love every drop

anglianwater

Cambridge Waste Water Treatment Plant Relocation Project

Preliminary Environmental Information

February 2022

Contaminated Land and Minerals

Version	Date	Author(s)	Check	Approve	Comment
Draft	21/12/2021	J Southall	D Giordanelli		Working draft
P01	21/01/2022	J Southall	D Giordanelli	C Squires	Update to address review
P02	08/02/2022	J Southall	D Giordanelli	C Squires	Final update

Document reference: 100102041-MML-XX-00-RP-GT-0204019

Information class: Standard

Environmental information paper: Land Contamination and Mineral Safeguarding

Summary

A land contamination effect requires a contaminant source, pathway and receptor to be present. Preliminary Risk Assessment has only identified localised existing sources of contamination generally associated with limited areas of the existing Cambridge WWTP where shafts will be excavated and the existing railway crossings. As embedded mitigation, any localised existing contamination will be assessed as a requirement of the planning process to ensure that the proposed WWTP is suitable for its proposed use under the National Planning Policy Framework (NPPF) and Land Contamination Risk Management (LCRM) guidance.

New contamination sources and/ or pathways will not be introduced as the proposed development will include mitigation measures as set out in the CoCP.

Following mitigation there are unlikely to be significant land contamination effects.

Document purpose

The **Land Contamination and Minerals Safeguarding Areas** information paper describes potential changes to land quality and mineral resources associated with the construction and operation of the proposed waste water treatment plant (WWTP). The paper is based on the findings of the Preliminary Risk Assessment (PRA), which includes a review of historical and current land uses, pollution incidents and contaminant sources. The PRA includes a conceptual site model showing source-pathway-receptor pollutant linkages and a risk assessment. It covers the proposed WWTP and associated infrastructure, including that entering the existing Cambridge WWTP, and the Waterbeach pipeline. This paper is based on the Cambridgeshire and Peterborough Minerals and Waste Local Plan (July 2021) in terms of Minerals Safeguarding and also refers to the CoCP which includes a number of mitigation measures to ensure the construction and decommissioning works do not cause contamination of soils or impacts to human health. Impacts on water resources, including local abstractions, are covered in the **Environmental Information Paper: Water Resources**.

This following should also be referred to Environmental Information Papers for **Water Resources, Health** and **Community,** and the outline **Construction Code of Practice (CoCP)**.

Land contamination overview

The Proposed Development is located in a semi-rural location to the north-east of Cambridge. We considered the Proposed Development in the context of existing information available. This has allowed us to:

- Identify if any potentially significant pollutant linkages are present which would lead to an adverse effect. A pollution linkage is only present where there is a contamination source and a pathway for contamination to a sensitive receptor (**Figure 1**);
- undertake a preliminary risk assessment to identify any significant risks; and
- identify mitigation measures required.

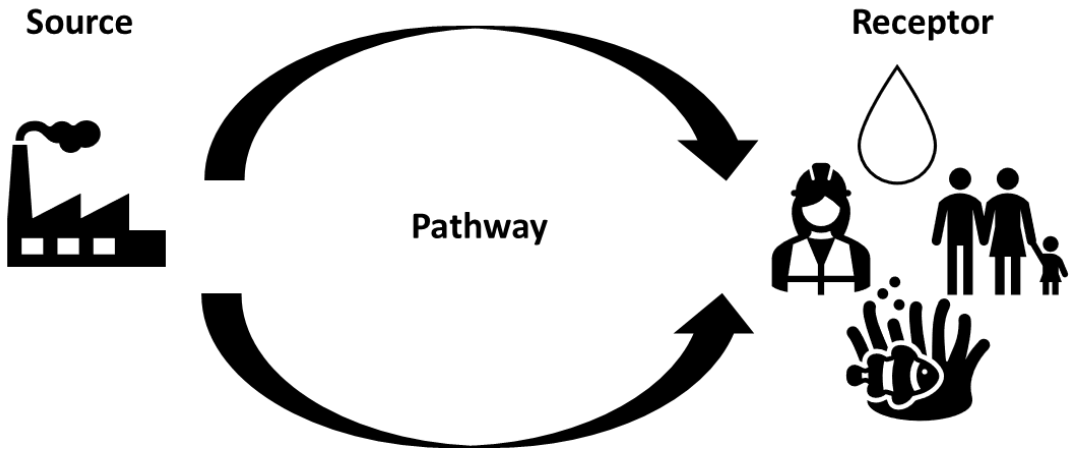

Figure 1: Source pathway receptor concept – without all three there is no opportunity for an impact and subsequent effect

Existing land contamination conditions

Sources

The potential sources of contamination are very limited as the majority of current and historical land use is agricultural. The main source is the existing Cambridge WWTP where the transfer pipeline will be located. The transfer pipeline will be constructed and installed at depth and therefore unlikely to interact with any made ground, however the shaft sites will extend to surface. Contamination sources relevant to the development will be limited to areas of below ground works on the existing Cambridge WWTP. The trainline represents a potential source of contamination and is located adjacent to the existing Cambridge WWTP. The Waterbeach transfer pipeline will connect into the existing Waterbeach WRC, however this is a much smaller potential source.

There are four historical landfills within 500m of the study area with Milton landfill located 500m from the existing Cambridge WWTP. These are considered to be at such a distance from the Proposed Development that a significant pathway is unlikely to be present.

No significant contamination is anticipated on Proposed Development with the potential exception of the existing Cambridge WWTP where made ground from historical development and use as a WWTP may be identified in localised areas during construction.

Pathways

The potential pathways for contaminants to reach the identified receptors at the Proposed Development comprise human uptake pathways including direct contact with soils and groundwater and inhalation of dust created during construction. The pathways to environmental receptors comprise production and vertical/ lateral migration of leachates, man made pathways including foundations and pipeline routes, spills and leaks during construction and surface run off. There is also a direct contact pathway between soils and construction materials used during the works.

Receptors

The main receptors for contamination are people during construction and operation of the proposed WWTP, water resources (groundwater and surface waters) and the built environment (foundations and utilities). Impacts on water resources including local abstractions are covered in the Water information paper.

Impacts to people and built environment will be mitigated through measures set out in the CoCP and the CEMP. The contaminated land risk management (CLRM) process will be followed as embedded mitigation which will include review of ground investigation data, updated risk assessment and a remediation strategy (if required) for approval by the EA and LPA.

Figure 2 shows the main contamination sources identified.

Existing Minerals Safeguarding Ares (MSAs)

The Cambridgeshire and Peterborough Minerals and Waste Local Plan (July 2021) identifies objectives including ensuring a steady and adequate supply of minerals to support growth whilst ensuring the best use of materials and safeguarding productive land. The MSAs required to maintain a stock of sand and gravel reserves (a landbank) equivalent to at least 7 years supply are set out in the plan. The **Figure 2** shows the location of the sand and gravel MSAs in relation to the development proposals.

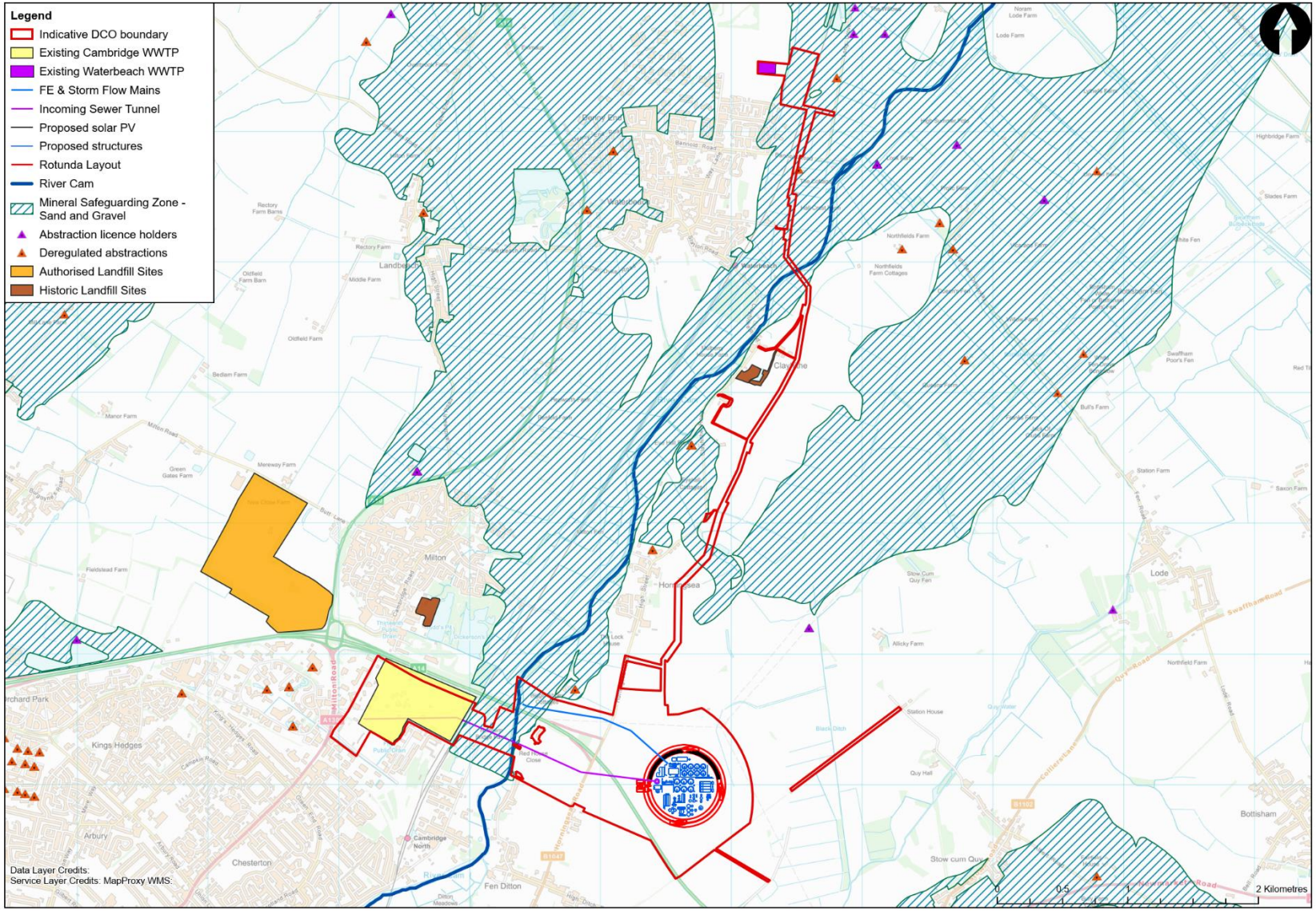

Figure 2: Land quality and mineral safeguarding areas overview

How will the construction of the proposed relocation of Cambridge Waste Water Treatment Plant change impacts from land contamination?

Construction works have the potential to impact identified receptors of land contamination including construction workers and surrounding land users as a result of dust creation, direct contact with soils, spills and leaks from fuel storage areas and creation of preferential pathways to sensitive aquifers. However, the majority of these impacts, with the exception of spills and leaks, will only be possible in contaminant source areas which are limited to the existing Cambridge WWTP area.

The impacts described above are temporary impacts and are dependent on the construction activities being undertaken. These impacts can all be mitigated using standard mitigation measures as set out in the CoCP.

There may be a slight positive impact if remediation is required at the existing Cambridge WWTP where contaminated material is removed or treated during construction of shafts.

How will the construction of the Cambridge Waste Water Treatment Plant change MSAs?

The areas of Proposed Development affected by the MSAs are limited to a section of the transfer pipeline from the River Cam to the existing Cambridge WWTP and the northern extent of the Waterbeach transfer pipeline, with a small area to the north of Horningsea.

The footprint of the construction in the MSAs is small in comparison to the MSA area and, the transfer tunnel route will likely be constructed by horizontal directional drilling (HDD) methods in these areas. The HDD will be constructed take place beneath the sand and gravel deposits. As significant above ground infrastructure is not proposed in these areas the mineral deposits will not be sterilised for future use. There may be localised removal of mineral deposits if HDD shaft locations are present in the MSA areas however this is not considered to represent a significant impact.

How will the operation of the proposed relocation of Cambridge Waste Water Treatment Plant change impacts from land contamination?

The operation of the proposed WWTP has the potential to change land contamination impacts on identified receptors through leaks and spills from equipment, migration of contaminants through creation of preferential pathways (pipeline routes) and direct contact with soils by operational staff.

The likelihood of these impacts is considered low as the primary mitigation measures will ensure that the design of the operational site includes appropriate bunding of tanks and use of hardstanding to break any significant pathways for contamination. Any pre-existing contamination would be adequately managed through the contaminated land regime (LCRM) and implemented as tertiary mitigation to ensure that the operational area is suitable for use.

How will the operation of the proposed relocation of Cambridge Waste Water Treatment Plant change MSAs?

The operation of the proposed WWTP will not change the MSAs.

Information on the potential impacts of accidental spills and leaks is discussed within the **Environmental Information Paper: Water Resources.**

How will we manage our Proposed Development to avoid, reduce or offset adverse changes?

The **PEI Introductory Paper** sets out how the Development Consent Order (DCO) would secure mitigation in both construction and operation. In relation to construction this includes the use of a **Code of Construction Practice (COCP)** and subsequent plans that the appointed contractors (s) would be required to prepare and implement. These provide a consistent approach to the management of construction activities.

Furthermore, our activities would be subject to specific regulations for some activities in construction as well as the Environmental Permits required in operation.

The assessment and possibly the remediation of land contamination will be a requirement of the planning process to ensure that the Proposed Development is suitable for its proposed use under the National Planning Policy Framework (NPPF). The Land Contamination Risk Management (LCRM) guidance details the steps that will need to be followed as the Proposed Development is progressed through the development and planning process. These steps include the production of a Preliminary Risk Assessment (PRA), which has been undertaken, and completion of an appropriate ground investigation, tiered stages of risk assessments together with an assessment of unacceptable pollutant linkages. Where such linkages are found then a remediation options appraisal and strategy will be produced.

Any remediation works required to manage contamination risk will be agreed with the LPA and Environment Agency. Remediation will need to be completed and verified before completion of the project.

Risks during construction will also be mitigated through use of the **CoCP** (the outline CoCP is included as part of the PEI) which details the measures that will need to be taken to ensure that construction works themselves do not introduce new contamination into the construction site; and also how to manage pre-existing contamination that could be encountered. Together the CoCP and LRCM process comprise embedded mitigation measures that deal with temporary and permanent effects respectively.

The mitigation measures regarding the MSAs will comprise consideration of appropriate construction techniques as part of the design to minimise excavation of mineral deposits, such as the use of HDD where appropriate.

Measures to prevent a deterioration in water quality, including groundwater, are detailed within the **Environmental Information Paper: Water Resources**.

What might the likely significant effects to land contamination and minerals be in relation to the proposed relocation of Cambridge Waste Water Treatment Plant?

Following mitigation there are unlikely to be significant land contamination effects.

Following mitigation there are unlikely to be significant MSA effects unless open cut techniques are required in the MSA areas. In this case the area affected would likely be a small percentage of the overall MSA. Accounting for the location it is also likely that these areas would not be exploited for extraction.

References

Environment Agency, Land Contamination Risk Management (LCRM) guidance, 2021

Cambridgeshire and Peterborough Minerals and Waste Local Plan (July 2021).