

Norwich Western Link

Environmental Statement Chapter 13: Geology and Soils

Appendix 13.1: Interpretative Environmental Desk Study Report

Sub Appendix H: Unexploded Ordnance Assessment Part 2 of 3

Author: WSP

Document Reference: 3.13.01h

Version Number: 00

Date: March 2024



Norwich Western Link Chapter 13: Geology and Soils Appendix 13.1 Sub Appendix H Part 2 of 3 Document Reference: 3.13.01h

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1 Introduction

- 1.1.1 This Preliminary Assessment is designed to inform environmental and construction professionals of the potential threat of military related explosives and/or ordnance on, or in, the vicinity of the Study Site.
- 1.1.2 During WWII, the Study Site was situated within St Faiths & Aylsham Rural District, which recorded one High Explosive (HE) Bomb strike per 100 hectares; a very low level of bombing.
- 1.1.3 Luftwaffe aerial reconnaissance photography associated with the Site identified an airfield (875m south-west) as a primary bombing target.
- 1.1.4 Further research identified this airfield as Royal Air Force (RAF) Attlebridge (located 920m south-west) which was active between 1941-1956. Its primary purpose was originally as a satellite station, before then being extended to accommodate RAF and American Air Force heavy bomber groups and their training.
- 1.1.5 Air Raid Precaution (ARP) records did not identify any HE bomb strikes within the Site, however one was located 605m south-west of the Site boundary.
- 1.1.6 Official bomb damage was not available. In addition, an analysis of post-war mapping and further research did not identify any evidence of potential bomb damage on-site or within the vicinity.
- 1.1.7 Despite an airfield being located within the area during WWII, there is no evidence to suggest that further investigation into UXO is warranted.
- 1.1.8 We have included a summary of key information shown in this document in an accessible format in section 1.1.1. However, some users may not be able to access all technical details that are included in the rest of this document. If you require this document in a more accessible format, please contact norwichwesternlink@norfolk.gov.uk



The Study Site is described as "Site at 613309, 313834", and it is centred on National Grid Reference 613130, 313940.

THREAT POTENTIAL AND RECOMMENDATIONS

The potential for a UXO hazard to occur, and more specifically, the potential for unexploded WWI and WWII ordnance to exist at this site is assessed as being UNLIKELY (*Figure 2*).

In accordance with *CIRIA* C681 Chapter 5 on managing UXO risks, *6 Alpha* concludes that **NO FURTHER ACTION** is required to address the UXO risk at this Study Site. Should you have any queries, please contact *Envirocheck*.

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REPORT SUMMARY

During WWII, the Study Site was situated within *St. Faiths & Aylsham Rural District* and *Forehoe & Henstead Rural District*, recording one and two High Explosive (HE) bomb strikes per 100 hectares respectively; both very low levels of bombing.

Luftwaffe aerial reconnaissance photography associated with the Site did not identify any primary bombing targets located on-site or within 1,000m of it.

Air Raid Precaution (ARP) records did not identify any HE bomb strikes within the Site. However, two HE bomb strikes were identified 825m east-southeast and 965m west.

Official bomb damage mapping was not available. Further research of historical records did not identify any evidence of bomb damage located within 1,000m.

As there was no bombing or bomb damage recorded in the Site's vicinity during WWII, there is no evidence to suggest that further investigation into UXO is warranted.

USING THIS REPORT

This Preliminary Assessment is designed to inform environmental and construction professionals of the potential threat of military related explosives and/or ordnance on, or in, the vicinity of the Study Site.

This assessment is designed to be employed as a site-screening tool to meet with the requirement of Phase One of the *CIRIA UXO Risk Management Framework*; there are two broad prospective outcomes; either the threat level requires a detailed threat & risk assessment; or no further action is required. In the former instance we can provide a report within 10 working days (or more quickly upon application).

Two figures accompany the report, the *Second World War* (WWII) High Explosive (HE) Bomb Density and the final Probability of UXO Encounter. The purpose of this approach is to demonstrate that whilst bomb density statistics give an indication for WWII bombing, they should not be relied upon exclusively to generate a holistic assessment.

For further information, please contact Envirocheck:	Telephone: +44 (0)844 844 9952
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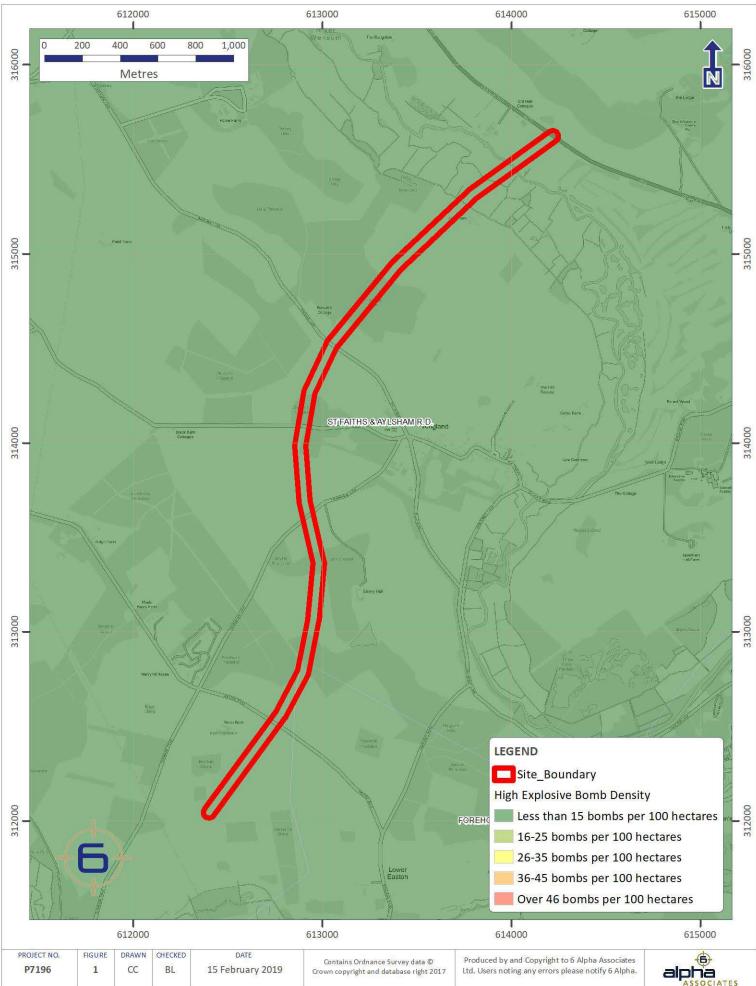
Data Findings			
Threat Source	Detail		
(within 1,000m)	Identified	Comments	
Airfields/Military Facilities	×	None recorded within 1,000m.	
Ordnance Manufacture/Storage	×	None recorded within 1,000m.	
WWII Decoy Bombing Sites	×	None recorded within 1,000m.	
WWII Defensive Features	×	None recorded within 1,000m.	
WWII <i>Luftwaffe</i> Designated Bombing Targets	×	<i>Luftwaffe</i> aerial photography did not identify any primary bombing targets within 1,000m.	
WWII Bomb Strikes Within Site Boundary	ARP records did not identify any HE bomb strikes on-site.		
WWII Bomb Strikes Near Site Boundary	v	ARP records identified two HE bombs (825m east-southeast and 965m west).	
WWII Bomb Damage	×	Official bomb damage mapping was not available.	
Abandoned Bomb Register	×	The official abandoned bomb list did not identify any abandoned bombs within 1,000m.	
Potential Threat Sources	v	Further research has not uncovered any potential UXO threats associated with the Study Site.	
WWII Bombing Density Per 100 Hectares	~	<i>St. Faiths & Aylsham</i> and <i>Forehoe & Henstead Rural Districts,</i> recording one & two HE bomb strikes per 100 hectares respectively.	
Important Notes			

- 1. The term 'Preliminary UXO Threat Assessment' has been used to describe this report, to fall in line with the *CIRIA* C681 guidelines. Whilst the term 'Risk' can be justifiably used at this stage, the reader should note that the 'Consequence' function of 'Risk' is not considered. Should it be required, this would be addressed in the 'Detailed UXO Threat & Risk Assessment' (Stages 2 and 3).
- 2. This report is accurate and up to date at the time of writing.
- 3. The assessment levels have been generated from historical data and third party sources. Where possible 6 Alpha have sought to verify the accuracy of such data, but cannot be held accountable for inherent errors that may be in third party data sets (e.g. National Archives or library sources).
- 4. 6 Alpha have exercised all reasonable care, skill and due diligence in producing this service.
- 5. Whilst every effort has been used to identify all potential UXO/explosive threats, there were a number of private facilities, which may not have released privately recorded information concerning UXO/explosive threats into the public domain. It is therefore possible that some of the aforementioned sites may not be included within the database.



SITE AT 613309,313834



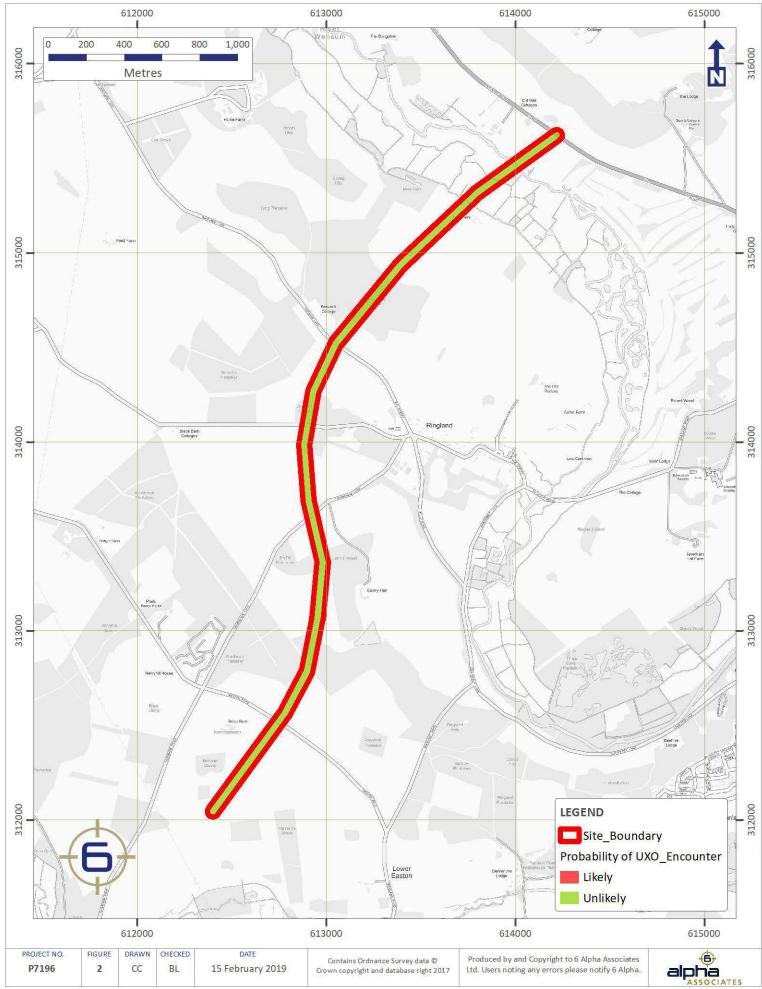




SITE AT 613309,313834

Probability of UXO Encounter





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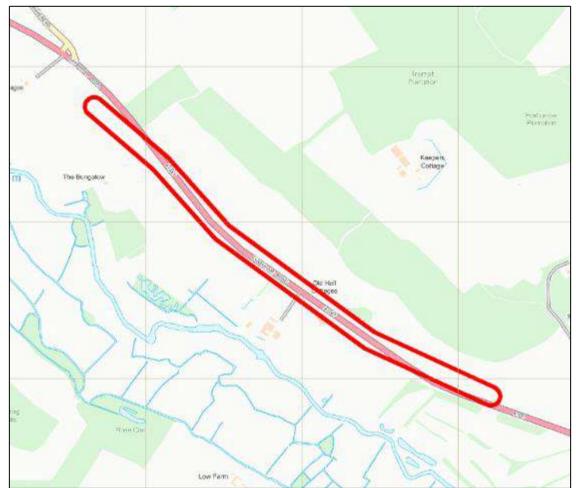




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PRELIMINARY UNEXPLODED ORDNANCE (UXO) THREAT ASSESSMENT

Meeting the requirements of *CIRIA* C681 'Unexploded Ordnance (UXO) – A guide for the Construction Industry' Risk Management Framework



6 ALPHA PROJECT NUMBER	P7199	ORIGINATOR	B. Wilkins
LANDMARK ORDER NUMBER	194263576_1	REVIEWED BY	C. Cole (18 th February 2019)
CLIENT REFERENCE	NWL Line 5	RELEASED BY	R. Griffiths (18 th February 2019)
SITE	Site at 613969, 315908		
RECOMMENDATION	No further action is required to address the UXO risk at this Site		



The Study Site is described as "Site at 613969, 315908", and it is centred on National Grid Reference 613940, 315860.

THREAT POTENTIAL AND RECOMMENDATIONS

The potential for a UXO hazard to occur, and more specifically, the potential for unexploded WWI and WWII ordnance to exist at this site is assessed as being UNLIKELY (*Figure 2*).

In accordance with *CIRIA* C681 Chapter 5 on managing UXO risks, *6 Alpha* concludes that **NO FURTHER ACTION** is required to address the UXO risk at this Study Site. Should you have any queries, please contact *Envirocheck*.

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REPORT SUMMARY

During WWII, the Study Site was situated within *St Faiths & Aylsham Rural District*, which recorded one HE bomb strike per 100 hectares; a very low level of bombing.

Luftwaffe aerial reconnaissance photography associated with the Site did not identify any primary bombing targets located on-site or within 1,000m.

Neither *Air Raid Precaution* (ARP) records nor official bomb damage mapping associated with the Site were available. In addition, an analysis of post-war mapping and further research of historical records did not identify any evidence of bombing nor bomb damage within 1,000m of the Site.

As there was no bombing or bomb damage recorded within the Site's vicinity during WWII, there is no evidence to suggest that further investigation into UXO is warranted.

USING THIS REPORT

This Preliminary Assessment is designed to inform environmental and construction professionals of the potential threat of military related explosives and/or ordnance on, or in, the vicinity of the Study Site.

This assessment is designed to be employed as a site-screening tool to meet with the requirement of Phase One of the *CIRIA UXO Risk Management Framework*; there are two broad prospective outcomes; either the threat level requires a detailed threat & risk assessment; or no further action is required. In the former instance we can provide a report within 10 working days (or more quickly upon application).

Two figures accompany the report, the *Second World War* (WWII) High Explosive (HE) Bomb Density and the final Probability of UXO Encounter. The purpose of this approach is to demonstrate that whilst bomb density statistics give an indication for WWII bombing, they should not be relied upon exclusively to generate a holistic assessment.

For further information, please contact *Envirocheck*:Telephone: +44 (0)844 844 9952Website: http://www.envirocheck.co.ukEmail: customerservice@envirocheck.co.uk

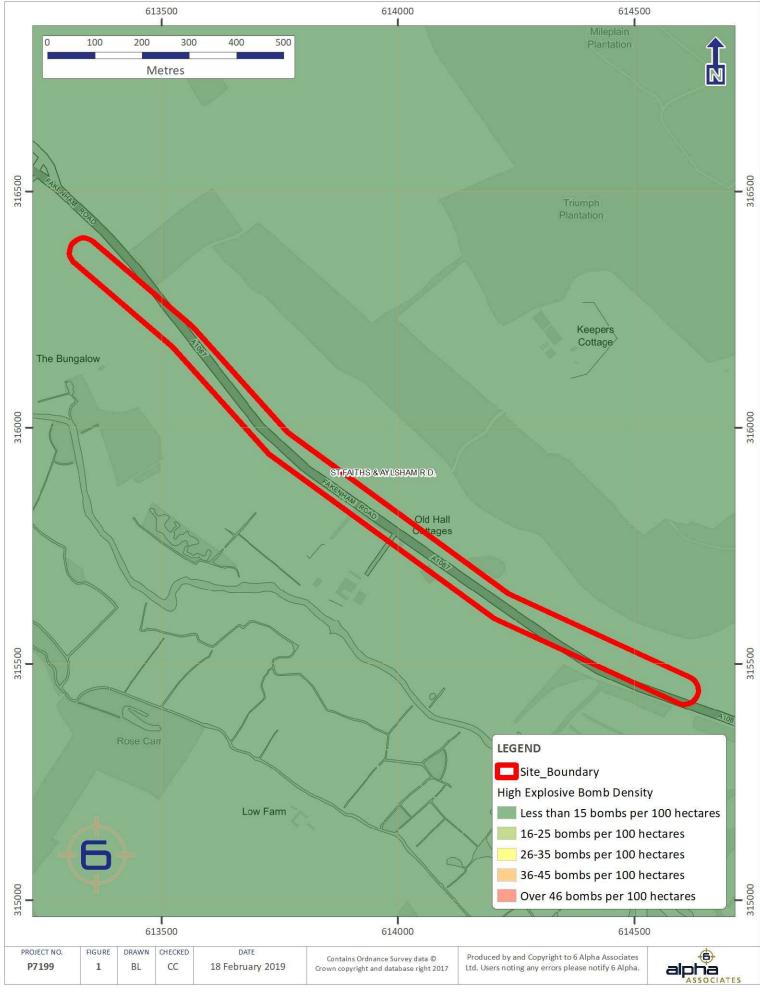


DATA FINDINGS			
Threat Source	Detail		
(within 1,000m)	Identified	Comments	
Airfields/Military Facilities	×	None recorded within 1,000m.	
Ordnance Manufacture/Storage	×	None recorded within 1,000m.	
WWII Decoy Bombing Sites	×	None recorded within 1,000m.	
WWII Defensive Features	×	None recorded within 1,000m.	
WWII <i>Luftwaffe</i> Designated Bombing Targets	×	<i>Luftwaffe</i> aerial photography did not identify any primary bombing targets located on-site or within 1,000m.	
WWII Bomb Strikes Within Site Boundary	ARP records were not available.		
WWII Bomb Strikes Near Site Boundary	×	ARP records were not available.	
WWII Bomb Damage	X	Official bomb damage mapping was not available.	
Abandoned Bomb Register	X	The official abandoned bomb list did not identify any abandoned bombs located on-site or within 1,000m.	
Potential Threat Sources	×	Further research has not uncovered any potential UXO thre associated with the Study Site.	
WWII Bombing Density Per 100 Hectares	V	The Site was located within <i>St Faiths & Aylsham Rural District</i> , which recorded one HE bomb strike per 100 hectares.	
IMPORTANT NOTES			

- 1. The term 'Preliminary UXO Threat Assessment' has been used to describe this report, to fall in line with the *CIRIA* C681 guidelines. Whilst the term 'Risk' can be justifiably used at this stage, the reader should note that the 'Consequence' function of 'Risk' is not considered. Should it be required, this would be addressed in the 'Detailed UXO Threat & Risk Assessment' (Stages 2 and 3).
- 2. This report is accurate and up to date at the time of writing.
- 3. The assessment levels have been generated from historical data and third party sources. Where possible *6 Alpha* have sought to verify the accuracy of such data, but cannot be held accountable for inherent errors that may be in third party data sets (e.g. *National Archives* or library sources).
- 4. 6 Alpha have exercised all reasonable care, skill and due diligence in producing this service.
- 5. Whilst every effort has been used to identify all potential UXO/explosive threats, there were a number of private facilities, which may not have released privately recorded information concerning UXO/explosive threats into the public domain. It is therefore possible that some of the aforementioned sites may not be included within the database.

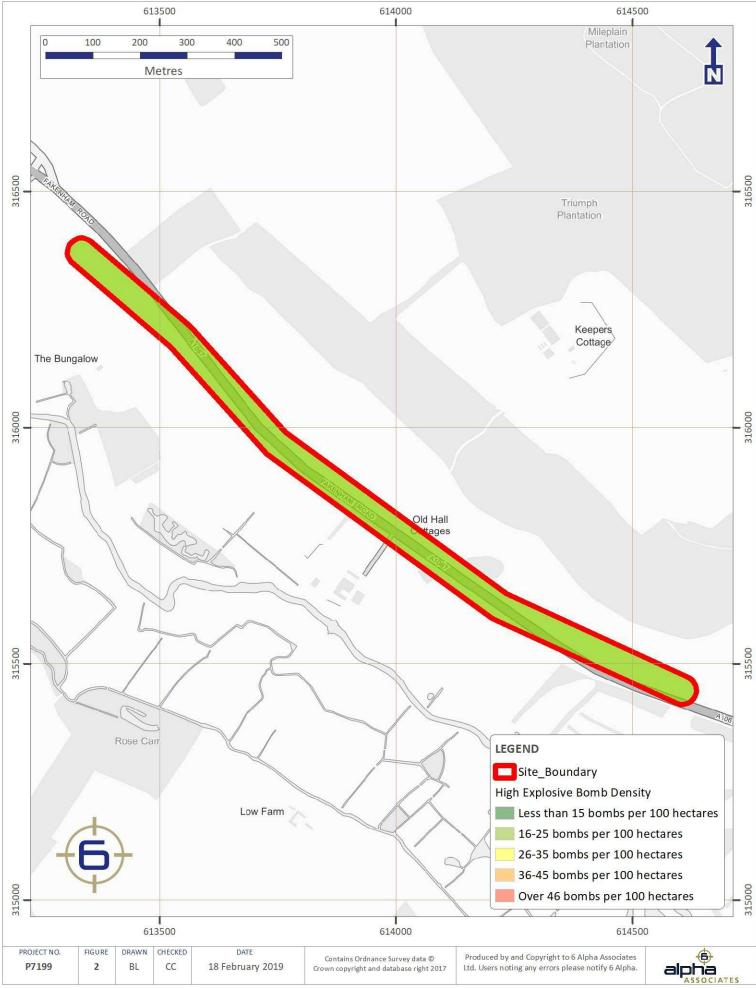












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PRELIMINARY UNEXPLODED ORDNANCE (UXO) THREAT ASSESSMENT

Meeting the requirements of *CIRIA* C681 'Unexploded Ordnance (UXO) – A guide for the Construction Industry' Risk Management Framework



6 ALPHA PROJECT NUMBER	P7195	ORIGINATOR	J. Webber
LANDMARK ORDER NUMBER	194233932_1	REVIEWED BY	C. Cole (18 th February 2019)
CLIENT REFERENCE	NWL Poly 6	RELEASED BY	R. Griffiths (18 th February 2019)
SITE	Site at 612596, 316439		
RECOMMENDATION	No further action is required to address the UXO risk at this Site		



The Study Site is described as "Site at 612596, 316439", and it is centred on National Grid Reference 612560, 316460.

THREAT POTENTIAL AND RECOMMENDATIONS

The potential for a UXO hazard to occur, and more specifically, the potential for unexploded WWI and WWII ordnance to exist at this site is assessed as being UNLIKELY (*Figure 2*).

In accordance with *CIRIA* C681 Chapter 5 on managing UXO risks, *6 Alpha* concludes that **NO FURTHER ACTION** is required to address the UXO risk at this Study Site. Should you have any queries, please contact *Envirocheck*.

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REPORT SUMMARY

During WWII, the Study Site was situated within *St Faiths & Aylsham Rural District*, which recorded one High Explosive (HE) bomb strike per 100 hectares; a very low level of bombing.

Luftwaffe aerial reconnaissance photography associated with the Site identified an airfield (875m south-west) as a primary bombing target.

Further research identified this airfield as *Royal Air Force* (RAF) *Attlebridge* (located 920m south-west) which was active between 1941-1956. Its primary purpose was originally as a satellite station, before then being extended to accommodate *RAF* and *American Air Force* heavy bomber groups and their training.

Air Raid Precaution (ARP) records did not identify any HE bomb strikes within the Site, however one was located 605m south-west of the Site boundary.

Official bomb damage was not available. In addition, an analysis of post-war mapping and further research did not identify any evidence of potential bomb damage on-site or within the vicinity.

Despite an airfield being located within the area during WWII, there is no evidence to suggest that further investigation into UXO is warranted.

USING THIS REPORT

This Preliminary Assessment is designed to inform environmental and construction professionals of the potential threat of military related explosives and/or ordnance on, or in, the vicinity of the Study Site.

This assessment is designed to be employed as a site-screening tool to meet with the requirement of Phase One of the *CIRIA UXO Risk Management Framework*; there are two broad prospective outcomes; either the threat level requires a detailed threat & risk assessment; or no further action is required. In the former instance we can provide a report within 10 working days (or more quickly upon application).

Two figures accompany the report, the *Second World War* (WWII) High Explosive (HE) Bomb Density and the final Probability of UXO Encounter. The purpose of this approach is to demonstrate that whilst bomb density statistics give an indication for WWII bombing, they should not be relied upon exclusively to generate a holistic assessment.

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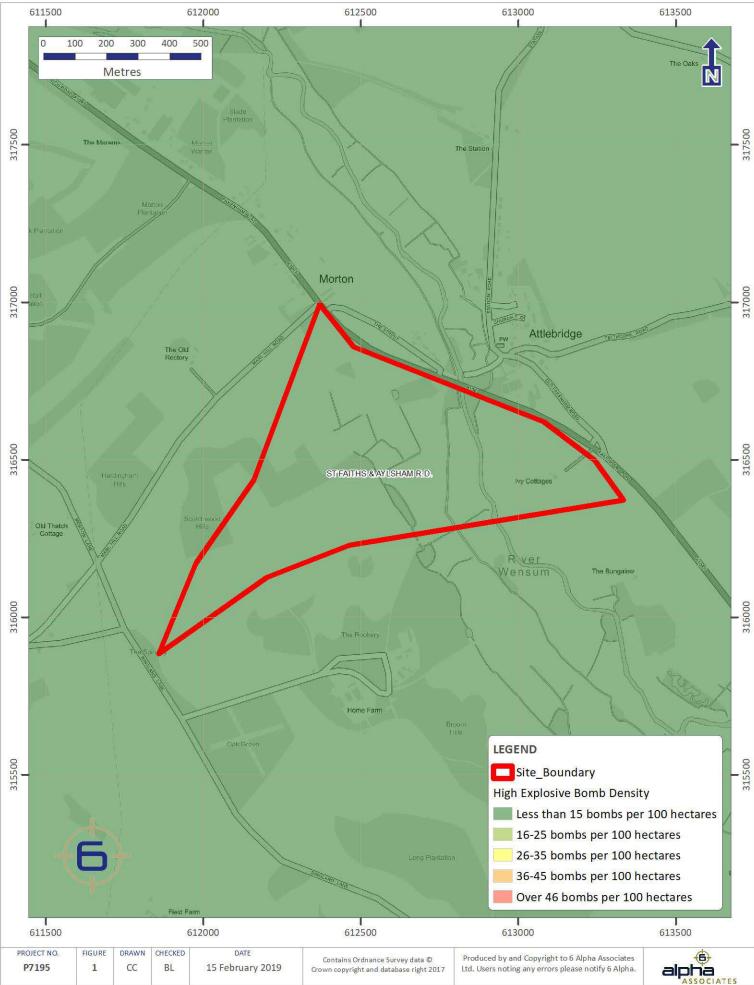
Data Findings			
Threat Source	Detail		
(within 1,000m)	Identified	Comments	
Airfields/Military Facilities	¥	RAF Attlebridge (920m south-west).	
Ordnance Manufacture/Storage	×	None recorded within 1,000m.	
WWII Decoy Bombing Sites	×	None recorded within 1,000m.	
WWII Defensive Features	¥	AA searchlight (710m north-east)	
WWII <i>Luftwaffe</i> Designated Bombing Targets	¥	<i>Luftwaffe</i> aerial photography identified an airfield (located 875m south-west) as a primary bombing target.	
WWII Bomb Strikes Within Site Boundary	×	ARP records did not identify any HE bomb strikes on-site.	
WWII Bomb Strikes Near Site Boundary	¥	ARP records identified one HE bomb strike 605m south-west.	
WWII Bomb Damage	×	Official bomb damage mapping was not available.	
Abandoned Bomb Register	×	The official abandoned bomb list did not identify any abandoned bombs located within 1,000m.	
Potential Threat Sources	×	Further research has not uncovered any potential UXO threats associated with the Study Site.	
WWII Bombing Density Per 100 Hectares	¥	The Site was located within <i>St Faiths & Aylsham Rural District,</i> which recorded one HE bomb strike per 100 hectares.	
Important Notes			

- 1. The term 'Preliminary UXO Threat Assessment' has been used to describe this report, to fall in line with the *CIRIA* C681 guidelines. Whilst the term 'Risk' can be justifiably used at this stage, the reader should note that the 'Consequence' function of 'Risk' is not considered. Should it be required, this would be addressed in the 'Detailed UXO Threat & Risk Assessment' (Stages 2 and 3).
- 2. This report is accurate and up to date at the time of writing.
- 3. The assessment levels have been generated from historical data and third party sources. Where possible 6 Alpha have sought to verify the accuracy of such data, but cannot be held accountable for inherent errors that may be in third party data sets (e.g. *National Archives* or library sources).
- 4. 6 Alpha have exercised all reasonable care, skill and due diligence in producing this service.
- 5. Whilst every effort has been used to identify all potential UXO/explosive threats, there were a number of private facilities, which may not have released privately recorded information concerning UXO/explosive threats into the public domain. It is therefore possible that some of the aforementioned sites may not be included within the database.



SITE AT 612596,316439



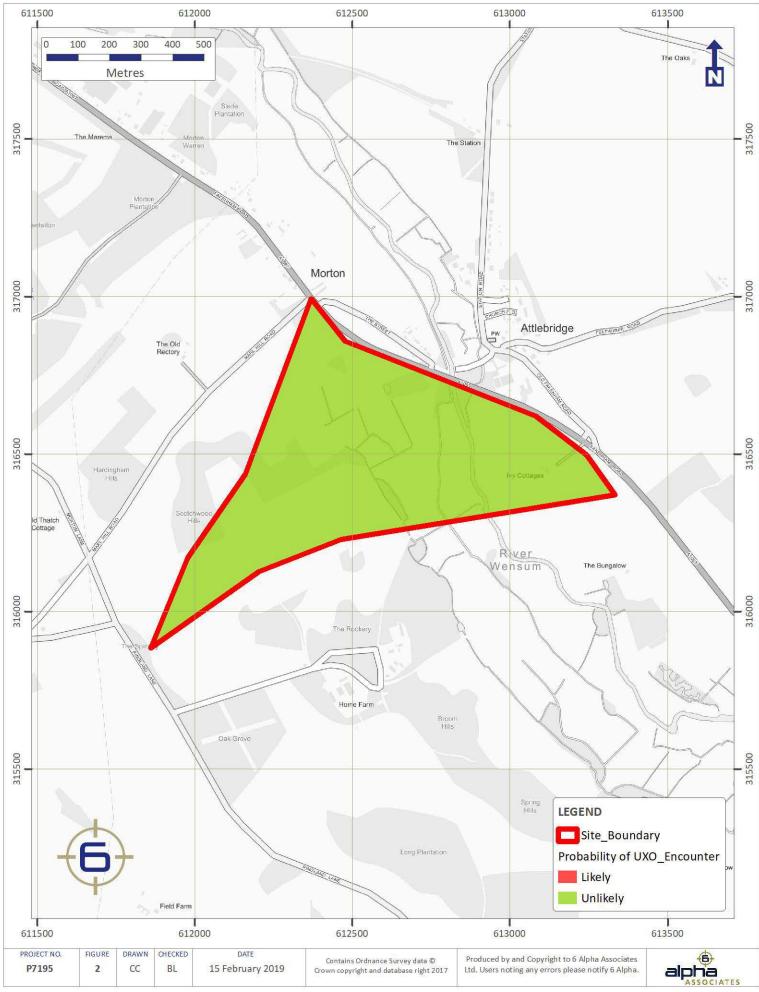




SITE AT 612596,316439







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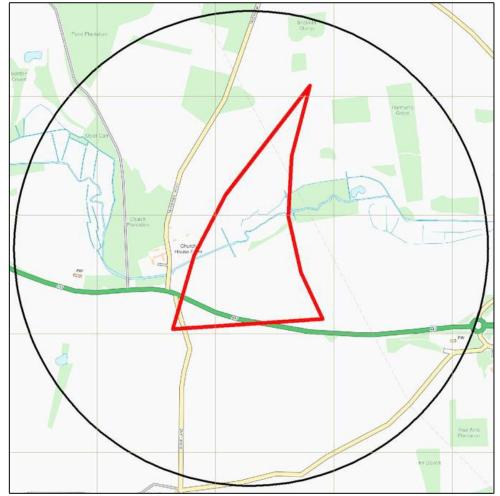
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PRELIMINARY UNEXPLODED ORDNANCE (UXO) THREAT ASSESSMENT

Meeting the requirements of *CIRIA* C681 'Unexploded Ordnance (UXO) – A guide for the Construction Industry' Risk Management Framework



6 ALPHA PROJECT NUMBER	P7194	ORIGINATOR	J. Webber
LANDMARK ORDER NUMBER	194231977_1	REVIEWED BY	C. Cole (18 th February 2019)
CLIENT REFERENCE	NWL Poly 7	RELEASED BY	R. Griffiths (18 th February 2019)
SITE	Site at 612136, 311533		
RECOMMENDATION	No further action is required to address the UXO risk at this Site		



The Study Site is described as "Site at 612136, 311533", and it is centred on National Grid Reference 612150, 311360.

THREAT POTENTIAL AND RECOMMENDATIONS

The potential for a UXO hazard to occur, and more specifically, the potential for unexploded WWI and WWII ordnance to exist at this site is assessed as being UNLIKELY (*Figure 2*).

In accordance with *CIRIA* C681 Chapter 5 on managing UXO risks, *6 Alpha* concludes that **NO FURTHER ACTION** is required to address the UXO risk at this Study Site. Should you have any queries, please contact *Envirocheck*.

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REPORT SUMMARY

During WWII, the Study Site was situated within *St Faiths & Aylsham Rural District* and *Forehoe & Henstead Rural District* which recorded one and two High Explosive (HE) bomb strikes per 100 hectares respectively; both a very low level of bombing.

Luftwaffe aerial reconnaissance photography associated with the Site did not identify any primary bombing targets within 1,000m of Site boundary.

Air Raid Precaution (ARP) records did not identify any HE bomb strikes within the Site. However, two HE bomb strikes were identified 380m west and 870m east of the Site boundary.

Official bomb damage mapping was not available. In addition, an analysis of post-war mapping and further research did not identify any evidence of bomb damage within 1,000m of Site.

Despite there being bomb strikes recorded within the wider area during WWII; there is no evidence to suggest that further investigation into UXO is warranted.

USING THIS REPORT

This Preliminary Assessment is designed to inform environmental and construction professionals of the potential threat of military related explosives and/or ordnance on, or in, the vicinity of the Study Site.

This assessment is designed to be employed as a site-screening tool to meet with the requirement of Phase One of the *CIRIA UXO Risk Management Framework*; there are two broad prospective outcomes; either the threat level requires a detailed threat & risk assessment; or no further action is required. In the former instance we can provide a report within 10 working days (or more quickly upon application).

Two figures accompany the report, the *Second World War* (WWII) High Explosive (HE) Bomb Density and the final Probability of UXO Encounter. The purpose of this approach is to demonstrate that whilst bomb density statistics give an indication for WWII bombing, they should not be relied upon exclusively to generate a holistic assessment.

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Data Findings			
Threat Source		Detail	
(within 1,000m)	Identified	Comments	
Airfields/Military Facilities	None recorded within 1,000m.		
Ordnance Manufacture/Storage	×	None recorded within 1,000m.	
WWII Decoy Bombing Sites	×	None recorded within 1,000m.	
WWII Defensive Features	AA searchlight (275m north-west).		
WWII <i>Luftwaffe</i> Designated Bombing Targets	Luftwaffe aerial photography did not identify any primary bor targets within 1,000m.		
WWII Bomb Strikes Within Site Boundary	ARP records did not identify any HE bomb strikes on-site.		
WWII Bomb Strikes Near Site Boundary	v	ARP records identified two HE bomb strikes located 380m west and 870m east.	
WWII Bomb Damage	×	Official bomb damage mapping was not available.	
Abandoned Bomb Register	×	The official abandoned bomb list did not identify any abandoned bombs located within 1,000m.	
Potential Threat Sources	×	Further research has not uncovered any potential UXO threats associated with the Study Site.	
WWII Bombing Density Per 100 Hectares	v	Within <i>St Faiths & Aylsham</i> and <i>Forehoe & Henstead Rural District,</i> which recorded one and two HE bomb strikes per 100 hectares.	
IMPORTANT NOTES			

- 1. The term 'Preliminary UXO Threat Assessment' has been used to describe this report, to fall in line with the *CIRIA* C681 guidelines. Whilst the term 'Risk' can be justifiably used at this stage, the reader should note that the 'Consequence' function of 'Risk' is not considered. Should it be required, this would be addressed in the 'Detailed UXO Threat & Risk Assessment' (Stages 2 and 3).
- 2. This report is accurate and up to date at the time of writing.
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