

1. **INTERIM REPORT ON STORMWATER INVESTIGATION  
90A DYERS PASS ROAD, OWNER J M HAMILTON**

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The purpose of this report is to outline the result of a rapid response stormwater investigation and assessment of a submission by Mr J M Hamilton to the Draft Annual Plan.

**SITE INSPECTION**

The site and surrounding catchment was inspected 30 June 2003 to assess the situation of the property of 90A Dyers Pass Road and to assess the alleged catchment augmentation. Peter Wehrmann (Senior Engineering Officer, City Solutions) was involved as he has had involvement with part of the drainage system in the area.

We met Mr Hamilton who was very helpful and showed us around the property and carefully explained the situation as he saw it. It became clear very quickly that the flood risk at No 90A Dyers Pass Road was reasonably significant. Furthermore as is typical of this type of investigation the potential scope grew and a number of very feasible options became apparent.

During the inspection it was noted that the driveway to No 100 Dyers Pass Road is under construction. This happens to be the route of a 300mm stormwater pipe which may require renewal in the near future. The completion of the drive could be delayed to allow the renewal of this pipe should the detailed investigation indicate this is the long term approach to take.

It should be noted that many of the drainage systems on the Port Hills are in a poor state with non-consistent capacities, aging or damaged infrastructure, under-runners and poorly defined secondary overflow paths.

We discussed options with Mr Hamilton (in the context of engineering assessment) whilst being non-committal and advised him that the Council would be reluctant to install a piped system where an open channel existed.

A long recently asphalted drive services the property at 90A Dyers Pass Road and the possibility of remedial works-related driveway damage must be accounted for.

**INITIAL ANALYSIS**

It was suggested by City Solutions staff that to solve the immediate issue a short length of pipe some four to five metres could be installed to ensure floodwaters are carried past the house.

The next step focussing on the property at 90A Dyers Pass Road could be to widen (say 1m wide) the open rock lined channel through the property. Mr Hamilton mentioned the safety of his grandchildren with the channel and floodwaters and the possibility of safety fencing along the channel was raised.

Regarding catchment augmentation it appears as though several years ago three smaller catchments have been combined in the stormwater outlet and this has resulted in peak flows being higher than the outlet was originally designed for. This needs to be confirmed.

**The secondary overflow paths need to be maintained to ensure the passage of overland flows should the system be overloaded or blockage occurs.**

**DISCUSSION**

Once the site inspection was completed, Paul Dickson (Drainage Engineer, Parks and Waterways) was consulted as he has held discussions with Mr Hamilton and is aware of the big picture catchment issues in this case. We also perused the memorandum by Brian Smith (Capital Projects Team Manager, Parks and Waterways) dated 18 June 2003. Brian Smith has been involved in investigating properties immediately upstream which had flood waters enter them.

Our approach was then to assess the existing infrastructure, consider the problems, issues and costs and recommend a solution(s) which in the short and long term produces the most cost effective use of resources.

The existing pipework is aging, has been repaired, and blocks at times, and some will need replacement in the relatively near future. The option of a new pipe down the drive of No 90A from Dyers Pass Road (and additional piping in Dyers Pass Road) would be a good option for long term stormwater disposal, although sending the flows in the direction they originally discharged (from each catchment) may be equally valid. The new pipe option through Mr Hamilton's property has merit but this option doesn't deal with the replacement of old pipes upstream.

It is clear that further investigation and analysis is required on a catchment wide basis to determine the best approach for stormwater disposal in this catchment. The drainage channel in the property downstream of No 90A Dyers Pass Road is very substandard and there is evidence of ground movement and erosion in this reach. Under runners may exist in the location.

It is worth noting that Brian Smith's findings, while independent, were similar to those arrived at by City Solutions.

Mr Hamilton telephoned me on 30 June 2003 in the evening to report that after the rain much water was running off the hard surfaces at the school. This water was bypassing sumps and making the problem worse downstream. He also pointed out that the deep dish channels on Dyers Pass Road had been covered or replaced with flat channels causing a reduction in kerb and channel capacity and further changes in the flow regime.

The estimated costs for the recommendations set out below are:

Recommendation 1 - short term solution \$15,000 including design and supervision.

Recommendation 3 - to provide the upper range for an estimate to provide an adequate stormwater outlet. Including comprehensive catchment investigation, easements, design, supervision and construction costs to lay new piping in Dyers Pass Road, a new pipe down the driveway of No 90A Dyers Pass Road and an armoured open channel in the downstream property - \$270,000.

- Recommendation:**
1. That in the short term to reduce the immediate flood risk a lightweight pipe be installed beside the dwelling at 90A Dyers Pass Road to carry stormwater flows past the dwelling.
  2. That the owner of 100 Dyers Pass Road be requested to delay sealing his drive (currently under construction) in case a new pipeline is required down this drive.
  3. That a catchment wide comprehensive investigation be initiated to consider the catchment augmentation, possible catchment splitting of existing stormwater systems and the best option for long term stormwater disposal for the catchment.