

## Newcastle High School for Girls

## Planning for All-Weather Pitch



The school applied for Planning Permission for an All-Weather pitch for hockey. Their application hit the buffers when they were advised that all storm water run-off would have to be dealt with on site (at source) because Newcastle's storm drains were already running at capacity. A contractor specialising in All-Weather installations turned to us to design a GD90™ system to support a soak-away trench to deal with the storm water and this design secured planning permission for the school. Jolly hockey sticks all round!

### INTRODUCING THE GD90™

- Deals with storm water at source
- Unique design that forms a differential hydraulic head to move water down
- Moves ground water to multiple unsaturated soil stratas
- Installed to depths of 12 metres plus
- No moving parts, no external power needed, self-cleaning sealed system
- A CARBON NEGATIVE drainage system
- Now with over 300 successful installations

### GD90™ Technical System Specification

<b>Project:</b>	Planning contingent on storm water being dealt with on-site.
<b>Impermeable area:</b>	6,600m <sup>2</sup>
<b>Maximum storm water event:</b>	1 in 200 years plus 30% climate change
<b>System design:</b>	Significant stand-alone GD90™ array. In addition, a storm water trench taking water from 4 lateral drains spanning the width of the pitch every 20m, supported by another GD90™ system
<b>Trench size:</b>	Length 100m; Width 0.3m; Depth 1.8m; Maximum Capacity: 594m <sup>3</sup>
<b>GD90™ system size<sup>1</sup>:</b>	1,295 Primary and 90 Secondary
<b>Total GD90™ rod lengths:</b>	8,370m
<b>Consultant engineer (providing Drainage Design Statement):</b>	Curtins

<sup>1</sup> A Primary GD90™ is either 6 or 12 metres in length, a Secondary GD90™ is either 1.5 or 3 metres in length.

**£2 MILLION  
WARRANTY**

Every GD90™ installation has £2 million of Professional Indemnity cover. We can increase this for individual projects.

## The GD90™ Transforming Drainage Design & Scope

The GD90™ is an internationally patented product with unique characteristics that solve a multitude of drainage problems. We launched it in the UK under licence in 2012, since when we have completed over 300 successful installations, from commercial and residential new builds to car parks and cemeteries. We also have our 'Hall of Fame' installs.

Made from high density polyethylene (HDPE), standard drainage extrusion, the unique GD90™ design uses a multiple open chamber system that creates lateral (horizontal) water transfer to soil stratas to a depth of over 12 metres (go to [www.groundwaterdynamics.co.uk](http://www.groundwaterdynamics.co.uk) for full information).

Our ethos is that the time has come for a new drainage solution that:

- does not move large amounts of storm water from A to B in conventional horizontal pipes creating problems "down the line", including the flooding of water treatment facilities that then discharge into critical marine, river and stream ecosystems
- improves the carbon footprint by removing external energy requirements to deal with storm water, with no need for pumps moving water or the energy requirements of treatment works
- stimulates plant growth, creating GD90's™ CARBON NEGATIVE standard
- does not take storm water directly off the surface into deep borehole systems creating possible pathways for contaminants.

Instead, we have introduced a drainage system that takes ground water, indirectly, laterally through the ground into an installation of multiple GD90s™, **changing the drainage characteristics of soils which previously were unable to accommodate positive infiltration rates.** That's the game changer.

"The GD90™ design requires no maintenance, has no mechanical moving parts and needs no external energy requirement to function. It uniquely harnesses soil based gravitational pressure, porosity and waters enthusiasm to keep on moving."

"The unrivalled result is that a GD90™ installation uses the entire volume of soil to a depth of 12m below the ground for water drainage, creating a massive volume of earth to deal with storm water. For new build sites this results in less area for drainage, more for building and higher GDVs."



Edgbaston CC



Gleneagles



Royal Ascot



Silverstone