AN APPLICATION TO VARY ENVIRONMENTAL PERMIT NUMBER EPR/YP3138XB FOR THE WASTE TREATMENT FACILITY OPERATED BY AUGEAN SOUTH LIMITED AT EAST NORTHANTS RESOURCE MANAGEMENT FACILITY

NUISANCE AND AMENITY ENVIRONMENTAL RISK ASSESSMENT (ERA)

Report reference: AU/KCW/AW/5651/01/ERA
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1. Introduction

1.1 This document comprises the nuisance and amenity Environmental Risk Assessment (ERA) report which has been prepared in support of the application to vary Environmental Permit number EPR/YP3138XB (the permit) for the waste treatment facility (the site) operated by Augean South Limited (Augean) at East Northants Resource Management Facility (ENRMF). The boundary of the treatment facility permit is shown in green on Figure ERA1. There are no proposals to amend the treatment facility permit boundary as part of the application to vary the permit.

1.2 The following changes are proposed in respect of the treatment facility:

A. Addition of a new process at this site for the neutralisation of hazardous waste and non-hazardous waste.

B. An increase from 150,000 tonnes to 250,000 tonnes for the activity specific overall annual limit for the stabilisation process and for the solidification/stabilisation process.

C. An increase in the maximum quantity of waste to be stored at any one time in the dredging waste temporary storage area (DWTSA) from 5,000m^3 to 12,000m^3.

1.3 An enhanced pre-application advice meeting was held with the Environment Agency on 19 November 2020 to discuss the scope of the main aspects of the variation application. Copies of the correspondence associated with the pre-application advice are presented at Appendix A of the application to vary the permit. This ERA has been prepared with reference to the letter dated 23 November 2020 in which the Environment Agency advised that the following details would be required to support the application to vary the permit:

A. Waste neutralisation activity

   i. An environmental risk assessment which should follow the methodology set out in 'Risk assessments for your environmental permit'

B. Proposed increase in annual throughput to the stabilisation activity and solidification/stabilisation activity

   i. A worst case tonnage risk assessment for each activity

ii. An assessment of the impact on emissions

iii. A storage capacity assessment

iv. A processing capacity assessment

The ERA has been prepared in support of the application based on the risk screening matrix provided in Table ERA 1 and is presented in Table ERA 2. The ERA is relevant to the new activity comprising waste neutralisation, the increase in annual throughput to the stabilisation activity and solidification/stabilisation activity and the proposals to increase the maximum volume of waste that may be stored in the DWTSA. Table ERA 2 addresses the requirements of Ai, Bi and Bii above. The storage (Biii) and processing (Biv) capacity assessment for the increased throughput for the stabilisation activity and solidification/stabilisation activity are presented in Section 2 of this report.

1.4 In the ERA consideration is given to potential receptors and pathways for impacts based on an understanding of the environment surrounding the site. The assessment of the risks associated with the operation of the site is based on a knowledge of the current site operations which have been undertaken for over 10 years, the information on the operation of the site described in the application to vary the permit and the accompanying technical reports and the general principles of Environment Agency guidance “Risk assessments for your environmental permit” first published on the GOV.UK website on 1 February 2016 and last updated on 25 March 2021.

1.5 This risk assessment takes into consideration receptors within 500m of the waste treatment facility and statutory designated nature and heritage conservation sites within 2km of the waste treatment facility. The receptors located within 500m of the waste treatment facility are shown on Figure ERA 1. The statutory designated nature and heritage conservation sites within 2km of the waste treatment facility are shown on Figure ERA 2.

1.6 The waste treatment area is located in the northern part of the treatment facility permit boundary within the footprint of the hazardous waste landfill site operated by Augean under Environmental Permit number EPR/TP3430GW. A separate application to vary Environmental Permit number EPR/TP3430GW to increase the area of the existing permitted landfill site was submitted to the Environment Agency on 7 May 2021. The proposed increased boundary of Environmental Permit number EPR/TP3430GW is

shown in blue on Figure ERA 1 for reference. As shown on Figure ERA 1 the waste treatment facility is surrounded to the east, south and west by the existing and proposed landfill permit boundary. The site setting is generally rural with the majority of the land surrounding the treatment site comprising open farmland or woodland. The closest properties to the waste treatment facility are the properties at Westhay Cottages located approximately 500m to the east of the waste treatment facility. Westhay Farm is located approximately 500m east of the waste treatment facility.

1.7 Based on the information available on the DEFRA MAGIC website[1] there are no National Parks, Areas of Outstanding National Beauty, Special Areas of Conservation, Special Protected Areas, Ramsar Sites or Marine Conservation Zones within 5km of the waste treatment facility.

1.8 To the west of the waste treatment facility lies woodland known as Fineshade Wood part of which is known as The Assarts and which is a Local Wildlife Site (Figure ERA 1 and Figure ERA 2). Collyweston Great Wood is located to the north of the waste treatment facility as shown on Figure ERA 1 and Figure ERA 2. To the north east of the waste treatment facility, beyond Collyweston Great Wood and east of Stamford Road is an area of woodland known as Easton Hornstocks. Parts of the Collyweston Great Wood and Easton Hornstocks comprise a Site of Special Scientific Interest (SSSI) and a National Nature Reserve. Collyweston Quarry Local Geological Site is located approximately 800m north west of the waste treatment facility at its closest point.

1.9 There are no listed buildings or scheduled monuments within 500m of the waste treatment facility.

1.10 The Public Rights of Way (PRoW) in the vicinity of the site are shown on Figure ERA 1. No PRoW cross the waste treatment facility or are located within 300m of the waste treatment facility. The closest right of way is Footpath MX15 which is approximately 375m to the west of the boundary of the waste treatment facility at its closest point. Footpath MX15 runs in a north westerly and south westerly direction through The Assarts woodland (part of Fineshade Wood) and connects into the wider PRoW network.

[1] Reviewed on 4 May 2021.

1.11 The runway at RAF Wittering (Figure ERA 2), which comprises an operational training airfield, is located approximately 2.3km to the north east of the waste treatment facility.

1.12 A wind rose for the period 2000 to 2019 prepared by ADM Limited based on data from the Meteorological Office located at RAF Wittering Airfield is presented on Figure ERA 1. The wind rose shows that the prevailing wind is from the west or west south west.

Accidents

1.13 Environment Agency guidance 'Risk assessments for your environmental permit' identifies that the risk assessment must take into consideration the risk of accidents at the site, for example spillages during the transfer of substances, overfilling of vessels, plant or equipment failure, inadequate bunding etc. A technical description of the proposed waste neutralisation process and a Best Available Techniques review are presented in the reports at Appendix F and Appendix G respectively of the application report. The proposed waste neutralisation process for the ENRMF treatment facility is already authorised and operated by Augean at their waste treatment facility at Port Clarence Waste Recovery Park in Teesside (PC WRP[2]). The proposed waste neutralisation process at ENRMF will be consistent with the process currently operated by Augean at PC WRP. The planning and construction of the treatment facility at PC WRP was the subject of a HAZOP (Hazard and Operability) study to identify potential hazards, to investigate the potential for and consequences of accidents and to inform the design and layout of the plant. The HAZOP includes investigation of failure modes including uncontrolled releases (spills) and overfilling or overheating of storage tanks. The HAZOP study reviews in detail the construction materials of the various tanks, pipework and vessels specified to contain the substances to be handled in the process. A similar HAZOP study will be undertaken in respect of the proposals for the storage tanks and treatment infrastructure at ENRMF relevant to the waste neutralisation process.

[2] Augean Treatment Limited Environmental Permit Number EPR/YP3234XR/V007 for PC WRP, Stockton on Tees. Activity reference AR4 and AR38.

2. Storage and processing capacity assessment for the stabilisation activity and solidification/stabilisation activity

2.1 Table S1.1 of the permit specifies the following activities relevant to the stabilisation and solidification/stabilisation of waste:

Activity Ref	Description
AR2	Stabilisation process for **hazardous** waste **disposal**
AR4	Stabilisation process for **non-hazardous** waste **disposal**
AR3	Solidification/Stabilisation process for **hazardous** waste **recovery**
AR17	Solidification/Stabilisation of **non-hazardous** waste for **recovery**

2.2 Although these processes comprise separate listed activities[3] in the permit the treatment processes for stabilisation and solidification/stabilisation essentially are the same and the associated plant and infrastructure is the same. The distinction in the permit relates to the input waste types (hazardous or non hazardous) and the fate of the output from the treatment process (recovery or disposal). The reaction components comprise a binder (for example APCR), a granular material (for example dredgings, soil) and a liquid (for example water, landfill leachate) to catalyse the binder. The materials are stored in silos, tanks and bunkers depending on the consistency of the materials and are processed in mixing vessels. The objective of the treatment process is to minimise the rate of contaminant migration to the environment thus to stabilise the waste, to reduce the level of toxicity of contaminants and/or to solidify the waste, in order to alter or improve the characteristics of the waste so that it can be recovered at a suitably authorised facility or disposed of in a landfill site. Irrespective of whether the receiving facility will recover or dispose of the output from the waste treatment process, the receiving facility will have in place a specification for the acceptability of the material. For example, for disposal at a hazardous waste landfill site the specification will comprise the hazardous waste acceptance criteria (WAC)[4] and for recovery the receiving facility will have a specification which may for example require the waste to be classified as non-hazardous and may require certain total or leachable metal concentrations to be below certain thresholds. The specification will be specific to each disposal or recovery activity.

[3] AR17 is a waste operation.
[4] Or other site specific WAC specified in the permit for the landfill site

2.3 The permit currently specifies in Table S2.3 a limit of 150,000 tonnes per year for the stabilisation activity (AR2 and AR4), specifies in Table S2.8 a limit of 150,000 tonnes per year for the solidification/stabilisation activity for hazardous waste (AR3) and specifies in Table S2.9 a limit of 150,000 tonnes per year for the solidification/stabilisation activity for non-hazardous waste (AR17).

2.4 It is proposed that a total annual limit of 250,000 tonnes is specified across activity references AR2, AR3, AR4 and AR17 and that the 250,000 tonne limit will be applicable individually to any of the four activities AR2, AR3, AR4, AR17. Application of an activity specific limit will provide flexibility for the operator depending on the nature and suitability of the input materials and the availability of the recovery and disposal outlets.

2.5 In order to conduct a storage and processing capacity assessment it is necessary to compare the currently permitted tonnage and the proposed tonnage. The current activity specific limit for each of the activity references is 150,000 tonnes per year.

2.6 Treatment of 150,000 tonnes of waste per year corresponds to approximately 2,885 tonnes per week. Treatment of 250,000 tonnes of waste per year corresponds to approximately 4,800 tonnes per week.

2.7 Based on a 5 day working week and a ten hour working shift, a weekly throughput of 4,800 tonnes corresponds to a processing throughput of approximately 96 tonnes per hour. Based on the experience of operating the stabilisation process for over ten years at the site a processing throughput of 96 tonnes per hour is a reasonable assumption

2.8 As described above the reaction components typically comprise a binder, a granular material and a liquid. Binders typically are stored in silos or in bulk bags, granular material typically is stored in bays or bunkers and liquid, including leachate pumped from the adjacent landfill site, is stored in storage tanks. Although the quantity of liquid necessary to activate the binder will vary depending on the nature and moisture content of the binder a typical ratio of liquid to binder for the purpose of this storage capacity assessment is 3 binder: 1 liquid. Although the ratio of activated binder to granular material depends on the consistency of the granular material (e.g. whether it is a dry filter cake or a wet dredged silt material) a typical ratio of activated binder to granular material for the purpose of this storage and processing capacity

assessment is 2 activated binder: 1 granular material. The overall composition of the reaction mixture could therefore be 50% binder, 33% granular material and 17% liquid. A breakdown of the components used in the treatment process is presented in the table below for the purpose of comparison of the storage requirements at the current and proposed throughput based on the assumption that it will be necessary to hold sufficient feedstock for two days of continuous processing.

Annual throughput	Two day throughput	Typical storage requirement for two days of processing[5] (tonnes)		
tonnes	tonnes	Binder	Granular material	Liquid
150,000	822	411	271	140
250,000	1,370	685	452	233

2.9 Based on the estimated tonnages presented in the table above there will be sufficient storage capacity in the silos, bays, bunkers and storage tanks at the site to accommodate the increase in annual throughput from 150,000 tonnes to 250,000 tonnes.

2.10 The tonnages specified in the table above have been estimated based on typical components in the reaction mixture and based on a typical mixture composition. For the purpose of the permit, the calculated tonnages are provided for reference and do not comprise storage limits.

2.11 Based on the information presented in Section 2 of this report it is considered that the storage capacity and treatment capacity at ENRMF waste treatment facility is sufficient to accommodate an increase in annual throughput from 150,000 tonnes to 250,000 tonnes for the stabilisation activity and solidification/stabilisation activity. An assessment of the risks associated with the increase in throughput including those associated with storage is presented in Table ERA 2.

[5] Based on the typical reaction mixture described in paragraph 2.8.

3. Conclusion

3.1 The ERA that has been completed to support the application demonstrates that the proposed changes to the waste treatment facility comprising the addition of a new process for the neutralisation of waste, an increase in the activity specific annual limit for the stabilisation process and for the solidification/stabilisation process and an increase in the maximum volume of waste that may be stored in the DWTSA has a low or very low risk of adverse impact on the surrounding environment including sites of heritage or nature conservation interest.

3.2 The storage and processing capacity assessment for the stabilisation activity and solidification/stabilisation activity demonstrates that there is sufficient storage capacity and treatment capacity at the site to accommodate the activity specific increase in throughput from 150,000 tonnes per annum to 250,000 tonnes per annum.

Table ERA 1 Risk screening matrix (waste treatment installation)

RISK TYPE	ODOUR		NOISE AND VIBRATION		FUGITIVE EMISSIONS								
					PARTICULATE MATTER				LITTER		BIRDS, VERMIN AND INSECTS		MUD ON THE ROAD
GENERIC HAZARDS / GENERIC RECEPTORS[1]	Waste storage and treatment	Waste delivery	Waste delivery	Waste storage and treatment	Waste delivery	Waste storage and treatment	Restored surfaces	Access routes	Waste delivery	Waste storage and treatment	Waste delivery	Waste storage and treatment	Vehicle Movements
DOMESTIC DWELLING													
SCHOOLS AND COLLEGES													
HOSPITALS													
OFFICES/COMMERCIALPREMISES	x	x	x	x	x	x	x	x					
INDUSTRIAL PREMISES	x	x	x	x	x	x	x	x					
PUBLIC FOOTPATH OR BRIDLEWAY	x	x	x	x	x	x	x	x					
HIGHWAYS OR ROADS													x
PARKS AND PUBLIC OPEN SPACES	x	x	x	x	x	x	x	x					
FARMLAND WITH LIVESTOCK													
FARMLAND ARABLE			x	x	x	x	x	x					
PRIORITY HABITAT			x	x	x	x	x	x					
NATURE SITE OF LOCAL IMPORTANCE (e.g. LNR, LWS,)			x	x	x	x	x	x					

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GENERIC HAZARDS / GENERIC RECEPTORS[1]	Waste storage and treatment	Waste delivery	Waste delivery	Waste storage and treatment	Waste delivery	Waste storage and treatment	Restored surfaces	Access routes	Waste delivery	Waste storage and treatment	Waste delivery	Waste storage and treatment	Vehicle Movements
SITE OF SPECIAL SCIENTIFIC INTEREST (within 2km)			x	x	x	x	x	x					
SPECIAL AREA OF CONSERVATION (within 2km)													
SPECIAL PROTECTION AREA (within 2km)													
LISTED BUILDINGS (within 500m)													
SCHEDULED MONUMENT (within 500m)													
AIRPORT													
RAILWAY													
SURFACE WATER					x	x	x	x					

x = generic receptor type present and generic hazard considered as part of this assessment

[1] All generic receptors within 500m of the waste treatment facility have been identified unless an alternative distance has been identified

Table ERA 2 Assessment of nuisance and amenity risks associated with the waste neutralisation process and the increase in annual throughput to the stabilisation activity and solidification/stabilisation activity at ENRMF treatment facility

What do you do that can harm and what could be harmed			Assessing the risk			Managing the risk	
Hazard	Receptor (see Figures ERA 1 & ERA2)	Pathway	Probability of exposure	Consequence	What is the overall risk	Risk management	What is the residual risk
What has the potential to cause harm	What is at risk? What do I wish to protect?	How can the hazard get to the receptor?	How likely is this contact?	What is the harm that can be caused?	What is the risk? The balance of probability and consequence	What measures will you take to reduce the risk? If it occurs – who is responsible for what?	What is the risk that still remains?
Odorous wastes received, stored and processed at the site	Local human population	Air	Low	Nuisance, loss of amenity	Low	The closest residential receptors to the waste treatment facility (WTF) are approximately 500m from the permit boundary. As the wastes which are received at the site for processing in the Waste Neutralisation Process (WNP) contain minimal quantities of putrescible material it is unlikely that significant odorous emissions will be generated by the biodegradation of organic matter in these wastes. Acid and alkali liquid wastes are stored in enclosed storage tanks and/or containers, APCR and other solid wastes are not inherently odorous and are stored in silos or bags and filter cakes/dredgings/soil type wastes destined for the WNP are stored in bunkers or bays or in the DWTSA. Wastes are typically stored for a short time only. The WNP is undertaken in an enclosed vessel. The outputs from the treatment process are stored in bunkers or bays. The tanks, vessels, pumps, valves and pipework associated with the WNP will be subject to regular inspections and routine planned preventative maintenance to minimise the potential for leaks or fugitive emissions which may give rise to odour.	Very low

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						Abatement comprising a wet scrubber will be employed on the vents of liquid storage tanks used for the storage of acid wastes and alkali wastes to abate fugitive emissions which may have the potential to release odorous emissions. Sprays are installed along the northern boundary and part of the eastern boundary. The sprays have the potential to be employed for odour suppression as well as to minimise dust emissions if necessary. There are no proposals to change the range of waste types authorised to be treated in the Waste Stabilisation Process (WSP) or the Waste Solidification/Stabilisation Process (WSSP). The changes are limited to an increase in the annual waste throughput limit from 150,000 to 250,000 tonnes and an increase in the volume of waste that may be stored in the DWTSA. As the solid wastes which are received at the site for processing in the WSP and WSSP contain minimal quantities of putrescible material it is unlikely that significant odorous emissions will be generated by the biodegradation of organic matter in these wastes. The wastes which are treated are not inherently odorous.	

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						An Odour Management Plan (OMP) is implemented currently at ENRMF including the landfill site. The OMP includes a protocol for odour monitoring by sniff testing and a protocol for investigating and responding to odour complaints. Augean implement an odour assessment as part of their pre-acceptance waste checks and waste with significant odour potential will not be accepted for delivery to the site. Based on the proposed continuation of the current controls implemented at the site, and based on the nature of the current and proposed wastes accepted at the site it is considered that there will be no significant impacts associated with odour generated as a result of the proposed changes.	
Mobile plant, static plant and vehicles including waste delivery and treatment	Local human population	Air	Low	Nuisance from noise	Low	The closest residential receptors to the WTF are approximately 500m from the permit boundary. The waste handling activities to be undertaken in the WNP generally are similar to the activities undertaken for the currently permitted waste treatment processes for example loading and unloading of waste using mobile plant, transfer of solid, liquid and	Very Low

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						sludge wastes between tankers, storage vessels and tanks and mixing vessels. Although the application to vary the permit includes an increase in the maximum quantity of waste that may be handled for each of the individual waste treatment processes there will be no increase in the overall waste throughput across all waste treatment activities. The current waste treatment processes have been undertaken at the site for many years and during this time there have been no noise complaints received in respect of the ENRMF treatment facility. An assessment of the noise impact of the proposed operations, including the changes proposed at the WTF has been carried out in support of the application for a Development Consent Order (DCO). The results of the assessment demonstrate that there will be no significant or unacceptable adverse impacts at noise-sensitive premises in the vicinity as a result of the proposed operations. The following noise and vibration control measures will continue to be implemented at	

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						the site to minimise any potential noise impacts: • The permitted operating hours of the site are strictly adhered to and effectively communicated to all site staff and subcontractors • Plant and machinery are regularly well maintained, serviced in accordance with manufacturers' instructions and where appropriate fitted with exhaust silencers • New site based vehicles will be equipped with white sound reversing alarms and strobe lights • The site surfacing in the WTF is maintained to minimise the potential for defects such as pot-holes • Unnecessary horn usage and revving of engines is avoided • Equipment is switched off or throttled-down when not required • Drop heights of materials are minimised where possible • Plant and vehicles are started up sequentially rather than all together. Based on the proposed continuation of the current controls implemented at the site and	

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						based on the similarity of the proposed activities to those currently permitted it is considered that there will be no significant impacts associated with noise generated as a result of the proposed changes.	
Particulates, waste delivery, storage and treatment	Local human population / properties / farmland arable / public highway / water bodies	Air	Low	Deposition of particulate matter	Low	The closest residential receptors to the WTF are approximately 500m from the permit boundary. A dust management and monitoring plan is implemented through the site management system and will be updated to include the proposed changes. The solid waste types that will be handled in the WNP are similar in nature to the waste types currently authorised to be accepted for treatment at the WTF. Storage of solid wastes, including APCR which is already authorised to be handled at the site for use in the stabilisation process, will be consistent with the storage arrangements currently employed at the site including (depending on the nature of the material) storage in silos, bays or bunkers or in the DWTSA. Silos are fitted with bag filters as part of the silo protection system. The bag filters are designed to capture particulate matter during	Low

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						the discharge process and prevent pressure build up in the silo. The bays and bunkers will provide a wind barrier to diffuse emissions. Wastes stored in the DWTSA generally are wet or damp hence are not considered a potential source of particulate matter emissions. Waste materials with the potential to release particulate matter during transfer to the neutralisation vessel will be transferred via an enclosed screw conveyor to minimise the potential for diffuse emissions of particulate matter to air. Where waste materials are stored in bays and bunkers and where waste materials are handled by mobile plant, dust suppression using water sprays will be employed where necessary to minimise the potential for diffuse emissions of particulate matter to air. When handling waste materials with the potential to release particulate matter, drop heights will be minimised. Site speed limits are enforced at the site to minimise the potential for resuspension of particulate matter from site surfacing. The concrete site surfacing will be cleaned and dampened with water when necessary to minimise the potential for dust and particulate matter to build up on the site surfacing and comprise a source of	

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						particulate matter. Areas of the site in which waste is stored and treated will be regularly cleaned, including the plant used in the WNP. The tanks, vessels, pumps, valves and pipework will be subject to regular inspections and routine planned preventative maintenance. Based on the proposed continuation of the current controls implemented at the site, and based on the similarity of the proposed activities to those currently permitted it is considered that there will be no significant impacts associated with particulate matter emissions generated as a result of the proposed changes.	
Litter [Screened out in Table ERA 1]	Local human population and animal habitats	Air transport and deposition	Very low	Nuisance, loss of amenity and harm to animal health	Very low	Consistent with the waste types received currently at the WTF the waste types to be accepted for the WNP will not generate significant quantities of litter. Waste types such as paper, plastic and cardboard are not and will not be accepted.	Negligible

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What has the potential to cause harm	What is at risk? What do I wish to protect?	How can the hazard get to the receptor?	How likely is this contact?	What is the harm that can be caused?	What is the risk? The balance of probability and consequence	What measures will you take to reduce the risk? If it occurs – who is responsible for what?	What is the risk that still remains?
Birds, vermin and insects. [Screened out in Table ERA 1]	Local human population	Air transport and over land	Low	Harm to human health. Nuisance, loss of amenity.	Low	Consistent with the waste types received currently at the WTF the waste types to be accepted for the WNP are not considered to be attractive to gulls and corvids.	Very low
Mud and debris deposited on the public highway	Public highway	Vehicle movements	Low	Mud on the public highway	Low	Access to the WTF will continue to be via the existing access to the wider ENRMF site from Stamford Road. The wheel cleaning facilities will continue to be used for all HGVs visiting the site before leaving the site onto the public highway. The access road from the wheel wash to the highway is hard surfaced which minimises the potential for mud and debris to be tracked onto the road network. Drainage to be installed across the site access will minimise the potential for silt laden runoff to run onto the highway. The access road will be cleaned regularly by a road sweeper and maintained in good condition and the surface of Stamford Road will continue to be cleaned regularly using a road sweeper. Based on the wheel cleaning facilities and the proposed cleaning and maintenance regime the risk of nuisance associated with mud and debris on the local road network is low.	Low

Table ERA 2 Assessment of nuisance and amenity risks associated with the waste neutralisation process and the increase in annual throughput to the stabilisation activity and solidification/stabilisation activity at ENRMF treatment facility

What do you do that can harm and what could be harmed			Assessing the risk			Managing the risk	
Hazard	Receptor (see Figures ERA 1 & ERA2)	Pathway	Probability of exposure	Consequence	What is the overall risk	Risk management	What is the residual risk
What has the potential to cause harm	What is at risk? What do I wish to protect?	How can the hazard get to the receptor?	How likely is this contact?	What is the harm that can be caused?	What is the risk? The balance of probability and consequence	What measures will you take to reduce the risk? If it occurs – who is responsible for what?	What is the risk that still remains?
ACCIDENTS – based on the examples presented in Risk assessments for your environmental permit - GOV.UK (www.gov.uk)							
Spillages whilst transferring substances, for example loading or unloading vessels Overfilling vessels Plant or equipment failure Spillage of waste from the DWTSA	Water resources	Run off or infiltration to ground	Medium	Contamination of water resources	Medium	The WNP which is proposed to be operated at ENRMF treatment facility is already authorised and undertaken by Augean at its waste treatment facility at PC WRP[6]. The proposed WNP at ENRMF will be consistent with the process currently undertaken by Augean at PC WRP. The design and construction of the treatment facility at PC WRP was the subject of a HAZOP (Hazard and Operability) study to identify potential hazards, to investigate the potential for and consequences of accidents and inform the design and layout of the plant. The HAZOP includes investigation of failure modes including uncontrolled releases (spills), overfilling or overheating of storage tanks and reviews in detail the materials of construction of the various tanks, pipework and vessels specified to contain the substances to be handled in the process. A similar HAZOP study will be undertaken in respect of the proposals for construction of	Low

[6] Augean Treatment Limited Environmental Permit Number EPR/YP3234XR/V007 for PC WRP, Stockton on Tees. Activity reference AR4 and AR38.

Table ERA 2 Assessment of nuisance and amenity risks associated with the waste neutralisation process and the increase in annual throughput to the stabilisation activity and solidification/stabilisation activity at ENRMF treatment facility

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Hazard	Receptor (see Figures ERA 1 & ERA2)	Pathway	Probability of exposure	Consequence	What is the overall risk	Risk management	What is the residual risk
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						the storage tank and treatment infrastructure at ENRMF relevant to the WNP. Storage and treatment vessels will be provided with instrumentation connected to alarms and trips to provide overfill protection. Consistent with the tank storage at PC WRP, acids and alkalis will be stored in storage tanks, drums or IBCs constructed from materials which are compatible with and resistant to the stored liquids. The storage tanks will be bunded to provide secondary containment with sufficient capacity to contain 110% of the content of the tanks and the WTF site surfacing comprises a concrete surface with sealed drainage to provide tertiary containment. The current DWTSA was constructed to a design and specification approved by the Environment Agency which includes a number of engineering control measures to minimise the potential for release of waste or contaminants including a lining system and a perimeter bund constructed around the DWTSA. The construction of the extension to the DWTSA, including the engineering control	

Table ERA 2 Assessment of nuisance and amenity risks associated with the waste neutralisation process and the increase in annual throughput to the stabilisation activity and solidification/stabilisation activity at ENRMF treatment facility

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						measures will be consistent with the current DWTSA. Full details of the construction of the extension of the DWTSA will be the subject of Construction Quality Assurance (CQA). An Accident Management Plan (AMP) is implemented currently at the site under the site EMS in order to prevent and limit the environmental consequences of accidents and incidents. Procedures are implemented at the site in respect of containment of spillages. The WNP and associated storage area are provided with a concrete surface with a sealed drainage system. The AMP includes procedures to record accidents, incidents and the findings of inspections and includes procedures to identify and respond to incidents and accidents. The AMP will be updated to incorporate the findings of the HAZOP study.	
Waste stored on site	Local human population gaining unauthorised access to the site	Direct physical contact	Low	Bodily injury	Low	Security measures are in place at the site to minimise the potential for unauthorised access including either a 1.8m high fence or a thorny hedge around the entire site boundary for the wider ENRMF site.	Very low
Flooding	Water resources	Run off or infiltration to ground	Low	Accumulation of debris and or contamination of	Low	The wider site including the WTF is located in Flood Zone 1 which is defined as land having	Low

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				roads, buildings, gardens or natural habitats downstream		less than a 1 in 1,000 annual probability of river or sea flooding. The WNP and associated storage area are provided with a concrete surface with a sealed drainage system.	
Accidental release of fuel	Water resources	Infiltration to ground	Medium	Contamination of water resources	Medium	All tanks used to store oil or diesel are double skinned or bunded and subject to a planned preventative maintenance programme. All associated pipework and valves are contained in the outer skin or bund. The volume of liquid in storage tanks is inspected regularly and recorded with the remaining capacity calculated and identified to relevant personnel to prevent overfilling. Procedures are implemented at the site for storage of fuel and liquids at the site and procedures are implemented for the refuelling of vehicles. Spillage kits are available and site personnel are trained in their use.	Low

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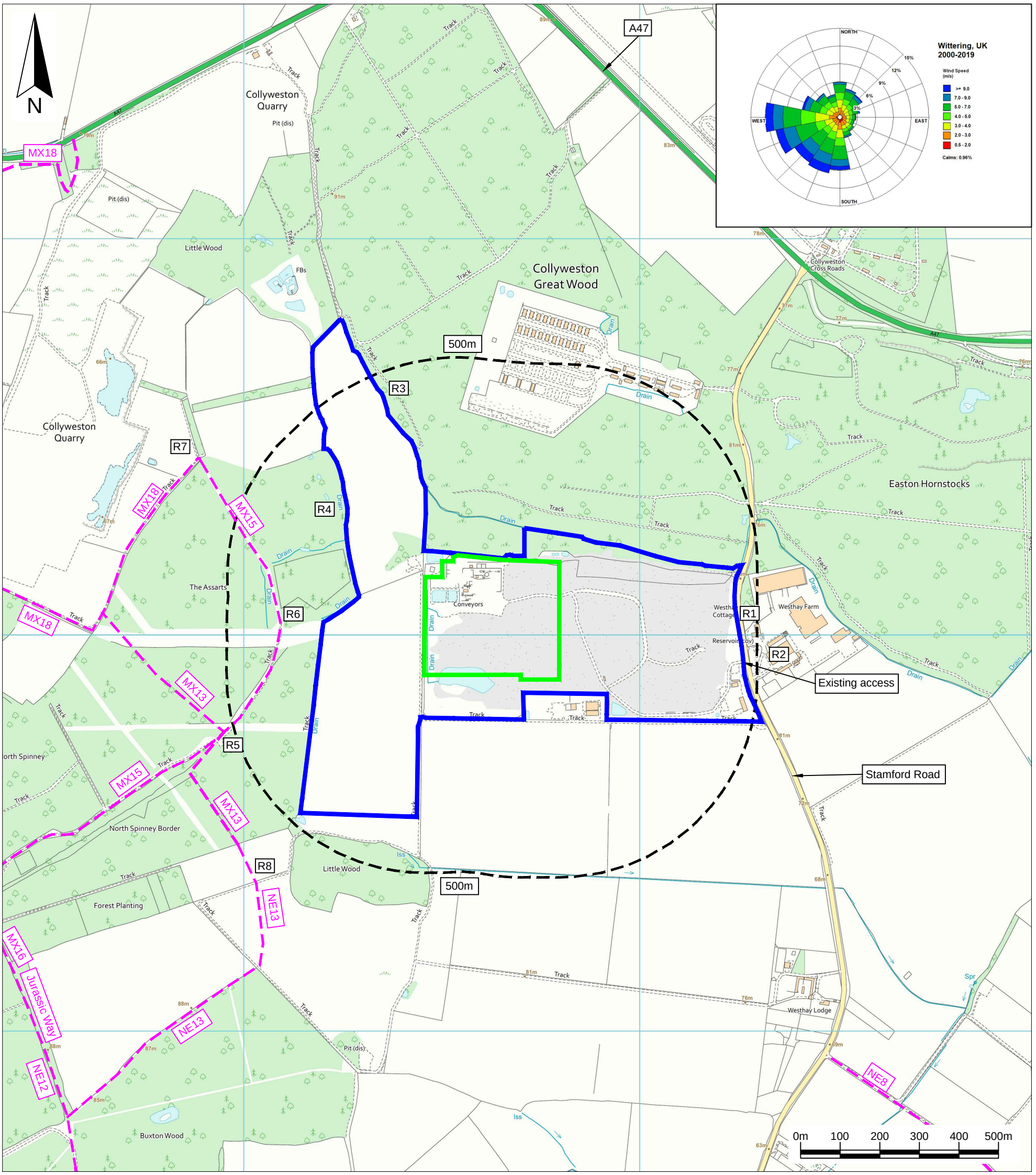
NATURE CONSERVATION AND HERITAGE SITES							
Waste operations may cause harm to and deterioration of nature conservation sites.	Protected sites - European sites and SSSIs Wildlife sites of regional or local importance and protected habitat	Air or run off	Medium	Harm to protected site through toxic contamination, nutrient enrichment, smothering, disturbance, predation, noise.	Low	Extensive surveys have been carried out to establish the nature of the ecological environment at and around the site in support of the DCO application proposed to be submitted in July 2021 for the proposed changes to the activities at ENRMF. An assessment of the potential ecological impacts which may be associated with the proposed development including the proposed changes at the WTF has been undertaken. The assessment outlines the potential impacts and summarises the proposed avoidance, reduction and mitigation measures to help minimise these potential effects. Implementation of these measures together with the measures described in the other relevant sections of this ERA will be protective also of the nature conservation sites.	Low
Waste operations may cause harm to and deterioration of heritage conservation sites.	Designated heritage sites – Scheduled Monuments and Listed Buildings	Direct physical contact	Very low	Movement of vehicles and the deposition of particulate matter	Very low	There are no heritage conservation sites within 500m of the WTF. It is considered that due to the distance between the site and local heritage conservation sites there is a negligible risk of the site operations having a negative impact on heritage conservation sites.	Negligible

FIGURES



Key / Notes

Approximate boundary of Environmental Permit number EPR/YP3138XB

Proposed boundary of Environmental Permit EPR/TP3430GW/V006

Approximately 500m distance from the Environmental Permit boundary

Public rights of way

R1 Receptor

Reference	Name or description	Type of receptor
R1	Properties at Westhay Cottages	Domestic dwellings
R2	Westhay Farm	Domestic dwellings
R3	Collyweston Great Wood and Easton Hornstocks NNR and SSSI	Sensitive habitat
R4	Fineshade Woods Local Wildlife Site	Sensitive habitat
R5	Footpath MX13	Leisure
R6	Footpath MX15	Leisure
R7	Footpath MX18	Leisure
R8	Footpath NE13	Leisure

Note:
Public rights of way taken from the Northamptonshire County Council Interactive Mapping http://maps.northamptonshire.gov.uk

Rev	Status	Drn	App	Chk	Date
	Final	KR	AW	LH	14/05/21

Site: EAST NORTHANTS RESOURCE MANAGEMENT FACILITY

Client: Augean South Ltd

Title: Environmental site setting

Figure ERA 1

Scale: 1:10,000@A3

Drawing Ref: AU/KCW/05-21/22418

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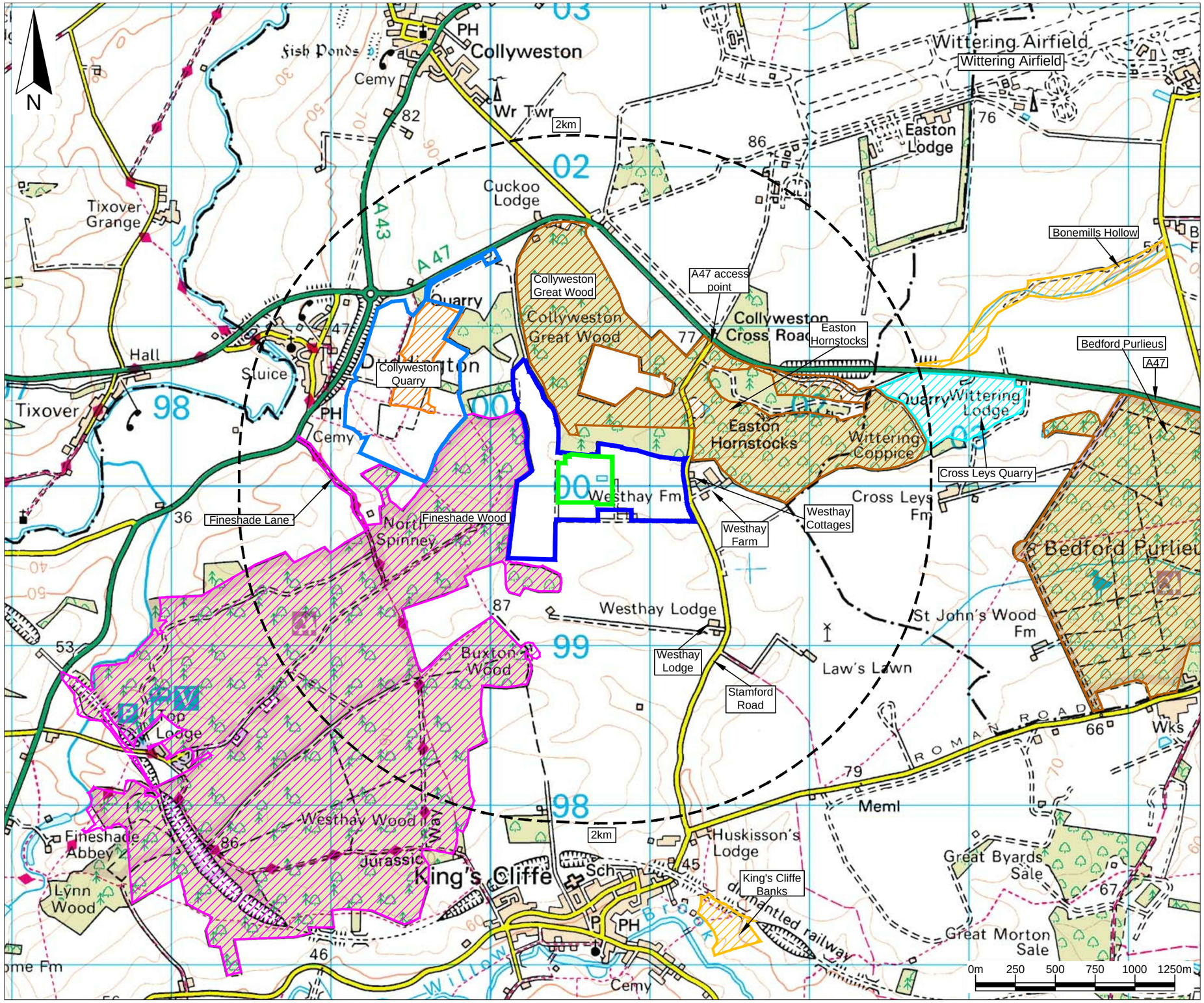

Key / Notes

- Approximate boundary of Environmental Permit number EPR/YP3138XB
- Proposed boundary of Environmental Permit EPR/TP3430GW/V006
- Approximate 2km distance from the boundary of the Environmental Permit boundary
- Approximate boundary of Collyweston Quarry
- Approximate location of a Site of Special Scientific Interest (SSSI)
- Approximate location of a Site of Special Scientific Interest (SSSI) and a National Nature Reserve (NNR)
- Approximate location of a Local Wildlife Site
- Approximate location of a Regionally Important Geological Site
- Approximate location of a Local Geological site

Rev	Status	Drn	App	Chk	Date
	Final	KR	AW	LH	14/05/21

Site: EAST NORTHANTS RESOURCE MANAGEMENT FACILITY

Client: Augean SOUTH LTD

Title: Designated sites in the vicinity of the waste treatment facility

Figure ERA 2

Scale: 1:25,000@A3

Drawing Ref: AU/KCW/05-21/22419

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