Northern Environmental Design

STORMWATER MANAGEMENT REPORT

Proposed Dwelling
8 Ebden Street
Noble Park

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FOR

4 May 2026

File 317BI

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Issue	Date	Prepared by	Checked by	Status
A	15 August 2025	JD	MD	Draft
B	18 August 2025	JD	MD	Draft
B	18 August 2025	JD	MD	Final
C	25 August 2025	JD	MD	Final
D	16 April 2026	JD	MD	Draft
D	4 May 2026	JD	MD	Final

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1. EXECUTIVE SUMMARY

This Stormwater Management Report is intended to support the planning application and demonstrate how the proposed residential development meets the WSUD and Stormwater objectives set out in Greater Dandenong Planning Scheme. The WSUD guidelines of the Melbourne Water have been utilised in order to identify the best WSUD/storm opportunities and water management options for residents which will:

• reduce potable water consumption

• reduce wastewater discharge

• maximise water reuse and

• achieve best practice management goals

2. INTRODUCTION

Northern Environmental Design has been engaged by to identify and provide WSUD opportunities in relation to the proposed dwelling at 8 Ebden Street, Noble Park.

This report was based on plans provided by JRichard Designs:

Drawing No.	Description	Revision	Date
TP.01	Cover page	C	15 Sep 225
TP.02	Site & neighbourhood	C	15 Sep 225
TP.03	Design response	C	15 Sep 225
TP.04	Existing & demolition – floor plan	C	15 Sep 225
TP.05	Proposed ground floor plan	C	15 Sep 225
TP.06	Proposed first floor plan	C	15 Sep 225
TP.07	Proposed roof plan	C	15 Sep 225
TP.08	Elevations	C	15 Sep 225
TP.10	Material & colour schedule	C	15 Sep 225

- Discussions and correspondence with:
  - JRichard Designs

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3. WSUD INITIATIVES & WATER MANAGEMENT

We have reviewed the plans prepared by JRichard Designs and recommended a package of WSUD initiatives with the aim of meeting the WSUD/Storm objectives of Greater Dandenong council.

3.1 Water Management

Rainwater Harvesting

Design Response/ Performance Commitments	Notes
Details about rainwater harvesting system proposed for the development are listed below: • Collection area: Selected roof areas • 2,000 litres tank per Unit 2 • Re-use of water for toilet flushing, laundry & irrigation Note: Existing dwelling (Unit 1) will have a 2,000L tank for toilet flushing & irrigation	

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3.2 Stormwater Management

Stormwater Quality

Design Response/ Performance Commitments	Notes
The development achieves a Bue Factor STORM score of 104%. Rainwater tanks connected to toilets and the use of permeable driveway area are used to meet the Storm requirement.	The STORM rating achieved indicates that the proposed development meets the best practice performance objectives outlined in the *Urban Stormwater Best Practice Environmental Management Guidelines (CSIRO 1999)* and therefore meets the policy objectives of Council's Stormwater Management Policy. Refer to **Appendix 1** for the Blue Factor STORM report.

Permeable Driveway/Paving

Design Response/ Performance Commitments	Notes
All of the proposed common driveway (Approx. 151m^2) will be permeable.	It is important to consider the loading on the paving (e.g. pedestrian versus vehicle) when selecting the most suitable permeable paving product. Refer to **Appendix 3** for details about permeable driveway areas.

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3.3 Landscaping

Plants

Design Response/ Performance Commitments	Notes
Water efficient/drought tolerant plants (native and indigenous plants) will be selected.	

3.4 Site Management Plan for Stormwater

Implementation Strategy

Design Response/ Performance Commitments	Notes
The following strategies should be considered: • Clean-up of general site litter on a weekly basis, prior to anticipated heavy rainfall and after significant rainfall events (>25mm/24hours). • Sediment traps or drain filters should be installed on all pit inlets. • Stabilised vehicle entrances with suitable crushed rock or suitable material • Erosion control blankets for mounded earth to minimise sedimentation after rainfall • Suitable bins are provided for general litter as well as where food is consumed. • Separate bins for paints and solvents to allow for safe removal and disposal at accredited locations. • Correct stockpiling away from drainage paths to prevent stormwater contamination & site pollution. • Temporary downpipes to prevent localised flooding due to lack of site drainage	This should be done to reduce sediment build-up, restrict runoff to adjoining properties and ensure minimal earth disturbance during construction.

Monitoring

Design Response/ Performance Commitments	Notes
Sediment control measures to be inspected by the site manager (or nominated representative) during periods of runoff-producing rainfall, and de-silted, repaired. (a) **Weekly site inspections** must include: • all drainage, erosion and sediment control measures; • occurrences of excessive sediment deposition (whether on-site or off-site); • occurrences of construction materials, litter or sediment placed, deposited, washed or blown from the site, including deposition by vehicular movements; • litter and waste receptors; • oil, fuel and chemical storage facilities. (b) Site inspections immediately **prior to anticipated runoff-producing rainfall** must include:	

• all drainage, erosion and sediment control measures; (c) Site inspections immediately **following runoff-producing rainfall** must include: • treatment and de-watering requirements of sediment basins; • sediment deposition within sediment basins and the need for its removal; • all drainage, erosion and sediment control measures; • occurrences of excessive sediment deposition (whether on-site or off-site); • occurrences of construction materials, litter or sediment placed, deposited, washed or blown from the site, including deposition by vehicular movements;	

Identification of Incident or Failure

Design Response/ Performance Commitments	Notes
Non-compliance with agreed performance criteria will be identified by: Visual inspections identifying: • build-up of sediment off the site; • excessive sediment build-up on the site; • excessive erosion on the site; • release of construction material from the site.	

Corrective Action

Design Response/ Performance Commitments	Notes
After any identification of incident or failure, the source/cause is to be immediately located and the following measures implemented: • Build-up of sediment off and on the site – the material must be collected and disposed of in a manner that will not cause ongoing environmental nuisance or harm; • Release of construction material from the site – collected and disposed of in a manner that will not cause ongoing environmental nuisance or harm; then inspect litter and waste receptors	

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3.5 Maintenance Program

Rainwater Harvesting System

Design Response/ Performance Commitments	Notes
Once a rainwater tank is installed, it is recommended that the following components of the roof catchment and tank be inspected at least every twelve months: • Gutters – they generally will need cleaning as well as inspection. If inspection finds large amounts of leaf material or other debris, then the inspection and cleaning frequency may need to be increased. • Roof – check for the presence of accumulated debris including leaf and other plant material. Accumulated material should be cleared. If tree growth has led to overhanging branches these should be pruned. • Tank inlets, insect-proofing and leaf filters – if necessary these should be cleaned and repaired. • Pipework – check for structural integrity. Sections of pipework that are not self-draining should be drained. Buried pipework, such as with 'wet systems', can be difficult to drain or flush. Where possible drainage points should be fitted. For an underground tank with mains back-up, get a plumber to check the back-flow prevention valves every 12 months. • Rainwater pumps typically need servicing or replacing after approximately 10 years of use.	Note that the owner will be responsible for the maintenance. Refer to Appendix 4 for a maintenance checklist.

Permeable Driveway/Paving

Design Response/ Performance Commitments	Notes
Permeable driveways/paving need to be periodically swept (e.g. with a street sweeper for larger areas) or pressure hosed to prevent clogging and therefore a reduction in the infiltration capacity	Note that the owner will be responsible for the maintenance. Refer to Appendix 4 for a maintenance checklist.

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4. CONCLUSION

This report presents the Stormwater Management principles and strategies identified for the proposed dwelling at 8 Ebden Street, Noble Park

The analysis presented in this report demonstrates that the proposed development meets the Council's WSUD/STORM Policy and complies with the best practice performance objectives outlined in the *Urban Stormwater Best Practice Environmental Management Guidelines (CSIRO 1999) and Clause 55.05-01 Stormwater Management In Urban Development and Clause B5-1 Permeability and stormwater management.*

Director

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Appendix 1: Blue Factor STORM Result

Project # DAB22A27
8 Ebden Street Noble Park

BLUE FACTOR.

8 Ebden St, Noble Park North VIC 3174, Australia
16 April 2026 3:33 p.m.

8 Ebden Street Noble Park

The proposed stormwater treatments provide 'deemed to comply' compliance with the minimum planning requirement for total nitrogen but does not comply with all the relevant objectives for management of stormwater flows on-site.

104%
SCORE

Project details

Name	8 Ebden Street Noble Park
Project ID	DAB22A27
Street address	8 Ebden St, Noble Park North VIC 3174, Australia
Municipality	Greater Dandenong
Site area	534 m^2
Planning Number	

Flow and pollutant load reductions

Item	Result	Target	
Mean annual runoff volume harvested or evapotranspired (%)	43%	>27%	✓
Mean annual runoff volume infiltrated or filtered (%)	0%	>9%	✗
Total suspended solids (%)	57%	>80%	✗
Total phosphorus (%)	53%	>45%	✓
Total nitrogen (%)	47%	>45%	✓
Total gross pollutants (%)	71%	>70%	✓

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Water treatment

Configuration 1



Unit 1 roof area to tank Roof, 68m2



Rainwater Tank 1
Rainwater tank retention volume in kilolitres: 2

Configuration 2



Unit 2 roof area to tank Roof, 77m2



Rainwater Tank 2
Rainwater tank retention volume in kilolitres: 2

Catchments



Unit 1 roof area to tank Roof, 68m2



Unit 2 roof area to tank Roof, 77m2



Untreated Unit 1 roof area Roof, 56m2



Permeable driveway Pervious (garden and lawn), 151m2



Permeable areas Pervious (garden and lawn), 182m2

Treatments



Rainwater Tank 1
Rainwater tank retention volume in kilolitres: 2 **129%**



Rainwater Tank 2
Rainwater tank retention volume in kilolitres: 2 **158%**

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Buildings & dwellings



Unit 1 Residential Townhouse, 2 bedroom(s)

Water sources	I want to use the average efficiency for a typical new dwelling or building
Basin taps - Primary water source	Mains water
Showers - Primary water source	Mains water
Clothes Washer - Primary water source	Mains water
Toilets connected to mains water	0
Toilets connected to rainwater	2
Toilets connected to recycled water	0
Garden water use	Garden water demands are in use
Garden primary water source	Rainwater
• Mains	0 m^2
• Rainwater Tank	0 m^2
• Recycled Water	0 m^2
Garden water use efficiency	

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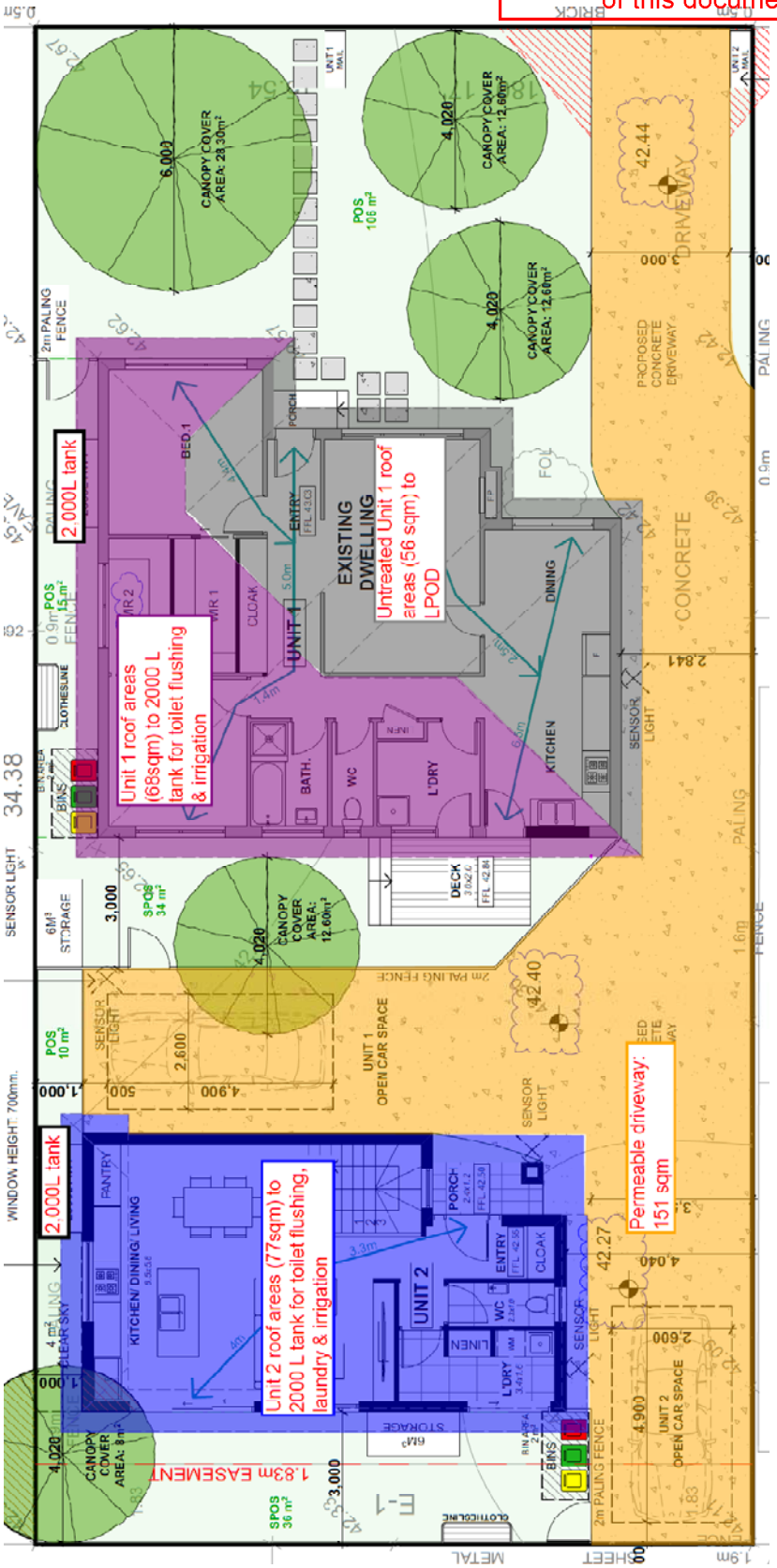
Unit 2 Residential Townhouse, 2 bedroom(s)

Water sources	I want to use the average efficiency for a typical new dwelling or building
Basin taps - Primary water source	Mains water
Showers - Primary water source	Mains water
Clothes Washer - Primary water source	Rainwater
Toilets connected to mains water	0
Toilets connected to rainwater	3
Toilets connected to recycled water	0
Garden water use	Garden water demands are in use
Garden primary water source	Rainwater
• Mains	0 m^2
• Rainwater Tank	0 m^2
• Recycled Water	0 m^2
Garden water use efficiency	

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Appendix 2: WSUD Mark-Up Plan



Appendix 3: Example of Permeable Driveway/Paving

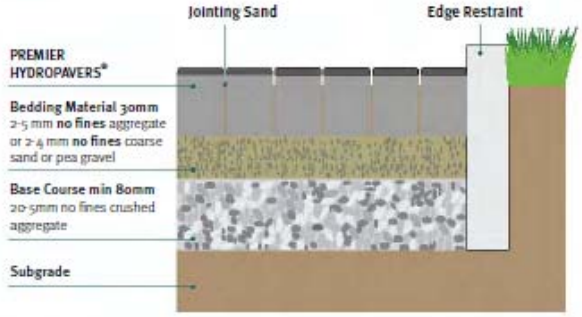
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Premier Hydropavers® ... so much better



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WHAT ARE PERMEABLE PAVING SYSTEMS?



Permeable Paving Systems (PPS) channel water through to the subgrade, reducing or eliminating runoff caused by rain. PPS are an environmentally friendly method of preserving water which contribute significantly to Water Sensitive Urban Design. Additionally, permeable paving systems also contribute to the Climate Sensitive Urban Design by evaporating rain and stormwater into the atmosphere allowing for cooler surroundings.

THE Premier Hydropavers® DIFFERENCE

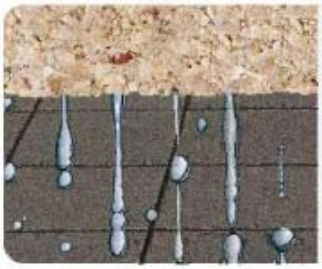
Pavers A Step Above

Unlike other permeable paving products which require extraction of raw materials, Premier Hydropavers® are sustainable, eco-friendly and attractive permeable pavers manufactured entirely from recycled ceramic material. Their innovative patented design is backed by a Lifetime Warranty.

Water is absorbed into and permeates through the pavers at the rate of 25mm per minute, reducing runoff and eliminating ponding. Compressed at 1,600 tonnes and kiln-fired at 1200°C during manufacture, Premier Hydropavers® are stronger than other permeable paving products on a weight ratio basis and, at a thickness of just 55mm, are suitable for heavy vehicular traffic. Available in a range of appealing colours and sizes, Premier Hydropavers® are adaptable to any design and will bring a touch of class to every project.

Range & Warranty

Premier Hydropavers® are available in a variety of attractive colours and sizes, including tactile pavers to regulation standard. Being a ceramic product that has been fired at 1200°C, Premier Hydropavers® will maintain their colour indefinitely and carry a lifetime warranty.



Super high permeability

Premier Hydropavers® are 100% permeable across their surface and function as a sponge. The initial 5mm of rain is absorbed within the paver and returned to the atmosphere via evapotranspiration. Additional rainfall permeates through the Premier Hydropavers® at the rate of 25mm/minute.

Premier Hydropavers® are perfect for:

- ✔ Roads
- ✔ Driveways
- ✔ Carparks
- ✔ Footpaths
- ✔ Garden paths
- ✔ Alfresco areas and patios
- ✔ Courtyards
- ✔ Walkways
- ✔ Shopping Centres



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WHY WE ARE *so much better*



Safety and comfort

Rain water seeps into Premier Hydropavers® rather than ponding, greatly reducing the risk of slipping. Premier Hydropavers® have a non-slip surface that has a British Pendulum Number of a minimum of 65 - particularly relevant around pool areas. Premier Hydropavers® will also reduce sun glare and night reflection.



Eco friendly

The entire surface of Premier Hydropavers® acts as a drain, thereby preserving water and preventing erosion. Contaminants will be filtered out of the water before it reaches the sub-grade, providing clean water to nourish vegetation or flow into our waterways.

Easier planning approval

Countries around the world and local governments in Australia are increasing their demands for water saving solutions to be applied to all paved areas. Premier Hydropavers® comply with all AU building codes and make it easier to satisfy and meet local permeability quotas.

Cost efficient

The use of Premier Hydropavers® minimises the need for stormwater drains and cuts costs accordingly. In addition, ease of obtaining planning approval helps to reduce interest and holding costs, while savings are made in the longer term due to low maintenance requirements.



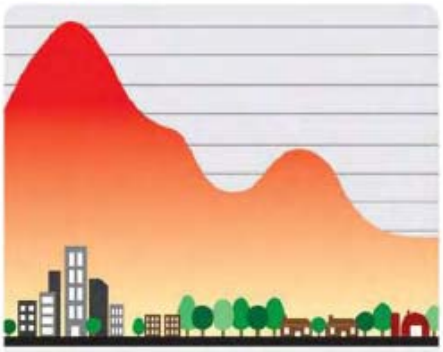
Strength

Just 55mm thick irrespective of their surface area, Premier Hydropavers® have a breaking strength of 10kN to 20kN and compressive strength >50MPa, making them suitable for all types of traffic - from heavy vehicles to pedestrians.



Easy maintenance

Premier Hydropavers® require the same maintenance regime as any other paved area. They can easily be swept or cleaned by high pressure wash and there is no joint clogging. The patented structure allows the pavers to keep their permeability with minimal attention.



Urban Heat Island

Evaporation of water from the pavers can help regulate surface temperatures and humidity, mitigating the urban heat island effect.

Lifetime Sustainability

Premier Hydropavers® are permeable pavers manufactured entirely from recycled ceramic material and require zero raw material extraction.

Noise reduction

The patented permeable structure of Premier Hydropavers® can absorb vehicle noise and city hubbub, contributing to a peaceful environment.

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RANGE OF Premier Hydropavers®



CHARCOAL SILVER DARK GREY SAND TACTILE PAVERS

Sizes Available: 200x100x55mm 300x300x55mm 600x300x55mm

Special colours and sizes available on request.

Colours & Sizes Available: Please enquire







"Premier Hydropavers® are the most advanced permeable paving solution I've come across. They Work!"

Nic Van Diemen, permeable paving and landscaping expert, fellow ISSI member

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PERMEABLE PAVING SPECIALISTS

WATERPAVE IS THE INDUSTRY LEADER AND INNOVATOR IN THE CONSTRUCTION OF BONDED PERMEABLE OR PERVIOUS PAVING, SERVICING THE CIVIL, COMMERCIAL AND RESIDENTIAL CONSTRUCTION INDUSTRIES.

WaterPave now offers two permeable concrete systems: DriveCon™ and DriveTec™. Unlike 'no-fines' concrete, which has virtually no structural integrity, both WaterPave systems have been engineered to carry everyday vehicle loads, while allowing the rain water to flow through and recharge the soil below to satisfy local council permeability requirements.

DRIVECON™ PERMEABLE CONCRETE

DriveCon™ is WaterPave's single-pour method made up of specialised binders and fine aggregates mixed together to form a strong, rigid paving system. The result is a flat, smooth finish allowing the water to pass through, reducing the effects of flooding and slowly returning the much-needed rain water back to the water table.

DriveCon™ is not only the most efficient permeable system on the market, it is also the most affordable. It can be installed on the smallest of areas to large commercial applications. A specialised coloured sealer and a border to frame the paving can be added to any project to enhance the overall appearance.



APPLICATIONS

Driveways, car parks, roadways, crossovers, footpaths, golf course paths, rear patios, tree protection zones and water-sensitive areas where an increased level of permeability is required.

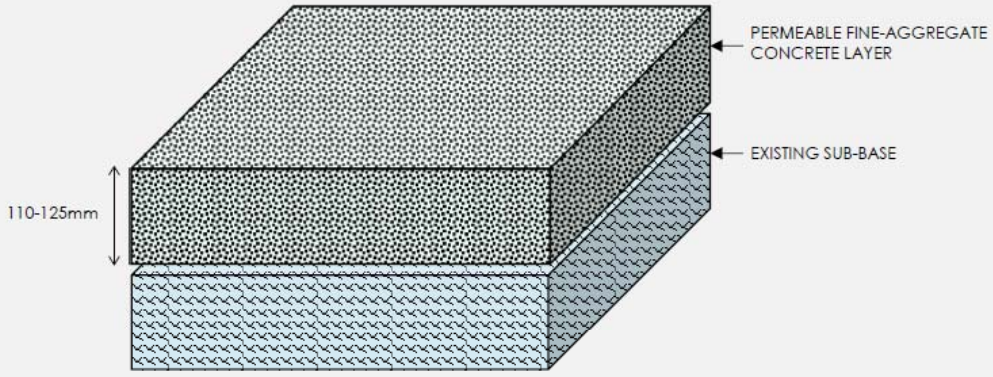
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TECHNICAL INFORMATION

- Infiltration rates when new are greater than 20L/s/m2.
- Complies with Australian Standard AS 4586:2013 for Slip Resistance with a Classification of P5.
- At 120mm thick, General Mass Limits (GML) of up to 10 tonne can be carried.



COLOUR RANGE

While care is taken to correctly represent the final installed product, specifications and colours may vary without notice.



NATURAL | BLUESTONE oxide | CHARCOAL oxide

Additional colours available upon request

MAINTENANCE

WaterPave offers a full maintenance programme to keep its permeable paving system performing at its optimum flow rates all year 'round.

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Appendix 4: Maintenance Checklists

Rainwater Tank Maintenance Checklist:

Maintenance of rainwater tanks is important to ensure the quality of water is high, key tasks include:

- Stop leaf litter and debris entering the tank.
- Prevent bird droppings and dust building up in the gutters.
- Prevent mosquitos and other animals entering the tank.

Rainwater tank element	Inspection item	Maintenance task	Frequency
Roof, gutters & downpipes	Check if there is leaf litter or debris in the gutters.	If there is litter or debris, remove by hand and dispose of responsibly. Regularly clear your gutters. Make sure you cover the tank inlet if you are rinsing down the gutters to avoid debris entering the tank.	Quarterly
First flush diverter	Check if there is anything blocking the first flush diverter.	If there is anything blocking the diverter, remove by hand and dispose of responsibly. To clean out, unscrew the cap at the base of the diverter and remove the filter. Wash the filter and the flow restrictor inside the cap with clean water.	Quarterly
Potable mains back up device	Check that the potable mains back up switch is operating correctly.	If it is not operating correctly, repair or replace the device.	6-Monthly
Mesh cover	Inspect the mesh cover for deterioration and holes.	If the mesh cover has deteriorated or has holes, replace the cover. The mesh cover should be regularly cleaned.	Quarterly
Tank volume	Inspect the tank to see if there is a large amount of sediment or debris at the bottom that reduces the volume available for water storage.	If there is sediment or debris at the bottom, remove the sediment and dispose of responsibly. A range of devices are available to monitor water level. Some simple float systems can be used effectively.	2-3 Years
Pump	Check that the pump is working effectively.	If the pump is not working, check that the potable mains back up is not permanently on. Repair or replace the pump as required. Check operating instructions for your pump. Check that pumps are kept clear of surface water (flooding), vegetation, and have adequate ventilation. Pumps should be serviced every few years to prolong the pump's life.	6-Monthly
Pipes & taps	Check pipes and taps for leaks.	If there are leaks, repair as needed.	Quarterly
Overflow	Inspect the overflow to ensure it is clear and connected to the stormwater network.	If it is unclear, remove blockages and restore the connection as required.	Quarterly
Supporting base	Check the supporting base for any cracks or movements.	If the supporting base is damaged, replace as required.	2-3 Years

The owner should keep a maintenance log of when the tasks above have been undertaken.

Permeable/Porous Pavement Maintenance Checklist:

Permeable/porous pavements allow water to drain through the pavement surface and seep into the ground below. This benefits vegetation by improving access to air and water. It also helps the environment by reducing the amount of stormwater runoff and pollutants that enter the Bay.

Permeable pavement – pavers, concrete or asphalt that have been designed to allow water to flow through them (i.e. the paving materials are porous)

Porous pavement – can be created with traditional masonry pavers that have a porous jointing material between the pavers, which is loose laid and allows water to drain between the pavers.

Permeable/Porous paving element	Inspection item	Maintenance task	Frequency
Paving surface	Check for accumulated sediment	Sweep, wet vacuum, or pressure hose the surface of the pavers to remove clogging material. Care needs to be taken with high pressure hoses as they can cause damage to loose material in the joints and bedding material.	Quarterly and following storm events
Infill material between pavers	Check the material between the paves has not been eroded away or has vegetation growing in it	Top up between the pavers with suitable drainage material. Remove any unwanted vegetation.	Quarterly and following storm events
Bedding Material (material pavers are laid on)	Check level of the pavement surface	An uneven paving surface can result from the bedding material failing to provide and even base. The paving and bedding material may need to be reset.	Annually
Underdrain (if required)	Check inspection openings for sediment accumulation	In areas where soils have poor drainage (e.g. heavy clays), an underdrain may be needed under the drainage layer. Flush underdrain to remove sediment (if required).	Annually

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