

Maryburgh Greenspace – a matter that may be of concern

I was asked to attend the inaugural meeting of the Maryburgh Community Council on the 16th December 2019. The purpose of my attendance was to provide input over the location of the proposed kickabout area being provided by the Highland Council and the associated drainage proposals.

However, during the discussions that took place it appeared obvious that while various people at the meeting were aware of the existing drainage across the site, no one seemed sure about the details. The main areas of concern that were mentioned included the existing football pitch and the surface water drainage from Birch Drive. One person at the meeting thought the football pitch drainage discharged into a soakaway within the area identified on the recent planning application reference 19/02571/FUL for house building. The second mention was made that the road and property surface water drainage from Birch Drive emptied into a soakaway within the greenspace. This supports mention made prior to the meeting that the cause of flooding onto the football pitch may be from Birch Drive. If there is a soakaway within the greenspace then it is almost certain that Scottish Water have a Wayleave agreement, for access, with the Highland Council for future maintenance of the soakaway.

It appears that while various people have some knowledge of past drainage work within the greenspace, no one seems completely sure of the extent and possible location of any drainage soakaways. This is an important issue and the community should find out the extent of site drainage before taking possession of any of this land. If there is a drainage soakaway for the football pitch as suggested then this should be of concern to the Highland Council who are planning building on the site. If there is an existing drainage soakaway in this area then this should have been identified by the Drainage Impact Assessment carried out during the planning stage. HGA did not identify this as an issue, but did they consult with local people? During my working career, I often obtained valuable local knowledge on flooding and drainage that did not show up on any formal records. This spartan unconfirmed knowledge needs to be confirmed or disproved before the community take any action on the transfer of land. While it is easy to discuss kickabout areas or a MUGA, if there are any drainage issues these should be addressed first.

With the global warming worldwide, it can be assumed more intense rainfall will occur in Maryburgh. Already this year in October and December the lowest lying part of the greenspace suffered flooding. This area has already been identified as at medium to high risk of pluvial flooding on the SEPA Flood Map <http://map.sepa.org.uk/floodmap/map.htm>. If the potential flooding on the site is ignored this could seriously curtail any plans that the Community Council have for the future.

Climate Change will increase the amount of rainfall over the next few years. If the surface water from Birch Drive is discharging into a soakaway within the greenspace. Is the soakaway of sufficient size to deal with the increased rainfall and the excess surface water that now flows down the old Brahan Estate access road from Broad Wood and finds its way into the Birch Drive surface water sewer? If it isn't then large areas of the greenspace could become waterlogged and unusable in the future.

The flood problem at the football pitch is already easily seen in wet weather, but increased rainfall will make this worse. The surface water from Birch Drive could already be increasing the flood problem at the football pitch. The football pitch has already been designed with a drainage system, but the state of the pitch suggests this is not working. If the soakaway is within the housing development area then this may well increase the flooding issues in the future.

The Highland Council and Maryburgh Community Council need to deal with these issues including any Wayleave Agreements before any new development on the site or transfer of land takes place.

Scottish Water are responsible for property drainage, while the Highland Council are responsible for road drainage. Since many of the sewers in Maryburgh are combined sewers they can now only be used for foul water. Developers have not been able to discharge surface water into these combined sewers for several years due to the limited capacity of many Scottish Water wastewater treatment plants. The surface water from Birch Drive therefore has to be discharged into a watercourse, (the Ussie Burn or River Conon) or as suggested at the Community Council meeting into a suitably sized soakaway. How do the Community Council find out about these drainage issues?

Scottish Water or the Highland Council should have a record of the Birch Drive surface water drainage. Scottish Water infrastructure plans are readily available at a cost of approximately £50.00 + VAT. Gavin Sinclair, the site agent for Morrisons during the development of Birch Drive lives in Maryburgh may have first-hand knowledge or access to the original drainage plans. The approximate route of the surface water sewer from Birch Drive could also be established by tracing the manholes along the road.

The football pitch drainage design, may prove more difficult to determine. Hopefully, somewhere in the Portakabin there may be drawings and documents relating to the construction of the football pitch, or someone in the Maryburgh Football Club, past or present, may have these details available to be studied.

Other drainage issues such as the Amenities Centre should also be identified and confirmed that this will not be a problem in the future.

If these desktop exercises do not identify the drainage routes and location of the soakaways then intrusive ground investigations may need to be carried out, but that will inevitably involve a cost element. If this is necessary then this should be the responsibility of the Highland Council, before any development is started or any land is transferred to the community.

Once these issues have been identified the main problem is how to deal with the excess water? To provide temporary storage and treatment of the water a Sustainable Drainage System (SuDS) device such as a detention basin as recommended in the CIRIA SuDS Manual could be used. This would provide attenuation of the water and treatment to remove pollutants from the water. A detention basin is a landscaped grassed depression that would be dry except during and following rainfall events. The grass would remove water borne pollutants. During dry weather the detention basin would form part of the recreational amenity area of the greenspace. If any existing soakaways need to be re-located, they could be included under the detention basin with the drainage from the football pitch feeding into the detention basin.

A SuDS device would provide treatment and attenuation, but the water still needs to be discharged to ground or a nearby watercourse. In an ideal world the Highland Council would construct a sewer between the site and either the River Conon or Ussie Burn. The other option and probably only option would be to allow the water to infiltrate naturally back into the soil. To avoid further flood issues in the future any detention basin or soakaway needs to be correctly sized, based on the flood frequency and rainfall runoff statistical estimates in the Flood Estimation Handbook published by the UK Centre for Ecology & Hydrology. This will identify the volume of water to be considered. Once the location of the detention basin and soakaway has been identified a percolation test complying with the BRE Soakaway design Digest 365 should be used to determine the soil infiltration characteristics at the soakaway location. This will allow the detention basin and soakaway to be correctly sized based on the detailed calculations in the CIRIA SuDS Manual. If an allowance of 30% is made for increased rainfall due to climate change then any SuDS device selected should be able to provide sufficient treatment and attenuation of rainfall runoff from the site for the foreseeable future.

While I am happy to provide technical help to the Maryburgh Community Council with the above issues, I recommend that a professional engineer is engaged by either the Community Council or the Highland Council to carry out the design of any SuDS device. Since retiring I no longer have access to flood risk software licences or data that would allow me to carry out this type of design.

Anyone who wants to find out more the following are links to the documents in my text:

Flood Estimation Handbook: <https://www.ceh.ac.uk/services/flood-estimation-handbook-web-service>

BRE Soakaway design: <https://www.brebookshop.com/details.jsp?id=327631>

CIRIA SuDS Manual: <https://www.ciria.org/ItemDetail?iProductCode=C753F&Category=FREEPUBS>