ELF FARM SUPPLIES PTY LTD AND
ELF MUSHROOMS PTY LTD

MUSHROOM INDUSTRY EXPANSION IN WESTERN SYDNEY

PRELIMINARY ENVIRONMENTAL ASSESSMENT

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November 2008
121R1

Perram & Partners
12 Clanwilliam Street
Eastwood NSW 2122
Phone : (02) 9874 6773
Fax : (02) 9804 0444
tperram@bigpond.net.au

in association with

Montgomery Planning Solutions
PO Box 49
Kurmond NSW 2757
(02) 4572 2042
(02) 4572 2044
Robert@montgomeryplanningsolutions.com.au

Perram & Partners

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INTRODUCTION

1.1 PURPOSE OF THE REPORT

This report has been prepared to provide the Department of Planning with information about a major project proposed to be undertaken by the Tolson Group in western Sydney, being a new mushroom farm and expansion of an existing mushroom substrate plant. The information in this report will assist the Department to provide Director-General's requirements enabling the applicants to prepare an environmental assessment for the proposal.

The Department of Planning advised the Tolson Group on 29 September 2008 that the Minister for Planning had formed the opinion that the proposed development is a major project to be assessed under Part 3A of the Environmental Planning and Assessment Act and had authorised the submission of a concept plan for the project under s75M of the Act.

The report contains a description of the proposal and the sites, explanation of the planning provisions, a discussion of environmental issues and a risk assessment identifying key issues for detailed assessment. This document contains information requested to be submitted by the Department of Planning. It is not a detailed environmental assessment of the proposal. A copy of the Department's letter is included as *Appendix A*.

1.2 PROJECT OVERVIEW

The proponents for the development, Elf Farm Supplies Pty Ltd and Elf Mushrooms are part of the Tolson Group of companies. The Group is based in western Sydney and currently operates three mushroom farms, a packing and distribution factory and a mushroom substrate plant at Mulgrave, the only substrate plant in the region. The Group proposes to establish a new mushroom farm at Londonderry and expand the capacity of the Mulgrave substrate plant to supply the new farm and increasing demand from other mushroom growers.

Figure 1 shows the location of the development sites.

Figure 1 Location Plan

1.3 BACKGROUND

1.3.1 Tolson Group

The Tolson Group employs a total of approximately 350 personnel at its various sites. Another 150 personnel are employed by other mushroom farms reliant on substrate supplied from Elf Farm Supplies. The Group also provides business for up to 200 specialist contracting personnel from various trades including electrical, refrigeration, mechanical and technology.

The Tolson family established Elf Mushrooms within the Hawkesbury local government area in 1967. This company operates a mushroom farm at Vineyard producing an average of 60 tonnes of mushrooms per week and employs a workforce of approximately 130.

Substrate is the nutrient-rich growing medium used by mushroom farms for growing mushrooms. The Tolson Group established a substrate plant at Mulgrave in 1981. Elf Farm Supplies currently produces up to 1000 tonnes of substrate per week to supply the Tolson Group's mushroom farms and many other mushroom farms on Australia's east coast. A workforce of 20 is employed at the Mulgrave plant.

1.3.2 Mushroom Substrate

Prior to development of bulk substrate processing, mushroom farms produced their own substrate at the farm. This activity was conducted outdoors with limited ability to control the process or the quality of substrate produced.

Mulgrave was one of the first sites in NSW producing substrate in bulk for supply to mushroom farms. Bulk processing brought efficiency in production techniques, consistency of product and better control of environmental issues. Initially just the composting phase was undertaken at Mulgrave (Phase 1), leaving mushroom farms to pasteurise the material (Phase 2) and introduce mushroom spawn to the mix (Phase 3) as part of the horticultural process. More recently Elf Farm Supplies has pioneered complete substrate processing and preparation on one site. A sizable portion of the substrate is now delivered from the plant to farms in this "finished" state, ready for growing.

In 1988 Elf Farm Supplies pioneered the "air under" system of air injection into composting material to assist in maintaining aerobic conditions, essential for odour control. This technology was subsequently supplied world-wide by the Tolson Group.

In 2003 Elf Farm Supplies significantly upgraded the Mulgrave plant, totally enclosing the substrate production process and introducing a bioscrubber to remove organic

compounds from air emissions. This was the first plant in the southern hemisphere to adopt these measures.

In 2005 Phase 2 (pasteurisation) and Phase 3 (spawn running) processing was commenced at the Mulgrave plant, with capacity to process approximately 80 per cent of the Phase 1 substrate produced at the plant. Having proven to mushroom farms the benefit of receiving Phase 3 substrate, the company is now extending the Phase 2 /Phase 3 processing building to enable it to process its entire product to the Phase 3 "finished" state.

The Tolson Group supplies Phase 3 substrate to its own farms and to an increasing number of other mushroom farms in New South Wales. Elf Farm Supplies remains the only bulk supplier of Phase 3 substrate in NSW. When the current building extensions are complete in early 2009, the company intends to progressively discontinue supplying Phase 1 substrate to mushroom farms and will offer only finished substrate.

1.3.3 Mushroom Industry

The Australian Mushroom Growers Association (AMGA) annually updates market statistics for mushroom consumption. *Figure 2* below shows the growth in Australian mushroom consumption published by the Association, including domestic production and imports over the last 30 years.

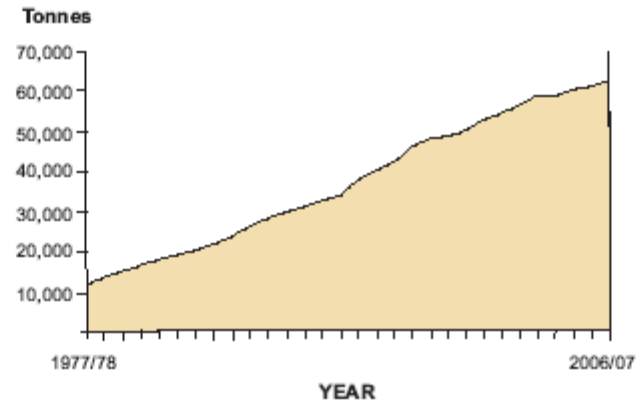

FIGURE 2 Australian Mushroom Market

Mushrooms are now the second most valuable fresh vegetable product in Australia, after potatoes (AMGA).The mushroom industry has been identified as one of the three fastest growing crop industries established in Australia since the 1950s. Domestic production expanded at an average annual rate of 10 per cent per annum from the mid 70s to the mid 90s and still continues to grow. In 2004/05 the rate of expansion was

3 per cent, while growth rates are estimated to be 3 to 5 per cent over the next five years.[1]

The Hawkesbury region has the greatest concentration of mushroom growers in Australia and is the birthplace of the modern mushroom industry. It has 15 of the State's 23 growers, producing 11,335 tonnes of mushrooms per year. This amounts to 78 per cent of NSW mushroom production and nearly quarter of the national figure.

The Hawkesbury mushroom industry is worth $45 million at farm gate; $90 million at retail; with an economic value to the community of around $450 million each year. It is a major employer in the region with a predominance of non English speaking background employees. With 600 people employed directly in the industry, the mushroom industry is one of three major employers in the Hawkesbury district along with the Richmond RAAF Base and University of Western Sydney Richmond campus.

The Region provides a ready source of labour. Although previously considered unskilled, mushroom workers now undertake a Level 2 Certificate in Horticulture which is operated by Richmond TAFE in conjunction with the Tolson Group mushroom farms. Generally, employees tend to be first home buyers with no formal skills.

Owing to the age of mushroom growing infrastructure in New South Wales however and progressive closure of older mushroom farms, particularly in western Sydney, New South Wales mushroom growers have not been able to expand production quickly enough to keep pace with the pattern of increased consumption. Growers in New South Wales no longer produce sufficient mushrooms to satisfy the State's demand.

1.4 NEED FOR THE DEVELOPMENT

1.4.1 New Mushroom Farms

Elf Mushrooms operates a mushroom farm at Vineyard. The quantity of mushrooms produced at the farm has maintained full production levels for the last three years, averaging some 60 tonnes per week. The company would like to increase its production volume as there are opportunities for increased sales in the domestic market.

The Vineyard site is not suitable for expansion because the company does not have sufficient land at that location to build a new facility while maintaining production in the existing farm. Furthermore, the company does not see a future for further

1 Australian Mushroom Growers Association – 2007 Statistics.

investment in mushroom growing on that site because the land has been nominated for future residential development in the North West Structure Plan for the NSW Government's Metropolitan Strategy.

The company desires to construct a new mushroom farm with more than double the capacity of the existing facility. A new mushroom farm of modern design as planned by the company requires a site of approximately 10 hectares. A new location is required to accommodate these expansion plans.

1.4.2 Expand Substrate Plant

The current development consent for the Mulgrave substrate plant limits production to 1,000 tonnes per week of Phase 1 substrate, regardless of whether the substrate is delivered as Phase 1 product or used as an input for further processing at the plant. The quantity of substrate supplied by the plant has increased, particularly following the introduction of Phase 2 and Phase 3 processing, which has been embraced enthusiastically by mushroom growers. The consequent demand for substrate has resulted in production levels at the Mulgrave plant reaching the approved maximum limit for the last 2 ½ years.

Increased production from the Mulgrave plant is essential if Elf Mushrooms is to develop the proposed new mushroom farm at Londonderry. Should Elf Farm Supplies be unable to increase production at Mulgrave, there would be no purpose in Elf Mushrooms developing the new farm. There is no suitable alternative source of substrate. The practice of preparing substrate outdoors at the farm is no longer economically competitive, nor is it environmentally acceptable and would not be considered for the Londonderry operation.

An increase in production to 1,600 tonnes per week of Phase 1 substrate is the minimum required to cover the needs of Elf Mushrooms' proposed Londonderry mushroom farm, while continuing to meet all existing commitments for substrate supply. However, the projected growth in the industry generally, including subsequent mushroom farm development planned by the Tolson Group, requires Elf Farm Supplies to secure the opportunity to progressively move to higher production levels. For this reason Elf Farm Supplies is seeking approval for a staged increase up to 3,200 tonnes per week of Phase 1 substrate.

1.5 ALTERNATIVES CONSIDERED

1.5.1 Elf Mushrooms

Elf Mushrooms needed a suitable parcel of land in western Sydney to construct a new mushroom farm. The labour-intensive nature of the mushroom-growing industry

means that the company must locate near an area that can supply the necessary workforce. Stage 1 of the mushroom farm will employ over 120 people. It is desired to be sufficiently close to the existing facility to enable the current experienced workforce to progressively transfer to the new site.

The operation also needs to be as close as possible to the Sydney market which is the principal destination of mushrooms produced at the farm. Being located in western Sydney, compared to a location west of the Blue Mountains for example, enables mushroom deliveries to more easily accommodate the receival times preferred by customers. It is also more economical to minimise the transport distance of mushrooms because they are a high-moisture-content product. Longer transport distances are tolerable for dry raw materials such as straw.

Before settling on the Londonderry site Elf Mushrooms considered properties on the southern side of the railway at Vineyard in an area of land designated for future employment uses and another location beside Windsor Road. These sites either proved unsuitable or were not available.

1.5.2 Elf Farm Supplies

Elf Farm Supplies has on two previous occasions attempted to obtain development approval for substrate production plants in reasonable proximity to the mushroom growing area of western Sydney. Environmental impact statements were prepared and applications submitted for development proposals at Blaxlands Ridge, near Colo and in the Marulan area. On each occasion there was significant objection from residents in the locality and the proposal did not proceed.

Following the abandonment of the previous two applications the company determined to upgrade its existing facility at Mulgrave to world's best practice. The principal upgrading works were complete in 2003, with further improvements occurring more recently.

Having twice been through the process of trying to establish a substrate plant on another site, Elf Farm Supplies believes that rather than again attempt to pursue development approval for a new substrate plant in the Sydney region, the best course of action for the company is to expand its operations at Mulgrave. This will present further opportunities to develop and improve environmental performance of the operation. In these circumstances alternative sites have not been considered for substrate production.

2

THE SITES

2.1 MUSHROOM FARM

2.1.1 Property Description

The Londonderry site is Lot 138 DP 752037, located on The Northern Road in Penrith local government area. The property, shown in *Figure 3*, is almost rectangular with an area of 22.66 hectares. The property is owned by DW Tolson Management Pty Ltd.

The most recent use of the property has been for casual grazing, although it was a piggery prior to that. There is evidence that stony surface material has been scraped from parts of the site at some time in the past. Material referred to as the Londonderry Gravel is known to have been collected in the area and utilised in earlier times for civil engineering projects, such as roadworks.

Approximately three quarters of the property is cleared. Remaining vegetation comprises trees with little understorey, mainly in the rear section of the property with some minor clusters of trees at other locations, favouring the southern side.

There are several dams on the property and some minor drainage lines leading to the south west. The property has very little slope and was observed to be sodden under foot following wet weather.

A single dwelling is located about 50 metres from The Northern Road, serviced by an unsealed access road.

2.1.2 Surrounding Land Use

A dwelling is located near The Northern Road frontage adjacent to the southern boundary of the property. A motor vehicle wrecking yard is located immediately beside the dwelling with a long frontage to The Northern Road. Rural land adjoins the site to the north and west. Smaller holdings predominate to the west, with poultry sheds evident on the immediately adjoining holding. The larger holding to the north is mainly cleared towards the front of the site with residences set back over 100 metres from the common boundary.


Main Building footprint
Lot 138
DP 752037

The Castlereagh Nature Reserve is located on the opposite side of The Northern Road.

2.2 SUBSTRATE PLANT

2.2.1 Property Description

The site is roughly triangular in shape, comprising all of Lot 4 DP 610341 and part of Lot 3 DP 771652 as shown on *Figure 4*. The land is owned by RN & NR Tolson and is in Hawkesbury local government area.

The substrate plant has a small frontage to Mulgrave Road to the east and is bordered by the Blacktown-Richmond Railway to the south. Most of the northern boundary adjoins the RTA high level flood evacuation road which forms a diagonal boundary from Mulgrave Road. The remainder of the northern boundary adjoins another rural property. The western site boundary is the balance of the original rural property which continues downslope to South Creek.

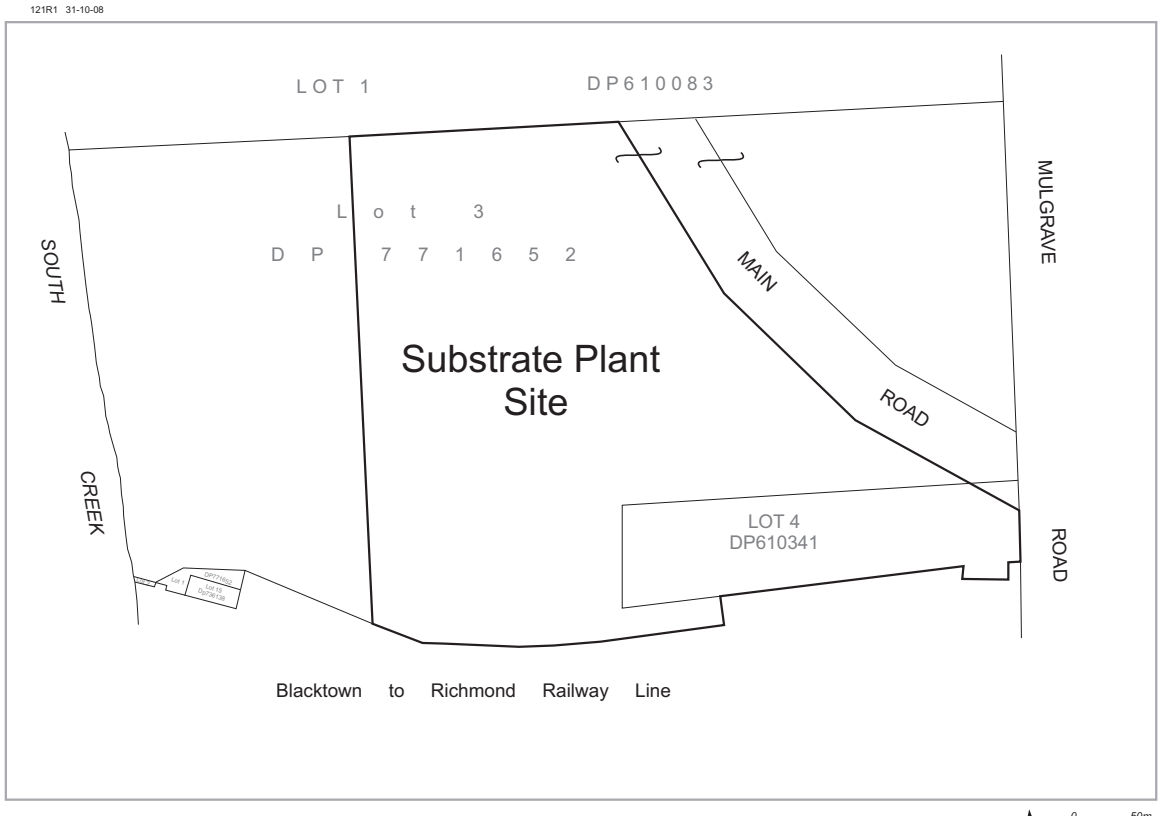

FIGURE 4 Substrate Plant Site

The site has a land area of about 12.4 hectares and is accessed directly from Mulgrave Road. The existing substrate plant area has been filled to a level of 16 metres AHD creating a development platform above the once in 100 year flood level. Most of the balance of the current site is in the process of being raised to the same level, as approved in a development consent issued by Hawkesbury City Council in November 2006.

2.2.2 Surrounding Land Use

Mulgrave is a rural area with a small number of houses clustered near the railway station. It is surrounded by rural land to the west, south and east. There is an industrial area immediately north of the railway station.

The property is part of a wide band of rural land stretching in a north-south direction along the flood plain of South Creek. Land uses include market gardens, turf farms, dairy farms, feedlots, grazing and sewerage treatment. At Mulgrave this rural area is about 1.5 kilometres wide. The Blacktown to Richmond Railway, immediately south of the site, crosses the flood plain at this location. Mulgrave Station is about 100 metres from the front gate of the property. A sewage treatment plant is located about 700 metres to the north beside Mulgrave Road, with Windsor High School opposite.

Land on the eastern side of Mulgrave Road is progressively being developed for mixed industrial uses. On the western side of South Creek a strip of higher land beside the railway line has been developed as a residential area. The closest residences in this estate are in Chisholm Place, about 500 metres from the substrate plant.

The high-level flood evacuation road for Windsor crosses the flood plain to the north of the property. Hence the land is situated in a section of the flood plain between two linear features that cross the creek, the railway, and main road. *Figure 5* is an oblique aerial photograph of the existing Mulgrave substrate plant, showing surrounding lands.


OR FLOOD EVACUATION ROUTE
AIRPHOTO Au

3

PROJECT OUTLINE

3.1 PROPOSED STAGES OF DEVELOPMENT

3.1.1 Mushroom Farm

Elf Mushrooms proposes to establish a new mushroom farm at Londonderry in several stages. The development to be undertaken in each stage is highlighted on *Figure 6*.

Stage 1

The first stage includes more than half of the total development, comprising 20 growing rooms and common ancillary areas such as packing and loading, plant room, administration, workshop, staff amenities, stores and waste water management. Stage 1 will have capacity to produce approximately 85 tonnes of fresh mushrooms per week.

When Stage 1 of the new farm is fully operating, it will employ approximately 120 people, in addition to the 130 employed at the company's current mushroom farm at Vineyard. Initially it is proposed to transport some of the product from Londonderry to the Vineyard farm for packaging and distribution by White Prince, the marketing division of the Tolson Group. A spent compost processing facility will be established as part of the Stage 1 development. This will process the spent compost by converting it to a fine-grained nutrient rich topdressing material for lawns and turfed playing fields.

A child care centre is planned for construction to cater for employees following Stage 1, when sufficient demand exists.

Subsequent Stages

A further three stages are planned for progressive development of 18 additional growing rooms, bringing the total to 38, and further ancillary development, commencing approximately five years after completion of Stage 1.

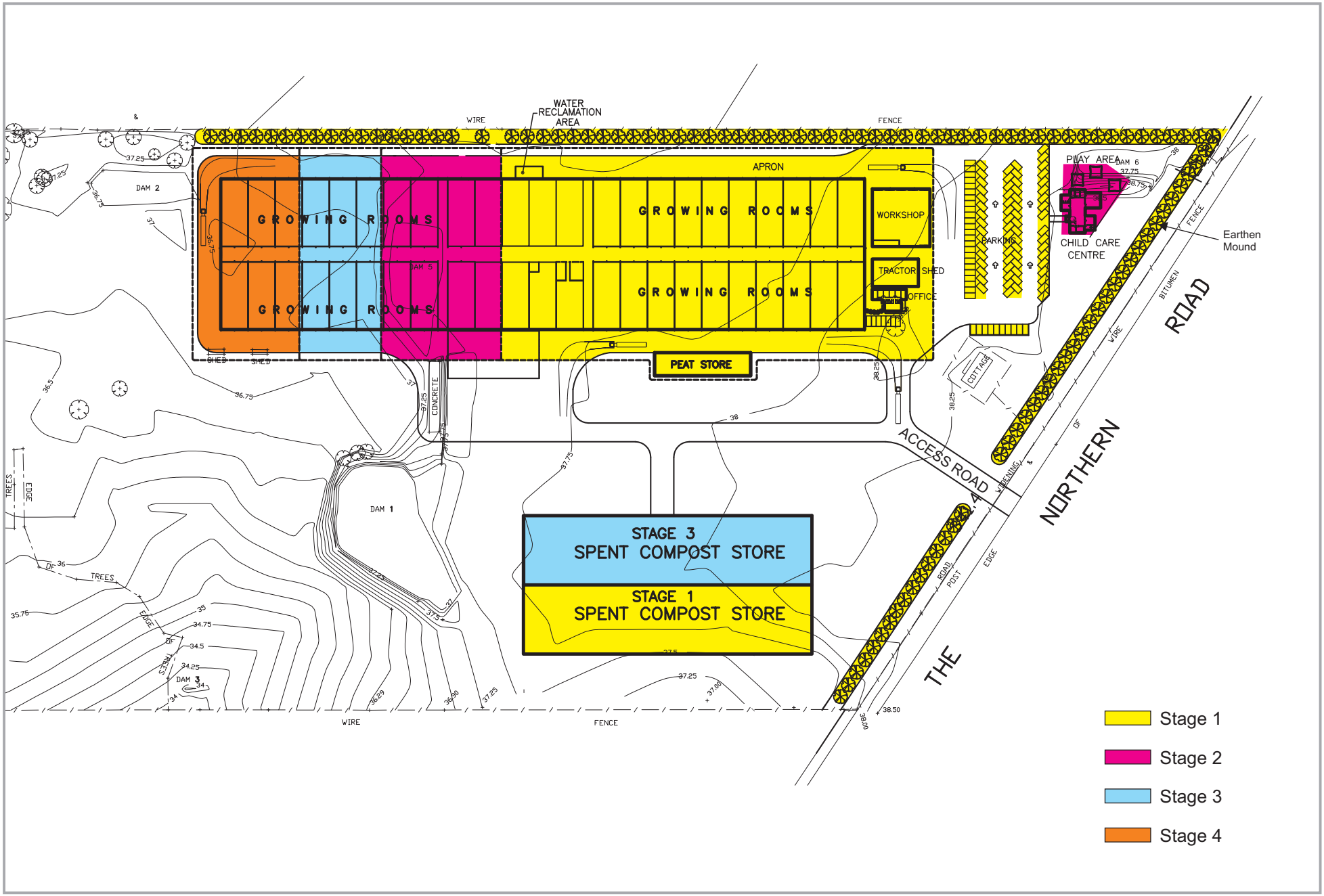

FIGURE 6 Mushroom Farm Staging Plan

These subsequent stages will be accompanied with the closure of the ageing Vineyard facility. As the additional growing rooms enter service, remaining employees at the Vineyard site will be progressively offered employment at Londonderry. White Prince will move to the Londonderry site from Vineyard as part of the second stage, eliminating double handling. Stage 3 will include expansion of the spent compost recycling facility.

3.1.2 Substrate Plant

The Mulgrave site currently produces 1,000 tonnes of Phase 1 substrate per week, equal to the limit permitted by the current development consent. Since 2003 however, Elf Farm Supplies has continued to develop its processing techniques and can now produce a batch of substrate in two weeks, whereas three weeks was required five years ago. This has created surplus capacity within the plant. With no physical change to the operational structures or equipment, the plant now has potential production capacity for 1,600 tonnes of Phase 1 substrate per week. The first stage of development is to utilise this surplus capacity by increasing the weekly tonnage limit to 1,600 tonnes. The only physical change required will be a new shed for storing straw, the principal raw material.

It is proposed to expand the existing plant in three stages over 10 years, keeping pace with the increasing demand for substrate as mushroom farms expand production to satisfy the market for locally produced mushrooms.

The three stages for expansion of the Mulgrave substrate plant summarised in *Table 3.1* and illustrated on *Figure 7.*

Table 3.1 PROPOSED STAGES OF EXPANSION AT MULGRAVE

Stage	**Works Description**	**Plant Capacity** (tonnes per week*)	**Extra staff**
1	One additional straw bale storage shed. Fill the final small area of the site on the western side.	1,600	2
2	Pre-wet shed extension with new conveyor, new bio scrubber with chimney, extra bale wetting area, extra bale storage shed, relocate weighbridge, new Phase 2/3 building with 9 tunnels and overhead supply conveyor.	2,400	4
3	Extra 2 Phase 1 tunnels and 13 Phase 2/3 tunnels.	3200	2

* tonnes per week of Phase 1 Substrate (1000 t of Phase 1 substrate reduces to 600 t of Phase 3 substrate).

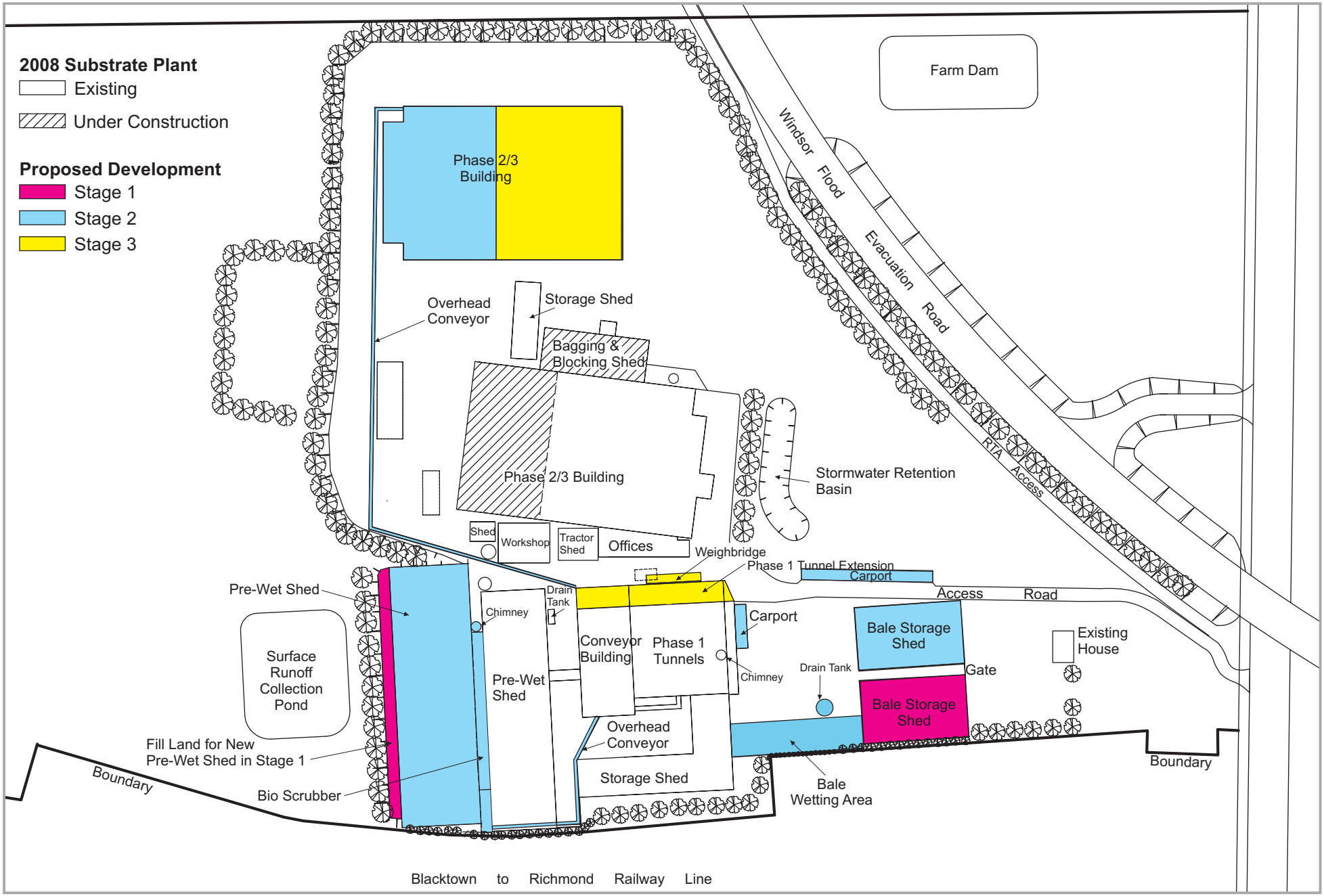

FIGURE 7 Proposed Mulgrave Extension

3.2 PROCESS DESCRIPTION

3.2.1 Mushroom Farm

Mushrooms are grown indoors in climate-controlled growing rooms. A mushroom farm is essentially a large building enclosing an array of growing rooms constructed from insulating panels, supported by ancillary infrastructure and services. Cleanliness is essential to minimise the intrusion of foreign spores that could contaminate the nutrient-rich growing mix.

Finished substrate arrives from the substrate plant in bulk already pasteurised and containing mushroom spawn. The substrate is unloaded indoors to minimise exposure to outside pathogens. The substrate is teased and mechanically loaded to growing shelves with a casing layer of peat mix placed over the top. The shelves of substrate are arranged on racks in the growing rooms and periodically watered. The growing rooms are sealed and maintained at a low temperature using chilled water and air.

After two weeks, when the emerging mushrooms are sufficiently advanced, the first crop is picked by hand. There is no practicable alternative to manual harvesting, which is why the industry is labour-intensive. Each batch of substrate is capable of yielding three crops of mushrooms over a six week cycle.

Picked mushrooms are moved internally to a packing room where they are packed into cardboard cartons for delivery to market. The spent substrate is normally sold for use in potting mix or as a soil conditioner in agriculture. Elf mushrooms proposes to further refine the spent substrate into a fine grained material of higher value suitable for top dressing turf as used on lawns, playing fields, golf courses and the like.

Growing rooms are washed down with town water to maintain hygiene standards. Wash down water is separately collected and recycled, with discharge to the dirty water system. A treatment system will allow this recycled water to be used for steam generation, toilets, and irrigating the grounds.

The mushroom farm will retain roof water in existing dams located on the property. This water will be used for washing down areas external to the growing rooms as well as supplying the cooling towers.

Town water will be used to supplement these processes when required. Town water is used for all mushroom irrigation.

Activities can be occurring at the mushroom farm 24 hours per day. Cooling equipment is required to operate continuously to maintain the necessary growing

conditions. The majority of staff will work during daylight hours, however substrate may arrive in the early morning and mushroom deliveries from the site will normally depart during the night.

Truck movements will increase as additional stages of the mushroom farm are brought into service. Semi-trailer vehicles will be favoured for greater efficiency. Routine heavy vehicle movements are summarised as follows:

- Incoming new substrate – three shipments each Monday, Wednesday and Friday mornings, commencing in the pre-dawn period;
- Outgoing spent substrate – nine shipments per week, predominantly between 6 am and 5 pm;
- Product dispatch – two shipments every evening between 8 pm and 4 am;
- Cardboard boxes – two deliveries per week between 6 am and 5 pm;
- Casing material (peat) – two deliveries per week between 6 am and 5 pm

3.2.2 Substrate Plant

An environmental management plan was prepared approximately five years ago for the Mulgrave substrate plant. The EMP has since been updated to reflect current operational practices in the plant. The following description of the manufacturing process for mushroom substrate is derived from the EMP. *Figure 8* is a process flow diagram illustrating the substrate production process.

(i) Raw Materials Storage

Raw materials used in substrate manufacture include straw, water, poultry manure, cotton plant products, gypsum and dry stable bedding. Solid raw materials other than straw are stored in a three-sided shed, leaving an open side for material to be delivered by tip truck. The material is kept in a dry state under cover. Straw is stored in the bale wetting area and bale storage building.

(ii) Bale Wetting

As a prelude to the first stage of pre-wet, straw bales are spray watered in the bale wetting area for several days to soften the straw by removing the waxy layer and increase water content. Water running off the bales is collected, filtered and recirculated via the sprays.

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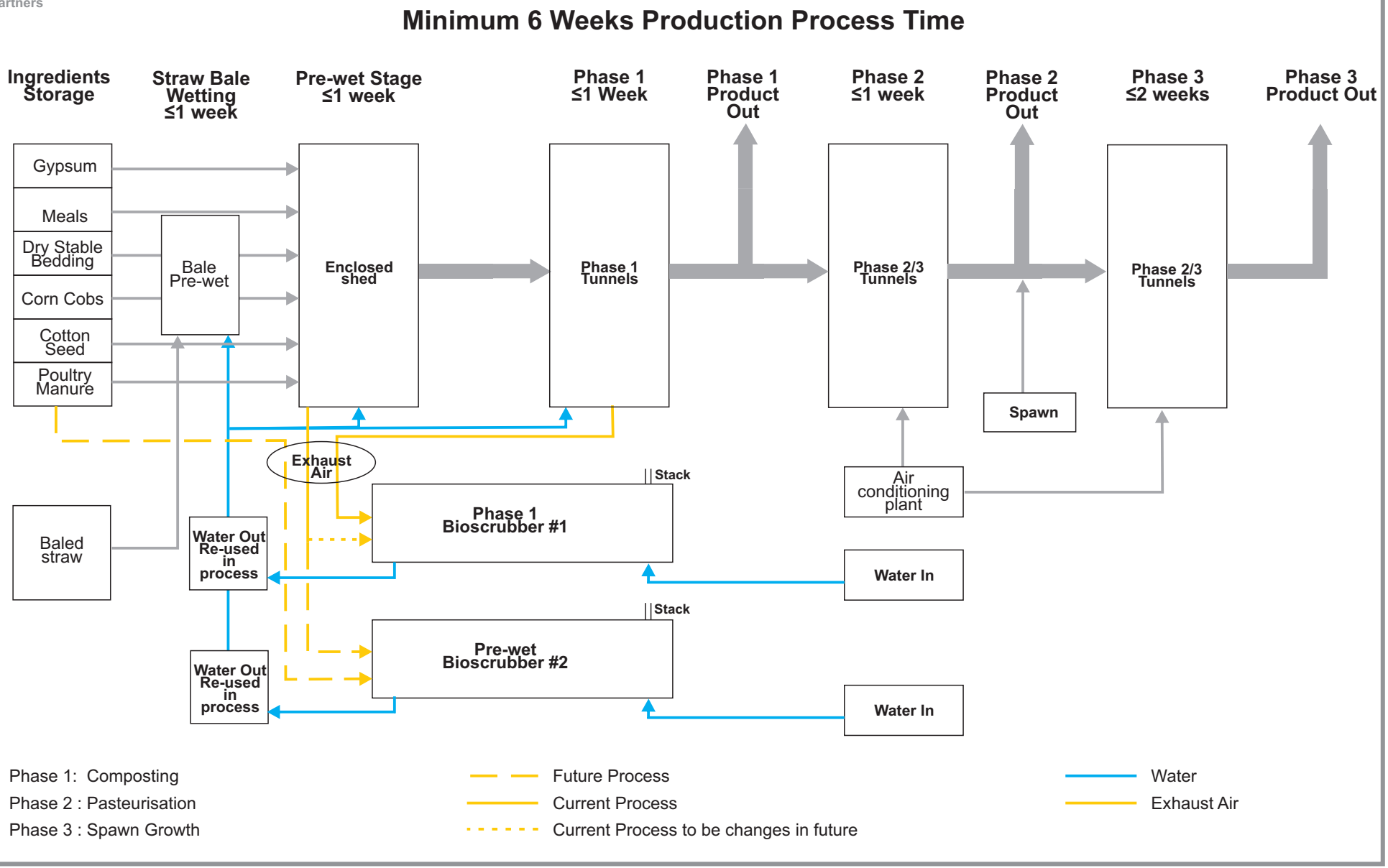

FIGURE 8 Process Flow Diagram

(iii) Pre-Wet

Straw bales are laid out in rows in the pre-wet building and blended with other ingredients and water using a mobile blending machine. Dry ingredients are transported by a Kuhn mixing trailer to the building. The building is totally enclosed and kept under negative air pressure. Air is recirculated through the floor beneath the rows as this first low-temperature composting stage progresses. Exhaust air passes through ducts into the Phase 1 tunnels.

The pre-wet process takes up to one week, with the blending machine adding water, mixing and turning each row at least every second day.

(iv) Phase 1 Composting

The high-temperature composting phase takes place in tunnels for up to one week. The mix must remain above 75^{o} Celsius for at least 90 hours to enable the process to reach completion. During the process, each tunnel is emptied and the contents placed in the hopper where water is added uniformly and the mix returned to an empty tunnel by conveyor.

The finished Phase 1 product is placed in the hopper so that the conveyor system can either load it to trucks for delivery or transfer it to the Phase 2 and Phase 3 tunnel building.

(v) Phase 2 and Phase 3 Processing

Phase 2 is a pasteurisation process undertaken at high temperature on finished compost to kill unwanted spores and organisms. Phase 3 is the initial growth of mushroom spawn from introduced mycelium, undertaken in controlled atmospheric conditions. These operations take about two to three weeks of processing, depending upon dispatch days.

Utmost cleanliness is required to avoid contamination of the pasteurised substrate by foreign spores or pathogens. Finished product loading is carried out indoors with trucks being cleaned down prior to entering the loading area, if necessary.

Elf Farm Supplies is now moving into supplying products tailored to specific needs of the commercial and home markets. Some mushroom farms will experience greater efficiency if the spawned substrate is prepared in the form of plastic-wrapped blocks, suitable for placing directly on growing shelves or trays. There is also a home market for do it yourself growers who require spawned substrate pre-wrapped and ready to place in a suitable growing environment.

4

RELEVANT PLANNING PROVISIONS

4.1 MUSHROOM FARM

4.1.1 Local Planning Provisions

The following local planning documents apply to the site:

- Penrith Rural Land LEP 201:

  The property is zoned 1(a) Rural A - General under Penrith Rural Land LEP 201 (1991). Agriculture is permissible without consent, however the construction of a building for mushroom growing will require consent.

- Penrith Draft LEP 1999 (Flora & Fauna Conservation):

  This draft LEP has been exhibited but not finally made. The development area of the site is cleared of native vegetation, therefore the draft LEP will not have an impact on the proposal.

- Penrith Development Control Plan 2006:

  Various sections of the DCP may apply to the proposed development, in particular Part 4 Section 4.9 Rural development.

4.1.2 Regional Plans

The following regional environmental plan applies to the land:

- Sydney Regional Environmental Plan No 20—Hawkesbury-Nepean River (No 2—1997).

4.1.3 State Environmental Planning Policies

The following state environmental planning policy applies to the land:

- State Environmental Planning Policy (Major Projects) 2005

4.2 SUBSTRATE PLANT

4.2.1 Local Planning Provisions

The following local planning documents apply to the site:

- Hawkesbury Local Environmental Plan 1989:

  The property is zoned "Rural Living". Mushroom substrate production is defined as a rural industry pursuant to State Environmental Planning Policy No. 30 – Intensive Agriculture.

  Rural industries are a prohibited land use within the Rural Living zone. The substrate plant operates in accordance with a number of development consents issued by Hawkesbury City Council between 1980 and 2008.

- Draft Amendment 148 to Hawkesbury LEP 1989:

  This is a site-specific amendment which applies to the subject property. The draft amendment proposes to change the zoning of the property to Light Industrial 4(b). Rural industries are permissible within the 4(b) zone.

- Hawkesbury Development Control Plan 2002:

  Various sections of the DCP may apply to the proposed development.

4.2.2 Regional Plans

The following regional environmental plan applies to the land:

- Sydney Regional Environmental Plan No 20—Hawkesbury-Nepean River (No 2—1997)

4.2.3 State Environmental Planning Policies

The following state environmental planning policies apply to the land:

- State Environmental Planning Policy No. 30 – Intensive Agriculture.
- State Environmental Planning Policy (Major Projects) 2005

5

KEY ENVIRONMENTAL ISSUES - LONDONDERRY

5.1 ENVIRONMENTAL RISK ASSESSMENT

According to the Australian Mushroom Growers Association (AMGA) western Sydney has the highest concentration of mushroom growers in Australia, accounting for some three quarters of New South Wales production and one quarter of Australia's national mushroom product. In 2006 the AMGA reported that there were some 15 mushroom growers in western Sydney.

Mushroom farming is an intensive agricultural activity that does not require a licence from DECC. Because the mushroom industry is well established in the region there has been ample opportunity to observe the environmental performance of mushroom farms. An appropriately located, designed and managed mushroom farm has a relatively benign impact on the surroundings. The need for 24 hour operation however, including night time truck movements, indicates a potential for environmental impacts if the mushroom farm is not well located, designed and managed.

Table 5.1 below identifies potential incidents or circumstances associated with Londonderry mushroom farm that may give rise to environmental impacts, the possible consequences should those incidents or circumstances occur, preventive measures that will form part of the mushroom farm project to protect against environmental impacts and the likelihood of the impact occurring. The likelihood of occurrence has been assessed on a scale with the values: "almost certain"; "likely"; "possible"; "unlikely"; or "almost never".

The likelihood of occurrence is assessed as "unlikely" for the majority of potential impacts and "possible" for the key environmental issues of noise, dust, water quality and transport.

Noise and transport issues are given a "possible" rating because the site will be served by trucks not controlled by the operator. There will be measures in place to inform drivers of requirements that their vehicles remain noise compliant and requesting that they drive in an appropriate manner, but this does not eliminate the possibility of non-compliance.

Table 5.1 EVENT - CONSEQUENCE CHART, LONDONDERRY

Environmental Issue	Initiating event	Potential Consequences	Preventive Measures	Likelihood of occurrence*
Noise	• Noisy plant, outside specification; • Plant room doors left open or shielding panels removed; • Vehicle noise outside specification; • Driver using compression brakes at night	• Excessive noise at receptors resulting in decreased amenity, disruption to household activities and potential sleep disturbance.	• Plant designed to meet noise specifications; • An earthen mound included along the frontage and northern side of the site for noise attenuation • Noise management procedures included in the EMP and rigorously implemented; • Compliance testing at startup; • Complaint management procedure.	• Possible
Air quality	• Dust generation during earthworks in the construction phase; • Spent substrate becomes saturated and odour generating.	• Dust nuisance created affecting nearby residents • Odour detected at receptors under certain climatic conditions.	• Dust controls during construction; • Plant designed to prevent contaminants entering dam and to keep spent substrate under cover; • Odour management procedures included in the EMP and rigorously implemented; • Complaint management procedure	• Possible (dust) • Unlikely (odour)
Water Quality	• Compounds from spent substrate enter runoff water; • Wash water escapes to natural drainage; • Pollution incident from vehicle	• Decrease in water quality in downstream watercourses; • Pollutants enter groundwater; • Damage to vegetation or wildlife.	• Plant designed to convey roof and surface runoff to the site dams; • Dams adequately sized to prevent release of water except in major rainfall events;	• Possible

Environmental Issue	Initiating event	Potential Consequences	Preventive Measures	Likelihood of occurrence*
	accident or hydrocarbon spill; • Polluted water leaving the site during or following a fire or flood; • Suspended sediments in runoff during construction.		• Process water including washdown water separately collected and treated for reuse; • Erosion and sediment controls implemented during construction	
Transport	• Traffic congestion when employees arrive/depart the premises; • Traffic accidents at the site entrance; • Accident involving heavy vehicle en route to/from the site.	• Delays for other roads users; • Reduction in road safety.	• Intersection of site access road and The Northern Road designed to RTA requirements; • Driver behaviour management part of EMP.	• Possible
Flora/fauna	• Construction activity or vehicles disturb land beyond the project boundary; • Pollution incident from vehicle accident or hydrocarbon spill	• Loss of native vegetation and fauna habitat;	• Identify vegetation on the site for the application; • Erect barriers around the project site boundary before commencement.	• Unlikely
Visual amenity	• Bushfire destroys screen planting and landscaping; • Drought results in dieback of screen planting or landscaping.	• Farm buildings become more visible until screening restored.	• Maintain fire fighting equipment on site; • Water screen plantings from collected runoff when needed.	• Unlikely
Cultural heritage	• Aboriginal artefacts disturbed during construction.	• Loss of Aboriginal artefacts	• Undertake an Aboriginal archaeological survey to accompany the application and implement appropriate measures.	• Unlikely

* Likelihood of occurrence: "almost certain"; "likely"; "possible"; "unlikely"; or "almost never"

Dust generation is possible during the construction phase associated with preparing the building platform and creating an earthen mound for noise and visual purposes along the frontage and northern side of the site. Standard dust control practices would normally prevent a significant impact, however dry weather and strong winds at the time can exacerbate dust generation.

Water management systems are designed to handle defined climatic events. Should a storm exceeding the defined event occur during the lifetime of the mushroom farm, the water management system may discharge.

The following sections explain the manner in which the key environmental issues will be addressed in the environmental assessment.

5.2 KEY ENVIRONMENTAL ISSUES

5.2.1 Noise

A noise assessment has been commissioned to assist the design process, determining the extent of noise attenuation required including design of the noise mound. The assessment includes the following components:

- measure background noise to determine project-specific goals;
- model all significant noise sources to predict noise levels at receptors;
- consider vehicle movements on the site;
- consider the effects of wind and temperature inversions;
- assess road traffic noise associated with operation of the farm;
- consider the effects of construction noise.

5.2.2 Air Quality

An Air quality assessment has been commissioned to confirm that potential dust and odour emissions from the site will not disturb the amenity of the area. The assessment will:

- recommend dust control measures during the construction phase;
- sample and measure odour content of exhaust air at the existing Vineyard mushroom farm;
- sample and measure the odour content of air emitted from spent mushroom substrate;

- model odour emissions from the site using available meteorological data and predict odour concentrations and frequency in the surrounding area resulting from operation of the mushroom farm;
- make any recommendations appropriate to design or management of the farm for the purposes of avoiding odour impacts.

The air quality consultant will also provide a greenhouse gas report for the project.

5.2.3 Water Quality

A drainage consultant has been engaged to design the water management system for the mushroom farm. The design will include safeguards to protect the quality of water draining from the site.

5.2.4 Transport

A traffic consultant will be engaged to consider the traffic impacts of the development and concept design for the intersection of the site access road and The Northern Road.

5.2.5 Flora and Fauna

A flora and fauna consultant has inspected the site and will prepare an assessment report identifying vegetation and habitat to be affected by the project, recommending any measures to avoid disturbance to vegetation of significance that is not directly affected.

5.2.6 Visual Impact

The earthen mound proposed for noise attenuation will be landscaped with local species. A landscape concept plan will be submitted with the application.

5.2.7 Cultural Heritage

An Aboriginal archaeological assessment will be carried out in consultation with local Aboriginal representatives. The report will be included in the environmental assessment.

6

KEY ENVIRONMENTAL ISSUES - MULGRAVE

6.1 ENVIRONMENTAL RISK ASSESSMENT

The mushroom substrate plant at Mulgrave has operated for some 27 years. Over that period the plant has been modified and adapted to improve the efficiency and quality of substrate and minimise environmental impacts. The plant has operated in its current configuration for several years at maximum production levels allowing its environmental performance to be observed and monitored. Ongoing odour monitoring has confirmed that the plant remains within limits set in the licence issued by DECC.

The expansion now proposed is based upon designs and techniques for impact minimisation already proven at the plant. In addition the expansion includes new measures to be introduced that will further reduce the potential for environmental impact of the current operation from fugitive emissions.

Table 6.1 below identifies potential incidents or circumstances associated with the Mulgrave substrate plant that may give rise to environmental impacts, the possible consequences should those incidents or circumstances occur, preventive measures that will form part of the substrate plant expansion to protect against environmental impacts and the likelihood of the impact occurring. The likelihood of occurrence has been assessed on a scale with the values: "almost certain"; "likely"; "possible"; "unlikely"; or "almost never".

The likelihood of occurrence is assessed as "possible" for the key environmental issues of air quality, water quality, noise and transport and "unlikely" for visual impact.

Air quality impacts are considered possible in respect of dust and odour. Dust generation is possible during the construction phase, associated with filling a small part of the site and other construction activities on unsealed surfaces. Odour emissions are possible because the process is by nature odour-generating. The design of the current operation and the proposed expansion is substantially governed by the need to collect and treat air emissions. The current operation has a bioscrubber to treat emissions which are released through a chimney to aid dispersion. The expansion will include a second bioscrubber and chimney, separating emissions from the pre-wet

Table 6.1 EVENT - CONSEQUENCE CHART, MULGRAVE

Environmental Issue	Initiating event	Potential Consequences	Preventive Measures	Likelihood of occurrence*
Air quality	• Dust generation during earthworks in the construction phase; • Failure of odour control plant; • Fugitive emissions; • Dam becomes anaerobic.	• Dust nuisance created affecting nearby residents • Odour detected at receptors under certain climatic conditions.	• Dust controls during construction; • Plant designed for odour control with second bioscrubber and improvements to prevent fugitive emissions; • Dam to be monitored to prevent anaerobic conditions; • Odour management and monitoring procedures included in the EMP and rigorously implemented; • Complaint management procedure	• Possible (dust) • Possible (odour)
Water Quality	• Dirty water escapes to South Creek; • Infiltration of pollutants from the dirty water dam • Pollution incident from vehicle accident or hydrocarbon spill; • Polluted water leaving the site during or following a fire or flood; • Suspended sediments in runoff during construction; • Flood inundates dirty water dam.	• Decrease in water quality in South Creek; • Pollutants enter groundwater; • Material deposited on farm pasture; • Potential effect on wildlife	• Plant designed to convey roof runoff directly to South Creek; • Dirty water dam is lined and adequately sized to prevent release of water; • Process water including washdown water is separately collected and recirculated in the process; • Erosion and sediment controls implemented during construction	• Possible
Noise	• Noisy plant, outside specification;	• Excessive noise at receptors	• Plant designed to meet noise	• Possible

Environmental Issue	Initiating event	Potential Consequences	Preventive Measures	Likelihood of occurrence*
	• Plant room doors left open or shielding panels removed; • Vehicle noise outside specification; • Driver using compression brakes at night	resulting in decreased amenity, disruption to household activities and potential sleep disturbance.	specifications; • Noise management procedures included in the EMP and rigorously implemented; • Compliance testing at startup; • Complaint management procedure.	
Transport	• Traffic accidents at the site entrance; • Accident involving heavy vehicle en route to/from the site.	• Reduction in road safety.	• Intersection of site access road and Mulgrave Road designed to RTA requirements; • Driver behaviour management part of EMP.	• Possible
Visual amenity	• Bushfire destroys screen planting and landscaping; • Drought results in dieback of screen planting or landscaping.	• Plant buildings become more visible until screening restored.	• Maintain fire fighting equipment on site; • Water screen plantings as needed.	• Unlikely

* Likelihood of occurrence: "almost certain"; "likely"; "possible"; "unlikely"; or "almost never"

building from those of the Phase 1 tunnel building and providing better control of fugitive emissions. For this reason odour impacts are considered "possible", but not "likely".

The water management system at the plant is designed to direct surface runoff into the dirty water tank, sized to hold runoff from a defined storm event. Water is recycled from the tank for bale wetting. A second similar system is proposed to be added as part of the expansion. Should these systems overflow in a major storm, the discharge flows to a lined dam on the property. The dam is lined to prevent infiltration and configured so that it does not receive runoff from any other catchment. It is possible that the dam could be inundated in the event of a major flood.

Noise and transport issues are given a "possible" rating because the site will be served by trucks not controlled by the operator. There will be measures in place to inform drivers of requirements that their vehicles are noise compliant and requesting that they drive in an appropriate manner, but this does not eliminate the possibility of non-compliance.

The following sections explain the manner in which the key environmental issues will be addressed in the environmental assessment.

6.2 KEY ENVIRONMENTAL ISSUES

6.2.1 Air Quality

An air quality assessment has been commissioned to confirm that potential odour emissions from the expanded operation will not disturb the amenity of the area. The assessment will:

- recommend dust control measures during the construction phase;
- sample and measure odour content of exhaust air from the current Phase 1 tunnels and pre-wet piles;
- sample and measure odour content of wet bales in the bale wetting area, the dirty water pit and dry chicken manure in the storage area;
- sample and measure the odour content of entering and leaving the bioscrubber to assess its efficiency;
- model odour emissions using meteorological data collected from the on site weather station and predict odour concentrations and frequency in the surrounding area resulting from operation of the plant;
- make any recommendations appropriate to design or management of the plant for the purposes of avoiding odour impacts.

The air quality consultant will also provide a greenhouse gas report for the substrate plant.

6.2.2 Noise

A noise assessment has been commissioned to assist the design process, determining the extent of noise attenuation required. The assessment includes the following components:

- measure current background noise to determine project-specific goals;
- model all significant noise sources to predict noise levels at receptors;
- consider vehicle movements on the site;
- consider the effects of wind and temperature inversions;
- assess road traffic noise associated with operation of the substrate plant; and
- consider the effects of construction noise.

6.2.3 Water Quality

Design details for the plant are being developed to augment the dirty water drainage system to accommodate the requirements of the proposed expansion. The design will include safeguards to protect the quality of water draining from the site. Details will be presented in the environmental assessment.

6.2.4 Transport

A traffic consultant will be engaged to consider the traffic impacts of the development and provide a concept design for any modification necessary to the intersection of the site access road and Mulgrave Road.

6.2.5 Visual Impact

Most areas of the substrate plant site that were not previously filled to 16 metres AHD are currently in the process of being filled to that level under a development consent issued by Hawkesbury Council. As a result of this work some of the previous screening vegetation was removed. Replacement vegetation has been planted along the northern and western boundaries as the filling has progressed and will over time restore the screening effect of the removed plantings. The environmental assessment will include a landscape concept plan for the completed site.

6.3 OTHER ISSUES

The substrate plant development will take place substantially on land that is already cleared and has been filled to provide a working platform above the once in 100 year flood level. The small remaining area to be filled as part of this project would have an insignificant effect on flood depth or flow patterns in the South Creek valley.

Being located primarily on filled land, the development will not disturb any naturally occurring native vegetation.

Prior to Hawkesbury Council's approval to fill the site, the property was inspected by a representative of the Deerubbin Local Aboriginal Land Council leading to the land council advising that it had no objection to the filling proceeding.

There will be no hazardous materials stored at the site.

Appendix A

DEPARTMENT OF PLANNING LETTER

NSW GOVERNMENT
Department of Planning

Major Development Assessment

Phone: (02) 9228 6338
Fax: (02) 9228 6466
Email: Jacqueline.Ingham@planning.nsw.gov.au

23-33 Bridge Street
GPO Box 39
SYDNEY NSW 2001

Mr Robert Montgomery
Principal
Montgomery Planning Solutions
PO Box 49
KURMOND NSW 2757

Dear Mr Montgomery

Tolson's New Mushroom Farm and Substrate Plant Expansion

I refer to the letter from Perram and Partners of 4 February 2008, seeking the Minister's authorisation that Tolson's proposed new mushroom farm at Londonderry and proposed substrate plant at Mulgrave, be assessed as a major project under Part 3A of the *Environmental Planning and Assessment Act, 1979* (EP&A Act).

As a result of subsequent discussions, and information provided by you, the Minister has formed the opinion that the proposed new mushroom farm and substrate plant is a major project to be assessed under Part 3A of the EP&A Act, and has authorised the submission of a concept plan for this project under Section 75M of the EP&A Act.

You are now requested to prepare a preliminary environmental assessment (PEA) for the project so that Director-General's requirements for your environmental assessment can be released. I have attached a guideline for preparation of the PEA for assistance.

If you have any questions, please call me on 9228 6338.

Yours sincerely

29/2/08

Jacqueline Ingham
Senior Environmental Planner

PRELIMINARY ENVIRONMENTAL ASSESSMENT

The aim of the preliminary environmental assessment (PEA) is to provide the Department with detailed information about the proposal, so that specifically tailored Director General's requirements can be provided. As the PEA will be distributed to agencies, and made publicly available on the Department's website, it is important that it can be presented as a standalone document.

In general the preliminary assessment should include:

- *a detailed written and graphical description of the project. This should include:*
  - *the need for the project;*
  - *alternatives considered;*
  - *the various components and stages of the project;*
  - *a clear description of any processes; and*
  - *detailed scaled plans of the site layout showing any existing structures and the proposed works.*
- *the location with a map and a clear and up to date aerial photograph identifying the site and the surrounding land uses;*
- *the relevant planning provisions applying to the sites, including the statutory provisions for the assessment of the Concept Plan;*
- *a description of the existing environment (particularly in regards to surrounding land users and sensitive receivers);*
- *a history of the site; and*
- *a risk assessment of the potential environmental impacts of the project, identifying the key issues for further assessment. Please provide an explanation as to why the issues identified are considered either a key issue, or are of moderate or low significance. For the key issues could you also please provide a description of how you plan to address/assess these issues in the EA.*