**S/2510/15/OL – CALDECOTE – APPENDIX 1**

**Resident's drainage objections (taken from document submitted on behalf of 63 residents)**

*Site Description and Flooding History*

Site is on an approximate plateau at the north end of Highfields and the land slopes generally downhill to the south, so that water flows down from a slight plateau through Highfield, Old Caldecote and into Bourn Brook, upstream of Toft. There is an existing ditch system beside Highfields Road, which takes almost all of the surface water, and historically has repeatedly flooded. There is another parallel ditch system to the east, which takes water past Highfields down to the old part of Caldecote, which again has historically flooded. This ditch system flows directly into Bourn Brook, which again floods, cutting off the B1046 and flooding Toft.

The flooding has been worse since the development if Highfields since 1999. Properties have been flooded and uninhabitable in events in 2002 and 2014. In August 2014 11 houses were flooded and uninhabitable; a nursing home had to be evacuated; roads were closed at Bourn Brook, St Neots Road, Caldecote Main Street, and the upgraded A428. Many more gardens were flooded, with houses at risk. Drains and sewers overflowed. Flooding incidents were recorded all around the site.

*Flood Risk Assessment (FRA)*

The FRA states that its objectives are to drain the site; not to increase the risk to Highfields; and potentially alleviate flood risk in Highfields

It is believed that the plan as stated will not alleviate flood risk to Highfields through the existing ditch system; will increase flood risk to Damms Pasture, Clare Drive, Highfields through overloading the Clare Drive drainage system, old Caldecote and Toft.

*History*

There have been variations of the flood alleviation plan which are; an initial leaflet advising residents of the proposed development showing internal drainage through 8m deep piped system; FRA showing improvements to ditches surrounding the site, with internal drainage through SuDS; Parish Meeting to present 'updated' plan showing additional relief to overtopping Highfields Road ditch.

*Consultation*

At a meeting in January 2016 between residents, SCDC, the Flood Authority, the applicant and its drainage consultant the following points were made:

The extent of local flooding was considerably greater than previously realised by the applicant of Flood Authority

The applicant intended the drainage system to be considered in the FRA, with no updates to alleviate the Highfields Road ditch system

The proposed new southern boundary ditch system would be 1m wide at the base, and 1.3m deep at the south eastern corner of the site (the deepest point)

The south western corner of the proposed site is at risk from flooding from Highfields Road.

The soil is extremely absorbing. The type used to calculate the expected runoff should be type 4 or 5, not type 3. This will result in the requirement for much larger pipes on the site and significantly larger SuDS (it should be noted that the SuDS pond location has recently been under 1ft of water.

It is not clear whether the ditch beside Highfields Road is within the site.

Ownership of the Highfields Road ditch is unclear. Information has been requested.

No plan has been made for maintenance of any of the boundary ditches.

The Parish Council will not adopt the ground between the site and the SuDS system, so will not maintain the ditch carrying surface water away to the east.

*Concerns*

*Pooling*

The lowest point on the site is the south western corner. The lie of the land means that all natural drainage is towards this point. That is right next to the vulnerable Highfields Road ditch.

Any plans to alleviate this by adjusting ground levels will increase the risk to neighbouring properties.

*Influx*

Study of the flooding in August 2014 shows that houses on Highfields Road, directly opposite the site, were flooded. Water levels were augmented by flows along the track bordering the northern edge of the site. Two houses directly opposite the proposed main entrance to the development were flooded.

To provide road access into the site, the existing protective verge will be cut away. Without this verge, water will flow along the new access roads into the site, increasing risk of flooding to the development.

If this flood water enters the site it will overwhelm the planned SuDS system and the proposed new southern ditch.

*Risk to Clare Drive and Damms Pastures*

The plans call for the unrestricted ditch systems along the southern and eastern boundaries of the site to meet at the south eastern corner. This is the highest point on the boundary.

Because the ditches meet at the high point, in times of high flow, or when the outflow to the east is poorly maintained, there is a very high risk of backflow along the southern ditch, leading overflow into Clare Drive and Damms Pastures. This would put at least six properties at very much increased risk of flooding.

Any extra water entering the Clare Drive ditch would flow into the vulnerable Highfields Road ditch system.

Any extra water overflowing into the roads (rather than properties) of Dams Pastures or Clare Drive would drain into a matrix which already fails to cope with existing flows and contributes to flooding lower in Highfields.

*Risk to Highfields*

The current proposal will not alleviate flooding in Highfields, there is no plan to alleviate overtopping from the Highfields Road ditch.

As stated above there is a risk of increased flooding through backflow along the southern boundary ditch.

*Risk to Caldecote*

Improvements to the site boundary ditches will cause increased (and faster) flow into the ditch on the east side of the site.

It is unclear whether the increased flow through the eastern ditch will flow east, into the Toft catchment, or south through another ditch system which runs to the west of Wood Barn Farm into old Caldecote.

Currently there is little flow into the poorly maintained Caldecote ditch at this point, but any increase in flow would significantly increase the risk flooding to old Caldecote and Bourn Brook.

If, as planned, the increased flow into the eastern ditch system runs away to the east, this would run into the Toft catchment, with corresponding risk to Toft.

*Risk to A428*

House along the old St Neots Road have historically flooded. Since the A428 has been updated, it has been re-routed with an underpass at the Hardwick roundabout. In the 2014 incident, this underpass filled, closing this main trunk road. Redirection of any extra water away from the north will increase this risk.

*New Information*

*Ditch state*

In January 2016, the eastern ditches were walked. This was about a week after any significant rainfall, so showed a normal winter water load. The ditch to the east of the site is very poorly maintained – in some sections it was not visible through overgrowth of brambles.

The eastern ditch forks just south of the site. The applicant expects any flow to be directed away to the east at the fork. This is currently the case. However the flow is along a smaller ditch (approx. 0.5m deep and 0.5m wide).

The ditch which runs south from the fork (towards old Caldecote) is partially blocked about 5m south of the fork. This is where an active badgers sett immediately beside the ditch has caused the ditch side to collapse, blocking the ditch to a depth of about 10cm. This has been enough to redirect the current flow to the east.

Increased flow would wash away this obstruction (including the badgers?) and allow the water to flow south, carrying the accumulated litter from the unmaintained ditch to block any culverts.

*SuDS Pond*

The site of the SuDS pond does not drain. The area was visited in January 2016, about a week after any significant rainfall, so showed a normal winter water load. The site of the SuDS pond was under water to a depth of about 1ft. This means that it will not work as planned.

*Where can the water go?*

The Environment Agency flood risk map shows that the site is surrounded by areas of high flood risk. There is no direction in which water can be taken away.

Currently this risk is mitigated by the area of open land, which slows the flow into the risk areas.

NPPF P6 recognises that open land can perform the function of flood risk mitigation. It is believed that this land is necessary to mitigate the risk of flooding to Highfields, Caldecote and Toft.