

File Note

Project title	Global Centre of Rail Excellence
Job number	284523-00
File reference	4-70
cc	
Prepared by	Agnieszka Lopez-Parodi
Date	16 December 2022
Subject	Global Centre of Rail Excellence - summary of work completed to inform the Complementary Earthworks (NPT P2020/0362 & Powys 20/0738/FUL) and GCRE (NPT P2021/0327 & Powys 21/0559/OUT) planning applications.

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During a meeting on 21 November 2022 with NPT and Powys Land Contamination officers with respect to the proposed Global Centre of Rail Excellence (GCRE) development on land at and surrounding Nant Helen open cast coal site and Onllwyn Washery site, it has been highlighted that it is unclear how the completed investigations and assessments inform the above-mentioned planning applications.

Background

The Nant Helen Surface Mine site and Onllwyn Washery are to be developed by Global Centre of Rail Excellence Ltd. (GCRE Ltd.) as a rolling stock and rail infrastructure testing facility. Until recently the site has been an operational opencast coal mine and coal washery. The proposed development allows the site to be repurposed following the opencast mining activities.

Planning context

The proposed development has been split into two separate planning applications:

- Complementary Earthworks scheme application (“Nant Helen Earthworks application”) primarily covers the earthworks element to construct the development platforms for the testing loops within the open cast mine area. This full application also covers drainage infrastructure and areas of landscaping and habitat within the area of Nant Helen Surface Mine site. The application does not include the Onllwyn Washery site.

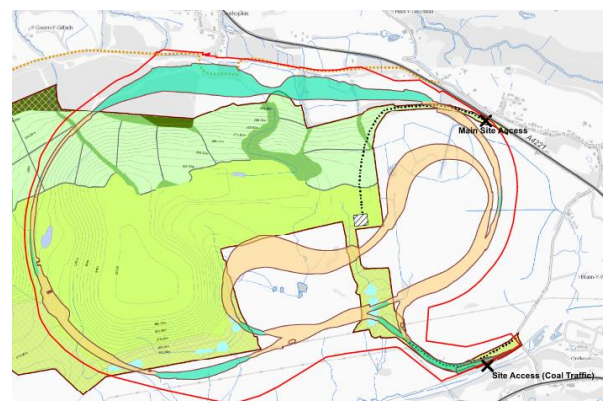


Figure 1: Extract from drawing Complimentary Earthworks application boundary

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- Development of the GCRE rail test track loops, rail depots and storage are covered by the outline “GCRE application”. This includes:
 - GCRE rail test tracks - to be located on landform provided by the Complementary Earthworks scheme, see above.
 - GCRE rail depot facilities and rolling stock storage sidings are proposed to be located on the site of the current colliery washery. This development consists of the installation of multiple sidings for train stabling, as well as offices, cabins, research and development, education and training, rolling stock storage sidings and maintenance/cleaning/decommissioning facilities and associated drainage, access and connection and parking. In addition, the application covers land reformation and hard and soft landscaping on land at and surrounding Nant Helen Surface Mine and the Onllwyn Washery together with demolition of existing buildings/structures. The first phase of development within the washery site is Phase 1A which comprises rolling stock storage sidings and associated infrastructure (e.g. drainage) only. There are no buildings proposed as part of the Phase 1A development.

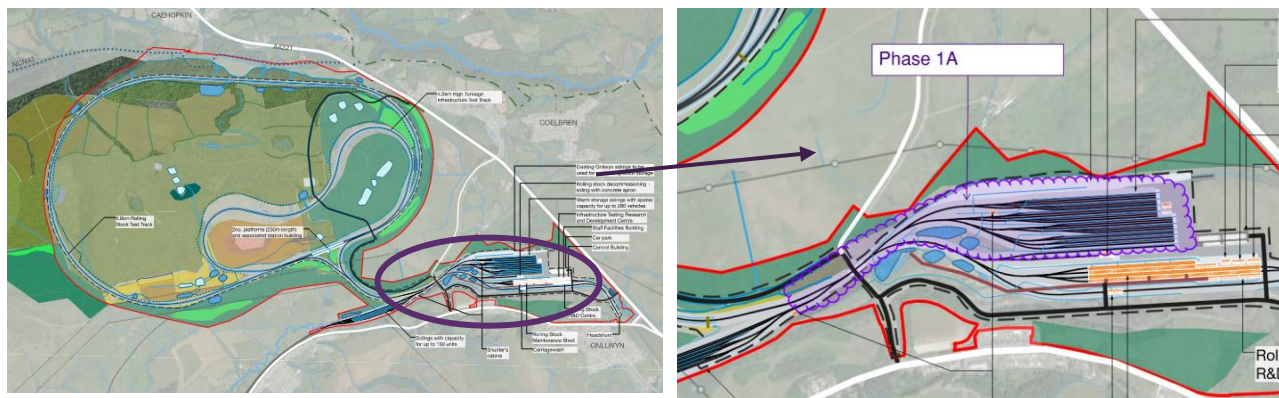


Figure 2: Extract from Illustrative Masterplan Plan presenting the GCRE application boundaries with an indicative extent of Phase 1A.

Both applications are cross-boundary affecting land within two local planning authorities, Powys County Council (PCC) and Neath Port Talbot County Borough Council (NPT CBC). Planning permissions have been granted for both applications by both local planning authorities subject to conditions. Planning conditions pertaining to the land contamination issues are presented in Table 1 below. Table 2 maps out how the work completed to date inform both planning applications.

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Table 1 Nant Helen Earthworks and GCRE applications land contamination conditions

Planning application	Planning conditions	Documentation and assessments to support
Nant Helen Earthworks application	Conditions 15 (PCC) and 13 (NPT CBC) <i>No development shall commence until a preliminary investigation and assessment of the nature and extent of contamination affecting the application site area has been submitted to and approved in writing by the local planning authority. This investigation and assessment must be carried out by or under the direction of a suitably qualified competent person, in accordance with extant guidance and best practice, and shall assess any contamination on the site, whether or not it originates on the site.</i> <i>The report of the findings shall include:</i> • A desk study • A non-intrusive site reconnaissance • Formulation of an initial conceptual model • A preliminary risk assessment <i>If the preliminary risk assessment identifies there are potentially unacceptable risks a detailed scope of works for an intrusive investigation, including details of the risk assessment methodologies, must be prepared by a suitably qualified competent person. The contents of the scheme and scope of works are subject to the approval in writing of the local planning authority.</i>	Preliminary investigation and risk assessment are presented in Arup Desk Study¹ and Complimentary Earthworks Environmental Statement²
	Conditions 16 (PCC) and 14 (NPT CBC) <i>No development shall take place until a site investigation of the nature and extent of contamination has been carried out, by a suitably qualified competent person, in accordance with a methodology which has previously been submitted to and approved in writing by the local planning authority. A written report of the findings of the site investigation shall be made available to the local planning authority before any development begins. The written report should include an appraisal of remedial options and identification of the most appropriate remediation option(s) for each relevant pollutant linkage. The report is subject to the written approval of the local planning authority.</i>	Findings of an initial site investigation are presented in Quantum Factual Report³ Assessment of the findings of the initial site investigation is presented in Arup Ground Investigation Report (GIR)⁴. GIR Section 5.1 sets out Conceptual Site Model and Plausible Pollution Linkages (PPL) with subsequent sections addressing individual PPLs.

¹ Arup, Land at Nant Helen and Onllwyn Coal Washery - Geotechnical and Geoenvironmental Desk Study, Welsh Government, 2019.

² Arup, Nant Helen Complementary Restoration Earthworks Environmental Statement, Ground Conditions Chapter, April 2020

³ Quantum Geotechnic Ltd, Ground Investigation Factual Report Q0652/FR_01, Global Centre of Rail Excellence, 2022.

⁴ Global Centre of Rail Excellence Ltd, Global Centre of Rail Excellence, Ground Investigation Report, ref. CG3600, I01, May 2022

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Planning application	Planning conditions	Documentation and assessments to support
		Further GI is to be undertaken to further inform the detailed design e.g. further delineation of mineworks to allow for design of treatment where necessary, materials management. Targeting potential contamination sources. GCRE/Atkins will submit further details covering proposed further investigation and, contamination and gas assessment based on proposed design (including proposed mine treatment).
	Other contaminated land related conditions: Conditions 17 (PCC) and 19 (NPT CBC) - <i>Remediation Scheme</i> Conditions 18 (PCC) and 24 (NPT CBC) – <i>Verification report</i> Conditions 19 (PCC) and 18 (NPT CBC) – <i>Monitoring of remediation</i> Conditions 20 (PCC) and 19 (NPT CBC) – <i>~Unexpected contamination</i>	GCRE/Atkins will submit further details.
GCRE application	Condition 21 (Powys PCC & NPT CBC) <i>Notwithstanding those works already permitted and approved in accordance with planning approval 20/0738/FUL, no development shall take place in each phase of development as identified in condition 7 (including demolition, ground works, site, or vegetation clearance) until a preliminary investigation and assessment of the nature and extent of contamination affecting the application site area has been submitted to and approved in writing by the local planning authority. This investigation and assessment must be carried out by or under the direction of a suitably qualified competent person, in accordance with current guidance and best practice, and shall assess any contamination on the site, whether or not it originates on the site.</i> <i>The report of the findings shall include:</i>	Preliminary investigation and assessment are presented in Arup Desk Study ⁵ and GCRE Environmental Statement ⁶

⁵ Arup, Land at Nant Helen and Onllwyn Coal Washery - Geotechnical and Geoenvironmental Desk Study, Welsh Government, 2019.

⁶ Arup, GCRE Environmental Statement, Ground Conditions Chapter, March 2021.

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Planning application	Planning conditions	Documentation and assessments to support
	- o A desk study - o A non-intrusive site reconnaissance - o Formulation of an initial conceptual model - o A preliminary risk assessment If the preliminary risk assessment identifies there are potentially unacceptable risks a detailed scope of works for an intrusive investigation, including details of the risk assessment methodologies, must be prepared by a suitably qualified competent person. The contents of the scheme and scope of works are subject to the approval in writing of the local planning authority. All work and submissions carried out for the purposes of this condition must be conducted in accordance with DEFRA and the Environment Agency's 'Land Contamination Risk Management' and the WLGA document 'Development of Land Affected by Contamination: A Guide for Developers' (2012).	
	Condition 22 (PCC & NPT CBC) No development shall take place in each phase of development as identified in condition 7 (including demolition, ground works, site, or vegetation clearance) until a site investigation of the nature and extent of contamination has been carried out, by a suitably qualified competent person, in accordance with a methodology which has previously been submitted to and approved in writing by the local planning authority. A written report of the findings of the site investigation shall be made available to the local planning authority before any development begins. A mine gas risk assessment should form part of the overall assessment. The written report should include an appraisal of remedial options and identification of the most appropriate remediation option(s) for each relevant pollutant linkage. The report is subject to the written approval of the local planning authority.	Findings of an initial site investigation are presented in Quantum Factual Report⁷ Assessment of the findings of the initial site investigation is presented in Arup GIR⁸. GIR Section 5.2 sets out Conceptual Site Model and Plausible Pollution Linkages (PPL) with subsequent sections addressing individual PPLs. Further GI is to be undertaken to further inform the detailed design e.g. further delineation of mineworks to allow for design of treatment where necessary, materials management. Targeting potential contamination sources. GCRE/Atkins will submit further details covering proposed further investigation and, contamination and gas assessment based on proposed

⁷ Quantum Geotechnic Ltd, Ground Investigation Factual Report Q0652/FR_01, Global Centre of Rail Excellence, 2022.

⁸ Global Centre of Rail Excellence Ltd, Global Centre of Rail Excellence, Ground Investigation Report, ref. CG3600, I01, May 2022

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Planning application	Planning conditions	Documentation and assessments to support
		design (including proposed mine treatment).
	Other contaminated land related conditions: Condition 23 (PCC & NPT CBC) - <i>Remediation Scheme</i> Conditions 37 (PCC) and 40 (NPT CBC) - <i>Unexpected contamination</i> Conditions 41 (PCC) and 38 (NPT CBC) – <i>Verification report</i> Conditions 42 (PCC) and 39 (NPT CBC) – <i>Monitoring of remediation</i>	GCRE/Atkins will submit further details.

Table 2 Identified Plausible Pollution Linkages (PPLs) and progress in addressing the risks

PPL	Description	Completed work	Arup GIR section	Further work
Nant Helen Earthworks application				
1	Construction workers have the potential to be directly exposed to soils and dust from exposed artificial ground materials. Providing that health and safety measures are in place in accordance with current legislation and good practice, is unlikely to pose a risk to construction workers. There is however an increased risk due to encountering unexpected contamination.	Initial investigations to characterise the site and identify areas of contamination.	Section 6 - Section 6.3	Further investigations to increase density of investigations to decrease a risk of unexpected contamination. CEMP including discovery strategy during earthworks
2	The proposed development will result in potentially increased dust generation rate primarily as a result of site clearance and excavation works allowing for the construction of the development platforms, which may migrate towards the residents of nearby settlements as well as users of public right of way. This would be a temporary impact. However, the nearest residential properties in Onllwyn are	Initial investigations to characterise the site and identify areas of contamination.	Section 6 - Section 6.3	Further investigations to increase density of investigations to decrease a risk of unexpected contamination.

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PPL	Description	Completed work	Arup GIR section	Further work
	located at higher ground and are separated from the proposed development by a green belt of woodland, which is likely to significantly reduce the amount of dust migrating off-site.			CEMP including discovery strategy during earthworks
3	End users of the development such as testing tracks workers and their visitors may be exposed to dust from soils via inhalation, dermal contact or ingestion although this is likely to be limited as the testing personnel would be most of the time travelling within a train. Maintenance workers (e.g., where vegetation maintenance is required or intrusive repair works to tracks) may still come to direct contact with soils. End users of the recreational scenario may be directly exposed to both soils and soil dust, while using the land platforms for cycling or walking.	Initial investigations to characterise the site and identify areas of contamination.	Section 6 - Section 6.3	Further investigations to allow soil sampling and testing to inform suitability for reuse assessments.
4	Breaking the ground, moving materials within the study area, temporary storage, may result in contaminant mobilisation due to increased exposure to rainfall and consequent increased rate of contaminants leaching into the underlying groundwater or surface run-off into watercourses. Encountering unexpected contamination during the works may also pose a risk to controlled water receptors as a result of mobilisation of contamination due to disturbance or exposure to rainfall.	Initial investigations to characterise the site and identify areas of contamination.	Section 70- Section 7.2.2	Further investigations to increase density of investigations to decrease a risk of unexpected contamination. CEMP including discovery strategy during earthworks
6	The proposed development is located within a sensitive setting with respect to controlled waters. There is a risk from potential mobilisation of contaminants contained within the colliery spoil materials during general earthworks and also as a result of disturbing areas of significant unexpected contamination.	Initial investigations to characterise the site and identify areas of contamination.	Section 7 - Section 7.3	Further investigations to increase frequency of testing to refine assessments. CEMP including discovery strategy during earthworks

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PPL	Description	Completed work	Arup GIR section	Further work
		Groundwater sampling and testing. PPL 6 GQRA		
12	Mine gas from worked Coal Measures strata may be displaced due to grouting of the shallow mine workings causing gas emissions to increase elsewhere off-site.	Initial investigations to characterise the site and identify mineworkings. Initial mine gas risk assessment. Design of mine working treatment not yet undertaken.	Appendix F	Further investigations to allow mine gas and groundwater level monitoring to inform mine gas risk assessment for the proposed mine working treatment areas.
GCRE application				
1	Construction workers have the potential to be directly exposed to soils and dust from exposed artificial ground materials and should removal of the ponds and settlement lagoons be required, to water and sediments. Providing that health and safety measures are in place in accordance with current legislation and good practice, is unlikely to pose a risk to construction workers. There is however an increased risk due to encountering unexpected contamination, particularly in the area of the washery site.	Initial investigations to characterise the site and identify areas of contamination. Made ground sampling and testing in Washery area. PPL 1 GQRA	Section 6 - Section 6.4 & 6.5	Main site – see Nant Helen Earthworks application. Washery site: Further investigations to increase frequency of testing to refine assessments. Sampling and testing of ponds/lagoons water and sediments. CEMP including discovery strategy during earthworks
2	The proposed development will result in potentially increased dust generation rate primarily as a result of site clearance and excavation works	Initial investigations to characterise the site and identify	Section 6 - Section 6.4 & 6.5	Main site – see Nant Helen

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PPL	Description	Completed work	Arup GIR section	Further work
	allowing for the construction of the maintenance facilities and infrastructure, which may migrate towards the residents of nearby settlements. This would be a temporary impact. However, the nearest residential properties in Onllwyn are located at higher ground and are separated from the proposed development by a green belt of woodland, which is likely to significantly reduce the amount of dust migrating off-site.	areas of contamination. Made ground sampling and testing in Washery area. PPL 2 GQRA		Earthworks application. Washery site: Further investigations to increase frequency of testing to refine assessments. CEMP including discovery strategy during earthworks
3	End users of the development such as railway testing facilities workers and visitors of the testing facility based both on site and in the offices, are unlikely to be exposed to dust from soils via inhalation and to a lesser extent via dermal contact or ingestion of soil due to the site being covered in hardstanding and buildings. There is still a risk from migration of volatile hydrocarbon vapours into confined spaces or structures. End users of the development such as the testing tracks workers and their visitors may be exposed to dust from soils via inhalation, dermal contact or ingestion although this is likely to be limited as the testing personnel would be most of the time travelling within a train. Maintenance workers (e.g., where vegetation maintenance is required or intrusive repair works to tracks) may still come to dermal contact with soils, this will however be likely to be infrequent, short-term, and temporary.	Initial investigations to characterise the site and identify areas of contamination. Made ground sampling and testing in Washery area. PPL 3 GQRA	Section 6 - Section 6.4 & 6.5	Main site – see Nant Helen Earthworks application. Washery site: Further investigations to increase frequency of testing to refine assessments. CEMP including discovery strategy during earthworks
4	Breaking the ground, moving materials within the study area, temporary storage, may result in contaminant mobilisation due to increased exposure to rainfall and consequent increased rate of contaminants leaching into the	Initial investigations to characterise the site and identify	Section 7 - Section 7.2.1	Main site – see Nant Helen Earthworks application. Washery site:

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PPL	Description	Completed work	Arup GIR section	Further work
	underlying groundwater or surface run-off into watercourses. Encountering unexpected contamination during the works may also pose a risk to controlled water receptors as a result of mobilisation of contamination due to disturbance or exposure to rainfall.	areas of contamination. Made ground sampling and soil leachate testing in Washery area. PPL 4 GQRA		Further investigations to increase frequency of testing to refine assessments. CEMP including discovery strategy during earthworks
5	Decommissioning of the ponds/lagoons will require draining of the water. If removed water would be discharged to the wider site drainage or ground, this could potentially impact the receiving controlled water receptors. It is assumed that such discharge would only be permissible if there is no detrimental impact on the receiving water quality and where required, treatment would be undertaken.	Not investigated	Section 7 - Section 7.4	Sampling and testing of ponds/lagoons water and sediments to inform risk assessments.
6	The proposed development is located within a sensitive setting with respect to controlled waters. There is a risk from potential mobilisation of contaminants contained within the fill materials during general earthworks and also as a result of disturbing areas of significant unexpected contamination.	Initial investigations to characterise the site and identify areas of contamination. Groundwater sampling and testing. PPL 6 GQRA	Section 7 - Section 7.3	Further investigations to increase frequency of testing to refine assessments. CEMP including discovery strategy during earthworks
7	Piles may be required to provide a suitable founding solution for some of the proposed structures with large loads or sensitive to ground movement. Subject to a selected piling technique, piles may create preferential flow paths allowing for vertical migration of contamination towards the underlying groundwater.	No building specific investigations completed at this stage.	N/A	Building specific investigations as design develops. Building specific Foundation Works Risk Assessment.
8	Made ground and peat are potential sources of ground gas, which may	Initial investigations to	Section 8	Building specific investigations as

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	migrate into the buildings proposed in the Washery site through their foundations (shallow or deep) and accumulate within confined spaces or poorly ventilated areas. This may pose a risk of asphyxiation. In areas of the proposed sidings, where ground level will be raised, this may potentially compress the peat deposits. This may initiate some temporary increase in gas migration, however the gas would continue to vent into the atmosphere through the ground.	characterise the site. Ground gas monitoring. PPL 8 GQRA No building specific investigations completed at this stage.		design develops. Refine assessments and identify building specific gas protection measures.
9	Piles may be required to provide a suitable founding solution for some of the proposed structures with large loads or sensitive to ground movement (Washery site). Subject to a selected piling technique, piles may create preferential flow paths allowing for vertical migration of ground gas (including mine gas under the Washery site) into confined spaces within the structures/buildings.	No building specific investigations completed at this stage.	N/A	Building specific investigations as design develops. Building specific Foundation Works Risk Assessment.
10	Mine gas from worked Coal Measures strata may migrate towards the surface through permeable strata (superficial deposits under the site are limited and discontinuous and granular made ground is anticipated) into the proposed buildings Washery site).	Initial investigations to characterise the site and identify mineworkings. Initial mine gas risk assessment. No building specific investigations completed at this stage.	Appendix F	Further investigations to allow mine gas and groundwater level monitoring to inform mine gas risk assessment.
11	Mine gas from worked Coal Measures strata may migrate upwards through adits /shafts (due to change in barometric pressure, rising groundwater	Initial investigations to characterise the site and identify mineworkings.	Appendix F	Further investigations to allow mine gas and groundwater level monitoring to

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PPL	Description	Completed work	Arup GIR section	Further work
	or thermal gradient change) into the proposed buildings (Washery site).	Initial mine gas risk assessment. No building specific investigations completed at this stage.		inform mine gas risk assessment.
12	Mine gas from worked Coal Measures strata may be displaced due to grouting of the shallow mine workings causing gas emissions to increase elsewhere off-site (Washery site: housing development 60m south off-site; Nant Helen site: development 250m west off-site)	Initial investigations to characterise the site and identify mineworkings. Initial mine gas risk assessment. Design of mine working treatment not yet undertaken.	Appendix F	Further investigations to allow mine gas and groundwater level monitoring to inform mine gas risk assessment for the proposed mine working treatment areas.