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**HUNTINGDALE DEVELOPMENTS PTY LTD
& COLLEEN CAMARDA**

**PROPOSED RESIDENTIAL SUBDIVISION
LOT 1 IN DP781781 & LOT 100 IN DP 1063277
WYALLA ROAD,
JAMBEROO**

**STAGE 1
CONTAMINATION ASSESSMENT**

REPORT WO7/1910-Ar AUGUST 2012



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W07/1910-Ar MA:ma
13th August 2012

Huntingdale Developments Pty Ltd
& Mrs. C. Camarda
PO Box 315
WOLLONGONG NSW 2520

Attention: Peter Taranto & Colleen Camarda

Dear Sir

Re: Proposed Residential Subdivision, Wyalla Road, Lot 1 DP 781781 & Lot 100 DP 1063277, Jamberoo: Stage 1 Contamination Assessment.

This report presents the findings of a Stage 1 Site Contamination Assessment for the above project.

This report should be read in conjunction with the attached General Notes. Please contact the undersigned should you have any queries.

For and on behalf of
Network Geotechnics Pty Ltd

A handwritten signature in black ink, appearing to be 'V W de Silva', written over a horizontal line.

V W de Silva *BScEng, MEng, SMIE Aust, CPEng, NPER*
Principal Geotechnical Engineer

EXECUTIVE SUMMARY

Network Geotechnics Pty Ltd (NG) was commissioned by Huntingdale Developments Pty Ltd and Colleen Camarda to undertake a Stage 1 Contamination assessment for a proposed residential subdivision at Lot 1 DP 781781 & Lot 100 DP 1063277, Wyalla Road, Jamberoo. The investigation was carried out in accordance with NG Proposal dated 25th June, 2012. The site has a combined area of approximately 10.23ha.

The scope of the investigation included a walk over inspection, historical title search, review of historical aerial photographs and other available information from on-line Government websites.

Based on the site history, aerial photographs and walk over inspection the following comments were noted:

Lot 100 DP 1063277

- Lot 100 has been used for farming up to about 1979.
- The lot is presently being used as a cattle farm.
- A cattle loading pen or a similar structure made of steel fences was observed near the northern end.
- There could be uncontrolled fill present at several locations over the northern area, probably associated with the cattle loading pen.

Lot 1 DP 781781

- Lot 1 has been used for farming up to about 1941 and residential use up to present day.
- A residence and several out buildings including two sheds were found to be located at the south-eastern corner of the lot. There was also a green metal shed which stored scrap metals, rotten treated timber, old PVC pipe and old rusty barrels piled up next to the shed.
- The remainder of the lot is a Greenfield area with a few medium to large tress near the centre, except at the south-eastern corner. There was scrap metal, rotten timber and a disused toilet or a pump house.

Based on the above it is assessed that the risk of site contamination to be low and that a Stage 2 detailed contamination assessment would not be required.

TABLE OF CONTENTS

EXECUTIVE SUMMARY	3
1.0 INTRODUCTION	5
1.1 General	5
1.2 Scope of Work	5
2.0 SITE IDENTIFICATION	5
3.0 SITE HISTORY	6
3.1 Zoning	6
3.2 Land Use	6
3.3 Council Rezoning	6
3.4 Historical Site Usage	6
3.5 Title Records	6
3.6 Aerial Photographs	7
3.7 Potential Contamination	8
3.8 Integrity of Assessment	8
4.0 SITE CONDITION & SURROUNDING ENVIRONMENT	9
4.1 Topography	9
4.2 Site Observations	9
4.3 Flood Potential	10
4.4 Geology & Hydrogeology	10
5.0 RESULTS & DISCUSSION	10
6.0 CONCLUSIONS	10

GENERAL NOTES

APPENDIX A	Aerial Photographs
DRAWING No.	W07/1910-1 Site Plan
DRAWING No.	W07/1910-2 locality Plan

1.0 INTRODUCTION

1.1 General

Network Geotechnics Pty Ltd (NG) was commissioned by Huntingdale Developments Pty Ltd and Colleen Camarda to undertake a Stage 1 contamination assessment for a proposed residential subdivision at Lot 1 DP 781781 and lot 100 DP 1063277 Wyalla Road Jamberoo. The investigation was carried out in accordance with NG Proposal dated 25th June 2012.

It is understood the site would be subdivided for sensitive land use (residential).

The aim of the investigation was to assess site conditions to identify risks of site contamination arising from past usage of the site and provide recommendations on stage 2 contamination assessment if there is assessed to be a risk of site contamination.

A site plan is shown on the attached Drawing No W07/1910-1. A Locality Plan is included in Drawing No W07/1910-2.

1.2 Scope of Work

The following scope of work was agreed to with the client:

- Desk study involving review of historical land titles, aerial photographs and other available records online to facilitate identification of potential site contamination.
- A walk over assessment for both lots, identifying potential hazards for contamination present onsite.

2.0 SITE IDENTIFICATION

The site is located on the western corner of Wyalla Road and Jamberoo Road in Jamberoo. The sites are described as Lot 1 in DP 781781 & Lot 100 DP 1063277 and have a combined approximate area of 10.23ha. The site is located in Kiama LGA and is bounded by:

- Hyams Creek to the North & to the West;
- Wyalla Road and residential properties to the east along the border of lot 100;
- Vacant land (Lot 32 in DP 605763) to the South of Lot 1;

Based on Satellite photographs, the approximate site co-ordinates at the south east corner of the boundary separating the two lots are given below:

Easting (m)	295897
Northing (m)	6163397

Reference to Cadastral Records Enquiry Report indicates the lots are within the Parish of Kiama, County of Camden.

3.0 SITE HISTORY

3.1 Zoning

Council zoning plans identifies Lot 100 DP 1063277 and Lot 1 DP 781781, Wyalla Road, Jamberoo with ***Rural Landscape Zoning (RU2)*** based on Kiama LEP 2011. The objective of the zone is to encourage sustainable primary industry production by maintaining and enhancing the natural resource base, to maintain the rural landscape character of the land.

3.2 Land Use

Based on Aerial Photographs and title records, both lots have been mostly used as farmland since 1938. Since 1941 lot 1 seems to have been used solely for residential purposes and since 1979, lot 100 has been used as a Dairy farm and cattle aggistment.

The area along Wyalla Road contains established detached residences.

3.3 Council Rezoning

No records were available on rezoning of the site. The site is proposed to be re-zoned for Residential Subdivision.

3.4 Historical Site Usage

Based on title records and aerial photographs, the following historical uses could be identified:

Table 3.1 – Historical Land Use

1938 – 1941	Dairy Farm (Lot 1 DP 781781)
1941 – Present	A farm house and cattle farm (Lot 1 DP 781781)
1947 – present	Dairy Farm & cattle aggistment (Lot 100 DP 1063277)

3.5 Title Records

A record of ownership/leasing as can be inferred from title records is given in Table 3.5.1 and 3.5.2 for Lot 100 DP1063277 & Lot 1 DP781781 respectively, shown below.

Table 3.5.1 Historical Ownership/Leasing (Lot 100 DP1063277)

<i>Date</i>	<i>Volume/Folio</i>	<i>Remarks</i>
20 th August, 1947	Vol. 2035 Fol. 897	The PUBLIC TRUSTEE of Sydney (vender) to Bruce Elliot Tate & Ronald Arthur Tate (purchasers), occupation dairy farmers.
14 th February, 1979	Vol. 3370 Fol. 596	Dorothy Thelma Tate & Ronald Arthur Tate (dairy farmers) are the executors of the will of Bruce Elliot Tate.
26 th March, 1982	Vol. 14131 Fol. 174	Bruce Donald Parker & Ronald Joseph Parker as joint tenants in half share & Ronald Arthur Tate in half share as tenants in common.

Table 3.5.2 Historical Ownership/Leasing (Lot 1 DP781781)

Date	Volume/Folio	Remarks
30 th June, 1938	Vol. 1837 Fol. 965	John Jones, occupation baker by the way of inheritance to Clyde Jones, Thelma Myrtle Jones & Olga Gweneth Jones.
10 th July, 1941	Vol. 1897 Fol. 92	Clyde Jones, occupation Baker & Thelma Myrtle Marks, occupation Dairy Farmer & Olga Gweneth Harrison, occupation Mining Engineer (vendors) to James John Woodburn, occupation Medical Practitioner (purchaser).
22 nd March, 1955	Vol. 2328 Fol. 16	James John Woodburn, occupation Medical Practitioner (vendor) to James Edward Kelly Tate, occupation Dairy Farmer (purchaser).
25 th June, 1968	Vol. 2891 Fol. 137	James Edward Kelly Tate, occupation Dairy Farmer (vendor) to Geoffrey Edward Walter Button, occupation Company Director & his wife Penelope Robin Button.
3 rd November, 1971	Vol. 3031 Fol. 656	Geoffrey Edward Walter Button & Penelope Robin Button (vendors) to Alan Walter Davy, occupation Field Engineer & his wife Ruth Margaret Davy (purchaser).
21 st December, 1973	Vol. 3134 Fol. 96	Alan Walter Davy, occupation Computer Engineer & Ruth Margaret Davy (vendors) to Dominica Camarda, occupation Builder & his wife Colleen Agnes Camarda (purchasers).

3.6 Aerial Photographs

Aerial photographs for Lot 100 DP1063277 & Lot 1 DP781781 Wyalla Road, Jamberoo were purchased from NSW Department of Lands and summarised in tables 3.6.1 & 3.6.2 respectively.

Table 3.6.1 Summary of Aerial Photograph Review

Year of Photo	Scale	Colour	Site Description
1949	1:30000	Black & White	- A residence or a similar structure at the southeast corner of Lot1 corresponding to the location of the current residence. - Hyams Creek running along the western boundary, flowing from south to north-east. - No residences along Wyalla Road. - Lot 100 completely clear of trees
1963	1:40000	Black & White	No visible change apart from a shed or similar on Wyalla Road boundary at the northern corner of Lot 100.
1974	1:40000	Black &	No visible change.

		White	
1984	1:40000	Black & White	- No visible change to site - Residential properties present in the eastern boundary.
1993	1:25000	Colour	More residences along Wyalla Road.
1996	1:25000	Colour	No visible change
2002	1:25000	Colour	No other obvious change
2010	Ref: Google Earth	Colour	There seems to be rise in level of ground (hummocky) at the north western corner of the lot, which comprises uncontrolled fill. it is understood that in the past fill was placed for bike ramp build up and later levelled out.

3.7 Potential Contamination

Based on the review of aerial photographs, title records and other available information the site investigated appears to have a low possibility of potential contamination. Potential contamination may include areas containing uncontrolled fill, storage of scrap metal near sheds, pesticides if used and accidental oil/fuel spills from farm machinery if used.

3.8 Integrity of Assessment

Based on aerial photographs and historical records, it is assessed that the land for the proposed subdivision is unlikely to have been used for industrial activities. A high degree of reliability can be ascribed to observations from aerial photographs and historical records.

4.0 SITE CONDITION & SURROUNDING ENVIRONMENT

4.1 Topography

The site is located to the west of Wyalla Road with a gentle 3° north west facing slope towards Hyams Creek.

4.2 Site Observations

During the site visits on 13th and 31st July, 2012 the following observations were made. The features observed were measured with a hand held GPS as shown on the attached Drawing W07/1910-1.

- There was a large rural residence with several out buildings on lot 1 which include separate garages and a metal shed. All buildings appear to be having been placed on cut/ fill platform.
- A retaining wall supports the fill up to about 2m high on the northern side of the drive way in Lot 1.
- The access from Wyalla road to lot 1 comprises pavement covered in a bitumen surface.

- The metal shed in lot 1 has some construction waste next to it, on the western side including scrap metal, rotten treated timber, old PVC pipe and an old rusty barrel.
- The ground surface drops about 2m to 3m behind the sheds.
- Two underground concrete tanks were located on the lower part of Lot1, appears to be septic tanks.
- There are dumped scrap metal and an old stand alone disused toilet or a pump house at the centre of lot 1 in the southern boundary.
- A small fill mound, similar to a BMX bicycle ramp was located in Lot100 close to the creek.
- A series of metal fences on a fill mound was located towards the northern boundary of Lot 100. Several fill mounds were located in this area.
- Majority of the site was covered in grass and appears to have had little disturbance from the remainder of the site.
- Medium to large trees were located on the boundary of Hyams Creek and the proposed site, and a few scattered throughout the site.
- It is likely that all run-offs would flow to Hyams Creek which flows north to north west of the site.
- Creek water appeared to be clear of oil staining and discolorations.

There was no visible staining of soils, concrete or bituminous surfaces. Additionally there were no visible signs of contamination such as bare soil patches and plant stress.

The surface soils contained silty CLAY topsoil.

4.3 Flood Potential

It is not likely the land would be subject to flooding. The nearest surface water body is Hyams Creek located at the western boundary. The creek wall has downward slope of approximately 50° - 60° and the depth to creek water body is about 4m.

4.4 Geology & Hydrogeology

Reference to Kiama 1:100 000 Soil Landscape Series Sheet 9028 indicates the site to be Bombo (bo) Erosional Landscape comprising rolling low hills with benched slopes and sea cliffs with extensive rock platforms on Bombo Latite. Reference to geological maps of the area indicates the site to be underlain by Quaternary (Qa) comprising gravel, sand, silt and clay. Creek banks exposed colluvial soils comprising Sandy CLAY with bands of cobbles and gravels.

The depth of groundwater was not assessed in our investigation. It is likely that the depth to groundwater could range from 3m at the lower area to more than 5m at the upper area.

5.0 RESULTS & DISCUSSION

Based on the desktop study and the site observations the following observations are made:

The aerial photographs and other records reviewed did not indicate a potential for site contamination.

Potential contaminated areas include cattle loading pen, fill mounds and areas where scarp metal was found. While it was not possible to identify effluent disposal area, it is likely that effluent would have been disposed on site in the past or may still being disposed on site at present. Such areas may also be potentially contaminated. However such contamination would likely be minor and would not require a detailed Stage 2 assessment.

In general, there is assessed to be a low risk of potential contamination.

6.0 CONCLUSIONS

Based on the desk study and field investigation, the following conclusions are made:

- There assessed to be low risk of site contamination exceeding health based guidelines for residential land use and Stage 2 Contamination Assessment would not be required.
- Areas with potential for contamination are localised and small. Sampling and testing of near surface soils from areas with potential for contamination may be carried out during any future subdivision or other development work.
- If further sampling reveals contamination levels above the applicable land use such soils may be disposed off site to a waste management facility. Further testing will be required to assess waste classification for disposal of soils off site.

This report should be read in conjunction with the attached General Notes. Please contact the undersigned if you require further assistance.

For and on behalf of

Network Geotechnics Pty Ltd

Reviewed by



Mehran Asadabadi *B.Eng (Civil)*
Geotechnical Engineer



V W de Silva *BScEng, MEng, SMIE Aust, CPEng NPER*
Principal Geotechnical Engineer

GENERAL

Geotechnical reports present the results of investigations carried out for a specific project and usually for a specific phase of the project (e.g. preliminary design). The report may not be relevant for other phases of the project (e.g. construction), or where project details change.

SOIL AND ROCK DESCRIPTIONS

Soil and rock descriptions are based on AS 1726 – 1993, using visual and tactile assessment except at discrete locations where field and / or laboratory tests have been carried out. Refer to the terms and symbols sheet for definitions.

GROUNDWATER

The water levels indicated on the logs are taken at the time of measurement and depending on material permeability may not reflect the actual groundwater level at those specific locations. Also, groundwater levels can vary with time due to seasonal or tidal fluctuations and construction activities.

INTERPRETATION OF RESULTS

The discussion and recommendations in the accompanying report are based on extrapolation / interpolation from data obtained at discrete locations. The actual interface between the materials may be far more gradual or abrupt than indicated. Also, actual conditions in areas not sampled may differ from those predicted.

CHANGE IN CONDITIONS

Subsurface conditions can change with time and can vary between test locations. Construction operations at or adjacent to the site and natural events such as floods, earthquakes or groundwater fluctuations can also affect subsurface conditions.

REPRODUCTION OF REPORTS

This report is the subject of copyright and shall not be reproduced either totally or in part without the express permission of this firm. Where information from the accompanying report is to be included in contract documents or engineering specification for the project, the entire report should be included in order to minimise the likelihood of misinterpretation from logs.

FURTHER ADVICE

Network Geotechnics would be pleased to further discuss how any of the above issues could affect your specific project. We would also be pleased to provide further advice or assistance including:

- assessment of suitability of designs and construction techniques;
- contract documentation and specification;
- construction control testing (earthworks, pavement materials, concrete);
- construction advice (foundation assessments, excavation support).

APPENDIX A
Aerial Photographs
2002, 1993, 1984, 1974, 1963 & 1949

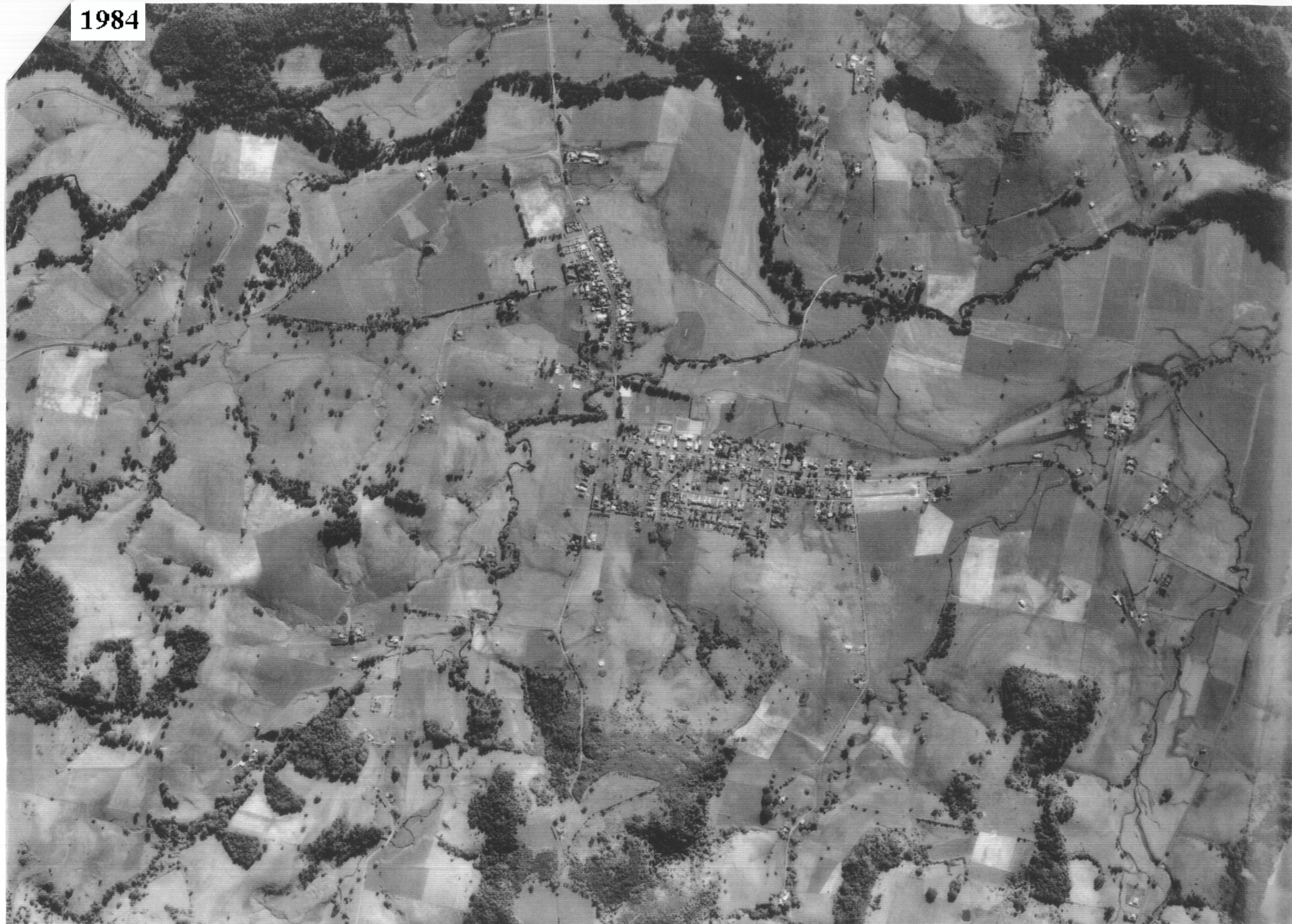
2002



1993



1984



1974

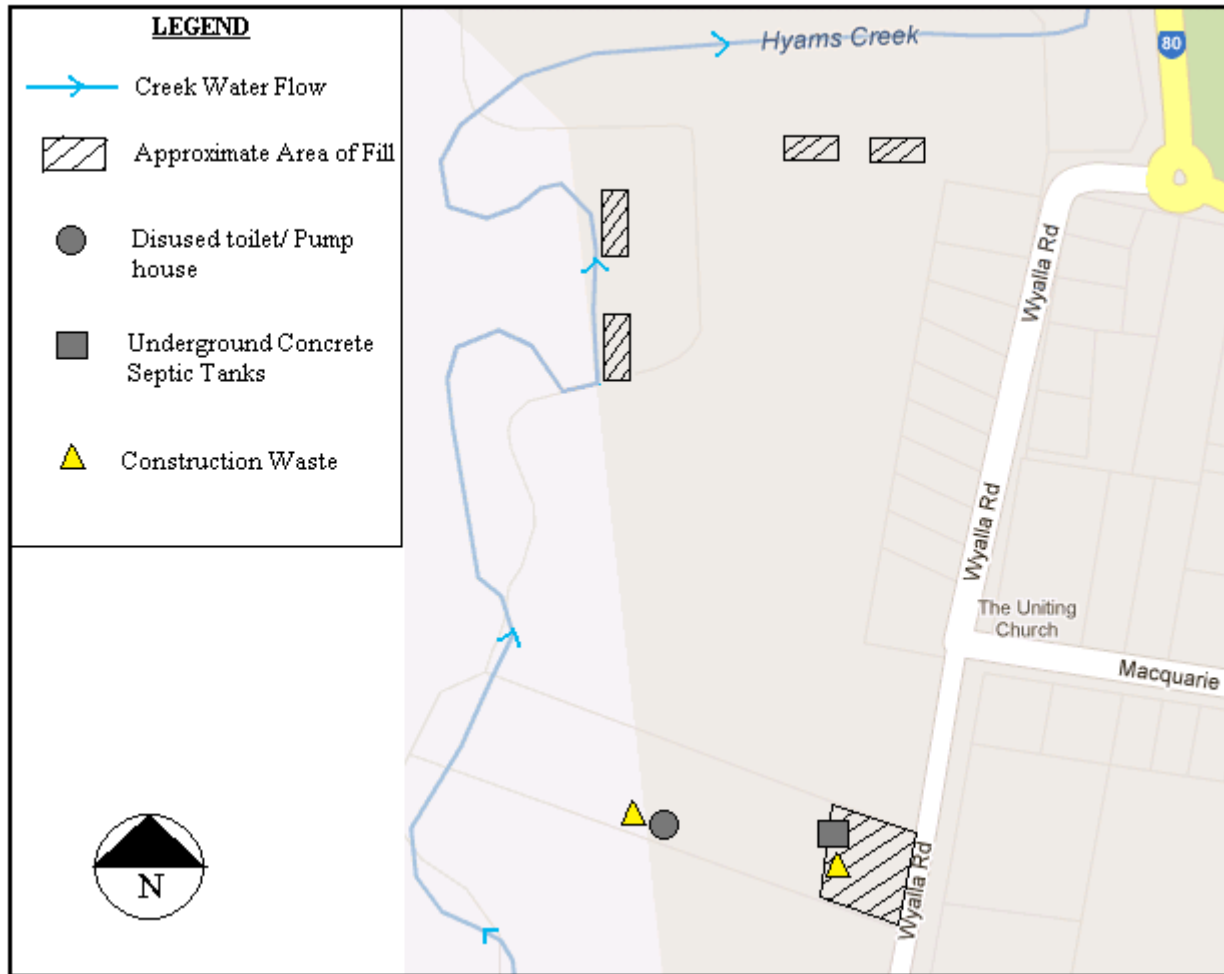


1963



1949





REFERENCE GOOGLE MAPS 2012



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 Email: masadabadi@netgeo.com.au

Scale: A4 - NOT TO SCALE

Date: 31/07/12

Drawing: MA

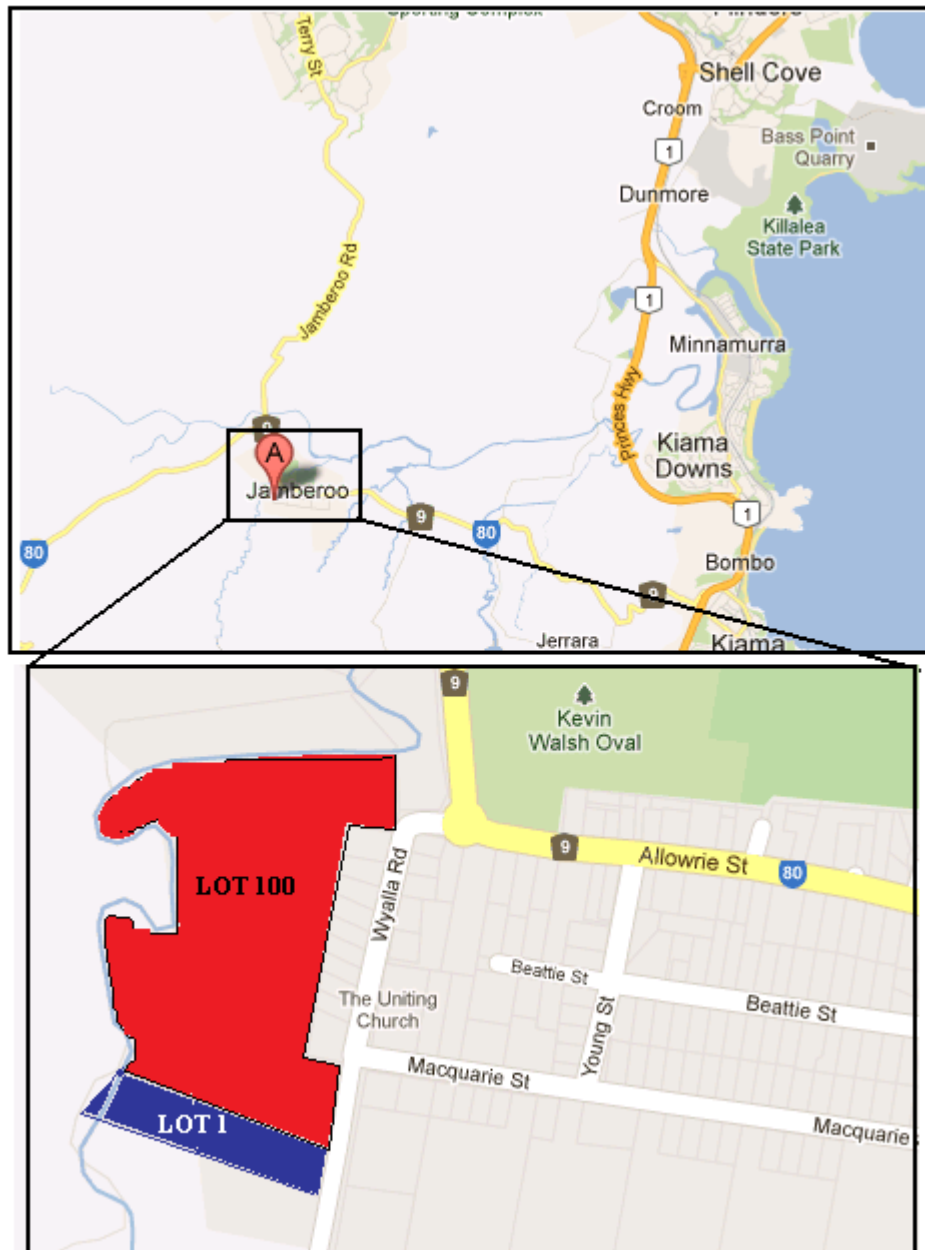
JOB No. W07/1910-1

Client: HUNTINGDALE DEVELOPMENTS

Project: Proposed Residential Subdivision

Location: Lot 100 & Lot 1 Wyalla Road, Jamberoo

SITE PLAN



REFERENCE GOOGLE MAPS 2012-07-31



12/9-15 Gundah Rd, Mt. Kuring-Gai NSW 2529
Tel: (02) 8438 0312
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Scale: A4 - NOT TO SCALE

Date: 31/07/12

Drawing: MA

Drawing No: W07-1910-2

Client: HUNTINGDALE DEVELOPMENTS

Project: PROPOSED RESIDENTIAL SUBDIVISION

Location: LOT 100 & LOT 1 Eyalla Road, Jamberoo

LOCALITY PLAN