Annexure O:
Remediated Lands Technical Paper

SydneyOlympicPark

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Remediated Lands Technical Paper

August 2024

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1 PURPOSE

This technical paper has been prepared to provide information in relation to the Sydney Olympic Park remediated lands to inform the Sydney Olympic Park Master Plan 2050. It is intended to provide a general understanding of:

- the statutory obligation of managing the remediated lands imposed on the Sydney Olympic Park Authority under the *Contaminated Land Management Act 1997* administered by the NSW Environment Protection Authority (EPA)*;*
- the remediation strategy, residual risks and constraints that must be considered in relation to each landfill before any proposed land use change or development approval; and
- the possible pathway/s for delivering the proposed land use outcomes.

The information provided is not exhaustive. Individual sites must be assessed with input from suitably qualified professionals accredited under a NSW EPA scheme where required. Specialist advice should be sought during concept design, detailed design and delivery depending on the potential risks and complexity of the proposed project.

In some cases, detailed site investigation of ground conditions and residual risks may determine that the site is not suitable to the proposed use. Technological advances may provide future opportunity that may not be feasible at this time. Land uses that are not currently feasible or could compromise the integrity or operation of the remediated landfill infrastructure should not be supported as they may result in potential risk of harm to human health or the environment.

Master Plan 2050

The *Sydney Olympic Park Authority Act 2001* ("SOPA Act") requires that a master plan be prepared to guide the planning, management, protection and development of Sydney Olympic Park. The Master Plan is required by *State Environmental Planning Policy (Precincts - Central River City) 2021* (Central River City SEPP) which establish the land use zoning and key development planning controls for Sydney Olympic Park. The Master Plan contains detailed principles and controls to supplement the provisions of the Central River City SEPP.

SOPA is intending to submit draft Master Plan 2050 for public exhibition in 2024. This new master plan would supersede the master plans currently in force:

- Sydney Olympic Park Master Plan 2030 (2018 Review)
- Sydney Olympic Park Master Plan (Interim Metro Review) 2021

This new Master Plan 2050 provides clear direction for future development within the park. It brings together the urban areas of Sydney Olympic Park and the parklands into one key document.

The Sydney Olympic Park Remediated lands occupy approximately 20 percent of Sydney Olympic Park and traverse the parklands, sensitive habitat and the town centre areas. **This technical paper is intended to be read in conjunction with the Sydney Olympic Park Master Plan 2050** to provide information in relation to the Sydney Olympic Park remediated lands and relevant consideration and risks in relation to the proposed land uses under the Master Plan.

The information provided is not exhaustive. **A detailed site assessment must be undertaken for specific developments or changes in land use as required.**

2 BACKGROUND

Sydney Olympic Park Authority ("the Authority") has responsibility for the day-to-day and long-term management of 10 engineered remediated landfills, constructed between 1983 and 2001, and covering 105 hectares of land within Sydney Olympic Park.

The Authority manages and monitors the remediated landfills and their associated infrastructure to ensure the integrity of the waste containment systems is maintained, human health and the environment is protected and statutory compliance is achieved. In exercising its stewardship over the lands in its care, the Authority ensures compliance with all environmental legislation.

Landfill locations and connecting infrastructure are shown in **Drawing 001GG0112T Rev U** -below.

Any proposed changes in land use must consider the remediated lands and the potential exposure pathways that may be created by any change in land use to wastes, hazardous gases and contaminated groundwater, as these may present an unacceptable risk of harm to human health and the environment.

1.1 Sydney Olympic Park Remediation History

Legal and illegal landfilling operations occurred over several decades on lands that are now within Sydney Olympic Park. The majority of landfilling operations were broadacre fill, and few if any environmental controls were applied.

Bicentennial Park was remediated prior to its opening in 1988. Remediation of other parts of the site commenced in 1992. The Sydney 2000 Olympic and Paralympic Games provided the impetus and public profile necessary to obtain adequate funding and support for remediation. The majority of works were conducted over a ten-year period and were completed by 2001. The works created ten remediated landfill areas throughout Sydney Olympic Park.

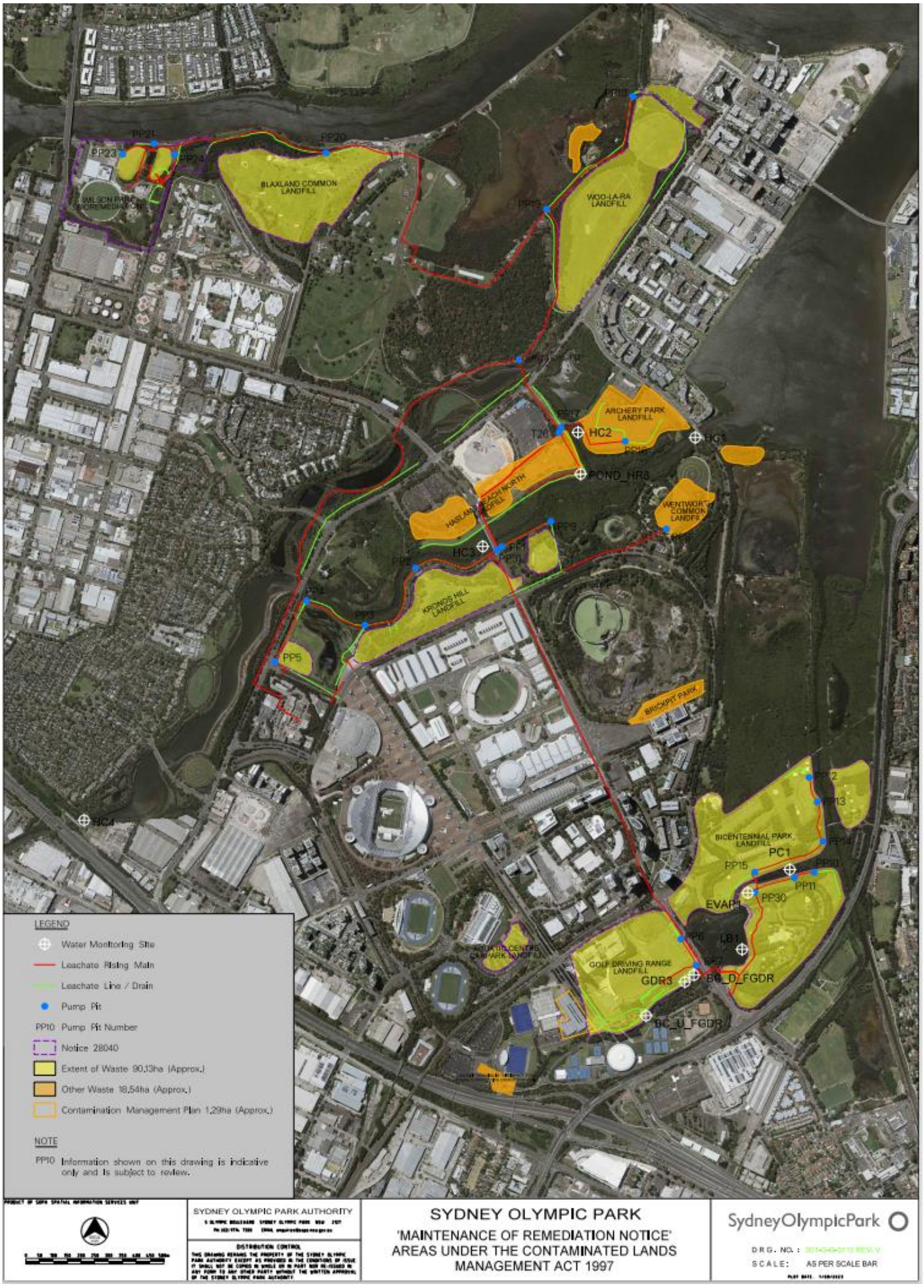
The remediation method varied according to the type of waste and site physical conditions, however, it generally involved recovery, consolidation and containment of waste. Approximately 9 million cubic metres of waste, including dredged material, power station ash, demolition rubble, asbestos, industrial waste and putrescible waste, was contained on-site.

Although roughly half of the Sydney Olympic Park was remediated, the current managed waste containment system comprises only about **105 hectares** or approximately 20% of the land area managed by the Authority, with the majority of the remediated lands located within the Parklands.

Following remediation, many of the landfills were certified as suitable for particular uses by an accredited site auditor (as established by the *Contaminated Lands Management Act 1997* "CLM Act"). Appropriate uses for sites remediated before the establishment of the CLM Act were generally subject to a validation report prepared by a suitably qualified expert. A copy of CLM Act Notice no 28040 can be found here: https://app.epa.nsw.gov.au/prclmapp/searchregister.aspx

Today the regulated remediated lands are managed in accordance with Contaminated Lands Management Act Notice number 28040 issued to the Authority and the Remediated Lands Management Plan 2022 ("the RLMP") referred to under the Notice and as updated from time to time.

Unregulated landfills are also managed in accordance the RLMP to ensure ongoing containment of wastes and compliance with the Protection of the Environment Operations Act ("POEO Act") and regulations.


PP21
PP23
PP24
PP20
BLAXLAND COMMON LANDFILL
WILSON PARK REMEDIATION
PP19
WOO-LA-RA LANDFILL
PP18
PP17
ARCHERY PARK LANDFILL
T20
HC2
HC1
POND_HR8
PP16
WENTWORTH COMMON LANDFILL
HC3
PP7
PP6
PP4
PP3
KRONOS HILL LANDFILL
PP5
BRICKPIT PARK
HC4
PP12
PP13
PP14
BICENTENNIAL PARK LANDFILL
PC1
PP15
PP10
PP11
EVAP1
PP30
PP9
LB1
GOLF DRIVING RANGE LANDFILL
GDR3
BC_D_FGDR
BC_U_FGDR
LEGEND
Water Monitoring Site
Leachate Rising Main
Leachate Line / Drain
Pump Pit
PP10 Pump Pit Number
Notice 28040
Extent of Waste 90.13ha (Approx.)
Other Waste 18.54ha (Approx.)
Contamination Management Plan 1.29ha (Approx.)
NOTE
PP10 Information shown on this drawing is indicative only and is subject to review.
SYDNEY OLYMPIC PARK AUTHORITY
SYDNEY OLYMPIC PARK
'MAINTENANCE OF REMEDIATION NOTICE' AREAS UNDER THE CONTAMINATED LANDS MANAGEMENT ACT 1997
SydneyOlympicPark
SCALE: AS PER SCALE BAR

1.2 Ongoing Waste Containment

Containment mounds are designed to prevent the escape of contaminated leachate, surface water and landfill gas into the environment. Landfill design allows some natural processes to occur, including decomposition of waste, stormwater infiltration and sub-surface water flow. These natural processes generate liquid (leachate); the majority of the mounds have perimeter sub-surface collection drains and impermeable barriers to manage leachate migration. A network of groundwater wells have been installed around the landfills and inside waste containments enables monitoring of groundwater levels, chemistry and landfill integrity.

The need to maintain the integrity of the waste mounds and leachate collection and transfer systems must be considered in land use planning and development and typically limits the depth of excavations and the type of structure and construction method that can be used and can restrict the range of appropriate land-uses and selection of suitable plantings.

It is important to note that along with the waste containment mounds, the integrity of all connecting leachate transfer infrastructure including all pipes, pumps, gravity drains, piezometers and monitoring wells must be maintained as all infrastructure required to manage the regulated remediated landfills is also regulated by the NSW EPA under the CLM Act Notice.

Land use planning and development must consider protection of, and access to, all waste containment and leachate transfer infrastructure for maintenance, repair and incident management and response to ensure ongoing safe beneficial use of the remediated landfills for the environment and human health.

1.3 Leachate Treatment and Management Systems

Historically, extracted landfill leachate was transferred for treatment and disposal to the Lidcombe Liquid Waste Treatment Plant (LLWP) located adjacent to Sydney Olympic Park via complex network of drains, pipes and pumps. This off-site industrial treatment plant is expected to close in 2024 and in the absence of a practical alternative off-site treatment plant that could lawfully accept landfill leachate, the Authority implemented an Alternative Leachate Treatment Strategy for Sydney Olympic Park to progressively remove reliance on the liquid waste plant.

Three sustainable leachate treatment systems and a leachate management systems have been delivered and now divert over 90 percent of all leachates generated on-site to more environmentally friendly, low energy, low operating cost, sustainable options to ensure the Authority will be able to continue to meet its statutory obligation in relation to management of the remediated lands. This includes constructed leachate treatment wetlands at Wilson Park and on the Former Golf Driving Range landfill and a leachate management system with discharge to sewer located adjacent to the BMX track and carpark P5.

Of the original ten engineered landfills the only landfill still reliant on the Cleanaway Liquid Waste Treatment Plant is Woo-la-ra. Master Plan 2050 will need to provide adequate provision for any additional infrastructure that will be needed to completely remove reliance on the LLWTP before its closure in 2024. Capital works are already underway to ensure all leachate generated on-site can be diverted away from the LLWTP by the end of 2024.

Leachate treatment wetlands and the leachate management system are located inside restricted access compounds to minimise contact with leachates. Restricted access areas cannot be used for any other purpose until such time as the NSW EPA determines that the landfills no longer pose a risk of harm and these assets are no longer required to be maintained.

1.4 Potential Exposure to Landfill Contaminants

Materials contained within the landfills can potentially harm human health and the environment by causing acute and chronic effects. Landfill design and management strategies are directed at managing potential exposure pathways to avoid contact of contaminants with humans and the environment. Potential exposure pathways include:

- Exposure to leachate (contaminated groundwater) – as a result of damage to or failure of the waste containment systems, (including the waste containment mounds and leachate collection, transfer and disposal systems, membranes and cut-off walls, pipes, pumps) constructed treatment wetlands or leachate management system or a breach a of the restricted access areas into leachate treatment ponds and overtopping of treatment ponds. Excavation into the remediated lands can result in loss of leachate which may harm to human health and the environment. Leachates can migrate beyond the waste containment system into adjacent water bodies and aquatic ecosystems including where disturbance of the ground results in the connection of shallow and deep groundwater aquifers, such as installation of deep building footing or piers, or where very deep excavations change groundwater direction.
- Exposure to landfill gases – as a result of damage to or failure of the waste containment systems and including failure to maintain actively growing vegetation on landfill capping, failure or breakage of gas extraction and venting systems, breaches of the clay-capping layer, build-up of gases in confined places. Development on remediated lands must consider the potential for exposure to landfill gas which can cause irritation of eyes, nose throat, coughing nausea and breathing difficulties or asphyxiation. Gases can be explosive and flammable at some concentrations if exposed to an ignition source. Landfill gas can travel horizontally or vertically and migrate beyond the area of the remediated landfill. Inadequate management of landfill gas risks can have catastrophic consequences.
- Exposure to landfill solid waste – as a result of damage to or failure of the waste containment systems including erosion or excavation into the landfill to below the capping layer. Solid waste may contain chemical contaminants that may cause direct impact to human health such as skin irritation, generate odours, attract rodents and flies and diseases and result in contamination of surrounding areas and waterways. Solid wastes may contain asbestos.

Potential exposure pathways must be considered in the design and delivery of any development and in relation to any proposed change in land use both on and immediately adjacent to remediated lands or remediated lands infrastructure. Input should be sought from ***SOPA's Remediated Lands Team in the first instance****.*

Where required, a suitably qualified and accredited professional must be engaged to ensure risks are adequately considered and addressed.

2 REGULATORY REQUIREMENTS

Remediation and redevelopment of Sydney Olympic Park was conducted in accordance with Licences and Notices issued to the Authority and its predecessor organisations under legislation including the NSW *Contaminated Lands Management Act 1997 ("CLM Act 1997"), NSW Unhealthy Building Land Act 1990*, and NSW *Environmentally Hazardous Chemicals Act 1985*. These remediated lands require ongoing management.

The actions detailed in the SOPA Remediated Lands Management Plan (RLMP) form the basis of Notice 28040 issued to the Authority under section 28 of the *CLM Act 1997;* this Notice requires the Authority to maintain remediation actions at Sydney Olympic Park as detailed in the Plan. The Notice applies to: Aquatic Centre Carpark Landfill; Bicentennial Park Landfill; Blaxland Common Landfill; Former Golf Driving Range Landfill; Kronos Hill Landfill; Woo-la-ra Landfill, and Wilson Park

and penalties apply for non-compliance with this Plan.

This Notice does not formally regulate management of additional waste containment areas (Archery Park Landfill; P5 Carpark/Haslams Reach Landfill; Wentworth Common Landfill, and the Hill Road Cut-off Wall) under the *CLM Act 1997*. However these landfills are included in the RLMP and the Authority manages these areas consistent with the requirements of the RLMP to ensure ongoing protection of the environment and human health and any breach of the Remediated Lands Management Plan may result in a breach of the POEO Act and regulations.

Other key legislative requirements which affect the management of remediated lands are:

- *Sydney Olympic Park Authority Act 2001*
- *Protection of the Environment Operations Act 1997* - SOPA currently holds Licence 10243, which conditionally permits discharge to the Parramatta River from the Wilson Park bioremediation treatment ponds and the Blaxland Sustainable Leachate Treatment Wetlands.
- *Environmental Planning and Assessment Act 1979* including consents issued under the Act, and development assessment and approval processes established by the Act.
- *Work Health and Safety Act 2011* requires due diligence in occupational undertakings including consideration of risk issues, provision of information, consultation, and control of premises, plant and substances.

3 MANAGEMENT REQUIREMENTS

Sydney Olympic Park Authority manages the remediated lands of Sydney Olympic Park in accordance with the following:

3.1 Approval Processes

a) Ensure that approvals issued under the *Environmental Planning & Assessment Act 1979*, the SOPA Parklands Plan of Management and SOPA Work Permit System require compliance with relevant provisions of the SOPA Remediated Lands Management Plan

b) Development Applications associated with development of remediated land or contaminated sites at Sydney Olympic Park must take into consideration the requirements of State Environmental Planning Policy No 55 – (Managing Land Contamination).

3.2 Site Uses and Activities

a) Use remediated landfills only for the purposes for which they have been deemed suitable by site audit or site validation processes (refer to section in individual landfills below), and in accordance with uses permitted by the Sydney Olympic Park Parklands Plan of Management and relevant development consents issued under the *Environmental Planning and Assessment Act 1979*.

The remediated landfills are generally suitable for use as park, open space, playing fields, and carparks. Specific areas have been determined to be suitable for other uses subject to strict compliance with a new Site Audit Statement and long-term environmental management plan. Site Audit Statements for the Wilson Park Bioremediation Area and Wilson Park Wetland require exclusion of public access.

b) Activities on remediated landfills must not cause damage to infrastructure including pump pits, piezometers, tanks, valves, pipes, holding structures, underground components, and to landfill surface integrity, landfill capping, contours, surface drainage lines and leachate treatment wetlands and storage ponds.

c) Obtain regulatory approvals for proposed land uses not consistent with site auditor

certification. A risk review must also be conducted for proposed changes to specified uses.

3.3 Works and Development on Remediated Lands

a) Integrate regulation of works on remediated lands with the SOPA Work Permit system to ensure that proposed works are assessed for consistency with the RLMP, and appropriate conditions are applied to all approved works.

b) Protect landfill, leachate and landfill gas infrastructure (including but not limited to; membranes, pipes, cut-off walls, Atlantis drains, piezometers, pump stations, tanks, vents, gravel blankets, capping, gradients, swales, treatment wetlands and ponds)

c) Do not disturb regulated remediated lands below a depth of 0.6 metres without prior approval of the NSW EPA, except for minor works where the NSW EPA has given prior approval in accordance with Section 8.1 of the RLMP.

d) Do not disturb unregulated remediated lands below a depth of 0.6 metres without input and approval from the Authority's Remediated Lands Team.

e) Any works, development or change in land use must not impede the Authority's ability to implement and execute the monitoring program required for statutory compliance, respond to incidents, undertake repairs to critical remediated lands infrastructure or undertake operational performance monitoring. Any development or change in land use must ensure ongoing access to all areas of the remediated lands network.

3.4 Site Redevelopment Principles

Any proposed site redevelopment of regulated remediated lands requires appropriate regulatory approvals. The following key principles as outlined in the RLMP and enforced by the Notice also apply:

a) Land remediation works should, as far as physically and technologically possible, result in NO off-site disposal of any contaminated or treated landfill waste material.

b) Land-use options and/or building technologies that would allow existing contaminated material to be contained and consolidated in-situ are always preferred.

c) Where on-site retention of contaminated or treated landfill waste material is not practically, technologically, environmentally or economically feasible, site remediation works should be conducted in a manner that minimises off-site disposal of contaminated or treated landfill waste material.

d) Where proposed remediation works would involve extensive off-site disposal of contaminated or treated landfill waste material or total site waste material; such works are only permitted after detailed investigations have been undertaken that demonstrate retention in-situ or relocation within Sydney Olympic Park is not practically or technologically feasible and it is contrary to the interests of public health, the environment and/ or the viability of Sydney Olympic Park.

e) Works and development of activities must comply with all the relevant provisions of the SOPA Remediated Lands Management Plan.

The Authority also manages its unregulated landfills consistent with the RLMP and therefore, to extent practical and reasonable, the above site redevelopment principles should also be applied.

3.5 New Owners or Occupiers

Under the Notice the Authority is required to:

a) Provide at least 30 days written notification to the NSW EPA should Sydney Olympic Park Authority plan to sell, transfer, lease or otherwise relinquish responsibility for remediated lands.

b) Provide all prospective owners or occupiers with written advice of any Notices issued under the CLM Act 1997.

4 RISKS AND CHALLENGES

As the waste containment system underlies and adjoins large areas of the Parklands, there are significant implications in relation to balancing remediated lands management with use, maintenance, community needs and development. The following special conditions apply to all remediated land management decisions:

a) Maintaining safe public access;
b) Protection of the environment;
c) Protection of species and habitat under threatened species legislation and international treaties;
d) Heritage conservation, of both the built and natural environment;
e) Notices, Licences and Development Consents issued under legislation, specifying conditions of use;
f) Potential leachate and landfill gas hazards
g) Physical considerations, including distance to protected waterways, potential acid sulphate soils, flooding potential, etc;
h) Promotion of environmentally sustainable development, as a condition of the *Sydney Olympic Park Authority Act 2001*.
i) Land-use pressure to provide space for residential, commercial and recreational developments.

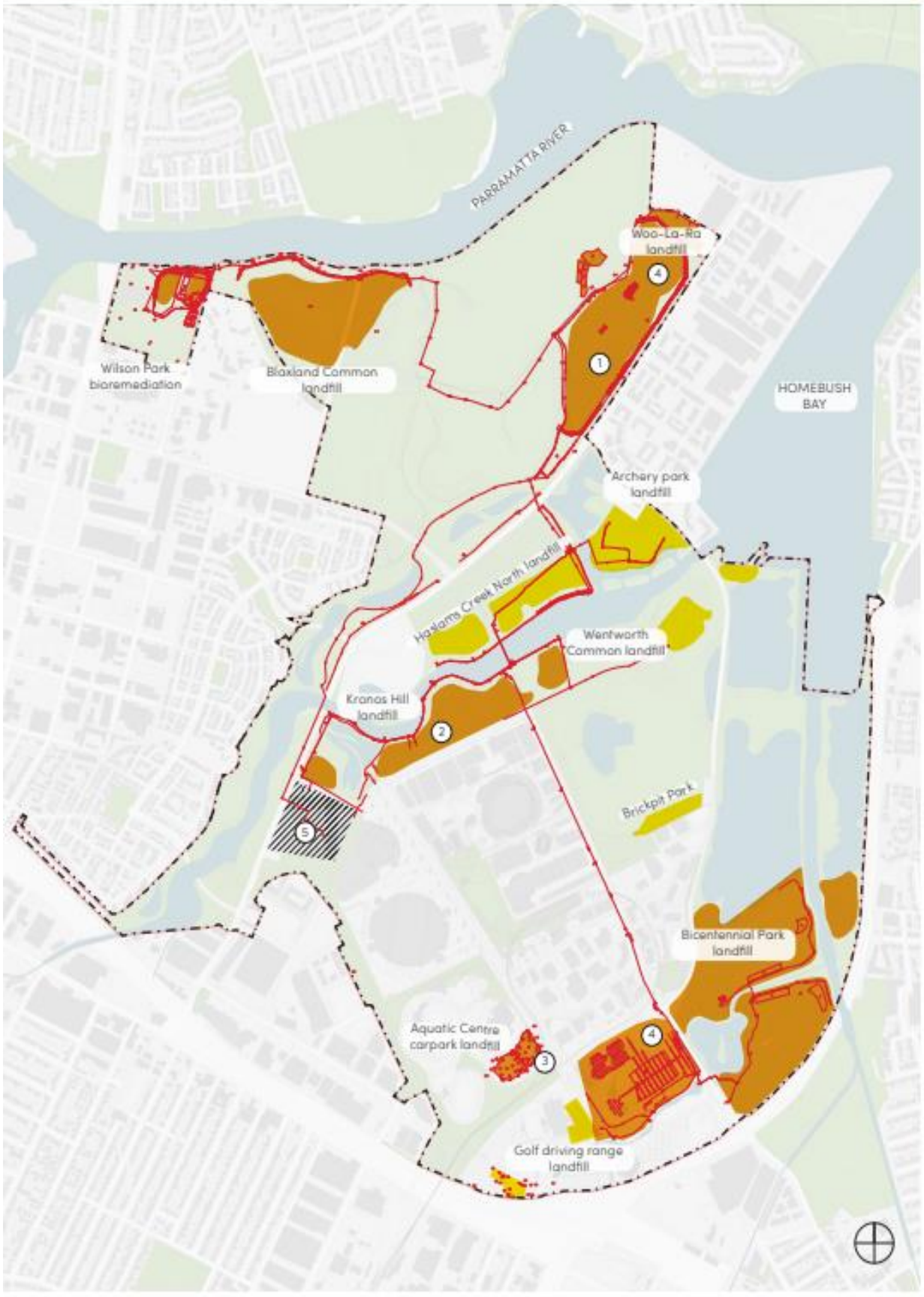
Land uses with the potential to adversely affect the integrity of waste containment system are generally discouraged as these may breach the Authority's statutory obligations and result in harm to human health and the environment

Master Plan 2050 Proposed Land Uses

Figure 3.6.1 Illustrative land use concept plan

Contaminated Site Infrastructure

Figure 3.13.1 Contamination and remediation



5 LANDFILLS

5.1 Aquatic Centre Carpark (Regulated under CLM Act Notice No 28040)

Former names: State Rail landfill (1970's), Area 4 (1990-1994), P2 Car Park

Site history

Historically there were two local landfills in the vicinity of the Aquatic Centre Car Park. One immediately adjacent to the northern extremity of the current Aquatic Centre Landfill Cell No. 2 and the former State Rail Authority Landfill situated along a thin strip of land south of the current Landfill, adjacent to the rail line.

These two sites were used for a variety of industrial wastes in the 1970s, including gypsum, aluminium slag and other refractory wastes, gasworks residues, building rubble (concrete, timber, ash, steel and plastic) and a large quantity of asbestos.

The remediation strategy employed for this site was total containment. Two below ground engineered disposal cells were constructed to depths of eight (Cell 1) and fourteen (Cell 2) metres. The cells were sealed with a double layered liner system and were designed to fully contain the wastes together with any leachate generated. The cells were then backfilled with clay and shale then capped with a combination of a bentonite geotextile and sealed with a hard surface asphalt car park to further minimises surface water infiltration. All of these structures form part of the containment system.

Unlike other landfills in Sydney Olympic Park, the Aquatic Centre landfill is based on a "dry tomb" design and protection of the integrity of waste cell structures including the capping and hardstand areas is critical in preventing loss of contaminants.

The Aquatic Centre Carpark landfill infrastructure requires ongoing management to ensure system integrity, environmental protection, and to meet legal requirements.

Landfill	Approved Land Uses	Proposed (MP 2050)	Site Specific Considerations
Aquatic Centre Carpark (Regulated - CLM Act Notice No 28040) Part Lot 101 DP849975 Part Lot 16 DP1110035	Carpark (Validation Report issued 1994)	*Sports and Events* *Car parking* *Adjacent uses- community / education*	• Wastes contained in the Aquatic Centre landfill include special and hazardous wastes that may pose a significant risk of harm. • Penetration of the waste cells may compromise containment integrity and result in loss of contaminants. Area of waste cells **not suitable for significant structures and buildings.** • Access needed for ongoing maintenance and inspection of the integrity of the sealed surface at ground level and groundwater monitoring. • Lightweight structures such as light poles, shelters or other simple structures above the waste cells suspended above, fixed onto the ground surface may be suitable. • Amenity such as trees may compromise landfill integrity and would generally not be suitable on the area of the waste cells. • Adjacent community or education uses must be placed at suitable distance from waste cells to prevent damage to waste containment system. Suitable distance will be based on building design and must be determined in consultation with SOPA's remediated lands experts

Way Forward –Master Plan 2050

The proposed land use of sport and entertainment car parking over the Aquatic Centre Carpark is suitable provided the land use does not include any structures which penetrate into the waste cells or may otherwise compromise containment. The following steps should be considered in relation to any proposal:

- Early input from SOPAs Remediated Landfill Team on any proposed changes to existing land use. *Note that any structure immediately adjacent to the waste cells must be placed at a suitable distance to prevent compromising the waste cells.*
- All works to be undertaken in accordance with the input provided by the Remediated Lands Team and the relevant requirements of the Remediated Lands Management Plan.
- Detailed design with technical input from suitably qualified contaminated sites experts if required.
- If required, engage a suitably qualified Site Auditor accredited under the NSW EPA scheme to provide input into detailed design, approve relevant plans and provide the final Site Audit Report and Site Audit Statement for any proposed change of use.
- Conditional land owners' consent to be provided to manage remediated landfill risks for works that do not trigger the requirement for planning consent.
- For any proposal that requires planning consent, seek advice from the Remediated Lands Team to ensure appropriate conditions of consent are included in the planning consent.
- Before commencing any works, obtain NSW EPA approval (if required) or provide notification of the works. NSW EPA approval is required for excavation works deeper than 0.6m and any works beyond those conditionally approved by NSW EPA and set out in Section 8 of the Sydney Olympic Park Remediated Lands Management Plan 2022. *Note that as the holder of the CLM Act Notice, the Authority must seek the approval of the NSWEPA on behalf of a proponent.*
- Once works are completed, ensure that an occupation certificate for any structures or land use that require Site Auditor signoff is not issued until:
    - the relevant Site Audit Report and Site Audit Statement has been issued;
    - the Site Audit Statement identifies that the proposed use is suitable or can be made

suitable for the proposed use;

- Any conditions set out in the Site Audit Statement or Site Audit Report including the need to develop and implement any Long-term Environmental Management Plan (LTEMP) for the site have been completed and approved by the Site Auditor;
- Ongoing responsibility for implementation of any LTEMP has been provided for as a condition of lease (if relevant)

5.2 Archery Park

Former names: State Rail landfill (1970's), Area 4 (1990-1994), P2 Car Park

Site history

Archery Park is located on a single landfill once used by Strathfield and Burwood Councils for solid industrial/building waste disposal. Prior to municipal land filling activities, the area was part of Wentworth Bay; since 1955 the Bay had been gradually reclaimed to increase available land for industries. Between 1955 and 1970, it has been filled to a depth of approximately five metres with construction waste, demolition waste and minor traces of power station ash.

Waste Service NSW developed the remediation strategy for the site based on the history of site filling and a site contamination assessment. The purpose of remediation was to prepare the site for the development of the archery centre, requiring mainly open space with some buildings, mounded areas and a car park.

Waste was completely removed from below the proposed amenities building prior to sandstone backfilling. The remaining earthworks involved the spreading and mixing of waste and estuarine silt (neutralised by lime treatment) to achieve an even level across the site. The estuarine silts had been stockpiled at the site when previous works were undertaken on Haslams Creek. Finally a one metre thick capping layer comprised of imported validated fill mixed with some clean material was added to provide the finished surface.

Leachate is collected in two drains installed through the centre of the site. The drains gravitate to a single pump pit PP16 on the Southern site boundary between the landfill and Haslams Creek and from here transported for treatment and disposal.

Remediation was undertaken between January 1997 and February 1998. Following remediation, the Archery Park landfill was validated as suitable for use as archery fields and amenities building [*Waste Services 1998: Homebush Bay Landfill Rehabilitation Project. Archery Site – Site Validation report].*

The Archery Park landfill and groundwater interception and pumping system require ongoing management to ensure system integrity, environmental protection and to meet legal requirements.

Landfill	Approved Land Uses	Proposed Uses (Master Plan 2050)	Site Specific Considerations

Archery Park
(Unregulated)
Part Lot 16
DP 1110035
	Archery fields, building and carpark - ***Site Validation Report, Waste Service 1998: Homebush Bay Landfill Rehabilitation Project. Archery Site – Site Validation report***	Recreational Space
		Services
		Conservation area
			• Proximity to receiving waters, sensitive habitat
			• Possible presence of Acid Sulfate Soil and/or Potential Acid Sulfate Soils
			• Heritage items
			• Demolition and building rubble and power station ash with possible asbestos
			• Potential for ground stability / compaction issues
			• Requirement to maintain ongoing access to leachate rising mains and gravity drains limits the location of any proposed buildings
			• Expansion of conservation areas must consider impacts on remediated landfill infrastructure.
			  • No ponds or other water bodies should be constructed over the waste containment area.
			  • Expansion of estuarine areas should not extend over remediated lands or remediated landfill drains as there require ongoing access
			  • Suitable planting with consideration of proximity to remediated landfill infrastructure.

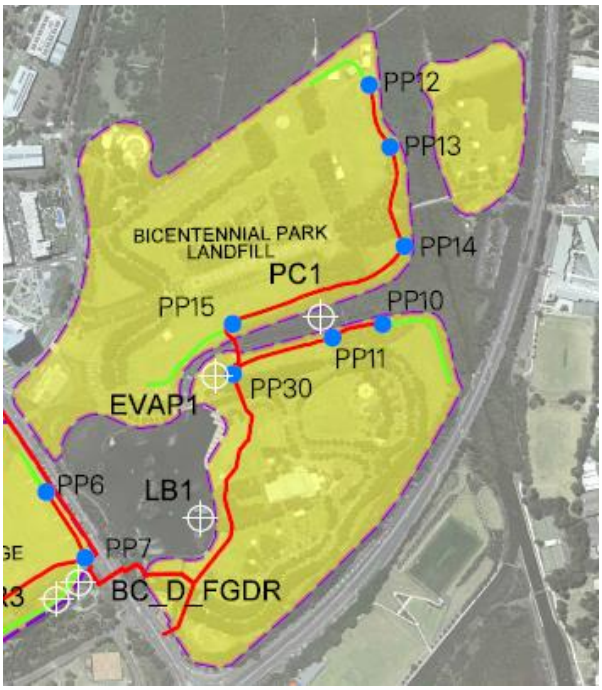
Way Forward - Master Plan 2050

The proposed land use of recreational space, conservation and provision of services over the Archery Park Landfill is suitable provided the land use does not impact the ongoing integrity of the waste containment cell or restrict access to remediated landfill infrastructure including the leachate drains and piezometers. The following steps apply in relation to any proposal:

- Early input from SOPAs Remediated Landfill Team for any proposed change in land use or expansion of ecological areas.
- All works to be undertaken in accordance with the input provided by the Remediated Lands Team and the relevant requirements of the Remediated Lands Management Plan.
- Structures beyond the area of the existing buildings require an assessment of ground stability / compaction.
- Detailed design with technical input from suitably qualified contaminated sites expert accredited under the NSW EPA scheme if required.
- If required, engage a suitably qualified Site Auditor accredited under the NSW EPA scheme to provide input into detailed design, approve relevant plans and provide the final Site Audit Report and Site Audit Statement for any proposed change of use.
- Before commencing any works, SOPA to notify the NSW EPA of the works.
- Once works are completed, ensure that an occupation certificate for any structures or land use that require Site Auditor signoff is not issued until:
    - the relevant Site Audit Report and Site Audit Statement has been issued;
    - the Site Audit Statement identifies that the proposed use is suitable or can be made suitable for the proposed use;
    - Any conditions set out in the Site Audit Statement or Site Audit Report including the need to develop and implement any Long-term Environmental Management Plan for the site have been completed and approved by the Site Auditor;
    - Ongoing responsibility for implementation of any LTEMP has been provided for as a condition of lease (if relevant)

5.3 Bicentennial Park

Former names: Railway breaking yards (1970-1982), Strathfield Tip (1950s-1982)



Site history

Bicentennial Park is located between Bennelong Road, Australia Avenue and Homebush Bay Drive covering an area of approximately 100 hectares. The remediated area originally consisted of two separate landfills; the southern Strathfield tip (1951 to 1982) and the northern Railway breaking yards (1970 to 1982). The waste consisted mainly of putrescible household waste, some building and construction material and dumped cars in the Strathfield tip and railway parts (e.g. train carriages, rail lines) and other non-putrescible waste at the Railway breaking yards.

The two landfills were no longer used by 1982 and earthworks for Bicentennial Park began in 1983 with the development of the neighbouring State Sports Centre. The original remediation consisted of minor reshaping and capping and the park was opened in 1988. However, by 1990 several seeps had become evident and subsequently subsoil drains were installed. In 1998 further works were undertaken to prevent waste exposure and intercept leachate. A subsurface drain, collection and transfer system was installed to collect subsurface stormwater seeps in the northern landfill. A leachate collection, transfer and treatment system was installed to collect leachate in the southern landfill. Surplus original capping arising from these works was contained in two areas to the east of the site; sediments excavated during construction of tidal flushing channels and the Fishway were also contained on-site in acid sulphate containment areas adjacent to a tributary of Powells Creek.

Following remediation, the area was developed for use as parklands and recreational open space.

The kiosk building was redeveloped in 2004/5 as a restaurant, cafe and convention centre. A passive subterranean gas extraction system was included in building design. The facility is privately leased and operated. Management and maintenance of the gas extraction system is the responsibility of the lessee.

The Bicentennial Park landfill and leachate interception and pumping system require ongoing management to ensure system integrity and environmental protection, and to meet legal requirements. While the subsurface gas monitoring and surface gas monitoring programs have been formally discontinued at the Bicentennial Park landfill, as part of due diligence, SOPA continues to undertake quarterly surface gas measurements in the area around the café and

convention centre.

Landfill	Approved Land Uses	Proposed Uses (Master Plan 2050)	Site Specific Considerations
Bicentennial Park **(Regulated - CLM Act Notice No 28040)** Part Lot 11 DP1095867 Lot 10 Lot 7 DP774310 Lot 8 DP774130	Parkland, recreational open space, dog park, carpark Waterview Café operated on-site under a lease agreement	Recreational Space	• Proximity to receiving waters, sensitive habitat • Requirement to maintain ongoing access to leachate rising mains, pump pits and gravity drains limits the location of any proposed buildings and structures • Possible presence of Acid Sulfate Soil and/or Potential Acid Sulfate Soils. • Northern landfill present challenging ground conditions – large solid objects including train carriages / wreckage waste • Northern and Southern landfills are known to contain **asbestos wastes** often at shallow depth. Any excavation into the landfills must be managed for potential asbestos wastes. • Potential for landfill gas – structures need to be appropriately designed. • Shade structures or amenities will need to be suitably designed for the existing ground conditions

Way Forward - Master Plan 2050

The proposed land use of recreational space over the two Bicentennial Park Landfills is consistent with current approved land use. Any proposal for works or new structures on Bicentennial Park must not impact the ongoing integrity of the waste containment cell or restrict access to remediated landfill infrastructure including the leachate drains and piezometers. The following steps apply in relation to any proposal:

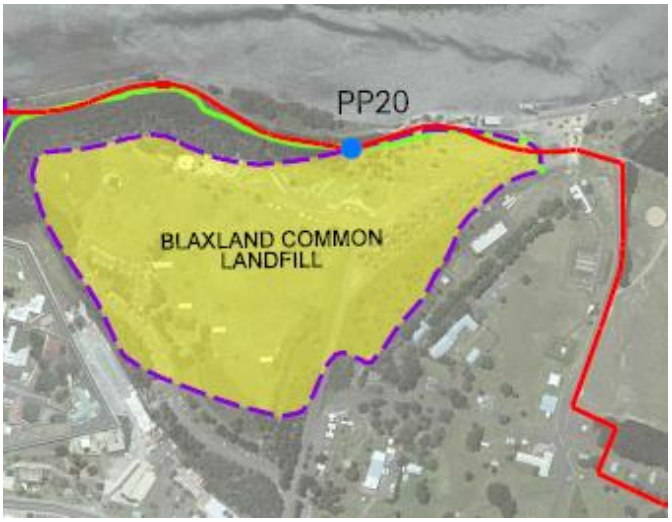
- Early input from SOPAs Remediated Landfill Team on any proposed structures or changes to current land use.
- All works to be undertaken in accordance with the input provided by the Remediated Lands Team and the relevant requirements of the Remediated Lands Management Plan.
- For new structures including shelters, amenities buildings undertake an assessment of ground conditions if required to inform design.
- Detailed design with technical input from suitably qualified contaminated sites expert accredited under the NSW EPA scheme, if required.
- If required, engage a suitably qualified Site Auditor accredited under the NSW EPA scheme to provide input into detailed design, approve relevant plans and provide the final Site Audit Report and Site Audit Statement.
- Before commencing any works, obtain NSW EPA approval (if required) or provide notification of the works. NSW EPA approval is required for excavation works deeper than 0.6m and any works beyond those conditionally approved by NSW EPA and set out in Section 8 of the Sydney Olympic Park Remediated Lands Management Plan 2022.
- Once works are completed, ensure that an occupation certificate for any structures or land use that require Site Auditor oversight is not issued until:
    - the relevant Site Audit Report and Site Audit Statement has been issued;
    - the Site Audit Statement identifies that the proposed use is suitable or can be made suitable for the proposed use;
    - Any conditions set out in the Site Audit Statement or Site Audit Report including the

- need to develop and implement any Long-term Environmental Management Plan for the

- site have been completed and approved by the Site Auditor;
- Ongoing responsibility for implementation of any LTEMP has been provided for as a condition of lease (if relevant)

5.4 Blaxland Common

Former names: Auburn Tip (1968 to 2000), Hardies Landfill (1968 to 2000), Auburn Hardies (remediation - 2001); Park is now named Blaxland Riverside Park



Site history

The Blaxland Common, formally Auburn/Hardies Landfill, covers an area of approximately 20 hectares and is located between Parramatta River, Newington Armoury, Silverwater Correctional Centre and Wilson Park. Access to the site is via Jamieson Street, off Holker Street. The site consists of two former landfills, the Auburn landfill and the Hardies landfill.

The Auburn landfill was used by Auburn Council for the disposal of domestic, commercial, industrial and demolition waste. The relative distribution of the waste is unclear. Domestic waste disposal began in the late 1960s and ceased in 1984, however the Eastern section of the site was subject to the disposal of building wastes for several more years.

The Hardies landfill operated at the same time as the Auburn landfill and was primarily comprised of asbestos waste. Some industrial and putrescible wastes also existed at the site.

Waste Service NSW developed a remediation strategy for the site following a number of site investigations and risk assessments. The purpose of remediation was to maximise the area of land available and improve suitability for a variety of uses. The initial phase of earthworks saw the Auburn landfill overtopped with approximately 220,000m^3 of waste material excavated from Newington East. The Hardies section of the site was then re-contoured to fill a natural gully within the site and to allow the cap over the asbestos materials to comply with EPA capping requirements (3 metres of cover). The two merged landfills were then capped with one metre of clay / shale. Leachate generated by the Blaxland landfill was transported via a rising main to the Lidcombe Liquid Waste Plant (LLWP) for treatment and disposal.

Remediation was completed in November 2000. The site was approved for use as *"Park, recreational open space, playing field"* on 17 December 2001 (Site Auditor Statement in Appendix 1).

The site was redeveloped in 2006 for the construction of Blaxland Riverside Park. Further redevelopment occurred from 2011-2012 to create the Blaxland Riverside Park Children's Playground, which is heavily used by the general public.

In June 2013 the Authority completed the construction of the Blaxland Treatment Wetlands within the Wilson Park bioremediation site (located in the NE quarter of Wilson Park) to more sustainably treat and dispose of landfill leachate.

Landfill	**Approved Land Uses**	**Proposed Uses (Master Plan 2050)**	**Site Specific Considerations**
Blaxland Common **(Regulated - CLM Act Notice No 28040)** Part Lot 422 DP824053 Part Lot 404 DP48210 Part Lot 3 DP860205 Part Lot 3 DP883215 Part Jamieson Street (no ID)	Parkland, recreational open space, playing field - **Site Audit Statement FM27.** 2012 Blaxland Riverside Children's Playground development.	Recreational Space Conservation area	• Entombed asbestos waste present at depth across the site • Requirement to maintain ongoing access to leachate rising mains, pump and valve pits and gravity drain and groundwater monitoring wells for groundwater monitoring • Landfill produces larger volumes of leachate. Land uses that may increase water ingress such as additional ponds or water features should be discouraged. • Potential for landfill gas • Shade structures or amenities need to be suitably designed for the existing ground conditions

Way Forward - Master Plan 2050

The proposed land use of recreational space and conservation is consistent with the existing approved land use. New structures or uses must not impact the ongoing integrity of the waste containment cell or restrict access to remediated landfill infrastructure. The following steps apply in relation to any proposal:

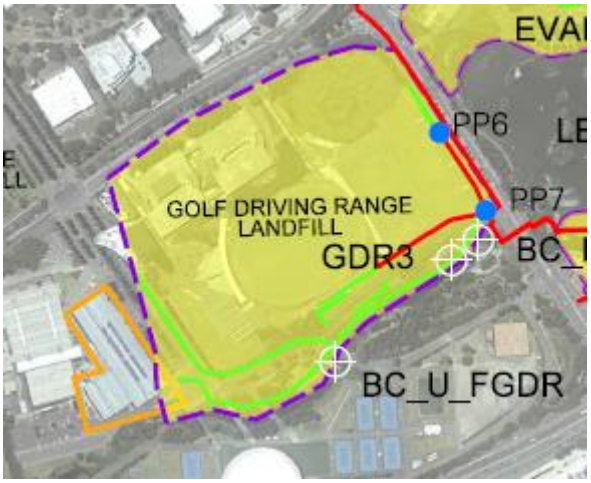
- Early input from SOPAs Remediated Landfill Team on any proposed new structures or changes to existing land use.
- All works to be undertaken in accordance with the input provided by the Remediated Lands Team and the relevant requirements of the Remediated Lands Management Plan.
- For any new structures, undertake and assessment of ground conditions to inform design if required noting the presence of asbestos wastes at depth.
- Detailed design with technical input from suitably qualified contaminated sites experts if required.
- If required, engage a suitably qualified Site Auditor accredited under the NSW EPA scheme to provide input into detailed design, approve relevant plans and provide the final Site Audit Report and Site Audit Statement for any proposed change of use.
- Conditional land owners' consent to be provided to manage remediated landfill risks for works that do not trigger the requirement for planning consent.
- For any proposal that requires planning consent, seek advice from the Remediated Lands Team to ensure appropriate conditions of consent are included in the planning consent.
- Before commencing any works, SOPA to obtain NSW EPA approval (if required) or provide notification of the works. NSW EPA approval is required for excavation works deeper than 0.6m and any works beyond those conditionally approved by NSW EPA and set out in Section 8 of the

Sydney Olympic Park Remediated Lands Management Plan 2022.

- Once works are completed, ensure that an occupation certificate for any structures or land use that require Site Auditor oversight is not issued until:
    - the relevant Site Audit Report and Site Audit Statement has been issued;
    - the Site Audit Statement identifies that the proposed use is suitable or can be made suitable for the proposed use;
    - Any conditions set out in the Site Audit Statement or Site Audit Report including the need to develop and implement any Long-term Environmental Management Plan for the site have been completed and approved by the Site Auditor;
    - Ongoing responsibility for implementation of any LTEMP has been provided for as a condition of lease (if relevant)

5.5 Former Golf Driving Range

Former names: Homebush Common, Southern Threshold, State Sports Centre Precinct, Golf Driving Range



Site history

The Former Golf Driving Range landfill (FGDR) is a consolidation of 3 separate landfills from the State Sports Centre Precinct. The precinct was used for the uncontrolled tipping of municipal waste from 1965 to 1982 and comprised a heterogeneous mix of a wide variety of wastes including putrescible fill.

The landfill covers an area of 6.2 hectares adjoining Boundary Creek. The final landform was capped and landscaped, and a combined subsoil landfill gas capture system and extraction leachate system was installed.

Remediation was initially completed in 1994, however, additional remediation works were undertaken between 1998 – 1999 with additional fill being added. This additional load increased leachate production so further works were conducted to automate leachate collection and connect it to LLWP. This was completed by 2000. An Independent Site Auditor issued a Site Audit Statement on 14 December 2000 (WRR85) declaring the site suitable for use as "*Park, recreational open space and playing field*"

The FGDR landfill, leachate interception and pumping system requires ongoing management to ensure system integrity and environmental protection, and to meet legal requirements.

The Bicentennial Marker is located at the intersection of Sarah Durack Avenue and Australia Avenue. The Bicentennial Marker was formerly known as the Australia Avenue Millennium Marker.

It is an engineered mound located in the north-east of the Former Golf Driving Range landfill. Two transformation towers were located in the area before the mound was constructed. The top of the Marker is approximately 20m higher than the adjoining Sarah Durack Avenue and about 15m higher than the adjoining training grounds. An AFL professional training ground and a community oval border the Marker in the south. In 2017 SOPA constructed amenities buildings to service the Tom Wills Community Oval at the foot of the Marker.

The mound consists of waste made up of construction rubble and road base. The waste mound was capped with a low permeability clay and landscaped. The slope and the crest area are covered with native grasses. The area between the Marker and Sarah Durack and Australia Avenue is landscaped with native grasses and trees. The ground surface area of the Marker is approximately 1.11ha.

A landfill gas drainage layer is installed beneath the turfed sections of the site beneath the AFL training ground and the community field to intercept landfill gases before they reach the surface. The gas extraction pipes installed along the eastern batter of the Former Golf Driving Range landfill extend towards the southern foot of Marker and along the turfed area and pedestrian pathway on the western side of the waste mound. There is no gas drainage layer installed beneath the Bicentennial Marker.

The Former Golf Driving Range landfill is equipped with a landfill leachate extraction system. The leachate gravity drain begins south-easter of the Marker at the food of the mound and runs underneath the pedestrian pathway of Australia Avenue towards two pump stations at the eastern foot of the Former Golf Driving Range landfill next to Australia Avenue.

In 2013 works approved by the NSW EPA commenced to transform the former site use as a Golf Driving Range into an AFL professional training ground, coupled with a community field for public use. A gas drainage layer is installed beneath the turfed sections of the site (AFL training ground and community field) to intercept landfill gases before they reach the surface.

1n 2015 the Department of Planning and Infrastructure granted approval for the design and construction of an alternative and sustainable treatment and disposal system for leachate generated from the Former Golf Driving Range Landfill. Following completion of construction the system underwent an establishment phase and process proving period. Since July 2017 the treatment wetlands (located between the GWS Giants oval and Boundary Creek) have been fully operational and have provided reliable performance and a high treatment quality that meets the requirements for irrigation of treated wastewater back over the footprint of the landfill.

P3 multistorey carpark is located on the northern fringe of the Former Golf Driving Range landfill. The carpark was subject to a long history of differential settlement resulting in an uneven asphalt pavement of the ground floor of the carpark and fractures in the asphalt sealing. Landfill gas was detected above the asphalt surface due to the cracking in the pavement. In 2017 refurbishment works within carpark P3 for permanent rectification of the landfill gas venting and stormwater drainage systems underneath the carpark were completed by SOPA.

Also in 2017 SOPA constructed an amenities buildings behind the Bicentennial Marker located on the corner of Australia Avenue and Sarah Durack Avenue to service the Tom Wills Community Oval and development Consent was granted by the Minister of Planning for the construction of a 39 storey mixed use development comprising residential, commercial and retail floor space and associated above ground car parking on development Site 9 located on the corner of Olympic Boulevard and Sarah Durack Avenue. This development was beyond the area of the original landfill gas extraction system. Nevertheless, a site specific Remediation Action and Hazardous Ground Gas

Assessment and Management Plans (DLA Environmental Services, October 2016] were developed for the project and reviewed and approved by a Site Auditor accredited under the CLM Act. A Site Audit Statement (SAS 0301-1731-1) was issued in January 2019 for partial occupation. Site Audit

SAS 0301-1731-2 was subsequently issued in relation to the whole site prior to the full occupancy. Site managed under Long Term Environmental Management Plan ("LTEMP") with reporting requirements

In 2020 the GWS Giants completed further upgrades to their facilities including construction of a new extension and wet recovery pools. Site managed under LTEMP for Building B.

Landfill	**Approved Land Uses**	**Proposed Uses (Master Plan 2050)**	**Site Specific Considerations**
Former Golf Driving Range (excluding Bicentennial Marker) **(Regulated- CLM Act Notice No 28040)** Part Lot 201 DP 104175 Lot 200 DP 1041756	Parkland, recreational open space, playing field, carpark - **Site Audit Statement: 14/12/2000 WRR85** P3 car park Refurbishment - **Site Audit Statement Arcadis 249R** issued 24 October 2017. AFL administration buildings, amenities building, mixed commercial/residential buildings– • Building B - January 2014 **Site Audit Statement 235**; • Building C - August 2020 **Site Audit Statement psm-N-19 (B5)** • **s28 Notice No xxx** issued to GSW Giants in relation to Buildings A,B and C. L eachate treatment wetlands commissioned 2015 Mixed commercial/residential buildings at 3-5 Olympic Boulevard (Site 9)_ - January 2019 **Site Audit Statement 0301-1731-1**	Services (carparking) Events and Sport Recreational Space	• Landfill gas - currently low flow and high concentration - area above the landfill gas extraction system **generally only suitable for proposed uses of car parking, recreational space and sports and event and associated uses due to landfill gas risks** and requirement for ongoing maintenance and access to gas extraction infrastructure (gas drainage layer underneath AFL training grounds and Tom Wills Community Oval, GWS GIANTS Building B, car park P3, Site 9, GWS GIANTS Building C) • Requirement to maintain ongoing access to leachate rising mains, pump and valve pits, leachate gravity drains and subsurface drainage systems and above ground structures limits the location of proposed buildings and structures. • Leachate infrastructure is operated and controlled via remote radio telemetry. Clear air space is required to sustain communication between landfill sites. • Voids & subsidence risks impacting design options • Batter bleeds and contaminated groundwater which impact uses and design options. **Site generally not suitable for basement parking**. • Leachate infrastructure includes leachate treatment wetlands and ponds must be maintained under current regulatory requirements • Impermeable barrier installed along Boundary Creek to prevent leachate from migrating toward creek mut be maintained and may impact building footprints. • Existing commercial / residential building outside footprint of gas extraction system but subject to long-term management plan for ground gases • Sydney Metro West tunnel under construction. Exclusion zone around tunnel may impact works in close proximity • Technical studies provided for Sydney Metro West project predict possible change in groundwater direction towards the station box excavation. (***Detailed Site investigation - Sydney Olympic Park Construction Site, April 2022 prepared by Acciona Construction Pty Ltd & Ferrovial Construction Pty Ltd Venture – 0628507_02_R01)*** • Change in groundwater direction may result in an increase in landfill gas and increased risk to human health. Impact may not occur for many years and cannot be assessed at this time. Construction rubble and road base waste and possible asbestos waste within Marker • Landfill gas - currently low flow and high concentration in the area of the main landfill body – gas extraction infrastructure exists underneath AFL

Bicentennial Marker	Parkland, recreational open space, playing field, carpark - **Site Audit Statement: 14/12/2000 WRR85**	Residential (north east corner)	training grounds and Tom Wills Community Oval, GWS GIANTS Building B, car park P3, Site 9 and GWS GIANTS Building C. It is not known that the waste mound of the Marker contains any putrescible waste which could generate landfill gas when decomposing. However, it is noted that landfill gas from the adjoining main landfill body could migrate into the waste mound. • The existing gas extraction pipework extend towards the foot of the Marker at three locations and runs along the pedestrian pathway on western side of the Marker. • Requirement for an appropriate offset to gas extraction infrastructure and maintaining ongoing access to extraction system. • Other hazardous ground gases released from road base waste may be present. • The vegetated surface of the Marker functions to prevent potential landfill gas and vapours coming to the surface. • Requirement for an appropriate offset to leachate gravity drain and maintaining ongoing access to the gravity drain. • It is unknown whether the waste mound is connected to the main landfill body or an isolated waste cell. • Leachate infrastructure on the Former Golf Driving Range landfill is operated and controlled via remote radio telemetry. Requirement for clear air space between landfill sites to sustain communication between the landfill systems. • Potential for ground stability / compaction issues to be considered for any peered structures. • Sydney Metro West tunnel under construction. • Exclusion zone around tunnel may impact works and building footprints in close proximity. • Technical studies provided for Sydney Metro West project predict possible change in groundwater direction towards the station box excavation. (*Detailed Site investigation - Sydney Olympic Park Construction Site, April 2022 prepared by Acciona Construction Pty Ltd & Ferrovial Construction Pty Ltd Venture – 0628507_02_R01*) • Change in groundwater direction may result in an increase in landfill gas and vapours and increased risk to human health. Impact may not occur for many years and cannot be assessed at this time. • NSW EPA approval required.

<u>Way Forward - Master Plan 2050 -</u> Former Golf Driving Range (excluding Bicentennial Marker)

The proposed land use of events and sports and associated uses, recreational space and services (carparking) over the Former Golf Driving Range Landfill (excluding the area of the Bicentennial Marker) is suitable provided the land use does not impact the ongoing integrity of the waste containment cell or restrict access to remediated landfill infrastructure including the leachate drains and piezometers. The following steps apply in relation to any proposal:

- Early input from SOPAs Remediated Landfill Team for any proposed change in land use or new structures.

- All works to be undertaken in accordance with the input provided by the Remediated Lands Team and the relevant requirements of the Remediated Lands Management Plan.
- Detailed design with technical input from suitably qualified contaminated sites expert accredited under the NSW EPA scheme, if required.
- If required, engage a suitably qualified Site Auditor accredited under the NSW EPA scheme to provide input into detailed design, approve relevant plans and provide the final Site Audit Report and Site Audit Statement for any proposed change of use or delivery of new structures.
- Once works are completed, ensure that an occupation certificate for any structures or land use that require Site Auditor signoff is not issued until:
    - the relevant Site Audit Report and Site Audit Statement has been issued;
    - the Site Audit Statement identifies that the proposed use is suitable or can be made suitable for the proposed use;
    - Any conditions set out in the Site Audit Statement or Site Audit Report including the need to develop and implement any Long-term Environmental Management Plan for the site have been completed and approved by the Site Auditor;
    - Ongoing responsibility for implementation of any LTEMP has been provided for as a condition of lease (if relevant)

Way Forward - Master Plan 2050 – Bicentennial Marker

Based on the information currently available, the proposed land use for the Bicentennial Marker as residential area as shown in Master Plan 2050 is possible. The following steps apply in relation to any proposal:

- All works to be undertaken in accordance with the input provided by the Remediated Lands Team and the relevant requirements of the Remediated Lands Management Plan.
- Detailed design with technical input from suitably qualified contaminated sites experts and engineers accredited under the NSW EPA scheme.
- For any new structures, undertake a detailed assessment of ground conditions to inform design.
- Ensure that any new structures and excavations do not compromise the stability and integrity of the adjoining main landfill body. It is unknown whether the waste mound of the Bicentennial Marker is connected to the main landfill body or an isolated waste cell. It is noted that there is a significant difference in ground level height between the western/south-western foot of the Marker and the foot on the eastern/north-eastern side. If the Marker didn't exist, the main landfill body would slope downwards to Sarah Durack and Australia Avenue. Proposed design and works must be carefully planned to prevent collapse of the northern part of the main landfill body that is adjoining the Marker which could result in exposure of waste, emissions of hazardous ground gases and release of landfill leachate.
- Engage a suitably qualified Site Auditor accredited under the NSW EPA scheme to provide input into detailed design, approve relevant plans and provide the final Site Audit Report and Site Audit Statement for any proposed change of use.
- Conditional land owners' consent to be provided to manage remediated landfill risks for works that do not trigger the requirement for planning consent.
- For any proposal that requires planning consent, seek advice from the Remediated Lands Team to ensure appropriate conditions of consent are included in the planning consent.
- Before commencing any works, obtain NSW EPA approval (if required) or provide notification of the works. NSW EPA approval is required for excavation works deeper than 0.6m and any works beyond those conditionally approved by NSW EPA and set out in Section 8 of the Sydney Olympic Park Remediated Lands Management Plan 2022. *Note that as the holder of the CLM Act*

Notice, the Authority must seek the approval of the NSW EPA on behalf of a proponent.

- An appropriate distance between the existing landfill gas extraction system and any new structures and maintain ongoing access to gas extraction system.
- An appropriate distance between the existing landfill leachate gravity drain and any new structures and maintain ongoing access to the gravity drain.
- The current ground conditions and Metro tunnel may result in an increase in landfill gas and vapours that may present an unacceptable risk of harm.
- Detailed site investigations cannot be undertaken at this time as the impact of the tunnel on groundwater and landfill gas is not expected to occur for many years
- Tunnel offsets may limit the placement of buildings piers.
- Any buildings delivered must not prevent radio communication between landfills.
- Once works are completed, ensure that an occupation certificate for any structures or land use that require Site Auditor signoff is not issued until:
    - the relevant Site Audit Report and Site Audit Statement has been issued;
    - the Site Audit Statement identifies that the proposed use is suitable or can be made suitable for the proposed use;
    - Any conditions set out in the Site Audit Statement or Site Audit Report including the need to develop and implement any Long-term Environmental Management Plan (LTEMP) for the site have been completed and approved by the Site Auditor; and
    - Ongoing responsibility for implementation of any LTEMP has been provided for as a condition of lease (if relevant).

5.6 Haslams Reach / P5 Carpark and Stage 3 System

Former names: Elcom site (1950s to 1980s), Haslams Creek North, Hill Rd Car Park

<u>Site history</u>

Haslams Reach and the P5 Car Park cover an area of 21 hectares adjoining Haslams Creek and Nuwi Wetland. The area was originally part of Wentworth Bay. From the late 1950s until the late 1980s the area was used for the uncontrolled tipping of power station ash, demolition waste and small amounts of other waste.

Remediation involved sorting, consolidation and final capping of the landfill combined with extraction and treatment of leachate generated from the site. Demolition waste was excavated

from the entire site and separated into material suitable for reuse (hardfill) and unusable material (timbers and plastic). The hardfill was crushed and laid in the northern region of the site as an engineered base. A layer of geofabric was installed every 750mm in the fill. The unusable material was placed with fly ash and other waste in a 4 - 5 metre high disposal mound at the South-eastern corner of the site.

An additional 5 - 6 metre high disposal mound was constructed in the south-western corner from contaminants imported from other Homebush Bay sites. Both of the disposal mounds were capped with clean imported clay.

A leachate collection and transfer system was installed for ongoing management of leachates. The drain was installed to below mean low tide level with the design intent that leachate will not leave the site provided the liquid level in the drain is kept below mean tide level. Membranes installed at the drain adjacent to waterways provide an additional safety factor.

The drains are graded so that the collected leachate flows to a pumping pit where leachate is stored before it is transferred to storage tanks. From the tanks, the combined Haslams Reach North and Archery Park leachate is either discharged to LLWP or to a series of eight evaporation ponds located at the back of the P5 Car Park, adjacent to Haslams Creek.

Remediation was completed by May 1997 and the area developed for car parking (14 hectares) with perimeter grasslands. The site is bisected by the Holker Street Busway.

Landfill	**Approved Land Uses**	**Proposed Uses (Master Plan 2050)**	**Site Specific Considerations**
Haslams Reach North / P5 Part Lot 16 DP 1110035	Carpark, parkland, BMX track Stage 3 Alternative Leachate Management System (restricted access compound)	Events and Sport Recreational Space Conservation area	• Proximity to receiving waters, sensitive habitat • Potential to encounter asbestos wastes • Potential for ground stability / compaction issues to be considered for any peered structures • Requirement to maintain ongoing access to leachate rising main pump and valve pits, manholes and gravity drains limits the location of any proposed buildings • Expansion of ecological areas must consider impacts on remediated landfill infrastructure. o Ponds or other water bodies generally not supported over the waste containment area. o Expansion of estuarine areas or habitat should not extend over remediated lands or remediated landfill drains to allow ongoing access – noting the drains run between the P5 carpark and the creek and part of this corridor will need to be maintained. o Suitable planting with consideration of proximity to remediated landfill infrastructure - consultation with remediated lands team required • No works within, or access to, the T26 compound permitted noting this area is an exclusion zone to prevent primary contact with leachates.

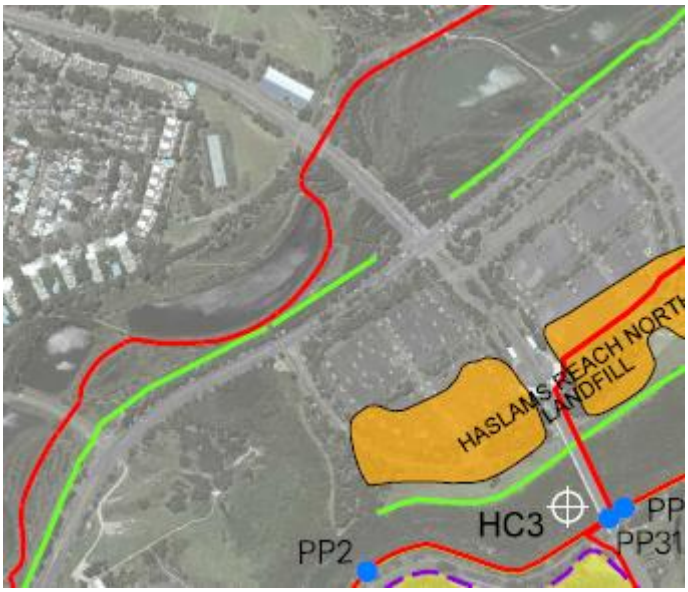
<u>Way Forward - Master Plan 2050</u>

The proposed land use of events and sports, recreational space and conservation area over the Haslams Reach / P5 Car Park is suitable provided the land use does not impact the ongoing integrity

of the waste containment cell or restrict access to remediated landfill infrastructure including the leachate drains and piezometers. The following steps apply in relation to any proposal:

- Early input from SOPAs Remediated Landfill Team for any proposed change in land use or expansion of environmental conservation areas.
- All works to be undertaken in accordance with the input provided by the Remediated Lands Team and the relevant requirements of the Remediated Lands Management Plan.
- Detailed design with technical input from suitably qualified contaminated sites expert accredited under the NSW EPA scheme, if required.
- If required, engage a suitably qualified Site Auditor accredited under the NSW EPA scheme to provide input into detailed design, approve relevant plans and provide the final Site Audit Report and Site Audit Statement for any proposed change of use.
- Once works are completed, ensure that an occupation certificate for any structures or land use that require Site Auditor signoff is not issued until:
    - the relevant Site Audit Report and Site Audit Statement has been issued;
    - the Site Audit Statement identifies that the proposed use is suitable or can be made suitable for the proposed use;
    - Any conditions set out in the Site Audit Statement or Site Audit Report including the need to develop and implement any Long-term Environmental Management Plan for the site have been completed and approved by the Site Auditor;
    - Ongoing responsibility for implementation of any LTEMP has been provided for as a condition of lease (if relevant)

5.7 Hill Road Cut-Off Wall



Site history

Hill road separates Newington Village from the Sydney Olympic Park site. It runs north from Parramatta Road crossing over Haslams Creek and continuing up to the intersection with Bennelong Road (adjacent to Woo-la-ra landfill).

The Hill Road Cut-off Wall is different to any other remediated site. The system consists of a leachate drain and collection pits only, it is not a complete remediated landfill system. It is essentially a 1.15km leachate drain, located parallel to the northern side of Hill Road. The cut-off wall consists of two sections, the combination of which extends from Haslams Creek to the Nuwi Wetland overflow channel. There is a small break where Holker Street was constructed.

Remediation works have been undertaken on both sides of Hill Road. Due to the complex nature of the remediation works at the site, waste was not removed from beneath the road (Hill Road is owned by Auburn Council).

The Hill Road Cut-off Wall was constructed on the down gradient side of the road, to protect the constructed wetlands and Haslams Creek. The leachate collection drains collect any potentially contaminated leachate generated and prevent it from flowing into the adjacent Narawang Wetland.

Construction was completed in 2000. The leachate interception and pumping system continues to be maintained for system integrity, however, historical monitoring of the leachate drain and collection pits has found the landfill is actually hydraulically separated from the adjacent wetlands and creek.

Landfill	Approved Land Uses	Proposed Uses (Master Plan 2050)	Site Specific Considerations
Hill Road Cut-off Wall Part Lot 3020 DP879226	Roadway	Roadway	Any upgrade to the roadway or addition of new light poles or services must consider protection of the leachate drains and collection pits.

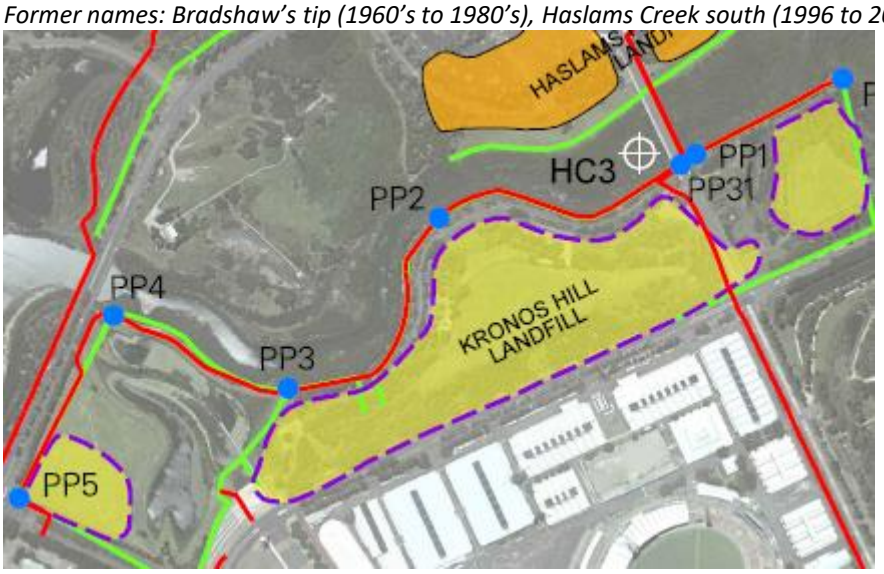
Way Forward - Master Plan 2050

The current land use of roadway remains unchanged under Master Plan 2050. Any road works to resurface or widen the roadway or provide additional lighting or other services must ensure works do not impact the ongoing integrity of the leachate drains and collection pits. The following steps apply in relation to any proposal:

- Early input from SOPAs Remediated Landfill Team for any proposed works.
- All works to be undertaken in accordance with the input provided by the Remediated Lands Team and the relevant requirements of the Remediated Lands Management Plan.

5.8 Kronos Hill

Former names: Bradshaw's tip (1960's to 1980's), Haslams Creek south (1996 to 2000)



Site history

From the mid 1960's, the site of Kronos Hill was subject to uncontrolled landfilling, including

putrescibles, commercial and industrial wastes, demolition rubble and other unknown material. By 1985 the landfill existed as a 15 metre high mechanically unstable mound covering an area of approximately 34 hectares with reported leachate movement from the mound into Haslams Creek.

Following extensive investigations, a staged strategy for the remediation, commencing with construction of a leachate and transfer system to stop leachate flow into the creek was undertaken. Previous studies identified that groundwater essentially flowed toward the north-eastern corner of the landfill and thus leachate collection was limited to the northern and eastern boundaries. Work on the leachate collection system was carried out between May 1993 and February 1994.

The next step was the construction of a gabion retaining wall to provide mechanical stability to the northern face of the landfill facing Haslams Creek. The gabion structure is a 15 metre high tiered wall with a sub-soil drainage system to drain and collect water from behind the wall. At the western end, past the Northern Water Feature, uncontaminated fill (largely road base and construction rubble) was sculpted to form the "Pyramid Marker". However some putrescible waste is also within this mound.

Once the wall was complete, an additional amount of waste excavated from around the site (approximately 500,000m^3) was stockpiled on top of the existing mound. The addition of this material resulted in the 25 metre high mound featured in the centre of the site today. The landfill was finally capped with 1 metre of clay, the surface soil underwent soil improvement processes before the mound was landscaped. Remediation was effectively complete by the end of 1996.

The Kronos Hill landfill and leachate interception and pumping system requires ongoing management to ensure system integrity and environmental protection, and to meet legal requirements.

The remediated lands at Kronos Hill was constructed to maximise the collection of contaminated groundwater and to minimise Volatile Organic Compound (VOC) emissions. Leachate collection drains and automatic pumping ensures that groundwater is captured and the surrounding environment is not affected.

Soil VOC emanation from the landfill is controlled by maintaining a fertile grass cover over the landfill surface.

Landfill	**Approved Land Uses**	**Proposed Uses (Master Plan 2050)**	**Site Specific Considerations**
Kronos Hill **(Regulated - CLM Act Notice No 28040)** Part Lot 16 DP1110035 Part Haslams Creek -no ID	Parkland Stage 3 Alternative Leachate Management System above ground leachate tanks and pump station PP31 under Holker Busway commissioned 23/09/2020	Environment conservation area	• Putrescible waste; industrial, construction, asbestos and other waste present • Landfill gas, Volatile Organic Compounds (VOCs) – the fertile grass cover over the landfill is used to minimise potential for migration of VOC and landfill gas to the surface. Consideration should be given to this function for any proposed change on the landfill surface. • Amenities buildings, shade structures, lighting or other services must be designed appositely to prevent gas and / VOC migration to the surface or into buildings. • Ignition sources including barbeques are generally not suitable for the site. Alternative options could be considered with input from suitably qualified experts. Requirement to maintain ongoing access to leachate rising mains, pump and valve pits, manholes, monitoring piezometers and gravity drains and continue groundwater and subsurface

			gas monitoring • The existing gabion walls are a structural component of the remediated landfills and must be maintained. • Ongoing erosion of the Haslams Creek river bank on the northern batter of Kronos Hill Landfill. Bank stability must be maintained to prevent collapse of landfill batter which could result in severe harm to the environment and human health. • Existing habitat ponds must be maintained to a standard that prevents ingress of water into the landfills. Disused ponds or ponds beyond repair should be decommissioned to prevent water pooling. • Expanding of existing ponds, new ponds generally not supported as they present a risk of increased water ingress, generation of additional leachate and instability of landfill batters.

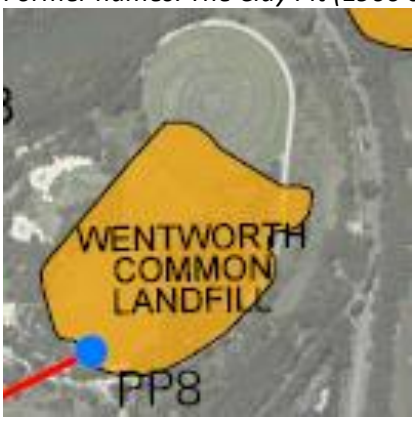
Way Forward - Master Plan 2050

The proposed land use of environmental conservation area is consistent with the existing approved land use. New structures or services such as lighting, CCTV or shade structures must not impact the ongoing integrity of the waste containment cell or restrict access to remediated landfill infrastructure. The following steps apply in relation to any proposal:

- Early input from SOPAs Remediated Landfill Team on any proposed new structures or changes to existing land use.
- All works to be undertaken in accordance with the input provided by the Remediated Lands Team and the relevant requirements of the Remediated Lands Management Plan.
- Detailed design with technical input from suitably qualified contaminated sites experts if required.
- If required, engage a suitably qualified Site Auditor accredited under the NSW EPA scheme to provide input into detailed design, approve relevant plans and provide the final Site Audit Report and Site Audit Statement for any proposed change of use.
- Conditional land owners' consent to be provided to manage remediated landfill risks for works that do not trigger the requirement for planning consent.
- For any proposal that requires planning consent, seek advice from the Remediated Lands Team to ensure appropriate conditions of consent are included in the planning consent.
- Before commencing any works, SOPA to obtain NSW EPA approval (if required) or provide notification of the works. NSW EPA approval is required for excavation works deeper than 0.6m and any works beyond those conditionally approved by NSW EPA and set out in Section 8 of the Sydney Olympic Park Remediated Lands Management Plan 2022.
- Once works are completed, ensure that an occupation certificate for any structures or land use that require Site Auditor oversight is not issued until:
    - the relevant Site Audit Report and Site Audit Statement has been issued;
    - the Site Audit Statement identifies that the proposed use is suitable or can be made suitable for the proposed use;
    - Any conditions set out in the Site Audit Statement or Site Audit Report including the need to develop and implement any Long-term Environmental Management Plan for the site have been completed and approved by the Site Auditor;
    - Ongoing responsibility for implementation of any LTEMP has been provided for as a condition of lease (if relevant)

5.9 Wentworth Common

Former names: The Clay Pit (1900's to 1996), The Village Green (1999 – 2001)



Site history

Wentworth Common was formerly an excavated pit, approximately 11 metres deep, adjacent to the northern tip of the Brick Pit. The pit formed part of the former state brickworks and was used as a primary source of clay for brick making. Following closure of the brickworks, it was utilised by local councils for the disposal of municipal waste. The filling activities continued through the early 1980s and saw a variety of food scraps, vegetation, paper, rubber, plastic, timber and metal debris disposed of within the pit. The putrescible waste was overtopped with approximately 1.5 metres of crushed concrete and up to one metre of mixed validated fill. A leachate collection system was constructed as the pit was filled. The collection system involved a well and pump out system on the eastern side of the site. The collection system was decommissioned following completion of waste disposal.

Shortly after the completion of waste disposal, an attempt was made to install a gas extraction system. This failed because of the high level of leachate present over the entire site, just below the ground surface.

Subsequent site investigations and groundwater modelling showed that there was no detectable outflow from the Clay Pit, although there was a potential flow path that posed a contamination threat to Haslams Creek. However, this could be managed if the liquid level within the clay pit was below tide level to ensure leakage could not occur.

The Wentworth Common leachate system was designed as a precaution, on the basis that leachate remained below mean low tide level (RL99.5) and any potential flows would be from Homebush Bay to the pit and not vice versa. These works were undertaken between 1994 and 1995.

Following remediation, the Wentworth Common landfill was developed for use as parklands and recreational open space.

The Wentworth Common landfill and leachate interception and pumping system require ongoing management to ensure system integrity and environmental protection, and to meet legal requirements.

Landfill	Approved Land Uses	Proposed Uses (Master Plan 2050)	Site Specific Considerations
Wentworth Common Part Lot 16 DP1110035	Parkland	Recreational Space Services	• Clay pit design requires consideration and may make the site unsuitable for significant structures. • Historical landfilling included putrescible wastes. While landfill gas is not known to occur at the ground surface in this area, shade structures, lighting or other services must be designed appositely to minimise potential for any gas present coming to the surface. • Requirement to maintain ongoing access to leachate rising mains, pump and valve pits and gravity drains.

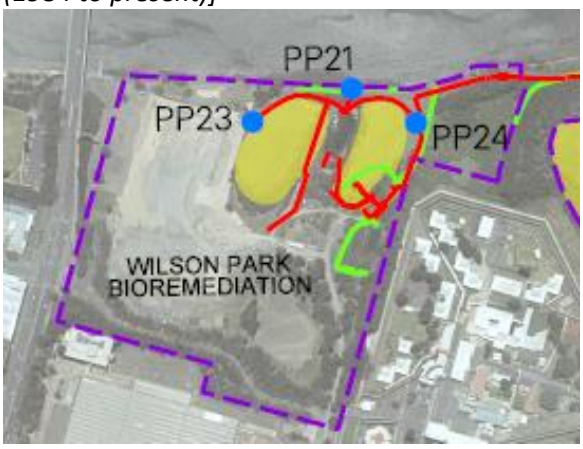
Way Forward - Master Plan 2050

The proposed land use of recreational space and services over the area of Wentworth Common landfill is suitable provided the land use does not impact the ongoing integrity of the waste containment clay pit design or restrict access to remediated landfill infrastructure including the leachate drains and piezometers. The following steps apply in relation to any proposal:

- Early input from SOPAs Remediated Landfill Team for any proposed change in land use or expansion of ecological areas.
- All works to be undertaken in accordance with the input provided by the Remediated Lands Team and the relevant requirements of the Remediated Lands Management Plan.
- Detailed design with technical input from suitably qualified contaminated sites expert accredited under the NSW EPA scheme, if required.
- If required, engage a suitably qualified Site Auditor accredited under the NSW EPA scheme to provide input into detailed design, approve relevant plans and provide the final Site Audit Report and Site Audit Statement for any proposed change of use.
- Once works are completed, ensure that an occupation certificate for any structures or land use that require Site Auditor signoff is not issued until:
    - the relevant Site Audit Report and Site Audit Statement has been issued;
    - the Site Audit Statement identifies that the proposed use is suitable or can be made suitable for the proposed use;
    - Any conditions set out in the Site Audit Statement or Site Audit Report including the need to develop and implement any Long-term Environmental Management Plan for the site have been completed and approved by the Site Auditor;
    - Ongoing responsibility for implementation of any LTEMP has been provided for as a condition of lease (if relevant).

5.10 Wilson Park

[Formerly known as: Carnarvon Golf Course (1920's to WW II), PACCAL (1954 to 1974), Wilson Park (1984 to present)]



Site history

Wilson Park covers an area of approximately 13 hectares adjacent to the Parramatta River. Previous industrial activities left a legacy of approximately 50,000 tonnes of hydrocarbon waste buried at the site, which posed a threat to the environment and human health.

Between 1954 and 1974, Petroleum and Chemical Corporation Australia Limited (PACCAL) manufactured town gas from crude oil at the Wilson Park site. As well as town gas, road tar and other organic chemicals were manufactured. The activity produced hydrocarbon waste (tar sludge) which was disposed of in two on-site clay lined pits. When the plant closed and the site was decommissioned, a portion of the tar sludge was mixed with crushed sandstone and spread over the north-west portion of the site. Some was also removed and disposed at North Newington (Woo-la-ra). However, the majority of the tar sludge remained buried at the site.

The park was subsequently developed with playing fields, a playground and barbecue facilities. It was closed in 1992 however, due to public health concerns, when strong odours and a number of tarry seeps were noted.

The remediation strategy at the site consisted of two stages. Stage 1 was designed to prevent the migration of pollutants into the Parramatta River by constructing a leachate containment and collection system on the down-gradient side of the buried tar pits. Stage 1 works also featured the removal of contaminated sediments from the river foreshore. These sediments and other contaminated soils from the site were stockpiled on top of the historical tar ponds to form two mounds. Stage 1 works were undertaken in 1997.

Stage 2 works were undertaken in 2000 with the objective of returning as much of Sydney Olympic Park as possible to open space public use. These works comprised a combination of containment and bioremediation. In particular, the works involved the removal of several contamination 'hot spots' (with subsequent validation and backfilling), capping of the mounds, extension of the existing cut-off wall, installation of an additional collection system to collect contaminated groundwater from the lower sand lens aquifer, installation of a sheet-pile wall to restrict flow from the lower sand aquifer, construction of an additional two treatment ponds to complement the existing one and the installation of a contingency pipeline to discharge treated water to the Lidcombe Liquid Waste Plant (LLWP).

Approximately three quarters of the park was reopened to the public by 2004 as playing fields and recreational space. The remaining section in the north east quarter of the site is where the two containment mounds and groundwater treatment ponds are located. This area is restricted access.

In 2013 the Blaxland Sustainable Leachate Treatment Wetlands were constructed in the north-east quarter of the site. The constructed wetlands are located between the eastern waste mound, the wetlands and Silverwater Correctional Centre.

In 2019 State Significant Development SSD-10354 development consent was granted for a state–of-the-art year-round training and administration facility for NSW Cricket including delivery of an International Cricket Council compliant cricket oval and associated seating, a community cricket oval, outdoor practice nets with 71 wickets, indoor training facility, two- storey centre of excellence including an internal atrium, gymnasium, community facilities, medical centre and business offices, associated car parking and a single storey shed for machinery. A site auditor accredited under the CLM Act was engaged oversee the delivery of the works and issue the relevant site audit statements required for the site and to review and approve the key documents that would need to be developed to manage the risks associated including a Contamination Management Plan, Construction Environmental Management Plan, Soil / Vapour Ground Gas Mitigation System Design and Soil / Vapour Gas Management Plan.

At Wilson Park, the groundwater is contaminated with water soluble hydrocarbons such as BTEX, phenols and PAHs. To ensure the contaminated water is intercepted before it can flow beyond the site boundaries, Wilson Park is serviced by two groundwater interception and leachate collection systems. One is located in a shallow groundwater aquifer (approximately 4m below the ground surface) and the other in the deep sand lens aquifer (approximately 12m below the ground surface).

Collected leachate drains via gravity to one of a series of pumping pits before being pumped to treatment ponds within the Bioremediation Compound. Treated leachate is disposed of via evaporation or discharge to the Parramatta River.

Landfill	**Approved Land Uses**	**Proposed Uses (Master Plan 2050)**	**Site Specific Considerations**

Wilson Park (Parkland) **(Regulated - CLM Act Notice No 28040)** Part Lot C DP421320 **(Bioremediation area)** **(Regulated - CLM Act Notice No 28040)** Part Lot C DP421320 **Wilson Park (wetlands)** **(Regulated - CLM Act Notice No 28040)** Part Lot 419 DP 824053 Part Lot 423	Park, recreational open space, playing field **- Site Audit Statement FM07A** Blaxland Sustainable Leachate Treatment Wetlands to treat landfill leachate constructed at Wilson Park in 2013 2022/2023 - Cricket NSW Centre for Excellence at Wilson Park – **Site Audit Statement (in progress).** North-East Sector - Not suitable for any beneficial use due to the risk of harm from contamination - **Site Audit Statement FM07B** Passive recreation (conditional on restriction of public access to surface water and sediments - **Site Audit Statement FM07C**	Events and Sports Recreational Space Services	• A large portion of the site is currently approved for use as part of the NSW Cricket Centre development. Area is regulated under the CLM Act Notice and subject to a Long-Term Environmental Management Plan. • Hazardous ground gases and wastes present. Detailed site assessment required for any new structures. • No public access permitted into the Wilson Park Bioremediation compound. Area is not suitable for any beneficial reuse due to the location of the tar pits beneath the waste mounds. • Access road from the Wilson Park gates to the Bioremediation Compound must be maintained to allow access for large vehicles and tankers. • Foreshore pathway access from the Cricket NSW Car Park to the pedestrian gate adjacent to PP23 must be maintain for access to large tankers to service the pump pit. • Bioremediation compound is a leachate treatment system. No expansion or enhancement of ecological space permitted within the Bioremediation compound. • Tarry odours may occur periodically in the area of the containment mounds, pond or pump pits including the pump pit along the foreshore. • A cut off wall is installed into the sediments along the river and mut be maintained. • Areas along the foreshore may contain entombed wastes. Careful investigation is required for any proposed structures. Light weight structures anchored onto the existing sealed surface or a reinforced surface may be more suitable. • Consideration of existing lease over a large part of the Wilson Park site and any rights under those leases may constrain future uses. • Requirement to maintain ongoing access to leachate rising mains, pump and valve pits, groundwater monitoring piezometers and gravity drains. Ongoing groundwater monitoring.

Way Forward - Master Plan 2050

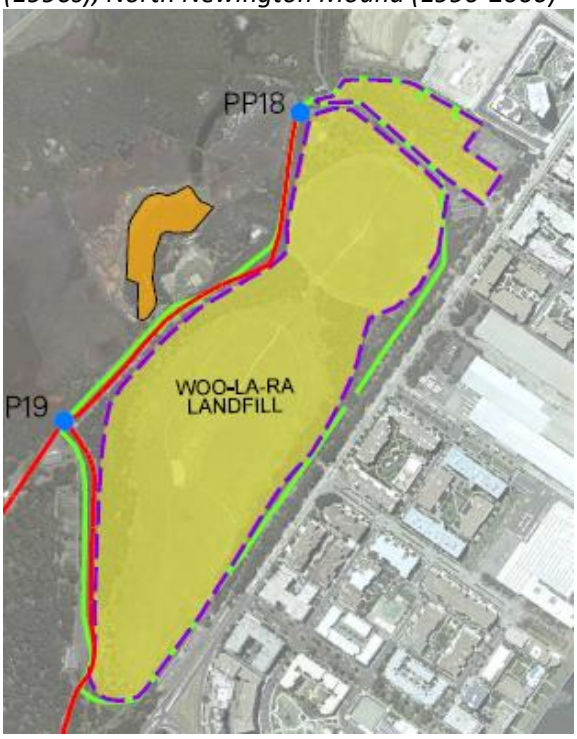
The proposed land use of events and sports, recreational space and services is consistent with the existing approved land uses. For areas outside the Bioremediation Compound, any new structures or uses in must not impact the ongoing integrity of the waste containment cell or restrict access to remediated landfill infrastructure. The following steps apply in relation to any proposal:

- Early input from SOPAs Remediated Landfill Team on any proposed new structures or changes to existing land use.
- All works to be undertaken in accordance with the input provided by the Remediated Lands Team and the relevant requirements of the Remediated Lands Management Plan and Long Term Environmental Management Plan where relevant.
- For any new structures, undertake a detailed assessment of ground conditions to inform design
- Detailed design to be undertaken with technical input from suitably qualified contaminated sites experts if required.
- If required, engage a suitably qualified Site Auditor accredited under the NSW EPA scheme to provide input into detailed design, approve relevant plans and provide the final Site Audit Report and Site Audit Statement for any proposed change of use.
- Conditional land owners' consent to be provided to manage remediated landfill risks for works that do not trigger the requirement for planning consent.

- For any proposal that requires planning consent, seek advice from the Remediated Lands Team to ensure appropriate conditions of consent are included in the planning consent.
- Before commencing any works, SOPA to obtain NSW EPA approval (if required) or provide notification of the works. NSW EPA approval is required for excavation works deeper than 0.6m and any works beyond those conditionally approved by NSW EPA and set out in Section 8 of the Sydney Olympic Park Remediated Lands Management Plan 2022.
- Once works are completed, ensure that an occupation certificate for any structures or land use that require Site Auditor oversight is not issued until:
    - the relevant Site Audit Report and Site Audit Statement has been issued;
    - the Site Audit Statement identifies that the proposed use is suitable or can be made suitable for the proposed use;
    - Any conditions set out in the Site Audit Statement or Site Audit Report including the need to develop and implement any Long-term Environmental Management Plan for the site have been completed and approved by the Site Auditor;
    - Ongoing responsibility for implementation of any LTEMP has been provided for as a condition of lease (if relevant)

5.11 Woo-la-ra

Former names: RANAD Tip (1970's), North Newington Landfill (1980's), Homebush North Landfill (1990s), North Newington Mound (1990-2000)



Site history

Woo-la-ra is located in the north of Sydney Olympic Park adjacent to Newington Nature Reserve, and covers an area of approximately 23 hectares. During the 1970's the area was used to dump a variety of domestic and industrial wastes. The site was a major consolidation mound, receiving waste from around Homebush Bay as well as ordnance waste from the adjacent Royal Australian Navy Armament Depot. The final containment structure was a single landfill mound approximately 28 metres high containing over one million cubic metres of waste.

The corridor north of Hill Road (between the M4 Motorway and Parramatta River) was used for the dumping of domestic, commercial and industrial waste during the 1960s and 1970s. In the late 1970's approximately 3,000 tonnes of tarry waste from the PACCAL gas works site at Wilson Park, was buried in the northern corner adjacent to the saltwater wetlands. This tarry waste was later found to be seeping into these wetlands.

Remediation works during 1998 and 1999 resulted in more than one million cubic metres of contaminated material being consolidated at the northern end of Hill Road to form the 28 metre high Woo-la-ra Mound. The waste included chemical residues, tarry waste, putrescible waste and construction rubble.

During excavations of waste at East Newington, a number of clusters of drum remnants were uncovered. Some of the material was classified as scheduled chemical waste and was subsequently treated to destroy hazardous components prior to its ultimate disposal off-site. The remaining non-scheduled chemical waste was buried in purpose built cells within Woo-la-ra.

Remediation was effectively complete by mid-2000 when the rising main to transport leachate to LLWP was constructed and the site was landscaped. The Site Audit Statement (WCFM06) certifies Woo-la-ra suitable for use as "Park, recreational open space":

The Woo-la-ra landfill and leachate interception and pumping system require ongoing management to ensure system integrity and environmental protection, and to meet legal requirements.

Landfill gas exceeding the adopted criteria is detected at the Woo-la-ra and must be included as a key consideration in relation to any proposed land use.

A tar drain was installed on the western side of the Woo-la-ra landfill after tar seeps were observed migrating across the pedestrian pathway towards the Newington Nature Reserve. The drain requires annual cleaning out to remove excess tar waste. Localised odours can occur.

Landfill	**Approved Land Uses**	**Proposed Uses (Master Plan 2050)**	**Site Specific Considerations**
Woo-la-ra **(Regulated - CLM Act Notice No 28040)** Part Lot 3020 DP879226	Parkland, recreational open space - **Site Audit Report WCFM06** Tar drain rebuilt 2007	Recreational Space Conservation area	• Domestic, commercial, industrial (chemicals, tar) and unexploded ordnance waste. • Hazardous ground gases present. Detailed site assessment required for any new structures. Amenities buildings, shade structures, lighting or other services must be designed appropriately to prevent gas migration to the surface or into service pits or buildings. • Ignition sources including barbeques are generally not suitable. Alternative options could be considered with input from suitably qualified experts. • Activities such as back burning of vegetation are not appropriate. Plant selection and landscape management must be considered. • Requirement to maintain ongoing access to leachate rising mains, pump and valve pits, groundwater monitoring piezometers, tanks, oil separator and gravity drains. Ongoing groundwater and landfill gas monitoring. • Requirement for space for a new leachate management system for Woo-la-ra to remove reliance on liquid waste treatment plant • The vegetated surface of the landfill functions to prevent landfill gas and vapours coming to the surface.

			Use of the area should not result in increased erosion of the landfill surface or creation of desire lines which would compromise function. • Suitable planting with consideration given to proximity to remediated landfill infrastructure required. • Habitat ponds generally not supported as they present a risk of increased water ingress, generation of additional leachate and instability of landfill batters. • Tar collection drain and tar collection pits located of western side of the landfill can cause periodic localised odours • Area known as the Triangle Transport Site, located at end of the Woo-la-ra Landfill between the marker and Sekisui House development is constrained by the Parramatta Light Rail line, which will cut through the area and the Ausgrid high voltage electricity easement, which exists over the entire area. These may restrict types of activities, land uses and planting / landscaping.

Way Forward - Master Plan 2050

The proposed land use of recreational space and conservation area open space / passive recreation and ecology is consistent with the existing approved land use. New structures or uses must not impact the ongoing integrity of the waste containment cell or restrict access to remediated landfill infrastructure including the tar drains. The following steps apply in relation to any proposal:

- Early input from SOPAs Remediated Landfill Team on any proposed new structures or changes to existing land use.
- For any new structures, undertake and assessment of ground conditions to inform design if required noting the presence of asbestos wastes at depth.
- Detailed design with technical input from suitably qualified contaminated sites experts if required.
- If required, engage a suitably qualified Site Auditor accredited under the NSW EPA scheme to provide input into detailed design, approve relevant plans and provide the final Site Audit Report and Site Audit Statement for any proposed change of use.
- Conditional land owners' consent to be provided to manage remediated landfill risks for works that do not trigger the requirement for planning consent.
- For any proposal that requires planning consent, seek advice from the Remediated Lands Team to ensure appropriate conditions of consent are included in the planning consent.
- Before commencing any works, SOPA to obtain NSW EPA approval (if required) or provide notification of the works. NSW EPA approval is required for excavation works deeper than 0.6m and any works beyond those conditionally approved by NSW EPA and set out in Section 8 of the Sydney Olympic Park Remediated Lands Management Plan 2022.
- Once works are completed, ensure that an occupation certificate for any structures or land use that require Site Auditor oversight is not issued until:
    - the relevant Site Audit Report and Site Audit Statement has been issued;
    - the Site Audit Statement identifies that the proposed use is suitable or can be made suitable for the proposed use;
    - Any conditions set out in the Site Audit Statement or Site Audit Report including the need to develop and implement any Long-term Environmental Management Plan for the site have been completed and approved by the Site Auditor;
    - Ongoing responsibility for implementation of any LTEMP has been provided for as a condition of lease (if relevant)

6 GLOSSARY

Environmental Management Plan	A site specific plan that describes how project works might impact on the environment and set out clear commitments for taking the action to avoid, minimise and manage impacts to ensure they are environmentally acceptable.
Hazard	A source of potential harm or a situation with a potential to cause loss.
Landfill	Solid or liquid waste disposed of by burial in the ground.
Leachate	Contaminated groundwater produced by landfill sites when water infiltration, waste decomposition and natural groundwater 'flush' contaminants out of the waste.
Licensed facility	Facility or contractor given a licence under the POEO Act 1997 to transport, process or store waste.
LTEMP	Long Term Environment Management Plan - describes how an action might impact on the natural environment in which it occurs and set out clear commitments from the person taking the action on how those impacts will be avoided, minimised and managed so that they are environmentally acceptable.
LLWP	Lidcombe Liquid Waste Plant, located on Hill Road.
Park	Land specifically excluded from traditional development and set aside for the conservation or protection of natural features. May be developed for public use and recreation. Further defined as local, district or regional, as well as active or passive.
Recreational Open Space	Land held in public ownership for present and/or intended use as sports grounds and other active recreation areas, as well as playgrounds, bushland reserves and vantage points. Generally excludes golf courses, private facilities, verges (rail, road, airport), business parks, parking lots, streets, urban spaces, squares and stadiums.
Playing field	Areas reserved or maintained as outdoor playing space principally for organised pitch sports.
Remediation Action Plan	A plan that outlines the nature and extent of contamination of the project site and how that contamination is to be managed and includes validation requirements to demonstrate that contamination has been managed.
Remediated Land	Repair or modification to land to rectify past impact so they become safe for the specified use(s).
Risk	The chance of something happening that will have an impact upon the objectives. It is measured in terms of the potential hazard and likelihood and includes economic, environmental, social and legal risks.
Site Auditor	A suitably qualified professional accredited by the NSW Environment Protection Authority under the site auditor scheme administered under Part 4 of the *Contaminated Land Management Act 1997* (CLM Act) to review investigation, remediation, and validation work done undertake by contaminated land consultant.
Stakeholders	People and organisations who may affect or be affected (or perceive themselves to be affected) by a decision or activity. They may also include interested parties.

7 BIBLIOGRAPHY

Sydney Olympic Park Authority Remediated Lands Management Plan, Version 2.2 May 2022