



REMEDIATION & ENABLING WORKS STRATEGY

Land off Hinkshay Road,
Telford,
Shropshire,
TF4 3PA

Prepared for:



E3P Report: 11-542-R2 – Rev 1
Issued: February 2017





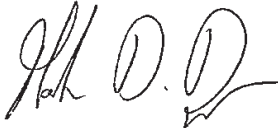
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QUALITY ASSURANCE

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PROJECT NUMBER	11-542 r2
IMS Template Reference: QR005-1	



EXECUTIVE SUMMARY	
Site Address	Land off Hinkshay Road, Telford, Shropshire, TF4 3PA
National Grid Reference	E369480, N307340
Site Area	4.39Ha
Background	<p>The site comprises a former dry cell battery factory, a car park area, a former sewerage treatment works and sports field which also includes a backfilled quarry and J.B. Pugh landfill. It is understood that the factory buildings were demolished in the mid 1990's; including removal of quantities of buried battery wastes. The factory area was subsequently covered with demolition rubble and soil to a thickness of approximately 1.0m.</p> <p>Investigations have proven that a tunnel, factory floor slabs, foundations and other relict infrastructure still remain below the surface of this sector of the site.</p> <p>The tunnel that traverses below the southern boundary of the site, is believed to have been utilised by miners but it's exact use is unknown. The tunnel is partially collapsed but is brick lined, 3.5m wide and 1.5m high at a depth of 7.0m bgl. Other tunnels are possibly present on the southern boundary.</p> <p>The site is bordered to the north by undeveloped land with some residential housing and the grounds of a rugby club, to the east and south by undeveloped park land, and to the west by an area of land known as Tarts Mound.</p>
Contaminated Land Assessment	
Human Health Risk Assessment	<p>A Tier I Human Health Risk Assessment has been undertaken using the chemical analysis results of the soils and comparing to the relevant criteria. This assessment has identified the presence of elevated inorganic heavy metals, PAH and non-volatile / insoluble hydrocarbon compounds.</p> <p>The identified concentrations of potential contaminants all have primary exposure pathway related to dermal contact and ingestion of soils, inhalation of particulate and consumption of home-grown vegetables. The chronic risk to human health associated with the elevated concentrations on inorganic heavy metals and non-volatile PAH compounds can be mitigated through the installation of a suitable cover system in all proposed private gardens, landscaping and Public Open Space to remove any potential for direct exposure to impacted soils.</p> <p>Asbestos in the form of chrysotile and amosite has also been identified within localised areas in shallow Made Ground deposits. All materials impacted by trace asbestos fibres should be managed in a highly controlled manner prior to placement within areas of no unacceptable risk in terms of the future development and CSM.</p>
Controlled Waters Risk Assessment	<p>Elevated levels of Lead, Zinc and Nickel have been identified are of low solubility and the nearest abstraction well or watercourse is at a significant distance from the site.</p> <p>Due to the limited amount of viable receptors there is considered to be no significant level of risk to the controlled water receptors.</p>

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Ground Gas	Ground gas monitoring thus far has indicated the site would be classed as Characteristic Situation 2 / Amber 1, suggesting no gas protection measures will be required. However, the final ground gas regime will be confirmed following the completion of the ground gas monitoring programme.
Coal Mining & Historical Workings	E3P can confirm that in this instance, all matters relating to the assessment of potential ground instability risk attributed to historical mine workings will be dealt with under a separate report. However, in summary the location of all on-site shafts needs to be identified using slit trenches and probe drilling. Once located, the shafts may require treatment prior to the development.
Invasive Plants	Invasive species have not been identified on site during works carried out by E3P, however their presence cannot be ruled out.
Geotechnical Considerations	The remediation and enabling works will be delivered in a manner that will seek to ensure: <ul style="list-style-type: none">  <i>The tunnel in the south of the site will need to be infilled with geotechnically suitable material,</i>  <i>Identification and appropriate capping of shafts (If required);</i>  <i>Where shallow stratum suitable of supporting a shallow spread foundation, care should be taken to protect to minimise the disturbance to natural drift deposits;</i>  <i>Where deep Made Ground is present (>1.50m) the stratum should be prepared in a manner that will facilitate re-engineering using a Vibro Stone Column (VSC);</i>  <i>If VSC is proposed for plots located within the influence of trees, the stratum should be prepared to mitigate the potential risk associated within volumetric instability in cohesive soils;</i>  <i>Engineer all up-filled materials beneath highways to sub-grade in accordance with the requirements of this specification to ensure a CBR >5% in the sub-grade; and,</i>  <i>All former Quarry 'high-wall' to be clearly identified and surveyed.</i>
Summary of Site Remediation & Enabling Works	The site Remediation / Enabling Works Strategy provides a comprehensive specification for the regeneration of the land to negate identified pollutant linkages and construct a development platform that will be geotechnically suitable for the proposed end use. The salient features of the Remediation & Enabling Works Strategy are summarised below: <ul style="list-style-type: none">  Implement all works in strict accordance with UK Environmental Permitting and Local Planning Authority Requirements.  Controlled removal of all trees and vegetation;  Locate, demolish and infill the tunnel in the south of the site;  Excavation, assessment and placement of colliery spoil;  Removal and treatment of all invasive plants species (if required);  Segregation of organic topsoil deemed unsuitable for use within a residential garden and placement in an area of no sensitivity or removal from site in accordance with UK Waste Management Legislation;

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Summary of Site Remediation & Enabling Works	<ul style="list-style-type: none">✦ Removal of all relict foundations and buried features in their entirety;✦ Excavation and processing of Made Ground in a controlled manner with the sorting, processing and segregation of identified deleterious materials;✦ Validation sampling and leachate testing to confirm material retained on-site pose no unacceptable risk to the residential end users, controlled waters or wider environ;✦ Importation of suitable material (if required) to achieve the required development levels; and,✦ Replacement of material in accordance with the E3P enabling specification & engineering requirements.
Summary of Build Phase Mitigation Requirements	<p>The developer's works will also include the completion of the following additional elements:</p> <ul style="list-style-type: none">✦ Construction of all dwellings to ensure compliance with CS2 / Amber 1 as defined within BS8485;✦ Provision of a 600mm cover system using certified material with appropriate validation within proposed garden areas, comprising 450mm subsoil (potentially site won natural drift deposits) overlain by 150mm topsoil; and,✦ Provision of a 300mm cover system using certified material with appropriate validation within proposed areas of Public Open Space and soft landscaping.