



**Contaminated Land
Review Report**

**Massingham PSD
Hillington
King's Lynn**

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Written by

Fabia Pollard
Scientific Officer

Checked by

Tammy Rhodes
Technical Support Officer

Ashley Wheeler
Senior Environmental Quality Officer

Authorised by

Dave Robson
Environmental Health Manager

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Borough Council of King's Lynn and West Norfolk
King's Court
Chapel Street
King's Lynn
Norfolk
PE30 1EX

Tel: 01553 616200

Email: environmental.quality@west-norfolk.gov.uk

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Executive Summary

The site in Little Massingham was inspected in 2024. This report should be read in conjunction with the March 2024 Contaminated Land Inspection report. The Inspection report found that soil contamination was identified and it was considered that there is an active pathway to groundwater and surface water. Therefore, it is considered that there is a MODERATE/LOW risk to the Principal Aquifer and surface water receptors.

Hydrocarbon contamination was noted in the groundwater beneath the site which is within a drinking water Source Protection Zone. However the boreholes immediately adjacent to the site are backfilled and will not be returned to public supply. Contamination to human health ingestion via potable water is considered to be MODERATE/LOW.

The contaminated land statutory guidance allows for postponing determination 'if the land owner or some other person undertakes to deal with the problem without determination, and the authority is satisfied that the remediation will happen to an appropriate standard and timescale.'

As contamination was identified in the groundwater beneath the site and the site is a military site it could potentially be classified as a 'Special Site'. This indicates that the Environment Agency, would be the regulating authority. The Environment Agency are working with Defence Infrastructure Organisation (DIO) regarding protection of controlled waters and their advice was sought before any decision was made on whether the site should be determined as Contaminated Land.

It was decided in 2024 to postpone determination as DIO indicated that they would be commissioning further works to address the Environment Agency's comments on the land quality assessments. The site has been kept under regular review, and both Anglian Water and the Environment Agency have been consulted on their view of the risks.

As the Authority is satisfied that the site owners are actively cooperating to address the risks identified on site, determination of the site has been further postponed to allow works to be completed. This follows section 5.15 of the Contaminated Land Statutory Guidance. The next review will be in March 2027. The report will also be reviewed if site conditions change, or if there is any new evidence of pollution or harm from the site.

1 Summary Site Information

The Borough Council of King's Lynn and West Norfolk (BCKLWN) has a duty to inspect its district for potentially contaminated land under Part 2A of the Environmental Protection Act 1990. The Borough Council's Part 2A inspection strategy identified Massingham Petroleum Storage Depot (the site) as being of Very High priority due to the presence of large scale petroleum storage and potentially sensitive receptors. If the local authority identifies land where it considers there is a reasonable possibility that significant contamination exists, it should inspect the land to obtain sufficient information to decide whether it is contaminated land.

The site has been subject to a number of investigations which are set out in the 2024 Contaminated Land Inspection Report.

This report details a review of information and written statement of conclusions on the current risk to human health, property, surface water, groundwater and the wider environment in line with section 4.3 and 5.3 of the borough council's Contaminated Land Inspection Strategy.

The site is a Ministry of Defence site and therefore could potentially be defined as a 'Special Site' as defined by The Contaminated Land Regulations 2006 2.1(g)(i). The site was also considered a potential special site and priority for inspection as there was a possibility that the land could be affecting controlled waters, and particularly waters that are intended to be used for the supply of drinking water. The Environment Agency are the appropriate agency for special sites and have been consulted on the investigation.

The contaminated land statutory guidance (5.5) states that the local authority has the sole responsibility for determining whether any land appears to be contaminated land. However, in making such decisions the authority may rely on information or advice provided by another body such as the Environment Agency (EA). The EA are providing ongoing advice to both the site owner and the borough council's environmental quality team.

The statutory guidance (5.15) allows for postponing determination 'if the land owner or some other person undertakes to deal with the problem without determination, and the authority is satisfied that the remediation will happen to an appropriate standard and timescale. This inspection report also sets out the action taken by the landowner.

2 Location and background

Location

The site's location is shown in Figure 1. The grid reference for the centre of the site is 577299, 325386. The nearest postcode is PE31 6DS.

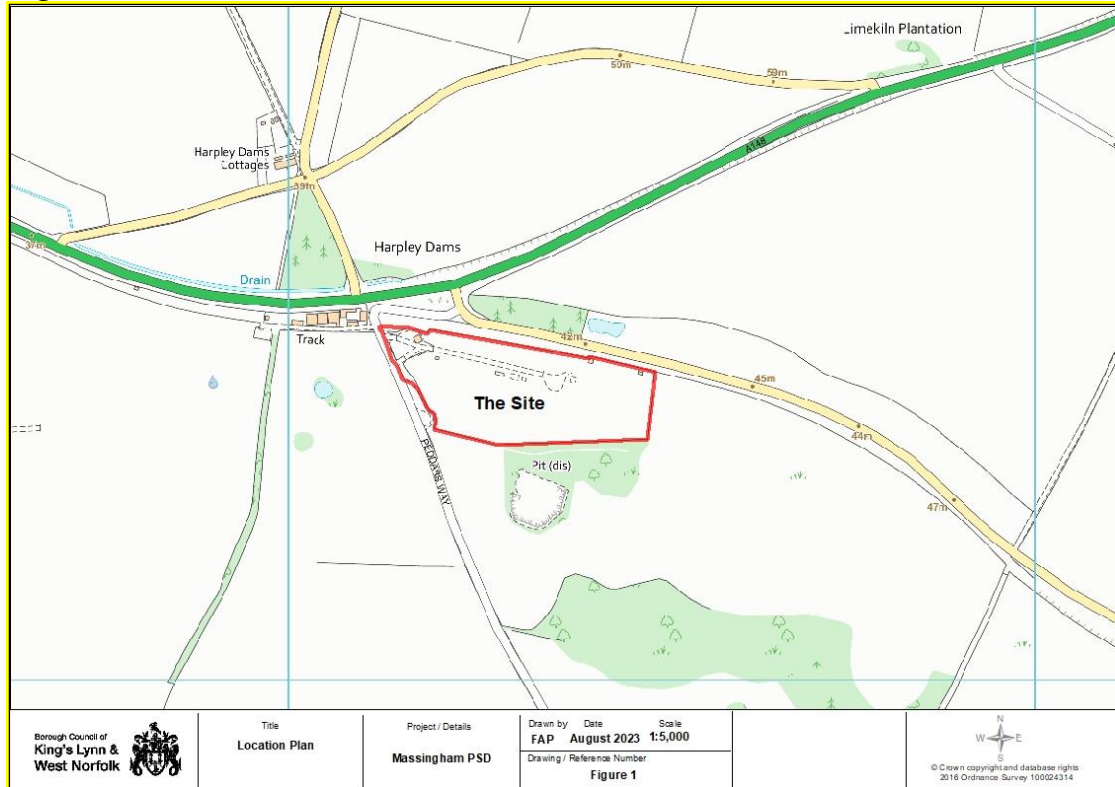
Previous Site Usage

The site was historically a petroleum storage depot operated by the ministry of Defence between 1939 and 1994. The site stored Kerosene and engine fuel.

Present Site Usage

The petroleum storage depot has been mothballed and is not operational at this time. The site plan below shows the site location.

Figure 1: Site location



Environmental Setting

The site's environmental setting is described in the 2024 Contaminated Land Inspection Report.

Site Walkover

The area was visited in 2012 and observations made from the publicly accessible boundary. The publicly accessible areas were revisited in 2023, and no significant changes were noted to the site or surrounding area. No further site visits have been made.

Environment Agency consultation

The Environment Agency have described the site as a 'potential special site'. Work undertaken by DIO has been on a voluntary basis under the process lead by BCKLWN in line with the Part 2A Inspection Strategy.

The EA, advised previously that there appeared to be no immediate risk to controlled waters receptors, although there were various uncertainties that needed addressing. In June 2025 the Environment Agency confirmed that they do not have any further relevant information on the site.

Anglian Water consultation

In email correspondence Anglian Water (AW) confirmed the following with regards to the adjacent Harpley borehole, Licence No. 6/33/64/25, NGR: TF769254.

- Anglian Water Services boreholes immediately adjacent to this site are backfilled.
- Any return to supply plans would only be considered after careful review of groundwater contaminant risk (including the outcomes of the Part 2A investigation).
- A return to supply is not planned in the short, or medium term.

The nearest operational groundwater abstraction point is reported to be Harpley Dams (Sands) Licence No. AN/033/0064/003, NGR: TF760257, which abstracts from the Sandringham Sands aquifer. The aquifer at this location is reported to be overlain by the Upper Chalk and Gault Clay formations.

Anglian Water have confirmed by email in June 2025 that there are no changes from the information previously provided. However, they repeated the concern that there is a potential risk to the Hillington Chalk groundwater source via the watercourse running alongside the A148. The direction of flow is from the site towards the public water supply boreholes, and the watercourse could therefore act as a pathway for contaminants.

The surface water pathway, and the pathway via the chalk aquifer is acknowledged in the conceptual site model and would be considered further if evidence suggests that it is active and significant.

Defence Infrastructure Organisation consultation

In September 2022 the Environment Agency reported that Defence Infrastructure Organisation were currently working through the EA review report and are commissioning further works to address the comments. DIO confirmed that the further work was being procured.

DIO confirmed in June 2025 that they are working with a consultant to scope up next stages of Phase 2 site investigation works. This is following a borehole condition survey that was recently undertaken. DIO confirmed in August 2025 that they will arrange meetings to with the environmental quality team and the Environment Agency to discuss the scope and progress of the investigation. The Environment Agency have confirmed that they have no comments at this stage.

4 Review of Contaminated Land Risk Assessment

Identified Hazards

The earlier DIO Land Quality Assessment identified five areas of potential concern:

1. Hydrocarbon contamination in soil above the commercial/industrial land-use assessment criteria for human health;
2. Elevated hydrocarbon vapours in soil;
3. Hydrocarbon plumes, with the potential to migrate. Some substances above the drinking water or environmental quality standards;
4. Ground gas specifically carbon dioxide and methane, and 'lead graves' where hydrocarbon sludge and potentially tetraethyl lead had been deposited.

Conceptual site model

The conceptual site model (Table 3) shows the sources, pathways and receptors identified and the subsequent risk classification based on current information and an assumption that the probability of a pollution event is currently low.

5 Review Conclusions

Plausible source pathway receptor linkages were identified and a VERY LOW risk from contamination to human health via direct contact and MODERATE/LOW risk for ingestion via potable water. A VERY LOW risk was assigned to property, No risk was identified to the wider environment and a MODERATE/LOW risk was identified to surface water and groundwater based on the assumption that the probability of a pollution event is currently low.

DIO have confirmed that they have completed a borehole condition survey and are working on the scope of the next stages of Phase 2 site investigation works, which will be carried out in consultation with the borough council Environmental Quality Team and the Environment Agency, so determination of the site is postponed to allow the works to be completed. This follows section 5.15 of the Contaminated Land Statutory Guidance.

Recommendation & Next Review Date

The statutory guidance recommends that the local authority should keep the status of the land under review and take reasonable measures to ensure that the postponement of determination does not create conditions under which significant risks could go unaddressed in the future.

As work is ongoing, the site will continue to be kept under review. The next review date will be March 2027. However, contact will be made with the DIO and the Environment Agency to check on progress of the further work and to confirm if site conditions have changed or if any new sources, receptors or exposure pathways have been introduced.

We will review sooner if site conditions change, if there is a change of site use, or if there are any reports of pollution or harm from the site.

Table 3: Conceptual site model

Source	Pathway	Receptor	Probability	Hazard	Risk
Heavy metals, polyaromatic hydrocarbons petroleum hydrocarbons	Direct contact, dust inhalation.	Humans (adults and children)	Unlikely	Low	Very Low Risk
	Ingestion (if AWS borehole is inactive)	Humans (adults and children)	Low	Medium	Moderate/Low Risk
	Direct contact	Property (buildings & animals)	Unlikely	Low	Very Low Risk
	Direct contact	Environment*	N/A	N/A	N/A
	Direct contact	Controlled water and (surface and groundwater)	Low	Medium	Moderate/Low Risk

Very High Risk - There is a high probability that severe harm could arise to a designated receptor from an identified hazard, OR, there is evidence that severe harm to a designated receptor is currently happening

High Risk - Harm is likely to arise to a designated receptor from an identified hazard.

Moderate risk - It's possible that harm could arise to a designated receptor from an identified hazard. However, it is relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely that harm would be relatively mild.

Moderate/Low risk - It is possible that harm could arise to a designated receptor from an identified hazard. However, if any harm were to occur it is more likely that harm would be relatively mild.

Low risk - It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild.

Very low risk - There is a low possibility that harm could arise to a receptor. In the event of such harm being realised it is unlikely to be severe.

*Ecological systems as set out in Table 1 of the contaminated land statutory guidance

