

Objection to Planning Application S/2013/0905

Land bounded by Monks Drive, Savon Hook, River Close, Alt Road, Liverpool Road and A565 Formby By-Pass, Formby

Objection based on the National Planning Policy Framework Chapter 10 Section 100 “Inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at high risk, but where development is necessary making it safe without increasing flood risk elsewhere.”

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All submitted planning documents referred to in this report are referred to by the name on the downloadable document from www.sefton.gov.uk and will be highlighted in red - for example:-

[S_2013_0905_Others_Flood_Risk_Assessment_Full_Version.pdf](#) and.

All web addresses for a document will be highlighted in blue – for example:-

http://forms.sefton.gov.uk/planning/2012/S_2012_0004_Others_Condition_15_Summary_Note.pdf

Biog

This document was written by John Williams of 5 Chipping Avenue, Ainsdale, Southport. PR8 2SG.
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John Williams has worked in drainage design since January 1988, both in the public sector and private practice, starting as a Trainee Technician and rising to the post of Senior Assistant Engineer. Completing studies in Civil Engineering at, amongst other places, the then Liverpool Polytechnic (now Liverpool John Moores University). Of those twenty five years, twelve years were spent (in two terms) working for Sefton Council's Drainage Section, working on investigation, design and supervision of works on Public Sewers, Highway Drains, Council owned drainage systems and Land Drainage. The second term was for almost 7 years and was spent mostly on investigation of Land Drainage problems and supervision of Highway Drainage and Land Drainage contracts (including the Formby Land Drainage Ditch Maintenance contract). John Williams lived in Formby from 1965 to 2003, only moving out because of the knowledge, gained whilst working in drainage, of the increased threat of flooding in Formby.

I will try and keep this as non-technical as possible and will try and avoid using terms like Fluvial (River) and Pluvial (Rainwater) flooding as much as is possible as I believe that such terms can be off-putting and will try and use plain English - if a technical term is used, a "plain English" translation will be included. Paragraphs are numbered only so you can easily refer to a location in this document, should you wish to ask for any further information.

Non technical summary of this objection:-

The developer is proposing to raise the site ground level by about 900mm (3ft) and develop the site in such a way that will cause the existing properties around the site to have an increased likelihood of flooding:-

a) from ground water, in the already saturated soil, that will always accumulate at the lowest point (which would have been on the proposed site but will now be the gardens of the existing properties around the site), and,

b) as the developer has proved that the existing surface water sewers in Monks Drive, Savon Hook, River Close, Alt Road etc. will all flood at times of storm (the residents have proof that this happens at much lesser rainfall than the computer program the developer has used says it will - see photograph in point 60 in the main part of this document) – this water can currently run off the existing estate and flood into the existing field, therefore stopping the properties flooding. If the field is raised by 900mm (3ft) it is obvious any flood water will be kept on the existing estate and on top of the saturated ground conditions will therefore flood into the existing properties.

The **National Planning Policy Framework Chapter 10 Section 100** says that “Inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at high risk, but where development is necessary making it safe **without increasing flood risk elsewhere.**”

In this case the site already floods (so would need to be made safe by the developer) but in developing the site there will be an increase in the flood risk elsewhere.

The developer knows that they cannot develop the site without raising the ground level (otherwise their new properties will flood), but in doing so it puts the existing properties (that have been there nearly fifty years) surrounding the site at increased risk of flooding

It is clear that the conclusion would therefore be that the site should not be developed at all, unless it can be proved that in doing so that it will firstly reduce the likelihood of flooding on the existing adjacent housing estate and also reduce the level of ground water to aid land drainage in the area. It is highly unlikely that the Environment Agency will allow additional flow to be put directly in the River Alt or River Alt as in doing so it would also increase the flood risk elsewhere.

This document will show, a) what the existing systems and problems are; b) therefore, why the proposed site cannot be developed at existing ground levels; c) what problems will be caused by raising the site as per the developer's proposals; and d) the conclusion therefore, that the site should not be developed.

Surface Water Drainage in Formby

- 1) Formby "slopes" inland, with the highest part of Formby being the sand-dunes near the beach and the lowest part being immediately adjacent to Downholland Brook which runs from North to South and forms the boundary between Sefton and West Lancashire Councils. At the southern end of Downholland Brook, it connects directly into the River Alt which continues in a westerly direction to Altmouth Pumping Station at Hightown. The River Alt and Downholland Brook are currently maintained by the Environment Agency.
- 2) Apart from a very small amount of rainwater that enters a very few combined (foul and surface water in one pipe) sewers, the vast majority of sewers in Formby are completely separate with rainwater entering a variety of different surface water systems.
- 3) ALL of Formby's surface water drainage systems (Public Surface Water Sewers belonging to United Utilities, Highway Drains belonging to Sefton Council, and Watercourses, whether piped or open ditches, which are "Riparian" meaning they belong to whoever owns the land the watercourse runs through or adjacent to, and some watercourses that have been classed as "mained" and maintained by the Environment Agency) connect into either Downholland Brook or the River Alt.
- 4) The closer to the A565 Formby By-Pass and then to Downholland Brook, the lower the ground level – to such an extent that many roads (including parts of the existing Alt Road housing estate) are actually below high tide (sea level) on many occasions every year. (see item 35 below that explains that any ground level below 5.37m Above Ordnance Datum is below the Highest Astronomical Tide expected in the foreseeable tide future.) Significant areas of the proposed site are below this level.
- 5) There are many, known and unknown, networked land drains in Formby that serve to keep the ground water levels at a manageable level for the existing property owners. Unfortunately, over time, many of these land drains have either been piped, badly maintained or even filled in by property owners and developers who simply do not know the importance of these land drains to the drainage of Formby. This actually means that some land drains are taking considerably more water than they were originally designed for whilst others appear to be "dry" as someone upstream of a particular land drain has blocked it in one way or another and may even be suffering from surface water flooding of their garden at the very least.
- 6) Most of these land drains cross under the A565 Formby By-Pass, connect into open ditches and discharge into Downholland Brook by passing through the embankment with a simple non-return flap valve on the end to prevent Downholland Brook/the River Alt flooding back into Formby when the water level is high. As an example, one of these land drains starts in Larkhill Lane becoming piped, and remaining so, until it reaches Freshfield Road becoming an open ditch known as Dobbs Gutter as it passes Formby High School and eventually discharges under the By-pass into Moss Side and then into Downholland Brook. This one watercourse takes approximately one third of all of Formby's surface water (whether from roofs of properties or rainwater from roads or other hard surfaces). There are many other such watercourses that cross under the By-pass including those at Bull Cop and Cartmel Drive, for example.
- 7) Sustainable Urban Drainage Systems (SUDS) are designed to reduce the impact of developments upon rivers, ditches and surface water sewers. They do this mimicking "Green field run-off rates" – so that the rivers only receive the surface water at the same rate the river would expect to receive the water if the development had not taken place (i.e. by rain landing on a field, percolating through the ground and filtering through to the nearest river or other watercourse.) The most successful, and therefore best, SUDS drainage systems do this by getting each individual source of rainwater (rainwater pipe from a roof, hardstanding of a driveway, gully on a road etc.) to discharge individually, preferably to a soakaway or even better to a surface filtration strip which will allow the small quantities of water to soak into the ground at the normal rate. This, of course, only really works if the ground conditions can take the water. If the ground is already saturated and has standing water on it for several weeks every year when the field is regularly ploughed and farmed - it is a good indication that a Sustainable Urban Drainage System is unsuitable

Existing Problems in Formby

- 8) The main problem for Formby's surface water drainage system is its inability to discharge to Downholland Brook or the River Alt. This is because the level of water in the River Alt is so high that it forces the non-return flap valves to close.

9)



- 10) The above pictures (not raining) show different types of non-return flap valves that are on Downholland Brook at the end of what is known as Bull Cop ditch where they discharge at the northern edge of Stephenson's Way Industrial Estate. When the water level rises these flap valves will be forced shut to prevent the water from Downholland Brook or the River Alt from flowing upstream and flooding Formby. Unfortunately, in doing this, when the flap valves close, it also stops the water leaving Formby and therefore can also cause flooding.
- 11) Due to the different responsible authorities for sewers, highway drains, land drains and rivers – each organisation looks after their own part of the system and will state that their part is working fine even when it is causing a knock on effect to other parts of the system. United Utilities will say they are not responsible for highway drainage (correctly) but will point the blame at the local authority when a whole road floods even though the council's road gullies connect directly to United Utilities' surface water sewer which would obviously be at fault if the whole road was flooded (it would be extremely unlikely for all gullies in a road to be blocked). Another example of this is when the Environment Agency say that Altmouth Pumping Station is working at its maximum capacity and yet the River Alt and Downholland Brook are so high that nothing can discharge to it – they will still deny any responsibility for flooding even when it is obvious that if the water level in the River Alt were lower, the watercourses and sewers could discharge and the flooding would disappear immediately.



- 12)
- 13) The above picture (not raining) shows Downholland Brook on the right (looking north towards Altcar Road) with the water level considerably higher than the ground level on the left. The non return flap valve has obviously closed so the “small ditch” on the left is unable to discharge to Downholland Brook. The “small ditch” has therefore turned into a significant watercourse. It is an open watercourse known as Boundary Brook (there are actually many watercourses in Sefton with this name as many ditches form the boundary between two properties) which starts in Philips Lane and follows a route through Lytles Close, Ditchfield, Alt Road, Cartmel Drive, under the By-Pass, down the side of Tesco car park then becomes the open watercourse as seen on the left of the above photo. The open section of ditch from the side of Tesco to Downholland Brook has been “mained” by the Environment Agency, and I believe that Tesco set up an agreement with the Environment Agency so that Tesco pay towards the cleaning of that ditch because their car park surface water drainage discharges into it.
- 14) On the above photo you can see that a temporary pump has been installed (by persons unknown, but presumably by the Environment Agency) to try and relieve the backlog caused by the height of water in Downholland Brook.
- 15) Under normal circumstances the Environment Agency strongly disapprove of such action – this is because they know that it is more important to lower the level in Downholland Brook/the River Alt which will then let ALL the non-return valves to open rather than allowing one location to take priority by “over pumping” and keeping the level of the water in Downholland Brook higher than it should be for longer.
- 16) The Environment Agency WILL NOT ALLOW any new development to pump their surface water into the River Alt or its tributaries. They will normally only permit new developments to discharge surface water at quantities equal to water percolating through the ground or running over the surface of fields – this is known as a “Greenfield run-off rate” and is normally specified in litres per second per hectare.
- 17) Unfortunately, this litres per second per hectare run-off rate is frequently abused by developers who calculate this as referring to the whole site, conveniently forgetting to deduct the green areas of gardens, grass verges and amenity areas which already discharge at “Greenfield rates”. In effect, this can double the existing run-off rate by having the piped system discharging at the agreed rate with green areas still allowing water to permeate through.
- 18) Such systems tend to have a “throttled” or restricted size outlet that only lets the permitted amount of water through. This results in a design of water being held back in the new development drainage system either in a tank, or normally, oversized pipework calculated to store the water from a storm until it can all be discharged to the river at the agreed rate. For the proposed site, the developer has designed a system of temporary storage ditches to hold the water that cannot freely discharge – also included is an overflow area in the south east corner of the site for extreme storm conditions.

- 19) Unfortunately, the developer has designed a system that assumes it will be able to discharge at the agreed rate at all times – this is not feasible for a site attempting to discharge into the River Alt or Downholland Brook at times of storm.
- 20) As the River Alt drains approximately 97 square miles of land, it doesn't even need to be raining in Formby for the River Alt to be at a level that is higher than the surrounding ground level, thus closing the non-return flap valves and preventing water from leaving any part of Formby.
- 21) The River Alt/Downholland Brook can stay at such a high level for several days whilst the pumps at Altmouth Pumping Station catch up by lowering the level to normal "dry weather flow" (DWF) levels.
- 22) Any design for a new drainage system hoping to discharge to the River Alt must therefore take into account that it may be unable to discharge any water at all for several days – especially when calculating for a 1 in 100 year storm (plus 20% or as required under current guidance). This does not appear to be the case with the proposed design – the developer appears to be wrongly assuming that they will be able to discharge at the agreed "Greenfield run-off rate" at all times, which is certainly not possible unless their discharge pipe is at a level that will be above the surrounding ground level when it passes through the embankment of the River Alt.



- 23)
- 24) The above photo is Downholland Brook (not raining) taken looking north from the eastern end of Liverpool Road, showing the height of water still higher than the surrounding ground more than a day after the storm has passed. The level of water here is considerably higher than normal dry weather flow. It also shows that when the water is at this height, adjacent land will have standing water in as the surrounding ground will be saturated



- 25)
- 26) The above picture is of the River Alt (on a bright sunny day in Formby!) lapping at the underside of the upstream side of Altbridge over the main A565 Formby By-Pass dual carriageway just by the roundabout junction for Liverpool Road, Formby. This picture was taken two days after it had stopped raining in Formby. The water level was still at a height that had kept the non-return valves

closed elsewhere in Formby. I will let you draw your own conclusions as to the possible effects on the structure of the bridge that the power of this obviously moving water will have when this happens on a regular basis and lasts for several days even with the pumps at Altmouth Pumping Station working at full capacity. Again the water here is considerably higher than the normal dry weather flow, but it shows that the River Alt stays high for several days after the storm has passed and the rain has stopped.

- 27) The Environment Agency has published plans to create a flood plain at Lunt Meadows where they would intend to allow the River Alt to overflow into the fields allowing storage of water at times of heavy or persistent rain. Their claim is that this will allow the River Alt to be “less reliant upon the pumps at Altmouth Pumping Station”. Once this additional flood plain is constructed, the Environment Agency are planning to not use the pumps at Altmouth as much as they do now (which will keep the level of the River Alt at a higher average level than it is now) but also bear in mind the logical conclusion that for the water to fill the proposed Lunt Meadows flood plain - the River Alt will have to higher than normal (as the flood plain is only meant to be temporary storage) all the way from Altmouth Pumping Station at Hightown, past Formby, past the Downholland Brook confluence with the River Alt and upstream past Ince Blundell. The river would therefore remain at that higher level for longer and result in the non return flap valves on Formby’s watercourses remaining closed for longer resulting in more land and highway flooding as can be seen in Stephenson’s Way Industrial Estate on a regular basis.



- 28) The above picture shows Stephenson’s Way Industrial Estate and what happens on more than one occasion each year when the non-return flap valves close where Bull Cop ditch discharges into Downholland Brook. The water simply cannot get out of Formby so backflows from the ditch into the surface water sewers and up the road gullies, flooding significant areas of Stephenson’s Way Industrial Estate. Did you know that Sefton Council’s Planning Department has included the land immediately north of the existing industrial estate up as far as Moss Side as additional “employment area” in the Local Plan? Until this problem is solved I would suggest that would not be such a good idea.
- 30) More urgently, the gates and flooded driveway entrance you can see on the right hand side of the above photo are for the main Formby Electricity Substation where the overhead power cables enter transformers to supply all the electricity to Formby. If the substation floods, it is obvious therefore that there will be a power cut in Formby for the duration.
- 31) The Environment Agency also confirmed that the main source of electricity supply for Altmouth Pumping Station - “The primary power source for the new electric pumps is a mains power supply directly from Formby sub-station. This Scottish Power network supply is sufficient to run all four storm pumps, the dry weather flow pumps and the other station ancillary services.” Available in document: http://forms.sefton.gov.uk/planning/2012/S_2012_0004_Others_Condition_15_Summary_Note.pdf submitted by the Environment Agency to Sefton’s Planning Department in reply to a condition set on a planning application.
- 32) Draw your own conclusions of what happens to Altmouth Pumping Station should the main Formby electricity substation get flooded. Altmouth Pumping station does have emergency back-up

generators that should kick in should the electricity supply fail but obviously this is only meant as a temporary emergency measure.

Different interpretations of likely levels of flooding.

- 33) The three types of flooding that Formby could be susceptible to are, a) from the sea; b) from the river; and c) from groundwater or rainwater.
- 34) In general it was previously accepted in Formby that there could be a likelihood of flooding from the sea. Converting levels from tide-tables to land levels gives a Highest Astronomical Tide (HAT) (that is one that is forecast without taken into account air pressure, wind or other storm conditions) of 10.37m would give a land level of approx. 5.37m AOD (Above Ordnance Datum). Therefore it would be deemed that any land that is below 5.37m AOD is actually below the highest of high tides. Significant areas of Formby, in particular those near the By-Pass are below this level.
- 35) In paragraph 3.12 of document [S_2013_0905_Others_Flood_Risk_Assessment_Issue_4_24_pages_only.pdf](#), Cole Easdon Consultants admit that *“The undefended scenario (presumably without the presence of raised defences and Altmouth Pumping Station) denotes the influence of tidal effects on the flood levels, as water levels display a negative gradient.”* - What this actually means is that should the pumping station fail at Altmouth, or should the embankment of the River Alt or Downholland Brook fail or collapse at any one point, or should any one of the non-return flap valves on the watercourses that discharge to the River Alt or Downholland Brook fail... then areas of Formby WILL flood as they are lower than the water level in the River Alt or Downholland Brook. Take a look at the non-return flap valves in paragraph 9 above and see how safe, secure and watertight they look.
- 36) The Environment Agency now state that flooding from the sea in Formby is less likely than flooding from the river so they have given a calculated flood level of 3.85m AOD as flooding from the river. Their calculation is based on what level the water could reach if it overflowed over the river banks. But the top of the bank of the River Alt ranges from 4.50m to 5.50m AOD, according to both the Environment Agency and developers quoting the Environment Agency. Therefore, the River Alt or Downholland Brook will have to be at least at a level of 4.50m AOD before it can overflow onto adjacent land, therefore any land that is at or below 4.50m would be in danger of being overwhelmed if the River Alt overflows.
- 37) Unfortunately, developers are now quoting a level of floodwater of 3.85m AOD with great confidence. This cannot be accepted as a maximum flood level when it is obvious that there is standing water that is sitting on saturated ground that is already significantly above this level – so for developers to claim that the maximum flood level is below the existing ground level when it is clear that there is water on the surface is quite frankly an absurd claim. Try telling a householder that “it’s not flood water that has flooded their house – it is merely ground water,” – I am sure you can imagine their reply as they try and drown you in this “imaginary” flood water.
- 38) The site investigation report [S_2013_0905_Others_Ground_conditions.pdf](#) shows that the site has a layer of clay over the whole site that is between 0.2 and 1.2m thick starting at a depth of between 0.2 and 0.9m below existing ground level. Such a layer of clay prevents water permeating through the ground and therefore keeps the rainwater on the surface of the field.
- 39) The above written and photographic evidence should have fully explained why the site cannot be developed AT THE EXISTING GROUND LEVEL so we now know why the developer has decided to raise the ground level – a) to lift the site above the minimum flood levels stated by the EA; b) to allow storage of rainwater on their site above the clay layer under the site; and, c) to allow a gravity drained system at the claimed allowable “Greenfield run-off rate”.

The proposed site

- 40) As with any construction project, there will always be more than one way of solving the many problems that arise. But, there will always be a “best practice” option that would solve not just the problems on the site, but also any problems with adjacent properties. Sadly, in this case, the best design solution CANNOT BE IMPLEMENTED as it will add to the already worrying flooding problems elsewhere in Formby – in particular at Stephenson’s Way and adjacent to Tesco for example, as seen above.
- 41) The best option would be to install a proper land drainage system BELOW THE EXISTING GROUND LEVEL over the entire development site and discharge this new land drainage system directly to either Downholland Brook or the River Alt. Unfortunately, any direct connection at a level from a gravity drained system will be below the existing water level in the River Alt/Downholland Brook for most of the time therefore would be unable to drain. Secondly, the Environment Agency already know that the River Alt/Downholland Brook are unable to take any increased flow or any increase in discharge speed, therefore would not permit this proposal.
- 42) According to the developers submission, they propose that the Swales will either set up as an agreement for the residents to look after or that the swales be adopted by the council (under the Flood and Water Management Act 2010 - part of which is still due to come into force next year) which says that SUDS in public open spaces would be adopted by the local SUDS Approval Body (in this case Sefton Council) which would mean that Sefton Council would have the financial responsibility for maintaining these swales in perpetuity along with the associated liability should they cause flooding, have vermin infestation, suffer structural problems due to being installed on made ground etc. This could mean that Sefton Council could have unlimited liability not just for the maintenance of these swales but also claims made against the Council for flooding caused not just to this site but to adjacent sites like the existing Alt Rd/Monks Dr/Savon Hook estate.
- 43) If the swales were “adopted” by Sefton Council it would create an unfair two tier system of land drains in Sefton (not just Formby) as these swales or land drains outside these new £300,000 houses would have their land drain maintained free of charge, whilst ALL other land drains in Sefton (near significantly lower cost housing for example) would be the responsibility of the individual (Riparian) property owners.
- 44) Should the proposed swales be given in ownership to the residents of this new estate, it will become the same problem as locations such as Larkhill Lane in Freshfield where different property owners have either failed to maintain the watercourse, piped it with different inappropriately sized pipes, or “reclaimed” their front gardens by filling the ditch in!! Larkhill Lane ditch is NOT A SWALE as David Wilson Homes claim, but is in fact, a Riparian owned watercourse that is owned by the individual householders who front on to it, and it is a tributary of one of Formby’s main watercourses, Dobbs Gutter.
- 45) I am somewhat concerned about the trees planting at the north end of the site adjacent to the current Alt Road Park as directly under the line of tree planting is an existing land drain. Any significant plant, but in particular trees will send their roots in search of water and in particular will find their way into any land drain that will not be a perfectly sealed pipe. The tree roots will then block this land drain, further reducing the effectiveness of the existing system and increasing the likelihood of flooding on the adjacent park. Any piped watercourse in this area tends to be laid using a perforated pipe or (historically in this area) tend to be laid with slightly open joints to allow ground water to still enter the pipe – unfortunately this also means that tree roots can enter the drain.

Problems caused by raising the level of the proposed site.

- 46) In raising the proposed site, the developer WILL cause two particular problems of flooding for the adjacent existing properties in Alt Road, Monks Drive, Savon Hook, River Close etc.
- 47) The developer appears to think that by merely lifting the level of the site they will solve all the land drainage problems. Unfortunately, this shows a complete lack of even the basic fundamentals of management of land drainage problems, to such an extent that allowing this development will ADD to any existing problems off the site and cause additional ones.
- 48) If a property owner contacts Sefton Council about flooding or ponding in their garden, Sefton Council's own Drainage Section sometimes advises residents to raise the level of their own garden, perhaps by as much as 150mm (six inches) to above the level of water in their garden, using a granular free draining material (sand) and replacing the topsoil and turf. In doing this, a warning is always given that this will merely pass the problem on to neighbours gardens either side or at the rear of the garden. This advice is normally given to people who know that a land drain exists and the reason their garden is flooding is that the land drain is blocked in a property nearby. As it causes other properties gardens to flood as they are now the lowest point, this often motivates the person who owns the blocked land drain to get it cleared and solve the problem. If raising one garden by only 150mm can cause adjacent properties to suffer flooding as the water moves to the next lowest point, how much more water is going to be moved by raising the proposed site of 12.1 hectares by 900mm (3 feet)?
- 49) An example of where the council has had to pay to install a land drain to solve such a problem was at Roseworth Avenue, Parkdale Avenue, Oakmere Close L9 (in the Netherton and Orrell ward of Sefton Council) where a park area surrounded by the above named roads was made to have an undulating surface (mainly to reduce the number of ball games) – unfortunately after making the park area in this way, the water failed to successfully drain through the grassed areas and started to accumulate in gardens at the edge of the park area where no water had accumulated before. Consequently the Leisure Services Department paid the Drainage Section to design and install a land drain to stop the ponding in the gardens. This was not surface water run-off but a land drainage problem solved by installing a land drain. Another location, that did not include any council maintained land this time, is at Harebell Close in Formby when the developer raised the level of land whilst building the houses with the result that gardens of properties in Park Road, Formby started to suffer from garden flooding after the new houses were built.



- 50)
- 51) The above picture shows the raised park area at Rosedale Ave/Parkdale Ave L9 that caused land drainage flooding in the gardens of adjacent properties. This picture was taken before the land drain was fitted showing no standing water in the park area.
- 52) How much more effect will lifting the entire site at Liverpool Road/Alt Road have on adjacent properties? Take into account that the development site has standing water on it for many WEEKS (not days), EVERY YEAR.



- 53)
- 54) The above pictures show the quantity of standing water looking from the By-Pass towards Savon Hook. It is not raining, the ground is saturated to such an extent that water cannot complete its flow into the watercourses that discharge to the River Alt. Areas of the field stay like this for several weeks each winter. Merely “filling the low spots” as the developer suggests will not make this water go away, it will just make the water reappear at the next lowest point, which is likely to be the gardens of the existing properties surrounding the site.
- 55) In document [S_2013_0905_Others_Flood_Risk_Assessment_Issue_4_24_pages_only.pdf](#) item no. 2.15 Cole Easdon Consultants repeat the claim made by Curtins Consulting that “standing water level observed as shallow as at 0.6m bgl” (bgl means “below ground level”) which is obviously and clearly over-optimistic when the site and nearby land frequently has “standing water” WELL ABOVE GROUND LEVEL for several weeks EVERY YEAR - Or is the photographic evidence provided here false? These photographs are not false and provide an accurate representation of standing water from earlier this year – which was not particularly wet and has been described as “a drier than average winter” certainly compared to recent winters.



- 56)
- 57) The above picture shows the site looking towards Alt Road. Again, it is not raining, the ground is saturated to such an extent that water cannot complete its flow into the watercourses that discharge to the River Alt. Areas of the field stay like this for several weeks each winter.
- 58) Anyone with a basic understanding of Land Drainage will tell you that merely piling soil on top of this site will simply push the water to the next lowest point on adjacent areas. Raising this site by 900mm (3 feet) will DEFINITELY cause this water to accumulate in the existing gardens of adjacent properties. The water cannot go anywhere else – the ground conditions are such that nothing will drain through the up to 1.2m (4 feet) layer of clay that covers the entire site (this is according to the developers own site investigation report from Curtins Consulting [S_2013_0905_Others_Ground_conditions.pdf](#)) which anyone with even small local knowledge can tell you about the Redgate clay lake from which the clay was taken to build the original cottages in Formby from. So the proposal by the developer WILL cause a significant increase in the already existing land drainage problems of adjacent existing properties.

- 59) Secondly, the developer has PROVED that the existing surface water system around the proposed site WILL flood at a 100 year return period storm. They have shown this on pages 20 and 21 of the document [S_2013_0905_Others_SW_Network_Results_21_pages.pdf](#) (which show every manhole and pipe in flood condition) that they have submitted in support of their application!! Again, the local residents don't need to have a computer program tell them this:-



- 60)
61) The above picture shows Savon Hook flooded earlier THIS YEAR after not such a high intensity storm. The Environment Agency have confirmed that this was certainly not a 30 year storm, never mind a 100 year storm.
62) United Utilities have previously fitted a flow meter to a surface water chamber in Savon Hook to record the amount of water flowing through the chamber, due to the knowledge of repeated flooding such as this.



63)



- 64) The above pictures show the state of Alt Road Park at times of rain (Alt Road Park is the existing amenity area immediately north of the proposed site.) Raising the land levels on the proposed site WILL have a significant effect of making this existing flooding worse. Nothing the developer is proposing will make this situation better – only worse. Does the Council already have plans to and budget available correct this flooding, never mind more water than this?



- 65)
- 66) The above pictures show the level of accumulated water in the driveways and gardens of properties on Alt Road, facing the proposed site. The picture on the right is a good example of how water accumulates at the lowest point – it is a mini example of what will happen when the developer raises their entire site by 900mm. The pictures also show that the ground conditions are such that Sustainable Urban Drainage Systems do not work in this area – the water is ponding on the grassed areas and running off on to paved areas. The whole idea of gardens around properties is the paved areas should be able to drain on to the grassed areas for the water to “soak away” into the ground.
- 67) Referring to a ditch running across the proposed site, Cole Easdon Consultants state in paragraph 3.24 of their document [S_2013_0905_Others_Flood_Risk_Assessment_Issue_4_24_pages_only.pdf](#) that, “*Ponding to the south of the public footpath is exacerbated somewhat by a raised earth lip present on the entire length of Ditch 1 that prevents field runoff from entering the ditch.*” Unfortunately this shows the consultant has failed to observe the field in wet conditions and has completely failed to understand that the raised earth lip is there to stop the ditch from flooding into the field and making the situation considerably worse. It also shows their failure to understand how land drainage ditches work – most rainwater that enters a ditch lands on the soil and permeates through the ground to the ditch rather than the small amount of water that travels across the surface. I would suggest that this shows the consultant lacks the most basic understanding of the fundamentals of land drainage. Working on their theory we need to take the embankments of the River Alt and Downholland Brook down to allow the water on the ground to flow into them!!! This proves that using consultants that are unaware of the local conditions on a site is somewhat unreliable at the very least. In all their documentation, David Wilson Homes/Barratt Homes Manchester have stated that they will use local contractors to build this site – I think they should start by using local knowledge to get a more coherent design. I am somewhat concerned that the documents submitted by Cole Easdon Consultants, both [S_2013_0905_Others_Flood_Risk_Assessment_Issue_4_24_pages_only.pdf](#) and [S_2013_0905_Others_Flood_Risk_Assessment_Full_Version.pdf](#) both refer in paragraph 2.2 to “The application site is located adjacent to the A456 Formby By-pass.” Unless we are very much mistaken, the A456 runs from Kidderminster to Halesowen – which is certainly nowhere near the A565 in Formby where this site is. Is this a typographical error, or just indicative that they have “cut and pasted” significant parts of this document from another job? It is worrying that they have submitted the document with such fundamentals at the location of the site and how land drains work being incorrect. In paragraph 1.2 of the same document, they claim a draft version of the document was submitted to the Environment Agency who apparently approved it! This does not inspire the Sefton council taxpaying resident with much confidence. We expect our elected members and council officers to represent and protect the residents accordingly.

- 68) According to the Micro Drainage computer run for the Alt Rd/Monks Drive/Savon Hook area as submitted by the developer, the entire estate will be in flood conditions for a 100 year return period storm. When such a flood occurs at the moment, the water will be able to flow into the lower adjacent field and not flood the properties – but the developer has proposed to lift the adjacent field by 900mm (3 feet) therefore preventing the water from escaping by its current natural route. In effect, the developer is building a wall around the estate which will seriously affect the likelihood of flooding of the existing properties in Alt Rd/Monks Drive/Savon Hook etc.
- 69) Therefore, the developer is firstly pushing the existing standing water off their site and secondly preventing the escape of flood water off the existing estate. I would suggest they would be falling foul of the Land Drainage Act 1991 which states that a downstream landowner must accept the flow of water from from an upstream property, whether that is in a pipe, an open ditch, or over the surface. In such cases, either the affected property owner or the relevant Land Drainage Authority (in this area that is Sefton Council) can serve notice on and take action the offending land owner.

Cole Easdon Consultants		Page 20						
York House, Edison Park Dorcan Way Swindon, SN3 3RB								
Date 11/02/2013 10:09	Designed By nparajuli							
File 3556-SW NETWORK-0...	Checked By							
Elstree Computing Ltd		Network W.12.4						
100 year Return Period Summary of Critical Results by Maximum Level (Bank 1) for 3556-SW NETWORK-07.02.2013.SMS								
PN	US/NI Name	Water Level (m)	Surch'd Depth (m)	Flooded Volume (m ³)	Flow / Cap.	O'flow (l/s)	Pipe Flow (l/s)	Status
4.000	47	4.576	-0.624	0.000	0.00	0.0	6.2	FLOOD RISK
5.000	48	4.578	-0.672	0.000	0.00	0.0	15.4	FLOOD RISK
5.001	49	4.578	0.122	0.000	0.14	0.0	4.5	FLOOD RISK
3.007	41	4.576	0.148	0.000	0.95	0.0	38.6	FLOOD RISK
3.008	42	4.561	-0.523	0.000	0.02	0.0	49.8	FLOOD RISK
3.009	43	4.561	0.237	0.000	0.98	0.0	38.6	FLOOD RISK
3.010	44	4.553	-0.457	0.000	0.02	0.0	55.1	FLOOD RISK
3.011	45	4.553	0.309	0.000	1.40	0.0	41.7	FLOOD RISK
3.012	46	4.541	-0.383	0.000	0.01	0.0	48.7	FLOOD RISK
1.011	12	4.540	0.382	0.000	1.90	0.0	67.5	FLOOD RISK
1.012	13	4.485	-0.357	0.000	0.02	0.0	91.3	FLOOD RISK
1.013	14	4.483	0.435	0.000	2.04	0.0	67.9	FLOOD RISK
1.014	15	4.428	-0.288	0.000	0.02	0.0	77.8	FLOOD RISK
1.015	16	4.426	0.466	0.000	1.51	0.0	67.0	FLOOD RISK
1.016	17	4.381	-0.225	0.000	0.02	0.0	73.2	FLOOD RISK
1.017	18	4.379	-0.160	0.000	0.02	0.0	67.2	FLOOD RISK
6.000	50	4.381	-0.469	0.000	0.00	0.0	5.7	FLOOD RISK
7.000	53	4.383	-0.417	0.000	0.00	0.0	8.8	FLOOD RISK
7.001	54	4.383	-0.359	0.000	0.00	0.0	11.1	FLOOD RISK
7.002	55	4.383	0.421	0.000	0.13	0.0	5.0	FLOOD RISK
6.001	51	4.381	-0.251	0.000	0.00	0.0	11.9	FLOOD RISK
6.002	52	4.381	0.534	0.000	0.14	0.0	5.5	FLOOD RISK
1.018	19	4.377	-0.119	0.000	0.04	0.0	64.2	FLOOD RISK
8.000	56	4.377	-0.173	0.000	0.00	0.0	3.5	FLOOD RISK
1.019	20	4.377	0.619	0.000	1.48	0.0	50.2	FLOOD RISK
1.020	21	4.352	-0.089	0.000	0.02	0.0	52.2	FLOOD RISK
1.021	22	4.350	-0.051	0.000	0.02	0.0	50.8	FLOOD RISK
1.022	23	4.347	-0.022	0.000	0.02	0.0	52.1	FLOOD RISK
9.000	57	4.346	-0.254	0.000	0.01	0.0	15.5	FLOOD RISK
9.001	58	4.346	0.610	0.000	0.25	0.0	7.6	FLOOD RISK
1.023	24	4.343	0.556	0.000	0.72	0.0	57.7	FLOOD RISK
10.000	59	4.331	-0.269	0.000	0.00	0.0	6.6	FLOOD RISK
10.001	60	4.331	0.527	0.000	0.09	0.0	3.4	FLOOD RISK
1.024	25	4.329	0.565	0.000	0.75	0.0	60.4	FLOOD RISK
1.025	26	4.315	0.024	0.000	0.01	0.0	60.0	FLOOD RISK
11.000	61	4.315	-0.185	0.000	0.00	0.0	7.9	FLOOD RISK
1.026	27	4.315	0.682	0.000	0.43	0.0	50.9	FLOOD RISK
1.027	28	4.295	-0.360	0.000	0.02	0.0	53.1	FLOOD RISK
1.028	29	4.293	0.928	0.000	1.12	0.0	52.7	FLOOD RISK
1.029	30	4.033	0.669	0.000	0.39	0.0	52.7	SURCHARGED

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- 70)
- 71) Shown above is page 21 of the document [S_2013_0905_Others_SW_Network_Results_21_pages.pdf](#) submitted by the developer as part of their supporting evidence for this planning application. It shows every chamber as a flood risk. Although as shown in the photo of Savon Hook at point number 60 above, it doesn't have to be at a

1 in 100 yr storm to flood. Please note that a “100 year Return Period” does NOT mean that if a storm of this intensity occurs today, we will not get another for 100 years – it means that the probability is that you would only get one in 100 years, but you could get one this week AND one next week. The bigger problem Formby has is that it is at the downstream end of the River Alt so the River Alt could be “full” without it even raining in Formby, then the storm arrives over Formby but the water cannot get into the River Alt due to the level already being too high to allow water to discharge into the River Alt.

Sustainable Urban Drainage Design – or not sustainable?

- 72) The entire proposed surface water drainage system on the proposed site is not a Sustainable Urban Drainage System. The ONLY part of the system that mimics anything sustainable is the restricted flow outlet that is trying keep the flow at a “green field run off rate”.
- 73) The swales are only there to provide storage for rainwater that lands on hardstanding areas that is unable to discharge to the River Alt as quick as it can naturally flow.
- 74) The swales have been designed as impermeable so that they can retain water just like any other piped system or tank can. The only advantage to the developer is that a calculation could show greater variable storage for an open ditch than the fixed size of a pipe – although in doing this they are calculating that the water can overflow onto surrounding ground and it be counted as storage.
- 75) The surface water system on the new estate would therefore be a “fake” SUDS scheme as it only “looks like” a SUDS scheme yet actually operates in the same way as an oversized storage piped system with a “throttled” outlet.
- 76) But – the future comparable costs of maintaining a large diameter pipe (which is negligible unless the pipe collapses) compared to the cost of maintaining and policing a grassed open swale - which cannot be cleaned by a mechanical sewer vector unit and must be cleaned out by hand, mowed several times a year because the grass will grow well and checked for penetrations of the impermeable layer so that the new SUDS scheme doesn’t itself contribute to the already saturated ground by “leaking” to ground where it was not designed to do so.
- 77) The developer would need to be asked to prove the longevity of their proposed system compared to a piped system (which could survive almost unmaintained for up to 100 years) with full annual maintenance costs broken down into inspections, mowing, cleaning, repairs etc. on this fragile design.
- 78) The developer would need to be asked to prove that the impermeable system will remain intact if public utility companies (gas, water, electric, telecoms etc) relay their services and decide to “go through the swale” as they have done at many locations on the watercourses in Sefton.
- 79) The developer would need to prove that the impermeable layer of the swale will remain intact if a motor vehicle accidentally ends up in or deliberately tries to park in one of the swales (whether a resident or a delivery vehicle unused to the system of swales thinking they are merely grass verges).
- 80) How will the developer and Sefton Council prevent future owners of properties on the estate either failing to maintain, piping or filling in the swales?
- 81) Can Sefton Council’s Planning Department confirm whether the swales will be adopted and maintained by the local SUDS Approval Body (Sefton Council) with associated costs and liability or will the swales be owned and maintained by the property owners?

Conclusion

82) All of the above shows that:-

- a) The site cannot be developed at the existing ground level as it would be likely to flood, knowing that no quicker discharge rate to the River Alt is allowed so any storage of storm water would not be allowed to be pumped into the River Alt, therefore the developer has decided to raise the site to stop their own site flooding whilst accommodating storage and a slow discharge to the River Alt; but,
- b) In raising the site the developer is almost guaranteeing that the existing properties of Monks Drive and surrounding properties will firstly suffer from ground water land drainage flooding problems under normal conditions and, secondly, the developer has themselves proved that under storm conditions the whole of the Monks Drive estate will flood, but by raising the adjacent field, the developer is removing the only area of land the storm water from the Monks Drive estate can drain to, thereby again guaranteeing the existing properties will flood.
- c) It therefore follows that, if the Council approves this planning application, the council will have the extreme expense, and moral obligation, of installing a new land drainage system to protect Monks Drive/Savon Hook etc. that would be at a low level, with storage capacity, therefore difficult to discharge to the River Alt without carrying out work that is already known as “not allowed” in a) above. Not only would this involve the expense of designing and installing a new land drainage, storage and possible pumping system, but also the repeated expense of maintaining the system each year as it would be unfair to make the local residents, as riparian owners of a new land drain, pay for the maintenance of a land drain that was only needed due to the construction of an adjacent housing estate that would be having a SUDS (sustainable urban drainage system) maintained by the local authority. To have the new site getting “free maintenance”, whilst the existing housing estate residents have to pay out because the new site has been built would be unreasonable for a council tax payer to take. Unless, of course, the council made the residents of Alt Rd/Monks Drive/Savon Hook pay to install their own land drain? Which would certainly be unreasonable considering the flooding would be no fault of their own.

Recommendation

83) I would therefore request this planning application be refused on the grounds of:-

NPPF Chapter 10 Section 100 “Inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at high risk, but where development is necessary making it safe **without increasing flood risk elsewhere.**”

Appendix 1 - Plan showing photograph locations:-



Key:- 26 The number indicates the paragraph number where the photograph appears.

(plan taken from Google Maps www.google.co.uk for non-commercial purposes)