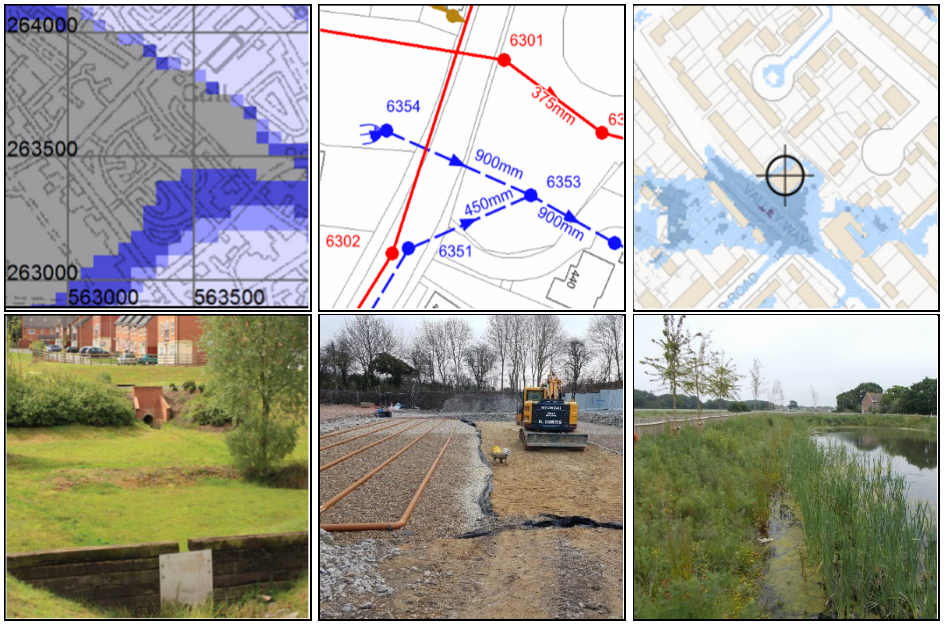

Nutrient Assessment & Budget

5&7 Allington Lane,
Fair Oak, Hants

Reference: 23152

Issue:	**Date:**	
1	10/10/2023	*To NE 16/03/2022 methodology with replacement NE calculator June 2022*
2	13/5/2024	*Scheme revised to 2 dwellings and recalculated to January 2024 calculator*

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Appendices

A	Existing & Proposed Site Layouts
B	Wastewater Treatment Information
C	Nutrient Assessment & Mitigation
D	Conditions & Limitations

1. Introduction

1.1 Instructions were received from Regal Homes to undertake an assessment of the nutrient impact for the proposed development of 2 dwellings within the curtilage of 5&7 Allington Lane, Fair Oak, Hants.

1.2 This assessment has been undertaken by A P Traves BSc CEng MIStructE MCIHT.

1.3 The client's attention is drawn to the conditions and limitations contained in Appendix D.

2. Development Description & Location

2.1 The site comprises 0.13 Ha of existing residential urban fabric at 5 & 7 Allington lane, Fair Oak, Hants. The site location is indicated on ARC Architecture location plan FB8570-300 contained in Appendix A of this report.

2.2 It is proposed to develop 2 dwellings within the rear garden area of the existing dwellings. The proposed layout is identified on ARC Architecture site plan FB8570-300 contained in Appendix A of this report.

3. Background to Nitrogen Nutrient Assessment

3.1 The background to the issue is set out in current Natural England Advice note version 5 of June 2020 -Achieving Nutrient Neutrality for New Development in The Solent Region (NEv5). Reference should be made to NEv5 for a more in depth understanding which is summarised in the following paragraphs. Reference should also be made to Natural England- Nutrient Neutrality Generic Methodology dated 1 February 2022 (NE-gen1). Whilst NE-gen1 provides update on the calculation approach NEv5 is still current as this contains the catchment specific guidance on mitigation location. NE- gen1 was issued to LPAs on 16 March 2022 and the calculator has been replaced a number of time to address errors/omissions and most recently in January 2024 to take account of upgrade of public Wastewater Treatment Works (WwTW) defined by the Levelling Up and Regeneration Act 2023.

3.2 The Solent water environment is internationally important and is protected under the Water Environment Regulations and the Conservation of Habitats and Species Regulations, as well as national protections. There are high levels of nitrogen and phosphorus nutrients in these waters and the evidence indicates these nutrients are causing eutrophication of the waters (excess mats of dense green algae which deplete oxygen as these subsequently decay)

3.3 The total nutrient content comes from a number of component parts:

i. Agricultural use of fertilisers, particularly in the latter half of the 20th century
ii. General coastal background content
iii. Nitrate within final discharge from sewage treatment works
iv. Diffuse urban rainfall runoff from urban surfaces

3.4 Since the late 1980's and early 1990's the agricultural sector has reduced the nitrogen content in applied fertiliser by around 35%. However, the Chalk aquifers which underly the region and which are the dominant source of river flows into The Solent contain a massive amount of legacy nitrogen mainly in the form of soluble nitrate, from decades of previous agricultural practice. It is anticipated that it will take decades from now for the nitrogen content in groundwater to gradually reduce.

3.5 Nitrate in treated sewage is the natural product of the breakdown of ammonia contained in human waste. Historic practice was that the permitted concentration of ammoniacal nitrogen in the treated discharge was limited so that the ammonia to nitrate conversion occurred at the treatment works and took up oxygen within the works and did not subsequently take up oxygen from out of the waters into which discharge was made to

protect the receiving waters from deoxygenation ,ie that the discharge made would have a low Biological Oxygen Demand (BOD).

3.6 It has been recognised by the Environment Agency, water companies and OFWAT for some time that improvement of the Total Nitrogen (TN) content of discharge needs to be addressed. The water industry works in 5 year spending cycles/programmes referred to as Asset Management Plans (AMPs) and these three parties agree between them how much investment (which comes from increases in sewage bills) can be made in any AMP and what will be delivered in terms of improvement for the investment permitted (affordable). Since the beginning of AMP4 in 2005 Southern Water have begun to systematically upgrade existing treatment works to provide 'nitrogen stripping'. This process has to be artificially 'forced' by careful and continuous control of the treatment process to create a low oxygen environment which 'debonds' the oxygen from the nitrate and stimulates the emission of gaseous nitrogen into the atmosphere (which is 78% nitrogen). This nitrogen release is thus stripped from the effluent that discharges into the receiving waters. It is not practicable to strip 100% of the nitrogen from the sewage, and the upgraded treatment works typically operate to a new TN permit level of around 10 mg/L compared to typical value of around 27 mg/L for traditional works without TN permit limits.

3.7 Treatment works upgrades are difficult and complex to plan and deliver in the context of three of the main constraints:

- There is little space at most works for the finished new infrastructure
- The existing works has to continue to operate during the upgrade and there is little room for this and the working space needed to construct the new infrastructure.
- The investment cashflow is regulated by OFWAT against bill increases and notwithstanding this there are a finite number of specialists to plan and deliver this so there can only be a limited rate at which the upgrades are delivered.

The economies of scale and immediate proximity to The Solent has dictated that it is the large coastal treatment works which have been prioritised by Southern Water in AMPs4-6 from 20005-2019. AMP7 investment and construction programme for 2020-2025 is now underway.

3.8 The introduction of WwTW upgrades through the Levelling Up and Regeneration Act 2023 appears to have been programmed to match the AMP cycle in that the initial tranche of upgrades have been scheduled in January 2024 which coincides with Price Review 2024 (PR24) in which OFWAT and the water industry agree the AMP8 2025-2030 works programme. The initial tranche of upgrades now required have to be delivered by 2030 which coincides with the end of the AMP8 period. It seems likely that the Secretary of State would in future review and update scheduling in the year preceding the next PR ie in 2028 for PR 2029 as the Levelling Up and Regeneration Act requires a minimum period of 7 years allowed for upgrades from scheduling which would coincide with the period of the impending AMP at that time ie AMP9 2030-2035.

3.9 The NE-gen1 methodology is aimed at planning permissions for proposed developments and does not address agricultural practice or the water industry AMP process. The NE-gen1 methodology is built off a single fundamental premise. This assumes that persons at work or using non-residential offices and commercial/retail premises must also live in the catchment. In the round this is a reasonable basis on which to look at the total sewage volume. However in zero rating commercial development from nitrogen loading it inherently means that residential developers fund the nitrogen nutrient mitigation of all non-residential commercial development in the region.

3.10 As set out in paragraph 3.4 there is a massive amount of largely agricultural legacy nitrogen in the Chalk aquifer below the region which forms the base flow to the rivers flowing into The Solent. The drinking water supplies in southern Hampshire are drawn from this groundwater and these rivers, and this typically contains 7-8 mg/L of nitrogen that does not stem from the proposed developments. The previous NEv2 methodology did not recognise

that this represents around 85% of the nitrogen returned to the water environment from upgraded WwTWs and around 30% from traditional WwTWs. NEv5 gives a 2 mg/L allowance ie about 20% on upgraded WwTW effluent and 7% on traditional WwTW discharges. Whilst this is only partial recognition it is better that the previous NEv2 that made no recognition at all. In effect residential developers will therefore also be funding the mitigation of the unrecognised legacy nitrogen predominantly from historic agricultural practices. The 2 mg/L value is still contained within the NE-gen1 assessment spreadsheet but is no longer as transparent as it was previously.

3.11 Natural England nitrogen assessment methodology NE-gen1 considers nitrogen for:

1) Land use with regard to nitrogen contained in surface water run-off and infiltration.
2) Sanitation with regard to nitrogen content in the final treated discharge from the WwTW serving the development.

The assessment compares pre and post development quantities on nitrogen for the land use (1) and sanitation (2) to establish a final figure and then adds a 20% buffer to this.

3.11 Natural England advise the NE-gen1 methodology is advised for all types of development that would result in a net increase in population served by a wastewater system, including new houses, student accommodation, tourism attractions and tourist accommodation.

3.12 The site lies within the Itchen catchment. In March 2022 Natural England added a phosphorus neutrality requirement to development affecting the freshwater fluvial Itchen catchment. Similarly to nitrogen nutrients, impact comprises (1) a land use/surface water runoff component and (2) a sanitation component. Increased phosphorus nutrient levels in these waters has potential to generate algal blooms which can reduce oxygen levels in the water and cause death of aquatic organisms. Similarly to nitrogen nutrients the two principal sources are agricultural fertilisers including a large agricultural legacy effect on the massive volumes of groundwater stored in the local Chalk aquifers which feed the local rivers; and human habitation discharges from WwTWs and PTPs.

4. Derivation of Sewage Load

4.1 The NEv5 methodology used a blunt 2.4 average household occupancy and 110 litres per person per day (LPD) for housing.

4.2 NE-gen1 now recognises that water consumption on sites varies:

- Building Regulations maximum 125 LHD
- Building Regulations higher standard 110 LHD
- Higher standard by water efficiency calculation

NE-gen1 directs that the level of proposed water usage is increased by 10 LPD *"to account for changes to less water efficient fittings through the lifetime of the development".* This direction is contrary to the industry direction of travel, Southern Water's own water supply policies which NE recognise in their February 2022 advice note regrading water neutrality within the Sussex North Water Supply Zone and associated Frequently Asked Questions document (December 2021) in which this demonstrates explicit awareness of Southern Water's Target 100 "*to reduce water consumption in Southern Water's <u>whole water supply area in the long term</u> (not just Sussex North), as set out in their Water Resources Management Plan."* The evidence therefore points to a long term reduction in use NOT a long term increase.

4.3 There is a further fundamental error in that sewage load is less than not equal to water use. Water efficiency calculations include a 5 LPD for external use that is not returned to the sewer so does not form part of the sewage load. In water metered properties sewage bills are calculated at 95% of the water supply volume in recognition of this.

4.4 The calculations attached to this report have been undertaken on the basis of 110 LPD unless a water efficiency calculation has been provided to us and is attached. A +10 LPD has been added as directed by Natural England. The liability and accountability for the

impact of this direction rest with Natural England as current evidence set out in 4.2 and 4.3 above indicates their current approach is unsound.

5. Wastewater Treatment Works

5.1 Foul water discharge from the site will outfall to the public sewer network and will be conveyed to Southern Water's Chickenhall Lane WwTW about 2 Km west of the site. The WwTW undertakes traditional primary and secondary treatment. Chickenhall Lane WwTW does not have a Total Nitrogen permit limit and Natural England direct a value of 27 mg/L be used for assessment purposes. The WwTW and outfall location plans and works schematic are contained in Appendix B

5.2 Chickenhall Lane WwTW has a Total Phosphorus permit limit of 0.6 mg/L. for 2025

5.3 Chikenhall Lane WwTW has been scheduled under the Levelling Up and Regeneration Act 2023 (LURA) to implement upgrades of TN and TP performances to 10 mg/L TN and 0.25 mg/L TP by April 2030. The Minister for Housing, Planning and Building Safety issued a letter dated 19th December 2023 to LPAs identifying to them that LURA would come into force from 26th January 2024 and that *"The Act also requires planning decision-makers to consider these upgrades as certain for the purposes of an assessment under the Habitats Regulations."*

6. Land Use Component

6.1 The site comprises 0.13 Ha of existing residential urban fabric. There will inherently be no change in nutrient from the land use component as a result of the proposed development.

6.2 The applicant does not propose to use SUDS to provide a reduction in the post development figure (stage 3) from the base calculation load in surface water runoff to which 6.1 relates. This part of the calculator is therefore not applicable.

7. Nutrient Assessment

NITROGEN

7.1 The NE-gen 1 sewage loading, PTP performance for TN and land use component are included in the calculations contained in Appendix C.

7.2 The calculations can also include the 2 mg/L allowance in water supply from NEv5 discussed in paragraph 4.41. For the awareness of the LPA the actual nitrogen content removed from the environment in the water supply from the environment but not recognised in NEv5/NE-gen1 in most cases in the Solent area is very significantly greater than the NE methodology acknowledges.

7.3 Due to the enactment of the **Levelling Up and Regeneration Act 2023**, the Secretary of State has set a default TN upgrade performance of 10 mg/L TN for Chickenhall Lane WwTW to be achieved by a default 1 April 2030 date.

The calculations therefore indicate two values one pre upgrade (notionally 2030) and one post upgrade.

	2024-2030 (6 years)	2030-perpetuity (∞ years)
TN	**+6.31 Kg TN/yr**	**+1.81 Kg TN/yr**

As date➔∞ average TN➔1.81 Kg TN/yr. As period 6 yr/∞=0 is not significant, hence the relevant TN to mitigate would be 1.81 Kg TN/yr for an in perpetuity lifetime.

PHOSPHORUS

7.4 The NE-gen 1 sewage loading, WwTW performance for TP and land use component are included in the calculations contained in Appendix C.

7.5 There is no deductible allowance for TP in the water supply to the site.

7.6 Due to the enactment of the **Levelling Up and Regeneration Act 2023**, the Secretary of State has set a default TP upgrade performance of 0.25 mg/L TP for Chickenhall Lane WwTW to be achieved by a default 1 April 2030 date.

The calculations therefore indicate two values one pre upgrade (notionally 2030) and one post upgrade.

	2024-2030 (6 years)	2030-perpetuity (∞ years)
TP	**+0.13 Kg TP/yr**	**+0.06 Kg TP/yr**

As date➔∞ average TP➔0.06 Kg TP/yr. As period 6 yr/∞=0 is not significant, hence the relevant TP to mitigate is 0.06 Kg TP/yr for an in perpetuity lifetime.

8. Mitigation

NITROGEN

8.1 NEv5 Figure 1 subdivides the overall Solent catchment into 6 sub catchments. A copy of this Figure is contained in Appendix C.

8.2 The site lies in the Itchen subcatchment. However NEv5 paragraph 5.28 states the River Itchen and River Test can be considered as one catchment. Acceptable mitigation catchment locations are River Test and River Itchen catchments.

8.3 Section 5 of NEv5 sets out various types of hypothetical mitigation. However most of these are impractical for modest numbers of dwellings in an urban context where served by the public sewer. These are briefly discussed below:

8.4 Chickenhall Lane WwTW is scheduled under the Levelling Up and Regeneration Act 2023 to be upgraded by April 2030

8.5 Installation of wetlands to treat foul and or surface water run-off from the site. Sites in urban catchments served by the public foul sewer network must connect to the public foul sewer unless this is too far away to be viable. In most urban contexts the sites are within viable distance of public sewer connection and application for an environment permit for private treated effluent discharge would be refused. Notwithstanding this treatment will not remove 100% of the nitrogen so whether by public treatment works or private treatment plant there will always be some residual nitrogen within the final treated foul water discharge.

The regulatory hierarchy for discharge of site surface water run-off requires that infiltration discharge (eg sokaways and permeable pavements) is provided where possible. Nitrogen treatment wetlands need to permanently retain water and are contrary to national drainage policy on permeable sites.

On non-permeable sites a proportion of the rainfall events that occur within a year are short showers that result in the ground being wetted but do not develop any run-off. The amount of annual run-off (Hydraulically Effective Rainfall, HER) is generally in the region of about 2/3 of the annual rainfall. The amount of annual surface water run-off for a site is therefore finite and limited by the impermeably surfaced area and site HER. Compared to foul water

the nitrogen content is also much lower and NEv5 Appendix 2 indicates that 3mg/L is deemed representative. For crude general illustration purposes, assuming a positively drained area of say 200m^2 per dwelling and assuming an HER of say 500mm per annum with the prescribed nitrogen concentration of 3mg/L this would suggest the finite amount of nitrogen within the surface water run-off to be around 0.3 Kg per dwelling. The nitrogen removal efficiency of stormwater wetlands varies and NEv5 Appendix 4 indicates a median removal rate from studies to be 37%. It is therefore implicit from this that the total mitigation potential for the illustration would be around 0.1 KgTN/yr. The corresponding illustrative buffered TN discharge for treated foul water effluent from 1 dwelling would be of the order of 2.9 KgTN/yr for traditional WwTW and around 0.8 KgTN/yr for a dwelling served by WwTWs with nitrogen removal technology. It is generally not possible to mitigate more than 3-12% of the residual foul water impact by treating 100% of the site surface water run-off, so other mitigation will usually be required anyway.

Notwithstanding this the design of wetlands is a specialist activity and is not usually cost effective on a modest site scale. There is also a significant land take for the wetlands and there would be a requirement to set up and maintain a secured maintenance programme for operation of the wetland in perpetuity.

8.6 Some urban city authorities (eg Portsmouth CC) have a retrofit mitigation scheme whereby the increase in foul water effluent conveyed to the public WwTW from the site is offset by reducing the discharge from older existing housing stock by retrofitting modern water appliances. Eastleigh BC are not known to be operating such a scheme.

8.7 The most common approach is one of land use offset whereby the increase in nitrogen at the site is offset by a corresponding reduction in nitrogen elsewhere in the subcatchment eg by change of use from farm land to woodlands or community open space etc. Some sites can achieve mitigation within their own site when farmland of relatively high existing nitrogen discharge is developed for housing such that the reduction in the nitrogen from the change in land use is greater than the increase from the new foul water loading. For all other developments the mitigation land and development land are at different locations. There are three potential approaches to securing the necessary mitigation land:

i. The applicant already controls a suitable area of private land.
ii. Some LPAs already control such land and buy in to their scheme can be made.
iii. Buy in to a third party scheme

It is a requirement that the change in use at the mitigation site is legally secured in perpetuity and that necessary maintenance to ensure the new low nitrogen usage is also secured. Whilst hypothetically a suitably sized piece of land could be privately procured at a suitable location and taken out of farming use to provide an offset reduction in nitrogen on that land in perpetuity, the urban south Hampshire location of the site, means this may be difficult to find as much nearby local land is similarly earmarked for potential future development.

8.8 In March 2020 Eastleigh Borough Council cabinet agreed an initial charging policy for nitrogen credits offered by an EBC scheme. EBC have since acquired 78.5 Ha of land to generate these credits and on 29 March 2021 EBC cabinet sanctioned a credit charging policy of £3,000 +VAT per Kg for the credits. Eastleigh Borough is located in the Itchen catchment, which NEv5 paragraph 5.28 states is interchangeable with the Test catchment in which the site discharge would be made. The EBC 29/3/2021 nitrogen credit charging policy paragraphs 9 and 15 confirm that developers outside the Borough may purchase credits *"as long as it can be demonstrated that the relevant LPA* [EBC for this site] *has received a valid planning application and ultimately that mitigation is secure in an appropriate planning agreement."*

8.9 The anticipated costs for mitigation from EBC would be of the order £20,000 +VAT on this basis. The PfSH website indicates the point of contact for the EBC scheme to be nutrientoffset@eastleigh.gov.uk

8.10 In September 2020 DEFRA announced that it intended to facilitate a nitrogen credit trading platform. This has remained dark until January 2022 when a website for the platform came on line at www.solentnutrient.org.uk.

Until July 2022 the website was at an early skeletal state and the pilot project stages page reported:

Market design:	Currently working on design and settlement process
Platform development:	To be developed ie none available at present
Guidance:	Documents and information will be provided ie none yet available.
System testing:	Before going live the platform will be tested
Market operation:	Further information will be made available ie none yet available
Pilot report & review:	The pilot will be reviewed ie not yet at this stage

In July 2022 the website was updated the market overview page has now replaced the pilot project stages and reports:

Expressions of interest for project supply:
Did not open until 11th July 2022

Project development:
The Projects will need to be designed, delivered and maintained according to Project Specifications which will be attached to the Nature-based Project Agreements. There are no project specifications at present. These are stated to be coming soon which is a vague and indeterminate timeframe.

Project registration and accreditation:
To participate in the market, landholders must register as a market participant on the Solent Nutrient Market Pilot Platform. There is no market trading platform at present. This is stated to be coming soon which is a vague and indeterminate timeframe.

Landholders then ned to register their proposed Nature-based project, providing the information needed to be accredited for the environmental services it will deliver. There is no accreditation procedure at present. This is stated to be coming soon which is a vague and indeterminate timeframe.

The market operator accredits the projects, quantifying the relevant number and type of environmental credits that project is expected to deliver if delivered and maintained.

Market round:
In the market round landholders that have registered a project for sale in the market round must make a project offer. This will cover the use of the and, the duration of the agreement (the term), the costs of designing and delivering the project to the project specification (including securing relevant consents), the cost of maintaining the project in accordance with the management plan and the cost of compliance reporting required. It is proposed to develop a catchment opportunities statement to set down the process and mechanism for this. There is no mechanism/procedure at present. This is stated to be coming soon which is a vague and indeterminate timeframe.

Settlement mechanism:
The Lindsay Mechanism already exists and will be adopted to, ensure payments are fair both for project suppliers and businesses buying environmental credits.

Contracting and delivery:
If successful in the market, landholders will enter into a nature-based project agreement with the market operator to deliver the project and maintain it to the required standard. A schedule will be agree, and regular monitoring will make sure projects are delivering the

expected environmental outcomes. There is no nature based trading agreement templates at present. This is stated to be coming soon which is a vague and indeterminate timeframe.

It seems apparent that strategic mitigation schemes which have already been developed over the last 3 years and which are already operating would be able to list on the Solent Nutrient market relatively quickly though this may not be the case. In effect the platform would in essence duplicate the listing currently held on the Partnership for South Hampshire (PfSH) website. On its own this will not bring any more mitigation credits to market. It would however at face value transfer the hosting of the listing off of PfSH, however given that PfSH are one of the agency operators of the Solent Nutrient Market this is moot.

Bringing new mitigation credits to market is reliant on the market platform being attractive enough to sway landholders to use it. At present there is no project specifications, no market trading platform, no accreditation procedure, no market round mechanism/procedure, and no nature based trading agreement templates or nature based project agreements. These are all stated to be coming soon which is a vague and indeterminate timeframe.

The indication in the DEFRA statement in September 2020 is that the Solent Nutrient Market platform will take about 2 years for them to develop. It is apparent from the current content of the website that whilst this may in the future become useful this cannot be used for applications in the current period as currently it is a hollow unproven shell. There are no specification, procedures or templates yet in place and there is no determinate timeframe when this might happen.

8.11 In late July 2022 DEFRA issued a further statement which implies the Solent Nutrient pilot would be used as a basis to develop mitigation markets in the nutrient sensitive catchments though the statement does not explicitly state this. The July 2022 DEFRA statement does not expressly indicate any changes to the indeterminacy of the timeline for the Solent Nutrient Market platform.

8.12 In November 2023 the Government announced the creation of the Local Nutrient Mitigation Fund (LNMF) accessible to LPAs to *"enable LPAs to boost the supply of mitigation, by bring forward innovative mitigation schemes an providing mitigation credits. The funding will be recycled locally until nutrient mitigation is no longer needed, at which point is will be used for measures to help restore the relevant Habitats Sites."* The ministers letter of 19 December 2023 confirm that **Fareham BC as lead for PfSH have been awarded £9,600,000 from the first round of LMNF funding for use in provision of mitigation within the Solent and Itchen catchments. There are currently no specific details (what and when) on the Fareham BC Eastleigh BC or PfSH nutrient neutrality web pages indicating details of additional mitigation credits that the recent LNMF funding will facilitate**.

8.13 The applicant proposes to provide a financial contribution towards a strategic project off-site mitigation.

PHOSPHORUS

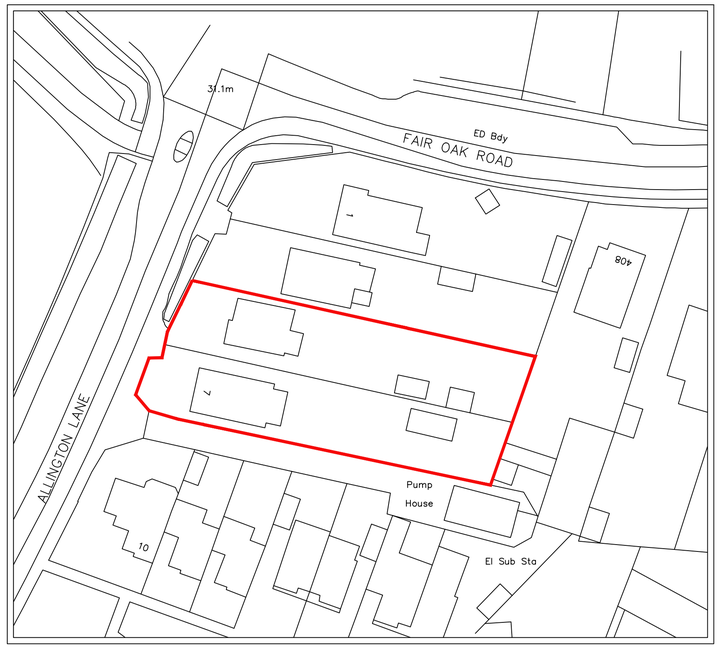
8.14 Whereas the Itchen and Test catchments are interchangeable with respect to nitrogen nutrient mitigation as both discharge to the Southampton Water section of the Solent as the impacted receptor, for phosphorus the receptor is the Itchen SAC which would limit a phosphorus mitigation site to the freshwater fluvial catchment of the Itchen.

8.15 In July 2020 Eastleigh Borough Council extended their mitigation scheme to provide for a small number of phosphorus mitigation credits made accessible to small developments within Eastleigh Borough. The point of contact for the EBC Phosphorous mitigation

scheme is also indicated to be nutrientoffset@eastleigh.gov.uk The applicant proposes to use the EBC phosphorus mitigation scheme.

Appendix A

SITE PLAN
SCALE 1:200
BASED ON TOPOGRAPHICAL SURVEY



BLOCK PLAN
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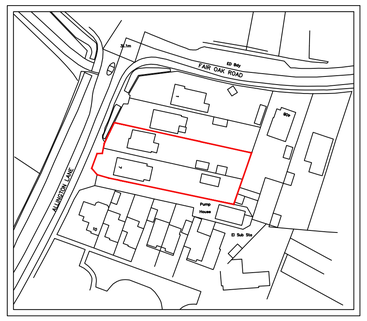
O.S LICENCE NUMBER 100007080



LOCATION PLAN
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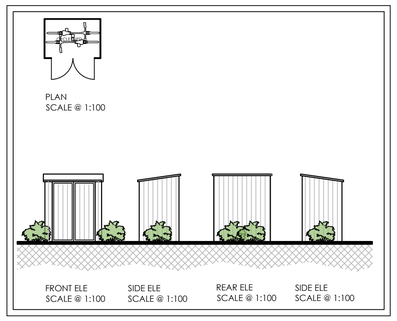

BIKE SHED
SCALE 1:100
ELEVATIONS AND PLAN

NOTES-PLANNING

rev-27-03-23

1. The contents of this drawing are copyright.
2. Planning drawings are only to be used for planning purposes & no reliance on compliance with Building regulations should be assumed.
3. Do not scale. Figured dimensions only to be used.
4. Contractors must verify all dimensions and report any discrepancies before putting work in hand or making any shop drawings.
5. All flat roofs to be fitted with a man safe system to satisfy CDM 2015 regulations unless written confirmation from Principle Designer/ Principle Contractor is provided to show alternative compliance has been sought and approved.
6. Stair design to be independently checked by stair fabricator for regs. compliance and sizing, prior to construction/ ordering. Dimensions to be checked before fabrication.
7. Maclennan waterproofing specialists (or similar company with relevant PI insurance) to be instructed and detail all basement waterproofing designs. - ARC carry no responsibility or PI cover for basement designs in terms of waterproofing or structure in any way.
8. A design and risk assesment should form part of our drawing package. If you have not received this from us by post, email or collection please contact us for a copy before moving forward with the project.
9. We take no responsibility for the depicted site ownership boundary. Clients must notify us if they feel the our plans do not accurately depict their ownership or area of control for planning purposes.
10. We do not take responsibility for meeting minimum space as setout in Government Technical housing standards - nationally described space standards document.
11. All Cladding & building attachments externally to be all A1 fire rated.

FIRE: We do NOT take any responsibility and do not carry any PI cover in relation to any matters relating to fire safety. Part B building regulations, BS 9991 for fire or EWS1 and drawings in no way form a fire strategy/ report. All design/ details relating to Fire Safety are shown for indicative purposes only and should be read in conjunction with the latest version of the Appointed Fire Consultant Fire Strategy Document/ Report - all information contained in such a report supersedes ARC drawings in all aspects. No assumption of any responsibility is accepted. If you are unaware who the appointed fire consultant is or don't have a copy of the latest version of the report please contact arc in writing immediately.

EWS1: an independent and an appropriately qualified and insured fire consultant/engineer should be appointed by the client/contractor to ensure the finished project is compliant. Some mortgage companies require EWS1's on buildings outside of the EWS1 standard criteria.

Part B & Fire Safety: An independent and appropriately qualified fire consultant should be instructed by the client/contractor at the earliest possible point in the design process to ensure compliance with Part B & Fire safety. Please note that subject to a fire consultants confirmation/input the following points may be required in some or all areas of the building: 1) Sprinkler systems (Domestic or commercial) 2) Mechanical smoke extraction. 3) Fixed shut fire safety glass 4) some sprinkler systems require large holding tanks 5) plan changes in relation to fire safety could result in loss of sizable floor area and potential requirement for additional planning applications. (this list is not exhaustive)

LEGEND

- SITE BOUNDARY
- EXISTING TREES TO BE RETAINED
- TO BE DEMOLISHED
- EXISTING TREES TO BE REMOVED
- PREVIOUSLY APPROVED SCEME
- INDICATIVE PLANTING
- EXISTING WALLS TO BE REMOVED
- PROPOSED LEVELS (32.00)
- PERMEABLE BLOCK PAVING
- PART R CONNECTIVITY POINT
- 5 X 5M PASSING
- 2 X 2M VISIBILITY SPLAY

SPRINKLER SYSTEM MAY BE REQUIRED

SITE AREA: 0.129 HECTARES / 0.320 ACRES
PROPOSED: 2 X 2 BEDROOM BUNGALOW @ 73.0 SQM / 786 SQFT
EXISTING TO BE DEMOLISHED: 3 X OUTBUILDINGS @ 49 SQM / 527 SQFT
4 x CYCLE SPACES 4 x PROPOSED PARKING SPACES 4 x EXISTING PARKING SPACES

No.	Revision.	date	by

DESIGNERS RISK ASSESSMENT

Building Products and Construction Execution Hazards

The design team have highlighted unusual and significant risks only that may not be obvious to a competent contractor. They are to assist with risk reduction only and are not necessarily comprehensive. It is assumed that all works will be carried out by a competent contractor following good site management, site practice procedures, to an approved method statement (where appropriate) and in accordance with HSE guidance.

The proposed works are designed on a well established method of construction which can be carried out by a competent contractor. However, should the contractor find any area of concern he must inform the designer in order that appropriate action can be taken.

For significant hazards specific to this project see the following:

GENERAL NOTES:

- Principal Contractor to provide method statements for the safe working practice for: demolition, excavations, cutting of materials, support of adjacent structures, protecting personnel, neighbours & the public,working at height including crash bags & fall restraint systems.
- Principal Contractor to ensure Temporary Works Designer and Coordinator appointed for all propping works for structural alterations of existing building, including temporary guardrail and edge protection around voids and stairwells.
- This Designers Risk Assessment should be passed on to the Appointed Principal Designers and or Principal Contractor carrying out the next phase of works on this site.

INFORMATION

CDM - PRE-CONSTRUCTION INFO FROM CLIENT

CDM Information requested from client:
1) Topographical Survey

Outstanding CDM information remains as residual risk, please request ARC appendix C for full list requested.

DESIGN INFORMATION

Further design info to be provided at subsequent stages of design / building regulations process

CONSTRUCTION RISKS

- **PROPOSED BUILDING IN CLOSE PROXIMITY TO BOUNDARY**
- **LARGE / HEAVY GLAZING UNITS**

* Safe construction method to be considered by Principal Contractor within Construction Phase Plan, pre-construction works starting on site.

PLACEMENT OF SUDS

When positioning heavy machinery - The layout of the proposed SUDS plan should be considered by the Principal Contractor during the construction phase plan

PLACEMENT OF ROOF FEATURES (SOLAR PANELS / AOV'S / PLANT ETC)

Positioning of roof features to be as remote from edge of building as possible

- **CONSTRUCTION ACCESS**

PROXIMITY TO OVERHEAD SERVICES

Mitigation / Diversion to be considered by Principal Contractor within Construction Phase Plan, pre-construction works starting on site.

MAINTENANCE RISKS

CLEANING GUTTERS

Gutters to be cleaned from ground level by specialist using specialist equipment. e.g. long reach and clean systems where possible. Parapets and valleys to be accessed when required via scaffolding - to be assembled by a specialist.

DEMOLITION RISKS

REFURBISHMENT AND DEMOLITION SURVEY

Hazardous material survey to undertaken prior to any on site works commencing - including stripping out.

IN - USE RISKS

FLOOD RISK

SUDS plan to be designed at building regulations phase to provide excess surface water drainage

50m @ 1:1250
25m @ 1:500
10m @ 1:200
10m @ 1:100

EXISTING PLANS
SCALE 1:100 @ A1

PROPOSED DEVELOPEMENT,
5 & 7 ALLINGTON LANE,
EASTLEIGH,
HAMPSHIRE,
SO50 7DA

SITE, BLOCK, LOCATION & BIKE STORE PLANS

scale	AS SHOWN @ A1	checked	//
date	MARCH 2024	drawn	MC

FB8570 / 300

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Water infrastructure information

Description of required information	Data entry column	Additional data entry column
Date of first occupancy (dd/mm/yyyy):	01/01/2025	
Average occupancy rate (people/dwelling or people/unit):	2.40	
Water usage (litres/person/day):	120	
Development Proposal (dwellings/units):	2	
Include deductible acceptable loading?	Yes	
Wastewater treatment works:	Chickenhall Eastleigh WwTW	
Current wastewater treatment works P permit (mg TP/litre):	**0.6**	
Current wastewater treatment works N permit (mg TN/litre):	**25**	
Post 2030 WwTW P permit (mg TP/litre):	**0.25**	
Post 2030 WwTW N permit (mg TN/litre):	**8**	

Final calculation of nutrient load from wastewater

Description of values generated	Values generated
Post-2030 Stage 1 Nutrient Loading	
Additional population (people):	**4.8**
Wastewater by development (litres/day):	**576**
Annual wastewater TP load (kg TP/yr):	**0.05**
Annual wastewater TN load (kg TN/yr):	**1.51**
Pre-2030 Stage 1 Nutrient Loading	
Annual wastewater TP load (kg TP/yr):	**0.11**
Annual wastewater TN load (kg TN/yr):	**5.26**

Current land use information

Description of required information	Data entry Column
Operational Catchment:	Itchen
Soil drainage type:	Slightly impeded drainage
Annual average rainfall (mm):	800.1 - 850
Within Nitrate Vulnerable Zone (NVZ):	Yes

Current land uses

Existing land use type(s)	Area (ha)	Annual phosphorus nutrient export (kg TP/yr)	Annual nitrogen nutrient export (kg TN/yr)	Notes on data
Residential urban land	0.13	**0.21**	**2.00**	
Totals:	**0.13**	**0.21**	**2.00**	

Future land uses

New land use type(s)	Area (ha)	Annual phosphorus nutrient export (kg TP/yr)	Annual nitrogen nutrient export (kg TN/yr)
Residential urban land	0.13	**0.21**	**2.00**
Totals:	**0.13**	**0.21**	**2.00**

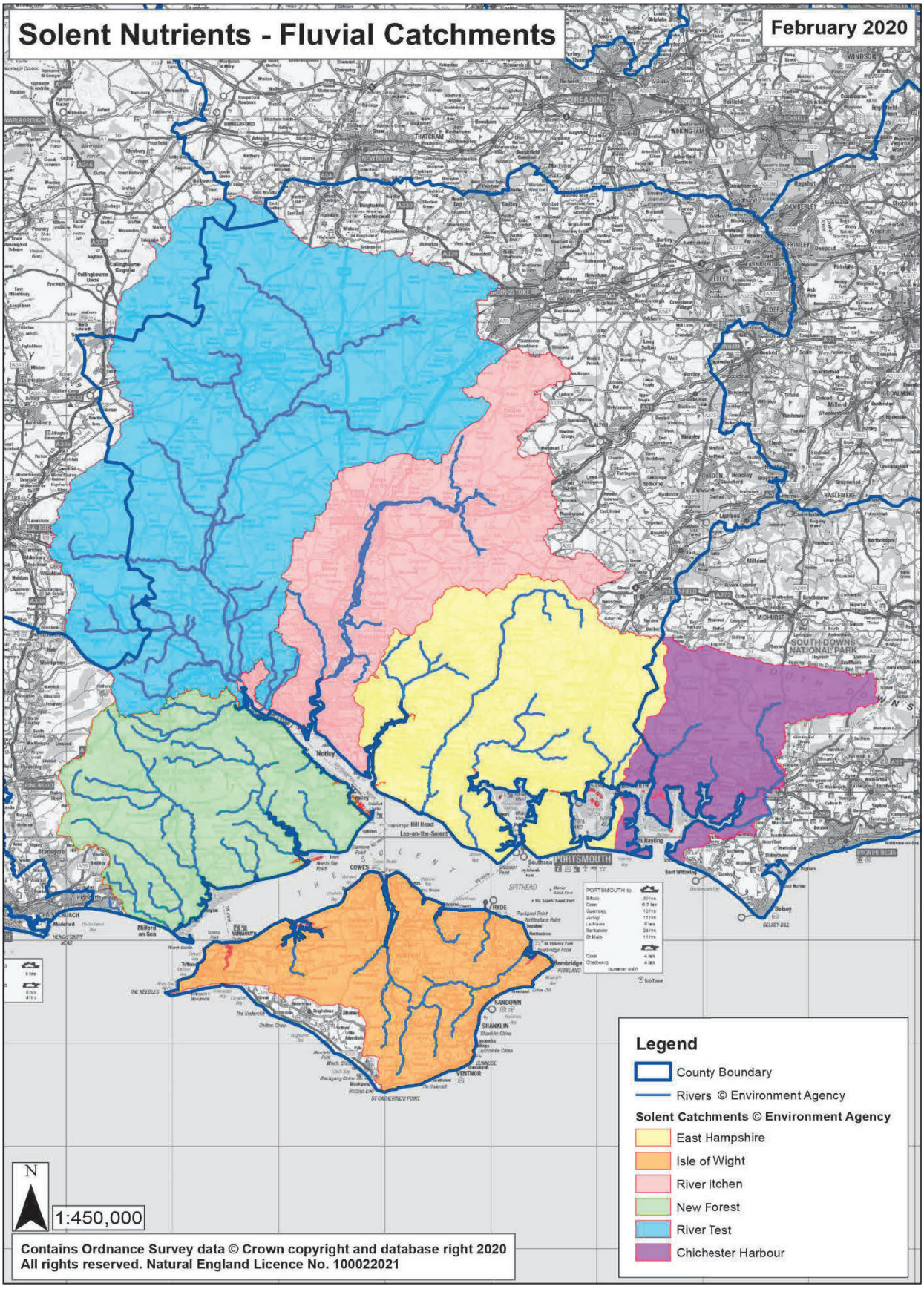
New land use type(s) within SuDS catchment area	SuDS catchment area (ha)	Percentage of flow entering the SuDS (%)	Annual phosphorus inputs to SuDS feature(s) (kg TP/yr)	Annual nitrogen inputs to SuDS feature(s) (kg TN/yr)	Name of SuDS feature(s)	TP removal rate for features - user specified (%)	TN removal rate for features - user specified (%)	Annual phosphorus load removed by SuDS (kg TP/yr)	Annual nitrogen load removed by SuDS (kg TP/yr)	Notes on data
						50.00	50.00			
Totals:	**0.00**		**0.00**	**0.00**				**0.00**	**0.00**	

APPLICANT DOES NOT SEEK ANY DISCOUNT TO THE FUTURE LAND USE IMPACT (STAGE 3)

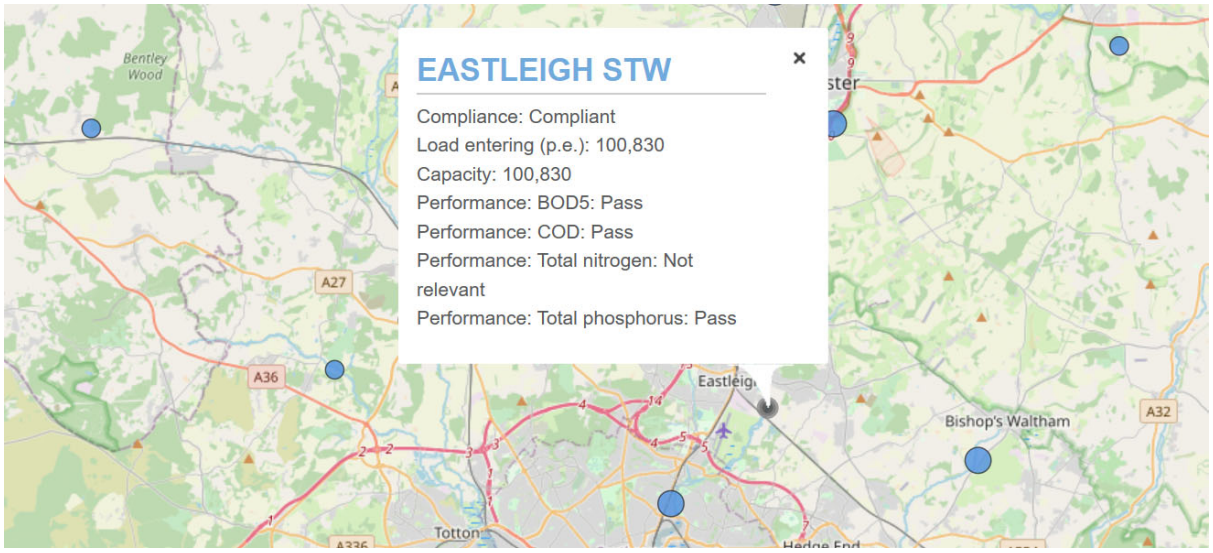
Total nutrient budget calculations

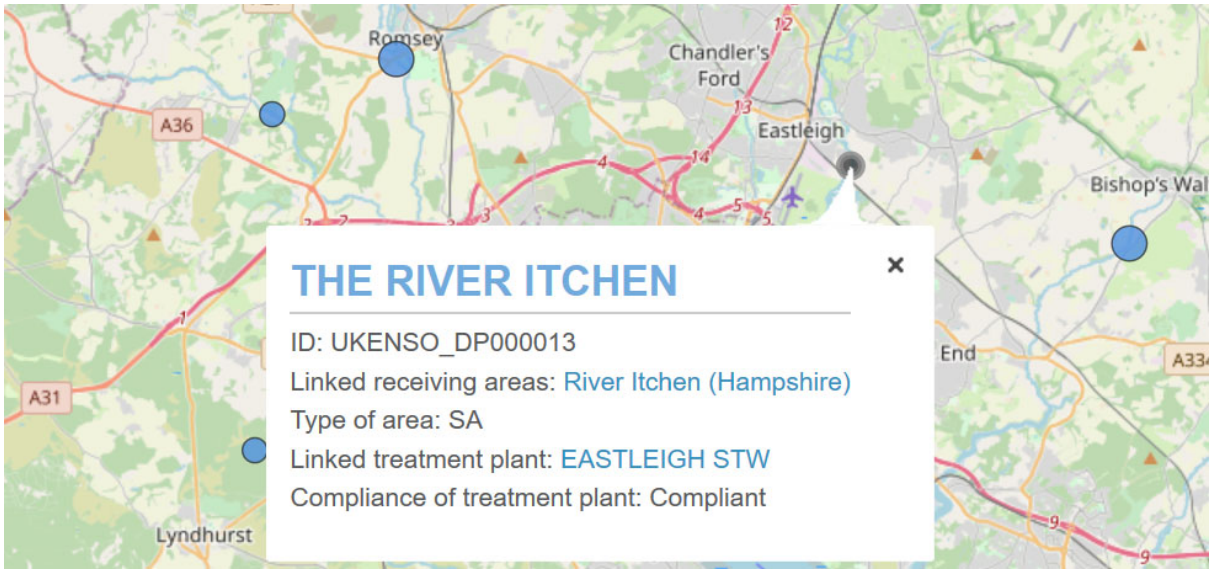
Description of values generated	Values generated
Wastewater TP load (kg TP/year):	**0.05**
Net land use TP change (kg TP/year):	**0.00**
P budget (kg TP/year):	**0.05**
P budget + 20% buffer (kg TP/year):	**0.06**
Wastewater TN load (kg TN/year):	**1.51**
Net land use TN change (kg TN/year):	**0.00**
TN budget:	**1.51**
TN budget + 20% buffer:	**1.81**
Annual Nutrient Budget	
The total annual phosphorus load to mitigate is (kg TP/yr):	**0.06**
The total annual nitrogen load to mitigate is (kg TN/yr):	**1.81**
Pre-2030 Nutrient Budget	
The total annual phosphorus load to mitigate is (kg TP/yr):	**0.13**
The total annual nitrogen load to mitigate is (kg TN/yr):	**6.31**

Figure 1 Solent Catchment Area *Contains public sector information licensed under the Open Government Licence v3.0*

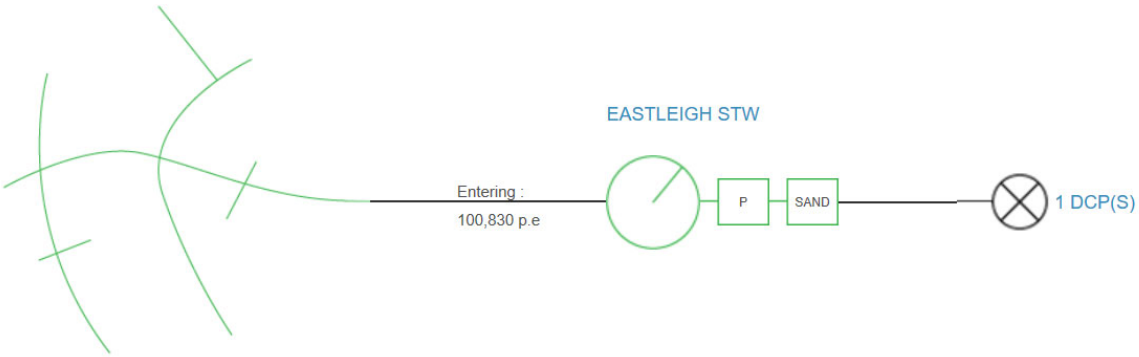


Appendix B



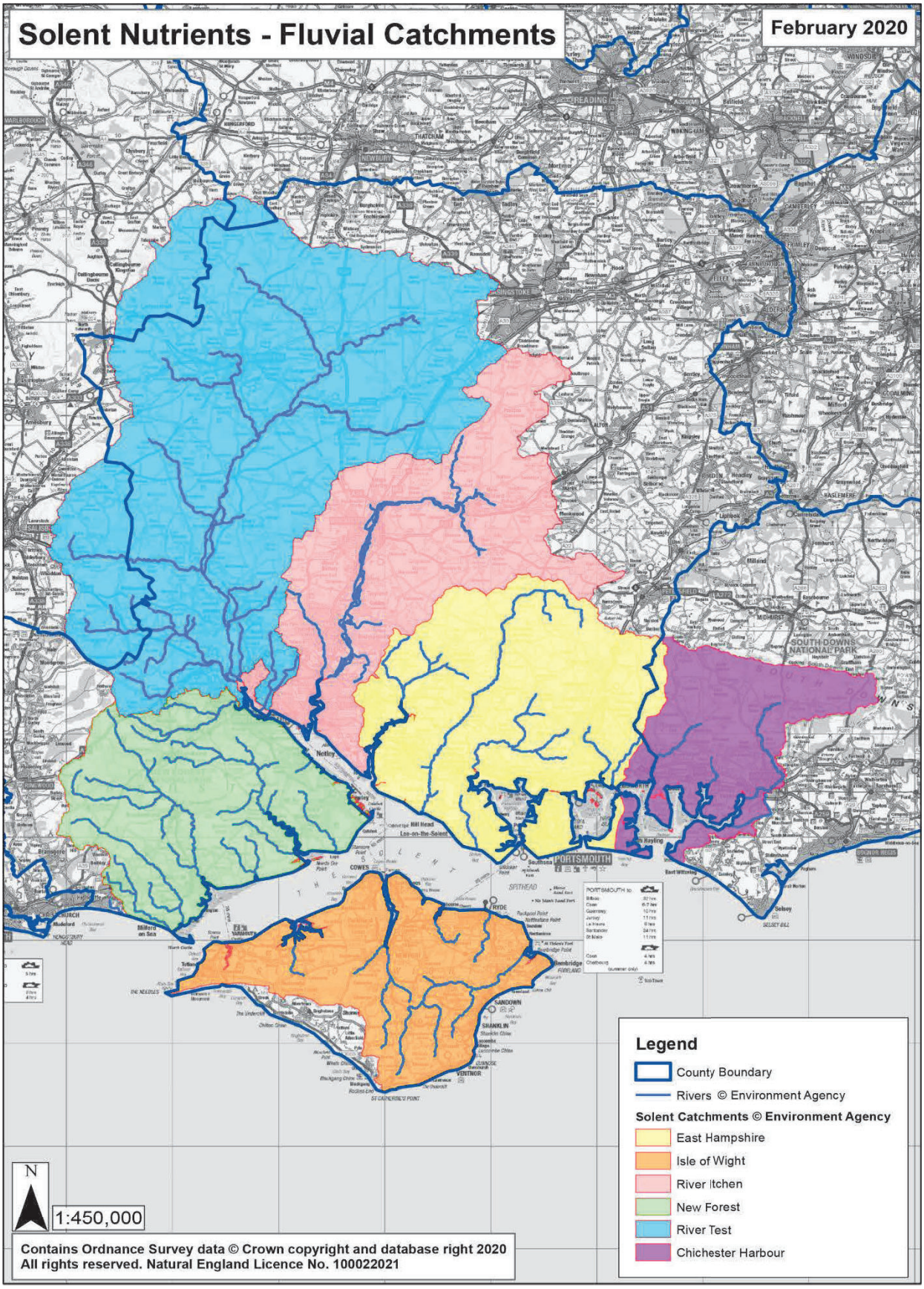


Agglomerations : 1



Appendix C

Figure 1 Solent Catchment Area *Contains public sector information licensed under the Open Government Licence v3.0*



Appendix D

CONDITIONS AND LIMITATIONS OF NITROGEN NUTRIENT ASSESSMENT
May 2020

Aqua Callidus Consulting Ltd is constituted as a limited liability company in accordance with the Companies Act 1989 (with registered number 11390910 and with its registered office at Kintyre House, 70 High Street, Fareham, Hants, PO16 7BB).

1. The report is confidential to the clients stated in the report and has been prepared to their instructions for their own purposes and it is not permitted to disclose this report to other parties (except NHBC, Local Authority, the Client's own Solicitors and Professional Advisers) without the prior consent of Aqua Callidus Consulting Ltd.

2. This report has been prepared by Aqua Callidus Consulting Ltd, with all reasonable skill, care and diligence within the terms of contract with the Client incorporated in our Standard Terms of Business.

3. The copyright of this report remains the property of Aqua Callidus Consulting Ltd.

4. Aqua Callidus Consulting Ltd disclaims any responsibility to the Client and others in the respect of any matters outside the scope of this report.

5. No liability for the contents of this report is accepted to any parties other than the client stated in the report.

6. Unless stated otherwise the nitrogen assessment is based on site specific information provided by the client and manufacturers and wastewater companies public information on the performance of wastewater treatment plants and works. No liability is accepted for the accuracy of such third party information.

7. Unless stated otherwise the nitrogen assessment is undertaken as a desktop assessment and no site visit has been made.