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:	**A4 Portway Rbt. Incl. to end of Network BD MP 204.5 – 204.6**	**Kier Highways Job No.:**	**570122 - 563**
Project Description:	**Undertake 150mm Cores, PAK Testing and Selective DCP Testing at stated locations**		
Design Discipline:	**Highways**		
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**				Local residents at A4
1.1	Existing buildings		X		
1.2	Previous/existing land/ structures	X			
1.3	Roadways			X	Site access must be strictly through designated access and egress points from the main carriageway
1.4	Railways	X			
1.5	Water course	X			
1.6	Ground conditions:	X			
	• Contamination	X			
	• Ground water	X			
	• Instability	X			
	• Mineral / mine workings	X			
1.7	Access restrictions	X			
1.8	Adjacent properties		X		Contractor to notify local residents via letter drop in advance of planned works and erect signs informing travelling public both non motorised and motorised of potential disruption. Site also includes multiple bus routes, contractor to notify operators of likely disruptions in advance and work collaboratively to ensure disruption is kept to a minimum. Residents adjacent to sites, Noise consideration
1.9	Concurrent site activities	X			
1.10	Interface with the public		X		Contractor to notify local residents via letter drop in advance of planned works and erect signs informing travelling public both non-motorised and motorised of potential disruption. Site also includes multiple bus

Potential Hazards Arising From:		Risk (without designer's elimination / management measures)			Comments
Ref:		Not Applicable	Low- NO Action Required	High – Action NEEDED	
					routes, contractor to notify operators of likely disruptions in advance and work collaboratively to ensure disruption is kept to a minimum. Working on public highway
1.11	Occupied premises		X		
1.12	Structural instability	X			
1.13	Fragile materials	X			
1.14	Hazardous materials			X	Possibility of TBM in cores. Construction materials to be used in accordance with method statements, Risk assessments & COSHH assessments
1.15	Land use	X			
1.16	Traffic			X	Works undertaken will require lane possessions to be applied for. TM will be installed in accordance with TSM Chapter 8
1.17	Others (insert as necessary)	X			
2.	**Existing Services**				
2.1	Underground				
	• Electrical			X	**Apparatus Have been identified within the scheme boundaries. Contractor to check C2's (if older than 6 months reapply) and ensure area is CAT and GENIE scanned prior to commencing coring. Contractor to follow guidance within HSG 47**
	• Gas			X	**Low Pressure Apparatus have been identified within the scheme**

Potential Hazards Arising From:		Risk (without designer's elimination / management measures)			Comments
Ref:		Not Applicable	Low- NO Action Required	High – Action NEEDED	
					boundary. Contractor to check C2's (if older than 6 months reapply) and walk site clearly marking areas containing overhead cables. Contractor to follow guidance within GS6
	• Water (Asbestos pipes?)			**X**	Multiple clean, foul and abandoned apparatus have been identified within the scheme boundaries. Contractor to check C2's (if older than 6 months reapply) and CAT and GENIE scanned prior to commencing coring. Contractor to follow guidance within HSG 47
	• Telecommunications			**X**	Apparatus have been identified within the scheme boundaries. Contractor to check C2's (if older than 6 months reapply) and ensure area is CAT and GENIE scanned prior to commencing coring. Contractor to follow guidance within HSG 47
	• Others – Virgin Media, Vodafone, Gigaclear			**X**	Apparatus present within the scheme. Contractor to ensure apparatus have been clearly located and have liaised with apparatus owner regarding any/all exclusion zones to be complied with.
2.2	Overhead Services				
	• Electrical		**X**		Apparatus have been identified within the scheme boundary. Contractor to check

Potential Hazards Arising From:		Risk (without designer's elimination / management measures)			Comments
Ref:		Not Applicable	Low- NO Action Required	High – Action NEEDED	
					C2's (if older than 6 months reapply) and walk site clearly marking areas containing overhead cables. Contractor to follow guidance within GS6
	• Telecommunications			X	Apparatus have been identified within the scheme boundary. Contractor to check C2's (if older than 6 months reapply) and walk site clearly marking areas containing overhead cables. Contractor to follow guidance within GS6
	• Others (insert as necessary)				
	Virgin Media		X		Contractor to check provided NRSWA 1991 C2 drawings (if older than 3 months, then more current drawings are to be obtained) and ensure areas are CAT and Genie scanned prior to commencement of coring/testing. Contractor to follow HSG47/GS6 guidance.
	Vodafone	X			
3.	**Earthworks**				
3.1	Deep excavations	X			
3.2	Slope / ground stability	X			
3.3	Ground water / water courses	X			
3.4	Plant movements	X			
3.5	Interface with services (refer 2)	X			
3.6	Contamination (ground / water) (refer 1.6)	X			
3.7	Adjacent structures (refer 1.8)	X			
3.8	Others (insert as necessary)	X			
4.	**Foundations**				
4.1	Adjacent buildings/structures	X			

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

Potential Hazards Arising From:		Risk (without designer's elimination / management measures)			Comments
Ref:		Not Applicable	Low- NO Action Required	High – Action NEEDED	
6.6	Existing services (asbestos pipes?)	X			
6.7	Manual handling	X			
6.8	Lifting operations	X			
6.9	Maintenance	X			
6.10	Sewage	X			
6.11	Traffic	X			
6.12	Contamination (ground / water)	X			
6.13	Hepatitis B / Tetanus	X			
6.14	Others (insert as necessary)	X			
7.	**Highways**				
7.1	Traffic management			X	TM to Chp 8 to be used
7.2	Adjacent traffic			X	TM to Chp 8 to be used
7.3	Construction materials			X	Bituminous material to be used
7.4	Structural works	X			
7.5	Adjacent structures	X			
7.6	Noise		X		Noise to be kept to a minimum, idling machinery and vehicles to be kept to a minimum or switched off when not in use. Operatives should receive training to effectively employ techniques to reduce noise. Unnecessary noise should be avoided when carrying out manual operations and when operating plant and equipment. Assessment required of impact on adjacent properties
7.7	Vibration		X		Vibrating equipment to be used only by trained and competent personnel. Equipment to only be used for the minimum amount of time necessary. Operator to ensure all LOLER

Potential Hazards Arising From:		Risk (without designer's elimination / management measures)			Comments
Ref:		Not Applicable	Low- NO Action Required	High – Action NEEDED	
					and PPE HSE regulations are complied with whilst operating said equipment. Equipment to be visually checked prior to each use and maintenance records checked
7.8	Coal TAR in pavement		X		Operatives to test each location prior to core with PAK Marker spray. If spray turns brown/yellowish colour indicates to operative's PAH compounds down to a level of 150ppm are present. Operatives should then carry out a dynamic risk assessment regarding PPE required as well as location and potential for contamination via leaching arisings that may be a by product of the core taking operation.
7.9	Others (insert as necessary)	X			
8.	**Steelwork Construction**				
8.1	Working at height	X			
8.2	Lifting operations	X			
8.3	Temporary stability	X			
8.4	Connections	X			
8.5	Unusual sequence	X			
8.6	Materials, e.g. paints	X			
8.7	Consideration of future maintenance	X			
8.8	Others (insert as necessary)	X			
9.	**Concrete Construction**				
9.1	Working at height	X			
9.2	Plant restrictions	X			

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

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

Potential Hazards Arising From:		Risk (without designer's elimination / management measures)			Comments
Ref:		Not Applicable	Low- NO Action Required	High – Action NEEDED	
	• Hazardous i.e. asbestos in permanent shuttering, waterproofing to bridge decks, joints etc.	X			
	• fragile	X			
16.4	Working at height	X			
16.5	Temporary stability	X			
16.6	Pre/post tensioning	X			
16.7	Noise	X			
16.8	Vibration	X			
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**				
17.1	Unusual sequence	X			
17.2	Pre/post tensioned element	X			
17.3	Materials	X			
17.4	Adjacent/adjoining structure	X			
17.5	Temporary stability	X			
17.6	Contamination during usage of demolition material.	X			
17.7	Others (insert as necessary)	X			
18.	**Maintenance and Operation of Facility / Structure etc.**				
18.1	Access	X			
18.2	Safety equipment	X			
18.3	Testing / inspection	X			
18.4	Procedure	X			
18.5	Contamination during usage of demolition material.	X			
18.6	Others (insert as necessary)	X			
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	X			
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	X			

Part B: Hazard Elimination Checklist

Project Title:	**A4 Portway Rbt. Incl. to end of Network BD MP 204.5 – 204.6**			**Kier Highways Job No.:**	**570122 - 563**
Project Description:	**Undertake 150mm Cores, PAK Testing and Selective DCP Testing at stated locations**				
Design Discipline:	**Highways**	**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: [redacted]

* **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: **
1.2 & 7.5	Undertaking 150mm dia cores & DCP testing	Structure strike causing weakening of structure and potential failure	All	No cores to be undertaken on, or within 50m of structures (underbridges & culverts), confirm locations on site	Risk eliminated	No further comment	PC
1.3, 1.16, 7.1 & 7.2	Working adjacent to live traffic	Workforce struck by vehicle	1 & 2	Traffic management to Chapter 8 Undertake works at night where traffic flow is reduced	Risk reduced	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: **
1.14 & 7.8	Undertaking and handling cores, including undertaking PAK & testing	Contact with TBM in cores	1	Wear appropriate PPE while handling cores Contractor to have RAMS in place for handling un tested cores Cores to be tested to confirm presence of TBM	Risk reduced	No further comment	Principal Contractor
2.1	Undertaking 150mm dia cores & DCP testing	Underground service strike	All	Locate services prior to coring and locally adjust cores as required C2 returns included as part of PCI Pack. Refer to stats pack.	Risk reduced	No further comment	Principal Contractor
2.2	Undertaking 150mm dia cores & DCP testing	Overhead service strike	All	Confirm cable heights and maintain safety zones in GS6. Locally adjust cores as required	Risk reduced	No further comment	Principal Contractor
7.8	Infilling 150mm core locations	Handling bituminous materials	1	Wear appropriate PPE	Risk reduced	No further comment	Principal Contractor
*01	All Activities	Covid 19	All	No design action possible. Contractor to adopt safe systems of work in line with latest Government guidance and the safe site operating procedures to ensure safety of staff on site	Risk reduced	No further comment	Principal Contractor