

Malbec Properties Pty Ltd



Stage 1 Contamination Assessment:

Lot 3 DP 568613
& Lot 384 DP 755952
Mundamia
NSW.

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March 2009

ENVIRONMENTAL



WATER



WASTEWATER



GEOTECHNICAL



CIVIL



PROJECT
MANAGEMENT



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All enquiries regarding this project are to be directed to the Project Manager.

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1 Overview

1.1 Background

Malbec Properties Pty Ltd (the Client) has commissioned Martens & Associates Pty Ltd (Martens) to carry out a Stage 1 contamination assessment to support a development application (DA) for the subdivision of Lot 3 DP 568613 and Lot 384 DP 755952, Mundamia. For reporting purposes, the 'site' is referred to as both Lot 3 DP 568613 (the northern lot) and Lot 384 DP 755952 (the southern lot).

1.2 Project Scope

The Stage 1 contamination assessment involves:

- Historic aerial photograph interpretation (API) of the site.
- Review of oral site history provided by the existing land owners.
- Review of Shoalhaven City Council (SCC) DA records.
- Review of NSW EPA contamination database.
- Walkover inspection of the site to identify any areas of potential contamination and access for potential Stage 2 works.

2 Site Description

2.1 Site Inspection

A site inspection was undertaken on 9th of September, 2008. Works conducted during the inspection included a general walkover inspection of the site to review existing buildings, contamination potential and site access constraints. Discussion was conducted on-site with the existing land owner of Lot 3 DP 568613 with regards to site history.

2.2 Location and Existing Land-use

The site is located on the eastern side of Jonsson and George Evans Roads, Mundamia. It is approximately 3km due west of Nowra city centre, in the SCC LGA. The site's northern boundary is located 300m to the south east of the bank of the Shoalhaven River.

A single dwelling with a number of corrugated iron sheds were observed in the south eastern corner of Lot 3. Lot 384 contains a single dwelling with a number of sheds and other dilapidated buildings, located in close proximity in the southern portion of the site. Both lots are rural in nature, and are currently used for livestock grazing.

A site aerial photo with site boundaries superimposed is provided as Figure 4.

2.3 Topography and Drainage

In terms of the wider regional topography, the site comprises the north east facing upper/middle slope units of a broad crest unit. Lots are described as follows:

- Lot 384: Elevations on Lot 384 range from 70 to 50 mAHD with the upper elevations of the site dominated by cleared pasture and slopes <5°. This portion of the site drains to the north (through a number of small dams) onto Lot 3. The eastern portion of the lot contains steeper slopes (up to 15°), with vegetation dominated by dry sclerophyll forest. The slope increases to the east of the site, down to a scarp which is located off the site. This portion of the site also drains to the east, into an unnamed creek and ultimately the Shoalhaven River.
- Lot 3: Elevations on Lot 3 range from 52 to 36 mAHD. A broad drainage depression drains the majority of the site towards the north east. The depression forms into an intermittent creek in the middle-north portion of the site, which directs overland flow to

the unnamed creek located to the east of the lot (as described above). Lot 3 is dominated by dry sclerophyll forest in the eastern portion, with slopes ranging from 5 -10° before increasing down to the scarp. Cleared pasture dominates the western portion of the lot, with slopes ranging from 2 - 5°.

3 Stage 1 Contamination Assessment

3.1 Existing Land Use

The majority of the site is currently zoned 1(d) 'General Rural' and a small eastern portion of the site is zoned 7(d1) 'Scenic Environment Protection' under the SCC (1985) LEP. Existing land use and site features pertinent to the Stage 1 assessment for each of the lots are summarised below.

Lot 3 DP 568613 (northern lot):

- An existing single storey brick dwelling in the south eastern corner of the lot.
- Corrugated iron shed, and a number of disused and rusted vehicles (cars and small trucks, approximately 8-10), trailers and other items to the south of the dwelling.
- Paddocks utilised for agricultural purposes in the western portion of the site.

Lot 384 DP 755952 (southern lot):

- Single storey brick dwelling in the southern portion of the lot.
- 2 disused dwellings, 1 dilapidated and 1 completely demolished (Figure 1), to the east of the brick dwelling.
- Corrugated iron or weatherboard sheds ranging in size (approximately 8 – 10) in the southern portion of the site.
- 3 dams; one located along the southern boundary of the lot, one in the middle and one located along the northern boundary of the lot.
- Sheep grazing.
- Rubbish piles consisting of general waste (Figure 2), machinery and asbestos (Figure 3) and randomly scattered items (such as fencing wire, corrugated iron water tanks, farm machinery, general refuse) across the lot.

Figure 1: Collapsed dwelling, Lot 384.



Figure 2: Pile of fill containing farm machinery, storage drums etc, south eastern corner of Lot 384.



Figure 3: Pile of fibro, south eastern corner of Lot 384.



3.2 Site History

3.2.1 Existing Landowners Discussion

Some information regarding the site history was provided by the existing land owners. Information regarding Lot 3 was provided by Laurie and Rod Griffith, and Lot 384 was provided by Reg Burke.

- Lot 3: Owners indicated that the north western paddocks of the site had been used for broad acre agricultural practices (going back 20 years), for growing turnips and tomatoes. Over the years of agricultural production, organic paper mill waste from the Shoalhaven Paper Mill at Bomaderry was imported for use as a fertiliser. In more recent time, the majority of the western portion of the site had been used as grazing land or for horse agistment.
- Lot 384: Owner indicated that the western paddocks of Lot 384 had been used for growing turnips and oats. In recent time, the site has been mostly used for livestock grazing (sheep).

3.2.2 NSW EPA Records

A review of NSW EPA database records revealed there are no notices for the Mundamia area.

3.2.3 Council Consent Search

SCC's development services division (Ms Beth Shepherd) was contacted to gain access to any relevant development consents for the 2 lots. The following consents were found in Council records:

- 1977, Lot 384: Consent was granted for the resiting of an existing weatherboard dwelling.
- 1985, Lot 3: Consent was granted to construct a new brick dwelling and attached garage.

3.2.4 Aerial Photograph Interpretation

Historical API was conducted using photographs from 1961, 1970, 1984, 1993 and 2008. API suggests that site land use from 1961 to the current day has comprised rural use, in general line with the oral account provided by the existing landowners. Photographs used in the API are provided in Attachment A and an API summary is provided in Table 1 below.

Table 1: Summary of API, detailing photo year and observed site land-use.

| Year | Description of / Changes to Land-use | |
|------|--|---|
| | Lot 3 DP 568613 (northern lot) | Lot 384 DP 755952 (southern lot) |
| 1961 | Dwelling observed in the western portion of the lot. North western portion appears partly cleared, however no indication of separate paddocks for agricultural usage. | Access track and at least 3 buildings observed in the southern portion of the site. Approximately 15-20% of site cleared, the rest is well vegetated. |
| 1970 | Eastern portion of the site cleared, with areas split into paddocks. Western portion remains well vegetated. | As above, however with one more building. Cleared area appears to be mostly re-vegetated. |
| 1984 | As above, with a new building on the western boundary and one in the south western corner. An access track leading to small cleared area in the south eastern corner of the lot. | Significant clearing observed (extent same as existing site), with cleared areas separated into paddocks. Cluster of approximately 8-10 buildings observed in the southern portion of the lot, and one observed on the western edge of the lot. Large dam observed along southern boundary. |
| 1993 | New dwelling and shed constructed in the south eastern portion of the site. | No significant changes, however the building configuration appears to have changed from 1984. 2 new small dams in northern portion of site. |
| 2008 | Building as described in 1961 has been demolished. | No significant changes from above. |

Figure 4: Aerial photograph (2008) showing the site in its environmental context.



3.3 Potential for Site Contamination

Our assessment of risk of site contamination is made on the basis of available site history, API and site inspection. We note the following:

1. Site oral history indicates the site has been subject to rural land-use with low - medium intensity agricultural activities for approximately 35 years.
2. API confirms the oral history.
3. The limited site sub-surface investigations revealed no visual or olfactory indication of contamination.
4. Site investigations revealed numerous rubbish piles (> 10 observed) across the southern portion of the site (Lot 384).
5. Local / nearby land-use has been rural for > 50 years and therefore presents a low risk of impacting the site from a contamination perspective.

Rubbish dumps were observed on Lot 384 contained a mixture of: rusted chemical drums; fibrous cement sheeting (likely to contain asbestos), corrugated iron sheeting, rusted farm machinery parts, rolls of chain link fencing wire and assorted rubbish. Additionally, Lot 384 had a number of dilapidated buildings containing fibro sheeting.

No obvious signs of gross chemical contamination such as soil staining or plant stress were observed during site inspections. However, due to the site's history of low intensity farming practices and assorted rubbish dumping, there is a potential that contamination exists on the site. Potential areas of general and 'hotspot' contamination are outlined in Table 1 and indicated on the site plan (Attachment A).

Table 2: Potentially contaminated locations, contaminating activities and contaminants.

| Location | Activity | Potential Contaminants |
|--|--|---|
| Dwellings, livestock yards and sheds, southern portion of the site (Lot 384). | Storage of machinery, fertilisers and other chemicals. Sheds and dwellings possibly containing asbestos materials. | HM, Herbicides, OCP/OPP, asbestos. |
| 3 dams located on Lot 384. | Accumulation of heavy metals, herbicides and pesticides from various farm activities. | HM, Herbicides, OCP/OPP. |
| Scattered disused machinery and areas of rubbish fill and soil stockpiling, across the site (see Figures 1 & 2). | Dumping of old car parts, various pieces of machinery, fibro sheeting and other building products. | HM, TRH, BTEX, PAH's, OCP/OPP and asbestos. |
| Paddocks of Lot 3 and Lot 384 | Agricultural activity utilising pesticides, herbicides and fungicides. | HM, OCP/OPP |

Based on API and site investigations, potential contamination issues are most probably limited to 'hotspot' areas surrounding the existing dwellings, sheds, livestock mounting yards and assorted rubbish piles on Lot 384. Paddocks formally used for agricultural cropping activity, and to a lesser extent, grazed lands. Sedimentation within the site's 3 dams may have led to the accumulation of heavy metals, herbicides and pesticides over the life of the farm.

3.4 Conclusions and Recommendations

3.4.1 Conclusion

Stage One investigations reveal a potential for contamination from past agricultural land uses. However this does not preclude its use for future residential purposes. It is recommended that a Stage 2 investigation be conducted with any remediation and validation as required, prior to the release of the sub-division certificate. The requirement for a Stage 2 investigation should be included as a condition of consent.

3.4.2 Extent of "Hot Spots"

The present land condition and the site's history indicates that contamination associated with agriculture, past building and rubbish dumping is potentially present on the site. Potential contamination areas are shown on the site plan (Attachment A). In order to quantify the extent of actual site contamination, we recommend that a preliminary Stage 2 contamination sampling program be undertaken.

Due to the size of the site, a complete and thorough walkover inspection was not completed during the single day site inspection. An additional walkover inspection is recommended during Stage 2 investigations to ascertain whether or not there are other 'rubbish tips' or piles of materials other than those which have been indicated in this report. The requirement for a Stage 2 assessment prior to release of subdivision certificate should be included as a condition of consent.

3.4.3 Recommended Sampling Regime

Recommended sampling densities for the preliminary Stage 2 contamination assessment are provided below:

Table 3: Number of sampling points for each potentially contaminating location.

| Location | Number of sampling points |
|----------------------------|---------------------------|
| Each dwelling / shed | 3 / structure |
| Dams | 2 / dam |
| Paddocks used for cropping | 5 / ha |
| Grazed paddocks | 1 / ha |
| Assorted rubbish areas | 2 / pile |

Exact sampling locations and sampling depths should be finalised during inspection.

3.5 Limitation Statement

The site Stage 1 contamination assessment was undertaken in line with current industry standards. No site soil sampling has been undertaken at this stage and a preliminary Stage 2 assessment with site sampling has been recommended to be included as a condition of consent.

It is important, however, to note that no site history analysis can be considered to be a complete and exhaustive characterisation of a site nor can it be guaranteed that any assessment shall identify and characterise all areas of potential contamination or all past potentially contaminating landuses. Therefore, this report should not be read as a guarantee that areas other than those identified in this report shall not be identified as contaminated on the site. Should other material be exposed during the site development process which appears due to visual indications or odours to be contaminated, additional testing may be required.

Martens & Associates Pty Ltd has undertaken this assessment for the purposes of the current development proposal. No reliance on this report should be made for any other investigation or proposal. Martens & Associates accepts no responsibility, and provides no guarantee regarding the characteristics of areas of the site not specifically studied in this investigation.

4 References

Department of Lands – Map Sales (2007). *Aerial Photographs 1961, 1970, 1984, 1993, 2008.*

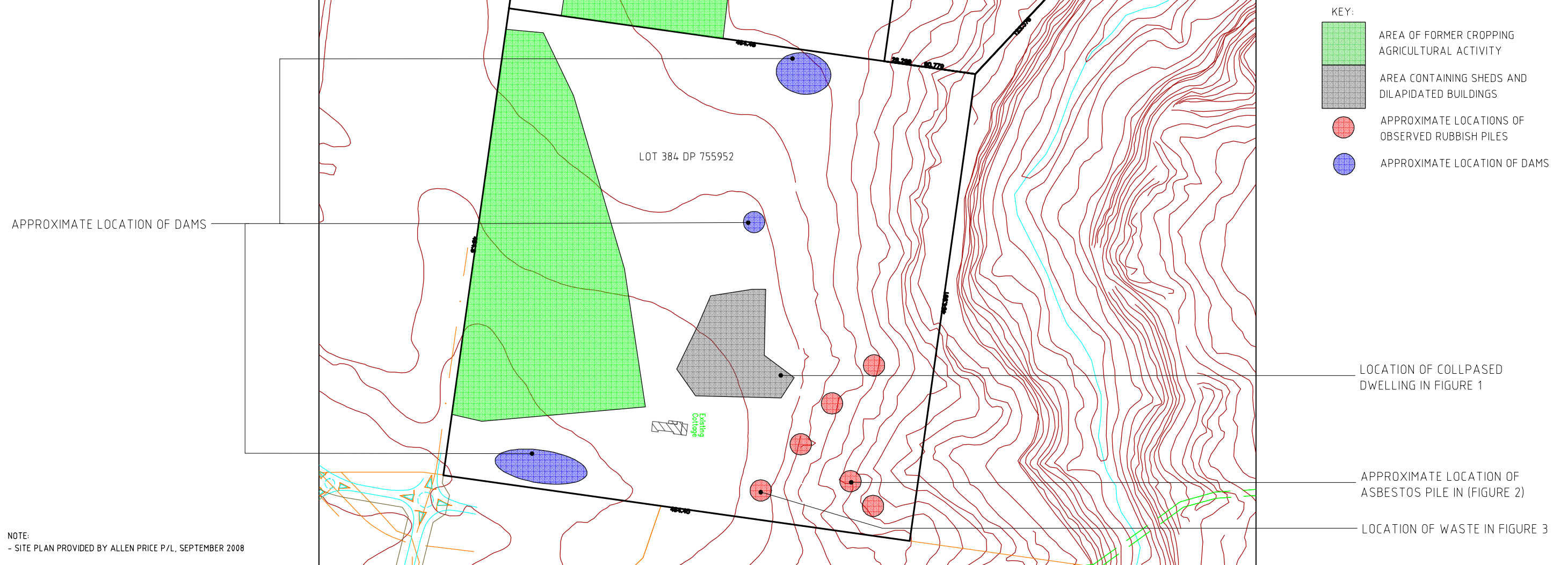
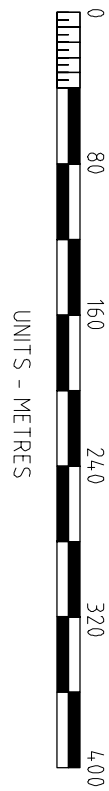
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Shoalhaven City Council (2008). Development services department, archives from 1977 & 1985.

5 Attachment A – Site Plan & Historic Aerial Photos





1961



1970



1982



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UNITS - METRES