



<b>Licence Number</b>	L6395/1993/16
<b>Licence Holder</b>	Harvey Industries Group Pty Ltd
<b>ACN</b>	117 597 985
<b>Registered business address</b>	80 Birdwood Parade DALKEITH WA 6009
<b>Date of amendment</b>	10 November 2016
<b>Prescribed Premises</b>	Category 15 – Abattoir Category 16 – Rendering operation Category 55 – Livestock saleyard or holding pen
<b>Premises</b>	Harvey Beef Abattoir Lot 3 on Diagram 70328; Lot 113 on Plan 202106; Lots 115, 116, 117, 118, 119, 142, 143, 145, 147, 149, 172, 173, 174, 175, 177, 200, 201, 202, 203, 204, 205, 228, 229, 230, 231 and 232 on Plan 2492; Lots 235 and 236 on Plan 29898; and Lots 400 and 401 on Plan 302521, Seventh Street HARVEY WA 6220

## Amendment

The Chief Executive Officer (CEO) of the Department of Environment Regulation (DER) has amended the above licence in accordance with section 59 of the *Environmental Protection Act 1986* as set out in this Amendment Notice.

Date signed: 10 November 2016

**Jonathan Bailes**  
**Manager Licensing (Process Industries)**

*an officer delegated under section 20 of the Environmental Protection Act 1986 (WA)*

## Amendment Notice

This notice is issued under section 59 of the *Environmental Protection Act* 1986 (EP Act) to amend the licence issued under the EP Act for a prescribed premises as set out below. This notice of amendment is given under section 59B(9) of the EP Act.

## Amendment Description

Licence L6395/1993/16 was renewed on 10 September 2015. The premises irrigate treated wastewater from the abattoir and rendering facility to a series of paddocks, which is managed by a Nutrient and Irrigation Management Plan (NIMP).

The Licence Holder has updated the NIMP and has requested the following licence amendments:

1. Removal of the minimum 28 days between application of treated wastewater in bunded paddocks;
2. Increase in the nutrient loading rates for total nitrogen and total phosphorus;
3. Vegetation and floating debris to be allowed on wastewater treatment ponds provided it does not reduce the functionality or inhibit the treatment process;
4. Removal of the requirement to notify DER when desludging wastewater treatment ponds; and
5. Increase the irrigation area to include Kealys paddock (an additional 5.9ha).

## Decision

The Licence Holder's requested amendments have been considered as follows:

1. Condition 8 of the licence currently requires the Licensee to wait for a minimum of 28 days between application of treated wastewater and the opening of stormwater release valves in bunded irrigation areas. The intent of this condition is to reduce the risk of nutrient-rich treated wastewater runoff from irrigated bunded paddocks to stormwater drains. The limit of 28 days does not take into consideration variables such as weather conditions, soil condition, or crop type present in the paddocks. The Licence Holder is able to manage irrigation at the premises such that run-off from unbunded paddocks to stormwater drains is prevented. Therefore, the Delegated Officer considers that the requirement to hold water for 28 days in the bunded paddocks is restrictive on the management of irrigation and has amended condition 8 accordingly.
2. Refer to Appendix A for the Delegated Officer's decision.
3. Condition 10 of the licence requires the Licence Holder to manage all ponds used to hold treated or untreated wastewater on the premises such that vegetation and floating debris does not encroach onto pond surfaces or inner pond embankments. However, the anaerobic pond at the premises has a crust which is naturally vegetated. The crust is an essential part of the functional operation of the pond. The Licence Holder conducted an inspection in June 2015 to assess the condition of the anaerobic pond crust and the depth of water under the crust. The investigation found that the crust was up to 0.5m thick and that there was a minimum of 2m of water below the crust. The Licence Holder determined that there was no indication that the crust was at

risk of sinking and appeared to be stable. Removing the vegetation or applying herbicide would risk the crust breaking up or becoming unstable. The Licence Holder will continue to monitor the crust stability and pond performance and inspect the water depth between the crust and the bottom sludge. Therefore, the Delegated Officer has amended condition 10 to allow vegetation to remain on the anaerobic pond crust.

4. Condition 17 requires the Licence Holder to notify DER prior to taking a wastewater pond off-line for maintenance and prior to the removal of sludge from a wastewater pond. These notification requirements restrict the Licence Holder's operations and do not control the risk of impacts from pond maintenance (e.g. increased odour from de-sludging). The Licence Holder has a sludge management strategy which includes a process to continuously remove sludge from the RENOIR pond into a 'Geotube' for dewatering and drying prior to disposal off-site making notification impractical. The Delegated Officer, therefore, considers that the notification requirements are onerous and do not allow the Licence Holder operational flexibility and has removed condition 17 from the licence.
5. The current premises irrigation area covers the premises boundary excluding areas occupied by process buildings, wastewater treatment areas, and Kealys paddock. Kealys paddock is a 5.9ha paddock located on the south side of Uduc Road (approximately 20m south of the existing irrigation area), has historically not been used for irrigation purposes due to lack of irrigation infrastructure. The Licence Holder is in the process of installing infrastructure to enable the irrigation of the paddock. The paddock has the same soil properties as the existing irrigation area, and the updated NIMP has taken into account irrigation of this additional paddock. The Delegated Officer has determined the additional area is suitable for irrigation and has updated the relevant licence controls to apply them to the new paddock. The premises map in Attachment 1 of the licence has been updated to include the additional paddock as an irrigation area.

## Amendment History

Instrument	Issued	Amendment
L6395/1993/16	10/09/2015	Licence renewal
L6395/1993/16	29/04/2016	Amendment notice to extend expiry date to 14 September 2030
L6395/1993/16	10/11/2016	Amendment Notice 1 Licence amendment to amend conditions relating to the management of treated wastewater within the irrigation area, nutrient loading rates, management of wastewater storage ponds, notification requirements, administrative changes, and update plan of premises.

## Amendment

1. Condition 8 of the licence is amended by the deletion of the text shown in strikethrough below and the insertion of the red text shown in underline below:

- 8     *The licensee shall manage the discharge of treated wastewater within the Irrigation Area, such that:*
  - (i)     *wastewater is evenly distributed over the Irrigation Area;*
  - (ii)    *no soil erosion or ponding of wastewater occurs;*
  - (iii)   *there is no direct runoff, spray drift or discharge beyond the Irrigation Area;*
  - (iv)    *healthy vegetation cover is maintained over the Irrigation Area;*  
*and*
  - (v)    *discharge does not occur during periods of rainfall or onto flooded area(s); ~~and~~*
  - (vi)    ~~*a minimum of twenty-eight (28) days between application of treated wastewater and the opening of stormwater release valves in banded irrigation area(s).*~~

2. Condition 9 of the licence is amended by the deletion of text shown in strikethrough below and the insertion of the red text shown in underline below:

9.     *The Licensee shall ensure the following nutrient loading rates are not exceeded within the Irrigation Area:*
  - (i)     *Total Nitrogen of ~~300~~ 400 kilograms per hectare per year;*
  - (ii)    *Total Phosphorus of ~~50~~ 120 kilograms per hectare per year; and*
  - (iii)    *Biochemical Oxygen Demand of 30 kilograms per hectare per day.*

3. Condition 10 of the licence is amended by the insertion of the red text shown in underline below:

- 10    *The licensee shall manage all ponds used to hold treated or untreated wastewater on the premises such that:*
  - (i)     *stormwater runoff resulting from site drainage shall be prevented from entering the ponds or causing the erosion of the outer pond embankment;*
  - (ii)    *overtopping of the ponds into the environment does not occur;*
  - (iii)   *there is no Discernable seepage loss from the ponds;*
  - (iv)    *with the exception of the anaerobic pond, vegetation and floating debris (emergent or otherwise) does not encroach onto pond surfaces or inner pond embankments;*
  - (v)    *trapped overflows are maintained on the discharge from all ponds to prevent carry-over of surface floating matter to subsequent ponds; and*
  - (vi)    *a three-hundred (300) millimetre Freeboard is maintained at all times.*

4. The licence is amended by the deletion of the following condition 17:
- 17     *The licensee shall:*  
      (i)     *inform the CEO in writing prior to taking a wastewater pond off-line for maintenance; and*  
      (ii)    *inform the CEO in writing at least fourteen (14) days prior to the removal of sludge from a wastewater pond.*
5. Condition 18 of the licence is amended by the deletion of text shown in strikethrough below and the insertion of the red text shown in underline below:
- 18     ~~Subject to condition 21, the licensee shall~~The licensee shall:  
      (i)     *store all removed sludge on a drying bed which is adequately bunded to prevent surface runoff of leachate from crossing the premises boundary and returns leachate from the drying bed back into the wastewater ponds; OR*  
      (ii)    *store all removed sludge in a manner approved by the CEO; OR*  
      (iii)   *dispose of all removed sludge off the premises.*
6. The Plan of Premises in Attachment 1 of the licence is replaced with the Plan of Premises in this Amendment Notice.

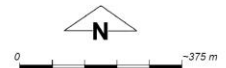


# PLAN OF PREMISES



## LEGEND

sunbury aircm ortnomosaic -  
Landgate 2008



Scale 1:15000

(Approximate when reproduced at A4)

Geocentric Datum Australia 1994

Note: the data in this map have not been projected. This may result in geometric distortion or measurement inaccuracies.

Prepared by:

Prepared for:

Date: 6/09/2016 2:14:04 PM

Information derived from this map should be confirmed with the data custodian acknowledged by the agency acronym in the legend.



Government of Western Australia  
Department of Environment Regulation

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\* Project Data. This data has not been quality assured. Please contact map author for details.

## Appendix A

### Assessment of increase in nutrient loading rates

*Emission:* Direct discharge of wastewater through irrigation of 122.2ha over 28 paddocks.

*Impact:* Discharge of treated wastewater to surface water (via stormwater drains) or groundwater. The premises is located approximately 1.5km north of the main Harvey Diversion Drain and approximately 550m south of the area protected under the *Environmental Protection (Peel Inlet – Harvey Estuary) Policy 1992*. Depth to groundwater at the premises ranges from 1 to 2m. Soil types at the premises have been tested and consist of heavy loam and clay soils.

*Controls:* Wastewater generated from the abattoir and rendering plant is directed through primary (solids removal) and secondary (anaerobic and RENOIR (Removal of Nitrogen for Irrigation) ponds) wastewater treatment systems for removal of nutrients. Treated wastewater is then stored in evaporation ponds until it is used to irrigate pastures and crops on the premises as part of the Licensee's cropping program.

Treated wastewater is pumped into the head ditches of the paddocks and is then allowed to flow onto the paddocks through controlled outlets in the head ditch in a flood irrigation style, with the majority of the system gravity fed.

Depending on crop requirements, the Farm Manager controls the amount of water applied to the irrigation areas in accordance with the Standard Operating Procedure (SOP) Irrigating Using Treated Wastewater. A number of paddocks are contained within perimeter earthen bunds as a secondary method of control for prevention of nutrient runoff.

The cropping system is such that treated wastewater is irrigated on paddocks where selected crops are grown that have a high uptake of phosphorus, potassium and nitrogen. The crops are harvested and fed to cattle on non-irrigated paddocks. Crops selected include annual ryegrass, Kikuyu, maize, millet, and Sudan grass. The Licence Holder manages the irrigation areas in accordance with a Nutrient and Irrigation Management Plan (NIMP), which was updated in August 2016.

Soil data collected in each paddock of the irrigation area shows that soil phosphorus (P) levels are higher in the 0-10cm layer than the 10-20cm and 20-30cm layers. Typically the 10-20cm soil phosphorus is half that of the 0-10cm layer. This indicates that phosphorous is being contained in the surface soil layer (0-10cm). SoilTech Soil and Pasture Consulting prepared an unpublished report, *Phosphorus buffering capacity of soils on the Harvey Industries Group Farm*, for the Licence Holder in June 2015 and found that phosphorus in the subsurface layers is within the root zone of pasture, hay and crop plants and is expected to be removed with the biomass each crop rotation. Seventy of the seventy-two sites sampled in the 0-10cm layer had a phosphorus buffering index (PBI) of more than 100, indicating a large capacity for soil phosphorus sorption.

The total volume of treated wastewater irrigated to land is recorded, and water quality is monitored monthly, with metals monitored annually. This allows nutrient loading rates to be calculated.

The current nutrient loading limits in the licence are gross nutrient loading rates and do not take into account nutrient uptake by crops. The Licence Holder has carried out modelling (taking into account a five-year cropping plan and predicted nutrient uptake



rates for each system) to establish new loading rates for total nitrogen and total phosphorus (see Table below). The modelling indicates that based on projected business growth, a gross application of total nitrogen of 390kg/ha/yr would result in a net loading of 118kg/ha/yr. The gross total phosphorus loading is predicted to reach 114kg/ha/yr with a net loading of 83kg/ha/yr after cropping.

<b>Nutrient Loading Rates</b>			
	<b>Current licence limit (kg/ha/yr)</b>	<b>Requested licence limit (kg/ha/yr)</b>	<b>Predicted net loading (kg/ha/yr)</b>
Total Nitrogen	300	400	118
Total Phosphorus	50	120	83

The Licence Holder considers the cropping program an integral part of the treatment process and therefore has requested that the cropping is taken into consideration when establishing gross nutrient loading rates to limit residual environmental impacts.

Additionally, improved water quality can be seen from recent monitoring results for pond 3, pond 6 and the RENOIR pond. This improved performance is due to:

- Desludging of the RENOIR pond;
- Installation of a continuous desludging program;
- Adjustment of a broken baffle in the RENOIR pond that separates the aerobic and anoxic zones of the pond; and
- The feed point into pond 3 from the RENOIR pond has been moved to feed into pond 3, utilising ponds 5, 4 and 3 to allow more aerobic breakdown of nitrogen in the wastewater.

The Licence Holder has also committed to the following improvements:

- Refurbishment of the save-all including the DAF system;
- Trialling flocculants for the removal of additional solids in the DAF system;
- Construction of an irrigation pipe to Keely's paddock, thus increasing the cropped area used for irrigation; and
- Planned cropping and irrigation of Burley's paddock.

The Licence Holder has also committed to a monitoring program additional to the requirements of the licence and includes:

- Annual soil quality monitoring for each irrigation paddock including pH, salinity, total phosphorus, total nitrogen, potassium and phosphorus buffering indices;
- Crop annual yield (or as needed at the end of rotation/harvest); and
- Annual leaf tissue analysis (or as needed at the end of rotation/harvest).



### Risk Assessment

*Consequence:* Moderate

*Likelihood:* Unlikely

*Risk Rating:* Moderate

### Regulatory Controls

The Delegated Officer considers that existing condition 8 imposes sufficient regulatory controls on the irrigation of treated wastewater to ensure that:

- wastewater is evenly distributed over the irrigation area;
- no soil erosion or ponding of wastewater occurs;
- there is no direct runoff, spray drift or discharge beyond the Irrigation Area;
- healthy vegetation cover is maintained over the Irrigation Area;
- irrigation does not occur during periods of rainfall or onto flooded area(s).

Condition 9 has been amended to change the nutrient loading rate of total nitrogen to 400kg/ha/yr and total phosphorus to 120kg/ha/yr. These limits take into account the soil types and the Licence Holder's cropping program.

The additional irrigation paddock (Kealys) has been included in the licence.

### Residual Risk

*Consequence:* Moderate

*Likelihood:* Unlikely

*Risk Rating:* Moderate