

CASE STUDY

Geocomposite Drains

Project: New Artificial Hockey Turf - Rosa Birch Park
Date: November 2010 - March 2011
Client: Counties Manukau Hockey Association / Franklin District Council (Now Auckland)
Location: Pukekohe



Megaflo®

The construction of a TigerTurf TT37 new water based surface turf hockey field in Pukekohe was commissioned by the former Franklin District Council, now Auckland Council, in association with the Counties Manukau Hockey Association. Water based artificial turf playing surfaces require a significant amount of water, 10,000 to 20,000 litres, to be placed on them prior to play. With this quantity of water regularly being applied to the pitch there is a need for a really effective subsoil drainage system. The subsoil drainage system needs to collect and dispose of the water so as not to damage the sub grade and to maintain the integrity of the dynamic basecourse and sub-base construction layers of the pitch.

Initially, standard 110mm diameter round subsoil drainage pipe was proposed for the drainage system below the artificial hockey turf, however after the designer decided to investigate the **Megaflo®** rigid panel drainage system the change was made to substitute traditional round pipe with **Megaflo®** for the following reasons:

- **Megaflo®** has a rigid panel shaped core which fully encloses the waterway. Lateral pillars maintain the core opening resulting in a series of oval shaped channels having relatively few projections into the waterway and providing a high compressive strength. This high compressive strength also helps eliminate installation damage which can occur from construction traffic (tested onsite in a field trial by the contractor with the recommended minimum aggregate cover layer the **Megaflo®** survived intact from repeated tractor wheel loads).
- All **Megaflo®** is supplied with a recognised filter cloth surround (bidim® A14 non woven geotextile) providing greater protection from ingress of silts and fines that could reduce pipe discharge capacity.
- Performance is a distinguishing feature of **Megaflo®** panel drains due to its ability to rapidly collect and remove water. Compared to 110mm round pipe, **Megaflo®** is more efficient as it has a greater surface area and more slot openings of a larger size that combine to reduce the flow path length into the drain.

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Initial preparation of hockey field



Installation of Megaflo® drainage



Overall view of Megaflo® and bidim® installation

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- **Megaflo®** has a 40mm thick profile, which when laid flat reduces the standard cover depth of expensive 20/7 drainage aggregate, normally required for round pipe by up to 70mm. Over an area the size of the hockey field the saving in aggregate was substantial with cost savings estimated at over \$20,000.
- The 150mm wide collector drains, cut with a chain trencher, incorporated **Megaflo® 300** which was placed vertically to optimise the drains discharge capacity. The narrower drainage trench provided further savings in labour and excavation costs along with lower aggregate use.
- Installation was easier with the contractor commenting on how neat and tidy the **Megaflo®** products were to lay, as they don't curl up like round pipe. This improves speed of installation resulting in additional cost savings.

bidim® A29 nonwoven geotextile was used as a separation layer between the sub grade and the drainage aggregate layer to prevent loss of the expensive, high quality aggregate fill material into the sub grade during installation and limit any future contamination of this fill material.

In summary the combination of **Megaflo® 170**, **Megaflo® 300** and **bidim® A29** non woven geotextile has provided an effective and efficient subsoil drainage, collection and disposal system that has performed extremely well and maintained the new water based hockey pitch in excellent playing condition throughout the recent very wet winter season.



Completed hockey field installation