

DECISION STATEMENT

ABSTRACTION LICENCE APPLICATION

Affinity Water Limited

Application number: NPS/WR/031635

Licence number: 28/39/28/0270

EA Area: Hertfordshire North London

Date of Application: 08 July 2019

Decision Date: 21 May 2021

Applicant details:

Affinity Water Limited

Tamblin Way

Hatfield

Hertfordshire

AL10 9EZ

1. Summary of the proposal:

Affinity Water Limited applied to vary their full abstraction licence 28/39/28/0270, which permits abstraction from the Chalk groundwater aquifer at two sites near Watford; The Grove and Watford Fields. These sites are collectively referred to as the 'Watford Group'. Abstraction is for the purpose of public water supply.

This proposal forms part of a wider strategy put forward by Affinity to mitigate a potential reduction in supply from Affinity's Blackford Group source (licence 28/39/28/0480) - which also permits abstraction from the Chalk aquifer for the purpose of public water supply - as a result of construction works associated with HS2. These works risk causing spikes in turbidity (suspended chalk particulates) in the Chalk aquifer. Turbidity is the water quality parameter most likely to cause a reduction in supply from the Blackford Group source, however, Affinity have identified that there may be other risks to water quality which cannot be established until HS2 works commence. Yield from sites which are less affected by a deterioration in water quality – such as at The Grove - will need to be increased to enable Affinity to maintain supply and an expected level of service to their customers.

This variation will enable the daily abstraction rate at The Grove to increase from 21,276 to 25,400 cubic metres per day and the hourly abstraction rate from 887 to 1,241 cubic metres per hour, subject to the following criteria;

- when supply from the Blackford Group sites affected by HS2 construction (Blackford, Northmoor, and West Hyde) cannot achieve 57,460 cubic metres per day (this is the total historic peak output from these sites), due to;
- turbidity levels in the abstraction boreholes at these sites being equal to or higher than 0.8 Nephelometric Turbidity Units (NTU), or;
- if contaminants (which may include micro-organisms, parasites, or other substances) are detected in the abstracted water at these sites, or;

- when commencement of HS2 construction works is at or within 1 kilometre of the Blackford site (due to a high certainty of turbidity being generated).

The increase in hourly and daily abstraction rates at The Grove will offset, in part, any reduction in supply from the Blackford Group during peak demand periods. The increase in hourly and daily abstraction rate at The Grove is permitted until 31 March 2025, and only for intermittent 'peak demand' periods (which occur, on average 14 days within a year). Under normal operating conditions (outside of peak demand episodes and when there is no reduction in supply as a result of HS2 works), abstraction must occur at the existing, lower rates.

2. Source of supply:

The unconfined Chalk, near Watford.

3. Points of abstraction and quantities:

The Grove at National Grid Reference TQ 09 99:

- Under normal operating conditions:
 - 21,276 cubic metres per day
 - 887 cubic metres per hour
 - 349 litres per second
- When there is a reduction in supply in the Blackford Group and the criteria above apply:
 - 717,292 cubic metres per month
 - 25,400 cubic metres per day
 - 1241 cubic metres per hour
 - 345 litres per second

Watford Fields at National Grid Reference TQ 11 96:

- Under normal operating conditions:
 - 8,502 cubic metres per day
 - 355 cubic metres per hour
 - 193 litres per second
- When there is a reduction in supply in the Blackford Group and the criteria above apply:
 - No abstraction is permitted

The annual rate of abstraction for the Watford Group is aggregated across both sites, it is 7,986,580 cubic metres per year. This is not changing.

4. Means of abstraction:

Abstraction is made from boreholes, each with a pump.

5. Purpose of abstraction:

Public water supply.

6. Abstraction period:

All year (01 April to 31 March).

7. Case history:

The Watford Group licence was originally issued in February 1967. The first application for consent to investigate a groundwater source (under section 32(3) of the Water Resource Act) was made in January 2017, with the pump test commencing April 2018. The formal application to vary this licence was received June 2019.

8. Justification:

Affinity have a reasonable need to increase the hourly and daily abstraction rate at The Grove. In line with our duties towards water undertakers specified in section 15(1) of the Water Resources Act 1991 and section 38(3)(b) of the Water Resources Act 1991 - which dictates that we must have regard to an applicants' requirements in so far as we consider them to be reasonable - we recognise that Affinity need to maintain supply and an expected level of service to their customers.

9. Resource assessment:

The change to peak daily and hourly abstraction rate at The Grove is considered a redistribution of the water that may have otherwise been abstracted at Blackford, Northmoor, and West Hyde. The increase is temporary, and expected to only be required for short and intermittent durations, up to 31 March 2025. The pump test undertaken at The Grove by Affinity, demonstrated negligible impact on the surface water environment.

Consequently, the varied licence will not result in an increase in actual abstraction in the Colne Valley and is therefore acceptable with respect to the Colne Abstraction Licensing Strategy ALS. Similarly, the varied licence will not prevent achievement of Water Framework Directive aims or objectives of any of the connected water bodies.

10. Impact assessment of proposal:

We have included a monthly abstraction rate which will allow for recovery of the aquifer whilst providing Affinity with the flexibility to meet peak demand. This is calculated as:

- The sum of the proposed rate of abstraction multiplied by 14 days (the duration of the pump test), and the existing rate of abstraction multiplied by 17 days.
- 25,400 cubic metres per day x 14 days + 21,276 cubic metres per day x 17 days = 717,292 cubic metres per month

Whilst a 28 day month will allow for abstraction to occur at a rate of 25,400 cubic metres per day, the annual abstraction rate requires abstraction to be maintained at an average of 21,900 cubic metres per day; any higher abstraction must be offset at another time. Thus, continual abstraction at the higher rate severely curtails abstraction under normal operating conditions (because the licence is fully utilised and there is limited scope to offset the higher abstraction rate).

Affinity's pumping test appraisal for The Grove (October 2018) concludes that there were no discernible impacts on surface or groundwater dependent features, and therefore no adverse effects on sensitive receptors (including Chalk River BAP habitat) are anticipated. The daily and monthly limits applied will ensure that abstraction is limited to the rate proved in the pump test, and the latter will restrict the duration of its use.

11. Statutory consultation:

In accordance with our obligations, we consulted Natural England and Statutory notification was served upon Thames Water Utilities. No objections to variation were raised, with the conditions applied.

12. External representations:

Notice of this application was publicised twice in the Watford Observer and online at Gov.uk (September 2019 and January 2021). The following sections explain how we considered each matter raised in the representations and the potential impacts of this proposal in relation to our duties and responsibilities within our remit of determining this water resource licence application.

12.1. Concern that this application, if approved, would enable HS2 to proceed and ‘pollute the aquifer’ [through construction] by providing Affinity with the means of mitigating against anticipated impacts.

The decision to grant this application with amendments does not provide approval for HS2 works to proceed. The decision on this application had to be specific to the proposal put forward by Affinity and accordingly we have considered this proposal against section 38(3)(b) of the Water Resources Act 1991, which says that we must have regard to the applicants’ requirements, in so far as we consider them to be reasonable. In this instance we were critically assessing whether the application made by Affinity to redistribute abstraction between sources within the Colne Valley - for the purpose of maintaining supply during peak demand periods - was reasonable. Whilst the impacts of HS2 construction on the Blackford Group were considered in the context of assessing the reasonability of the proposal, we could not extend this assessment to consider whether HS2 is justified in its own right. Or similarly, whether HS2 should or shouldn’t be allowed to proceed due to the anticipated impacts on the source of supply (‘the aquifer’) near Blackford, because this is not within the remit of the legislation applied to this assessment of the application made by Affinity, i.e. it is not an assessment of works being undertaken by HS2 Limited or contractors.

The impact of HS2 construction (considered further in 12.2 below), including the tunnelling referred to within this group of representations, has been assessed under Schedule 33 of the High Speed Rail Act 2017 (which applies up to defined land limits) and The Environmental Permitting (England and Wales) Regulations 2016. Those assessments have no bearing on this application because The Grove is not within the limit of land defined by the High Speed Rail Act 2017 and therefore the Water Resources Act 1991 has not been disapplied. HS2 construction could proceed irrespective of the decision on this application, and therefore refusal would impact upon Affinity’s ability to mitigate against any impacts on supply without any effect on progress of HS2 works.

Within these representations, the source of pollution is not specified so has been interpreted to mean either the introduction of new contaminants or remobilisation of existing contaminants in the Chalk aquifer, or both, due to HS2 construction. The most likely ‘pollution’ to have an impact on Affinity’s ability to maintain output at existing rates is turbidity generated by piling works near Blackford. The assessment of and decision on this application to increase the abstraction rates at The Grove must be specific to the potential impact on water quality induced by the proposed change to the abstraction regime; we found no evidence that the increase in abstraction rate at The Grove would contribute to or exacerbate impacts of pollution on the Chalk and, critically, this proposal does not allow for any additional, or permit the direct discharge of, pollution to the aquifer or surface water.

To be clear, reviewing assessments of the impacts of HS2 construction on ‘the aquifer’ is beyond the scope of this determination and a positive decision on this application is not a requisite permission for HS2 construction to proceed.

12.2. Comments regarding the impact of HS2 on the environment and water resources

Representations expressed general concern over the potential impact of HS2 construction on the ground and surface water environment, landscape, and to public water supply. Works being undertaken by HS2 Limited (or contractors) for the construction of HS2 will have been assessed under Schedule 33 of the High Speed Rail Act 2017 as those works fall within the defined land limits of the Act, and The Environmental Permitting (England and Wales) Regulations 2016. This decision must be specific to the application made by Affinity and the effect of increasing abstraction rates at The Grove on an intermittent basis; therefore further assessment of HS2 is beyond the scope of this determination. Where attention has been drawn to a specific impact of HS2 works, we have considered whether this proposal could act in combination and exacerbate these impacts. These matters are:

- Failure to achieve Good overall waterbody status of the Mid Chilterns Chalk (GB40601G601200) groundwater body under the Water Framework Directive (WFD) due to construction of the Colne Valley Viaduct, tunnelling, and diversion of New Years Green Bourne. It is suggested that these works will cause a deterioration in Quantitative and Chemical status elements. Works associated with HS2 have been or will be assessed against The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 where relevant; it is beyond the remit of this determination to reconsider the impact of these works on WFD. Separate assessments for HS2 have identified that the risks from construction of the Colne Valley Viaduct and the Chiltern Tunnel are limited to water quality. That is, the works are not likely to cause a deterioration in Quantitative status or prevent any element from meeting its objective within the Mid Chilterns Chalk through a change in level or flow, therefore there is no mechanism for the change in abstraction regime at The Grove to act in combination to cause deterioration of any Quantitative element. This proposal does not allow for any additional, or permit the direct discharge of pollution to the aquifer (or surface water); it cannot act in combination to result in deterioration of the currently Poor Chemical status.
- The proposed route of HS2, at its closest point, passes approximately 9.9 kilometres south-west of the Grove; regional groundwater flow is from north-west to south-east. The pollution plume in the vicinity of New Years Green Lane former landfill site (11.3 kilometres to the south of The Grove) – the diversion of New Years Green Bourne and piling are considered to influence this plume - is given as a reason for Poor Chemical status within the representations. Factors of distance and direction mean that it is unlikely that the change in abstraction regime at The Grove will cause any perturbations in groundwater flow where the works are occurring, or in the vicinity of landfill site. Abstraction at the higher rate will not act in combination with these works to impact on groundwater quality, therefore

this proposal will not prevent the waterbody from meeting its Good by 2027 Chemical status objective with respect to this matter.

- Concern that works in the vicinity of the New Years Green Lane former landfill site (piling for the Colne Valley Viaduct and diversion of New Years Green Bourne) more generally, will produce new fractures within the Chalk which may act as pathways for pollution [contaminants sourced from the landfill site] of ground and surface water. We must consider this matter solely with respect to the potential for the change in the abstraction regime at The Grove to mobilise or alter the existing contamination plume in line with our general duty to consider the impacts of an abstraction on water quality (under section 6 of the Environment Act 1995 and sections 40 and 21 of the Water Resources Act 1991). For the same reasons given above, we conclude that abstraction at the higher rate is unlikely to cause a perturbation in flow or mobilise any contaminants in the vicinity of the former landfill site due to the distance of the landfill site from The Grove and the direction of regional groundwater flow. We are aware that the proposed HS2 route passes through Affinity's Source Protection Zones on Ickenham, Blackford, and Northmoor pumping stations sites (all licensed within the Blackford Group), and we conclude that this proposal to increase abstraction rates at The Grove during peak events will not impact upon these Zones by affecting the direction of the pollution plume.
- The dewatering of a pond and associated wildlife loss has been attributed to HS2 groundworks near Wendover (approximately 23 kilometres to the north-west of The Grove). A change in the abstraction regime at The Grove is not anticipated to impact a groundwater supported terrestrial feature at this distance and in this direction; the pond is up-gradient of the regional groundwater flow direction, thus any impacts of the abstraction are more likely to propagate to the south-east. Therefore, this abstraction is unlikely to exacerbate the existing situation.
- Tunnelling and drilling will cause a reduction in baseflow and impact on water quality of chalk rivers and streams, including the rivers Colne, Chess, and Misbourne; the proposed route of HS2, at its closest point, passes approximately 9.9 kilometres south-west of the Grove. The mechanism for accumulative impact would be if abstraction at The Grove, adjacent to the River Gade and Grand Union Canal, causes a reduction in baseflow (and subsequently dilution capacity) before converging with the Colne and Chess (approximately 5.7 kilometres downstream of The Grove), and the Misbourne with the Colne (a further 10.6 kilometres downstream). Affinity's pumping test appraisal for The Grove (October 2018) concludes no discernible impact on surface water flow or level [of the River Gade and Grand Union Canal]. Given that the impact upon the surface water regime is expected to be negligible, and the distance between The Grove and the points on the rivers Colne and Misbourne where the HS2 route crosses the rivers (the HS2 route does not dissect the Chess), we do not expect that this proposal could act in combination with any effects of HS2 construction on these rivers to cause deterioration. Regardless, we have applied a monthly rate of abstraction to the varied abstraction regime of 717,292

cubic metres to guarantee a period of aquifer – and thus baseflow – recovery.

- HS2 could cause permanent damage to the geological structure and quality of the aquifer. The Grove is at least 9.9 kilometres north-east of the proposed HS2 route. There are no physical modifications being undertaken to the boreholes at The Grove that could act in conjunction with the works to physically alter the structure of the Chalk or generate significant turbidity. Similarly, any ‘pollution’ [from unspecified aspects of HS2 works] will not be considered within this determination for the reasons given under 12.1 above. We have considered the specific impacts of this proposal on water quality under section 6 of the Environment Act 1995 and sections 40 and 21 of the Water Resources Act 1991, and on WFD status. This proposal does not allow for any additional pollution, or permit the direct discharge of pollution, to the aquifer (which would otherwise be assessed under The Environmental Permitting (England and Wales) Regulations 2016). Therefore, we find no mechanism by which this proposal could act in combination with HS2 works to cause a general deterioration in quality of the aquifer.
- The water demands of HS2 [for tunnelling and cement batching] and the supply of water by Statutory Water Undertakers to HS2, and the impacts this would have on Quantitative status of the WFD Mid Chilterns Chalk (GB40601G601200) groundwater body and the availability of water for public water supply. With reference to 12.1, the decision on this application has to be specific to the proposal put forward by Affinity. We have not assessed whether HS2’s water requirements are reasonable within the course of this determination, only whether there is a reasonable need for Affinity to modify it’s abstraction regime for the purpose of mitigating impacts of HS2 on the Blackford Group and improving resilience of supply to customers. All water abstracted under this licence is for the purpose of public water supply and, to the best of our knowledge, there is no commercial agreement between Affinity Water Limited and HS2 Limited (or their contractors) to supply the project with construction water from the Watford Group that would require us to take HS2 construction water requirements into consideration. This proposal will not increase actual abstraction within the catchment on an annual basis. Therefore, it will not worsen the water balance element or cause further deterioration in Quantitative status (currently at Poor) of The Mid-Chilterns Chalk WFD groundwater body or prevent it from meeting its overall objective (Poor by 2015) irrespective of abstraction being undertaken by other parties, i.e. HS2 Limited.

In summary, we have not found any mechanism by which this proposal will act in combination with and exacerbate any impacts attributed to HS2 within these representations.

12.3. The purpose and justification of this application in relation to HS2

Some representors were concerned that the increase in abstraction rates at The Grove would enable Affinity to supply HS2 Limited (and/or its contractors) with raw water for HS2 construction. This application has been submitted by Affinity to mitigate the potential impact of HS2 construction on its sources. All water

abstracted in pursuance of this licence is for the purpose of public water supply (to domestic and non-domestic customers), this purpose is stated on the licence to satisfy section 46(4) of the Water Resources Act 1991. To the best of our knowledge, there is no commercial arrangement between Affinity and HS2 Limited for the supply of raw water from The Grove; if this were not the case, a condition would be required on the licence specifying a purpose of abstraction for construction activity and we would assess the justification of this element also. Our assessment is based solely on the reasonableness of Affinity mitigating against the impact to public water supply.

It was inferred that this application was not required on the basis that HS2 should not proceed, either because it could not be justified due to impacts attributed to it or because the project has not itself secured the necessary water it needs for construction. We cannot take into account the ability of HS2 to proceed on the basis of whether or not the project has secured the volumes of water it needs, or whether the project is justified in a more general sense within this determination. We can only consider the reasonableness of Affinity's proposal against section 38(3)(b) of the Water Resources Act 1991, on the evidence presented by Affinity to mitigate against the potential impacts of HS2 on its Colne Valley sources in the scenario of HS2 proceeding. Licence conditions ensure that higher rates of abstraction at The Grove may only be used if there is a reduction in supply in the Blackford Group due to impacts of HS2, otherwise existing rates of abstraction continue to apply. The latter - i.e. continuation of abstraction in accordance with existing daily and hourly abstraction rates at The Grove and Watford Fields - would be the case if HS2 does not proceed and therefore the licence accommodates both scenarios.

It was also suggested that if the requirements of the protective provisions in Schedule 33 of the High Speed Rail (London-West Midlands) Act 2017 have been satisfied [by HS2 Limited] (including the impact of specified works on *'the flow, purity or quality of water in any main river or other surface waters or ground water'* specified in Part 5, section 51(2)(b) of the Act), this negates the need for this application. That is, if there is no impact on surface or groundwater the need for Affinity to mitigate against impacts on the Blackford Group are unfounded. The main risk to Blackford pumping station (and Northmoor and West Hyde) is from turbidity (suspended chalk particulates in this instance). Turbidity is not classed as a hazardous substance or a non-hazardous pollutant under the Groundwater Directive 2006/118/EC that could be considered an impact from 'specified works' on *'flow, purity, or quality'*, therefore Part 5 would not consider turbidity and this application is required. This proposal, by Affinity, is primarily driven by the tight restrictions on turbidity on public water supplies (under The Water Supply (Water Quality) Regulations 2016). We could not refuse the application on the basis that Schedule 33 provisions may or may not have been met more generally, and it is not within the scope of this determination to consider them further because application of the High Speed Rail (London-West Midlands) Act 2017 has a geographical limit which does not extend to The Grove (or Blackford). Also, the Water Supply (Water Quality) Regulations 2016 are not relaxed so we have considered those Regulations when considering the impact of turbidity on this public water supply abstraction.

12.4. Justification for this application by Affinity and sustainability of abstraction within the catchment

There were concerns that abstraction for public water supply could not be sustained [due to the closure of Blackford] impacting upon supply and existing levels of service, and - conversely - that abstraction from the Chalk should be reduced and that more focus should be placed on reducing demand and increasing sustainability of abstraction within the catchment.

Beyond our duty to give regard to the applicant's requirements under section 38(3)(b) of the Water Resources Act 1991, we also have a statutory duty to have particular regard under section 15 of the Water Resources Act 1991 to the duties of water undertakers to ensure that public water supply is maintained. This means we considered the implications that not granting this proposal will have on Affinity's ability to meet demand. For this reason, we have reviewed existing peak demand and how this proposal will reduce the deficit in supply in the Blackford Group if impacted by HS2 generated-turbidity. We acknowledge that the peak rates of abstraction licensed (25,400 cubic metres per day) are less than originally applied for, however, this is only one of a number of mitigating options and we believe the restrictions applied balance our duty towards ensuring public water supply can be maintained with minimum impact on the environment and other water users as far as can be evidenced by the tests undertaken.

We have included a condition in the licence that ensures that the higher rate of abstraction at The Grove can only be utilised in the event that supply from effected sites is proven to be compromised as a result of works associated with HS2. In doing this we have determined that Affinity's request is reasonable and we have met our duty towards ensuring that they can maintain public water supply.

A number of representations highlighted wider sustainability concerns; that continued rates of abstraction with the influence of climate change are unsustainable and that demand on water resources – by the environment and human population growth – is likely to worsen the situation, expressing the opinion that we should be taking further action to reduce abstraction to more sustainable levels, and/or that demand should be reduced before granting this variation. Over-arching efficiency measures – both demand management and supply side options – are detailed within Affinity's published Water Resource Management Plan (WRMP), which can be found online. This (in part) is the product of section 3(2)(a) of the Water Industry Act 1991, which places a duty on statutory water undertakers to conserve water. We have assumed that all reasonable measures have been enacted by Affinity as required by the legislation and have therefore not considered demand-side options further here.

Plans to improve sustainable abstraction across the Colne catchment are in place. These will reduce the deficit between minimum river flows and environmental needs. In the Upper Gade, a 6,400 cubic metres per day reduction was implemented in 2018/19 on Affinity's licence near Hemel Hempstead. Similarly, the Blackford licence 28/39/28/0480 includes a time-limited component which will reduce licensed abstraction across the Blackford Group by 2,920,000 cubic metres per year upon expiry, at the end of the AMP7 review cycle, if it is found to be unsustainable. These measures, coupled with supply and demand options detailed in Affinity's WRMP, aim to advance sustainable abstraction in the catchment. (Our Colne Abstraction Licensing Strategy (ALS) outlines other actions which have been taken).

This proposal, alone and in combination with the Blackford Group proposal, has been considered with respect to WFD objectives and indeed the Colne ALS. Neither seeks to increase annual abstraction and Affinity are not seeking to increase actual abstraction on a daily or annual basis within the catchment overall. Thus, these proposals will not prevent or reduce the effectiveness of sustainability actions completed or being carried out in the Colne Catchment and will not result in an increase in unsustainable abstraction at a waterbody (The Mid-Chilterns Chalk (GB40601G601200) in particular) or catchment scale and do not conflict with the sustainable policies embodied within the ALS.

The suggested use of section 52 of the Water Resources Act 1991, which allows us to make changes to a licence where they have not been volunteered by the Licence Holder, is not relevant here. Changes to licences using this legislation are primarily done through the Restoring Sustainable Abstraction (RSA) programme; whilst the main body of this programme was completed before March 2020, further reductions or significant changes to the existing licences will be pursued separately through RSA.

Representations raised concerns with respect to the recommissioning of the Blackford abstraction site; that it cannot be guaranteed that groundwater quality will be restored to pre-HS2 construction levels, the implications this may have on long-term water security, and thus the permanency of this licence variation if Blackford cannot be recommissioned. It is expected that the effects of piling and tunnelling in the vicinity of Blackford on deployable output (and to a lesser extent at Northmoor and West Hyde) will last approximately 2 to 3 years. However, we acknowledge that there is uncertainty in duration and sequencing of works; for this reason we have proposed some flexibility in the expiry of variation to 31 March 2025. This is to align with a key date within Affinity's WRMP (the end of AMP7) and allow time for other options to be sought and implemented should impact be anticipated beyond the approximate 30 month period beginning 2021. We have been clear that the ability to increase abstraction rates at The Grove is not a long-term option (i.e. beyond 31 March 2025) and any application to renew these conditions is unlikely to be acceptable. This variation seeks to mitigate against imminent reduction in supply resulting from HS2 works only; long term options to secure and improve security of supply are within the scope of the Affinity's WRMP (within which risks from HS2 on supply are considered).

12.5. Comments on our process and clarity of advertising.

The content of our notice is set-out in accordance with Regulation 6(6) of the Water Resources (Abstraction and Impounding) Regulations 2006, which describes the content of an application that must be included. Nothing within the regulation requires us to specify the name of the project the application is associated with unless it is considered the '*purpose of the proposed abstraction or impounding*' (regulation 6(6)(b)(ii)) or a necessary '*particular*' (regulation 6(6)(c)) to allow a reader to determine impact of the abstraction. In this case the '*purpose*' is not changing from 'public water supply' (as licensed) and the water abstracted will not be used for HS2 construction and therefore is not a '*particular*' which was required to be given. To ensure that such doubt over similar applications did not occur again, we included words of the following effect on subsequent notices of application NPS/WR/027731 (Blackford Group) and we also did so when providing notice of the changes to this application NPS/WR/031635:

“All water abstracted is for the purpose of public water supply and the variation will contribute to maintaining resilience of supply during episodes of peak demand. This proposal is not to enable Affinity Water Limited to supply High Speed Two (HS2) Limited with construction water.”

Details of the application with respect to its justification, and indeed rationale behind the application changes presented on the second notice, are not required to be given within the notice. This detail – for example, an explanation of the risk to water quality and Affinity’s assessment of the impact of the abstraction on receptors - was contained within the supporting documents made available during the first advertising period at both the Environment Agency’s Alchemy office and Affinity Water’s office in Hatfield, and upon request via email during the second notice period.

Redactions were made by Affinity to remove any personal information from the application supporting information in line with the Data Protection Act 1998 and details which could compromise the security of public water supply assets in accordance with Defra document ‘Guidance to Water Companies on the release of security sensitive information’ (2012). The redactions, in our view, did not impair the ability of the viewer to comment on the proposal or prevent them from asking for those specific details to aid a response.

Section 4 of the Environmental Information Regulations 2004 (dissemination of environmental information by electronic means) is a wide ranging duty which relates to all of the information we hold (we comply with it, amongst other ways, by publishing a wide variety of environmental information on our website). It has no specific application to abstraction licences which are dealt with by other statutory provisions, these being: section 37 of the Water Resources Act 1991, Regulation 6 of the Water Resources (Abstraction and Impounding) Regulations 2006, and Regulation 34 of the 2006 Regulations which specifies what documents we need to place on the public register and thus made available to the public. As far as the application is concerned, this is ‘the name and address of the applicant, the date of the application and brief particulars of its proposals’. We complied with these requirements.

A number of representations were submitted stating that Regulation 6 of the Water Resources (Abstraction and Impounding) Regulations 2006 requires us to only grant licences subject to conditions necessary or expedient for the purpose of protecting the water environment. This is not the case, Regulation 6 concerns advertising of an application and not content of the licence, as outlined above.

In all regards, we consider that our obligations concerning notice of the proposal have been met. Nonetheless, we acknowledge the ability to readily view all application documents online (and not just the notice which appeared online and in the Watford Observer newspaper in accordance with Regulation 6) would be welcomed by stakeholders and members of the public. In consequence, we made provisions to make the supporting documents of further related applications available through our [consultation hub](#).

12.6. Extent, quality and validity of reports submitted by Affinity in support of their application.

Aside from the comments regarding redactions made by Affinity to the supporting documents (see 12.5), concerns were raised that the information provided did not sufficiently demonstrate or consider the impacts of the proposed abstraction on the environment (including terrestrial ecosystems; woodland and farmland) or explain the context of the variation in the sense of how distribution of water and supply to customers would be affected. It was also proposed that pump test data interpretation should be validated by additional modelling.

We have sought further evidence (and clarification) where necessary, this resulting not least in the submission of Affinity's 'Groundwater modelling report for The Grove peak licence variation' (November 2019). Other supporting documents, including Affinity's 'The Grove – Pumping test appraisal' (October 2018), were sufficient in allowing us to determine the impact of the proposal on surface water features and terrestrial habitats, principally by demonstrating that there is likely to be discontinuity between the Chalk at The Grove and overlying superficial deposits and surface waterbodies, and terrestrial features. Ultimately, we have curtailed the proposal where we do not believe the evidence provided substantiates the requested terms.

We consider the supporting documents which were held on deposit (in particular Affinity's 'Technical note' and 'Water demand profile analysis' (May 2020)) sufficient in explaining the context of the variation with respect to other sources of supply and limitations on abstraction. Further information on waste and leakage (distribution losses) was not required; specific strategies are detailed within Affinity's published WRMP (online) and whilst we consider water efficiency as part of our determination, any comment we may have on specific strategies will have been accounted for when we were consulted on the WRMP.

12.7. Impact on environmental receptors specific to abstraction at The Grove

We have considered the impacts of this proposal in combination with those attributed to HS2 by representors under 12.2 above. This section focusses on matters which have been raised with respect to an increase in abstraction at The Grove specifically. These matters are:

- Aquifer water quality. We have considered the impact of this abstraction on the Water Framework Directive groundwater body The Mid-Chilterns Chalk (GB40601G601200) and against our duties under section 6 of the Environment Act 1995 and sections 40 and 21 of the Water Resources Act 1991. We conclude that the increase in abstraction rate at The Grove will not cause a deterioration in general quality of the aquifer because it does not permit the discharge of any pollution. Where an abstraction has potential to alter groundwater flow and affect or induce a contaminant plume (thus impacting on quality of the aquifer generally) we consider, as we have done here, the pathway and potential impact this has on receptors. We do not consider that abstraction at 25,400 cubic metres per day at The Grove will exacerbate any existing pollution plumes. The proposal will not generate new pathways between any landfill site and other receptors and it will not change any effect on any of Affinity's supply boreholes.
- Surface water flow and/or levels, specifically the River Gade, the River Chess, the River Colne, and Chalk Streams and Rivers BAP habitat. The pump tests undertaken did not demonstrate any discernible impacts on

surface water flow or level at the sites monitored (the rivers Gade, Colne, Bulbourne, and the Grand Union Canal) when the abstraction rate at The Grove was increased to 25,400 cubic metres per day, indicating that there would be no immediate adverse effects on surface water features due to a reduction in baseflow. The River Chess was not monitored during these pump tests. The main channel of the Chess is approximately 4.8 kilometres to the south-west of The Grove; the headwaters – which have been noted as particularly sensitive to abstraction – are in excess of 12.9 kilometres to the north-west of The Grove. Due to the distance (and the direction of regional groundwater flow which is generally parallel to the river valleys) of the Chess from The Grove, it would be unlikely that any immediate effects of pumping would be exhibited. However, with respect to all surface waterbodies, we recognise that a reduction in flow could result from prolonged abstraction at the higher rate. Whilst increased hourly and daily abstraction rates are only intended to be used for short durations during peak demand periods, Affinity must also manage their abstraction around the existing annual abstraction rate (7,986,580 cubic metres) – which is not increasing – such that actual average abstraction will be equivalent to approximately 21,900 cubic metres per day, with any peak abstraction at 25,400 cubic metres per day being offset within the year. We have also included a monthly abstraction rate (717,292 cubic metres) to ensure there is no enduring period at which an abstraction rate of 25,400 cubic metres per day can occur, and enables an aquifer recovery period. This allows us to conclude that this proposal (alone and in combination with that for the Blackford Group) will not result in any long-term reductions in base flow or subsequent reductions in river flow or levels as abstraction from the Chalk is not increasing overall.

- Riparian habitat and chalk streams. We have considered the impact of this abstraction on Chalk River BAP habitat and other riparian habitat (including that found at Cassiobury Park Local Nature Reserve and Local Wildlife Site, Croxley Common Moor SSSI and LNR, and the Grand Union Canal LWS). The impact of abstraction at 25,400 cubic metres per day for a limited duration will not result in a measurable impact on the flow or level of the River Gade or Grand Union Canal. Consequently, we do not foresee any additional impact on habitats sensitive to changes in the surface water flow regime, notably chalk streams. We have, however, included a monitoring conditions that require Affinity to monitor level and flow at Cassiobury Park and Croxley Common Moor respectively, to confirm our assessment.

13. Protected rights and lawful users:

The licence conditions imposed will ensure protected rights will not be derogated and lawful water users are protected.

14. Conservation:

We undertook assessment on all conservation sites and features identified within a 2 kilometres radius of The Grove, and extended this to surface water features to 6.4 kilometres downstream of The Grove, the hydrometric catchment boundary at the confluence of the rivers Gade and Colne. We agree with Affinity's conclusion that the impact of abstraction at 25,400 cubic metres per day for a limited duration will not result in a measurable impact on the River Gade or Grand Union Canal, therefore there are limited pathways for the change in the abstraction regime to

impact upon conservation features. We have, however, applied two monitoring conditions to the licence for the duration of the variation to confirm this assessment. Affinity are required to submit a report to us, with further analysis, to enable us to determine if any further action is required.

15. Conclusion and decision:

Full and due consideration was given to all comments and representations made and due regard have been taken of protected rights and other lawful uses. The conditions incorporated on the licence are considered to be necessary and reasonable in the light of the available and presented evidence.

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