CA011/001 Ironbridge Gorge World Heritage Site Stability Report Declaration Form - Information

Document Control

This form was prepared by Telford & Wrekin Council Highways + Engineering Services (H+E). It is for use by Planning Applicants to provide a framework of information to support their planning application and to assist Planning and Building Control. It is written to specifically cover the areas defined by Ironbridge and Coalbrookdale Ground Behaviour Study (GBS), (High-Point Rendel January 2005) and Ironbridge Gorge Geomorphological Mapping (GM) (Jacobs 2009), see Figure 2 on page 3 of 4. The Ironbridge Gorge area has been zoned by these reports in terms of their stability risk. Planning application sites which fall outside of the GBS and GM do not fall within the five zone system. They should be addressed in a standard way in the planning process. A Stability Report Declaration Form for the area of Telford and Wrekin Council *outside of the* Ironbridge Gorge World Heritage area is covered by a separate, specific Stability Report Declaration Form referenced CA11/002.

Revision	Description	Originated	Checked	Authorised	Date
00	Draft for Comment	CEB	DK	AB	9th January 2023
01	Draft for Approval	CEB	DK	AB	19th October 2023
02	For Issue	CEB	DK	AB	13th December 2023

Background to Development in the Ironbridge Gorge World Heritage Site

The Ironbridge Gorge World Heritage Site (IGWHS) spreads over 550ha. Approximately three quarters of the area falls within the Borough of Telford & Wrekin Council.

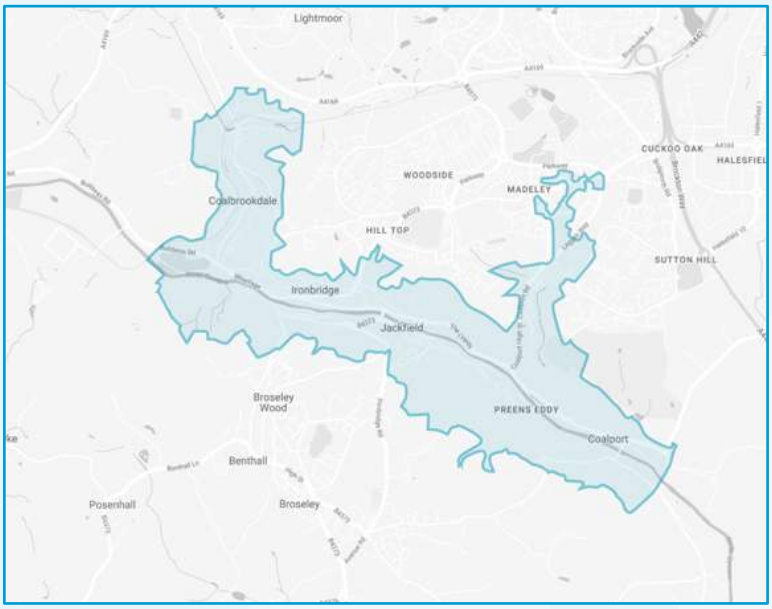

Figure 1: The Ironbridge Gorge World Heritage Site area.

The IGWHS is an internationally recognised area of Outstanding Universal Value and is one of seven designated conservation areas in the borough. UNESCO awarded the Ironbridge World Heritage Site status in 1986 in recognition of the areas record of innovation during the Industrial Revolution. The Outstanding Universal Value of the area is captured in the many historical sites, landscape, setting of the gorge and the social history of the area.

The River Severn runs across the Shropshire from approximately west to east. The Ironbridge Gorge was formed by meltwater from a Glacier or Ice Sheet. This resulted in the rapid cutting of the Gorge which have made its sides overly steep for the soil and rock from which it is comprised. The upper layers of the strata comprised permafrost which could have been to frozen to several hundreds of metres depth. As the climate warmed towards the end of the last Ice Age, particularly during the summer months, the upper layers of the geology thawed. The strata then “flowed” down the slopes by gravity in a process known as solifluction. The resulting soils are known as Head Deposits or Colluvium.

Extensive deposits of Colluvium are present within the study area consisting of solifluction deposits and debris from old landslide events. Material in the Colluvium may have originated from solid or drift deposits and can accumulate in significant thicknesses. Example areas include Lloyds Coppice, The Birches and Coalport.

Subsequently during the late 18th, 19th and 20th Centuries activities such as mining and iron founding have produced extensive man-made soils, known as Made Ground, which blankets the Colluvium and bedrock.

The legacy of past underground limestone, coal, ironstone and clay mining also requires careful consideration.

The Gorge is a geologically complex area and as a result of this presents very real engineering challenges to potential development.

Supporting Documentation

The following reports have been produced to assist with understanding the engineering constraints within the Ironbridge Gorge:

- Ironbridge and Coalbrookdale Ground Behaviour Study, High-Point Rendel January 2005
- Ironbridge Gorge Geomorphological Mapping, Jacobs 2009

The High-Point Rendel (HPR) report zones the Ironbridge and Coalbrookdale areas of the Gorge according to the risks posed to development by ground instability. The Jacobs report extends this methodology to the extent of the IGWHS. The reports are technical documents and it is recommended that they are read and understood, however, as a minimum the following drawings from the reports should be consulted:

- High-Point Rendel, Ironbridge and Coalbrookdale Ground Behaviour Study, Planning Guidance Drawing C

And:

- Jacobs, Planning Guidance Maps Drg. No. Planning 1100100G-SJ 6503 - 6603
- Jacobs, Planning Guidance Maps Drg. No. Planning 1100100G-SJ 6504 - 6604
- Jacobs, Planning Guidance Maps Drg. No. Planning 1100100G-SJ 6505 - 6605
- Jacobs, Planning Guidance Maps Drg. No. Planning 1100100G-SJ 6702 - 6802
- Jacobs, Planning Guidance Maps Drg. No. Planning 1100100G-SJ 6703 - 6803
- Jacobs, Planning Guidance Maps Drg. No. Planning 1100100G-SJ 6901 - 7001
- Jacobs, Planning Guidance Maps Drg. No. Planning 1100100G-SJ 6902 - 7002
- Jacobs, Planning Guidance Maps Drg. No. Planning 1100100G-SJ 6903

The area covered by these nine plans is summarised in Figure 2 below:

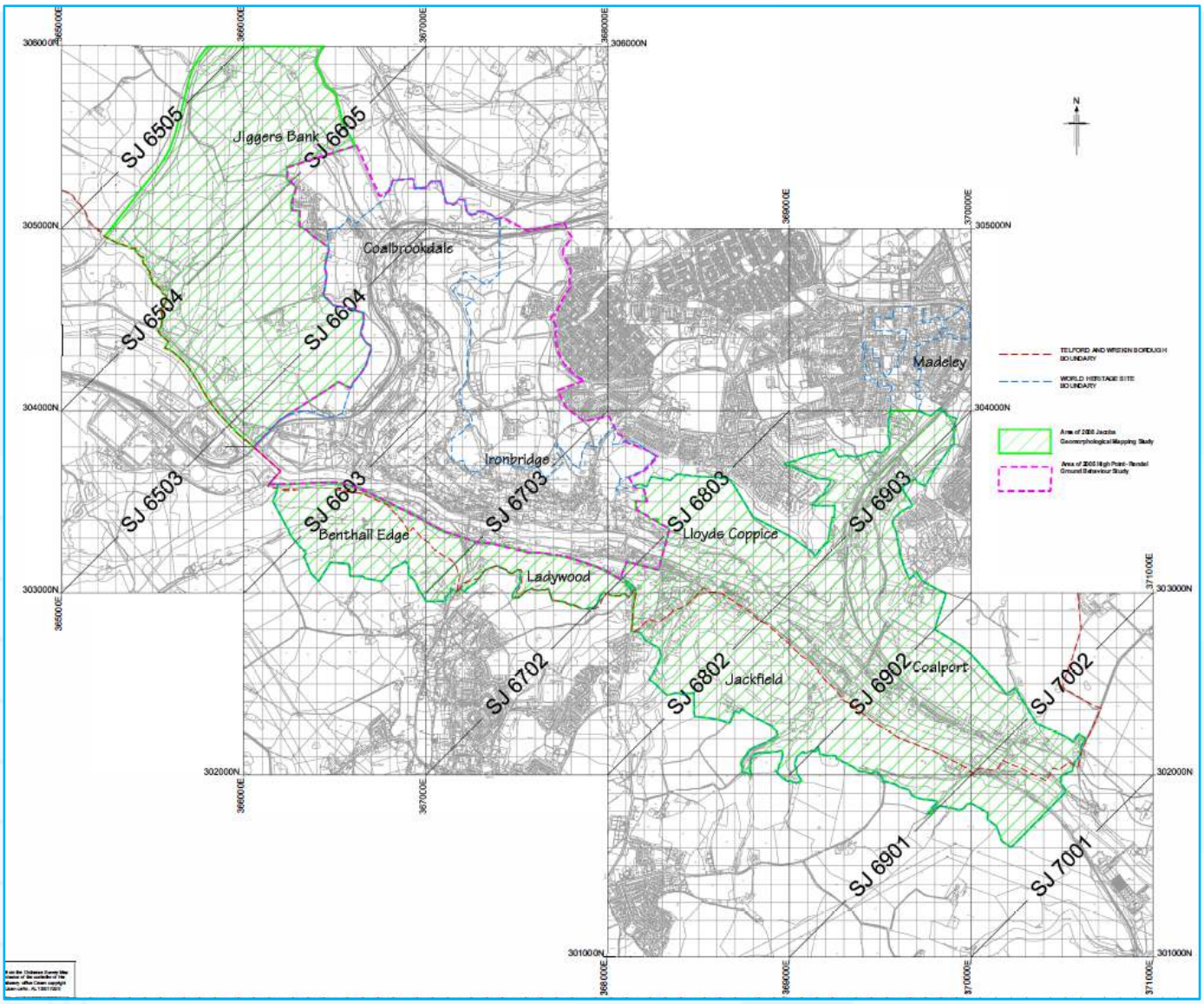

Figure 2: Areas covered by HPR Planning Guidance Drawing C and Jacobs Planning Guidance Maps

The maps zone the IGWHS in terms of their risk of ground instability. It is stressed that these zones are a 'Low Resolution" summary of the ground instability which *might* be present at the general location of a potential development. There is some overlap of the plans in the central and western parts of the Gorge. They are provided as guidance only and are not a substitute for a site specific stability assessment. The latter should comprise a minimum of the following:

- A Desk Study
- Appropriately designed Intrusive Ground Investigation which assesses the stability and ground related risks posed to the site and design options for its development.

The zones are summarised in the table below:

Zone	Development Plan Policy	Development Plan Proposals	Development Control
1	Area suitable for development in accordance with the development plan.	Ground movement does not impose any constraints on site development.	No Stability Report required.
2	Area likely to be suitable for development in accordance with the development plan.	Ground movement does not impose significant constraints, although some mitigation/ stabilisation measures may be required to ensure the stability of the site and surrounding land.	An Outline Stability Report would normally be required, prepared by a Competent Person.
3	Area likely to be suitable for development in accordance with the development plan provided the developer undertakes appropriate mitigation and stabilisation measures.	Ground movement imposes constraints that would generally require mitigation/stabilisation measures to ensure the stability of the site and surrounding land.	A Standard Stability Report would normally be required which *may* include subsurface investigation and ground movement monitoring and where appropriate details of proposed stabilisation methods, prepared by a Competent Person.
4	Area unlikely to be suitable for development in accordance with the development plan unless the developer undertakes appropriate mitigation and stabilisation measures.	Ground movement imposes *significant* constraints that would generally require large-scale mitigation/stabilisation measures to ensure the stability of the site and surrounding land.	A Detailed Stability Report would normally be required including detailed subsurface investigation and ground movement monitoring and where appropriate details of proposed stabilisation methods, prepared by a Competent Person.
5	Area very unlikely to be suitable for built development.	Ground movement imposes *severe* constraints that probably could not be overcome by cost-effective and environmentally acceptable mitigation or stabilisation measures to ensure the stability of the site and surrounding land.	A Detailed Stability Report would be required including detailed subsurface investigation and long-term ground movement (both surface and sub-surface) monitoring and detailed proposed stabilisation methods, prepared by a Competent Person.

CA011/001 Ironbridge Gorge World Heritage Site Stability Report Declaration Form

IMPORTANT: If it is deemed by Telford & Wrekin Council that any of the information provided on this form is incorrect then this would invalidate the Stability Report Declaration Form.

Section 1: Site Details

1.1	Site Name:	
1.2	Site Address:	
1.3	Site Postcode:	

Section 2: Site Characterisation

2.1 Please give the give the Zone number within which the site lies according to the Ironbridge & Coalbrookdale Ground Behaviour Study and Ironbridge Gorge Geomorphological Mapping Report.	

Section 3: Geotechnical Desk Study

Question		Answer (delete as applicable)
3.1	Has the site been affected by past ground instability?	Yes/No
3.2	Has a detailed site inspection been undertaken?	Yes/No
3.3	Has geomorphological evidence of instability been identified on the site or adjacent land?	Yes/No
3.4	If the answer to Question 3.3 was “Yes” please provide brief details below:	

3.5	Has the Desk Study has been submitted as part of the planning application?	Yes/No
Section 4: Mining Risk Assessment		
Question		**Answer (delete as applicable)**
4.1	Does the development site lie in an area deemed to be at risk from past mining activities?	Yes/No
4.2	If the answer to 4.1 was yes then please indicate the likely mineral(s) extracted:	• Coal • Ironstone • Clay • Limestone
4.3	Has a Coal Authority Mining Report been obtained for the site?	Yes/No
4.4	Has this been submitted as part of the planning application?	Yes/No
4.5	Are any known mine entries within the development site or within 20m of its boundaries?	Yes/No
4.6	Has a Coal Mining Risk Assessment (CMRA) been produced for the development site?	Yes/No
4.7	Has this been submitted as part of the planning application?	Yes/No
Section 5: Ground Investigation		
5.1	Has a ground investigation and interpretative report been undertaken and the report been submitted as part of the planning application?	Yes/No
5.2	If the answer to Question 4.1 is “Yes” has the mining risk been assessed by intrusive investigation?	Yes/No
5.3	Did the investigation identify the presence of sub-surface shear zones and low strength compressible soils at the site?	Yes/No
5.3A	Is there the possibility of the presence of sub-surface shear zones and low strength compressible soils at the site and if yes, what mitigation has been taken or how has this risk formally being dismissed?	Yes/No
5.4	Has the hydrogeology affecting the development site been adequately established?	Yes/No

5.5	Has a slope stability assessment been undertaken to address the site conditions, layout and topography in a pre-development scenario?	Yes/No
5.6	Has a slope stability assessment been undertaken to address the site conditions, layout and topography in a post-development scenario? i.e. Has the analysed model taken account of the future proposed loads and layouts?	Yes/No
5.6A	Has the slope stability report including detailed calculations and outputs been submitted to the Planning Department?	Yes/No
5.6B	If the answer to 5.6A above is No, why not?	
5.7	Has a detailed topographical survey been carried out and presented which can be used in the assessment of the sites slope stability?	Yes/No

Section 6: Stability Assessment		
Question		**Answer (delete as applicable)**
6.1	Is the information sufficient to identify the ground behaviour constraints, which could affect the stability of the site?	Yes/No
6.2	Is the information sufficient to identify the mining constraints, which could affect the stability of the site?	Yes/No
6.3	Can instability be reduced to a reasonable level through cost-effective mitigation and stabilisation measures that would be environmentally acceptable?	Yes/No
Section 7: Mitigation Measures		
7.1	Have mitigation measures been proposed with respect to past mining issues?	Yes/No
7.2	If the answer to 7.1 was “Yes” briefly describe the proposed mining mitigation works:	
7.3	Have mitigation measures been proposed with respect to slope stability issues?	Yes/No
7.4	If the answer to 7.3 was “No” briefly describe the reasoning leading to the conclusion:	

Question		Answer (delete as applicable)
7.5	Has the **temporary** works condition of the site been considered?	Yes/No
7.6	Briefly describe the temporary works that will be undertaken to safely develop the site (e.g. temporary cut slopes). Is the FoS for this temporary work acceptable or does it put the site and surrounding land at risk?	
7.5	Has the **permanent** works condition of the site been considered?	Yes/No
7.7	Briefly describe the permanent works that will be undertaken to safely develop the site:	

Section 8: Competent Person (Note: this must be a recognised professional in the relevant discipline e.g. geotechnical engineer, engineering geologist, civil engineer or similar).		
8.1	Full Name:	
8.2	Qualifications:	
8.3	Job Title:	
8.4	Company:	
8.5	Signature:	