General Note:

During the design stages of a project, designers are required to maintain a **"Hazard Elimination Checklist"** (part B of this document). The 'checklist' records the various significant (high risk) hazards identified by the designer(s) and, were they have been able, details of how they have been eliminated.

It is recognised that not every hazard can be 'designed out' and therefore the checklist will also be used to record the residual risks of which the designer(s) are aware.

The checklist provides an audit trail of the design process and may also be used as evidence in the event that a designer is required to defend his or her actions in any HSE investigation.

Copies of parts A and B should be passed to all members of the project team, especially the Principal Designer.

Reference must also be made to GG104 Requirements for safety risk assessment.

Part A: Designer's Hazard Checklist

Project Title:	A36 Bemerton Incl Rbt at MP 63.0 NB & SB MP 61.6 - 63.1 RS – Survey works only	**Kier Highways Job No.:**	570112
Project Description:	Survey Scope of Works – Pavement Coring, Trial Holes and Asbestos Refurbishment Survey To undertake 48 No. Pavement cores and 15 No. Trial Holes to determine existing Construction Layers, including PAK marker testing to confirm the likelihood of the presence of Tar Bound Materials (TBM). Possible follow up PAH lab testing if any PAK test identifies a positive indication of tar bound materials. Works to include DCP testing. The works may also include an asbestos refurbishment survey at instances where the existing waterproofing material is encountered in order to determine presence of Asbestos Containing Materials (ACM).		
Design Discipline:	Surveys / Feasibility Stage / Pavement / Cores		
Project Type as determined by GG104 (if applicable)	**A**	**Prepared By:**	[redacted]

Notes:

1. This section of the document includes a list of potential hazards pertaining to a wide range of situations which may occur across Kier Highways' activities. *Where particular categories do not ordinarily affect the scheme,* ***Part A should be edited/sections deleted to more accurately reflect the work carried out.***
2. An individual item or a whole section (by ticking the heading) can be noted as not applicable showing you have considered the hazard area and judged it to be not applicable.
3. The list of potential hazards is not exhaustive, and all sections can be added to, or additional sections added, as required. Reference to the Approved Code of Practice may be helpful.
4. All items considered by the designer as having a potential high risk must be addressed on the 'Hazard Elimination Management Schedule'. Low risk activities can also be included if considered appropriate.
5. Consideration must be given to all populations that may be affected as follows -

Population 1 – People directly employed by the Client and who work on the site e.g. Traffic Officers. **Population 2** – People in a contractual relationship with the client.	**'Workers'**
Population 3 – Other parties, including road users, the police and emergency services and non-motorised 'Users' such as equestrians, cyclists and pedestrians, as well as those others not in a contractual relationship with the client, such as privately contracted vehicle recovery and vehicle repair providers.	**'Users'**
Population 4 – Third parties includes any person or persons who could be affected by the works, but who are neither using it, nor working on it, i.e. living or working adjacent to the site.	**'Other Parties'**

Potential Hazards Arising From:		Risk (without designer's elimination / management measures)			Comments
Ref:		Not Applicable	Low- NO Action Required	High – Action NEEDED	
1.	**Existing Environment**				
1.1	Existing buildings	**X**			
1.2	Previous/existing land/ structures	**X**			
1.3	Roadways		**X**		
1.4	Railways		**X**		**6 No. trial holes to be carried out on the A35 Skew Bridge (Railway Overbridge) Initial contact made with Network Rail Asset Protection. Further liaison to be carried out by the HE during procurement of Surveys.**
1.5	Water course	**X**			
1.6	Ground conditions:	**X**			
	• Contamination				
	• Ground water				
	• Instability				
	• Mineral / mine workings				
1.7	Access restrictions		**X**		
1.8	Adjacent properties		**X**		
1.9	Concurrent site activities	**X**			**No information has been supplied by HE about any proposed concurrent site activities.**
1.10	Interface with the public		**X**		**NMU routes along the site. Temporary diversion routes would be necessary if the NMU paths are affected by the works.**
1.11	Occupied premises	**X**			
1.12	Structural instability	**X**			
1.13	Fragile materials	**X**			
1.14	Hazardous materials			**X**	**Potential hazardous materials from coring/trial hole operations.**

Potential Hazards Arising From:		Risk (without designer's elimination / management measures)			Comments
Ref:		Not Applicable	Low- NO Action Required	High – Action NEEDED	
					If PAK testing of cores/samples result in a positive test – core/sample to be stored and taken to a lab for further PAH testing to aid with design and to determine the correct method of disposal. If disposal of TBM required - reference should be made to the Environment Agency Regulatory Position Statement on 'The Use of Treated Asphalt Waste Containing Coal Tar in Construction Operations', Ref.: MWRP RPS 075 Version: 4, Issued September 2014.
1.15	Land use		**X**		**Urban area. A number of residential and commercial properties along the scheme extents**
1.16	Traffic			**X**	**Live A36 Traffic. Traffic Management to be provided by Highways England with survey works to be carried out under temporary traffic lights where possible, or full carriageway closures including St Paul's Roundabout. Layout provided to be in accordance with TSM Chapter 8.**
1.17	Others (insert as necessary)				

Potential Hazards Arising From:		Risk (without designer's elimination / management measures)			Comments
Ref:		Not Applicable	Low- NO Action Required	High – Action NEEDED	
2.	**Existing Services**				
2.1	• Underground				
2.12	Electrical		**X**		**Low voltage, 11kV, 33kV and 132kV electrical services present. Refer to STATS drawings for approximate location.**
2.13	Gas		**X**		**Low and medium pressure gas pipe within site extents.**
2.14	Water (Asbestos pipes?)		**X**		**Public foul, public combined gravity and water main located within the site extents.**
2.15	Telecommunications		**X**		**BT, Zayo Group and Virgin Media present.**
	Others (insert as necessary)				
2.2	• Overhead Services				
2.21	Electrical		**X**		
2.22	Telecommunications			**X**	**Overhead BT cables present within site extents. Refer to VSC plans and C2 Returns for locations.**
2.23	Others (insert as necessary)	**X**			
3.	**Earthworks**	**X**			
3.1	Deep excavations				
3.2	Slope / ground stability				
3.3	Ground water / water courses				
3.4	Plant movements				
3.5	Interface with services (refer 2)				
3.6	Contamination (ground / water) (refer 1.6)				
3.7	Adjacent structures (refer 1.8)				
3.8	Others (insert as necessary)				
4.	**Foundations**	**X**			

Potential Hazards Arising From:		Risk (without designer's elimination / management measures)			Comments
Ref:		Not Applicable	Low- NO Action Required	High – Action NEEDED	
4.1	Adjacent buildings/structures				
4.2	Deep excavations				
4.3	Plant movements				
4.4	Interface with services				
4.5	Contamination (ground / water)				
4.6	Ground water				
4.7	• Confined spaces				
4.8	• Piling:				
	• Noise				
	• Vibration				
	Contamination				
	• Plant				
4.9	• Grouting:				
	• Drilling work				
	Dust				
	Pollution				
4.10	Stability of structure				
4.11	Others (insert as necessary)				
5.	**Services Installation**	**X**			
5.1	Excavations				
5.2	Ground water				
5.3	Ground conditions				
5.4	Existing services				
5.5	Testing operations				
5.6	Lifting operations				
5.7	Adjacent structures / activities				
5.8	Maintenance				
5.9	Contamination				
5.10	Others (insert as necessary)				
6.	**Drainage Works**	**X**			
6.1	Excavations				
6.2	Ground water				
6.3	Ground conditions				
6.4	Confined spaces				

Potential Hazards Arising From:		Risk (without designer's elimination / management measures)			Comments
Ref:		Not Applicable	Low- NO Action Required	High – Action NEEDED	
6.5	Leptospirosis / Weils disease				
6.6	Existing services (asbestos pipes?)				
6.7	Manual handling				
6.8	Lifting operations				
6.9	Maintenance				
6.10	Sewage				
6.11	Traffic				
6.12	Contamination (ground / water)				
6.13	Hepatitis B / Tetanus				
6.14	Others (insert as necessary)				
7.	**Highways**				
7.1	Traffic management			**X**	**Live A36 Traffic. Traffic Management to be provided by Highways England with survey works anticipated to be carried out under temporary traffic lights where possible, or full carriageway closures including St Paul's Roundabout. Layout provided to be in accordance with TSM Chapter 8.**
7.2	Adjacent traffic			**X**	**Live A36 Traffic**
7.3	Construction materials		**X**		
7.4	Structural works	**X**			
7.5	Adjacent structures		**X**		**Refer to Appendix D of the Pre-Construction Information for list of structures.**
7.6	Noise		**X**		**Works at night. Risk to workers and to residents of adjacent properties due to exposure to high noise levels to be considered within principal**

Potential Hazards Arising From:		Risk (without designer's elimination / management measures)			Comments
Ref:		Not Applicable	Low- NO Action Required	High – Action NEEDED	
					contractor RAMS when planning/ programming activities.
7.7	Vibration		**X**		
7.8	Coal TAR in the pavement			**X**	**Potential hazardous materials from coring/trial hole operations. If PAK testing of cores result in a positive test – core/sample to be stored and taken to a lab for further PAH testing to aid with design and to determine the correct method of disposal. If disposal of TBM required - reference should be made to the Environment Agency Regulatory Position Statement on 'The Use of Treated Asphalt Waste Containing Coal Tar in Construction Operations', Ref.: MWRP RPS 075 Version: 4, Issued September 2014.**
7.9	Others (insert as necessary)				
8.	**Steelwork Construction**	**X**			
8.1	Working at height				
8.2	Lifting operations				
8.3	Temporary stability				
8.4	Connections				
8.5	Unusual sequence				
8.6	Materials, e.g. paints				

Potential Hazards Arising From:		Risk (without designer's elimination / management measures)			Comments
Ref:		Not Applicable	Low- NO Action Required	High – Action NEEDED	
8.7	Consideration of future maintenance				
8.8	Others (insert as necessary)				
9.	**Concrete Construction**	**X**			
9.1	Working at height				
9.2	Plant restrictions				
9.3	Lifting operations				
9.4	Noise				
9.5	Vibration				
9.6	Temporary instability				
9.7	Pre/post tensioning				
9.8	Materials				
9.9	Maintenance				
9.10	Joints (scabbling should not be undertaken)				
9.11	Others (insert as necessary)				
10.	**Masonry Construction**	**X**			
10.1	Manual handling				
10.2	Lifting operations				
10.3	Materials				
10.4	Temporary stability				
10.5	Working at height				
10.6	Dust				
10.7	Durability				
10.8	Catastrophic collapse				
10.9	Others (insert as necessary)				
11.	**Timber Construction**	**X**			
11.1	Materials				
11.2	Working at height				
11.3	Temporary stability				
11.4	Lifting operations				
11.5	Manual handling				
11.6	Fire				
11.7	Dust				
11.8	Others (insert as necessary)				

Potential Hazards Arising From:		Risk (without designer's elimination / management measures)			Comments
Ref:		Not Applicable	Low- NO Action Required	High – Action NEEDED	
12.	**Cladding**	**X**			
12.1	Lifting operations				
12.2	Manual handling				
12.3	Maintenance / cleaning				
12.4	Others (insert as necessary)				
13.	**Glazing**	**X**			
13.1	Manual handling				
13.2	Lifting operations				
13.3	Cleaning / maintenance				
13.4	Others (insert as necessary)				
14.	**Mechanical/Electrical Systems**	**X**			
14.1	Access				
14.2	Existing services (asbestos?)				
14.3	Manual handling				
14.4	Materials / substances				
14.5	Confined spaces				
14.6	Pressure systems				
14.7	Testing operations				
14.8	Fixings				
14.9	Working at height				
14.10	Maintenance				
14.11	Others (insert as necessary)				
15.	**Railway Activities**	**X**			
15.1	Train movements				
15.2	Overhead lines				
15.3	Electrified track				
15.4	Underground services				
15.5	Adjacent structures				
15.6	Ground stability				
15.7	Contamination				
15.8	Others (insert as necessary)				

Potential Hazards Arising From:		Risk (without designer's elimination / management measures)			Comments
Ref:		Not Applicable	Low- NO Action Required	High – Action NEEDED	
16.	**Demolition of Existing Structures**				
16.1	Services	**X**			
16.2	• Adjacent / adjoining structures	**X**			
16.3	• Materials:				
	Hazardous i.e. asbestos in permanent shuttering, waterproofing to bridge decks, joints etc.		**X**		**Where waterproofing material encountered, an Asbestos Refurbishment Survey is to be carried out to determine presence of ACMs. Trial hole works to be completed by a suitably trained CWF Contractor.**
	fragile	**X**			
16.4	Working at height		**X**		
16.5	Temporary stability	**X**			
16.6	Pre/post tensioning	**X**			
16.7	Noise		**X**		**See 7.6 above**
16.8	Vibration				**The Contractor shall ensure that the peak particle velocity and frequency generated from any operation during the associated works does not present risk of damage to any structure.**
16.9	Dust	**X**			
16.10	Effect on usage of demolition materials	**X**			
16.11	Others (insert as necessary)	**X**			
17.	**Future Demolition / decommissioning of new structure/installation**	**X**			
17.1	Unusual sequence				
17.2	Pre/post tensioned element				
17.3	Materials				
17.4	Adjacent/adjoining structure				

Potential Hazards Arising From:		Risk (without designer's elimination / management measures)			Comments
Ref:		**Not Applicable**	**Low- NO Action Required**	**High – Action NEEDED**	
17.5	Temporary stability				
17.6	Contamination during usage of demolition material.				
17.7	Others (insert as necessary)				
18.	**Maintenance and Operation of Facility / Structure etc.**	**X**			
18.1	Access				
18.2	Safety equipment				
18.3	Testing / inspection				
18.4	Procedure				
18.5	Contamination during usage of demolition material.				
18.6	Others (insert as necessary)				
19.	**Use of the structure as a workplace**				
19.1	Does the proposed use of the structure / premises include the intention for it to be made available to any person as a place of work				
19.2	If yes; the design and materials used must take in to account the provisions of the Workplace (Health, Safety and Welfare) Regulations 1992				

Part B: Hazard Elimination Checklist

Project Title:	**A36 Bemerton Incl Rbt at MP 63.0 NB & SB MP 61.6 - 63.1 RS**			**Kier Highways Job No.:**	**570112**
Project Description:	Survey Scope of Works – Pavement Coring, Trial Holes and Asbestos Refurbishment Survey To undertake 48 No. Pavement cores and 15 No. Trial Holes to determine existing Construction Layers, including PAK marker testing to confirm the likelihood of the presence of Tar Bound Materials (TBM). Possible follow up PAH lab testing if any PAK test identifies a positive indication of tar bound materials. Works to include DCP testing. The works may also include an asbestos refurbishment survey at instances where the existing waterproofing material is encountered in order to determine presence of Asbestos Containing Materials (ACM).				
Design Discipline:	Surveys / Feasibility Stage / Pavement / Cores	**Prepared By:**	[redacted]	**Checked By:**	[redacted]

Note: If GG104 applies to your contract, the checklist must be approved by an appropriate person: For a Type A project the Scheme PD must approve, for a Type B projects the Senior Manager must approve and for a Type C project the Kier Highways Service Director must approve.

Reviewed and approved by:

Name	[redacted]
Signature	
Position	

* **Persons at Risk:** **(1) Workers** **(2) Users** **(3) Other parties**

** **Action by:**

Principal Designer	**– Include within the H&S file**
Designer	**– include in the pre-construction information**
Principal Contractor	**– manage risk during the construction phase**
Other designer	**– take into consideration when preparing their designs**
Client	**– pass information to designers / Principal designer**

Ref.	Activity	Hazard	Persons at Risk *	Design Measures taken, or being taken to eliminate or reduce the hazard	Information on the Residual Risk	Principal Designer Review	Action Req'd by: **
1.	Working adjacent to / within live carriageway.	Operatives / plant struck by moving vehicles	Workers	Use of appropriate traffic management to provide safe working zone and enforce lane and/or complete closure of carriageway for duration of works or work element.		No further comment.	PC
2.	Night-time working	Operatives / plant struck by moving vehicles	Workers & users	Where HE restrictions dictate night-time working the HE supervisor shall ensure adequate shielded task lighting is provided for the duration of the works and that it does not cause undue glare to residents and road users.		No further comment.	PC
3.	Traffic Management	Alignment. Risk of loss of control accidents due to temporary alignment changes leading to personal injury / fatalities to operatives and motorists.	Workers	Temporary alignment changes are necessary to install TM arrangements cannot be eliminated. The TM design will minimise the risk to road users. Speed restrictions to be in place. Advanced warning signs to be in place prior to the works. TM to be in accordance with TSM Chapter 8.		No further comment.	PC
4.	Statutory Undertakers Returns	Outdated C2 STATS Returns	Workers & users	STATS returns become outdated every 3 months. Prior to works, liaison with the relevant utility companies is again necessary to ensure a current STATS plan is produced. Contractor to set out position of STATS on site prior to commencement of works.		No further comment.	PC
5.	Hazardous materials from pavement coring operations	Presence of coal tar	Workers	Contractor to ensure that all workers wear appropriate PPE at all times during construction works and any tar arisings will be disposed of too licensed tips and in line		No further comment.	PC

Ref.	Activity	Hazard	Persons at Risk *	Design Measures taken, or being taken to eliminate or reduce the hazard	Information on the Residual Risk	Principal Designer Review	Action Req'd by: **
				with the Company policy and the requirements for materials containing tar.			
6.	Hand Arm Vibration at Work (HAVS)	Hand Arm Vibration – risk of percussive injury to operatives.	Workers	Working hours for operatives using plant to be restricted as appropriate. Appropriate PPE to be provided and worn. A detailed method statement is to be produced by the Contractor prior to the works and routinely checked during works operations.		No further comment.	PC
7.	Dust	Exposure to excessive dust levels	Workers, Users & other parties	Operations that produce dust, shall control exposure not only for the workforce but also all possible groups and not create an environmental nuisance. Dust exposure shall be limited in line with the COSHH 2002 regulations. Where possible water suppression should be used to reduce dust and the extent of exposure to operatives.		No further comment.	PC
8.	Noise	Excessive noise levels from plant / site activities, damage to operative hearing, nuisance to residents	Workers	Proposed survey works are to be undertaken during night time. Residents are located within 100m of planned activities, hence all plant to be fitted with sound suppression devices. A detailed method statement is to be produced by the Contractor prior to the works and routinely checked during works operations. All plant is to be checked prior to use.		No further comment.	PC
9.	Trial Hole Activity	Damage to structure (e.g. waterproofing layer)	Other Parties	Care must be taken to not cause damage to the structure including the waterproofing layer. Any accidental damage shall be	No significant residual risk.		

Ref.	Activity	Hazard	Persons at Risk *	Design Measures taken, or being taken to eliminate or reduce the hazard	Information on the Residual Risk	Principal Designer Review	Action Req'd by: **
				notified to the relevant highway authority. Repairs of any accidental damage shall be the responsibility of the Contractor and shall be agreed with Highways England.			