

## Development Control Committee Meeting 24 September 2020 - Planning application - Land at Hatfield Aerodrome, 5/0394/16

This document is the Ellenbrook Area Residents Association (EARA) response to the information provided by the Environment Agency (EA) at the Development Control Committee Meeting on 24 September 2020.

The EARA are very concerned that some of the information provided by the EA was inaccurate and/or misleading, tending to give some members of the DCC a false sense of security about the risks involved in approving the application. We would like to challenge these EA responses and ask that you provide clarity and evidence to support these comments if you maintain their accuracy.

The following '**EA Comments**' were made by EA representatives Keith Spence and Dianne Jones at the DCC meeting on the 24<sup>th</sup> September 2020 and shown below in italics.

### EA Comment 1

*"we have no data at the moment that suggests that bromate is absolutely directly under the – mineral working area within the proposed quarries site - - some of the drawings that have been presented in – the – day are slightly misleading – the drawings that show the plume directly beneath the site but there actually drawings which were created for – as regional drawings when they are discussing – the the – wider bromate plume – and the resolution of the data when drawing the plumes is not as great as the actual data that has been presented – around the quarry site – so the most reliable source of ground water quality data around the site is actually within – the Brett's information and their groundwater – monitoring – groundwater quality – and management plan"*

### EARA response

Brett **do not** have any boreholes on the actual dig site. So how anyone can claim that there is no bromate directly under the site is incorrect and extremely misleading. In the absence of any data it would be equally valid to say that "we have no data at the moment that suggests bromate is **not** directly under the site".

The fact that there is bromate and bromide on the periphery of the site and that the bromate maps are only a theoretical, representational drawing of the plume clearly suggests that there is potential for bromate to be on the dig site. Bromide in excess of 125µg/l is used as an indicator of the presence of Bromate and to locate the parameters of the plume. The fact that Bromide in excess of 125µg/l is found all around the perimeter of the site is totally ignored by EA as a potential red flag to the presence of Bromate within the site and not worthy of mention or further investigation.

Regarding the comments on the use of maps/drawings the EA actually state that any map can only be representational as in reality the contours do not follow nice straight/curved lines. So in fact the actual plume could be further into the quarry site than is depicted. To dismiss the drawings and maps as irrelevant is a disservice to the truth.

**The only way to prove or disprove the theory is to have boreholes on the actual dig site.**

### EA Comment 2

*"we are aware Hatfield quarry and the historic Hatfield quarry workings immediately north of the proposed Ellenbrook quarry site – and on the Hatfield quarry site there are several deep ponds that are in hydrologically continuity with the lower mineral aquifer horizon – so we have strong reasons to believe that historically that the lower aquifer was actually worked at that site"*

### EARA response

The inference from Mr Spence's comments above is that Cemex have previously accessed the lower aquifers without any issues and therefore there would not be any problems with Brett's plans. This is misleading as once it was identified there was contamination in the aquifer all future works ceased in that location.

The “*several deep ponds*” on the historic Hatfield quarry site – latterly St Albans Sand & Gravel now Cemex - are in the restoration period and were formed pre 2000, before the pollution was discovered. We believe that the deep ponds are no longer in “*hydrologically continuity with the lower mineral aquifer horizon*” as claimed by EA. In fact the ponds now contains carp fish and as far as we are aware there is no evidence of contamination within these ponds.



The above photo shows a large lake on the Cemex site that contains fish.

The pharmaceutical companies, responsible for the bromate pollution plume, produced bromine based chemicals including potassium bromate between circa 1955 until circa 1980/82 when all production ceased. Contamination was first found at Bishops Rise pumping station in late May 2000.

The old Hatfield quarry has been in operation since circa 1950 in different areas in and around Coopers Green Lane. So to be clear on the chronology of events – the plume invaded the old Hatfield quarry rather than the quarry invaded the plume, however the proposed Brett quarry will invade the plume environment, the opposite way round to the Hatfield quarry. Mr Spence failed to mention that as soon as the old Hatfield quarry was recognised as being contaminated by bromate those workings were shut down and sealed off. Since this time Cemex have not accessed the lower aquifers.

Monitoring of the restored site is carried out by telemetry and can be seen in the picture below.





In the above Google Earth picture the contaminated part of the Cemex quarry is shown in red, it was filled in after year 2000. This section was sealed off and will not be restored for public access or farm use.

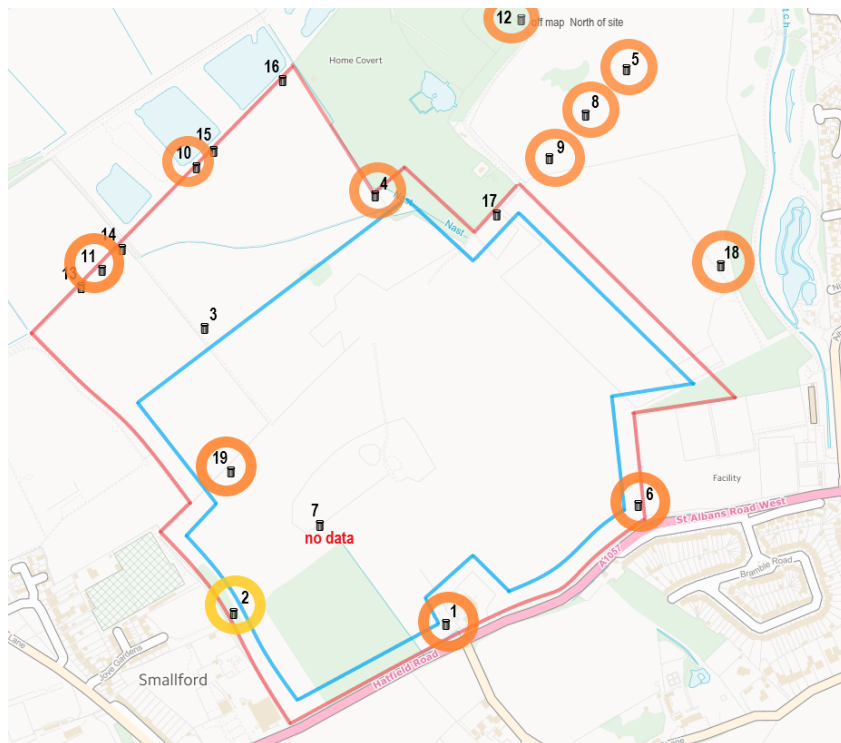
Only the N.E. section of the Cemex quarry was contaminated, any future workings do not dig the lower mineral horizon.

### EA Comment 3

*“in addition to this we have several ground water monitoring wells between – the historic Hatfield quarry site – and the proposed Estdon quarry and the Roestock and the Tyttenhanger – abstraction boreholes – and we’ve never ever seen bromate in any of the boreholes – between the historic Hatfield site – quarries and the two abstraction boreholes and therefore we don’t believe that the plume will be diverted by the workings that are proposed in the lower mineral aquifer.”*

### EARA response

We disagree with the above statement as many instances of bromate and bromide are evident in Brett’s own borehole data chart: *Bromate and Bromide Data V1\_dated 28 January 2020\_received by HCC 29 January 2020.*



The map shows

Orange ringed boreholes that have data re bromate levels above 2µg/l and a yellow ringed borehole that has data re Bromide levels above 125µg/l (N.B. Other BH's have high levels of Bromide but not shown here)

1 = BH 101 LMH showed 4.7µg/l in June 14

10 = BH 301 chalk showed 2.5 µg/l Feb 18

10 = BH 301 LMH showed 3.3 µg/l Nov 16

11 = BH 302 Chalk showed 4.0 µg/l Feb 18

19 = BH BHG LMH showed 2.4 µg/l Oct 15

2 = BH 102 LMH No Bromate above 2.0 µg/l but high levels of Bromide consistently above 125 µg/l e.g. 186 µg/l in May 18 and 165 µg/l in Feb 19 as do a number of other boreholes on the northern, southern and western perimeters.

The only mention of levels of contamination was that of Dianne Jones talking about WHO level re drinking water at 10 µg/l. The EA did not mention that the level for dictating the parameters of the plume are 2 µg/l in regard to Bromate and 125 µg/l in regards to Bromide. This is important when considering if the GWMP would meet the EAs three points.

### EA Comment 4

*“we are happy that any works within the lower mineral aquifer are managed and they will not cause a diversion of this plume”*

### EARA response

This is a risk factor that has only been assessed by the applicant as minor. The quarry will be removing 8 million tonnes of sand and gravel, and we believe that the entirety of the removal of the porous material and the impact in the hydrological regime of the aquifer has not been sufficiently understood across the timescale of the quarry ie 32 years.

This disturbance according to Dr Michael Rivett FGS (Contaminant Hydrogeologist; Director, GroundH2O Plus Ltd) **will** cause a change in the hydrologic regime of the aquifer breaching one of the EA conditions.

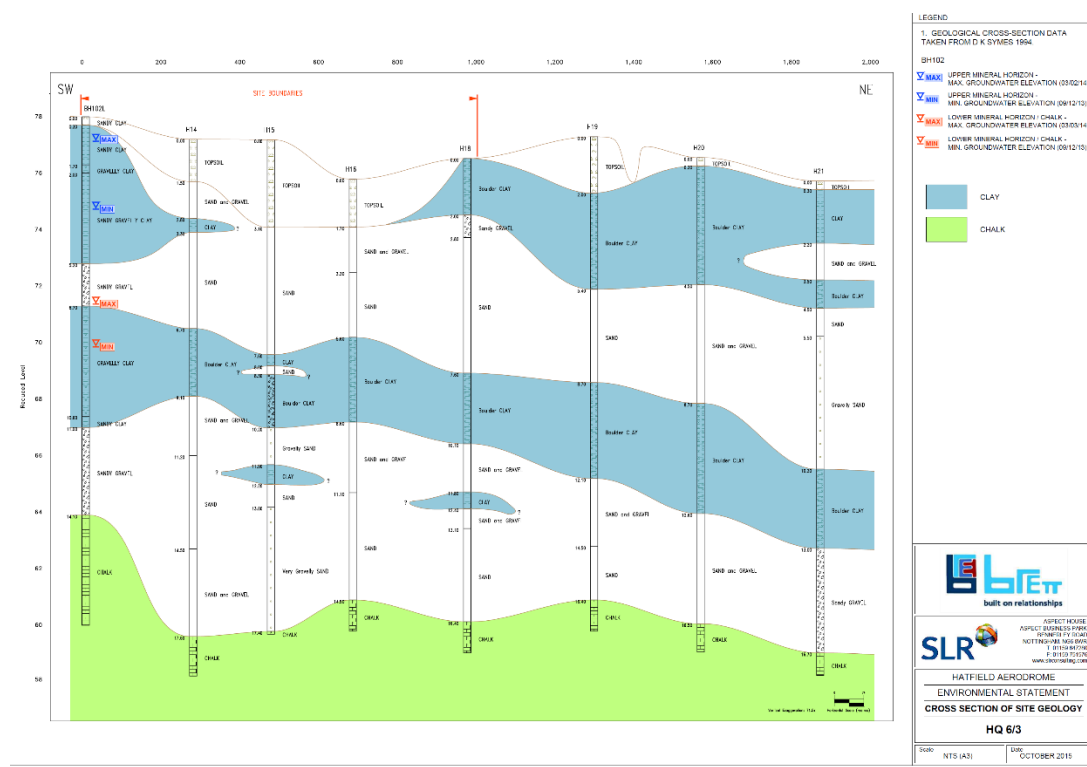
## EA Comment 5

*“the vast majority of the high concentration of bromate and the transport of bromate actually occurs at quite a greater depth than the base of the quarry the actual Bishops Rise abstraction abstracts from a depth greater than 68 metres below the ground” and the “base of the quarry I believe is 16 metres below ground level”*

## EARA response

This statement is not true. It implies that the bromate is a long way below the base of the quarry when in fact the bromate can be found at levels just below the clay interburden in the LMH.

The depth of the pollution is no more than 20m below the top surface of the quarry - where the flora & fauna exists. See below, every monitoring borehole that detects contamination is no more than 20m down



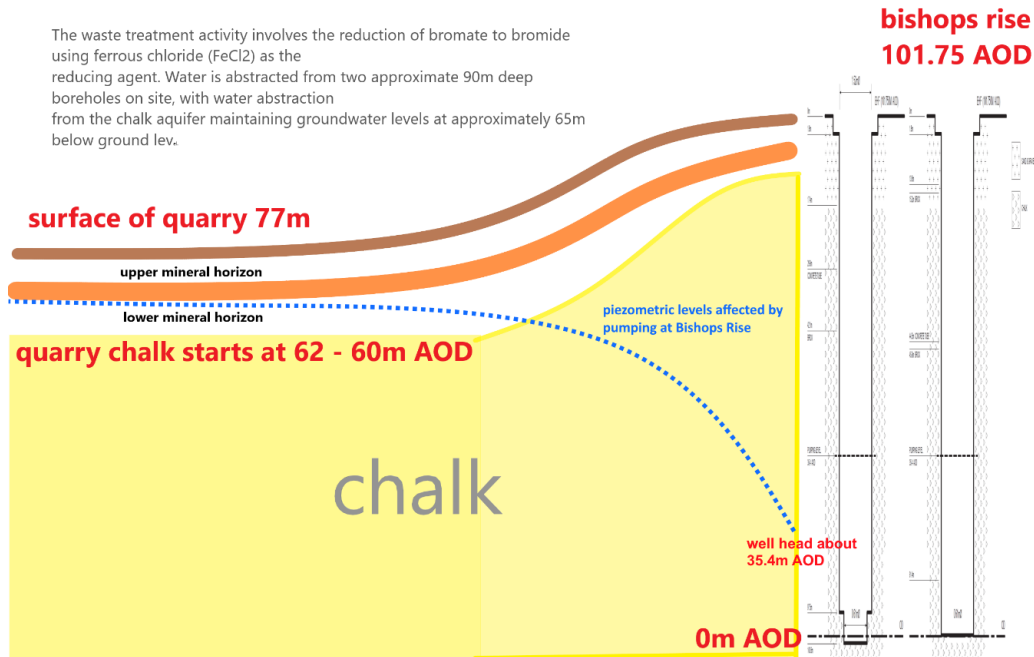
The confusion arises that Bishops Rise is on a hill about 25m above the quarry surface and that the twin 90m abstraction borehole are cut into the chalk aquifer.

The old water supply would pump groundwater from the chalk aquifer, the head being at 66.35m AOD with another 35m to go. Water was stored on site in a reservoir for public water supply. In any well system that is pumped there occurs a drawdown effect, and around the well exists a cone of depression. This is perhaps where the confusion comes from.

We have included a cross section of the quarry and Bishops Rise twin bore pumping station to the right. The quarry surface is between 74 to 80m AOD with UMH, clay interburden and LMH. The chalk aquifer between 62 to 60m AOD. A piezometric line in dotted blue shows the contour to be expected in the quarry area. However, this line takes a downward vertical as it nears to the pumping well head. Our estimation is that it is at 65m AOD or 35m down.

**It is absolutely clear that the bromate mass is not 68m below the quarry.**

The waste treatment activity involves the reduction of bromate to bromide using ferrous chloride ( $\text{FeCl}_2$ ) as the reducing agent. Water is abstracted from two approximate 90m deep boreholes on site, with water abstraction from the chalk aquifer maintaining groundwater levels at approximately 65m below ground lev.



## Conclusion

EARA believe that EA have provided members and officers of the council with information that is misleading and inaccurate, underestimating the risks posed by the quarry, and leading some members of the DCC to have a false sense of security about the risks involved in approving the application.

We would welcome a response from the EA in relation to the various points we have raised in this report. We would ask the EA to provide us with clarification and the evidence to support their comments made during the meeting.

Submitted on behalf of the Ellenbrook Area Residents Association

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