

Date: 25 October 2023
Our ref: 453996
Your ref: M3 Junction 9 Improvement



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BY EMAIL ONLY

Dear Sir or Madam,

M3 Junction 9 Improvement Scheme, Winchester SO23 7TY

The Examining Authority's third round of written questions and requests for information

Natural England is a non-departmental public body. Our statutory purpose is to ensure that the natural environment is conserved, enhanced, and managed for the benefit of present and future generations, thereby contributing to sustainable development.

Thank you for your consultation with Natural England as part of the Examining Authority's second round of written questions. Please find below Natural England's response.

Q5.3.1 On 6 October 2023, The ExA published its [Report on The Implications For European Sites \(RIES\)](#) which contains questions for Natural England. Please review the RIES and reply to those points raised using this ExQ reference.

The RIES document contains the following questions:

Q (to NE): Can NE confirm the condition of the River Itchen SAC?

Natural England does not directly monitor or report on the condition of SACs. Rather the condition of the features for which SACs are classified is assessed and reported on through the process of monitoring their underpinning SSSI(s). It is also important to note that in undertaking formal reporting of the condition of features to the European Commission the UK aggregates the information for the species and habitats across the entirety of their range.

Having said that, in this case, Natural England would advise that the condition of the River Itchen SAC can be interpreted to be in an unfavourable condition because the condition of the underpinning River Itchen SSSI is known to be in unfavourable condition. Based on currently available information, and it is important to note that data is limited for some aspects, the River Itchen SSSI fails to meet a number of targets used to monitor the condition of the habitat and associated species.

Annex 1 contains a summary of the specific attributes used for monitoring the River Itchen SSSI and their current status (applicable to the river habitat only, i.e. not including the terrestrial aspects of the SSSI).

Q (to NE): Following the Applicant's revised HRA Report submitted at D5 [REP5-021], can NE confirm whether it continues to have concerns with the air quality assessment? NE is requested to explain whether they now agree with the Applicant's conclusions of no AEOI with respect to construction, operation alone and in combination?

Natural England provided comments on the revised HRA report submitted at D5 (REP5-021) on the 4th October 2023 via our Discretionary Advice Service (DAS). The applicant has confirmed that these comments can be shared and please find these comments in Annex 2 below.

In summary it appears that whilst there have been some improvements to the approach there are still some significant gaps in the assessment, the ecological impacts have not been properly considered (over reliance on modelling figures rather than consideration of impacts on the habitats of concern) and justifications for conclusions have not been comprehensively provided.

There are still outstanding comments in relation to certain elements of the methodology, including the in-combination assessment.

Natural England continue to engage with the applicant and will be happy to provide further comments as necessary going forwards.

Q (to NE): NE's response to ExQ2 [REP5-034] refers to them having made comments on the Applicant's DL4 submission, but these have not been submitted to the examination. For the sake of completeness, NE is requested to provide the comments referred to in their Deadline 4 response.

Please find these comments in Annex 3 below.

Q7.3.5 is also addressed to Natural England and relates to protected species licencing. A separate response to this question will be submitted.

If this raises any questions please do not hesitate to contact me.

Yours sincerely

Mary Bell
Sustainable Development Senior Adviser
Thames Solent Team
Natural England

Annex 1 River Itchen SSSI Monitoring Attributes and Current Status:

Based on currently available information, and it is important to note that data is limited for some aspects, the River Itchen SSSI fails to meet a number of targets used to monitor the condition of the habitat and associated species.

In terms of the river habitat only (ie not including the terrestrial aspects of the SSSI) the specific attributes used for monitoring and current status are:

Physical Habitat - Channel Morphology: FAIL

This attribute is intended to measure the degree of 'naturalness' exhibited by the river, that is to say the degree of modification of the channel. This is measured through a standard survey methodology 'River Habitat Survey' developed by the Environment Agency. Rivers with a high degree of naturalness will generally have greater variation in dynamic processes that result in a variety of physical habitat features, including a range of substrate types, variations in flow, channel width and depth, in-channel and side-channel sedimentation features, erosion features and both in-channel and bankside vegetation.

In the case of the River Itchen SSSI the provisional target set for this attribute states that 'the river should predominantly exhibit a channel form which is characteristic of the river type and be largely free of modification'. There has been some progress in meeting this objective but many projects have yet to be initiated. Restoration and enhancement works completed to date include the removal of weirs and culverts, re-engineering of sections of river to re-introduce sinuosity and habitat variety, restoration of backwater channels, channel narrowing to improve flow rate and use of gravels to improve habitat conditions for fish spawning. These works have been funded through a variety of mechanisms, some completely funded and carried out by landowners and fishery managers, some carried out by volunteers.

It is acknowledged that the context to this target is that this is a lowland chalk river with a long history of milling and water meadow management, for which there was no agreed plan of stated need for whole-scale restoration and removal of artificial features at the time of SSSI designation. The cultural attributes of the river alone (many of which have their own intrinsic local interest and importance) suggest that attaining a high degree of 'naturalness' may be idealistic and not practically achievable, nor necessarily desirable. Much of the current approach to restoration work has focussed on achieving a single thread of fish-passable channel throughout the length of the river. This strategy agreed between Natural England and Environment Agency is considered to be a practical means of achieving good fish passage along the entire SSSI whilst recognising the historic and cultural importance of many of the structures and impoundments.

Physical Habitat - Substrate: FAIL (but overall picture improving)

This attribute is intended to provide a means of detecting problems related to unnaturally high levels of silt entering the system. The standard target states that 'there should be no unnaturally high levels of siltation indicated either by clear evidence of localised excess silt deposition on the bed of the river or no more than one third of randomly sampled survey sites should have silt as the predominant substrate'.

The issue of excessive levels of siltation was a key concern at the time of SSSI designation. There has been a lot of progress in both identifying sources and reducing the impacts. Some specific success has been achieved through the Catchment Sensitive Farming initiative and positive engagement with farmers in the floodplain. There has also been specific work to restore fish spawning habitat in a number of locations. However, there is still an issue with excess siltation at many locations and more progress is required.

Physical Habitat – Bank Vegetation Naturalness: PASS

This attribute is intended to allow measurement of the overall quality of the habitat present along the

river banks. It is quantified using a scoring system where natural riverside habitat such as reed fen scores highest whilst artificial concrete revetment would score lowest. The standard target states that randomly selected sampling points should achieve a mean score of 4 or 5. Most parts of the river system would meet this target as a large proportion flows through predominantly rural areas.

Physical Habitat – Riparian Zone Vegetation Naturalness: **FAIL (but improving and targets need refinement)**

This is a standard Common Standards Monitoring attribute for which no target is currently set for the River Itchen.

The standard target for this attribute states that the riparian zone within 50 metres of the river should be predominantly made up by natural habitat. Parts of the SSSI FAIL, due to the zone being mostly occupied by intensive agricultural and suburban/urban land uses. Whilst accepting the importance of the riparian zone to river function and biodiversity it is considered that it may be challenging if not impossible to meet this target at several locations, mainly due to urbanisation, so further work to refine the target is required.

Some land use changes, such as the planting of cricket bat willow plantations in areas formerly occupied by grazed pasture, have not directly damaged the river but may have damaging impacts on the overall biodiversity of the river corridor. This is a relatively recent change which has taken place as a result of farmers leaving the business, despite the availability of financial incentives. However, taking a whole river SSSI perspective it is likely that this target would be met given that a high proportion of the River Itchen valley remains occupied by extensive agriculture and a range of habitats including permanent pasture, broadleaved woodland, fen and abandoned water meadows.

Physical Habitat – large woody debris: **PASS (but scope for further improvement)**

The term large woody debris is used to describe any substantial natural woody material in the channel, which can include tree roots, accumulations of tree branches and fallen trees. All of these would be expected to be widely represented in a naturally-functioning river system and they are important features providing cover for young fish and a substrate for aquatic invertebrates. However, it is acknowledged that the presence of large woody debris can increase flood risk which may be problematic in built-up areas. The standard target for this attribute states that 75% or more of sample sites should have large woody debris present. In most locations at the River Itchen there is good representation of woody debris. As such it is considered that this target is likely to be achieved. As well as the naturally occurring woody material in the river, large woody debris is being put into the river as part of river restoration work. This can take the form of large diameter logs, brush 'mattresses', and faggots/hurdles. This has a number of benefits including improvement to flow characteristics and increasing habitat diversity. The overall picture has certainly improved since the time of SSSI designation. Historically large woody debris was routinely cleared out of the river as 'flood defence maintenance', and due to a belief that large woody debris can restrict the free movement of fish. However, there is now a much better understanding of the importance of woody material and its relationship with the ecology of the river.

Physical Habitat – artificial structures: **FAIL (but overall picture improving)**

The presence of artificial structures such as weirs, dams and culverts in a river will generally result in significant undesirable effects including alteration of upstream and downstream flow characteristics, increased sedimentation, barriers to fish movement and effects on river ecology. In some cases an individual structure may have only a small impact but it may act in combination with other structures to have a larger cumulative effect. The standard target for this attribute states that if present artificial structures should have no more than minor influence on fish migration, sedimentation and habitat structure. There is progress in meeting this target through works associated with the river restoration strategy. Several structures have been removed to restore natural flows. Other structures outside of these locations have significant impacts on river levels, flows and fish passage. However, a major programme of installation of fish passes has been

undertaken and there is now a clear route for fish throughout the river system.

Flows: **FAIL (but overall picture improving)**

The presence of natural or near-natural flows is important in supporting the natural ecology and functioning of any river. The issue of low flows was raised as a key concern by many stakeholders at the time of SSSI designation and was considered to be having significant adverse effects, particularly on fisheries. The issue was based on concern about high levels of abstraction from the aquifer, which, combined with low average rainfall levels being experienced in the early 1990s was resulting in low summer river levels. The standard target for this attribute is expressed simply as 'the natural flow regime should be protected and at or close to what would be expected in the absence of water abstraction and discharge.' However, actually defining what this means in the case of a highly complex and historically modified river such as the Itchen is not a simple matter. The target is based on the concept of 'naturalised flows', a modelled level of flow which would be expected in near-natural conditions. Targets are set which allow for deviation from naturalised flow within a set range which is considered to represent natural seasonal variation and the degree to which flow rate can vary without significant effects on river ecology. The process of modelling the natural flow regime remains a work in progress. Whatever targets are finally decided upon for each section of the river they will seek to maintain appropriate levels of variation between flood conditions to natural summer low flow conditions. The attribute is mainly measured through flow data obtained at Environment Agency gauging stations supplemented by field observation and use of pragmatic targets such as 'there should be at least 5cm water depth over riffles'.

Water Environment Regulations reporting by the Environment Agency indicates that measured flows at sampling points in the River Itchen are adequate to support 'good ecological status', which is below the target which is to achieve 'high ecological status'. This suggests that water supply to the river remains impacted to a significant degree. However, the data is based on a very small number of locations and a much better picture might be obtained from wider sampling effort, that is to say that the situation may actually be better than suggested by this reported status, based on observation.

A catchment-wide review of water abstraction in the Itchen catchment was carried out by the Environment Agency following the classification of the River Itchen SAC. This identified only a very small number of significant abstractions considered likely to pose a risk of impacts on river water levels, either individually or collectively.

Water Quality – Phosphorus: **FAIL (but overall picture shows some improvement)**

Raised soluble phosphate levels in rivers has a number of damaging influences, mainly by promoting changes in the aquatic plant community and encouraging algal growth, with consequential effects on dissolved oxygen content and siltation. Phosphate levels were widely recognised as being an issue of concern at the time of SSSI designation. Since that time there has been significant investment made to install improved phosphate stripping technology at sewage treatment works which discharge into the Itchen or its feeder streams. This has resulted in some reduction in river P levels. And a great deal of work has been carried out via the Catchment Sensitive Farming initiative to reduce phosphate inputs through farming.

Standard targets are set for phosphate (specifically soluble reactive phosphorus as this is readily available to plants) based on broad river types. For the River Itchen this target is 20 $\mu\text{g L}^{-1}$ in the headwater reaches and 30 $\mu\text{g L}^{-1}$ or less in the remainder of the SSSI, applied as a growing season (March-September) mean and as a whole year mean. This is regarded as what would be typical of a near-natural river set in a chalk landscape. These targets are considered to be challenging but achievable using best available phosphate-stripping technology combined with action to tackle diffuse pollution, particularly from agriculture and private domestic sewage plants. This is based upon an assumption that any new development in the catchment would not cause further exceedance of P levels.

The most recent data available are from 2019 -2022. All monitored sites continue to fail to meet the

long-term targets for annual average orthophosphate levels. Some locations pass the seasonal long term target, all other sites fail. Some sites pass the targets (as an annual average) for orthophosphate. Further reduction in phosphorus levels will be challenging. Even with improvements to farming practices in the catchment diffuse sources are thought to remain a significant contributor to river P levels. The contribution made by domestic sewage treatment units is unquantified at present but is likely to be significant and more consideration of means of reducing inputs from this source is needed.

Water Quality – Organic pollution: Ammonia – **PASS (but close to exceedance)**

Raised ammonia levels in freshwater systems are a clear indication of anthropogenic influence as it is naturally present at low concentrations. The un-ionised form of ammonia (NH₃) is highly toxic to aquatic fauna, specifically fish and invertebrates. Elevated levels can result in fish kills and more chronic effects such as reduced growth rate. Ammonia is also damaging to river habitat quality through promotion of rapid plant and algal growth, with consequential impacts on dissolved oxygen levels and sedimentation. The main sources of ammonia in the case of the River Itchen are likely to be discharges from sewage treatment works, agriculture (mainly from fertiliser run-off, leakage from silage stores and effluent from slurry tanks). It is likely that discharges from domestic sewage treatment plants acting in combination also make a significant contribution.

Monitoring data indicate that ammonia levels in the River Itchen are generally well within target levels except in locations close to sewage treatment plant discharge points.

Water Quality – Organic pollution: Dissolved Oxygen – **LIMITED DATA (but picture likely to be improving)**

Dissolved oxygen levels are regarded as a good indicator of the general health of the river. Low levels will tend to indicate problems related to excess algal growth and turbidity which in turn will be generally related to elevated nutrient availability. So, this aspect will have a close relationship to point discharges from sewage treatment works, and more diffuse inputs from agriculture. Dissolved oxygen levels can change quite rapidly, particularly in relation to weather conditions and rainfall levels, and show considerable spatial variation. However, there has been limited monitoring of this attribute at the River Itchen. Increased monitoring effort, both spatially and through the year, may provide a better picture of the source of problems and help to identify solutions. But, in general terms, the on-going efforts to reduce nutrient input into the system from both point and diffuse sources, and reducing the scale of abstraction will be beneficial in improving this aspect.

Biological - Macrophytes: **LIMITED DATA (and more work is required on target setting)**

This aspect is intended to monitor the diversity of the macrophyte community and its similarity to what would be expected in a naturally functioning river system. In simplistic terms, a healthy, naturally functioning river will have significantly higher macrophyte diversity than rivers in poor condition, although management of the in-channel vegetation and the river corridor have major influences on community composition. The system used to assess the attribute is a complex amalgamation of measures including number of taxa present in sample stretches, number of 'functional groups' of taxa present, indications of eutrophication, river gradient and cover of filamentous algae, whilst also taking into account other factors such as degree of shading and habitat management. The standard target set in Common Standards Monitoring is that any sampled stretch should be in High Ecological Status. The guidance does not provide advice on how this target might be tailored to fit local circumstances such as how urban sections should be treated. So, to date only the basic standard target has been applied in the case of the River Itchen but there is a need for discretion in interpretation of the results. The basic target states that 'at least 25% of the total habitat/macrophyte population should be left uncut for the full duration of the growing season'. In addition, there is a further target which recognises the importance of specific aquatic plant species in making the river of special nature conservation interest, which basically seeks to ensure that populations of scarce species are maintained.

At the time of SSSI designation the aquatic flora of the River Itchen was described as species-rich and diverse, and this was specifically highlighted as one of the reasons for the designation.

However, due to the low level of monitoring carried out it is very difficult to make an accurate assessment of whether macrophyte diversity has changed in the intervening period.

In relation to weed management, in-stream weed cutting is routinely carried out by fisheries and some individual landowners. Field observations indicate that this is mostly proportionate and that plenty of the aquatic macrophytes are left uncut, and can grow, flower and seed providing good natural habitat. All weed management is carried out by mechanical cutting, with subsequent removal of the cut material. There is no use of herbicide.

Biological – invertebrates: **LIMITED DATA**

There are two aspects to consider in relation to invertebrates. One is that Common Standards Monitoring requires that macroinvertebrates are used as an indicator of river health, and secondly, part of the reason that the River Itchen SSSI is considered to be of special nature conservation interest is the presence of notable invertebrates. The Itchen is especially noted for specialised invertebrates associated with moderately swift flowing water in calcareous areas and some of these are nationally scarce or rare. However, all of these species require specialist survey and identification and there has been no focussed effort to undertake such surveys in recent years. Therefore, no assessment can be made about the continued presence or absence of the species referred to in the SSSI citation at this point in time.

The use of standardised sampling of macroinvertebrates is recommended because invertebrate abundance and community composition are both sensitive to changes in water quality, flow regime, sedimentation, habitat management and other factors. The sampling methodology is set out by the Environment Agency and analysis is based on a complex scoring system referred to as the River Invertebrate Classification Tool (RICT). The standard target proposed in Common Standards Monitoring is that the reported status for macroinvertebrates in any monitoring unit should be 'High'. The data available indicates that this basic target is being met but there is variation in results between sample locations and temporally, which may indicate outstanding issues which require action.

Invasive non-native species: **PASS (but concerns remain)**

Invasive non-native species can have profoundly damaging effects on rivers. Common Standards Monitoring sets a basic target for this attribute that says 'if invasive non-native species are present they should not be having a significant adverse impact on the integrity of the site.' This is interpreted to mean that the presence of such species should not compromise the ability of the river to meet its nature conservation objectives.

Several potentially damaging invasive non-native species are present in the Itchen and surrounding catchment. None are considered by Natural England to have sufficiently damaging impacts to be a reason for judging the SSSI to be in an unfavourable condition. However, it is recognised that some have at least a localised negative impact on aspects of the ecology and nature conservation interest of the river.

Eradication methods are not available for some species, but some measures to contain and control are undertaken by landowners and partners.

Signal crayfish have become well established and abundant throughout most parts of the system since the time of SSSI designation. They have impacts through damage to soft river banks through their burrowing activity, potentially increasing bank erosion and sediment input, and they predate invertebrates, fish eggs and fry on the river bottom. It is difficult to quantify these impacts but monitoring of macroinvertebrates indicates that any impact is limited in effect. There is currently no effective control mechanism available - some trapping is undertaken, but this is unlikely to have much effect on the population.

Though now thought to be much less abundant than at the time of SSSI designation non-native

mink are still present in the Itchen valley. They are likely to have been instrumental in significantly reducing the abundance of water voles up and down the river. Trapping of mink is carried out by a number of riparian landowners and this collective effort has been effective in reducing numbers and their damage to wildlife.

The long-established non-native Himalayan balsam is present in many locations, mainly associated with urbanised stretches. This plant can have damaging impacts on river bank biodiversity by shading out lower growing plants and this can have consequential impacts by making banks more vulnerable to erosion. Some control by pulling is undertaken where there is particular concern about its presence, mostly in urban or suburban locations.

Monkey flower is another long-established non-native plant which has been found in a few locations, mostly where it has escaped from gardens. It has not yet been found in any great abundance and it is not considered that it poses a threat to the ecology of the river system.

Overall, it is considered that the River Itchen SSSI is currently meeting targets for this attribute, that is to say at present there is no good evidence that non-native species are causing a negative impact on the overall integrity or ecological functioning of the SSSI.

Biological - Fish: **PROVISIONAL PASS (but scope for further improvement)**

The River Itchen is very important in supporting diverse native fish populations. The chalk stream habitats support strong populations of native 'game' species including brown trout and grayling. At the time of SSSI designation there was a significant amount of release of non-native brown trout, some release of rainbow trout and other similar practices. Many of the trout fisheries still rely on stocked fish but sterile triploids are now used to ensure there is no impact on genetic integrity of the wild breeding fish. The Itchen is noted for its natural salmon population, however, this has been significantly impacted by a number of pressures. Climate change and warming sea temperatures in particular create additional pressure for this species.

The basic target for this attribute states that 'the population structure of characteristic fish species including salmon, brown trout, grayling and bullhead indicates healthy natural recruitment'. In other words the objective is to have a diverse, self-sustaining fish population characteristic of the river type throughout the SSSI. Much effort has gone into improvement of fish spawning habitats for a variety of species. Whilst the fish populations are reported by anglers as not being as prolific as they used to be, habitat conditions are generally improving with natural recruitment of juveniles noted for most native species. The Water Environment Reporting status for fish is either Good or Moderate. Many of the projects and initiatives to improve the general health of the river such as reducing groundwater abstraction, reducing nutrient and sediment input, installing fish passes, removing impoundments, increasing the frequency of large woody debris and re-naturalising stretches will benefit native fish populations. So, although further improvement is required to restore river habitat quality it is considered that the basic target set for the SSSI relating to native fish populations is being met.

Other species

In the absence of up-to-date survey data and in some cases clear and measurable targets it is not possible to report on the condition of other individual species which are part of the reason for the SSSI (and SAC) designation. These include otter, native crayfish, water vole and southern damselfly.

Further work is required to address this issue.

Summary

There is evidence of progress towards meeting targets set for the various attributes used to assess the condition of the SSSI. A lot of effort has gone in to improving the situation. In some respects there is a picture of (more or less) continuous progress since the designation of the SSSI. However, it is important to recognise that the River Itchen remains subject to significant pressures and some aspects still require significant intervention if all basic targets are to be met and hence allow the SSSI to be reported to be in 'favourable condition'.

With changing weather patterns and increasing frequency of extreme rainfall events there is a growing incidence of extended periods of storm discharge at sewage treatment works as a result of high groundwater recharge and infiltration of sewerage infrastructure, affecting the Itchen (as well as many other rivers). This will require significant investment in infrastructure to address the problem.

Annex 2

Natural England's comments on the [HRA dated 22nd September 2023](#) (REP5-021). Comments issued on 4th October 2023 via our Discretionary Advice Service (DAS). The applicant has confirmed that these comments can be shared in this way.

Comments from Air Quality specialists:

The HRA has been updated with information on construction etc, and NO_x/Ndep. Overall, the assessment on the impacts on the River Itchen SAC would seem to be sufficient to exclude AEOI for the project alone. Construction impacts for the SAC have been explained and it is fair to exclude AEOI from them due to their very temporary nature.

In relation to the comments on **in-combination methodology – traffic** (1.2.9), they have presented the Local Plan allocations (proposed dwellings and proposed jobs) included within the model, which is welcomed. They acknowledge there is a lot of uncertainty in terms of numbers and date of delivery – but they do show that the numbers at 2027 are less than the numbers at 2047 (unsurprisingly). However, the assessments for the AQ assessment/ HRA have been based on the opening year (2027) data, so use the 2027 assumptions on dwellings/ jobs to reflect additional vehicles on the road network. This therefore ignores potential developments coming forward after 2027 that will impact on the road network. This is an inherent problem with National Highways approach – and NH's arguments about vehicle emissions having declined more by 2047 etc are understandable, though not really reliably quantified (especially with the recent policy change on petrol cars being available up until 2035 rather than 2030 for example). Therefore, the in combination assessment for this project does not consider the full allocation of dwellings proposed in the local plan beyond 2027 so is not Habs Regs compliant – even though we acknowledge they have followed NH's approach.

The comment on **in-combination methodology – non-road sources** (1.2.13) has not addressed our concern. It is accepted that at the time of assessment the applicant for the identified AD plant indicated there were no impacts from the proposed development alone or in-combination presumably as the in combination impact at whichever protected site was considered was <1%, and NE agreed. However, for this assessment, these emissions require to be assessed in combination with those caused by the M3J9 proposal which was not included in the in-combination assessment for the AD plant.

Comments on the **River Itchen SAC** (1.3.4) cross refer to other documents in the examination - some of which I had reviewed, but others I had not found, so I accept the information requested is in the examination. It would have been more useful to present the relevant information within the single document rather than have a paper-trail across many, but I accept that is not obligatory. The applicant has made changes to the HRA to take account of absolute increases in NO_x and Ndep (eg section 4.11/ table 4.1) which is welcomed. Ammonia is not considered numerically, though as mentioned in para 4.11.12 of the amended HRA, overall the critical level is not exceeded and the project would add <1% of the critical level to the SAC so it does not require further consideration. Ndep is still exceeding 1% up to 200m from the road, and they have not fully assessed the relevant qualifying features and whether the conservation objectives would be undermined. However, overall their assessment makes reasonable arguments eg: the qualifying feature being likely to be phosphorus limited rather than nitrogen limited per literature included in APIS. Given the small exceedance and the fact the critical load is exceeded, but within the middle of the range rather than over the upper end of the range (with calcareous sites likely to be less sensitive than acid ones), it seems petty to insist we need more info to be able to exclude AEOI. (Caveat – this would be the project alone, as we are not happy with the in combination assessment)

Comments on the critical levels for ammonia being 3ug/m³ for the SAC are accepted. However, the relevant transects cover the SSSI as well, where the habitats do have bryophytes and lichens as integral – and a separate assessment against the 1ug/m³ critical level has not been undertaken.

They have noted that we would consider the qualifying features of SSSIs would be unlikely to be

harmed – however, presentation of the data is still less than clear and they have not amended this in line with our comments. I accept much of the information is included within the examination though (though not the full footprint of exceedance). They have not amended the assessment in line with the revised critical loads – so I am not sure we can advise there would be no significant effect quite yet. They say it would not affect the overall conclusion of the assessment but have not presented the information as to how the changes of critical loads alter their previous conclusions.... There was already some exceedance of 1% for Ndep at some of the sites, so this would increase (and the area affected increase) as the critical loads have decreased.

In summary it appears that whilst there have been some improvements to the approach there are still some significant gaps in the assessment, the ecological impacts have not been properly considered (over reliance on modelling figures rather than consideration of impacts on the habitats of concern) and justifications for conclusions have not been comprehensively provided.

Other comments:

In the document “Applicants response to NE comment on Appendix 8.3” – they refer to the “*Planning Inspectorate’s Advice Note 17: Cumulative effects assessment relevant to Nationally Significant Infrastructure Projects*” which advises that “*Where these assessments are comprehensive and include a worst case within the defined assessment parameters, no additional cumulative assessment of these aspects is required*”. The point we should make is that in our view the in-combination assessment doesn’t include a worst case scenario as no in-combination impacts are considered after the opening year.

Annex 3

NE AQ comments on M3 Junction 9 revised documents - Deadline 4.

Comments provided on 6th September 2023 via our Discretionary Advice Service (DAS). The applicant has confirmed that these comments can be shared.

Doc 6.3 Environmental Statement Appendix 8.3 – Assessment of Operational Air Quality Impacts on Biodiversity (Rev 1) – Tracked – 18 Aug 2023

- 1.1.4 The use of the current APIS background data and revised critical loads in the revised assessment is welcomed.
- 1.2.9 **In-combination methodology - traffic** - The consideration of in-combination projects within the traffic model is welcomed – including consideration of local plan allocations. It would be useful to understand which year has been assumed within the model – and, if the “opening year” - how developments coming forward after this have been assessed in-combination (our meeting on 8th June indicated that 2027 was the worst case – but this is not developed in the assessment). Confirmation that the “worst case” traffic numbers have therefore been assessed should be provided. Where use of national growth rates has been made, confirmation that these reflect predicted growth in the south-east – around the proposed development – rather than generic national growth should be provided. In general, it is unclear how the in-combination traffic impacts are included in the assessment. It appears to assume “DS-DM” is a proxy for emissions from the project alone, which includes some quantum of in-combination traffic as well (projects which are dependent on the proposed development). However, “DM” includes projects which are not in the current baseline, so clarification as to how these are included in the in-combination assessment would be welcomed. It is possible that their inclusion in the “future baseline” means that they would be included within the appropriate assessment (as part of any exceedance or non-exceedance of a critical level/ load) but it is not clear how they would be included in screening, where it is only the (in-combination) process contribution that is relevant.
- 1.2.13 **In-combination methodology – non-road sources** - The additional search for non-road projects is noted and welcomed. However, this should be assessed within the screening/ appropriate assessment stages rather than be excluded in the methodology passages. The reasoning for in-combination assessment at screening is that projects which alone would not cause Likely Significant Effects (LSE) (i.e. generating <1% of the relevant critical level/ critical load at the protected site), could do in-combination. The assessment of the identified AD plant concluded at the time it would not generate LSE alone or in-combination with relevant plans/projects at the time of assessment. However, the current assessment is whether the M3J9 project in combination with the AD plant (and other plans/ projects) would result in such LSE. This requires to be assessed.
- 1.3.3 **Assessment methodology** - The assessment of impacts should be undertaken as a result of the project alone, and then, if the 1% threshold is not exceeded, in-combination. This is not the methodology outlined in this paragraph which states “ *(if) pollutant concentrations will increase by less than 1% of the relevant threshold, at the point where the air quality transect intersects within the designated habitat, in line with Figure 2.98 within LA 105 effects are assessed as not significant*”.
- 1.3.4 **River Itchen SAC** – It would be helpful to present the results of the assessment/ location of transects etc within this document, and the assumed critical levels and critical loads. Eg para 1.3.6 indicates “*Most of the air quality transects show that levels of nitrogen and NOx will have increases below 1% of the critical load or level, or will see reductions.*” Without sight of the full results this cannot be confirmed. The statement “or will see reductions” does not make sense in the context of a road scheme where emissions will be generated. If consideration is made against the current scheme or against some future background this

could be considered in the appropriate assessment but at screening/ LSE, the only consideration is the process contribution at the protected site.

Full results are assumed to be presented in [Microsoft Word - 6.3 Environmental Statement Appendix 5.3 - Designated Habitats Backgrounds and Operational Phase Results \(Rev 1\) \(tracked\).docx \(planninginspectorate.gov.uk\)](#)

This does indeed indicate (e.g. Table 1.2) that for some receptors “DS” is less than “DM” which is not appropriate for the assessment of ecological impacts. It does not assess the impact caused by the proposed development – distinct from the “change” in impact, presumably caused by the road in its existing alignment. It is acknowledged that the proposed development is therefore a “betterment” of the existing situation – but this does not imply that emissions from the (new) development are acceptable or would not undermine the conservation objectives of a protected site. If the modelling methodology cannot distinguish the emissions caused by the proposed development itself or in combination (for example, by comparing against the current pollution background on APIS), it would be precautionary to assume that >1% of the critical load/ level of the relevant pollutants is generated. Therefore, further ecological assessment is required - at which point the impact of the predicted environmental concentration (PEC) could be taken into account, and whether any change in pollutant levels could be undermining the conservation objectives.

The critical levels used for ammonia (in Table 1.4 of the results document) appear to be set for the higher plant level (3µg/m³) rather than the lower plant level (1µg/m³) even though the habitats listed at Table 1.1 include habitats where mosses and lichens are integral components. This should be revised.

- 1.3.7 The assessment of NO_x and “total nitrogen” (presumably Ndep) indicates that levels of 3.9% of the NO_x critical level and 5.4% of the Ndep critical load would be generated. (Table 1.3 in the results document indicates that the maximum NO_x concentration would be 12% and Table 1.2 that the max Ndep would be 13.7% - but it is assumed this is not within the SAC itself as per para 1.3.7).

If the following paragraphs (1.3.8-1.3.10) are assumed to be the appropriate assessment, it is unclear why, for example, the proposed concentrations/ deposition are not provided – for example, NO_x would be below its critical level at all but the closest roadside transect point, which could be an argument for the conservation objectives not being undermined.

However, the results document indicates that the habitat type at “ERIP” transect is “Low and medium altitude hay meadows (E2.2)” with a critical load of 10-20kgN/ha/yr. The current background is 15.66kgN/ha/yr and the “DS” concentration 19.28kgN/ha/yr. Therefore the lower critical load is exceeded, and the assessment requires to consider other factors such as how sensitive the qualifying features are (for example, the *Ranunculus fluitantis* and *Callitriche-Batrachion* vegetation), the footprint of impact, trends in pollution, any modifying factors on APIS for the habitat types etc – and use this information to establish whether the conservation objectives would be undermined.

A more logical approach, including consideration of the conservation objectives and whether the proposed development would undermine them (possibly in table form, cross referencing to figures showing the location of the relevant transects, exceedance footprints and location of designated sites), would allow a more robust assessment. It is considered that the justifications provided in relation to trends in NO_x generally declining, and the importance of surrounding land use and the extent of flushing influencing nutrients in rivers to a greater extent than Ndep are highly relevant – however, independently they do not address the question of whether the conservation objectives at this site would be undermined, given the predicted nature and extent of pollution, and the qualifying features. It is accepted that at the relevant point of the SAC (where the pollution would exceed 1%) not all qualifying features are present and the “fully aquatic species” will be affected differently to species which are also dependent on the adjacent terrestrial habitats (such as otter) and it is appropriate to separate these.

These comments would apply also to the HRA (reviewed separately).

- 1.3.15 **River Itchen SSSI** – Similar comments as for the SAC apply. It would be more helpful to present the AQ modelling results (alongside the habitat types/ relevant critical levels and loads etc) – highlight where 1% is exceeded in combination, if the critical level/ load is

exceeded, and assess the relevance of the pollution to the relevant habitat type. The footprint of pollution, trends etc can also be considered. For example, at the named “ERIG” transect, the intersection with the SSSI at 40m from the road is not predicted to exceed the critical level for NOx – which could be used as an indicator that the predicted NOx pollution from the proposed development would not adversely affect the vegetation.

The range of information provided at paras 1.3.19-1.3.26 is relevant – and overall it is likely that the small predicted increases are unlikely to harm the qualifying features in the SSSI given other sources, the distance from the road and the nature of the affected habitat (rich fen which is a relatively nutrient rich habitat, especially in lower latitudes – with ongoing water level management to improve resilience). However, at present the presentation of the assessment makes this difficult to conclude.

1.3.28 **St Catherines Hill SSSI** – Similar points as above apply. Although the information provided is relevant, it requires to be set against the qualifying features/ critical levels and loads etc to allow consideration as to whether the additional pollution would adversely affect the qualifying features/ habitats of the SSSI.

It should be noted that the calcareous grassland qualifying features of the SSSI have a Ndep critical load range of 10-20kgN/ha/yr – not 15 as stated at para 1.3.32.

1.3.38 **Cheesefoot Head SSSI** – Similar points to above apply. The predicted increase in Ndep is greater at this site than the aforementioned SSSIs (and % exceedance could be greater given the lower critical load for the calcareous grassland at this site is 10kgN/ha/yr, not 15 as stated at 1.3.41). Therefore consideration should also be given to the footprint of pollution/ exceedance given the relatively small size of the SSSI. At present it is not clear that there is sufficient evidence presented to be able to exclude the potential that addition of >0.5kgN/ha/yr (>5% of the critical load) would not potentially adversely affect the habitat (species composition or species richness).

1.3.48 **River Test SSSI** – Similar points to above apply re assessing the site against critical loads/ levels and the qualifying features in a logical fashion. The Ndep critical load for Broadleaved deciduous woodland is 10kgN/ha/yr, not 15 as stated at 1.3.52. The assessment undertaken in NECR210 does not include woodland habitats, so it is especially inappropriate to apply the 0.4kgN/ha/yr criteria in such habitats. The consideration of acid deposition and the buffering capacity of the soil/ water is likely to be appropriate, although presentation of the comparative critical loads for acid deposition would be helpful.

1.3.59 **Highclere Park SSSI** – Similar points to above apply. It is noted that nearly 9% of Ndep at the SSSI arises from traffic sources, and Ndep is not really on a declining trend in the area. Ammonia is also increasing, and the SSSI is designated in part for lichens. Therefore although the overall predicted exceedances are low, over a small area, further site specific consideration is likely to be merited.

1.4 **Conclusions** – Although some information has been provided, overall there is not enough evidence presented in a way to be able to support the conclusion that effects from changes in traffic emissions from the Scheme will be not significant. Some of this information may be available in other documents submitted to the examination, and extraction of that into table format into this document would assist in assessment of the proposed impacts.

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Table 3.1 (p18) It is unclear why construction and operational air emissions (due to exhaust and dust from construction traffic) are considered only in terms of their ultimate impact on water quality. It is also unclear that construction emissions from site plant were considered – although temporary, depending on the timescale of construction and location of plant within the site, these could affect the R Itchen SAC without mitigation.
It should be noted (p31) that the 1% screening threshold must be applied in

combination if the project alone generates <1%. Although an AD plant was identified, this was not included in the assessments undertaken to assess whether the projects in combination generated >1%. The extent of in-combination traffic included in the assessment is also unclear as the assessment used “DS-DM” which includes in combination traffic in the transport model, but not in the calculation of exceedances. P34 –potential operational impacts from air quality are noted – further information provided in Appendix F table F2 – and **LSE cannot be excluded. NE agrees with this conclusion.**

However, **construction impacts are not included as having LSE** and it is not clear why given they are listed as a potential pathway to AQ impacts at p18 and the potential is listed at the assessment criteria at p24 onwards (e.g. works to the existing carriageway, walking/cycling/ horseriding facilities, areas for drainage requirements, utilities diversion, construction phase vehicle movements could result in changes to air quality as a result of construction activities) – without further assessment in the section at p32 onwards. At our meeting on 8 June 23 it was accepted (**subject to seeing the assessment within the HRA**) that potential air quality impacts cause by construction vehicle movements and generator emissions had been considered and that no significant effects were identified due to the location and expected duration of vehicle movements. However, this does not appear to be addressed in the HRA. In practice the mitigation measures to reduce dust listed in Section 4.2.14 would likely be sufficient to avoid at least some construction impacts – however, these are listed as protections for against water-quality induced changes– and the air quality effects that could arise from these should also be considered.

4.1.3 Air quality could also not be ruled out as having LSE.

4.11 Comments on operational AQ impacts are as indicated per Section 1.3.4 onwards in the AQ report. Consideration against the relevant critical levels and critical loads is required rather than just consideration against the 1% threshold (which is used to identify LSE only). In particular, the sensitivity of the *Ranunculus fluitans* and *Callitriche-Batrachion* vegetation within the watercourses to NOx/ Ndep should be considered, and whether the arguments made re phosphorus limitation and other N-sources and flushing apply for this site, given the predicted footprint of pollution etc.

The comments on in combination assessment also apply, for traffic and non-road sources.