Site Constraints to On-Site Wastewater Treatment & Disposal for Rezoning of 1420 Kurmond Road, Kurmond, NSW

Report No. TFA3414/01

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1. BACKGROUND

Toby Fiander & Associates Pty Ltd has been commissioned to provide a short report that examines the site constraints to onsite disposal of wastewater at 1420 Kurmond Road, Kurmond, NSW The legal description of the land is Lot 2 in DP805023.

1.1 Site Location

The site is located as shown in **Figure 1**. Soil was described on the Penrith Soil Conservation map sheet, reproduced in **Figure 2**. A preliminary assessment of soil was also made on site.

1.2 Site Description

The site is principally grazing land and appears to have been used for that purpose for some time. A portion of the site has also been used for orcharding - there were fruit trees still visible in much of this area when first inspected and soil samples were taken there.

2. SOIL ASSESSMENT

Based partly on the Soil Landscape assessment of McInnes (1997) and partly on site observation the the soil is principally Luddenham, which of the common local soils is among the best for wastewater disposal by both irrigation and soakage methods. **Figure 2** is derived from McInnes (1997). It also shows Gymea soil along the drainage lines. Gymea soil can be used for disposal provided minor filling and mixing is also undertaken. No Gymea soil was observed in locations where wastewater disposal is likely.

3. SEPARATION ASSUMPTIONS

The following separation assumptions were made based on the published standards and experience with Council's previous approvals.

- 6 metres if area up-gradient and 3 metres if area down-gradient of driveways and property boundaries,
- 15 metres to dwellings for surface irrigation and/or 6 metres to dwellings for sub-surface irrigation,
- 3 metres to paths and walkways,
- 6 metres to swimming pools,
- 100 metres to (named) watercourses,
- 40 metres to dams and drainage lines.

It was assumed that only where water could enter a dam or other body did the 40m separation apply.

4. SIMPLIFIED TOPOGRAPHIC ANALYSIS

Land with a surface gradient of steeper than one in six (~16%) was assumed to require a reduced application for wastewater, based guidance on AS1547-2012, which nominated 10% as the first category for a minor reduction, but absolute limitation up to 50% grade.

The discussion developed in OSWMSSH(1998) provides for grades steeper than 16% with care and in specific circumstances.

No grades in the proposed disposal locations are steeper than 20%.

5. POSSIBLE MODIFICATIONS

None is known at this stage.

6. SIMPLIFIED ASSUMPTIONS ABOUT DISPOSAL AREAS

Based on previous analysis, published standards and Council's previous approvals, an area of 1000m² was assumed to be required for irrigation disposal. Where this may not be available, it was assumed that disposal would be possible by one of the other methods shown in AS1547-2012.

If a mound was used, the Wisconsin Mound would take approximately 150m² of land, with a requirement for a further area of similar size. A platform would need to be formed with earth batters a grade of three horizontal to one vertical. Based on experience on other sites, an area of about 300m² of land would be adequate.

Other systems may also be suitable, such as evapotranspiration beds. In any case, there is sufficient suitable land available on each block of the indicative subdivision to allow for adequate disposal.

The cumulative impact of the proposed disposal systems is considered negligible. Calculations to arrive at the areas required assume that water will only be applied to the ground when it is in a condition to receive it and transpire it. The area is sufficient to enable phosphorus adsorption and nitrogen use in the vegetation covering the disposal area, so that stormwater runoff from the area should contain only background concentrations of nutrients.

There is also sufficient land provided by the proposal for disposal of wastewater from the existing houses.

The constraints are shown on **Figure 3**, which was prepared on a Council contour plan base. Constraints were shown by Toby Fiander & Associates.

7. CONCLUSIONS

It is concluded that there is sufficient suitable land available on each block of the indicative subdivision to allow for adequate disposal.

8. REFERENCES

McInnes, S.K. (1997) Soil Landscapes of the Penrith 1:100 000 Sheet. Soil Conservation Service of NSW, Sydney.

OSWMSSH(1998) Environment and Health Protection Guidelines - On-Site Sewage Management for Single Households. Dept. of Health, Dept. of Land & Water Conservation, Dept. of Local Govt & NSW EPA

Standards Australia (2012) AS1547:2012 On-site Domestic-Wastewater Management. Sydney.

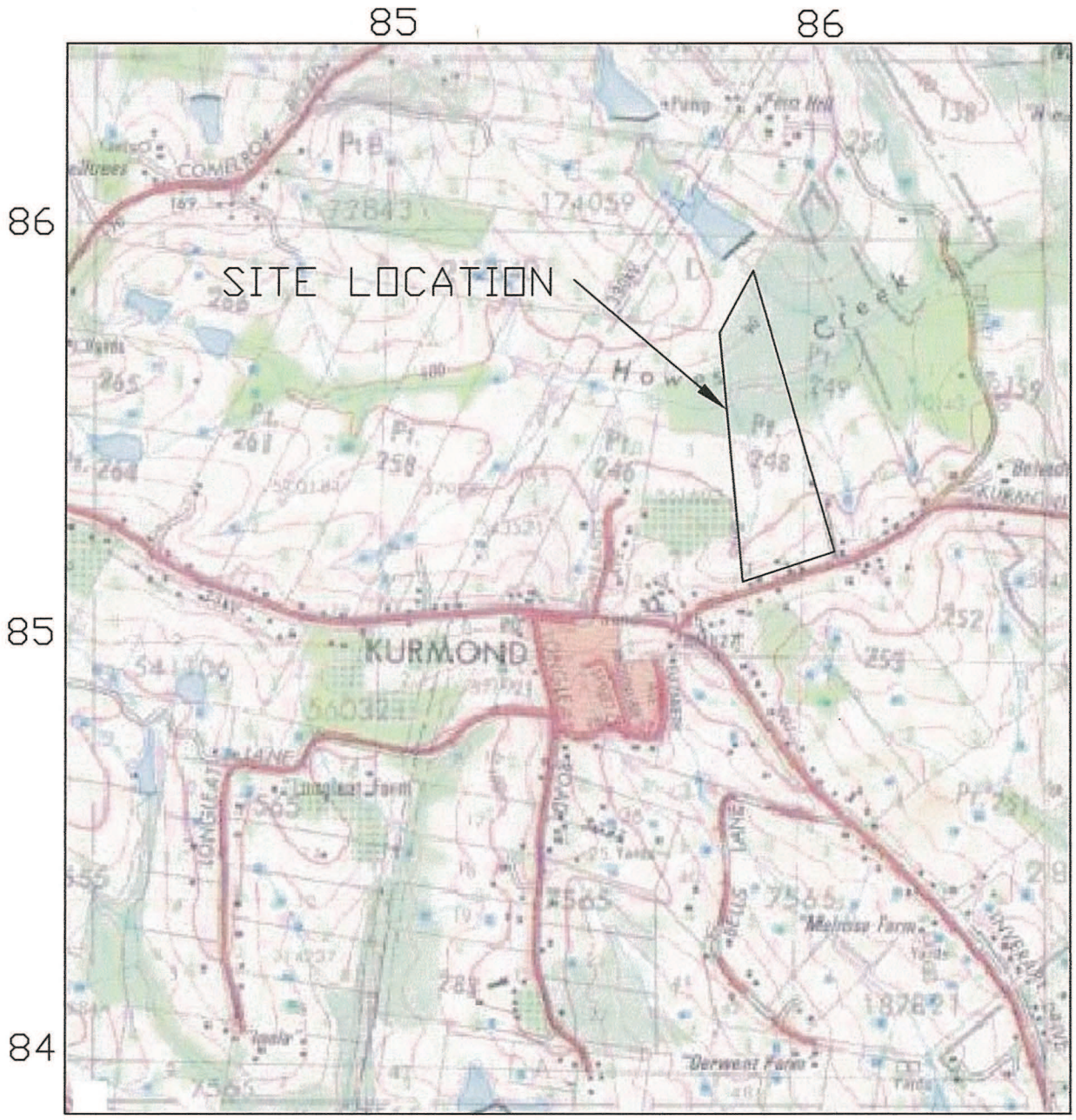


FIGURE 1

KURRAJONG TOPOGRAPHIC MAP

SCALE: 1: 25 000

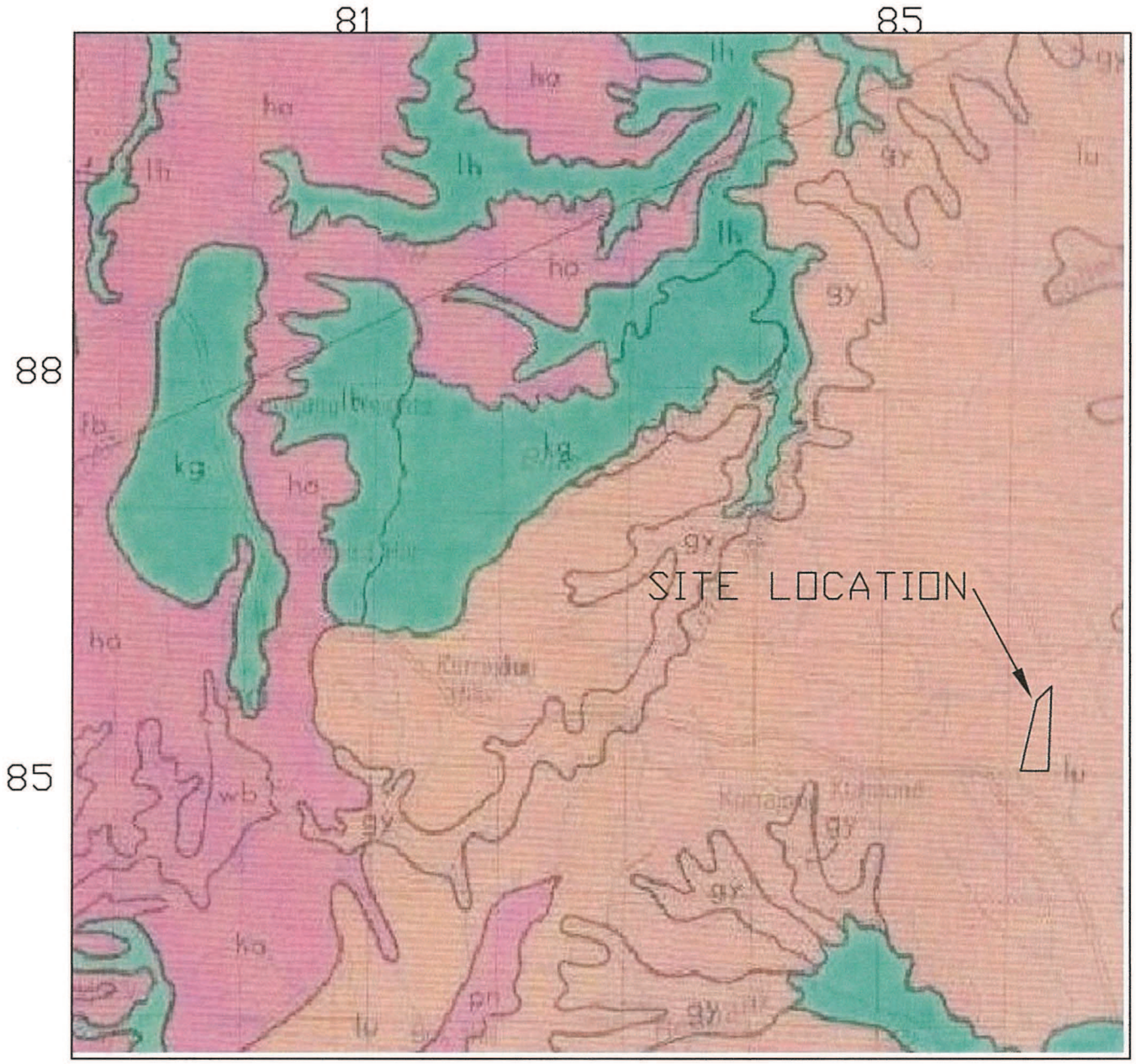
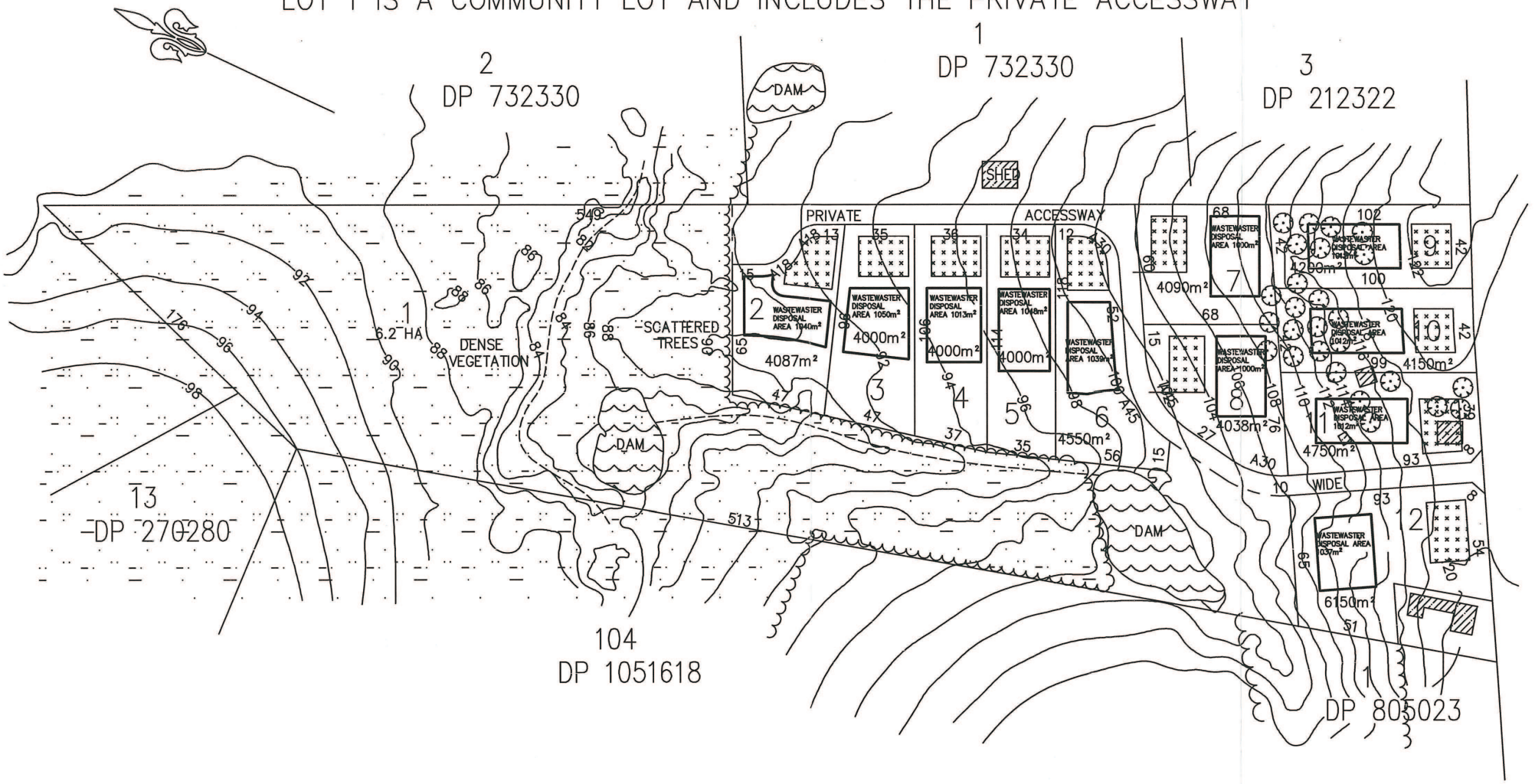


FIGURE 2

PENRITH SOIL CONSERVATION MAP

SCALE: 1: 100 000

LOT 1 IS A COMMUNITY LOT AND INCLUDES THE PRIVATE ACCESSWAY



DENOTES VEGETATION FROM AERIAL PHOTOGRAPHY

DENOTES POTENTIAL DWELLING SITE MIN 500m²

1:2000

40 20 0 40 80 120 160 200

METRES

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DATE: 21/04/2014
DESIGN: T.F. & S.H.
DRAWN: S.R.
SCALE: 1:2000 Approx.
PLAN SIZE: A3

SURVEY BY: T.F.
CONTOUR INTERVAL: N/A
DATUM: AHD

PROPOSED SUBDIVISION OF LOT 2, 1420 DP 805023 AT KURMOND ROAD, KURMOND, NSW

LGA: Hawkesbury Council
LOCALITY: KURMOND, NSW
PLAN NO: TFA3414

WASTEWATER CONSTRAINTS PLAN

FIGURE 1
Sheet 1 of 2

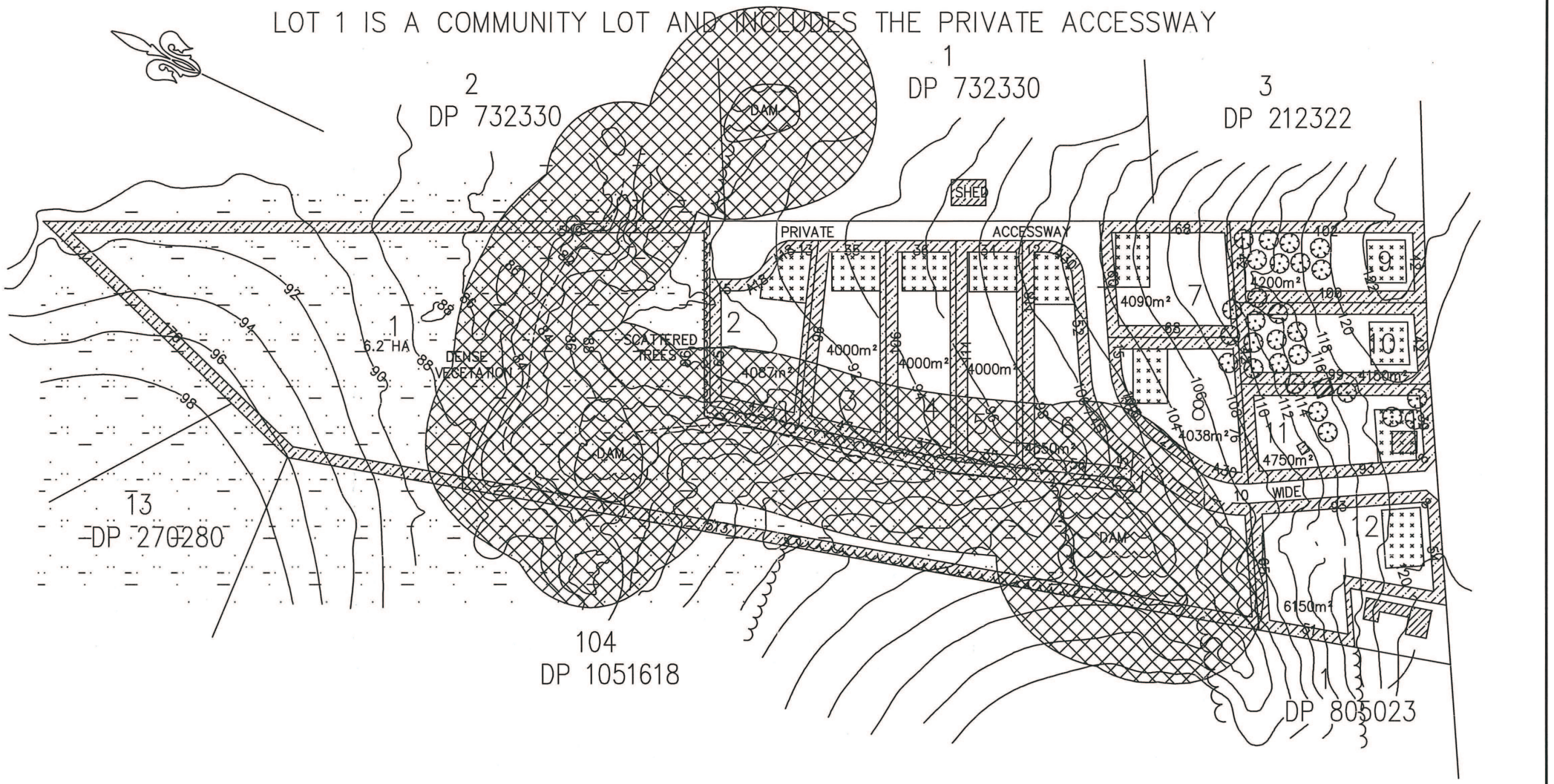

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FIGURE 2
Sheet 2 of 2