

John M. Daly & Associates Pty Ltd  
P.O. Box 25  
CAMPBELTOWN NSW 2560Project 92297.00  
17 July 2018  
R.001.Rev1  
CKM

Attention: Mr Shane Gray

Email: : sgray@jmd.com.au

Dear Mr Gray

**Preliminary Site Investigation (Contamination) - Addendum  
Proposed Residential Development  
Reeves Creek, Picton (East), NSW****1. Introduction**

Douglas Partners Pty Ltd (DP) was commissioned by John M. Daly and Associates Pty Ltd (JMD) to review and comment on a Preliminary Site Investigation (PSI)<sup>1</sup> previously conducted in 2014 for Reeves Creek, Picton. DP understands that since issue of the PSI report, alterations to the zoning plan and general project setbacks have held up progression of works. Accordingly, and considering the elapsed time, an addendum to the PSI report is required to support the Development Application made to Wollondilly Shire Council for the proposed rezoning of the site.

**2. Scope of works**

The scope of works for the addendum included the following:

- Review the zoning changes (maps supplied by JMD);
- Review of the PSI report;
- A limited desktop study including:
  - o A review of recent aerial photography to observe any recent potential contamination issues not identified in the PSI report (i.e. following the date of the PSI); and
  - o NSW EPA data base search.
- Targeted site walkover of accessible areas and areas identified during the aerial photograph review; and
- Interview with development builder and land owner Dartanyon Pty Ltd (Dartanyon) representative Mr Greg Kellner.

---

<sup>1</sup> DP Preliminary Site Investigation, Proposed Residential Subdivision, Reeves Creek, Picton, Project 76579.03, dated 27 February 2014 (the PSI)

### 3. Site Description

Since issue of the PSI report, the site boundary of the proposed rezoning has been amended and the site area has been reduced from 121 ha to approximately 27.5 ha as shown on Drawing 1 (attached). The site is bounded by vacant land to the north, east and south, and to the west by residential properties and vacant land beyond which is Menangle Street. The site is identified as part Lot 106 Deposited Plan (DP) 1111043, part Lot 2 DP229679, and Lot 9 DP 233840.

The site comprises rural and rural residential land use. Most of the site is grass covered, made up of paddocks predominantly cleared of original vegetation and now utilised for cattle and horse grazing (attached Photographs 1 and 2). The former dairy identified in the PSI report is no longer in operation however the sheds, silos and associated infrastructure remain. One residential dwelling with nearby sheds is located central to the site, however the dwelling located on Lot 106 (within the PSI site boundary) is not included in the proposed development, and therefore, is not considered as part of this addendum.

An unnamed tributary of Stonequarry Creek flows west through the centre of the site. The creek and riparian corridors were not assessed as part of this addendum or previous investigations as they are to be assessed at a later date (refer Section 7).

Refer Drawing 1 (attached) for site features and excluded areas.

### 4. Desktop Assessment

#### 4.1 Review of the PSI Report

A review of the PSI report was required to note any changes to the site (from a contamination perspective) since 2014. The PSI report identified the following six potential areas of environmental concern (AEC) within the site;

- AEC 1 – A telecommunication tower (located north of the current site boundary);
- AEC 2 – Four areas of crop cultivation (two of which are located within the current site boundary);
- AEC 3 – Two areas of ground disturbance (neither of which is located in the current site boundary)
- AEC 4 – Two residential dwellings (one of which is located within the current site boundary);
- AEC 5 – A former building (located within the current site boundary); and
- AEC 6 – Dairy and farm sheds (located within the current site boundary).

Refer Drawing 2 (attached) for AEC located in the current site boundary.

The PSI report concluded that additional investigation of these areas in the form of a detailed site investigation (DSI) was required. The PSI report did not consider the contamination potential of the riparian corridors as it was outside the scope of works.

## 4.2 Review of Zoning Maps

A review of the current zoning maps compared to the zoning map provided for the PSI noted the following changes (refer Drawing 3 attached):

- The site now comprises residential areas (R2), environmental conservation (E2) along the riparian corridors and environmental living (E4) in the south west, as opposed to environmental conservation and public recreation (RE1) along riparian corridors;
- The areas south of the current site boundary now comprise rural land use as opposed to residential areas, public recreation (RE1), environmental conservation and environmental living;
- The areas east of the current site boundary now comprise rural land use as opposed to environmental living; and
- The areas north of the current site boundary now comprise rural land use as opposed to environmental living. The area designated for public recreation is slightly increased from the previous zoning map.

## 4.3 Historical Aerial Photographs

Aerial images were examined in order to assess the potential for contamination based on site uses since completion of the PSI report in 2014. Four aerial images were reviewed from 1 October 2014, 15 November 2015, 25 November 2016, and 8 February 2018. A summary of the findings is given below and copies of the aerial images are provided in Attachment B:

**1 October 2014 (Aerial 1):** The site and surrounding area appear relatively unchanged from the 2012 aerial used in the PSI report with the exception of the placement of multiple stockpiles of wood and one stockpile of what is assumed to be corrugated tin sheeting approximately 50 m east of the dairy. Some surficial waste surrounding the dairy has been removed.

**30 November 2015 (Aerial 2):** The site appears relatively unchanged from the October 2014 aerial image.

**25 November 2016 (Aerial 3):** The site appears relatively unchanged from the November 2015 aerial image with the exception of the reduced volume of wood in the stockpiles east of the dairy.

**8 February 2018 (Aerial 4):** The site in general appears relatively unchanged from the November 2016 aerial image.

**Summary:** From review of the above aerial images, there appears to have been no significant changes to the site, or the AEC identified in the PSI report and up to the date of Aerial 4 with the exception of stockpiles of wood and metal located east of the dairy.

## 4.4 NSW EPA Public Registers

A search on 3 July 2018 for Statutory Notices and licences issued under the *Contaminated Land Management Act 1997* and *Protection of the Environment Operation Act 1997* (POEO), available on the NSW EPA website, showed that no notices or licences have been issued for the site or within a 1 km radius of the site.

## 5. Site Walkover

DP completed site walkovers on 2 and 9 July 2018 accompanied by Mr Kellner of Dartanyon. Relevant observations made during the walkovers are outlined below with selected photographs provided in the attached photographic plate. Site features are shown on Drawing 1 (attached).

### 2 July 2018

- Multiple stockpiles of timber/wood (identified in the aerial imagery – Section 4.1) were observed east of the dairy. The northernmost stockpiles were reduced to a scattering of wood on the surface. No anthropogenic material was observed in the stockpiles (Photograph 3);
- Approximately 18 stockpiles of orange and brown silty clay fill and three stockpiles of dark brown topsoil fill had been deposited adjacent to the riparian corridor southeast of the dairy (Photographs 4 and 5). The clay fill contained inclusions of demolition waste including brick fragments, concrete and general refuse (Photograph 6). No suspected asbestos containing material (ACM) was observed on the surface of the stockpiles. No waste classification of this material was reviewed by DP, and DP was unable to substantiate the source of the stockpiles (refer Section 6);
- The stockpile of corrugated tin sheeting and wood identified in aerial imagery (Section 4.1) did not appear to contain ACM on the surface of the stockpile. Barbed wire, chipboard and plastic was also observed in this stockpile (Photograph 7);
- The dairy had ceased operation and the dismantling of infrastructure/demolition was underway; and
- Surficial waste was observed on the edges of the riparian corridors (Photograph 8).

### 9 July 2018

- The clay and topsoil stockpiles located south east of the dairy had been largely removed from site with remnant loose soil and some gravel remaining on the surface (Photographs 9 and 10);
- Two fragments of suspected ACM were observed on the surface within the stockpile footprints (Photographs 11 and 12);
- Multiple fragments of suspected ACM were observed on the ground surface approximately 10 m north of the former stockpiles, adjacent to three small (*i.e.* <1 m<sup>3</sup>) pre-existing stockpiles of gravel, soil and demolition rubble (Photographs 13 and 14);

The suspected ACM appeared to be surficial (*i.e.* not in the underlying fill) and was in good condition.

The locations of the above discussed site features are shown on Drawing 1 (attached).

## 6. Interview

As noted above, the site walkovers were undertaken with Mr Kellner of Dartanyon to confirm the site boundaries and the details of the proposed development.

Regarding the importation of the stockpiled material, Mr Kellner stated that the topsoil stockpiles were sourced from a nearby property in Picton and were stored temporarily on the site as a favour between property owners, while the clay stockpiles were site derived during excavations for a site shed. The stockpiles were removed from site on 6 July 2018 and were reported by Mr Kellner to have been delivered to a nearby property in Picton, no further information was available at the time of writing this report. DP did not review any waste classification reports regarding this material and is unable to substantiate the source or destination of the material.

Regarding the suspected ACM, Mr Kellner believed that the ACM was likely sourced during the demolition of a former outside toilet on site and during demolition of parts of the dairy. All other pre-existing stockpiles were derived on site during land clearing activities, upgrades to the residential building, and demolition of sheds and the dairy. All stockpiles and surficial waste were to be removed as a part of re-development. Mr Kellner also stated that the riparian corridors were to be cleared of all waste and weeds, and revegetated as part of the proposed development of the site.

## 7. Discussion

A summary of relevant findings are outlined below:

- The stockpiles of imported clay and topsoil fill observed on 2 July 2018 have since been largely removed from site with remnant soil, gravel and trace anthropogenic material (bricks, concrete, plastic and suspected ACM) remaining within the stockpile footprints. Considering the former stockpiles were imported to site (at least in part), and are potentially impacted with asbestos, the stockpile footprints are considered to be an AEC and should be investigated further with sampling of contaminants of concern as a part of re-development;
- Due to the presence of suspected ACM on the ground surface southeast of the dairy, this area should be further assessed and remediated as a part of re-development. The small stockpiles adjacent to the suspected ACM should be also be assessed for asbestos and other possible contaminants (waste classification) prior to removal from site. Given the proximity of the suspected ACM and stockpiles to the dairy, and given that the dairy is the likely source of the suspected ACM and stockpiles, these locations are included with AEC 6 (the dairy);

The stockpile footprints and adjacent surficial ACM area has been assigned as AEC 7;

- The stockpiling of wood/timber south of the dairy was not considered to pose a contamination threat, and the potential from contamination from the stockpile of corrugated tin and wood was considered to be low;
- DP understands that surficial waste observed in the riparian corridors is to be removed prior to development of the site. As these areas were not assessed as a part of the PSI, and noting the observed surficial waste, and the potential for contamination in these areas from historic land uses (such as waste disposal), DP considers the riparian corridors to be a potential AEC and recommends further investigation of these areas as a part of re-development (i.e. during the DSI which can be undertaken either prior to or post the proposed clean up and removal of weeds). DP does not consider the lack of investigation in these areas to impact on the proposed development application.

For the purposes of future investigations, the riparian corridor has been assigned as AEC 8;

- There were no changes to the AECs identified in the PSI report with the exception of the inclusion of suspected ACM and stockpiles in AEC 6 (the dairy); and
- Further investigation of the AECs is still required prior to development. Refer Drawing 4 for a map of updated AECs.

## 8. Conclusion

DP considers that the recommendations and conclusions of the PSI are still valid and so may still be used for the current rezoning proposal.

In addition to the AEC identified in the PSI, the following areas have also been identified and require further investigation prior to re-development:

- The area of surficial suspected ACM and pre-existing stockpiles adjacent to the dairy (assigned under AEC 6);
- The footprints of the former stockpiles (suspect ACM and chemical contaminants) (AEC 7); and
- The riparian corridors.(AEC 8).

## 9. Limitations

Douglas Partners Pty Ltd (DP) has prepared this report for this project at Reeves Creek, East Picton, NSW in accordance with DP's proposal MAC180200 dated 18 June 2018 and acceptance received from Mr Shane Gray. The work was carried out under DP's Conditions of Engagement. This report is provided for the exclusive use of John M Daly & Associates Pty Ltd for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of DP, does so entirely at its own risk and without recourse to DP for any loss or damage. In preparing this report DP has necessarily relied upon information provided by the client and/or their agents.

The results provided in the report are indicative of the surface conditions on the site only at the locations observed, and then only at the time the work was carried out. Surface conditions can change abruptly as a result of human influences. Such changes may occur after DP's site inspections have been completed.

DP's advice is based upon the conditions encountered during this investigation. The accuracy of the advice provided by DP in this report may be affected by undetected variations across the site advice may also be limited by budget constraints imposed by others or by site accessibility.

This report must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. DP cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by DP. This is because this report has been written as advice and opinion rather than instructions for construction.

The contents of this report do not constitute formal design components such as are required, by the Health and Safety Legislation and Regulations, to be included in a Safety Report specifying the hazards likely to be encountered during construction and the controls required to mitigate risk. This design process requires risk assessment to be undertaken, with such assessment being dependent upon factors relating to likelihood of occurrence and consequences of damage to property and to life. This, in turn, requires project data and analysis presently beyond the knowledge and project role respectively of DP. DP may be able, however, to assist the client in carrying out a risk assessment of potential hazards contained in the Comments section of this report, as an extension to the current scope of works, if so requested, and provided that suitable additional information is made available to DP. Any such risk assessment would, however, be necessarily restricted to the environmental components set out in this report and to their application by the project designers to project design, construction, maintenance and demolition.


Please contact the undersigned if you have any questions on this matter.

Yours faithfully  
**Douglas Partners Pty Ltd**

Reviewed by



**Cindy Murphy**  
Senior Associate



pp for: **Mike Nash**  
Principal

**Attachment 1** - Drawings 1 to 4  
**Attachment 2** - Aerial Photographs  
**Attachment 3** - Site Photographs  
**Attachment 4** - About this Report

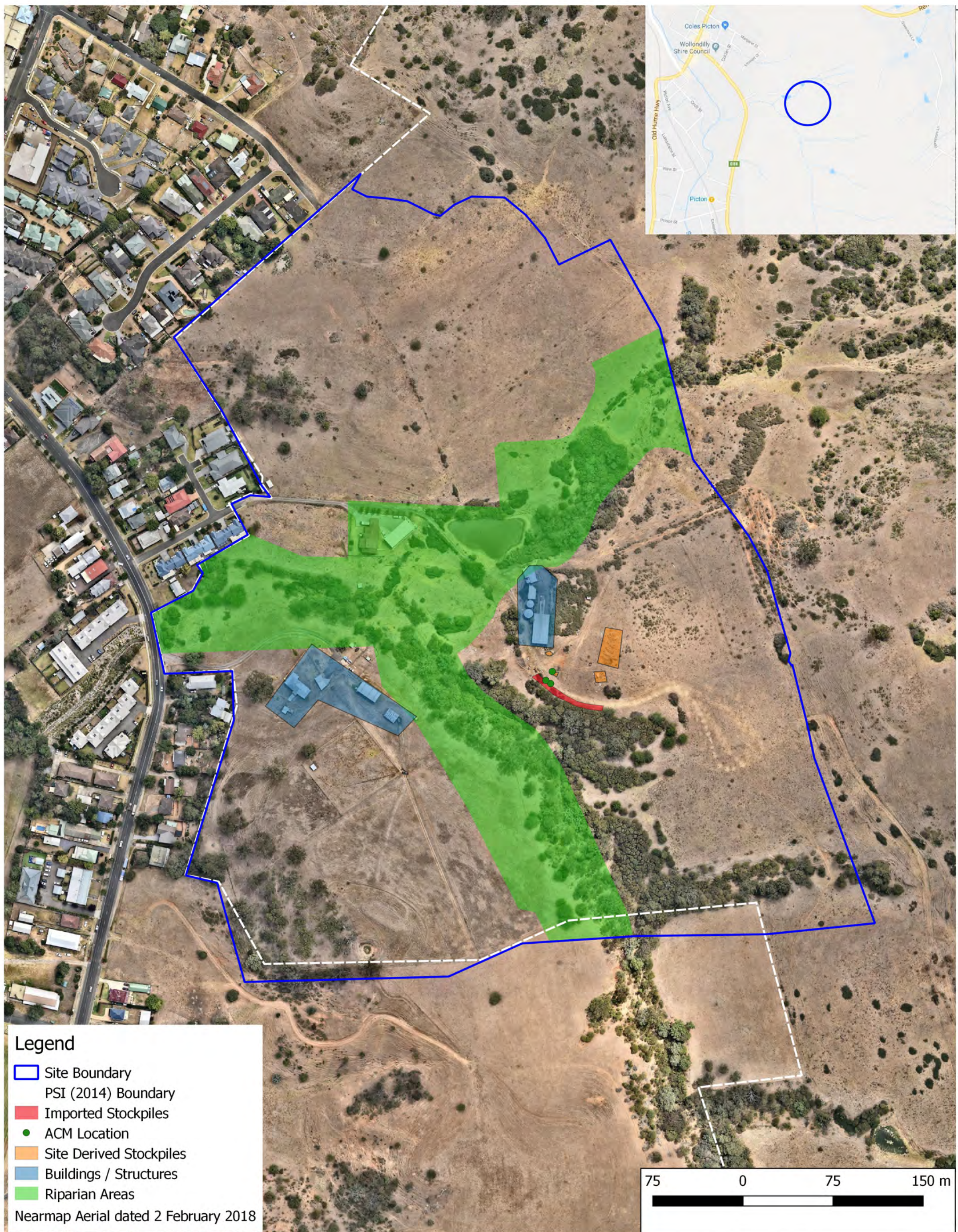
---

## **Attachment 1**

---

Drawings 1 to 4









## Legend

- Site Boundary
- PSI (2014) Site Boundary
- AECs Identified in PSI (2014)

Nearmap Aerial Photograph dated February 2018



**Douglas Partners**  
Geotechnics | Environment | Groundwater

TITLE: **AECs Identified in PSI (2014)**  
**Contamination Addendum**  
**Reeves Creek, Picton East, NSW**



OFFICE: Macarthur

DRAWN CKM

DATE: 5 July 2018

CLIENT: John M. Daly & Associates

PROJECT No: 92297.00.R.001

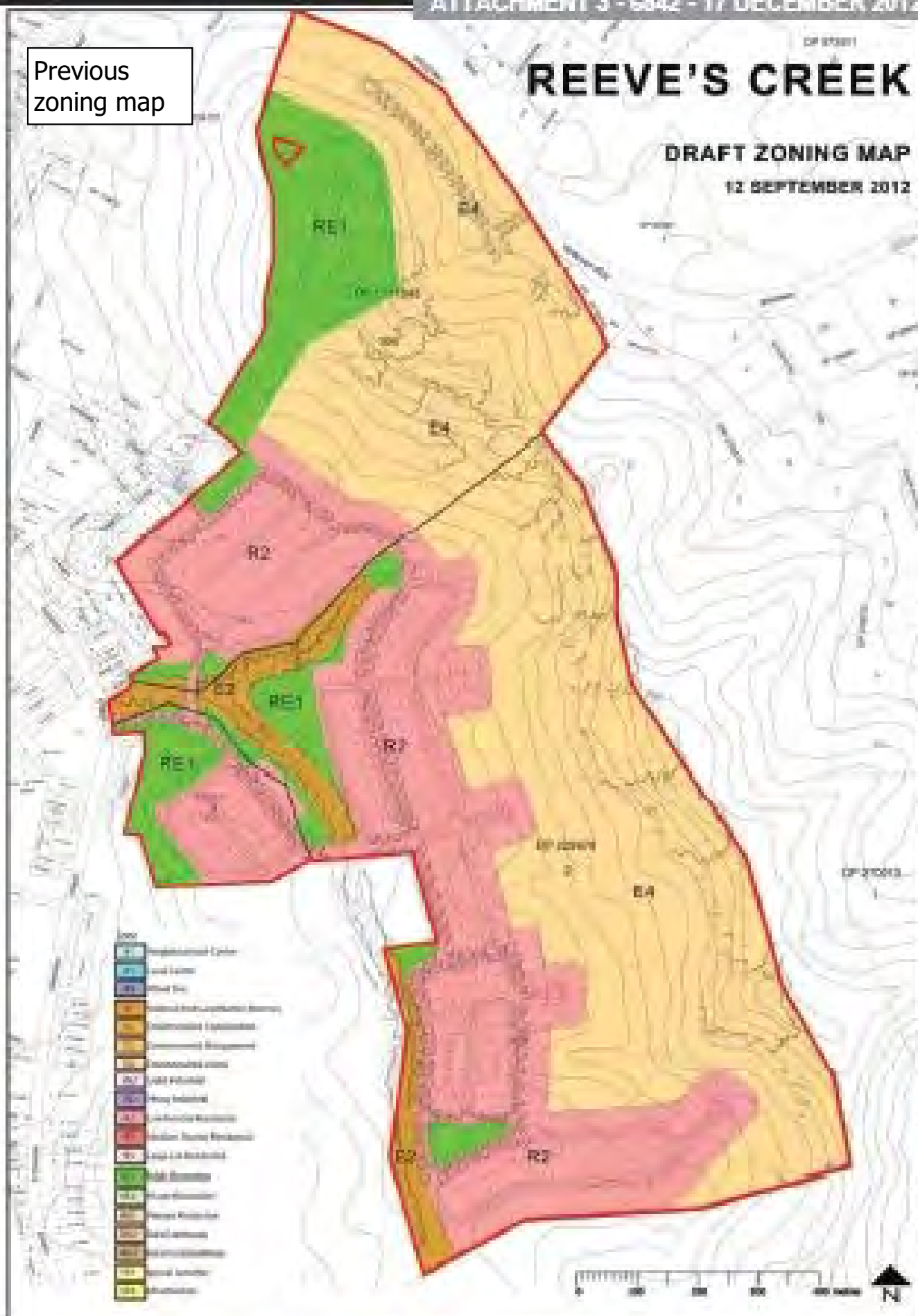
DRAWING No: 2

REVISION: 0

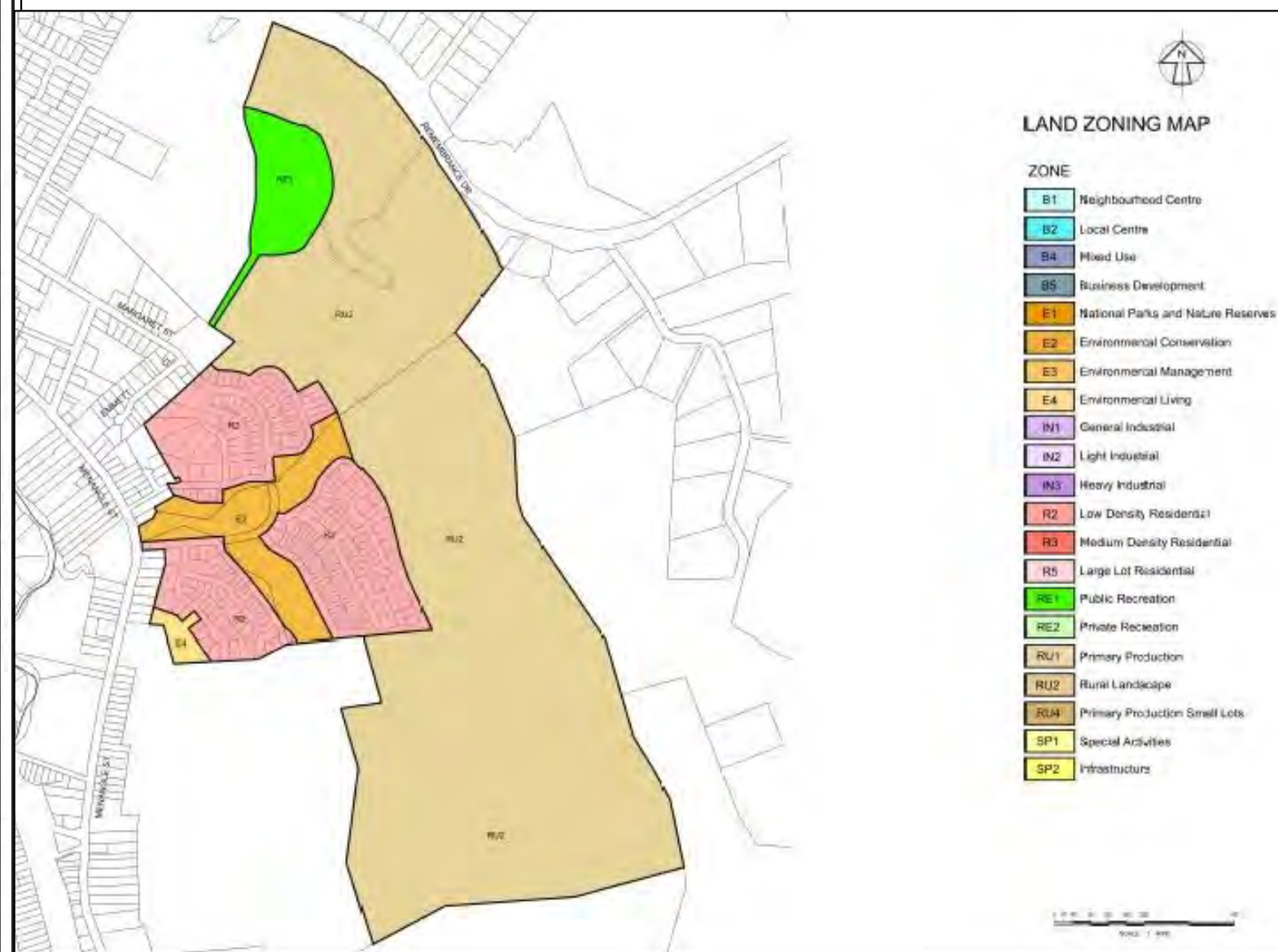
SCALE: 1:3,018 (A3)



**DRAFT ZONING MAP**  
**12 SEPTEMBER 2012**



Current zoning map



CLIENT: John M. Daly & Associates Pty Ltd

OFFICE: Macarthur

DRAWN CKM

SCALE: 1:25,000

DATE: 5 July 2018

**TITLE: Client Supplied Previous and Current Proposed Zoning Maps  
Contamination Addendum  
Reeves Creek, Picton East, NSW**



PROJECT No: 92297.00.R.00

DRAWING No:3

REVISION: A





### Legend

- Site Boundary
- PSI (2014) Boundary
- AEC Locations
- Riparian Areas / AEC 8

Nearmap Aerial Photograph dated 2 February 2018



TITLE: **Updated AECs  
Contamination Addendum  
Reeves Creek, Picton East, NSW**



OFFICE: Macarthur

DRAWN CKM

DATE: 5 July 2018

CLIENT: John M. Daly & Associates

PROJECT No: 92297.00.R.001

Drawing No:

4

REVISION: 0

SCALE: 1:3,018 (A3)



---

## **Attachment 2**


---

Aerial Photographs

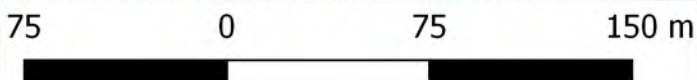




Legend

 Site Boundary

Nearmap Aerial Photograph dated 1 October 2014



**Douglas Partners**  
Geotechnics | Environment | Groundwater

TITLE: **Nearmap Aerial Photograph - 1 October 2014**  
**Contamination Addendum**  
**Reeves Creek, Picton East, NSW**



OFFICE: Macarthur

DRAWN CKM

DATE: 5 July 2018

CLIENT: John M. Daly & Associates

PROJECT No: 92297.00.R.001

Aerial Photograph No: 1


REVISION: 0

SCALE: 1:3,018 (A3)

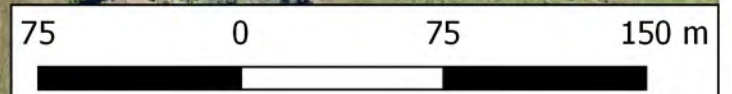




Legend

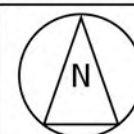
 Site Boundary

Nearmap Aerial Photograph dated 30 November 2015



**Douglas Partners**  
Geotechnics | Environment | Groundwater

TITLE: **Nearmap Aerial Photograph - 30 November 2015**  
**Contamination Addendum**  
**Reeves Creek, Picton East, NSW**



OFFICE: Macarthur

DRAWN CKM

DATE: 5 July 2018

CLIENT: John M. Daly & Associates

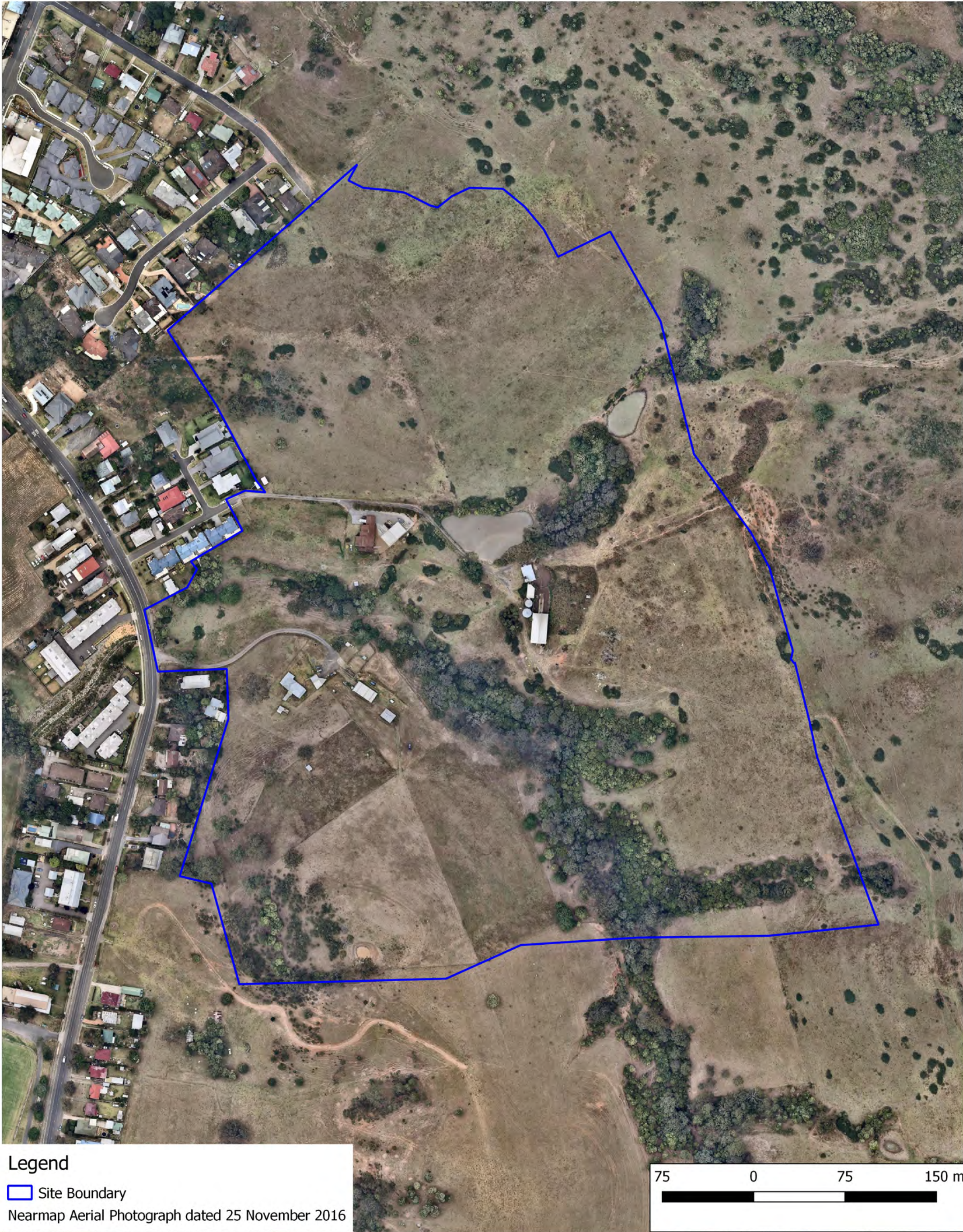
PROJECT No: 92297.00.R.001

Aerial Photograph No: 2

REVISION: 0

SCALE: 1:3,018 (A3)







**Legend**

Site Boundary

Nearmap Aerial Photograph dated 25 November 2016

		<b>TITLE:</b> Nearmap Aerial Photograph - 25 November 2016 Contamination Addendum Reeves Creek, Picton East, NSW			
CLIENT: John M. Daly & Associates		PROJECT No: 92297.00.R.001	Aerial Photograph No: 3	REVISION: 0	SCALE: 1:3,018 (A3)

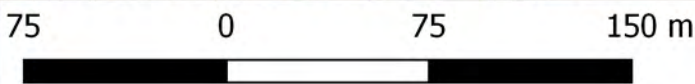




Legend

 Site Boundary

Nearmap Aerial Photograph dated 8 February 2018



**Douglas Partners**  
Geotechnics | Environment | Groundwater

TITLE: **Nearmap Aerial Photograph - 8 February 2018**  
**Contamination Addendum**  
**Reeves Creek, Picton East, NSW**



OFFICE: Macarthur

DRAWN CKM

DATE: 5 July 2018

CLIENT: John M. Daly & Associates

PROJECT No: 92297.00.R.001

Aerial Photograph No: 4

REVISION: 0

SCALE: 1:3,018 (A3)



---

## **Attachment 3**

---

Site Photographs



Photograph 1 - Vacant paddocks used for cattle grazing (looking north)



Photograph 2 - Vacant paddocks used for cattle grazing (looking south). Photograph taken 2/7/18



Photograph 3 - Stockpiles of wood located east of the dairy (looking north). Photograph taken 2/7/18



Drawing 4 - Stockpiles of imported orange and brown clay fill (looking west). Photograph taken 2/7/18





Photograph 5 - Stockpile of imported dark brown topsoil fill. Photograph taken 2/7/18



Photograph 6 - Close up of stockpiles containing trace concrete. Photograph taken 2/7/18





Photograph 7 - Stockpile of wood, tin, barbed wire adjacent to the dairy. Photograph taken 2/7/18



Photograph 8 - Surficial waste in the riparian corridors. Photograph taken 2/7/18



Photograph 9- The site following removal of stockpiles (looking east). Photograph taken 9/7/18



Photograph 10 - The site following removal of the stockpiles (looking west). Photograph taken 9/7/18





Photograph 11- Suspected ACM in the footprint of the former stockpiles. Photograph taken 9/7/18



Photograph 12 - Suspected ACM in the footprint of the former stockpiles. Photograph taken 9/7/18





Photograph 13- ACM on the ground surface 10 m north of the former stockpiles. Photograph taken 9/7/18



Photograph 14 - Small stockpile of pre-existing gravel, soil and demolition rubble. Photograph taken 9/7/18

---

## Attachment 4

---

About this Report

# About this Report

# Douglas Partners



## Introduction

These notes have been provided to amplify DP's report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

DP's reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

## Copyright

This report is the property of Douglas Partners Pty Ltd. The report may only be used for the purpose for which it was commissioned and in accordance with the Conditions of Engagement for the commission supplied at the time of proposal. Unauthorised use of this report in any form whatsoever is prohibited.

## Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

## Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;

- A localised, perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report; and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

## Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, DP will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, DP cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

If these occur, DP will be pleased to assist with investigations or advice to resolve the matter.

# *About this Report*

## **Site Anomalies**

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, DP requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

## **Information for Contractual Purposes**

Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. DP would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

## **Site Inspection**

The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.