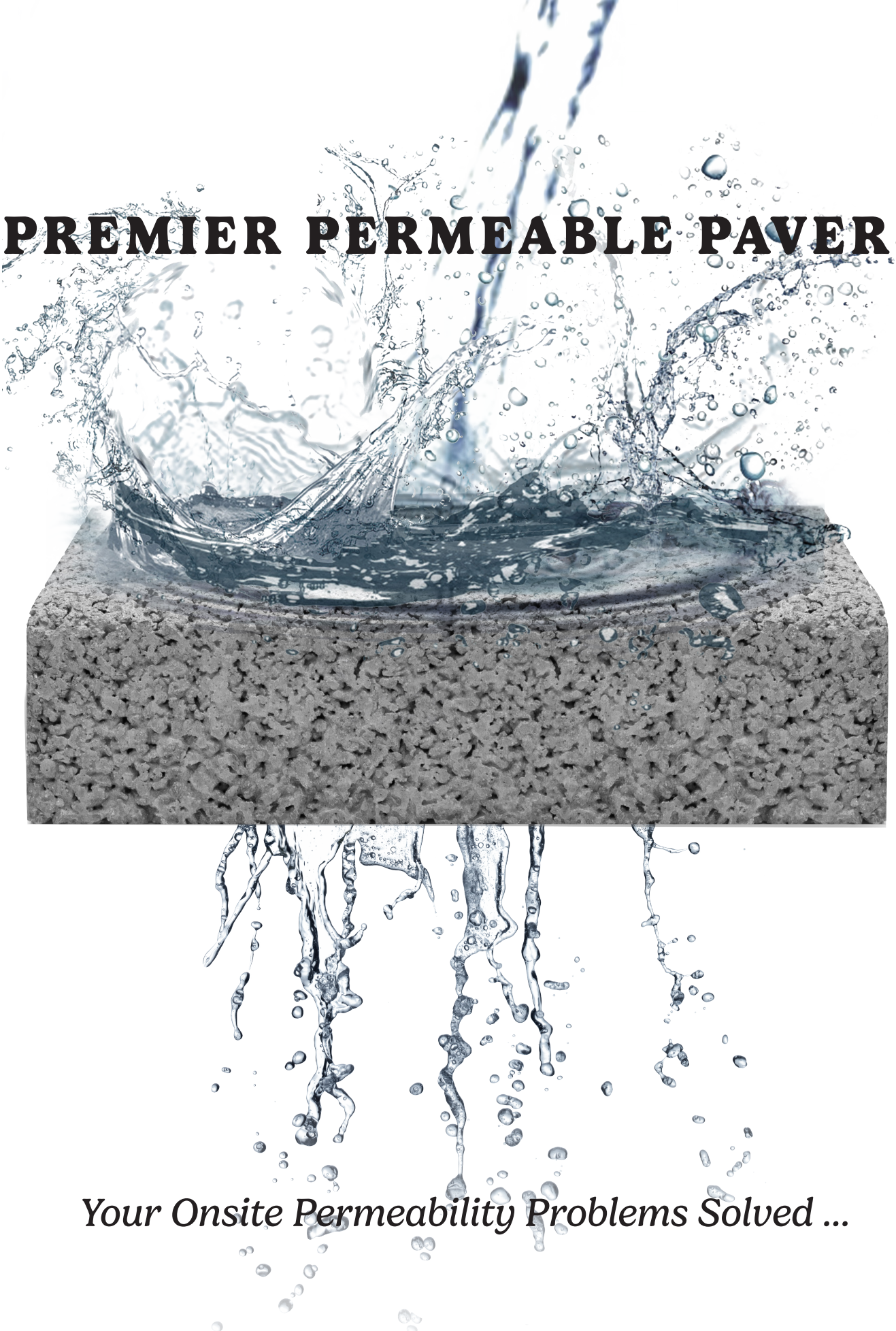
PREMIER PERMEABLE PAVERS



Your Onsite Permeability Problems Solved ...

PREMIER™ PAVERS

100% MADE IN NZ

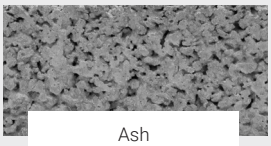
Finally, an attractive & practical permeable surface solution that is easy to install & maintain.

It is time to say goodbye to ugly & impractical permeable surfaces.

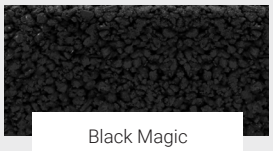
Here are the benefits for you:

- Highest water flow through rate. 1900 ml per m², per hour.
- Easy to install.
- No more ugly grout gaps & unsightly weed issues.
- Consistent texture & colour.
- Very low maintenance.
- 2 designer colours, 3 designer sizes.
- Approved installers available.
- Made in NZ by great Kiwis, for great Kiwis.
- Can be installed in almost any weather. Reduce projects delays.

Available in 2 Designer Colours



Ash

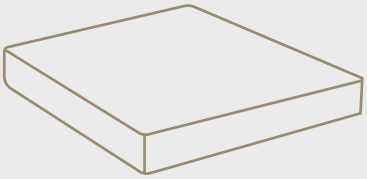


Black Magic

Available in 3 Designer Sizes

Monsoon 230x115x60 mm
(For Driveways)
38 pavers per m²

Monsoon 230x115x80 mm
(For Commercial)
38 pavers per m²



Torrent 400x400x40 mm
(For Patio & Paths)
6.25 pavers per m²

Permeable surfaces made easy & attractive

Permeable pavers are zero-fines, permeable paving units. They lock together in the same fashion as typical block paving.

Rainwater passes through the paving units themselves without the need for oversized spacers between paving units and avoiding issues like ants and weeds, etc.

Supplied in 40, 60 and 80mm thick with a compressive strength of over 30 MPa, they are suitable for both light and heavy traffic loads.

Permeable pavers have a permeability rate of over 1900mm/hr making them suitable for even the most extreme levels of rainfall.

0800 22 22 98

info@premier-group.co.nz

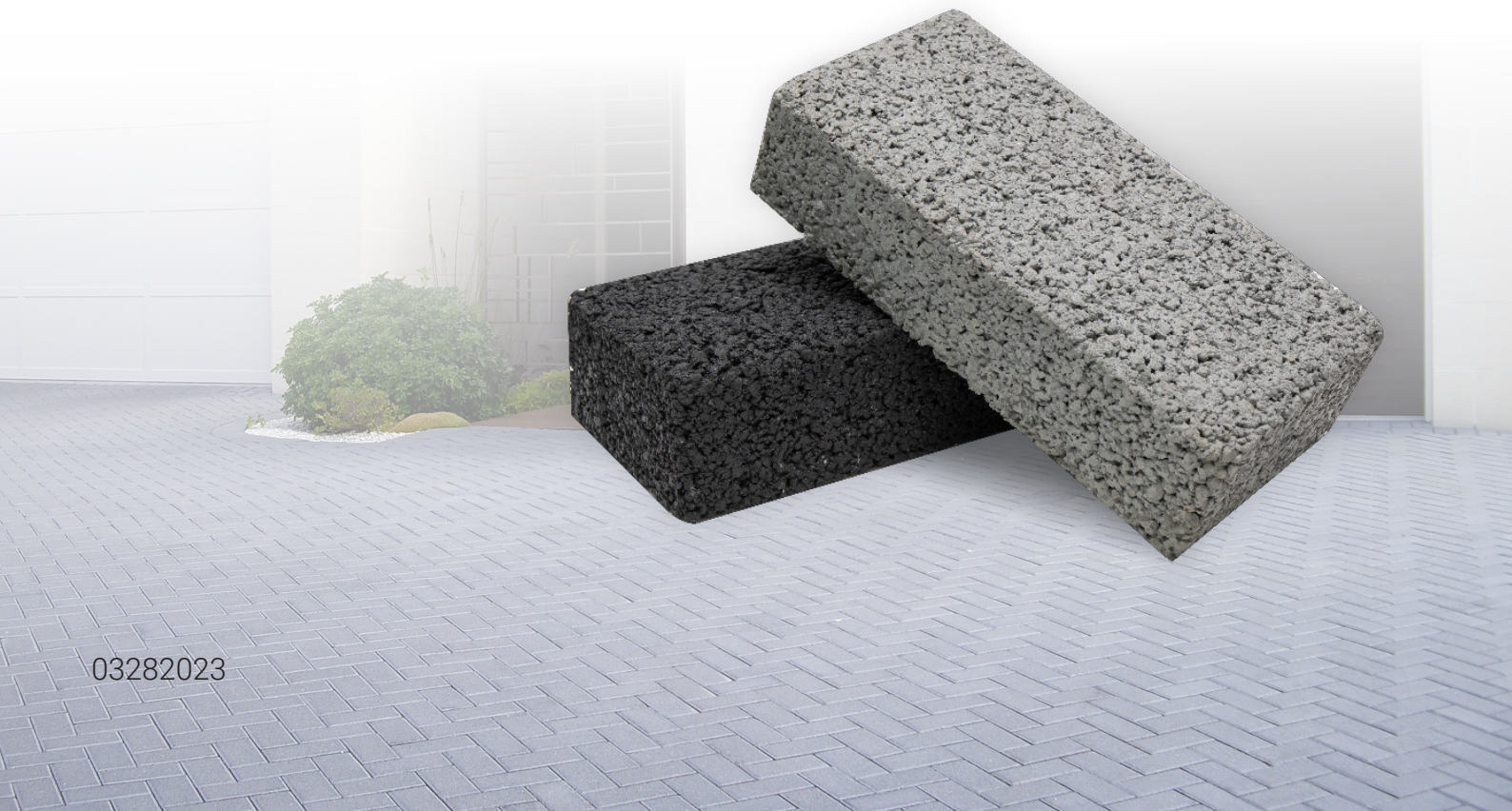
premierpavers.nz

PREMIER PAVERS

Distinctive Driveways and Patios

TECHNICAL INFORMATION & INSTALLATION GUIDELINES

PREMIER MONSOON PAVER PERMEABLE PAVING SYSTEM



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INTRODUCTION

It would be fair to say, that many areas throughout New Zealand receive considerable rainfall. Storm-water systems, if they are available, are often overloaded by deluge's that occur. This is especially true in the larger metropolitan areas where storm-water systems may not have been updated for many years.

In addition to the issues associated with inadequate infrastructure, the significant drift of population to the cities over the past 40 years has meant a decrese in section sizes from 1000sqm to as low as 250sqm for each dwelling. This only compounds the problems when managing storm water disposal from 4 dwellings where previously only one existed.

FUNCTIONALITY

PREMIER Group are very conscious of the environment, and are continually seeking solutions to problems within the building industry, where our products can assist and provide good solutions. The MONSOON PAVER has been developed for use in both residential and commercial applications. Rather than just direct surface water into an already overloaded council storm-water system, the MONSOON PAVER system can be used to delay storm-water runoff, allowing it to soak into the ground, and evaporate into the atmosphere, dramatically reducing the load on an already stretched storm-water system. This also has the added benefit of eliminating water from ponding on the surface, maximising the use of availability land on small sites.

Where council storm-water systems are not available, the MONSOON PAVER system can play a significant role in preventing storm-water flowing from one neighbour's property to the next. The MONSOON PAVER system can also be incorporated into a retention tank design that has the potential to hold a good volume of water and slowly release it into the council reticulation system.

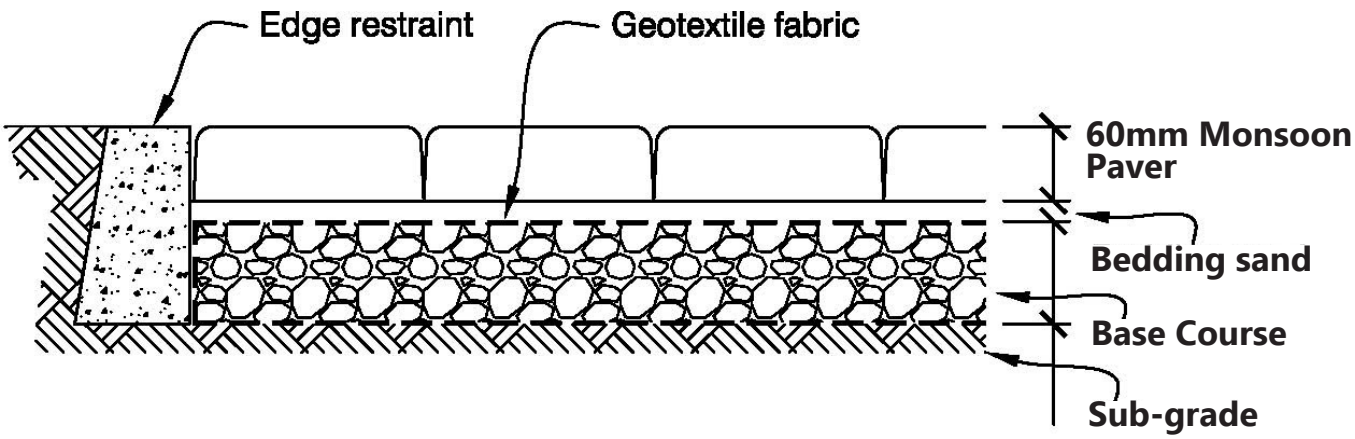
COUNCIL REQUIREMENTS

This brochure is provided as a guide only, on how the MONSOON PAVER system can be installed, and functions. This document is to be used in conjunction with the professionals associated with the project, such as a qualified civil engineer, and/or the landscape architect, to satisfy any requirements that the relevant Territorial Authority may have placed on the project.

THE PRODUCT

Monsoon pavers are a zero-fines, permeable paving unit. Locking together in the same fashion as typical block paving. Rainwater passes through the paving units themselves without the need for oversized spacers between paving units and avoiding issues like ants, weeds, etc. Supplied in 60mm thickness with a compressive strength of over 30 MPa, they are suitable for both light and heavy traffic loads. Monsoon pavers have a permeability rate of over 1900mm/hr making them suitable for even the most extreme levels of rainfall. There are 38 pavers/m^2.

TYPICAL CROSS-SECTION



TYPICAL CROSS SECTION

Sub-grade

This is where the natural ground begins under the MONSOON PAVER system. It is important to understand the bearing capacity of the natural ground. The lower the bearing capacity the deeper the base course to support the system and loads.

Filter cloth

Commonly a non-woven Geotextile polypropylene fabric is employed that allows water to move through the system, but still retain the bedding sand under the pavers. In addition, geotextiles can significantly extend the life of the system by preventing surrounding soil/clay particles entering the sub-base reducing its efficiency. It must encapsulate all four sides of the base course.

Storm-water drain

The normal product used is 65mm or 110mm NOVAFLO which has punched holes along its length. This allows water to enter the drain easily from the sub-base and be directed to a collection/discharge point and is positioned at the lowest point of the system.

Base course

The compacted base course is the structural layer in the system, that not only supports the system above, but the direct load placed on it. It is important that the aggregate is clean and free of fines to allow free movement of water within the base course- no GAP product to be used. Winstone's WAPP12 is an option that your Civil Engineer would consider specifying. A minimum depth of 100mm is recommended; depending on the bearing capacity of the sub-grade and the purpose and design of the system, this layer could be 300mm – 400mm thick. It is recommended that a binding layer of WAPP7 be installed across the top of the WAPP12 to help protect the geotextile fabric.

Bedding Sand

The MONSOON paver should be laid on 25-35mm of clean, coarse bedding sand of no larger than 3mm passing grade. Iron sand, silty river sands, and any sands with cementitious properties are not suitable.

Jointing Sand

It is highly important that the jointing sand used is the same product as the bedding sand. Sweep into joints at a 45 degree angle until flush with the top edge of paver in all areas. Thoroughly sweep off any excess.

Laying Pattern

To protect against movement and ensure longevity it is highly recommended that MONSOON pavers are laid in a herringbone pattern.

INSTALLATION

The pavers need to be installed within the guidelines of NZS 3116:2002 and it is important that GAP type aggregates are NOT used in the base material as they contain lots of fine particles that will quickly clog up the system dramatically reducing its efficiency.

It is also important to have a good understanding of the ability of the sub-soils to absorb moisture and the need for filter fabrics to be incorporated into the design adopted.

Please note: The following information does not replace engineering advice and is provided as a guide only.

Sub-grade Assessment

The strength of the sub-grade is paramount to the performance of the whole system. A simple method for determining this on 'soaked' ground is:

Table 1

SUB-GRADE STRENGTH	TEST ON SOAKED GROUND
Weak	Walking leaves a positive footprint
Medium	Heel pressure makes an imprint
Strong	There is no imprint on the ground

Sub-grade Specification

This table provides a simple guide when using MONSOON pavers. It is recommended that a Geotextile filter cloth be used in most applications to obtain the maximum benefits of the system.

Table 2 NZS3116: 2002

APPLICATION	SUB-GRADE STRENGTH			PAVER
	WEAK	MEDIUM	STRONG	
All footpath situations, patios and the like.	100mm	100mm	100mm	60mm
Residential single unit driveways.	150mm	125mm	100mm	60mm or 80mm
Residential multi-unit driveways and ALL commercial traffic.	Engineering Design	150mm	125mm	80mm

Design Considerations

1. In situations where the sub-grade strength is seriously in question, consideration must be given to excavating an additional 150mm – 300mm and installing a GAP 40 or GAP 65 fill prior to installing the sub-base.
2. Where the MONSOON paver system is being used primarily as a system to store and retain larger volumes of water, the depth of the sub-grade will be increased to accommodate the required volume.
3. It is recommended that Winstones WAPP12 is specified for the sub-grade, which has the capacity to store approximately 40 litres/m² on a 100mm thick base equating to 400 litres/m³. EnviroMix concrete may also be considered which has the capacity to store approximately 250 litres/m³.
4. In situations where the sub-grade is very weak, do not use a vibrating compactor, use a static roller and keep the passes to a minimum number to avoid 'livening' of the soft sub-grade. Consult a civil engineer for advice.
5. In heavy traffic locations where the MONSOON pavers are to be laid, and the ground

is suspect, it is likely a Biaxial Geogrid will need to be laid over the sub-grade prior to the GAP40 or GAP65 being installed to the depth the engineer specifies.

6. On sloping sites, water will naturally flow to the lowest point, which can create a problem. To minimise the problem, consideration should be given to constructing concrete weirs across the system to control the flow and direct it into an incorporated drainage system to manage and direct the flow as required.
7. It is important that the MONSOON pavers and support system, is secured by well-designed robust curbing on either side to prevent movement by traffic.

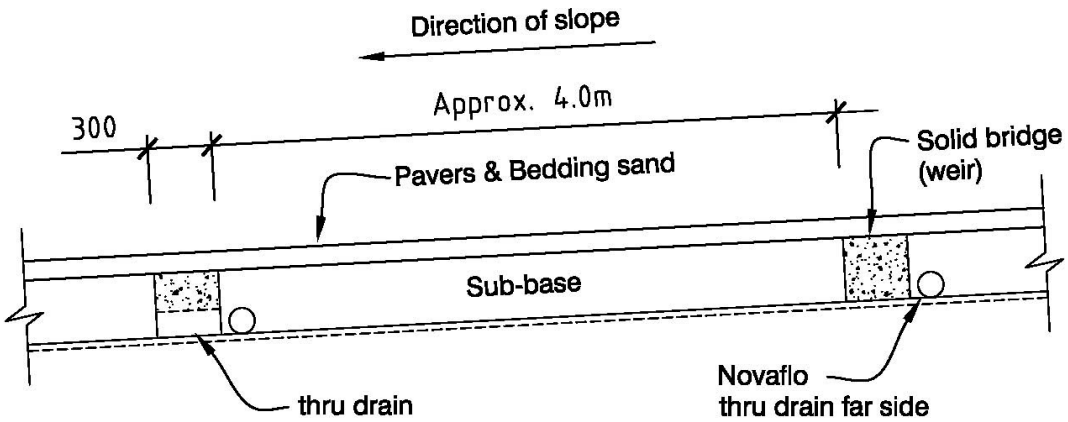
Bedding & Jointing Material

The coarse bedding sand is to be a layer approximately 25mm thick, and to comply with NZS3116:2002 Table 4 Sand category lll. As an alternative to using bedding sand, Winstones WAPP7 clean metal chip may be used, which contains chips between 2mm and 7mm. Use a light compaction only.

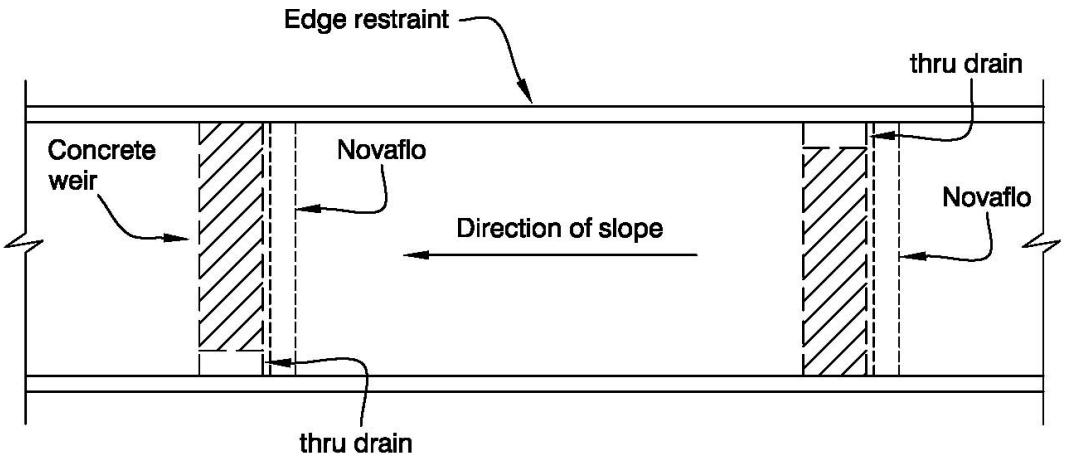
Sloping Sites

On sloping sites, it is important to take steps in the design of the system to prevent large volumes of water rapidly moving through the whole system discharging and flooding at the lowest point. This can be achieved by installing solid bridging or weirs, concrete poured, approximately 300mm x 300mm, across the paved area, at no more than 4.0m spacings.

At the lower part of each section, install a 'Novaflo' drain next to the weir to allow the free flow of water. At one end of the weir, install a through drain for water to gain access into the next section. The through drains should be on alternate sides going from one section to the next. Engineering advice recommended.



SLOPING SITE - WEIRS CROSS SECTION



PLAN VIEW - SLOPING SITE

GENERAL COMMENTS

1. When planning and installing a MONSOON Paving system, it is essential that a thorough investigation of the site is carried out prior to commencing the dig. Check for all services, gas, electrical and drainage to avoid complicated expensive remedial work should they be unearthed.

2. In addition, be aware of trees and tree roots that may be affected by the proposed storm-water system planned.

3. The MONSOON Paving system, correctly installed, has the potential to improve the quality of the run-off water as it permeates through the sub-base. It can retain heavy-metals and nutrients in a process called Cation Exchange Capacity [CEC].

4. How long the system will perform to a high level of efficiency, is difficult to say as every site is different and the amount of sediment entering the system will varying greatly. Keeping the site free of leaves, dirt and other debris is just good site management and will extend the operating life of the system. That said, this type of system has been known to operate efficiently for many years.

PREMIER MONSOON PAVERS AND SYSTEM
BASE AGGREGATES- 1 July 2020

Base Aggregates

WINSTONES AUCKLAND
Supply Guide Only

Hunua Quarry

WPB 7 – (Approx. 7mm – 3mm) 1.45 tonnes/m³

WPB12 – (Approx. 13mm – 5mm) 1.45 tonnes/m³

WPB40 – (Approx. 40mm – 7mm) Use for soft ground & commercial) 1.16 tonnes/m³

Contact: Nick Hirst 027 504 3625

Aggregate product can be trucked to the Waikato
Ph: 0800 445 000 WINSTONES

WINSTONES WAIKATO

Whitehall Quarries
Sheryl Deeming 027 594 2680

Supply Guide Only

2mm-7mm Paving Sand (Tamahere Quarry) 1.16 tonnes/m³

Alternative Aggregate Products:

GRIT – clean 7mm – 4mm chip 1.4 tonnes/m³

DRAIN 25/5 – clean 25mm – 5mm 1.4 tonnes/m³

Truck holds approx. 10 – 11 tonne
Truck and Trailer approx. 30 tonne