Annual Environmental Report 2020-21

1 May 2020 to 30 June 2021

Business name:	[redacted]	Ref/licence #:	L7065/1997/11
Premises address:	[redacted]	Property #:	A3919 DP183655 1210 P069587 531
Proprietor:	Shire of Carnarvon	File #:	ADM0008
Manager/contact person:	[redacted]	Report date:	13/12/2021

The waste facility was inspected on 10 December 2021. The below matters comprise the required reporting topics for the annual environmental report. A new data entry system has been created to improve the ability to collate and report on the inputs and outputs.

1. Cover

Improvements to the general level of cover have been ongoing and the facility is looking better than it has in the past.

2. Environmental incidents or failure of controls

None reported other than the green waste fire.

3. Fire

Green waste: A significant fire occurred in the green waste area on 29 May 2021 as reported to DWER on 31 May 2021 (pictures in appendix). The fire appeared to be spontaneous originating from deep within the green waste and rainfall may have insulated the deeper parts allowing heat to build up. The Shire worked in conjunction with DFES to manage the fire but it was unable to be put out with water. Waste facility staff used heavy machinery to aerate the pile during the day to promote burning of the green waste material, to minimize smoke and to decrease the long-term burning time. It was considered that aerating the pile would reduce the available fuel in the safest and most efficient manner. The smoke caused nuisance in Carnarvon over the next few weeks especially to the houses on Craggs Court, Brown Range. After 1-2 months, the fire was deemed to be out and the quantity of green waste was significantly reduced.

Recommendation: maximise reuse of green waste. Logs/branches could be separated and cut into firewood for sale. Mulch could be extracted and sold. A machine could be purchased for turning green waste into pellet fuel.

Tyre storage: A large number of tyres are stored in an open pit, potentially more than 1000 tyres. The tyres are well separated from the green waste storage area (>160m) and a Fire Management Plan is in place, however, the Shire has budgeted for a tyre shredder in the 2021-22 financial year which will be used to reduce the accumulation of tyres. Burying the tyres would make them harder to shred and would create a long term problem under the ground and so it is hoped that the tyre shredder will provide an improved method of dealing with the tyres. The only new tyres coming in are from residential sources. Motor workshops and tyre fitters have their tyres transported directly out of town from their facilities.

Recommendation: purchase the tyre shredder and shred the tyres for reuse/recycling. Old tyres can also be used for retaining walls and similar where they are filled with earth and present little fire hazard.

Plastic storage: There is still a large pile of horticultural plastics, which will eventually be covered and compressed if they can't be given away for recycling. All three flammable waste categories—green waste, tyres and plastics—are well-separated on-site.

Recommendation: seek opportunities to reduce the accumulation of plastics due to fire and subsequent pollution risk. Consider separating into fire separated storage areas.

4. Dust

Crushed brick and concrete and clean fill (sand) is used onsite to suppress dust. It was discussed during the inspection and agreed that trafficable areas should be minimized and vegetative growth encouraged where possible to reduce dust. This is already occurring in parts. No dust complaints are reported despite this being a dusty environment. The dust presents the most nuisance to the people within the facility.

Recommendation: minimise trafficable areas and allow maximum regrowth of vegetation to reduce dust.

5. Windblown waste

Windblown waste was minimal overall and very little observed outside the waste facility. However improvements could be made. Most putrescible waste goes into the commercial area and the old public putrescible area is being used less. The old area faces to the north-east (crosswind) and has more indication of windblown waste compared to the commercial area (new area) which looks much tidier.

Recommendation: consider phasing out the old putrescible area altogether and use the new commercial area.

6. Vermin and pests

There are a few cats living in the used tyre pit. Dogs have also been getting in.

Recommendation: make the southern gate more secure against dogs and repair the hole in the north western fence.

7. Inputs and outputs

1 May 2020 to 30 June 2020 (2 months)

Waste stream	Inputs (t)	Outputs (t)
Putrescible	985	18
Inert type 1	1570	
Inert type 2 (plastic & tyres)	52	
Special type 1 (asbestos)	75	
Special type 2 (medical)	2.7	
Clean fill	146	
Sum of above	**2830.7**	**18**
Liquid waste	415	
Waste oil/filters	2.2	
Batteries	0.5	

1 July 2020 to 30 June 2021 (financial year)

Waste stream	Inputs (t)	Outputs (t)
Putrescible	5779	14.4
Inert type 1	5638	344
Inert type 2 (plastic & tyres)	313	
Special type 1 (asbestos)	3194	
Special type 2 (medical)	4.4	
Clean fill	4441	
Sum of above (Limit 16,400)	**19369**	**358.4**
Liquid waste (Limit 1,478)	1985	
Waste oil/filters	4.5	1.7
Batteries	1.2	5.8

Asbestos quantity: The year involved significant demolition projects in the town which resulted in the asbestos category increasing by about tenfold over the previous year and the inert type 1 category doubling. The vast majority of the asbestos contaminated material is concrete or dirt that is or is likely to be contaminated with asbestos.

Clean fill quantity: The clean fill category also increased by about tenfold, much of which was river sand that was stockpiled at the waste facility and used as needed for covering waste and roads. It is suggested that the amount of clean fill received exceeds what is needed and resulted in the overall cap of 16,400 tons being exceeded. **Recommended: It is suggested that the Shire should not accept so much clean fill at the waste facility to keep the total inputs below the licence limit.**

Liquid waste quantity: The liquid waste pump-outs have been increasing which we think is a result of the vastly increased caravan/camping tourism in the region along with increased activity in the resources sector. More increases in the resources sector are envisaged also. The liquid waste ponds are also upwind from the tip entrance area and the smell sometimes causes stress to workers. The Shire will be applying to increase the liquid waste cap. **Recommendation: Consider relocating the liquid waste ponds further to the south provided dense clay can be identified. Recommend redesign allowing for 3x deep primary ponds with chutes for direct delivery from the trucks without splashing, and 1x large shallow evaporation pond connected via a long square from each primary pond. Consider allowing room for another evaporation pond in the event that the first needs drying out and removal of biosolids.**

8. Rejected loads and carrier information

None reported but staff advised that anyone who brings chemical containers that aren't properly rinsed are told to go back and rinse them and people generally comply with this and return them properly washed.

9. Groundwater monitoring

The bores are currently dry and were not able to be sampled. The last available data is provided below, which is based on a sample date of 16/5/17.

Parameter (mg/L)	Landfill bore north	Landfill bore south
Standing water level (mBGL)	10.1	14.5
pH	NR	NR
Electrical conductivity (mS/m)	930	695
TDS	6100	4300
Chloride	2870	2070
Potassium, total	76.2	66.9
Nitrogen, nitrate + nitrite	0.13	0.97
Nitrogen, nitrate	0.13	0.97
Nitrogen, ammonia	0.68	<0.01

Nitrogen, total	2.6	2.2
Cadmium (µg/L)	<0.2	<0.2
Chromium (µg/L)	<1	<1
Copper (µg/L)	NR	NR
Lead (µg/L)	<0.2	<0.2
Manganese (µg/L)	25	230
Nickel (µg/L)	3	<2
Zinc (µg/L)	29	11

It is thought that the groundwater flow direction is toward the north west and the licensed area has been expanded towards the south and slightly towards the north, as shown in Schedule 1 premises map. The monitoring bore positions should be reviewed based on the expanded licenced area for the waste facility.

The Shire intends to have new monitoring bore locations assessed and bores drilled in the current financial year (in conjunction with the mobilisation to create flood monitoring bores in the town).

Recommendation: Review groundwater direction flow and reassess monitoring bore locations such that one bore is upstream and represents groundwater prior to waste facility impact and 2 other bores are downstream and can monitor the impact of the waste facility on the groundwater.

10. Complaints

There were unofficial complaints made about the smoke nuisance from the green waste fire. While there don't seem to be any formal complaints, the waste facility staff advised that they get a lot of feedback from the public and that the overwhelming majority are complements about how much improved the waste facility is compared to years gone by. They advised that the negative feedback could be estimated to about 10% of the total feedback.

11. Special Waste Type 1 and 2 (asbestos & biomedical waste)

All loads containing suspected asbestos or contaminated soil go into the asbestos area for permanent disposal.

Significant demolition projects (including the old Brickhouse concrete tanks) resulted in much more asbestos containing or potentially containing material being buried in the asbestos area during 2020-21. The bulk of this material was concrete and demolition earth. Some concrete is piled up into a kind of wall on the slope.

Recommendation: put clean fill over the exposed concrete wall to reduce any asbestos risk.

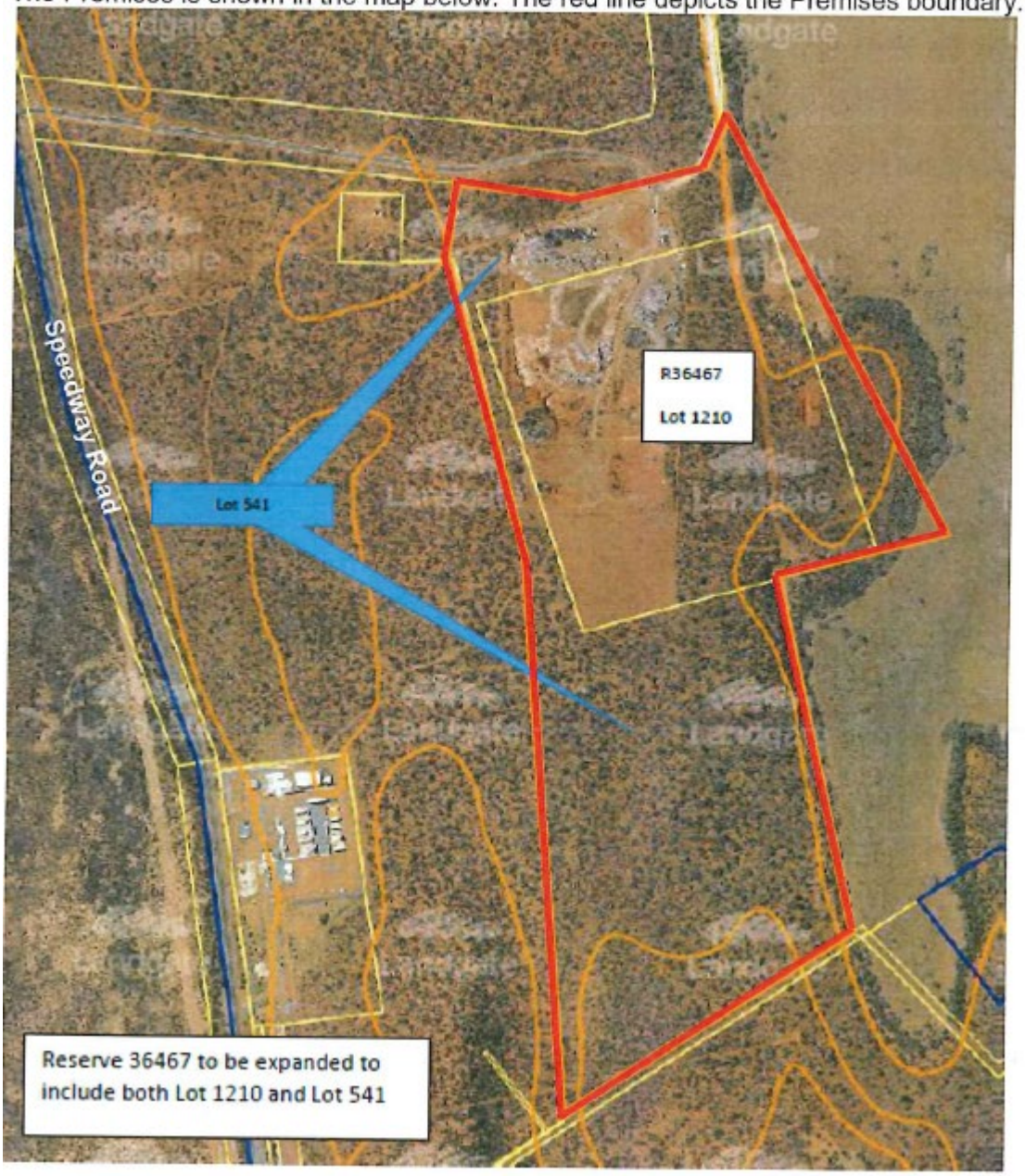
Biomedical incoming waste has been ceased, presumably due to the hospital having it transported from Carnarvon.

Signed:	[redacted]	Date:	13/12/2021
Name:			
Position:	[redacted]		

Schedule 1—Premises maps

Premises map

The Premises is shown in the map below. The red line depicts the Premises boundary.



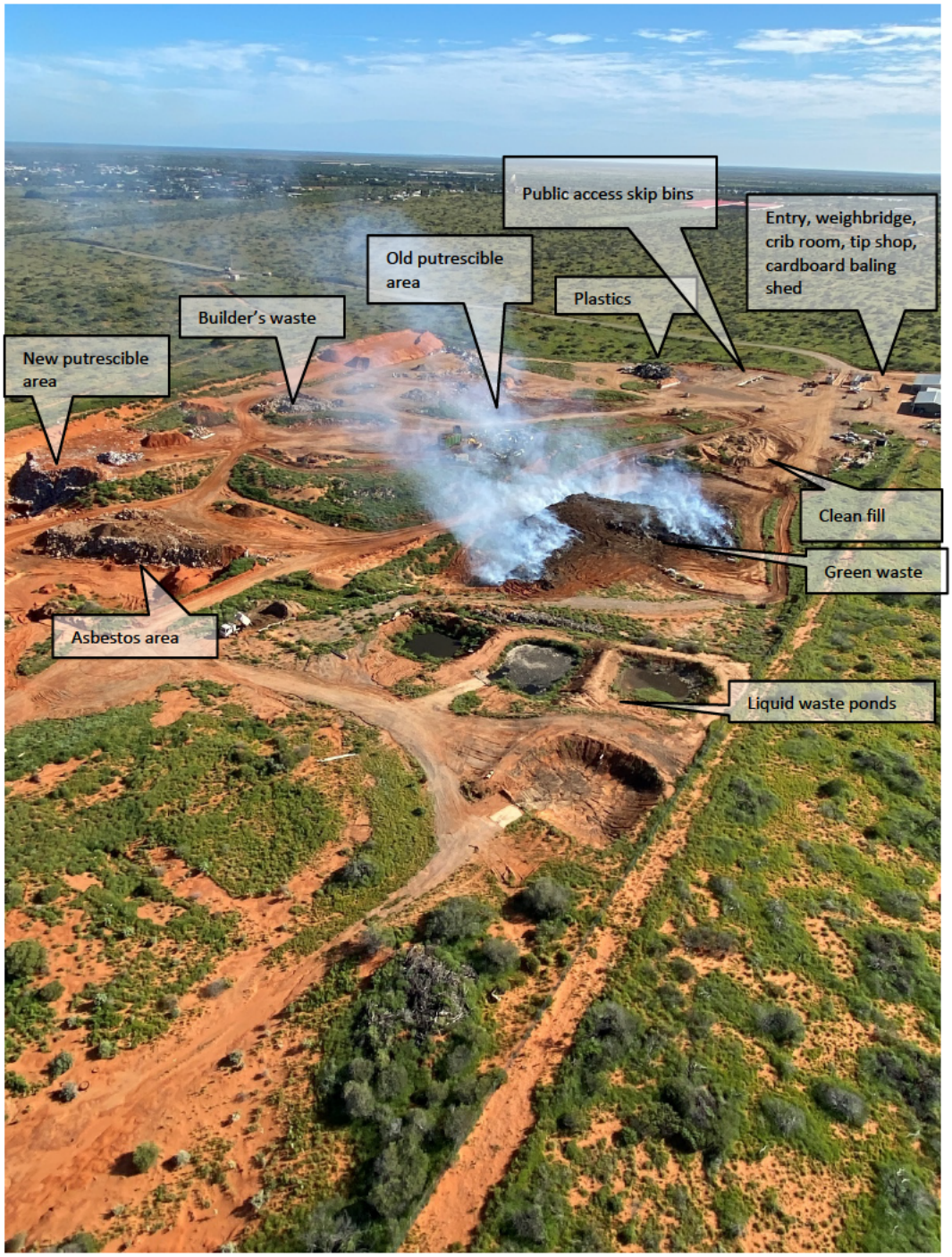


Figure 1. Aerial photos taken of the green waste fire can be used to specify areas of the waste facility

Schedule 2 – Green waste fire (31/5/21–1/6/21)


GREEN
WASTE

Schedule 3 – Inspection pictures 10/12/2021

Figure 2. Public access skip bins. The public have for the most part been restricted to only this area which has aided with the better overall management of the waste facility and greatly minimised waste being put in the wrong area

Figure 3. New animal/carcass pit is safer, easier to access by staff but secure against access from the public

Figure 4. Liquid waste is increasing and a new location and design is recommended. Currently there are 2 primary pits and 2 secondary pits but the secondary pits should be larger and shallower to promote more evaporation, and all should be further from the tip entrance to reduce odour. Ideally the tip entrance and buildings would be on the southern side of the premises (upwind) but they are currently directly downwind of the liquid waste ponds.

Figure 5. This picture shows the type of clay that lines the bottom of the liquid waste ponds. The clay dries very hard.

Figure 6. Asbestos area showing the concrete wall. It is recommended to put clean fill over this to cover it. In the distance is the putrescible area.

Figure 7. Putrescible area was being covered on the top during the inspection. There was very little wind blown waste on top and no obvious odour. The prevailing wind blows into the face.

Figure 8. This is the old publicly accessible putrescible area which could use some improvement. This area is more prone to windblown waste blowing sideways. It is recommended to phase this out now that public entry is predominantly limited to the skip bins.

Figure 9. There is some wind blown waste on the northern side of the facility

Figure 10. Builders waste and plastic waste in background

Figure 11. Scrap metal quantity stored onsite is greatly reduced

Figure 12. Some improvements can be made to windblown waste despite the overall level being much improved to past years.

Figure 13. Plastic waste. This is a fire and pollution risk. Consider separating into separate piles. Look for opportunity to shred/recycle to reduce the risk. Burial would reduce the risk but also reduces the opportunity for recycling due to the dirt contamination.

Figure 14. Green waste is much reduced after the fire

Figure 15. DrumMuster area

Figure 16. The cardboard baler is being put to good use

Figure 17. A lot of money has been spent on the waste facility in recent years.

Figure 18. Even green bins and 205L blue drums are being baled

Figure 19. Tip shop