

## Christopher Harrison

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**Subject:** FW: 4/21/2327/0R1 and 4/21/2328/0F1 - LAND TO THE NORTH OF SCHOOL BROW, MORESBY PARKS, WHITEHAVEN.  
**Attachments:** c 6972-202M Drainage Strategy - Sheet 3 (2).pdf

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**From:** Mike Rae  
**Sent:** 14 September 2022 21:28  
**To:** Christopher Harrison  
**Subject:** Re: 4/21/2327/0R1 and 4/21/2328/0F1 - LAND TO THE NORTH OF SCHOOL BROW, MORESBY PARKS, WHITEHAVEN.

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Hello Chris, David and Paul

I attach the latest revision of 202M drawing, if you expand out it clearly shows the culvert manhole at cover level 133.57 and Invert Level at 132, This is correct as we have physically measured the drop and concur its invert level. The topo readings off the path are at 133.04 south side of path and marginally lower on North side where the water stands. Our new pipe is dropping about a 100mm at the mid point between manholes, so in reality the path at 133.0 is over 1000 mm higher than the invert of the pipe 131.9 at mid point between manholes. Taking into account the pipe will be a 450mm there is still the prospect of getting the gully connection onto the top of the pipe and still be 550mm below the path level. We have laser staff level checked all details again today and can confirm all readings are correct.

The proposed addition of a non-return valve to the gully was just reassurance for the residents on school brow close that wanted the path removed, as it was causing flooding to their grounds. They wanted reassurance that a new gully would not spill out back onto the path if the pipe ever got to be backed up. These are a single directional valve, and as long as no back pressure will always drain the path. The 450mm pipe would have to be at full bore and under pressure to operate the non-return valve, which in reality will never happen, so the path is always being drained with a connection to the top of the 450mm pipe.

The reality is the path flooding water, came from 2 sources and we witnessed both during heavy rainstorms. A lot of water came from the runoff from the (development) field as at the lowest point, and the remaining water came from School Brow Road. When the upper path was installed and kerbs installed, this diverted all the water off School Brow Road into the School Brow Close entrance. No new road gully was fitted at this time. The only gully along the north side of School brow is located to the east of our proposed entrance, so a great deal of road water was discharging down into the close and lower path. School Brow close only have a channel drain across their entrance and was overwhelmed by road water running over it down into the path and also entering the old culvert from that channel connection, but also pooling in school brow close central area as well.

Our proposals will, resolve all these issues, by introducing a new road gully at School Brow close entrance, and discharging into the new pipe, it decreases the backup from the old culvert, as water is diverted away from it, and also prevents water flooding down into the lower path.

The addition of the development drainage in the site for housing and also the bypass pipe through the bottom of the gardens also in effect creates a natural field drain at the low point of the field, as the pipe is surrounded in pea gravel 500mm deep acting as a french drain and allowing percolation into the ground preventing run off water from that corner of the field.

There is still the potential of rainwater draining from run off from the grass verge and rain falling directly onto the lower path as the natural topography lets it flow to the low point next to no4 school Brow close, and presently cannot permeate away being a tarmac path, the new proposed path gully would solve this issue.

The introduction of the road gully at our new entrance also captures water from school Brow and diverts into our surface water system rather than the culvert system again reducing the water through the culvert. The introduction of a new road gully on the SE corner of our site, takes all the water off Moresby parks road and prevents it entering the culvert system presently captured by the road gully east of our entrance. All these factors have severely increased our

original FRA contributing areas and hence the detention basin recalculated volumes on our system and as a result has reduced the existing Churchill drive and culvert discharge water accordingly as well.

I know there is a lot of information in this mal, the drainage is complex but all is relevant in the overall drainage issues that occur, and how they come about and how they are to be resolved.

Please let me know if have any other queries or need any more clarification on any of the above details.

Kind regards  
Mike Rae