

# Hynds Soakage Manhole

(Stormwater Management)

Technical Guide SW 29

On-site soakage for stormwater management by disposal to fractured rock via rock-bores (by disposal to ground via rock)



01.25 | STORMWATER | SW29 HYNDS SOAKAGE MANHOLE

## Applications

Rainwater infiltration

## Product Attributes

Small footprint, simple design

Utilises existing environment

Low cost solution

Suitable for soakage rates greater than 0.5L/min/m<sup>2</sup>

Delivered to site pre-assembled and ready for installation

## Approvals/Standards

Auckland Council Design

NZS 3109, Concrete Construction

## Quality

ISO 9001:2015 Quality Management Standard

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Hynds soakage manhole is a packaged offering of the GD07 rockbore soakage to ground design. Rock forms with soakage provide an excellent low-footprint solution for stormwater discharge, offering an alternative to increasing the load on the existing stormwater network.

Hynds Soakage Manhole is available in three sizes to accommodate a wide range of pipe sizes, peak flows and volume constraints. This system is an on-site stormwater management device designed to discharge retained water into the ground, enabling effective soakage into rock fractures. According to GD07, this method is the preferred solution in areas with satisfactory soakage rates and is typically used in ground types with high infiltration capabilities, such as fractured basalt rock or highly permeable soil.

Soakage manholes should be used in conjunction with water-quality treatment devices to pre-treat discharge and avoid clogging, minimise maintenance and ensure long-term usage.

### Design and Sizing

It is suitable for rock forms with a soakage rate greater than 0.5 L/min/m<sup>2</sup> and is a great low footprint solution for stormwater management and discharge. It comprises of 400Ø mm filter cages placed over each bore in the manhole to filter out gross pollutants in stormwater and avoid blockage.

### How it works

Hynds Soakage Manhole is based on the GD07 Auckland Council design for soakage into a fractured rock. Fractures and voids in rock can act as conduits enabling stormwater to drain freely through boreholes that connect to the fractures. The borehole should penetrate the topsoil. The pre-treated stormwater enters the manhole and passes through the filter cage and enters the borehole at the base where it is discharged back into ground.

**TABLE 1** Design and sizing

Product	Chamber Size (mm)	Qty of Filter Cages (Max)	Lid Thickness (mm)	Dimensions (mm)
SOAKMH.1200KIT	1200mm	2	200mm	1200mm dia x 2400mm
SOAKMH.1500KIT	1500mm	3	200mm	1500mm dia x 2400mm
SOAKMH.1800KIT	1800mm	4	200mm	1800mm dia x 2400mm

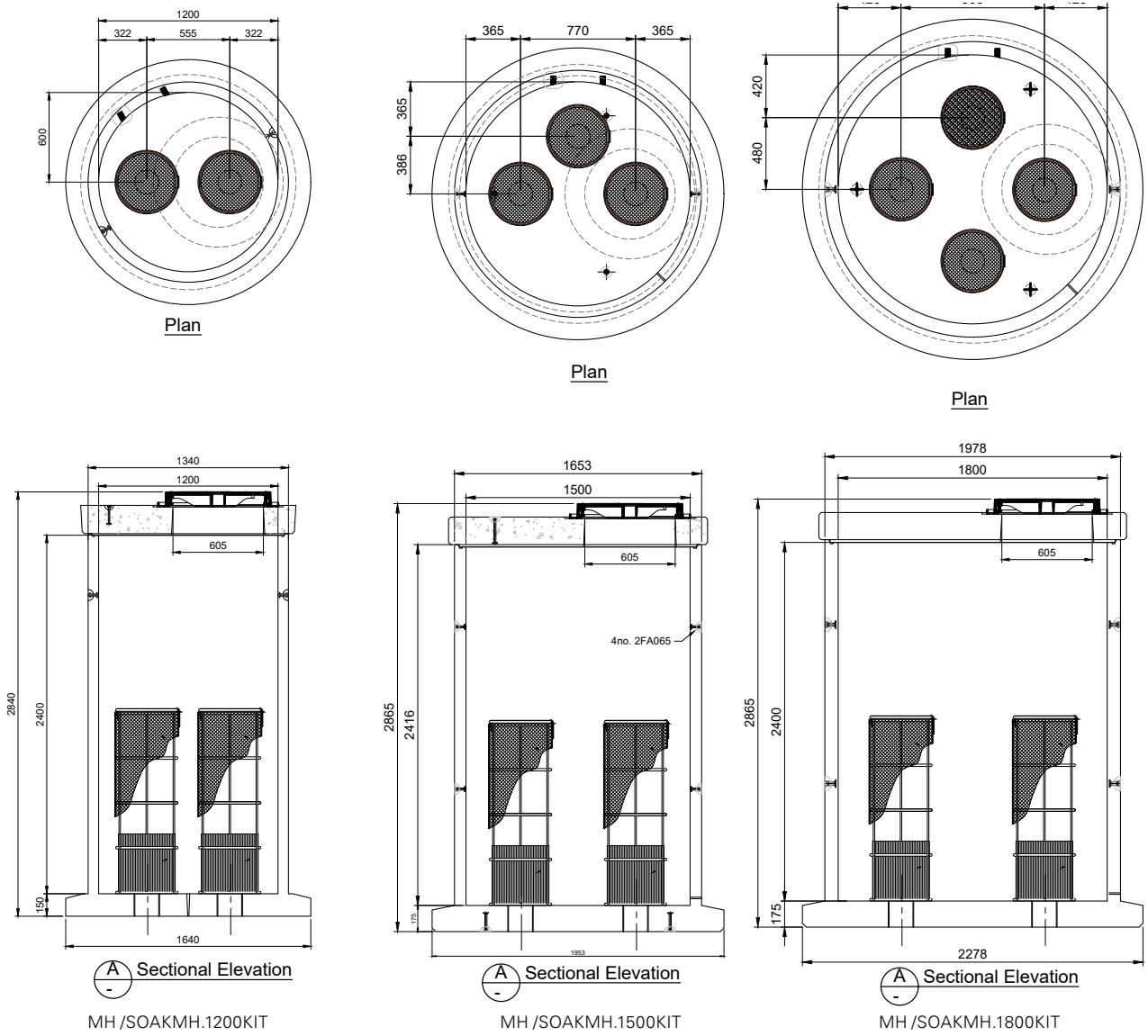


FIG. 1 General Arrangement for Soakage MH

## Maintenance

Maintenance of Hynds Soakage Manhole is simple, safe and cost-effective. As per GD07, pretreatment should be installed before the soakage manhole to minimise sediment ingress.

Maintenance involves using a standard vacuum tanker to clean the manhole, while a Hiab (or manual removal) is utilized to lift the filter cages for cleaning. The removed cages are thoroughly water-blasted before being reinstalled.

The frequency of clean out is determined in the field after installation. During the first year of operation, the unit should be inspected every six months to determine the rate of sediment and floatables accumulation. A simple probe such as a Sludge-Judge can be used to determine the level of accumulated solids stored in the sump.

## Lifting and Handling

All Hynds Soakage Manholes incorporate Swiftlift lifting anchors for safe lifting and must be used with the correct lifting clutch.

Hynds Pipe Systems has designed and manufactured Hynds Soakage Manholes with a minimum dynamic factor of 1.2. This dynamic factor requires that all the following conditions are observed when lifting, moving or placing the units:

1. Lifting with mobile plant (*such as an excavator or similar*) where equipment is specifically exempt from the requirements of the PECPR Regulations 1999, subject to the conditions outlined in the New Zealand Gazette, No. 104, September 2015 and
2. Lifting, travelling and placing over rough or uneven ground where anchor failure is not anticipated to cause harm or injury, by adopting procedures such as:
  - a. Transporting the element as close as practical to ground level (300mm recommended)
  - b. Establishing and maintaining exclusion zones
  - c. Transporting only precast concrete elements that are unlikely to topple if they were to hit the ground
  - d. Inspecting lifting anchors both after transportation and before final lifting into place

Refer to “*Safe work with precast concrete - Handling, transportation and erection of precast concrete elements*” published by Worksafe New Zealand (October 2018)

Shock loads resulting from travelling with suspended Hynds Soakage Manholes over rough terrain and uneven ground may exceed design, dynamic and safety factors of the lifting systems. It is essential that care is taken during lifting and transporting as additional stresses could result in anchor failure.

**TABLE 2 Maintenance Frequency**

Activity	Indicative frequency for mid level catchment area
Inspection	Regularly during the first year of installation.
	Every 6 months after the first year of installation
Sediment Removal	Once per year or as needed
	Following a spill in the drainage area

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**Disclaimer:** While every effort has been made to ensure that the information in this document is correct and accurate, users of Hynds product or information within this document must make their own assessment of suitability for their particular application. Product dimensions are nominal only, and should be verified if critical to a particular installation. No warranty is either expressed, implied, or statutory made by Hynds unless expressly stated in any sale and purchase agreement entered into between Hynds and the user.