



Client Ref:

Our Ref:

16 February 2015

Dear Sirs

MINING SEARCH: METALLIFEROUS MINERALS

Re: _____

NG Ref: _____

We thank you for your request of 6th February. Accordingly, we have carried out a Mining Search on the above property and are able to report as follows.

Introduction

This desk-top search, which is based on maps, plans and records, is an assessment of the risk of subsidence to the property associated with historic extractive metal mining.

Mining Activity

The property is situated in an area where considerable historic metalliferous mining activity has taken place. It lies within the southern boundary of the former lease of Carn Camborne Mine. Mining for copper at this location was well established by the mid-eighteenth century at mines known as Hearts's Ease and Wheal-an-Houll. In 1859 the mines were amalgamated under the name Carn Camborne Mine and activity continued until its final closure in 1885.

Mineralisation in the locality occurs in planar structures (lodes) which occupy former fissures in the slate (killas) and granite bedrock. The lodes, which generally course in a northeast-southwest direction, vary in width from 1 metre up to several metres and are either vertical or inclined at angles usually steeper than 60° from the horizontal. These lodes were worked by means of shafts sunk from surface with horizontal tunnels (levels) driven at vertical intervals away from the shafts along the lode. The payable ore was then extracted from between the levels.

Activity at Carn Camborne Mine was concentrated on two lodes called Main, or South Lode, and North Lode, both of which traverse the locality in a general northeast-southwest direction in the vicinity. Other lodes are also recorded to the north of the property. Several shafts were sunk along these lodes of which the westernmost shaft, named Western Shaft, lies within the northern corner of the property, adjacent to the dwelling. This shaft follows the underlie of Main Lode to a total depth of 110 metres (the dimensional size of the shaft is not recorded). The shallowest recorded working is the drainage tunnel (adit) which has been driven along Main Lode and lies at a depth of approximately 40 metres in the vicinity of the property. The mine plans show the adit level on Main Lode to lie under the northern part of the property. To the north of the property the adit cuts northwards to intersect a parallel lode 15 metres north of Main Lode.

Main Lode is likely to continue above the adit level to outcrop at surface. We infer that the collar of Western Shaft lies on, or close to, the outcrop of Main Lode and that this outcrop extends to the northeast and southwest of the shaft, passing beneath the property. This correlates approximately with a lode shown on a district mining map (dated 1846). It is likely that Main Lode has been mined to a greater extent than is indicated on the mine plans, especially at shallow depth. Therefore, it is possible that unrecorded shallow workings may exist within the northern part of the property.

A district mining map (circa 1850) also shows a northeast to southwest coursing elvan passing 5 to 10 metres southeast of the property. Elvan is an igneous intrusion which occurs as a steeply inclined planar dyke. In some areas these dykes contain metalliferous minerals and may have been mined along the periphery of their alignments. There are no recorded workings along the alignment of this elvan in the immediate vicinity of the property and we have no documentary evidence to suggest that any unrecorded shallow workings which may be associated with this feature would extend in close proximity to the property.

Discussions

Western Shaft has to be considered to be a potentially hazardous feature, unless it has been properly secured. Upon abandonment of a mine it was common practice to either place a capping of timber over the shaft mouth or to backfill the shaft with mine waste. With the passing of time the site of the shaft may become obliterated and forgotten. However, timber will decay and may lead to a catastrophic subsidence if the cap collapses, or backfill may slump leading to a more gradual subsidence. The size of the depression caused by a subsidence of this type depends upon the condition of the shaft collar and the nature and depth of the overburden surrounding it. A shaft can only be considered secure if it has been properly plugged at bedrock level with mass or reinforced concrete. It is possible that the shaft has been adequately secured, but we hold no records regarding any ground works that may have been carried out.

Mining related subsidence in Cornwall is usually caused by the collapse of either surface workings or underground workings brought close to surface along the course of lode outcrops, shallow tunnels and adits where there is insufficient bedrock cover, or the collars of old shafts. Subsidence problems can occur as a result of slumping of backfill material in any of the above features. Sometimes backfilled trial pits, of which there is often no evidence at surface, can present a risk of settlement. There is a risk of localised subsidence within the property associated with possible unrecorded shallow workings along the inferred outcrop of Main Lode.

The property is sited on a former mine waste tip, therefore, the ground in this vicinity may contain elevated levels of potential toxic elements, such as arsenic.

Conclusions

Based on the available documentary evidence, we are unable to provide an assurance that the property will not be affected by subsidence caused by historic extractive mining. Western Shaft is recorded within the northern corner of the property, close to the dwelling. This shaft has to be considered to be a potential hazard unless it has been secured. In addition there is a risk of localised subsidence from unrecorded shallow workings along the outcrop of Main Lode within the northern part of the property.

It is recommended that a Mining Investigation be carried out to determine whether or not the anticipated shaft exists beneath the property. This investigation may involve the drilling of boreholes in order to provide the detailed information on ground conditions required to either eliminate or accurately assess the risks posed.

The property is situated within a planning permission area for the underground mining of tin, copper and associated minerals as defined in the Cornwall County Council Minerals Local Plan (dated 1998) which was extended in January 2013 with Cornwall Council Planning approval.

Although South Crofty Tin Mine closed for production in March 1998, mining operations resumed in 2001 and the mine has recently been re-examined by Western United Mines. We are not aware of the proposed extent of activity to be undertaken, however, modern environmental conditions imposed on the mine's planning permissions in 2006 are designed to protect the surface. A condition applied to the 2013 approval states *"...no underground tunnelling or excavation works shall take place within 20 metres of the ground surface where the ground surface has not been developed or within 40 metres of the ground surface where developments have been constructed unless otherwise agreed in writing by the LPA. The provisions of this condition shall not apply to excavations/foundation work associated with building construction in respect of mine surface development already approved"*. Given these conditions we believe any future mine workings would be very unlikely to present a direct risk of subsidence to the property.

In June 2013 South Crofty Mine went into administration when overseas investment failed to materialise. Whilst Western United Mines are pursuing other financing options, the mine is currently operating on a care and maintenance basis and we are unsure when mining will resume.

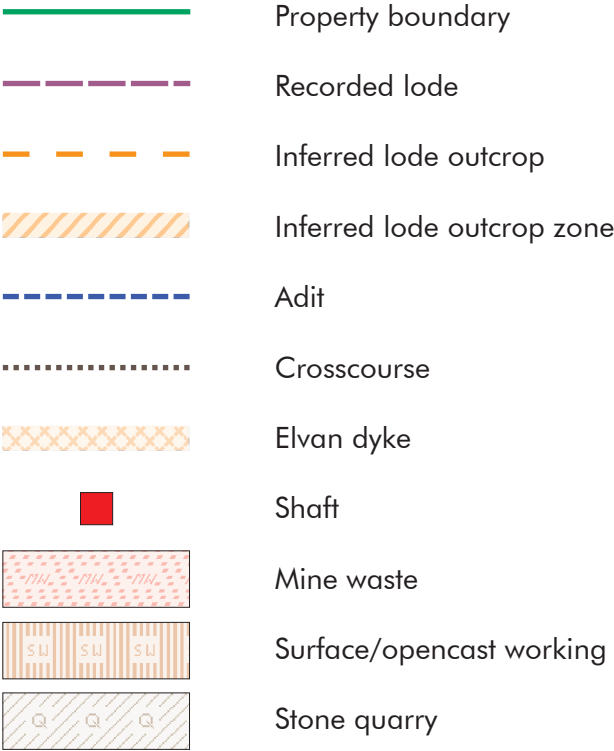
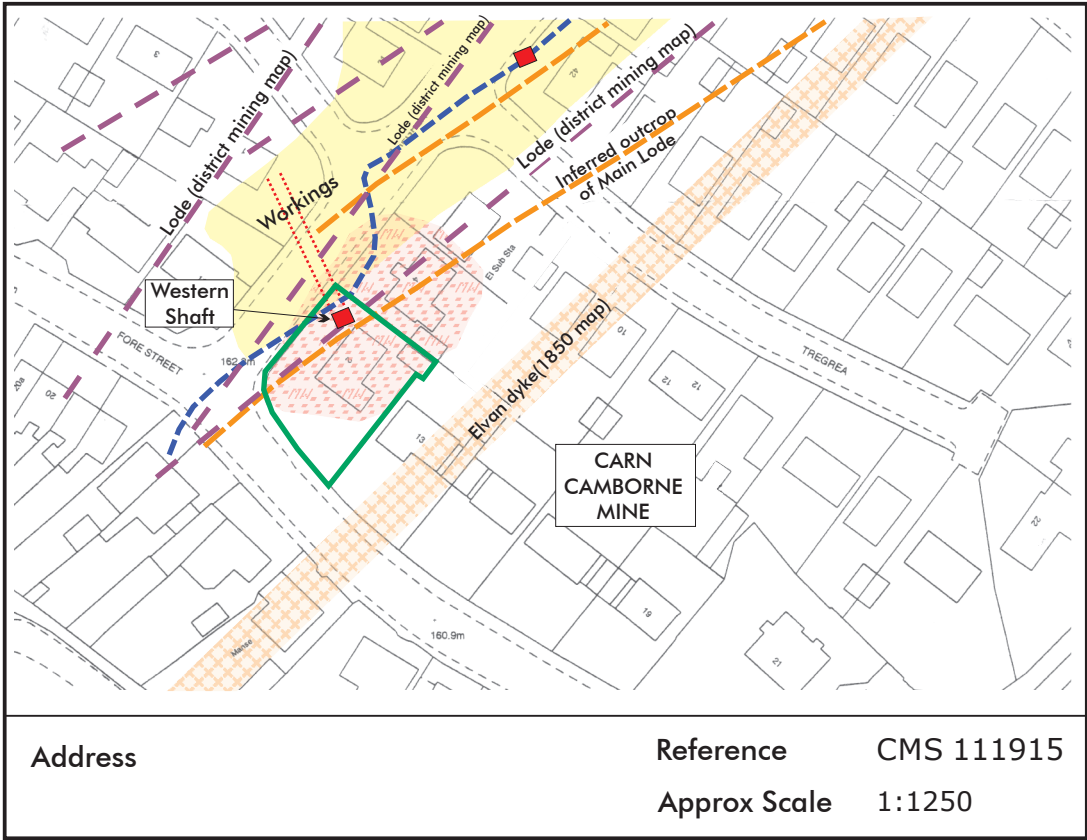
Limitations

This Mining Search has been carried out with reference to the extensive collection of abandoned mine plans, maps, records and archives in our possession and from this material we have endeavoured to provide as accurate a report as possible. However, taking into account that such records may not be wholly complete or accurate, we cannot accept liability for any inaccuracies or omissions there may be with respect to those records. A property situated in a mining or mineralised area may be at risk from elevated levels of metallic elements within the soil, however this Mining Search does not include any assessment of the contamination risk to the subject property. This report and any mining features described are applicable to the subject property only, the location or boundaries of which have been indicated by the client. We cannot be liable for any erroneous or omitted information with respect to the property as portrayed on the plan supplied to us for the purpose of this Mining Search. The report must not be relied upon for neighbouring properties, as any adjacent mining features may have been omitted for clarity. This report is confidential to the client, client's solicitor and/or mortgage lender or those acting through a conveyance service provider (as per the quoted reference number) and may not be reproduced or further distributed without our permission. We shall be under no liability whatsoever to any person who has not been party to the commissioning and fee paid for this report. We have not visited the property as part of this Mining Search.

We trust this report provides the information you require. Please contact us if you have any queries or if we can be of any further assistance.

Yours faithfully
for **Cornwall Consultants Limited**

K J Hicks, BSc, MSc, MCSM, FGS
Mining Geologist



Please note:
This plan serves to illustrate the contents of the report and shows only the approximate locations of the recorded and inferred mining features in the immediate vicinity of the property. It applies to the shown/named property only and cannot be used accurately for neighbouring properties. This information is confidential to the client designated in the attached report and must not be further distributed without our permission.

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