

DPEMP Supplement – Compost production Brightsides, Plenty Valley Road (DA 162-09)

Key issues

- 1) The major omission from the DPEMP is a satisfactory water balance.
- 2) A plan should be provided showing the location of windrows, the areas to be compacted, the shed containing the ACE production facility, the bunds and the leachate dam.

Water balance

Section 4.2. Liquid waste has been altered. A more detailed water balance table is attached (Attachment 1). The compost production area has been changed after careful calculation of the volume and surface area of the compost windrows. A compost holding area has also been added. As mentioned in the DPEMP, finished compost may be held on-site in windrows for up to 4 weeks prior to sale.

The compost production area is 42,750 m² and the compost holding area is 42,750 m². Therefore within the 15 Ha composting site there is 85,500 m² of compacted ground (Attachment 2).

Any run-off from the 85,500 m² area will be diverted by bunding into the lined dam (Appendix 2). Ponding of leachate is avoided by design and maintenance of the slope and orientation of the windrows and bunding such that free drainage from the windrows to the dam is permitted. The dam will be overlaid with a flexible membrane liner of permeability for water of less than 10⁻¹⁴ ms⁻¹. For example, the Nyllex XL Formula PVC Geomembranes. These membranes will ensure permeability maintenance for a period at least equivalent to the life of the dam. The membranes have high UV life, extra long buried life, puncture resistance and are greater than 1.5mm thick.

The dam will be 2 ML in size so it can accept the run-off generated by a 1 in 25 year, 24h storm event without overflowing. If, as a worst case scenario, there is a 1 in 25 year storm event every month of the year then the runoff into the dam will be greater than 2 ML in October and November (Appendix 1). In October the accumulated water storage would be 3.2 ML and in November the accumulated water would be 6 ML (Appendix 1). This Table assumes 70% runoff beside the windrows and assumes that there are compost windrows over the 42,750 m² compost production area and 42,750 m² compost holding area. Krogmann and

Woyczehowski (2000) reported that 15 to 20% of rainwater reaching an uncovered compost windrow pile could be released as run-off.

MA have been producing trial windrows at Plenty since December 2008. The lowest mean moisture level in windrows during this time was 14.1% in February 2009. The mean weight of the compost at 14.1% moisture was 562 kg per m³. MA will ensure that moisture levels in the compost do not increase above 65%. The compost will go anaerobic above 65% (Rynk *et al.* 1992). MA will monitor the compost daily for moisture and will aerate the windrows following heavy rains to prevent moisture levels going above 65%.

The dam will be empty at the end of April. The remaining water needed for the compost windrows will come from the 10 ML water licence on Tim Jenkin's property.

As an emergency backup, MA will apply dam water to Tim Jenkin's pasture and crops. The water will be applied by irrigation to the best possible sites according to the Environmental Guidelines for the Use of Recycled Water in Tasmania, 2002. MA has access to diesel pump set capable of pumping 200 L s⁻¹.

Site plan

A detailed site plan is attached (Attachment 2). The compacted area will be 85,500 m² below the compost production and holding areas. The remaining area within the compost site will be for general agricultural use. The ACE production tanks will be inside the machinery shed.

Specific comments

Page 18: *The raw ingredients. Grape marc is only available during winter as noted on pages 30/31. It would be useful to describe seasonal changes in availability of raw materials and if/how it affects the composting process.*

Section 2.1. Proposal outline, 2.1.1 General (j) was changed.

(j) Details of production capacity and production rates

There will be 120-140 T of raw ingredients delivered to the composting site every weekday excluding public holidays. Sludge, green waste and pine bark will be delivered daily to form the compost windrows. Grape marc from the wineries will be delivered during winter on a

weekly basis. MA will process 50,000T of raw ingredients annually. Initially each windrow contains approximately 300 m³ of material. The final size of the windrow (after microbial degradation) is about 150 m³.

Page 19/2: *Commitment to no raw materials in stockpiles. Confirm that there is no requirement to stockpile anything, even for short periods.*

Section 2.1. Proposal outline, 2.1.1 General (b) was changed. We added a compost holding area to the site plan. Compost will be held for no more than 4 weeks in windrows.

No compost raw ingredients will be placed in stockpiles, all ingredients will be placed directly into the windrows and turned and watered immediately to ensure no odour or dust. Compost will be sold from the compost windrows and will not be stockpiled.

Sludge testing for hydrogen sulphide:

- *Paragraph header refers to determination of H₂S in compost*
- *Confirm that there is no need to perform similar check on any other raw materials.*
- *Criteria refers to level 4 or 5 – table on following page does not have a level 5.*
- *The testing process described involves a 10 min wait so it must take longer than that overall. Confirm that it is realistic to keep the delivery truck waiting while this occurs. Would it be more practical to test before truck leaves Boyer so that sludge which is unsuitable for composting can be taken direct to landfill?*
- *This para states that rejected sludge will be responsibility of Norske Skog. Commitment 3 on page 86 states that rejected sludge will be spread on adjoining property. The capacity for spreading on adjoining property must be limited. Please confirm intentions.*

Section 2.1. Proposal outline, 2.1.1 General (b) was changed. The paragraph header has been changed to sludge, however this test is also completed on each compost windrow weekly to see if the compost needs to be turned. The criteria only goes to level 4 and the mistake has been altered. Several flasks can be used during the 10 min waiting period. We could test more than 20 sludge samples or compost samples

during the 10 minutes. Sludge will taken from Boyer and unsuitable material will be the responsibility of Norske Skog. Commitment 3 has been changed on page 86 to concur with Section 2.1. Proposal outline, 2.1.1 General (b).

Sludge will be tested for hydrogen sulphide before delivery. If the sludge is too anaerobic (level 4: See below); MA will not accept the product. The rejected sludge will be the responsibility of Norske Skog. All other raw ingredients are highly aerobic materials.

Page 25 Table 3: *Meaning of Reference column. Gaps in other column. BTEX not defined and has no units.*

Table 3 was changed.

Table 3. BTEX of sludge and compost.

6 samples supplied by Microbial Activity on 6th August, 2008 - Lab Job No. E9840. Analysis completed by Labmark Environmental Laboratory.

Analytical method	Reference	Average of three sludge analyses	Average of three compost analyses
MOISTURE (% w/w)	A	80	32
BTEX *			
Benzene (mg/Kg)	D	0.2	<0.2
Toluene (mg/Kg)	D	<0.5	<0.5
Ethylbenzene (mg/Kg)	D	<0.5	<0.5
Meta-and-Para-Xylene (mg/Kg)	D	0.6	<0.5
Ortho-Xlylene (mg/Kg)	D	<1	<1

*BTEX is the acronym that stands for benzene, toluene, ethylbenzene and xylenes. These compounds are some of the volatile organic compounds found in petroleum derivatives.

A = Rayment and Higginson – moisture – 2A1; pH – 4A1; Conductivity – 3A1.

D = Analysis sub-contracted – results attached.

Page 26/27: Table 4 and 5 need units.

mg/kg added to tables.

Page 28: Permeability of clay requires units.

This was common across the DPEMP. Units added. ms^{-1} .

Page 29: Provide indication of volumes of these materials that will be stored on site and rate at which they are consumed.

Potential sources of waste at the composting site will be from the laboratory and windrows.

The chemicals that will be used in laboratory testing and will be waste include:

- 2.5 L of Hydrochloric acid (18%) per week.
- 30 ml of Ammonium test reagent 1B (Merck Pty Ltd) per week.
- 50 μg of Ammonium test reagent 2B (Merck Pty Ltd) per week.
- 200 drops of Ammonium test reagent 1C (Merck Pty Ltd) per week.
- 50 g of Nitrate HI 93728 reagent (Merck Pty Ltd) per week.
- 50 g of Nitrite HI 93708-0 reagent (Merck Pty Ltd) per week.
- 5 L of Potassium chloride (15 g in 1 L of distilled water) per week.

Page 37: Location map shows the composting site straddling two titles. They are apparently in the same ownership but a copy of the second title is required.

Figure 7a. Property ID 5829416, Title Reference 126321/2. The property will be owned by Tim Jenkins.

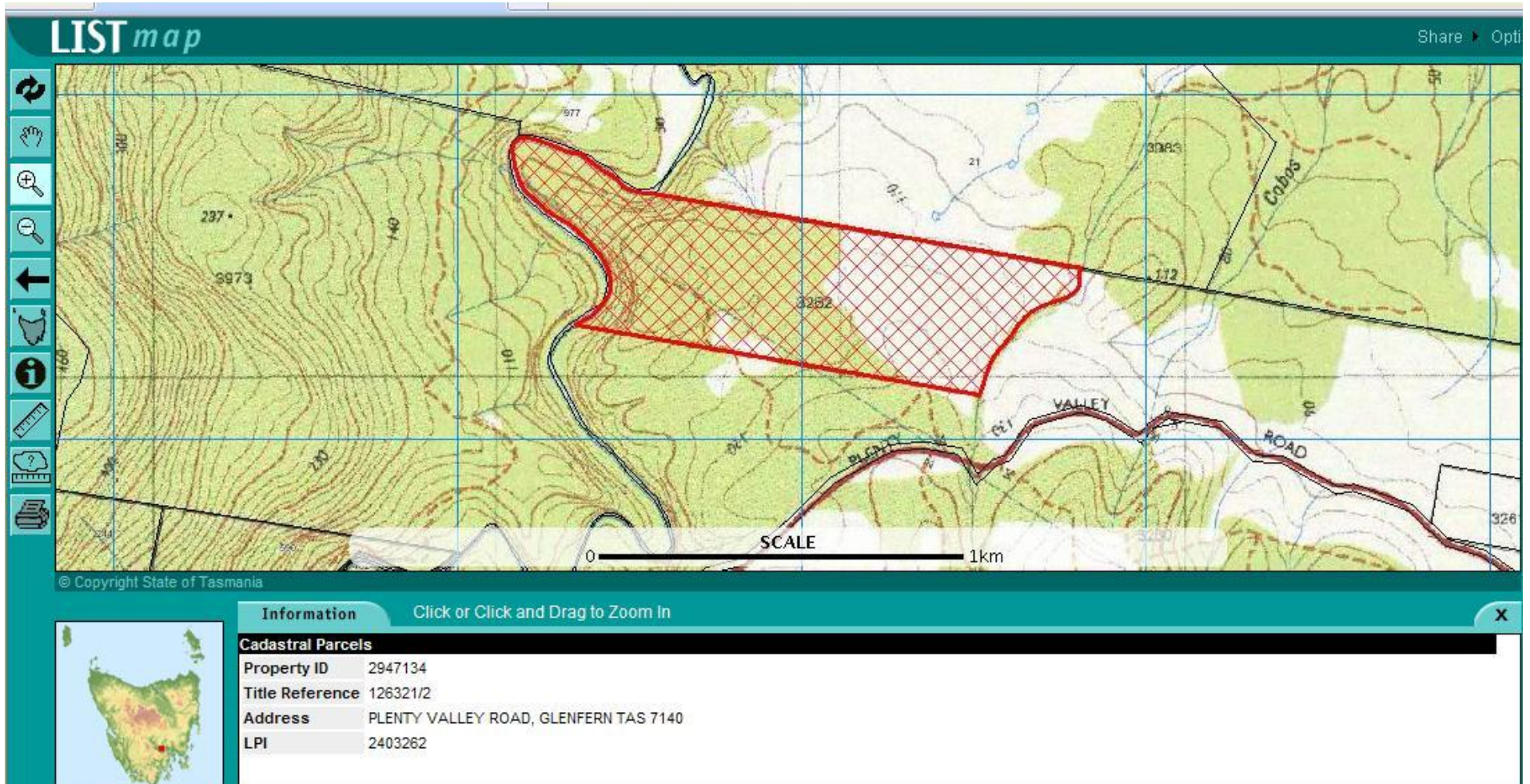
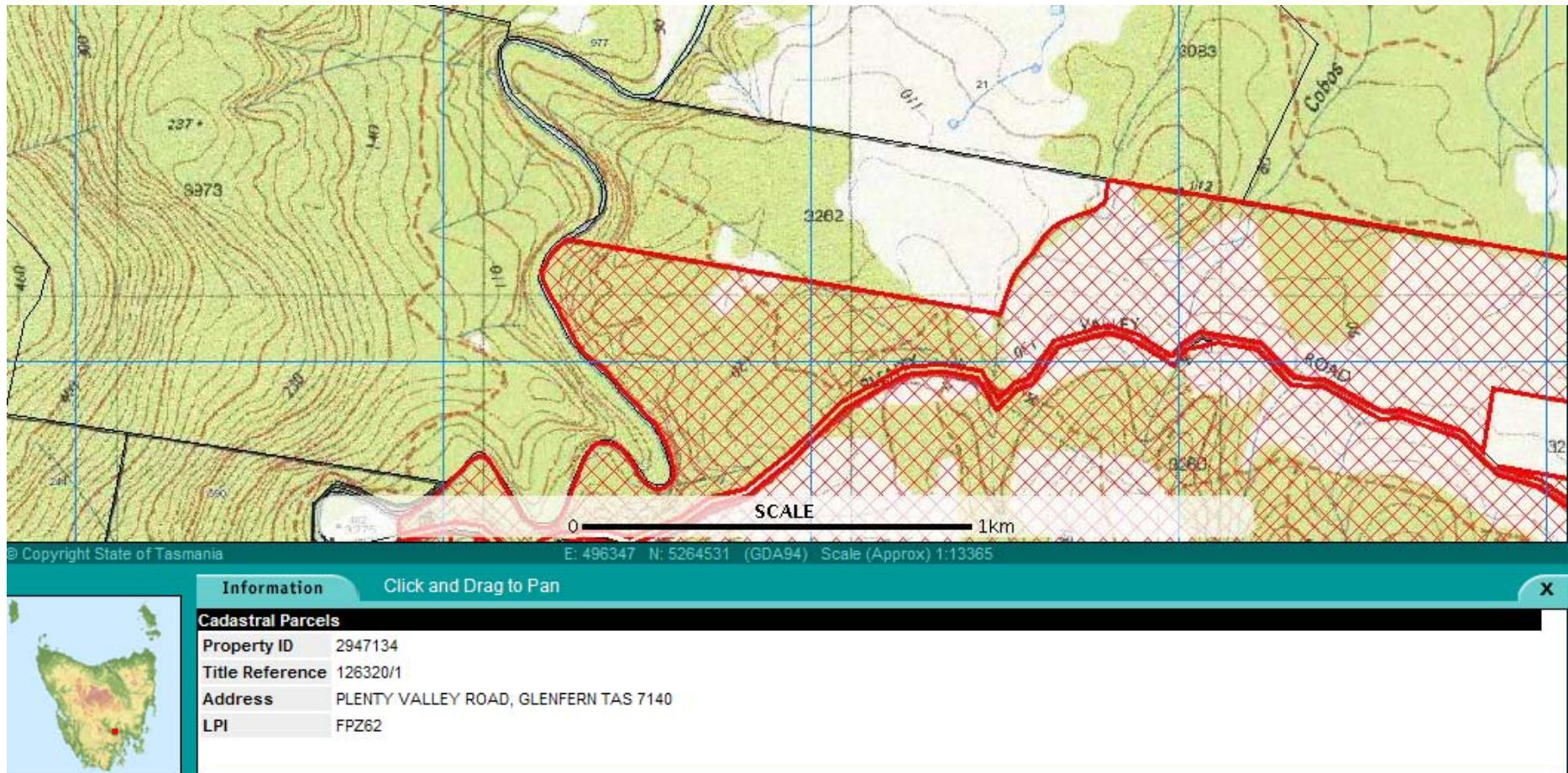


Figure 7b. Property ID 5829416, Title Reference 126320/1. The property will be owned by Tim Jenkins.



Page 48: *Provide greater detail of the construction and layout of the “hardstand” which will underlie the compost windrows. Clarify whether the entire site will be compacted or just the footprints of the windrows. Clarify how the 0.3 m compacted clay will be achieved.*

Attachment 2 illustrates the compost holding and production areas and the leachate dam. The ground beneath the compost holding and production area will be compacted. The top soil will be removed as per Appendix K (Soil permeability calculations) in the DPMP and compacted ground will be achieved with a single or twin drum roller. Gravel will also be placed on top of the clay.

Page 63: *This table refers to 3 pm winds, rather than 9 am wind speeds erroneously referred to in the first rows.*

Changes made to confer.

Page 70: *Calculations re volume of leachate dam need to consider:*

- *The likelihood that it will not be empty at the start of a heavy rainfall event.*
- *Runoff from all area which will drain into the leachate dam.*

See water balance above.

Page 71: *Water balance – a more detailed water balance is required.*

See water balance above.

Page 71: *Bunding. More detail on the location, dimensions and construction of the bunds should be provided to demonstrate that they will be adequate to diver all runoff in to the dam. The source of material used to construct the bunds should be stated.*

Bunding will be constructed by placing mounds (0.8 m high and 0.5 m wide) with a clay core to provide impermeability (10^{-9} ms^{-1}) at appropriate points around the composting site to divert leachate in to the leachate dam (Appendix 2). Clay will be purchased from Tim Jenkins. Other material to produce the bunding will be top soil removed from the composting site.

Page 72: *Monitoring pits below the windrows. The purpose of these should be explained and the frequency of sampling and parameters monitored stated.*

Section 4.3 was changed.

- install bore holes: One near the windrows, one near the dam and a control bore hole outside of the composting site and monitor the bore holes bi-monthly to ensure no leaching to groundwater.

Monitoring pits below the windrows will not be necessary if bore holes are installed.

Page 72: *Leachate pond. The frequency of sampling and parameters monitored should be stated.*

The leachate dam will be monitored weekly. MA will test for hydrogen sulphide and levels of dissolved oxygen. If hydrogen sulphide is present or levels of dissolved oxygen are below 6ppm then the leachate dam will be aerated. An aspirator will be used to prevent algal blooms.

MA will also maintain a water balance spreadsheet for the composting site. MA will:

- measure daily rainfall using an onsite rainfall gauge;
- calculate daily evaporation from the Moogara and Bushy Park weather stations;
- prepare a calibration weir to measure the amount of site runoff; and
- measure the depth of the leachate dam.

Page 74: *Clarify if the leachate dam is to be constructed by applying an impervious liner to an existing depression or if it will require construction of a dam wall.*

The leachate will be adequately maintained in the lined leachate dam. The leachate dam will be 2 ML in size: (30 m x 25 m) x 2 m deep. There is an existing depression on the dam site however an additional 1.5 m deep of soil will have to be extracted to construct the dam.

Page 74: *Provide details of groundwater monitoring bores and monitoring regime.*

See **Page 72:** *Monitoring pits below the windrows. The purpose of these should be explained and the frequency of sampling and parameters monitored stated, above.*

Page 82: *A Fire Management Plan will be required.*

See Attachment 3a and 3b. Attachment 3a and 3b have been emailed to the Tasmanian Fire Service to be endorsed. A signed endorsement will be available as soon as possible.

Table 11. Water balance for proposed composting site (Personal C

	Jan
## Mean monthly evaporation (mm) E_v	158.10
# Mean monthly rainfall (mm) R	41.10
# Highest daily rain event for month (mm)	60.00
## Mean daily evaporation	5.10
Mean Monthly occurrence	
Insufficient irrigation water ($I=E-R$) (mm)	117.00
Surface area of composting production area	42,750
Surface area of composting holding area	42,750
Windrow surface area (m^2) = 100 windrows x 3 m x 135 m	40,500
Surface area around windrows(m^2) = 150 m includes turning of tractors at end of windrows x 3 m between windrows x 100 windrows	45,000
Compacted ground (m^2) underneath windrows and between windrows	85,500
Total area	150,000
Run-off from windrows (assume est. 20%) (L)	no run-off
Run-off between windrows (assume est. 70%) (L)	no run-off
Total Run-off (L)	no run-off
Evap from pond (L)	64,035
$E_{net} (L) = 10000 \times (0.8E_v - R)(mm) \times A_{sto}(ha)$	
Volume of water in dam from rainfall and evaporation for irrigation (L)	-64,035
Accumulated volume (L)	-64,035
Accumulated volume (KL)	-64
Water required by compost	
up to 25% moisture content (L) plus monthly loss	2,791,068
Accumulated water (L) i.e. storage requirement	-2,855,103
up to 65% moisture content (L) 100 windrows - 50 windrows holding would still need water in summer	13,033,518
Accumulated water (L) i.e. storage requirement	-13,097,553
Max daily rainfall occurrence but mean daily	
Insufficient irrigation water ($I=E-R$) (mm)	-54.90
Run-off from windrows (assume est. 20%) (L)	444,690
Run-off between windrows (assume est. 70%) (L)	1,729,350
Total Run-off (L)	2,174,040
Evap from pond (L)	-41,940

OK

OK

Volume of water in dam from rainfall and evaporation for irrigation (L)	2,215,980
Accumulated volume (L)	2,215,980
Accumulated volume (KL)	2,216
Water required by compost up to 25% moisture content (L) plus monthly loss	2,791,068
Accumulated water (L) i.e. storage requirement	-575,088
up to 65% moisture content (L) 100 windrows - 50 windrows holding would still need water in summer	26,067,035
Accumulated water (L) i.e. storage requirement	-23,851,055

between 1971 and 2000 at Bushy Park (Data from the Bureau of Meterology).

between 1989 and 2009 at Bushy Park (Data from the Bureau of Meterology).

Pond Area (ha) = (25*30)m² /10⁴	0.08
Windrow volume (m³)	450.00
New Windrow volume (m³)	607.50
Density of Compost at 14% moisture content (kg/m³)	562.00
Wt of each windrow of compost (kg or L)	170,707.50
Water required for 25% moisture (kg or L)	18,607.12
Total water required for 50 windrows (kg or L)	930,355.88
4 times 50 windrow volume (m³)	3,721,423.50
If 15 ha impervious then max daily run-off (L)	8,235,000

ommunication Greg Dowson and Table extracted from the Environmental Guideline

Feb	Mar	Apr	May
120.40	93.00	51.00	31.00
35.10	39.40	46.80	45.50
47.60	50.00	27.80	37.60
4.30	3.00	1.70	1.00
85.30	53.60	4.20	-14.50
42,750	42,750	42,750	42,750
42,750	42,750	42,750	42,750
40,500	40,500	40,500	40,500
45,000	45,000	45,000	45,000
85,500	85,500	85,500	85,500
150,000	150,000	150,000	150,000
no run-off	no run-off	no run-off	117,450
no run-off	no run-off	no run-off	456,750
no run-off	no run-off	no run-off	574,200
45,915	26,250	-4,500	-15,525
-45,915	-26,250	4,500	589,725
-109,950	-136,200	-131,700	458,025
-110	-136	-132	458
2,791,068	1,860,712	1,860,712	1,860,712
-2,901,018	-1,996,912	-1,992,412	-1,402,687
13,033,518	8,689,012	8,689,012	8,689,012
-13,143,468	-8,825,212	-8,820,712	-8,230,987
-43.30	-47.00	-26.10	-36.60
350,730	380,700	211,410	296,460
1,948,500	2,115,000	1,174,500	1,647,000
2,299,230	2,495,700	1,385,910	1,943,460
-33,120	-35,700	-19,830	-27,600

2,332,350	2,531,400	1,405,740	1,971,060
4,548,330	7,079,730	8,485,470	10,456,530
4,548	7,080	8,485	10,457
2,791,068	1,860,712	1,860,712	1,860,712
1,757,262	5,219,018	6,624,758	8,595,818
26,067,035	17,378,024	17,378,024	17,378,024
-21,518,705	-10,298,294	-8,892,554	-6,921,494

Windrow volume divided by 2 because triangular prism shape
Windrow volume divided by 2 because triangular prism shape

225
303.75

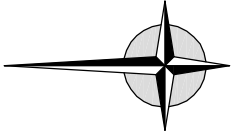
as for the Use of Recycled Water in Tasmania, 2002).

Jun	Jul	Aug	Sep	Oct
18.00	21.70	37.20	57.00	89.90
48.60	49.40	53.90	53.70	57.60
44.40	35.00	27.00	27.00	33.30
0.60	0.70	1.20	1.90	2.90
-30.60	-27.70	-16.70	3.30	32.30
42,750	42,750	42,750	42,750	42,750
42,750	42,750	42,750	42,750	42,750
40,500	40,500	40,500	40,500	40,500
45,000	45,000	45,000	45,000	45,000
85,500	85,500	85,500	85,500	85,500
150,000	150,000	150,000	150,000	150,000
247,860	224,370	135,270	no run-off	no run-off
963,900	872,550	526,050	no run-off	no run-off
1,211,760	1,096,920	661,320	no run-off	no run-off
-25,650	-24,030	-18,105	-6,075	10,740
1,237,410	1,120,950	679,425	6,075	-10,740
1,695,435	2,816,385	3,495,810	3,501,885	3,491,145
1,695	2,816	3,496	3,502	3,491
1,860,712	1,860,712	1,860,712	1,860,712	1,860,712
-165,277	955,673	1,635,098	1,641,173	1,630,433
8,689,012	8,689,012	8,689,012	8,689,012	8,689,012
-6,993,577	-5,872,627	-5,193,202	-5,187,127	-5,197,867
-43.80	-34.30	-25.80	-25.10	-30.40
354,780	277,830	208,980	203,310	246,240
1,971,000	1,543,500	1,161,000	1,129,500	1,368,000
2,325,780	1,821,330	1,369,980	1,332,810	1,614,240
-32,940	-25,830	-19,530	-19,110	-23,235

2,358,720	1,847,160	1,389,510	1,351,920	1,637,475
12,815,250	14,662,410	16,051,920	17,403,840	19,041,315
12,815	14,662	16,052	17,404	19,041
1,860,712	1,860,712	1,860,712	1,860,712	1,860,712
10,954,538	12,801,698	14,191,208	15,543,128	17,180,603
17,378,024	17,378,024	17,378,024	17,378,024	17,378,024
-4,562,774	-2,715,614	-1,326,104	25,817	1,663,292

Nov	Dec	Worst Case	Total
117.00	145.70	18.00	940.00
52.80	50.80		574.70
32.60	56.00	60.00	
3.90	4.70	5.10	
64.20	94.90		365.30
42,750	42,750	42,750	
42,750	42,750	42,750	
40,500	40,500	40,500	
45,000	45,000	45,000	
85,500	85,500	85,500	
150,000	150,000	150,000	
no run-off	no run-off		
no run-off	no run-off		
no run-off	no run-off		
30,600	49,320		132,975.00
-30,600	-49,320		
3,460,545	3,411,225		
3,461	3,411		
1,860,712	2,791,068		
1,599,833	620,157		
8,689,012	13,033,518		
-5,228,467	-9,622,293		
-28.70	-51.30	-54.90	
232,470	415,530	444,690	
1,291,500	2,308,500	2,470,500	
1,523,970	2,724,030	2,915,190	
-22,110	-39,180	-41,940	

1,546,080	2,763,210	2,957,130	
20,587,395	23,350,605	2,957,130	
20,587	23,351	2,957	
1,860,712	2,791,068		
18,726,683	20,559,537		
17,378,024	17,378,024		
3,209,372	5,972,582		

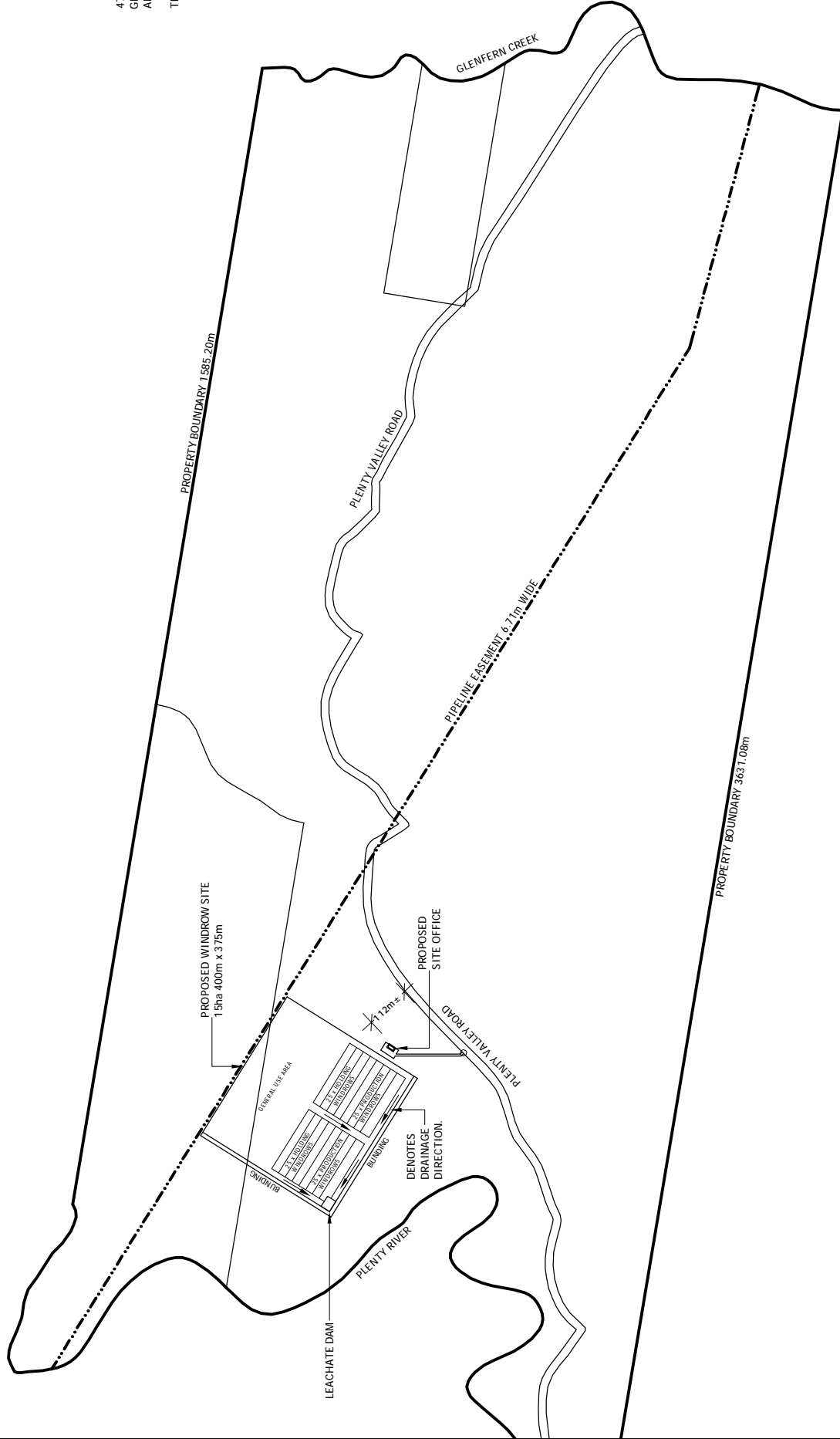


47 PLENTY VALLEY ROAD
 GLENFERN TASMANIA 7140
 AREA = 578ha

TITLE REF. = 126321/2.

Wilkin Design
 www.wilkindesign.com.au
 PH: 0363345800

NOTES:	
PROJECT ADDRESS:	-----
REVISION:	-----
DATE:	12/10/2009
SCALE:	AS SHOWN
JOB NUMBER:	DA-09/MA
PAGE:	01 of 04



LOCALITY PLAN 1:10000

A4 NOT TO SCALE

DEVELOPMENT
 APPLICATION ONLY.

SET OUT NOTES:
 THE BUILDER IS TO SET OUT THE WORKS IN CONJUNCTION WITH THE SURVEYOR. ALL DIMENSIONS ARE TO BE CONFIRMED BY THE CLIENT AS TO BEING CORRECT. ALL DIMENSIONS HEIGHTS AND LEVELS ARE TO BE CONFIRMED ON SITE BY ALL PARTIES INCLUDING LOCAL COUNCIL, OWNER AND ENGINEER BEFORE ANY EXCAVATION IS TO BE CARRIED OUT. IF IN DOUBT CONSULT A REGISTERED SURVEYOR.

Microbial Activity Pty Ltd
Fire Management Plan
Derwent Valley Council
47 Plenty Valley Road
Glenfern

Microbial Activity Pty Ltd will have a fire management plan in place in case of a bushfire. An inner and an outer zone will be created around the composting site and building. In the inner zone (25 m) or Building Protection Zone:

- Low flammability plants will be planted.
- All lower branches of trees and flammable shrubs will be removed.
- All bark and leaves will be raked and removed.
- Roofs and gutters will be cleared of debris.
- No vegetation will be able to fall on the building.
- One 25,000L tank for fire fighting purposes.
- A large parking area and truck turning area.

In the outer zone (25-30 m) or Fuel Modified Buffer Zone:

- Retain established trees to trap embers and reduce wind.
- Remove small trees selectively and shrubs to create clumps.
- Remove vegetation between ground and bottom of the tree canopy.
- Minimise grass and leaf litter at ground level.

Furthermore, the driveway will be a minimum width of 2.4 m and height of 4 m for fire trucks. Bush will be cleared 2 m either side of the driveway. There is adequate room for the truck to turn around near the building site.

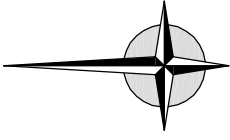
The building will be on a flat piece of land which is cut in to a 10-15% slope to provide shelter during a bushfire. The building will be on a slab. The building will be a simple one storey rectangle corrugated iron shed. The roof will be low pitched and there will be no decks, pergolas or solar screens. A 25,000 L water tank behind the building will be kept full for firefighting and the tank will be fitted with a firefighting coupling. A ladder, torch, hose and fitting, rake, bucket and mops will be available for firefighting. Microbial Activity Pty Ltd

will also provide a fire extinguisher, fire blanket and fire alarm in the laboratory and workshop.

Employees of Microbial Activity Pty Ltd will have the option to leave the site as soon as a fire is announced on ABC Radio. However, if employees wish to stay and fight the fire then employees will:

- Dress in long sleeve cotton shirts, cotton trousers, leather boots, cotton garden gloves, goggles and a facemask.
- Block downpipes and fill gutters with water.
- Close and tape up doors and windows.
- Put out spot fires as they occur.
- Drink water every 10 minutes.

Microbial Activity Pty Ltd will ensure that all employees are safe.



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GLENFERN TASMANIA 7140
AREA = 578sq

TITLE REF. = 126321/2.

Wilkin Design
www.wilkindesign.com.au
PH: 0363345800

NOTES:	
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DATE:	12/10/2009
SCALE:	AS SHOWN
JOB NUMBER:	DA-09/MA
PAGE:	02 of 02

25m - 30m FUEL MODIFIED
BUFFER ZONE. AS PER TAS
FIRE SERVICE GUIDELINES.

25m BUILDING PROTECTION
ZONE. AS PER TAS FIRE
SERVICE GUIDELINES.

2/20,000L WATER TANKS.
OVERFLOW TO DAM.

WATER TANK IS TO BE FITTED WITH
FIRE FIGHTING COUPLING AND HAVE 10,000L
RESERVED FOR FIRE FIGHTING PURPOSES ONLY.

3000L DUAL PURPOSE SEPTIC TANK.
1/10m X 1.2m ABSORPTION TRENCH AS PER
SFM SOIL SOLUTIONS SITE ASSESSMENT REPORT.

1.12m ±
TO BOUNDARY

PROPOSED
SITE OFFICE

PARKING AREA
FIRE TRUCK
HARD STAND

PARKING AREA

PROPOSED ACCESS

PROPOSED WINDROW SITE
15ha 400m x 375m

ACCESS DRIVEWAY IS TO BE
MINIMUM 2.4m WIDE 4.0m HEIGHT
CLEARANCE AND TO BE CLEARED
2.0m EITHER SIDE AS PER FUEL
MODIFIED BUFFER ZONE.

SET OUT NOTES:
THE BUILDING IS TO SET OUT THE WORKS IN CONSTRUCTION
AND THE SET OUT DIMENSIONS ARE TO BE CONFIRMED BY THE CLIENT AS TO BEING CORRECT. ALL
DIMENSIONS HEIGHTS AND LEVELS ARE TO BE CONFIRMED ON
SITE BY ALL PARTIES INCLUDING LOCAL COUNCIL, OWNER AND
ENGINEER BEFORE ANY EXCAVATION IS TO BE CARRIED OUT.
IF IN DOUBT CONSULT A REGISTERED SURVEYOR.

A4 NOT TO SCALE

FIRE MANAGEMENT PLAN 1:200

DEVELOPMENT
APPLICATION ONLY.