

Hayfield.

HISTORICAL MINING ACTIVITY

Important legal disclaimer - Please read carefully as this may affect your legal rights

The attached or enclosed letter was written by Moreton Geotechnical Services Pty Ltd 8th April 2022.

In recent years, Moreton Geotechnical Services Pty Ltd was engaged to undertake studies of the land at Fischer Road Ripley to ascertain the existence of "mining influences" affecting the land. This letter summarises the findings in those studies. Despite Ripley Road Land Investments Pty Ltd having no obligation to do so, it has requested Moreton Geotechnical Services Pty Ltd to prepare this letter and provides a copy to you in the interests of full disclosure.

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In accepting this letter, you acknowledge that you understand this and accept the document on that basis and you represent to Ripley Road Land Investments Pty Ltd that you will not rely on this letter, any of the reports referred to in it or attachments to it in making any decision whether to buy the land or whether to develop it in any particular way and that you will undertake your own investigations and obtain and rely on your own specialist advice. You release and indemnify Ripley Road Land Investments Pty Ltd and each of its officers, employees and agents in relation to all claims and liabilities arising directly or indirectly out of or in connection with anything stated in this report or any part of it.

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8 April 2022

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Office 31B, Level 1
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Att. Mr. Daniel Flanagan

Re: **STAGE 9 HAYFIELD ESTATE AT RIPLEY**

1.0 INTRODUCTION

The work in this report was carried out at your request in order to provide information for purchasers wishing to acquire lots in this stage of the Hayfield Estate.

This report also forms a supplement to our earlier reports, to which the reader is referred if more information is required.

Work in this report has included extracting files from long term storage, reviewing the information in past reports, the preparation of a plan by our Associates at Taylor Mining Services P/L and reporting by the undersigned Engineering Geologist.

A plan is attached to this report.

2.0 BACKGROUND

Moreton Geotechnical Services P/L has investigated the area of Stage 9 as part of the whole estate south of Boyland Way (originally Reif Street) and west of Fischer Road over an extended period of time. The investigations were generally required in order to meet with Council's requirements.

Investigations, in the form of desk-top mining studies and more detailed photogrammetry and geophysical studies were carried out for previous

landowners with the intellectual property in our reports being progressively transferred to the new owners. The bulk of the initial studies were carried out for ULDA with subsequent studies flowing on to Kerdic Homes P/L, Ripley Road Land Developments P/L and Ripley Projects P/L.

Some of the main reports completed include:

1. our reference 2011/43 of 5 September 2011 titled "Desktop Mining Study at Fischer Road Ripley"
2. our reference 2011/43/02 of 12 March 2012 titled "Desktop Mining Study at Fischer Road Ripley : Report 2 - Photogrammetry Study"
3. our reference 2011/43/03 of 3 April 2012 titled "Desktop Mining Study at Fischer Road Ripley : Report 3 - Review of Geophysical Study"
4. our reference 2011/43/04 of 17 April 2012 titled "Desktop Mining study at Fischer Road Ripley : Report 4 – Final Report"
5. our reference 2016/17/02 of 13 May 2016 titled "Review of Supplementary Geophysical Study at Fischer Road Ripley"
6. our reference 2016/17/05 of 28 February 2017 titled "Ripley North Estate - Deep Boreholes"
7. our reference 2018/47 of 27 November 2018 titled "Borehole Capping at the Hayfield Estate Ripley Road Ripley"
8. our reference 2019/71A of 5 December 2019 titled "Stage 1 Hayfields Estate at Ripley"
9. our reference 2019/71B of 5 December 2019 titled "Stage 2 Hayfields Estate at Ripley"
- 10.our reference 2019/71C of 5 December 2019 titled "Stage 3 Hayfields Estate at Ripley"
- 11.our reference 2019/71D of 19 March 2020 titled "Stage 4 Hayfields Estate at Ripley"
- 12.our reference 2019/71E.1 of 27 May 2021 titled "Stage 6 Hayfield Estate at Ripley"
- 13.our reference 2019/71G of 15 June 2021 titled "Stage 7 Hayfield Estate at Ripley"
- 14.our report reference 2019/71H of 13 October 2021 titled "Stage 8 Hayfield Estate at Ripley"

Further details can be obtained from the above-referenced reports.

This report deals with mining and design information specific to Stage 9.

3.0 COMMENT

3.1 GENERAL

The first five above-referenced studies revealed that the overall site could be divided into six constraint zones ranging from no mining constraints, three mine influence zones, four undermined zones and a fault residential construction exclusion zone.

The above-referenced sixth report revealed the presence of ten very deep coal exploration boreholes, previously drilled by the Queensland Mines Department, that are located on the overall estate.

Our report reference 7 above, although focussed on Boreholes NS 313 and NS 433, provided the procedure for locating and capping of all of the ten boreholes on the basis of our recommended positioning of these boreholes outside of allotments. The capping works were also recommended to be best carried out at the bulk earthworks stage when suitable equipment and manpower is available.

Reports 8 to 14 inclusive provided specific mining and design information for Stages 1 to 4 inclusive and Stages 6 to 8 inclusive.

Areas 1, 2A and 3A were generally described in our 2011 and 2012 reports as follows:

Area 1 is not undermined and beyond the influence of the underground mining. Residential development there, which is unrestricted in terms of potential subsidence impacts, needs only to cater for normal geotechnical issues including soil type, strength and reactivity and slope stability etc as applicable.

Area 2A is not undermined but is located in the area of the influence zone from the adjoining underground Bluff Seam mining to the east being established on the basis of an assumed 26.5 degree draw angle. Potential subsidence impacts will range from zero at the outer edge of the influence zone to a potential maximum along the ribside (edge) of the mine workings, i.e. average maximum potential subsidence impacts of 1.0 mm/m strain, 1.6 mm/m compression and ground tilts in the order of 1 in 310. These potential subsidence impacts will permit the construction of appropriately sized single or double storey slab on ground residences with conventional footings towards the outer side of the influence zone and appropriately sized and designed single storey

waffle raft or similar footings towards the inner side of the influence zone.

Area 2A was also further subdivided in later reports into Area 2A.1 (outer part of influence zone), Area 2A.2 (central part of influence zone) and Area 2A.3 for lots in the inner part of the influence zone as covered in this report.

Area 3A is part of the site which is undermined along the Bluff Seam "FCT" area where maximum average potential subsidence impacts of 1.0 mm/m strain, 1.6 mm/m compression and ground tilts in the order of 1 in 310 are possible. These potential subsidence impacts should permit the construction of appropriately sized and engineered single storey slab on ground residential development.

Area 4 is part of the site through which the 'Feldspar Fault' is exposed at the surface as revealed in the geophysical study, as well as extrapolated beyond the geophysical study southwards to the edge of the influence zone and northwards to the Reif Street (Boyland Way) boundary of the site. A safety margin of 15m width either side of the fault line has also been included to generate the 30m wide zone. This area should be kept as parkland or similar, or at best be used as rear parts of allotments upon which no building construction is permitted, as this area has the highest potential subsidence risk setting on this site. Road crossings of this area should be minimised, and where these need to be constructed then these should be at right angles to the zone. This approach nonetheless assumes that all buried services are constructed with adequate flexibility, also that maintenance as required can be accepted in the future.

3.2 DESIGNATION OF LOTS

Potential subsidence impacts will range from negligible to low towards the outer edge of the influence zone, increasing to a maximum over the mine workings which are located in the 430m to 500m depth range.

Specifically, all of the residential lots in Stage 9 have now been categorised with Lots 900, 903 to 924 inclusive spanning the fault zone and Lot 938 also having additional considerations due to the presence of Borehole NS 313.

Area 2A.1 outer part of influence zone - unrestricted
Lots 924 to 927 inclusive

Area 2A.2 central part of influence zone - restricted

Residences be designed to cater for 0.7 mm/m strain, 1.2 mm/m compression and ground tilts in the order of 1 in 500. Slab on ground residences to utilise waffle raft type foundations.

Lots 920 to 923 inclusive, 928 and 929

Area 2A.3 inner part of influence zone - restricted

Single storey slab on ground residences be designed from first principles to cater for 1.0 mm/m strain, 1.6 mm/m compression and ground tilts in the order of 1 in 310. Stump type residential construction will provide an acceptable lower risk alternative to slab on ground development if so desired by the purchasers.

Lots 915, 916, 919 and 930

Area 3A undermined - restricted

Single storey slab on ground residences be designed from first principles to cater for 1.0 mm/m strain, 1.6 mm/m compression and ground tilts in the order of 1 in 310. Stump type residential construction will provide an acceptable lower risk alternative to slab on ground development if so desired by the purchasers.

Lots 900, 902 to 914 inclusive, 917, 918, 931 to 948 inclusive and 9000

Area 4 fault zone - no permanent structures

Parts of the following lots include this area - Lots 900, 903 to 924 inclusive

Borehole NS 313

This borehole is located internal to Lot 938 rather than external to the lot as previously recommended. The capping procedure and certification of the borehole as well as any supplementary foundation design requirements are to be carried out by others.

In conclusion, the work in this report has found that most of the lots in Stage 9 are located within the undermined area (Constraint Area 3A) in 'blue', whereas some of the lots are located close to or over the edge of the mined area i.e. in Area 2A (= Area 2A.3) in 'yellow' and the rest of the lots are located in the central or outer parts of the influence zone in 'yellow'. Some of the lots include Area 4 and Lot 938 has a very deep borehole.

4.0 LIMITATIONS

This report, which may contain attachments in the form of plans, borehole record sheets, laboratory test results etc, must be read in its entirety.

The work in this report was produced for Ripley Projects P/L and their Associates on the basis of information available at the time of writing. This report will not contain sufficient information for other parties and purposes.

While care has been taken in producing this report, it needs to be said that there will always be some risk associated with building in these settings. Recommendations put forward in this report are aimed at minimising the risk.

This company accepts no responsibility for works which do not fully comply with the recommendations in this report.

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