



APPENDIX E –
ECONOMICS NEEDS ANALYSIS



275 Adams Rd, Luddenham: Economic Needs Analysis

A submission to Coombes Property Group &
KLF Holdings

27 February 2020



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Executive Summary

MRA was engaged by Coombes Property Group and KLF Holdings to undertake a high-level economic needs analysis to support their submission to the Western Sydney Aerotropolis Planning Package for the proposed development of a construction and demolition (C&D) waste resource recovery facility and inert landfill at 275 Adams Road, Luddenham.

Proposed development overview

The proposed development will involve four key operations:

- Further excavation of construction and landscaping materials from the quarry;
- Development of a 600,000 tonne per annum construction and demolition resource recovery facility with an aim to divert 90% of waste from landfill; and
- Development of a 300,000 tonne per annum landfill for non-recyclable materials from the resource recovery facility and external sources as well as low-level contaminated soil, excavated natural material and asbestos containing material.
- Rehabilitation of the landfill site to allow for development of commercial buildings to compliment the Western Sydney Aerotropolis region (2034 to beyond 2040).

Appendix A provides a draft project timeline for the above developments from 2020 to 2039.

Alignment with NSW Government policy and targets

The proposed development will be completed using best practice methodologies to maximise resource recovery, mitigate environmental impacts and provide sustainable employment and is in accordance with the following NSW Government's waste management policies and targets:

- Waste Avoidance and Resource Recovery Act 2001;
- NSW Waste Avoidance and Resource Recovery Strategy 2014–21;
- State Environmental Planning Policy (Infrastructure) 2007; and
- State Environmental Planning Policy (Western Sydney Employment Area) 2009.

The proposed development is in a strategic location to take advantage of the expected C&D waste generation from the Western Sydney Aerotropolis precinct and the South West Growth Area, whilst providing ongoing operational and construction jobs throughout the four development phases of the project.

Needs analysis

The projected inert waste volumes to be disposed in Sydney Metropolitan Area (SMA) inert landfills is predicted to increase by the historical compound annual growth rate of 4.1%, based on the latest NSW EPA C&D waste data¹. The projected volumes of C&D waste generated is estimated to reach 23.7 million tonnes by 2040.

Based on MRA's estimates, when Suez's landfill at Kemps Creek closes in 2030 the demand for inert landfill will exceed the available landfill capacity by at least 1.5 million tonnes per annum (Figure 3). The proposed 300,000 tonnes per annum landfill will only provide 20% of the estimated additional landfill capacity required in 2030.

Therefore, the proposed 600,000 tonnes per annum C&D resource recovery facility is needed to fill the required 1 million tonnes of C&D waste processing capacity in FY 2020 and the additional processing capacity required will only increase as C&D generations grows to 23.7 million tonnes per annum in FY 2040 (Table 1).

Conclusion

On the basis of the results of the analyses in this needs analysis report, MRA is of the view that the proposed C&D resource recovery facility and adjacent C&D landfill is needed so as a provide key waste management infrastructure for the Greater Sydney region.

¹ <https://www.epa.nsw.gov.au/your-environment/recycling-and-reuse/warr-strategy/performance-against-strategy>

Contents

Executive Summary	ii
Contents	iv
List of Tables	v
List of Figures	vi
1 Site overview	1
2 NSW government waste management objectives	2
2.1 Waste Avoidance and Resource Recovery Act 2001	2
2.2 NSW Waste Avoidance and Resource Recovery Strategy 2014–21	3
2.3 State Environmental Planning Policy (Infrastructure) 2007	3
2.4 Western Sydney Employment Area	4
3 Sydney C&D waste market	5
3.1 C&D waste market in Sydney	5
3.2 Reduction of landfill capacity in Sydney	6
3.3 Required infrastructure to reach C&D WARR recovery targets	7
4 Conclusions	8
Appendix A Project Timeline	9
Appendix B Sydney Inert Landfill Summary	10

List of Tables

Table 1: Additional C&D processing capacity required 7

List of Figures

Figure 1: The Waste Hierarchy	2
Figure 2: Sydney Metropolitan Area - C&D Waste Market	5
Figure 3: Sydney inert landfill capacity.....	6

1 Site overview

The site at 275 Adams Road, Luddenham NSW, was established as a clay/shale quarry in 2004. Operations on the site continued until 2018. The site has an estimated 2,035,000 tonnes of remaining material which can be quarried to offer a maximum landfill capacity of 3,492,000 tonnes².

It is defined as Lot 3 of DP 623799 and is within the Liverpool City Council Local Government Area (LGA).

The site is located in an agricultural area in the western suburbs of Sydney and is surrounded by agricultural land. Land to the south and east is to be developed into the Western Sydney Airport (WSA).

The proposed development will involve four key operations:

- Further excavation of construction and landscaping materials from the quarry (upon approval to approximately 2029);
- Development of a 600,000 tonne per annum construction and demolition resource recovery facility with an aim to divert 90% of waste from landfill (upon approval to beyond 2039);
- Development of a 300,000 tonne per annum landfill for non-recyclable materials from the resource recovery facility, low-level contaminated soil, excavated natural material and asbestos containing material (upon approval circa 2025/2026 to 2036); and
- Rehabilitation of the landfill site to allow for development of commercial buildings to compliment the Western Sydney Aerotropolis region (2034 to beyond 2040).

Appendix A provides a draft project timeline for the four works detailed above from 2020 to beyond 2039.

The site is well located to operate as a C&D resource recovery operation and inert landfill, with development of the adjacent WSA and associated commercial and industrial infrastructure expected to continue until the mid-2030s. Further stages of the airport development (including addition of a second runway) is anticipated to commence circa 2050.

The NSW Government has prepared a strategic plan for the South West Growth Area (Liverpool, Camden and Campbelltown Councils) which includes large land releases and rezoning for large-scale residential developments which will produce significant amounts of construction and demolition waste.

Domain published in 2017 that approximately 140,000 houses will be built in the South West Growth Area³. Based on extensive experience in developing waste management plans for residential developments, MRA has estimated that each house generates approximately 10 tonnes of waste during construction. Therefore, the residential development in the surrounding region will alone produce approximately 1.4 million tonnes of construction waste by 2035 that will need to either be recycled or landfilled where there is no other alternative.

² Source: Stonebridge Property Report for 257 Adams Road Luddenham

³ <https://www.domain.com.au/news/predicting-south-west-sydney-what-will-the-region-look-like-in-2027-20171114-gzks57/>

2 NSW government waste management objectives

The development of the proposed C&D resource recovery facility and adjacent landfill supports the following key waste management objectives of the NSW Government:

- Waste Avoidance and Resource Recovery Act 2001 (WARR Act);
- NSW Waste Avoidance and Resource Recovery Strategy 2014–21 (WARR Strategy);
- State Environmental Planning Policy (Infrastructure) 2007; and
- State Environmental Planning Policy (Western Sydney Employment Area) 2009.

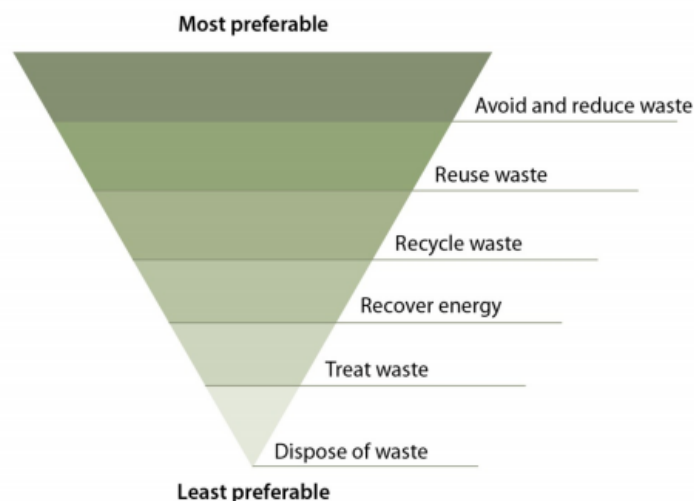
2.1 Waste Avoidance and Resource Recovery Act 2001

The WARR Act aims to encourage the efficient use of resources and reduce environmental harm in accordance with the principles of ecologically sustainable development. The WARR Act serves the following functions:

- Promotes waste avoidance and resource recovery;
- Provides for the development of the WARR Strategy; and
- Defines the functions of the EPA.

The WARR Strategy proposes priority areas and actions for the minimisation of environmental harm from waste disposal and through the conservation and efficient use of resources. It outlines a waste hierarchy that prioritises reuse and recycling over disposal, as shown in Figure 1, below.

Figure 1: The Waste Hierarchy



The proposed C&D waste resource recovery facility in conjunction with a landfill for non-recyclable materials is aligned with the objectives of the waste hierarchy and diversion targets of the NSW government. KLF Holdings’ current operations are in accordance with the waste hierarchy and currently dispose of only 20% of waste to landfill. KLF Holdings’ ongoing investments in these operations will continue to reduce the percentage of waste to landfill.

2.2 NSW Waste Avoidance and Resource Recovery Strategy 2014–21

The NSW Waste Avoidance and Resource Recovery Strategy 2014–21 (WARR Strategy) provides a framework and targets for waste management in NSW.

The following relevant targets have been set to be achieved by 2021/22:

- Avoiding and reducing the amount of waste generated per person in NSW;
- Increasing recycling rates to 80% for construction and demolition waste; and
- Increasing waste diverted from landfill overall to 75%.

The latest available data (2017-18) from the NSW EPA shows that NSW has not yet reached the 80% C&D waste target and is currently recycling 77% of all C&D waste generated. The proposed development will provide an additional 600,000 tonnes per annum of C&D waste recycling processing capacity and achieve 540,000 tonnes per annum diverted from landfill to the NSW economy.

2.3 State Environmental Planning Policy (Infrastructure) 2007

The *State Environmental Planning Policy (Infrastructure) 2007* (Infrastructure SEPP) lists a number of factors to consider when determining the suitability of waste or resource management facilities for approval.

These include:

1. Whether there is a suitable level of waste recovery;

The proposed development will ensure that the resource recovery facility will achieve a suitable level of resource recovery of C&D waste, with a goal of 80% resource recovery in accordance with the WARR Strategy targets. KLF's current operations currently achieve a resource recovery rate of 80%. KLF have operated similar C&D waste resource recovery facilities for 20 years.

2. Whether best practice landfill design and operation will be followed;

The proposed development will employ best practice landfill design and operations to maximise resource recovery, optimise the rehabilitation and economic potential of the quarry void and mitigate environmental impacts. All activities will be conducted in accordance with the relevant environmental legislation and work in consultation with the NSW EPA.

3. Whether a development relating to a new or expanded landfill is located on degraded land such as a disused mine site and the location avoids land use conflicts;

The development will be utilising an abandoned quarry site which requires rehabilitation. The development of a resource recovery park in conjunction with the landfill with the long-term goal to redevelop the rehabilitated quarry into commercial or industrial developments, provides a development option with strong environmental, economic and social benefits.

4. Whether transport links to the landfill are optimised to reduce environmental and social impacts associated with waste transportation.

There are currently sufficient transport links to the proposed site which is optimally placed to not only receive C&D waste from the upcoming Western Sydney Aerotropolis and associated infrastructure but also C&D waste from the Greater Sydney Area. The transport links to the site will only be improved as the area is further developed and transport links such as road upgrades and rail links are established.

2.4 Western Sydney Employment Area

The proposed development site falls within the Western Sydney Employment Area *is subject to the State Environmental Planning Policy (Western Sydney Employment Area) 2009*. The main aim of the Western Sydney Employment Area SEPP is to promote economic development and create jobs.

The proposed development, once the resource recovery facility and landfill are both operational, is estimated to provide 60 full time equivalent positions ranging from administration staff to operational managers for the Western Sydney community.

The construction stages of the proposed development, including the construction of the resource recovery facility, construction of the landfill cells, rehabilitation of the landfill cells and construction of the commercial/industrial estate, will provide additional employment opportunities from 2021 to beyond 2040.

3 Sydney C&D waste market

The following analyses were undertaken to determine the need for an additional C&D resource recovery facility and C&D landfill in Sydney:

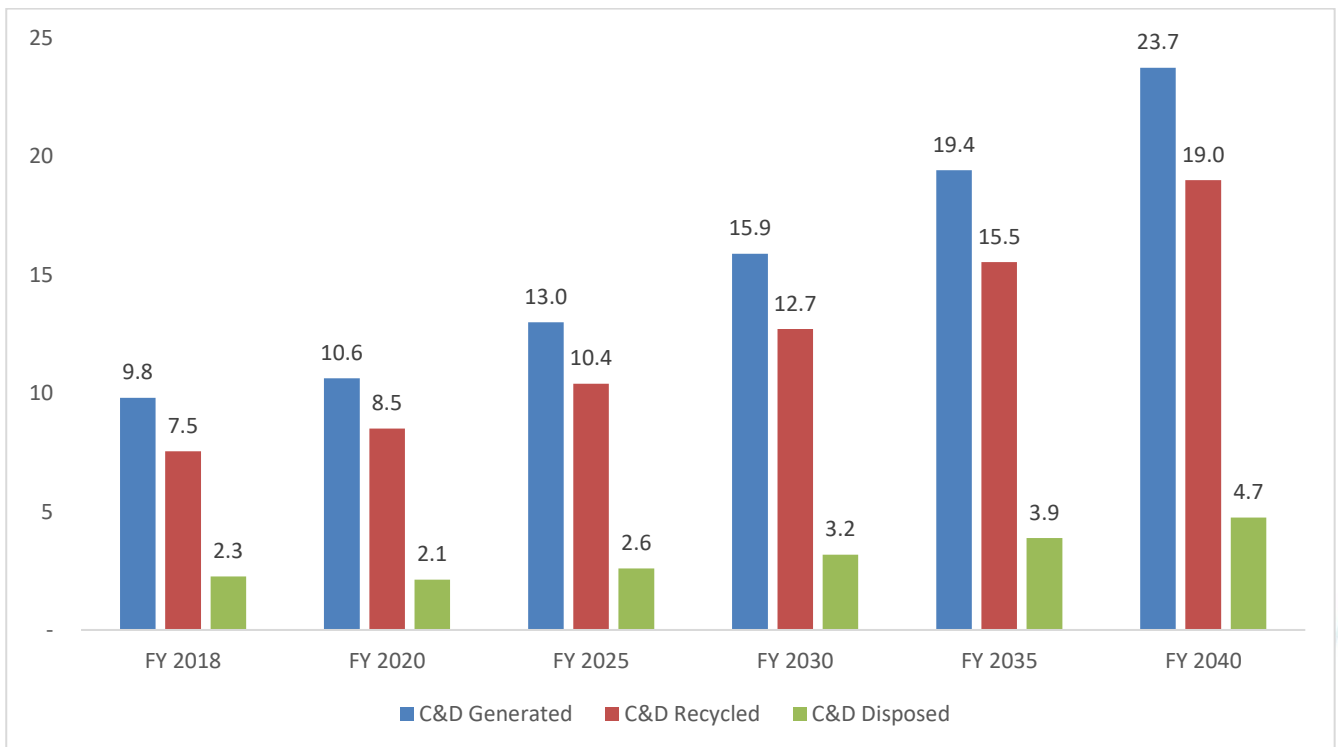
1. Forecast of C&D generation growth rate in Sydney to 2040;
2. Analysis of the increased waste generation from major infrastructure projects;
3. Assessment of the expected reduction of landfill capacity as they are filled; and
4. Evaluation of the additional recycling capacity required to reach NSW government landfill diversion targets.

3.1 C&D waste market in Sydney

When forecasting future C&D waste generation (including recycling and disposal volumes), the historical growth rate, which is most influenced by subjective elements such as the impact of potential legislative changes and economic factors, has been found to be a dependable baseline.

The projected inert waste volumes to be disposed in Sydney Metropolitan Area (SMA) inert landfills was projected using the historical compound annual growth rate of 4.1% (based on the latest NSW EPA data on C&D waste data⁴) and SMA population data. The projected volumes of C&D waste generated was estimated to reach 23.7 million tonnes by 2040 (Figure 2). Note that the current C&D waste resource recovery rate of 77% has been assumed to increase to the WARR Strategy C&D recovery target of 80% for the projections to 2040.

Figure 2: Sydney Metropolitan Area - C&D Waste Market



⁴ <https://www.epa.nsw.gov.au/your-environment/recycling-and-reuse/warr-strategy/performance-against-strategy>

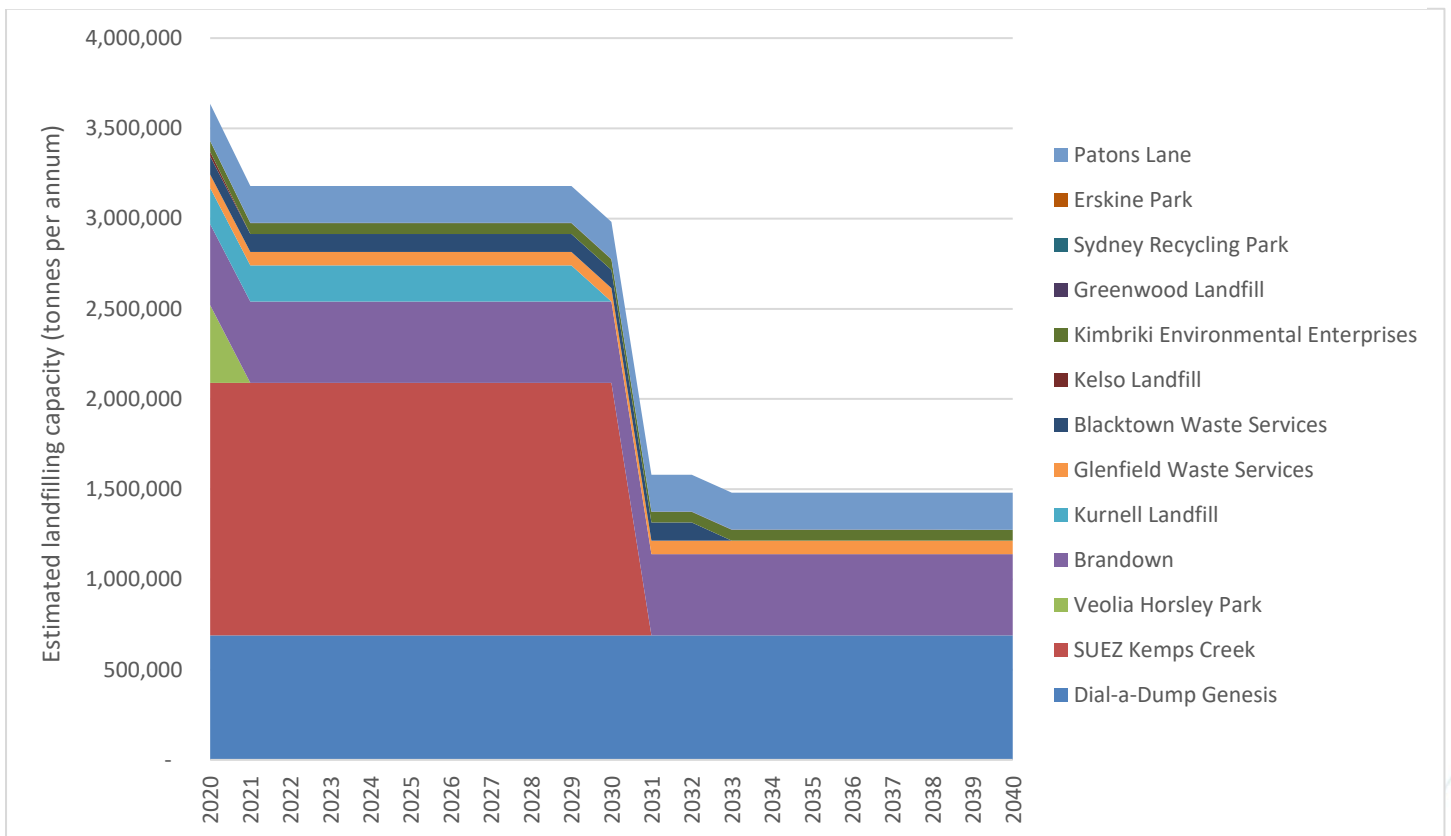
The forecast generation, recycling and disposal volumes for C&D wastes will require significant investment in C&D resource recovery and landfill infrastructure by 2040. The disposal projections in Figure 2 do not include the impact of reduced C&D waste disposal in Queensland and C&D waste produced by major infrastructure projects. Therefore, the estimates provided above are considered to be conservative.

The need for additional C&D recycling and landfill capacity is described below, the reduction in inert landfill capacity is detailed in Section 3.2 and the requirement for C&D recycling capacity is explored in Section 3.3.

3.2 Reduction of landfill capacity in Sydney

MRA expects the future inert waste market to involve a significant ramp-up in processing capacity. There are currently 13 inert landfills servicing the SMA which compete for tonnages, many of which are not expected to close until 2040 (Appendix B). The expected filling rates and closure dates as listed in Appendix B are presented in Figure 3 below to provide an overview of available landfill capacity from 2020 to 2040.

Figure 3: Sydney inert landfill capacity



Based on MRA’s estimates in Appendix B, Sydney will lose approximately 1.5 million tonnes of inert landfill capacity around 2030, with the major impact due to the closure of Suez’s facility at Kemps Creek. When Suez’s facility closes in 2030, the estimated demand for inert landfill (3.2 million - Figure 2) will exceed the estimated available inert landfill capacity of 1.5 million (Figure 3).

3.3 Required infrastructure to reach C&D WARR recovery targets

In 2019, the NSW Government stated that approximately 12.77 million tonnes of C&D waste were generated in NSW in 2017-18. Based on the population of the SMA, MRA estimates that 9.8 million tonnes of C&D waste were generated in the SMA in 2017-18. Of the 9.8 million tonnes generated, MRA estimates that 7.5 million tonnes were recycled in the SMA.

According to the estimates of C&D waste generation growth in the SMA (4.1% compound annual growth rate), MRA estimates that 10.6 million tonnes of C&D waste will be generated in FY 2020. To achieve the NSW Government’s C&D recycling target of 80% (see Section 2.2), approximately 8.5 million tonnes of C&D waste will need to be recycled in FY 2020.

Assuming the C&D waste processing capacity facilities in the SMA were operating with no spare capacity, MRA estimates an additional 1 million tonnes of C&D waste processing capacity is needed by FY 2020. The need for additional C&D processing capacity is expected to increase significantly, with approximately 19 million tonnes of C&D waste required to be recycled to meet the 80% target in FY 2040 (Table 1).

Table 1: Additional C&D processing capacity required

Year	C&D Generated (tpa – millions)	C&D Recycled (tpa – millions)	Additional processing capacity required 80% target ⁵ (tpa – millions)
FY 2020	10.6	8.5	1.0
FY 2025	13.0	10.4	2.9
FY 2030	15.9	12.7	5.2
FY 2035	19.4	15.5	8.0
FY 2040	23.7	19.0	11.5

Therefore, the proposed 600,000 tonnes per annum C&D resource recovery facility is needed to help fill the required 1 million tonnes of C&D waste processing capacity in FY 2020, and the expected need for additional C&D processing capacity will only increase as C&D generations grows to 23.7 million tonnes per annum in FY 2040. Note that according the draft timeline (Appendix A), the proposed C&D resource recovery facility would be operational in 2021, which fits into the timeline when additional C&D processing capacity is required.

⁵ Measured against the estimated available 2017-18 C&D waste processing capacity of 7.5 million tonnes as calculated in Figure 2.

4 Conclusions

On the basis of the results of the analyses above, MRA is of the view that the need for the proposed C&D resource recovery facility and adjacent C&D landfill is justified in order to provide key waste management infrastructure for the Greater Sydney economy.

C&D waste generation is expected to continue to increase by a compound annual growth rate of 4.1% with the potential for major infrastructure projects and potential waste returning from Queensland to further increase C&D waste infrastructure demands for short periods.

Based on MRA's estimates, when Suez's landfill at Kemps Creek closes in 2030 the demand for inert landfill will exceed the available landfill capacity by at least 1.5 million tonnes per annum (Figure 3). The proposed 300,000 tonnes per annum landfill will only provide 20% of the estimated landfill capacity required in 2030.

Therefore, the proposed 600,000 tonnes per annum C&D resource recovery facility is needed to fill the required 1 million tonnes of C&D waste processing capacity in FY 2020 and the additional processing capacity required will only increase as C&D generations grows to 23.7 million tonnes per annum in FY 2040 (Table 1).

The proposed development is in a strategic location to take advantage of the expected C&D waste generation from the Western Sydney Aerotropolis precinct and the South West Growth Area, whilst providing ongoing operational jobs and construction jobs throughout the four development phases of the project.

Appendix B Sydney Inert Landfill Summary



Dry Landfill	Expected filling rate (tpa)	Expected closure year (based on MRA assumptions)	Notes
Dial-a-Dump Genesis	690,000	2033	Main landfill for all inert Bingo waste streams
SUEZ Kemps Creek	1,400,000	2030	SUEZ application for landfill extension likely to be approved
Veolia Horsley Park	430,000	2019	Veolia have stated they will transport to Woodlawn Bio Reactor once full
Brandown	450,000	2040	Was sending 250,000 tpa to QLD prior to levy introduction, current operations unclear
Kurnell Landfill	200,000	2029	Current application to increase the height of the landfill void under consideration
Glenfield Waste Services	75,000	2040	-
Blacktown Waste Services	100,000	2032	-
Kelso Landfill	25,000	2020	Closed to the public, only receives council waste.
Kimbriki Environmental Enterprises	60,000	2040	-
Greenwood Landfill	1,000	2038	-
Sydney Recycling Park	-	2025	Was sending 150,000 tpa to QLD prior to levy introduction, current operations unclear
Erskine Park	-	2022	MRA understands that this site is being prepared for closure
Patons Lane	205,000	2040	Opened in late 2019 and is able to undertake extractive activities to extend the landfill void
TOTAL	3.64 million tonnes		