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30<sup>th</sup> October 2020

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Dear Lesley,

**Planning Application 19/01330/AS Former ADAS Offices, Olantigh Road, Wye – Nutrient Neutrality**

This letter provides evidence to show that the Proposed Development on the Former ADAS Offices, Olantigh Road, Wye Application Site will be a nutrient neutral development that does not affect Stodmarsh Special Protection Area (SPA), Ramsar, Special Conservation Area (SAC), Site of Special Scientific interest (SSSI) and National Nature Reserve (NNR).

The letter has been written on behalf of the applicant of the Proposed Development, Tele Property Investments Ltd. For the reasons set out below, the documents supporting the planning application do not require amendments as a result of the information provided in this letter.

Stodmarsh SPA, Ramsar, SAC, SSSI and NNR (hereafter referred to as ‘Stodmarsh’) is designated for the following:

- Ramsar - the complex wetland habitat mosaic comprising inland, marine and coastal wetlands which are important for supporting a number of uncommon wetland invertebrates and plants. In addition, the mosaic of habitats provides breeding and wintering habitat for several wetland bird species, particularly waterfowl such as gadwall *Anas strepera*;
- SAC - the presence of the Annex II species Desmoulin’s whorl snail *Vertigo moulinsiana*;
- SPA - the site’s wintering Annex I bird species (hen harrier *Circus cyaneus* and bittern *Botaurus stellaris*); its nationally important breeding bird populations (gadwall and bearded tit *Panurus biarmicus*); its nationally important wintering bird populations (gadwall, bearded tit and shoveler *Anas clypeata*); its important assemblage of wetland breeding bird species (great crested grebe *Podiceps cristatus*, lapwing *Vanellus vanellus*, redshank *Tringa totanus*, snipe *Gallinago gallinago*, grasshopper warbler *Locustella naevia*, Savi’s warbler *Locustella luscinioides*, sedge warbler *Acrocephalus schoenobaenus* and reed warbler *Acrocephalus scirpaceus*); and its important assemblage of wintering waterfowl (white-fronted goose *Anser albifrons*, wigeon *Anas penelope*, mallard *Anas platyrhynchos*, pochard *Arthya ferina*, tufted duck *Aythya fuligula*, water rail *Rallus aquaticus*, lapwing *Vanellus vanellus* and snipe *Gallinago gallinago*);
- SSSI - the wetland site contains a wide range of habitats including open water, extensive reedbeds, scrub and alder carr which together support a rich flora and fauna. The vegetation is a good example of a southern eutrophic flood plain and there are a number of rare plants. The invertebrate fauna is varied



and several scarce moths have been recorded in recent years. The site is also of ornithological interest with its diverse breeding bird community. Cetti's warbler and bearded tit regularly breed in nationally significant numbers; and

- NNR - one of the best examples of its type, and reflects a commitment to recreational access, delivered in the form of well-marked trails, bird watching hides and car parks at the distant/eastern end of the site.

The key issues for maintaining the SPA, Ramsar and SAC site relate to:

- Loss of functionally linked land/supporting habitat;
- Water quality and quantity;
- Air quality;
- Noise pollution;
- Light pollution; and
- Recreational pressure and disturbance from new residents visiting the designated sites.

This letter concentrates on effects from the Proposed Development at the Former ADAS Offices, Olantigh Road, Wye on water quality as we recognise that Natural England's position is that there is evidence of poor water quality (high levels of Total Phosphorus and Total Nitrogen) within Stodmarsh which is adversely affecting the qualifying features of the designations. The lakes within Unit 7 (Collard's Lake or Great Puckstone Lakes) and Unit 10 (Reserve Lake) of Stodmarsh SSSI have been assessed as being in 'unfavourable' condition by Natural England<sup>1</sup>. No concerns have been raised about SSSI Units 1, 4 and 12 adjacent to the Great Stour River, which are considered 'unfavourable recovering' or the other units which are in 'favourable' condition<sup>2</sup>. We also acknowledge Natural England's position relating to '*uncertainty as to whether new [development] growth will further deteriorate designated sites*'. We understand that it is currently Natural England's view '*that a likely significant effect on the internationally designated Stodmarsh sites (Special Protection Area, Special Area of Conservation and Ramsar Site) cannot be ruled out due to the increases in wastewater from new developments coming forward in the Stodmarsh catchment*'.

Therefore, without the embedded and additional mitigation measures discussed in this letter, no additional Total Phosphorus or Total Nitrogen entering Stodmarsh would be acceptable and that a Likely Significant Effect on Stodmarsh from the Proposed Development cannot be ruled out. The information below aims to provide certainty that the Proposed Development is deliverable in accordance with the requirements of the Conservation of Habitats and Species Regulations 2017 (as amended)<sup>3</sup> and relevant caselaw<sup>4</sup>.

## **1. Former ADAS Offices, Olantigh Road, Wye**

The Application Site comprises the former ADAS Government Offices associated with Wye College and consists of a collection of existing buildings and associated hard surfaced areas. The principal structure comprises two-storey office buildings (arranged in a U-shape within the centre of the Application Site and set back from the road frontage). The existing buildings are set within a wider landscaped and overgrown site, formerly associated with the adjoining buildings with open spaces around the site perimeters and at the centre of the office block. The field in the east of the Application Site has been subject to grazing.

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<sup>1</sup> [www.designatedsites.naturalengland.org.uk](http://www.designatedsites.naturalengland.org.uk) (accessed November 2019)

<sup>2</sup> The conservation status of a natural habitat will be taken as "Favourable" when: its natural range and areas it covers within that ranger are stable or increasing, and the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future.

<sup>3</sup> The Conservation of Habitats and Species Regulations 2017 No. 1012 <https://www.legislation.gov.uk/ukxi/2017/1012/contents/made>

<sup>4</sup> For example Cooperatie Mobilisation for the Environment UA and College van gedeputeerde staten van Noord-Brabant (Case C-293/17 and C294/17) People Over Wind and Peter Sweetman v Coillte Teoranta (Case C-323/17)



In 2019 a full planning application for the Former ADAS Offices, Olantigh Road, Wye (ref: 19/01330/AS) was submitted and is currently subject to an appeal on the grounds of non-determination (ref: W/4001028). The Proposed Development comprise:

*'Demolition of offices and redevelopment with twenty dwellings with associated garages, parking and internal estate roads and open space.'*

The appeal also covers the following nearby sites in Wye proposed by the same applicant:

- Land North of Occupation Road, Wye (19/01327/AS) - *'Residential development of 40 dwellings, with associated access road, car park and open space';* and
- Former Wye College Buildings, High Street, Wye (17/00567/AS) - *'Conversion of former College buildings with associated restoration and alterations to buildings, demolition of later structures and rebuilding to provide 38 dwellings and community space; together with provision of two new dwellings, parking courts with car barns, cycle storage and refuse stores on land to the north of the retained buildings and associated landscaping; and change to parking arrangements for Squires Cottages (change of Use from College residential accommodation back to 4 individual dwellings approved under Reference 16/00893/AS).'*

For the purposes of this letter, each development has been considered separately to ensure they are all nutrient neutral on their own. They have also been assessed cumulatively within the combined Report to Inform the Habitats Regulations<sup>5</sup> which will be submitted alongside this letter.

Prior to the appeal, the applicant received an identical letter for all three sites from Ashford Borough Council (ABC) on the 25<sup>th</sup> September 2020 which states:

*'I am writing to advise you that the Council has recently received advice from Natural England in respect of the nationally and internationally designated protected sites at Stodmarsh lakes, east of Canterbury. This relates to an increased level of nitrates and phosphates within the protected sites which is adversely affecting the integrity of the habitat of the lakes.'*

*In line with established caselaw and the 'precautionary principle', Natural England are advising that applications for certain types of development within the Stour river catchment and/or which discharge to particular Waste Water Treatment Works within the catchment should be the subject of screening under the Habitat Regulations and, consequently, the undertaking of an Appropriate Assessment prior to any decision to grant planning permission.'*

*In the Council's opinion, this Advice may be relevant to this appeal on the basis of the location and type of proposed development.'*

This letter forms a response to this advice, in relation to the Proposed Development.

## **2. Background**

Phosphorus occurs mostly as phosphates. The forms are described as:

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<sup>5</sup> Marian Cameron Consultants Ltd (October 2020) Former Wye College Buildings, High Street, Wye (17/00567/AS), Former ADAS Offices, Olantigh Road, Wye (19/01330/AS) and Wye College Land and Buildings Site Wye 3, Olantigh Road, Wye (19/01327/AS). Report to Inform the Habitats Regulations Assessment



- Orthophosphates (reactive phosphates) which are generally used in agriculture i.e. as fertilisers;
- Polyphosphates (inorganic) which contain salts and/or metals and are generally associated with food additives etc.; and
- Organic phosphates which are those formed by biological processes and are most found in human effluent.

There is growing scientific literature which shows that the ability of biota to take up a given phosphate may be independent of the form. However, Orthophosphates (also called Soluble Reactive Phosphorus), which can also be formed in effluent treatment processes from organic phosphates, are considered the form most bioavailable and utilised by biota, and hence likely to be the most attributable to eutrophication. Therefore, rather than Total Phosphorous, a more appropriate measurement maybe that of Orthophosphate, but even this will only be indicative and categorically not conclusive of having the potential to cause eutrophication.

Nitrogen also occurs in different forms. The key measurement for the purpose of this letter is Total Nitrogen, i.e. both organic and inorganic forms of nitrogen, because this is what is available for plant growth. Total Nitrogen is the sum of the inorganic forms: nitrate-nitrogen ( $\text{NO}_3\text{-N}$ ), nitrite-nitrogen ( $\text{NO}_2\text{-N}$ ), ammonia and organically bonded nitrogen. Nitrogen comes from sources which include animal waste, fertilisers, vehicle exhausts, detergents, soil erosion and run-off. It also influences eutrophication of the water environment.

To better understand the issue with concentrations of Total Phosphorus and Total Nitrogen in Stodmarsh, a source – pathway – receptor model is to be applied.

In this case, surface water and foul water discharge from the Proposed Development are the potential impact sources being considered, groundwater and the River Great Stour are the impact pathways and the qualifying features of Stodmarsh are the receptors being scoped for the risk of adverse effects upon them.

To demonstrate beyond reasonable scientific doubt that the plan or project at issue will not adversely affect the integrity of Stodmarsh, the following steps need to be taken:

- I. Demonstrate that the impact source does not exist (i.e. demonstrate Total Phosphorus and/or Total Nitrogen neutrality);
- II. Demonstrate that there is no functional pathway for Total Phosphorus and/or Total Nitrogen transfer between the development site's surface and foul water discharge and Stodmarsh via groundwater and/or the Great Stour River; and/or
- III. Demonstrate that the qualifying features of the designated sites will not be adversely affected by any additional Total Phosphorus and/or Total Nitrogen that reach the two lakes in question (SSSI Units 7 and 10) (i.e. that the elevated Total Phosphorus and Total Nitrogen levels within these two lakes do not and will not adversely affect the qualifying features).

If the risk of an adverse effect on site integrity at any of the above three points (source, pathway, receptor) cannot be scoped out, the project will need to deliver Total Phosphorus and/or Total Nitrogen specific mitigation. In addition if it is concluded, that there is an existing adverse effect on site integrity as a consequence of nutrient levels within the lakes, then any additional inputs of Total Phosphorus and/or Total Nitrogen to the Stour from the developments' surface run-off or foul water discharging from the Application Site will need to be mitigated. The identified mitigation measures will need to be effective in mitigating any adverse effect on site integrity, and this effectiveness will need to be established beyond reasonable scientific doubt.



### **3. Stodmarsh and Total Phosphorus and Total Nitrogen**

Stodmarsh NNR (within the SPA, SAC, Ramsar and SSSI) is managed by Natural England. The lakes in SSSI Units 7 and 10 are shallow, as a result of ground subsidence associated with the nearby former colliery activities. The artificial lake (Reserve Lake), created in the 1970s, occupies an estimated 18 ha of the 65 ha SSSI Unit 10. To the east it is contained by a large dyke, the Lampen Wall. Historically the lake had an inflow from Lampen Stream, however the Lampen Sluice now restricts water flow from the stream, which is instead diverted to wetlands to the east, although the remnants of the original channel are still visible downstream of the sluice, running along the Lampen Wall and eventually merging with the open water of the lake. To the north is a second open water body, Secret Lake, hydrologically connected to Reserve Lake but physically separated by a dense reedbed. Beyond this, another dyke separates the lakes from the Great Stour River. To the west, a third dyke separates Reserve Lake from Collard's Lake in SSSI Unit 7. There is, however, a pipe through this dyke that connects the Collard's Lake outflow to the large wetland to the west of Reserve Lake. The outflow to the Great Stour River is controlled by a timber stop which allows water to flow into the lake from the river during high flow periods<sup>6</sup>.

The Great Stour River is believed to be the main source of inflowing water to the lakes in SSSI Unit 10<sup>7</sup>. However, the precise frequency and magnitude of inflows from the Great Stour River is not fully understood<sup>8</sup>.

Although Total Phosphorus and Total Nitrogen concentrations fluctuate on an annual basis, high concentrations of both nutrients have been recorded within the lakes in SSSI Units 7 and 10, which exceed the 49ug/l Total Phosphorus and 1.5mg/l Total Nitrogen targets required to achieve good ecological status. The high concentrations are potentially contributing to adverse effects on the interest features associated with the European Designations. Total Phosphorus and Total Nitrogen may be coming from the following sources:

- Waste Water Treatment Works (WWTWs) outfalls (including Wye WWTW) upstream of Stodmarsh;
- Agricultural land;
- Flood waters from the Great Stour River overtopping the flood defences during high flows;
- Seepage into the lake in Unit 10 through the Great Stour River embankments during high flows and/or high spring tides (Atkins, 2016);
- A leaking sewer pipe from Westbere WWTW that passes through Stodmarsh; and
- Internal sources of Total Phosphorus within the lake in Unit 7 (APEM, 2016).

Due to the uncertainties of the Total Phosphorus and Total Nitrogen sources, which are currently being investigated by the Water Industry National Environment Programme (WINEP) investigation due to be completed by March 2022, Natural England acknowledge that developers are not being requested to solve the problem or help manage Stodmarsh, but instead developers of new residential developments including this one are required beyond reasonable scientific doubt to prevent any further Total Phosphorus and/or Total Nitrogen being released into Stodmarsh as a result of construction and/or operation of the developments.

### **4. Water Quality in the Great Stour and Stodmarsh**

After analysis of the available data collected by the Environment Agency over the last 10 years in both the Great Stour and Stodmarsh, there appears to be limited correlation in the concentrations of Total Phosphorus and Total Nitrogen between the two<sup>9</sup>. The Total Phosphorus and Total Nitrogen concentrations are considerably lower in the Great Stour River than Stodmarsh.

<sup>6</sup> It is understood from conversations with Natural England that the timber stop has been subsequently repaired or replaced.

<sup>7</sup> APEM (April 2016) Stodmarsh SSSI, SPA and NNR Lake Hydrology Project – Phase 1

<sup>8</sup> Atkins (May 2016) Stodmarsh Lake Hydrology Study (report only as data supporting the report has not been supplied after being requested)

<sup>9</sup> <https://environment.data.gov.uk/water-quality/view/explore> (accessed November 2019)



## **5. Total Phosphorous and Total Nitrogen Neutrality Calculations for the Proposed Development**

Natural England produced their latest recommended methodology for calculating Total Phosphorus and Total Nitrogen neutrality in July 2020<sup>10</sup>. The initial calculations for the Proposed Development concluded that there is no change in the phosphorous and nitrogen concentrations discharged from the Application Site through surface water run-off compared to the existing situation as the urban land use area within the Application Site will not change. However, the overall Total Phosphorus and Total Nitrogen budgets for the Proposed Development are still higher than zero due to the notional permitted wastewater discharge from the Proposed Development via Wye WWTW which has no discharge consent limit on Total Phosphorus or Total Nitrogen.

The embedded design measures for the Proposed Development that will reduce the discharge of Total Phosphorous and Total Nitrogen from the Application Site comprise the implementation of the following standard measures:

### *a. Construction Environmental Management Plans (CEMPs)*

A Construction Environmental Management Plan (CEMP) will be conditioned by ABC in the planning consent and implemented during the construction of the Proposed Development. The CEMP will set out methods of managing environmental issues for all involved with the construction works, including the supply chain.

The following measures will be included in the CEMP to maintain the water quality (including Total Phosphorous and Total Nitrogen concentrations) and quantity discharged from the Application Site:

- Construction activities will be carried out in accordance with guidance contained within best practice pollution prevention guidelines;
- Prior to pumping from excavations, permits to operate pumps will be issued to the pump operator, indicating the point of discharge and all other necessary control procedures;
- There will be no pumping to controlled waters or surface water drains/ditches without a Discharge Consent obtained from the Environment Agency;
- Before any discharge of water is made from the Application Site, adequate provisions will be made to ensure that it is not polluting. This includes incorporating appropriate silt settlement techniques into the watercourses within and surrounding the Application Site, protecting gullies and if necessary blocking drains during specific operations;
- All spills regardless of size are to be reported and treated;
- Fuel, oil or chemicals will be stored on impervious bases of appropriate capacity and will be located away from watercourses in accordance with the best practice pollution prevention guidelines as well as COSHH Regulations 2002 and the Control of Pollution (Oil Storage) Regulations 2004;
- Where practicable, drainage from storage compounds will be passed through oil interceptors prior to discharge;
- Leaking and empty drums will be removed from the Application Site and disposed of appropriately;
- Any refuelling of mobile plants and machinery will be undertaken in a designated area away from watercourses and surface drains, and supplied with appropriate spill kits and bunded bowsers;
- All mobile plant will have drip trays or the equivalent under them to prevent any leaks getting to the ground;
- The handling and storage of potentially hazardous liquids on site e.g. fuels and chemicals are to be controlled and best practice guidance from the Environment Agency will be applied;
- Biodegradable hydraulic oil will be used for machinery/plant where possible;

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<sup>10</sup> Natural England (July 2020) Advice on Nutrient Neutrality for New Development in the Stour Catchment in Relation to Stodmarsh Designated Sites – For Local Planning Authorities



- Operational outlets to public sewers will be protected from debris and filters/screens/sumps will be employed;
- All drums and barrels will be fitted with flow control taps and will be properly labelled;
- Portable toilets (for initial site set up works only) and good quality temporary toilet facilities will be provided for construction worker use to prevent water pollution resulting from worker-generated sewage effluents. The wastewater from these facilities will be tankered off site and disposed of appropriately;
- The placing of any wet concrete or cement in or close to any water body including culverts will be controlled through temporarily bunding the area of works to separate the wet concrete or cement and water to prevent leaks into the water body;
- No concrete wash outs will be permitted on site. Contractors using concrete wagons must employ the use of a concrete sock for each wagon. Manholes and catch pits will be covered to prevent concrete-cement ingress;
- Haul roads and hardstanding on the Application Site and approaches to the water body (or drains leading to a water body) will be regularly cleaned using water bowsers and/or road sweepers to prevent the build-up of mud, oil and dirt that may be washed into a water body or drain during heavy rainfall;
- The use of water sprays to reduce dust or wash down within construction areas will be carefully regulated to avoid washing substantial quantities of silt etc., into surface water drains; and
- Spill kits will be located on sites near to water bodies, within the works compounds and at any location where fuel, oil or other chemicals are in use.

*b. Landscape Strategy and Ecology and Landscape Management Plan*

A Landscape Strategy and an Ecology and Landscape Management Plan for the Proposed Development will be conditioned by ABC in the planning consent and then implemented. Together they will provide a framework for mitigation and management that will be enacted in perpetuity for the benefit of the ecology and landscape within the operational development. The following measures will be included in the Landscape Strategy and Ecology and Landscape Management Plan that will control water quality and quantity discharged from the Application Site:

- Herbicides and fertilisers will not to be used in the open spaces, with the exception of treatment for invasive species or plant diseases;
- Structural buffers which will slow down and intercept surface water flows as well as minimise soil erosion are likely, subject to detailed design, to be landscaped to create mosaics of woodland planting of varied widths, scrub, tall herb and grassland; and
- Dog bins will be provided in strategic easily accessible locations throughout the development (including open space) and will regularly emptied.

A by-product of the creation and management of the open space that will not be accessible to the public or their dogs in the east of the Application Site including the permanent area of trees and meadow grassland, will be enhanced uptake of nitrogen and phosphorus by the vegetation as it establishes.

Furthermore, across the open space, the change in land use from buildings, hardstanding, improved and rough grassland to meadow grassland with shrubs and trees along with retained mature trees will also permanently improve the quality and stability of the remaining soils and thus their ability to also sequester and store nitrogen and phosphorus as well as carbon and other nutrients. The establishment of permanent meadow grassland, trees, hedgerows and their roots will improve soil structure and stability which in turn will also allow mycorrhizae and its associated glomalin to re-establish and spread through the soil further improving the soils carbon and other nutrients storage and sequestration.



Glomalin allows water, air and nutrients to filter through the soils. As plants grow, the fungal hyphae creep down the plant roots establishing new networks near the extending tips. Higher up the root, the defunct hyphae slough off their protective glomalin, which falls back into the soil and attaches to particles of sand, silt, clay and organic matter, forming lumps of soil, allowing water, air and nutrients to infiltrate the spaces between providing the soil its structure and slowing down surface water run-off, which effectively locks in nutrients such as phosphorus and nitrogen.

Furthermore, garden waste (green) bins will be provided by the developer to each dwelling with a garden. The green bin will encourage residents to remove green waste from their gardens rather than compost or burn the waste within their garden. A contract will be set up between the residents and ABC to have the green bins regularly emptied<sup>11</sup>. The use of green bins will minimise the release of nitrogen and phosphorus from rotting vegetation which could leach into the ground and surface water run-off.

### *c. Surface Water Drainage Strategy*

Infiltration into the ground is available for surface water within the Proposed Development. The Application Site does not lie within any groundwater source protection zones. Groundwater levels are approximately 69m below ground level. The deepest soakaways proposed are 3.2m deep which leaves an unsaturated zone of 65.8m between the base of the soakaway and groundwater. This will ensure that the Proposed Development does not have an adverse effect on groundwater quality.

SuDS will be incorporated within the Proposed Development and will serve to intercept and treat surface water run-off from carriageways, car parks, buildings and hard paved public areas through a variety of devices near the source of the run-off prior to infiltration. Overall, the Surface Water Management Strategy's efficiency for removing Total Phosphorus and Total Nitrogen within the Site will be 50%.

The Surface Water Management Strategy<sup>12</sup> which will be a conditioned as part of the planning consent will replicate the existing drainage patterns by providing storage to limit run-off from the Proposed Development. To do this, a mixture of surface water attenuation/treatment features are proposed including:

- Water butts;
- Permeable car parking and paving with the addition of substrates or materials with a higher adsorption capacity for Total Phosphorus and Total Nitrogen than conventional aggregates;
- Biofiltration systems, designed rainwater gardens or tree pits;
- Infiltration devices/soakaways with granular surrounds which include small amounts of substrate or materials with higher adsorption capacity for Total Phosphorus and Total Nitrogen than conventional aggregates; and
- On/offline storage.

Surface water, which is classified as a very low to low pollution hazard, will pass through at least one surface water attenuation/treatment feature listed above before being discharged from the Application Site so that the surface water run-off can be filtered using sand filters, gravels and substrates with higher adsorption capacity for Total Phosphorus and Total Nitrogen. The surface water attenuation measures within the Proposed Development will improve the water quality and control of the water flows compared to the existing situation. Ultimately the peak flows from the Proposed Development will not exceed the peak greenfield run-off flow currently being discharged from the Application Site.

<sup>11</sup> <https://www.ashford.gov.uk/recycling-waste-and-bins/garden-waste/>

<sup>12</sup> RMB Consultants (Civil Engineering) Ltd (September 2019) Former ADAS Site, Olantigh Road, Wye, Ashford, TN25 5EP, Foul and Surface Water Management Strategy



*d. Foul Water Drainage Strategies*

Permanent water saving techniques and technologies will be incorporated into the Proposed Development to ensure that the water consumption per person is 105l/day to minimise the flow of foul/waste water leaving the Application Site. This is 5 l/day/person less than is assumed as standard in the calculations in **Annex 1**. This will be done by implementing a combination of the following water saving techniques and technologies in accordance with The Stour Catchment Plan and BREEAM: ECOHOMES<sup>13</sup>:

- High efficiency, aerated, censored or low flow taps/showerheads;
- Double flush or low flush toilets;
- Tankless hot water heaters;
- Water efficient dishwashers and washing machines;
- Insulator hot water cylinders;
- Pressure reducing valves; and
- Rainwater harvesting including water butts.

A Foul Water Drainage Strategy will be implemented to provide a solution for the on-site foul drainage in line with Sewers for Adoption 7<sup>th</sup> Edition<sup>14</sup>, which aims to minimise excavation depths and to drain foul water by gravity where possible. However, topography within the Application Site does not allow foul water to be drained to the existing foul sewer in Olantigh Road by gravity, instead a pumping station is proposed within the Application Site. A rising main will then be constructed to discharge the pumped effluent to the existing public sewer in Olantigh Road from where the public sewer network will ultimately discharge into the Wye WWTW east of the Great Stour River where it will be treated before being discharged directly into the Great Stour River. The details of the Foul Water Drainage Strategy will be agreed pre-construction with ABC through discharge of a planning condition.

Southern Water is responsible for the adopted surface water and foul drainage infrastructure in the area. Any identified upgrade works necessary to provide sufficient capacity, which will be carried out through the implementation of Southern Water's new connection charges on 1<sup>st</sup> April 2018. This means that the physical capacity of the existing sewerage network, including the capacity at Wye WWTW, is not a constraint to development, as any necessary upgrades will be carried out by Southern Water and paid for through the new infrastructure charge.

*e. Sustainable Transport and Access Options*

The location of the Application Site means that the demand for travel from the Proposed Development can be accommodated in the most sustainable ways possible, within the context of the overall growth agenda and to complement the transport strategy for Wye. Vehicle access to the Application Site will be via the existing access on Olantigh Road within Wye while pedestrian access will continue to be from the two existing pedestrian access points on Olantigh Road.

The Application Site is within a 15 minute walking distance of local amenities within Wye including shops, post office, library, Lady Joanna Thornhill Primary School, Wye School, Wye Surgery and a pharmacy. National Cycle Route 18 from Canterbury via Ashford to Royal Tunbridge Wells runs through Wye along Olantigh Road. The nearest bus stop is the 'Wye, adjacent Church' stop, 800m to the south west of the Application Site on the High Street which is served by buses between Ashford, Wye, Chilham, Chartham and Canterbury at a frequency of

<sup>13</sup> BREEAM (April 2006) Ecohomes 2006 – The Environmental Rating for Homes The Guidance – 2006 / Issue 1.2.

<sup>14</sup> WRC (September 2012) Sewers for Adoption: 7<sup>th</sup> Edition



two services an hour. The nearest railway station is Wye station 1.5km to the west via Olantigh Road, High Street, Churchfield Way and Bridge Street with services west to London and east to Margate.

Furthermore, the Proposed Development will include the following measures to minimise vehicle emissions (including Total Nitrogen in the form of NO<sub>x</sub>)<sup>15</sup>:

- Each dwelling will have secure and covered cycle parking;
- Provision of EV charging points for the on plot parking;
- Provision of a new junction arrangement for the Olantigh Road/Occupation Road junction will include a widened footway adjacent to the northbound carriageway of Olantigh Road and a raised table at grade pedestrian crossing facilities on Olantigh Road and Occupation Road; and
- Provision of Green Travel Notice Boards, a website and travel information packs per dwelling which will provide travel information for residents.

These measures will result in no change to PM<sub>10</sub> and PM<sub>2.5</sub> concentrations at Stodmarsh. However, the overall measures will mitigate NO<sub>x</sub>.

#### *f. Low NO<sub>x</sub> Boiler*

Each of the dwellings will have a low NO<sub>x</sub> boiler which emit between 10 and 30 mg/kWh of NO<sub>x</sub> depending on the model. The maximum NO<sub>x</sub> emissions permitted in the UK<sup>16</sup> is 56mg/KWh for gas and liquefied petroleum gas boilers. In total there will be a NO<sub>x</sub> saving of between 920mg/kWh and 520mg/kWh across the Proposed Development.

#### *Summary*

The implementation of these embedded design measures will reduce the release of Total Phosphorus and Total Nitrogen from the Proposed Development. However, additional measures are required for the Proposed Development to become nutrient neutral.

### **6. Additional Measures to Reduce and Offset Total Phosphorus and Total Nitrogen**

Since Natural England have asked for the developments within the Stour Catchment upstream of Stodmarsh to achieve nutrient neutrality during construction and operation, the following additional on-site and off-site measures to offset Total Phosphorus and Total Nitrogen loads produced by the Proposed Development have been investigated further:

- *Tankering Wastewater from the Proposed Developments* – Southern Water have confirmed that there is not adequate capacity for tankered sewerage at any of their WWTWs and therefore this option has been discounted;
- *Conversion of agricultural land into wetlands* - An unsuccessful search for agricultural land to be converted into wetlands between Wye WWTW and Stodmarsh has been carried out. There is no land available and therefore this option has been discounted;
- *Conversion of farmland under the control of the landowners into woodland* – A search is ongoing for arable land to be secured for conversion to forestry within the Stour Catchment upstream of Stodmarsh. This option has been discounted for the purposes of providing offset at this stage; and

<sup>15</sup> Transport Planning Practice (August 2019) Residential Sites, Wye, Ashford, Transport Assessment, Former ADAS Site.

<sup>16</sup> European Union (2018) Energy related Products Directive (ErP)



- *On-site Package Treatment Plants (PTP) discharging into the public sewer network* – an on-site PTP, which is a self-contained treatment system designed and manufactured to process foul waste, will be installed within the Proposed Development with direct connections from their outfalls into the public sewer along Olantigh Road that will then ultimately connect into Wye WWTW. This is currently the preferred main option and is discussed further below.

This last measure, in conjunction with the embedded measures discussed above, is designed to minimise the discharge of Total Phosphorus and Total Nitrogen from the Proposed Development and can be used in perpetuity, irrespective of any changes which otherwise occur. In due course, the results of the WINEP catchment wide investigation will be completed and a Nutrient Management Plan may be produced and/or Wye WWTW may be upgraded with a reduced discharge concentration limit on Total Phosphorus and Total Nitrogen (estimated to be by 2030 at the latest).

It should be noted that the Proposed Development will still be under construction by the time the conclusions of the WINEP investigation are available and therefore the proposed dwellings will not be fully occupied. However, the Proposed Development is anticipated to be completed prior to 2030 by which time it is anticipated that the Wye WWTW will have been upgraded, as required. This will enable complete discharge of the foul water from the Proposed Development to Wye WWTW for treatment without the need for additional off-site mitigation to make the development nutrient neutral. However, the calculations in **Annex 1** do not rely on such upgrading works.

#### *On-Site PTPs*

Southern Water stated in an email to me on 20<sup>th</sup> January 2020 that *'we have an obligation to receive and treat wastewater from developments, in this instance we recognise the issues with nutrients in the Stodmarsh Lakes system and will therefore work with the developers to find a suitable disposal route...'*. Such measures would need to be in accordance with the relevant waste water statutory provisions.

All the dwellings will be connected directly into the on-site PTP within the open space in the centre of the Proposed Development (**Annex 2**). The PTP including the outlets will be located at least 10m away from watercourses and other buildings<sup>17</sup> with good vehicular access. The PTP will include facilities for chemical dosing and will be metered prior to discharging into the public sewer. This along with the embedded design measures discussed above, will result in the surface and foul water discharging from the Proposed Development becoming neutral in terms of Total Phosphorus and Total Nitrogen, as shown in **Annex 1**. Once the water has been treated by the on-site PTP, it will enter the public sewer and then be transferred to Wye WWTW prior to discharge into the Great Stour River.

Although the details of the PTP will be provided as part of the detailed Foul Water Drainage System, it is anticipated that the PTP will comprise primary settling tank units, denitrifying, phosphorus removing reactors followed by secondary settling tanks (SSTs). This phase of treatment will ensure that the Total Nitrogen meets the required concentration level, but the Total Phosphorus will still exceed its required level. To reduce the Total Phosphorus to the required level, further chemical dosing will be required. This can take the form of a bauxite bed, a chemical dosing plant (dosing Ferric or Aluminium Sulphate) or both in combination. The PTP will be primarily underground within an approximately 10m x 20m compound. The compound will have road access with an appropriate turning circles provided, while the compound will include space for access for sludge removal and maintenance as well as peripheral components such as pumps, flow splitters, and chemical dosing units. The PTP will be virtually silent and odour free.

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<sup>17</sup> Approved document H – Drainage and Waste Disposal (2015) [https://www.planningportal.co.uk/info/200135/approved\\_documents/71/part\\_h\\_-\\_drainage\\_and\\_waste\\_disposal](https://www.planningportal.co.uk/info/200135/approved_documents/71/part_h_-_drainage_and_waste_disposal)



The PTP will be installed on a concrete slab within an excavation. Once the unit is positioned, levelled and ballasted on the concrete slab, the excavation will then be backfilled with an appropriate material suitable for the ground conditions, soil stability and water table. Once backfilled, only the low profile cover will be exposed above ground level alongside an area of hardstanding for vehicle access.

To maintain the PTP regular sludge removal (via a tanker once a month) and simple lubrication schedules for bearings and the geared motor are required to maintain a standard plant at optimum performance.

## **7. Summary**

In summary, the measures discussed above to reduce and offset Total Phosphorus and Total Nitrogen reaching Stodmarsh via the Great Stour River will be fully implemented prior to the occupation of dwellings and can remain in perpetuity as required. The proposals will result in no effect on the integrity of the Stodmarsh SPA, Ramsar and SAC.

We hope that the above addresses all queries raised to your satisfaction. If you would like to discuss anything further, please feel free to contact [REDACTED]

Yours sincerely

[REDACTED]  
Marian Cameron  
Environmental Consultant

Annex 1 – Nutrient Neutrality Calculations

Annex 2 – Plan showing location of the on-site Package Treatment Plant



**ANNEX 1 – NUTRIENT NEUTRALITY CALCULATIONS**

TITLE	Former ADAS Site - Phosphorus			
Stage 1	Total Phosphorous from development wastewater with PTP			
	Development proposal	48.00	No.	Site specific No. occupants
	Total Phosphorous prior to treatment	47.52	kg TP/yr	Based on 0.99 kg/TP/per person per year
	Total Phosphorus discharge after PTP treatment	0.48	kg TP/yr	98.84% efficiency of PTP

Stage 2	Total Phosphorous from current land use			
	Urban area	2.39	ha	Site specific measured
		0.83	kgP/ha/yr	Provided by NE
	Lowland grazing	0.00	ha	Site specific measured
		0.24	kgP/ha/yr	Provided by NE
Phosphorous load	1.98	kgP/yr	Calculated	

Stage 3	Total Phosphorous from future land uses			
	New urban area	2.06	ha	Site specific measured
		0.42	kgP/ha/yr	Provided by NE and assume SUDS mitigation is 50% efficient at removing TP
	New open space (no public access)	0.33	ha	Site specific measured
		0.02	kgP/ha/yr	Provided by NE (no public/dog access)
	Phosphorous load	0.87	kgP/ha/yr	Calculated

Stage 4	Net change in Phosphorous load			
	Phosphorous load from PTP	0.48	kgP/yr	Calculated
	Net Phosphorous change	-1.11	kgP/yr	Calculated
	Phosphorous budget	-0.64	kgP/yr	Calculated
-0.76		kgP/yr	Including 20% buffer	

TITLE	<b>Former ADAS Site - Nitrogen</b>			
Stage 1	<b>Total Nitrogen from development wastewater with PTP</b>			
	Development proposal	48.00	No.	Site specific No. occupants
	Total Nitrogen prior to treatment	168.00	kg TN/yr	Based on 3.5 Kg TN per person per year
	Total Nitrogen discharged after PTP treatment	18.48	kg TN/yr	89.05% efficiency of PTP

Stage 2	<b>Total Nitrogen from current land use</b>			
	Urban land	2.39	ha	Site specific measured
		14.30	kgN/ha/yr	Provided by NE
	Lowland grazing	0.00	ha	Site specific measured
		0.24	kgP/ha/yr	Provided by NE
Nitrogen load	34.18	kgN/yr	Calculated	

Stage 3	<b>Total Nitrogen from future land uses</b>			
	New urban area	2.06	ha	Site specific measured
		7.20	kgN/ha/yr	Provided by NE and assumes SUDS mitigation is 50% efficient at removing TN
	New open space (no public access)	0.33	ha	Site specific measured
		2.90	kgN/ha/yr	Provided by NE (no public/dog access)
	Nitrogen load	15.79	kgN/ha/yr	Calculated

Stage 4	<b>Net change in Nitrogen load</b>			
	Nitrogen load from PTP	18.48	kgN/yr	Calculated
	Net Nitrogen change	-18.39	kgN/yr	Calculated
	Nitrogen budget	0.09	kgN/yr	Calculated
0.11		kgN/yr	Including 20% buffer	



**ANNEX 2 – PLAN SHOWING LOCATION OF THE ON-SITE PACKAGE TREATMENT PLANT**

