Loose and damaged covers/gratings present a hazard to persons on the network.

Part 6 – Fences, Screens & Environmental Related Hazards



Missing boundary fence rails in stocked fields and adjacent to public areas will allow direct access to Motorway for livestock and public.

Part 7 – Geotechnical Assets



Embankment slips requiring intervention due to hazard.

Part 8 – Lighting Related Hazards



Part 9 – Paved Areas Related Hazards



Hazardous example of paved area failure within trafficked area resulting in potholes >150mm or of a greater depth than the surface course thickness or >40mm depth.



Hazardous example of a paved area failure in trafficked area with a deformation >40mm



Hazardous example of difference in level around ironwork >25mm in trafficked areas



Pothole in other areas >25mm or >150mm diameter



Deformation in other areas >25mm



Trip hazards have a step change >25mm

Part 10 – Road Markings & Road Studs Related Hazards



Hazards relating to road markings are defined in TD 26/07 as Category 1 defects as follows:-

- Reflectivity drops below 80mcd/m²/lux on unlit single carriageway and interchanges or affected lengths in excess of 1 mile.
- Less than 70% of marking remaining in critical safety areas.
- Luminance factor <0.30 for white and <0.20 for yellow in safety critical areas.

Hazards relating to road studs are defined in TD 26/07 as Category 1 defects as follows, for any single road stud:-

- Loss of stud, missing or defective inserts on double white lines (legal requirement areas)
- Loose or displaced road stud on carriageway (this may cause damage to vehicles or persons if flicked into live lanes)
- Loose casing.

Part 11 – Road Restraint Systems Related Hazards



Part 12 – Road Traffic Signs Related Hazards



Example of a hazard sign as referred to in TD25.

Part 13 – Soft Estate Related Hazards



Example of soft estate encroachment causing a hazard.

Part 14 – Structures Related Hazards



Parapet mesh missing, allowing direct access to carriageway from footway.



Bridge deck joint which has become dislodged and is an imminent hazard

Part 15 – Sweeping & Cleaning Related Hazards



Excessive silt build up in channels can prevent surface water reaching outfalls and also presents a risk of skidding to motorists.



Removal of obscene and offensive graffiti

Appendix D Risk managed Defect Management Process

Risk Based Defect Management Process

