Smithfield Tyre recycling facility

Surface Water Assessment

Tyrex Australia

68-70 Victoria Road Smithfield

Prepared by:

SLR Consulting Australia Pty Ltd

10 Kings Road, New Lambton NSW 2305,
Australia

SLR Project No.: 630.030773.00001

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29 August 2024

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Revision Record

Revision	Date	Prepared By	Checked By	Authorised By
V0.3	13 October 2023	Emily Curtis	Paul Delaney	Paul Delaney
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V1.1	24 June 2024	Emily Curtis	Paul Delaney	Paul Delaney
V1.2	29 August 2024	Emily Curtis	Paul Delaney	Paul Delaney

Basis of Report

This report has been prepared by SLR Consulting Australia Pty Ltd (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Tyrex Australia (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of the Client. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

Executive Summary

This technical report provides an assessment of stormwater, flooding and firewater containment aspects for a proposed rubber shredding facility located at 68 and 70 Victoria Road, Smithfield. This report has been prepared to support the planning approval.

The report identifies potential environmental impacts associated with the development, and describes appropriate mitigation measures to satisfactorily address those impacts. With implementation of all the measures outlines in this report the residual risk to the environment is considered to be very low.

Key design features and mitigation measures are outlined below:

- The shredding process will include air extraction to collect dust
- All product will be stored under roof
- Pit baskets on stormwater inlets will minimise the risk of rubber product entering the stormwater system
- A primary gross pollutant trap will treat runoff from the hardstand area
- A blind sump within the building will facilitate washdown of the slab to prevent build-up of dirt and/or rubber product that could be wheel tracked out of the building. Washdown water will be discharged to the swer system under a trade waste agreement with Sydney Water, or removed by tanker to a licensed liquid waste facility.
- Water from fire fighting activities has potential to contain pollutants harmful to the environment, and needs to be contained on site. Primary containment will be by bunding to provide storage of fire fighting water, plus an underground tank. A sluice gate on the existing stormwater system just upstream of discharge point at the eastern boundary is recommended to allow isolation of the stormwater system.
- The site is outside of the 100 year flood envelope, and safe egress is available via Victoria Road during extreme flooding events.

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1.0 Introduction

1.1 Report purpose

SLR Consulting Australia Pty Ltd (SLR) was commissioned by Tyrex Australia Pty Ltd to prepare a Surface Water Assessment for a proposed tyre recycling facility (the Project) located at 68-70 Victoria Road, Smithfield.

The purpose of this assessment is to consider the proposal and the existing site stormwater infrastructure and propose measures to ensure that surface water environmental risks are adequately mitigated for the proposed tyre recycling facility; address the relevant matters raised in the Secretary's Environmental Assessment requirements; and that the proposed stormwater management system complies Fairfield City Council's Development Control Plan.

1.2 Proposed development

The subject site is 68 to 70 Victoria Street, Smithfield (the Site) (Lots 9 and 10 in DP239868) and affords a land area of 4060m^2.

There is an existing rubber recycling operations at 66 Victoria Street.

Figure 1 Site Location

The proposal is for a facility to recycle tyres. Proposed works include:

- Internal alterations to existing warehouse and part demolition of external wall
- New weighbridge

- Hardstand works include provision of designated site parking. No earthworks are proposed.
- Construction of a new awning on No 70 for storage of equipment and products which
- Tyre processing involving to shredding to 50mm to 150mm pieces and then crumbing to approximately 0.6mm particle size. The outputs include trye crumb and recovered steel
- Storage of up to 256 tonnes of rubber on site – stored either under roof or in shipping containers

All unprocessed wastes will be received and stored inside the building at 68 Victora Street.

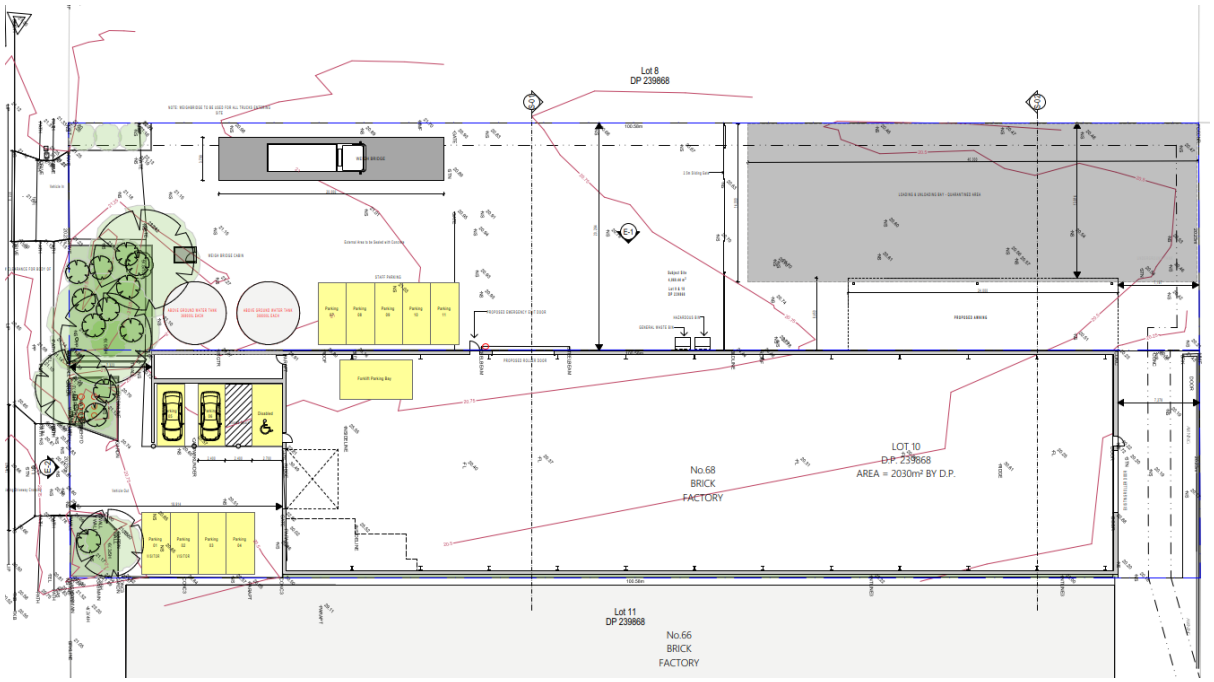
Tyre processing involves two processes. Initially tyres are shredded to 50mm to 150mm pieces. Tyres are then crumbed to approximately 0.6mm particle size. The crumbing operation includes a dedicated air filtration system to capture dust. The outputs include trye crumb and recovered steel.

Rubber products will be bagged and stored either indoors on shelves or outdoors underneath a new awning which will protect products from rain.

Only waste tyres as defined in the NSW Protection of the Environment Operations Act 1997 (POEO Act) or the EPA's Waste Classification Guidelines Part 1: Classifying Waste (2014), will be accepted. No other specific, liquid, hazardous, restricted solid waste, or general solid waste (putrescible) will be accepted. No lithium batteries or chemicals will be received.

Architectural Plans outline the site layout.

Figure 2 Site Layout (Extract from Architectural Plans by Planzone Rev 15)



2.0 SEARS

NSW Department of Planning issues SEAR1774 on 27 April 2023, inclusive of advice from NSW EPA and Fire + Rescue NSW. Relevant aspects and where addressed in this report are listed in the table below.

Table 1 SEAR Requirements

Requirement	Where Addressed
SEARS 1774 – soil and water	
Details of the proposed stormwater and wastewater management systems (including sewerage, firewater containment, water monitoring program, and other measures to mitigate surface and groundwater impacts	Stormwater – Section 8 Wastewater – Section 8 Firewater – Section 8 Monitoring Program – Section 11
A description and appraisal of impact mitigation and monitoring measures	Monitoring and reporting – Section 11
NSW EPA (11 April 2023) – key points	
Details of stormwater management and firewater containment, specifically addressing the potential for groundwater contamination	Stormwater management – Section 8 Firewater containment – Section 8 Groundwater – Section 8.8.3
Project objectives should include: No pollution of waters; The capture of polluted water (including washdown, polluted stormwater, firewater) for collection, treatment, and beneficial re-use..and; achievement of the Water Quality Objectives	No pollution of waters and Water Quality Objectives – Section 7 Stormwater management – Section 8 Firewater – Section 8.8.3
The EIS must describe how stormwater will be managed during all phases of the project	Operational Phase – Section 8 and Section 10 Construction Phase – Section 8.1, and 9
Fire and Rescue NSW	
Fire safety in waste facilities is a FRNSW guideline document that may be used to provide guidance on fire safety in waste facilities	Refer Section 8.8

4.0 Legislation and Guidelines

The site stormwater management controls were assessed with consideration to the following requirements, standards, guidelines and industry best practice.

4.1 Relevant Legislation

4.1.1 NSW Protection of the Environment Operation Act 1997 (POEO Act)

Under the Recovered Tyres Exemption 2014 the proposed facility is unlikely to require a license from the Environment Protection Authority (EPA). Nevertheless, there is a strong duty of care under Section 120 of the NSW POEO Act not to pollute or cause pollution of waters, and to maintain and operate any pollution control equipment installed at the premises in a proper and efficient condition or manner.

4.1.2 NSW Water Management ACT 2000

The NSW Water Management Act 2000 enables allocation of water for the environmental health of NSW's rivers and groundwater systems, while also providing licence holders with secure access to water and the opportunity to trade water. No water licences are sought as part of this project.

4.1.3 Fairfield Citywide Development Control Plan 2013

The Fairfield Citywide Development Control Plan 2013 has been prepared in accordance with the *Environmental Planning and Assessment Act 1979* and supplements the *Fairfield Local Environmental Plan 2013.* The purpose of the DCP is to illustrate the controls that apply to particular types of development.

DCP compliance is considered in assessing development applications.

Section 9 of the DCP describes requirements for industrial development and Section 9.5 outlines the requirements with respect to stormwater. Relevant controls and performance criteria relating to the objective of the DCP are described in the *Stormwater Management Policy 2017*. Under the DCP the Site does not require On Site Detention (OSD).

Section 11 of the DCP describes the requirements in relation to flood risk management.

4.2 Standards and Guidelines

The following standards and guidelines are relevant to the proposed works:

- Managing Urban Stormwater: Soils & Construction (Landcom 2004).
- Storing and Handling liquids: Environmental Protection: Participant's Manual (DEC 2007).
- Fire and Safety Guideline – Guideline for bulk storage of rubber tyres (Fire and Rescue NSW 2014).
- Fire safety in waste facilities (Fire and Rescue NSW 2020)

5.0 Existing Environment

5.1 Catchment and Drainage context

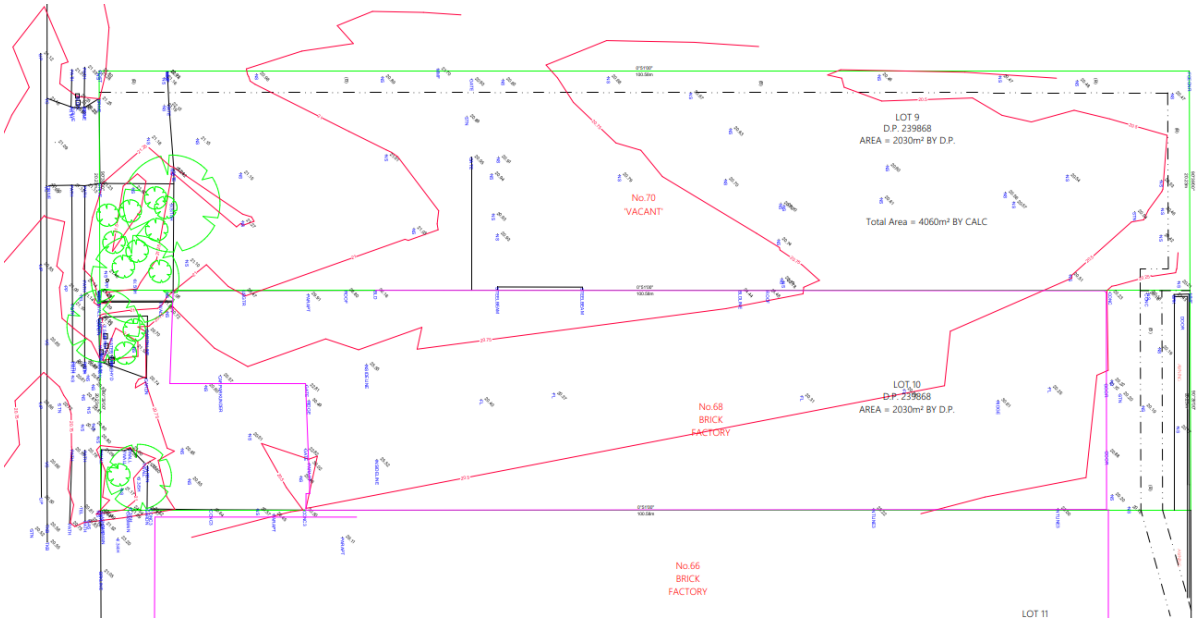
The Site is located within the Prospect Creek catchment and ultimately contributes to the urban zone of the Georges River Catchment. Located north of the project site, Prospect Creek is 26km long and flows from Prospect Reservoir to the Georges River with a catchment of 98 km^2. Majority of Prospect Creek is disturbed with a large amount of vegetation and weed growth on both the banks and within the channel. Erosion is present in several areas. The Site contributes 0.41 ha to the Prospect Creek catchment.

A survey of the existing site is shown in **Figure 3**.

The majority of 68 Victoria Road is occupied by the existing building. The site has relatively flat grades typically 0.5% falling from the entrance to the rear of the site.

The site varies from 21.6 mAHD to 20.5 mAHD along the southern or entrance boundary to 20.5 mAHD to 20.2 mAHD at the northern or rear boundary. Generally, a higher area runs between the two Lots (Lot 68 and Lot 70) of the Site directing flow from the impervious area of Lot 10 toward the western boundary. A n existing blockwork bund (height approx. 400mm and varies) exists in the western corner prevents flow offsite and directs flow toward two stormwater pits at the at the rear of the building on Lot 69. Flow from the existing slab at Lot 9 drains to the stormwater pits at the rear, a grated drain picking up flows from the carpark at the buildings entrance.

Figure 3 Survey of Existing Site (Source Planzone)



5.2 Site Contamination

The land is not listed on any contaminated land database and has never been the subject of an EPA clean-up order or other EPA restrictions. The land has not been the subject of known pollution incidents does not adjoin any contaminated land/previously contaminated land.

5.3 Flooding

The site is located on flood prone land within a low flood risk precinct. Flooding is discussed in Section 11.0.

5.4 Existing stormwater system

A site inspection of the site by SLR was carried out in July 2023.

Runoff from the hardstand area and building slab are directed to two stormwater pits at the rear of No 68. Internal downpipes pick up runoff from rooved areas and discharge to the stormwater system via a pipe under the slab. A grated drain captures flow from the carpark area at the front of the building. The stormwater system discharges from the Site at the eastern corner on No. 66. The pipes are within an interallotment drainage easement.

5.5 Rainfall

Intensity Frequency Duration (IFD) information for the site was sourced from the Bureau of Meteorology (BOM) website (2016 IFD data). Rainfall depths (mm) for various AEP's and durations are shown in **Table 2** below.

Table 2 BOM 2016 Rainfall Depths – Frequent to Rare Storms

Duration	Annual Exceedance Probability (Average Recurrence Interval)		
	10% (1 in 10)	2% (1 in 50) AEP	1% (1 in 100) AEP
10 min	19.2	25.4	28.1
15 min	24.0	31.8	35.1
30 min	32.1	42.3	46.7
45 min	36.6	48.2	53.3
1 hour	39.9	52.6	58.2
2 hour	49.3	65.5	72.9
3 hour	56.9	76.1	85.0
6 hour	75.9	103.0	117.0
12 hour	107.0	149.0	168.0

7.0 Water Quality

7.1 Existing Water Quality

No existing water quality data is available for the Site. Given the nature of the creek at this location and the low impact of the proposal, it is intended for the proposal to include best practice control measures, with an initial water quality monitoring regime to assess the ANZ2018 water quality criteria.

7.2 Water Quality Objectives

The NSW Water Quality Objectives are the agreed environmental values and long-term goals for NSW's surface waters. Water Quality Objectives for most catchments in NSW are published on the Department of Environment Climate Change and Water Website (https://www.environment.nsw.gov.au/ieo/).

The Site is situated within the Prospect Creek catchment and contributes to the wider Georges River Catchment. Surface water runoff from the Site is contained within the stormwater management system.

The relevant agreed environmental values and river flow objectives for **waterways affected by urban development** within the Georges River Catchment are detailed in **Table 3**.

Table 3 Water Quality Objectives for Waterways Affected by Urban Development within the Georges River Catchment

Water Quality Objectives		River Flow Objectives	
	Aquatic Ecosystems		Maintain wetland and floodplain inundation
	Visual Amenity		Maintain natural flow variability
	Secondary contact recreation, as a short term objective, within 5 years		Maintain natural rates of change in water levels
	Assess opportunities to achieve as a longer term objective, 10 years or more		Minimise effects of weirs and other structures

7.3 DCP Pollution Reduction Targets

The development is not subject to water quality improvement targets under the DCP. However, in accordance with the NSW POEO Act stormwater leaving the Site should be within acceptable limits as not to pollute or cause pollution of waters.

The Australian and New Zealand Water Quality Guidelines (ANZG 2018) advocate a risk-based approach to water quality assessment and management. That is, the intensity of assessment of current water quality status or impacts on water quality should reflect the risk of impacts on the achievement/protection of the water quality objective.

For protection of Aquatic Ecosystems in NSW the ANZG 2018 Guidelines refer back to the Australian and New Zealand Environment and Conservation Council (ANZECC) and Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ) (2000) default trigger values for major physio-chemical stressors. These values, see **Table**

4, provide typical values which if exceeded warrant investigation, and could adversely impact downstream environments.

Table 4 Trigger Values – Aquatic Ecosystems

Parameter	Default Trigger Value for NSW lowland rivers in slightly disturbed ecosystem
Total Phosphorous P (mg/L)	0.05
Total Nitrogen TN (mg/L)	0.5
Total Suspended Solids	30mg/L (professional judgement)
Turbidity (NTU)	6-50
Hydrocarbons (oil & grease)	No visible sheen
Heavy Metals and Metalloids	See Metal and Metalloids toxicant trigger values ANZG 2018 (80% protection for highly disturbed waterway)

7.4 NSW PoEO Act

Under the Protection of Environment Operations (PoEO) Act operators have a strong duty of care to not pollute waters. Pollution may be interpreted as discharges which lead to an exceedance of the NSW WQO levels in the receiving water body.

Pollution incidents must be reported to the NSW EPA.

8.0 Details of proposed waste and water management

8.1 General

The proposed development will include specific controls and management practices to limit the potential pathways for pollutants to enter the receiving environment. In general, the mitigation of potential impacts requires consideration of different phases of the project, specific events such as fire, and different areas of the site. The following sections discuss the proposed mitigation measures to address environmental risks for various aspects at the operational and environmental phases of the project, as outlined in **Table 5**.

The proposed arrangement of stormwater and firewater works is shown on SLR Drawing 630.030773 – SK01 included at the rear of this section of the report.

Table 5 Potential Environmental Impacts

Project Phase and Aspect	Potential Environmental Risk
Operational Phase:	
• Management of Waste	• Waste particles or leachate enter stormwater system
• Wastewater	• Washdown water enters stormwater system
• Firewater	• Fire fighting water enters stormwater system
• Stormwater	• Pollutants from hardstand exceed Water Quality Objectives
• Groundwater	• Leachate enters groundwater system
• Spills and incidents	• Pollution of waterways due to inadequate management of spills or incidents
Construction Phase:	
• Sediment Export	• Turbid water enters stormwater s / receiving water bodies
• Site contamination ‘finds’	• Mobilisation of site contamination into site runoff
• Acid sulfate soils	• Earthworks exposes ASS causing acidic runoff

8.2 Management of wastes

Proposed methods of managing waste on site will reduce the potential for environmental impact from operations.

- All unprocessed wastes will be received and stored inside the building at 68 Victora Street.
- The crumbing machinery will be fitted with a dedicated air filter.
- Rubber products will be bagged and stored under roof on No. 68. The awning on No. 70 should not be used for storage of rubber products unless they are placed within a weatherproof container (notwithstanding that they are under roof).
- The building floor will be kept clean by periodical wash-down to avoid accumulation of dirt, rubber dust and litter. Wash-down water will report to the blind sump and discharged to sewer under a Trade Wate Agreement. Wash down must not be discharged to the stormwater system.

8.3 Wastewater

The processing of waste does not involve any wet processes.

During wet weather the incoming vehicle and tyres received may be wet and generate small amounts of moisture on the floor of the receival area. This wastewater should be collected in a 'blind sump' and pumped into a 'Re-usable Water' tank located inside the building.

The trafficable areas within the building should be kept clean and this will require periodical washdown. This washdown water would also be collected in the 'blind sump'.

The Re-usable Water tank would discharge to Sydney Water sewerage system via a trade-waste agreement.

The Re-usable Water tank would be replenished from a) moisture from incoming vehicles and tyres b) recycled wash down water c) rainwater and d) potable water connection.

8.3.1 Sewerage

The proposed development will utilise existing amenities which are presently connected to the Sydney Water sewerage system.

8.3.2 Groundwater

The proposed development does not generate any liquid wastes other than potential fine particles of rubber (managed by washdown of slabs) and hydrocarbons associated with operation of machinery (managed through spill protocols). All processing will occur on impervious concrete slabs. Accordingly, there is negligible potential for contamination of groundwaters.

8.3.3 Firewater Containment

Fire water runoff is the residual water used in fighting a fire, which is typically contaminated with the products of combustion and unburnt materials washed off the fire debris. This firewater should be contained in accordance with the Fire Rescue NSW (FRNSW) Fire Safety Guidelines; *Fire safety in waste facilities* and *Guideline for bulk storage of rubber tyres,* and current best practice.

A fire and Incident Management Report, prepared by Innova Services Australia (June 2024) identified that the fire fighting system will deliver flows which equate to 736m3 of onsite containment, comprising 108m2 of hydrant flow and 628m3 of sprinkler flow.

Fire water will be contained by:

- No. 68 Victoria Road - The existing wall of the building acts as a bund around the perimeter. SLR has inspected the existing walls and found that they are in good condition with no obvious leaks. During construction the perimeter should be inpected in detail and any potential points where leakage could occur sealed. A bund across the rear roller door with a height of 450mm above ground (top level RL 20.7) will prove fire water storage across the building floor of 190m3. Rubber products must not be stockpiled within 1.5m of this roller door bund.
- No. 70 Victoria Road. A 150m3 underground tank will be installed towards the northern boundary. The remainder of the firewater (Total 736m3 – 190m3 – 150m3 = 396m3) will be contained at a top water level of RL20.7 across the surface of Lot 70 by an existing blockwork bund which contains water at the north and western hardstand boundary. The bund must provide a continuous barrier to contain water up to RL 20.7. This blockwork bund should be linked to the rear of the building on No 68. This new bund will need to approximately 500mm high (top of wall RL 20.7.
- Fire water storage on Lots 68 and 70 needs to hydraulically linked. This can be achieved by placing a grate just inside the rear roller door on No 68, at a level of

approximately RL 20.65. The grate will discharge via pipe to the fire water tank in Lot 70.

An isolation mechanism will be installed upstream of the stormwater point of discharge. This will need to be either a sluice gate, or snug fitting pipe plug with elastomeric rings.

8.3.4 Wheel tracking

There is potential for dirt and rubber dust to be wheel tracked onto the hardstand from vehicles exiting the building. This risk will be minimised by other controls including air filtration of the crumbing machinery, and periodical wash-down to keep trafficable areas of slab clean.

The risk is also minimised since the area immediately in front of the building drains back towards a grated trench which will collect any dirt or contaminants wheel tracked out of the building.

8.3.5 Washdown Water

The floor surface inside the building should be washed down when required to ensure that the surface remains relatively clean. A blind sump should be installed inside the north-east corner of the building to receive washdown water. Water from the blind sump should be pumped to holding tank which discharges to the sewerage system under a trade waste agreement with Sydney Water. Until such time as an agreement with Sydney Water is in place, wastewater will be removed from site by tanker and disposed at an EPA licensed liquid waste facility.

The area under the awning on No 70 should also have a blind pump. This area should be washed down when required to keep the surface clean. Washdown water will be contained within the building by a bund across the rear roller door opening. The height of this bund is dictated by requirements for firewater retention.

The perimeter of the area underneath the awning should have a 150mm concrete high bund to keep potentially polluted water inside the bund, and keep stormwater outside.

8.4 Stormwater – hydrological impact

Both the existing site and proposed redevelopment comprise the same catchment areas and percentages of imperviousness. Accordingly, the redevelopment will not result in an increase in either the volume or peak discharge of stormwater to the receiving system.

Therefore, an OSD is not required for this development under the Fairfield City Council DCP.

8.5 Stormwater – water quality

The proposed strategy for stormwater management for the re-developed site involves utilising the existing stormwater infrastructure and adding in additional stormwater measures which will mitigate potential water quality risks associated with the proposed site use. The locations of proposed measures are shown on Error! Reference source not found..

Proposed measures include:

- Pit baskets installed at stormwater inlets will retain litter and reduce sediment loads entering the stormwater system;
- A simple Gross Pollutant Trap prior to discharge of stormwater site to provide for retention of sediments and an underflow weir to retain lighter than water particles.

- A sluice gate at stormwater discharge to allow isolation of stormwater at Site;
- A monitoring plan to verify the quality of water discharged to the Council stormwater system; and
- Inspection and cleaning of hardstand areas.

Site discharge of stormwater will remain via the stormwater easement at the rear of the property.

Aspects of the proposed strategy are described in more detail below.

Pit Baskets

The first control proposed is often referred as ‘filter baskets ‘or ‘pit baskets’ designed to filter runoff from the hardstand areas and remove gross pollutants, TSS and other attached pollutants. This product would be fitted to the existing and stormwater pits on site. **Figure 4** presents the operational process used by filter baskets.

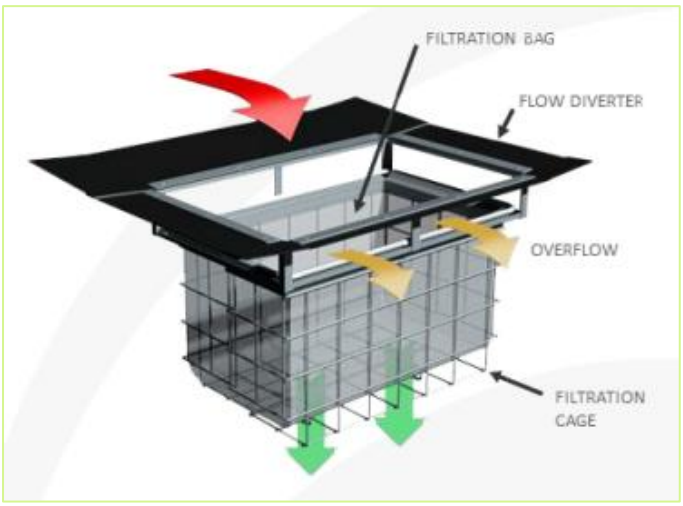


Figure 4 Filter basket operation (Ocean Protect, 2019)

Gross Pollutant Trap

A simple gross pollutant trap is proposed in the north west corner of the site, prior to site discharge.

The GPT should have the following features:

- Shallow inlet/out pipes and low head loss
- Sediment retention
- Underflow weir

A model such as the HumeCeptor (Model M13) would be suitable.

8.6 Spills and incidents

The effective management of incidents will prevent or reduce environmental harm. This will be achieved by preventing incidents, promptly containing and cleaning up spills, properly disposing of spilled material and training employees in ancient management.

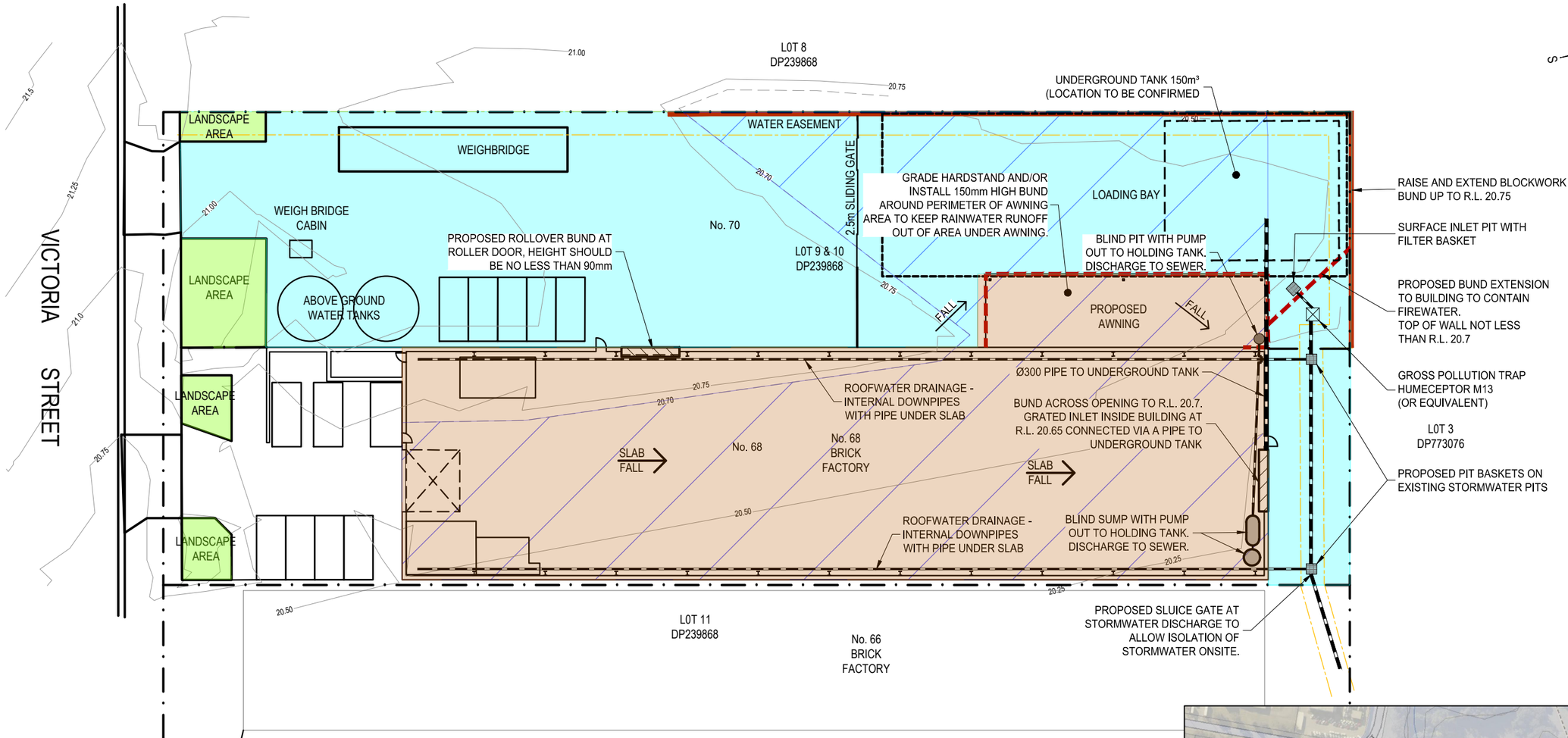
Spill kits will be kept onsite and a Pollution Incident Response Management Plan (PIRMP) will be developed (in accordance with Part 5.7 of the POEO Act) for inclusion in the site Operational Management Plan.

8.7 Soil Contamination Finds

There is no known contamination at this site. If contaminated soils are encountered then these should be removed from site and disposed of in accordance with EPA guidelines.

8.8 Acid Sulfate Soils

Information on site acid sulphate soil risk was obtained from the NSW Government online database SEED (SEED, 2023). The Site is not within an area known to have acid sulfate soils and acid sulfate soils aren’t a known occurrence at the Site.



LEGEND

- WASTE WATER CONTAINMENT
- STORMWATER
- FIREWATER STORAGE

SITE PLAN

LOCALITY PLAN

NOT TO SCALE

REVISIONS			
E	06.09.2024	RE-ISSUED FINAL ISSUE	MS
D	29.08.2024	RE-ISSUED FINAL ISSUE	MS
C	30.05.2024	RE-ISSUED FINAL ISSUE	MS
B	16.10.2023	FINAL ISSUE	MS
A	25.09.2023	PRELIMINARY ISSUE	MS
	DATE	DESCRIPTION	

PLOT DATE 6/09/2024 9:13:59 AM

DRAWN:	MS	DATE: 20.09.2023
DESIGN:	EC	DATE: 20.09.2023
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DES. CHECK:	PD	DATE: 16.10.2023

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CLIENT: TYREX

PROJECT: PROPOSED TYRE RECYCLING FACILITY - SMITHFIELD

DRAWING TITLE: **STORMWATER ASSESSMENT PLAN**

DRAWING NUMBER: 630.030773.00001 - SK01

ISSUE: E

CONSULTANT PROJECT | FULL SIZE ON ORIGINAL | A3

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9.0 Construction Phase

9.1 Construction Phase - General

The proposal will largely utilise the existing hardstand and building so there is no broadscale earthworks included. Some minor earthworks may be required for installation of underground, pipes and services.

9.2 Erosion Sediment Control

For any excavation works erosion and sediment controls will need to be installed in accordance with Managing Urban Stormwater: Soils & Construction (Landcom 2004).

At a minimum controls should include:

1. Divert clean water run-on around work area as far as practical
2. Sediment fencing around the lower perimeter of any areas of ground disturbance
3. A sand-bag and geotextile filter around the existing stormwater pits ate the rear of No 68.

9.3 Spills

A spill kit should be kept on-site and any hydrocarbon (or other chemical) spills should be cleaned up immediately, and contaminated soils removed and disposed ofto a licensed waste facility.

10.0 Environmental Management During the Operational Phase

10.1 Water Quality Monitoring

It is proposed that water quality be monitored over the first 12 months of operation. The monitoring data recorded over the period will inform a decision if supplementary controls are required.

The monitoring point will be the existing stormwater pit outside of the building in the north-west corner of the site.

Water quality should be monitored monthly (during rainfall events) to allow evaluation of the efficacy of the proposed water treatment train along with site management measures. Analytes should at least include:

- Total Suspended Solids
- Total Nitrogen,
- Total Phosphorus
- Hydrocarbons (including oil & grease)
- Metals and Metalloids

During monitoring of water quality an exceedance of the trigger values is recorded, investigation into the cause and potential mitigation should be undertaken.

10.2 Maintenance

The stormwater facilities on site will require regular maintenance to ensure that they perform satisfactorily.

Maintenance and inspection activities should be documented in an operational procedure, but must include at a minimum:

- Three month inspection covering the following items and recoding condition via a checklist:
- Inspect the condition of all bunds and ensure that there are no defects which could leakage
- Inspect stormwater isolation valve/sluice and ensure that it is in effective operating condition
- Inspect Gross Pollutant Trap. If required arrange for removal of accumulated sediment or other materials
- Inspect pit inlet baskets. If required clean out and/or replace
- Inspect floor of building and surface of under-awning area. If required arrange for wash down.
- Inspect the hardstand area on No 70. If there is an accumulation of dirt or other materials that has potential to be wheel-tracked off-site arrange for sweeping

10.3 Reporting

Report any pollution incidents to the NSW EPA, as per obligations under the NSW POEA Act.

11.0 Flood Impacts

The proposed development will not involve any significant alteration to the level of site imperviousness. Accordingly. the development is not expected to result in any significant changes to flood hydrology or flood behaviour. This report focuses on the impact of flooding on the proposed development.

11.1 Existing Studies

There have been a number of flood studies that have been undertaken for Prospect Creek catchment and Smithfield area, these studies have informed floodplain management implemented by Fairfield City Council. Relevant studies and flood management plans for the Site include:

- Cardno Willing, 2004, Review of Prospect Creek Flood Levels
- SKM, 2011, Smithfield Overland Flood Study
- Bewsher Consulting Pty Ltd, 2006, Prospect Creek Floodplain Management Plan: Flood Study Review
- Bewsher Consulting Pty Ltd, 2010, Prospect Creek Flood Plain Management Plan Review

11.2 Flood Risk Management Precinct

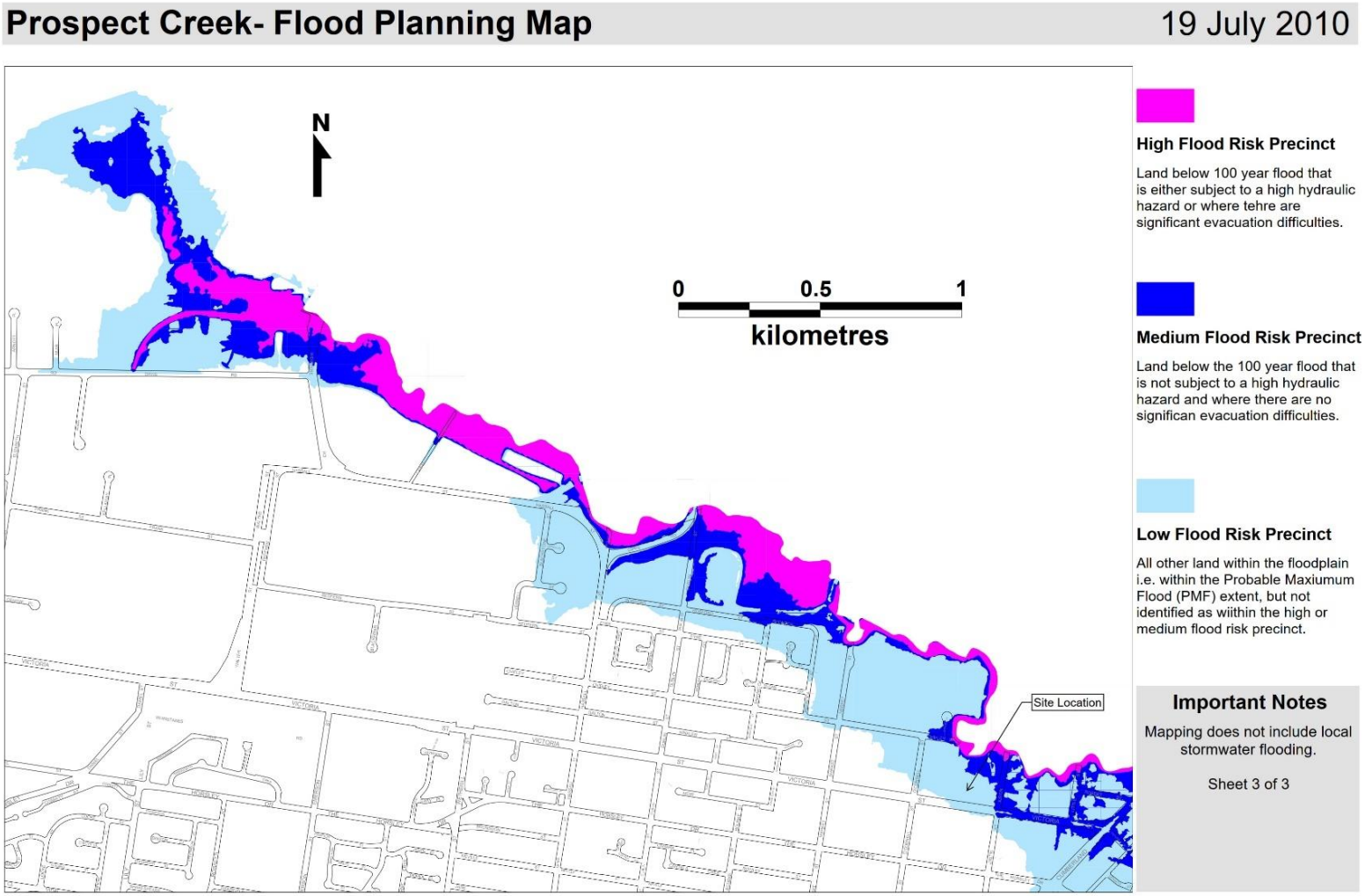
Floodplain management is associated the risk of flooding across the floodplain and recognises that different areas experiencing different degrees of flood risk. Flood risk precincts consider the probabilities and consequences of flooding over all flood events, rather than relating to a single flood event.

Fairfield City Council DCP classifies the floodplain into three flood risk precincts: High, Medium and Low. The Site is located in the **low flood risk precinct,** see **Figure** 5. This is described as comprising all remaining areas of the floodplain (defined as the limit of inundation in a PMF) but not identified as either a high flood risk or medium flood risk precinct, and where the risk of damages is low for most land uses.

11.3 Flood Prone Land

The *Floodplain Development Manual* (NSW Government, 2005) (FDM) deems flood prone land to include land that is expected to experience flooding up to a Probable Maximum Flood (PMF) flood event.

As described above the Site lies within the PMF flood event extent as is thereby classified as ‘flood prone’ in accordance with the FDM.



Taken from Bewsher Consulting (2006) Prospect Creek Floodplain Management Plan, Flood Study Review.

Figure 5 Prospect Creek Flood Planning Map (Site Location Marked)

11.4 Flood Planning

The FDM considers the area of land below the flood planning level subject to flood related development controls. In accordance with the Fairfield City Council DCP the flood planning level is a minimum of the 20 year flood level for all floor levels and the combination of the 1% AEP flood plus a freeboard of 600mm to the habitable floor level.

The current DCP adopts flood levels for the 1% AEP from the *Prospect Creek Floodplain Management Plan Flood Study Review,* prepared by Bewsher Consulting 2006. The site complies with the FDM and DCP requirements since:

- The Site is not located within the 20 year flood extent; and
- all habitable floor levels (mezzanine level) are well above the 1% AEP flood level

The ground floor level of the existing building is marginally above the 1% AEP flood level.

11.5 Flood Behaviour

The proposed development will not involve a change to the site buildings or ground levels to that indicated in the most recent flood studies for mainstream and overland flooding for this area. The results of these studies would therefore provide valid interpretations of the flood behaviour at the Site.

The area around the locality of the project site is subject to flood flows under two separate scenarios:

- Mainstream Flooding along Prospect Creek, and
- Overland flows from flash flooding in the localised catchment.

Flood levels in the vicinity of the property have been provided by Fairfield City Council in the Section 10.7 (5) Flood Information Sheet for the Site, these levels are provided in **Table 6**.

Table 6 Flood Level at the Site for Large Flood Events

Flood Event	Flood Level (mAHD)	
	Lot 9	Lot 10
Mainstream Flooding (Prospect Creek)		
1% AEP (100 year) event	20.2	20.2
PMF	22.2	22.2
Overland Flows (localised catchment events)		
1% AEP (100 year) event	NA	NA
PMF	NA	20.4

Figure 6 Extract of '100 Year Flood Level Contours and Extents' Flood Map (Bewsher, 2006) extracted from the *Prospect Creek Floodplain Management Plan Flood Study Review Flood Study* (Bewsher, 2006), indicates that the 100 year flood extent is located at the northern boundary of the site. The lowest ground level at the rear of the Site is 20.2 mAHD. This level is only exceeded in flood events greater than the 1% AEP (such as the PMF event).

During the PMF event (see **Figure 7**) inundation would occur across the Site to a depth ranging from 0.6m at the site entrance to up to 2.0m to the rear of the building. Floodwaters would also occur on Victoria Street at the entrance to the Site.

There are no harmful wastes on site which if washed away in a flood would cause environmental harm.

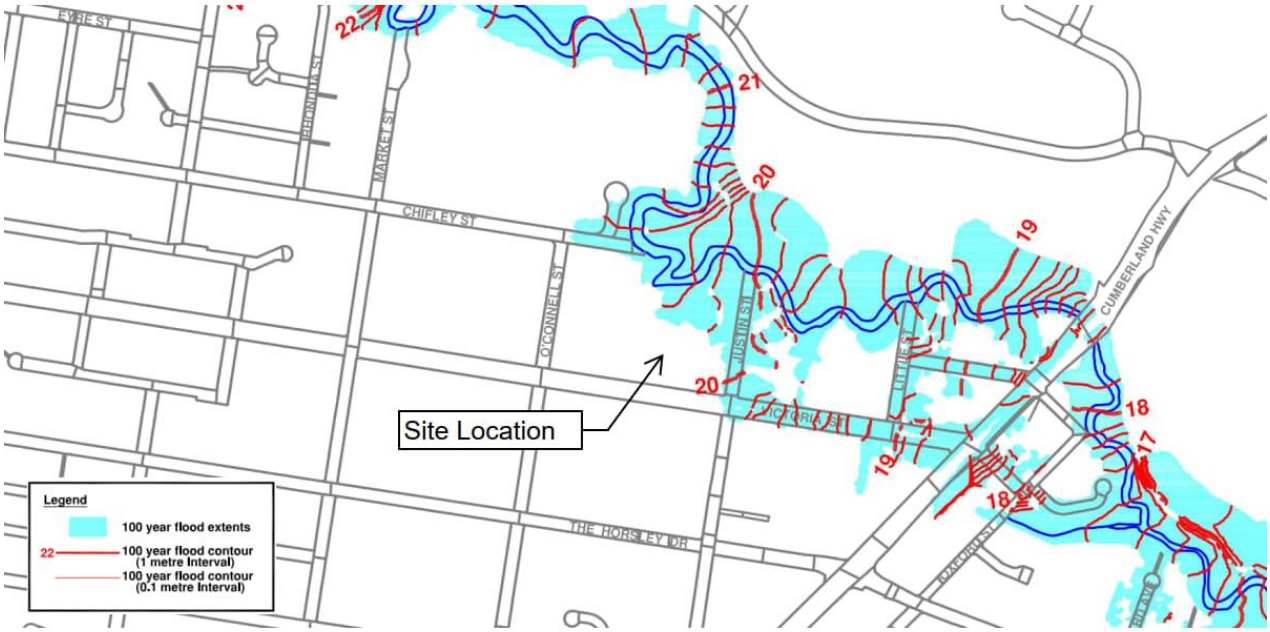


Figure 6 Extract of '100 Year Flood Level Contours and Extents' Flood Map (Bewsher, 2006)

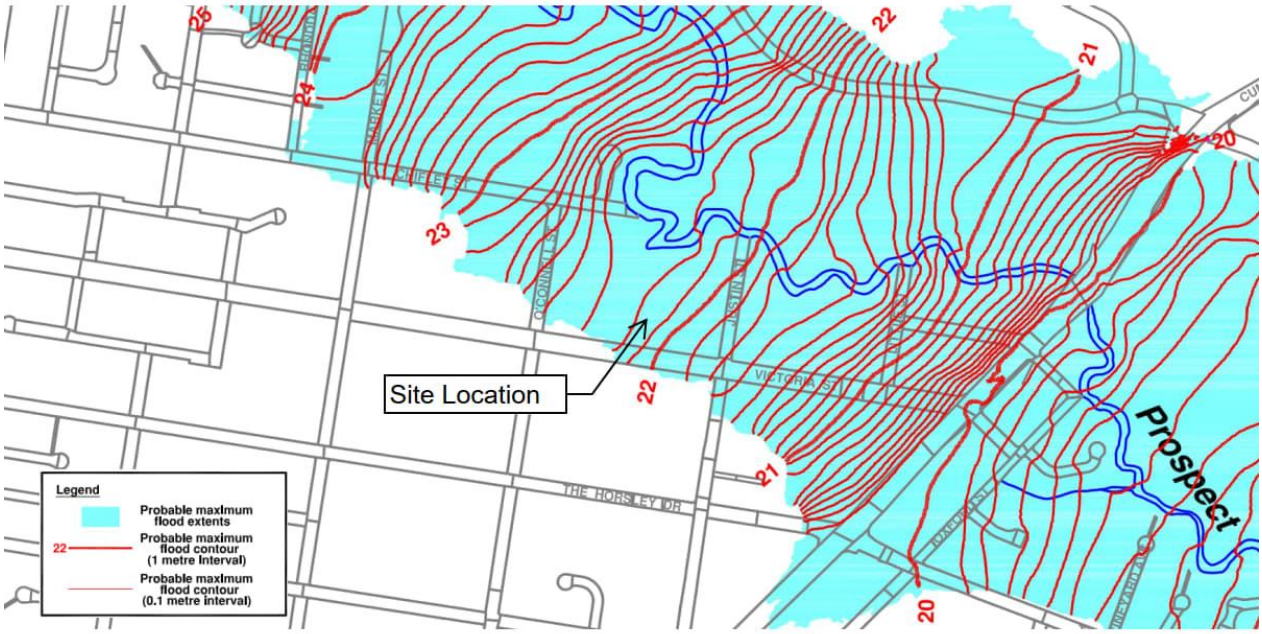


Figure 7 Extract of 'PMF Year Flood Level Contours and Extents' Flood Map (Bewsher, 2006)

The Smithfield Overland Flood Study, SKM 2011 considers flooding events from localised intense rainfall events (rather than catchment wide rainfall across the Prospect Creek catchment). **Figure 8** extracted from this study indicates no flooding would occur onsite as a result of overland flows from flash flooding in the local catchment. Victoria Street at the Site entrance has a level of 20.75 mAHD which is above the PMF flood level. Inundation of Victoria Street occurs to the east of the Site toward the Cumberland Highway.

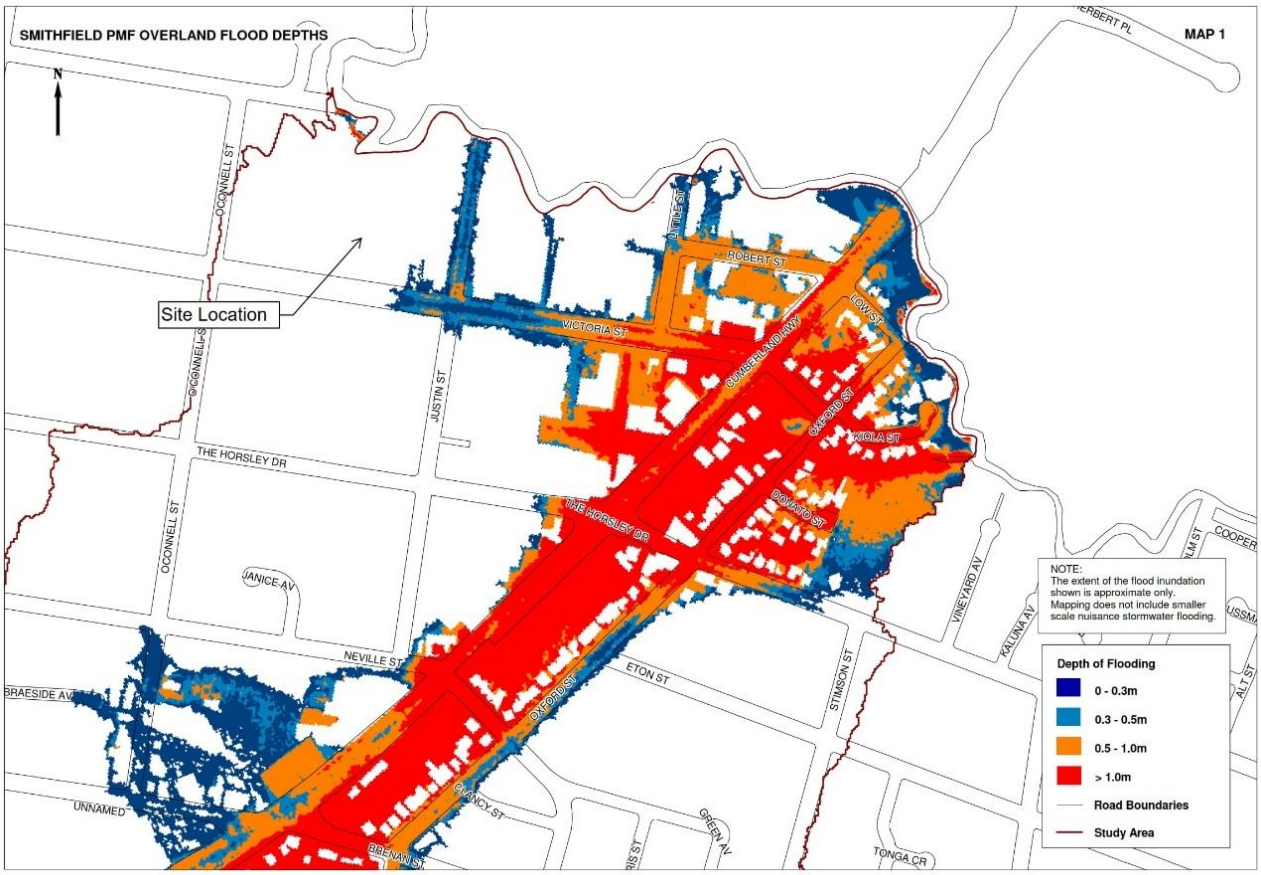


Figure 8 Smithfield PMF Overland Flood Depth (SKM, 2011) (Site Location Marked)

11.6 Emergency Egress during PMF Flood

The site is not impacted by a 100 year flood event.

The site is progressively inundated from the rear during the predicted PMF flood event. Prospect Creek can be considered a ‘flash flood’ catchment due to its rapid response to flooding, which can be less than 6 hours. However, safe egress will be possible via Victoria St to the west for vehicles and pedestrians provided that evacuation commences immediately following initial inundation.

The operating procedures for the site should include information on awareness of the possibility of flooding, and the need to evacuate immediately following initial inundation.

13.0 Monitoring, Licensing and Reporting

13.1 Construction Environment Management Plan (CEMP)

A CEMP will be prepared during the detailed design phase of the Project, and will outline the environmental measures, monitoring and reporting required to ensure satisfactory environmental performance. Minimum requirements for inclusion within the CEMP include:

- Water quality monitoring during the construction phase, will be carried out as described below for the OEMP.
- An Erosion and Sediment Control Plan (ESCP) for construction activities that is consistent with the measures outlined in this EIS.

13.2 Operational Environment Management Plan (OEMP)

An OEMP will be prepared during the detailed design phase of The Project, and will outline the environmental measures, monitoring and reporting required to ensure satisfactory environmental performance.

Minimum requirements for inclusion within the OEMP include:

- Development of a suitable strategy for monitoring and reporting on water quality.
- A procedure for erosion and sediment controls for ground disturbance activities.
- A procedure for managing fire suppression water requirements.
- Requirements for storage and use of hydrocarbons and chemicals, a spill procedure for spillages, and a PIRMP.

14.0 Environmental Assessment

14.1 Assessment of Potential Impacts

Assessment of potential environmental impacts, mitigation, and environmental management during the construction and operation phases of the project is provided in **Sections 14.2** and **14.3** below, using the following method:

- Identify the cause or risk;
- Describe the potential environmental impact (unmitigated);
- Identify project requirements necessary to satisfactorily mitigate the potential impact on the environment;
- Describe the environmental management processes to control and monitor the mitigation measures; and
- Provide an assessment of the residual risk after implementation of mitigation measures.

Further details on selected aspects of the mitigation measures are provided in **Section 8.**

14.2 Construction Phase

14.2.1 Erosion and Sediment Transport

Construction activities on land may expose soils to rainfall and result in discolouration of runoff and sediment transport. Generally, the proposal does not involve earthworks or other ground disturbing activities other than minor disturbance associated with construction of stormwater improvements, so the risk of sediment transport offsite is very low.

Table 7 Erosion and Sediment Transport Impacts and Mitigation Measures

Aspect	Details
Risk/Cause	Construction activities involving earthworks and exposure of site soils/substrate have the potential to cause erosion and transport of sediment transport into the downstream environment.
Potential Impact	Fine sediments exported into the receiving environment can create turbid water which reduces light penetration and carry additional nutrients which impact on riparian ecology and causse bacterial levels to exceed water quality objectives. Coarse sediments exported from site have the potential to build up along creek beds, potentially smothering riparian plants, and reducing water depth in pools.
Requirements for Mitigation	Provide environmental controls in accordance with a site Erosion and Sediment Control Plan (ESCP), to be developed as part of the Construction Environmental Management Plan. Minimum requirements for the ESCP will include: • Sediment fencing on the downslope perimeter of all disturbed areas; • A construction entry/exit to reduce wheel tracking of dirt onto the road; and • Monitor the condition of Victoria Street and if necessary, arrange sweeping to remove accumulated dirt.
Environmental Management	The site Construction Environmental Management Plan will include an ESCP that will detail requirements for erosion and sediment controls during construction.
Residual Risk	Overall, with appropriate ESCP controls on site the risk to the receiving environment is very low.

14.2.2 Construction Site Spills

On all construction sites it is vital to minimise the risk of spills as well as have contingent plans in the event that spills may occur. Given the minor nature of the works required, the risk of spills from construction activities is considered to be low.

Table 8 Construction Site Spills Impacts and Mitigation Measures

Aspect	Details
Risk/Cause	Hydrocarbons or other hazardous materials could be spilled during construction activities from a range of events potentially including disruption or spillage of existing stored hazardous materials, or leakage from machinery. Wash-out from trucks.
Potential Impact	These events could have significant impact on the water quality and ecology of Prospect Creek.

Aspect	Details
Requirements for Mitigation	The risk of environmental contamination from spills and leaks will be mitigated by: • Storage of chemicals in accordance with Australian Standards; and • A PIRMP, including emergency response and EPA notification procedures.
Environmental Management	Requirements for the storage and use of hydrocarbon fuels and other chemicals on site will be documented in the Construction Environmental Management Plan. The Construction Environmental Management Plan will also include requirements for spill management and reporting.
Residual Risk	Overall, with the implementation of suitable controls these risks are low and considered readily manageable. These risks are typical for all construction sites.

14.3 Operational Phase of Development

14.3.1 Fire Events

The risk of fire events and consequent contaminated runoff is present for the operational phase of the project, mitigation is required as well as having contingent plans in place should a fire occur.

Table 9 Fire Events Impacts and Mitigation Measures

Aspect	Details
Risk/Cause	Contaminated runoff could enter the receiving environment from the warehouse in the event of a fire, where runoff is generated from the fire suppression system and is not properly captured on site.
Potential Impact	These events could have significant impact on the water quality and ecology of Prospect Creek.
Requirements for Mitigation	The risk of environmental contamination from fire water runoff will be mitigated by: • Containment of firewater through the stormwater management system; • A stormwater isolation control; and • A PIRMP including emergency response and EPA notification procedures.
Environmental Management	Requirements for the storage and containment of fire water runoff on site will be documented in the Operational Environmental Management Plan (OEMP). The OEMP will also include requirements for spill management and reporting.
Residual Risk	Overall, with the implementation of suitable controls these risks are low and considered readily manageable. These risks are typical for resource recovery facilities.

14.3.2 Site Wastewater

Operational processes on site may cause rubber dust on the building floor which should not be allowed to be washed off into the receiving environment.

Table 10 Site Waste and Water Impacts and Mitigation Measures

Aspect	Details
Risk/Cause	Water contaminated with rubber dust
Potential Impact	Rubber dust is not a known chemical contaminant, but nevertheless it is undesirable for rubber dust to discharge into the receiving environment where it may contribute to stream turbidity and adversely affect aquatic ecosystems.
Requirements for Mitigation	The risk of environmental contamination from site wastewater will be mitigated by: • All waste processing occurring under roof; • Air filters on processing equipment will capture nearly all rubber dust; • Containment of washdown water within bunds around the building perimeter; • Collection of washdown water and disposal to the sewerage system under a trade waste agreement • A PIRMP including emergency response and EPA notification procedures.
Environmental Management	Requirements for the storage and containment of site wastewater on site will be documented in the OEMP. The OEMP will also include requirements for water quality monitoring and reporting.
Residual Risk	Overall, with the implementation of suitable controls these risks are low and considered readily manageable.

14.3.3 Stormwater

With regard to proposed site activities and stormwater system the following aspects are noted:

14.3.3.1 Hydrology

As described in Section 8.4 the development will not change the imperviousness of the current site, and there will therefore be no increase tin he volume of runoff from the Site to the receiving environment.

Table 11 Hydrology Impacts and Mitigation Measures

Aspect	Details
Risk/Cause	The increase in either volume or peak discharge of stormwater to the receiving environment.
Potential Impact	An increase in site discharge can cause erosion in waterways, and/or overland flows.
Requirements for Mitigation	The site redevelopment will not result in an increase in the hydrology of the site due to to no increase in impervious area for the site.
Environmental Management	Management techniques for this risk is not required as it is expected that there will be no increase in volume or peak discharge to the receiving environment.
Residual Risk	Overall, the risk of increased stormwater discharge from site remains low.

14.3.3.2 Water Quality

It is important to effectively manage water quality risks so that there is no impact on the receiving waterbodies.

With regard to proposed site activities and stormwater system the following aspects are noted:

- Driveway and parking areas have potential to generate oils and greases, sediments and trash and require treatment prior to discharge.
- All wastes will be stored under roof and will therefore not generate any contaminated runoff reporting to the stormwater system as a result of rainfall events.

Potential environmental impacts associated with water quality from runoff is discussed below.

Aspect	Details
Risk/Cause	Litter and debris, oils and greases, dirt and nutrients washed off hardstand/driveway areas. Contaminants 'wheel rolled' out of sheds by vehicle movements.
Potential Impact	Water pollution from driveway and hardstand areas have the potential to adversely affect the water quality of the receiving water environment and in turn adversely impact the health of aquatic ecosystems, reduce the aesthetic amenity of the waterway for residents, increase health risks to people involved in secondary recreational activities. Higher nutrient loads (phosphorous and nitrogen) promote rapid growth of aquatic plants, and can lead to can lead to algal blooms, or elevated bacteria levels. Metals such as copper, zinc and lead can be toxic at elevated levels, and can bio-accumulate in an ecosystem.
Requirements for Mitigation	Management of wastes – all wastes received under roof. The only rubber products to be stored outside are to be undercover and bunded to prevent leachate generation via runoff. Site management practices – periodic washdown of trafficable areas inside building to prevent accumulation of rubber products and potential for wheel tracking these out of the building. A stormwater treatment train is proposed which will meet the pollutant requirements of Fairfield City Council DCP. The proposed stormwater system includes a water treatment control to retain sediments that may wash off the hardstand after being wheel tracked out of sheds, as well as leachates and oils, see **Section 8.5**.
Environmental Management	• If excessive dirt becomes evident across driveway or hardstand areas, then these areas should be cleaned. Site operational management procedures should include periodic inspection of the driveways (weekly initially for first 6 months of operation and then relaxing to monthly if the need for washing down is not evident). • Water quality should be monitored monthly (during rainfall events) during the first 12 months to allow evaluation of the efficacy of the proposed water treatment train along with site management measures. Analytes should at least include TSS, TN, TP and Hydrocarbons (including oil & grease). If there are exceedances of the trigger values listed in this report then these should be investigated, and a report submitted to NSW EPA. Refer to **Section 7.0** for additional information on trigger levels.

Aspect	Details
	• The water quality devices proposed require regular inspection and maintenance as recommended by the supplier. Inspection and maintenance requirements will be documented in the OEMP for the facility.
Residual Risk	Overall, with the implementation of suitable controls these risks are considered low.

15.0 References

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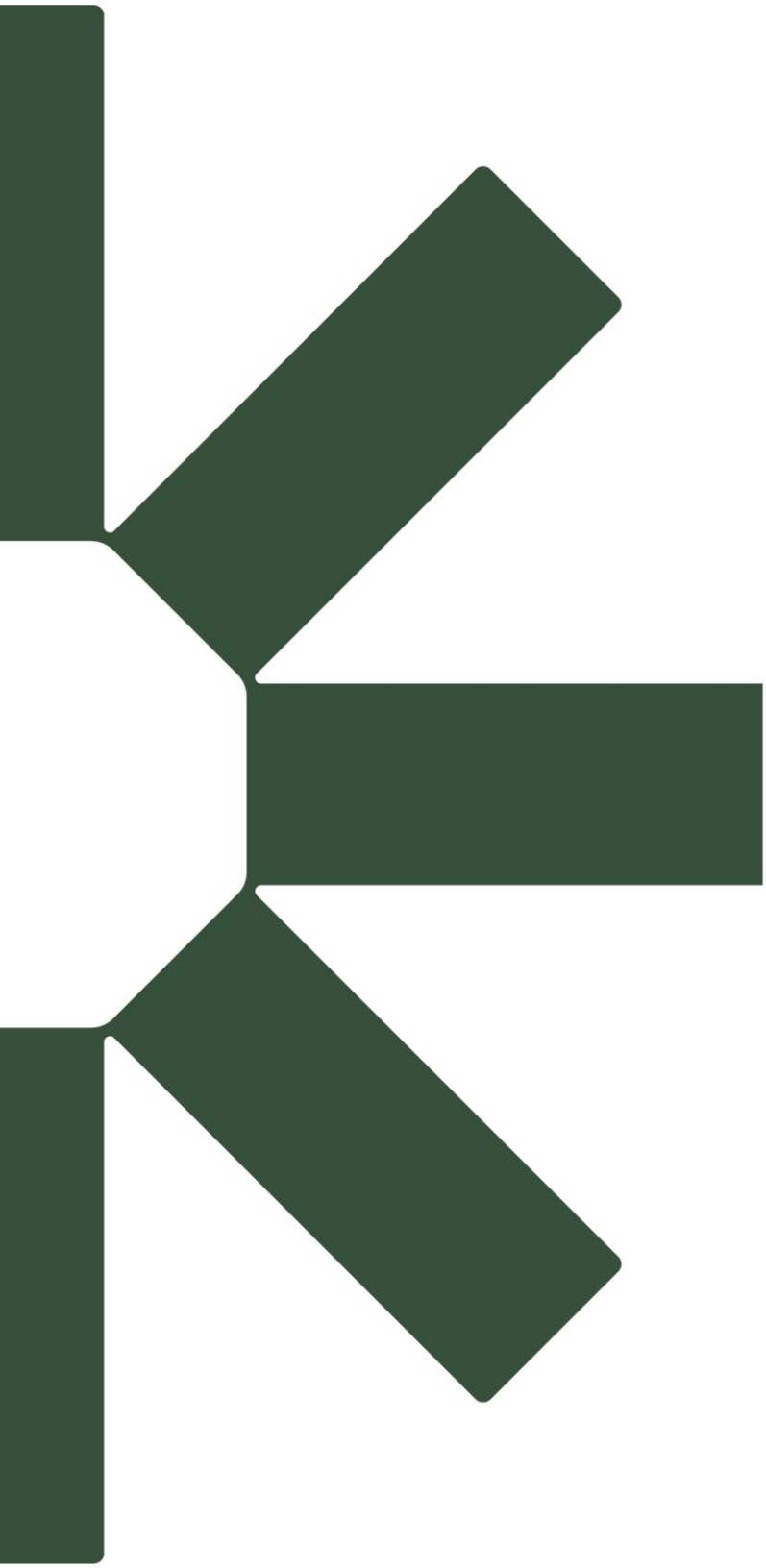

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