Kadaltilla
Adelaide Park Lands Authority

South Park Lands Creek – Open Channel Stormwater Projects

Thursday, 26 June 2025
Board Meeting

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Public

Purpose

This report presents the proposal for stormwater channel rehabilitation works to reaches of South Park Lands Creek within Pelzer Park / Pityarilla (Park 19) and Blue Gum Park / Kurangga (Park 20) as part of two connected Open Channel Stormwater Rehabilitation projects.

The project will address the concerns relating to the poor condition and ongoing erosion of the open stormwater channel, while conserving the existing mature trees, enhancing Park Lands safety and accessibility, and appropriately managing stormwater. The project has additionally incorporated works to improve the biodiversity and amenity of these sections of watercourse.

Recommendation

THAT THE KADALTILLA / ADELAIDE PARK LANDS AUTHORITY ADVISES COUNCIL:

That the Kadaltilla / Adelaide Park Lands Authority:

1. Supports the preferred concept design options for Pelzer Park / Pityarilla (Park 19) - Option 2 (Riffles and Bank Rehabilitation) and Blue Gum Park / Kurangga (Park 20) - Option 3 (Channel realignment and backfilling) through to detailed design, as contained in Attachment A to Item 5.6 on the Agenda for the meeting of the Board of Kadaltilla / Adelaide Park Lands Authority held on 26 June 2025.
2. Notes that the Administration will provide further updates to Kadaltilla as the design progresses.

Implications

Adelaide Park Lands Management Strategy 2015-2025	Adelaide Park Lands Management Strategy 2015-2025 **Strategy 4.2** – Enhance the ecological health of Park Lands Watercourses (Page 24) **Key Move (4) for Southeast Park Lands Precinct** - Expand the existing BMX track and improve facilities and amenity. Develop the hub to encourage exploration deeper into the park, linking to nature play opportunities and an enhanced woodland adjacent. Restore the creek line and provide a riparian corridor that enables access at key locations through the provision of gentle batter slopes, gravel 'beaches' or decking to encourage interaction and exploration. Incorporate a wetland to assist with stormwater management and provide opportunities for recreation and interpretation (Page 52).
2023-2028 Strategic Plan	Kadaltilla / Adelaide Park Lands Authority 2023-2028 Strategic Plan Strategic Plan Alignment – Environmental Performance Our Environment - The status, attributes and character of our green spaces and the Park Lands are protected and strengthened. Our Places - Community assets are adaptable and responsibly maintained - Create new assets to meet emerging community needs with a focus on safe design, construction and maintenance.
City of Adelaide Strategies	Asset Management Plan: To restore our open channels to as-new condition and ensure they can convey the required design flows. Integrated Climate Strategy - Goal 1. A climate resilient city. Adelaide Park Lands Management Strategy - Goal 3 — Natural Systems, Cultural Landscapes and Climate Resilience.
Policy	Not as a result of this report.
Consultation	Adelaide Park Lands Advisory Group
Resource	Not as a result of this report.
Risk / Legal / Legislative	*Environment Protection and Biodiversity Conservation (EPBC) Act 1999* Tree removal and replacement. Impact is low however it would be confirmed through advice from arborists during the detailed design phase.
Opportunities	Not as a result of this report.
City of Adelaide Budget Allocation	South Park Lands Creek - Reach 7 - Open Channel Stormwater Rehabilitation East of Unley Road 2024/25 $38,000. South Park Lands Creek - Park 20 Open Channel Stormwater - West of Unley Road 2024/25 $58,250.

Capital Infrastructure Projects	The project will address the concerns relating to the poor condition and ongoing erosion of the open channel, while conserving the existing mature trees, enhancing Park Lands safety and accessibility, and appropriately managing stormwater infrastructure to be discharged accordantly.
Life of Project, Service, Initiative or (Expectancy of) Asset	50 to 100 years asset life expectancy, depending on asset type.
Ongoing Costs (eg maintenance cost)	Not as a result of this report.
Other Funding Sources	No other external funded sources identified.

Discussion

Project Background

1. The project was initiated as a stormwater renewal project with the objective to rehabilitate the existing open channel running through both Pelzer Park / Pityarilla (Park 19) and Blue Gum Park / Kurangga (Park 20). The channel performance is a key factor influencing stormwater management in the area. Renewal is required because the open channel presents a public safety risk, and the asset continues to deteriorate at a rapid rate.
2. The South Park Lands Creek Rehabilitation Master Plan (2016) was developed to rehabilitate a wide extent of Southern Parkland with recent design and construction occurring in upstream segments of the watercourse. Restoration of the Park 20 and 19 channels was not included within the original Master Plan.
3. The existing unfenced open channel with steep banks poses an ongoing risk to public safety, which is exacerbated by progressive erosion affecting the performance of the stormwater asset and undermining the integrity of the channel banks.
4. Ongoing erosion is also posing a risk to the row of mature trees located adjacent to the banks of the channel. A total of 91 trees, including (17 significant trees and 16 regulated trees) line the channel in Park 19. A total of 44 trees, including (21 significant trees and 12 regulated trees) line the channel in Park 20.
5. The project scope will improve the stormwater management function of the channel and address the erosion problem, supporting long-term health and preservation of existing trees. The project additionally seeks to reduce the safety risks associated with the existing deeply incised channel within the open space of the Park Lands.
6. To assist with developing the three concept options, Preliminary Investigation Reports and Optioneering Analysis was completed for both Park 19 and Park 20.

Proposed Concept Design Options

7. This report provides information regarding the development of the concept design options including a comparison of; tree impacts, hydraulic impact, public safety improvement and increase in biodiversity and amenity.
8. The Concept Design Report (Link 1) includes preliminary cost estimates, civil and landscape drawings to complement each design in detail.

8.1. Park 19

8.1.1. Option 1: Local Bed and Bank Rehabilitation

Minimal impact approach where the channel is physically widened in areas which will not encroach into the protected root zones of the adjacent trees. This solution would not impact any significant or regulated trees, while offering only minimal improvement to hydraulic capacity and public safety. Improvements to biodiversity are also expected in widened sections of the channel. Indicative cost estimate at this phase of design is $770,000.

8.1.2. Option 2: Riffles and Bank Rehabilitation

Moderate impact approach where rock structures are incorporated to reduce the velocity of flow in the channel. Reshaping of the channel would have no significant impact to trees while allowing bank rehabilitation to improve public safety and biodiversity opportunity. While the peak water levels will increase in comparison to other options, the reduction in peak flow velocity will provide greater benefit with respect to erosion control. Indicative cost estimate at this phase of design is $750,000.

8.1.3. Option 3: Channel Rehabilitation and Box Culverts

High impact strategy to control the channel flows in selected locations using engineered structures. While this option presents the greatest benefit for public safety it poses a larger risk to tree root structures through the construction methodology. This option will provide benefit to flow management and the opportunity to incorporate improvements to biodiversity

and amenity. The requirement for more rigorous maintenance of the watercourse throughout design life will however far exceed that proposed for previous options. Indicative cost estimate at this phase of design is $850,000.

8.2. Park 20

8.2.1. Option 1: Rock Armour and Velocity Management

Low-moderate impact approach where both velocity management structures and channel reshaping are utilised with respect to the location of surrounding trees. A specialised construction methodology will be required to suit the higher concentration of trees throughout this portion of the watercourse compared to Park 19. This option will provide minimal change to the existing hydrology of the watercourse and offer public safety improvements only in areas of lower tree density where the channel can be reshaped. It is suggested that fencing or dense vegetation planting is used in remaining areas where the creek edge falls over 1.5m, near vertically. Improvements to biodiversity are expected to be minimal. Indicative cost estimate at this phase of design is $610,000.

8.2.2. Option 2: Box Culvert Protection Structure

High impact solution to control the flow of stormwater through the bend in the channel, where the most significant erosion is observed. The option presents the greatest impact to adjacent trees and root systems and will impact natural recharge of the soil. Construction of a culvert will offer the greatest protection to further erosion, while offering minimal change to peak water levels modelled for peak flow events. This option will require considerations for public safety along with the introduced fall risks associated with the culvert itself. The informal channel created above the culvert structure is expected to present an opportunity for biodiversity improvement further to that presented in Option 1. Indicative cost estimate at this phase of design is $770,000.

8.2.3. Option 3: Channel realignment and backfilling

High impact solution which proposes a low flow culvert structure beneath the existing path and infilling the remainder of the channel to suit. This option aims to minimise impact to trees with respect of standardised protection zones, recognising the extent of root systems for some mature species is not fully understood. The configuration of a bypass culvert and reshaped open channel best mitigates the current public safety risk through fall protection into an open channel for majority of the watercourse. The impact to soil recharge and requirement for maintenance during design life will be maximised. Improvements to biodiversity will be comparable to previous options with further opportunities throughout the regions for channel backfilling. Indicative cost estimate at this phase of design is $1,000,000.

Recommended Concept Design

9. The preferred Concept Design options for the Park 19 and 20 Open Channel Stormwater Rehabilitation Project are available at Attachment A.

10. The recommended option for Park 19 is Option 2 (Riffles and Bank Rehabilitation) with further investigation to ensure that both velocity protection structures and bank rehabilitation have no impact to existing trees. Where bank rehabilitation is feasible, it shall endeavour to flatten the bank slope as far as practicable while incorporating both vegetation and signage in remaining areas.

11. The recommended option for Park 20 is Option 3 (Channel realignment and backfilling) with further investigation to employ similar public safety provisions to create continuity between the two sections of this project and the greater Park Lands area.

Data and Supporting Information

Link 1 - Park 19 and 20 Open Channel Stormwater Rehabilitation Concept Design Pack

Attachments

Attachment A – Park 19 and 20 Open Channel Stormwater Rehabilitation Concept Design Preferred Options

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