

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, where 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:	M5 River Brue Bearings MP182-185	Kier Highways Job No.:	1050471
Project Description:	Technical Survey and Testing		
Design Discipline:	Structures		
Project Type as determined by GD04 (if applicable)	A	Prepared By:	██████████

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.	‘Workers’
Population 2 – People in a contractual relationship with the client.	
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’



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As part of our systems review, this document is valid until: April 2020		



Business Stream Form: Highways Designer's Hazard Checklist and Risk Reduction Schedule

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	✓			
1.2	Previous/existing land/ structures	✓			
1.3	Roadways			✓	Chapter 8 TM will be required
1.4	Railways	✓			
1.5	Water course			✓	Testing work will be carried out over River Brue and Huntspill River Bridge. Access equipment to be provided by Principal Contractor (PC). This is envisaged to be an underbridge unit sited on hard shoulder of M5 and possibly scaffolding for access to above ground sections. PC's rules for working on access equipment to be followed.
1.6	Ground conditions:	✓			
	• Contamination	✓			
	• Ground water	✓			
	• Instability	✓			
	• Mineral / mine workings	✓			
1.7	Access restrictions			✓	TM used above deck on the M5 and 50mph speed restrictions in place for the duration of the works. Safety barriers used along the footpath to segregate pedestrians from site activity.
1.8	Adjacent properties			✓	Industrial Estate to the northwest of River Brue and Brent Farm to the southeast side. Works could impact the footpath at Brent Farm.
1.9	Concurrent site activities	✓			
1.10	Interface with the public			✓	Interaction between TM operatives and motorists during TM restrictions. Public footpath adjacent to south side of site to have barriers and remain operational.
1.11	Occupied premises		✓		Brent Farm to be informed of site visit dates
1.12	Structural instability	✓			

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Potential Hazards Arising From:		Risk (without designer's elimination / management measures)			Comments
Ref:		Not Applicable	Low- NO Action Required	High – Action NEEDED	
1.13	Fragile materials	✓			
1.14	Hazardous materials	✓			
1.15	Land use	✓			
1.16	Traffic			✓	Managing the traffic during the works with TM to Chapter 8
1.17	Others (insert as necessary)	✓			
2.	Existing Services				
2.1	Underground				
	• Electrical	✓			
	• Gas	✓			
	• Water (Asbestos pipes?)	✓			
	• Telecommunications	✓			
	• Others (insert as necessary)		✓		Motorway Comms in East verge. Won't be affected by survey works
2.2	Overhead Services				
	• Electrical	✓			
	• Telecommunications	✓			
	• Others (insert as necessary)	✓			
3.	Earthworks				
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				
4.1	Adjacent buildings/structures	✓			
4.2	Deep excavations	✓			
4.3	Plant movements	✓			
4.4	Interface with services	✓			
4.5	Contamination (ground / water)	✓			

Ref:	Potential Hazards Arising From:	Risk (without designer's elimination / management measures)			Comments
		Not Applicable	Low- NO Action Required	High – Action NEEDED	
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				
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				
6.1	Excavations	✓			
6.2	Ground water	✓			
6.3	Ground conditions	✓			
6.4	Confined spaces	✓			
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	✓			



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Ref:		Not Applicable	Low- NO Action Required	High – Action NEEDED	
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			✓	All works to be signed and guarded to Chapter 8.
7.2	Adjacent traffic			✓	All works to be signed and guarded to Chapter 8.
7.3	Construction materials	✓			
7.4	Structural works	✓			
7.5	Adjacent structures	✓			
7.6	Noise			✓	Use of correct PPE such as ear defenders and where appropriate neighbour notification of proposed works.
7.7	Vibration			✓	Correct use of vibration machinery as per manufacturer's recommendations to limit time exposure to HAVS.
7.8	Coal TAR in pavement	✓			
7.9	Others (insert as necessary)	✓			
8.	Steelwork Construction	✓			
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	✓			
8.7	Consideration of future maintenance	✓			
8.8	Others (insert as necessary)	✓			
9.	Concrete Construction	✓			
9.1	Working at height	✓			
9.2	Plant restrictions	✓			
9.3	Lifting operations	✓			
9.4	Noise	✓			

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Ref:		Not Applicable	Low- NO Action Required	High – Action NEEDED	
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				
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				
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)	✓			
12.	Cladding				
12.1	Lifting operations	✓			
12.2	Manual handling	✓			
12.3	Maintenance / cleaning	✓			
12.4	Others (insert as necessary)	✓			
13.	Glazing				
13.1	Manual handling	✓			

Ref:	Potential Hazards Arising From:	Risk (without designer's elimination / management measures)			Comments
		Not Applicable	Low- NO Action Required	High – Action NEEDED	
13.2	Lifting operations	✓			
13.3	Cleaning / maintenance	✓			
13.4	Others (insert as necessary)	✓			
14.	Mechanical/Electrical Systems				
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				
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)	✓			
16.	Demolition of Existing Structures				
16.1	Services	✓			
16.2	Adjacent / adjoining structures	✓			
16.3	Materials:	✓			
	<ul style="list-style-type: none"> Hazardous i.e. asbestos in permanent shuttering, waterproofing to bridge decks, joints etc. 	✓			
	<ul style="list-style-type: none"> fragile 	✓			
16.4	Working at height	✓			
16.5	Temporary stability	✓			
16.6	Pre/post tensioning	✓			

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Ref:		Not Applicable	Low- NO Action Required	High – Action NEEDED	
16.7	Noise	✓			
16.8	Vibration	✓			
16.9	Dust	✓			
16.10	Effect on usage of demolition materials	✓			
16.11	Others (insert as necessary)	✓			
17.	Future Demolition / decommissioning of new structure/installation				
17.1	Unusual sequence	✓			
17.2	Pre/post tensioned element	✓			
17.3	Materials	✓			
17.4	Adjacent/adjoining structure	✓			
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.				
18.1	Access			✓	It is envisaged that an underbridge unit located on the motorway hard shoulder could be used for access to the above water areas of the survey. An alternative may be to use a pontoon which would have advantage of reducing or eliminating need for TM on motorway. MEWP or scaffolding could be used for access to the above ground sections subject to assessment of the ground conditions..
18.2	Safety equipment			✓	Lifejackets and harness with lanyard will be required when working from a MEWP
18.3	Testing / inspection			✓	Correct PPE to be worn at all times such as harness, lanyard lifejacket, ear defenders, face masks etc.
18.4	Procedure	✓			
18.5	Contamination during usage of demolition material.			✓	Measures to be taken to prevent dust contamination of the watercourses
18.6	Leptospirosis / Weils disease			✓	Working over/near water. Correct PPE to be worn and appropriate hygiene

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					procedures to be followed.
18.7	Needles		✓		Potential to come into contact with discarded items along the structure embankments.
18.8	Dust			✓	Dust mask to be worn when drilling and collecting concrete dust samples.
18.9	Vegetation causing allergic reaction		✓		Use of PPE to protect skin/breathing.
18.10	Others (insert as necessary)	✓			
18.11	Water Levels			✓	Liaise with Internal Drainage Board to confirm no unexpected changes in water levels.
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	✓			

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: **
1.5 3.3 18.3	Working adjacent to and over/ watercourses and contaminated water.	Working near a watercourse and contracting Leptospirosis/ Weils disease.	1	Wearing a lifejacket, harness and lanyard when working from a MEWP. Cover cuts and abrasions and wear correct PPE.	Risk of slips, trips & falls and risk of contracting weils disease from the watercourse.	No further comment.	Principal Contractor
7.6 7.7 18.3 18.8	Construction materials & plant which may produce noise, vibration and dust.	Live traffic, plant and testing/ inspection activities may produce noise, vibration and dust.	1,2,3	TM to be installed to Chapter 8, correct use of PPE such as ear defenders, face masks and time limit exposure to HAVS. Appropriate control measures are to be implemented and materials are to be handled in accordance with Method Statements, Risk Assessments and COSHH Assessments.	Risk is reduced however hazard remains	No further comment.	Principal Contractor
1.3 1.7 1.16 18.1 18.2 18.3	Working from a MEWP	Working from height, falling debris/equipment	1,2	Competent & Qualified operatives. Correct training/tickets held by operatives. Correct PPE to be worn for the work and weather. Men at work signs and safety zone established. Approved RAMS in place Hard Shoulder closure with IPV required.	Risk is reduced when safety procedure is followed however hazard remains Platform being stuck in "up" position.	No further comment.	Principal Contractor
18.6 18.7 18.9	Working along the embankments/ soft estate	Contact with foreign objects such as needles, leptospirosis & injurious vegetation	1,2	Correct PPE to be worn Operatives to be in teams with First Aid Training Staff to be briefed during site induction.	Risk is reduced by following RAMS but hazard remains	No further comment.	Principal Contractor