

Design Risk Assessment

CI-346459 – [REDACTED], Donnington, Telford TF2 7ND
(10/07/2015)

The
COAL
AUTHORITY

Project Stage: Detailed Design

(Treatment of shallow mine workings and conversion of existing party wall to gable wall)

Proposal:

To purchase and demolish [REDACTED], modify and upgrade the existing party to provide new gable wall, undertake internal and external repairs to [REDACTED] including new lounge ground floor, treat identified shallow workings (below rear lounge and front bedroom adjacent to new gable wall) and reinstate land at former [REDACTED].

Background:

The affected property ([REDACTED]) is a semi-detached bungalows built circa 1960's with cavity brickwork construction built off strip footing foundations with a traditional pitched roof covered in tiles. The property incorporates a dormer bedroom.

Both properties were found to tilt front to back with the severe tilt and associated structural damage being most evident in [REDACTED] (demoilished).

Initial hand probe drilling was undertaken by [REDACTED] to the rear of both properties. [REDACTED], probe drilling found a void at the rear of the property beneath the conservatory. Supplementary GI and vertical and angled probe drilling confirmed there was no voiding beneath the rear of the property associated with shallow workings. The investigation revealed shallow coal seams at 8m, 11m and 14.5m all of which were intact with no voiding. The ground generally consists of about 6.1m of very soft made ground and mudstone.

At [REDACTED] supplementary investigation work revealed voids at the front of the property with broken ground at the rear of the property at corresponding depths confirming the damage and tilt towards the rear of the property were caused by collapsed shallow workings. This was corroborated by internal probe drilling (prior to the demolition of [REDACTED]) adjacent to the existing party wall.

Designer: [REDACTED] (Principal Engineer)

Activity / Hazard	Persons at Risk	Reduce Risk by Design	Remaining Risk
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Main Services	Site operatives, especially those involved in the drilling operations.	All existing services serving the [REDACTED] were disconnected (as arranged by the Coal Authority) at the site boundary prior to the demolition of [REDACTED]	With the exception of an overhead low voltage electric cable running coincidental with the rear boundary of the property, no services have been identified within the curtilage of the site. Consideration should still be given to any services encountered outside the site, especially overhead telecommunication cables.
	Solutions Considered Not Reasonably Practicable		Presumed Construction Methods
			<p>Provide the Principal Contractor with any available services plans. It should be noted that it is the Principal Contractor's responsibility to be satisfied as to the accuracy of any provided service information in accordance with the Contract specification.</p> <p>Although the existing services as indicated on the obtained service plans do not appear to affect the proposed works, private drains and electric, water and gas supplies may be affected. Where applicable their location should be confirmed by trial hole excavations.</p> <p>Any services located within the highway directly outside the identified site access and egress points shall be adequately protected against construction plant loading.</p> <p>All potential services conflicting with the proposed works should be located using a Cable Avoidance Tool (CAT) and adopting safe digging practices. (ie as HSG 47).</p>
Activity / Hazard	Persons at Risk	Reduce Risk by Design	Remaining Risk
Working at height – wall repairs, rendering work, installation of softwood timber cladding (optional).	Site operatives		Death and serious injury.
	Solutions Considered Not Reasonably Practicable		Presumed Construction Methods

			Adopt suitable scaffold, working platform and MEWP including appropriate access and egress provision and railings/guards. Adopt appropriate PPE.
Activity / Hazard	Persons at Risk	Reduce Risk by Design	Remaining Risk
Treatment of shallow coal workings to beneath the retained property (Rowan). It is proposed to drill and series of vertical and angled grout holes to a maximum depth of about 9m. Refer to the proposed drilling and grouting layout and borehole logs provided on the construction drawings. .	Site operatives. Adjoining neighbours and property.		Death and serious injury from the migration of hazardous mining gases into the adjoining inhabited properties (asphyxiation and explosion/combustion). Traffic and plant management issues associated with the delivery of plant, rig and materials – vehicle related accidents and injury. Manual handling – physical injury.
	Solutions Considered Not Reasonably Practicable		Presumed Construction Methods
			Adopt gas meters on site and consider alarms in the treatment property and the adjoining inhabited properties throughout the duration of the grouting works (Refer to the Gas Risk Assessment). The Contractor is to monitor mine gas levels throughout the works adopting the Coal Authority's 'Gas Monitoring Procedure' document. Adopt water flush drilling techniques (Refer to Gas Risk Assessment). Maintain fenced exclusion zone around the site during the grouting works. Provide necessary screens to protect members of public and adjoining property from liquid grout and airborne materials. Carry out ongoing inspections of all 'live' sewers/drains likely to be affected by the grouting operations. Adopt mechanical lifting methods where possible and good manual handling practices. Implement appropriate traffic management measures (see below). Undertake structural monitoring throughout the drilling and grouting works in accordance with the CA's structural monitoring procedure. Implement necessary measures to adequately manage dust and noise issues (see below).
Activity / Hazard	Persons at Risk	Reduce Risk by Design	Remaining Risk
Dust (Dry cement and p.f.a.)	Site operatives, members of the public and neighbouring property	Adopt appropriate dust suppression methods to protect neighbours. Adopt appropriate fencing	Respiratory health issues and general nuisance.

		and screening/hoarding to protect adjoining property along exposed boundaries.	
	Solutions Considered Not Reasonably Practicable		Presumed Construction Methods
			Contractor to suppress dust at source using water dowsing/suppression and suitable plant and equipment. Work may have to cease in high winds. Provide suitable screening and hoarding to surround the site and/or buildings. Sheet down and /or water dowse loose stockpiles of materials stored on site.
Activity / Hazard	Persons at Risk	Reduce Risk by Design	Remaining Risk
Traffic Management The site is located on [REDACTED] a relatively busy B Road.	Site operatives and members of the public. Adjoining properties.	Adequately secure the site along site boundaries adopting appropriate fencing and screening/hoarding to protect adjoining property along exposed boundaries.	Death and serious injury resulting from impact and collision with construction plant, vehicles and equipment.
			Presumed Construction Methods
			An adequate site specific traffic and pedestrian management plan is to be prepared and implemented throughout the works. The traffic management plan should consider day to day traffic movements and unloading and loading of heavy plant. Consider: Site services as discussed above. General management of plant and machine movements around the site. Provision of appropriate fencing/hoarding/screens around the site. Adequate traffic management is to be implemented during the delivery and collection of the proposed plant, equipment and materials. Pedestrian management plan to be implemented.
Activity / Hazard	Persons at Risk	Reduce Risk by Design	Remaining Risk

Noise	Site operatives, members of the public and neighbouring property		Damage to hearing (tinnitus) and general nuisance.
	Solutions Considered Not Reasonably Practicable		Presumed Construction Methods
			All construction plant and equipment should, where possible, incorporate noise baffles/suppressors. No works to take place outside the hours of 8:00 – 18:00. Adequate hearing protection should be used by operatives where necessary.
Activity / Hazard	Persons at Risk	Reduce Risk by Design	Remaining Risk
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