

Mark Dawson
Technical Director
Taylor Wimpey Manchester
1 Lumsdale Road
Stretford
Manchester
M32 0UT



Email: mark.dawson@taylorwimpey.com

Date: 10th December 2019
Our ref: LKC 18 1005

Dear Mark,

**Re: MINESHAFT REF. 392415-005 OFF SMITHY BRIDGE ROAD, LITTLEBOROUGH
ACCESS ROAD REMEDIATION STRATEGY**

1) Background

Intrusive works by Geotechnics in 2013 and a recent investigation undertaken by The Land Consultancy (TLC) on behalf of LK Consult Ltd (LKC) has identified the location of mineshaft 392415-005. The centre of the shaft was identified by drilling and rockhead was noted to be c. 14mbgl.

Details of the exploratory works and a plotted potential zone of influence based upon published guidance are provided in TLC report ref. Mining Report (021018) - Rev G (081019).

The potential zone of influence (PZOI) was noted to intersect with the proposed site access road linking the proposed housing development to the west with Smithy Bridge Road to the east.

The Coal Authority note the shaft is located outside the planning boundary for the development and therefore the treatment and stabilisation of the shaft cannot be secured by planning condition.

LKC were retained by Taylor Wimpey Manchester to derive a Remediation Strategy for the shaft which would maintain the integrity of the site access road in the event of catastrophic failure of the shaft.

2) Site Details

Appendix A in the above report illustrate the site location, boundary and proposed development. The mine shaft is located off the eastern site boundary adjacent to Smithy Bridge Road.

Figure 1 appended illustrates the PZOI from the TLC report and how this will intersect with the proposed site access road. This PZOI is based upon a flat topography, whereas ground level at the proposed access road is slightly higher than ground level at the shaft location.

- » Geotechnical
- » Contaminated Land
- » Flood Risk and Drainage
- » Asbestos
- » Invasive Species
- » Land Remediation
- » Project Management
- » Land Drilling

3) Remedial Proposals

The PZOI idealistically comprises an inverted cone which could propagate up to the surface from the where rockhead intersects with the shaft. .

The locations of Section A-A' and B-B' are illustrated on Figure 1. Section A-A' (Figure 2) is drawn perpendicular to the proposed access road and through the shaft. Section B-B' (Figure 3) is drawn perpendicular to Section A-A' and along the line of the proposed access road.

The plans illustrate the depth of the PZOI as it moves away from the edge of the shaft at rockhead and intersects with the site surface. Figure 2 also illustrates the slightly lengthening of the PZOI to the north, reflecting a slight increase in ground levels.

In order to protect the integrity of the proposed access road against any catastrophic failure of the shaft then LKC propose that a Contiguous Piled Wall is provided between the proposed access road and the shaft and within the PZOI. The extent and depth of the wall is illustrated on Figures 2 and 3.

If the piles are constructed at the southern extent of the access road then then the longest pile will need to extend to c. 10.9mbgl before it is below the base of the PZOI.

For contiguous piles the founding depth should be twice the depth to the base of the PZOI. Therefore, where the depth to the base of the PZOI is 10.9mbgl then the piles should extend to 32.8mbgl (i.e. $10.9\text{m} + (10.9\text{m} \times 2)$).

The piles may be constructed with a 50-150mm interstitial gap, depending on the pile diameter.

The pile wall will be classified as a Highway Structure; therefore, the approval of the Local Authority will be required.

LKC recommend a copy of this Strategy is provided to the Coal Authority to demonstrate the proposals are satisfactory and can be secured by planning condition.

I trust that our proposals are of interest and we look forward to hearing from you in due course.

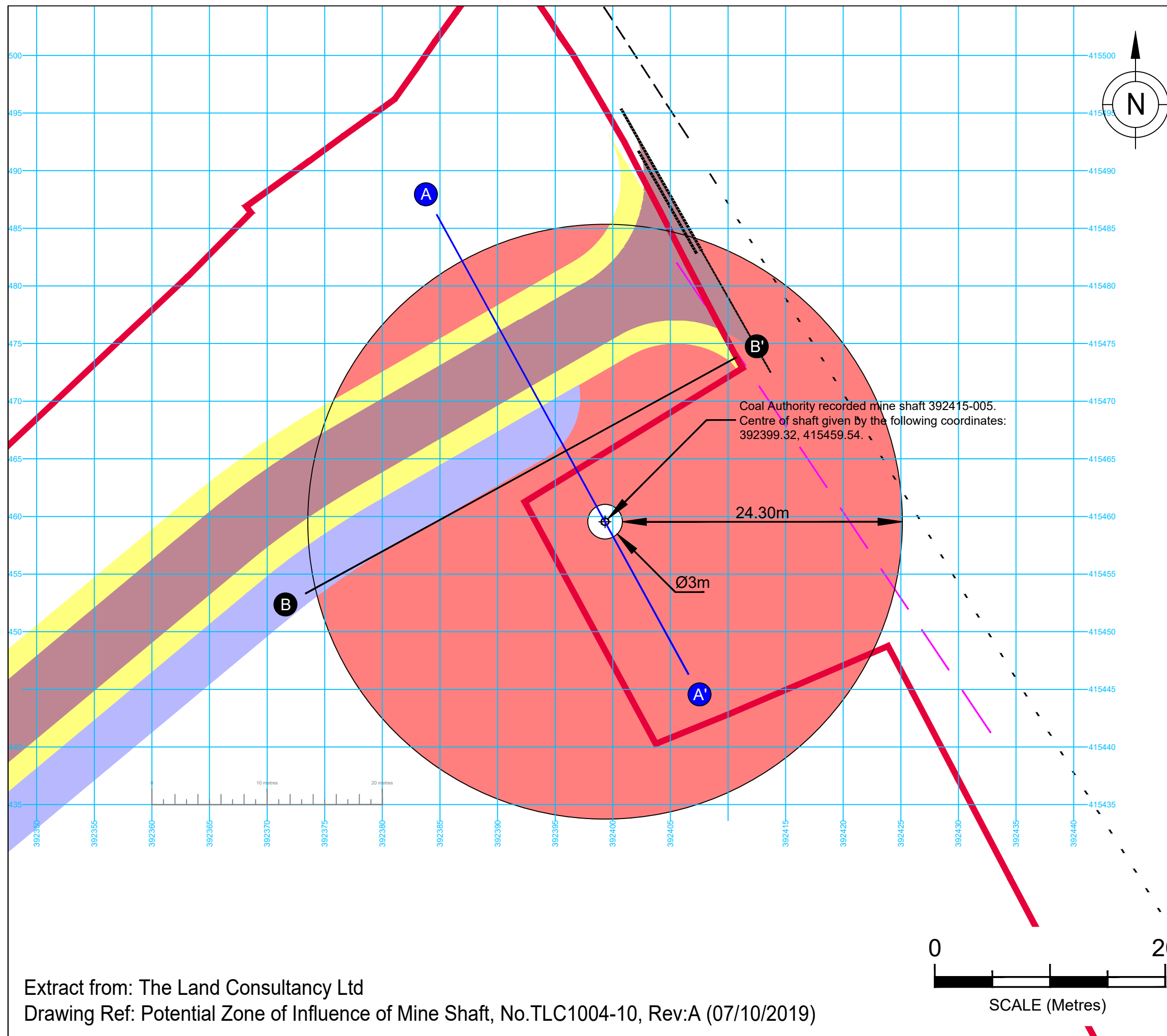
Yours sincerely
For and on behalf of LK Consult Ltd



COLIN CROMPTON
DIRECTOR

Enc.

Figures



KEY

- Site Boundary
- Pavement
- Highway
- Cycle Lane
- Centre of Mine Shaft
- Mine Shaft Potential Zone of Influence
- Section Line A-A' (See Figure 2)
- Section Line B-B' (See Figure 3)

Sampling Locations and features annotated by LK Consult Ltd are approximate and are based upon observed measurements unless otherwise stated. Do not scale from this drawing and work from marked dimensions only. All dimensions and features should be confirmed on site by the Contractor. Where this drawing includes information provided to LK Consult Ltd by others, LK Consult Ltd gives no warranty, representation or assurance as to the accuracy of such information.



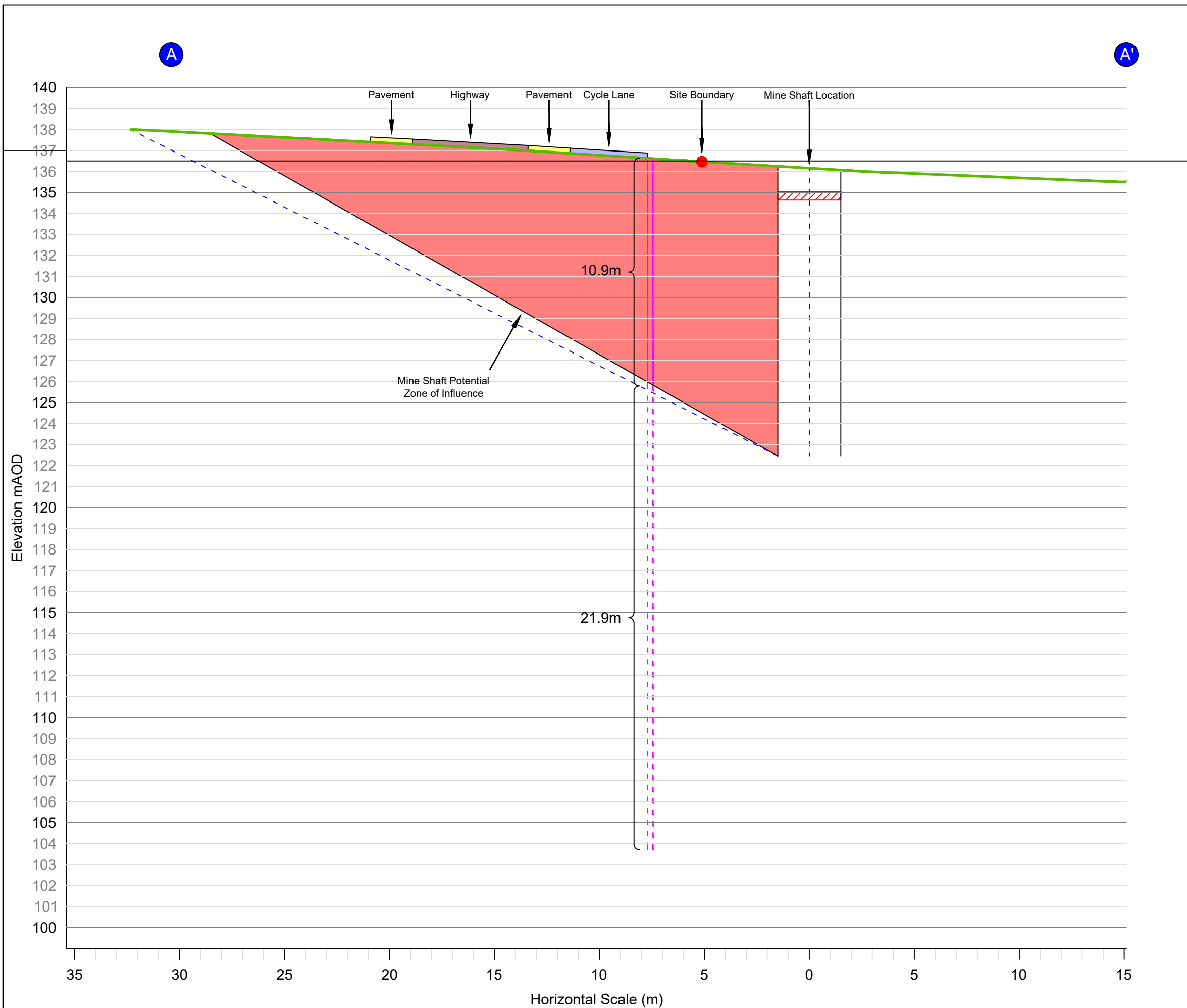
Client:
Taylor Wimpey Strategic Land (North)

Site:
Smithy Bridge Road, Littleborough

Title:
Mineshaft Plan

Job No.:	Scale (See Scale Bar):	Figure:	Revision:
LKC 18 1005	See Scale Bar	1	
Drawn By:	Checked By:	Drawn:	
AC	CC	Dec 2019	

Extract from: The Land Consultancy Ltd
Drawing Ref: Potential Zone of Influence of Mine Shaft, No.TLC1004-10, Rev:A (07/10/2019)



KEY

Site Boundary

Topographical Surface

Mine Shaft Potential Zone of Influence

Mine Shaft Vertical Centre Line

Mine Shaft 3m from Centre Line

Capping Layer

Contiguous Pile - Constructed With a Gap of 50 - 150mm Between Piles

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CONSULT LIMITED

Client:

Taylor Wimpey Strategic Land (North)

Site:

Smithy Bridge Road, Littleborough

Title:

Section A - A'

Job No.:

LKC 18 1005

Scale (See Scale Bar):

See Scale Bar

Figure:

2

Revision:

Drawn By:

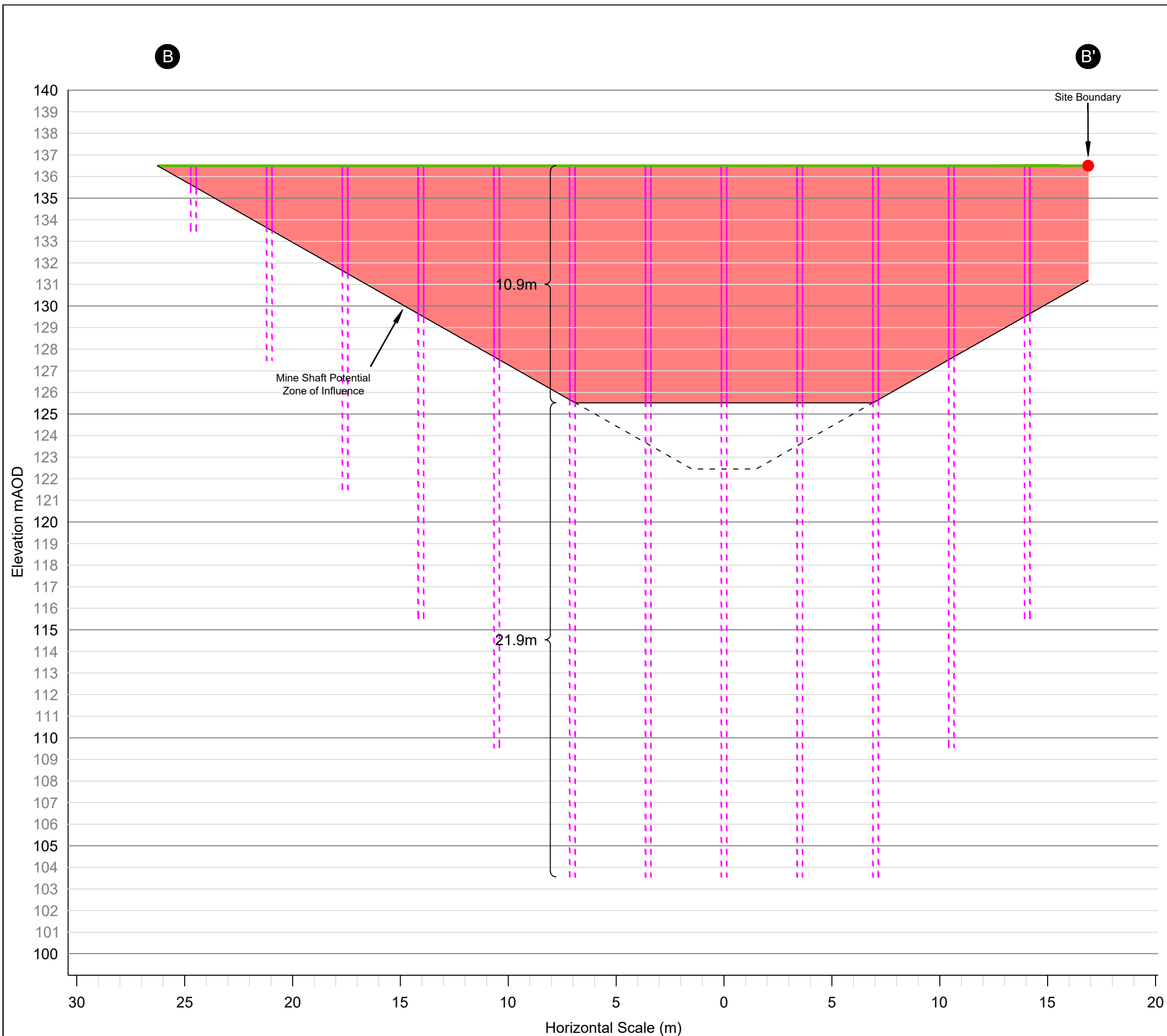
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Checked By:

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Drawn:

Dec 2019



KEY

- Site Boundary
- Topographical Surface
- Mine Shaft Potential Zone of Influence
- Contiguous Pile - Constructed With a Gap of 50 - 150mm Between Piles

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Client:
Taylor Wimpey Strategic Land (North)

Site:
Smithy Bridge Road, Littleborough

Title:
Section B - B'

Job No.:	Scale (See Scale Bar):	Figure:	Revision:
LKC 18 1005	See Scale Bar	3	
Drawn By:	Checked By:	Drawn:	
AC	CC	Dec 2019	