Preliminary Site Contamination Assessment

ADDRESS : 264 Mount Vernon Rd Mount Vernon NSW 2178

CLIENT : Bathla Group

REPORT No. : NE115-17

DATE : 17 April 2017

GEOTESTA

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EXECUTIVE SUMMARY

Geotesta was engaged by Bathla Group to conduct a Stage 1 Preliminary Investigation (stage 1 PI) on the property known as 264 Mount Vernon Road, Mount Vernon NSW. The Stage 1 PI is a review of current and historical activities on the site and an assessment of the potential risk of soil/groundwater contamination existing on the land.

In accordance with the Department of Urban Affairs and Planning and Environment Protection Authority Managing Land Contamination: Planning Guidelines, State Environmental Planning Policy No. 55—Remediation of Land 1998, the site is considered to have a Low Risk of soil and groundwater contamination.

The site is considered suitable for the proposed development and no further assessment work is considered necessary.

Based on the scope of works conducted the following conclusions can be made:

- the site history, desk study and inspection indicates past activities on the site have a very low potential for environmental impacts on the soil and groundwater; and
- in accordance with the Department of Urban Affairs and Planning and Environment Protection Authority Managing Land Contamination: Planning Guidelines, State Environmental Planning Policy No. 55—Remediation of Land 1998, no further investigations are required; and
- the site is suitable for the proposed use.

No further environmental investigation works are considered necessary (including a Stage 2 Detail Investigation).

1. INTRODUCTION

Geotesta was engaged by Bathla Group to conduct a Stage 1 Preliminary Investigation (stage 1 PI) on the property known as 264 Mount Vernon Road, Mount Vernon NSW. The Stage 1 PI is a review of current and historical activities on the site and an assessment of the potential risk of soil/groundwater contamination existing on the land.

The property covers an area of approximately 5.2 hectares and is currently occupied by a residential property.

2. PLANNING GUIDELINES

It is understood that the land is to be redeveloped as low density residential lots. This Preliminary Investigation was conducted in general accordance with the Department of Urban Affairs and Planning and Environment Protection Authority *Managing Land Contamination: Planning Guidelines*, *State Environmental Planning Policy No. 55—Remediation of Land 1998.*

Land contamination is most often the result of past uses. It can arise from activities that took place on or adjacent to a site and be the result of improper chemical handling or disposal practices, or accidental spillages or leakages of chemicals during manufacturing or storage. Activities not directly related to the site may also cause contamination; for example, from diffuse sources such as polluted groundwater migrating under a site or dust settling out from industrial emissions.

When carrying out planning functions under the EP&A Act, a planning authority must consider the possibility that a previous land use has caused contamination of the site as well as the potential risk to health or the environment from that contamination. Decisions must then be made as to whether the land should be remediated, or its use of the land restricted, in order to reduce the risk. Failure to consider the possibility of contamination at appropriate stages of the planning decision process may result in:

- inappropriate land use decisions
- increased risk to human health
- detrimental effects on the biophysical environment
- impacts on the safety of existing and new structures
- delay in realising developments

- substantial fall in the land value and the passing on of unanticipated development costs to other parties

When an authority carries out a planning function, the history of land use needs to be considered as an indicator of potential contamination. Where there is no reason to suspect contamination after acting substantially in accordance with these Guidelines, the proposal may be processed in the usual way. However, where there is an indication that the land is, or may be, contaminated, the appropriate procedures outlined in these Guidelines should be followed.

Essentially, the Guidelines recommend that rezonings, development control plans and development applications (DAs) are backed up by information demonstrating that the land is suitable for the proposed use or can be made suitable, either by remediation or by the way the land is used.

3. OBJECTIVES AND SCOPE

The objective of the work is to comply with the Department of Urban Affairs and Planning and Environment Protection Authority *Managing Land Contamination: Planning Guidelines, State Environmental Planning Policy No. 55—Remediation of Land 1998* and gain a better understanding of the environmental risks associated with the site by conducting a Stage 1 PI.

The Stage 1 PI was conducted in general accordance and consideration of the Planning Guidelines and the Australian Standard AS 4482.1-2005 Guide to the sampling and investigation of potentially contaminated soil - Part 1: Non volatile and semi-volatile compounds, the Australian Standard AS 4482.2-1999 Guide to the sampling and investigation of potentially contaminated soil - Part 2: Volatile substances, the National Environment Protection (Assessment of Site Contamination) Measure (NEPM) 1999 (amended 2013), and other relevant NSW guidelines and legislation. . The Stage 1 PI consisted of a desktop historical review. The works included the following:

- site inspection;
- Certificate of Titles;
- aerial photograph, public record search;
- geological and hydrogeological review
- review of available environmental and planning reports in the area; and
- production of this report including recommendations and associated environmental risk.

Activities undertaken to achieve the above objectives are reported and discussed in the following sections.

4. SITE DESCRIPTIONS

4.1. *Site Details*

The site under investigation is located approximately 42 km west of the Sydney CBD. The site is currently covered by one title.

Street address: 264 Mount Vernon Road

Suburb: Mount Vernon NSW 2178

State: NSW

Council: City of Penrith

Certificate of title: Volume 32140 Folio 156

Total Surface area: 5.2 ha

4.2. *Site, Surrounding Area and Topography*

The site is occupied by an existing dwelling and a farm dam, covered with grass and large trees in the southern and eastern parts.

The surrounding area consists of rural residential buildings.

A poultry operation is located approximately 500m to the west of the site. Petrol stations are more than 1.5 km away from the site. Brandon Quarries is located 1.2 km south of the site and is currently in operation.

The area is a low density rural residential area.

4.3. *Geology and Hydrogeology*

The Penrith 1:100,000 Geological Sheet indicates that the underlying geology consist of the Bringelly Shale, which is part of the Wianamatta Group. The Bringelly Shales consist of shale, carbonaceous claystone, claystone laminates, fine to medium grained lithic sandstone and rare coal and tuff. The Bringelly Shale is the main outcropping geology of the Marsden Park area.

Groundwater in the area most likely occurs as an unconfined aquifer in fractures and joints of the shale and sandstone (fracture rock aquifer). The 1:2 000 000 Department of Water Resources Groundwater in NSW, Assessment of Pollution Risk map indicates that the Site is likely to be underlain by shales and that the potential for groundwater movement is likely to be low. Groundwater salinity is mapped >13 500mg/l and therefore unsuitable for stock use. The direction of the regional groundwater flow is

expected to follow the slight slope of the regional topography, towards the south and west.

A search of Department of Infrastructure Planning and Natural Resources (DIPNR) records identified three existing borehole wells located within an approximate distance of 1 kilometre from the Site. The groundwater bores are all located to the south of the site. The bores are all in private ownership and were installed as monitoring bores.

4.4. Acid Sulphate Soils

The Department for Infrastructure, Planning and Natural Resources (DIPNR) Acid Sulphate Soils Risk Mapping (1997) indicates that the Site is not expected to be underlain by acid sulphate soils.

5. SITE HISTORY

5.1. *Historical Background*

Mount Vernon takes its name from the land granted in 1820 to Anthony Fenn Kemp (1773-1868). It was presumably named after Mount Vernon, George Washington's home in Virginia in the United States of America.

The development timeline is presented in the table below:

1810	300 acres granted to Anthony Fenn Kemp.
1820	500 acres granted to Anthony Fenn Kemp and named Mt Vernon.
1894	Kemps Creek Public School removed from Liverpool's jurisdiction to St Mary's.
1908	Nepean Times correspondent reported the district 'could not look better – grass everywhere and crops growing amazingly'.
1908	A report in the Nepean Times stated that a ghost had haunted Kemps Creek Bridge for many years.
1908	Foundation stone laid by Mrs F. W. A. Downes for St Andrews Church at Kemps Creek.
1952	Mulgoa Road changed name to Elizabeth Drive in honour of Queen Elizabeth's visit.
1962	Electricity supply connected.
1994	Mt Vernon rezoned for rural residential development.

5.2. *Aerial Photograph Review*

An aerial photograph search was conducted on the site and the local area. The 1970s, 1984, 2000 and 2016 were viewed with observations presented below. Larger detailed photographs are presented in Appendix A.

The 1970 aerial photography indicates the site and a large portion of the surrounding area is covered by grass and some areas are native forest. There are some farms and market gardens further from the site.

The 1984 aerial photograph indicates that the area is still fairly undeveloped and most of the land has been used by rural residential properties with little industrial activities.

The 2000 and 2016 aerial photos show little to no change in the area and the site as it is today.

5.3. *EPA Records and other Reports*

The site is not on any contaminated registry held by the NSW EPA.

5.4. *Summary*

Based on the desk study assessment conducted the site was covered by grass and native forest since 1970's. There were no past activities identified on the site that may have impacted on the soil or groundwater on the site. Surrounding activities such as past farming have a potential to impact on the soil and groundwater on the site, however are considered to have a low risk of impacting the site.

6. POTENTIAL FOR CONTAMINATION

The site can be considered to be a green field site with a low potential for onsite sourced contamination. The surrounding activities do have a potential to impact to site, however the risk is considered low.

7. DISCUSSION OF RESULTS

In accordance with the Department of Urban Affairs and Planning and Environment Protection Authority Managing Land Contamination: *Planning Guidelines, State Environmental Planning Policy No. 55—Remediation of Land 1998,* the site is considered to have a Low Risk of soil and groundwater contamination.

The site is considered suitable for the proposed development and no further assessment work is considered necessary.

8. CONCLUSIONS

Based on the scope of works conducted the following conclusions can be made:

- the site history, desk study and inspection indicates past activities on the site have a very low potential for environmental impacts on the soil and groundwater; and
- in accordance with the Department of Urban Affairs and Planning and Environment Protection Authority Managing Land Contamination: *Planning Guidelines, State Environmental Planning Policy No. 55—Remediation of Land 1998,* no further investigations are required; and
- the site is suitable for the proposed use.

9. RECOMMENDATIONS

No further environmental investigation works are considered necessary (including a Stage 2 Detail Investigation.

Should you require any further information regarding this report, please do not hesitate to contact the undersigned.

For and on behalf of

GEOTESTA PTY LTD

Amir Farazmand

Senior Consultant

References

- Department of Urban Affairs and Planning and Environment Protection Authority Managing Land Contamination: *Planning Guidelines, State Environmental Planning Policy No. 55—Remediation of Land 1998*
- National Environment Protection Council, December 1999. National Environment Protection (Assessment of Site Contamination) Measure.
- NSW Environment Protection Authority, December 1994. Guidelines for Assessing Service Station Sites
- Standards Australia, 2005. Guide to the sampling and Investigation of Potentially Contaminated Soil, Part 1: Non-volatile and Semi-volatile compounds. AS 4482.1

Information about This Report

The report contains the results of Soil Contamination Assessment conducted for a specific purpose and client. The results should not be used by other parties, or for other purposes, as they may contain neither adequate nor appropriate information.

Test Hole Logging

The information on the test hole logs (boreholes, test pits, exposures etc.) is based on a visual and tactile assessment, except at the discrete locations where test information is available (field and/or laboratory results). The test hole logs include both factual data and inferred information.

Groundwater

Unless otherwise indicated, the water levels presented on the test hole logs are the levels of free water or seepage in the test hole recorded at the given time of measuring. The actual groundwater level may differ from this recorded level depending on material permeability (i.e. depending on response time of the measuring instrument). Further, variations of this level could occur with time due to such effects as seasonal, environmental and tidal fluctuations or construction activities. Confirmation of groundwater levels, pheratic surfaces or piezometric pressures can only be made by appropriate instrumentation techniques and monitoring programmes.

Limitations

Professional advice and opinion provided in this report is for Metro Trains Melbourne requesting the work in accordance with the agreed scope of work and is not to be relied on by any other third party for any and all purposes except with the prior written consent of Geotesta (which consent may or may not be given at its discretion).

Advice and interpretation is provided on the basis that subsequent site work will be undertaken by Geotesta. Should other parties be engaged to implement recommendations made by Geotesta, or undertake further assessment work on the site, Geotesta is not responsible for how the information in this report is used by those other parties or any other party.

A report is provided inclusive of all documentation sections, tables, figures and appendices and should not be provided or copied in part without all supporting documentation for any reason, because misinterpretation may occur.

Site assessments and validation studies identify actual sub-surface conditions only at those points where samples are taken, and when they are taken. Data obtained from the sampling and subsequent laboratory analyses are interpreted by geologists, engineers or scientists and opinions are presented regarding the overall sub-surface conditions, the nature and extent of groundwater, the likely impact on any proposed development and appropriate remediation measures. Actual conditions between sampling locations may differ from those inferred because no professional, no matter how qualified, and no sub-surface exploration program, no matter how comprehensive, can reveal what is hidden below the ground surface. The actual interface between materials may be far more gradual or abrupt than an assessment indicates. Actual conditions in areas not sampled may differ from that predicted. Nothing can be done to prevent the unanticipated. However, steps can be taken to help minimize the impact.

Sub-surface conditions can change by natural processes and site activities. This report presents the conditions assessed at the time the investigation/validation study was undertaken. Consequently, project decisions should not be based on environmental site assessment or validation data that may have been affected by time. The consultant should be requested to advise if additional testing is required.

This site has been assessed /validated for a particular proposed or existing land use based on the limitations of the scope of works. No warranty or guarantee is made in regard to any other use, only to the depth tested. Fill, soil, groundwater and rock to the depth tested on the site may be fit for the specified use.

Interpretation of Results

The discussion or recommendations contained within this report normally are based on a site evaluation from discrete test hole data. Generalised, idealised or inferred subsurface conditions (including any geotechnical cross-sections) have been assumed or prepared by interpolation and/or extrapolation of these data. As such these conditions are an interpretation and must be considered as a guide only.

Change in Conditions

Local variations or anomalies in the generalised ground conditions do occur in the natural environment, particularly between discrete test hole locations. Additionally, certain design or construction procedures may have been assumed in assessing the soil-structure interaction behaviour of the site. Furthermore, conditions may change at the site from those encountered at the time of the geotechnical investigation through construction activities and constantly changing natural forces.

Any change in design, in construction methods, or in ground conditions as noted during construction, from those assumed or reported should be referred to GEOTESTA for appropriate assessment and comment.

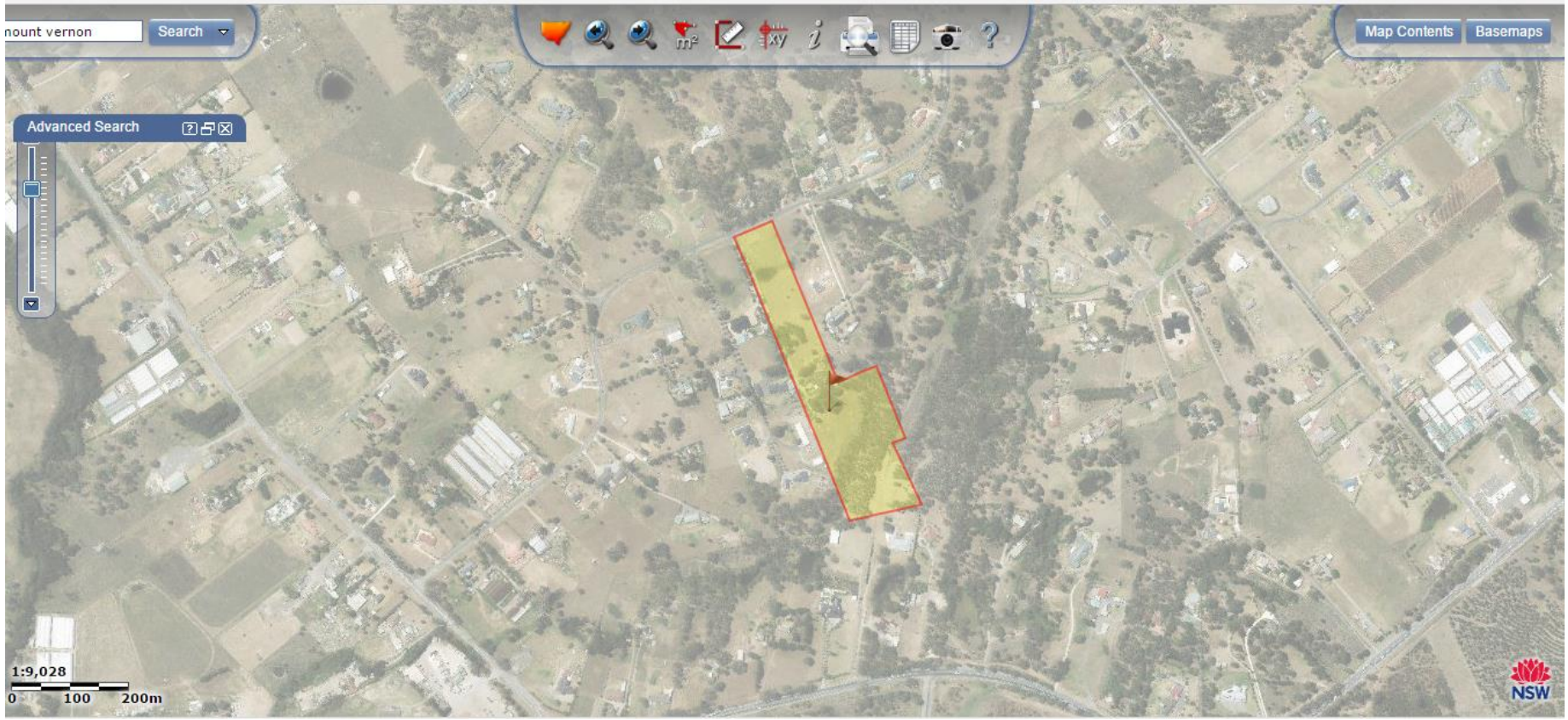
Reproduction of Reports

Where it is desired to reproduce the information contained in our geotechnical report, or other technical information, for the inclusion in contract documents or engineering specification of the subject development, such reproductions should include at least all of the relevant test hole and test data, together with the appropriate standard description sheets and remarks made in the written report of a factual or descriptive nature. Reports are the subject of copyright and shall not be reproduced without the permission of Geotesta.

Appendix A

Aerial Photographs

Aerial Photo 1970s



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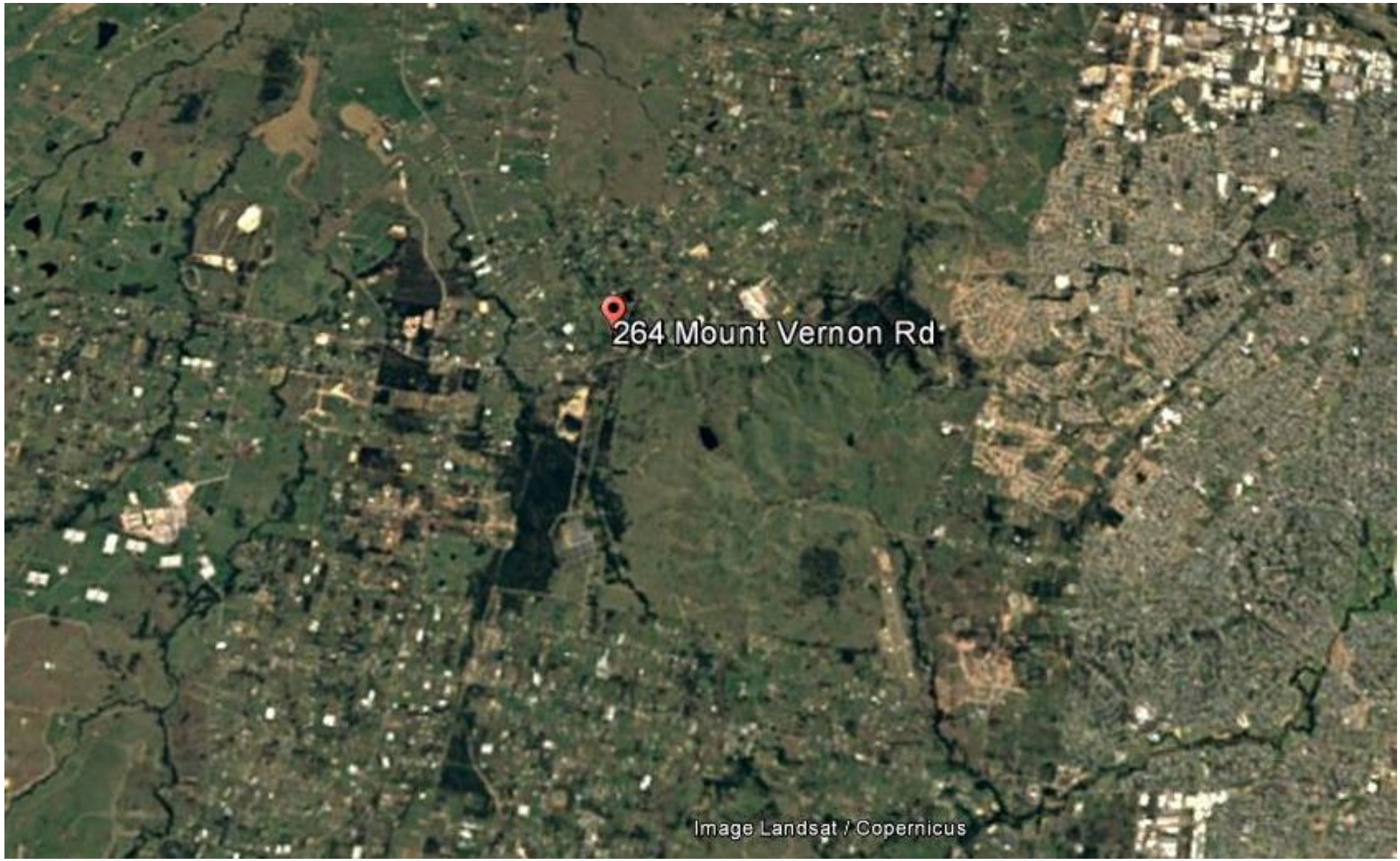
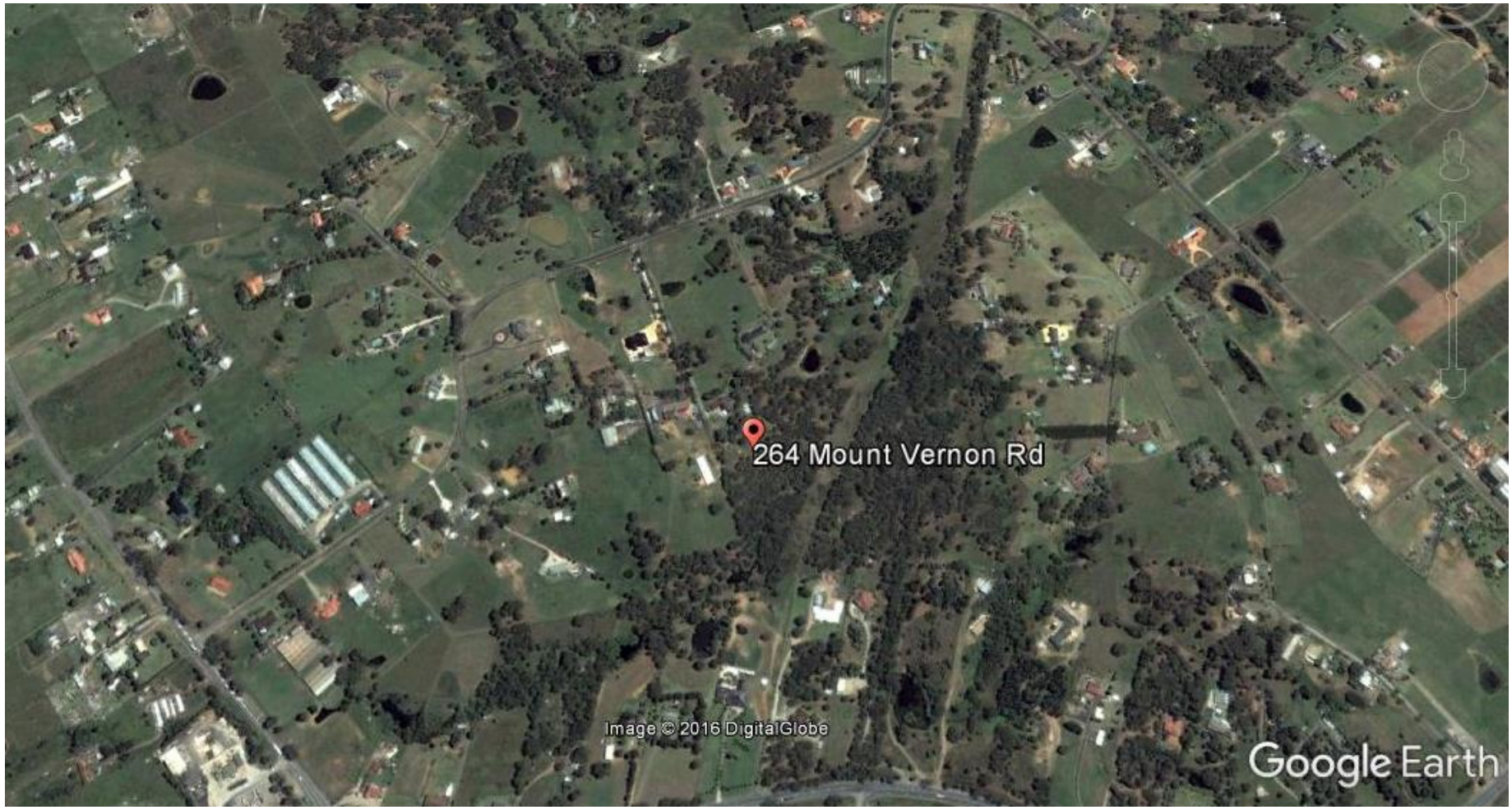
Aerial Photo 1984



Aerial Photo 2000



Aerial Photo 2016