Claim No. QBD-2022-BHM-000044

IN THE HIGH COURT OF JUSTICE
QUEEN'S BENCH DIVISION
BIRMINGHAM DISTRICT REGISTRY

BETWEEN:

(1) HIGH SPEED TWO (HS2) LIMITED
(2) THE SECRETARY OF STATE FOR TRANSPORT

Claimants

- and –

PERSONS UNKNOWN & OTHERS

Defendants

BUNDLE D
(Volume C)
for hearing on 26 and 27 May 2022

TAB	DOCUMENT	PAGE
36	D36 (Mark Keir) Witness Statement and exhibits, dated 4 April 2022	D780-D1379

DLA Piper UK LLP
1 St Paul's Place
Sheffield
S1 2lX

Telephone: 0114 283 3312
Email: HS2Injunction@governmentlegal.gov.uk
Reference: RXS/380900/378

Solicitors for the Claimants

Certificate of service

Name of court	Claim No.
In the High Court of Justice	PT-2018-000098

Name of Claimant
The Secretary of State for Transport and another

Name of Defendant
Dr Ian "Larch" Maxey (22) and various others

On what day did you serve? 01/07/2020

The date of service is 01/07/2020

What documents did you serve?
Please attach copies of the documents you have not already filed with the court.

Cover Letter, sealed copy Injunction Order issued on 22/06/20 together with Schedule of named Defendants and A3 size colour copy map extract

On whom did you serve?
(If appropriate include their position e.g. partner, director).

the above named 22nd Defendant Dr Ian "Larch" Maxey

How did you serve the documents?
(please tick the appropriate box)

- ☐ by first class post or other service which provides for delivery on the next business day
- ☑ by delivering to or leaving at a permitted place
- ☐ by personally handing it to or leaving it with (.. .. . .time left, where document is other than a claim form) *(please specify)*
- ☑ by other means permitted by the court *(please specify)*

  Deposited on the ground inside Denham Wildlife Protection Camp at 12.55pm on Wednesday 1/07/2020
- ☐ by Document Exchange
- ☐ by fax machine (..... ....time sent, where document is other than a claim form) *(you may want to enclose a copy of the transmission sheet)*
- ☐ by other electronic means (..... .....time sent, where document is other than a claim form) *(please specify)*

Give the address where service effected, include fax or DX number, e-mail address or other electronic identification

The Willow, Denham Wildlife Protection Camp, Denham Country Park, Denham Court Drive, Uxbridge

Being the
- ☐ claimant's
- ☑ defendant's
- ☐ solicitor's
- ☐ litigation friend

- ☐ usual residence
- ☑ last known residence
- ☐ place of business
- ☐ principal place of business
- ☐ last known place of business
- ☐ last known principal place of business
- ☐ principal office of the partnership
- ☐ principal office of the corporation
- ☐ principal office of the company
- ☐ place of business of the partnership/company/ corporation within the jurisdiction with a connection to claim
- ☐ other *(please specify)*

I believe that the facts stated in this certificate are true.

Full name: Raymond Finch

Signed: 

(Claimant) (Defendant) ('s solicitor) ('s litigation friend)

Position or office held: Process Server

(If signing on behalf of firm or company)

Date: 03/07/2020

C311

D780

Rules relating to the service of documents are contained in Part 6 of the Civil Procedure Rules (www.justice.gov.uk) and you should refer to the rules for information.

Calculation of deemed day of service of a claim

A claim form served within the UK in accordance with Part 6 of the Civil Procedure rules is deemed to be served on the second business day after the claimant has completed the steps required by CPR 7.5(1).

Calculation of the deemed day of service of documents other than the claim form (CPR 6.26)

Method of service	Deemed day of service
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Fax	If the transmission of the fax is completed on a business day before 4.30pm, on that day; or in any other case, on the next business day after the day on which it was transmitted
Other electronic method	If the email or other electronic transmission is sent on a business day before 4.30pm, on that day; or in any other case, on the next business day after the day on which it was sent
Personal service	If the document is served personally before 4.30pm on a business day, it is served on that day; or in any other case, on the next business day after that day

In this context 'business day' means any day except Saturday, Sunday or a bank holiday; (under the Banking and Financial Dealings Act 1971 in the part of the UK where service is to take place) includes Good Friday and Christmas Day.

Certificate of service

Name of court	Claim No.
In the High Court of Justice	PT-2018-000098
Name of Claimant	
The Secretary of State for Transport and another	
Name of Defendant	
Sebastian Roblyn Maxey (23) and various others	

On what day did you serve? 01/07/2020

The date of service is 01/07/2020

What documents did you serve?
Please attach copies of the documents you have not already filed with the court.

Cover Letter, sealed copy Injunction Order issued on 22/06/20 together with Schedule of named Defendants and A3 size colour copy map extract

On whom did you serve?
(If appropriate include their position e.g. partner, director).

the above named 23rd Defendant Sebastian Roblyn Maxey

How did you serve the documents?
(please tick the appropriate box)

- ☐ by first class post or other service which provides for delivery on the next business day
- ☑ by delivering to or leaving at a permitted place
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The Willow, Denham Wildlife Protection Camp, Denham Country Park, Denham Court Drive, Uxbridge

Being the
- ☐ claimant's
- ☑ defendant's
- ☐ solicitor's
- ☐ litigation friend

- ☐ usual residence
- ☑ last known residence
- ☐ place of business
- ☐ principal place of business
- ☐ last known place of business
- ☐ last known principal place of business
- ☐ principal office of the partnership
- ☐ principal office of the corporation
- ☐ principal office of the company
- ☐ place of business of the partnership/company/ corporation within the jurisdiction with a connection to claim
- ☐ other *(please specify)*

I believe that the facts stated in this certificate are true.

Full name: Raymond Finch

Signed: 

(Claimant) (Defendant) ('s solicitor) ('s litigation friend)

Position or office held: Process Server

(If signing on behalf of firm or company)

Date: 03/07/2020

C313

D782

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Certificate of service

Name of court	Claim No.
In the High Court of Justice	PT-2018-000098

Name of Claimant
The Secretary of State for Transport and another

Name of Defendant
Jessica Heathland-Smith (24) and various others

On what day did you serve? 01/07/2020

The date of service is 01/07/2020

What documents did you serve?
Please attach copies of the documents you have not already filed with the court.

Cover Letter, sealed copy Injunction Order issued on 22/06/20 together with Schedule of named Defendants and A3 size colour copy map extract

On whom did you serve?
(If appropriate include their position e.g. partner, director).

the above named 24th Defendant Jessica Heathland-Smith

How did you serve the documents?
(please tick the appropriate box)

- ☐ by first class post or other service which provides for delivery on the next business day
- ☑ by delivering to or leaving at a permitted place
- ☐ by personally handing it to or leaving it with (.. .. ..time left, where document is other than a claim form) *(please specify)*
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Give the address where service effected, include fax or DX number, e-mail address or other electronic identification

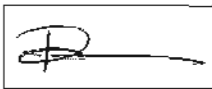
Harvil Road Wildlife Protection Camp, Harvil Road, Harefield, Uxbridge, Hillingdon UB9

Being the
- ☐ claimant's
- ☑ defendant's
- ☐ solicitor's
- ☐ litigation friend

- ☐ usual residence
- ☑ last known residence
- ☐ place of business
- ☐ principal place of business
- ☐ last known place of business
- ☐ last known principal place of business
- ☐ principal office of the partnership
- ☐ principal office of the corporation
- ☐ principal office of the company
- ☐ place of business of the partnership/company/ corporation within the jurisdiction with a connection to claim
- ☐ other *(please specify)*

I believe that the facts stated in this certificate are true.

Full name: Raymond Finch

Signed: 

(Claimant) (Defendant) ('s solicitor) ('s litigation friend)

Position or office held: Process Server

(If signing on behalf of firm or company)

Date: 03/07/2020

C315

D784

Rules relating to the service of documents are contained in Part 6 of the Civil Procedure Rules (www.justice.gov.uk) and you should refer to the rules for information.

Calculation of deemed day of service of a claim

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Certificate of service

Name of court	Claim No.
In the High Court of Justice	PT-2018-000098

Name of Claimant
The Secretary of State for Transport and another

Name of Defendant
Ella Dorton (25) and various others

On what day did you serve? 01/07/2020

The date of service is 01/07/2020

What documents did you serve?
Please attach copies of the documents you have not already filed with the court.

Cover Letter, sealed copy Injunction Order issued on 22/06/20 together with Schedule of named Defendants and A3 size colour copy map extract

On whom did you serve?
(If appropriate include their position e g partner, director).

the above named 25th Defendant Ella Dorton

How did you serve the documents?
(please tick the appropriate box)

- ☐ by first class post or other service which provides for delivery on the next business day
- ☑ by delivering to or leaving at a permitted place
- ☐ by personally handing it to or leaving it with (..... ....time left, where document is other than a claim form) *(please specify)*
- ☑ by other means permitted by the court *(please specify)*

  Deposited on the ground inside the Harvil Road Wildlife Protection Camp at 2.25pm on Wednesday 01/07/2020
- ☐ by Document Exchange
- ☐ by fax machine (... ... . time sent, where document is other than a claim form) *(you may want to enclose a copy of the transmission sheet)*
- ☐ by other electronic means (.. ... . time sent, where document is other than a claim form) *(please specify)*

Give the address where service effected, include fax or DX number, e-mail address or other electronic identification

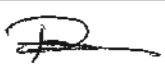
Harvil Road Wildlife Protection Camp, Harvil Road, Harefield, Uxbridge, Hillingdon UB9

Being the
- ☐ claimant's
- ☑ defendant's
- ☐ solicitor's
- ☐ litigation friend

- ☐ usual residence
- ☑ last known residence
- ☐ place of business
- ☐ principal place of business
- ☐ last known place of business
- ☐ last known principal place of business
- ☐ principal office of the partnership
- ☐ principal office of the corporation
- ☐ principal office of the company
- ☐ place of business of the partnership/company/ corporation within the jurisdiction with a connection to claim
- ☐ other *(please specify)*

I believe that the facts stated in this certificate are true.

Full name: Raymond Finch

Signed: 

(Claimant) (Defendant) ('s solicitor) ('s litigation friend)

Position or office held: Process Server

(If signing on behalf of firm or company)

Date: 03/07/2020

C317

D786

Rules relating to the service of documents are contained in Part 6 of the Civil Procedure Rules (www.justice.gov.uk) and you should refer to the rules for information.

Calculation of deemed day of service of a claim

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Calculation of the deemed day of service of documents other than the claim form (CPR 6.26)

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In this context 'business day' means any day except Saturday, Sunday or a bank holiday; (under the Banking and Financial Dealings Act 1971 in the part of the UK where service is to take place) includes Good Friday and Christmas Day.

Certificate of service

Name of court	Claim No.
In the High Court of Justice	PT-2018-000098

Name of Claimant
The Secretary of State for transport and another

Name of Defendant
Ella Dorton (25) and various others

On what day did you serve? 01/07/2020

The date of service is 02/07/2020

What documents did you serve?
Please attach copies of the documents you have not already filed with the court.

Cover Letter, sealed copy Injunction Order issued on 22/06/20 together with Schedule of named Defendants and A3 size colour copy map extract

On whom did you serve?
(If appropriate include their position e.g. partner, director).

the above named 25th Defendant Ella Dorton

How did you serve the documents?
(please tick the appropriate box)

- ☐ by first class post or other service which provides for delivery on the next business day
- ☑ by delivering to or leaving at a permitted place
- ☑ by personally handing it to or leaving it with (..... .....time left, where document is other than a claim form) *(please specify)*
- ☑ by other means permitted by the court *(please specify)*

  Deposited in the Save Crackley Woods Protester Camp at 5.00pm on Wednesday 1 July 2020
- ☐ by Document Exchange
- ☐ by fax machine (..... .....time sent, where document is other than a claim form) *(you may want to enclose a copy of the transmission sheet)*
- ☐ by other electronic means (.. . ... time sent, where document is other than a claim form) *(please specify)*

Give the address where service effected, include fax or DX number, e-mail address or other electronic identification

Save Crackley Woods Protester Camp, Cryfield Grange Road, Kenilworth, Warwickshire CV8 2JU

Being the
- ☐ claimant's
- ☑ defendant's
- ☐ solicitor's
- ☐ litigation friend

- ☐ usual residence
- ☐ last known residence
- ☐ place of business
- ☐ principal place of business
- ☐ last known place of business
- ☐ last known principal place of business
- ☐ principal office of the partnership
- ☐ principal office of the corporation
- ☐ principal office of the company
- ☐ place of business of the partnership/company/ corporation within the jurisdiction with a connection to claim
- ☑ other *(please specify)*

  associated address

I believe that the facts stated in this certificate are true.

Full name: Raymond Finch

Signed: 

(Claimant) (Defendant) ('s solicitor) ('s litigation friend)

Position or office held: Process Server

(If signing on behalf of firm or company)

Date: 03/07/2020

C319

D788

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Calculation of deemed day of service of a claim

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D789

Certificate of service

Name of court	Claim No.
In the High Court of Justice	PT-2018-000098
Name of Claimant	
The Secretary of State for Transport and another	
Name of Defendant	
Karl Collins (26) and various others	

On what day did you serve? 01/07/2020

The date of service is 01/07/2020

What documents did you serve?
Please attach copies of the documents you have not already filed with the court.

Cover Letter, sealed copy Injunction Order issued on 22/06/20 together with Schedule of named Defendants and A3 size colour copy map extract

On whom did you serve?
(If appropriate include their position e.g. partner, director).

the above named 26th Defendant Karl Collins

How did you serve the documents?
(please tick the appropriate box)

- ☐ by first class post or other service which provides for delivery on the next business day
- ☑ by delivering to or leaving at a permitted place
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Give the address where service effected, include fax or DX number, e-mail address or other electronic identification

Harvil Road Wildlife Protection Camp, Harvil Road, Harefield, Uxbridge, Hillingdon UB9

Being the
- ☐ claimant's
- ☑ defendant's
- ☐ solicitor's
- ☐ litigation friend

- ☐ usual residence
- ☑ last known residence
- ☐ place of business
- ☐ principal place of business
- ☐ last known place of business
- ☐ last known principal place of business
- ☐ principal office of the partnership
- ☐ principal office of the corporation
- ☐ principal office of the company
- ☐ place of business of the partnership/company/ corporation within the jurisdiction with a connection to claim
- ☐ other *(please specify)*

I believe that the facts stated in this certificate are true.

Full name: Raymond Finch

Signed: 

(Claimant) (Defendant) ('s solicitor) ('s litigation friend)

Position or office held: Process Server

(If signing on behalf of firm or company)

Date: 03/07/2020

C321

D790

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Certificate of service

Name of court	Claim No.
In the High Court of Justice	PT-2018-000098
Name of Claimant	
The Secretary of State for Transport and another	
Name of Defendant	
Sam Goggin (27) and various others	

On what day did you serve? 01/07/2020

The date of service is 01/07/2020

What documents did you serve?
Please attach copies of the documents you have not already filed with the court.

Cover Letter, sealed copy Injunction Order issued on 22/06/20 together with Schedule of named Defendants and A3 size colour copy map extract

On whom did you serve?
(If appropriate include their position e.g. partner, director).

the above named 27th Defendant Sam Goggin

How did you serve the documents?
(please tick the appropriate box)

- ☐ by first class post or other service which provides for delivery on the next business day
- ☑ by delivering to or leaving at a permitted place
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Harvil Road Wildlife Protection Camp, Harvil Road, Harefield, Uxbridge, Hillingdon UB9

Being the

- ☐ claimant's
- ☑ defendant's
- ☐ solicitor's
- ☐ litigation friend

- ☐ usual residence
- ☑ last known residence
- ☐ place of business
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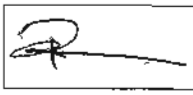
- ☐ place of business of the partnership/company/ corporation within the jurisdiction with a connection to claim
- ☐ other *(please specify)*

I believe that the facts stated in this certificate are true.

Full name: Raymond Finch

Signed: 

(Claimant) (Defendant) ('s solicitor) ('s litigation friend)

Position or office held: Process Server

(If signing on behalf of firm or company)

Date: 03/07/2020

C323

D792

Rules relating to the service of documents are contained in Part 6 of the Civil Procedure Rules (www.justice.gov.uk) and you should refer to the rules for information.

Calculation of deemed day of service of a claim

A claim form served within the UK in accordance with Part 6 of the Civil Procedure rules is deemed to be served on the second business day after the claimant has completed the steps required by CPR 7.5(1).

Calculation of the deemed day of service of documents other than the claim form (CPR 6.26)

Method of service	Deemed day of service
First class post or other service which provides for delivery on the next business day	The second day after it was posted, left with, delivered to or collected by the relevant service provider provided that day is a business day; or if not, the next business day after that day
Document exchange	The second day after it was left with, delivered to or collected by the relevant service provider provided that day is a business day; or if not, the next business day after that day
Delivering the document to or leaving it at a permitted address	If it is delivered to or left at the permitted address on a business day before 4.30pm, on that day; or in any other case, on the next business day after that day
Fax	If the transmission of the fax is completed on a business day before 4.30pm, on that day; or in any other case, on the next business day after the day on which it was transmitted
Other electronic method	If the email or other electronic transmission is sent on a business day before 4.30pm, on that day; or in any other case, on the next business day after the day on which it was sent
Personal service	If the document is served personally before 4.30pm on a business day, it is served on that day; or in any other case, on the next business day after that day

In this context 'business day' means any day except Saturday, Sunday or a bank holiday; (under the Banking and Financial Dealings Act 1971 in the part of the UK where service is to take place) includes Good Friday and Christmas Day.

D793

Certificate of service

Name of court	Claim No.
In the High Court of Justice	PT-2018-000098
Name of Claimant	
The Secretary of State for transport and another	
Name of Defendant	
Sam Goggin (27) and various others	

On what day did you serve? 01/07/2020

The date of service is 02/07/2020

What documents did you serve?
Please attach copies of the documents you have not already filed with the court.

Cover Letter, sealed copy Injunction Order issued on 22/06/20 together with Schedule of named Defendants and A3 size colour copy map extract

On whom did you serve?
(If appropriate include their position e.g. partner, director).

the above named 27th Defendant Sam Goggin

How did you serve the documents?
(please tick the appropriate box)

- ☐ by first class post or other service which provides for delivery on the next business day
- ☑ by delivering to or leaving at a permitted place
- ☑ by personally handing it to or leaving it with (... . ..... time left, where document is other than a claim form) *(please specify)*
- ☑ by other means permitted by the court *(please specify)*

  Deposited in the Save Crackley Woods Protester Camp at 5.00pm on Wednesday 1 July 2020
- ☐ by Document Exchange
- ☐ by fax machine (.....time sent, where document is other than a claim form) *(you may want to enclose a copy of the transmission sheet)*
- ☐ by other electronic means (... .... . time sent, where document is other than a claim form) *(please specify)*

Give the address where service effected, include fax or DX number, e-mail address or other electronic identification

Save Crackley Woods Protester Camp, Cryfield Grange Road, Kenilworth, Warwickshire CV8 2JU

Being the ☐ claimant's ☑ defendant's ☐ solicitor's ☐ litigation friend

- ☐ usual residence
- ☐ last known residence
- ☐ place of business
- ☐ principal place of business
- ☐ last known place of business
- ☐ last known principal place of business
- ☐ principal office of the partnership
- ☐ principal office of the corporation
- ☐ principal office of the company
- ☐ place of business of the partnership/company/ corporation within the jurisdiction with a connection to claim
- ☑ other *(please specify)*

  associated address

I believe that the facts stated in this certificate are true.

Full name: Raymond Finch

Signed:  (Claimant) (Defendant) ('s solicitor) ('s litigation friend)

Position or office held: Process Server (If signing on behalf of firm or company)

Date: 03/07/2020

C325

D794

Rules relating to the service of documents are contained in Part 6 of the Civil Procedure Rules (www.justice.gov.uk) and you should refer to the rules for information.

Calculation of deemed day of service of a claim

A claim form served within the UK in accordance with Part 6 of the Civil Procedure rules is deemed to be served on the second business day after the claimant has completed the steps required by CPR 7.5(1).

Calculation of the deemed day of service of documents other than the claim form (CPR 6.26)

Method of service	Deemed day of service
First class post or other service which provides for delivery on the next business day	The second day after it was posted, left with, delivered to or collected by the relevant service provider provided that day is a business day; or if not, the next business day after that day
Document exchange	The second day after it was left with, delivered to or collected by the relevant service provider provided that day is a business day; or if not, the next business day after that day
Delivering the document to or leaving it at a permitted address	If it is delivered to or left at the permitted address on a business day before 4.30pm, on that day; or in any other case, on the next business day after that day
Fax	If the transmission of the fax is completed on a business day before 4.30pm, on that day; or in any other case, on the next business day after the day on which it was transmitted
Other electronic method	If the email or other electronic transmission is sent on a business day before 4.30pm, on that day; or in any other case, on the next business day after the day on which it was sent
Personal service	If the document is served personally before 4.30pm on a business day, it is served on that day; or in any other case, on the next business day after that day

In this context 'business day' means any day except Saturday, Sunday or a bank holiday; (under the Banking and Financial Dealings Act 1971 in the part of the UK where service is to take place) includes Good Friday and Christmas Day.

Certificate of service

Name of court	Claim No.
High Court of Justice **Business & Property Courts** **Property, Trusts and Probate List (ChD)**	PT-2018-000098

Name of Claimant
(1) The Secretary of State for Transport
(2) High Speed Two (HS2) Limited

Name of Defendant
Persons Unknown & Ors

On what day did you serve?	3	0	/	0	6	/	2	0	2	0
The date of service is	3	0	/	0	6	/	2	0	2	0

What documents did you serve?
Please attach copies of the documents you have not already filed with the court.

Order dated 22 June 2020 and plan thereto

On whom did you serve?
(If appropriate include their position e.g. partner, director).

D28 – Hayley Pitwell

How did you serve the documents?
(please tick the appropriate box)

[ ] by first class post or other service which provides for delivery on the next business day

[ ] by delivering to or leaving at a permitted place

[ ] by personally handing it to or leaving it with (.....time left, where document is other than a claim form) *(please specify)*

[ ] by other means permitted by the court
(please specify)

[ ] By Document Exchange

[ ] by fax machine (.....time sent, where document is other than a claim form) *(you may want to enclose a copy of the transmission sheet)*

[x] by other electronic means (email sent at 09:01 on 30 June 2020 to hayleypitwell@gmail.com)

Being the email address confirmed as appropriate means for service by D28

Give the address where service effected, include fax or DX number, e-mail address or other electronic identification

D28's email address: [redacted]

Being the [ ] claimant's [X] defendant's [ ] solicitor's [ ] litigation friend

[ ] usual residence
[ ] last known residence
[ ] place of business
[ ] principal place of business
[ ] last known place of business
[ ] last known principal place of business
[ ] principal office of the partnership
[ ] principal office of the corporation
[ ] principal office of the company
[ ] place of business of the partnership/company/ corporation within the jurisdiction with a connection to claim
[X] other *(please specify)* **email address confirmed as appropriate means for service by D18**

I believe that the facts stated in this certificate are true.

Full name: SHONA RUTH JENKINS

Signed: Shona Jenkins

Position or office held: SENIOR ASSOCIATE

Claimants' solicitor

(If signing on behalf of firm or company)

Date

1	3	0	7	2	0	2	0

Rules relating to the service of documents are contained in Part 6 of the Civil Procedure Rules (www.justice.gov.uk) and you should refer to the rules for information.

Calculation of deemed day of service of a claim

A claim form served within the UK in accordance with Part 6 of the Civil Procedure rules is deemed to be served on the second business day after the claimant has completed the steps required by CPR 7.5(1).

Calculation of the deemed day of service of documents other than the claim form (CPR 6.26)

Method of service	**Deemed day of service**
First class post or other service which provides for delivery on the next business day	The second day after it was posted, left with, delivered to or collected by the relevant service provider provided that day is a business day; or if not, the next business day after that day
Document exchange	The second day after it was left with, delivered to or collected by the relevant service provider provided that day is a business day; or if not, the next business day after that day
Delivering the document to or leaving it at a permitted address	If it is delivered to or left at the permitted address on a business day before 4.30pm, on that day; or in any other case, on the next business day after that day
Fax	If the transmission of the fax is completed on a business day before 4.30pm, on that day; or in any other case, on the next business day after the day on which it was transmitted
Other electronic method	If the email or other electronic transmission is sent on a business day before 4.30pm, on that day; or in any other case, on the next business day after the day on which it was sent
Personal service	If the document is served personally before 4.30pm on a business day, it is served on that day; or in any other case, on the next business day after that day

In this context 'business day' means any day except Saturday, Sunday or a bank holiday; (under the Banking and Financial Dealings Act 1971 in the part of the UK where service is to take place) includes Good Friday and Christmas Day.

Certificate of service

Name of court	Claim No.
In the High Court of Justice	PT-2018-000098
Name of Claimant	
The Secretary of State for Transport and another	
Name of Defendant	
Hayley Pitwell (28) and various others	

On what day did you serve? 01/07/2020

The date of service is 01/07/2020

What documents did you serve?
Please attach copies of the documents you have not already filed with the court.

Cover Letter, sealed copy Injunction Order issued on 22/06/20 together with Schedule of named Defendants and A3 size colour copy map extract

On whom did you serve?
(If appropriate include their position e.g. partner, director).

the above named 28th Defendant Hayley Pitwell

How did you serve the documents?
(please tick the appropriate box)

- ☐ by first class post or other service which provides for delivery on the next business day
- ☑ by delivering to or leaving at a permitted place
- ☐ by personally handing it to or leaving it with (.....time left, where document is other than a claim form) *(please specify)*
- ☑ by other means permitted by the court *(please specify)*

  Deposited on the ground inside the Harvil Road Wildlife Protection Camp at 2.25pm on Wednesday 01/07/2020
- ☐ by Document Exchange
- ☐ by fax machine (.....time sent, where document is other than a claim form) *(you may want to enclose a copy of the transmission sheet)*
- ☐ by other electronic means (.....time sent, where document is other than a claim form) *(please specify)*

Give the address where service effected, include fax or DX number, e-mail address or other electronic identification

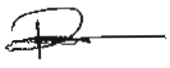
Harvil Road Wildlife Protection Camp, Harvil Road, Harefield, Uxbridge, Hillingdon UB9

Being the
- ☐ claimant's
- ☑ defendant's
- ☐ solicitor's
- ☐ litigation friend

- ☐ usual residence
- ☑ last known residence
- ☐ place of business
- ☐ principal place of business
- ☐ last known place of business
- ☐ last known principal place of business
- ☐ principal office of the partnership
- ☐ principal office of the corporation
- ☐ principal office of the company
- ☐ place of business of the partnership/company/ corporation within the jurisdiction with a connection to claim
- ☐ other *(please specify)*

I believe that the facts stated in this certificate are true.

Full name: Raymond Finch

Signed: 

(Claimant) (Defendant) ('s solicitor) ('s litigation friend)

Position or office held: Process Server

(If signing on behalf of firm or company)

Date: 03/07/2020

C329

D798

Rules relating to the service of documents are contained in Part 6 of the Civil Procedure Rules (www.justice.gov.uk) and you should refer to the rules for information.

Calculation of deemed day of service of a claim

A claim form served within the UK in accordance with Part 6 of the Civil Procedure rules is deemed to be served on the second business day after the claimant has completed the steps required by CPR 7.5(1).

Calculation of the deemed day of service of documents other than the claim form (CPR 6.26)

Method of service	Deemed day of service
First class post or other service which provides for delivery on the next business day	The second day after it was posted, left with, delivered to or collected by the relevant service provider provided that day is a business day; or if not, the next business day after that day
Document exchange	The second day after it was left with, delivered to or collected by the relevant service provider provided that day is a business day; or if not, the next business day after that day
Delivering the document to or leaving it at a permitted address	If it is delivered to or left at the permitted address on a business day before 4.30pm, on that day; or in any other case, on the next business day after that day
Fax	If the transmission of the fax is completed on a business day before 4.30pm, on that day; or in any other case, on the next business day after the day on which it was transmitted
Other electronic method	If the email or other electronic transmission is sent on a business day before 4.30pm, on that day; or in any other case, on the next business day after the day on which it was sent
Personal service	If the document is served personally before 4.30pm on a business day, it is served on that day; or in any other case, on the next business day after that day

In this context 'business day' means any day except Saturday, Sunday or a bank holiday; (under the Banking and Financial Dealings Act 1971 in the part of the UK where service is to take place) includes Good Friday and Christmas Day.

D799

Certificate of service

Name of court	Claim No.
In the High Court of Justice	PT-2018-000098

Name of Claimant
The Secretary of State for Transport and another

Name of Defendant
Jacob Harwood (29) and various others

On what day did you serve? 01/07/2020

The date of service is 01/07/2020

What documents did you serve?
Please attach copies of the documents you have not already filed with the court.

Cover Letter, sealed copy Injunction Order issued on 22/06/20 together with Schedule of named Defendants and A3 size colour copy map extract

On whom did you serve?
(If appropriate include their position e.g. partner, director).

the above named 29th Defendant Jacob Harwood

How did you serve the documents?
(please tick the appropriate box)

- ☐ by first class post or other service which provides for delivery on the next business day
- ☑ by delivering to or leaving at a permitted place
- ☐ by personally handing it to or leaving it with (.....time left, where document is other than a claim form) *(please specify)*
- ☑ by other means permitted by the court *(please specify)*

  Deposited on the ground inside Denham Wildlife Protection Camp at 12.55pm on Wednesday 1/07/2020
- ☐ by Document Exchange
- ☐ by fax machine (.....time sent, where document is other than a claim form) *(you may want to enclose a copy of the transmission sheet)*
- ☐ by other electronic means (..... time sent, where document is other than a claim form) *(please specify)*

Give the address where service effected, include fax or DX number, e-mail address or other electronic identification

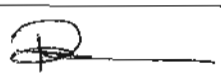
The Willow, Denham Wildlife Protection Camp, Denham Country Park, Denham Court Drive, Uxbridge

Being the
- ☐ claimant's
- ☑ defendant's
- ☐ solicitor's
- ☐ litigation friend

- ☐ usual residence
- ☑ last known residence
- ☐ place of business
- ☐ principal place of business
- ☐ last known place of business
- ☐ last known principal place of business
- ☐ principal office of the partnership
- ☐ principal office of the corporation
- ☐ principal office of the company
- ☐ place of business of the partnership/company/ corporation within the jurisdiction with a connection to claim
- ☐ other *(please specify)*

I believe that the facts stated in this certificate are true.

Full name: Raymond Finch

Signed: 

(Claimant) (Defendant) ('s solicitor) ('s litigation friend)

Position or office held: Process Server

(If signing on behalf of firm or company)

Date: 03/07/2020

C331

D800

Rules relating to the service of documents are contained in Part 6 of the Civil Procedure Rules (www.justice.gov.uk) and you should refer to the rules for information.

Calculation of deemed day of service of a claim

A claim form served within the UK in accordance with Part 6 of the Civil Procedure rules is deemed to be served on the second business day after the claimant has completed the steps required by CPR 7.5(1).

Calculation of the deemed day of service of documents other than the claim form (CPR 6.26)

Method of service	Deemed day of service
First class post or other service which provides for delivery on the next business day	The second day after it was posted, left with, delivered to or collected by the relevant service provider provided that day is a business day; or if not, the next business day after that day
Document exchange	The second day after it was left with, delivered to or collected by the relevant service provider provided that day is a business day; or if not, the next business day after that day
Delivering the document to or leaving it at a permitted address	If it is delivered to or left at the permitted address on a business day before 4.30pm, on that day; or in any other case, on the next business day after that day
Fax	If the transmission of the fax is completed on a business day before 4.30pm, on that day; or in any other case, on the next business day after the day on which it was transmitted
Other electronic method	If the email or other electronic transmission is sent on a business day before 4.30pm, on that day; or in any other case, on the next business day after the day on which it was sent
Personal service	If the document is served personally before 4.30pm on a business day, it is served on that day; or in any other case, on the next business day after that day

In this context 'business day' means any day except Saturday, Sunday or a bank holiday; (under the Banking and Financial Dealings Act 1971 in the part of the UK where service is to take place) includes Good Friday and Christmas Day.

Certificate of service

Name of court	Claim No.
In the High Court of Justice	PT-2018-000098
Name of Claimant	
The Secretary of State for Transport and another	
Name of Defendant	
Tom Holmes (30) and various others	

On what day did you serve? 01/07/2020

The date of service is 01/07/2020

What documents did you serve?
Please attach copies of the documents you have not already filed with the court.

Cover Letter, sealed copy Injunction Order issued on 22/06/20 together with Schedule of named Defendants and A3 size colour copy map extract

On whom did you serve?
(If appropriate include their position e.g. partner, director).

the above named 30th Defendant Tom Holmes

How did you serve the documents?
(please tick the appropriate box)

- ☐ by first class post or other service which provides for delivery on the next business day
- ☑ by delivering to or leaving at a permitted place
- ☐ by personally handing it to or leaving it with (. . . ..time left, where document is other than a claim form) *(please specify)*
- ☑ by other means permitted by the court *(please specify)*

  Deposited on the ground inside the Harvil Road Wildlife Protection Camp at 2.25pm on Wednesday 01/07/2020
- ☐ by Document Exchange
- ☐ by fax machine (. . ..... time sent, where document is other than a claim form) *(you may want to enclose a copy of the transmission sheet)*
- ☐ by other electronic means (.... . ...time sent, where document is other than a claim form) *(please specify)*

Give the address where service effected, include fax or DX number, e-mail address or other electronic identification

Harvil Road Wildlife Protection Camp, Harvil Road, Harefield, Uxbridge, Hillingdon UB9

Being the
- ☐ claimant's
- ☐ solicitor's
- ☑ defendant's
- ☐ litigation friend

- ☐ usual residence
- ☑ last known residence
- ☐ place of business
- ☐ principal place of business
- ☐ last known place of business
- ☐ last known principal place of business
- ☐ principal office of the partnership
- ☐ principal office of the corporation
- ☐ principal office of the company
- ☐ place of business of the partnership/company/ corporation within the jurisdiction with a connection to claim
- ☐ other *(please specify)*

I believe that the facts stated in this certificate are true.

Full name: Raymond Finch

Signed:  (Claimant) (Defendant) ('s solicitor) ('s litigation friend)

Position or office held: Process Server (If signing on behalf of firm or company)

Date: 03/07/2020

C333

D802

Rules relating to the service of documents are contained in Part 6 of the Civil Procedure Rules (www.justice.gov.uk) and you should refer to the rules for information.

Calculation of deemed day of service of a claim

A claim form served within the UK in accordance with Part 6 of the Civil Procedure rules is deemed to be served on the second business day after the claimant has completed the steps required by CPR 7.5(1).

Calculation of the deemed day of service of documents other than the claim form (CPR 6.26)

Method of service	Deemed day of service
First class post or other service which provides for delivery on the next business day	The second day after it was posted, left with, delivered to or collected by the relevant service provider provided that day is a business day; or if not, the next business day after that day
Document exchange	The second day after it was left with, delivered to or collected by the relevant service provider provided that day is a business day; or if not, the next business day after that day
Delivering the document to or leaving it at a permitted address	If it is delivered to or left at the permitted address on a business day before 4.30pm, on that day; or in any other case, on the next business day after that day
Fax	If the transmission of the fax is completed on a business day before 4.30pm, on that day; or in any other case, on the next business day after the day on which it was transmitted
Other electronic method	If the email or other electronic transmission is sent on a business day before 4.30pm, on that day; or in any other case, on the next business day after the day on which it was sent
Personal service	If the document is served personally before 4.30pm on a business day, it is served on that day; or in any other case, on the next business day after that day

In this context 'business day' means any day except Saturday, Sunday or a bank holiday; (under the Banking and Financial Dealings Act 1971 in the part of the UK where service is to take place) includes Good Friday and Christmas Day.

D803

Certificate of service

Name of court	Claim No.
High Court of Justice Business & Property Courts Property, Trusts and Probate List (ChD)	PT-2018-000098

Name of Claimant
(1) The Secretary of State for Transport
(2) High Speed Two (HS2) Limited

Name of Defendant
PERSONS UNKNOWN & ORS

On what day did you serve? 30 / 06 / 2020

The date of service is 02 / 07 / 2020

What documents did you serve?
Please attach copies of the documents you have not already filed with the court.

Order dated 22 June 2020 and plan thereto

On whom did you serve?
(If appropriate include their position e.g. partner, director).

D31 – Libby Farbrother

How did you serve the documents?
(please tick the appropriate box)

[x] by first class post or other service which provides for delivery on the next business day

[ ] by delivering to or leaving at a permitted place

[ ] by personally handing it to or leaving it with (.....time left, where document is other than a claim form) *(please specify)*

[ ]

[ ] by other means permitted by the court *(please specify)*

[ ] By Document Exchange

[ ] by fax machine (.....time sent, where document is other than a claim form) *(you may want to enclose a copy of the transmission sheet)*

[ ] by other electronic means (.....time sent, where document is other than a claim form) *(please specify)*

Give the address where service effected, include fax or DX number, e-mail address or other electronic identification

[redacted]

Being the [ ] claimant's [√] defendant's [ ] solicitor's [ ] litigation friend

[x] usual residence
[ ] last known residence
[ ] place of business
[ ] principal place of business
[ ] last known place of business
[ ] last known principal place of business
[ ] principal office of the partnership
[ ] principal office of the corporation
[ ] principal office of the company
[ ] place of business of the partnership/company/ corporation within the jurisdiction with a connection to claim
[ ] other *(please specify)*

I believe that the facts stated in this certificate are true.

Full name: Shona Ruth Jenkins

Signed: Shona Jenkins

Claimant's solicitor

Position or office held: Solicitor

(If signing on behalf of firm or company)

C335

D804

Date 1 3 0 7 2 0 2 0

Rules relating to the service of documents are contained in Part 6 of the Civil Procedure Rules (www.justice.gov.uk) and you should refer to the rules for information.

Calculation of deemed day of service of a claim

A claim form served within the UK in accordance with Part 6 of the Civil Procedure rules is deemed to be served on the second business day after the claimant has completed the steps required by CPR 7.5(1).

Calculation of the deemed day of service of documents other than the claim form (CPR 6.26)

Method of service	**Deemed day of service**
First class post or other service which provides for delivery on the next business day	The second day after it was posted, left with, delivered to or collected by the relevant service provider provided that day is a business day; or if not, the next business day after that day
Document exchange	The second day after it was left with, delivered to or collected by the relevant service provider provided that day is a business day; or if not, the next business day after that day
Delivering the document to or leaving it at a permitted address	If it is delivered to or left at the permitted address on a business day before 4.30pm, on that day; or in any other case, on the next business day after that day
Fax	If the transmission of the fax is completed on a business day before 4.30pm, on that day; or in any other case, on the next business day after the day on which it was transmitted
Other electronic method	If the email or other electronic transmission is sent on a business day before 4.30pm, on that day; or in any other case, on the next business day after the day on which it was sent
Personal service	If the document is served personally before 4.30pm on a business day, it is served on that day; or in any other case, on the next business day after that day

In this context 'business day' means any day except Saturday, Sunday or a bank holiday; (under the Banking and Financial Dealings Act 1971 in the part of the UK where service is to take place) includes Good Friday and Christmas Day.

Certificate of service

Name of court	Claim No.
High Court of Justice **Business & Property Courts** **Property, Trusts and Probate List (ChD)**	PT-2018-000098

Name of Claimant
(1) The Secretary of State for Transport
(2) High Speed Two (HS2) Limited

Name of Defendant
Persons Unknown & Ors

On what day did you serve?	3	0	/	0	6	/	2	0	2	0
The date of service is	3	0	/	0	6	/	2	0	2	0

What documents did you serve?
Please attach copies of the documents you have not already filed with the court.

Order dated 22 June 2020 and plan thereto

On whom did you serve?
(If appropriate include their position e.g. partner, director).

D31 – Samantha Smithson

How did you serve the documents?
(please tick the appropriate box)

[ ] by first class post or other service which provides for delivery on the next business day

[ ] by delivering to or leaving at a permitted place

[ ] by personally handing it to or leaving it with (.....time left, where document is other than a claim form) *(please specify)*

[ ] by other means permitted by the court
(please specify)

[ ] By Document Exchange

[ ] by fax machine (.....time sent, where document is other than a claim form) *(you may want to enclose a copy of the transmission sheet)*

[x] by other electronic means (email sent at 09:01 on 30 June 2020 to samanthasmithson@hotmail.com)

Being the email address confirmed as appropriate means for service by D31

Give the address where service effected, include fax or DX number, e-mail address or other electronic identification

D31's email address: [redacted]

Being the [ ] claimant's [X] defendant's [ ] solicitor's [ ] litigation friend

[ ] usual residence
[ ] last known residence
[ ] place of business
[ ] principal place of business
[ ] last known place of business
[ ] last known principal place of business
[ ] principal office of the partnership
[ ] principal office of the corporation
[ ] principal office of the company
[ ] place of business of the partnership/company/ corporation within the jurisdiction with a connection to claim
[X] other *(please specify)* **email address confirmed as appropriate means for service by D31**

I believe that the facts stated in this certificate are true.

Full name: SHONA RUTH JENKINS

Signed: Shona Jenkins

Position or office held: SENIOR ASSOCIATE

C337
D806

Claimants' solicitor

(If signing on behalf of firm or company)

Date

1	3	0	7	2	0	2	0

Rules relating to the service of documents are contained in Part 6 of the Civil Procedure Rules (www.justice.gov.uk) and you should refer to the rules for information.

Calculation of deemed day of service of a claim

A claim form served within the UK in accordance with Part 6 of the Civil Procedure rules is deemed to be served on the second business day after the claimant has completed the steps required by CPR 7.5(1).

Calculation of the deemed day of service of documents other than the claim form (CPR 6.26)

Method of service	**Deemed day of service**
First class post or other service which provides for delivery on the next business day	The second day after it was posted, left with, delivered to or collected by the relevant service provider provided that day is a business day; or if not, the next business day after that day
Document exchange	The second day after it was left with, delivered to or collected by the relevant service provider provided that day is a business day; or if not, the next business day after that day
Delivering the document to or leaving it at a permitted address	If it is delivered to or left at the permitted address on a business day before 4.30pm, on that day; or in any other case, on the next business day after that day
Fax	If the transmission of the fax is completed on a business day before 4.30pm, on that day; or in any other case, on the next business day after the day on which it was transmitted
Other electronic method	If the email or other electronic transmission is sent on a business day before 4.30pm, on that day; or in any other case, on the next business day after the day on which it was sent
Personal service	If the document is served personally before 4.30pm on a business day, it is served on that day; or in any other case, on the next business day after that day

In this context 'business day' means any day except Saturday, Sunday or a bank holiday; (under the Banking and Financial Dealings Act 1971 in the part of the UK where service is to take place) includes Good Friday and Christmas Day.

Certificate of service

Name of court	Claim No.
In the High Court of Justice	PT-2018-000098
Name of Claimant	
The Secretary of State for Transport and another	
Name of Defendant	
Jack Charles Oliver (34) and various others	

On what day did you serve? 01/07/2020

The date of service is 01/07/2020

What documents did you serve?
Please attach copies of the documents you have not already filed with the court.

Cover Letter, sealed copy Injunction Order issued on 22/06/20 together with Schedule of named Defendants and A3 size colour copy map extract

On whom did you serve?
(If appropriate include their position e.g. partner, director).

the above named 34th Defendant Jack Charles Oliver

How did you serve the documents?
(please tick the appropriate box)

- ☐ by first class post or other service which provides for delivery on the next business day
- ☑ by delivering to or leaving at a permitted place
- ☐ by personally handing it to or leaving it with (... .. ..time left, where document is other than a claim form) *(please specify)*
- ☑ by other means permitted by the court *(please specify)*

  Deposited on the ground inside the Harvil Road Wildlife Protection Camp at 2.25pm on Wednesday 01/07/2020
- ☐ by Document Exchange
- ☐ by fax machine (... .. . .time sent, where document is other than a claim form) *(you may want to enclose a copy of the transmission sheet)*
- ☐ by other electronic means (..... . . .time sent, where document is other than a claim form) *(please specify)*

Give the address where service effected, include fax or DX number, e-mail address or other electronic identification

Harvil Road Wildlife Protection Camp, Harvil Road, Harefield, Uxbridge, Hillingdon UB9

Being the
- ☐ claimant's
- ☑ defendant's
- ☐ solicitor's
- ☐ litigation friend

- ☐ usual residence
- ☑ last known residence
- ☐ place of business
- ☐ principal place of business
- ☐ last known place of business
- ☐ last known principal place of business
- ☐ principal office of the partnership
- ☐ principal office of the corporation
- ☐ principal office of the company
- ☐ place of business of the partnership/company/ corporation within the jurisdiction with a connection to claim
- ☐ other *(please specify)*

I believe that the facts stated in this certificate are true.

Full name: Raymond Finch

Signed: 

(Claimant) (Defendant) ('s solicitor) ('s litigation friend)

Position or office held: Process Server

(If signing on behalf of firm or company)

Date: 03/07/2020

C339

D808

Rules relating to the service of documents are contained in Part 6 of the Civil Procedure Rules (www.justice.gov.uk) and you should refer to the rules for information.

Calculation of deemed day of service of a claim

A claim form served within the UK in accordance with Part 6 of the Civil Procedure rules is deemed to be served on the second business day after the claimant has completed the steps required by CPR 7.5(1).

Calculation of the deemed day of service of documents other than the claim form (CPR 6.26)

Method of service	Deemed day of service
First class post or other service which provides for delivery on the next business day	The second day after it was posted, left with, delivered to or collected by the relevant service provider provided that day is a business day; or if not, the next business day after that day
Document exchange	The second day after it was left with, delivered to or collected by the relevant service provider provided that day is a business day; or if not, the next business day after that day
Delivering the document to or leaving it at a permitted address	If it is delivered to or left at the permitted address on a business day before 4.30pm, on that day; or in any other case, on the next business day after that day
Fax	If the transmission of the fax is completed on a business day before 4.30pm, on that day; or in any other case, on the next business day after the day on which it was transmitted
Other electronic method	If the email or other electronic transmission is sent on a business day before 4.30pm, on that day; or in any other case, on the next business day after the day on which it was sent
Personal service	If the document is served personally before 4.30pm on a business day, it is served on that day; or in any other case, on the next business day after that day

In this context 'business day' means any day except Saturday, Sunday or a bank holiday; (under the Banking and Financial Dealings Act 1971 in the part of the UK where service is to take place) includes Good Friday and Christmas Day.

D809

Certificate of service

Name of court	Claim No.
In the High Court of Justice	PT-2018-000098

Name of Claimant
The Secretary of State for Transport and another

Name of Defendant
Charlie Inskip (35) and various others

On what day did you serve? 01/07/2020

The date of service is 01/07/2020

What documents did you serve?
Please attach copies of the documents you have not already filed with the court.

Cover Letter, sealed copy Injunction Order issued on 22/06/20 together with Schedule of named Defendants and A3 size colour copy map extract

On whom did you serve?
(If appropriate include their position e.g. partner, director).

the above named 35th Defendant Charlie Inskip

How did you serve the documents?
(please tick the appropriate box)

- ☐ by first class post or other service which provides for delivery on the next business day
- ☑ by delivering to or leaving at a permitted place
- ☐ by personally handing it to or leaving it with (.....time left, where document is other than a claim form) *(please specify)*
- ☑ by other means permitted by the court *(please specify)*

  Deposited on the ground inside Denham Wildlife Protection Camp at 12.55pm on Wednesday 1/07/2020
- ☐ by Document Exchange
- ☐ by fax machine (... .. . ...time sent, where document is other than a claim form) *(you may want to enclose a copy of the transmission sheet)*
- ☐ by other electronic means (. .. ..time sent, where document is other than a claim form) *(please specify)*

Give the address where service effected, include fax or DX number, e-mail address or other electronic identification

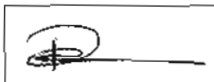
The Willow, Denham Wildlife Protection Camp, Denham Country Park, Denham Court Drive, Uxbridge

Being the
☐ claimant's ☑ defendant's ☐ solicitor's ☐ litigation friend

- ☐ usual residence
- ☑ last known residence
- ☐ place of business
- ☐ principal place of business
- ☐ last known place of business
- ☐ last known principal place of business
- ☐ principal office of the partnership
- ☐ principal office of the corporation
- ☐ principal office of the company
- ☐ place of business of the partnership/company/ corporation within the jurisdiction with a connection to claim
- ☐ other *(please specify)*

I believe that the facts stated in this certificate are true.

Full name: Raymond Finch

Signed: 

(Claimant) (Defendant) ('s solicitor) ('s litigation friend)

Position or office held: Process Server

(If signing on behalf of firm or company)

Date: 03/07/2020

C341

D810

Rules relating to the service of documents are contained in Part 6 of the Civil Procedure Rules (www.justice.gov.uk) and you should refer to the rules for information.

Calculation of deemed day of service of a claim

A claim form served within the UK in accordance with Part 6 of the Civil Procedure rules is deemed to be served on the second business day after the claimant has completed the steps required by CPR 7.5(1).

Calculation of the deemed day of service of documents other than the claim form (CPR 6.26)

Method of service	Deemed day of service
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Personal service	If the document is served personally before 4.30pm on a business day, it is served on that day; or in any other case, on the next business day after that day

In this context 'business day' means any day except Saturday, Sunday or a bank holiday; (under the Banking and Financial Dealings Act 1971 in the part of the UK where service is to take place) includes Good Friday and Christmas Day.

D811

RAYMOND FINCH:
CLAIMANT:
STATEMENT NO: 5
EXHIBITS: 'RF13-RF18'
DATED: 03/07/2020

IN THE HIGH COURT OF JUSTICE

BUSINESS AND PROPERTY COURTS

PROPERTY, TRUSTS AND PROBATE LIST (ChD)

CLAIM NO: PT-2018-000098

B E T W E E N:

(1) THE SECRETARY OF STATE FOR TRANSPORT

(2) HIGH SPEED TWO (HS2) LTD

Claimants/Applicants

-and-

(1) PERSONS UNKNOWN ENTERING OR REMAINING WITHOUT THE CONSENT OF THE CLAIMANT(S) ON LAND AT HARVIL ROAD, HAREFIELD IN THE LONDON BOROUGH OF HILLINGDON SHOWN COLOURED GREEN, BLUE AND PINK AND EDGED IN RED ON THE PLANS ANNEXED TO THE AMENDED CLAIM FORM

(2) PERSONS UNKNOWN SUBSTANTIALLY INTERFERING WITH THE PASSAGE BY THE CLAIMANTS AND THEIR AGENTS, SERVANTS, CONTRACTORS, SUB-CONTRACTORS, GROUP COMPANIES, LICENSEES, INVITEES OR EMPLOYEES WITH OR WITHOUT VEHICLES, MATERIALS AND EQUIPMENT BETWEEN THE PUBLIC HIGHWAY AT HARVIL ROAD, HAREFIELD IN THE LONDON BOROUGH OF HILLINGDON SHOWN COLOURED ORANGE AND THE LAND AT HARVIL ROAD SHOWN COLOURED GREEN, BLUE AND PINK AND EDGED IN RED ON THE PLANS ANNEXED TO THE AMENDED CLAIM FORM

(3) TO (35) THE NAMED DEFENDANTS AS LISTED IN THE SCHEDULE ANNEXED TO THE INJUNCTION ORDER ISSUED HEREIN ON 22 JUNE 2020

(36) PERSONS UNKNOWN CUTTING, DAMAGING, MOVING, CLIMBING ON OR OVER, DIGGING BENEATH OR REMOVING ANY ITEM AFFIXED TO ANY TEMPORARY OR PERMANENT FENCING OR GATES ON OR AT THE PERIMETER OF THE HARVIL ROAD SITE WITHOUT THE CONSENT OF THE CLAIMANTS

Defendants / Respondents

WITNESS STATEMENT OF PROCESS SERVER

I, Raymond Finch, Agent of I J Beim & Associates Limited of 8 Copper Gate Mews, Brighton Road, Surbiton, Surrey KT6 5NE, Process Server and for the purpose of service acting under the direction of Eversheds Sutherland (International) LLP of 1

D812

Callaghan Square, Cardiff CF10 5BT, solicitors for above named Claimants/Applicants **STATE AS FOLLOWS:**

1. That being directed to effect service of various documents appertaining to this matter upon a number of the Defendants/Respondents in this matter I did on Wednesday 1st July 2020 between 11.50am and 2.30pm serve the above named,1st, 2nd, and 36th Defendants/Respondents Persons Unknown, with 20 bundles of documents each comprising of the following:

   (a) Letter from my instructing Principals Eversheds Sutherland (International) LLP and dated 1st July 2020

   (b) Sealed copy Injunction Order issued herein on 22 June 2020 together with Schedule of Named Defendants and A3 size colour copy map extract annexed thereto.

2. That service of the above mentioned documents was effected by leaving the same enclosed in separate sealed transparent envelopes, each addressed to "the occupiers" and each thereafter either deposited in prominent positions on the ground or affixed to timber sakes within the various encampments occupied by the Defendants/Respondents and located directly off of Dews Lane, Harefield, Denham Country Park, Denham Court Drive, Uxbridge and Harvil Road, Harefield, Uxbridge, Hillingdon.

3. That in each instance the said Injunction Order, so served as described above, was accompanied by an A3 size laminated colour Injunction Warning Notice.

4. That the said documents so served as described above, were affixed and deposited in such a manner, so as to come to the immediate attention of any persons attending thereat.

5. There is now produced and shown to me marked 'RF13' a bundle comprising of the said covering letter from my instructing Principals Eversheds Sutherland (International) LLP, sealed copy Injunction Order issued herein on 22 June 2020 together with Schedule of Named Defendants, A3 size colour copy map extract annexed thereto and A3 size laminated colour Injunction Warning Notice.

9. There is now produced and shown to me marked 'RF14' a series of digital photographs taken on Wednesday 1 July 2020 and showing a variety of the Injunction Orders and laminated colour Warning Notices so served as described herein within the encampments occupied by the Defendants/Respondents.

6. That I did further on Wednesday 1 July 2020 at 12.50pm attend at the Defendants/Respondents protester encampment otherwise known as The Willow, Denham Wildlife Protection Camp situate at Denham Country Park, Denham Court Drive, Uxbridge, however I failed to find any of the named Defendants/Respondents present there.

7. That I did further at the same time and place, immediately thereafter on Wednesday 1 July 2020 at 12.55pm serve each of the following named Defendants/Respondents with further Sealed copies of the Injunction Order issued herein on 22 June 2020 together with Schedule of Named Defendants and A3 size colour copy map extract annexed thereto:

   (22) Dr Ian "Larch" Maxey

   (23) Sebastian Roblyn Maxey

   (29) Jacob Harwood

(35) Charlie Inskip

8. That in each instance service as described above, was effected by leaving the documents (each accompanied by covering letters addressed to the respective Defendants/Respondents) enclosed in separate, sealed waterproof envelopes individually addressed to each of the above mentioned Defendants/Respondents and thereafter deposited in prominent positions on the ground inside the protester encampment known as The Willow, Denham Wildlife Protection Camp situate at Denham Country Park, Denham Court Drive, Uxbridge in such a manner so as to come to the immediate attention of any persons attending thereat.

9. There is now produced and shown to me marked 'RF15' a photographic image showing the abovementioned bundles in place within the protester encampment known as The Willow, Denham Wildlife Protection Camp situate at Denham Country Park, Denham Court Drive, Uxbridge as served by myself on Wednesday 1 July 2020

10. That I did further, on Wednesday 1 July 2020 at various points between 12.15p.m. and 2.45pm serve the within named 1st, 2nd and 36th Defendants/Respondents, Persons Unknown with 40 further bundles, each comprising of true copies of the said covering letter from my instructing Principals Eversheds Sutherland (International) LLP dated 1 July 2020, sealed copy Injunction Order issued herein on 22 June 2020 together with Schedule of Named Defendants and with A3 size colour copy map extract annexed thereto.

10. That service of the above mentioned documents was effected by leaving the same enclosed in separate sealed transparent envelopes, each addressed to "The Occupiers" and each thereafter individually affixed in prominent positions as follows:

    a) Affixed to the Claimants/Applicants entrance gates numbered 1, 2, 3 and 4 giving access to the Claimants/Applicants' premises at Harvil Road, Harefield.

    b) Affixed in prominent positions to the perimeter fence surrounding the Claimants/Applicants' site at Harvil Road, Harefield.

    c) Affixed to stakes positioned either adjacent to or directly opposite the Claimants/Applicants' site at Harvil Road, Harefield.

    d) Affixed in prominent positions to the entrance gates and immediate perimeter fencing surrounding the Claimants/Applicants' sites known as Dews Lane Fusion Compound and Dews Lane West and both situate at Land at Dews Lane, Harefield, Hillingdon.

    e) Affixed to stakes positioned directly opposite the Claimants/Applicants' sites known as Dews Lane Fusion Compound and Dews Lane West and both situate at Land at Dews Lane, Harefield, Hillingdon.

    f) Affixed in prominent positions to the entrance gates and/or immediate perimeter fencing surrounding the Claimants/Applicants' sites and incorporating locations either within or adjoining Moorhall Road, Newyears Green Lane and Breakspear Road South, Harefield.

11. That in each instance the said Injunction Order, so served as described above, was accompanied by an A3 size laminated colour Injunction Warning Notice

12. That all of the aforementioned documents so served as described above were affixed and deposited in such a manner so as to come to the immediate attention of any persons attending thereat.

13. There is now produced and shown to me marked 'RF16' a series of digital photographs taken on Wednesday 1 July 2020 and showing a variety of the above mentioned bundles of documents so served as described herein at the Claimants/Applicants' sites situate at Land at Dews Lane, Harvil Road, Moorhall Road, Newyears Green Lane and Breakspear Road South, Harefield.

14. That I did further on Wednesday 1 July 2020 at 2.20pm attend at the Defendants/Respondents protester encampment otherwise known as Harvil Road Wildlife Protection Camp and located at Harvil Road, Harefield directly opposite entrance gate number 2 giving access to the Claimants/Applicants' North Compound, however I failed to find any of the named Defendants/Respondents present there.

15. That I did further at the same time and place immediately thereafter on Wednesday 1 July 2020 at 2.25pm serve each of the following named Defendants/Respondents with further Sealed copies of the Injunction Order issued herein on 22 June 2020 together with Schedule of Named Defendants and A3 size colour copy map extract annexed thereto.

(7) Thorn Ramsey

(8) Vajda Robert Mardechaj

(9) Iain Oliver

(10)Elliott Cuciurean

(11)Jess Walker

(12)Matt Atkinson

(13)Scott Breen

(14)Hannah Bennett

(15)James aka "Jimmy" Ruggles

(16)Nick Grant aka "Potts"

(17) Stuart Ackroyd

(18) Paul Sandison

(19) Tom Dalton

(20) Conner Nichols

(22) Jessica Heathland-Smith

(23) Ella Dorton

(24) Karl Collins

(25) Sam Goggin

(26) Hayley Pitwell

(27) Tom Holmes

(34) Jack Charles Oliver

11. That in each instance service as described above, was effected by leaving the documents (each accompanied by covering letters addressed to the respective Defendants/Respondents) enclosed in separate, sealed waterproof envelopes individually addressed to each of the above mentioned Defendants/Respondents and thereafter deposited in prominent positions on the ground inside Harvil Road Wildlife Protection Camp, Harvil Road, Harefield in such a manner so as to come to the immediate attention of any persons attending thereat.

12. There is now produced and shown to me marked 'RF17' a photographic image showing the abovementioned bundles in place within the Harvil Road Wildlife Protection Camp as served by myself on Wednesday 1 July 2020.

13. That I did further on Wednesday 1 July 2020 at 4.55pm pm attend at the protestor encampment known as Save Crackley Woods Camp situate of Cryfield Grange Road, Kenilworth, Warwickshire CV8 2JU accompanied by members of the Claimants/Applicants' security personnel. Whilst I met there with a group of various individuals, I was unable to identify any of the persons named as Defendants/Respondents in this action.

16. That I did further at the same time and place on Wednesday 1 July 2020 at 5.00pm serve each of the following named Defendants/Respondents with further Sealed copies of the Injunction Order issued herein on 22 June 2020 together with Schedule of Named Defendants and A3 size colour copy map extract annexed thereto.

    (10) Elliott Cuciurean

    (14) Hannah Bennett

    (17) Stuart Ackroyd

    (25) Ella Dorton

    (27) Sam Goggin

17. That in each instance service as described above, was effected by leaving the documents (each accompanied by covering letters addressed to the respective Defendants/Respondents) enclosed in separate, sealed waterproof envelopes individually addressed to each of the above mentioned Defendants/Respondents and thereafter deposited in prominent positions on the ground inside the Save Crackley Woods Camp in such a manner so as to come to the immediate attention of any persons attending thereat.

18. There is now produced and shown to me marked 'RF18' a photographic image showing the abovementioned bundles in place within the Save Crackley Woods Camp as served by myself on Wednesday 1 July 2020.

Statement of Truth: I believe that the facts stated in this witness statement are true. I understand that proceedings for contempt of court may be brought against anyone who makes or causes to be made, a false statement in a document verified by a statement of truth without an honest belief in its truth.

Signed: .....
RAYMOND FINCH
Dated: **03 July 2020**

RAYMOND FINCH:
CLAIMANT:
STATEMENT NO: 5
EXHIBITS: 'RF13-RF18'
DATED: 18/06/2020

IN THE HIGH COURT OF JUSTICE

BUSINESS AND PROPERTY COURTS

PROPERTY, TRUSTS AND PROBATE LIST (ChD)

CLAIM NO: PT-2018-000098

B E T W E E N:

(1) THE SECRETARY OF STATE FOR TRANSPORT

(2) HIGH SPEED TWO (HS2) LTD

Claimants/Applicants

-and-

(1) PERSONS UNKNOWN ENTERING OR REMAINING WITHOUT THE CONSENT OF THE CLAIMANT(S) ON LAND AT HARVIL ROAD, HAREFIELD IN THE LONDON BOROUGH OF HILLINGDON SHOWN COLOURED GREEN, BLUE AND PINK AND EDGED IN RED ON THE PLANS ANNEXED TO THE AMENDED CLAIM FORM

(2) PERSONS UNKNOWN SUBSTANTIALLY INTERFERING WITH THE PASSAGE BY THE CLAIMANTS AND THEIR AGENTS, SERVANTS, CONTRACTORS, SUB-CONTRACTORS, GROUP COMPANIES, LICENSEES, INVITEES OR EMPLOYEES WITH OR WITHOUT VEHICLES, MATERIALS AND EQUIPMENT BETWEEN THE PUBLIC HIGHWAY AT HARVIL ROAD, HAREFIELD IN THE LONDON BOROUGH OF HILLINGDON SHOWN COLOURED ORANGE AND THE LAND AT HARVIL ROAD SHOWN COLOURED GREEN, BLUE AND PINK AND EDGED IN RED ON THE PLANS ANNEXED TO THE AMENDED CLAIM FORM

(3) TO (35) THE NAMED DEFENDANTS AS LISTED IN THE SCHEDULE ANNEXED TO THE INJUNCTION ORDER ISSUED HEREIN ON 22 JUNE 2020

(36) PERSONS UNKNOWN CUTTING, DAMAGING, MOVING, CLIMBING ON OR OVER, DIGGING BENEATH OR REMOVING ANY ITEM AFFIXED TO ANY TEMPORARY OR PERMANENT FENCING OR GATES ON OR AT THE PERIMETER OF THE HARVIL ROAD SITE WITHOUT THE CONSENT OF THE CLAIMANTS

Defendants / Respondents

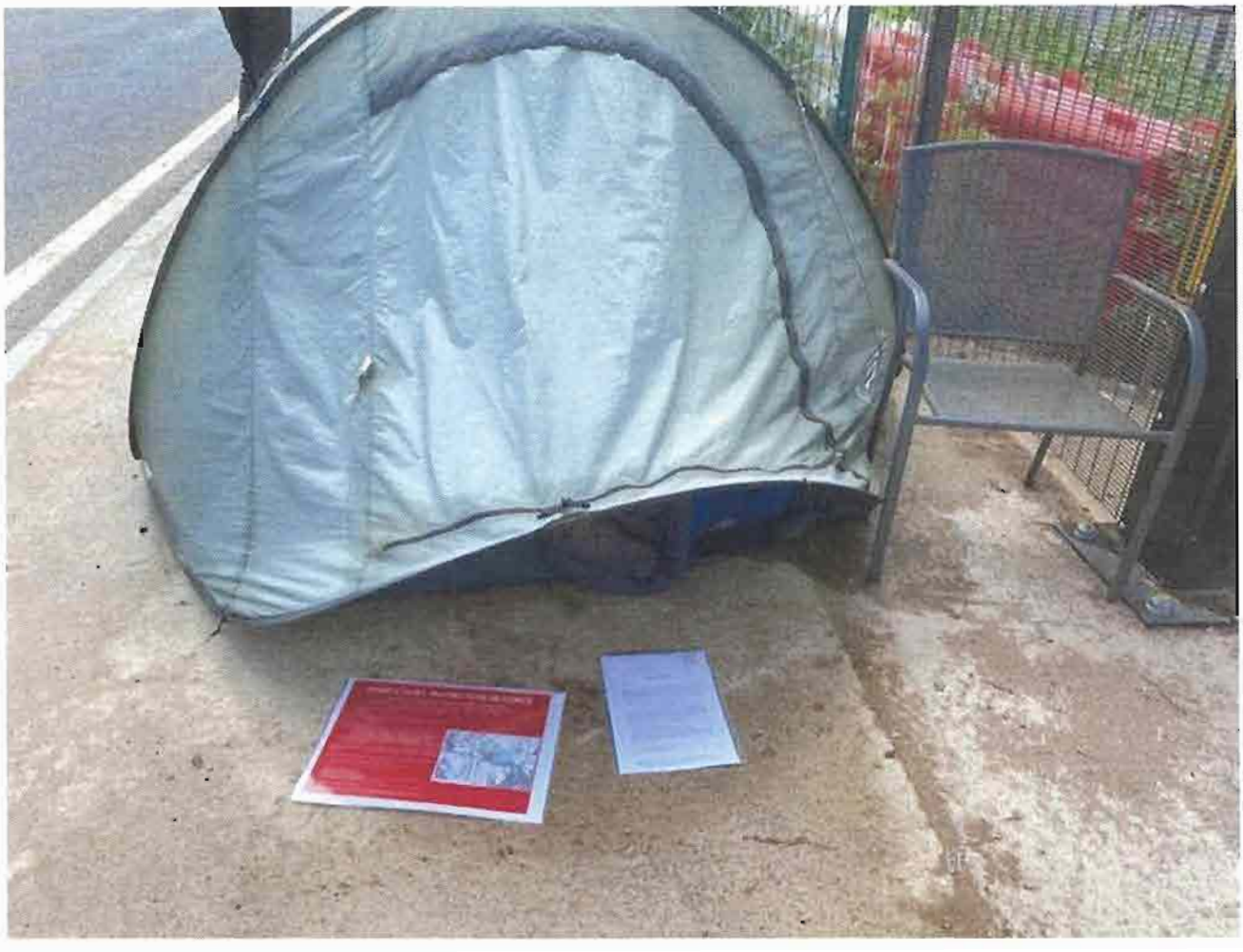
THESE ARE THE COPY PHOTOGRAPHIC IMAGES REFERRED TO AS EXHIBIT 'RF14' IN THE ANNEXED WITNESS STATEMENT OF RAYMOND FINCH

Signed: .....
RAYMOND FINCH

Dated: 3 JULY 2020

D818


HIGH COURT INJUNCTION IN FORCE
environmenta



D820


HIGH COURT INJUNCTION IN FORCE
HS2
DEATH
TRAIN

D822

D823

D824

D825

RAYMOND FINCH:
CLAIMANT:
STATEMENT NO: 5
EXHIBITS: 'RF13-RF18'
DATED: 03/07/2020

IN THE HIGH COURT OF JUSTICE

BUSINESS AND PROPERTY COURTS

PROPERTY, TRUSTS AND PROBATE LIST (ChD)

CLAIM NO: PT-2018-000098

B E T W E E N:

(1) THE SECRETARY OF STATE FOR TRANSPORT

(2) HIGH SPEED TWO (HS2) LTD

Claimants/Applicants

-and-

(1) PERSONS UNKNOWN ENTERING OR REMAINING WITHOUT THE CONSENT OF THE CLAIMANT(S) ON LAND AT HARVIL ROAD, HAREFIELD IN THE LONDON BOROUGH OF HILLINGDON SHOWN COLOURED GREEN, BLUE AND PINK AND EDGED IN RED ON THE PLANS ANNEXED TO THE AMENDED CLAIM FORM

(2) PERSONS UNKNOWN SUBSTANTIALLY INTERFERING WITH THE PASSAGE BY THE CLAIMANTS AND THEIR AGENTS, SERVANTS, CONTRACTORS, SUB-CONTRACTORS, GROUP COMPANIES, LICENSEES, INVITEES OR EMPLOYEES WITH OR WITHOUT VEHICLES, MATERIALS AND EQUIPMENT BETWEEN THE PUBLIC HIGHWAY AT HARVIL ROAD, HAREFIELD IN THE LONDON BOROUGH OF HILLINGDON SHOWN COLOURED ORANGE AND THE LAND AT HARVIL ROAD SHOWN COLOURED GREEN, BLUE AND PINK AND EDGED IN RED ON THE PLANS ANNEXED TO THE AMENDED CLAIM FORM

(3) TO (35) THE NAMED DEFENDANTS AS LISTED IN THE SCHEDULE ANNEXED TO THE INJUNCTION ORDER ISSUED HEREIN ON 22 JUNE 2020

(36) PERSONS UNKNOWN CUTTING, DAMAGING, MOVING, CLIMBING ON OR OVER, DIGGING BENEATH OR REMOVING ANY ITEM AFFIXED TO ANY TEMPORARY OR PERMANENT FENCING OR GATES ON OR AT THE PERIMETER OF THE HARVIL ROAD SITE WITHOUT THE CONSENT OF THE CLAIMANTS

Defendants / Respondents

THIS IS THE COPY PHOTOGRAPHIC IMAGE REFERRED TO AS EXHIBIT 'RF15' IN THE ANNEXED WITNESS STATEMENT OF RAYMOND FINCH

Signed: .....
RAYMOND FINCH

Dated: 3 JULY 2020

D827

RAYMOND FINCH:
CLAIMANT:
STATEMENT NO: 5
EXHIBITS: 'RF13-RF18'
DATED: 03/07/2020

IN THE HIGH COURT OF JUSTICE

BUSINESS AND PROPERTY COURTS

PROPERTY, TRUSTS AND PROBATE LIST (ChD)

CLAIM NO: PT-2018-000098

B E T W E E N:

(1) THE SECRETARY OF STATE FOR TRANSPORT

(2) HIGH SPEED TWO (HS2) LTD

Claimants/Applicants

-and-

(1) PERSONS UNKNOWN ENTERING OR REMAINING WITHOUT THE CONSENT OF THE CLAIMANT(S) ON LAND AT HARVIL ROAD, HAREFIELD IN THE LONDON BOROUGH OF HILLINGDON SHOWN COLOURED GREEN, BLUE AND PINK AND EDGED IN RED ON THE PLANS ANNEXED TO THE AMENDED CLAIM FORM

(2) PERSONS UNKNOWN SUBSTANTIALLY INTERFERING WITH THE PASSAGE BY THE CLAIMANTS AND THEIR AGENTS, SERVANTS, CONTRACTORS, SUB-CONTRACTORS, GROUP COMPANIES, LICENSEES, INVITEES OR EMPLOYEES WITH OR WITHOUT VEHICLES, MATERIALS AND EQUIPMENT BETWEEN THE PUBLIC HIGHWAY AT HARVIL ROAD, HAREFIELD IN THE LONDON BOROUGH OF HILLINGDON SHOWN COLOURED ORANGE AND THE LAND AT HARVIL ROAD SHOWN COLOURED GREEN, BLUE AND PINK AND EDGED IN RED ON THE PLANS ANNEXED TO THE AMENDED CLAIM FORM

(3) TO (35) THE NAMED DEFENDANTS AS LISTED IN THE SCHEDULE ANNEXED TO THE INJUNCTION ORDER ISSUED HEREIN ON 22 JUNE 2020

(36) PERSONS UNKNOWN CUTTING, DAMAGING, MOVING, CLIMBING ON OR OVER, DIGGING BENEATH OR REMOVING ANY ITEM AFFIXED TO ANY TEMPORARY OR PERMANENT FENCING OR GATES ON OR AT THE PERIMETER OF THE HARVIL ROAD SITE WITHOUT THE CONSENT OF THE CLAIMANTS

Defendants / Respondents

THESE ARE THE COPY PHOTOGRAPHIC IMAGES REFERRED TO AS EXHIBIT 'RF16' IN THE ANNEXED WITNESS STATEMENT OF RAYMOND FINCH

Signed: .....
RAYMOND FINCH

Dated: 3 JULY 2020

D828

D829


NCE IN
ANT USE
DANGER
Construction Site
KEEP OUT
HIGH COURT INJUNCTION IN FORCE

D831

D832

D833

D834

D835

D836

D837

D838


WARNING
servest
PATROL AND PROTECT
THESE PREMISES
0800 825 0502

D839

RAYMOND FINCH:
CLAIMANT:
STATEMENT NO: 5
EXHIBITS: 'RF13-RF18'
DATED: 03/07/2020

IN THE HIGH COURT OF JUSTICE

BUSINESS AND PROPERTY COURTS

PROPERTY, TRUSTS AND PROBATE LIST (ChD)

CLAIM NO: PT-2018-000098

B E T W E E N:

(1) THE SECRETARY OF STATE FOR TRANSPORT

(2) HIGH SPEED TWO (HS2) LTD

Claimants/Applicants

-and-

(1) PERSONS UNKNOWN ENTERING OR REMAINING WITHOUT THE CONSENT OF THE CLAIMANT(S) ON LAND AT HARVIL ROAD, HAREFIELD IN THE LONDON BOROUGH OF HILLINGDON SHOWN COLOURED GREEN, BLUE AND PINK AND EDGED IN RED ON THE PLANS ANNEXED TO THE AMENDED CLAIM FORM

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Defendants / Respondents

THIS IS THE COPY PHOTOGRAPHIC IMAGE REFERRED TO AS EXHIBIT 'RF17' IN THE ANNEXED WITNESS STATEMENT OF RAYMOND FINCH

Signed: .....
RAYMOND FINCH

Dated: 3 JULY 2020

D841

RAYMOND FINCH:
CLAIMANT:
STATEMENT NO: 5
EXHIBITS: 'RF13-RF18'
DATED: 03/07/2020

IN THE HIGH COURT OF JUSTICE

BUSINESS AND PROPERTY COURTS

PROPERTY, TRUSTS AND PROBATE LIST (ChD)

CLAIM NO: PT-2018-000098

B E T W E E N:

(1) THE SECRETARY OF STATE FOR TRANSPORT

(2) HIGH SPEED TWO (HS2) LTD

Claimants/Applicants

-and-

(1) PERSONS UNKNOWN ENTERING OR REMAINING WITHOUT THE CONSENT OF THE CLAIMANT(S) ON LAND AT HARVIL ROAD, HAREFIELD IN THE LONDON BOROUGH OF HILLINGDON SHOWN COLOURED GREEN, BLUE AND PINK AND EDGED IN RED ON THE PLANS ANNEXED TO THE AMENDED CLAIM FORM

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(36) PERSONS UNKNOWN CUTTING, DAMAGING, MOVING, CLIMBING ON OR OVER, DIGGING BENEATH OR REMOVING ANY ITEM AFFIXED TO ANY TEMPORARY OR PERMANENT FENCING OR GATES ON OR AT THE PERIMETER OF THE HARVIL ROAD SITE WITHOUT THE CONSENT OF THE CLAIMANTS

Defendants / Respondents

THIS IS THE COPY PHOTOGRAPHIC IMAGE REFERRED TO AS EXHIBIT 'RF18' IN THE ANNEXED WITNESS STATEMENT OF RAYMOND FINCH

Signed: .....
RAYMOND FINCH

Dated: 3 JULY 2020

D843

1.	Claimants
2.	Shona Ruth Jenkins
3.	Fourth
4.	SRJ3
5.	Date: 17 August 2020

Claim No: PT-2018-000098

IN THE HIGH COURT OF JUSTICE
BUSINESS AND PROPERTY COURTS
PROPERTY, TRUSTS AND PROBATE LIST (ChD)

B E T W E E N:

(1) THE SECRETARY OF STATE FOR TRANSPORT

(2) HIGH SPEED TWO (HS2) LTD

Claimants/Applicants

-and-

(1) PERSONS UNKNOWN ENTERING OR REMAINING WITHOUT THE CONSENT OF THE CLAIMANT(S) ON LAND AT HARVIL ROAD, HAREFIELD IN THE LONDON BOROUGH OF HILLINGDON SHOWN COLOURED GREEN, BLUE AND PINK AND EDGED IN RED ON THE PLANS ANNEXED TO THE RE-AMENDED CLAIM FORM

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(3) to (35) THE NAMED DEFENDANTS LISTED IN THE SCHEDULE TO THE ORDER OF MR DAVID HOLLAND QC DATED 22 JUNE 2020

(36) PERSONS UNKNOWN CUTTING, DAMAGING, MOVING, CLIMBING ON OR OVER, DIGGING BENEATH OR REMOVING ANY ITEMS AFFIXED TO ANY TEMPORARY OR PERMANENT FENCING OR GATES ON OR AT THE PERIMETER OF THE HARVIL ROAD SITE, OR DAMAGING, APPLYING ANY SUBSTANCE TO OR INTEFERING WITH ANY LOCK OR ANY GATE AT THE PERIMETER OF THE HARVIL ROAD SITE WITHOUT THE CONSENT OF THE CLAIMANTS

Defendants / Respondents

FOURTH WITNESS STATEMENT OF SHONA RUTH JENKINS

I, **SHONA RUTH JENKINS**, of Eversheds Sutherland (International) LLP, 1 Callaghan Square, Cardiff, CF10 5BT, WILL SAY as follows:-

1. I am a solicitor of the Senior Courts of England and Wales and a Senior Associate at Eversheds Sutherland (International) LLP with day to day conduct of this matter under the supervision of my partners. I am authorised to make this Fourth Witness Statement on behalf of the Claimants in this claim.

C375

D844

1.	Claimants
2.	Shona Ruth Jenkins
3.	Fourth
4.	SRJ3
5.	Date: 17 August 2020

2. I make this statement, in support of the Claimants' application dated 15 June 2020 ("the **Substantive Amendment Application**") in order to update the Court on the steps taken by the Claimants to:

   2.1 serve the Order dated 22 June ("the **Current Injunction**"); and

   2.2 provide copies of the Notice of Hearing and the Claimants' witness evidence in reply pursuant to paragraphs 20 and 22 of the Current Injunction.

3. The matters I set out in this statement are within my own knowledge, unless stated otherwise, in which case I set out the source of my belief. There is now shown to me a paginated clip of documents which I exhibit hereto as SRJ3. Page numbers without qualification refer to that exhibit. Where I refer to "the Schedule" in this statement, that is a reference to the 'overview' schedule exhibited at **pp. 1-4 of SRJ3**. The contents of this statement and the Schedule are true to the best of my knowledge and belief.

Overview of service pursuant to the Current Injunction

4. The steps that the Claimants are required to take in respect of service of documents relating to these proceedings was streamlined on the making of the Current Injunction. Whilst the Claimants have sought to extensively serve all defendants including both persons unknown and the Named Defendants with a copy of the Current Injunction as is evidence by the detail below and the witness statement and certificates of service of Raymond Finch dated 3 July 2020, in respect of any further documents, the Claimants are required only to provide copies of those documents by (i) uploading links to their websites (ii) sending copies to email address which have been provided by any of the Named Defendants for the purposes of these proceedings or by delivering copies to any addresses or locations which have been provided as a place for service.

5. As indicated above, the Schedule is a 'snapshot' illustrating what has taken place in respect of service / provision of documents since the Current Injunction was made. Where in the Schedule it states "N/A" next to a particular Named Defendant in any column, that means that this particular Named Defendant has not provided an email address to the Claimants for the purposes of these proceedings nor have they provided a physical address or location for service such that the Claimants are not required to provide copies of the further documents to them. Any such documents however are accessible on the websites referred to below or by contacting my firm for copies.

C376

D845

1.	Claimants
2.	Shona Ruth Jenkins
3.	Fourth
4.	SRJ3
5.	Date: 17 August 2020

Service of the Current Injunction

Service on First, Second and Thirty-Sixth Defendants

6. The detail of service of the June 2020 Order is set out in the witness statement of Raymond Finch dated 3 July 2020, together with certificates of service, all of which have been filed with the Court. In summary, however, on 1 July 2020 process servers instructed by my firm on behalf of the Claimants effected service of the following documents:

    (i) Letter from my firm dated 1 July 2020;

    (ii) sealed copy of the July 2020 Order attached to it an A3 colour copy of Plan A; and

    (iii) A3 laminated injunction warning notice

    by leaving copies in sealed transparent envelopes in conspicuous locations around the perimeter of the Harvil Road Site, including at and opposite the Vehicular Entrances as well as various encampments in the vicinity (including the 'roadside' protester camp at Harvil Road) so that persons who might be coming on to the land (or considering doing so) can access them.

7. On the 30 June 2020, the Second Claimant updated its existing advertisement and published a notification of the making of the June 2020 Injunction in prominent location on the following website:

    https://www.gov.uk/government/organisations/high-speed-two-limited

8. On 6 July 2020, the existing notification on website https://hs2inhillingdon.commonplace.is/ was also updated to publish a notification of the making of the June 2020 Injunction and to provide a link to the sealed order.

9. For completeness, I confirm that the notification on both websites also explained that further evidence filed by the Claimants in these proceedings would be available via those websites and therefore anyone who was interested in these proceedings ought to monitor the websites. It was explained on the websites that anyone wanting a copy of the hearing bundle should contact my firm by 17 August 2020 in order that arrangements for access to this could be provided when the hearing bundle was prepared. I confirm that, to date, three individuals (one of whom is an interested party and the interest of the other two is unknown) have been in contact requesting a copy of the bundle and arrangements are being made for them to have access to our document hosting platform for that purpose.

1.	Claimants
2.	Shona Ruth Jenkins
3.	Fourth
4.	SRJ3
5.	Date: 17 August 2020

Service on Third to Thirty-Fifth Defendants

10. In respect of the Named Defendants, the 'snapshot' provided in the Schedule illustrates where service of the Current Injunction has taken place for each of the Named Defendants.

11. In summary:

11.1 On **30 June 2020**:

(i) D3, D4 and D31 were served under cover of a letter dated 30 June 2020 sent by first class and recorded delivery to their usual addresses. A copy of the Current Injunction was also sent to D3's solicitors and barrister (Mr Mehta) by email on 30 June 2020 and to D4's barrister (Mr Powlesland) on the same day.

(ii) D18, D28 and D32 were served by sending a copy of the Current Injunction to their email addresses given for service in these proceedings.

(iii) D11, D15, D16, D19 and D20 were served under cover of a letter dated 30 June 2020 sent by first class and recorded delivery to their last known addresses.

11.2 On **1 July 2020**:

(i) D8, D21, D22, D23, D26, D29, D35 were served with the Current Injunction with a covering letter addressed to each of those individuals at the locations they had previously given the Claimants for service as set out in the Schedule.

(ii) D7, D9-D14, D17-D20, D24, D25, D27, D30 and D34 were served by leaving copies of the Current Injunction with a covering letter addressed to each of those individuals at the 'roadside' protest camp at Harvil Road. In the case of D7, D12 and D14, camps at Harvil Road have been given as an address for those individuals previously.

(iii) D10, D14, D17, D25 and D27 were served by leaving copies of the Current Injunction with a covering letter addressed to each of those individuals at the Crackley Protest Camp. In the case of Ds25 and 27, this was a previous given address and in the case of D14, it has been previously confirmed by other occupants of the camp that she does reside there.

C378

D847

1.	Claimants
2.	Shona Ruth Jenkins
3.	Fourth
4.	SRJ3
5.	Date: 17 August 2020

Claimants' Reply Evidence

12. On **27 July 2020**, the Claimants' filed evidence in reply pursuant to paragraph 25 of the Current Injunction. This included a third witness statement of Mr Perin and a third witness statement of Mr Jordan together with exhibits ("the Reply Evidence").

13. In addition and pursuant to paragraph 25 of the Current Injunction:

13.1 On **27 July 2020** a link to the Claimants' Reply Evidence was created on the websites referred to at paragraphs 7 and 8 above and those documents uploaded.

13.2 On **27 July 2020**, I sent emails to D3 (and Mr Mehta and D3's solicitors), D4, D9, D18, D28 and D32 attaching a copy of the Reply Evidence. I also indicated that videos are referred to in the third statement of Mr Jordan ("Jordan 3") and links had been provided to those videos. I made clear that if they had any difficulties in accessing the videos that they should let me know and I would arrange for them to have access to my firm's document hosting system. At the time of drafting this statement, only D3 - Ms Green has been in touch to ask for access to one of the video. Access was promptly provided by a trainee solicitor in my firm.

13.3 On **27 July 2020**, the Reply Evidence was sent by first class and recorded delivery to the addresses provided by D3, D4 and D31. Again, it was explained that the exhibit to Jordan 3 contained links to video evidence and should there be any problems in accessing those that they should contact my firm.

13.4 On **28 July 2020**, the Reply Evidence was hand delivered to each of each of the following Named Defendants: D8, D21, D22, D23, D26, D29, D35 by leaving copies at the locations they had given for service as set out in the Schedule, again with a covering letter explaining about the links to the video evidence.

14. The Claimants filed further evidence in support of their application on 14 August 2020 being a fourth witness statement of Rohan Perin together with an exhibit ("Perin 4"). A copy was provided to the defendants as follows:

14.1 On **14 August 2020** a link to Perin 4 was created on the websites referred to at paragraphs 7 and 8 above and those documents uploaded.

14.2 On **13 August 2020**, emails were sent to D3 (and Mr Mehta and D3's solicitors), D4 (and D4's barrister, Mr Powlesland), D9, D18, D28 and D32 attaching a copy of Perin 4.

C379

D848

1.	Claimants
2.	Shona Ruth Jenkins
3.	Fourth
4.	SRJ3
5.	Date: 17 August 2020

14.3 On **14 August 2020**, Perin 4 was delivered by hand to the addresses provided by D3, D4 and D31. Perin 4 was also hand delivered to each of each of the following Named Defendants: D8, D21, D22, D23, D26, D29, D35 by leaving copies at the locations they had given for service as set out in the Schedule.

Notice of Hearing of the Substantive Amendment Application

15. Paragraph 22 of the Current Injunction required that:

> 22. The Court shall provide a notice of hearing to the Claimants' solicitors, which the Claimants are to publicise by:
>
> 22.1 sending a copy to any email addresses provided by the Named Defendants to the Claimants for the purposes of these proceedings; and
>
> 22.2 posting a copy on the websites at paragraph 13.4 above.

15.1 On **10 August 2020**, each of the websites referred to above were further updated to provide a link to the Notice of Hearing and also to explain that anyone who wanted further details of the hearing should contact the court as indicated in the Notice.

15.2 On **10 August 2020**, I sent emails to D3 (and Mr Mehta and D3's solicitors), D4, D9, D18, D28 and D32 attaching a copy of the Notice of Hearing.

15.3 Whilst not required to do so, on **14 August 2020**, a copy of the Notice of Hearing was also hand delivered to each of each of the following Named Defendants: D8, D21, D22, D23, D26, D29, D35 at the same time a copy of Perin 4 was provided as set out at paragraph 14.3

I believe that the facts stated in this witness statement are true. I understand that proceedings for contempt of court may be brought against anyone who makes, or causes to be made, a false statement in a document verified by a statement of truth without an honest belief in its truth.

Signed: 

SHONA RUTH JENKINS

Dated: 17 August 2020

C380

D849

Claim No: PT-2018-000098

IN THE HIGH COURT OF JUSTICE BUSINESS AND PROPERTY COURTS PROPERTY, TRUSTS AND PROBATE LIST (ChD)

B E T W E E N:

(1) THE SECRETARY OF STATE FOR TRANSPORT

(2) HIGH SPEED TWO (HS2) LTD

Claimants/Applicants

-and-

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Defendants / Respondents

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EXHIBIT 1

Herts and Middlesex Badger Group Statement

From:
Frank Wood, on behalf of Herts and Middlesex Badger Group, My home address 3 Durler Gardens, Luton LU1 3TA. Badger line 07860 210414, Registered Charity Number 1076878

Subject:
Effect of HS2 enabling work on badger setts in the Harvil Rd road area south of Harefield.

We acknowledge that Harvil Road Wildlife Protection Camp have been in regular contact with Herts and Middlesex Badger Group on numerous occasions since 2017, with regard to the welfare of badgers in relation to HS2 enabling works around Harvil Road, Hillingdon. We were first informed by the Badger Trust that they had received reports from a number of concerned locals, regarding groundwork being carried out by HS2 contractors near to badger setts. We raised these at a meeting with HS2 in January 2018 but the promised communication with them has not materialised until this month, when Badger Trust set up a meeting with ourselves and other badger groups along the proposed route, with the Phase 1 Head of Ecology. This is a very welcome development after 3 years of trying to follow up wildlife welfare issues and we will finally hope to be able to address some of our concerns.

Christine Wood, Chair of Herts and Middlesex Badger Group and other members of our badger group have visited the surrounding areas to this site on numerous occasions to follow up concerns, from the Wildlife Protection Camp and other locals. We visited the 20-hole badger sett in woodland adjacent to Dews Lane, that the badger group have held on record for over 30 years. We found signs of badger activity, numerous holes, bedding, hair, latrines, badger paths, evidence of foraging as well as sightings of cubs last year. CEO Badger Trust has visited this site on a couple of occasions, as has DC Sarah Bailey from the Met Wildlife Crime Unit. The badger activity has been affected by HS2 works but there were still active badger holes and activity earlier this year There have been badger sightings and the sound of badgers fighting heard this month on Dews Lane. This wood is now on enclosed by construction activity on four sides. On our survey on Wednesday 20th May, we noted the wood had been enclosed by security fencing and the area inside the fencing patrolled 24/7 with security guards and dogs at night The garage backing onto the wood has been demolished using heavy machinery earlier May 2020 and trees cleared right up to a known active hole inside the wood which we could see through the fence. We are not permitted access to check on the welfare of the badgers but they will have undoubtedly been disturbed by the presence of the night security guards, lighting and demolition activities. This construction activity has been carried out during cub season too. We note that 'rumour has it' the side of the wood is being taken out for a pylon with piling being carried out as well as the lane widening. We are hoping to hear about badger mitigation from our current discussions with HS2. A 2 hole outlier near to the Harvil Road railway bridge at the top of Chiltern line network railway embankment, may have been mown over at beginning of 2020. Damage could be clearly seen from the railway bridge although now hidden under spring regrowth. Two dead badgers were subsequently reported on Harvil Road by locals. On the far side of Dell Wood, accessed from Harvil Road the field has been flattened and with close-planted saplings in plastic tubes with a new pond which is part of newt mitigation, we have been told. These saplings were not watered as this was not practical and as a result, all reports are that most have died. We would be interested to know the future of this site because if properly managed, it would have a positive impact on the survival of the badgers. We will be following up on these specific concerns, in our forthcoming confidential meetings with the HS2 team.

Frank Wood

30th May 2020

EXHIBIT 2

River Chess Association concerns

River Chess Association concerns

https://www.facebook.com/RiverChess/?__tn__=%2Cd%2CP-R&eid=ARAZ9zAyaz09-pf2_ErD6MdEJ82ZKp1BPphUq7ftDpRtMc06-WvL9bCEiwT7dLGYAnLoFYlxwvQ0ggjB

The River Chess Association has serious ongoing concerns for the rivers and lakes in its catchment area.

RCA have posted evidence on the River Chess Association Facebook page date 30 May 2020. This shows chalk turbidity in Shardeloes Lake on 30 May 2020. This is believed to be resulting from bore holes which have just been sunk into the chalk 50m -70m to the side of Shardeloes Lake by HS2 contractors. RCA has real concerns that this level of pollution has resulted from relatively minor works when two very large tunnels are planned for beneath the area. One of the tunnels is planned to go beneath the top end of the lake. Also there is concern that the drilling happened in Covid 19 lockdown, at a time when less monitoring of water quality is being carried out.

Paul Jenkins of the Association is happy to be contacted for any further evidence of impacts on their water courses. Email paul.jennings@talk21.com

Mr Jennings was also at lengths to say the RCA are following up enquiries with the Department of Transport regarding Affinity Water Ltd financial indemnity against HS2. In 2016 Affinity Water Ltd were granted a financial contingent liability. The RCA has asked the DfT to extend the liability to other stakeholders who will suffer financial losses due to impacts of HS2 contractors on the chalk aquifers. The aquifer here is the same aquifer as under the Mid Colne Valley, namely the Mid Chiltern Chalk aquifer.

Some more pictures of Shardlowes Lake on the River Misbourne yesterday, here you can see the polluted turbid water mingling with the clean water

River Chess Association

EXHIBIT 3

The Geology of the Newyears Green Area, Hillingdon, London

A report by Dr Haydon Bailey

THE GEOLOGY OF THE NEWYEARS GREEN AREA, HILLINGDON, LONDON

A REPORT BY:

HAYDON W. BAILEY BSc PhD CGeoL FGS

March, 2019

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1. INTRODUCTION

This report was commissioned by Sarah Green as evidence in the case of Regina v. Green, heard at Uxbridge Magistrates Court on April 1st, 2019.

The area of interest (present study area) is that between North Breakspear Road, westwards to the Grand Union Canal, all within the Colne Valley, Borough of Hillingdon, London. On the Ordnance Survey map 172 (Explorer Series) the area is that between northings 05 – 08 and between eastings 87 – 89. This area is illustrated in Figure 1 below.

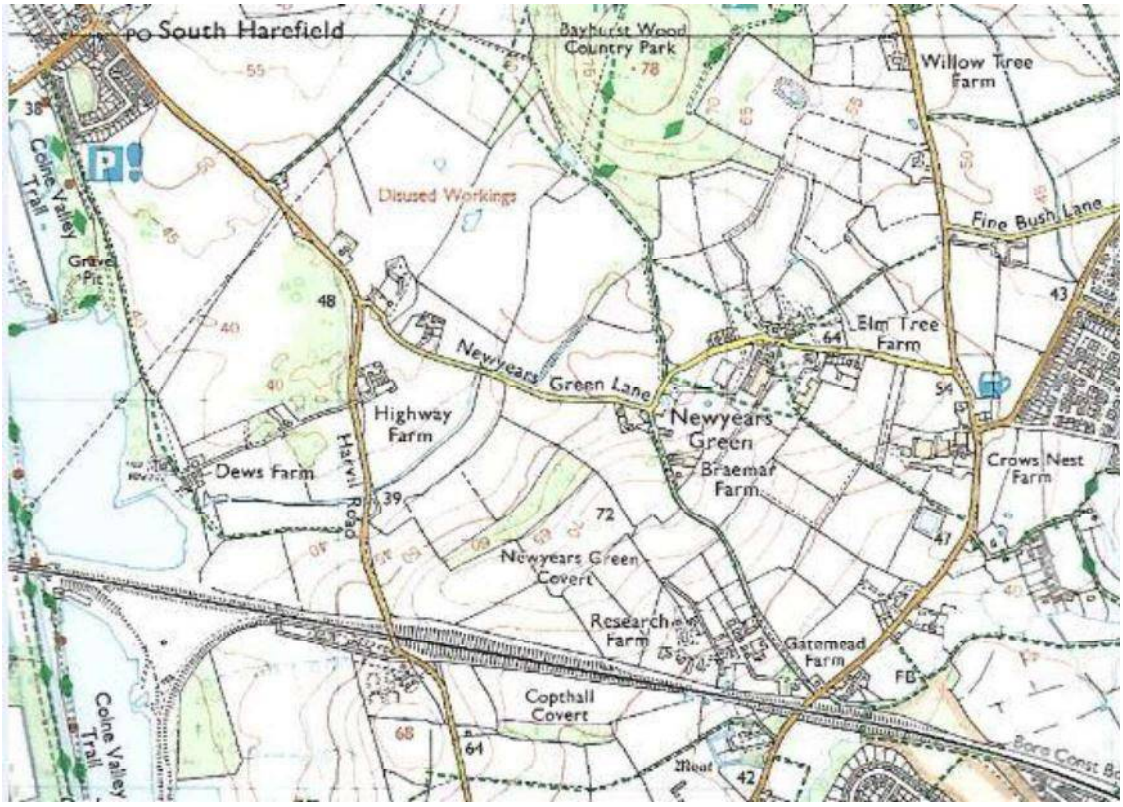

Fig. 1: Area of study, Newyears Green, Hillingdon.

This area lies within the valley of the River Colne, a present day tributary of the River Thames. It is an area which has undergone a complex geological history, having in the past, during to the Anglian Glacial period (470,000 – 420,000 years ago), been the valley of the Proto-Thames. This was a major river which flowed from the present Thames valley around Marlow, north eastwards via part of the current Colne Valley, through the Vale of St. Albans and on into the southern North Sea via southern East Anglia.

This report will first describe the geology of the underlying Chalk succession of this area, together with the overlying Tertiary deposits of the Lambeth and Thames groups and the youngest superficial river terrace deposits deposited during the Anglian – Devensian periods. The geological history of the area will be summarised in the concluding chapter of the report.

D1000

D860

2. CHALK OF THE COLNE VALLEY

The White Chalk Subgroup of southern England as used by the British Geological Survey (BGS) is divided into seven formations, of these only three are of hydrological significance in the area under study; these being the Seaford Chalk Formation, the Lewes Nodular Chalk Formation and the New Pit Chalk Formation. Each of these will be discussed in some detail as they constitute major aquifer units in the London region.

The Chalk occurs within the London Basin, which is a major asymmetric synclinal structure formed as a result of early Alpine tectonic movements during the Palaeogene Period. This is illustrated in Figure 2, in which the light green coloured

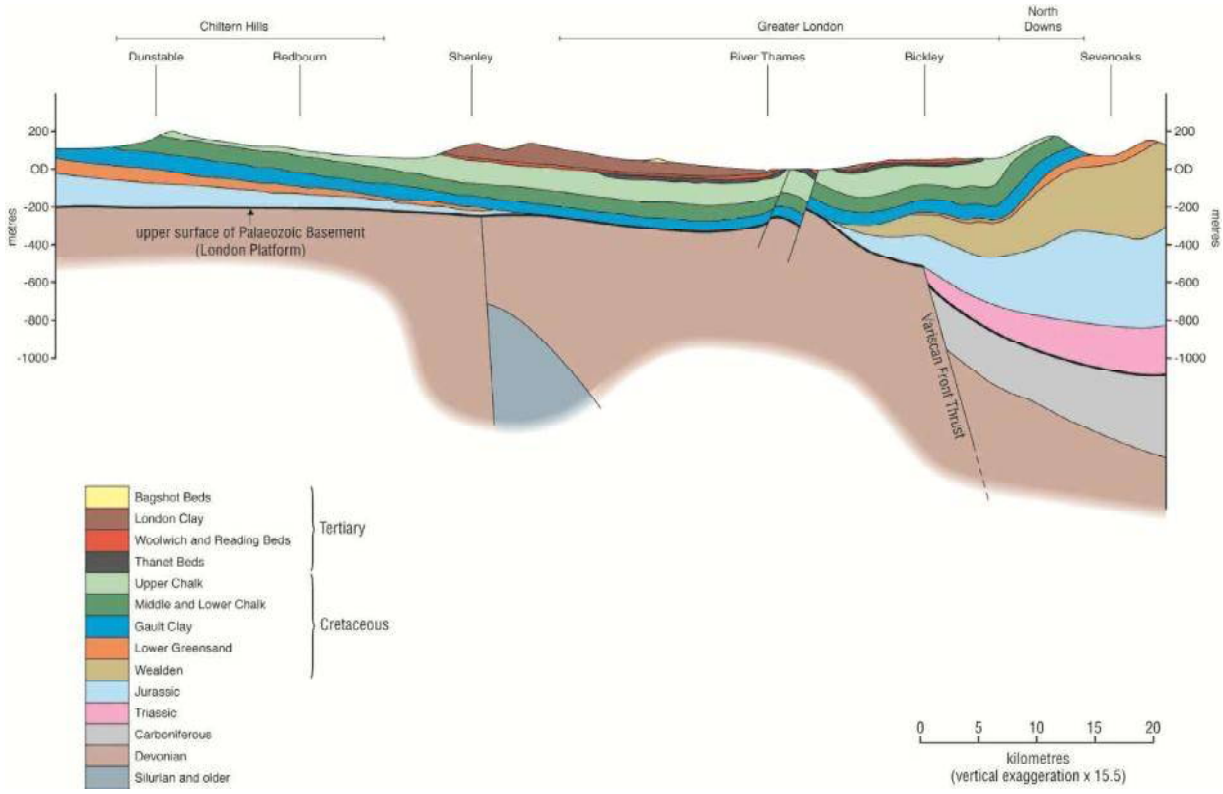

Fig.2: Section across the London Basin from southern Bedfordshire in the north to the North Downs in the south. (From: Catt, 2010).

White Chalk Subgroup can be clearly seen dipping gradually from the Chiltern Hills to the north into the valley of the River Thames. It reappears on the southern margin of the London Basin along the line of the North Downs.

2a. Stratigraphic Units

Studies carried out in the London Basin indicate that the youngest chalk in the region is the Seaford Formation. No younger chalks (Newhaven Formation and younger formations) have been proven. The record of Newhaven Formation chalk in the Harefield area by Bailey & Wood (2010, figure 3.1.) is known to be incorrect, as subsequent analysis of the chalk in this area proved that it belongs to the Seaford

Formation. For the purposes of this report it is deemed unnecessary to examine formations deeper that the New Pit Chalk Formation. Despite all being "chalks", the New Pit, Lewes and Seaford formations have very different lithological characteristics which may impact on water flow in the area, both above and below the surface.

New Pit Chalk Formation

The New Pit Chalk is described by Morigi *et al*. (2005) as a "massively bedded, non-nodular chalk, with fairly regularly developed marl seams and sporadic flints". It is the presence of the marl seams which characterises this unit, as these argillaceous clay seams, frequently between 1cm and 10cm thick, are extremely widespread, being recognised across the whole of southern England and in a number of cases even across to Germany.

Ellison (2004) describes the New Pit chalk as "smooth textured and more massively bedded" He also notes "Marl seams and marly chalk horizons, up to 0.1m thick, are common throughout".

The most complete New Pit Formation section in the Chiltern area is that exposed in Kensworth Quarry near Dunstable (NGR TL015197). In the original description of this quarry by Mortimore *et al.* (2001) 15 metres of New Pit Formation were described (Fig. 4); subsequent additional excavation by the quarry owners plus measurements by Bailey & Wood (2010) at Baldock have proven that double this amount of this formation is present along the line of the Chilterns. Ellison (2004) indicates 42 metres of New Pit Formation in boreholes in the London Basin.

Fig.3: New Pit Chalk Formation, Kensworth Quarry, Dunstable, showing conjugate fracture system.

Photo: Haydon Bailey

In addition to the characteristic marl seams and relatively low flint content it is also important to recognise the distinctive fracture system frequently logged in the New Pit Chalk Formation. Mortimore (2011) records them as "inclined conjugate fracture systems". These have been recorded at Kensworth Quarry, at an angle of

approximately 60° (Fig. 3). These fractures are key to the permeability of the New Pit Chalk, as water flow at depth will be concentrated along these structural lines.

The New Pit is a major part of the Chalk aquifer because of the concentration of fractures present; however below the study area it is likely to be buried 40 – 50 metres below the surface and water flow will be concentrated horizontally in association with marl seam levels.

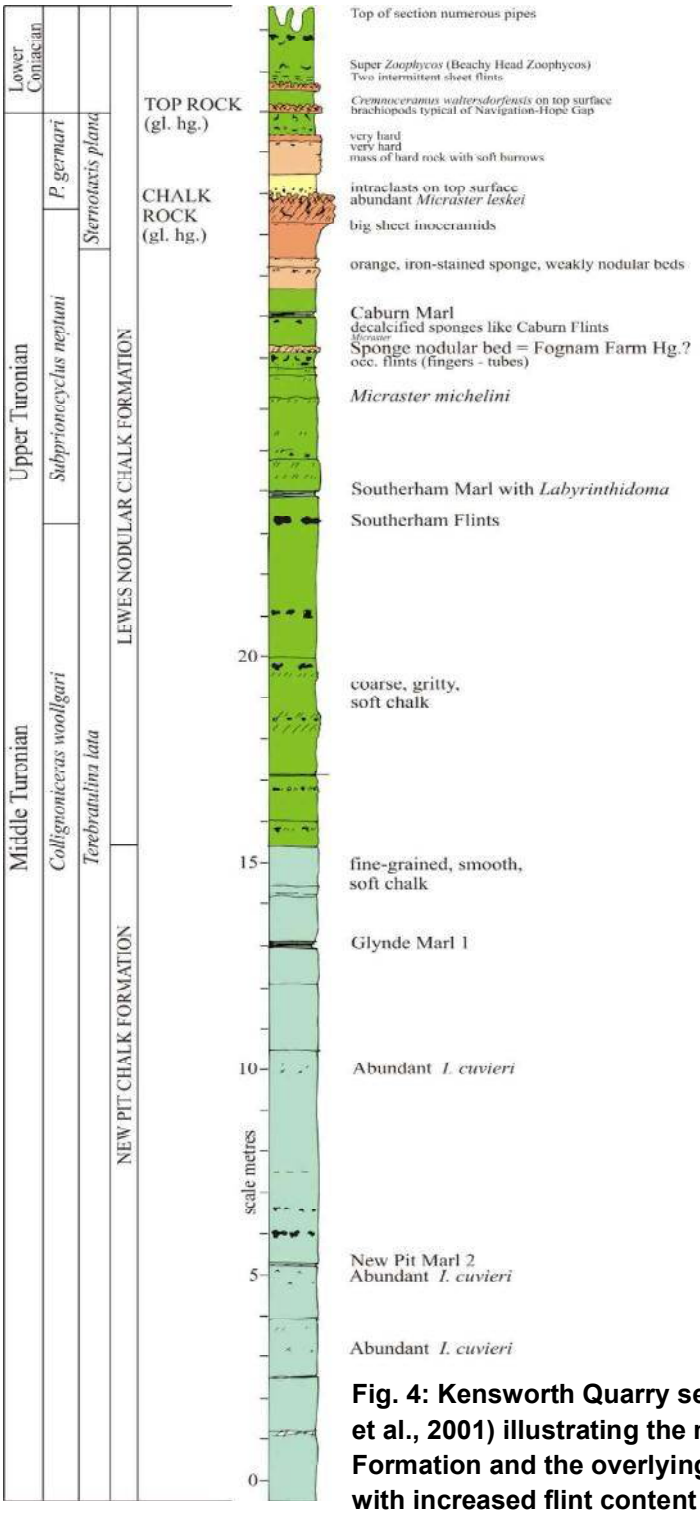

Fig. 4: Kensworth Quarry section, Dunstable (From Mortimore et al., 2001) illustrating the marl rich, flint poor, New Pit Chalk Formation and the overlying Lewes Nodular Chalk Formation with increased flint content and capped by thick indurated chalk beds (Chalk Rock).

Lewes Nodular Chalk Formation

The Lewes Nodular Chalk has very different characteristics to those described for the New Pit chalk. The Lewes Formation comprises “a hard nodular chalk, with conspicuous regularly developed flints, thin marls and hardgrounds.” (Morigi *et al, op.cit.*). The hard nodular chalks occur as a series of condensed hardgrounds, principally the Chalk Rock and the slightly higher Top Rock, both of which occur throughout the Chiltern area. These beds are extremely hard and were often used as quarry floors in old quarry workings regionally. The typical sequence seen throughout the Chiltern region, with minor variations in thickness, is that recorded at Kensworth Quarry and illustrated as Figure 4. The hardness of the Chalk Rock unit where it occurs below the floor of the Colne Valley will provide a firm substrate into which piles can be driven, however in this area the Chalk Rock could be as deep as 40 – 50 metres below the surface.

Ellison (*op. cit.*) describes the Lewes Formation as “characteristically hard, nodular, locally iron stained and flinty. Marl seams, up to 0.1m thick, occur throughout. Hardgrounds occur locally, and at least some of the thickness variation in the Lewes Chalk may be caused by condensed sequences or depositional breaks at these horizons. Layers of flints are regularly spaced throughout the succession,..... At some horizons these flints almost interlock to produce laterally continuous bands”.

Joints systems are not as common in the Lewes Formation as the distinctive sets recognised in the New Pit Formation. Adams (2008) notes “well developed nodular chalk seams are interbedded with extremely soft to very soft chalks. Because of this variation in competency between layers the more brittle hardgrounds tend to be more densely fractured, presumably as the result of differential compaction”. This variation may well account for the lack of overt fracture systems in the Lewes Formation, although Mortimore *et al.* (1990) note widely spaced conjugate joints in the Lewes Formation.

Seaford Chalk Formation

The youngest chalk recognised in the core area of the London Basin is the Seaford Chalk Formation. This is the more typical white chalk with regular flint bands that most people would consider to be a ”normal” chalk sequence. According to Morigi *et al*. (*op. cit.*) “The Seaford Chalk is typically a soft, flinty chalk with local shell rich horizons” and “the base of the Seaford chalk is marked by the Upper East Cliff Marl.” This marl is another of the widespread clay seams recognised across much of southern England. The Seaford Formation comprises a uniform, very fine chalk with a relatively high microporosity, making it a major aquifer through southern England (Mortimore *et al.,* 1990).

The uniform nature of the Seaford Formation chalk again makes it more susceptible to fracturing and Mortimore (2011) notes the typical 70° fracture systems in the Belle Tout Member of Seaford Formation; this being the oldest part of the formation and that present along line of the Colne Valley.

The Seaford Formation is very rarely exposed in the region and probably the best examples nearest to the present study area are the chalks of Pinner Chalk Mines (NGR TQ 115905). These mines are now closed to public access and were originally worked until the mid-Victorian period (Fig. 5).

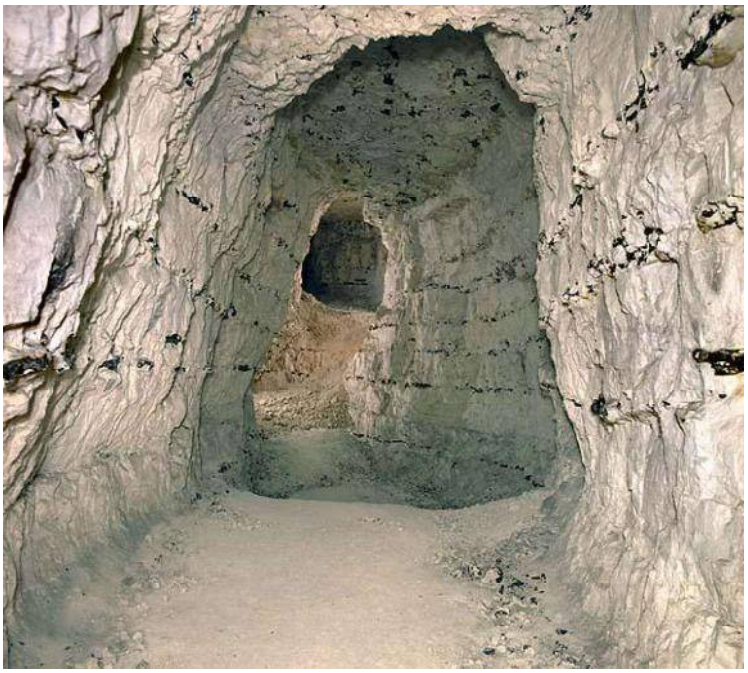

Fig.5: Seaford Chalk Formation, Pinner Chalk mines, showing regular distribution of flint bands.

Photo: Ken Kirkman

The chalk immediately underlying the Palaeogene unconformity at the Harefield Chalk Pit (Fig. 6) has been dated by Dr. Lam Gallagher (*pers. comm.*) as earliest Santonian, thereby placing it into the upper part of the Seaford Formation.

Fig.6: Unconformity surface between the Seaford Chalk Formation and the overlying Upnor Formation, Harefield Chalk Pit (NGR TQ 049898), showing common crustacean burrows (*Glyphichnus harefieldensis*) down into the chalk.

Photo: Haydon Bailey

The comparative ages of the two rock units (Seaford Formation and Upnor Formation) above and below the unconformity surface are 85 million years and 56 million years respectively. Therefore this burrowed surface represents a time gap of approximately 29 million years. During this extensive period the formation of the London Basin, due to the subsidence of older underlying rocks commenced. Chalks younger than the Seaford Formation, which are believed to have been deposited across southern England between 85 and 65 million years, were subsequently eroded away. This took place during the next eight to nine million years covering much of the Paleocene Epoch.

It is also worth noting that the Colne Valley was the site of a major "Ice age" river (see below) and that the chalk below this river bed will have been broken up and disaggregated due to the action of water, and freeze/thaw during this period. The normal structural qualities and integrity of this formation may therefore have been damaged during this time.

2b. Chalk Hydrogeology

Ellison (2004) states that "Chalk is hydraulically a highly complex aquifer. Its matrix has a high porosity, commonly of the order of 35 percent (Bloomfield *et al.,* 1996), but the pores are extremely small and thus the hydraulic conductivity of the Chalk is very low, with values averaging around 10^{-3} m/day. The ability of the Chalk to act as an aquifer is therefore due almost entirely to its fractured nature".

In order to understand how the chalk behaves as an aquifer, it is important to recognise first that the chalk as a sediment is largely composed of microscopic fragments of microfossils or nannofossils. These plate shaped nannofossil fragments are frequently between 5 microns and 30 microns in size and consequently any pore spaces between them will be equally as small, if not consistently smaller.

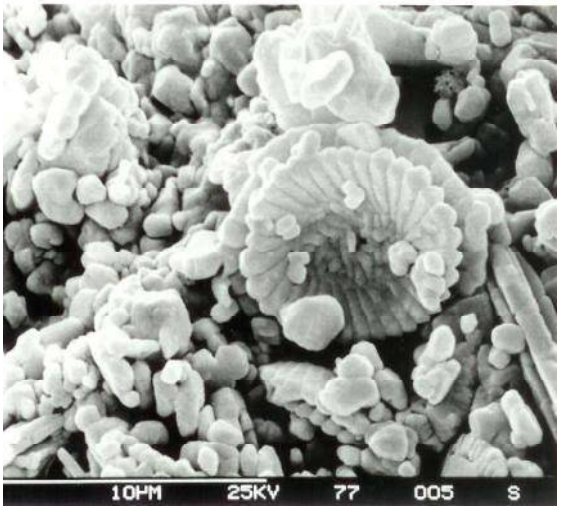

Fig.7: Scanning electron micrograph of Seaford Chalk showing nannofossil plates and nannoscale porosity. Note 10 micron scale bar along lower border.

Photo: Rory Mortimore

A fluid would be held within the matrix porosity of the chalk if the rock was uniform throughout, however we have already noted that chalk is not a uniform sediment and because of this, the porosity varies and fluid flow through it will also vary. For considerable time the Chalk was assumed to behave similarly throughout with regards to fluid movement, however since the recognition of the different chalk formations (Mortimore, 1986) regional mapping has proven the persistent nature of lithological variations within the Chalk. These lithological variations are now recognised to be stratigraphically controlled and as such will exert controls on fluid flow within formational units.

Water flow through the chalk will be concentrated at certain levels. The location of these levels will be controlled by two important factors:

i) The presence of lithological barriers within the chalk, such as marl seams, flint bands (particularly continuous sheets flints) and hardgrounds.
ii) The presence of fracture systems.

In the chalk succession identified in the study area all these factors can and will occur, so they are considered here on a formation by formation basis.

Seaford Formation: A uniform soft chalk lithology, but with numerous flint bands. The microporosity of this formation is high (c.35%) and there are numerous flint bands. Most of these comprise nodular flint bands allowing water flow through and between them, however there are well known tabular flint bands present (e.g. Whitaker's 3" band) in this formation which would preclude fluid transfer vertically, unless fracture were also present.

It is known that the lower part of the Seaford Formation has numerous fracture systems and that fracture systems tend to be most obvious in the upper few tens of metres below the surface. However, it is also noted (Ellison, 2004) that important water-bearing fractures have been shown to extend to depths of the order of 50 m below the water table. This would also have been the case during glacial times and sediment field pipes have been recorded at least 55 metres below the surface at Kensworth Quarry in the Chilterns and there is the possibility that similar glacial karst generated pipes could exist in the study area too.

The Seaford Formation is closest to the surface in the study area and it is likely to be highly fractured. It has also been exposed to freeze/thaw disruption during the Pleistocene ice ages which may well in it becoming a "soliflucted" deposit, or one which is badly broken up as a result of these natural processes.

This formation which is up 50 metres thick in this area, is likely to be the prime water bearing unit within the aquifer due to the presence of common natural fractures. However, it has been exposed to superficial damage due to the natural processes described above and it should therefore be regarded as not being particularly robust,

it is susceptible to pollution in the study area due to the presence of manmade pollutants in the Newyears Green area (see below).

Lewes Chalk Formation: The hardgrounds present in the upper part of this formation will show the greatest concentration of vertical fracture systems and porosity through these harder units will also be reduced due to cementation and mineralisation closing the pore spaces originally present. There are two key marl seams within the Lewes Formation, these being the Caburn and the Southerham Marls. Both marl seams show consistent thicknesses throughout the region of 0.08 m to 0.10m and, because of these consistent thicknesses, they will act as significant permeability barriers, blocking vertical water movement.

Mineralisation within the pore spaces in the Lewes Chalk is more common than that seen in the overlying Seaford Chalk and therefore the natural porosity will be reduced. This formation tends to act as a secondary aquifer in this region.

New Pit Chalk Formation: This marl rich chalk unit is the most deeply buried formation being considered currently in the study area, potentially as much as 100 metres deep. As such, it is possibly less likely to act as a major aquifer. Marl seams are common, including the New Pit marl seams and the Glynde marl seams. These will act as barriers to water flow, particularly to vertical fluid movement. Any water flow would be concentrated along lines of lateral movement particularly if joint systems which are known to occur commonly in the New Pit Formation, remain open. Flints are very rare within in this unit, and sheets flints will occur only sporadically in localised areas; as such these should not affect fluid flow.

Fractures: As already noted above particular levels within the Chalk succession are more susceptible to fracturing. These tend to be those levels where the chalk comprises a uniform very fine matrix. Within the New Pit to Seaford formation succession this will tend to be within the Seaford Formation and within the New Pit Formation. The Seaford Formation is at or close to the surface in the study area and because of this any fracture systems have the potential to be open and therefore active as conduits for water flow.

The complex fracture system known to exist within the New Pit Formation may increase transmissivity within the chalk of the study area, although the depth of burial of this formation may reduce fluid movement.

Solution features: Periglacial solution features occur commonly to the north of the Colne Valley and there is no reason to assume that they will not occur to the east of the river into the Hillingdon area. Swallow holes are documented around the Denham area and Catt *et al.* (2010) illustrate a number of natural solution cavities in the Chalk of southwest Hertfordshire in the area around Harefield. As already noted, natural solution features, where they have been documented at depth, may act as open conduits in excess of 50 metres below the ground surface.

Catt *et al*. (*op.cit*.) note that "Most of the enlarged fissures are near-horizontal and resemble an anastomosing network of sinuous flattened tubes rather than continuous sheet-like cavities (Price *et al.,* 1993), though in addition there is often a thin band of widened vertical fissures close to the water table. Consequently water flow in the Chalk occurs more readily along the tubes than in other horizontal or vertical directions".

Groundwater contamination: Morigi *et al.* (2005) note that the presence of karst features in the chalk "can give rise to high velocity groundwater flow, with the potential for rapid contaminant transport". However, it is also worth noting here that Foster (1996) records that "where the Chalk is covered by Quaternary clays and exhibits semi-confined (or semi-unconfined) conditions, pollution vulnerability is greatly reduced....".

During the course of preparing this report the author's attention was drawn to a report produced by the Borough of Hillingdon in 2011 which designated the New Years Green Lane Landfill Site as Contaminated Land as defined by Section 78A of the Environmental Protection Act 1990. In this report it clearly states that the presence of clays in the Reading Formation at this site "may retard but is unlikely to completely prevent the passage of contaminated liquids unto the chalk aquifer beneath". As a result of contamination in the Public Water supply from leachate, believed by the Environment Agency to be from this landfill site, the extraction of water at the Ickenham pumping station was ceased in May 1997.

Furthermore, it is understood that monitoring boreholes located south of the landfill site were monitored during 2004 and, at that time, were still shown to contain high levels of contamination. Further analyses carried out by the Environment Agency and reported to the Borough Council in 2008 and 2010 reconfirmed pollution leakages at the New Years Green Lane site.

It has already been indicated in this report that the chalk in the subsurface below Newyears Green will be the Seaford Formation. The lower part of this formation is known to be susceptible to fracture formation and, as a consequence, groundwater flow through it (transmissivity) is likely to be high. It is clear that as a result of these subsurface conditions there is contamination of the groundwater in this immediate area and this is what resulted in the closure of the Ickenham pumping station. It is also clear that the Environment Agency regard the landfill site at New Years Green Lane to be the most likely source of this contamination.

As a comparison for the potential impact of contaminated groundwater in a chalk substrate attention is drawn to the description of a Bromate contaminant which was first introduced into the River Lea system in 2001 from a location north of St. Albans, Hertfordshire. The subsurface plume from this contamination site extended for at least 20 kilometres eastwards and bromate was still being extracted in large quantities from the aquifer in the area in 2009 (Catt *et al.,* 2010).

The chalk of the study area is extremely sensitive to any form of contamination and as the regional dip of the chalk succession in this area is to the south into the London Basin, any contamination has the potential to spread rapidly and to extend into other groundwater sources.

3. LAMBETH & THAMES GROUP SEDIMENTS

The basal boundary between the Lambeth Group and the underlying Seaford Formation chalk is illustrated in Figure 6, which clearly shows the intense burrowed unconformity surface, the burrows being described as being of crustacean origin (*Glyphichnus harefieldensis*).

The Lambeth Group in the study area comprises a basal unit (0.3 m) of Upnor Formation (basal flint pebble conglomerate bed with glauconitic sand matrix) which is overlain by 1.2 m of sand and clay (Bateman, 1988). This conglomeratic unit could be a lateral equivalent of the Hertfordshire Puddingstone. The nearest *in-situ* example of this distinctive rock unit is probably that exposed in the shaft down into Pinner Chalk Mines.

The overlying Reading Formation (grey and brown clays and silty sands). The total thickness of this formation is in the order of 10 metres. (Daley & Balson, 1999). The boundary between these two formations may be difficult to determine (Ellison, 2004).

The overlying Thames Group sediments comprise a section of London Clay as indicated on the current geological map for the area (BGS Sheet 255, 2005 Beaconsfield) (see below - Fig. 8). The precise thickness of this unit at Newyears Green is not known, as the nearest exposure is that at Harefield Chalk pit where approximately only 4 metres of section are recorded (Daley & Balson, 1999). Morigi *et al.* (2005) indicate a maximum thickness of 48 metres of London Clay Formation around Northwood, just to the northeast of the study area.

Morigi *et al.* (*op. cit.*) record that in the present study area Lambeth Group sediments are “confined by the London Clay” and “most of the sandy facies is unsaturated and only thin perched water tables and seepages at the interface with the underlying clay beds are present”. The Lambeth Group sediments are therefore unlikely to act as an aquifer locally and the overlying London Clay is an impermeable aquiclude.

Newyears Green Bourne rises on the London Clay, probably as a result of the impermeable nature of these sediments. It flows across the Lambeth Group south of Highways Farm and into the lake immediately west of Dews Farm.

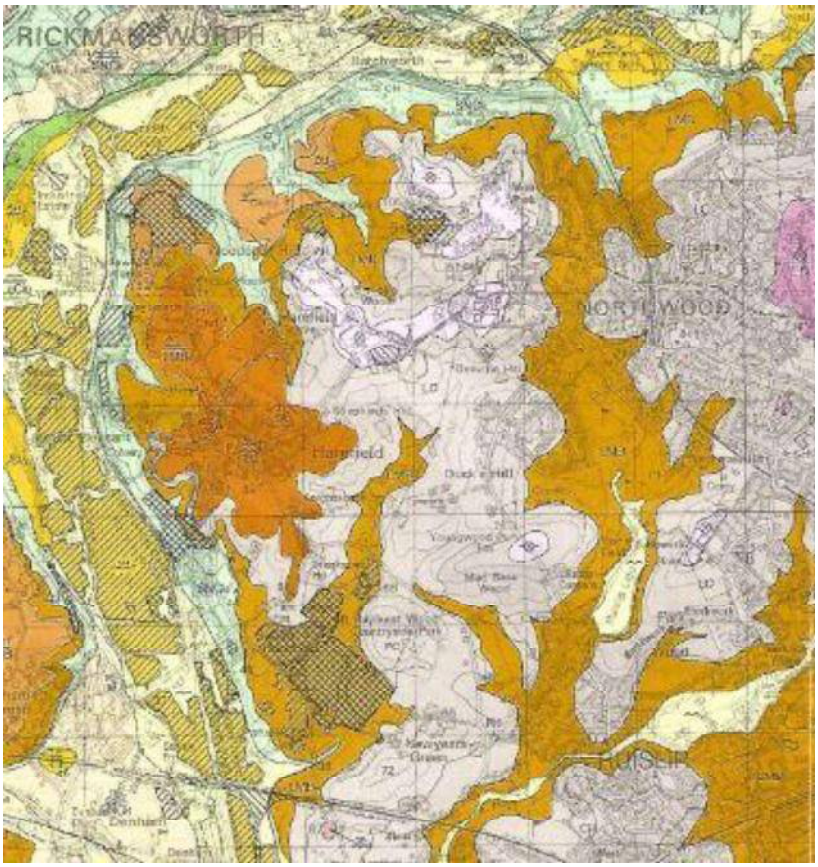

Fig.8: Surface geological map of the Newyears Green area taken from BGS 2005 Beaconsfield sheet, showing outcrop of London Clay underlying the study area.

(From BGS Sheet 255, Beaconsfield)

4. QUATERNARY SEDIMENTS

There is a forty five million year time gap between the deposition of the London Clay, seen around Northwood and Newyears Green and the overlying Pleistocene sands and gravels of the Quaternary period.

The Quaternary history of the Colne Valley is the key to the topography seen today. During the early part of the Pleistocene (before 0.5 million years ago) a major river, the Proto-Thames, flowed from around Marlow north westwards through to the Colne Valley around Rickmansworth and on into the Vale of St. Albans. This river eventually emptied into the southern North Sea through the southern part of East Anglia. Sediments deposited by this river still exist to the north of the study area and these are referred to as the Beaconsfield Gravels.

During the Anglian Glacial period (470,000 – 420,000 years ago) major ice sheets encroached over the Chiltern Hills to the north and reached as far south as the Vale of St. Albans. Here the ice sheets blocked the flow of the Proto-Thames River and caused the formation of an ice-dammed lake which eventually flooded the Colne Valley. For several thousand years sediments carried by this river flowed into the lake and formed a delta like structure and the resulting sands are now referred to as the Winter Hill Gravels. These occur as thick deposits capping the hills to the west of the Colne Valley around Denham Green/Denham aerodrome. These sands and

gravels are not mapped to the east of the Colne Valley, although it may be presumed that time equivalent lacustrine clays could have been deposited in the ice dammed lake. These have been seen by the author, further north, in the M25 excavations around the junction with the M1 motorway.

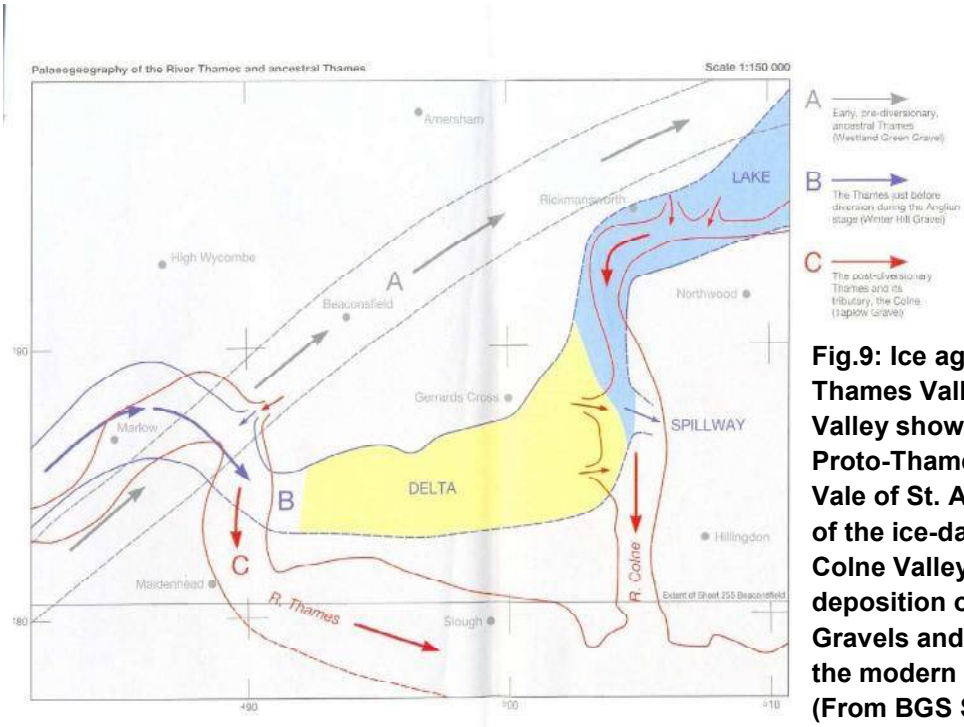

Fig.9: Ice age history of the Thames Valley and the Colne Valley show A) the route of the Proto-Thames from Marlow to the Vale of St. Albans, B) the location of the ice-dammed lake into the Colne Valley with the deltaic deposition of the Winter Hill Gravels and C) the final route of the modern day River Thames. (From BGS Sheet 255, Beaconsfield).

Subsequent to the Anglian glacial period erosion of g . north east resulted in the deposition of sands and gravels within the Colne Valley. Two phases of sand deposition are mapped by the BGS is the study area, namely the Taplow Gravel, which is loosely dated as Hoxnian – Ipswichian, (200,000 – 150,000 years ago) and the Shepperton Gravels which were deposited as outwash during the last (Devensian) glacial period (12,000 years ago). It is the Shepperton sands and gravels which have been extensively extracted from the Colne Valley resulting in the formation of the lakes which currently flood the valley floor.

5. GEOLOGICAL HISTORY

As originally indicated, the area around Newyears Green Bourne has undergone a complex geological history. The geological succession described started within the Chalk succession at the base of the New Pit Formation as this is most likely to be the floor of the hydrologically active succession in the study area.

This geological history is tabulated below and it is worth noting that of the 90 million years represented by this table we have no information for at least 75 million of those years during which time there has been extensive uplift and erosion of sediments deposited and subsequently lost.

AGE	LITHOSTRATIGRAPHIC UNIT	LITHOLOGY
0.01 ma	Shepperton Gravels	Last glacial outwash
0.15 ma	Taplow Gravels	Inter-glacial outwash
0.45 ma	Winter Hill Gravels	Ice-dammed lake deposits
1ma	Beaconsfield Gravels	Proto-Thames deposits
----------	45 million year time gap	----------
54ma	London Clay Formation	Impermeable clays
----------	1 million year time gap	----------
	Reading Formation	Clays and silty sands
56 ma	Upnor Formation	Glauconitic sands & pebble beds
----------	29 million year time gap	----------
85 ma	Seaford Chalk Formation	White chalk with flints
	Lewes Chalk Formation	Nodular chalk
90 ma	New Pit Chalk Formation	Marl rich chalk

6. CONCLUDING COMMENTS

In this report I have attempted to summarise the geology and associated hydrogeology of the sedimentary succession likely to be encountered through the subsurface below the Newyears Green area of Hillingdon, north west London. This is an unusual brief and one which is well outside the normal range of geological reports I am called upon to write.

I have attempted to maintain a non-technical vocabulary throughout this report, but this is almost impossible when dealing with geological concepts which are well outside the normal expected knowledge of the average "man in the street". Where I have strayed into more technical language, if this is unclear then I am happy to expand my explanation in order to provide as full a description as required, in order to present a complete geological history and description of the area.

It is important to recognise that the Chalk aquifer which the London Basin depends upon for its daily water supplies is a complex and delicately balanced system which is easily damaged. Over abstraction from the chalk aquifer in the London Basin lowered the water table during the early part of the twentieth century and it is only over the last thirty – forty years that careful management of water usage and abstraction has resulted in the water table rising again to levels seen in Victorian times.

There is strong evidence in the Newyears Green area that the aquifer was damaged and polluted due to the presence of leachate from the adjacent landfill site. Water extraction from the Ickenham pumping station was stopped because of this in 1997 and the area is still affected.

In this area therefore there is already documented evidence of damage to the water abstraction system. As indicated above, the aquifer in this area is susceptible to damage and the utmost care should be maintained in order not to damage it further.

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EXHIBIT 4

LBH – Record of Determination that NYGB is contaminated land

Dated 26th May 2011

HILLINGDON
LONDON

Environmental Protection Act 1990 Section 78B

Record of the Determination that the Land known as 'New Years Green Lane Landfill Site' is Contaminated Land

In accordance with Part 2A of the Environmental Protection Act 1990 the London Borough of Hillingdon has determined that the land at: The former **'New Years Green Lane Landfill Site'**

National Grid Reference: 506286 E and 188274 N:

Is Contaminated Land as defined by Section 78A (2) of the Environmental Protection Act 1990, because:

The London Borough of Hillingdon has identified the presence of a contamination source, a pathway and receptor with respect to the current use of the land. The London Borough of Hillingdon is satisfied that the pollution of controlled waters is being caused. The London Borough of Hillingdon is also satisfied there is a significant possibility of significant harm being caused from landfill gas with no suitable and sufficient risk management arrangements in place to prevent such harm (as defined in Table B2 of the Statutory Guidance to Part 2A).

A summary of the basis on which this determination has been made is set out in the following schedule to this record

Signed

P. Law

Dated

26th May 2011

Peggy Law
Consumer Protection Manager
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Schedule of Determination

London Borough of Hillingdon
Environmental Protection Act 1990, Part 2A – Section 78B
Record of Determination of the Land at the Former Landfill Site at New Years Green Lane, Harefield, Middlesex

1. Introduction and Site Location

Paragraph B.52 of the Statutory Guidance (DEFRA Circular 01/2006) requires local authorities to prepare a written record of determination that particular land is contaminated land for the purposes of Part 2A of the Environmental Protection Act 1990. This document outlines why the London Borough of Hillingdon, 'the Council' has determined that the land at the New Years Green Lane Former Landfill site is 'Contaminated Land'.
The Council owned site now known as New Years Green Landfill is located at Grid Ref 506286 E and 188274 N approximately 2 km south east of Harefield as shown edged red on the attached plan, Figure 1. The site extends for an area of over 70 Ha and is currently used for rough grazing. Formerly the site was used as a sand and gravel quarry which was in-filled with domestic waste during the 1960s and 1970s. Following tipping by the Greater London Council the site was capped to make it suitable for its current use. There are three residential buildings and a Civic Amenity Centre situated at the site boundary and three farms surround it. The waste appears to extend under the Civic Amenity Centre land. Highway Farm is also partially tipped. The site geology identified through the various investigation boreholes comprises of a clay topsoil cover over the waste. Under the waste lie the sands, gravels and clays of the Reading Formation and below this is the Upper Chalk. Although no details of the construction and previous operation of the site are available, it is understood that the chalk was not to be exposed during the mineral extraction and a 6ft thickness of overburden was to be placed prior to tipping. The Reading formation contains clay but is not generally regarded as a competent geological barrier. It is described as a Secondary Aquifer by the Environment Agency, 'EA'. It may retard but is unlikely to completely prevent the passage of contaminated liquids into the chalk aquifer beneath. There is evidence of perched waters within the fill material above the Reading formation and a known principal aquifer is in the underlying chalk. The majority of the site overlies the outer source protection zone for the Ickenham Public Water Supply with a small part of the site overlying the inner source protection zone. It is assumed that there is a potential for contamination to overly the inner source protection zone because there is little information regarding the nature and location of tipped material. The New Years Green Bourne runs through the site in a culvert from an ephemeral pond to the north of the site entering the Colne/Grand Union system to the West at Dews Farm. The River Pinn and River Colne are over 700m from the site and there is no indication of a connection between contamination on site and of these two rivers.

2. Description of the Significant Pollutant Linkages

Table 1 Significant Pollutant Linkages

Linkage ID[1]	Contaminant	Migration and Exposure pathways	Receptor	Comment
1	Ammonia (NH_3 as N)	Leaching from contaminated fill	Groundwater (SPZ 1)	Regulation 3(a) linkage
2	Ammonium (as NH_4)	Leaching from contaminated fill	Groundwater (SPZ 1)	Regulation 3(a) linkage
3	Benzene	Leaching from contaminated fill	Groundwater (SPZ 1)	Regulation 3(c) linkage
4	Calcium	Leaching from contaminated fill	Groundwater (SPZ 1)	
5	Chlorobenzene	Leaching from contaminated fill	Groundwater (SPZ 1)	Regulation 3(c) linkage
6	1,1-Dichloroethane (1,1-DCE)	Leaching from contaminated fill	Groundwater (SPZ 1)	Regulation 3(c) linkage
7	Iron	Leaching from contaminated fill	Groundwater (SPZ 1)	Regulation 3(a) linkage
8	Magnesium	Leaching from contaminated fill	Groundwater (SPZ 1)	
9	Mecoprop	Leaching from contaminated fill	Groundwater (SPZ 1)	Regulation 3(c) linkage
10	Potassium	Leaching from contaminated fill	Groundwater (SPZ 1)	
11	Sulphate	Leaching from contaminated fill	Groundwater (SPZ 1)	
12	TPH >C6-C40	Leaching from contaminated fill	Groundwater (SPZ 1)	Regulation 3(c) linkage
13	Ammonia (NH_3 as N)	Migration of leachate into Culvert	Surface Waters	
14	Ammonium (as NH_4)	Migration of leachate into Culvert	Surface Waters	
15	Chloride	Migration of leachate into Culvert	Surface Waters	
16	Sodium	Migration of leachate into Culvert	Surface Waters	
17	Sulphate	Migration of leachate into Culvert	Surface Waters	
18	TPH C6 – C40	Migration of leachate into Culvert	Surface Waters	
19	Methane	Migration to buildings (inhalation)	Humans (asphyxiant)	
20	Carbon Dioxide	Migration to buildings (inhalation)	Humans (asphyxiant)	
21	Methane	Migration to buildings and ignition of gas	Buildings (explosion hazard)	

[1] There are different numbers referenced in the original Conceptual Model in the Atkins Report (2006)

Table 1 – Twenty one significant pollutant linkages (SPLs) have been identified by the Council. The SPLs which form the basis of this determination have been grouped according to the exposure pathway as shown in the Table 1 as required by paragraph B52(a) of the statutory Guidance to Part 2A. The linkages specific to Regulations 3(a) and 3(c) are indicated because they are required for designation as a Special Site. The other linkages part of the evidence to determine the site as Contaminated Land.

3. Physical Extent of the Land

The extent of the 'Contaminated Land' has been decided upon by the Council as the area marked as Red on Figure 1 as appended to this record of determination (following Page 17).

Guidance on the considerations that are relevant to determining the extent of contaminated land can be found in paragraphs B32 – B36 of DEFRA Circular 01/2006. Highway Farm and the Civic Amenity Site have not been included in the area of determination. The greater part of any contamination source is thought to be located at New Years Green Landfill Site as shown on Figure 1. Highway Farm was a lesser part of the old landfill area and was remediated to a suitable for use standard under the planning regime in 2006. Investigations by consultants to the owners of Highway Farm in 2003 and subsequent groundwater monitoring from 2006 to 2010 confirmed that the ammonia concentrations were higher in the monitoring boreholes outside of Highway Farm next to New Years Green Landfill. This indicated that the predominant source of groundwater contamination was most likely New Years Green Landfill to the immediate north of Highway Farm. The Civic Amenity Site is currently subject to a planning permission for redevelopment. The three residential properties surrounding the landfill are not included as they do not appear to be located on landfill although the landfill extends to the edge of their gardens.

The area of determination is defined as recommended by the Environment Agency in their Detailed Advice of 2008. The land determined is the area of land where it is established that there is the presence of significant pollutants in the landfill leachate and high levels of landfill gas (B32(a)).

4. Summary of the evidence on which the determination is based (B.52 (b))

The landfill was considered as a potential source of ammonia pollution at the public water supply borehole as far back as 1985. Pollution by ammonia in the New Years Bourne was first brought to the Council's attention by the National Rivers Authority on 15 June 1995. The Council was informed by the Environment Agency, 'EA' of the closure of the Ickenham Public Water Supply Borehole by the Three Valleys Water Company, 'TVWC' due to pollution levels on 21 May 1997. The ammonia had been treated at the public supply but

the treatment system failed due to iron concentrations within the groundwater. The EA also again indicated that the landfill was known to cause pollution in the watercourse which runs in a culvert below the site. The Council also found high ammonia levels in the watercourse, part of the New Years Green Bourne Stream. The landfill was seen by the EA as the main potential source of water contamination. The site was forthwith investigated by the EA and the Council, and an assessment was made under Part IIA.

Since 1997 the EA and the Council have carried out contamination investigations and monitoring work on the landfill site, and within the groundwater regime in the area. There is only a little recent information on water quality at the public supply, 'PWS' when the boreholes were pumped for a short period. A number of site investigation reports are available for the landfill site assessing both gas and water issues. The determination is based on a number of reports that are listed below (references 1 to 10).

The EA agreed with the Council to carry out a detailed inspection of the site following the Council's request under B28-B29 of the Statutory Guidance. There are two Part IIA reviews of the site dated May 2004 (Enviros Consulting Limited) and December 2006 (Atkins). These reports were followed by formal detailed advice from the EA received on 6 August 2008. The views of the Agency provided in the detailed advice were confirmed in a letter to the council dated 15 December 2010.

As a separate matter landfill gas has been monitored at the site from 2005 by SLR Consultants for health and safety reasons rather than as a Part IIA investigation. The site investigations and reviews are listed below with brief summaries.

Site Investigation Reports by Consultants for the Council and Environment Agency (EA)

- Symonds Travers Morgan for the National Rivers Authority (now the EA) – Investigation of Ammonia pollution at Ickenham Public Water Supply Source, Hillingdon – November, 1997 (ref1).

- Aspinwall & Co for the EA – Investigation of Water Pollution from New Years Green Lane Landfill Site, Ickenham – March 1999 (ref 2).

- Enviros for LBH - Environmental Monitoring at New Years Green Lane Landfill Site, Ickenham March, 2001 (ref 3).

- Enviros for LBH - Environmental Monitoring at New Years Green Lane Landfill Site, Ickenham, June, 2002 (ref 4).

- Site Investigation (November 2003) and Groundwater Monitoring (2003 to 2010) carried out by Waterman Environmental for the Dogs Trust at Highway Farm (ref 5).

- Enviros for LBH - New Years Green Lane Landfill Site – Gas Risk Assessment – July, 2002 / SLR Consultants for LBH - Yearly Landfill Gas Monitoring Reports for New Years Green Landfill (2005 to 2009) (ref 6).

Part 2A Assessment Reports for the Environment Agency

- Enviros for the EA – Critical Review of New Years Green Landfill - May 2004 (ref 7).

- Atkins for the EA – Final Interpretative Report, New Years Green Landfill, Hillingdon - B20 (a) and B20 (b) Part IIA Detailed Inspection 2006 (ref 8).

Site Specific Advice of the Environment Agency

- Detailed Advice to the London Borough of Hillingdon with a covering letter dated 6 August 2008 (Groundwater & Contaminated Land Team, Environment Agency) (ref 9).

Remediation Options Report for the Council

- Atkins for LBH - New Years Green Landfill - Outline Remediation Options Appraisal February 2011 (ref 10)

Summary of the Site Investigation Reports

Initial Investigation (ref 1)
Investigation of Ammonia Pollution at Ickenham Public Supply Source 1995

The NRA commissioned the report due to concerns about ammonia levels at Ickenham. Correspondence from 1977 to 1988 with the Three Valleys Water Company on the ammonia pollution at Ickenham was summarised in the report. The report collated background information on the Ickenham PWS including borehole logs, adits, pumping rates and water quality. Data was presented on a regional hydro-geological setting. This report was the first report on the groundwater contamination in the area and involved the drilling of 2 deep groundwater boreholes south of the site. Water samples were taken from these boreholes and at the 3 pumped PWS boreholes, and 7 surface water sites including the landfill culvert and a nearby ditch. The hydrogeology and hydrochemistry were assessed in detail. The hydro-chemical interpretation of the surface waters and groundwater was concluded to consistently suggest the landfill to be the main source of pollution to the Ickenham Public Water Supply. Concerns were that rising groundwater

levels might increase the ammonia levels by mixing with the landfill leachate. The report suggested the landfill as the most significant source of groundwater pollution but also mentioned other potential sources. It was indicated that there may be other landfill sites up-gradient of the supply and a ditch that may be contributing to the problem. The report made recommendations regarding appropriate actions to protect groundwater resources, including the investigation of the design and extent of the waste in the New Years Green Landfill Site, and the extent of the groundwater contaminated plume. The report outlined remediation options and gave recommendations for further investigations including more intrusive work as there were only 2 monitoring boreholes.

The Main Intrusive Site Investigation (ref 2)
Investigation of Water Pollution from New Years Green Lane Landfill Site, Ickenham 1999

The investigation involved the completion of the drilling and sampling of 12 leachate monitoring boreholes in the waste and five groundwater monitoring boreholes in the chalk. The report provided an interpretation of the waste thickness, and levels and quality of leachate, groundwater, surface water and landfill gas. No solid soil samples were tested for contamination, the contamination and water quality tests were specifically of leachate and groundwater samples.

The testing of the leachate samples showed high levels of ammoniacal nitrogen up to 509 mg/l. The results of the groundwater testing confirmed that ammoniacal nitrogen concentrations in the groundwater were at concentrations up to 37 mg/l (as N). A tritium analysis of the leachate and groundwater was carried out and confirmed that landfill leachate was affecting the groundwater as obtained from boreholes adjacent and to the south of the site.

The role of the culvert and surface water contamination in the Bourne Stream were considered in more detail in this report. It appeared that low flow conditions produced high levels of ammonia in the stream with a peak of 170 mg/l in 1995. When the flow is high there appeared to be no impact. Landfill gas levels were found to be high at most of the monitoring boreholes. Methane and Carbon Dioxide levels were found up to 61% and 30% respectively.

A 'Groundwater Impact Assessment' was provided which gave a refinement of the existing Gerrard's Cross GPZ model in the area of the source, and a risk assessment for the Ickenham PWS. The risk assessment gave predictions for future groundwater quality.
The public water supply was only pumped for a short period and no conclusions were drawn on the groundwater monitoring at the supply boreholes.

Eleven remedial options were provided including actions at the landfill site, and treatment at the water supply boreholes. A period of two years further monitoring was recommended for the site to identify the most beneficial of the above remedial options for the landfill site

including the culvert and New Years Bourne. There was now an established monitoring network for landfill leachate, surface water, groundwater and landfill gas.

Monitoring Work 1 (ref 3 and 4)
Environmental Monitoring at New Years Green Lane Landfill Site (Years 2000-2001 and 2001-2002)

The monitoring over a two year period used the existing network. The results obtained over a two year period indicated that there had been little overall change since the 1998 investigations as reported in 1999. The landfill continued to have an effect on groundwater and surface water quality. Data from a CCTV survey of the culvert was provided and some data from test pumping at the Ickenham PWS was also carried out. The culvert survey indicated that there were no blockages or impediments to flow and no leachate ingress was confirmed. It was noted that the weather conditions were dry with little flow in or out of the culvert. The pumping at the PWS boreholes was only 3 weeks and the volume pumped was low compared to the operation in 1995. Therefore although no contamination was found the conclusions were viewed with caution. The report also concluded that the groundwater flow regime had been modified with groundwater flowing in a south westerly rather than southerly direction now.
Landfill gas was still found to be at high levels and the risk to local properties was as a consequence deemed high with no off site monitoring wells and control measures in place.

Monitoring Work 2 (refs 7 and 8)
Part 2A Assessment Reports for the Environment Agency dated 2004 (Enviros and 2006 (Atkins) / Additional monitoring at groundwater boreholes on Highway Farm
The reports by Enviros and Atkins both contain monitoring information that is used in the assessment below of the evidence upon which the determination is based. The monitoring work is limited but includes groundwater, surface water, leachate and gas monitoring. It was undertaken with regard to the B29 request for the Agency to inspect the site. The reports are essentially a B20 (a) and B20 (b) Part 2A detailed inspection. The leachate and groundwater were analysed for a range of compounds including some List 1 and List 2 compounds.
The monitoring at 8 wells by Enviros in 2004 confirmed that the leachate was still significantly contaminated and ammonia levels remained high. The leachate was found to contain some list 1 compounds including organhalogen compounds (including 1.1 dichloroethane, chlorobenzene and Mecoprop), cadmium and hydrocarbons. Seven groundwater boreholes were monitored. The groundwater in the chalk was found to contain organhalogen compounds (including 1.1 dichloroethane, chlorobenzene and Mecoprop) and some TPH compounds. Three surface water samples and landfill gas levels were monitored during the site work.
Groundwater monitoring has been carried out by the Waterman Environmental for the Dogs Trusts at Highway Farm, as the Trust own the land and are required by agreement

with the Council to monitor groundwater boreholes within their land. Data is available from 2006 to 2010 and the results were assessed against the Water Supply (Water Quality) Regulations 2000, 'WSR'. The WSR are exceeded for a number of compounds. Of particular relevance to the determination is the presence of ammonia (as NH4) in the groundwater during most monitoring rounds. The levels are significant varying considerably with a maximum of 31.9 mg/l. Levels in 2010 were from 2.15 mg/l up to 16.7 mg/l. All of the boreholes are south of the New Years Green Landfill Site. This data again supports the formal determination of the site as 'Contaminated Land'. Prior to this monitoring work a site investigation was undertaken by the Waterman Environmental at Highway Farm. This established the monitoring boreholes and provided a ground investigation. It was concluded that the landfill in the area did not pose a risk to the underlying aquifer or other receptors. However some gasworks waste was indicated to be an exception to this and remediation work involving the removal of these hydrocarbon hotspots was undertaken during the redevelopment works. The ammonia levels found in the groundwater were thought to be from the larger part of New Years Green Lane Landfill to the north. After considering the information on Highway Farm (ref 5) including details of the remediation works to make the land suitable for use it was decided not to include this land in the area of determination as shown on Figure 1.

Landfill Gas - Intrusive Investigations and Risk Assessment

Gas Risk Assessment (Enviros 2002) / Yearly Landfill Gas Monitoring (SLR Consultants 2005 to 2011) (ref 6)

The work for the 2002 report involved two phases of intrusive investigation. Phase 1 involved soil probing and the installation of 8 gas monitoring standpipes to 3 metres depth near sensitive properties. Landfill gas levels were significant when monitored. A second phase of investigation involved soil probing, trial pitting and the installation of a further 8 standpipes. The trial pitting confirmed that waste extended to the edge of three residential properties and the 'Civic Amenity Site'. The standpipes were monitored for landfill gas and the results used to inform the risk assessment for the site. Subject to on-going monitoring the category of risk was reduced at some of the receptors after the Phase 2 work. Consultants advised the Council to monitor the site to enable any worsening trends to be identified. An action plan was advised in the event of rising gas concentrations. With continued monitoring the risks remained moderate at two properties and high at the Civic Amenity Centre. The work has established a network of 16 monitoring standpipes near to properties deemed to be at risk from landfill gas migration. In 2011 there are currently 14 of these standpipes left on the site

From 2005 to 2011 the site has been monitored quarterly for landfill gas by the Council. There are a series of yearly reports for this work. There are now a total of 36 monitoring standpipes on the site as two further phases of installing standpipes were undertaken in 2006 and 2009. The network is mainly surrounding or within the grounds of the Civic Amenity Site and the two nearest Bungalows. High landfill gas readings are found on a regular basis at the Civic Amenity Site. Limited site investigations at the Civic Amenity Site confirm that there is landfill beneath the site. The risk assessment as of 2011 has not

deteriorated from the initial 2002 risk assessment by Enviros prior to the monitoring by SLR Consultants (ref 6). However the risk does remain significant and monitoring continues at the site in 2011 for health and safety reasons.

Additional Information - Summary of the Outline Remediation Options Report for the Council dated 2011 (ref 10)

The options report provided an assessment of the remediation options for the site currently available and updated the remediation options assessment by Aspinwall & Co in 1999. The report provided an initial screen of the options and then followed the guidance in CLR11 for scoring remediation options to give total scores for the preferred options. The preferred remediation options are listed and scored. It is indicated that no one solution will provide sufficient management of all the high risk PPLs to controlled waters. Further monitoring and risk assessment is recommended. Following the determination of the site this is proposed to be carried out prior to the implementation of the necessary remediation measures.

The report also provided a screening of the contaminants present in controlled waters using the revised Water Framework Directive Environmental Quality Standards (Directive 2008/105/EC) as incorporated into the Environment Agency guidelines in 2010.

5. Summary of assessment of the evidence on which the determination is based (B.52 (c))

Part 2A Assessment Reports for the Environment Agency dated 2004 (Enviros) and 2006 (Atkins) and Detailed Advice of the Environment Agency to the Council dated 2008 (ref 7, 8 and 9)

Detailed Advice of the EA - Following the site investigations from 1995 to 2002 it was decided by the Council to inspect the site under Part IIA. As a consequence of the site being a potential 'Special Site' the Council wrote to the Environment Agency, 'EA' on 30 October 2002 requesting the EA to inspect the site on the Council's behalf. The EA duly agreed to inspect the site on 11 November 2002.

Enviros carried out the first assessment for the EA and provided a 'B20 Detailed Inspection' report in May 2004. The EA confirmed by a letter of 21 July 2004 that it considered the site a 'Special Site' should it be determined as 'Contaminated Land'. It was recommended by the EA that the site should be designated under Regulations 3(a) and 3(c) of the Contaminated Land (England) Regulations 2006 (SI 2006 No 1380), 'the Regulations'). It was indicated that the site may also fall under Regulation 3(b).

The EA considered that some further characterisation of the site was required to establish all of the potential pollutant linkages and confirm the significant linkages. As a consequence the Atkins carried out a second detailed inspection of the site for the EA. A report was provided in December 2006. An initial potential pollutant linkage table was

drawn up on the basis of the previous investigations and sufficient additional work to confirm these within the context of the contaminated land legislation was undertaken. A description of the work undertaken may be found in the final interpretive report (Atkins, 2006).

The EA confirmed 21 pollutant linkages at the site to the Council by a letter dated 6 August 2008 and summary document, 'Detailed advice to the London Borough of Hillingdon New Years Green Landfill'. The detailed advice recommended that the site should be determined 'Contaminated Land' under Paragraph 78A (2) (b) (Pollution of Controlled Waters) of Part IIA, and designated a 'Special Site' under Regulations 3(a) and 3(c) of the Regulations. It was also advised that determination under Paragraph 78A (2) (a) due to risks from landfill gas may be appropriate although monitoring did not indicate that critical concentrations had been reached. This Council continues to monitor the site and may need to specify remediation actions in the form of monitoring or otherwise in the future.

The Council has now considered the detailed advice of the Environment Agency dated August 2008 and reconfirmed in December 2010 in addition to the two detailed inspection reports by the Agency's consultants from 2004 and 2006.

6. Contaminated Land Determination

(i) Pollution of Controlled Waters

The evidence for the pollution of controlled waters is within the site investigations and monitoring reports listed above. The data has undergone a Level 1 analysis using generic guidelines advised by the EA. These include drinking Water Standards, Environmental Quality Standards and substances limited by Groundwater Directive 80/68/EEC and Groundwater Regulations 1998.

Source (Landill Leachate)

The source of contamination has been confirmed in the landfill leachate. Although the solid waste was not assessed in the reports there is sufficient monitoring data for the landfill leachate to confirm that there is a source of contamination in the leachate head within the solid waste of the landfill. There is a high probability that these contaminants are still present in the landfill leachate. Contamination in the leachate includes:

The investigations confirm the presence, in the leachate, of the following substances defined in List 1 of the List of substances determined for the purpose of the EC Groundwater Directive (80/68/EEC).

- Organohalogens; dichloroethane, dichlorobenzene, chlorobenzene and Mecoprop,
- Mercury,

- Cadmium,
- Mineral oils and hydrocarbons; TPH in the C6 to C40 range, Benzene, xylene, acenapthrene, naphthalene, phenanthrene, dibenzofuran, flourene, isopropylbenzene, methylnaphthalene and trimethylbenzene,

The following substances are defined in List 2 of the Groundwater Directive

- Nitrosodiphenylamine,
- Dimethylphenol,
- Ammoniacal nitrogen

The Groundwater Directive 80/68/EEC and Groundwater Regulations 1998 state that we must prevent discharges of List 1 substances into groundwater and limit the discharge of List 2 substances to avoid pollution.

Concentrations of the following substances are limited by the Drinking Water and Environmental Quality Standards and deterioration of baseline groundwater quality to those standards is unacceptable.

- Metals; iron, calcium, magnesium, sodium
- Sulphate,
- Chloride,

Pathways

The main controlled water receptor under consideration is the principal chalk aquifer which is used by the public water supply borehole at Ickenham. Also considered are the secondary A aquifer and the Bourne Stream.

The exposure pathways to the secondary and principal aquifers include migration of landfill leachate vertically down to the major chalk aquifer through the sandy, gravely and clayey horizons of the Reading Beds (Secondary Aquifer) after leaching from the waste. Although an overburden was due to be placed over the chalk prior to tipping this cannot be confirmed. There also may be preferential pathways created by the drains and culverts. Due to the presence of contamination in the major aquifer including ammonia which is consistently found it appears that this is a pathway is present.

Receptors (Groundwater)

In the groundwater of the Principal Aquifer contaminants have been found. The presence in the groundwater of the following substances below exceeding the groundwater requirements and standards is confirmed:

- Ammoniacal nitrogen
- Dichloroethene
- Chlorobenzene
- Mecoprop
- TPH (C10-C40)
- Benzene
- Iron, magnesium, sodium, calcium,
- Sulphate
- Chloride

Conclusion - The work done by Atkins and earlier consultants (as referenced below) has provided sufficient evidence to demonstrate that contamination within the landfill site is adversely affecting controlled waters.

A source pathway receptor pollutant linkage has been established for controlled waters specifically the groundwater in the chalk aquifer below the site. This comprises pollutant linkages 1 to 12 in Table 1 above.

As regards surface waters ammonia has been identified intermittently at high levels within the Bourne Stream. The linkages 13 to 18 in Table 1 above have been included as part of the determination as they should be included in the remediation work. This may include works to the culvert which could be affecting the stream and shallow aquifer.

Note: If there are changes to assessment standards such as the Environmental Quality Standards then the chemical data for the site will be screened against the new standards. Of note are the recently published revised Water Framework Directive Environmental Quality Standards (Directive 2008/105/EC).

(ii) Significant Possibility of Significant Harm

Source

Carbon dioxide and methane in the body of the landfill have both been identified in gas monitoring results from all of the site investigation and monitoring reports.

Pathway

Migration from the landfill mass via; the made ground, sand and gravels or chalk below the base of the landfill; man made pathways such as the culvert buried services, drains, sewers.

Receptors

On the boundary of the landfill there are three residential properties and a Civic Amenity Site. The Civic Amenity site is upon land that appears to been built on made ground or even the landfill, and a pathway is likely from the bulk of the landfill. The residential properties are not on landfill. There are two farm properties adjacent to the site, one being Highway Farm is on landfill.

The main danger from methane and carbon dioxide is once they have collected in any of the buildings around the site. There they pose a threat either via asphyxiation of residents or via the ignition of methane. The gas risk assessment from 2002 confirmed moderate to high risks to surrounding properties. The site has been monitored and risk assessed for landfill gas from 2005 to 2011. This is the way the landfill gas risk has been managed to identify trends in gas production in order to take early remedial actions as necessary.

Conclusion - Due to the evidence of consistently high levels of gas still present in the landfill it is considered that the site represents a significant possibility of significant harm from landfill gas as defined in Table B (2) of Annex 3 to the Statutory Guidance. This comprises 3 significant pollutant linkages numbered 19, 20 and 21 in Table 1 above. Monitoring is continuing to manage the risk and the Council may continue to specify remediation action in the form of the ongoing 'monitoring actions' to keep the situation under review.

7. Proposed Special Site Designation following Contaminated land Determination

The Council has considered the evidence of the pollution of controlled waters with respect to Regulation 3 Contaminated Land (England) Regulations 2006 taking into account the detailed advice of the Environment Agency dated August 2008. It is considered by the Council that New Years Green Landfill Site is a Special Site under Regulations 3(a) and 3(c) as advised by the Agency. This is explained below.

1. Regulation 3 (a) – Under regulation 3(a), controlled waters which are, or are intended to be, used for the supply of drinking water for human consumption are being affected by the land to the extent that changes in the treatment process are required. New Years Green lies up-gradient of several such abstractions and overlies part of the inner and outer source protection zones for Ickenham, a borehole that has long had problems with contamination and is at present out of use due to a change in the nature of the contamination in the local aquifer. After changing the treatment process to cope with increasing levels of ammonia, the increased concentration of iron in the groundwater will require additional treatment to make it suitable for supply. It is this subsequent change in the treatment process that causes the failure under Regulation 3(a). The contamination emanating from New Years Green Landfill site is considered to be substantially responsible for this failure. The Ickenham abstraction is still licensed and intended to be used for supply.

2. Regulation 3(c) of the Regulations requires a particular type of contamination in a specified aquifer (underground strata comprised of specified formations of rocks). The chalk aquifer below the site is listed in paragraph 2 of schedule 1 of the regulations. Of the contaminants identified, only a few contaminants found in both the landfill leachate and the chalk groundwater samples are listed in paragraph 1 of schedule 1. These are Hydrocarbons (TPH C6 to C40) and Benzene, and Organohalogens (Chlorobenzene, Dichloroethene DCE and Mecoprop).

Contaminant	Family or group as defined for paragraph 1 of schedule 1 of Regulation 3(c).
TPH C6 to C40	Hydrocarbon
Benzene	Hydrocarbon
DCE (Dichloroethene)	Organohalogen
Mecoprop	Organohalogen
Chlorobenzene	Organohalogen

8. Summary of how the relevant requirements of Chapters A and B of the Statutory Guidance have been met (B52 (d))

Risk Assessment
Paragraph A.11 Contaminants, pathways and receptors have been identified for the site.

Paragraphs A.17 and A.19 Twenty one significant pollutant linkages have been identified at the site resulting in the pollution of controlled waters and the significant possibility of significant harm from landfill gas to nearby residential properties.

Pollution of controlled waters
Paragraphs A.36, A.37 and A.39. Monitoring data shows that contaminants are present in the landfill leachate at high concentrations and continue to enter the aquifer below the site. This is the source that continues to enter controlled waters. Contaminants have been found to be dissolved in the groundwater of the chalk aquifer.

Significant possibility of significant harm
Paragraphs A.27 to A30. A gas risk assessment was undertaken in 2002 and identified high risks to residential and commercial sites. High levels of gas within the adjacent landfill indicate a significant source and potential degree of harm to the receptors. The receptors are susceptible as they are not protected by any gas mitigation measures. It is not

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considered that the current use of the land will cease and residential properties will remain at the boundary.

Determining whether the land appears to be contaminated land
Paragraph B.31. The London Borough of Hillingdon has determined the land to be contaminated land. This decision relies on the detailed advice regarding controlled waters by the Environment Agency as based on their Critical Review and subsequent 'B20(a) and B20(b) Part IIA Detailed Inspection'.

Physical extent of the Land
Paragraph B.32 to B36. The land has been determined in extent as the area advised by the Environment Agency and justified above in the text to this record of determination.

Making the Determination
Paragraph B.38. The site is determined on the grounds that

1. The pollution of controlled waters is being caused, and;
2. There is a significant possibility of significant harm from landfill gas

Paragraph B.39. The London Borough of Hillingdon have taken all relevant and available information into account from the initial investigations in November 1995 to the final detailed advice from the Agency in 2008 and latest landfill gas and groundwater monitoring in 2010.

Paragraph B40. The significant pollutant linkages are detailed above in Table 1.

Paragraph B41. Additive/synergistic effects are not thought relevant in this case.

Para B.43. The Environment Agency has been involved with the investigations at the site since 1995. The London Borough of Hillingdon has consulted with the Agency at the site since 1997. A formal request was made to the Agency to inspect the site on the Council's behalf under Part IIA as a potential Special Site and agreed in November 2002. The Agency provided their final detailed advice in August 2008 and the Council has had regard to their advice in the final determination.

Paragraph B.45. The site has been assessed for landfill gas levels from 1999 to 2011. A scientific and technical assessment of the risks arising from this pollutant linkage has been carried out by the Council. The assessment work in 2002 and in subsequent yearly monitoring reports indicates a risk from landfill gas. No risk management measures are in place such as gas protection on buildings, barriers or venting trenches. Perimeter monitoring is used to manage the risk by identifying trends and necessary actions however it is considered on the balance of probabilities that there remains a significant possibility of significant harm due to the high levels of gas within the landfill site.

Paragraph B.50. A scientific and technical assessment of all of the relevant and available evidence from 1995 to 2011 has been carried out by the Council having regard to the detailed advice of the Environment Agency. The Council is satisfied that, on the balance of probabilities potential pollutants are present in the landfill site (contaminated fill and leachate) and these potential pollutants are entering controlled waters (groundwater) by the pathways identified in the pollutant linkages.

References

The Site Investigation Reports and Site Assessment Reports from 1995 to 2011 are listed in Paragraph 4 above.

Detailed Advice to the London Borough of Hillingdon with a covering letter dated 6 August 2008 (Groundwater & Contaminated Land Team, Environment Agency) (ref 9).

Part 2A of the Environmental Protection Act 1990

The Contaminated Land (England) Regulations 2006

Statutory Guidance (DEFRA) - Circular 01/2006 Environmental Protection Act 1990: Part 2A Contaminated Land September 2006

Contaminated Land Inspection Strategy for the London Borough of Hillingdon (July 2001) and Contaminated Land Inspection Strategy Review (November 2007)

CIEH – Local authority Guide to the Application of Part 2A of the Environmental Protection act 1990 (July 2001)

The following appended map known as Figure 1 shows the area of the land at New Years Green Lane Landfill Site that has been determined by the London Borough of Hillingdon to be Contaminated Land.

EXHIBIT 5

Schedule of Sarah Charmian Green

Schedule - SG response to SRJ1.

Para No	Assertion	Response
14.2	*Extensive arguments against the scheme were again considered*	Information was given to the court for consideration. However Holland Order para 23. Not hear to give a view on the merits or demerits of the scheme
14.3	*Claim that Defendants should be removed as Not seen in vicinity of Harvil Road recently, and so were not considered to be a risk of unlawful conduct by them.*	This claim did not happen. My reason that I presented to the Hearing 16th May 2019 was that I had not breached the previous injunction and the Claimants had not presented evidence to the contrary.
14.4	Judge not minded to remove names	144 Holland judgement also states (The third and Fourth Defendants) have not been guilty of any breach of the terms of this order. *The Judge's opinion of me was based mainly on actions before the first interim injunction. 19 Feb 2018 (which I did not breach).* But also at the time of the Injunction hearing May 2019 I had a charge against me for Aggravated *Trespass which was dismissed in August 2019.HS2 did not prove possession of the land.*
15	A third substantial hearing related to this site in November 2019	This is very relevant as the Possession Order granted 28 Nov 2019 was enacted on 7 January 2020. However the attached Possession Map was not used. Instead a much larger area of land was evicted in the Enforcement Operation.
16	Portion of the Land subject to the 2019 Injunction was occupied by protesters, who included previously named defendants Ms Sarah Green	False accusation. The Portion of Land subject to the possession order that was occupied by protesters was a section of public footpath U34. This section became subject to the Injunction once public RoW were closed. I did not occupy that section. I was in occupation of the Protestor Encampment in the main camp field, opposite Gate 2 Harvil Road (camp field).
17 - 19	SRJ1 17 -19	I broadly agree
20	Defendants failed to comply with the Possession Order failing to vacate	I was not on land subject to the Possession Order. I was on the Protester Encampment which was evicted on 7 January 2020, at same time as the Possession Oder was enacted.
21		I broadly agree
22	'Roadside' protest camp. This camp is situated on local authority land on or next to the public highway……	The camp field was occupied lawfully in November 2017, with knowledge of the tenant farmers who rented from LBH. The camp field remained occupied throughout 2018 and 2019. This was the safe sleeping place and living place, away from the Harvil Road.

		The map of the original injunction 19th February 2018 and the Holland Order May 2019 both show on the map the Protestor Encampment marked Black, opposite Gate 2 in purple, in the field. Google satellite view evidence **(Ex 14)** Photo 1. Google May 2018 shows tent in field Photo 2. Google June 2019 shows more tents in field and some now towards the Load Test Pile Site which is in the adjacent field. The camp field has never been subject to an injunction application.
22 cont	…..On the whole, this protest is peaceful and / or does not impact the Claimants and their contractors. It is also permitted by the terms of the 2019 Injunction, and no part of this application is intended to affect that.	The actions of HS2 during 2020 have been intended to affect the Harvil Road Protest camp in the following ways; removal of sleeping and living areas the camp field eviction 7th Jan 2020. The closure and blocking off of Dews Lane (May 2020) and U34 footpath diversion (August 2019) preventing access to canal area and Harefield Marina to empty porta loos. 22 May 2020 Blocking off pedestrian access to Dews land and blocking off water supply tap.
		HS2 7 Jan Possession Land. On January 7th 2020 a map **(Ex 8)** was left at the camp fire meeting point sometime very early in the morning. This map is titled HS2 7 Jan Possession Land. This map is a remake of the viaduct plan with the demarcation of land plots overlaid. There is no correlation between the colours and markings on the map and the legend. Blue line and light tan demarks the area of land subject repossession under the Holland possession order PT-2019-000798 of 28th November 2020. The large area in pale blue enclosed in red line, is the camp field. This is not included in either the injunction or possession maps.
		Camp field eviction 7 Jan 2020. At some time in the morning a great deal of people entered the camp field, including High Court Enforcement officers, HS2 security guards, the police and LBH officers. Throughout the course of the day I remained in the camp field. I was asked to leave by enforcement officers whom I spoke to. I also spoke to the police and the Hillingdon Council personnel. I pointed out that possession order PT-2019-000798 did not cover the camp field. I showed the officers a laminated copy of the land possession map for PT-2019-000798. I draw attention to the

		injunction map and explained that we were recognised on the Injunction PT-2018-000098 at our location. I drew attention to the Legal Warning notices attached to each tent.
		There were several versions of the Legal Notices which were attached to each tent and structure. Some were laminated and some contained in plastic wallets. The notice that I showed the enforcement officers, Police and LBH officers stated this was not a residential building, that we occupy the property. That any entry or attempt to enter into these premises without our permission is therefore a criminal offence as any one of us who is in physical possession is opposed to such entry without our permission. That if you attempt to enter by violence or by threatening violence we will prosecute you. You may receive a sentence of up to six months imprisonment and/or a fine of up to £5,000. The occupiers.
		Eviction cont… I was warned that if I did not leave voluntarily I would be forcibly removed and that I would not be allowed back to collect my belongings. I was carried from the field at around 3.30pm by approximately six bailiffs and left on the pavement of Harvil Road.
23	Separate proceedings for contempt of court are being contemplated in respect of such breaches	I dispute being on the Land covered by the 2019 Injunction
23.2	There have been an increasing number of incidents of trespass on the wider Harvil Road Site not 'protected' by the Injunction….The Claimants do intend to seek injunctive relief over this Additional Land in due course	People are protesting on areas of land outside of HS2 possession however HS2 land ownership is expanding and changing rapidly. There is no communication channels with HS2 community liaison.
24	The Claimants do not wish to stifle anti-HS2 views, but seek the Court's assistance to try to ensure that the protestors do not resort to unlawful direct-action protest.	This is an area with active construction sites but also people still live and work here. The public frequently use the footpaths for exercise and have real concerns for existing wildlife. Being in the vicinity and actively monitoring and recording events so these can be disclosed, is lawful direct action protest.
24.1	Works timetables and costs	Works timetables and associated costs should not override completeness of environmental assessments and compliance with environmental regulations.
24.2	Acts of trespass and obstruction are often accompanied by incidents of verbal harassment and physical	I have not been aware of any incidents of verbal or physical harassment of contractors.

	intimidation of contractors including some violence	
24.3	Very considerable police resources have been required to assist with incidents on the Harvil Road Site, at considerable public expense.	The public expense of HS2 from the public purse is not acceptable. This includes taking out expensive court proceeding like this one.
24.4	Fencing	I have not moved, damaged or tampered with fencing or notices. Although my personal information has been displayed on fencing by the Claimants, which I object to and believe to be a breach of data protection. Information about my business and personal life has been put on display.
24.5	Covid-19	I have been socially isolating at my home during this period and have not been to the Harvil Road Site.
25 - 26	Protest camps have been set up on the wider Harvil Road Site severely disrupting works, such that there is an ongoing risk of parts of the site which are not currently subject to the 2019 Injunction	Since the Protest camp in the camp field was evicted without court order in January 2020 it is not clear where people can stay to continue to protest.
27-28	Substantive application	I have received a letter stating the Claimants intension to name me in the Substantive Application. I disagree with their including my name in these proceedings. These proceeding are time consuming and overburdening. I have not been involved in conduct which warrants the inclusion of my name.
29	……the Claimants had in recent weeks been preparing a large scale and complex operation with High Court Enforcement Officers to remove those protest camps and recover the land under 'self-help' relief without the need to seek assistance of the Court. **Those matters significantly complicated the ability to frame a more substantive injunction:**	SRJ is referring to the January 2020 evictions. However these 'self-help' evictions have been repeated. Notice of Eviction using Halsbury Laws was the only paperwork provided to protestors at the Dews Lane Garage eviction 12 and 13 May 2020. This is the same for Road closure Dews Lane on 22 May 2020 and Denham Country Park protest camp eviction 27 May 2020. I have not been present at any of the above as I have been in family isolation at home since 23 March 2020. **Relevance to legal position and not being ready to extend injunction**
29.1	Happily, that operation took place successfully on the 12 and 13 May 2020 which resulted in the Claimants successfully recovering the land in question	This clarifies that the self-help eviction was for the garage. HS2 demolished the garage on 19 May. The Garage was not on injuncted land or subject to court order.
30 - 31		Broadly agreed
32	Covid-19 working from home	HS2 construction has not ceased throughout the pandemic. There has been greater impacts

		on ancient woodlands (in Warwickshire) than at any other time of the project. It is entirely wrong that management and administration services are slowed down went works on the ground have speeded up.
33-38	Persons who they name as defendants to these proceedings on the intended substantive application will likely wish to be heard in response.	I do not want to be named on those proceeding and do not think naming me is warranted.
39	…my firm has previously written to a number of persons against whom it is anticipated that the substantive application will be brought…	My response letter is exhibited by SRJ at p. 123 I have not done anything which could be considered to amount to a breach of the terms of the respective injunction orders and I would like my name removed from the substantive application.
41	…The disruption to the flow of traffic along Harvil Road as a result of protest activity, whilst not eradicated, is lower than before relief was granted….	Misleading. The Harvil Road is a hospital access road to Harefield Hospital which is a heart hospital. Protest (to the best of my knowledge) has always avoided blocking or obstructing vehicles on Harvil Road. The opposite is true of HS2. There have been regular and numerous road closures, partial road closures, obstruction by large vehicles, mud on the road, vehicles parked on the carriageway outside site entrances for hours.
42	….protest camps have more recently been set up (and continue to be set up) on the wider Harvil Road Site and not the Land also suggests that the injunction is having an effect. ……. the Claimants' fear there is a significant risk that protesters will seek to re-enter the Land and seek to occupy it on a more permanent basis	Additional protest camp do not suggest that the injunction is having an effect. Feb 2018 injunction and May 2019 injunction claims were sort on land which was not occupied by protesters. The camps were not on the land in the injunction. Since 7 January 2020 eviction it is hard to know where people who wish to stay, can camp.
43 - 45	…..a scheme which has been mandated by Parliament.	All laws are mandated by Parliament. HS2 is in conflict with many mandated laws. Therefore should now be reconsideration by Parliament
46-47	Sean Armstrong statement	I was not involved in these incidents
48	The writ of possession made in the 2019 Possession Proceedings was enforced at the same time as statutory warrants made in respect of other parcels of the land at the Harvil Road Site ("the Enforcement Operation"	We were not shown the 'statutory warrants' used to evict the Protestor Encampment at camp field 7 Jan 2020. Please compare the Possession order map **(Ex 7)** and the Enforcement Operation Map **(Ex 8)**. The Claimants were aware of the Protester Encampment being in the field which was evicted on 7 January. Evidence of this is

		contained in an email from Patricia Thompson HS2 Community Liaison, to the Chairs committee from 21 August 2019 when a similar Enforcement Operation was planned but not carried out using a similar map. Please see exhibit Harvil Road land take Thursday 22 August.
49	The occupiers of the Land (and other parcels of the Harvil Road Site) did not leave voluntarily when asked to do so by James Tyler-Morris (who is HS2's Property Acquisition Lead for this area)	I was occupying the camp field, not included in the injunction and believe that I was not trespassing as an in situ occupant. I did not leave voluntarily as I believe the actions being taken by HS2 that day to be in breach of the terms of the injunction order. Legal Notices were displayed Exhibit 6.
50	The Claimants considered the land subject to that Enforcement Operation to be free of trespass on 16 January 2020	At the time of the eviction we were not trespassers on the camp field.
51, 52	Friday 17 January	Over the weekend 17-18-19 January there was a planned road closure of the Harvil Road for tree removal. This was advertised on websites such as the Hillingdon commonplace HS2 website. In the event, many people turned up and the road closure did not happen. I attended the protest for part of the day. I was not aware of the repossession of land at the site until I watched this on social media.
55 -56	Covid-19	I have not visited the camp during lock down
57.2	8th Feb 2020 No arrests were made. Due to the level of interference and the numbers of protesters on site, the works were eventually stopped on safety grounds.	Storm Ciara hit south east England over the weekend 8th 9th February. Tree clearance was stopped officially on the afternoon of Saturday 8th Feb due to the imminent storm. Tree clearance was cancelled on Sunday 9 February due to storm conditions.
57.3	8 Feb 2020 ….Sarah Green was amongst those who were identified by the security patrol team members……	On 8 February I was on the Harvil Road at the time of the Planned HS2 Road Closure for HS2 vegetation clearance. I did not remove fencing or force my way in. This is a Public Road and public space, by being here I did not commit an unlawful act.
58.9	On 18 February 2020 Sarah Green and Iain Oliver were noted by the site security officers as being active at the site entrance gates (West Gate 3) and behaving in a disruptive manner during this incident, for example by attempting to obstruct	False accusation. On the morning of 18 February I was made aware via social media of protest taking place at Load Test Pile Drive Site at Harvil Road. I then went to the Harvil Road protest site in particular the area outside Gate 3. I dispute behaving in a disruptive manner or attempting to obstruct any vehicles.

	the police vehicles entering and leaving the site when the arrests of Mr Brown and Mr Ruggles were made	Video evidence **(Ex 10)** of incident showing James Brown leaving site entrance in Police vehicle. We are clapping so that he can hear support as he is partial blind. Video evidence
59.2	20 Feb 2020. Sarah Green and Mark Kier were on the bell-mouth at the compound gates and assisted Ms Walker with her equipment when she left the site at 17:05.	Similar to above, I was made aware via social media of something happening at the Load Test Pile Site. I went to Harvil Road and was there. I did not do anything unlawful.
60 - 71	1. 24 February, 23 March, 26 March, 1 April, 16 April, 29 April and 29 April.	I was socially isolating at home and therefore I was not present at the site during this period.
72.2	SRJ mentions the West London Rangers Air Rifle Club land.	This is Dews Dell Wood a local nature reserve of Borough Importance. On HS2 plans the majority of the wood is marked as Not To Be Acquired or Used. The wood is occupied by badger setts which have been on the records of Herts and Middlesex Badger Trust for 30 years. The Badger Trust has visited the badger setts in this area including HS2 land and LBH land to monitor and badgers. A letter given to me from the Herts and Middlesex Badger Group outlines their ongoing serious concerns for the badgers in Dews Dell Wood. Also in the report evidences that the sett on the injuncted land near to the Chiltern line embankment has been destroyed with no mitigation. Exhibit 8 HS2 Plan
73	The Council Injunction	
74	As has always been the Claimants' position – they have no desire to prevent and they continue to respect the Defendants' rights to peaceful protest. The Defendants have other means of expression and lawful protest	The opposite is true in practice. During the period of time covering this order, the main camp (field camp) was evicted from the sleeping and living area away from Harvil Road. Access to empty the toilet has been blocked along Dews Lane ad U34 footpath. Access to drinking water has been blocked. No one knows under what law Dews land has been closed. Monitoring wildlife and concern about the wellbeing of the wildlife cannot be conducted from elsewhere. Similarly observation of the Piling or other works which potentially affect the water supplies and aquifer cannot to undertaken from elsewhere.

EXHIBIT 6

Photographic evidence clarifying the field not in HS2 possession

11th February 2019

D1044

D904

Unlawful land damage

Damage to field camp field, west of Harvil Road, opposite HS2 Gate 2.

Photographs taken on 11 February 2019 when this land was not in possession of HS2 Ltd. Land possession of this field was not taken by HS2 Ltd until 22 August 2019. A great deal of damage was done to the surface of the field from which it never truly recovered. Cinnabar moths were just one of the conservation species wildly observed the previous summer 2018 all over the field during May and June 2018. In Spring Summer 2019 there were very few, butterflies, moths or bees observed due to contractor action on 11 February 2019.

D906

D1046

EXHIBIT 7

Possession Order map dated 28th November 2019


HS2
Approximate area of current trespass
S232_036
S232_064
S232_061

D908

D1048

EXHIBIT 8

Enforcement Operation map dated 7th January 2020

D1049

D909

D1050

D910

EXHIBIT 9

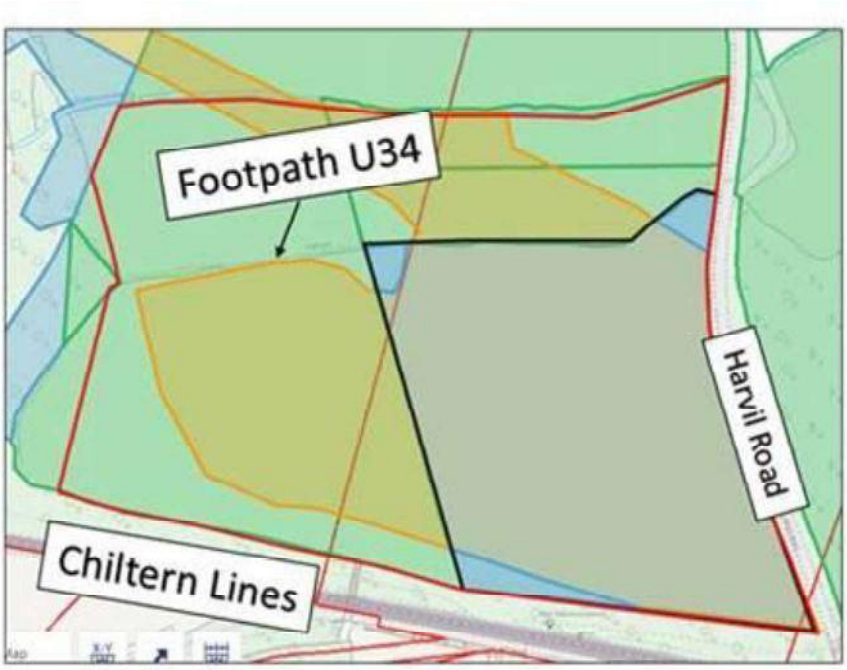
Patricia Thompson email dated 21st August 2019

From: Patricia Thompson
Sent: 21 August 2019 16:35
To: Alison Holtorp (alison.holtorp@eastcotera.co.uk); Beryl Upton (uptontb@btinternet.com); Brian Adams (badams4848@hotmail.com); Brian Cable (brian_cable@btinternet.com); Christine Leonard (chri5y@hotmail.com); Cllr Devi; Cllr Susan O'Brien (so'brien@hillingdon.gov.uk); David Crane (ickcranes@btinternet.com); Doreen McIntyre (dmlockcott@gmail.com); Keri Brennan (keribrennan@yahoo.co.uk); Lottie Jones (jones.lottie@gmail.com); Mike Rees (michaelrees@btinternet.com); Niki Samuel; Phil Taylor (ptaylor@altroy.co.uk); Philip Corthorne (pcorthorne@hillingdon.gov.uk); wendy hobday (wendyhobday@wendysworld.co.uk)
CC: Andrew Mackinnon; Grant Blowers
Subject: Harvil Road land take - Thursday 22 August
Attachments: Notice of load test piling works off Harvil Road FINAL v2.pdf; Notice of Public Right of Way U34 closure 02.08.2019 .pdf

Dear All,

I wanted to give you some advance notice of a land take HS2 is doing on Thursday 22 August off Harvil Road.

In order to undertake archaeology surveys and load test piling for the Colne Valley Viaduct, we will be taking possession of the land outlined in black in the map below. To ensure public safety during these works, as you know the U34 public right of way footpath will be temporarily closed from 22 August until spring 2020. I have attached copies of the notifications that have been sent to residents and are available on the local HS2 website HS2inHillingdon.



We are aware that part of this land is currently occupied by members of the public. Our Land and Property team have been out to site to speak with them and provide information of our intention to take possession of the land on Thursday.

Please let me know if you have any questions.

Kind regards

Patricia

Patricia Thompson | Senior Engagement Manager Area South | HS2 Ltd

Tel: 020 7944 8962 | Mob: 07768 474 849

Contact our HS2 Helpdesk team all day, every day of the year by:
Freephone **08081 434 434** | Minicom**: 08081 456 472** |Email: **HS2enquiries@hs2.org.uk**

To keep up to date with what is happening in your local area, visit: www.HS2inyourarea.co.uk

EXHIBIT 10

Video evidence of James Brown leaving the site

Exhibit 10

Video Evidence of James Brown leaving the site

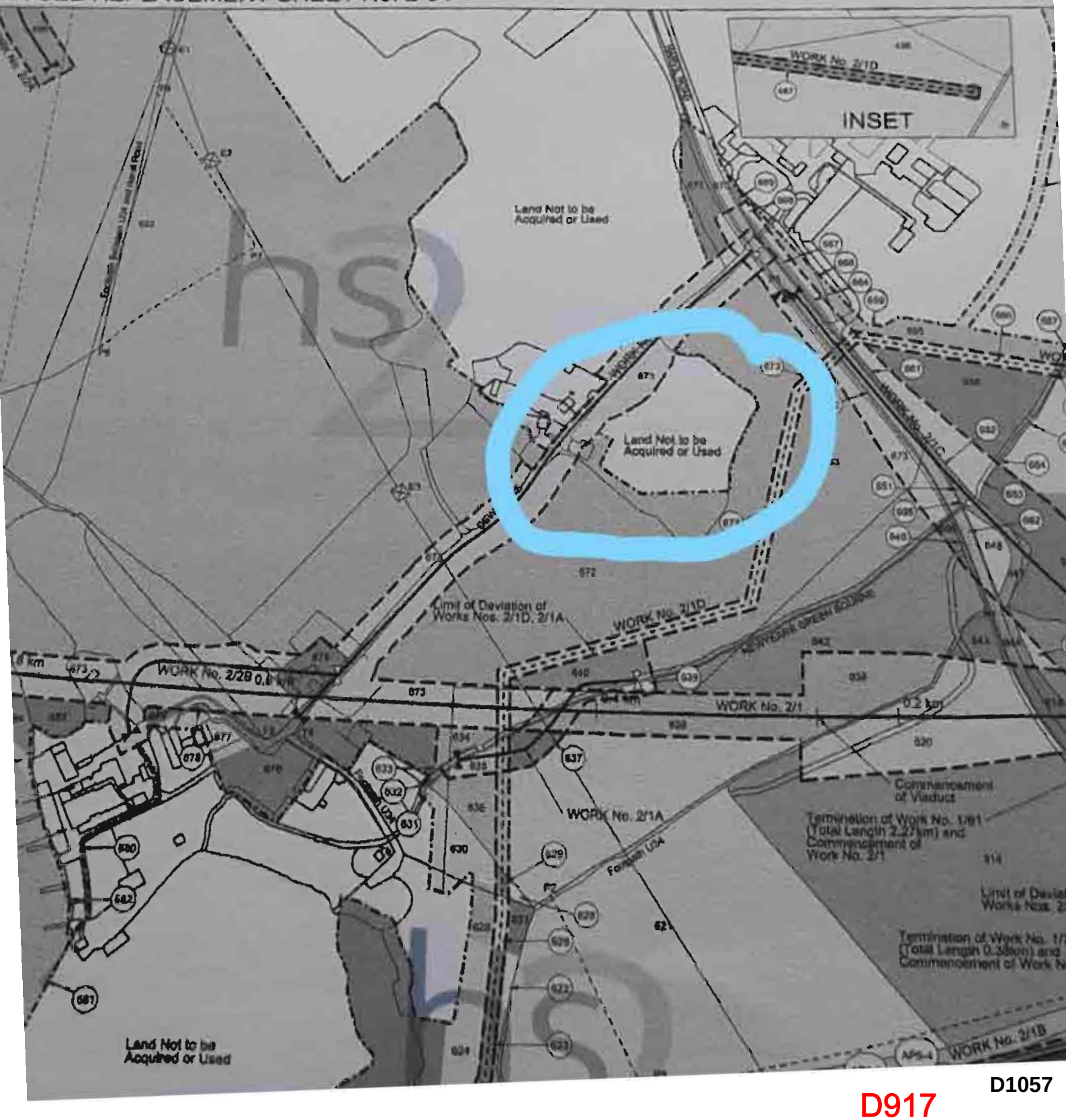
https://m.facebook.com/story.php?story_fbid=9536665550547 08&id=100012341167944

EXHIBIT 11

Dews Dell Wood on HS2 Map

GREATER LONDON
LONDON BOROUGH OF HILLINGDON
PLAN

ON SEE REPLACEMENT SHEET No. 2-04



D1057

D917

EXHIBIT 12

Video footage of HS2 Contractors in Dews Dell Wood

Exhibit 12

Video footage of HS2 contractors in Dews Dell Wood

https://www.facebook.com/sally.brooks.568/videos/10158096791616257/

EXHIBIT 13

Article from Water Briefing website: Affinity Water applies for water abstraction to mitigate potential construction impacts of HS2

Dated 28th January 2020

https://www.waterbriefing.org/home/company-news/item/16889-affinity-water-applies-for-water-abstraction-to-mitigate-potential-construction-impacts-of-hs2

Link above is to Water Briefing website and carries this article about Affinity Water (28 January 2020).

Tuesday, 28 January 2020 07:16

Affinity Water applies for water abstraction to mitigate potential construction impacts of HS2

Affinity Water Ltd has applied to the Environment Agency to vary an existing abstraction licence to mitigate the potential construction of the HS2 railway line by High Speed Two (HS2) Ltd.

The application is to vary an existing licence which authorises the abstraction of groundwater from sites near Batchworth, West Hyde and Blackford

Affinity Water has applied for an extension to the period it can abstract 32,120,000 cubic metres per year from 31 March 2020 to 31 March 2025, after which the annual abstraction rate will reduce to 29,200,000 cubic metres per year. The limit applies to the combined abstraction at the three sites listed above and six other sites which are not affected by the proposal.

The water company has also applied for an increase in the peak daily abstraction rate at the Batchworth site from 20,457 cubic metre per day to 28,000 cubic metres per day and at the West Hyde site from 20,457 cubic metres per day to 22,457 cubic metres per day, effective for 30 months.

The licensed annual volume of water will not increase as a result of this -the increase in peak daily abstraction rates will only commence in the event that the Blackford site, which allows abstraction at a rate of 20,000 cubic metres per day, and/or other sites are affected by turbidity arising from construction of HS2 and are experiencing full or partial outage.

Affinity Water said the water abstracted is for the purpose of public water supply and the variation will contribute to maintaining resilience of supply during episodes of peak demand.

The proposal is not intended to enable the water company to supply High Speed Two Ltd with construction water.

EXHIBIT 14

Protestor Encampment location in field camp

Protestor Encampment evidence of location in field; Google satellite view

May 2018 one tent is visible in the field near Harvil Road. June 2019 seven tents are visible.

D923

HILLINGDON GREEN PARTY

From Graham J. Lee,
58 Beech Avenue
Ruislip,
HA4 8UQ
Telephone 020 8868 7852
e-mail graham@hillingdongreenparty.org.uk

5th June 2020

Initial distribution:

Patricia Thompson – HS2 Patricia.Thompson@hs2.org.uk tel: 020 7944 8962 mobile 07768 474 849
Zania Khan – HS2 Project Lead for these works *
Mark Riddington, Senior Engineer National Grid *
Sabina Morgan-Bates, Project Engineer National Grid *
Graham Lee Hillingdon Green Party graham@hillingdongreenparty.org.uk 020 8868 7852 07956 261902
Niki Samuel, Hillingdon Green Party nikisamuel@tiscali.co.uk tel:01895 821108
Sir Mark Worthington Independent Construction Commissioner- HS2 complaints@hs2-cc.org.uk
For information only: The remaining Officers of Hillingdon Green Party.

* This item and enclosure to be immediately passed on to the named National Grid staff by Patricia Thompson as agreed at the meeting on 11th February.

Dear Ms Thompson,

Thank you for your emails of 6th March and 27th May following our meeting on 11th February, my letters of 13th and 25th February and my email of 26th May. I attach copies of the emails as pages 1-7 and the notes of the meeting, proposal (which I now call Option 4 for reasons given below) and my letter of 18th March with clarification of the option following site visit on 14th March.

I realise that you are having to handle every aspect of HS2 in Hillingdon. It is therefore quite reasonable that you have got very confused with the detail of the various options.

This confusion goes back over a year. Following my letter to National Grid Community Relations on 26th March 2019 I received an undated letter from Andrew MacKinnon which contained the following paragraphs.

"National Grid has identified the possibility of utilising the canal via a barge to deliver certain ground investigation equipment. However as the pylons are dismantled they will be cut to sections that are too large and heavy to use the canal as a suitable means of transport."

"Pylon ZC48 you refer to is currently a design of pylon which caters for angles up to and including 30 degrees. Due to the alignment of HS2's viaduct there is a requirement to increase the angle of the deviation and re-direct the overhead line route. The replacement pylon will be a different type of pylon capable of supporting the new angle. The larger the deviation angle, the more significant the pylon/foundation needs to be."

This set me thinking about other alternatives. In my letter to you on 2nd May 2019 to you I included the following paragraph Which I am here highlighting in red.

"Now to the details. ***You say that pylon ZC48 is not suitable for a deviation in excess of 30 degrees and that a different designed pylon will need to be built as indicated on the plan. Looking at the plan I see that instead of linking the new line (blue on the plan) to pylon 48 if the link was made to pylon 49 this would make a deviation of significantly less than 30 degrees. My measurement on the map indicates around 15***

degrees. This would not necessitate any new pylon on the west bank (towpath side) of the canal. There would be a longer span from pylon 49 to one on the east of the lake (which I guess would then be called new 48 – counting from the new 44) This increased span is shorter than the length between new 44 and new 45, and would need less of a deviation on that new pylon than as shown in the well-publicised plan. The effect of this would be that no new pylon will be needed on the west side of the canal."

A letter (with postmark 12th June 2019) from Mr MacKinnon included the following as the only reference to this proposal.

"We have shared the points you raise with the National Grid team. The existing pylon ZC48 cannot be reused to carry the new alignment. As stated previously due to the location and height of the new HS2 Colne Valley viaduct there is a requirement to increase the angle of the deviation and re-direct the overhead line route. This is why the existing pylon cannot be used."

Clearly if he had "shared the points raised with the National Grid team" as he stated, the National Grid Team would have corrected this. Therefore, I can only assume he did not pass on the complete information, or that the team were incompetent.

I replied to Mr MacKinnon on 24th June 2019 with a much more detailed letter following a site visit.

I included "I note however your recent letter makes no reference to the following paragraph from my letter of 2nd May to Patricia Thompson…." I repeated the paragraph in red in that letter. I now call this Option 1.

In the very brief reply of 5th July 2019 Mr MacKinnon made no reference to this Option or indeed Option 2 or Option 3. He just put in the following stock paragraph.
"The route has been chosen by National Grid for a number of reasons; specifically, the alignment of HS2's viaduct, but also topography, span length and height. The current alignment is based on detailed surveys as well as ground investigation work and technical design by National Grid. It represents the best design based on this range of factors."

This indicates the paragraph in red and indeed all three alternative proposals and information were not passed on to a competent National Grid employee with a request to consider this matter.

For the avoidance of doubt I set out (in order of priority) the three options contained in my letter of 24th June 2019.

1) The proposal contained in my letter to Patricia Thompson on 2nd May 2019 that instead of constructing a new pylon south of no 48 on the plan there be a direct link from existing pylon 49. Please instruct National Grid Staff to fully evaluate this proposal and in particular find out the exact angle of deviation that this would create. This proposal would prevent any new pylon being constructed or installed to the west of the Grand Union Canal and hence no destruction of Denham Country Park (which is NOT on the route of HS2). This proposal is a direct link between pylon 49 and new pylon E using the map on page 4 of the letter of complaint.

2) If there is a good reason why option 1 is not going to work then fully investigate a link between pylon 50 and Point E on the map on page 4 of my complaint letter. Note pylon 50 is designed to take a major deviation from straight line so would be able to take the change in vertical alignment to the new pylon at point E. I do note that this would involve a longer crossing of the lake, however I note that this span is far less than that between pylon 51 and 50. It has the advantage of not having any further crossing of the Grand Union Canal.

3) If the length of span across the lake is considered excessive then I propose that a pylon be constructed at point F. This would need some vegetation clearance at and around point F The span across the lake would be much less than the National Grid proposal from a new pylon near point 48.

You will recall that you assured me that the National Grid staff attending the meeting on 11th February 2020 had been sent <u>all correspondence</u>. At the time I expressed doubt in view of the amount of correspondence. I specifically

asked you to make sure that they all had the letter and attachments of 24th June 2019 and that I wanted this to be the basis of the meeting. This you agreed to.

Please now refer to the notes of the meeting held on 11th February 2020 issued 25th February.

Instead of taking the suggestions in the letter of 24th June 2019 in turn Mark Riddington (MR) - Senior Engineer National Grid immediately went to Option 3 which is the only option that he had looked at prior to the meeting. This option was the one illustrated on the map I included as page 4 of that letter. Full details of the consideration of Mr Riddington of this option 3 are included in the notes of the meeting.

I pointed out that this Option 3 was only if National Grid were not happy with a longer span between point E and pylon ZC050 across the lake. (Option 2). Mr Riddington had not considered that option, however as it was a much longer span he had to rule it out.

I then introduced Option 1. I repeated that in the letter from Mr McKinnon in April 2019 he stated "Pylon ZC48 you refer to is currently a design of pylon which caters for angles up to and including 30 degrees…" For that reason, I raised the possibility in my letter of 2nd May 2019 suggesting that as ZC48 and ZC49 appeared to be identical pylons, the link was made to ZC49 which appeared to be less than 30 degrees. This was not referred to in Mr MacKinnon's letter postmarked 12th June 2019, however that letter just repeated that ZC48 cannot be reused to carry the new alignment.

If this 7 month delay in dealing with Option 1 had not occurred I would have expected National Grid to investigate the possibility of putting a new pylon like ZC050 that would take a deviation up to and including 30 degrees near ZC049. This would be a much smaller pylon than the HS2 proposed new one, therefore not needing such a substantial foundation hence saving a lot of cost to HS2.

From this point I am separating out the installation of the new pylons from the dismantling of the redundant ones.

When you considered the proposal briefly set out in my letter of 13th February 2020 (two days AFTER the meeting) you caused further confusion by also calling this Option 3. I am going to call it Option 4 to avoid this confusion.

This Option 4 is drawn out in the dark red lines on the photographic map left with me at the meeting. For avoidance of doubt Option 3 is the light green lines and the HS2 proposed plan is shown in lighter orange.

Option 4 is really a variation on Option 1 with a new pylon on the East side of the Canal.

Option 4 allows the work on the new pylons to be carried out immediately, without having to wait for the Environment Agency to agree to works to construct the bridge over the River Colne. This is because there is good vehicular access to the new pylon. The work to remove redundant pylons south of the Chiltern Line is the only work to be carried out to the west of the Grand Union Canal. This means that it can wait without causing any delays to the construction of the railway.

The objections you made in your email of 6th March 2020 are as a result of your confusion between option 3 (which was discussed at the meeting) and Option 4 which was not on the table at that time.

Your 1st objection "Space is too limited due to the lake, watercourse, roadway and canal". This was one of the reasons given against Option 3. This was because for Option 3 it was not thought possible to adapt ZC050 to make a large change in the angle of deviation, so a new pylon would have to be constructed next to ZC050. Since this would have to be carried out whilst the power was on it would have to be further away at a point where there was less width. This does not apply with Option 4.

The pylon suggested in Option 4 is well away from any live cables. At this point the live cables are on the other side of the canal! There is space for the new pylon in Option 4. Please read again the full details in my letter of 18th March 2020. At my site visit on Saturday 14th March 2020 I measured the overall size of pylon ZC050 and also ZC046 as 14m square including the foundations. I carried out measurements at a point just south of the point I marked on the plan submitted with my letter of 13th February. The width of clear ground between the canal bank and the trackway was 17m, the trackway had a width of 3m and there was clear gap of 7.5m between the trackway and the lake. I said that the pylon could be put in the 17m gap between the canal and the trackway as one suggestion. I also

suggested that it could be constructed across the trackway with the pylon being centred on the central line of the trackway. There would be a gap of at least 4m on each side of the trackway, even if it was decided to rotate the pylon by 15 degrees. This trackway is not a road, but an old quarry trackway which becomes a footpath south of ZC050. It is only used by fishermen in vehicles no larger than a transit van. In your email of 27th May you say that National Grid standards do not allow for a road to run beneath a pylon. I will remind you this is not a road, but is an old quarry track. However this trackway can be diverted to the East by whatever distance is needed to provide adequate clearance. HS2 are used to diverting roads, trackways and footpaths!

Your 2nd objection to Option 4 "The placement of the pylon here would see an increased level of vegetation clearance". This is clearly your confusion with Option 3. You will recall that Option 3 would need some dense vegetation cleared around point F and as it had a long run between the track leading up along the east side of the lake there would be a large number of trees that would have to be cut down. The same does not apply to Option 4. The amount of vegetation clearance for Option 4 is a lot less than required for the HS2 design. The HS2 design not only has vegetation clearance under the line of the pylons both sides of the canal, but also a very large amount of clearance around the extremely big and bulky pylon for a deviation of around 80 degrees. In addition a large number or trees and other vegetation will be removed to allow the construction of a temporary roadway for the transport of construction materials and a massive crane all for the new pylon that HS2 wish to install on the west of the Grand Union Canal. That is far in excess of the vegetation clearance suggested in Option 4.

Your 3rd objection to Option 4 "National Grid would still need to install trackway between the towers to establish safe working areas." I will deal with that later as it is only to do with the decommissioning and demolition of the redundant towers.

Your 4th objection to Option 4 "National Grid would still need to get a tractor or winch to site to pull the towers over." Like the third objection I will deal with that later as it is only to do with the demolition of the redundant towers.

Your 5th objection to Option 4 "Some parts of this proposal fall outside of the limits of the HS2 Act and the work has to be constructed within these limits." This is another case of you confusing Option 4 with Option 3. The additional pylon proposed in Option 3 is quite clearly outside the limits of the HS2 Act. In your map "ZC49 Access" the whole area around the proposed Option 4 additional pylon is shown as hatched. At our meeting on 11th February 2020 you said that this was to show the area covered by the HS2 Act and was not to indicate that the hole of that area was intended to be fenced off or made into temporary roadways or enclosures. Even if this pylon position was not within the limits of the HS2 Act I would like you to be aware that this particular land and all the way down the old quarry track and the land both sides is owned by Hillingdon Council. Under the terms of the Deed of Agreement drafted by HS2's solicitors and signed by the Leader of the Council on 17th August 2017 gives Hillingdon Council no other option but to allow this work to be carried out on their land.

In your email of 27th May 2020 you state *"Please be aware that the work to move the power lines needs to be completed well in advance of the railway construction. This is because the Colne Valley Viaduct will be constructed using jetties and a gantry which starts later this year and they too require clearance of the power line."*
If you carried out Option 4 you would be able to meet this target. If you had positively examined the proposals sent in on 13th February, carried out prompt site inspection you would have already have results of ground investigation and would have been able to start the work to construct and install the pylon. The reason this could already have started is because the pylon site already has good vehicular accesss and there are no complications of the presence of high voltage power lines, unlike the site of your preferred much larger pylon near ZC048 which will need a long stretch of temporary roadway which can only be installed after the construction of a bridge over the River Colne.

The matter of decommissioning and demolition of redundant pylons can wait as any delay to this will not have any knock on effect on any other HS2 work. This means that **there is now no need to carry out any work to the west of the Canal until we have a meeting about the demolition of the redundant pylons.** I set out in my letter of 18th March 2020 a full response to your email of 6th March including the demolition of redundant pylons.

I wish you to understand that even if you were not able to convince me that the demolition of the redundant pylons needed a trackway instead of using the Canal facilities, the trackway would not need to be laid out until only a few days before the work was due to commence.

I repeat that **this option 4 was NOT discussed at the meeting on 11th February, as it was not proposed until 13th February. It should have been positively considered as a way to speed up the project.**

Please make an immediate suspension of all work in Denham Country Park (i.e. everything to the west of the Grand Union Canal) until we have had the meeting which you offered at the close of our meeting on 11th February. I suggest that this new meeting be by Zoom or some other conference facility that has the benefit of using screen sharing.

In view of your confusion between Option 3 and Option 4 I suggest you withdraw in its entirelty your email of 27th May 2020.

I look forward to your confirmation of suspension of all works in Denham Country Park and the details of the on-line meeting.

Yours sincerely

Graham J. Lee
For Hillingdon Green Party

Graham @ Hillingdon Green Party

From:	Patricia Thompson <Patricia.Thompson@hs2.org.uk>
Sent:	27 May 2020 20:14
To:	Graham @ Hillingdon Green Party; 'HS2 Construction Commissioner's Office'; nikisamuel@tiscali.co.uk
Cc:	HS2Enquiries; Andrew Mackinnon
Subject:	RE: URGENT - IMMEDIATE ACTION NEEDED RE: Powerline Diversion ; Further proposal simplification of the work.
Attachments:	RE: Powerline Diversion ; Further proposal simplification of the work. (4.90 MB)

Dear Mr Lee,

Thank you for your letter dated the 18 March which was passed on to colleagues at National Grid who you met at the meeting on 11 February. The National Grid and HS2 technical project teams (Mark, Sabina and Zania) have worked together on the reply to the additional questions you have raised. Please accept our apologies for the delay in responding due to COVID-19.

Firstly, on your alternative proposal, which we will refer to as "Option 3" for clarity, to locate a new pylon to the east of the canal near the location of ZC49 pylon. This was discussed at the meeting on 11 February, and we refer you to our previous response, in section headed "**13 February letter – Proposed Option 3**", in the email dated 6 March 2020 which is attached for ease of reference. The land you are describing is not suitable for pylon placement nor would it be permissible under National Grid standards for a road to run beneath a pylon.

The reasons pylon placement is unsuitable are as follows:

1. The space is too limited in that location due to the lake, watercourse, towpath/roadway itself and canal;
2. The placement of the pylon here would require an increased level of vegetation clearance in this location;
3. National Grid would still need to install trackway between the towers to establish safe working area and access routes;
4. National Grid would still need to get to site a tractor or winch to pull towers over; and
5. Parts of your proposal fall outside of the limits of the HS2 Act, the scheme must be constructed within Act limits.

On the matter of vegetation clearance, please see our answer provided in point two copied above. Clearance would also be required along the routes of the wires, as well as at tower locations. As such your proposal would see an increase in the amount of vegetation clearance undertaken.

On your comments regarding the use of the land within the HS2 Act. The limits of the HS2 Act were set after the options for this scheme were considered during the Hybrid Bill process. National Grid have designed this scheme having considered a range of options based on technical requirements and ecological merit. The current design represents the best overall option and is the design being taken forward. It should also be noted that Dews Lane is included within the limits of deviation of the HS2 Act.

You state that the methodology for the removal of the towers has altered since presented to the Hillingdon Chairs. The methodology of creating a safe space to work around the towers as they are taken down has remained the same throughout. What has differed is the level of detail we have provided, which is natural

as the project has advanced. The pylons will be dismantled into sections either standing or after being pulled down. The presentation covered both dismantling techniques which will be confirmed as the project progresses.

The use of the heavy machinery could pose a risk of damage to the towpath and in order to provide access for this plant additional tree clearance would be needed along the canal towpath. It is also likely that the towpath would have to be closed. As discussed at our meeting on 11 February with you, neither National Grid nor HS2 believe that a closure of the canal towpath is in the best interest of the community.

You also comment that National Grid are now working to different standards while working for HS2. As discussed in our meeting on 11 February, National Grid want to confirm and reassure you that they will work to the usual standards while installing their new assets on behalf of HS2. They will also be working within the framework of the HS2 Act and Environmental Statements.

In response to your comments of 26 May, "there is absolutely no hurry to do this pylon re-alignment project as the only reason for it is to prevent a conflict between the high voltage power cables with the traction current for the new railway". Please be aware that the work to move the power lines needs to be completed well in advance of the railway construction. This is because the Colne Valley Viaduct will be constructed using jetties and a gantry which starts later this year and they too require clearance of the power line. More information on the viaduct can be found here: https://hs2inhillingdon.commonplace.is/schemes/proposals/colne-valley-viaduct/details

I am sorry that we have not been able to accept your proposals due to the reasons set out in our meeting with you and follow-up correspondence. If you have any further questions about this project, please let me know and I will pass this on to the National Grid and HS2 technical project teams.

Kind regards

Patricia

Patricia Thompson | Senior Engagement Manager Area South | HS2 Ltd

Tel: 020 7944 8962 | Mob: 07768 474 849

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From: Graham @ Hillingdon Green Party <graham@hillingdongreenparty.org.uk>
Sent: 26 May 2020 15:14
To: Patricia Thompson <Patricia.Thompson@hs2.org.uk>; 'HS2 Construction Commissioner's Office' <complaints@hs2-cc.org.uk>; nikisamuel@tiscali.co.uk
Cc: HS2Enquiries <HS2Enquiries@hs2.org.uk>; Andrew Mackinnon <Andrew.Mackinnon@hs2.org.uk>
Subject: URGENT - IMMEDIATE ACTION NEEDED RE: Powerline Diversion ; Further proposal simplification of the work.
Importance: High

Dear Ms Thompson,

I refer to your email of 26th March below.

I have not received any response at all. I assume therefore that the desktop survey did not uncover any unresolvable problems with my further refinement and clarification of my earlier proposal and that you were

waiting for the time when surveyors could do a full site evaluation and bore hole for ground investigation at the suggested place.

As I have repeatedly said there is absolutely no hurry to do this pylon re-alignment project as the only reason for it is to prevent a conflict between the high voltage power cables with the traction current for the new railway. Clearly this work is not needed before actual railway track is being laid out. By your own timeline this is going to take several years to happen.

I have heard that workers have today been in Denham Country Park carrying out ground clearance works and also some fencing. To give you the benefit of doub,t I suggest that someone forgot to put a suspension on that construction order.

Will you please get an immediate suspension of that construction order. If you are not in a position to give this immediate suspension order whilst the matters contained in my extensive response of 18th March 2020 are fully evaluated will you please make sure that whoever is in that position does make sure that this work has an immediate stop put on it.

Please confirm this to me by email within the next 24 hours.

Graham J. Lee
For Hillingdon Green Party

From: Patricia Thompson <Patricia.Thompson@hs2.org.uk>
Sent: 26 March 2020 14:07
To: Graham @ Hillingdon Green Party <graham@hillingdongreenparty.org.uk>; 'HS2 Construction Commissioner's Office' <complaints@hs2-cc.org.uk>; nikisamuel@tiscali.co.uk
Cc: HS2Enquiries <HS2Enquiries@hs2.org.uk>; Andrew Mackinnon <Andrew.Mackinnon@hs2.org.uk>
Subject: RE: Powerline Diversion ; Further proposal simplification of the work.

Dear Mr Lee,

Thank you for your email. I hope you are well in these extraordinary times.

I hope you received my out of office message at the time of sending your email, unfortunately Andrew was also off sick with the virus.

I am now back at work and have sent your email onto colleagues at National Grid who will review the points you have raised.

We are operating with fewer staff at the moment across both organisations and we will come back to you with a reply as soon as we are able to do so.

Kind regards

Patricia

Patricia Thompson | Senior Engagement Manager Area South | HS2 Ltd

Tel: 020 7944 8962 | Mob: 07768 474 849

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From: Graham @ Hillingdon Green Party <graham@hillingdongreenparty.org.uk>
Sent: 18 March 2020 22:43
To: Patricia Thompson <Patricia.Thompson@hs2.org.uk>; 'HS2 Construction Commissioner's Office' <complaints@hs2-cc.org.uk>; nikisamuel@tiscali.co.uk
Cc: HS2Enquiries <HS2Enquiries@hs2.org.uk>; Andrew Mackinnon <Andrew.Mackinnon@hs2.org.uk>
Subject: RE: Powerline Diversion ; Further proposal simplification of the work.
Importance: High

Dear Ms Thompson,

Thank you for your email of 6th March.

Please find attached our considered response following a site visit last Saturday.

Will you please immediately forward this email and the attached file to Zania Khan, Mark Riddington, Sabina Morgan-Bates and any other person who you feel appropriate as agreed at the meeting on 11th February.

Please acknowledge response and confirm you have sent this on in its entirety.

Please note the request for a meeting to resolve these matters.

Graham J. Lee
For Hillingdon Green Party.

From: Patricia Thompson <Patricia.Thompson@hs2.org.uk>
Sent: 06 March 2020 17:14
To: Graham @ Hillingdon Green Party <graham@hillingdongreenparty.org.uk>; 'HS2 Construction Commissioner's Office' <complaints@hs2-cc.org.uk>; nikisamuel@tiscali.co.uk
Cc: HS2Enquiries <HS2Enquiries@hs2.org.uk>; Andrew Mackinnon <Andrew.Mackinnon@hs2.org.uk>
Subject: RE: Powerline Diversion ; Further proposal simplification of the work.

Dear Mr Lee,

Thank you for your letters dated the 13 February and your email on 25 February. These followed our meeting with you and National Grid on Tuesday 11 February regarding the upcoming pylon diversion works in the Colne Valley.

Your emails and letters were passed on to Mark and Sabina at National Grid and they have worked with Zania to produce this reply.

13 February letter – Proposed Option 3
Firstly, on your alternative proposal, which we will refer to as "Option 3" for clarity, to locate a new pylon to the east of the canal near the location of ZC49 pylon. Having reviewed this proposal, National Grid have concluded that it is not viable. The reasons are broadly similar to those given for why National Grid could not accept your proposal regarding ZC50 which were discussed in detail at our meeting.

The reasons are:

1. Space is too limited due to the lake, watercourse, roadway and canal.
2. The placement of the pylon here would see an increased level of vegetation clearance.
3. National Grid would still need to install trackway between the towers to establish safe working areas and access routes.
4. National Grid would still need to get a tractor or winch to site to pull the towers over.

5. Some parts of this proposal fall outside of the limits of the HS2 Act and the work has to be constructed within these limits.

In your letter, you suggest that the removal of pylons ZC47, ZC48, ZC49 can be undertaken via the canal and towpath with minimum trackway particularly if your proposal Option 3 was used. As National Grid have set out above, option 3 is not a viable alternative.

National Grid would also like to make you aware that even if Option 3 was viable, they would still need to install trackway between the towers to establish safe working areas and access routes. Both a tractor or winch would need to access the site, to pull the towers over as well as equipment for breaking them up. The use of the heavy machinery could pose a risk of damage to the towpath and in order to provide access for this plant additional tree clearance would be needed along the canal towpath. It is also likely that the towpath would have to be closed. As discussed at our meeting with you, neither National Grid or HS2 believe that a closure of the canal towpath is in the best interest of the community.

You also mention that the methodology discussed at the meeting on 11 February with you was different from that shown to the Hillingdon Chairs. In particular, that the works shown to the Chairs was presented without the need for large cranes. The National Grid presentations to Chairs meetings have always included the need for cranes for pylon construction. A picture of a crane undertaking pylon construction was included in both briefings given to the chairs by National Grid. These Chairs meetings occurred on 27 August 2019 and 27 January 2020 and I attach the presentations for your reference.

25 February letter

Moving on to the issues you raised in your follow up email on the 25 February and the attachment.

All of your letters were passed on to National Grid, who considered them and provided a response which sent from HS2. All technical responses came from the appropriate team at National Grid. JPB who work on behalf of National Grid ensures the responses are correct and appropriate, as well as correctly logging them.

You asked for copies of email correspondence between HS2 and National Grid from May and June 2019. As we have stated above all of your letters were passed on to National Grid to consider and provide responses to your points and proposals. I believe you have already contacted HS2's Freedom of Information Team regarding this information which is the correct route for this request.

You asked for clarity on two points regarding the route of the temporary roadway. The trackway will not enter the driving range as it is outside of the limits of the HS2 Act. Would you be able to clarify this point further, as we are not sure that we fully understand the references that you have used regarding points 9 and 11 and what you believe to be a tree on the map?

While working in Denham Country Park, you ask if both the trackway could only be laid down when vehicles were using it, and if the fencing could be removed. National Grid have said that it would be ecologically damaging to repeatedly lay and remove the trackway on a regular basis. The fencing is required for the safety and security of the site. Erecting and removing it on a regular basis would also be more ecologically damaging than leaving it in situ.

You asked if our works will interfere with Water Voles. As we discussed at the meeting with you, ecology surveys are ongoing. Our ecologists will then advise on the appropriate response and where necessary mitigation as set out in UK legislation, the HS2 Act and policies. Where appropriate licences not already held by HS2 will be sought from the relevant authority.

You also mentioned that "In view of the fact that I have provided a practical alternative that will prevent any wildlife disturbance in Denham Country Park, these Wildlife licences are not valid." Your proposal have been fully reviewed by National Grid and they do not feel that it offers an alternative as set out both at the meeting with you in February and for the reasons given above.

If you have any further detailed proposals, National Grid can have a further meeting with you. However, we hope that the above points have helped to further clarify the detailed reasoning and responses provided at our meeting in February.

Kind regards

Patricia

Patricia Thompson | Senior Engagement Manager Area South | HS2 Ltd

Tel: 020 7944 8962 | Mob: 07768 474 849

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From: Graham @ Hillingdon Green Party <graham@hillingdongreenparty.org.uk>
Sent: 25 February 2020 14:07
To: Patricia Thompson <Patricia.Thompson@hs2.org.uk>; 'HS2 Construction Commissioner's Office' <complaints@hs2-cc.org.uk>; nikisamuel@tiscali.co.uk
Cc: HS2Enquiries <HS2Enquiries@hs2.org.uk>; Andrew Mackinnon <Andrew.Mackinnon@hs2.org.uk>
Subject: RE: Powerline Diversion ; Further proposal simplification of the work.
Importance: High

Dear Ms Thompson,

Thank you for your below email.

As promised when I sent the considered alternative proposals I attach the notes of the meeting on 11th February which also include post meeting notes following discussion at the rapidly convened meeting of Hillingdon Green Party Officers. I also include the Option 1 map and details given out at our meeting and the full details of the proposal on 13th February.

As agreed at our meeting will you please forward on this email and the enclosure to Zania Khan, Mark ~Riddington and Sabina Morgan-Bates. Will you please confirm by email today that this has been done.

It is now over 10 days since I sent out the proposal that "ticks all the boxes" and will prevent any need for damage to Denham Country Park. I am convinced that if Mark Riddington will look at this in a positive way he will see that this is not only a feasible option, but that it will be a much better solution and will save a lot of money for HS2. If he wishes to relocate the suggested pylon on the east side of the canal that is a sensible refinement. Clearly if it is moved further north, the angle of deviation will increase and the length to my point E will reduce. If it is moved further south, the angle of deviation will reduce, but the length to my point E will increase. You have not confirmed that no further work is going to take place in Denham Country Park whilst this evaluation is taking place. If you are not able to do this yourself will you tell me who I contact to get this confirmation. I am particularly keen to make sure that no trees are taken down in Denham Country Park, and no further vegetation clearance takes place. I realise that there is a hold on the bridge over the River Colne imposed by the Environment Agency, but it would be a total waste of tax payers' money to build the bridge when it is clear that there is an alternative.

Will you please give me an update on the progress of the evaluation? I would assume that by now you should be able to report that an initial desk evaluation has been carried out and that a site visit has been planned to check on the exact position of the proposed pylon.

I am copying this email and enclosure to Sir Mark Worthington, (Independent Construction Commissioner) as he requested this meeting. I trust that he will be willing to ask for a complete suspension of the work on the Golf Course and Denham Country Park for at least the duration of this investigation.

Graham J. Lee
For Hillingdon Green Party.

From: Patricia Thompson <Patricia.Thompson@hs2.org.uk>
Sent: 13 February 2020 12:46
To: Graham @ Hillingdon Green Party <graham@hillingdongreenparty.org.uk>; 'HS2 Construction Commissioner's Office' <complaints@hs2-cc.org.uk>; nikisamuel@tiscali.co.uk
Cc: HS2Enquiries <HS2Enquiries@hs2.org.uk>; Andrew Mackinnon <Andrew.Mackinnon@hs2.org.uk>
Subject: RE: Powerline Diversion ; Further proposal simplification of the work.

Dear Mr Lee,

Thank you for your email and for your time on Monday. I hope you found the meeting helpful.

I wanted to let you know that my colleagues are going to look at the new proposals you have sent to me and we will get back to you with a response as soon as we can. Just to also let you know that it will take some time to fully look at and consider your proposal so you may not hear back from us immediately.

In the meantime do get in touch if I can be of further assistance.

Kind regards

Patricia

Patricia Thompson | Senior Engagement Manager Area South | HS2 Ltd

Tel: 020 7944 8962 | Mob: 07768 474 849

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From: Graham @ Hillingdon Green Party <graham@hillingdongreenparty.org.uk>
Sent: 13 February 2020 11:53
To: Patricia Thompson <Patricia.Thompson@hs2.org.uk>; zania.khan@hs2.org.uk; 'HS2 Construction Commissioner's Office' <complaints@hs2-cc.org.uk>; nikisamuel@tiscali.co.uk
Subject: Powerline Diversion ; Further proposal simplification of the work.
Importance: High

Dear all,

Firstly as I was not given email for Mark Riddington and Sabina Morgan-Bates will Patricia Thompson please immediately forward this email with both attachments as agreed at the meeting on 11th February.

I attach a two page item giving feedback from a “brainstorming session” last evening where our Officers came up with a variation involving a new pylon with a significantly lower deviation which will clearly mean a simpler pylon. Full details are contained in the two page report and the map attached.

Will all recipients please confirm receipt of this email (Patricia Thompson also confirming that she has forwarded it).

As I say on the second page I am quite happy to have another meeting within the next 7 days if you feel this is necessary, however I would hope that this can all be done first on desktop and then further site visit within the next 24 hours.

(I will circulate the notes of the meeting within the next few days, however the matters in the attached papers is more urgent).

Graham J. Lee
For Hillingdon Green Party.

HILLINGDON GREEN PARTY

From Graham J. Lee,
58 Beech Avenue
Ruislip,
HA4 8UQ
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Issued 25th February 2020

Notes of meeting held at the request of Sir Mark Worthington,
Independent Construction Commissioner - HS2
On 11th February 2020 in the Meeting Room, Ickenham Library.

PRESENT

Patricia Thompson (PT) Senior Engagement Manager Area South, HS2 Ltd
Zania Khan (ZK) – HS2 Project Lead for these works

Mark Riddington, (MR) Senior Engineer National Grid
Sabina Morgan-Bates, (SMB) Project Engineer National Grid

Graham Lee (GL) Hillingdon Green Party
Niki Samuel (NS) Hillingdon Green Party

(Post meeting notes on the implication of items are included in italics and are indented for clarity.)

PT introduced all those present.
GL Confirmed that he only wanted the meeting to consider the pylon realignment project south of the Chiltern Line and that his main concern was for the protection of Denham Country Park which is between one mile and two and a half miles from the route of HS2.There had been protracted discussions and correspondence going back for well over a year. He stated that in the majority of cases the HS2 response did not fully answer points in the letter and always took only a day or two less than four weeks to be sent. This he contested was an institutional fobbing off.

PT confirmed that all HS2 and National Grid representatives have been acquainted with all correspondence between GL and HS2. In particular the letter with attached plan and photographs dated 24th June 2019 had been issued just a short period prior to this meeting. GL circulated printed copies of a bundle of correspondence with the front being letter to the Commissioner dated 6th February 2020 as he would refer to items in it later. (This is the same bundle that was sent to PT at the same time as to the Commissioner).

MR and SMB gave background explanation of the need to keep at least one side of the pylon cables live at all time during the realignment process. They explained that this was how the periodic maintenance of the pylons is carried out, i.e. isolating the supply to one side, connecting safety earthing to the earth wire and each of the three conductors then carrying out maintenance on that side of the pylon. It was noted that this maintenance work was carried out without any roadway and without having to fence round the pylons.

MR explained with the use of three maps and a diagram showing the orientation of pylon ZC050 why Option 3 contained in the letter of 24th June 2019 was not practical. Whilst the length between points E and F was longer than their ideal at 489m he "could live with it", however pylon Z050 would probably have to be rebuilt which with the constraint of not being able to shut down the complete pylon run would necessitate a new pylon. There not being sufficient space between the canal and the lake. In addition point F was a site found to contain the foundations of an old pylon. This would have to be removed prior to installation of a new pylon. MR said that more trees would have to be cut down as being underneath the route between points E and F than under their plan in Denham Country Park. Also they would have to stop fishing under most of that pylon line for safety reasons. Option 2 (a run between point E and pylon ZC050) was ruled out as it was far too long

GL introduced Option 1, In his letter of 26th March 2019 to National Grid Community Relations he said "I am questioning the need to put in a new pylon just to the south of pylon 48 instead of adapting the existing pylon 48 to allow for the change of direction across the canal and lake as shown in blue on the map." In the response letter from Andrew MacKinnon of HS2 in April 2019 he stated. "Pylon ZC48 you refer to is currently a design of pylon which caters for angles up to and including 30 degrees…." For that reason GL raised the possibility in his letter of 2nd May 2019 suggesting that as ZC48 and ZC49 appeared to be identical pylons the link was made to ZC49 which appeared to be less than 30 degrees. This was not referred to in the letter postmarked 12th June 2019, however that letter just repeated that ZC48 cannot be reused to carry the new alignment.

GL then handed out a sheet marked OPTION 1 (attached to this report).A 30 degree deviation line being shown from pylon ZC49. ZK said that pylon ZC49 could only take a deviation of 10 degrees and that was only in the opposite direction due to its actual positioning. PT insisted that Andrew MacKinnon was correct when he said "Pylon ZC48 will cater for angles up to and including 30 degrees", however this was not accepted by others present. She was unwilling to accept that perhaps he was confused with another pylon design that would accept up to 30 degrees. However everyone seemed to agree that neither Pylon ZC48 nor Pylon ZC49 could accept any angle of deviation more than about 10 degrees.

Post meeting consideration of the above 2 paragraphs by GL, NS and other Hillingdon Green Party Officers came to the conclusion that the complete letter dated 2nd May 2019 was never passed on to National Grid Staff. This letter had a paragraph explaining that if the link was made to pylon ZC49 this would only be a deviation of just under 30 degrees. Had it have been passed to MR or another engineer at National Grid they would have immediately corrected Andrew MacKinnon's statement. However they should then have investigated the possibility of constructing a pylon which is of the design allowing deviation of up to and including 30 degrees adjacent to ZC49 Clearly one of those pylons would be smaller and require less foundation construction than one for a deviation of nearly 90 degrees.

GL repeated this proposal in the letter of 24th June. This was the letter and enclosures GL asked PT to circulate to all those attending the meeting. Whilst MR had carefully considered the Option 3 of this letter he had clearly not taken any account of this option or even option 2 in advance of the meeting.

If PT (or AMcK) did pass these letters and enclosures on to named National Grid Staff in May and June 2019 and National Grid are responsible for this 7 month delay in proper consideration of the alternatives then they should provide copies of the emails to and from National Grid on this matter.

GL stated that he had previously said that even if there was no other realistic option than building the new pylon ZC048R then by use of the facilities offered by Canal and River Trust of barges complete with cranes and full welfare facility barges there was no need to build any roadway through Denham Country Park apart from short stretches of trackwork between the pylons and the towpath as illustrated under point 8 of the leaflet dated October 2019. MR explained that the foundations for this special pylon for a deviation of about 80 degrees would require many lorry loads of materials and that because of the nearness to the live existing pylon run it would have to have at least the top half of the pylon lifted on by a massive crane which could not possibly travel by barge on the canal. He showed details of one such crane with an overall length on the road of 15.81 m, width of over 3m and height (lowered) of about 4m. This crane appears to have a turning circle of radius of up to 13.32 m on the road!

This was the first indication of the size and construction method of the pylon. This is not in accordance with the details given in "National Grid pylon diversion scheme update to Hillingdon Chairs Community meeting 27 January 2020".

It was accepted that if there is no alternative to such a massive crane then some other access to the proposed pylon would have to be provided other than the canal.

This information means Hillingdon Green Party will have to make extra efforts to find an alternative route which will avoid any pylon with a deviation in excess of 30 degrees. (This has subsequently been done and submitted on 13th February 2020 – Copy attached as final appendix to this note).

The meeting then turned to the Temporary Road.

GL drew attention to the photograph taken on 5th February of wide trackwork laid out on the western approach to the "Temporary Bridge over River Colne" This was on page 2 of the bundle he handed out at the start of the meeting. He accepted this was a metal constructed roadway, but it was definitely not in the spirit or description of the point 8 of the leaflet dated October 2020. He also referred to document "ZC 49 Access" in the Chairs Community meeting presentation, reprinted in the document bundle immediately after the letter dated 1st February. He asked why the area of enclosure around ZC49 was so large and in particular why it spanned across the canal which clearly would close the canal for use for several months. SMB stated that this map was not intended to show areas fenced in, but was to show the arears under the potential control of HS2 under the HS2 Act. GL asked about the area around ZC050 and the apparent trackway from the East side of the Canal. He pointed out that as National Grid had ruled out both his options 2 and 3 then ZC050 would be left totally undisturbed. SMB explained that this was the pylon where the safety earthing connections would be made. No trackway would be needed. She thought they might want to put a temporary fencing up in case the engineer dropped something from the top of the pylon and it hit someone on the ground. GL pointed out that this is in a disserted area with very limited access and that visual observation by the engineer prior to climbing up the pylon would confirm that there was nobody else around. No such fencing is apparently used for outages for pylon routine maintenance work. GL suggested that the engineer may wish to use a small rowing boat to cross the canal.

GL questioned the fact that in excess of 100 trees had apparently been marked for destruction in Denham Country Park. SMB replied that they marked the trees at the time of surveys, but that "a lot less than that number" will be cut down. GL suggested that a different coloured marking be applied to those that are due to be taken down. This would go a long way to reassuring others. SMB declined that suggestion saying that it would be open to errors by the contractors who may well end up taking many more trees down than was necessary. SMB said that National Grid have made repeated wildlife and other surveys with the view to fully understand the nature and to keep the damage to the minimum. She said that they will never supply details of these surveys.

GL asked for timescale for laying of the temporary trackway. SMB explained that the Environment Agency has delayed the installation of the bridge over the River Colne. There is no timescale given by the Environment Agency for them to consider what appears to be the changes in the river bank due to the proposed bridge supports. Until this bridge is installed, they can't bring any vehicle into that area of Denham Country Park to lay out the trackwork in the park.

Looking at the maps (particularly the one showing aerial images dated 09:58:04 07/02/2022) and ZC 49 Access it seems clear that the route of this temporary roadway runs along the eastern side of the driving range and that the shape on the ZC49 access map by points 9 and 11 is in fact the large tree clearly visible on the aerial photograph plan. The width of the trackwork will greatly reduce before it goes into the driving range which appears to be between points 19 and 20. PLEASE CONFIRM BOTH THESE POINTS.

GL requested that the trackway through the Denham Country Park be only left down for as short a period of time as possible. If down for only say three weeks much of the plant-life will recover over time, however if it is left down for nine months this will lead to total irreparable damage. In addition this trackwork should not extend beyond the new pylon until time comes for removal of pylon ZC048 and ZC047, which on HS2/National Grid own estimate can't be before October 2020. The latter was agreed, however further thought would have to be given about the trackway as far as the proposed new pylon.

GL made a further suggestion. He asked if consideration had been given to running a spur off of the proposed realigned pylon run to a further pylon run across Harvil Road adjacent to the HS2 route towards

West Ruislip Station to provide the power for the tunnel boring equipment instead of digging up all the streets from Harrow to West Ruislip to lay the underground power. PT said this was a very good suggestion which they had looked at along with every other potential solution to that problem. It would need a large substation constructed which could not be done in the timescale required. GL did point out that HS2 had plans for a substation for the eventual supply of traction current just off Harvil Road.

GL said that if this meeting should have been held last June. This would have saved a lot of work by everyone around the table plus Sir Mark Worthington, (Independent Construction Commissioner HS2).

(*It would also have given more time for consideration of alternative options including the one submitted as in Appendix 2. That would potentially have saved HS2 and hence the UK Taxpayer a lot of money, with the work already undertaken in the Golf Course and Denham Country Park).*

PT agreed that in hindsight she should have offered such a meeting once she had the telephone call from GL on 2nd May with the follow up letter of the same date.

GL did say that National Grid has a very good record of public engagement with all projects other than HS2. They are happy to amend plans to mitigate their effects on nature reserves and other sensitive areas after discussion with others. This was confirmed by the Account Executive of jbp35 (the PR company engaged by National Grid) when he first agreed to put GL in contact with the National Grid engineering team responsible for this work. This was overruled by his boss who told him he had to just refer everything to the HS2 Public Engagement Team.

PT again stated that HS2 had not issued instructions to National Grid preventing GL and other interested people from being able to speak directly with the engineering team at National Grid. However she refused to give me the emails, telephone numbers or postal addresses of MR or SMB, but did agree to immediately send on complete unadulterated emails.

In conclusion GLstated "I have repeatedly said that if you keped the fenced off area in Denham Country Park to a very small area around the pylons and made full use of the facilities offered by Canal and River Trust so that no temporary or permanent roadway is constructed in Denham Co0untry Park I would use my best endeavours to make sure that you are left to get on with the job without let or hindrance. However as it is your intention to carry out a destructive temporary trackwork for several months I would find this difficult. I will have to share this information with many others. For this reason can I take away all the maps and plans that have been prepared for my Option 3?" MK passed these to GL.

PT offered to have a further meeting with these people. After a brief consultation (GL & NS) it was considered that it would be best for HS2/National Grid if this was left with GL & NS.

PT closed the meeting with the offer of further meeting on this or any other HS2 work in the area. She said she was always pleased to get the individual contractors involved.

Update since meeting.
From Graham J. Lee. For Hillingdon Green Party.

Whilst a proposal has been made which will avoid any roadway in Denham Country Park I feel it is necessary to make the following observations and statements in case you decide to proceed with the bridge construction and any roadway if and as soon as you get any approval from the Environment Agency for the bridge structure.

I note that the major temporary metal roadway already constructed to the west of the proposed Temporary Bridge over the River Colne has now been fenced in and that this fencing even crosses the pathway at the top of the river bank. I note paragraph 8 of the leaflet dated October 2019 states "Temporary working areas will be created to facilitate a safe environment for operatives and suitable platforms for plant. These will be kept as small as is reasonably practicable given the work required." Nowhere in this leaflet is there any indication that you intended to run fencing along this roadway. I accept that it would be desirable to set

up a small fenced in area around the proposed bridge whilst this bridge support blocks are being constructed and installed and whilst the bridge is actually installed. This should be removed once the bridge is constructed. All this fencing should be removed no later than the completion of this bridge.

Will you please confirm that you will not be putting a similar barrier along any metal roadway in Denham Country Park?

A fence barrier over any line across a Nature Reserve is a barrier for wildlife. I note a large amount of animal wildlife. I have also seen photographic evidence of water voles in this area. It should be noted that HS2 has no licence for disturbing water voles.

The proposed roadway is not a building site needing fencing. In the UK we do not put fencing down the curb line of a road to protect pedestrians from motor vehicles! It is not required in the Denham Country Park. Yes the vehicles should use their hazard lights whilst travelling along the temporary roadway and the driver should always look out for pedestrians and other vehicles as they hopefully do on any public highway with or without a footway.

The proposal dated 13th February 2020

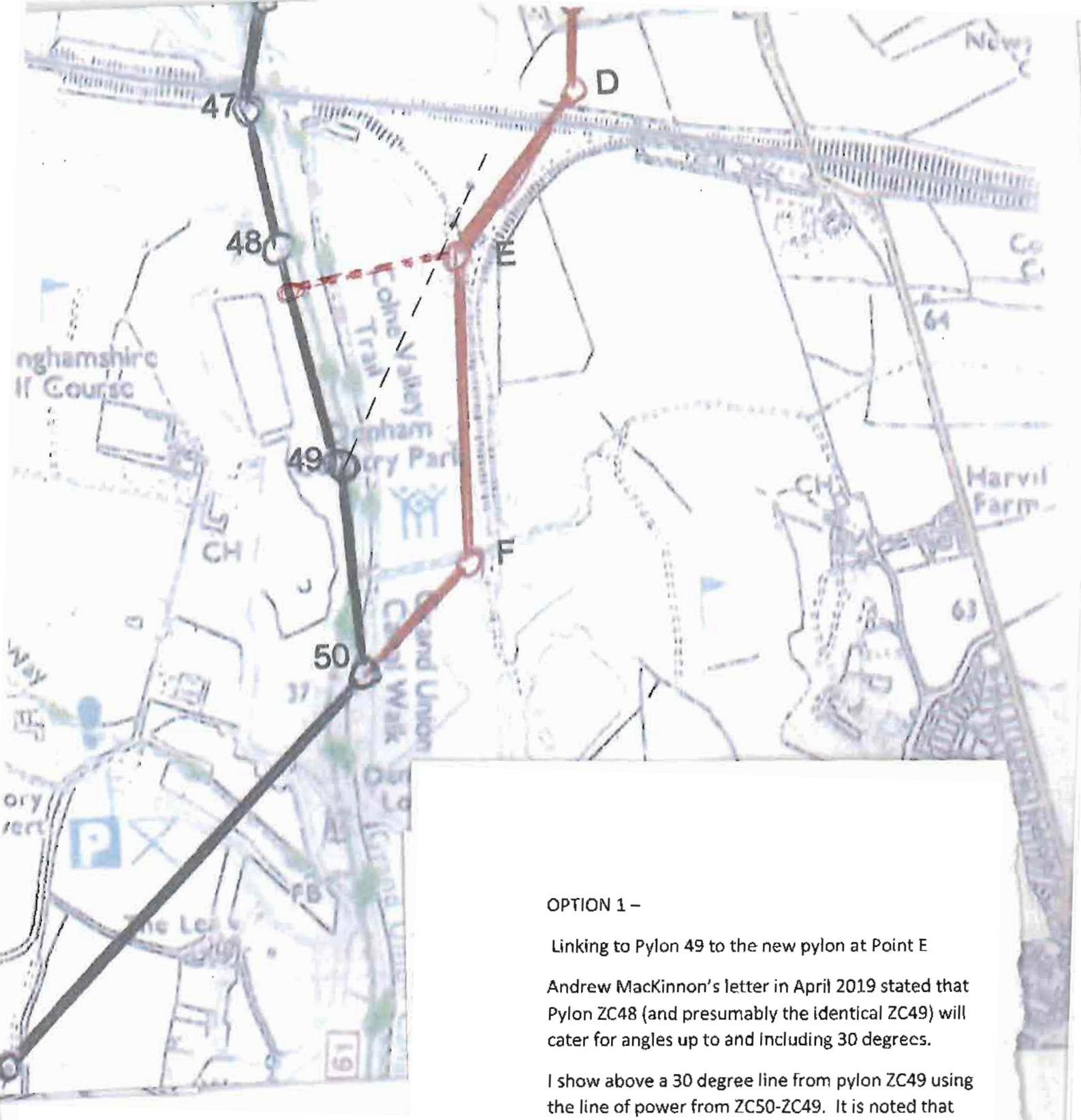
At a specially called Hillingdon Green Party Officers Meeting on 12th February I presented a verbal report of the meeting on 11th Feb making use of the maps and drawings. We looked at my option 1 which clearly was never submitted to National Grid for evaluation. With the understanding that Andrew MacKinnon was confused when he gave an incorrect and misleading reason why ZC049 was not able to be used for a link to my point E, we did what should have been done by National Grid last June and that is look at the possibility of putting a new pylon near ZC049 of a design that does in fact allow a deviation of up to and including 30 degrees. There did not seem to be room between ZC049 and the canal towpath, but there appeared to be space on the other side of the Canal. As set out in my letter of 13th February with the attached map this also ticks every single box. This location even has good road access.

As stated earlier this proposal will quite clearly save any need for any roadway or bridge over the River Colne. I requested that you call an immediate suspension of work on the Golf Course and Denham Country Park whilst you fully evaluate and if necessary, refine this suggestion. In the email response from Patricia Thompson she said this will take a little while for evaluation. She did not specify a time period and did not comment on the request for suspension of work in Denham Country Park. This suspension is not just to protect Denham Country Park, but also to help HS2 to cut its costs and hence save waste of tax payers' money.

Warning

I note that existing Wildlife Licences issued to HS2 have a condition that there is no practical way of lessening or preventing the disturbance which would otherwise be a crime. They also state that the penalty for carrying out work without a licence or not complying with the conditions of a licence is an unlimited fine and a three month prison sentence. In view of the fact that I have provided a practical alternative that will prevent <u>any</u> wildlife disturbance in Denham Country, these Wildlife Licences are not valid. In the event of any further disturbance of wildlife since 13th February 2020, I would like to know who would be in court facing a potential prison sentence. Is it the site manager, Patricia Thompson, the Chairman of HS2, the Secretary of State for Transport or someone else?

Graham J. Lee
For Hillingdon Green Party



OPTION 1 –

Linking to Pylon 49 to the new pylon at Point E

Andrew MacKinnon's letter in April 2019 stated that Pylon ZC48 (and presumably the identical ZC49) will cater for angles up to and including 30 degrees.

I show above a 30 degree line from pylon ZC49 using the line of power from ZC50-ZC49. It is noted that this is near the point E that I had taken as an indicative point for that pylon from the very small map previously issued. Clearly if the point E was moved a small distance North then this could work.

I put it that this suggestion was either not put to National Grid in May or June 2019, or if it was then HS2 was unwilling to tell me the result as they did not want this simpler solution.

THIS WOULD PREVENT ANY NEED FOR A NEW PYLON TO BE INSTALLED ON THE WEST OF THE CANAL.

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HILLINGDON GREEN PARTY

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13th February 2020

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For information only: The remaining Officers of Hillingdon Green Party.

* This item and enclosure to be immediately passed on to the named National Grid staff by Patricia Thompson as agreed at the meeting on 11th February.

At the meeting on 11th February the case was made by National Grid staff that each of the three alternatives which I suggested last June were not possible and that you were having to proceed with a new pylon with a deviation of approximately 80 degrees which would mean a very large structure with massive foundations which would have to be installed by massive crane because it was located just by the existing live pylon run. This made it impossible to make use of the canal for all access.

Last evening our Officers had a "brainstorming session", to come up with a variation involving a new pylon with a significantly lower deviation which will clearly mean a simpler pylon as it would not have such a force to overcome. I have drawn this out on a copy of your Aerial photograph plan which I attach.

This pylon to be on the East Side of the Canal approximately opposite ZC049. This has a deviation of approximately 25 degrees. A span width to your new pylon at (my) point E of approximately 380m and a span length of about 340m to existing pylon ZC050. This proposed new pylon is located on the opposite side of the canal from ZC049 and the live power line, so there is no electrical safety reason why it can't be constructed in the manner explained in the National Grid pylon diversion scheme update presented to the Hillingdon Chairs Community meeting on 27th January 2020, i.e. not needing a large expensive crane. This will involve a 7 degree reduction in the deviation at pylon ZC050. As this is a small reduction in the deviation at this pylon, I do not see this as a problem with that type of pylon. I note from "ZC 49 Access" map that my proposed pylon is within the hatched area included in the HS2 Act.

This proposed new pylon is between the Canal and an existing "paved roadway" This roadway runs alongside the canal under the Chiltern Line viaduct past pylon ZC046 to the Harefield Marina with good road access to Moorhall Road ,Harefield. This roadway would be suitable for lorries, readymixed concrete and other vehicles with turning space approximately 160 m south. Most importantly it will not need any "temporary or permanent trackway" in the Denham Country Park. When it comes to decommissioning and removal of pylons ZC049, ZC048 and ZC047 this can be accomplished as explained earlier by use of the Canal and the facilities available from Canal and River Trust with the short length of trackway as repeatedly illustrated between the relevant pylon and the towpath.

I am aware that this may well involve some trees being cut down under the actual route of the new cable, however this will clearly be less than the number needed to be felled to carry out the work with the larger

pylon which you propose, let alone the number needed to be felled for the construction of your "temporary trackwork" in Denham Country Park.

I have shown this proposed new pylon at a particular point based on local knowledge and the information shown on the paperwork left with me at our meeting. Quite clearly a site survey may well come up with a minor problem at that exact point. In this case it may well be better to move it to the other side of the "paved roadway" or even bridge it over the roadway leaving enough space to drive a transit van underneath. This roadway is currently only used by the fishermen.

It will be clearly noted that this suggestion of mine will avoid the need for any tracked roadway or bridges in Denham Country Park. I will repeat what I stated at our meeting.

"I have repeatedly said that if you keep the fenced off area in Denham Country Park to a very small area around the pylons and made full use of the facilities offered by Canal and River Trust so that no temporary or permanent roadway is constructed in Denham Country Park I will use my best endeavours to make sure that you are left to get on with the job without let or hindrance". At the meeting I said that as at that time you were still intending to carry out a destructive temporary trackwork for several months I would find this difficult.

This proposal from last evening's meeting will quite clearly save any need for this roadway or bridge. Will you call an immediate suspension of work on the Golf Course and Denham Country Park TODAY whilst you fully evaluate and if necessary, refine this suggestion.

I am quite happy to have another meeting within the next 7 days if you feel this is necessary, however I would hope that this can all be done first on desktop and then further site visit within the next 24 hours. Clearly this would be followed by a ground investigation for this proposed pylon location.

As I said the meeting should have been held last June so that everything could be sorted out then. It would have saved a lot of work for all six of us at the meeting, also Sir Mark Worthington. In addition, Chris Packham in organising and the over 1,300 people who came to the demonstration in Denham Country Park in December.

I look forward to hearing from you within the next few days.

Graham J. Lee
For Hillingdon Green Party.

nationalgrid ZC Diversion

Legend:

Notes:

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Date: 07/02/2020
Time: 10:02:00

Page size: A3 Portrait

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HILLINGDON GREEN PARTY

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18th March 2020

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* This item and enclosure to be immediately passed on to the named National Grid staff by Patricia Thompson as agreed at the meeting on 11th February.

Dear Ms Thompson,

Thank you for your email of 6th March following my letter of 13th February and the notes of the meeting with annotated additions issued on 25th February.

For the purpose of this letter I am separating out the installation of the new pylons from the dismantling of the redundant ones which by your own admission would not be able to be commenced until at least November 2020.

Since our meeting on 11th February I have done some research on different types of pylons in use. I note that those with a completely straight route have insulators hanging vertically from the three horizontal items which I will call “arms”. For small deviations pairs of insulators are connected which are nearly horizontal and they are connected by a separate hanging cable. An example of such a pylon is ZC049. For deviations “up to and including 30 degrees” a slightly bulkier pylon is built with more substantial arms. Examples of these pylons on the current route are ZC050 and ZC046. Despite extensive search on Ordnance Survey Digital Mapping I have been unable to find an example of a pylon with a deviation of around 80 degrees which is your proposed one in Denham Country Park.

I made a site visit on Saturday 14th March walking the route along the old quarry track from Dellside Road at its junction with Moorhall Road past ZC046 all the way to ZC050. Photographs are attached as annotated.
The overall size of pylon ZC050 and also ZC046 were measured as 14m square including the foundations.

On my site visit I carried out measurements at a point just south of the point I marked on the plan submitted. The width of clear ground between the canal bank and the trackway was 17m, the trackway had a width of 3m and there was clear gap of 7.5 m between the trackway and the lake.

In my letter of 13th February I stated.

“I have shown this proposed new pylon at a particular point based on local knowledge and the information shown on the paperwork left with me at our meeting. Quite clearly a site survey may well come up with a

minor problem at that exact point. In this case it may well be better to move it to the other side of the "paved roadway" or even bridge it over the roadway leaving enough space to drive a transit van underneath. This roadway is currently only used by the fishermen."

The pylon could be put up in the 17m gap between the canal and the trackway as one option. Alternatively, it could be constructed across the trackway with the pylon being centred on the central line of the trackway. There would be a gap of at least 4m on each side of the trackway even if it was decided to rotate the pylon by 15 degrees (half of the largest possible deviation of the pylon). The roadway is not a public road, but an old quarry trackway which becomes a footpath south of ZC050. It is only used by fishermen in vehicles no larger than a transit van.

The first of your reasons for rejection of this proposal "Space is too limited due to the lake, watercourse, roadway and canal" is clearly an invalid objection.

The second reason for your rejection of this proposal "The placement of the pylon here would see an increased level of vegetation clearance." Is again invalid as the alternative of a very large pylon in Denham Country Park would involve a lot more vegetation clearance due to the size of the area needed quite apart from the amount of clearance needed to get a very heavy crane onto the site.

The third and forth reason in your rejection has to do with removal of the redundant pylons which I will deal with later in this letter.

Your final rejection reason "Some parts of this proposal fall outside of the limits of the HS2 Act and the work has to be constructed within these limits." Is interesting in itself. We have heard from several people working for National Grid (who did not wish their names to be disclosed) that National Grid would be happy to do a simpler job than what HS2 have requested, however HS2 are insistent that they continue along with the original plan because it is all within the HS2 act boundaries despite the fact that the HS2 plan would cause much more destruction of a nature reserve that is not even on the route of HS2. Your statement in this email is the first written confirmation of this.

I will now expand on some of the reasons why HS2 must immediately withdraw this condition.
When National Grid wish to put up a line of pylons nothing to do with HS2 they do it by negotiation or other legal options with the landowners where they intend to put up pylons. If HS2 want to do work in an area not covered by the HS2 Act they use other methods, preferably negotiation with the landowner, but more often under compulsory purchase legislation. I will give one very relevant example of the negotiation route. In the response to Nick Hurd MP of February 2019 the words used were "Through our negotiations with the Buckinghamshire Golf Course we have significantly reduced the requirement for land occupation within the Country Park. The installation of the access road is mainly within the Golf Course, thereby protecting much of the current amenity of the park. We will be building bridges over water courses/tributaries to maintain water paths in the park. In our discussion with NGET (and their contractor, Babcock) they have also considerably reduced the land-occupation required compared to what was originally considered (atHS2 Act stage) by careful design. We do still have to access through the Country Park at a number of locations, but the disturbance will be considerably reduced. All work is designed to minimise our impact, provide a safe working environment and ensure there is no disruption to NGET customers……" For an example of the compulsory purchase route, HS2 decided that they wanted to build another roadway parallel with Dews Lane, Harefield which would involve taking land and buildings that were not included in the HS2 act. This included the workshop of Ron Ryall. This was taken from him in December 2019 and he was put out of business. It is noted that he has still not received any compensation for this loss of his livelihood and that to this date the roadway has not been started.

The matter of a proposed solution not being completely within the HS2 Act was not mentioned at the meeting on 11th February when Mark Riddington had examined in detail the proposal shown in green on the plan. This had a pylon clearly outside the HS2 Act.

If half as much time and effort was put into working out how our proposal could be made to work as has been put into seeking excuses why HS2 won't accept it, then I feel sure Mr Riddington would have come up with the solution that I suggested in my letter of bridging over the trackway with the pylon.

There is a particular benefit to HS2 and National Grid of going ahead with our proposal instead of the very special pylon inside the Denham Country Park. This is the fact that work could start immediately without waiting for the Environment Agency to consider the change to the banks of the River Colne needed before they will allow any bridge supports to be inserted prior to the installation of the bridge. Access will only be needed on the West bank of the Canal from October 2020 at the very earliest. Clearly Environment Agency staff who are in a position to review your proposals are heavily engaged in the aftermath of the recent floods.

You end your email of 6th March with the offer of a further meeting to discuss these further detailed proposals. I realise that you may well not wish to have face to face meetings at present due to COVID-19 restrictions. I request we have a Skype Conference Call or similar remote meeting.

I will now go on to the demolition of redundant pylons.

At all times at meetings and in correspondence with Andrew MacKinnon I have been told that the redundant pylons will be dismantled in parts and lowered to the ground and taken away.

In my letter to you of 2nd May 2019 following your telephone call to me that day, I stated the following

> *"With the convenor of Hillingdon Green Party, I have discussed the use of the canal in connection with this project with the Chairman of Canal and River Trust (richard.parry@canalrivertrust.org.uk). He told us that he wants National Grid to use the Canal and River Boats for this project. He has plenty of large barges, many complete with cranes. He confirmed that anything that could go by road vehicle (without oversize escort) could travel by barge. He would also be happy to provide welfare facility barges which they use when refurbishing canal locks for the safe storage of materials as well as full site office, welfare and toilet facilities.*
>
> *If you need a "cherry picker" to assist in connection with raising or lowering insulators or connecting or lowering power cables this could travel slowly from the nearest level road connection along the tow-path to the actual pylons in question.*
>
> *You say that "National Grid would not be able to maintain disused pylons that are not part of the network due to security and safety reasons." Please expand on this considering the location of pylons 47 and 48. They are no more insecure than for example pylon 49. It would be much safer to maintain by periodic repainting a pylon without any high voltage cables attached. Having said that I did include the following in my letter of 26th March "If you really feel it is necessary to dismantle the pylons they could be cut up on site and each section lowered down and transported to a canal barge to be taken away." Mr Parry (Canal and River Trust) has confirmed that these sections could quite easily be taken away by one of his barges, even easier if you use one of the barges with a crane. I then said "The concrete foundations can stay where they are to avoid disturbance of the ground and the need for heavy vehicles."*

.

In the reply letter from Andrew MacKinnon postmark 12th June 2019 he stated

> "The pylons will be dismantled in sections. We are evaluating the different transport options for access and egress, including the canal. The removal of the redundant pylons from the environment will enhance the overall amenity of the park."

In my letter to Andrew MacKinnon of 24th June 2019 I included the following

> *You say in your recent letter "This includes the laying of some trackway/stone to bring equipment to the locations in question which will be removed at the end" With the acceptance that there will be no need to construct ZC48R clearly you will only need to lay out for a small number of days a temporary metal trackway to protect the ground from being churned up by the cherry picker going from the towpath/barge to and from the very small temporary working areas around old pylons 47, 48 and 49. I see no need for any stone to be used. I have suggested in my previous letter that a "cherry picker" could be brought from the nearest road along to towpath if it is not brought to site on a barge with crane. With use of the welfare facilities barge and barge(s) with crane there should be no need for any other plant and equipment."*

In the extremely brief email dated 5th July 2019 Andrew MacKinnon made no reference to any of the proposals or the above paragraphs. He did say however "While there will always be some disturbance when we undertake large scale works, we will aim keep this to a minimum in line with the public standards HS2 and National Grid work to." As you are aware my view is that the public standards HS2 work to are totally inadequate. If they would work to the standards that National Grid do on other projects in nature reserves other than HS2 projects I would be less concerned.

I refer you again to the leaflet dated October 2019. This time section 7. Will you use the canal for any activities to lessen environmental impact?

> *We've already identified the possibility of utilising the canal via a barge for certain activities. We delivered ground investigation equipment by canal barge to one location. This facilitated the completion of the borehole with minimal environmental impact."*
>
> *The old pylons will be dismantled in sections. We're evaluating the different transport options for access and egress, including the canal. This approach is done on a case by case basis. All transport options are evaluated in line with safe systems of work and alongside carbon footprint weight of equipment, storage and handling, access and egress calculations."*

The decision that you have now apparently taken to dismantle the redundant pylons by pulling them over is the most destructive method possible. This is perhaps the reason why you have earmarked such a large compound around each of the potential redundant pylons. This decision must be reversed.

In your response email of 6th March 2020, you state
"National Grid would also like to make you aware that even if Option 3 was viable, they would still need to install trackway between the towers to establish safe working area and access routes. Both a tractor or winch would need to access the site, to pull the towers over as well as equipment for breaking them up. The use of the heavy machinery could pose a risk of damage to the towpath and in order to provide access for this plant additional tree clearance would be needed along the canal towpath and in order to provide access for this plant additional tree clearance would be needed along the towpath. It is also likely that the towpath would have to be closed…"

Provided the demolition of the towers was carried out strictly in accordance with the letters from Andrew MacKinnon, with a small fenced off compound round each pylon and a single metal trackway as illustrated on the leaflet of October 2019 to the canal with one or more barges complete with crane to take away the insulators and pieces of metalwork then there will be no need to close the towpath, and no need to build any temporary trackway between the towers.

The matter of the route of any temporary trackwork through Denham Country Park and the Driving Range, also any fencing is best left for the meeting. Obviously if you eventually agree to my two proposals which will mean no new pylon being constructed to the west of the Canal and demolition of the redundant pylons in pieces being taken away by canal barge then there will be no need for any temporary (or permanent) trackway in the Denham Country Park and therefore no need to have a meeting about the route and any fencing of this route.

Unless you are able to take both parts of this letter on board will you please make immediate arrangements for a meeting either face to face or by Skype or other Conference call facility.

Yours sincerely

Graham J. Lee
For Hillingdon Green Party.

Pylon ZC 050 To illustrate the size

Showing width of road, but there are passing places.

One possible location for pylon

An alternative spot near the one to the left

View from a 3rd possible point to lake

View from the 3rd possible point

(canal in background)

D1090

D950

Exhibit 16 SG Photographs of HS2 site compound Denham Country Park 10 June 2020

1. Destruction of priority habitat – wet woodland

2. Removal of potential bat roosts.

3. Evidence of ancient tree felling

4. Evidence of tree felling in riparian zone on River Colne bank outside HS2 site compound.

Exhibit 17 HS2 contractor work - tree climbers cutting off branches and chunks of trunk

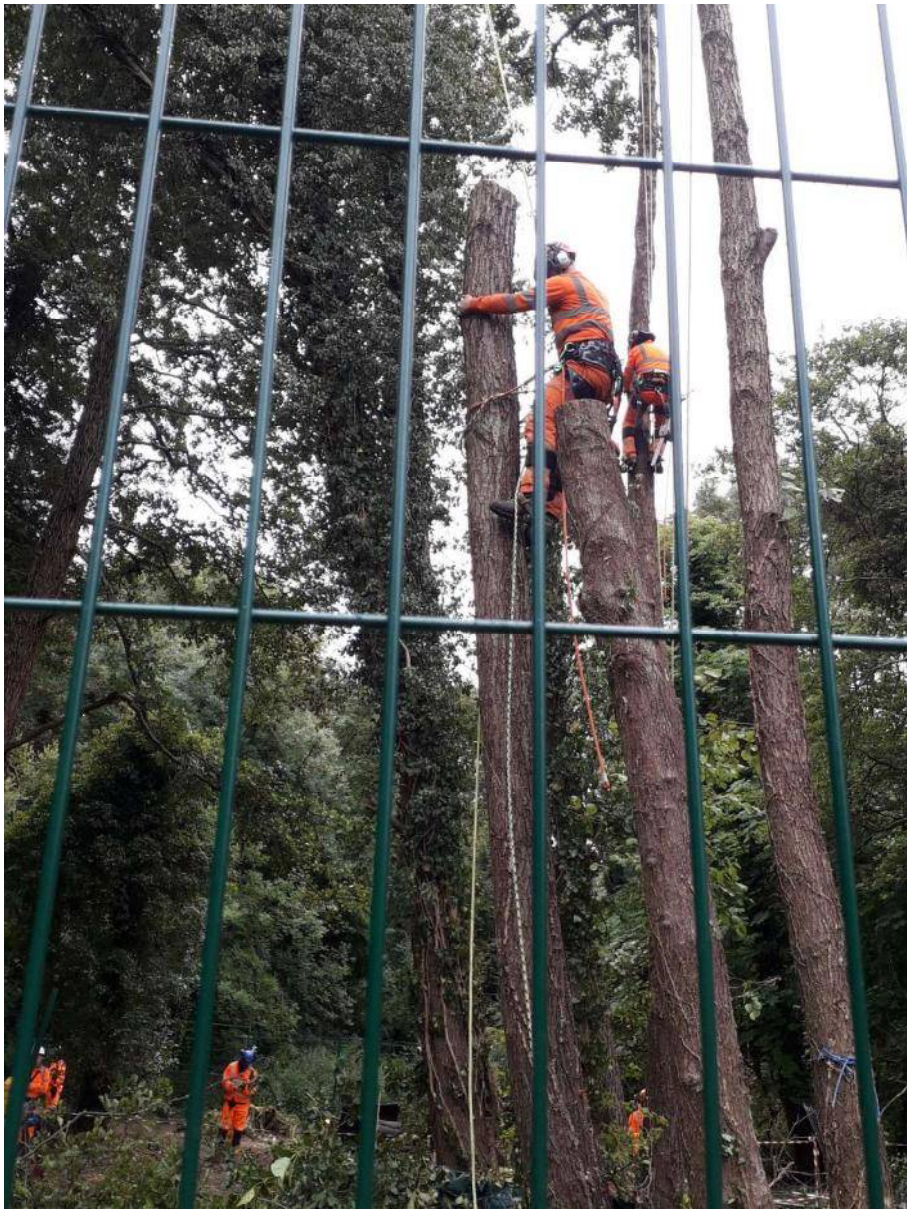

Exhibit 18 Chipping machines.

Branches, trunk and pieces of felled tree put through chipping machines. Witnessed 10 June 2020

Exhibit 19 Removal of evidence – tree and habitat chippings being removed in large green sacks. 10 June 2020

BAT MITIGATION CLASS LICENCE WML-CL40

HS2 Phase 1 (London to West Midlands) – Bats in tree roosts

OVERVIEW

This licence applies in a certain, limited, range of circumstances where works necessary for management or development will impact on trees that are used by bats for roosting. It permits the disturbance and capture of bats and/or damage/destruction of listed roost types affecting no more than eight listed species of bats, which are present in small numbers in the affected roosts. The cumulative impacts of the proposed works must not exceed a threshold which would be seen by other professional ecologists as being low or low-moderate.

Due to the nature of bat species using tree roosts, the number of roosts is not defined, nor limited. However the overall cumulative impact of the works must not exceed the low to moderate threshold. Normally this will be expected to be small numbers of the roost types listed and for small numbers of bats occupying those roosts.

The range of circumstances that this licence is intended to cover typically includes individual trees, trees in small groups or low density (e.g. roadside trees or parkland), orchards, and small amounts of woodland.

Where the overall impact of the works is in line with those covered by this licence, the extent of the site registration may cover the extent of contiguous or functionally linked woodland or trees that are subject to the same works. A site registered under this licence will comprise of a geographically distinct or defined area that includes single, small numbers or small groups of tree.

Where works are to be undertaken in a small woodland block (<5Ha), the area impacted will not normally exceed (2Ha). Where works are undertaken in medium/large blocks of woodland it is expected that the area impacted will not normally exceed 0.5Ha.

This licence excludes the removal of large blocks or large areas of woodland or tree cover as this would remove significant amounts of an important resource for bats and likely result in a significant impact on the local bat population. Such circumstances and others not covered by this licence should continue to be covered by applications for individual licences.

This licence may only be used by ecologists who satisfy the criteria for registration and are working for a contractor undertaking works directly related to HS2 Phase 1. It is expected that for each registration the works contractor will be the Licensee.

Only persons previously registered to do so may use this licence and in order to register a site under this licence the following must apply:

- That the site has been subject to a suitable level of survey effort (see Conditions 14 to 17 of this licence) to enable an accurate assessment of the level of impacts caused by the proposed activities;
- That impacts arising from the works cannot be avoided; and,
- That the overall, cumulative effect of the proposed works can be accurately determined, to both ensure that the impacts fit the criteria for using this licence and that suitable mitigation and if necessary, compensation are provided(see Annex A and B of this licence).

Users of this licence will employ suitable mitigation and/or compensation for impacts on bat roosts, and as a minimum replace any roosts lost with roosts of ecological equivalence. Users must also follow the relevant sections of the HS2 Ecology Technical Standard when designing and implementing works affecting bats.

In determining suitable mitigation, users must consider the level of impact in comparison to the overall woodland resource available within the core sustenance zone[1] for the species involved. The favourable conservation status of bats within the area covered by the licence must remain favourable post works and the mitigation and compensation measures must ensure that the habitat retains, or improves, its ecological functionality.

Wherever possible, mature or veteran trees should be retained (and roosts within such trees are likely to be higher conservation status and therefore unlikely to fall within scope of this licence) along with buffer trees.

Where it is considered that there is sufficient alternative roosting potential in the remaining or adjacent woodland, normally 7 to 10 roosting trees per hectare (and this adjacent resource is not known to have recently been, or likely to be, subject to impacts in the foreseeable future) then mitigation may not be required and other measures to improve overall habitat for bats (commuting/foraging routes) in the area should be implemented

Other impacts arising from the works, such as fragmentation and loss of connectivity must also be mitigated or compensated.

[1] - Collins, J. (ed)(2016). Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust, London.

Registration	Any person using this licence must fulfil the criteria and conditions to become a Registered Consultant and to have confirmed registration with Natural England before undertaking any work under this licence. The Primary Registered Consultant for this licence must apply to register individual sites with Natural England prior to each use of this licence
Recording & reporting	There is a data recording and annual reporting requirement.
Reference	WML-CL40

LICENCE TERMS AND CONDITIONS

Legislation	Conservation of Habitats and Species Regulations 2017 The Wildlife and Countryside Act 1981 (as amended
Relevant section(s)	Natural England hereby authorises under Regulation 55(2) (e) of the 2017 Regulations and section 16(3)(f) of the 1981 Act, being satisfied that as regards the purpose set out below that there is no satisfactory alternative and that the action authorised will not be detrimental to the maintenance of the populations of the species concerned at a favourable conservation status in their natural range.
Valid for the period	1 March 2019 to 31 December 2019 (inclusive)
Purpose(s) for which this licence is issued	a) Imperative reasons of overriding public interest, or b) Preserving public health and public safety
What this licence permits	Subject to all the terms and conditions of this licence, solely for the purpose(s) stated above, and for works directly related to or necessary for the construction of HS2 Phase 1, this licence permits Registered Ecological Consultants, and their Assistants to: (i) Deliberately disturb; (ii) Deliberately capture/take (ie handle); (iii) Transport; Bat species and roost types specified in Annex A of this licence, and to: (iv) Damage or destroy resting or breeding places of the species and roost types specified in Annex A, using only the methods listed below.

By means of	• By hand; • Artificial light (e.g. torches); • Endoscopes; • Hand-held static nets; • Exclusion; • Temporary or permanent exclusion by techniques specified in the Bat Workers' Manual; • Disturbance by illumination and / or noise; • Temporary obstruction of roost access; • Destructive search prior to felling; • Destruction by soft (section) felling; and, • Destruction by felling (low potential trees only)
On land	Within the consolidated construction boundary of the proposed rail route and land upon which the Licensee has the permission of the owner to operate, within the counties and unitary authorities of: Greater London, Hertfordshire, Buckinghamshire, Oxfordshire, Northamptonshire, Warwickshire, Staffordshire, Solihull and Birmingham. It may also be used on land in the aforementioned counties and unitary authorities where a third party or contractor of a third party owns or has permission to operate, to undertake works which are directly related to the construction of the rail route, and the Registered Consultant has registered the site with Natural England.
Who can use this licence (see Definitions)	This licence may only be relied upon by Registered Consultants, and their Assistants (see Definitions), except those with a recent conviction (see Information and Advice, notes 'f' and 'q').

DEFINITIONS USED IN THIS LICENCE

Licensee	The Licensee will be a contractor of HS2 Ltd, or a company which is required to undertake works to facilitate the construction of HS2 Phase 1, who has instructed the Primary Registered Consultant to carry out the licensed activities. Both parties must apply to register sites with Natural England.
Registered Consultant	Is a professional ecological consultant who has been successfully registered with Natural England to use this licence in accordance with standards set by Natural England.
Primary Registered Consultant	Is the Registered Consultant who has successfully registered a site or sites where the licence may be used. There can only be one Primary Registered Consultant per registered site
Secondary registered consultant	Is a Registered Consultant who is registered to use WML-CL40 and who the Primary Registered Consultant has authorised, by name in writing, to undertake licensed activities specifically associated with WML-CL40 under a registered site. There can only be one Secondary Registered Consultant per registered site and they may only be appointed at Registered Sites where the Primary Registered Consultant is registered to use WML-CL40. The Secondary Registered Consultant shall carry a copy of the authorisation letter while on the registered site and shall produce it to any police or Natural England officer on request.
Assistant	Is a person assisting a Registered Consultant. There are two levels of Assistants covered under this licence. Their details must be listed in the site

	registration form (WML-CL40-SiteReg):
Level 1 Assistant	Is an ecological consultant, who is skilled and experienced in bat mitigation work. A Level 1 Assistant is able to undertake licensed activities, appropriate to their level of experience (as determined by the Registered Consultant) on a registered site whilst the Consultant is not present, and they do not have to be under their direct supervision. Level 1 Assistants may directly supervise "Level 2 Assistants". A maximum of three Level 1 Assistants can be authorised in writing by the Primary Registered Consultant to undertake licensed activities on a site registered under this licence.
Level 2 Assistant	Is a person authorised to act under this licence whilst they are under the direct supervision of a Registered Consultant or a Level 1 Assistant. A maximum of six Level 2 Assistants can be authorised in writing by the Primary Registered Consultant to licensed activities on a site registered under this licence.
Registered Site	Is a site that has been registered with Natural England for the purposes of this licence.
Small numbers	For the purposes of this licence, the term 'small numbers of bats' is not defined. Registered consultants are expected to use their experience and professional judgement in deciding what reasonably can be considered to be small numbers of the species of bat involved. These judgements are expected to be in line with established best practice and likely to be determined in the same way by other professional consultants who are experienced in bat ecology and mitigation.
Low to low-moderate impacts	For the purposes of this licence, the terms low and low-moderate impact is that which the unmitigated impact of the proposed actions would likely be judged, by other professional ecologists, to not be likely to cause harm that could be considered to be moderate-high or high. This decision will take into account the numbers of roosts, roost types and numbers of bats involved. Generally these are impacts which can be easily mitigated or compensated by applying standard measures.
Destructive search by soft demolition	Is the taking apart of a bat structure in a controlled and careful manner by hand, or in some instances with the assistance of hand-held tools and machinery, under direct ecological supervision. Only the Registered Consultant or Level 1 Assistant may take any bats found. Under this licence only the Registered Consultant or a Level 1 Assistant must undertake or directly supervise any destructive searching.
Mechanical demolition	Is the destruction of a structure that previously supported a bat roost using mechanical means after the structure, or relevant part of the structure, has been declared free of bats by the Registered Consultant. Mechanical demolition usually is preceded by a soft demolition exercise or completion of an exclusion process.

'**Lower conservation significance/importance' roosts'** are for the purposes of this licence defined below

A **'feeding roost'** a place where individual bats or a few individuals rest or feed during the night but are rarely present during the day. They are often distinguishable by evidence of insect remains.

A **'day roost'** a place where individual bats, or small groups of males, rest or shelter in the day but are rarely found by night in the summer.

A **'night roost'** a place where bats rest or shelter in the night but are rarely found by day. These roosts vary in their conservation significance and may be used by a single individual on occasion or it could be used regularly by the whole colony. This licence only covers night roosts of low

conservation significance.

A **'transitional / occasional roost'** is a place used by a few individuals or occasionally small groups for generally short periods of time on waking from hibernation or in the period prior to hibernation.

A '**satellite roost'** is an alternative roost that is in close proximity to a main maternity roost which is used by a small number of breeding females throughout the breeding season.

A **'lower conservation significance maternity roost'** is a place used as breeding site by small numbers of breeding females.

A '**lower importance hibernation roost'** is a location with constant cool temperatures and high humidity, where small numbers of bats are found during the winter months

Other roosts definitions used in this licence:

A **'roost'** is defined as a single structure or part of a structure, used by a single species for a single purpose. For example where a wall cavity forms a roost for pipistrelle bats and the roof void a roost for brown long eared bats, this, for the purposes of this licence, would be two roosts.

A '**multi-functional roost'** is considered to be a roost that is used by bats of the same, or different species of bats, for different functions. For example, a structure which is used as a maternity roost or a hibernation roost and also by individual bats as a day or a night roost would be considered to be a multi-functional roost. In the context of this licence such a roost would be used by small numbers of a few species of bats.

A **'multi-species roost'** is considered to be a roost that is used by more than three bat species. Different bat species may be using it at the same or different times or for the same or different purposes. In the context of this licence a multi-species roost would be a roost used by few species of bats.

An **'alternative roost'** shall include: a purposely installed bat box or suitably designed and located feature or structure provided for the purposes of providing bat roosts; an existing roost which will not be impacted by the works; or other new/enhanced roosting opportunities. Any alternative roost must be suitable for the species, within or close to the existing roost and free from additional disturbance or development pressure

ADDITIONAL LICENCE CONDITIONS

Using this licence

1. This licence includes Annexes A, B and C which contain additional terms and conditions of use of this licence.

2. The confirmation of registration to work as Registered Consultant under this licence forms part of this licence and must be kept with this licence and produced along with the licence and confirmation of site registration, when required.

3. To use this licence you must be:

   a) A primary or secondary Registered Ecological Consultant (see Definitions);

   b) A Level 1 or Level 2 Assistant (see Definitions) who has been given written permission by the Licensee to act on their behalf on a specific site registered under this licence;

4. The Licensee is required to obtain all necessary permissions and consents and arrange access to the site for the Registered Consultant for the duration of the licenced activities and monitoring period, prior to registering the site. These records must be kept for at least 12 months following completion of the licenced works and monitoring period and must be made available on request to any Natural England officer at any reasonable time, within one working day.

5. Any Assistant must be named on the site registration document and be authorised in writing by the Licensee to act on their behalf under this licence. Any such person must carry this written

authorisation with them at all times when conducting activities under this licence

6. It is the responsibility of the Primary Registered Consultant to ensure Assistants are sufficiently trained and experienced to act under this licence and that they use appropriate equipment so as to avoid unnecessary suffering of any animal in the course of licensed operations.

7. The Registered Ecological Consultant and their Assistants must have prior experience of using the methods proposed in the site registration document (WML-CL40 Site Reg). This can be evidenced by previous experience with mitigation licences, Science and Conservation licences held or by being registered for the relevant level of Class Licence for the methods being proposed.

8. This licence may only be used at a site that has been successfully registered with Natural England and where the information in the authorised site registration form 'WML-CL40 Site Reg' remains accurate for the duration of the licensed activities.

9. Site registration involves submission of a site registration document 'WML-CL40-SiteReg' and a site registration spreadsheet 'WML-CL40-SiteRegSpreadsheet'. The site registration documentation must be submitted to Natural England for assessment at least six weeks in advance of the intended start date.

10. Proposed activities under this licence, as described in the site registration document and site registration spreadsheet, may only take place with the agreement of the Licensee who must also have agreed to comply with the terms and conditions of this licence, and any mitigation and / or compensation requirements detailed in 'WML-CL40-SiteReg' and WML-CL40-SiteRegSpreadsheet'.

11. Sites must be registered using site registration form 'WML-CL40-Site-Reg' and WML-CL40-SiteRegSpreadsheet'. This must be submitted at least four weeks in advance of the intended start date, but not more than 12 weeks in advance and:

    a. All consents necessary for the proposed activity must have been granted (planning or other) before applying to register the site. For all consents that have been granted, all conditions or Reserved Matters relating to wildlife species and habitat issues (which are intended to be and are capable of being discharged) must be discharged and in place.
    b. A walk over survey/check must have been undertaken within three months prior to submission of the site registration form to ensure that conditions have not changed since the most recent survey was undertaken.
    c. Works may only take place in agreement with the landowner, who must also have agreed to comply with the terms and conditions of this licence, including any compensation requirements to be provided (Relevant Annex(s)). Confirmation of this agreement must be declared in the site registration form WML-CL40 Site Reg.

12. Works are only permitted to commence following receipt of an email from Natural England confirming that the site is registered and works can proceed as described in the site registration document. Natural England reserves the right to request further information before a site is registered.

13. If details within an authorised site registration form change, the Licensee and Primary Registered Consultant must apply to Natural England with an amended site registration form and, where relevant, an amended maps to allow reassessment. Responsibility remains with the original person(s) on the authorised site registration form until written confirmation authorising the change has been received from Natural England. Details include:

    a. Change of Licensee;
    b. Change of Primary Registered Consultant;
    c. Change to work schedule: an amended site registration form must be submitted prior to the expiry of the licence period within the authorised site registration form. An explanation for this request must be provided. Licensed activities must stop if they go beyond the licence period in the authorised site registration form except where written confirmation authorising

the change has been received from Natural England; and

d. Significant changes to licensed activities: should circumstances change so that activities and/or impacts falling outside the scope of this licence are required then works may no longer proceed. Natural England must be notified in writing within two working days, the site may then be de-registered and an individual licence might be required to proceed.

Survey and Assessment Requirements

14. Before registering a site, it must have been subject to a suitable level of survey to identify buildings or structures with bat potential and the species of bats and type of roosts likely to be present.

15. All surveys (pre and post site registration) must be undertaken in accordance with the Bat Conservation Trust (BCT) Bat Surveys for Professional Ecologists – Good Practice Guidelines and the Bat Mitigation Guidelines (see Information and Advice note f). Surveys must be up-to-date and tailored to each site, taking into account complexity of the structures involved and potential usage by bats throughout the year.

16. All reasonable effort to identify the bats present to species level and the roost type(s) must be undertaken.

17. The survey records must be kept for at least 12 months following completion of the monitoring period and must be made available on request to any Natural England officer or any police officer at any reasonable time, within one working day.

Working under the licence

18. This licence is only to be used for species and numbers of bats and roost types included on Annex A, and where the cumulative impacts resulting from the use of this licence are in the range of low to low-moderate.

19. The Licensee and Registered Consultant are responsible for all activities carried out under this licence, including activities carried out by any Assistants.

20. It is the duty of any person authorised to use this licence to ensure that they can adhere to the activities permitted as detailed on the authorised site registration form and conditions of this licence before accepting this responsibility. While engaged in the activities to which this licence applies the Registered Consultant shall make a copy of the licence (including the Annexes) available for inspection on each registered site where the activities are taking place and shall make it available for inspection to Natural England or any police officer on request within five working days.

21. The Registered Consultant must ensure that all those involved in the proposed works at the registered site understand by way of a "tool box talk":

- that bats are present;
- the legislation relating to bats;
- the measures that will be used to protect bats;
- good working practices;
- licensable activities; and
- what to do should bats be found.

This information must be provided before any works commence in the registered site. A written record that this has been undertaken must be kept by the Licensee and made available to Natural England or any police officer on request within five working days.

22. The Registered Consultant must be on site when any works are being undertaken under this licence. Where works are being undertaken at more than one site at the same time, the Registered Consultant may permit a Level 1 Assistant to supervise works at sites where the Registered Consultant is not present. The Level 1 Assistant must be suitably experienced in the work and methods being employed at that site and also be suitably experienced at supervising works.

Dealing with bats discovered during pre-work assessments or unexpectedly

23. Where bats of a species not included on this licence or in numbers or roost type exceeding what could be considered low to low-medium conservation significance, all works must stop. The Registered Consultant must make an appraisal and re-evaluation of the situation in accordance with Annex C. Work may only restart when written confirmation is received from Natural England.

24. Where a bat is unexpectedly discovered in adverse weather conditions, the guidance in Annex C must be followed

25. Provision must be made for prompt assistance to deal with any injured bat. Any injured or dead bats must be reported to Natural England on licence return form 'WML-CL40LicRtn'.

Use with other Licences

26. This licence may be used in conjunction with the following types of licence:
    - Any bat survey Class Licence, and
    - WML-CL40 Bat Mitigation Class Licence – HS2 Phase 1, Bats in Buildings, only where the combined impact of the use of both licences does not exceed the low to low-moderate threshold.

It may **not** be used in conjunction with:
- WML- CL21 Bat Low Impact Class licence
- Any individual licence

Mitigation and Compensation (also see relevant Annexes)

27. The Licensees must ensure that any mitigation and compensation measures specified in the authorised site registration form are completed within the appropriate timeframe and in accordance with this licence unless otherwise agreed in advance and in writing with Natural England.

28. Mechanical demolition (see Definitions) must only take place once the Registered Consultant, has confirmed a structure to be free of bats.

29. Where bats are discovered and taken under this licence they must either be relocated to an alternative roost (see definitions) or released on site at dusk in, or adjacent to, suitable foraging / commuting habitat in safe areas within or directly adjacent to the pre-works habitat.

30. Where capture and/or handling of bats are necessary, only the Registered Consultant, or an Assistant directly supervised by the Registered Consultant may do so. Any capture, handling or exclusion of bats must only be undertaken in conditions suitable for bats to be active.

31. All works must be undertaken using best practice methodology to ensure minimal risks to bats.

32. Persons acting under this licence must abide by the advice on excluding bats, handling bats and working in bat roosts in the most up to date edition of the 'Bat Mitigation Guidelines' and 'Bat Workers Manual'.

33. All impacts on bats or their roosts must be mitigated or compensated.

34. Impacts to roosts must be mitigated or compensated in accordance with the requirements set out in Annex B.

35. Any mitigation and compensation measures proposed in the site registration document must be implemented as described. Any significant changes must have been agreed in writing by Natural England (see Condition 13(d) above).

Monitoring and reporting requirements

36. Monitoring must be undertaken in accordance with the requirements set out in Annex B.

37. The Primary Registered Consultant must comply with the reporting requirements below:

    a) A report of licensed activities and the associated monitoring must be submitted annually for each site registered under this licence. This must be submitted using form WLM-CL40 LicRtn.

    b) The Primary Registered Consultant shall maintain a record of all licensable activities, monitoring and Authorised Persons used. This must be kept for at least 12 months after the completion of licensable works and the monitoring period at each registered site, in accordance with the requirements of Annex B.

    Records are to be made available for inspection by Natural England or a police officer at any reasonable time, within five working days.

38. Monitoring must be underpinned by surveys, in accordance with the requirements of Annex B, and reported to Natural England in annual report 'WML-CL40-LicRtn' to evaluate against the baseline information and data provided in the site registration document.

39. Monitoring data will be used to assess any impact of the licensed activities over the course of the monitoring period and to ensure any overall impact of these activities is not detrimental to the Favourable Conservation Status of the bat populations.

Licence compliance

40. The Licensee, and any person authorised by, or working under this licence must comply with the terms and conditions of this licence, including the site registration, recording and reporting requirements. Failure to do so will render registration null and void. For the purposes of Regulation 58, the License, Consultants and Assistants are regarded as 'the holder of a licence'. Natural England will advise a Registered Ecological Consultant of any change in registered status and explain the reasons for this.

41. Natural England must be informed of any breach to this licence. The Registered Consultant, Licensee, or Authorised Person, must report to Natural England in writing any problems with compliance with the licence within three working days and take necessary action, within the terms and conditions of this licence, should they discover poor practice and/or activities beyond the scope of the licence.

42. Registered Consultants must inform Natural England:
    a) If they are subject to disciplinary action with their professional membership body, within one working week of being informed, setting out the circumstances. They must also inform Natural England of the outcome of the action within one working week of the conclusion of this action.
    b) If they are subject to any criminal investigation by the police or other statutory body for any wildlife-related offence(s), setting out what these are, when the outcome is likely to be known, and what the outcome is following completion of the investigation.

    This will enable Natural England to assess whether their registration for use of this licence needs to be reviewed.

IMPORTANT

This licence authorises acts that would otherwise be offences under the 2017 Regulations and the 1981 Act. Failure to comply with its terms and conditions:

i.may be an offence under the 2017 Regulations or mean that the licence cannot be relied upon and an offence could therefore be committed. The maximum penalty available for an offence under the 2017 Regulations and the 1981 Act is, at the time of the issue of this licence, an unlimited fine and/or a six month custodial sentence; and

ii.may result in your permission to use this licence being withdrawn. Natural England will inform any person or organisation whose permission to use this licence is withdrawn in writing. If the activity

that you wish to undertake is not covered by this licence, or if you are unable to comply with any of the terms and conditions which apply to the use of this licence, then you will need to apply to Natural England for an individual licence.

If the activity that you wish to undertake is not covered by this licence, or if you are unable to comply with any of the terms and conditions which apply to the use of this licence, then you will need to apply to Natural England for an individual licence.

This licence is not a consent or assent for the purposes of Part II of the 1981 Act in respect to Sites of Special Scientific Interest. It is your responsibility to get consent or assent if required (see Information & Advice note e, below).

Issued by and on behalf of Natural England on: 28 February 2019

INFORMATION AND ADVICE

a. Any site registration is the equivalent of a licence being issued for that site and this licence remains valid for the duration of the registration.

b. The confirmation of site registration will be made by Natural England in writing via email, and this email will state how long the registration is valid for.

c. Please note that the licence may be modified, extended, terminated or revoked at any time by Natural England or the Secretary of State, but this will not be done unless there are good reasons for doing so.

d. Any requests for information in a licence will be considered under the Environmental Information Regulations 2004 and the Freedom of Information Act 2000 as appropriate.

e. This licence conveys no authority for actions prohibited by any other legislation. For example, anyone acting under this licence is not exempt from the provisions of Section 28H of the Act. This means that Section 28G authorities ('Statutory undertakers etc.') are obliged to give notice to Natural England if they propose to carry out an operation likely to damage a Site of Special Scientific Interest (SSSI). To identify SSSIs and the features for which they are designated, refer to www.magic.gov.uk. For further advice or to request assent for an activity please contact the Natural England 'Responsible Officer' for the relevant site(s). Contact details are available from the Natural England Enquiry Service (see below).

f. No person convicted on or after 1 January 2010 of an offence under the Conservation of Habitats and Species Regulations 2010, the Wildlife and Countryside Act 1981, the Protection of Badgers Act 1992, the Deer Act 1991, the Hunting Act 2004, the Wild Mammals (Protection) Act 1996, the Animal Welfare Act 2006 or the Protection of Animals Act 1911 (all as amended) may use this licence without the permission of Natural England unless, in respect of that offence, either:
   i. they are a rehabilitated person for the purposes of the Rehabilitation of Offenders Act 1974 and their conviction is treated as spent; or
   ii. a court has made an order discharging them absolutely.

g. The common name or names of species given in the licence and any annexes are included by way of guidance only. In the event of any dispute or proceedings, it is the scientific name of a species only that will be taken into account.

h. Any person authorised by this licence are advised to carry a copy of this licence at all times when acting under this licence.

Training and experience requirements

i. Training must be relevant to the conditions and the activities permitted by the licence and should be undertaken at regular intervals. It is the responsibility of each person authorised by this licence to maintain their expertise at an appropriate level to act under this licence. It is also the responsibility of each person authorised by this licence to ensure that any Assistants under their direct supervision have appropriate training, experience and instruction to undertake the activity they are being asked to do act under this licence.

j. As a minimum, this must include: identification of European and other Protected Species relevant to the species and activities authorised by this licence and signs indicating they may be present; undertaking records searches; the ability to identify a rare species, non-native species and populations of significant importance; surveying techniques; best practice guidance and reasonable avoidance measures; mitigation techniques and methods, and compensation requirements and measures; a working knowledge of the Regulations and the Act together with an understanding of offences that may be committed.

Guidance on surveying and best practice

k. Advice on surveying, mitigation and compensation are provided in the latest edition of the 'Bat Mitigation Guidelines' and The BCT Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edition). The Licensee and any Authorised Person are expected to check whether this guidance has been updated and if so, to ensure that they act in accordance with the most up to date version.

General Welfare Considerations

l. Persons acting under this licence may photograph any protected species named in this licence in connection with licensed work provided that this causes no additional disturbance or any other harm.

m. Under the Animal Welfare Act 2006 it is an offence to cause any unnecessary suffering to an animal under the control of man (section 4). This applies to the treatment of animals (including non-target species) held in nets etc.

The limits of licences

n. Licences permit action only for the purposes specified on that licence.

o. Licences do not permit actions prohibited under any other legislation, nor do they confer any right of entry upon land. All relevant animal welfare legislation must be complied with at all times, including the Animal Welfare Act 2006.

p. No work shall be carried out under this licence on a National Nature Reserve except with the prior written permission of Natural England's 'SSSI Adviser' for the relevant site(s) (contact details available from Enquiry Service – see below).

Compliance and enforcement

q. The Licensee is expected to monitor compliance with the licence and to take action in the event that poor practice and/or non-compliance are identified. A person may be barred from using this licence by Natural England, for example, if that person breaches the conditions of this licence. In these circumstances Natural England will notify the Licensee.

r. Any person to whom Information and Advice Note 'f' (above) applies will require the permission of Natural England to use this licence. Any such application will be considered on its merits.

s. Natural England checks compliance with licences and the attached conditions and where breaches occur will apply its published Compliance and Enforcement Position.

Contact Details for Natural England

For licensing enquiries:
Telephone 0208 026 1089
Email HS2wildlifelicensing@naturalengland.org.uk

For other enquiries use the Enquiry Service:
Telephone 0300 060 3900
Email enquiries@naturalengland.org.uk

Postal address

Technical Services Wildlife Licensing, Natural England,
Horizon House, Deanery Road, Bristol BS1 5AH
Web https://www.gov.uk/government/organisations/natural-england#org-contacts

Using and Sharing Your Information

Who is collecting my data?
The data controller is the Natural England, Foss House, Kings Pool, 1-2 Peasholme Green, York, Y01 7PX. You can contact the Natural England Data Protection Manager at: Natural England, County Hall, Spetchley Road, Worcester, WR5 2NP; foi@naturalengland.org.uk.
Any questions about how we are using your personal data and your associated rights should be sent to the above contact. The Data Protection Officer responsible for monitoring that Natural England is meeting the requirements of the legislation is: Defra group Data Protection Officer, Department for Environment, Food and Rural Affairs, SW Quarter, 2nd floor, Seacole Block, 2 Marsham Street, London SW1P 4DF. DefraGroupDataProtectionOfficer@defra.gsi.gov.uk.

What of my data is being collected and how is it used? What is the legal basis for the processing?
The information on the licence application form and any supporting material will be used by Natural England to undertake our licensing functions. This will include, but is not limited assessing your application, issuing a licence if applicable, monitoring compliance with licence conditions and collating licence returns and reports. The personal information we will process will include, but is not limited to your name and contact details, customer type and reasons for wanting a licence.
Processing is necessary for the performance of a task carried out in the public interest or in the exercise of official authority vested in the data controller. That task is to conduct the licensing functions as delegated by Defra to Natural England under Part 8 Agreement under section 78 of the Natural Environment and Rural Communities Act 2006

Who will my data be shared with?
Your personal data may be shared by us with the Department for Food, Environment and Rural Affairs and its executive agencies including the Rural Payments Agency and the Environment Agency. This will be used to monitor and evaluate the effectiveness of our work.
It may also be shared with:

- HS2 Ltd.

We will respect personal privacy, whilst complying with access to information requests to the extent necessary to enable Natural England to comply with its statutory obligations under the Environmental Information Regulations 2004, and the Freedom of Information Act 2000.

If you are relying on my consent to process my data, can I withdraw my consent?
No, because the processing is not based on consent.

How long will my data be held for?
Your personal data will be kept by us for 7 years after the expiry of your licence or longer if stated in the licence conditions.

What will happen if I don't provide the data?
Failure to provide this information will mean that Natural England will not be able process your licence application.

Will my data be used for automated decision-making or profiling?
The information you provide is not connected with individual decision making (making a decision solely by automated means without any human involvement) or profiling (automated processing of personal data to evaluate certain things about an individual).

Will my data be transferred outside of the EEA?
The data you provide will not be transferred outside the European Economic Area.

What are my rights?
A list of your rights under the General Data Protection Regulation, the Data Protection Act 2018, is accessible at: https://ico.org.uk/for-organisations/guide-to-the-general-data-protection-regulation-gdpr/individual-rights/

How do I complain?
You have the right to lodge a complaint with the ICO (supervisory authority) at any time. Should you wish to exercise that right full details are available at: https://ico.org.uk/for-organisations/guide-to-the-general-data-protection-regulation-gdpr/individual-rights/

Natural England's Information Charter can be found here: https://www.gov.uk/government/organisations/natural-england/about/personal-information-charter

ANNEX A - WML-CL40(A): Species and roost types covered by this licence

Deciding if the use of this licence is appropriate	The Registered Consultant is expected to exercise their professional judgment to determine if the use of this licence is suitable. In doing so, the Registered Consultant is expected to use their knowledge and experience of bat species and their ecology along with information on the local abundance and distribution of those species. This will be combined with the assessment of likely impacts of the works to determine what mitigation and/or compensation measures are suitable and required. This includes determining the level of impact upon individual roosts and also the cumulative effects of activities carried out using this licence on multiple roosts. The term 'small numbers of bats' has not been defined by Natural England and it is for the Registered Consultant to decide what constitutes small numbers and low to low-moderate levels of impacts on the local population. These judgments should be consistent with published evidence and best practice and broadly consistent with the judgments of other professional ecologists dealing with a similar situation. For multi-functional, multi species, maternity and hibernation roosts, the Registered Consultant must especially consider the potential for cumulative impacts e.g. where a number of low impact effects may combine to increase the overall impact (see Bat Mitigation Guidelines). Where the impact of the work on the bats species – at individual sites or cumulatively in a local area - exceeds that which could reasonably be considered to be low or low-moderate then this licence should not be used and an individual licence sought. Natural England will review site registrations and may, where required, seek further information and clarity for site registrations, and in some cases suggest or require plans to be modified. Where it is intended to cover a multi-functional roost or a tree containing more than one or two roost types, each roost per species constitutes a single roost.
Species covered by this licence	Common pipistrelle (*Pipistrellus pipistrellus*) Soprano pipistrelle (*Pipistrellus pygmaeus*) Whiskered bat (*Myotis mystacinus*) Brandt's bat (*Myotis brandtii*) Daubenton's bat (*Myotis daubentonii*) Natterer's bat (*Myotis nattereri*) Brown long-eared bat (*Plecotus auritus*) Noctule bat (*Nyctalus noctula*)
Assemblage of species covered by this licence	Where the conservation significance of the assemblage of species present within the trees or woodland covered by the registration is judged not to have local importance or significance. This would normally be small numbers of up to five (5) species, all of which commonly occur in the local area.

Roost types covered by this licence	• Roosts contained within trees only; • Feeding roosts; • Day roosts; • Night roosts; • Transitional/occasional roosts; • Satellite roosts; • Lower conservation significance maternity roosts where licensable activities are completed outside the maternity season and the modified or replacement roost is available to bats in advance of the next maternity season; • Lower importance hibernation roosts where licensable activities are completed outside the hibernation period, and the modified or replacement roost is available to bats in advance of the next hibernation period, and • Low - medium conservation status multi species and multi-purpose roosts.
Numbers of bats covered by this licence	• Individuals or small total numbers of any species listed. If more than one species will be affected, it is the total number of all bat species which must be considered.
Numbers of roosts covered by this licence	• The number of actual roosts that may be affected by this licence is not given as a definitive figure, but is defined by what can reasonably considered to be resulting in a low or low-moderate level of unmitigated cumulative impacts
Unexpected finds	See Annex C.

Annex B - WML-CL40(B): Expected mitigation, compensation, monitoring and management/maintenance requirements

Deciding the level of mitigation or compensation required	The Registered Consultant is expected to exercise their professional judgment to determine the level of mitigation or compensation required to maintain the favourable conservation status of bats affected by works taken under this licence. In doing so, the Registered Consultant is expected to use their knowledge and experience of bat species and their ecology along with information on the local abundance and distribution of those species. This will be combined with the assessment of likely impacts of the works to determine what mitigation and/or compensation measures are suitable and required. In each case replacement or compensation roosts must be located as near as possible to the site of loss. Under this licence, replacement roosts must not be located outside the core sustenance zone for the local population of the species' affected. The locating of replacement roosts outwith the original woodland or immediate vicinity of the tree impacted should also consider the continuing ecological functionality of the roosts within the local habitat and will, as a minimum standard, maintain this. As well as roost replacement, other habitat improvements, such as improving foraging and commuting opportunities, should be implemented. When considering the necessity of providing compensatory roost provisions within woodland it is recommended that an assessment of the pre-construction roosting resource is undertaken including both artificial (e.g bat boxes) and natural (trees) resource. The assessment should include an estimate (if the resource is large) or count (if small) of the number of trees that contain potential roosting features (PRF) and the overall suitability of the woodland to support roosting bats. As a guide, if this resource exceeds a minimum density of 7-10 trees (with PRF) per ha in woodland close to or adjacent to the impact, then replacement roosts may not be required. Trees providing such compensatory resource should be protected from direct and indirect impacts for the duration of the compensatory provision including any management and maintenance measures to ensure this. For confirmed roosts within individual trees, or those within a landscape with scattered trees, then the compensatory resource provision should be equal to, or exceeding that available prior to the licensable works. Introducing bat boxes as compensation for the loss of tree roosts is appropriate in woodland where there are few existing PRF. However, introducing large numbers of bat boxes to a wood is not appropriate where such features already exist, as this can have a negative effect on bat communities. If tree roosts are to be lost, in this situation woodland creation may be a more appropriate than providing compensatory roost habitat, unless hibernation or maternity roosts are expected to be lost. Replacement roosts provided as mitigation or compensation must be monitored under this licence. Planting provided under this licence must be monitored, managed and maintained for the duration of the compensatory provision. Natural England will review site registrations and may, where required, seek further information and clarity for site registrations, and in some case

	suggest or require plans to be modified.
Expected ways of working under this licence	Before this licence is relied upon all reasonable ways of avoiding or limiting roost disturbance or loss must have been considered. Any person working under this licence is expected to comply with standards set out in the following documents: • HS2 Ltd Ecology Technical Standard (HS2-HS2-EV-STD-000-000017) (version that is in place at that time) and, where directed, to the source and reference documents stated within that Standard. Where no specific guidance is offered or signposted by the HS2 Ecology Technical Standard the user should follow the best practice set out within the following three documents when working with bats: • Bat Workers Manual (JNCC) • Bat Mitigation Guidelines (Natural England) • Bat Surveys for Professional Ecologists – Good Practice Guidelines (Bat Conservation Trust) **Tree Felling** Any tree identified as having confirmed bat roosts must be excluded or surveyed to confirm bats are absent or removed before felling. If this isn't possible or doubt remains, the tree must be section ('soft') felled. Any tree that is section ('soft') felled must be done so by removing branches or tree sections and where bat roost potential is within that section, gently lowering to the ground for detailed visual inspection. Any cut into timber must not be across any crack, fissure or void that may hold bats, in so far as is reasonably possible, for safety of the operator. Felling of trees adjacent to trees with higher significance roosts and forming an important buffer for those trees must avoid the peak maternity and hibernation periods for that area and likely species.
Timings of works	Activities involving the exclusion, capture and/or handling of bats must only be undertaken in weather conditions suitable for bats to be active and must follow best practice methodology in line with licence condition 32. Licensable activities impacting satellite, maternity and hibernation roosts must not be undertaken while the roost is in use for these purposes and seasonal avoidance would be the preferred approach. Where the roosts are excluded ahead of seasonal use, appropriate compensation (if required) must be in place and available for use prior to exclusions taking place. Any exceptions to the above are likely to carry greater risk to bats and so prior discussion with Natural England is required ahead of a Site Registration Request, as it may preclude the use of this Class Licence.

Annex C - WML-CL40(C): Acting under licences WML-CL39 and WML-CL40 when bats are found unexpectedly or during in cold and/or in adverse weather conditions (see main Licence, Conditions 23 and 4)

Important:

To minimise the risks of disturbing bats:

- Surveys at a site must take into consideration the potential of any buildings or structures to be used throughout the year. Neither of the Class Licences to which this licence applies, permit the damage or destruction of maternity or hibernation roosts (or other important roosts) when they are in use by bats for this purpose.
- Should unexpected species or numbers of bats or roosts be found whilst working under the authority of this licence, the Registered Consultant should assess if works can continue under either Class Licence to which this Annex applies, whether the authorised site registration form needs to be updated and sent to Natural England, or whether an individual licence will need to be applied for (see licence condition 23 and Annex B).
- Should any bats of a species or roost type not covered by either Class Licence to which this Annex applies be found, works must stop and Natural England informed immediately. An individual licence may be required.
- Activities affecting buildings or structures which are likely to support hibernating or torpid bats must be timed to take place when bats are active and when there is a decreased risk of direct or indirect harm to bats because:
    - Torpid and hibernating bats are unable to rouse quickly and can easily be injured or killed through careless working practices, and
    - Causing bats to wake and use energy at a time of year when they cannot replace their energy reserves may reduce their chances of surviving, particularly in the winter.

It is however recognised that, despite thorough assessment, there are occasions where individual torpid or hibernating bats might be discovered unexpectedly.

If individual bats are discovered unexpectedly, or during periods of cold or adverse weather then the following steps must be taken:

A - Dealing with the bat or bats found

1. Stop works to that building/structure.
2. If the Registered Consultant is not in attendance at that site, he/she must be contacted immediately to attend the site.
3. Do not expose the bat to the elements or cause it to fly out of the roost on its own accord.
4. The bat must only be handled by a person authorised by the registration and where that person has sufficient experience in handling bats, unless it is in immediate danger. Special care must be taken if the bat is torpid.
5. The bat should be carefully placed in a lidded ventilated box with a piece of clean cloth and a small shallow container with some water. The box must be kept in a safe, quiet location.
6. Where the bat is torpid, care should be taken to avoid rousing the bat during transfer to a suitable location – which may be a suitable hibernation box or other alternative roost, providing a

safe, quiet environment with stable, cool temperature and relatively high humidity, safe from further disturbance.

7. Any underweight or injured bats must be taken into temporary care by an experienced bat carer and looked after until such time that the bat can be transferred to a suitable replacement roost at the same site, or weather conditions are suitable for release at the same site.

B – Reviewing the work impact, mitigation and/or compensation required

8. The Registered Consultant should re-assess the situation and consider whether works can proceed under the existing site registration.

9. In doing so they should consider the implications of the unexpected find of the bat or bats, and if the current planned way of working, mitigation and/or compensation is appropriate. Where it is felt that changes are required a revised Site Registration form should be sent to Natural England prior to works continuing.

10. Where bats of a species not covered by the licence are discovered, or larger numbers, or different roost types are found, then the Registered Consultant should contact the Natural England licensing team as soon as is practicable. After an initial discussion, the Registered Consultant should confirm the find (species, circumstances, revised plans for mitigation/compensation etc) to the licensing adviser via email. This email should confirm the species found, the number of bats found, details of previous surveys and or additional pre-works inspections and what is proposed as additional or revised mitigation/compensation.

11. Natural England will respond and confirm in writing whether the unexpected find can be authorised under this licence, or whether an individual licence is required.

D1114

D974

Gmail Sarah Green <arthurdallytrips@gmail.com>

Re: [OFFICIAL] Watervoles / Wet Woodland - HS2

5 messages

sarah.green@hillingdon.greenparty.org.uk <sarah.green@hillingdon.greenparty.org.uk>
To: Sarah.A.Bailey@met.police.uk
Cc: graham@hillingdongreenparty.org.uk

Mon, Dec 30, 2019 at 2:33 PM

Crime Reference 6035552/19

Dear Ms Bailey,

I reported a wildlife crime taking place in Hillingdon London within the wetland nature reserves of Denham Country Park on 29th November 2019. Habitat clearance continued between late November and throughout December until the Christmas break. Evidence on 29th December shows ground cover layers of vegetation cleared in a vast area between bridge 182 and the Chiltern Line viaduct bridge 181. The perpetrators are HS2 contractors working for National Grid in the area east of the river Colne between Flagmoor ditch and the Grand Union Canal (Hillingdon).

This is an area known for water vole, officially registered with Greenspace Information for Greater London, official wildlife register. Location TQ0525086954.

Damage to habitats of protected species has taken place within a nature reserve. There are no licenses in place covering water vole and their habitats and therefore this is a wildlife crime. At the beginning of January 2020 work will continue to clear shrubs and then larger, mature trees. This area is nowhere near the HS2 route. Alternative plans with much less impact on wildlife are being ignored for the pylon diversion.

Urgent action in needed to prevent further wildlife crimes being committed.

Please can you let me know what actions the Met Police are taking?

Many thanks,

Sarah Green

On 2019-12-20 14:31, Sarah.A.Bailey@met.police.uk wrote:

> Dear Ms Green
>
> Thank you for reporting your concerns in relation to the HS2 development & its affect on water voles / wet woodland. The area of concern falls outside the Metropolitan Police area but I have passed your concerns to the Thames Valley Police and the person with oversight of wildlife crime for that area is PC Mary-Ellen Caswell who I have copied into this email. I hope she will be able to assist you with this matter.

Kind regards

Sarah Bailey

DC Sarah Bailey
MO2- Wildlife Crime Unit
Cobalt Square
1 South Lambeth Road
Vauxhall
LONDON
SW8 1SU

Tel: 0207 230 8282
Mob: 07748 133 873
Met: 68282
Email: Sarah.A.Bailey@met.pnn.police.uk

Niki Samuel <harvilroadneighbourhoodwatch@gmail.com> Sat, Jan 18, 2020 at 7:38 PM

To: sarah green <arthurdailytrips@gmail.com>

---------- Forwarded message ---------
From: <Claire.Heffernan@met.police.uk>
Date: Mon, 13 Jan 2020 at 14:14
Subject: FW: [OFFICIAL] Watervoles / Wet Woodland - HS2
To: <harvilroadneighbourhoodwatch@gmail.com>

To Whom It May Concern,

In relation to Sarah Green's email below, please can anyone who has seen a water vole habitat that is in danger of being destroyed within Denham Country Park contact me on the details below.

In order to establish if there are any offences I will require photographic evidence, for someone to be able to point the location out to police and also a statement and a willingness to attend court (if offences are established).

Please provide full details upon your response. I look forward to hearing from you.

Kind Regards,

Claire Heffernan

Claire Heffernan | Detective Constable
MO2 - Wildlife Crime Unit
Metropolitan Police Service
First Floor Ocean Block, Ground Floor, Cobalt Square, 1 South Lambeth Road, London, SW8 1SU
Telephone: 0207 230 8898 | Met Phone 768898
Mobile: 07833 285 386
Email: claire.heffernan@met.pnn.police.uk

From: sarah.green@hillingdon.greenparty.org.uk <sarah.green@hillingdon.greenparty.org.uk>
Sent: 08 January 2020 09:06
To: Heffernan Claire - MO2 Met Intelligence <Claire.Heffernan@met.police.uk>
Subject: Re: [OFFICIAL] Watervoles / Wet Woodland - HS2

Dear Claire,

I have not seen water voles myself however I have been on the water vole training by Hillingdon Natural History Society and seen the signs on water vole.

Here is an email address for Niki Samuels who has seen water vole

harvilroadneighbourhoodwatch@gmail.com

Sarah Green

On 2020-01-02 19:59, Claire.Heffernan@met.police.uk wrote:

> Dear Sarah,

Have you yourself witnessed the water voles and habitats at the location? If so, would you be willing to provide a statement to police IF required at a future date? If you haven't, can you provide details of any witnesses that have? Do you have any photographic evidence of the voles' presence there prior to the commencement of clearance? It is important that we can evidence the presence of the voles there.

I have made the EA aware of this this afternoon. They were not aware of the presence of a water vole habitat or of the HS2 work there. They are passing to their specialists to establish the presence of one next week.

I am out of the office next week on a course and will have limited access to emails but will be monitoring the situation.

Kind Regards,

Claire

From: sarah.green@hillingdon.greenparty.org.uk <sarah.green@hillingdon.greenparty.org.uk>
Sent: 02 January 2020 16:31
To: Heffernan Claire - MO2 Met Intelligence <Claire.Heffernan@met.police.uk>
Cc: Bailey Sarah A - MO2 Met Intelligence <Sarah.A.Bailey@met.police.uk>
Subject: Re: [OFFICIAL] Watervoles / Wet Woodland - HS2

Dear Claire Heffernan,

Thank you for your quick response.

We have already made enquiries with Greenspace Information for Greater London (GiGL) who are the wildlife recorders for the area. GiGL has supplied information for recorded water vole at location:TQ0525086954.

In answer to an FOI natural England has supplied all the licenses covering Denham Counry Park in December 2019. There were 5 licenses and none covered water vole.

Additionally there was no need to clear the area which has been cleared as this work does not correspond to the works outlined by National Grid for Denham Country Park utility diversions. The leaflet attached explains that no road, temporary or permanent is being built and vegetation clearance will be restricted to around each pylon.

The works of strimming back ground cover extend the whole stretch between bridge 181 and 182. The width of clearance is 200 meters in places. Much wider than needed for a trackway.

This is a clear wildlife crime as water vole are completely protected.

Urgency of responce in needed to prevent more unnecessary damage.

If you would like any more information or for evidence to be sent please let me know urgently.

Yours sincerely,

Sarah Green

07891909749

On 2020-01-02 16:06, Claire.Heffernan@met.police.uk wrote:

> Dear Ms Green,
>
> Thank you for your email.
>
> I am in the process of making enquiries and will update you when I have some meaningful update.
>
> Kind Regards,
>
> DC Claire Heffernan
>
> **Claire Heffernan | Detective Constable**
> MO2 - Wildlife Crime Unit
> Metropolitan Police Service
> First Floor Ocean Block, Ground Floor, Cobalt Square, 1 South Lambeth Road, London, SW8 1SU
> Telephone: 0207 230 8898 | Met Phone 768898
> Mobile: 07833 285 386
> Email: claire.heffernan@met.pnn.police.uk
>
> ---
>
> **From:** Bailey Sarah A - MO2 Met Intelligence <Sarah.A.Bailey@met.police.uk>
> **Sent:** 02 January 2020 11:08
> **To:** sarah.green@hillingdon.greenparty.org.uk
> **Cc:** graham@hillingdongreenparty.org.uk; Heffernan Claire - MO2 Met Intelligence <Claire.Heffernan@met.police.uk>
> **Subject:** RE: [OFFICIAL] Watervoles / Wet Woodland - HS2

Dear Ms Green

Thank you for your email – today is our first day back after the Christmas / NY break. I have forwarded your email to my colleague DC Heffernan who oversees the West area of the MPS – she will contact the wildlife crime officer covering that area and you will be contacted in due course.

Kind regards

Sarah Bailey

DC Sarah Bailey
MO2- Wildlife Crime Unit
Cobalt Square
1 South Lambeth Road
Vauxhall
LONDON
SW8 1SU

Tel: 0207 230 8282
Mob: 07748 133 873
Met: 768282
Email: Sarah.A.Bailey@met.pnn.police.uk

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jessinruislip@aol.com <jessinruislip@aol.com> Wed, Jan 22, 2020 at 7:48 PM
To: Niki Samuel <harvilroadneighbourhoodwatch@gmail.com>
Cc: nikisamuel@tiscali.co.uk, Sarah Green <arthurdailytrips@gmail.com>

Fantastic Niki and Sarah!

From: Niki Samuel <harvilroadneighbourhoodwatch@gmail.com>
Sent: 21 January 2020 16:50
To: Claire.Heffernan@met.police.uk
Cc: jessinruislip@aol.com
Subject: Re: FW: [OFFICIAL] Watervoles / Wet Woodland - HS2

Dear Ms Heffernan,

Thank you for your investigation. Both myself and Niki Samuel have asked members and residents about sightings of water vole. Two people showed us the same place, so we set up a trail cam and we now have photographic evidence of water vole present taken today. Please see attached.

The date and time of the trail cam could not be set so another photograph of the trail was taken with my phone. Trail cam footage shows water vole using trail in day light and rat using waterside trail in darkness.

Both pictures are from 20/01/20 in same location; south east corner of Hillingdon Outdoor Activity Centre Lake. This location was fenced off by HS2 employees on 14th January but unfenced (by the public) over the weekend 18th 19th. Therefore this is of extreme urgency as the site could be taken again into construction land at any time.

Yours sincerely

Sarah Green

[Quoted text hidden]

[Quoted text hidden]

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Dear Ms Green

Thank you for your email – today is our first day back after the Christmas / NY break. I have forwarded your email to my colleague DC Heffernan who oversees the West area of the MPS – she will contact the wildlife crime officer covering that area and you will be contacted in due course.

Kind regards

Sarah Bailey

DC Sarah Bailey
MO2- Wildlife Crime Unit
Cobalt Square
1 South Lambeth Road
Vauxhall
LONDON
SW8 1SU

Tel: 0207 230 8282
Mob: 07748 133 873
Met: 768282
Email: Sarah.A.Bailey@met.pnn.police.uk

From: sarah.green@hillingdon.greenparty.org.uk <sarah.green@hillingdon.greenparty.org.uk>
Sent: 30 December 2019 14:33
To: Bailey Sarah A - MO2 Met Intelligence <Sarah.A.Bailey@met.police.uk>

Cc: graham@hillingdongreenparty.org.uk
Subject: Re: [OFFICIAL] Watervoles / Wet Woodland - HS2

Crime Reference 6035552/19

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jessinruislip@aol.com <jessinruislip@aol.com> Wed, Jan 22, 2020 at 7:48 PM
To: Niki Samuel <harvilroadneighbourhoodwatch@gmail.com>
Cc: nikisamuel@tiscali.co.uk, Sarah Green <arthurdailytrips@gmail.com>

[Quoted text hidden]
Email: <mailto:claire.heffernan@met.pnn.police.uk>
claire.heffernan@met.pnn.police.uk

From: sarah.green@hillingdon.greenparty.org.uk
<mailto:sarah.green@hillingdon.greenparty.org.uk>
<sarah.green@hillingdon.greenparty.org.uk
<mailto:sarah.green@hillingdon.greenparty.org.uk> >
Sent: 08 January 2020 09:06
To: Heffernan Claire - MO2 Met Intelligence <Claire.Heffernan@met.police.uk
<mailto:Claire.Heffernan@met.police.uk> >
Subject: Re: [OFFICIAL] Watervoles / Wet Woodland - HS2

Dear Claire,

I have not seen water voles myself however I have been on the water vole training by Hillingdon Natural History Society and seen the signs on water vole.

Here is an email address for Niki Samuels who has seen water vole

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On 2020-01-02 19:59, Claire.Heffernan@met.police.uk
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Additionally there was no need to clear the area which has been cleared as this work does not correspond to the works outlined by National Grid for Denham Country Park utility diversions. The leaflet attached explains that no road, temporary or permanent is being built and vegetation clearance will be restricted to around each pylon.

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This is a clear wildlife crime as water vole are completely protected.

Urgency of responce in needed to prevent more unnecessary damage.

If you would like any more information or for evidence to be sent please let me know urgently.

Yours sincerely,

Sarah Green

07891909749

On 2020-01-02 16:06, Claire.Heffernan@met.police.uk <mailto:Claire.Heffernan@met.police.uk> wrote:

Dear Ms Green,

Thank you for your email.

I am in the process of making enquiries and will update you when I have some meaningful update.

Kind Regards,

DC Claire Heffernan

Claire Heffernan | Detective Constable

MO2 - Wildlife Crime Unit
Metropolitan Police Service
First Floor Ocean Block, Ground Floor, Cobalt Square, 1 South Lambeth Road,
London, SW8 1SU
Telephone: 0207 230 8898 | Met Phone 768898
Mobile: 07833 285 386
Email: <mailto:claire.heffernan@met.pnn.police.uk>
claire.heffernan@met.pnn.police.uk

From: Bailey Sarah A - MO2 Met Intelligence <Sarah.A.Bailey@met.police.uk
<mailto:Sarah.A.Bailey@met.police.uk> >
Sent: 02 January 2020 11:08
To: sarah.green@hillingdon.greenparty.org.uk
<mailto:sarah.green@hillingdon.greenparty.org.uk>
Cc: graham@hillingdongreenparty.org.uk
<mailto:graham@hillingdongreenparty.org.uk> ; Heffernan Claire - MO2 Met
Intelligence <Claire.Heffernan@met.police.uk
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<mailto:Sarah.A.Bailey@met.pnn.police.uk>

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<mailto:graham@hillingdongreenparty.org.uk>
Subject: Re: [OFFICIAL] Watervoles / Wet Woodland - HS2

Crime Reference 6035552/19

Dear Ms Bailey,

I reported a wildlife crime taking place in Hillingdon London within the wetland nature reserves of Denham Country Park on 29th November 2019. Habitat clearance continued between late November and throughout December until the Christmas break. Evidence on 29th December shows ground cover layers of vegetation cleared in a vast area between bridge 182 and the Chiltern Line viaduct bridge 181. The perpetrators are HS2 contractors working for National Grid in the area east of the river Colne between Flagmoor ditch and the Grand Union Canal (Hillingdon).

This is an area known for water vole, officially registered with Greenspace Information for Greater London, official wildlife register. Location TQ0525086954.

Damage to habitats of protected species has taken place within a nature reserve. There are no licenses in place covering water vole and their habitats and therefore this is a wildlife crime. At the beginning of January 2020 work will continue to clear shrubs and then larger, mature trees. This area is nowhere near the HS2 route. Alternative plans with much less impact on wildlife are being ignored for the pylon diversion.

Urgent action in needed to prevent further wildlife crimes being committed.

Please can you let me know what actions the Met Police are taking?

Many thanks,

Sarah Green

On 2019-12-20 14:31, Sarah.A.Bailey@met.police.uk <mailto:Sarah.A.Bailey@met.police.uk> wrote:

Dear Ms Green

Thank you for reporting your concerns in relation to the HS2 development & its affect on water voles / wet woodland. The area of concern falls outside the Metropolitan Police area but I have passed your concerns to the Thames Valley Police and the person with oversight of wildlife crime for that area is PC Mary-Ellen Caswell who I have copied into this email. I hope she will be able to assist you with this matter.

Kind regards

Sarah Bailey

DC Sarah Bailey
MO2- Wildlife Crime Unit
Cobalt Square
1 South Lambeth Road
Vauxhall
LONDON
SW8 1SU

Tel: 0207 230 8282
Mob: 07748 133 873
Met: 68282
Email: Sarah.A.Bailey@met.pnn.police.uk
<mailto:Sarah.A.Bailey@met.pnn.police.uk>
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jessinruislip@aol.com <jessinruislip@aol.com> Tue, Jun 16, 2020 at 5:51 PM
To: Arthur Daily Trips <arthurdailytrips@gmail.com>

Was this it?

From: Niki Samuel <harvilroadneighbourhoodwatch@gmail.com>
Sent: 21 January 2020 16:50
To: Claire.Heffernan@met.police.uk
Cc: jessinruislip@aol.com
Subject: Re: FW: [OFFICIAL] Watervoles / Wet Woodland - HS2

Dear Ms Heffernan,

Thank you for your investigation. Both myself and Niki Samuel have asked members and residents about sightings of water vole. Two people showed us the same place, so we set up a trail cam and we now have photographic evidence of water vole present taken today. Please see attached.

The date and time of the trail cam could not be set so another photograph of the trail was taken with my phone. Trail cam footage shows water vole using trail in day light and rat using waterside trail in darkness.

Both pictures are from 20/01/20 in same location; south east corner of Hillingdon Outdoor Activity Centre Lake. This location was fenced off by HS2 employees on 14th January but unfenced (by the public) over the weekend 18th 19th. Therefore this is of extreme urgency as the site could be taken again into construction land at any time.

Yours sincerely

Sarah Green

On Mon, 13 Jan 2020 at 14:14, <Claire.Heffernan@met.police.uk> wrote:

> To Whom It May Concern,
>
> In relation to Sarah Green's email below, please can anyone who has seen a water vole habitat that is in danger of being destroyed within Denham Country Park contact me on the details below.
>
> In order to establish if there are any offences I will require photographic evidence, for someone to be able to point the location out to police and also a statement and a willingness to attend court (if offences are established).
>
> Please provide full details upon your response. I look forward to hearing from you.
>
> Kind Regards,
>
> Claire Heffernan
>
> **Claire Heffernan | Detective Constable**
> MO2 - Wildlife Crime Unit
> Metropolitan Police Service
> First Floor Ocean Block, Ground Floor, Cobalt Square, 1 South Lambeth Road, London, SW8 1SU
> Telephone: 0207 230 8898 | Met Phone 768898
> Mobile: 07833 285 386
> Email: claire.heffernan@met.pnn.police.uk

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Sent: 08 January 2020 09:06
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Here is an email address for Niki Samuels who has seen water vole

harvilroadneighbourhoodwatch@gmail.com

Sarah Green

On 2020-01-02 19:59, Claire.Heffernan@met.police.uk wrote:

> Dear Sarah,
>
> Have you yourself witnessed the water voles and habitats at the location? If so, would you be willing to provide a statement to police IF required at a future date? If you haven't, can you provide details of any witnesses that have? Do you have any photographic evidence of the voles' presence there prior to the commencement of clearance? It is important that we can evidence the presence of the voles there.
>
> I have made the EA aware of this this afternoon. They were not aware of the presence of a water vole habitat or of the HS2 work there. They are passing to their specialists to establish the presence of one next week.
>
> I am out of the office next week on a course and will have limited access to emails but will be monitoring the situation.
>
> Kind Regards,
>
> Claire

From: sarah.green@hillingdon.greenparty.org.uk <sarah.green@hillingdon.greenparty.org.uk>
Sent: 02 January 2020 16:31
To: Heffernan Claire - MO2 Met Intelligence <Claire.Heffernan@met.police.uk>
Cc: Bailey Sarah A - MO2 Met Intelligence <Sarah.A.Bailey@met.police.uk>
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Crime Reference 6035552/19

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2 attachments

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The Waterways Ombudsman
Report on an investigation into a complaint by Ms Sarah Green

1. The complaint

1.1 Ms Green has a business, Arthur Daily Trips, which she describes as an eco-tourism and leisure business. On her boat, Arthur, she takes the overwhelming majority of her passengers to Denham Country Park, and says that the business cannot survive with the level of destruction planned for the canal environment in the area with the construction of HS2.

1.2 She said that her business would be economically viable and sustainable as long as the quality of the natural environment remained, attractive, tranquil and full of species for passengers to observe, photograph etc.

1.3 She explained that she had had a long correspondence with the Canal & River Trust ("the Trust"), as well as a site visit, to engage them in actively seeking to conserve this environment. She said that she was not happy with the outcome and had therefore made a complaint.

1.4 She has completed the Trust's internal complaints process but was still not satisfied by the outcome. At the second level it was considered by Darren Parkinson, who did not uphold the complaint. Mr Parkinson summarised the complaint in four bullet points, but Ms Green pointed out these did not sufficiently cover her complaint. I set out below the four points, and then summarise the further points that she made.

1.5 Ms Green said that the Trust:

- had not recognised the importance of the canal corridor through Denham Country Park (DCP) and had viewed other areas affected by HS2 as being more important;
- should now survey the canal water and canal corridor and establish a baseline/standard of the existing ecology enabling HS2 contractors to be held to account;
- should challenge the proposals to relocate electrical pylons believing there is a more ecological solution; and
- had not kept her and other businesses in the DCP area adequately informed of construction works and subsequent impacts on the canal and canal corridor with regard to HS2.

1.6 Her additional points included:

- that the Trust's position is not neutral;
- that the Trust has not taken sufficient measures to ensure that the biodiversity of the area is protected;
- that there is no evidence that the existing treeline will be in existence during and after construction;
- that it is up to the Trust to carry out a survey;
- that unless the Trust actively engages itself at the enabling works stage there will be unnecessary destruction, loss of species, habitats and added pollution (which would travel down the GUC to cause damage in downstream locations);
- that the Trust needs to take its part in holding HS2 to account to its aspiration of no net loss of biodiversity;
- that the Trust's track record so far in dealing with the HS2 planning process is at odds with its charitable objectives and good stewardship of the area, and that without it the area will be ruined and valuable assets, habitats and species will be lost forever;
- that any decline in natural assets should be reflected in no increase in licence and mooring fees; and
- that any money gained by the Trust for the loss of local assets should be made transparent and a discussion opened with customers who will suffer.

2. The Trust's position

2.1 The Trust does not accept Ms Green's criticisms. It explained to her that it had made a decision not to oppose the development but to work with HS2 to achieve the best possible outcome for the canal and the area. It has entered into a Side Agreement with HS2 (which I have seen and read), which contains a raft of provisions relating to the planning and construction, and the maintenance and restoration of the local environment both during and after construction. In respect of the local environment, the Side Agreement includes provisions relating to biodiversity, land contamination and pollution control. It also includes the requirement for HS2 to ensure that surveys are carried out before and after the construction work, together with the requirement for HS2 to remedy, to the Trust's satisfaction, the impacts of any damage. The Trust regards the Side Agreement as an important means of ensuring that it will have as much control over the operation as possible, on its land and within 15 metres of the boundaries of its land.

3. Analysis and conclusions

3.1 Before setting out my analysis I do need to explain what I can and cannot do. As an Ombudsman my role is to consider complaints which have already been considered by

the Trust, and where the complainant is still not satisfied by the outcome. My role is set out in paragraph 20 of my Rules[1]. Paragraph 20(a) states that I shall:

> "receive complaints of injustice suffered by a complainant that arise from maladministration or unfair treatment by CRT, or any of its subsidiaries, in carrying out their activities".

3.2 Maladministration is, in general terms, where the Trust fails to do something it should have done, or conversely does something it should not have done. Complainants may disagree on what the Trust should or should not do, but if it is acting in line with its own policies there is usually nothing that I can do. If I find evidence of some systematic problem I may make recommendations or suggestions for the Trust to consider.

3.3 This complaint differs from the majority of complaints I receive, in that the Trust is not in a position to make unilateral decisions about the situation, or perhaps even to significantly influence the plans for HS2. Whether or not the Trust ever had the power to "say no to HS2" as Ms Green suggested it should do in a petition to the Trust in July 2016, is no longer a relevant question as the route of HS2 has now been confirmed. However, given the political backing of the scheme it seems unlikely that the Trust alone could have done anything to fundamentally alter the plans. The railway will traverse Denham Country Park, and will cross the area by bridge rather than going through a tunnel. There are, however, many questions yet to be answered and issues to be resolved, which will be considered as the project progresses.

3.4 The Trust will, via the Side Agreement, be able to influence HS2 in the way it carries out certain activities during the planning and construction phases of the railway. However, I do have to bear in mind that only a small fraction of the land in the Colne Valley Regional Park and the Denham Country Park is owned or managed by the Trust, and that most of the land is owned by other, much larger, landowners. The Trust can significantly influence only what happens on its own land and within 15 metres of it.

3.5 It is quite clear that the area is an important location for many reasons connected with wildlife, biodiversity and leisure activities, the more so because it is so close to London, and it does seem to me that the Trust also sees it in this way. As I understand it, Ms Green's view is that the Trust has not done enough to protect the area; in the first place by opposing HS2 or, if it was to go ahead, by supporting a proposal for a tunnel under the area; or in the second place, given that it is to go ahead without a tunnel, by doing everything it can to minimise any disruption and ensure that the area is maintained and preserved in as good a state as possible.

3.6 Despite what Ms Green has said about the Trust having had the power to oppose HS2, there is nothing in any of the evidence I have seen, which includes general

[1] http://www.waterways-ombudsman.org/media/1086/waterways-ombudsman-scheme-rules-19-august-2015.pdf

information made available via national media, which would lead me to think that the Trust had a realistic chance of being able to do anything which would have been likely to significantly alter the plans for HS2. The Trust has made the point that, in view of this, its best approach was to take a neutral stance which would enable it to work with HS2 to ensure that it got the best possible outcome in those areas affected by the railway.

3.7 In many of its communications with Ms Green the Trust has expressed surprise that she doesn't accept that it is doing all that it reasonably can. I accept that Ms Green is passionate about the area, and while I cannot give her an assurance that her worst fears will not come to pass, I have seen no evidence to suggest that those fears are well-founded.

3.8 I am not suggesting that she has no legitimate cause for concern; indeed given the scale of the project I would be surprised if she didn't have concerns. However, as the work is still all in the future it is just not possible to conclude that her worst fears are justified. There will inevitably be some disruption, but the key issues are whether the disruption (including any contamination and pollution) will be kept to the minimum necessary to carry out the work, and whether the area will, as far as is possible, be reinstated to its current condition. Unless I had reasonable cause to believe that the Trust would either not honour any commitments it has made, or did not intend to seek the best possible outcome for the area, there would be nothing that I could do. I cannot rule out the possibility that, once the work is in progress, people will not have cause to complain, but that would be for a later date.

3.9 It is clear from the correspondence between her and the Trust it has been unable to persuade her of a number of key points, in particular about its neutrality, its concern for the protection of the area and its biodiversity, and its statement that it is not responsible for conducting a survey. Above all, it seems to have been unable to persuade her that the Side Agreement will be helpful in ensuring, for example, that the impact of construction will be minimised, that biodiversity will be protected, that there will be adequate pollution control, or that reinstatement will take place to an appropriate level.

3.10 In terms of the Trust engaging with Ms Green and others with interests in the area, Trust staff met her on her boat on 28 July 2016, and have engaged in a long correspondence. I saw the area for myself on 23 July, when I went for a boat trip on Arthur, and after that meeting I had a telephone discussion with Peter Walker in which I asked a number of questions about issues of the complaint.

3.11 During that conversation Mr Walker provided some helpful background to some of the issues, but in essence reiterated many of the key points the Trust had already made to Ms Green. He stressed that HS2 would need approval for any works on or within 15 metres of its land, which he said was about as much control as any organisation could have. There would be no permanent structures on Trust land, and indeed on this matter

he said that the Trust had secured an agreement that a viaduct pier, which was originally to have been situated on Trust land, would be placed away from the canal so that no vertical structures would be easily visible from the canal. He said that canal closures would be minimised, perhaps to a maximum of a few hours, or overnight, but that if prolonged closures were required they would as far as possible be accommodated within the stoppage season.

3.12 He said that HS2 was now doing the survey work, and that the Trust would review the results. He pointed out that as far as the detailed work was concerned there was so far very little to look at, and much work was still to be done. As far as relocation of the electricity pylons is concerns he did say that scaffolding and netting would be erected as a safety measure, but that this was likely to have minimal visual impact. He also stressed that as the petition didn't apply to this area, then its withdrawal had no effect. He wanted to make it clear that while the Trust would carefully monitor activities, he very much hoped that Ms Green and others would act as its eyes and ears. He saw no reason to be concerned that HS2 would carry out the work in a manner anything less than proper, noting that the Department for Transport would have a role to ensure that the work was done properly, and that many others would be watching and making sure that it was.

Habitats Directive

3.13 There is a clear disagreement between Ms Green and the Trust about its role to survey the area. Ms Green's view is that this is required under Article 6(3) of the Habitats Directive, but the Trust says that it is for the developer or proposer of the plan (i.e. HS2) to provide the required information, and the Side Agreement clearly requires HS2 to bear the cost of a survey. HS2 is currently surveying the area, and the Trust will have sight of the result. If, when it is finished, the Trust feels that the survey is inadequate or incomplete, it will have the opportunity to say so. In the meantime, I have no reason not to accept the Trust's assertion that it does not have a duty to carry out a survey. If Ms Green considers that it does, I would need to see some clear evidence that the Habitats Directive requires it.

Effect on businesses

3.14 Ms Green, in an email to me in June 2016, said that businesses like hers, as well as the other canal-side businesses, and leisure and pleasure craft, would be adversely affected, and that the effects would be disastrous for local people if the development went ahead.

3.15 It is possible (and it may even be probable) that local businesses will be adversely affected by the construction of HS2, but as yet any effects are by definition speculative and unquantified. I have not reached the conclusion that there was anything the Trust could have done to avoid HS2 going ahead, with a viaduct across part of Denham Country Park. Even if I had concluded that the Trust might have successfully been able to oppose it, but taken a decision not to do so, there is nothing to suggest that I could

possibly have regarded it as an example of maladministration, rather than a policy decision.

3.16 As it is, it does seem to me that the Trust is doing what it reasonably can to minimise the impact on the area during the construction activities, as well as ensuring that effective reinstatement will be carried out.

3.17 I could require the Trust to take some remedial action (which could conceivably include some form of compensation) only if I were to conclude that there had been some maladministration, but I have not reached that conclusion. Given that HS2, as a project, has resulted from a Government decision which the Trust on its own was quite probably, in practice, powerless to block, any compensation would have to come from HS2 rather than the Trust. It is up to Ms Green and others to contact HS2 directly to see what compensation might be available, but clearly any claims would need to be supported by evidence of loss.

3.18 Any potential detrimental impact on businesses and local people is still in the future, and it remains to be seen what will happen. The Trust has made it very clear that it is willing to work with local people, who will be valuable resources in providing information during construction. The Side Agreement does include conditions relating to such matters as reinstatement of the area and replacement of any lost woodland. Any feedback from local people to the Trust will be invaluable in ensuring that this happens, although this means that the Trust will need to share with them what HS2 is expected to do to minimise the impact of construction phase and ensure that once completed any loss is made good.

Conclusions

4.1 This is an unusual complaint in that it is about a major national construction project. Whether or not the Trust could have successfully prevented the construction work in Denham Country Park from going ahead (whether by diversion of the route sideways or into am tunnel) can only really be a matter for conjecture, given that it has now been confirmed. Given that the work is to go ahead, the Trust decided to take neutral stance and enter into a Side Agreement.

4.2 Ms Green and others do have concerns about the scale and impact of the construction work, but to the extent that such fears might have been substantiated, the Trust has secured a degree of control over the way the work is managed. In particular, the Side Agreement states that HS2 shall not take any more land than is reasonably necessary.

4.4 I cannot reach the conclusion that in the Trust deciding not to object to the proposals there has been any maladministration. The Trust made a policy decision not to do so, and I cannot influence its policy-making. No major work has yet taken place,

and it is not possible to anticipate events that have not yet occurred. I cannot conclude that the impact will be greater than is reasonably necessary, or that if so it will be as a result of any maladministration by the Trust, and I therefore cannot uphold the complaint.

4.5 It will be several years before the work is finished. I cannot rule out the possibility that there may be grounds for complaint in the future, but it does seem to me that the best way to ensure that the work has the least possible impact on the area, and the population and wildlife, is for local people to work with the Trust.

Comments following the draft report

5.1 Ms Green submitted detailed comments on the draft report. In particular, she referred to evidence setting out the water quality of the various watercourses and lakes in DCP. She hoped that the evidence provided would enable me to further investigate the matter and come to a different conclusion.

5.2 As an Ombudsman, I carry out investigations in a fair, reasonable and proportionate manner. That means that unless there is a good reason to do so, I do not carry out my investigations beyond the point where I am satisfied I have reached a sufficiently robust conclusion. After considering the evidence of both parties I take a balanced view of where the evidence points. If in my view unanswered questions remain, and I have reasonable cause to think I should investigate further I will do so, but only where it seems likely that the outcome might be significantly altered.

5.3 In this case, I am not an expert on the subject in question. Ms Green has spent far more time studying it than I have, so rather than carrying out my own analysis of her further comments, which would have been exceptionally time-consuming, I asked the Trust for its comments on her submission, and it provided its responses. Having read them, I am satisfied that Ms Green's comments do not alter my conclusions. However, I have decided to reproduce some of Ms Green's comments and the Trust's responses.

5.4 To the extent that Ms Green refers to other lakes and watercourses, which are not owned by the Trust, they are outside the Trust's jurisdiction and therefore outside mine. The Trust did say, in respect of Ms Green's comments about wetlands and water channels near Keeper's Weir, that in investigating and responding to Ms Green's complaints it was going beyond its policy of focussing on the canal itself. The Trust added that its assessment methodology was complex, and recommended that in the first instance she talk to HS2 for an explanation.

5.5 In response to another comment the Trust said that the Environmental Statement did recognise the ecological importance of the canal. It said that its communications and petitions to HS2 had repeatedly focussed on this, its leisure use, and the perspective of canal users of the views and landscape resulting from the HS2 proposals.

5.6 The Trust said that its policy had enabled it to lobby effectively on a manageable set of issues focussed on the Trust's objectives, and not to be drawn into what it said would be almost inexhaustible (given the number of places where HS2 affects the Trust network) sets of issues on surrounding landscape features, where many other bodies were much better placed to do so. It said that as a result of its approach it had secured the Side Agreement, which other organisations had not.

5.7 In respect of land parcel 731, the Trust said that it was subject to its approval provisions as contained in the Side Agreement with HS2. It explained that HS2 had confirmed that the intention was not to use this plot for an access/haul road, although it was likely that the towpath would be closed to allow the erection of scaffolding and netting as part of the works to install electrical cables over the canal. When it received a detailed package of information for approval, it would be able to provide more information.

5.8 Ms Green said that there was a very slight ray of hope in that HS2 would need approval for any works on or within 15 metres of Trust land, but that in order for this to be meaningful there needed to be a fundamental change in Trust attitude and actions, and possibly personnel. The Trust agreed with the comment on approvals but disagreed with Ms Green's comment on attitude and personnel. It is, in any case, not my role to direct the Trust's personnel policies.

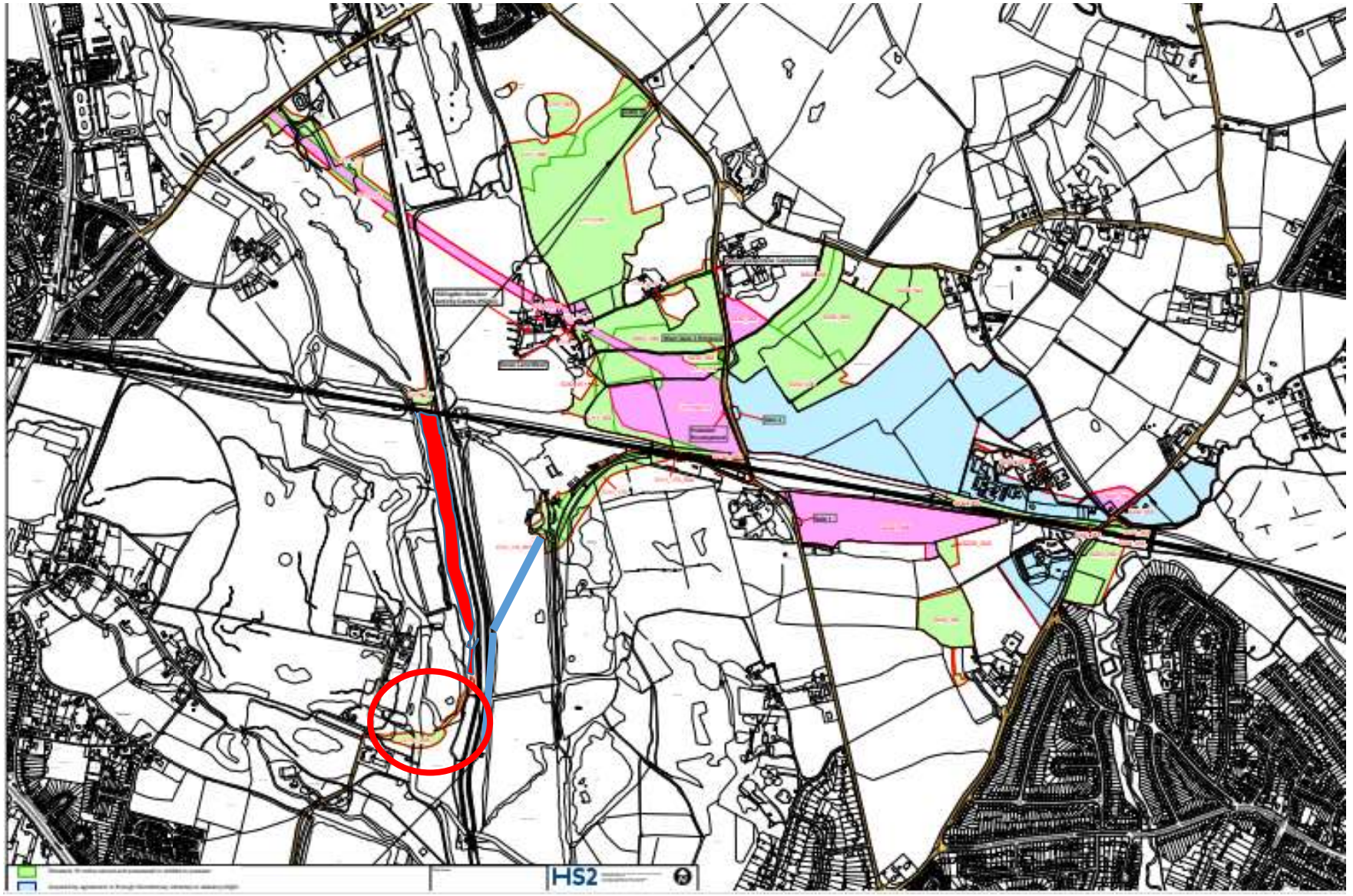
5.9 On Ms Green's comment that there should be a larger scale plan of trees and species, the Trust said that it would expect such a plan to be prepared by HS2 in conjunction with the affected landowners, including the Trust.

5.10 In summary, the Trust manages only a small proportion of the area of DCP. It is not merely not the biggest landowner, but quite possibly one of the smallest. The GUC is a significant waterway, but there are other watercourses in the DCP as well as lakes and gravel pits. I have no jurisdiction over the other landowners. I do not know what roles they have played in the planning and consultation phases for HS2, but to the extent that they have a part to play in the HS2 project I can only suggest that Ms Green take up her case with them, or HS2, directly.

5.11 I am satisfied that the Trust's responses adequately deal with Ms Green's comments on my draft report. I have no reason to alter my conclusions, and so my draft report, together with this further section, becomes my final report.

Andrew Walker
18 September 2017

Denham Country Park west of Grand Union Canal does not need to be used to relocate overhead pylons. This area should not be included in Injunction



Alternative pylon route proposal

Area to be removed from new Injunction

Central area of nature reserve ecological damage December 2019 before pylon route is finalised

D1000

D1140

1. https://www.constructionnews.co.uk/civils/hs2-national-police-group-established-secure-project-23-04-2019/
   HS2 police unit

2. https://www.constructionnews.co.uk/civils/tfl-to-slash-spending-by-525m-01-06-2020/
   https://www.constructionnews.co.uk/civils/tfl-bailout-cash-will-run-out-by-october-02-06-2020/
   Not enough to maintain TfL

3. https://nhsfunding.info/underfunded/is-the-nhs-underfunded/
   Not enough for the NHS which we all rely on, not even through the Covid 19 pandemic.

4. https://www.newcivilengineer.com/latest/calls-for-rolling-high-speed-rail-plan-beyond-hs2-02-06-2020/
   But enough for this!

5. https://www.thetimes.co.uk/article/hs2-whistleblower-demands-apology-and-compensation-k7w9p553r
   Is this a factored cost?

6. http://stophs2.org/news/19314-byng-and-berkeley-on-hs2-badly-course-pac-report
   Lord Berkely "I am pleased that Public Accounts Committee (PAC) has taken steps to investigate HS2, but it is clearly not enough. Unfortunately, the report has failed to take into account the even earlier warnings that I, and others, gave the Government several years previously about the cost increases, the many senior whistle blowers who were silenced, and the failures of successive ministers to properly inform Parliament. For example, on 16 May 2016, the then S of S for Transport, Patrick McLoughlin MP, wrote to the then Chancellor George Osborne MP, stating that the Government could not keep to the HS2 budget, but suggested they obfuscate and keep this conidential."

   "HS2 Ltd. and those working on it at the DfT have had no regard for proper process or Parliament. As recently as last month, why did the DfT give the go ahead to begin building HS2 on 15 April 2020 when it must have known about the ongoing PAC review? It is very unlikely that Parliament would have given approval had it been provided with the necessary cost information in a timely manner."

   "The PAC has now exposed the disregard for parliamentary trust, transparency, probity and the failures of the civil service that have been evident within HS2 for many years. Billions of taxpayers' money has already been wasted, and much more (£106bn to over £200bn?) will be in the future unless parliament and ministers get a grip.

   'It is time to cancel Phase 1 completely, allow work on parts of HS2 in the regions to go ahead under the guidance of the National Infrastructure Commission and Network Rail, and

finally bury HS2, the company HS2 Ltd and bring to book those who have allowed this to happen."

7. *And direct from the Public Accounts Committee: 'the failure of the Accounting Officer to provide accurate information to Parliament is potentially a breach of the Civil Service Code and a breach of parliamentary Privilege.'*

8. http://stophs2.org/news/19226-judge-hs2-might-6-months-hs2-clean-hands
   Evidently HS2's misdemeanours are beginning to be noticed elsewhere.

9. https://www.woodlandtrust.org.uk/press-centre/2020/02/hs2-poison-arrow-for-environment/

   "HS2 will shoot a poison arrow"

10. http://stophs2.org/news/19148-alternative-railway-proposals-hs2
    This table has been prepared by Micahel Byng, who wrote the standardised way of costing rail projects, which of course was not originally used to come up with the costs for HS2. He said:

    "The figures quoted in the table are taken from established published sources and accepted estimates. The difference between the total of the table, £231.79 bn, and the figure mentioned in the interview this morning is the allowance for new traction and rolling stock in the Northern Power House Rail and Midlands Connect Areas, which is £5.22 bn, making a current cost total of £237 bn."

Item	Description	Sub total	Cost
		£/bn	£/bn
1	Independent Estimate of the Cost of Construction of the entire HS2 Project, Phases 1, 2a, 2b (East) and 2b (West) at 4th Quarter 2015 prices (ONS Output price Index = 100.10)	107.92	
2	DfT Estimate of cost of Traction and Rolling Stock at 4th Quarter Midlands Rail Programme prices; (ONS Output price Index = 100.10)	7.92	

3	**Capital cost of HS2 complete at 4th Quarter 2015 Prices**	**115.84**	
3a	Inflation calculated on Office for National Statistics Indices to 3rd Quarter 2019; Index = 110.90	12.50	
4	**Capital cost of HS2 Project complete with trains at current prices**	**128.34**	**128.34**
5	Capital Cost of HS2 Connecting Services per Sir John Armitt, “Infrastructure Intelligence” 6th August 2018; (ONS Output price Index = 107.50)	43.00	
5a	Inflation Allowance 2018 to 2019	1.36	
6	**Capital cost HS2 Connectivity per National Infrastructure Commission at current prices**	**44.36**	**44.36**
7	Capital Cost Northern Power House Rail Programme, BBC News 15th August 2019; (ONS Output price Index = 111.20)	39.00	
7a	Inflation Allowance 2nd Quarter to 3rd Quarter 2019	-0.11	
8	**Capital Cost Northern Power House Rail Programme, current prices 3rd Quarter 2019**	**38.89**	**38.89**
9	Capital Cost Midlands Connect Rail Programme; September 2019; (ONS Output price Index = 110.90)	20.20	
9a	Inflation Allowance	0.00	
10	**Capital Cost Midlands Connect Rail Programme; , current prices 3rd Quarter 2019**	**20.20**	**20.20**
11	**HS2 Entire project, connectivity, Northern Power House Rail and Midlands Connect Rail; current prices**		**231.79**

11. http://stophs2.org/wp-content/uploads/2020/02/rh200203-Connecting-Britain-by-Rail.final_.pdf
    A sensible approach

12. http://stophs2.org/news/19112-employee-fired-hs2-hide-true-costs-speaks-out-managers-accused-fraud
    And since proven right

13. http://stophs2.org/news/19103-successful-delivery-hs2-rated-unachievable-june-2019-report-shows
    HS2 deemed unachievable by National Audit Office

14. https://documentcloud.adobe.com/link/review?uri=urn%3Aaaid%3Ascds%3AUS%3A8e9c8f87-2650-4aa0-8e0f-0eaf6e709640
    A dissenting voice, one of millions…..anybody listening up there?

15. http://stophs2.org/news/18758-joint-letter-opposing-hs2-northern-councils
    Who really believes in HS2's ability to bridge the north/south divide? This letter from 25 town and parish councils in Yorkshire suggests not the North.

Dear Prime Minister, Mr. Corbyn, Ms. Swinson & Ms. Sturgeon

We have recently had sight of an open letter sent to you on behalf of Midlands Connect, Midlands Engine, Leeds City Council and Northern Powerhouse Partnership, asking you to commit to the construction of HS2 Phase 2. Their reason for doing so, and I quote:

"HS2 Phase 2 will extend the benefits of this vital piece of infrastructure …across the East Midlands, The North West, The North East and Scotland".

There's just one thing missing here – South Yorkshire – the region situated between The Midlands and Leeds, and containing the City of Sheffield.

Leeds City Council (one of the signatories) is happy to accept Phase 2 in its current form, and why not? After all, Leeds will probably benefit the most from a direct high speed rail link all the way down to London and vice versa. The Midlands Engine and Midlands Connect signatories are happy with Birmingham's position, with new stations and high speed connections north (to Nottingham/Derby, Leeds and beyond), and south (to Birmingham and London). Nottingham and Derby also benefit from a high speed hub which will serve both cities. Finally, The Northern Powerhouse Partnership is just happy to know that HS2 will reach them in any form.

The only region NOT TO BENEFIT from Phase 2 is South Yorkshire. The region is being offered no more than a spur off the high speed line, north of Nottingham, allowing HS2 trains to take a detour and trundle along the existing Midland Mainline into Sheffield Midland Station, and that is where Phase 2b currently ends for Sheffield. The city, does not get a direct high speed link to any of the other cities – north or south. The speed, capacity, number of services, connectivity – all the drivers for building HS2 in the first place – are all diminished by using this option, and existing local services will suffer as a consequence, as will any economic benefits.

There are other options which would allow for Sheffield to have a station on the high speed line. One would be to use Sheffield Victoria Station. This was the choice of Sheffield City Council. Other options have also been presented, which should be considered.

So in conclusion, it is vital that if Parliament is to commit to building HS2 Phase 2, it must also commit to re-visiting the route through South Yorkshire, to provide the city of Sheffield with its own high speed station, equal to the cities of London, Birmingham, Nottingham and Leeds – NOT A PARKWAY STATION AND NOT A SPUR! This is what the people of SY voted for in the 2016 consultation.

IF HS2 IS TO COME NORTH, IT MUST TREAT EVERY CITY EQUALLY.

16. http://stophs2.org/news/18700-stop-hs2-submission-oakervee-review

Stop HS2 submission to the Oakervee review of HS2, compiled by Joe Rukin & Penny Gaines.

This document is set out as a response to the review terms of reference, which appear in bold.

For the whole HS2 project, the review should rigorously examine and state its view on:

• whether HS2 Ltd is in a position to deliver the project effectively, taking account of its performance to date and any other relevant information

HS2 Ltd is not now and never has been in a position to deliver HS2 effectively. Many of the justifications for HS2 were invented with a complete lack of any independently sourced evidential basis, after the project was adopted by Government. This has nurtured a bunker mentality and complete institutional intransigence within HS2 Ltd, leading to a complete unfamiliarity with the truth and a far too close relationship with many suppliers and other

parties which would directly financially benefit from the project and the associated developments around stations sites. With all this in mind, and set against a background of a standard operating policy to completely deny self-evident budget over-runs, delays to the project, cut-backs on project scope and any and all other set-backs and problems, it is hard to believe that the effective and efficient delivery of HS2 has ever truly been the aim of HS2 Ltd.

Additionally, HS2 has been afforded a ‘golden child’ status whereby both government and opposition politicians have on a cyclical basis dismissed (and in many cases hidden) any and all of the statutory scrutiny and well-founded criticisms of the project and its management from independent sources. Employees of HS2 Ltd who have wished to raise concerns about the project have been summarily dismissed or have reportedly been paid for their silence, seemingly as standard practice. This has led to an attitude within HS2 Ltd that the organisation can do no wrong and will be allowed to get away with anything.

Quite simply, HS2 Ltd is a rogue organisation at the heart of Government.

Every independent body that has looked at HS2 over the years has concluded that it is an absolute mess. One of the many examples is the fact that HS2 has had a constant rating of amber/red from the Infrastructure and Projects Authority (IPA) for seven years, with a number of unpublished, redacted and secret reports that go further than that. This makes HS2 consistently the worst project on the Government books, yet responses to such ratings from Government and HS2 Ltd follow the same pattern: dismissing them as out-of-date; insisting that all of the problems raised have been addressed, despite the fact they regularly will appear in subsequent reports; and more recently the response has been to effectively say such reviews are pointless and that such things must be expected for a project of this size and complexity. In the case of one study which concluded that HS2 would already be considered to be failed by any internationally recognised measure of success, the report was cancelled prior to completion and buried, meaning that when the findings were leaked, the whole thing was dismissed as an incomplete and ‘not an official report’.

Against this background, there has been routine public denial of anything going wrong up until September 2019, with a standard mantra that HS2 was ‘on time and on budget’ being used no matter what the evidence to the contrary, all of which has fed into the culture within the organisation that they can do no wrong whatsoever. Even as recently as July, Nusrat Ghani MP was willing go on the record to tell the House of Commons that there is only one budget for HS2, and this is £55.7bn.

The roots of the problem with HS2 and HS2 Ltd can be traced back all the way to the Eddington report in 2006. Eddington concluded that transport projects should be assessed and prioritised on the basis of need, going on to lament that there was never an assessment of what was best for Britain’s transport infrastructure that concluded high speed rail was the answer, more that the HS2 project had gathered momentum for one reason only: strong lobbying from advocates. The development of HS2 tore up the ‘Kent Principles’ used for

HS1, which if used would have delivered a far more acceptable railway that could have been delivered in a more modular fashion, at lower costs to both build, run and maintain, delivering benefits to the areas it would go through, with the potential for genuine environmental benefits.

This initial entryism presented a mythical cost which had no basis in reality, but was at a level acceptable to ministers at the time. Other figures were subject to manipulation for the purposes of entryism, such as the passenger forecast which not only demonstrated a supposed 'need' for HS2, but was also essential to present a positive business case. Consistently across the world, high speed rail projects fail to live up to the grossly inflated passenger forecasts used to justify their construction, while the costs are grossly under-estimated. All of these figures combine to present an overly-optimistic business case, which has serious repercussions not just for the viability of the project, but will influence spending decisions on the rail network for generations to come. Not only do grossly underestimated costs and over-optimistic passenger forecasts and construction timescales have the potential to monopolise transport infrastructure spending for decades to come, but they insist that HS2 would run at an operating profit. This is highly unlikely. It is widely accepted that only two high speed railways in the world operate at a surplus, and for HS2 to do so, not only would it have to achieve the ridiculously optimistic passenger forecasts, but it would also have to somehow attain operating and maintenance costs significantly lower than one would normally expect for a railway operating at the proposed speeds. There is also no example anywhere in the world of a wheel and rail railway which runs trains anywhere near to the frequency and speeds HS2 Ltd are suggesting will be standard. The highly likely implications of HS2 running at a loss do not appear to have been considered by Government.

We cannot over-emphasise how much what has clearly been a far too cosy relationship between HS2 Ltd and those aiming to profit from the project, has impacted on the viability and delivery of the scheme. After HS2 was adopted following heavy lobbying and massive PR budgets from those with clear vested interests, the most obvious recent examples being Northern Powerhouse Partnership and the High Speed Rail Industry Leaders Group, has helped keep it there. Whilst that has been seen in the open, far more insidious is the revolving door employment policies which see construction industry secondees embedded within HS2 Ltd, staff seeming to move on a merry-go-round between HS2 Ltd, construction firms and consultancies involved with the project.

Stop HS2 have long been concerned that what has happened within HS2 Ltd is fraud under the provisions of the 2006 Fraud Act. The arguments and actions that got HS2 on the books and have kept it there since have misrepresented the facts, presented false pictures and abused positions of trust – all three tests of the 2006 Fraud Act. One of many examples of this is the BBC Panorama broadcast ten months ago, in which HS2 Ltd CEO Mark Thurston said he wasn't worried about overspending, he was confident HS2 Ltd could stand by the budget, and he categorically stated that "No, we are not over-budget."

By August the ‘Stocktake’ document by the current Chair of HS2 Ltd showed that HS2 was expected to cost another £20-30 billion. It is beyond all realms of credibility to imagine that this happened overnight, people knew and they chose not to say anything. We now know that Patrick McLoughlin and George Osborne, and surely their successors, knew HS2 could not be delivered on budget on time or on scope before the project got Royal Assent, but chose not to mention that to parliament. George Osborne went on to set up NPP, which seems to spend most of its time lobbying for HS2 to be built, with rather spurious justifications.

The progression of HS2 is not simply a case of the Government misleading the public, this is also a case of the Government and the civil service misleading both the House of Commons and the House of Lords as well as probably breaking the law. We are absolutely convinced that these issues are not going to go away, it is now too big to brush under the carpet, and we’re seeing that despite efforts to pay them off, the whistle-blowers are slowly coming forward. Simply, if HS2 continues it will become the scandal that keeps on giving for years to come.

The full range of benefits from the project, including but not limited to:

• capacity changes both for services to cities and towns on HS2 and which will not be on HS2

• connectivity

• economic transformation including whether the scheme will promote inclusive growth and regional rebalancing

• environmental benefits, in particular for carbon reduction in line with net zero commitments

• the risk of delivery of these and other benefits, and whether there are alternative strategic transport schemes which could achieve comparable benefits in similar timescales

In line with the entryism that saw lobbyists presenting ‘acceptable’ figures to show HS2 in a favourable light, the benefits of HS2 have been consistently overstated. Almost every single piece of evidence to support the supposed need for HS2 has been made up, with benefits similarly being invented in an attempt to retrofit reasoning for building the project, after the decision to adopt it had already been made. In that respect, many of the standard soundbites supporting the project, and indeed submissions to this review heavily rely on fact-free

emotive phrases like “essential”, “transformational benefits”, “game changer”, “once in a generation opportunity” and the like. Now, with the project in trouble it is being suggested that more benefits should be invented, with proponents seemingly trying to claim that all developments currently being planned and undertaken anywhere near HS2 station sites are due to HS2. Another suggestion is that economic benefits should be projected out for 120 years, which is as ludicrous a concept as suggesting as it would have been possible to predict the way we live and work today, back when Queen Victoria was still on the throne.

The stocktake document goes further, claiming that a new methodology for assessing benefits is needed and that HS2 Ltd should develop it. The point of any Government analysis of economic or business cases is to see whether a particular project is a sensible way of spending taxpayer money: it is not to get some magic number which makes the project pass an arbitrary test. The proposal now being put forward is not that HS2 should mark their own homework as has happened in the past, but they should develop their own methodology, basically they would be setting their own homework. There is no suggestion that the new analysis could be used by other projects, just by HS2 Ltd, then HS2 Ltd would see whether HS2 passes the test. This simply cannot happen.

One of the initial supposed benefits of HS2 was that it would take flights out of the air, by connecting major cities, Heathrow and the Channel Tunnel. Whilst the later two links have long since been dropped, without any reduction in the proposed cost of the scheme, and the modal shift from air to HS2 projections have dropped to just 1% of projected passenger numbers, some politicians and advocates are still willing to say HS2 would take flights out of the air without any evidential basis. Indeed, this is clearly counterfactual, and easily demonstrated by the fact that it would make airports more accessible, with Birmingham, Manchester, Leeds-Bradford and East Midlands airports all lobbying for the project.

When looking at supposed capacity benefits one has to consider that this has always been disingenuous, because it tries to suggest that notionally creating space for more trains would actually equate the provision of more trains. This has never been the case. There has always been a requirement in the HS2 business case for cuts to existing services or ‘classic line savings’, which in the latest published business plan stand at £11.1bn. By definition, this is what freeing up capacity means, losing the trains you already have and potentially losing connectivity too for town and cities not on the HS2 route. When HS2 was first announced, it was shown in official documents that Coventry would lose 2 of the 3 fast services to London it currently enjoys, which led to the City Council voting to oppose HS2 within a matter of weeks. Since then, HS2 Ltd and proponents of the project have learned from this lesson, and are less forthcoming about where such cuts would fall.

The supposed benefits of cancelling a handful of trains are now being grossly overstated and are simply not credible. For example, continuing their policy of Government lobbying Government, the Midlands Connect submission to this review seems to claim that ‘144-freight-trains-a-day, plus more-stopping-trains-between-Birmingham-and-Coventry, plus more-long-distance-trains-between-Birmingham-and-Oxford-via-Coventry-and-Kenilworth’,

can all apparently be achieved by the Coventry scenario above, removing just one or two hourly fast trains from New-Street-to-Euston.

In a similar vein, absolutely ridiculous statements are now coming out of HS2 Ltd, with the Stocktake report from Allan Cook claiming that each HS2 train would free up capacity for 11 extra trains on the existing network. It is unbelievable that the new chairman has been put in a position whereby he is now responsible for such a ridiculous claim. This is a perfect example of the fact that HS2 Ltd is a shamelessly rogue organisation, with people who feel that they can simply make absolutely anything up, and get it out in the public domain by getting the chairman to put his name to it. This claim is fundamentally wrong, as is the claim now being made in slick promotion videos that if you take some of the fast trains off the WCML, this somehow normalises speeds between different services which would significantly increase capacity both for passenger trains and freight. This completely ignores the fact that the speed of 'semi-fast' commuter services in most cases is much closer to that of express trains than freight ones, meaning this concept would actually worsen passenger services on much of the railway, having a similar effect on the speed of passenger rail services as allowing lorries to go in the fast lane of motorways would on cars.

In terms of the capacity to be expected via HS2 itself, the project delivers capacity where it is needed the least, decades in the future at the maximum cost with the minimum flexibility and connectivity. It is also significantly doubtful that HS2 could ever carry the number of trains being suggested at the proposed operating speeds.

In terms of the supposed transformational benefit of HS2, every single piece of international evidence shows that high speed rail projects drag more economic activity to the dominant economic centre, and with London being so primate in the UK, and of course this concept that Old Oak Common is intended to become the 'New Canary Wharf', that effect is likely to be worse here. All we have to do is look at the effect of our own hub and spoke system on roads and rail, or even HS1 where the idea of major economic regeneration for Ebbsfleet was abandoned a couple of years ago with George Osborne announcing a plan to build a garden city, or in other words another London dormitory commuter town.

The economic regeneration that HS2 might bring would at best see some developments and property price increases around station sites, which is why there has been heavy lobbying from those who would benefit directly from that, but these impacts would come at the expense of the wider region, as they have around Lille. This is why there are a small number of advocates with deep pockets insisting without any evidence whatsoever that HS2 would do exactly the opposite of what all comparable projects across the world have done.

HS2 will not help meet the net zero commitments, as it will actually cause increased carbon emissions. HS2 Ltd's own projections show HS2 will not be carbon-neutral for at least 120 years. It has not been designed to get people out of cars or planes, with modal shift figures of 4% and 1% respectively: the majority of passengers would otherwise have travelled on conventional speed trains, and according to HS2 Ltd projections approximately a quarter of

passengers are expected to travel simply because HS2 has been built. HS2 is designed to encourage more travel at a time when we have not only the means and the need to reduce travel for work, but it is increasingly become the business imperative.

The carbon case for HS2 also depends on decarbonising the electricity grid, but any reductions in emissions would also apply to any other form of transport that uses electricity, such as intercity trains running on electrified tracks. Electrifying the entirety of the train network will reduce the carbon emissions of all other trains, yet HS2 Ltd seem to be suggesting we would be using diesel trains into the next century.

HS2's figures for emissions are considerably more hopeful than any European high speed rail. The current best is France, which has a heavy usage of nuclear energy. However one of the current best routes – the Eurostar from Paris to London is still 18 gCO2e/pkm – and other European high speed routes have nearly double that (e.g. Frankfurt-Amsterdam is 33.6 gCO2e/pkm). The expected equivalent for "the entire classic network, including the predicted mix of both diesel and electric trains in 2030" is 22 gCO2e/pkm, according to HS2's own documents. Even in France high speed routes have emissions outputs of 15-33gco2e/p/km and that is a network which almost exclusively runs on zero carbon are nuclear power. Simply, the carbon case that HS2 Ltd have put forward has been fiddled down in the same way the business case was fiddled up, by coming out with a grossly inflated passenger forecast and basing the measurement on CO2 output per passenger kilometre.

HS2 is an has always been an environmental disaster as far as the natural world is concerned, with constant attempts being made to belittle the actual impact and inflate proposed mitigations. The land take will be greater than any single motorway ever built in the UK, due to the fact that HS2 abandoned the Kent Principles and was designed for 250mph. Whilst the proposed width has came down slightly, but has more recently absent from official documents, the original technical specifications proposed a standard external fence-to-fence width where HS2 would be 75 metres on flat land, due to the speed of the project. Impacts have been spun out of all control, with impacts on ancient woodland in areas with very little cover belittled, and voodoo practices such as translocation of soils passed off as scientifically proven. Numbers have been made up for replacement woodland which ignore the fact that under standard planting practices only about one in twenty trees will live to maturity, and those are the ones which were not left to die in the summer of 2018. Whilst HS1 created a genuine wildlife corridor in the dead land between the railway and the M2 and M20, HS2 Ltd feel justified in using the phrase 'wildlife corridor' for small levels of habitat isolated creation away from the route, and seem to think it is reasonable to include land that will be returned to a worse condition after construction than it is now as 'habitat creation'.

In terms of delivering the supposed benefits of HS2 quickly, it depends what purpose HS2 is meant to serve.

If HS2 is all about capacity, projects like: addressing the pinch points highlighted in the RP2 and its optimised alternative; scraping voyagers on cross country routes for longer trains;

adopting different train configurations; removing some of the restrictions of the franchising system and changing timetables; rolling out in-cab signalling, which will have to happen eventually; recommitting to cancelled electrification projects and reopening several old routes are all examples of things which can be done quickly, and deliver more benefits to more people more quickly with pretty much zero environmental damage.

If HS2 is about jobs and rebalancing the economy, then the very last thing which should be attempted is another project that makes it easier to get to London. If the Midlands and North needs an economic stimulus, then money should be spent there, mainly on smaller local infrastructure projects which would benefit the vast majority of urban and inter-urban rail users. Developments around the land cleared at HS2 station sites can still go ahead, but only with adequate commitment to public spaces and social housing. At Old Oak Common, it would most likely be sensible to still go ahead with the Crossrail Station, but developments surrounding North Acton Tube over recent years suggest this may not be essential. Most importantly, transport projects should be sustainable and as the economy moves forward, more effort must be put in to reducing the need for travel. HS2 is quite frankly a nineteenth century solution in a twenty-first century world, and more investment must be put into broadband.

The jobs figures for HS2 are simply not credible. If you were to add up all the predictions that are currently being made about HS2 and jobs, then if it were ready today it would eradicate unemployment. This is possibly one of the best examples of proponents being willing to make any old rubbish up to support the project. Apart from jobs in stations and on running the railway, transport systems may influence the location of jobs, but they do not create them. There is a significant risk that HS2 could actually be a disbenefit to the economy, because you may well end up with firms choosing to relocate around reasonably affluent and job-rich areas around HS2 stations, instead of the more deprived towns that actually need those jobs, towns and cities that may well end up with worse rail connectivity as a result of HS2.

The full range of costs of the project, including but not limited to:

• whether HS2 Ltd's latest estimates of costs and schedule are realistic and are comparable to other UK infrastructure

• why any cost estimates or schedules have changed since the most recent previous baselines

• whether there are opportunities for efficiencies

• the cost of disruption to rail users during construction

• whether there are trade-offs between cost and schedule; and whether there are opportunities for additional commercial returns for the taxpayer through, for example, developments around stations, to offset costs

• what proceeding with Phase 1 means in terms of overall affordability, and what this means in terms of what would be required to deliver the project within the current funding envelope for the project as a whole

The first thing to mention here is that HS2 Ltd have never looked at the full range of costs of the project. There are so many missing and off the books costs, such as how it plumbs into the existing rail system and like where the electricity is coming from, both in terms of generation and transmission. As previously mentioned, the HS2 business case not only calls for a cut in existing services which may not be possible and is certainly the opposite of what is being promised, but also projects that the project would run at a profit, which seems highly unlikely given the suspect passenger forecasts and higher than usual running costs.

The concept that the current forecast for costs and timescales are anywhere near accurate is laughable. There are multiple reasons for this, but the main one is the institutional intransigence of HS2 Ltd. A perfect example would be the Thornton Affair, whereby an employee who wished to inform the non-executive board that the land purchase costs were grossly underestimated was sacked. Given the number of HS2 Ltd staff who seem to be in receipt of gagging payments, it is clear that this sort of practice, where rising costs were simply hidden to try and get HS2 through Review Point One will be found throughout the organisation. A final more recent example of this attitude is that no bidder seemed interested in either the Curzon St or railway systems contracts, with the answer from HS2 Ltd now seeming to be that they will pick a supplier and then work out he costs between them afterwards. This is simply unacceptable.

This all smacks of an attitude whereby the organisation did not want to know about bad news of any type whatsoever. A perfect example which is currently coming home to roost are the ground conditions along the route. Because management did not want designs and costs of HS2 to be fully informed during the petitioning process, ground surveys were not conducted before a the HS2 bill became and act. However, for some unknown reason, surveys where not immediately undertaken and remain incomplete, with it being questionable as to whether it is actually possible to build certain parts of HS2, such as the Chiltern Tunnel through compacted chalk and the route through the Cheshire Brine Fields.

Whilst disruption to rail users during construction will be severe, disruption to road users and businesses, which will be as bad if not worse, has never once been considered or calculated. Looking at the area around Birmingham Interchange – which is on the wrong side of the M42 with the method of connecting to Birmingham International being another one of those off the

books cost – in the space of around two miles, HS2 has to cross the M6, M42, A45 and A452, with a station and ancillary roads being built. The phrase that best sums up this uncosted impact is 'years of traffic chaos'. This is just one example of many. Additionally, whilst road closures and the location of compounds during construction formed part of the ES consultation, road closures are occurring and compounds springing up right now which were never part of the consultation. The excuse being put forward by HS2 Ltd is that people were consulted on construction works, but these are enabling works, so it's fine that no-one was informed about the impacts. During the ES consultation, we added together all the proposed lorry movements HS2 Ltd predicted, and industry experts concluded there were simply not enough tipper trucks in existence in the UK to cope with the projected workload, and that was before it was discovered that much of the spoil will not be suitable for infilling.

Proceeding with the project because there is an opportunity for developments around stations would be a crass waste of money. The fact of the matter is that the developments around the stations can now happen on the land cleared around the station sites, without the expense of building HS2. Along the same lines, it is now clear that proceeding with phase one, if it is indeed viable would cost more than the projected budget for the whole scheme, and this is an unjustifiable outlay simply to provide more commuter capacity for Milton Keynes.

• whether the assumptions behind the business case, for instance on passenger numbers and train frequencies, are realistic, including the location and interconnectivity of the stations with other transport systems, and the implications of potential changes in services to cities and towns which are on the existing main lines but will not be on HS2

This question has already been covered in this submission. Nothing in the HS2 business case is realistic, and the clear plan for cities not on the main HS2 route is to leave them behind.

• for the project as a whole, how much realistic potential there is for cost reductions in the scheme as currently planned through changes to its scope, planned phasing or specification, including but not limited to:

• reductions in speed

• making Old Oak Common the London terminus, at least for a period

• building only Phase 1

• combining Phases 1 and 2a

• different choices or phasing of Phase 2b, taking account of the interfaces with Northern Powerhouse Rail

The Allan Cook Stocktake document shows that not only are savings impossible, but that even meeting the £55.7bn budget is impossible.

There have already been two significant attempts to find major savings, both of which failed. These were when Sir David Higgins was first appointed chair, and then later with Sir Jeremy Heywood, Cabinet Secretary. In fact, Higgins came into HS2 with a fanfare that he as going to cut costs, but the reality was that the project was both severely descoped during his time and costs went up. Rather than working out which part of HS2 to build, the whole project should be scrapped.

Attempting to make savings by reducing the speed but keeping to the same route makes no sense, because everything about the project and the route has been determined entirely based on the expected speed of 250mph.

The original business case was almost entirely based on speed. There are no stations between London and Birmingham, because it would slow the train down too much. This means there was no possibility for an interchange station near Bicester with the East-West railway from Oxford to Cambridge (or the proposed express route), there was no possibility for a connection to the Chilterns Line at Aylesbury Vale Parkway and the same is true where HS2 crosses the Leamington to Coventry line.

Whilst slowing the design speed would have an effect on tunnel bores which could reduce an element of costs, it is difficult to see how much else could be saved, unless the entire route of the project were to be revisited, and a project like HSUK or something similar which followed the Kent Principles were adopted. It is certain that given that all of the routing options were dictated by the original speed, that there would be a lot of anger if the speed were reduced, but the current route retained, especially as a lower speed would mean the flexibility to bend HS2 around sensitive ecological sites and communities.

With respect to making Old Oak Common the London terminus, The New Civil Engineer reports Transport for London as saying that capacity on Crossrail would be exceeded at the morning peak if this were the case. It is also not certain how and where trains waiting to turn around would be housed, unless there were to be a significantly reduced service or an increase in the number of proposed platforms.

The bottom line is whatever phase of HS2 you are looking at, mile-for-mile it would stand to be the most expensive railway in the history of the world. This is the issue which must be addressed.

• the direct cost of reprioritising, cancelling or de-scoping the project, including but not limited to: contractual penalties; the risk of legal action; sunk costs; remediation costs; supply chain impact; and an estimate of how much of the money already spent, for instance on the purchase of land and property, could be recouped

If there were to be any costs as a result of cancellation from contracts that relate to construction, given that scheme does not have Notice to Proceed, then someone should be going to jail. Land and property costs – where HS2 Ltd has actually paid for land and property – can be recovered. Compensation for loss of earnings will have to be paid whether the scheme goes ahead or not. Given that developments around the station sites – with an appropriate allocation of open spaces and social housing for communities – could be built without the expense of building HS2, the costs spent so far could mostly be recovered.

The idea of potentially going ahead with HS2 because something equating to between 5-10% of the final end cost has already been wasted would be a gross misuse of public funds.

• whether and how the project could be reprioritised; in particular, whether and, if so how, Northern Powerhouse Rail (NPR) (including the common sections with HS2 Phase 2b) could be prioritised over delivering the southern sections of HS2

• whether any improvements would benefit the integration of HS2, NPR and other rail projects in the north of England or Midlands

We think HS2 should be cancelled in its entirety.

On a number of occasions it has been stated that parts of NPR rely on parts of HS2, this is simply a ruse that has been cooked up to try and prop up the case for HS2. Whilst we fully support the idea of rail infrastructure spend in the North of England to be prioritised ahead of HS2, the current NPR seem to 'come from the same place' and make all the same mistakes, for all the same reasons, as HS2 does. NPR needs to revisit Eddington and make an assessment of what is needed.

• any lessons from the project for other major projects

The major lessons that should be learned is the importance of trust and honesty when developing major schemes like HS2. All public officials should be issued with a copy of the Nolan Principles and the 2006 Fraud Act. Anyone proposing a transport infrastructure project should also be made to read the Eddington Report.

Submitted on behalf of Stop HS2, 16th October 2019.

17. http://stophs2.org/news/18674-hs2-invent-assessment-methodology
    As ever HS2 happy to invent new ways of accounting!

18. http://stophs2.org/news/18585-fraud-office-details-hs2-compensation-practices-possession-orders-escalate
    More crime?

19. https://www.ft.com/content/27ab2f5c-a976-11e9-984c-fac8325aaa04
    More money?

20. https://hansard.parliament.uk/lords/2019-07-02/debates/83FBD86E-EEB1-4C90-8A54-5E239AA290B0/PubliclyFundedInfrastructureProjects
    It seems our representatives are aware of at least some of the fraud…..

21. http://stophs2.org/news/18496-commons-library-alters-briefing-prove-65bn-hs2-cost-estimate-government
    …..but seem not to be above similar practices!

22. http://stophs2.org/news/18461-government-misleads-public-4-years-hs2-9bn-over-budget-commons-report
    Ditto

23. http://stophs2.org/news/18501-hs2-extend-cloak-secrecy-demanding-signing-276-gagging-orders
    Why would you need gagging orders? If everything has been done honestly and openly…..why?

24. http://stophs2.org/news/18450-proof-needed-hs2-illegally-destroying-nests-nesting-season
    But of course illegality seems to pervade HS2 Government to bottom.

25. And always that complete lack of accountability. 41 (48 in the end parish councils pleading for the life and soul of their charges…. All ignored.

The all-consuming Brexit babble is drowning out major concerns that the Government is failing to address. All over the country the concern that excites the most vociferous

condemnation is the HS2 infrastructure project. Mr. Thurston, HS2's Chief Executive, claims that there is a groundswell of support nationwide for this railway – we do not believe him.

When launched nine years ago, HS2 was heralded as the train that would carry 1,100 passengers every four minutes from London to Birmingham at speeds well in excess of 200mph. A straight line was drawn across England, obliterating anything in its path, in order to accommodate this "high speed" wonder. After nine years of planning and numerous changes of management at senior level, the Government needs to reassess the criteria on which the viability of this project should be judged.

Everyone knows that the budget is ballooning and out of control. In order to try and regain control we hear that the trains may now go slower – to save cost. The trains may be greatly reduced in number – to save cost. The line may never be built beyond Birmingham – because the cost will be too great. The latest ex-Chairman suggests that the development at Euston should be delayed and the trains should stop at Old Oak Common – to save cost. Local observation of the preliminary enabling work that has been done already shows a total disregard for cost control, and a complete lack of common sense.

There are claims that this whole project is already obsolete. It earned the nickname "White Elephant" almost at its inception, and it still carries that description today. "White Elephant" projects make people nervous. Improving our existing railways nationwide is so obviously the better option and would be a far more popular plan.

Andrea Leadsom, our Member of Parliament, has put all these points about HS2 to Mr.Thurston and challenged him to review the business case and the value for taxpayers' money. He trots out an all too familiar assurance that the project will be "on time and on budget" – a commitment also made by Mr. Grayling. Another major infrastructure project, currently under construction, that boasted to be "on time and on budget" is Crossrail. Now the Government admits that Crossrail will be late and over budget. By the time HS2 is up and running the IT phenomenon will see more and more people working from home – they do already. The whole world can already make instant contact, with eye contact, on screen. The cry for more and more capacity (a necessity strongly advocated by Teresa May) will fade away. Who will need to travel, on an expensive ticket, from Old Oak common to Birmingham, with no stops en route and no saving on time?

Mr. Grayling still labours under the illusion that Phase One of HS2 will cost £27.18bn. We all know that the cost is over £50bn and rising. He also says that HS2 will become the backbone of our national rail network. A backbone is no use to anyone if it only connects a third of the body. If this railway never goes beyond Birmingham, the improvement to connectivity between London, the Midlands, northern England and central Scotland will be greatly diminished.

Every week recently there have been more and more revelations which demonstrate the inadequacy of those in charge of delivering HS2. The source for the considerable amount of electricity needed to power the HS2 trains has long been questioned. The possible, unbelievable answer to this problem at this late stage is wind turbines and solar panels along the route. More land acquisition and much, much more cost, both financial and environmental. There was no mention in the EA of wind turbines powering the trains. Therefore when Parliament gave the go ahead for HS2, there was no knowledge of this huge environmental impact to wildlife and the countryside.

We, the undersigned, urge all those with power and influence to stop this bloated mammoth now, before any more money is wasted, and thus release billions of pounds for far more important,necessary and worthwhile projects.

The additional seven signatories are at the bottom.

Aston le Walls Parish Council
Aynho Parish Council
Brackley Town Council
Chalfont St Giles Parish Council
Chalfont St Peter Parish Council
Chapel Ascote Parish Council
Chetwode Parish Meeting
Chipping Warden & Edgecote Parish Council
Coleshill Town Council
Culworth Parish Council
Curdworth Parish Council

Edgcott Parish Council
Evenley Parish Council
Farthinghoe Parish Council
Godington Parsh Meeting
Great Missenden Parish Council
Greatworth Parish Council
Grendon Underwood
Helmdon Parish Council
Hinton in the Hedges Parish Meeting
Hunningham Parish Council
Kings Sutton Parish Council
Middle Claydon Parish Council
Mixbury Parish Meeting
Newton Purcell with Shelswell Parish Meeting
Offchurch Parish Council
Preston Bissett Parish Council
Quainton Parish Council
Radstone Parish Meeting

Seer Green Parish Council
Stoke Mandeville Parish Council
Stoneleigh and Ashow Parish Council
Stoneton Parish Council
The Lee Parish Council
Thenford Parish Meeting
Thorpe Mandeville Parish Council
Turweston Parish Council
Twyford Parish Council
Water Orton Parish Council
Weston Under Wetherley Parish Council
Wormleighton Parish Council

Additional signatories

Burton Green Parish Council
Calvert Green Parish Council

Cubbington Parish Council
Great and Little Hampden Parish Council
Middleton Parish Council
Tingewick Parish Council
Westbury Parish Council

26. http://stophs2.org/news/18148-leeds-city-council-call-parliamentary-inquiry-hs2
    Such is the trust in HS2

27. http://stophs2.org/news/18144-hs2-blow-quarter-billion-keeping-costs
    Weren't they always so good at counting?

28. https://twitter.com/janey_wall/status/1267779717194809344?s=09
    As ever, the good neighbours we all want to have?

29. https://photos.app.goo.gl/NSM9mUJVN1hTmL9A6

30. http://stophs2.org/news/19274-omens-good-euston-approach-hearing-13-14-funds-urgently-needed
    Such

31. The following taken from The River Chess Association:
    Reason to be concerned. EA just as useless as NE. Government backed again.
    River Chess Association (Bucks) Facebook post & comment.

Very difficult times, in a short period of 6 months we have gone from drought, to multiple storms and flooding, to high groundwater, to sewage pollution by Thames Water, to unprecedented water demand Affinity Water, to potential pollution form HS2 and heading back to drought. And what do the Environment Agency do, manipulate the figures and turn a blind eye to pollution.

No Doubt the aquifer will be polluted.Twin Tunnels will be bored along the length. One North one south .Tunnel machines to buy £80 million cost of tunnelling about £550million .Method of drilling the tunnel Open face which gives no support to the soil or water at the front .Amount of water needed to aid tunnelling 6-10 Million litres per DAY..Slurry produced will have to be taken off site as it is to wet to use as fill .Cannot pump into settling ponds as to chalk particles are to small and will always be in the water . Amount of slurry about 2.5 Million m3 Bob Earwaker Geotechnical Consultant

We have much the same albeit to a lesser degree in Warwickshire with Ufton wood tunnel.

32. https://www.transportxtra.com/publications/local-transport-today/news/65642/government-hid-hs2-problems-to-keep-it-on-the-rails-say-mps
    These are the people elected to represent *us.* So just who *are* they representing?

33. https://www.theengineer.co.uk/poll-post-election-future-hs2/
    NOBODY wants it!

34. https://www.taxpayersalliance.com/tpa_polling_shows_84_per_cent_don_t_believe_hs2_will_benefit_them_personally
    Is anybody listening?

35. https://www.colnevalleypark.org.uk/watching-bats-in-the-colne-valley/
    17 species of bat roost and breed in the Colne Valley, only one UK species that doesn't.

36. https://photos.app.goo.gl/jNKGqRBtghnHq1zi6
    This is just a very small part of what we are about to lose in Harefield. Some of the biodiversity, some of the beauty.

37. https://photos.app.goo.gl/8ma9oaAh4t8aNQYA6
    This is just a tiny part of what is happening right now, much much more to come. This is for 4 miles of track. 140 miles to Birmingham. Does this really look like a railway?

38. https://www.judiciary.uk/wp-content/uploads/2020/02/Heathrow-judgment-on-planning-issues-27-February-2020.pdf
    And this. Why has the wisdom learned here been subsumed? Why are we continuing to ignore the future of our children?

D1164

D1024

EXHIBIT 26

Video footage of bats present at DCP site

https://drive.google.com/file/d/1QiNMf8HMrKcoCzO-XVhP1rhnQqTZeyeK/view

EXHIBIT 27

AECOM Master Plan

Colne Valley Masterplan

The purpose of this document is to provide an overview of the impacts and compensation covered by the following three bat mitigation licences (hereafter 'phases') located within the Colne Valley Viaduct area (hereafter 'the Site'):

- the Colne Valley Advanced Bat Mitigation Licence (proposed by Fusion/AECOM), hereafter referred to as the Colne Valley phase;
- the Dews Farm Mitigation Licence (Fusion/AECOM), hereafter referred to as the Dews Farm phase; and,
- the National Grid ZC Bat Mitigation Licence (National Grid/Wood), hereafter referred to as the National Grid phase.

The three licences are all due to be submitted in 2020. The supporting Master Plan maps also provide visual context for the three phases:

- Map 1: Plan of Licensable Phases - provides an overview of the site as it currently is whilst showing the extent of licensable phases;
- Map 2: Impacts Plan - details the impacts arising from construction and provides context regarding habitat connectivity; and,
- Map 3: Mitigation Plan - details the site and the three phases post-construction, following implementation of mitigation (during the operational phase).

Site Statistics

The overall size of the combined Site in hectares (ha) is 407.8 ha. Table 1 below details those habitats currently present on Site and their relative extents (as illustrated in Map 1.

Table 1: Habitat areas within each of the three phases within the Site.

Habitat Type – current habitats onsite before construction	**Whole combined Site – all three phases** (407.8 ha total)	**Phase 1 - Colne Valley Phase** (400.4 ha excluding the Dews Farm areas which however lie entirely within this area)	**Phase 2 - National Grid Phase** (5.6 ha)	**Phase 3 - Dews Farm Phase (buildings and any habitat within its licence area)** (1.8 ha)
Lakes and water bodies	159.2	158.9	0.3	0
Mature broadleaf woodland	90.6	86	4.3	0.3
Arable land	54.1	52.9	0	1.2
Grassland	36.5	36.5	0	0
Amenity grassland	22.2	22.2	0	0
Scrub	10	10	0	0
Hardstanding and buildings	10.2	9.7	0.2	0.3
Improved grassland	2.7	2.3	0.4	0
Hedgerows	2.5	2.3	0.2	0
Other	19.8	19.6	0.2	0

Impact Assessment by Phase (in the absence of mitigation)

Total losses affecting bats (habitats types and areas) which will be incurred for each phase are presented in Appendix 1 (Direct and indirect impacts on bats arising from the proposed works (by 'phase')), along with an assessment of the predicted impacts in isolation and without mitigation.

Baseline surveys have been completed for the **Colne Valley phase** and associated data collated. Vegetation clearance in the Colne Valley phase will result in direct impacts to 228 trees with potential roost features (15 high potential, 192 moderate and 21 low) being lost to the development. In addition, two known bat roosts (a mating roost for *Pipistrellus pygmaeus* and a night roost of a nulliparous *Pipistrellus nathusii*) will be indirectly affected in the Colne Valley Phase along with a further 126 trees with potential roost features (five high potential, 101 moderate and 20 low). Please refer to Map 2 (Impacts Plan) for further details of impacts arising from this phase during construction.

Baseline surveys have also been completed for the **Dews Farm phase** of the development. Two roosts have been recorded; a small maternity colony of *Plecotus auritus* (12 bats recorded) and a day roost of *Pipistrellus pygmaeus* (five bats recorded) in Building 13, and a day roost of *P. pygmaeus* (one bat recorded) in Building 17. Construction of the HS2 scheme will directly impact these roosts. No additional indirect impacts are anticipated for this phase of the development. Please refer to Map 2 (Impacts Plan) for further details of impacts arising from this phase during construction.

There is less baseline survey data available for the **National Grid phase** (see Map 2 for the location), with only ground level tree assessments completed to date. Habitats within the National Grid phase are dominated by mature, well connected woodland of likely value to a number of bat species recorded in the local assemblage.

It is considered that associated impacts on the local assemblage of bats resulting from the Colne Valley phase would be significant at the District level. The impacts arising from the Dews Farm phase are considered to be significant at the District level. Given the incomplete nature of the baseline information for the National Grid phase of clearance, the impact of this phase is considered by National Grid/Wood as potentially significant at *up to* County level.

Cumulative Impact Assessment (in the absence of mitigation)

An assessment of cumulative impacts between the three licences has been made for each of the following development activities:

- Initial / immediate : tree clearance and demolition;
- Medium-term: construction;
- Medium-term : operational testing; and
- Long-term / permanent : operation of the Scheme.

Impacts for individual licences are assessed within the Method Statements for each application and are not repeated here.

Works Activity: Tree clearance and demolition

The majority of impacts from the development of the Scheme will occur at the tree clearance and demolition stage.

Direct and indirect impacts that have been considered on the local assemblage of bats comprise loss of roosts and potential roosting features (PRFs), loss of bat foraging habitat, fragmentation of habitat, severance impacts causing isolation of retained roosts within and outside the licence areas from their core sustenance zone / foraging habitat, and disturbance (indirect effects) from lighting, noise, dust and vibration arising as a result of tree felling and demolition activities.

Maternity, day and possible hibernation roosts for brown long-eared and pipistrelle bats are to be lost at Dews Farm through demolition. These are the only maternity and possible hibernation roosts recorded within the direct and indirect impact area of the three phases to date, although the Dews Farm phase is considered to also be important to foraging bats. ALBST surveys covered all areas of the Site and did not identify other significant roosts within the impact areas. Bats were mainly recorded roosting in buildings within settlements, and woodlands away from the site mainly within the Baynhurst woodland complex to the east. Therefore, loss of the Dews Farm roosts, combined with loss of a small proportion of the wider woodland roosting resource within the Colne Valley phase, is considered to represent a **cumulative impact** which, prior to mitigation, will result in a **major adverse effect that is likely to be significant at up to County level**.

Owing to the potential for the National Grid phase to support Daubenton's bat roosts, the loss of roosts and PRFs in this phase is considered by National Grid/ Wood's to represent an adverse effect which is significant at up to County level. When considered in combination with impacts arising from construction in the Colne Valley and Dews Farm phases, prior to mitigation it assessed that there would be a **cumulative major adverse effect** on the local assemblage of bats across all three phases which would be significant at **up to County level**. Once surveys have been completed for the National Grid phase this assessment may be rationalised. It should be noted that this predicted cumulative impact does not exceed those predicted for the individual Colne Valley or National Grid phases.

Severance, fragmentation and isolation are not predicted to cumulatively impact the bat populations using the combined licence area due to the limited clearance footprint of the proposed works areas and the presence and retention of surrounding woodland and associated bat flight lines that will remain unaffected by the works. The bat species within the combined licence area are typically wide ranging and capable of flying across open water areas. Bats roosting at Dews Farm have been shown to use flight lines which will be retained to the east and south of the roost and away from the

Scheme. Existing connectivity to the proposed location for the bat house which will replace the Dews Farm roost will also be retained and enhanced through amendments to final mitigation designs.

Indirect impacts on retained roosts **arising from disturbance on bats** from vegetation clearance and demolition activities will be limited to noise, dust and vibration. Due to the presence of buffering vegetation in most places and the intermittent and short duration of tree felling activities, it is considered that disturbance to bats will not be significant and there is no potential for cumulative impacts.

Works Activity: Construction

Once trees are felled and demolition is complete, only the potential for indirect impacts remains at the construction stage. Following vegetation clearance, construction works for the National Grid phase will be completed in less than one year with vegetation reinstatement occurring at the end of construction works and maturing over the subsequent three to five year period for replacement hedgerow planting; similar timescales will apply to the Dews Farm phase. The Dews Farm and National Grid phases will then effectively be completed, while the overarching Colne Valley phase continues with construction of the HS2 viaduct (see Table 6 at the end of this document). The construction works will be spaced out both spatially and temporally, reducing the magnitude of indirect impacts for each individual phase. As such a significant cumulative impact above the individual impacts identified for the phases is not anticipated for construction works.

Works activity: Testing and operation of the Scheme

Impacts at the testing and operational stage comprise indirect impacts from fragmentation and severance, and direct impacts (mortality) from collision either directly with trains or as a result of turbulent air causing impacts with infrastructure. Impacts from testing will be temporary and medium-term, while impacts from operation will be long-term and effectively permanent. This is considered in depth for each of the individual phases within the relevant licence application, including the detailing of embedded design details that avoid such impacts to bats, thereby reducing the potential impacts in the absence of mitigation. No additional significant cumulative impacts are anticipated for the operation of the Scheme above those identified for the individual phases.

Mitigation and Compensation

Habitat creation as mitigation and compensation was designed into the Scheme at the ES stage across the site, with further development of the planting / habitat composition at the detailed design stage. A summary is provided in Table 3 below and further details provided in Map 3 (Mitigation Plan). The details of the planting design will be set out within relevant Environmental Site Management Plans. Lowland mixed deciduous woodland will be the target habitat type for woodland creation across the licence area. Habitat reinstatement under the viaduct will comprise woodland, shallow waterbodies / wetlands, wet woodland and wet grassland. There will be limits to the height of new vegetation beneath and adjacent to the viaduct and National Grid infrastructure to ensure safe operation of the railway and equipment. These new habitats are likely to provide improved foraging opportunities for bats and eventually over the long-term will form part of the wider roosting resource as trees mature and PRFs are naturally created.

Table 3: Habitat mitigation areas across the site (as detailed on Map 3: Mitigation Plan)

Area Number	Location	Mitigation type	Area (ha)

1a	Tilehouse Lane - Enhanced Mitigation Area	Bat Boxes	0.18
1b	Tilehouse Lane - Remaining Area	Woodland Habitat Creation	14.55
2	Planting under and around the viaduct	Ponds	0.06
2	Planting under and around the viaduct	Grassland	1.19
2	Planting under and around the viaduct	Woodland - Small Trees and Shrubs	2.14
2	Planting under and around the viaduct	Meadow	0.61
2	Planting under and around the viaduct	Reed Bed	0.04
2	Planting under and around the viaduct	Woodland Edge - Scrub & Herbaceous	5.57
2	Planting under and around the viaduct	Woodland	2.92
3a	Battlesford Wood - Enhanced Mitigation Area	Bat Boxes	0.35
3b	Planting adjacent to Battlesford Wood	Woodland Habitat Creation	0.21
4	Existing Woodland Adjacent to Broadwater - Enhanced Mitigation Area	Bat Boxes	0.04
5	Existing Woodland Adjacent to Broadwater - Enhanced Mitigation Area	Bat Boxes	0.04
6	Wetland planting (Alder and Willow) on east shore of Broadwater Lake	Woodland Habitat Creation	0.31
7	Woodland north of Moorhall Road - Enhanced Mitigation Area	Bat Boxes	0.52
8	Woodland north of Moorhall Road - Enhanced Mitigation Area	Bat Boxes	0.11
9	Woodland north of Moorhall Road - Enhanced Mitigation Area	Bat Boxes	0.04
10	Mature trees near canal - Enhanced Mitigation Area	Bat Boxes	0.03
11	Mature trees adjacent to canal - Enhanced Mitigation Area	Bat Boxes	0.02
12a	Harvil Road - Enhanced Mitigation Area	Bat Boxes	0.22
12b	Harvil Road - Remaining Area	Woodland Habitat Creation	1.57
13	South East corner of Licence Area	Woodland Habitat Creation	0.41

14a	National Grid Licence Reinstatement under pylons	Woodland Edge - Scrub & Herbaceous	1.75
14b	National Grid Licence Reinstatement of woodland	Woodland	1.62
Total	**All**	**Habitat reinstatement / creation (around viaduct / National Grid)**	**15.9**
Total	**All**	**Bat box areas**	**1.55**
Total	**All**	**Woodland Habitat Creation**	**17.05**
Total	**All**	**Total area**	**34.50**

Mitigation and compensation proposed for each phase is set out below in **Table 4: Proposed mitigation and compensation.** PRFs and confirmed roosts will be replaced with bat boxes and PRF creation on veteranised trees (Colne Valley and National Grid phase) or on monoliths (National Grid phase only), along with a bat house proposed as mitigation for loss of the Dews Farm bat roosts. Habitat loss will be compensated with planting to enhance the biodiversity of the area, resulting in an overall net gain. The proposed planting will provide foraging and commuting opportunities for bats in the long-term with natural development of further PRFs as habitats mature.

During tree felling, trees will be climbed and PRFs inspected. Any bats found will be relocated to bat boxes erected prior to works commencing: this will also apply to any roosts identified during surveys for the National Grid phase during 2020. Works to relocate the Dews Farm roosts to the proposed replacement bat house will follow measures and protocols, including timing of works, which will be prescribed within the associated mitigation licence (*in prep*). All works involving bats will utilise appropriately licensed experienced bat workers and works will be supervised by a Site Supervisor ECoW. All works will be recorded and reported to Natural England as a condition of the associated licence to ensure mitigation is delivered as specified in Table 4 below.

Areas identified and utilised for mitigation and compensation all lie within the limits of the Hybrid Bill for HS2. The use of these areas as compensation will be secured through landowner agreements (where applicable) and through the Schedule 17 planning application process for HS2. ESMPs will be developed to cover the management of the compensatory habitats and features.

Table 4: Proposed mitigation and compensation.
Details of roosts and PRFs to be lost and number of replacement roost features required

Phase	Species	Roost type/resource	Number affected directly	Number affected indirectly	Compensation ratio	Roost mitigation features required	Details and timing of proposed mitigation
Colne Valley Phase	*P. pygmaeus*	Maling	0	1	4:1	4	30 bat boxes will be erected prior to works commencing on trees within 50-100m of the Scheme in retained woodland to create additional roosting resource for bats over the short to medium-term. These will also function as rescue bat boxes during the clearance works. 30 veteranised features will be created on trees within 50-100m of the Scheme in retained woodland to create additional roosting resource for bats over the short to medium-term. The features will be created in Year 1 following clearance. In combination, the 60 proposed mitigation features will afford a small contingency of seven additional features relative to the mitigation ratios proposed.
Colne Valley Phase	*P. nathusii*	Unknown (possible night)	0	1	4:1	4	
Colne Valley Phase	Bat assemblage for the area	Trees with High Potential Roost Features	15	NA	3:1	45	
Colne Valley Phase	Bat assemblage for the area	Trees with Moderate & Low Potential Roost Features; woodland	Moderate: 192 Low: 21 16.04 ha of woodland	High: 5 Moderate: 101 Low: 20 12.71 ha of woodland	NA	NA	Habitat creation as detailed within Table 3 above totals 25.2 ha. This is considered proportionate to satisfy HS2's 'No Net Loss to Biodiversity' objectives and is sufficient to compensate for both Colne Valley and any additional National Grid clearance.
Dews Farm Phase	*Plecotus auritus*	Maternity	Max 12 bats	0	NA	NA	Direct loss of the maternity/possible hibernation roost in Building 13 and day roost in Building 17 will be mitigated by creation of a suitable roost structure. Habitat connectivity will be retained and enhanced to ensure long term viability of the mitigation features. Details will form part of the Daws Farm licence submission.
Dews Farm Phase	*Plecotus auritus*	Hibernation	Unknown	0	NA	NA	
Dews Farm Phase	*P. pygmaeus*	Daytime	Max 6 bats	0	NA	NA	
National Grid Phase	Bat assemblage for the area	Trees with High Potential Roost Features	10	5	3:1	45	30 bat boxes will be erected prior to works commencing on trees within 50-100m of the Scheme in retained woodland to create additional roosting resource for bats over the short to medium-term. These will also function as rescue bat boxes during the clearance works. 20 veteranised features will be created on either retained trees and/or monoliths within 50-100m of the Scheme. Sections of felled timber with existing potential roost features will be retained and installed as monoliths in retained woodland, and additional veteranized features will be added to monoliths where required to provide up to 5 roost features per monolith. Veteranised features will be created on trees in

							retained woodland at a rate of 1 feature per tree. The total of 20 roost features will create additional roosting resource for bats over the short to medium-term. The features will be created in Year 1 following clearance. In combination, the 50 proposed mitigation features will afford a small contingency relative to the mitigation ratios proposed.
National Grid Phase	Bat assemblage for the area	Trees with Moderate & Low Potential Roost Features; woodland	Moderate: 33 Low: 166 3.64ha of woodland	Moderate: 12 Low: 76 1.93ha of woodland	NA	NA	The HS2 mitigation, which has been determined to be appropriate given the impacts to bats identified in these phases, comprises the habitat creation as set out in Table 3 above. Post-construction, habitat reinstatement of access and temporary working areas will provide maintenance of connectivity and foraging resource.

Proposed post-development monitoring is outlined in Table 5 below. Locations for the provision of mitigation across the site are detailed in the masterplan Map 3 The timing of monitoring activities aligns with the HS2 Ecological Monitoring Strategy (ECMS). Should delays to works result in a change to the construction programme for the scheme, licence amendments will be submitted with appropriate alterations to the monitoring schedule reflective of these delays.

Table 5: Monitoring strategy post-development

FCS value	Objective (with monitoring objective number)	Method	Timing	Location	Broad success indicators
Distribution	**Monitoring of mitigation feature uptake by bats (5)** and comparison of **species assemblage (1)** and **breeding status (2,3)** pre- and post-tree clearance works	2 x roost mitigation inspections confirming the presence of bat species and breeding status in June and September. Dropping collection for eDNA analysis to confirm species where possible	Years 2 and 4 post tree clearance (per ECMS) Review following year 4 Veteranised features – Year 6 and 8	Retained and new / planted mitigation woodland areas	Continued presence of the relevant bat species and associated breeding status post works. Confirmation of use of mitigation roost features.
	Comparison of species **assemblage (1)** and **breeding status (2)** pre and post clearance works	Trapping surveys in June, August and September	Years 2, 4 and (8-10) post tree clearance Review following year 4	Retained and new/planted mitigation woodland areas	Continued presence of the relevant bat species and associated breeding status post works (comparing pre-clearance works trapping data e.g. assemblage, numbers present, species and breeding status).
	Where species baseline data is sufficient, compare **roosting presence (3,5)** within same woodland parcel.	Radio tracking of target bat species to locate roosts in June, August and September. Activity surveys if no tagged bats found.	Years 2, 4 and (8-10) post tree clearance Review following year 4	Retained and new / planted mitigation woodland areas	Continued presence of roost types and associated species. (comparing pre-clearance works tracking data e.g. roost types, locations and numbers present).
Population	Comparison of the **population type (3)** of bat species where baseline data of target species* is sufficient for comparison.	Radio tracking of target bat species to locate roosts, followed by emergence surveys using Infra-red / Thermal Imaging devices in June, August and September.	Years 2, 4 and (8-10) post tree clearance Review following year 4	Retained and new/planted mitigation woodland areas	No decline or an increase in established baseline population presence and type of target bat species

Habitat	Comparison of new **habitat** creation in relation to habitat areas lost **(4)**	Assessment of woodland areas	As per EcMS	Mitigation areas only - New woodland creation / planting areas Figure E3	Woodland creation in place and meeting creation targets
Roost Mitigation Feature	Monitoring of bat boxes confirming the **presence of bat species (1,5) and breeding status (2,3)**	2 x roost mitigation inspections in June and September. Dropping collection for eDNA analysis to confirm species where possible.	Years 2 and 4 post tree clearance as per the ECMS Review following year 4	Retained mitigation woodland areas	The baseline assemblage of bat species recorded using bat boxes and other mitigation features.
	(if relevant) Monitoring of other roost replacement features, e.g. monoliths salvaged from woodlands and 'veteranised' retained trees. Confirms the **presence of bat species (1,5) and breeding status (2,3)**	Ground-based, inspections (and tree climbing inspections where needed / safe); recommendations for replacement as necessary; supervision of replacement. Emergence / re-entry surveys to confirm use or otherwise inform requirement for re-siting / additional features.	Years 2, 4, 6 and 8 post tree clearance		

Long term mitigation and monitoring

Table 6 below describes the timescales currently associated with construction of the wider HS2 Scheme.

Table 6: **Indicative works across the Colne Valley Viaduct Area with approximate dates / time periods**

Phase	Works	Dates	Phase
1	Construction of EWC habitat / non-bat mitigation sites detailed in the MS as part of the mitigation for the area	2019 – 2021	Colne Valley Phase
2	Tree felling	April / Sept/Oct 2020	Colne Valley Phase
		Sept/Oct 2020 (plus April 2021 on precautionary basis)	National Grid Phase

		Sept/Oct 2020	Dews Farm Phase
3	Initial / short-term mitigation works - erection of bat boxes and veteranisation of retained trees	April/Sept/Oct 2020	Colne Valley Phase
		April/Sept/Oct 2020 (plus April 2021 on precautionary basis)	National Grid Phase
4	Construction of bat house	Sep 2020-Nov 2020	Dews Farm Phase
5	Planting of other mitigation sites not yet started	2021	Colne Valley Phase
6	Works to power infrastructure	Oct 2020-Oct 2021	National Grid Phase
7	Reinstatement of vegetation beneath new power infrastructure and where further viaduct construction not required	Nov 2020-Jan 2021	National Grid Phase
8	Construction of viaduct	2021 – 2026	Main Works Contractor (MWC)
9	Planting of reinstatement areas (embankments, lineside planting, tunnel tops and entrances) in a progressive manner once each design element is built and works completed in each area.	2023-2027	MWC
10	Pre-operational testing phase	2028-2029	MWC / Nominated operator
11	Operation of railway	Likely 2030-2031	HS2 / UK Govt / Nominated operator

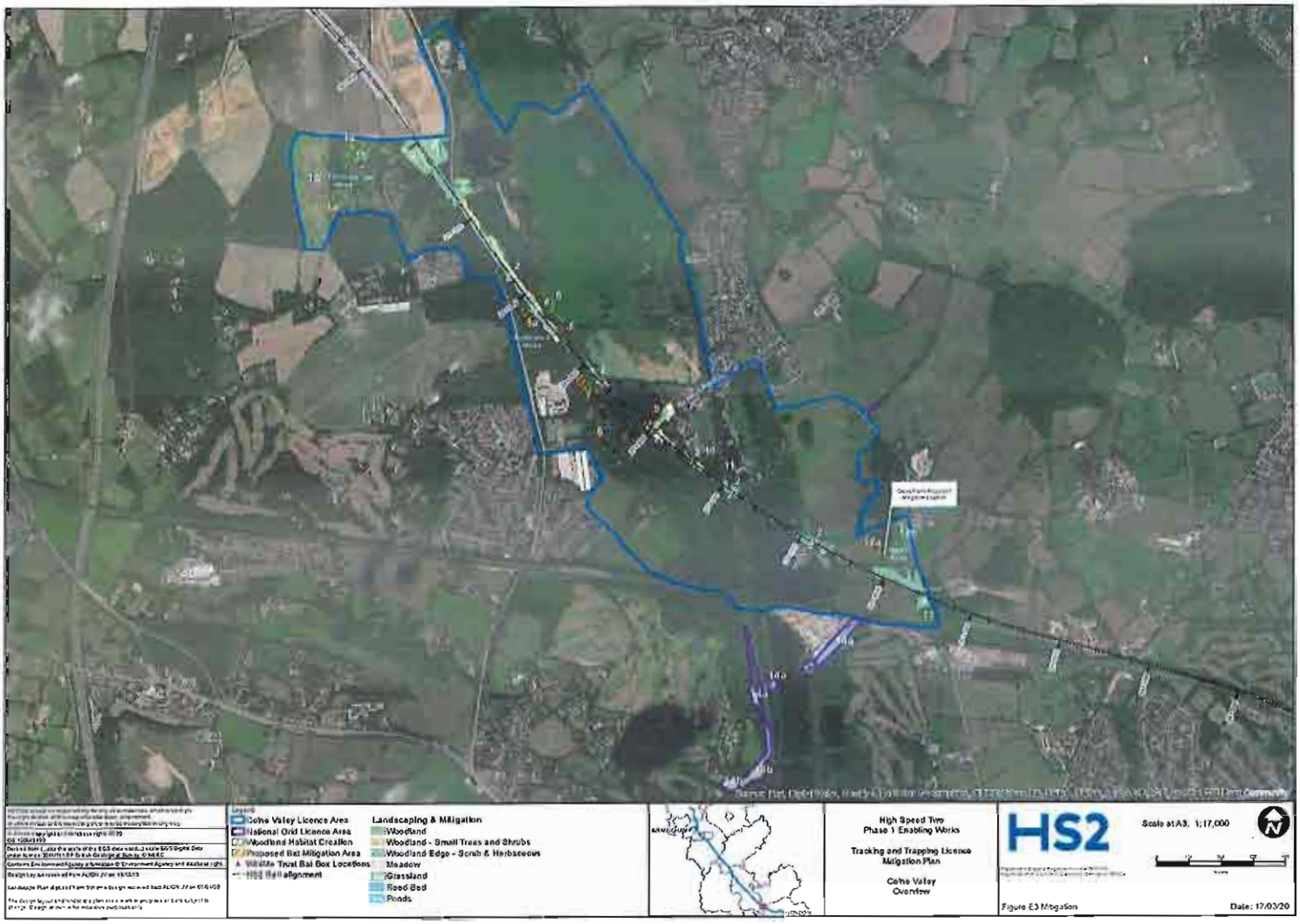
Appendix 1: Direct and indirect impacts on bats arising from the proposed works (by 'phase')

Phase	Impact details (habitat type)	Area (ha) impacted	No. PRF trees impacted	Buildings impacted	Roosts impacted	Timing of impacting works	Further information
Colne Valley Phase	Direct impact area (woodland)	18.04	228 total High: 15 Moderate: 192 Low: 21	NA	None	March / April 2020 September-October 2020	Loss of PRFs comprising part of the woodland roosting resource – **major adverse effect that is significant at the District level prior to mitigation**
Colne Valley Phase	Indirect impact area (20m buffer on direct impact area)	12.71	126 total High: 5 Moderate: 101 Low: 20	NA	Two roosts impacted: **240283a** mating roost for *P. pygmaeus* (moderate conservation value) **240320c** assumed night roost for *P. nathusii* adult nulliparous female (moderate conservation value)	March / April 2020 September-October 2020 Medium-term construction disturbance (viaduct construction) Long-term – operational disturbance (HS2 railway)	Area of woodland and PRF trees indirectly impacted: **moderate adverse effect that is significant at the District level prior to mitigation** Roosts impacted: **moderate adverse effect that is significant at the local / parish level prior to mitigation**
Dews Farm Phase	Direct impact – demolition of farm buildings 12 – 17	0.08	NA	2	Two roosts impacted: **Building 13** *Plecotus auritus* maternity and possible hibernation roost (max 12 bats), *P. pygmaeus* day roost (max 5 bats) **Building 17** *P. pygmaeus* day roost (1 bat)	Late-August/ September/ October 2020	Loss of maternity and possible hibernation (TBC) roosts of common species through demolition of Buildings 13 and 17: **major adverse effect that is significant at the District level prior to mitigation.**
National Grid Phase	Direct impact area (woodland)	3.64 (of which 1.11 is within the Colne Valley Phase)	209 total High: 10 Moderate: 33 Low: 166	NA	Unconfirmed (limited survey data available at the time of writing, only ground level tree assessments completed to date): It is anticipated that a small number of bat roosts may be affected by the works, likely to be used by the following six species: *Pipistrellus*	Late-August/ September/ October 2020, April 2021	Loss of PRF trees comprising part of the woodland roosting resource: **major adverse effect that is significant at the District level prior to mitigation** Roosts directly impacted: potential for **major adverse effect that is significant at *up* to County level prior to**

					pipistrellus, *P. pygmaeus*, *P. nathusii*, *Plecotus auritus*, *Myotis daubentonii* and *Myotis nattereri*. As this area of woodland is higher quality, and more extensive and continuous than surrounding woodland habitats, and with a higher number of PRFs per ha than the Colne Valley phase, there is potential for maternity and hibernation roosts for these species, including Daubenton's bat, to be present.		**mitigation if roosts for Daubenton's bat are identified.**
National Grid Phase	Indirect impact area (buffer on direct impact area: 5m buffer around access; 10m buffer around working areas)	1.93	93 total High: 5 Moderate: 12 Low: 76	NA		Late-August/ September/ October 2020, April 2021	Area of woodland and PRF trees indirectly impacted: **Moderate adverse effect that is significant at *up to* District level prior to mitigation** Roosts indirectly impacted: **potential for moderate adverse effect that is significant at *up to* County level prior to mitigation if roosts for Daubenton's bat are identified within the zone of influence.**

EXHIBIT 28

Map of National Grid Area 14b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National Grid Licence Area
Woodland Habitat Creation
Proposed Bat Mitigation Area
Wildlife Trust Bat Box Locations
HS2 Rail alignment
Landscaping & Mitigation
Woodland
Woodland - Small Trees and Shrubs
Woodland Edge - Scrub & Herbaceous
Meadow
Grassland
Reed Bed
Ponds
High Speed Two
Phase 1 Enabling Works
Tracking and Trapping Licence
Mitigation Plan
Cohe Valley
Overview
HS2
Scale at A3: 1:17,000
Figure E3 Mitigation
Date: 17/03/20

D1181

D1041


Colne Valley Licence Area
National Grid Licence Area
Woodland Habitat Creation
Proposed Bat Mitigation Area
Wildlife Trust Bat Box Locations
HS2 Rail alignment
Landscaping & Mitigation
Woodland
Woodland - Small Trees and Shrubs
Woodland Edge - Scrub & Herbaceous
Meadow
Grassland
Reed Bed
Ponds
High Speed Two
Phase 1 Enabling Works
Tracking and Trapping Licence
Mitigation Plan
Colne Valley
Page 1
HS2
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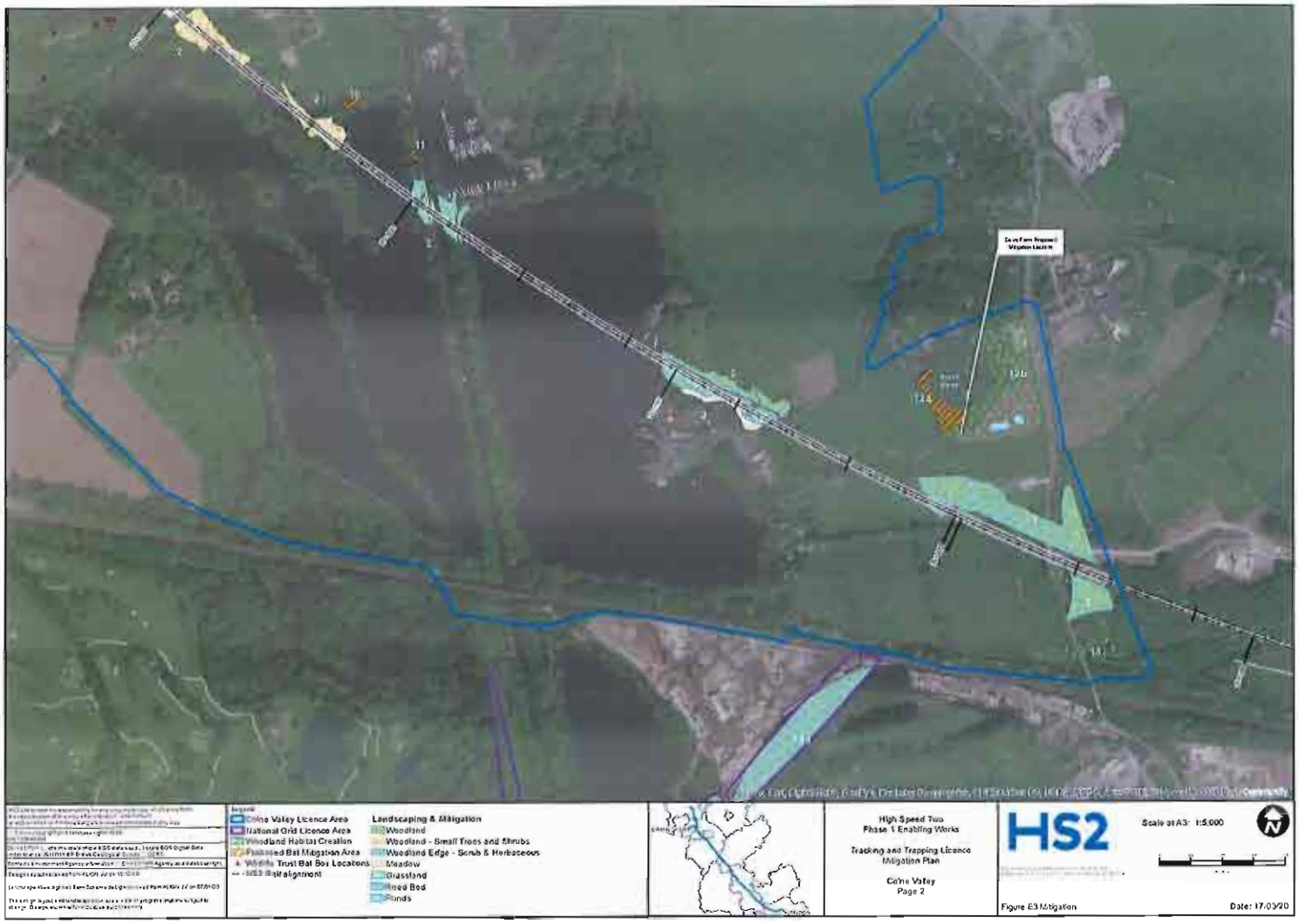
Figure E3 Mitigation
Date: 17/03/20

D1182

D1042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National Grid Licence Area
Woodland Habitat Creation
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HS2 Rail alignment
Landscaping & Mitigation
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Grassland
Reed Bed
Ponds
High Speed Two
Phase 1 Enabling Works
Tracking and Trapping Licence
Mitigation Plan
Colne Valley
Page 2
HS2
Scale at A3: 1:5,000
Figure E3 Mitigation
Date: 17/03/20

D1183

D1043


Cobo Valley Licence Area
National Grid Licence Area
Woodland Habitat Creation
Proposed Bat Mitigation Area
Wildlife Trust Bat Box Locations
HS2 Rail alignment
Landscaping & Mitigation
Woodland
Woodland - Small Trees and Shrubs
Woodland Edge - Scrub & Herbaceous
Meadow
Grassland
Reed Bed
Ponds
High Speed Two
Phase 1 Enabling Works
Tracking and Trapping Licence
Mitigation Plan
Cobo Valley
Page 3
HS2
Scale at A3 1:5,000
Figure E3 Mitigation
Date: 17/03/20

D1184

D1044


Colne Valley Licence Area
National Grid Licence Area
Woodland Habitat Creation
Proposed Bat Mitigation Area
Wildlife Trust Bat Box Locations
HS2 Rail alignment
Landscaping & Mitigation
Woodland
Woodland - Small Trees and Shrubs
Woodland Edge - Scrub & Herbaceous
Meadow
Grassland
Reed Bed
Ponds
High Speed Two
Phase 1 Enabling Works
Tracking and Trapping Licence
Mitigation Plan
Colne Valley
Page 4
HS2
Scale at A3: 1:5,000
Figure E3 Mitigation
Date: 17/03/20

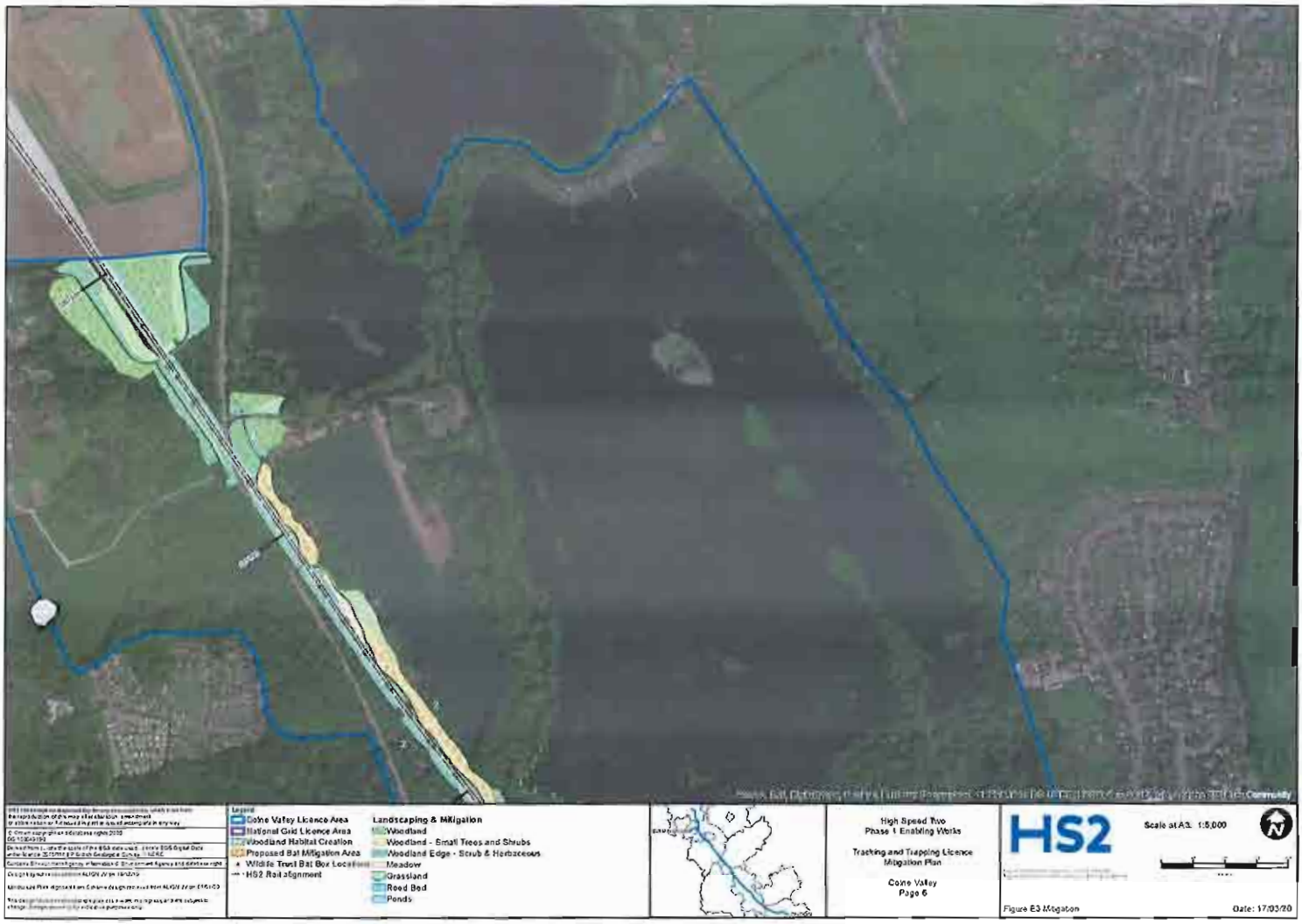
D1185

D1045


Legend
Colne Valley Licence Area
National Grid Licence Area
Woodland Habitat Creation
Proposed Bat Mitigation Area
Wildlife Trust Bat Box Locations
HS2 Rail alignment
Landscaping & Mitigation
Woodland
Woodland - Small Trees and Shrubs
Woodland Edge - Scrub & Herbaceous
Meadow
Grassland
Reed Bed
Ponds
High Speed Two
Phase 1 Enabling Works
Tracking and Trapping Licence
Mitigation Plan
Colne Valley
Page 5
HS2
Scale at A3: 1:5,000
Figure E3 Mitigation
Date: 17/03/20

D1186

D1046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National Grid Licence Area
Woodland Habitat Creation
Proposed Bat Mitigation Area
Wildlife Trust Bat Box Locations
HS2 Rail alignment
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Grassland
Reed Bed
Ponds
High Speed Two
Phase 1 Enabling Works
Tracking and Trapping Licence
Mitigation Plan
Colne Valley
Page 6
HS2
Scale at A3: 1:5,000
Figure E3 Mitigation
Date: 17/03/20

D1187

D1047


Colne Valley Licence Area
National Grid Licence Area
Woodland Habitat Creation
Proposed Bat Mitigation Area
Wildlife Trust Bat Box Locations
HS2 Railalignment
Landscaping & Mitigation
Woodland
Woodland - Small Trees and Shrubs
Woodland Edge - Scrub & Herbaceous
Meadow
Grassland
Reed Bed
Ponds
High Speed Two
Phase 1 Enabling Works
Tracking and Trapping Licence
Mitigation Plan
Colne Valley
Page 7
HS2
Scale at A3: 1:5,000
Figure E3 Mitigation
Date: 17/03/20

D1188

D1048

EXHIBIT 29

Confirmation of No National Grid ZC Bat Mitigation Licence

D1189

D1049

26 June 2020

Ms S Green

arthurdailytrips@gmail.com

Legal Services
County Hall
Spetchley Road
Worcester
WR5 2NP

Dear Ms Green

Access to Information Request – Request no 5109 – Partial Response

Thank you for your request for information set out below, which we received today. Your request has been considered under the Environmental Information Regulations 2004 (EIRs).

You asked for:

1. **Has the National Grid ZC bat mitigation licence referred to in the AECOM Colne Valley Master Plan that you have sent, been issued by Natural England?**

No, the licence has not been issued.

2. **Please can you confirm the date of issue?**

Please see our response to question 1.

3. **This is a request for the National Grid license?**

Please see our response to question 1.

4. **Which, if any, licence covers this destruction? [of the St John's Wood area?]**

Please can you provide us with a grid reference so we can check?

If you have any queries about this letter, please contact me. As you may be aware, under the legislation should you have any concerns with the service you have received in relation to your requests and wish to make a complaint or request a review of our decision, please contact me and I'll arrange for a colleague to conduct an internal review. Under Regulation 11(2) this needs to be done no later than 40 working days after the date of this letter.

If you are not content with the outcome of that complaint or the internal review, you may apply directly to the Information Commissioner for a decision. Generally, the Commissioner cannot make a decision unless you have exhausted the internal review procedure provided by Natural England. The Information Commissioner can be contacted at: https://ico.org.uk/global/contact-us/ or call on 0303 123 1113 (local rate), www.ico.org.uk.

Yours sincerely

Darren Green
Senior Adviser – Access to Information

0208 026 0936
darren.green@naturalengland.org.uk

EXHIBIT 30

RFI 5109 - Request for information from Natural England - Final Response dated 7th July 2020

Gmail Sarah Green <arthurdailytrips@gmail.com>

RE: RFI 5109 - Request for information - Final Response

SM-NE-FOI (NE) <foi@naturalengland.org.uk> Tue, Jul 7, 2020 at 12:54 PM
To: Arthur Daily Trips <arthurdailytrips@gmail.com>

Dear Ms Green

Further to the partial release on 26 June 2020, I can now confirm that no licence has currently been issued at the specified location.

Thanks

Darren

From: Arthur Daily Trips [mailto:arthurdailytrips@gmail.com]
Sent: 28 June 2020 13:11
To: SM-NE-FOI (NE) <foi@naturalengland.org.uk>
Cc: sam.extinctionrebellion@gmail.com
Subject: Re: RFI 5109 - Request for information - Partial Response

Dear Darren,

Thank you for the email response.

I looked up the Grid Reference for St John's Wood on Grid Reference Finder and I believe it is TQ 05184 86597, (6 figure) TQ 051865

Easting 505184 Northing 186597

The area can be seen on the organisational license WML-OR57 but outside the map area.

See page 2 the National Grid License area 14**b** is St John's Wood and is part of the Mid Colne Valley SMI. 14a edges onto Harefield Place local nature reserve.

Am I correct that there is no bat mitigation licence covering this area (St John's Wood) at the moment?

Many thanks,

Sarah Green

On Fri, Jun 26, 2020 at 3:45 PM SM-NE-FOI (NE) <foi@naturalengland.org.uk> wrote:

> Dear Ms Green

D1052

Please find attached a partial response to your request for information.

Thanks

Darren

Darren Green, Senior Adviser – Access to Information

Natural England, Legal Services,

County Hall, Spetchley Road,

Worcester, WR5 2NP

T: 0208 026 0936

M: 078101 56750

darren.green@naturalengland.org.uk

Make a request for information to Natural England

• During the current coronavirus situation, Natural England staff are working remotely to provide our services and support our customers and stakeholders. All offices and our Mail Hub are closed, so please send any documents by email or contact us by phone or email to let us know how we can help you. See the latest news on the coronavirus at http://www.gov.uk/coronavirus and Natural England's regularly updated operational update at https://www.gov.uk/government/news/operational-update-covid-19.

From: Arthur Daily Trips [mailto:arthurdailytrips@gmail.com]
Sent: 26 June 2020 10:45
To: SM-NE-FOI (NE) <foi@naturalengland.org.uk>
Subject: Re: RFI 5089 - Request for information - Response

Dear Darren,

Thank you for your prompt response.

I have looked at the documents provided.

Please regard this request as a follow up FOI.

Has the National Grid ZC bat mitigation licence referred to in the AECOM Colne Valley Master Plan that you have sent, been issued by Natural England?

Please can you confirm the date of issue?

This is a request for the National Grid license?

AECOM Colne Valley Master Plan page 1:

• the National Grid ZC Bat Mitigation Licence (National Grid/Wood), hereafter referred to as the National Grid phase.

The three licences are all due to be submitted in 2020. The supporting Master Plan maps also provide visual context for the three phases:

page 2 states:

Given the incomplete nature of the baseline information for the National Grid phase of clearance, the impact of this phase is considered by National Grid/Wood as potentially significant at up to County level.

St John's Wood is not included in Fusion WML-OR57 Colne Valley license. See map page 9.

The area is outlined on the map in HS2 Tracking and Trapping License Mitigation Plan. Colne Valley Overview. National Grid License Area.

There is a lack of data in this area. There are a lot of bats and there has been tree felling of riparian and wet woodland trees. Which, if any, licence covers this destruction?

Kind Regards,

Sarah Green

On Thu, Jun 25, 2020 at 4:08 PM SM-NE-FOI (NE) <foi@naturalengland.org.uk> wrote:

> Dear Ms Green
>
> Please find attached Natural England's response to your request for information.
>
> Thanks
>
> Darren

Darren Green, Senior Adviser – Access to Information

Natural England, Legal Services,

County Hall, Spetchley Road,

Worcester, WR5 2NP

T: 0208 026 0936

M: 078101 56750

darren.green@naturalengland.org.uk

Make a request for information to Natural England

• During the current coronavirus situation, Natural England staff are working remotely to provide our services and support our customers and stakeholders. All offices and our Mail Hub are closed, so please send any documents by email or contact us by phone or email to let us know how we can help you. See the latest news on the coronavirus at http://www.gov.uk/coronavirus and Natural England's regularly updated operational update at https://www.gov.uk/government/news/operational-update-covid-19.

GDPR: Protecting our Customers' and our People's Information

From: Arthur Daily Trips [mailto:arthurdailytrips@gmail.com]
Sent: 11 June 2020 11:33
To: SM-NE-FOI (NE) <foi@naturalengland.org.uk>
Cc: willyskimmel <nikisamuel@tiscali.co.uk>
Subject: Bat Mitigation Class Licence WML-CL40

Dear Natural England,

This is a freedom of environmental information request for bat licences granted in relation to HS2 in Hillingdon, Colne Valley.

HS2 has a Bat Mitigation Class Licence WML-CL40 - Bats in tree roosts.

1. This licence ran out in September 2019 (V4.0), please can you let me know whether this licence was renewed and to what dates.

Individual site registration.

Sites registered under this license will comprise of a geographically distinct or defined area that includes single, small numbers or small groups of tree.

2. What individual sites were registered under this licence (and subsequent - bats in tree roosts class licence) in 2017, 2018, 2019 and 2020 for CFA6 and CFA7.

CFA means Community Forum Area 6 and 7. These are HS2 terms CFA6 being Ickenham, Newyears Green to Harvil Road, Harefield. CFA7 being Harvil Road, Harefield across the width of the Mid Colne Valley. This area covers the Mid Colne Valley Site of Metropolitan Importance (SMI) and Denham Country Park.

3. In particular I would like to know whether a site in Denham Country Park at St Johns Covert, has been registered under this licence (or subsequent licence).

Application for individual licenses for works not covered by the class licence for Bats in tree roosts.

4. In the above mentioned locations (CFA6 and CFA7) and during the above mentioned times (2017 to June 2020), have there been any individual licences for Bats in tree roosts granted to HS2 Ltd? The class licence WML-CL40 states that HS2 will need to apply for individual licences if their works fall outside of the scope of the class licence e.g. for larger areas of clearance or additional species not covered by class licence. Please let me know whether any individual Bats in tree roosts, licences were applied for and if so if they were granted?

The Mid Colne Valley is a particularly important area for tree roosting bats, being a wetland with large areas of open water and wet woodland.

It is in the public interest to know the requested information.

Many Thanks for your assistance with this matter,

Sarah Green

--

Many Thanks

Arthur Daily Trips

Gift Vouchers

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arthurdailytrips.com

www.facebook.com/ArthurDailyTrips/

Trip Advisor Arthur Daily Trips

--

Many Thanks

D1196
D1056

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Trip Advisor Arthur Daily Trips

D1197

D1057

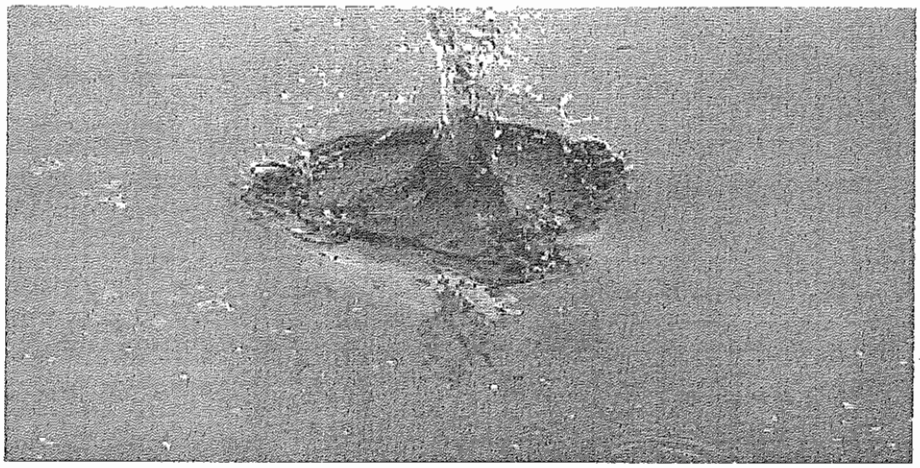
EXHIBIT 31

UK Parliament Committees Article on UK water shortages dated 10th July 2020

https://committees.parliament.uk/committee/127/public-accounts-committee/news/147309/england-faces-serious-risk-of-running-out-of-water-within-20-years/

England faces "serious risk of running out of water within 20 years"

10 July 2020



- Read the report summary
- Read the conclusions and recommendations
- Read the full report

In a report published today, Thursday 9 July 2020, the Public Accounts Committee says all the bodies responsible for the UK's water supply – Defra, Ofwat and the Environment Agency – have "taken their eye off the ball" and must take urgent action now to ensure a reliable water supply in the years ahead. It concludes that the Department for Food, Environment and Rural Affairs (Defra) has shown a lack of leadership in getting to grips with all of the issues threatening our water supply.

There is a serious risk that some parts of England will run out of water within the next 20 years. Over 3 billion litres, a fifth of the volume used, is lost to leakage every day: a situation the Committee describes as "wholly unacceptable".

The report says Government has failed to be clear with water companies, privatised in 1989, on how they should balance investment in infrastructure with reducing customer bills, and says "ponderous" water companies have made "no progress" in reducing leakage over the last 20 years.

The committee calls for Defra to produce annual performance league tables for water companies; step up on promoting water efficiency and deliver an effective campaign for water saving.

Industry action has failed, says the committee and government needs to step in and substantially step up efforts to coordinate increased awareness of the need to save water.

Chair's comments

Meg Hillier MP, Chair of the Committee, said:

> **"It is very hard to imagine, in this country, turning the tap and not having enough clean, drinkable water come out - but that is exactly what we now face. Continued inaction by the water industry means we continue to lose one fifth of our daily supply to leaks.**

D1199

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"Empty words on climate commitments and unfunded public information campaigns will get us where we've got the last 20 years: nowhere. Defra has failed to lead and water companies have failed to act: we look now to the Department to step up, make up for lost time and see we get action before it's too late."

Further information

- About Parliament: Select committees
- Visiting Parliament: Watch committees

Image: Unsplash

EXHIBIT 32

Align Hydrogeological & Surface Water Risk Assessment for LTP2, C02, 22.01.2020 – REDACTED

ALIGN Working on behalf of HS2

Hydrogeological and Surface Water Risk Assessment for Load Test Piling Location 2

Document no: 1MC05-ALJ-EV-NOT-CS01_CL01-100368

Revision	Author	Reviewed by	Approved by	Date approved	Reason for revision
C01	XXXX	XXXX	XXXX	25/10/19	First Issue
C02	XXXX	XXXX	XXXX	22/01/19	Updated monitoring for polymer piles

Security classification: OFFICIAL

Handling Instructions: none

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1 Scope

1.1.1 This report has been prepared to assess the effects of construction of the Load Test Piles (LTP) at Location 2, at the southern end of the viaduct, on the water environment, including:

- identification of construction activities that could affect groundwater movement or quality;
- identification of construction activities that could affect surface water quality;
- effects on sensitive receptors of addition of liquids other than water to aquifers as part of construction;
- monitoring requirements; and
- stakeholder consultation completed or underway.

2 Client objectives

2.1.1 The objectives of the load test piling are to:

- optimise and validate the proposed design of the concrete piles which will support the Colne Valley Viaduct;
- optimise and validate the proposed design of the d-walls that will be used to construct the ventilation shafts;
- optimise and validate the proposed design of the steel piles which will support the temporary jetty used to construct the viaduct;

2.1.2 This assessment considers the risks from the proposed works using the source-pathway-receptor methodology as detailed in Section 5. A worst case approach has been considered throughout which considers rapid migration in the groundwater pathway, with sensitivity assessment on other worst case elements where appropriate.

3 Site location and setting

3.1.1 Location 2 is situated at the southern end of the proposed viaduct alignment, east of Harefield No. 2 lake and west of Harvil Road. The Newyears Green Bourne flows immediately to the north of the site. (Figure 1). The site is located within source protection zone (SPZ) 2 for the XXXX PWS and potentially the XXXX PWS (the source zones are combined), although the XXXX PWS is XXXX. Figure 1 also shows the position of LTP Location

1 and Location 3, although these do not form part of the assessment in this report and testing at Location 3 is no longer planned.

3.2 Geology and hydrogeology

3.2.1 British Geological Survey maps indicate that the LTP2 location is underlain by clay, sands and gravels of the Lambeth Group and Cretaceous Chalk of the White Chalk Subgroup, made up of the Seaford Chalk Formation and Newhaven Chalk Formation (undifferentiated), with superficial deposits comprised of alluvium and the Shepperton Gravel Member.

3.2.2 Ground investigation (GI) information confirmed the presence of alluvium across the area, with a thickness of circa 2.5m recorded. Clay, sands and gravels were recorded across the area with thicknesses between 1.4 and 6m variously determined as the Clay with flints Formation and River Terrace Deposits.

3.2.3 Sandy gravelly clay of the Lambeth Group was recorded in ML025-CR125 (and also possibly ML026-CR008) and was of the order of 4.5-6m thick. Chalk was recorded between 2.2m and 7.7m below ground level (bgl) and was identified as the Seaford Chalk Formation overlying the Lewes Nodular Chalk Formation, with the boundary between the two occurring approximately 41m – 44m bgl.

3.2.4 A summary of GI borehole data in and around the LTP compound is presented in Table 1.

Table 1: Geological information for selected GI boreholes in and around the LTP compound

Borehole	Superficial	Solid	Water Strike
ML025-CR116 GL = 37.30mAOD	Alluvium (slightly gravelly sandy clay) to 2.2m.	Structureless chalk to 10.44m (Seaford Chalk Formation) becoming weak to 41.44m. Very weak to weak chalk (Lewes Nodular Chalk Formation) to base of hole at 60m	3.4m rising to 2.5 after 20 mins
ML025-CR125 GL = 42.68mAOD	Clay with flints (slightly sandy slightly gravelly clay) to 1.4m.	Lambeth Group (slightly sandy clay becoming gravelly silty sand towards the base) to7.7m. Structureless chalk (Seaford Chalk Formation) becoming very weak to weak to base of hole at 20m.	7.7m rising to 6.05 after 20 mins
ML026-CR008 GL = 37.04mAOD	(rotary openhole drilling – limited log details) Brown Clay to 1.5m, sand and gravel to 6m.	Chalk to 20m (rotary openhole drilling), weak chalk (Seaford Chalk Formation) to base of hole at 31.10m	None recorded
ML026-CR009	Made ground (sandy clay with low cobble	Structureless chalk (slightly gravelly sandy silt) to 26.4m, weak chalk	2.6m rising to 2.1m after 20 mins

Borehole	Superficial	Solid	Water Strike
GL = 37.21mAOD	count) to 0.2m, Alluvium (slightly gravelly sandy clay) to 2.4m, River Terrace Deposits (slightly gravelly sandy clay) to 3.2m.	(Seaford Chalk Formation) to 44.04m, weak chalk (Lewes Nodular Chalk Formation) to base of hole at 60.15m	

3.2.5 The lakes and ponds of the Colne Valley were formed following gravel extraction and groundwater in the superficial deposits is in hydraulic continuity with the water in the lakes.

Figure 1: LTP compound locations

XXXX

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3.2.6 Historical groundwater levels indicate a hydraulic connection between the Chalk and superficial deposits, but a layer of putty chalk restricts the interaction between the two aquifers to a degree (Mott MacDonald, 2014[1]). Groundwater in the Chalk is therefore only in partial hydraulic continuity with surface water in the lakes that occupy the majority of the Colne Valley.

3.2.7 The Chalk is classified as a Principal aquifer and is extensively used for groundwater abstraction, including a significant quantity of public water supply, and LTP2 is also within a Drinking Water Protection Area. The Chalk aquifer is a dual permeability aquifer which is characterised by very low flow rates through the rock matrix and much higher rates of flow through fissures. In some areas these fissures are enlarged by solutional weathering which can result in extremely fast flow rates. The Chalk is likely to be heterogeneous with the principal mechanism for groundwater flow to occur through a dendritic network of interconnected fractures and solutionally enlarged voids rather than expansive voids or karstic features.

3.2.8 Geophysical data available from different boreholes within the Chalk of the Colne Valley indicates the presence of three distinct fissure bands at 14-16m bgl, 26-32m bgl, and 48-52m bgl (Shand, P. et al., 2003[2] and Environment Agency, 2005[3]). The information available does not indicate whether these flow horizons are present over a wide lateral area, or how connected they are, but they will be acting as principal flow zones where they exist. The majority of groundwater movement is likely to be in the top 50m of the saturated zone of the Chalk aquifer and it is likely that there is layering in the aquifer with some horizons more permeable than others.

3.2.9 Signal tests conducted by Mott MacDonald (2014[1]) indicate that transmissivities in the Colne valley are very high, in the range 3,000 to 18,000 m^2/d.

3.2.10 Groundwater levels in the Colne Valley are very shallow with levels likely to be around 1 to 2m below ground level, although the level will vary depending upon proximity to Affinity Water abstraction wells and the rate of pumping from these wells. GI in close proximity to the LTP site indicates groundwater level to be approximately 1.5mbgl. The area is known to be subject to groundwater flooding in places during periods of extreme rainfall. Groundwater movement is generally in a north-west to south-east direction,

[1] Mott MacDonald, February 2014, Mid Colne and Lakes AMP5 National Environment Programme (for Affinity Water).
[2] Shand, P., Tyler-Whittle R., Bersien T., Peach D.W., Lawrence A.R. and Lewis H.O., 2003. BGS Baseline Report Series: 6. The Chalk of the Colne and Lee River Catchments. Environment Agency Technical Report NC/99/74/6 and BGS commissioned report CR/03/69N.Environment Agency.
[3] Environment Agency, 2005. Groundwater quality review: The Chalk of the Mid-Chilterns and Colne Valley, Thames Region. Report Reference: 6441R4.

albeit that the direction is likely to be locally reversed towards the Affinity Water abstractions.

3.2.11 The Geoenvironmental report[4] concluded there were no historical sources of contamination present at the LTP2 site. Low level hydrocarbon contamination was present in groundwater within both the chalk and overlying superficial deposits across the Colne Valley, with no discernible discrete source.

3.3 Groundwater interactions

Affinity Water abstractions

3.3.1 Affinity Water is licenced to take xxxx from the Chalk aquifer in this area as part of the xxxx. These volumes are average values and daily peaks could exceed these values. The two wells closest to the LTP works, xxxx, are licenced to abstract up to xxxx.

3.3.2 All of the large public water supply groundwater abstractions have SPZs defined for them. These comprise three zones:

- inner zone (zone 1) - defined as the 50 day travel time from any point below the water table to the source;
- outer zone - defined by a 400 day travel time from a point below the water table; and
- total catchment area - defined as the area around a source within which all groundwater recharge is presumed to be discharged at the source.

3.3.3 The SPZs are defined by modelling and are based on best available data and licensed (rather than actual) abstraction rates. These zones are best estimates and in heterogeneous aquifers such as the Chalk should be taken as indicative rather than definitive, particularly around LTP2 as xxxx is not operational. The inner and outer zones could be greater in extent and may be a slightly different shape where there are preferential flow zones. All modelling is dependent upon the available data and, where this is limited, the use of interpolation. SPZs should therefore be used with a degree of caution. Given the heterogeneous nature of the aquifer and the available hydrogeological data further groundwater modelling would be unlikely to increase the certainty of the hydrogeological environment and in particular groundwater flow paths

[4] Align, 2019. Geoenvironmental Report: Colne Valley Viaduct. Document no: 1MC05-ALJ-EV-REP-CS01_CL01-100210

from proposed structures. Modelling has therefore not been undertaken as part of this hydrogeological assessment.

3.3.4 The xxxx abstraction is currently not in operation due xxxx and there are no plans to bring it back into operation during the planned works at LTP2. It is therefore not considered further in this assessment.

3.3.5 The xxxx abstraction, which is xxxx of LTP2, comprises xxxx boreholes drilled to about xxxx depth with rest water level at about 2m below ground level. The boreholes penetrated about xxxx thickness of gravel. Affinity Water report that xxxx.

3.3.6 xxxx

3.3.7 Construction activities that take place beneath the water table within the peak demand period (between May and September inclusive) are likely to be of most concern to Affinity Water as this is when demand is highest and the resilience in the supply system is lowest. Timing is therefore important in planning the LTP construction works and considering the potential effects on public water supplies.

Private licensed and unlicensed abstractions (1km radius)

3.3.8 One licensed private abstraction (Environment Agency Licence no.: 28/39/28/0509) was identified in the Environmental Statement approximately 615m south-west of the LTP compound and was indicated to be used for mineral washing at a quarry.

3.3.9 There is the potential for further unlicensed supplies to exist, as a license is not required for abstraction volumes less than $20m^3$ per day. Information requests were sent to South Buckinghamshire County Council, Three Rivers District Council and the London Borough of Hillingdon Council to gain an update on the number and locations of any unlicensed supplies, and replies were received from all except the London Borough of Hillingdon.

xxxx

No additional abstractions to those identified in the Environmental Statement were reported.

3.4 Surface water interactions

3.4.1 Much of the floor of the Colne Valley in the area surrounding the LTP location has been subject to sand and gravel extraction with post extraction restoration as a series of lakes. The depth of removal and the thickness of material remaining is very variable, partly being dependent upon the amount of silt in the sand and gravel deposits. As noted above, there is thought to be some continuity between water in these lakes and that in the Chalk, but the degree of continuity depends upon the amount of silt in the lower sand and gravel horizons and the extent to which the upper layers of the Chalk are clay-like "putty" chalk. Similarly, interaction between the Newyears Green Bourne and groundwater will be limited by silt horizons within the underlying alluvium.

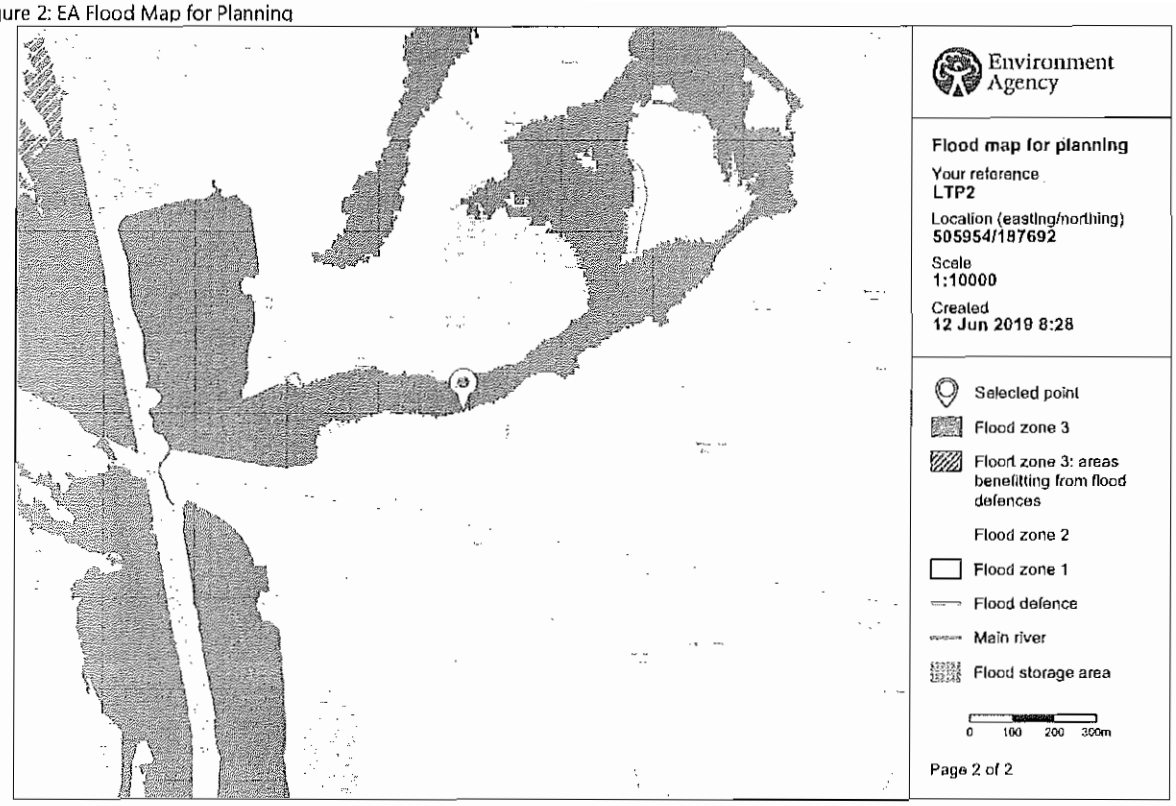
3.4.2 The LTP compound is approximately 200m from Harefield No. 2 Lake, with the Newyears Green Bourne (NYGB) located approximately 25m to the north of the compound.

3.4.3 The NYGB is classified as a main river and predominantly drains a rural setting. Starting from Battlers Wells Wood the river flows through Scarlet Spring then skirts the former Newyears Green landfill site in a culvert and eventually drains into Harefield No. 2 Lake, a large lake covering an area of approximately 15ha previously quarried for sand and gravel and currently used as an amenity lake. The river then continues, on the south side of the lake and eventually flows into Fray's River near Denham Lock. The NYGB is also fed by groundwater, giving high base flows during the winter and lower or no flows in the summer. With low flows in the summer high levels of ammonia had been detected in 1997.

3.4.4 On the west side of Harefield No. 2 Lake the banks of the Grand Union Canal are higher than the floodplains and thus the canal forms a barrier to surface water flows over a range of events.

3.4.5 Environment Agency's Flood map for Planning (replicated in **Error! Reference source not found.**) for fluvial flooding indicates much of the Colne valley is within Flood Zone 3 (FZ3), an area that has a 1% risk of fluvial flooding in any one year and within Flood Zone 3 there are areas with a higher 5% risk of flooding. The flood map also indicates that the Grand Union Canal, with its banks at a higher level than the surrounding topography, forms a barrier to surface water flow, confining the River Colne flooding to the west side of the canal. Therefore, flood water levels on the east side of the canal will predominantly be dependent on fluvial flow in the NYGB river and surface water runoff.

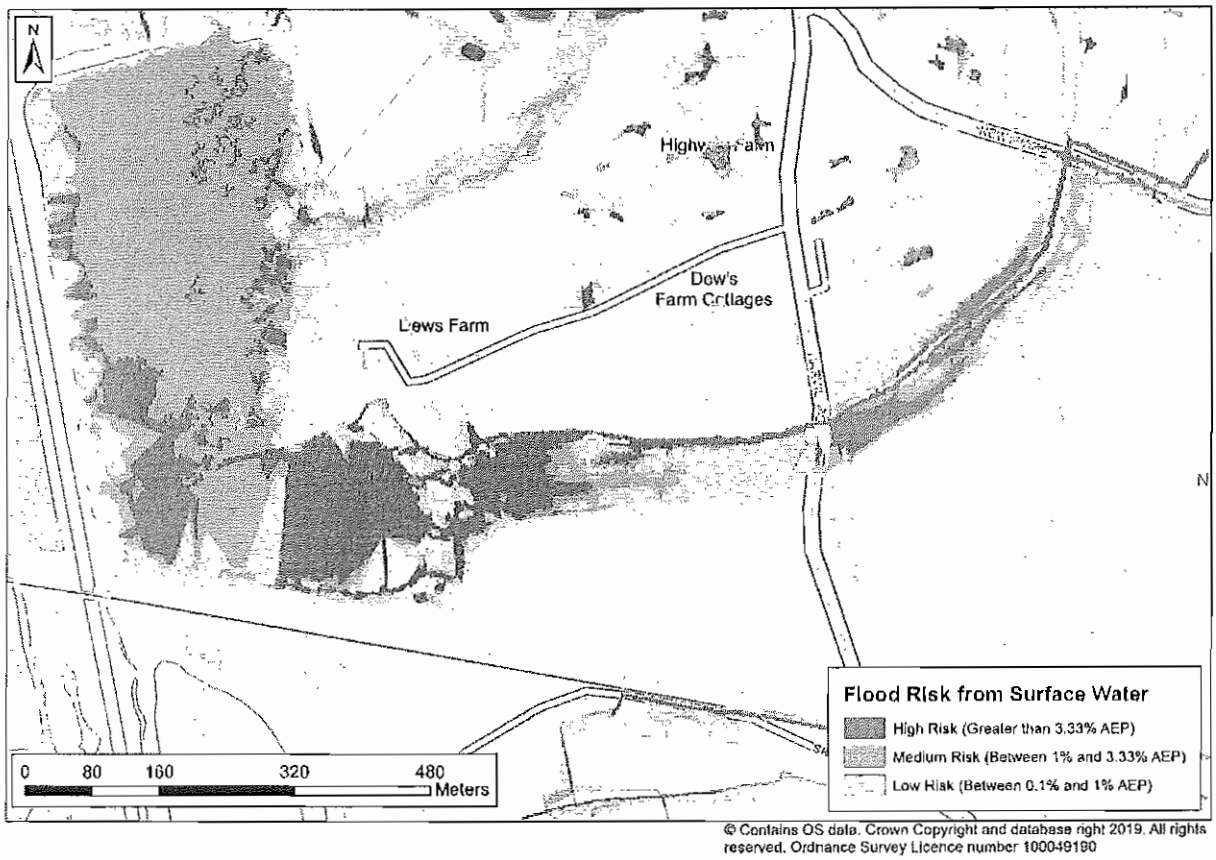
Figure 2: EA Flood Map for Planning



3.4.6 The EA flood envelopes show fluvial flooding on both banks of the NYGB between Harefield No. 2 Lake and Harvil Road for the 1% (FZ3) and 0.1% (FZ2) events and Harefield No. 2 Lake has a higher flood risk with the flood level overtopping the banks for a 3.33% event, approximately 150m from the LTP works. This indicates that part of the LTP platform footprint falls within FZ3.

3.4.7 The Environment Agency's flood risk maps for surface water runoff and reservoir breach are also shown in **Error! Reference source not found.**. The surface water flooding map indicates a significant proportion of the LTP platform footprint will be within the flooded area.

Figure 3: EA Surface Water Flood Risk



3.4.8 As the flood water levels in the River Colne will have no effect on the LTP site, fluvial flood water levels within the site will be predominantly influenced by flood water levels in the NYGB. Therefore, interim hydraulic modelling of the NYGB was carried out using LiDAR data, inflow hydrographs at Harvil Road and the Harefield No. 2 Lake water levels for 5%, 1% and 0.1% risk of flooding in any one year events. The flood maps produced indicated shallower but more widespread flooding covering a larger part of the platform footprint than shown in the EA flood maps for similar events. These conservative modelling results will be used in consideration for the temporary works. Furthermore, the model shows no flooding on the right bank of the NYGB, contrary to the EA flood map. The LiDAR data hasn't been further corroborated to known levels or topographical data and with assumptions the modelled output will be indicative at best to ascertain the changes in flood water levels and flood storage loss estimates.

3.5 Ecological designations

3.5.1 Many of the lakes and ponds of the Colne valley make up the Mid Colne Valley Site of Special Scientific Interest (SSSI). It is understood that the SSSI notification is primarily linked to ornithological value, particularly for over wintering birds. The SSSI is located approximately 1.5km to the north-west of the LTP site and up hydraulic gradient and so is not considered further in this assessment.

4 Construction and monitoring

4.1 Proposed Load Test Pile construction activities

4.1.1 The LTP works at this location will consist of the construction of the following:

- 1 No. bored pile with bentonite used as the support fluid. The piles will be cast in-situ by pouring concrete into the pile hole, displacing the bentonite which would be collected and treated/disposed of off-site.
- 1 No. bored pile with bentonite used as the support fluid with delayed concrete pour to simulate the d-walls used for shaft construction. The pile will be cast in-situ by pouring concrete into the pile hole, displacing the bentonite which would be collected and treated/disposed of off-site.
- 3 No. bored piles with polymer used as the support fluid. The pile will be cast in-situ by pouring concrete into the pile hole, displacing the polymer which would be collected and treated/disposed of off-site.
- 2 No. driven steel piles.
- 8 No. Continuous Flight Auger (CFA) 'reaction piles' to assess the load bearing capacity of the driven steel piles.

4.1.2 Pile testing will be carried out on a raised platform as shown in Figure 4 below. Topsoil will be stripped for reuse and the underlying material will be treated with Geobind[6] to stabilise the sub-soil and enhance its strength. The use of this material has already been discussed[7] with the Environment Agency and approval has been granted for its use as part of Stage 1 (compound preparation works). It is therefore not assessed further in this report.

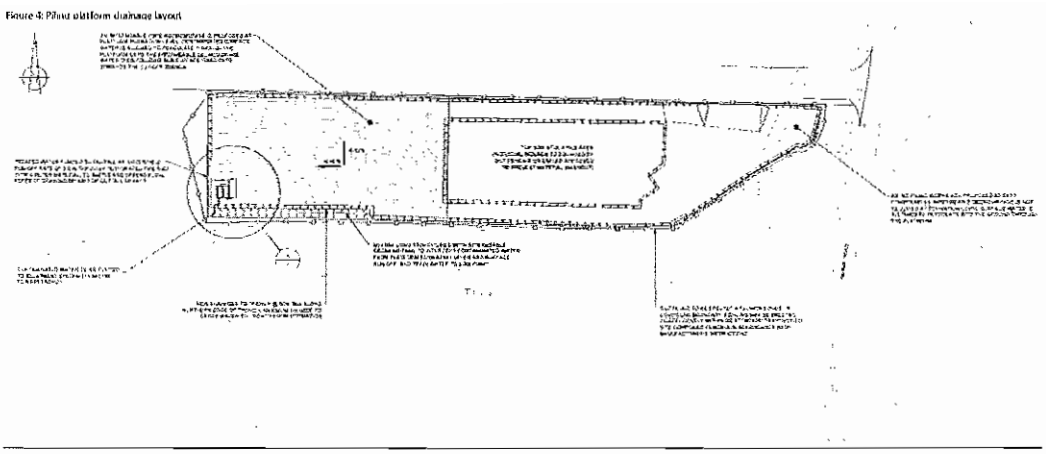
4.1.3 The piling platform is sub-divided into two sections, both of which will be constructed with Highways specification 6F5 material, either comprising virgin crushed stone or

[6] https://geobind.com
[7] Align 2019. Use of Geobind for ground improvement at LTP2 – Water Environment Assessment. Document no.: 1MC05-ALJ-EV-REP-CS01_CL01-000057

recycled aggregate including crushed hardcore/concrete. At both the east and west platform the 6F5 will be constructed over the Geobind layer at formation level. Water will be allowed to percolate through the platform onto the low permeability Geobind layer and will follow the sub surface gradients towards the cut-off trench, itself lined with impermeable geomembrane (Figure 4, below). Runoff from the platform will drain into the cut-off trench (Figure 5) for temporary storage and if water quality is satisfactory will pass through an attenuation tank and in pipe to the Newyears Green Bourne (Figure 6) if water quality is satisfactory, otherwise it will be disposed of off-site by tankers.

4.1.4 A method statement for the bentonite and polymer piles is provided in Appendix A, with the method statement for the jetty pile and CFA piles provided in Appendix E.

Figure 4: Pilbui platform drainage layout



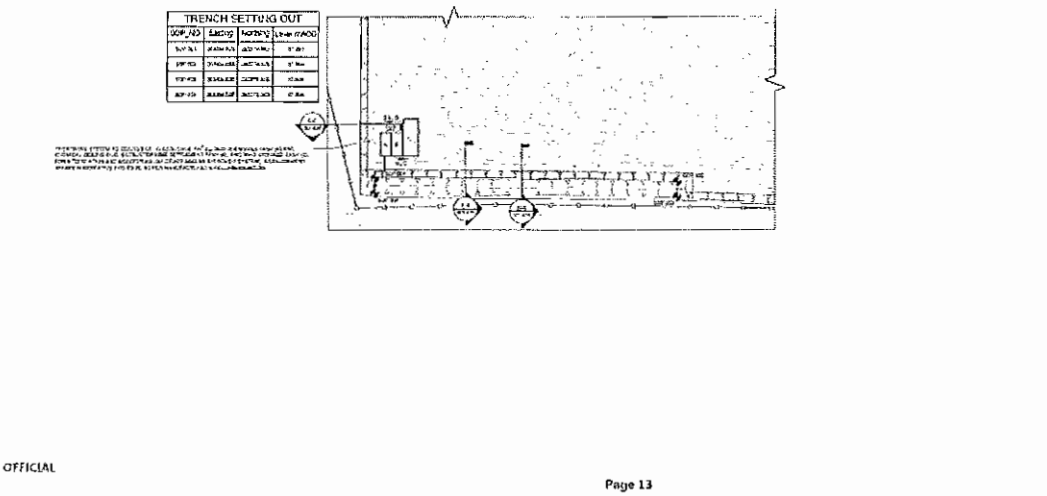


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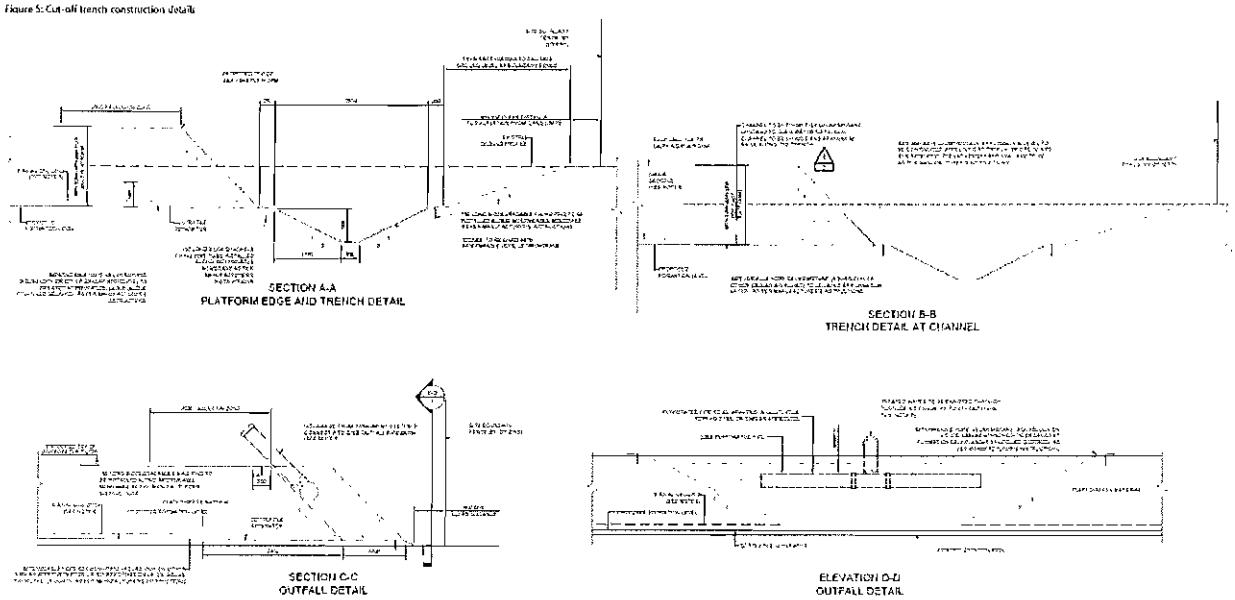
Figure 5: Cut-off trench construction details

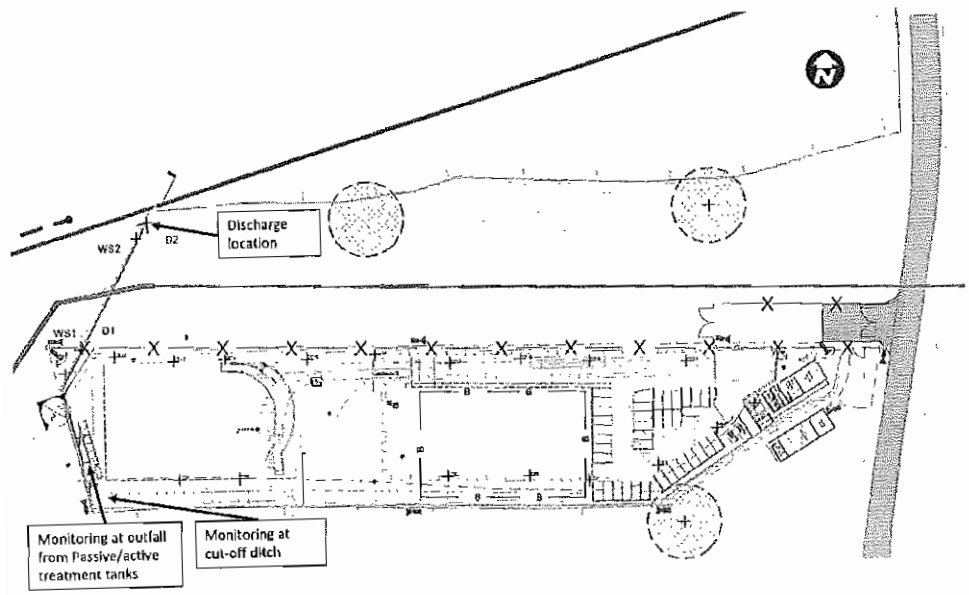


D1218

D1078

Figure 6: Piling mat discharge location

NOTES:
D1/D2 - DRAINAGE PIPE SETTING OUT POINTS
WS1/WS2 - WATER SUPPLY PIPE SETTING OUT POINTS.
DRAINAGE PIPE BURIED TRENCH EXCAVATION FROM D1 WITH 1:60 SLOPE TOWARDS D2
WATER SUPPLY PIPE BURIED 300 MM BELOW BACKLOG CROSSING CADENT GAS AREA



D1219

D1079

4.1.5 Two groundwater monitoring boreholes have already been completed at LTP2 (see completion details in Table 2), with two more to be completed before the bored piling works begins. These boreholes have been consented already and fall outside of the remit of this risk assessment. Provisional timings of the LTP works are presented in Appendix B, with the proposed site layout shown in Figure 7.

4.1.6 All bored piles will be 1.5m in diameter and extend to a depth of 45m, except the delayed bentonite pile which will extend to a maximum depth of 60m below ground level. The piled holes will be constructed using the method outlined below and which applies irrespective of whether bentonite or polymer is used as the support fluid:

- Lead casing will be vibrated or rotated into the ground to the required level whilst also projecting 1m above the level of the piling platform. Boring will then commence, with bentonite or polymer used as the support fluid.
- The level of support fluid in the pile bore will be maintained at a minimum of 1.5m above standing water level at all times during the pile excavation process. Any sudden drop in support fluid will be identified immediately and a measurement would then be recorded from the top of casing to the support fluid level in the bore and the volume of fluid lost into the void would then be calculated. In the event of a complete loss of support fluid the pile will be backfilled.
- Once the bore has reached the required depth, the piles will be cast in-situ by pouring concrete into the pile hole, displacing the support fluid which would be collected and treated/disposed of off-site.
- It is expected that approximately 300m^3 of bentonite (bentonite would be reused in each hole where possible), 330m^3 of polymer and 558m3 of concrete would be required to construct all of the bored piles.

4.1.7 The jetty load test piles will take the form of 2 No. driven tubular steel piles, approximately 0.8m in diameter and approximately 30m deep which will be vibrated and then hammered into position. Around each steel pile, 4 No. reaction piles will be constructed in a square configuration to provide the anchoring point for the pressure loading required to load test the steel jetty piles.

4.1.8 Each reaction pile is expected to be 1.2m in diameter and approximately 30m deep. The reaction piles are expected to be constructed using the CFA method, which involves rotating a full-length auger into the ground and then pumping concrete down the hollow stem of the auger into the hole as the auger is removed, but may be bored using polymer or bentonite as a support fluid in a similar manner to the load test piles.

4.1.9 After the tests are complete all piles will be trimmed down to 1m below ground level and then left in situ. The area will be reinstated to its original state and handed back as per the location agreement.

Figure 7: Location 2 LTP layout

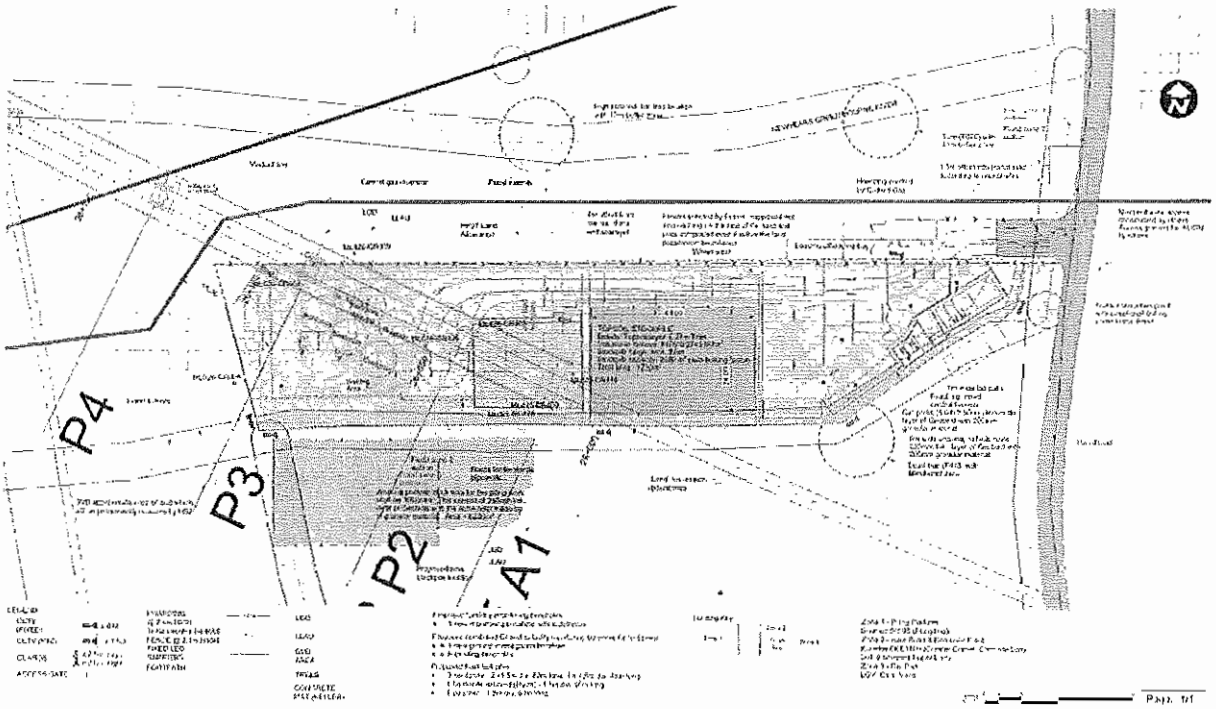


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Table 2: Monitoring borehole installation details

Monitoring well ID	Approximate Location (NGR)	Scheduled depth (m)	Screen depth (mbgl)	Screen length (m)
Groundwater Monitoring BH1 (ML026-CR406)	505894, 187681	60	Only installed through Chalk, likely to be from between 20mbgl to 60mbgl	40
Groundwater Monitoring BH2 (ML026-RC528)	505910, 187664	60		40
Groundwater Monitoring BH3 (ML026-RO425)	505880, 187701	45	Screened from 10mbgl to 45mbgl	35
Groundwater Monitoring BH4 (ML026-RO426)	505870, 187669	45		35

4.2 Potential effects of construction on the groundwater environment

4.2.1 The potential effects of the construction activities detailed in Section 3 are outlined below, with the risks to groundwater assessed in Section 5.

Water quality

Chalk turbidity

4.2.2 Chalk generally comprises coccoliths, foraminifera and other shell debris, cemented together to lesser or greater degrees. The coccoliths are particularly small being several µm across. Any construction work can result in disintegration of the chalk mass into these fine particles which, when the work is below or close to the water table, has the potential to induce chalk turbidity. Due to their small size these particles do not settle quickly and can rapidly migrate through fissures in the aquifer. xxxx. One private water supply is also present within 1km of the LTP Location, but as this is used for mineral washing it is unlikely to be negatively impacted if turbidity levels in abstracted water increases as a result of pile construction.

[8] The Water Supply (Water Quality) Regulations 2018 (SI 2018/647).

Bentonite turbidity

4.2.3 Bentonite includes a number of naturally occurring clays with sodium bentonite and calcium bentonite being most widely used in industry. As clays, they have very fine particle sizes and so do not settle quickly and can rapidly migrate through fissures in the aquifer. For the piling, bentonite is mixed with water to form a 5% (or thereabouts) solution which is used to support the bored hole prior to installation of the reinforcing bars and concrete. Due to its electrochemical properties the bentonite is thixotropic such that it gels when left undisturbed but flows when it is agitated. Bentonite slurry can penetrate the wall of the bore and then "gel" to form a skin on the walls of the pile hole and can restrict water movement into or out of the hole, provided the hydrostatic pressures are balanced. It is also possible that the bentonite (depending on its characteristics, including viscosity) could limit migration of chalk turbidity by a combination of binding to chalk particles and forming a skin on the walls of the bored piling hole.

4.2.4 Where the pile hole encounters a void, the bentonite could move out of the hole and if the void is well connected to the aquifer could result in migration and could pose a risk to public and private abstractions. However, as noted above, when the bentonite is not agitated it will form a "gel" which will limit the potential for migration. Furthermore, if bentonite starts to be lost from the pile hole further losses can be limited by the addition of sand and increasing the concentration of bentonite to thicken the support fluid. What is not known is what flow velocity is required for bentonite migration, nor how quickly it would settle out in the aquifer, nor whether changes in pumping rates could re-instigate migration in the future. Assessment regarding this is ongoing at the load test piling site close to the northern end of the Colne Valley Viaduct known as LTP1.

4.2.5 Bentonite is unlikely to degrade as it is stable and is unlikely to have any significant effect on the chemical characteristics of groundwater. A typical material safety data sheet for bentonite is provided in Appendix C.

Polymers

4.2.6 ALIGN is evaluating using polymers as an alternative support fluid to bentonite, as dependent upon testing, technical advantages such as fluid loss control, accelerated particle sedimentation and soil encapsulation will be available to the construction team. The use of polymer support fluid also generates substantially less waste. Details of the proposed polymers for the Load Test Pile at Location 2 are provided in Appendix D. The polymers will typically be about 99.8% water when mixed. Like bentonite they are designed to form a film on the inside of the borehole, albeit that polymers do it in a very different way. Rather than forming a cake on the surface of the bore wall, they enter the

soil structure where the polymer strands lock together. Notwithstanding this, there remains the potential for polymer migration in groundwater, resulting in turbid groundwater.

Cement/grout

4.2.7 Cement/grout contamination of groundwater will be due to concreting work to form the in-situ concrete piles.

4.2.8 The impact of cement/grout on groundwater due to the construction of in-situ concrete piles will be mainly due to hydrodynamic dispersion rather than diffusion and with regional flow in the south-easterly direction (albeit potentially affected by pumping at xxxx PWS) the affected areas are likely to the south-east of the site. However, the risk recedes with time with hardening of the concrete. Cement/grout tends to be highly alkaline, with pH of 10 to 12 not being uncommon, and can pollute water supplies if it gets into them. Cement contamination can also affect inorganic parameters in addition to turbidity and taste. Drinking water has an upper pH limit of 9.5. There is a risk that migration of cement or grout could impact water quality, although the potential for this can be restricted by careful handling and use, control of volume used, and by using quick setting materials. There is limited potential for migration if the raw materials are appropriately managed and those pumped underground are quick setting. For the piles, concrete with a typical cure time of 6 hours will be used.

Groundwater flow paths

Creation of preferential vertical pathways

4.2.9 There is the potential for the piles to introduce vertical pathways that could provide a route for contamination of the Chalk aquifer from surface/shallow sources of pollution derived either from LTP works or from historical pollution within the wider area. Although the superficial sands and gravels may naturally be in hydraulic continuity with the Chalk, the degree of water movement may be limited by the presence of silts in the sand and gravels, in addition to the presence of putty chalk at the top of the weathered horizons. Any construction activity that could result in a preferential pathway between the sand and gravel and the chalk aquifer, particularly where the latter is well fissured, could result in greater water movement than is currently the case. This could result in the introduction of pollutants into the chalk aquifer.

4.3 Potential effects of construction on the surface water environment

4.3.1 The potential effects of the construction activities detailed in Section 4.1 are outlined below, with the risks to surface water assessed in Section 5.

4.3.2 Chalk streams like the NYGB will naturally contain a background concentration of chalk turbidity (albeit that this is very low except during periods of intense rainfall), but any increase in the level of suspended solids (whether from chalk, bentonite, polymer or cement turbidity) could have detrimental effects on the health of the surface water bodies. In addition, surface waters could be impacted chemically from spillage of cement or polymer. Cement/grout tends to be highly alkaline, with pH of 10 to 12 not being uncommon, and could raise pH in any receiving waters potentially leading to knock on effects on the solubility and bio-availability of inorganic substances.

4.3.3 The polymers proposed to be used at LTP 2 contain acrylamide which is defined as a hazardous substance under the Water Framework Directive (2000/60/EC)[9] and Groundwater Daughter Directive (2006/118/EC) (GDD)[10].

4.3.4 The works are located in relatively close proximity to lakes and NYGB, but direct effects on surface water are not anticipated from LTP activities due to the implementation of standard management practices (outlined below in Section 4.4) during construction.

4.3.5 Indirect effects could occur if pollutants (particles or chemicals) migrate within groundwater which subsequently discharges at one of the water features listed above. This is not considered to be a significant risk due to that fact there are no major springs feeding the watercourses in this area, indicating that baseflow supporting these features is largely diffuse and from superficial deposits as much as from the Chalk and so less sensitive to any increased turbidity carried within it. In addition, the proposed works are largely to be undertaken in the chalk, with casing installed through the superficial deposits. As most interaction with surface water features will be via the superficial deposits, primarily the sand and gravel, no significant adverse effects via the diffuse flow pathway to surface water are anticipated.

4.3.6 At the west platform, the cut-off trench will collect both the runoff water and the water that infiltrates through the piling mat. This water could potentially contain contaminants derived from spillages of bentonite or polymer occurring during the piling works and

[9] DIRECTIVE 2000/60/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 23 October 2000 establishing a framework for Community action in the field of water policy

[10] DIRECTIVE 2006/118/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 12 December 2006 on the protection of groundwater against pollution and deterioration

concrete wash water and other contaminants such as oil and silt. Concrete wash water is likely to have a high pH and can include elevated metals, particularly chromium. Contamination could occur if concrete wash water was disposed over land or into surface waters.

4.3.7 At the east platform, as no piling works are proposed, and no bentonite or polymer stored, there is not anticipated to be contaminants within the water that infiltrates through the piling mat.

4.4 Material management during construction

4.4.1 Bentonite will be delivered to site as a powder and stored in shrink wrapped bags in a designated area under waterproof cover. Mixing of the powder with water will take place in a calibrated jet mixer and then the bentonite slurry will be pumped to storage tanks to hydrate for at least 12 hours before use. The storage, mixing and treatment facilities (termed the bentonite plant) will be sited upon an impermeable base, bunded on all sides with a concrete block wall or similar to contain any accidental spillages.

4.4.2 Polymer will be delivered to site in shrink-wrapped 25Kg bags that will be stored in a designated area under waterproof covers. The polymer will be mixed directly in the mix tank by sifting the powder directly into the stream of the mix water over a deflector plate with agitation by the use of aeration pipes to ensure complete mixing. As with bentonite, the storage, mixing and treatment facilities (termed the polymer farm) will be designed to limit the potential for loss to the environment.

4.4.3 During the excavation process for the test piles the bentonite support fluid collects soil particles held in suspension which may include chalk, clay, silt, sand and fine to medium gravel. On completion of the pile excavation process the bentonite in the bore will be exchanged with clean bentonite by pumping the bentonite from the bottom of the bore back to the bentonite plant for cleaning using a desander, whilst simultaneously clean bentonite is pumped into the top of the pile bore to maintain the fluid level in the bore. The polymer does not require such cleaning.

4.4.4 During the concreting stage as the concrete rises in the bore, the bentonite support fluid is pumped from the top of the pile bore back to the relevant storage tank ready for reconditioning / re-use. Pumping back will continue until the concrete level is a few metres from the top of the temporary casing. The remaining bentonite at the intersection with the concrete is not cleaned but is pumped directly to a waste tank for later removal to a licensed tip as it will be too heavily contaminated with concrete to be reused. The reconditioning process involves passing the bentonite fluid through a desander, which removes the solids held in suspension in the bentonite by passing the

fluid over coarse vibrating screens to remove large solids and then though a series of hydrocyclones to remove the smaller particles, then onto dewatering screens which effectively dries the sand, which is then discharged onto a spoil heap. A containment area for recovered solids will be constructed in front of the desander to collect this material before disposal off site.

4.4.5 In addition to the desanding equipment, a desilter, centrifuge or filter press may also be used to segregate solid material from liquid waste. As with the desanding equipment, the material removed from the slurry will be discharged into a containment area for recovered solids, where it will be removed for disposal from site to the appropriate licenced tip.

4.4.6 The waste generated from the bentonite cleaning process will be collected in front of the cleaning plant on an impermeable surface, where it will be contained and disposed of off-site.

4.4.7 When concreting the bore in which polymer is used as the formation stabiliser, the polymer will be displaced and collected in the same way as the bentonite. However, the polymer will not require desanding etc., but will be pumped to a storage tank for reconditioning and re-use or if it is contaminated it will be stored pending 'treatment' and disposal.

4.4.8 Standard construction practices will be adopted to manage other materials including fuels, chemicals and any wastes in order to reduce the risk of pollution of surface water and groundwater. These will include the use of double bunded tanks for fuel storage, use of spill kits to manage any fuel or oil loss (e.g. from burst hydraulic hoses), weekly plant inspections etc. Materials imported for road and yard surfaces and piling mats will be inert materials that are appropriate for use and will not represent a risk to groundwater.

4.4.9 The bentonite plant/polymer farm is located on the west platform so will be constructed on a low permeability base of Geobind with bunds constructed around to isolate any potential spills and waste water from within the bunded area will be tankered off site.

4.4.10 At the west platform a lined trench will be constructed to intercept water from the platform base layer. This water may contain cement, bentonite or polymer which will be treated on site using a passive attenuation system for silt removal and subsequent discharge at greenfield runoff rate, as shown in Figures 4 and 5. If water quality is unsatisfactory after passing through this system it will be tankered off site for disposal. Concrete wash water is to be contained and disposed off-site to a waste management facility.

4.4.11 An emergency preparedness plan will be in place and will be reviewed periodically to ensure it is up to date, with all works being conducted in line with the contents of this plan.

4.4.12 Through these material management procedures, it is anticipated that there will be no significant risks to the water environment from material storage and handling and, therefore, additional risk assessment / mitigation is not required for these elements.

5 Risk assessment

5.1 Methodology

5.1.1 The risk assessment has been completed using the standard "source-pathway-receptor" approach whereby unless all three of these elements are present there can be no risk to a receptor. Potential contaminant sources have been outlined in Section 4, with pathways and potential receptors identified in Section 3. These are summarised in Table 3.

Table 3: Identified sources, pathways and receptors relevant to the water environment

Source	Pathway	Receptor	Possible effect
Turbidity – Pile drilling and construction increasing turbidity (chalk, bentonite, cement, polymer) / suspended solids	Migration in groundwater	Mid-Chilterns Chalk WFD water body / Principal aquifer / Drinking Water Protected Area	Changes in water quality
		Private groundwater abstractions	
		XXXX PWS	
Cement – Pile construction resulting in contamination from cement (Cr, pH)	Migration in groundwater	Mid-Chilterns Chalk WFD water body / Principal aquifer / Drinking Water Protected Area	Changes in water quality
		Private groundwater abstractions	
		XXXX PWS	
Polymers used in construction of pile holes*	Migration in groundwater	Mid-Chilterns Chalk WFD water body / Principal aquifer / Drinking Water Protected Area	Changes in water quality
		Private groundwater abstractions	
		XXXX PWS	
Construction of piles	New preferential vertical pathway created	Mid-Chilterns Chalk WFD water body / Principal	Changes in water quality

Source	Pathway	Receptor	Possible effect
		aquifer / Drinking Water Protected Area	
		Private groundwater abstractions	
		xxxx PWS	
Drainage water from piling mat, potential contaminants from Geobind and concrete wash water	Discharge to surface water	NYGB and Harefield No. 2 Lake	Changes in water quality

5.1.2 Each of these is assessed below, with the exception of those associated with polymers*, which are assessed in Appendix D.

5.2 Turbidity

xxxx PWS

5.2.1 xxxx PWS is located xxxx of the LTP site and is unlikely to draw a significant proportion of its water in from the vicinity of the LTP Location. As such, no mitigation nor real time monitoring of turbidity will be necessary at the LTP site. Affinity will continue to monitor turbidity at the xxxx PWS throughout the works in their normal manner. This low risk approach follows the findings of the LTP1 tests that were conducted a great deal closer to a PWS but which did not result in any elevated turbidity at the abstraction boreholes.

Drinking Water Protected Area

5.2.2 Turbidity generated during the works would not result in a significant impact at the scale of the Drinking Water Protected Area due to:

- the relatively short duration of the works;
- the relatively small scale of the works;
- the attenuation, including dispersion and dilution, effects in the area immediately around the LTP2 – Location; and
- the evidence from LTP1 which showed little turbidity migration.

5.2.3 No mitigation is therefore required for the Drinking Water Protected Area.

Private abstractions

5.2.4 One licensed private abstraction (Environment Agency Licence no.: 28/39/28/0509) was identified approximately 615m south-west of the LTP compound and was indicated to be

used for mineral washing. This abstraction is located a significant distance from the location of the proposed LTP works and is not down gradient of it and therefore there is no risk to this supply and no mitigation is required.

5.3 Cement / Grout

xxxx **PWS**

5.3.1 Chromium concentrations in cement are limited by EU law to 2ppm (2mg/kg) and may not contain when hydrated, more than 0.0002% soluble chromium (VI) of the total dry weight of the cement (EU DIRECTIVE 2003/53/EC)[11].

5.3.2 In order to provide an approximation of the potential effect on water quality at xxxx from chromium (VI) the following assumptions have been made:

- Chromium (VI) concentrations in all cement used is at the maximum 2ppm concentration.
- The proportion of cement by volume present in the various assets is: 15% in LTP pile and 15% in CFA pile.
- All water soluble chromium within the cement is leached out within 90 days (leaching rate of 2mg/kg).
- All leached chromium is drawn into the xxxx abstraction.
- The xxxx PWS is abstracting xxxx (the average demand output).
- There is no attenuation in the pathway from the pile to the abstraction well. This is clearly unrealistic as the PWS is a significant distance from LTP2.

5.3.3 Using these assumptions it is estimated that chromium (VI) concentrations within the water drawn into the xxxx abstraction would in the very (unrealistic) worst case increase by up to 0.5µg/l.

5.3.4 Literature review indicates that leaching rates of chromium from monolithic cement composites (concrete blocks) are relatively low. Estokova et al. (2018)[12] performed 90 day tank leaching tests with deionised water and recorded leachate rates of 0.92mg/kg after 90 days using concrete cubes of 150x150x150mm. Applying this leaching rate to the volume of concrete to be used during the LTP works and then assuming that this entire load is drawn into the xxxx abstraction with no attenuation, the dilution effect results

[11] DIRECTIVE 2003/53/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 June 2003.
[12] Estokova, A., Palascakova, L. and Kanuchova, M., 2018. Study on Cr(VI) Leaching from Cement and Cement Composites. International Journal of Environmental Research and Public Health. 2018 Apr; 15(4): 824.

in an overall increase in total chromium concentration in abstracted water of 0.3µg/l. In comparison the drinking water standard for total chromium in potable water is 50µg/l.

5.3.5 The above estimates are clearly unrealistic as the leaching from a small block of concrete will be substantially greater than the leaching from a large block per kg of material. This is because there will be no leaching from the centre of a large mass of concrete as the water will not come into contact with this central material. Although we do not have any data, it is likely that at most the leaching would only occur from the outer 100 or 200mm of the pile, and that the bulk of the concrete within the pile would not leach. With an assumed 200mm leaching zone, the increase in chromium (VI) concentrations would not be measurable at an estimated 0.03µg/L.

5.3.6 Based on the above estimates, which are conservative, even with a 200mm wide leaching zone, the risk to Affinity's PWS from chromium (VI) or from total chromium is extremely low and mitigation is not required. In addition, the abstraction is located approximately xxxx of the LTP site and it is unlikely that xxxx will draw water in from the vicinity of LTP2. As such, no mitigation nor real time monitoring of chromium will be necessary, but samples will be taken and subject to laboratory analysis to check on the above assertion that there will be no significant effect on chromium concentrations in groundwater.

5.3.7 In addition to chromium, there is a risk from other constituents in cement, the most significant being major ions that result in elevated pH. This risk predominantly occurs when the cement is first introduced into the ground as the cement is wet and has the potential to move. As the cement cures so the potential for an effect on water quality will markedly reduce. Furthermore, as it is only the outer skin of the of the pile that will come into contact with groundwater, the potential risks are reduced further. The potential effects on groundwater quality are therefore likely to be limited to a period of 8 to 12 hours after it is placed and so provided that groundwater is not turbulent at the point of placement a significant effect on pH is not anticipated. A very localised and short term effect is therefore anticipated, but this would unlikely be detectable outside of the LTP2 compound.

5.3.8 Mitigation will therefore not be required for the use of cement provided there are good handling procedures for the raw materials and rapid cure cement is used and not placed into flowing water.

Drinking Water Protected Area and Private abstractions

5.3.9 As indicated above, there is no risk to the identified private water suppliers or the Drinking Water Protected Area from turbidity associated with the proposed construction works at the LTP. For similar reasons there is no risk from cement contamination.

5.4 Creation of preferential vertical pathways

5.4.1 The potential for creation of preferential vertical flowpaths is from:

- installation of the driven steel piles (vibrated and hammered into the ground) and the potential to create a flowpath around their edges;
- the potential for the steel piles to degrade in the long term and for the resulting degraded steel to form a pathway; and
- the potential for preferential pathways to form along the edges of the cast in-situ piles potentially linking the superficial deposits and the underlying chalk aquifer.

5.4.2 The driven piles will laterally displace the material that they pass through, thereby causing a local reduction in volume, increase in density and a decrease in vertical permeability. However, this is only the case where the material they pass through is cohesive rather than granular or blocky. GI information from nearby boreholes (ML026-CR009 and ML025-CR116) indicates that the superficial deposits in the area of the LTP are alluvium and river terrace deposits overlying between 10m and 20m of clay-like putty chalk and weathered bedrock material. It is likely that this material would achieve the necessary seal around the piles to prevent vertical pathways. The steel tube piles will remain in place after the LTP works are completed to prevent their removal leading to the generation of a vertical pathway. Only two steel tube piles are proposed in this area so any effect would be extremely localised.

5.4.3 Literature review of the degradation (rusting) of steel piles below the water table indicated a loss of steel thickness of the order of 1mm from both the inside and outside of the steel tubes over a 100 year period. Generation of rust would serve to reduce the rate of loss beyond that as the rust forms a protective layer that seals off the steel from the environment and also expands into the already compressed natural deposit to reduce the space available to form a preferential pathway.

5.4.4 Construction of in-situ cast concrete piles is extremely unlikely to result in the creation of vertical pathways as cement-grout poured into the bore will fill and seal off any void space associated immediately surrounding the bore.

5.4.5 It is therefore concluded that there is very limited potential for creation of such pathways in either the short or long term from piling activities. Mitigation is therefore not required. A detailed assessment of the risks of preferential pathways being created during piling is

presented in the 'Options for mitigation of the effects of piling on groundwater' report (ALIGN, 2018)[13].

5.5 Discharge of water from piling mat

5.5.1 For the east platform, as there is no proposed piling works, no storage of bentonite or polymers or concrete washing in this section there are not anticipated to be any contaminants collected within water falling on this section of the compound. The 6F5 material is pervious so will not result in the creation of point discharges causing erosion. The Geobind layer will collect runoff at the base of the platform where it will be attenuated before discharge. Therefore, there is assessed to be limited potential for contamination, erosion or increase in flood risk from the discharge from the east platform so no mitigation is proposed.

5.5.2 For the west platform, the piling works, bentonite and polymer storage and concrete wash are located on this section of the compound. Therefore, the proposed cut-off trench has the potential to discharge contaminated water that has percolating through the platform. Treatment is required before this water can be discharged and will consist of either a passive or active attenuation system for silt removal and subsequent discharge at greenfield runoff rate. The proposed discharge point is in pipe to the Newyears Green Bourne (Figure 6).

5.5.3 Mitigation using active treatment will involve the use of coagulant/flocculants within a treatment tank, which if allowed to discharge to the Newyears Green Bourne could have a detrimental impact on water quality. The risk posed by the use of these chemicals is assessed in Appendix F.

5.5.4 As potential contaminants are present, and receptors have been identified, mitigation measures are required and are outlined in Section 6.2

6 Mitigation Options

6.1 Mitigation to address risks from cement contamination

6.1.1 As indicated above, there is no specific requirement for mitigating the effects of cement / concrete use provided appropriate working methods are adopted. Given the distance of

D1234

D1094

xxxx from LTP2 and the use quick setting cement that would not be pumped into flowing water, there is no requirement to mitigate the use of cement.

6.1.2 In addition to the above, cut off criteria have been identified to ensure the works are halted if there is a risk of a significant impact during the works. This includes termination and backfilling of pile holes should more than 125% of the expected[14] cement volume be used. The contractor undertaking the piling and grouting works would use a control system to monitor cement and grout pumping rates and total discharge volume to ensure that substantial over pumping of these materials does not occur.

6.2 Mitigation to address risks from discharge of water from piling mat

6.2.1 To mitigate the potential effects of discharge of water on downstream receptors, it is proposed to monitor water within the cut-off trench to check for contaminants within the runoff and should quality be satisfactory, pump the runoff from the cut-off trench to a 30m^3 attenuation tank. Additional monitoring will be undertaken on the water in the attenuation tank prior to discharge and only when the results of this monitoring are acceptable will runoff be discharged at greenfield runoff rate.

6.2.2 If the results of the monitoring are not acceptable, then the water may be passed to an active treatment system to consist of a Siltbuster treatment plant to reduce suspended solids and adjust pH before discharge. The Siltbuster treatment plant would be likely to involve:

- a settlement unit for reduction of suspended solids;
- an optional mix tank, where CO2 and/or flocculant/coagulant would be added to correct for alkaline pH and/or to improve suspended solids settlement rate; and,
- additional monitoring before the treated water would be discharged at greenfield runoff rate.

6.2.3 Should the results of the monitoring from the outfall of the active treatment plant indicate water quality is not acceptable for discharge then it will be tankered off site for disposal.

[14] The expected cement volume comprises the theoretical volume assuming that a hole is excavated exactly to size, additional volume due to over excavation (to be estimated on site) and the normal cement loss during installation.

7 Monitoring

7.1.1 Water quality from the pile mat cut-off trench would be tested for physical field parameters two to three times per day (if water is present in the trench) using portable equipment. Water samples would be collected on a weekly basis and sent for laboratory analysis of the list of determinands set out in Table 5. The threshold levels for deciding if water quality is satisfactory to discharge over ground are set out in the LTP2 monitoring protocol[15]

7.1.2 Should water quality be satisfactory then it will be passed to the attenuation tank and stored. Pending satisfactory water quality measurements from water in the tank the runoff will ultimately be discharged at greenfield runoff rate, otherwise it will be tankered off site for disposal.

7.1.3 During piling using polymer as the support fluid, water quality samples would be collected from the monitoring boreholes on a variable frequency as detailed in Table 4. The samples will be collected at three depths in each borehole, with a sample from the top, middle and lower sections of the well screen in each hole, typically depths of 12m, 28m and 44m below ground level. The groundwater would be purged at each location before sampling and well head parameters would be monitored using portable equipment calibrated as per manufacturer's instructions and with daily checks using standards. The very small volume of purged water would be discharged over land or if appearing to be contaminated would be discharged to a storage container for testing and subsequent disposal off site.

Table 4: Monitoring frequency from boreholes during polymer piling

	ML026-CR406	ML026-CR528	ML026-RO425	ML026-RO426
Week before polymer piling commences	Once	Once	Once	Once
During polymer piling	Daily	Once	Daily	Daily
Week 1 after completion of all polymer piling	Daily	Once	Daily	Daily
Weeks 2 to 3 after completion of all polymer piling	Twice weekly	Once	Twice weekly	Twice weekly
Week 4 after completion of all polymer piling	Once	Once	Once	Once

Notes: Monitoring frequency in ML026-CR528 is reduced due to greater distance from the piling locations.

[15] Align, 2019, Water Monitoring Protocol - Load Test Pile Locations 1 and 2. Document no.: 1MC05-ALJ-EV-ESH-CS01_CL01-000002

7.1.4 The samples will be collected from 28mbgl (adjacent to the screened interval) within the boreholes after they had been purged to ensure representative samples are collected. The suites to test for are detailed in Table 5.

Table 5: Environmental sampling parameters

Group	Suite	Parameters
Physical (field)	I (a)	Electrical Conductivity, pH, turbidity, redox potential, DO., Temp
Physical (lab)	I (b)	Electrical Conductivity, pH, turbidity, total dissolved solids, COD, total suspended solids
Major ions	I (c)	calcium, magnesium, sodium, potassium, chloride, sulphate, bicarbonate/carbonate
Nitrogen species and nutrients	I (e)	total nitrogen, nitrate, nitrite, ammonia, total phosphorous, ortho phosphate
Trace metals	I (f)	aluminium, arsenic, barium, cadmium, chromium, copper, mercury, nickel, lead and zinc
Hydrocarbons	I (g)	Gasoline Range Organics/Extractable Petroleum Hydrocarbons Organics as a screening for light (C4-C10) and heavy (C10-C40) hydrocarbons
Polymer	n/a	Acrylamide

7.1.5 During piling with bentonite water samples will be collected in the same manner as for polymer piles, but the frequency of sampling will be reduced to a weekly basis, starting one week before construction begins and continuing for two weeks after construction has been completed. The samples will be collected from 28mbgl (within the screened interval) within the boreholes after they had been purged to ensure representative samples are collected, with the suites to test for detailed in Table 5.

7.1.6 Manual water level dips will be undertaken at the same time as the water sample collection.

7.1.7 After the Piling work is completed water quality data from the lab analyses will also be consulted to assess any potential impacts to the aquifer as a result of the LTP works, with the results being summarised in a report.

8 Stakeholder consultation

8.1.1 Throughout the process of preparing for and designing the Load Test Piles ALIGN has consulted with Affinity Water and the Environment Agency, the two key stakeholders for this work. In addition, consultation with other stakeholders has taken place through a

wider stakeholder engagement programme for HS2. Of particular note with regard to the LTP works is the following:

- Fortnightly updates with Affinity Water via telecoms and monthly updates via liaison meetings to ensure a no surprises approach and to check that the works fitted with operational requirements.
- Addressing concerns raised at an early stage by Affinity Water and the Environment Agency regarding the use of polymers.
- Pre-application discussions with the Environment Agency, including submission of a draft risk assessment report prior to formal submission of PPA and EPR packs.

8.1.2 This engagement has helped to shape the pile trials and monitoring programme.

8.1.3 As at LTP1, throughout the works at LTP2 there would be weekly telecoms with Affinity Water to apprise them of progress and discuss any issues arising.

Appendix A - Piling Method Statement

Already submitted to the Environment Agency and not included here due to its large size

Appendix B - Provisional Programme

Location 2 Indicative programme from February 2020 onwards – environmental related tasks only

Activity	Duration
Baseline turbidity monitoring	7 days
Turbidity monitoring during piling works	16 weeks
Monitoring runoff from piling mats	10 weeks
Bentonite plant construction	7 days
2 no. piles – bentonite support fluid	8 days
3 no. pile - polymer support fluid	12 days
2no. jetty piles and 8 no. CFA piles	8 days

All timings are provisional at time of writing

Appendix C - Bentonite MSDS

SAFETY DATA SHEET
(in accordance with Regulation (EU) 2015/830)

BERKBENT 163

SECTION 1: IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY/UNDERTAKING.

1.1 Product identifier.

Product Name:	BERKBENT 163
Chemical Name:	Bentonite
CAS No:	1302-78-9
EC No:	215-108-5
Registration No:	Exempt

1.2 Relevant identified uses of the substance and uses advised against.

This material should only be used for industrial purposes

Uses advised against:
Uses other than those recommended.

1.3 Details of the supplier of the safety data sheet.

Company:	**TOLSA**
Address:	Campezo, 1 - Parque Empresarial Las Mercedes Ed. 4 Pt2
City:	E-28022 MADRID (Spain)
E-mail:	reach@tolsa.com
Web:	www.tolsa.com

1.4 Emergency telephone number: +34 91 360 69 00 (Only available during office hours; Monday-Friday; 08:00-18:00)

SECTION 2: HAZARDS IDENTIFICATION.

2.1 Classification of the substance.
The product is not classified as hazardous within the meaning of Regulation (EU) No 1272/2008.

2.2 Label elements.

2.3 Other hazards.
The product may have the following additional risks:
Dustiness.

This product may generate dust during handling and use. May contain contain quartz (crystalline silica) as natural impurity. Long term overexposure to crystalline silica dust may cause silicosis.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS.

3.1 Substances.
Mono-constituent.

Chemical Name:	Bentonite
CAS No:	1302-78-9
EC No:	215-108-5
Registration No:	Exempt

Impurities or additives that affect the classification:

Identifiers	Name	Concentrate	(*)Classification - Regulation (EC) No 1272/2008	
			Classification	specific concentration limit

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D1103

CAS No: 14808-60-7 EC No: 238-878-4	[1] Quartz (SiO2)	0 - 1 %	-	-

(*)The complete text of the H phrases is given in section 16 of this Safety Data Sheet.
[1] Substance with a Community workplace exposure limit (see section 8.1).

3.2 Mixtures.
Not Applicable.

SECTION 4: FIRST AID MEASURES.

4.1 Description of first aid measures.
Due to the composition and type of the substances present in the product, no particular warnings are necessary.

Inhalation.
Take the victim into open air; keep them warm and calm. If breathing is irregular or stops, perform artificial respiration.

Eye contact.
Remove contact lenses, if present and if it is easy to do. Wash eyes with plenty of clean and cool water for at least 10 minutes while pulling eyelids up, and seek medical assistance. Dont let the person to rub the affected eye.

Skin contact.
Remove contaminated clothing.

Ingestion.
Keep calm. NEVER induce vomiting.

4.2 Most important symptoms and effects, both acute and delayed.
No known acute or delayed effects from exposure to the product.

4.3 Indication of any immediate medical attention and special treatment needed.
In case of doubt or when symptoms of feeling unwell persist, get medical attention. Never administer anything orally to persons who are unconscious.

SECTION 5: FIREFIGHTING MEASURES.

5.1 Extinguishing media.
Suitable extinguishing media:
Extinguisher powder or CO2. In case of more serious fires, also alcohol-resistant foam and water spray.

Unsuitable extinguishing media:
Do not use a direct stream of water to extinguish. In the presence of electrical voltage, you cannot use water or foam as extinguishing media.

5.2 Special hazards arising from the substance.
Special risks.
Fire can cause thick, black smoke. As a result of thermal decomposition, dangerous products can form: carbon monoxide, carbon dioxide. Exposure to combustion or decomposition products can be harmful to your health.

5.3 Advice for firefighters.
Use water to cool tanks, cisterns, or containers close to the heat source or fire. Take wind direction into account.

Fire protection equipment.
According to the size of the fire, it may be necessary to use protective suits against the heat, individual breathing equipment, gloves, protective goggles or facemasks, and boots.

-Continued on next page.-

SECTION 6: ACCIDENTAL RELEASE MEASURES.

6.1 Personal precautions, protective equipment and emergency procedures.
For exposure control and individual protection measures, see section 8.

6.2 Environmental precautions.
Product not classified as hazardous for the environment, avoid spillage as much as possible.

6.3 Methods and material for containment and cleaning up.
The contaminated area should be immediately cleaned with an appropriate de-contaminator. Pour the decontaminator on the remains in an opened container and let it act various days until no further reaction is produced.

6.4 Reference to other sections.
For exposure control and individual protection measures, see section 8.
For later elimination of waste, follow the recommendations under section 13.

SECTION 7: HANDLING AND STORAGE.

7.1 Precautions for safe handling.
The product does not require special handling measures, the following general measures are recommended:
For personal protection, see section 8.
In the application area, smoking, eating, and drinking must be prohibited.
Follow legislation on occupational health and safety.
Never use pressure to empty the containers. They are not pressure-resistant containers. Keep the product in containers made of a material identical to the original.

7.2 Conditions for safe storage, including any incompatibilities.
The product does not require special storage measures.
As general storage measures, sources of heat, radiation, electricity and contact with food should be avoided.
Keep away from oxidising agents and from highly acidic or alkaline materials.
Store the containers between 5 and 35º C, in a dry and well-ventilated place.
Store according to local legislation. Observe indications on the label.
The product is not affected by Directive 2012/18/EU (SEVESO III).

7.3 Specific end use(s).
Rheological Additive
Absorbent
Binder
Water retention
Retention aid
Sealant
Technological Additive for Animal Feed

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION.

8.1 Control parameters.

Work exposure limit for:

Name	CAS No.	Country	Limit value	ppm	mg/m³
Quartz (SiO2)	14808-60-7	European Union [1]	**Eight hours**		0,1
			Short term		
		United Kingdom [2]	**Eight hours**		0,1
			Short term		
		Éire [3]	**Eight hours**		0,1
			Short term		

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		United States [4] (Cal/OSHA)	**Eight hours**		0.05 respirable dust, 0.3 (Total Dust)
			Short term		
		United States [5] (NIOSH)	**Eight hours**		Potential occupational carcinogens 0.05 respirable dust, lowest feasible concentration (LFC).
			Short term		
		United States [6] (OSHA)	**Eight hours**		(Total Dust) 30 mg/m3/(%SiO2 +2)
			Short term		

[1] According both Binding Occupational Esposure Limits (BOELVs) and Indicative Occupational Exposure Limits (IOELVs) adopted by Scientific Committee for Occupational Exposure Limits to Chemical Agents (SCOEL).
[2] According Limit Value (IOELV) list in 2nd Indicative Occupational Exposure adobted by Health and Safety Executive.
[3] According Code of Practice for the Safety, Health and Welfare at Work (Chemicals Agents) Regulations adopted by Health and Safety Authority (HSA).
[4] California Division of Occupational Safety and Health (Cal/OSHA) Permissible Exposure Limits (PELs).
[5] According Compendium of Policy Documents and Statements adopted by National Institute for Occupational Safety and Health (NIOSH).
[6] According Occupational Health and Safety Standards and US Code of Federal Regulations adopted by US Occupational Safety and Health Administration (OSHA).
The product does NOT contain substances with Biological Limit Values.
Follow workplace regulatory exposure limits for all types of airborne dust (e.g. total dust, respirable dust, respirable quartz, respirable cristobalite).

A European Binding OEL (Occupational Exposure Limit) for respirable crystalline silica dust is set at 0.1 mg/m³ in the Directive (EU) 2017/2398, measured as an 8-hour TWA (Time Weighted Average)

8.2 Exposure controls.

Measures of a technical nature:
Provide adequate ventilation, which can be achieved by using good local exhaust-ventilation and a good general exhaust system.

Concentration:	**100 %**
Uses:	**This material should only be used for industrial purposes**
Breathing protection:	
PPE:	Particle filter mask
Characteristics:	«CE» marking, category III. Made of filtering material, it covers nose, mouth and chin.
CEN standards:	EN 149
Maintenance:	Check for any tears, defects, etc. before use. Since it is disposable individual protection equipment, it should be replaced after use.
Observations:	Does not protect worker unless properly adjusted. Follow the manufacturer's instructions regarding suitable use of the equipment.
Filter Type needed:	P2
Hand protection:	
PPE:	Protective gloves.
Characteristics:	«CE» marking, category II.
CEN standards:	EN 374-1, En 374-2, EN 374-3, EN 420
Maintenance:	Keep in a dry place, away from any sources of heat, and avoid exposure to sunlight as much as possible. Do not make any changes to the gloves that may alter their resistance, or apply paints, solvents or adhesives.

-Continued on next page.-

Observations:	Gloves should be of the appropriate size and fit the user's hand well, not being too loose or too tight. Always use with clean, dry hands.				
Material:	PVC (polyvinyl chloride)	Breakthrough time (min.):	> 480	Material thickness (mm):	0,35
Eye protection:					
PPE:	Protective goggles against particle impacts.				
Characteristics:	«CE» marking, category II. Eye protector against dust and smoke.				
CEN standards:	EN 165, EN 166, EN 167, EN 168				
Maintenance:	Visibility through lenses should be ideal. Therefore, these parts should be cleaned daily. Protectors should be disinfected periodically following the manufacturer's instructions.				
Observations:	Some signs of wear and tear include: yellow colouring of the lenses, superficial scratching of the lenses, scraping etc.				
Skin protection:					
PPE:	Work footwear.				
Characteristics:	«CE» marking, category II.				
CEN standards:	EN ISO 13287, EN 20347				
Maintenance:	This product adapts to the first user's foot shape. That is why, as well as for hygienic reasons, it should not be used by other people.				
Observations:	Work footwear for professional use includes protection elements aimed at protecting users against any injury resulting from an accident				

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES.

9.1 Information on basic physical and chemical properties.
Appearance:Powder
Colour: Cream to greyish / white
Odour:Odourless
Odour threshold:N.A./N.A.
pH:10-11 (10%)
Melting point:>1550 ºC
Boiling Point: N.A./N.A.
Flash point: N.A./N.A.
Evaporation rate: N.A./N.A.
Inflammability (solid, gas): Non flammable
Lower Explosive Limit: N.A./N.A.
Upper Explosive Limit: N.A./N.A.
Vapour pressure: N.A./N.A.
Vapour density:N.A./N.A.
Relative density:2.7
Solubility:Insoluble
Liposolubility: Insoluble
Hydrosolubility: Insoluble
Partition coefficient (n-octanol/water): N.A./N.A.
Auto-ignition temperature: N.A./N.A.
Decomposition temperature: N.A./N.A.
Viscosity: N.A./N.A.
Explosive properties: Non explosive
Oxidizing properties: N.A./N.A.
N.A./N.A.= Not Available/Not Applicable due to the nature of the product

9.2 Other information.
Pour point: N.A./N.A.
Blink: N.A./N.A.
Kinematic viscosity: N.A./N.A.
N.A./N.A.= Not Available/Not Applicable due to the nature of the product

SECTION 10: STABILITY AND REACTIVITY.

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10.1 Reactivity.
The product does not present hazards by their reactivity.

10.2 Chemical stability.
Unstable in contact with:
- Acids.

10.3 Possibility of hazardous reactions.
Neutralization can occur on contact with acids.

10.4 Conditions to avoid.
- Avoid contact with acids.

10.5 Incompatible materials.
Avoid the following materials:
- Acids.

10.6 Hazardous decomposition products.
No decomposition if used for the intended uses.

SECTION 11: TOXICOLOGICAL INFORMATION.

11.1 Information on toxicological effects.
There are no tested data available on the product.
Repeated or prolonged contact with the product can cause the elimination of oil from the skin, giving rise to non-allergic contact dermatitis and absorption of the product through the skin.
Splatters in the eyes can cause irritation and reversible damage.

a) acute toxicity;
Not conclusive data for classification.

b) skin corrosion/irritation;
Not conclusive data for classification.

c) serious eye damage/irritation;
Not conclusive data for classification.

d) respiratory or skin sensitisation;
Not conclusive data for classification.

e) germ cell mutagenicity;
Not conclusive data for classification.

f) carcinogenicity;
Not conclusive data for classification.

g) reproductive toxicity;
Not conclusive data for classification.

h) STOT-single exposure;
Not conclusive data for classification.

i) STOT-repeated exposure;
Not conclusive data for classification.

j) aspiration hazard;
Not conclusive data for classification.

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This product may contain quartz (crystalline silica). In 1997, IARC concluded that the respirable fraction of crystalline silica inhaled from occupational sources can cause lung cancer in humans. However, it pointed out that not all industrial circumstances, nor all crystalline silica types, were to be incriminated (IARC Monographs, Vol 68)

SECTION 12: ECOLOGICAL INFORMATION.

12.1 Toxicity.

Name	Ecotoxicity			
	Type	Test	Kind	Value
Bentonite	Fish	LC50	Fish	19000 mg/l (96 h) [1] [1] Sprague, J.B., and W.J. Logan 1979. Separate and Joint Toxicity to Rainbow Trout of Substances Used in Drilling Fluids for Oil Exploration. Environ.Pollut. 19(4):269-281 (Author Communication Used)
	Aquatic invertebrates			
CAS No: 1302-78-9 EC No: 215-108-5	Aquatic plants			

12.2 Persistence and degradability.

There is no information available on the degradability of the substances present.
No information is available regarding the degradability.No information is available about persistence and degradability of the product.

12.3 Bioaccumulative potential.
No information is available regarding the bioaccumulation.

12.4 Mobility in soil.
No information is available about the mobility in soil.
The product must not be allowed to go into sewers or waterways.
Prevent penetration into the ground.

12.5 Results of PBT and vPvB assessment.
No information is available about the results of PBT and vPvB assessment of the product.

12.6 Other adverse effects.
No information is available about other adverse effects for the environment.

SECTION 13 DISPOSAL CONSIDERATIONS.

13.1 Waste treatment methods.
Do not dump into sewers or waterways. Waste and empty containers must be handled and eliminated according to current, local/national legislation.
Follow the provisions of Directive 2008/98/EC regarding waste management.

Waste classification according to the European Waste Catalogue:
01 WASTES RESULTING FROM EXPLORATION, MINING, QUARRYING, AND PHYSICAL AND CHEMICAL TREATMENT OF MINERALS
01 04 wastes from physical and chemical processing of non-metalliferous minerals
01 04 09 waste sand and clays

Method of treatment according to Directive 2008/98/EC:
Disposal

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D13 Blending or mixing prior to submission to any of the operations numbered D 1 to D 12

SECTION 14: TRANSPORT INFORMATION.

Transportation is not dangerous. In case of road accident causing the product's spillage, proceed in accordance with point 6.

14.1 UN number.
Transportation is not dangerous.

14.2 UN proper shipping name.
Description:
ADR: Transportation is not dangerous.
IMDG: Transportation is not dangerous.
ICAO/IATA: Transportation is not dangerous.

14.3 Transport hazard class(es).
Transportation is not dangerous.

14.4 Packing group.
Transportation is not dangerous.

14.5 Environmental hazards.
Transportation is not dangerous.

14.6 Special precautions for user.
Transportation is not dangerous.

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code.
Transportation is not dangerous.

SECTION 15: REGULATORY INFORMATION.

15.1 Safety, health and environmental regulations/legislation specific for the substance.
The product is not affected by the Regulation (EC) No 1005/2009 of the European Parliament and of the Council of 16 September 2009 on substances that deplete the ozone layer.

Product classification according to Annex I of Directive 2012/18/EU (SEVESO III): N/A
The product is not affected by Regulation (EU) No 528/2012 concerning the making available on the market and use of biocidal products.
The product is not affected by the procedure established Regulation (EU) No 649/2012, concerning the export and import of dangerous chemicals.

Kind of pollutant for the water (Germany): Not dangerous. (Autoclassified according to the AwSV Regulations)

15.2 Chemical safety assessment.
No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

SECTION 16: OTHER INFORMATION.

It is recommended that the product only be employed for the purposes advised.

Abbreviations and acronyms used:
AwSV: Facility Regulations for handling substances that are hazardous for the water.
CEN: European Committee for Standardization.
EC50: Half maximal effective concentration.
PPE: Personal protection equipment.

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LC50: Lethal concentration, 50%.
LD50: Lethal dose, 50%.
WGK: Water hazard classes.

Key literature references and sources for data:
http://eur-lex.europa.eu/homepage.html
http://echa.europa.eu/
Regulation (EU) 2015/830.
Regulation (EC) No 1907/2006.
Regulation (EU) No 1272/2008.

The information given in this Safety Data Sheet has been drafted in accordance with COMMISSION REGULATION (EU) 2015/830 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC.

The information in this Safety Data Sheet on the Preparation is based on current knowledge and on current EC and national laws, as far as the working conditions of the users is beyond our knowledge and control. The product must not be used for purposes other than those that are specified without first having written instructions on how to handle. It is always the responsibility of the user to take the appropriate measures in order to comply with the requirements established by current legislation. The information contained in this Safety Sheet only states a description of the safety requirements for the preparation, and it must not be considered as a guarantee of its properties.

-End of safety data sheet.-

D1251

D1111

Appendix D - Polymer Risk Assessment

LTP2: Polymer Risk Assessment

1 Proposed Use of Polymers

Polymers are being considered as an alternative support fluid to bentonite for use in the bored piling holes. Potentially polymers have significant advantages over bentonite including the following:

- A considerable amount of plant is required for mixing, storing and cleaning the bentonite. For polymers far less plant is necessary. This means that fewer lorry movements are required to site to deliver and remove equipment, energy requirements are lower for operation of the equipment, and a much smaller compound is required for the plant.
- Bentonite is used in much higher concentrations than polymer, typically approximately 11kg of bentonite to 1m³ of water compared to approximately 1kg of polymer to 1m³ of water. Material usage is therefore lower, reducing transport to site of raw material and energy requirements for mixing and placement, and the potential concentration in groundwater is lower along with the mass introduced into the ground.
- Once bentonite has been used the slurry needs to be treated using hydrocyclones and filter presses to solidify it prior to offsite disposal as a solid waste. Given the very large number of piles to be constructed the bentonite waste disposal costs are significant. Polymers only require treatment with calcium hypochlorite prior to disposal and in some instances the disposal can be to surface water.
- Polymers are biodegradable whilst bentonite is not.
- There are potential geotechnical benefits in some ground conditions using polymers, although as these are not relevant to the environmental assessment they are not considered further.

For these reasons Align is considering the use of polymers as support fluids, but site specific trials are required in the chalk to determine whether they can match bentonite in terms of their influence on the load bearing capacity of the piles. The first trial will take place at Location 2 (near Harvil Road) and this document assesses the potential effect on the water environment of using these polymers, and in particular the implications for potable water supply from xxxx.

2 Proposed Polymers and their Previous Use

2.1 Polymer Type

The polymers proposed at Location 2 would be supplied by KB International (KB), a US company that specialises in supply of polymers for the piling industry. They have recommended use of the "Enhanced SlurryPro CDP System" which utilises a main polymer, SurryPro CDP which is the viscosifying agent, and two additives, EnhancIT 100 and EnhancIT

200. The former additive is used to improve fluid loss control and the latter is a flocculent used for improved fines control. In addition, KobbleBlok would be used where necessary to plug small factures and fissures to prevent fluid loss from the pile hole. It would be used on an as required basis.

The polymers proposed for use in the pile holes are all delivered to site in powder form in sealed bags and they are mixed on site to form a slurry that is 99.9% water and 0.1% polymer (by weight). The proposed dosage rates for each of the three components are as follows:

- SlurryPro CDP, 1kg of polymer to 1 m^3 of water which is equivalent to 1000 ppm.
- EnhancIT 100, 0.1kg of polymer to 1 m^3 of water which is equivalent to 100 ppm.
- EnhancIT 200, 0.05kg of polymer to 1 m^3 of water which is equivalent to 50 ppm.

The total polymer dose is therefore 1.15kg/m^3 or 1,150 ppm.

These polymers are types of polyacrylamide, a group of polymers developed in the 1980s and which are used for a wide range of applications including flocculants and coagulants in the potable water industry, food additives and cosmetics. Their use is therefore well established and widespread, although it is the specific characteristics of the polymers proposed for HS2 that are of concern and are considered here.

2.2 Previous Use

The above polymers have been used in the US for drilling boreholes near potable water supplies, for dam projects for drinking water and in designated wetland habitats in Louisiana and Florida. KB has used the polymers during drilling on rivers that supply drinking water including Alligator Creek in North Carolina, Red Wing, Minnesota over the Mississippi River and the Baudette Bridge in Baudette, Minnesota. The polymers have also been certified by Departments of Environmental Quality in several states in the US for direct discharge into primary water ways such as the Ohio River and Mississippi River and into environmentally sensitive water ways such as Puget Sound.

The polymers have also been used in the UK, although their use is limited in comparison to the US, tending to be preferred in urban sites where space is limited (and therefore bentonite cannot be readily used) and in environmentally sensitive sites[1] where bentonite could impact the water environment.

2.3 REACH Certification

The Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) are EU regulations that deal with the production and use of chemicals and their potential effect on human health and the environment. KB, the suppliers of the polymers proposed for use at Location 2 have confirmed that their products are not REACH Certified as they are exempt, although their raw material suppliers are REACH certified. The REACH Regulations state:

"All polymers are exempt from registration and evaluation under REACH. However, any manufacturer or importer of a polymer shall submit a registration to the Europeon Chemicols

[1] Lam, C., V. Troughton, S.Jefferis and T Suckling, 2010, Ground Engineering, p.28-31

Agency(ECHA) for the monomer substance (s) or any other substance (s), that have not already been registered by an actor up the supply chain, if both the following conditions ore met:

The polymer consists of 2 % weight by weight (w/w) or more of such monomer Substance (s) or other substance(s) in the form of monomeric units and chemically bound substance(s);
The total quantity of such monomer substance(s) or other substance(s) makes up to 1 tonne or more per year."[2]

3 Toxicity Information

3.1 Introduction

The bulk of the available toxicity information and polymer characteristics relate to the powder form of the bulk product rather than the dilute slurry form used in the pile holes. Each of the proposed polymers is considered in turn below, with the safety data sheets for each included in Annex 1. For reasons of commercial sensitivity the ingredients of the polymers are not made available to all third parties and so we are reliant on the information provided by KB which has therefore been taken at face value in this assessment. This notwithstanding, KB has provided a significant amount of information for this assessment and has also agreed to release information on the polymers directly to Affinity Water under a non-disclosure agreement to provide Affinity Water with greater certainty regarding polymer toxicity.

Many of the general comments that relate to SlurryPro CDP also relate to both additives as the substances have broadly similar properties, although their detailed chemical characteristics are different. Generic comments are therefore included in Section 3.2 below, but are not repeated in Sections 3.3 or 3.4 which deal specifically with the additives.

3.2 Definition of hazardous

3.2.1 In the following sections of the report any reference to hazardous or non-hazardous properties relate to how they are described in the safety data sheets. Whether a substance is hazardous or non-hazardous, as defined by the Water Framework Directive (2000/60/EC) and Groundwater Daughter Directive (2006/118/EC) (GDD), has been assessed by comparing the substances in the polymers proposed for use to those listed in "Substances confirmed as hazardous or non-hazardous pollutants following public consultation"[3]. KB has undertaken the comparison on behalf of Align and has confirmed that the only substances listed are:

- Polyacrylamide (Anionic) which is non -hazardous;
- Acrylamide (Monomer) which is hazardous; and
- Sodium chloride which is non-hazardous

3.2.2 Therefore, in this report, when referring to "hazardous" substances, it is only acrylamide that relates specifically to the substances defined as hazardous in groundwater. All other references to hazardous relate to the material data sheets.

[2] http://www.cirs-reach.com/REACH/Polymer_REACH_CLP.html
[3] http://www.wfduk.org/sites/default/files/Media/JAGDAG/2018%2001%2031%20Confirmed%20hazardous%20substances%20list_0.pdf

3.3 SlurryPro CDP

KB has confirmed that the primary active ingredient in this polymer has been approved by the National Sanitation Foundation in the US for use with potable water. Analysis has been carried out to determine if any "Priority Pollutants" as defined by the Washington State Department of Environmental Quality were present in the polymer. The tests were completed in 2010 on a polymer blend with double the dose of that proposed for use on HS2. The results, which are provided in Annex 2, do not indicate the presence of any priority pollutants at concentrations greater than the limits of detection. The priority pollutants include a range of semi-volatile and volatile substances, toxic metals, herbicides and pesticides.

Although there have been no specific tests on the effects of SlurryPro CDP on human health, polyacrylamide itself is not significantly toxic. KB reported that in sub-chronic oral toxicity studies, rats and dogs treated with polyacrylamide at doses up to 464 mg/kg body weight showed no signs of toxicity. Several 2-year chronic oral toxicity studies in rats and dogs fed diets containing up to 5% polyacrylamide had no significant adverse effects. Polyacrylamide was not an ocular irritant in animal tests. No compound-related lesions were noted in a three-generation reproductive study in which rats were fed 500 or 2000 ppm polyacrylamide in their diet. Polyacrylamide was not carcinogenic in several chronic animal studies. Human cutaneous tolerance tests performed to evaluate the irritation of 5% (w/w) of polyacrylamide indicated that the compound was well tolerated.

The safety data sheet for SlurryPro CDP, which is included in Annex 1, has been reviewed to assess the toxicity of this polymer and where there is uncertainty or issues regarding the material, these have been raised with KB. The data sheet indicates that SlurryPro CDP is a carbonyl acryl-amide copolymer and that it is not classified as hazardous.

Section 2.4 of the safety data sheet states under "Information Concerning Particular Hazards for Human and Environment" that it is "Not Applicable". Under SDS Regulations, the term "Not Applicable" means that the information is not relevant. More specifically, as none of the components are considered hazardous by any regulatory body, this section of the SDS does not apply to the material. The US Center for Disease Control sets the Threshold Limit Value - Long Term Constant Exposure with Minimal Effect (TLV) for the acrylamide monomer at 10ppm. As this monomer will be at 0.5 ppm or less in the polymer, it is a factor of 20 less than the TLV and so even though acrylamide is a carcinogen, SlurryPro CDP is not classified as hazardous under the above methodologies. This notwithstanding, acrylamide is defined as hazardous by the Water Framework Directive (2000/60/EC) and Groundwater Daughter Directive (2006/118/EC)(see footnote 3).

Section 6.2 of the safety data sheet states that SlurryPro CDP should not enter drains, sewers, waterways, or drinking supplies. However, this refers specifically to spillage of the dry bulk product when the concern is not the release of the chemical but the physical form it takes. A rapid release of dry polymer into water does not allow for complete hydration and so clumps of product are created that are wet gelatinous polymer on the outside surrounding pockets of dry polymer. These clumps become difficult to handle and can clog drainage systems and block out light.

Section 10.6 of the safety data sheet indicates that hazardous decomposition products include carbon monoxide, carbon dioxide, nitrogen oxides and ammonia. KB was contacted

and confirmed that these decomposition products can occur only if the dry bulk material is burned or exposed to extremely alkaline or acidic reagents. KB indicated that once hydrated these decomposition products are not generated.

Section 11.1 indicates that: "When used and handled according to specifications the product does not have any harmful effects according to our experience and the information provided to us.". It also states that "Based on our experience and the information available, no adverse health effects are expected if handled as recommended with suitable precautions for designated uses.". However, this is based on an assessment of individual components of the material as the bulk material has not been tested. Based on these individual components there are no indications of carcinogenic or mutagenic effects, or effects on reproduction. However, there can be low concentrations of residual monomers such as polyacrylamide in the SlurryPro, and this is a carcinogen, but is below the limit that would result in a classification as hazardous in the US. The material is an irritant, but only in its bulk (powder) form.

Section 12.2 of the safety data sheet indicates that SlurryPro CDP is highly degradable. KB has indicated that SlurryPro has been designed to degrade instantaneously upon contact with concrete due to its alkalinity. Therefore, residual SlurryPro in the pile hole will degrade and will not be available to move into the aquifer. KB has also indicated that any SlurryPro that does move into the aquifer will degrade with the degradation rate being dependent upon many conditions, including volume of the aquifer, water flow rate, dissolved oxygen concentration and bacterial content in the aquifer. In the chalk of the Colne Valley bacterial content is low, but dissolved oxygen can be high and this will help to increase the rate of degradation. The volume of water and flow rates are both high, so dilution will also be significant. Typically for mixed polymer in storage tanks (e.g. 75m^3) it would take about 28 days to degrade.

Section 12.4 of the safety data sheet indicates that SlurryPro is "Water Hazard Class 1 (Self-Assessment): slightly hazardous for water". KB has indicated that the reason for this classification is that SlurryPro CDP contains a surfactant. The SlurryPro is the primary viscosifying agent for the system and is premixed in a tank before transfer to the pile. To prevent clumping and to allow each particle to function properly, the individual grains are treated with a surfactant. The weight percent for this surfactant is 3% of the bulk product which results in this water hazard classification. However, as the dosage is usually 1kg/m^3, the polymer slurry would be non-hazardous rather than a hazard, i.e. the classification is a result of the bulk characteristics of the material, rather than as a slurry.

3.4 EnhancIT 100

The safety data sheet in Annex 1 indicates EnhancIT 100 is part of the following chemical family: anionic acryl amid copolymers, and anionic polysaccharide copolymers. It is not classified as hazardous and contains no components considered to be either persistent, bioaccumulative or toxic.

Section 4.2 of the safety data sheet indicates that the substance can be an irritant and cause stomach disorders, but this relates to the product in bulk form. The main concerns appear to be associated with the effects of dust and inhalation. KB was contacted and indicated that the toxicity of EnhancIT 100 has been evaluated by assessing the toxicity of each component, based on rat LD50 (i.e. the amount of substance necessary to kill 50% of a test population) for

these substances. Based on extrapolation of rat LD50 data and standard methods adopted in the US, for the LD50 for humans to be reached would require consumption of 2,450L of slurry (or 0.25kg). This applies specifically to the concentration in the slurry when mixed and does not account for any attenuation.

As with SlurryPro CDP, EnhancIT 100 is degradable, and is of very low persistence. KB has indicated that the degradation products of EnhancIT 100 are sugar, carbon and nitrogen.

Section 12.4 of the material safety data sheets indicates that the material is classified as: "Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water". KB has been contacted and indicates that the classification is for the bulk product due to an ingredient (which cannot be confirmed due to commercial sensitivity) that is at 3% in the mixture. When mixed as a slurry the concentration would be very low such that it would be classified as non-hazardous.

3.5 EnhancIT 200

The safety data sheet states that EnhancIT 200 is a cationic acrylic amide copolymer. It has not been classified as hazardous and is characterised as having low toxicity to aquatic species at recommended dosages. However, it is a cationic substance which generally carry a higher risk to fish than anionic flocculent, although they are far more effective than anionic flocculents such that lower concentrations can be used. The safety data sheet states in Section 12.1 that the cationic charge of the polymer is quickly neutralised in watercourses by irreversible adsorption onto particles, hydrolysis and dissolved organic carbon such that where turbidity is high, concentrations are likely to be rapidly reduced.

The safety data sheet does not indicate that there are any hazardous decomposition products and the substance is not anticipated to accumulate in organisms.

As with EnhancIT 100, EnhancIT 200 is classified (in Section 12.4) as: "Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water". As for EnhancIT 100, this is based on its properties as a bulk powder, not when diluted in slurry form.

3.6 Enhanced SlurryPro CDP System

As indicated in Section 2.1, SlurryPro CDP, EnhancIT 100 and EnhancIT 200 would all be utilised together in the support fluid. Align requested information from KB regarding the toxicity of the combined slurry and the information in Table 1 has been provided by KB.

Table 1: Toxicity of enhanced SlurryPro CDP system (provided by KB)

KB toxicity assessment
The recommended dosage for the Enhanced SlurryPro CDP System is: SlurryPro CDP, 1kg/m³ or 1000 ppm; EnhancIT 100, 0.1kg/m³ or 100 ppm; EnhancIT 200, 0.05kg/m³ or 50 ppm. Therefore, total dosage is 1.15kg/m³ or 1,150 ppm. To minimize animal testing, KB calculates the final ingestion toxicity based on the LD50 value (rat) for each component and the percentage of each component used in the final system. Therefore, KB only considers potential product components with a known LD50 value (rat). These LD50 values are then compared to the values on the Hodge and Sterner Scale for toxicity and only materials that will generate a final LD50 of 500mg/kg (Slightly Toxic) or greater are considered. *The SlurryPro CDP is a single material whereas the EnhancIT 100 and EnhancIT 200 are blended materials. The LD50 value for the SlurryPro CDP is >5,000mg/kg. The calculated LD50 for EnhancIT100 is*

KB toxicity assessment

>3,500mg/kg and the calculated LD50 for EnhancIT 200 is >2000mg/kg. You then combine the LD50's based on the percentage in the system.

Total system: 1.15kg/m³
SlurryPro CDP: 1kg/m³ (87% by weight) >5,000mg/kg X 0.87 = 4,350mg/kg
EnhancIT 100: 0.1kg/m³ (9% by weight) >3,500mg/m³ X 0.09 = 315mg/kg
EnhancIT 200: 0.05kg/m³ (4% by weight) >2,000mg/m³ X 0.04 = 80mg/kg

Therefore, total calculated LD50 is 4,350 + 315 + 80 = >4,745mg/kg

KB then calculates the amount of product that would have to be ingested both as dry material and in liquid form to reach the calculated LD50. Using the Hodge and Sterner Scale, the average weight of an individual is set at 70 kilograms. It is important to note, however, that when considering dry ingestion, only the material with the lowest LD50 is considered for the calculation. Liquid consumption is based on the entire weight and the combined LD50 because the materials are in solution. Therefore, for dry product, only the EnhancIT 200 would be considered as it has the lowest LD50 at >2000mg/kg. An individual would have to ingest 2,000mg X 70 kg or 140,000 milligrams (0.140kg or 0.31lb) of dry product. The average individual can hold 30 grams of food in their mouth. The average individual would have to consume 5 mouthfuls of dry product to approach the minimum LD50 value of 2,000mg/kg.

For liquid product, at the standard dosage of 1.15kg/m³, each litre of slurry would contain 1,150 milligrams of total product. An individual would have to drink 4,745mg/kg X 70 kg = 332,000 milligrams of slurry. To consume 332,000 milligrams in liquid form, an individual would have to drink 289 liters of slurry.

The implications of this for use in slurry form in the chalk aquifer are considered in Section 4.

3.7 KobbleBlok

KobbleBlok is a nonionic aryl-amide copolymer and is described as a 'super absorbent'. It is a granular material designed to absorb water and expand to plug off small fractures and channels within the soil and rock to prevent fluid loss. The KobbleBlok is added at the pile hole on an as-needed basis where fluid loss is identified, due for example to encountering a significant flow zone. Fluid loss is identified at the hole through regular visual assessment or direct measurement. After the auger comes out of the hole to discharge spoils the fluid level is measured by tape and then again prior to the auger going back into the excavation. If fluid loss is noted the rate can be determined based on the diameter of the pile and the measured slurry loss. If the amount of loss is measurable, the addition of KobbleBlok can be considered.

KobbleBlok is typically applied at the top of the excavation and pushed down with the auger or bucket or is specifically placed near the know fluid loss zone by placing a kilogram of material in a freezer bag and attaching this to the bottom of the auger or bucket. This is then lowered to the bottom of the excavation and the auger/bucket rotated to break the bag, releasing the KobbleBlok. In either case, the KobbleBlok is drawn into the area of fluid loss due to the flow where it is trapped and absorbs fluid to expand, thereby stopping the loss of slurry in the fractures or fissures.

To prevent clumping of the KobbleBlok and to allow each particle to function properly, the individual grains are treated with a surfactant. The weight percent for this surfactant is 3% of the bulk product. Dosage is usually 0.1kg/m³ or less. Therefore, the water hazard class

(Section 12.4 on the safety data sheet) is listed as slightly hazardous. However, in actual use, the percent of the surfactant is less than 1 and therefore qualifies as non-hazardous.

The material is an irritant when inhaled or when it comes into contact with the eye, and is slightly irritating when it comes into contact with mucous membranes and the skin. However, it is not expected to be an irritant through ingestion. The substance contains no components considered to be either persistent, bioaccumulative or toxic. It is classified as biodegradable and photodegradable as being an anionic polyacrylamide, the KobbleBlok breaks down in the same manner as the SlurryPro CDP. Contact with the high alkalinity concrete during the pour will break the KobbleBlok to its degradation substances, salt and carbon dioxide. KB has reported that there are no long term effects on the pile or excavation from the use of KobbleBlok.

Many of the generic comments for SlurryPro CDP also apply to KobbleBlok as it is also a powder and used in a highly dilute form.

3.8 Monomers

Monomer concentration in SlurryPro

During discussions with KB, they indicated that the efficiency of the manufacturing process for polyacrylamide has greatly improved since polymers were first used. In 1995, one of the primary issues in the production of sodium polyacrylamides was the amount of free monomer. Monomers were known to have toxicity issues that were not associated with the polymers so the manufacturing process was improved to the point that (for the standard polymers) the reactions are now almost complete and there are only low concentrations of free monomers. In addition, changes in processing mean that monomers are no longer part of the polymer decomposition products. Therefore, since 1995 SlurryPro CDP has become less toxic as the primary route of toxicity has been reduced. It is this ability to complete the reaction (i.e. to largely remove the monomers) that allowed SlurryPro CDP to receive the American National Standards Institute certification for use with potable water in the US. The information regarding monomers provided by KB is included in Table 2. This relates to the bulk "standard" product rather than that which is dissolved to form the slurry.

Table 2: Monomer content for standard SlurryPro (provided by KB)

KB monomer assessment
The utmost care is used to ensure that the constituent monomer (in this case acrylamide and sodium acrylate) are as completely reacted as possible during polymerization. However, technically unavoidable traces can and do remain in the finished polymer. *The specification for the free monomer in the final standard product is < 500 ppm. Therefore, at a dose rate of 1kg of polymer per 1m³of water, the maximum free monomer is 0.5 ppm. The data on the last 6 months of production in 2018 shows a maximum of 400 ppm and a minimum of 300 ppm. Therefore, at the normal use rate of 1 kg/m³, the free monomer would be in the range of 0.3 to 0.4 ppm based on actual production numbers.* *Both acrylamide and sodium acrylate are readily biodegradable under aerobic conditions at over 90% in 28 days. Even at operating doses as high as 50mg/L, the residual monomers released into the environment will never reach concentrations which could constitute a risk to the aquatic life. Their high biodegradability negates the possibility of accumulation in the natural environment.*

The above relates to the standard production process for SlurryPro. KB was subsequently contacted to determine if the concentration of residual monomer could be reduced further. A pilot trial carried out by KB in late April 2019 resulted in a monomer concentration of 75ppm (equivalent to 0.075µg/l once dissolved in water at the correct dose rate) and KB confirmed that concentrations of less than 100ppm would be consistently achievable for this "high grade" SlurryPro.

Monomer standards for water

KB has indicated that the monomers that can potentially be present are acrylamide and sodium acrylate. Acrylamide is soluble in water, is potentially a carcinogen and mutagen in humans[4], and is also formed during cooking when starchy foods are cooked at high temperatures[5]. It is defined as a hazardous substance according to the Groundwater Directive, but no minimum reporting value has been ascribed by the Environment Agency. The UK drinking water standard for acrylamide is 0.1µg/L[6], whilst the World Health Organisation drinking water guideline value is slightly higher at 0.5µg/L. Although UV treatment is not reported to degrade acrylamide, the combination of UV and chlorination does degrade acrylamide[7]. There is no environmental quality standard for acrylamide.

There is no drinking water standard or environmental quality standard for sodium acrylate, although one of its uses is as a food additive. Generic materials safety data sheets for the bulk form of this material contain limited toxicity information (one MSDS[8] cites an LD50 in rats of >4og/kg). In its bulk form it can cause serious eye irritation, irritation to the lungs and respiratory tract and is soluble in water. The European Chemicals Agency[9] indicate that sodium acrylate is very toxic to aquatic life, although no adverse concentration is cited. It is a full REACH registered substance in its bulk form.

Legislative position

Hazardous classification

As identified above, acrylamide is classified as hazardous in the Groundwater Directive, and its input to groundwater should therefore be "prevented" according to legislation applicable in England and Wales. Schedule 22 of the Environmental Permitting Regulations[10] states that:

6. For the purposes of implementing the Water Framework Directive and the Groundwater Directive, the regulator must, in exercising its relevant functions, take all necessary measures—
(a) to prevent the input of any hazardous substance to groundwater, and
(b) to limit the input of non-hazardous pollutants to groundwater so as to ensure that such inputs do not cause pollution of groundwater.

Schedule 22 also states that:

8. Despite paragraph 6 [shown above], *provided it does not compromise the achievement of any of the environmental objectives relating to groundwater in Article 4 of the Water Framework Directive, the regulator may grant an environmental permit for—*

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[4] Croner's substances hazardous to health
[5] https://www.food.gov.uk/safety-hygiene/acrylamide
[6] The Water Supply (Water Quality) Regulations 2016
[7] Ze-Chen Gao et al, 2017, Degradation of acrylamide by the UV/chlorine advanced oxidation process, Chemosphere Vol. 187, pp268-276
[8] https://www.chemsrc.com/en/cas/9003-04-7_453958.html
[9] https://echa.europa.eu/substance-information/-/substanceinfo/100.028.372
[10] Statutory Instruments, 2016, No. 1154, Environmental Protection, England and Wales, The Environmental Permitting (England and Wales) Regulations 2016

(a)……
(f) construction, civil engineering and building works and similar activities on or in the ground which come into contact with groundwater;

Article 4 of the Water Framework Directive[11] states that:

(i) Member States shall implement the measures necessary to prevent or limit the input of pollutants into groundwater and to prevent the deterioration of the status of all bodies of groundwater, subject to the application of paragraphs 6 and 7 and without prejudice to paragraph 8 of this Article and subject to the application of Article 11(3)(j);

It is recognised by the EU, as stated in the Common Implementation Strategy (CIS) Guidance [12] that prevention is not always possible and a number of exclusions can apply where the input of hazardous substances to groundwater cannot be prevented. The CIS Guidance states:

To *"prevent" an input into groundwater means: taking all measures deemed necessary and reasonable to avoid the entry of hazardous substances into groundwater and to avoid any significant increase in concentration in the groundwater, even at a local scale. "Reasonable" means technically feasible without involving disproportionate costs. How to define "disproportionate costs" depends on the local circumstances".*

In addition to the above, the legislation applicable in England and Wales also requires consideration of the discernibility of the hazardous substance in groundwater. Government guidance[13] states that:

2. Discernibility of hazardous substances
You must consider the potential discernibility of hazardous substances in groundwater from your activity. This applies to any activity that inputs hazardous substances to ground.
You must take all necessary measures to prevent inputs of hazardous substances to groundwater.
You can consider the input of hazardous substances to be prevented if there are no attributable, discernible concentrations of hazardous substances in the groundwater immediately down-gradient of the discharge zone.

And

2.1 Discernible concentrations
A substance is discernible if its concentration at a defined point is greater than either:
- *that found naturally in groundwater (known as the natural background quality)*
- *a minimum reporting value (MRV), usually the limit of quantification or other value set out in legislation.*

Whichever of the two has the highest concentration will be the discernible concentration. You need to ensure where an input is unavoidable from your activity that the concentration is environmentally trivial immediately downstream in the groundwater flow system.

The above review of the relevant legislation therefore indicates that although it is hazardous, acrylamide could be permitted and introduced into the groundwater as part of construction works provided that all "necessary and reasonable" steps are taken to limit its input and it is not present at discernible concentrations.

Discernible concentration

Acrylamide is not found naturally in groundwater and there is no minimum reporting value for acrylamide so there is no established criterion for establishing what is a discernible

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[11] https://eur-lex.europa.eu/resource.html?uri=cellar:5c835afb-2ec6-4577-bdf8-756d3d694eeb.0004.02/DOC_1&format=PDF
[12] CIS Guidance Note No. 17 – Guidance on preventing or limiting direct and indirect inputs in the context of the Groundwater Directive 2006/118/EC, section 3.4
[13] https://www.gov.uk/government/publications/groundwater-protection-technical-guidance/groundwater-protection-technical-guidance#discernibility

concentration. However, there is a drinking water standard of 0.1µg/l for acrylamide and this would be an appropriate limit for discernibility, particularly as there are only a select number of laboratories that can analyse for acrylamide to this limit of detection. Consideration of possible concentrations of acrylamide in groundwater down hydraulic gradient of the pile holes and whether these are "environmentally trivial" are included in Section 4.3 below.

Necessary and reasonable measures

As indicated above, introduction of a hazardous substance to groundwater requires that all necessary and reasonable measures have been taken to limit its input to groundwater. Guidance on what is necessary and reasonable is provided in Defra Environmental Permitting Guidance[14]. This states that:

> *4.20 A reasonable measure would be one where the necessary technical precautions to prevent inputs to groundwater are technically feasible, not disproportionately costly and are within the control of the operator. Such measures could include: source control, alteration of discharge mechanism, treatment of the discharge, interception or diversion of contaminated groundwater, and diversion of the discharge to another disposal route. For new developments this could include simply not conducting the activity in a location where valuable groundwater resources would be particularly vulnerable to inputs of hazardous substances.*

With regard to the use of polymer, there is the potential to avoid its use completely by using bentonite, thereby providing a "technically feasible" means to prevent input of a hazardous substance, albeit at very low concentrations, to groundwater. However, one of the reasons for wanting to use polymers is the significant environmental benefits and cost savings that result from their use rather than bentonite. Although this benefit does not apply to the Load Test Piles at LTP2 as this is a test rather than defined use, if polymers are suitable and selected for piling at the viaduct there would be considerable benefits.

In terms of environmental impact, the amount of plant and equipment required on site is considerably less for polymer than that for bentonite, resulting in a reduction in vehicle movements (and associated greenhouse gas emissions) to deliver and remove plant and reduced operating costs / emissions. The second benefit is the reduction in disposal costs for waste bentonite, which are estimated at approximately XXXX for the viaduct piling works. For the main works this could be considered as a "disproportionate cost", although it only applies to the main works, not to the test piles (but the main works cannot proceed until the test piles are complete and so the test piles could be seen as an integral part of the viaduct piling work). The reduced waste disposal also means a significant reduction in vehicles movement (about 1300 tankers) to transport the waste from the site and a reduction in greenhouse gas emissions. Finally, if the theory reported in engineering papers about polymer giving better shaft friction than bentonite is correct and proven by the load tests then there should be savings in the pile lengths or diameters with less concrete and steel and the associated traffic movements.

Paragraph 4.20 above refers to "source control". At the LTP site the operator will be able to control the source of the polymer as it will be pumped into the pile hole under controlled and managed conditions. Furthermore, it will be removed from the ground when concrete is placed in the pile hole, albeit that any polymer that has moved into the aquifer will be lost.

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[14] Defra, 2010, Environmental Permitting Environmental Permitting Guidance Groundwater Activities For the Environmental Permitting (England and Wales) Regulations 2010

The amount of loss will be limited by the nature of the aquifer at the pile hole, the viscosity of the polymer and in some cases by blocking fractures using KobbleBlok. Removal of the polymer once the hole is complete would prevent inputs to groundwater outside of the pile hole.

The Defra guidance also states:

4.27 It is the clear objective of the GWDD to prevent the input of all hazardous substances into groundwater. Clearly the interpretation of 'prevent' is important in this context and is to be interpreted having regard to the Common Implementation Strategy guidance issued by the European Commission…… This recognises that, whilst the aim is to avoid the introduction of hazardous substances into groundwater, it may not be technically feasible to stop all inputs of hazardous substances. Moreover some inputs are environmentally insignificant[17] and in such instances the exemption noted in paragraph 3(3)(b) of Schedule 22 may be applied.

With the associated footnote:

[17] For example, an environmentally insignificant input into groundwater would be one that could not have any effect on (i) any of the receptors noted in the Water Framework/GWDD definition of pollution (ii) the chemical status of a groundwater body; or (iii) could give rise to a significant and sustained rising trend in the concentrations of pollutants in groundwater as noted in those directives

The risk of the polymer to sensitive receptors, including the groundwater body, is assessed in Section 4 of this report and none have been identified. As the trial is a single use of the polymer at one location it cannot give rise to "a significant and sustained rising trend" and so the use of polymer would fit with the requirements of the guidance outlined above.

Summary of legislative position

The legislation indicates that acrylamide is defined as a hazardous substance and its input to groundwater should be prevented where possible, but when used for construction it can be permitted provided that it is not discernible and that reasonable measures are taken to limit its input to the aquifer. Although bentonite could be used in place of polymer, when used for the main piling works (as opposed to this test) the bentonite could have a greater environmental impact than polymer and could cost approximately XXXX more, mainly associated with waste disposal costs.

4 Risk Assessment

4.1 Identified Sources, Pathways and Receptors

The possible pollutant linkages associated with polymer use are summarised in Table 3. Although the XXXX PWS is to the south east of LTP2, as the borehole is not active, nor will it be during the trial, it is excluded as a receptor. The potential effects from turbidity caused by use of polymers are similar to those from bentonite and which are discussed in the main report (Hydrogeological Risk Assessment for Load Test Piling Location 2) and are not repeated here. However, as the mass of polymer used in the support fluid is far less than the mass of bentonite, and as the polymer degrades whereas bentonite does not, the risks to groundwater from polymer turbidity are much lower and more short lived than those from bentonite, so the assessment included in the main report is worst case for polymers. The assessment in this appendix therefore only considers the risk to water quality from the polymers.

Table 3: Identified sources, pathways and receptors relevant to the water environment

Source	Pathway	Receptor	Possible effect
Turbidity from polymer	Migration in groundwater	Mid-Chilterns Chalk WFD water body / Principal aquifer / Drinking Water Protected Area	Changes in water quality
		Private groundwater abstractions	
		xxxx PWS (SPZ2)	Changes in water quality and reduction in effectiveness of UV treatment
Chemicals from polymers used in construction of pile holes	Migration in groundwater	Mid-Chilterns Chalk WFD water body / Principal aquifer / Drinking Water Protected Area	Changes in water quality
		Private groundwater abstractions	
		xxxx PWS (SPZ2)	

When the piling is complete the polymers are removed from the pile holes and pumped to a waste storage tank to which calcium or sodium hypochlorite is added to break down the polymer prior to disposal. As this will all be above ground within a contained and bunded system there is no direct pathway to groundwater and further evaluation of the effect of hypochlorite is therefore not required. Any residual polymers in the pile hole are degraded immediately upon contact with concrete pumped into the pile hole.

4.2 Mid-Chilterns Chalk WFD water body, Principal aquifer and the Drinking Water Protected Area

The Mid-Chilterns Chalk WFD water body is some 720km² in area and comprises the Chalk Principal aquifer and associated Drinking Water Protected Area. The potential effects of the construction of Section C1 on the WFD water body are assessed in detail in Section C1 - Updated Water Framework Directive Compliance Assessment (Document no: 1MC05-ALJ-EV-REP-CS01_CL01-100082). Although the assessment does not specifically assess polymer use, it does consider piling and other activities and concludes that these would not impact the water body. With regard to the polymer use for the test, as only a relatively small volume of the material would be used (in comparison with the size of the aquifer), and it would be removed following completion of the pile hole, there would not be any effect on the water body, even at a local scale. Furthermore, any effects that are identified would be temporary given that this comprises a single test.

Any effects of the polymer on the Chalk Principal aquifer would depend upon the nature of the aquifer at the specific location of the pile hole. The movement of any polymer out of the pile hole would depend upon the degree, size and connectivity of fracturing encountered in the hole. Where there is significant or substantial fractures these may allow polymer migration. The use of KobbleBlok, and the viscous nature of the polymer will help to limit the movement of polymer from the hole, and as the polymer will only be in the ground for a few days the potential for significant loss is limited. Furthermore, the polymer would be removed as the concrete is poured into the pile hole such that the long term risks to the aquifer are limited.

No significant effects to the water body, Principal aquifer or Drinking Water Protected Area are therefore anticipated.

4.3 xxxx PWS

The LTP2 location is just over xxxx to the xxxx PWS and is likely within SPZ2 for this abstraction, although there is some uncertainty due to the overlapping SPZs for xxxx and xxxx (albeit that xxxx is currently not operational). The LTP2 location is xxxx the regional hydraulic gradient of xxxx, although there could be a local gradient reversal due to pumping from xxxx.

The potential effects on water quality at xxxx PWS from polymers are ultimately related to the risks to human health if polymers get into supply. Based on the information in Annex 1 and 2, and additional information provided by KB outlined above, the proposed polymers are not hazardous, are low toxicity and do not represent an acute or chronic risk when diluted in slurry form. However, as noted above, KB has indicated that there is likely to be some residual acrylamide monomer in the polymers and this monomer is classified as hazardous in the Water Framework Directive and Groundwater Daughter Directive.

KB has calculated (Table 1) the amount of Enhanced SlurryPro CDP System that would need to be ingested in bulk powder and slurry form to impact human health. However, at xxxx, it would be the effect of diluted polymer getting into water supply (i.e. effect on human health via consumption) that would be of concern. In order to assess this risk the following has been considered:

- The pile hole will be 1.5m diameter and 70m deep. A worst case assumption is that the hole is completely full of slurry, which is a volume of 124m³.
- The slurry comprises 1.15kg of powder per m³ of water, which is equivalent to 142kg of polymer in the pile hole.
- xxxx is abstracting at xxxx, which is the average deployable output from this location.
- It is assumed that there is no background concentration of polymers or monomers in groundwater in the aquifer.
- The polymer contains 100ppm of monomer.
- Under a scenario with an abstraction rate of xxxx (i.e. typical rate of water pumped into supply), with only half the pile hole full of slurry being lost, and with a travel time spanning 7 days and 50% attenuation (not unreasonable given the distance to xxxx), the concentration of polymer at xxxx would be 0.3mg/L, whilst the monomer would be 0.03µg/L. This would decline to 0.03mg/L (monomer to 0.003µg/L) over a 28 day period with 20% loss of polymer slurry from the pile hole and 50% attenuation. This would be an "environmentally trivial" amount of both polymer and monomer and the monomer would be significantly below the drinking water standard for acrylamide of 0.1µg/L. This would be considered a "*de minimis*" quantity so far as a single pile is concerned, i.e. "*so small in quantity and concentration, that they only pose an extremely*

low risk of polluting groundwater. There must also be no danger of any future deterioration in groundwater quality"[15]

Clearly the above assessment is at best indicative, but it does give an indication of the sort of concentration that could potentially be present at XXXX.

Under the above scenario of rapid groundwater movement the polymer and any associated monomers would be pumped from the ground over a short time period (i.e. up to 1 month) and so there would be no residual polymer or monomers in the aquifer and no breakdown products to give a chronic risk. At the other extreme, if all (or the vast majority) of the polymer remained in the pile hole it would be removed prior to concrete installation and there would be no chronic risk as there would be no long term contaminant source. In reality, some polymer (and associated monomers) is likely to enter the aquifer where it could remain after the test and potentially be drawn into supply. As indicated above, the potential for this to be at a concentration that would cause harm to human health is extremely low. It is extremely unlikely that any monomers would be present at concentration above drinking water standards.

Any polymer in the aquifer would attenuate by a combination of dilution and degradation. As nitrogen is one of the degradation products, this could be of concern as it would result in an increase in nitrate concentrations which are of general concern in the chalk. At this stage it is not possible to confirm the likely additional nitrogen loading, but one of the purposes of the load test piles is to determine this. As there is only one pile proposed using polymer, and given the high dilution rates, any change in nitrate concentrations at XXXX would be short lived and would not represent a long term risk to water quality. The data gained from this test would be used to inform the risks from the piling for the viaduct.

4.4 Private abstractions

As indicated in the main risk assessment, there is no risk to the identified private water supplies from turbidity associated with the proposed construction works at the LTP. For similar reasons there is no risk to water quality from polymer contamination.

4.5 Summary

The above assessment indicates that the risks from the trial to sensitive receptors are extremely low, especially as they relate to a single trial pile hole. The findings of the test will be used to determine the risks to sensitive receptors from use of polymers for piling along the Colne Valley viaduct, assuming that the polymers prove acceptable from a geotechnical perspective. However, the monomer acrylamide is likely to be present as a residual in the polymer and as this is classified in the Groundwater Directive as a hazardous substance and it should not be allowed to enter groundwater, except at "*de minimis*" concentrations (i.e. so small that it only poses an extremely low risk of polluting groundwater).

[15] https://www.gov.uk/government/publications/groundwater-activity-exclusions-from-environmental-permits/groundwater-activity-exclusions-from-environmental-permits

5 Monitoring

There are no field tests or simple analytical tests to identify the presence of the above polymers in water. In the US the approach adopted in the field has been to measure the viscosity of a liquid to determine the proportion of polymer present. This test relies on a comparison between the viscosity of groundwater at the site and the virgin slurry, with the proportional loss in viscosity being used to indicate the proportional loss in polymer. Clearly this is very crude and would only work when there is a relatively high proportion of polymer in the water sample. It is not appropriate when looking at water quality parameters for drinking water.

Laboratory analysis is available for acrylamide in drinking water and this analysis would be carried out on selected samples during the polymer trials. In addition, analysis for concentrations of nitrogenous compounds and major ions would be undertaken to determine if there is any increase in these due to use of polymer. The samples would be collected from the monitoring boreholes close to the pile hole.

In addition to chemical analysis, the loss of polymer to ground would be assessed to determine how much of that pumped into a pile hole is lost during drilling. This would allow the risk assessment to be further refined, although it is recognised that the results will be highly dependent upon the number and connectivity of fractures encountered in the pile hole.

6 Conclusions

The above assessment, which is based on information provided by KB, indicates that the proposed polymers have low toxicity, low potential for bioaccumulation and high rates of degradation. However, they do contain residuals of the monomer acrylamide which is defined as a hazardous substance, but could be present at concentrations that only pose an extremely low risk of polluting groundwater. For the load test piles it is unlikely that there will be any effect on the xxxx abstraction and any residual polymers remaining in the aquifer after the test will be rapidly attenuated, particularly as only one test is proposed using polymers. If the water was pumped into supply the concentrations would be so low as to not represent a significant risk to human health.

Annex 1 Safety Data Sheets

SECTION 1. IDENTIFICATION OF SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 PRODUCT IDENTIFIER:

Product or Trade Name: SlurryPRO® CDP

1.2 RELEVANT IDENTIFIED USES OF THE SUBSTANCE OR MIXTURE AND USES ADVISED AGAINST:

Recommended Use(s)*: Deep foundations excavation fluid additive, drilling fluid additive, rheology modifier, filtrate control agent, membrane enhancer

- *The "Recommended Use(s)" identified for this product is provided solely to comply with a US Federal requirement and is not part of the seller's published specification. The terms of this Safety Data Sheet (SDS) do not create or infer any warranty, express or implied, including by incorporation into or reference in the seller's sales agreement.*

Use Application(s): Professional Use Only

Recommended Restrictions: No restrictions on use known.

1.3 DETAILS OF THE SUPPLIER OF THE SUBSTANCE/MIXTURE AND SAFETY DATA SHEET:

Manufacturer/Supplier:

KB International LLC
735 Broad Street, Suite 209
Chattanooga, TN 37402 USA

Telephone Number: +1 (423) 266-6964

E-mail: info@kbtech.com

1.4 EMERGENCY CONTACT AND TELEPHONE NUMBER:

Emergency Contact: ChemTel, Inc.

Emergency Telephone Number: +1 (800) 255-3924

1.5 OTHER MEANS OF IDENTIFICATION:

Chemical Family: Propriety carbonyl acryl-amide copolymer

SECTION 2. HAZARDS IDENTIFICATION

2.1 CLASSIFICATION OF THE SUBSTANCE OR MIXTURE:

Classification according to Regulation (EC) No 1272/2008:

The substance is not classified as hazardous according to the CLP regulation.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC:

Hazard Warnings:

- The product does not require a hazard warning label in accordance with EC Directives.
  (This substance has been classified in accordance with the hazard criteria of the CPR and the SDS contains all the information required by the CPR.)

Information Concerning Particular Hazards for Human and Environment:

- Heightened danger of slipping when the product is spilled on the floor.
- The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

Classification system:

- The classification is according to the latest editions of the EU-lists, and extended by company and literature data.
- The classification is in accordance with the latest editions of international substances lists, and is supplemented by information from technical literature and by information provided by the company.

According to Regulation 2012 OSHA Hazardous Communication Standard; 29 CFR Part 1910.1200:

Classification of the Product:

- No need for classification according to GHS criteria for this product.

2.2 LABEL ELEMENTS:

According to Regulation (EC) No. 1272/2008:

- The product is classified and labelled according to the CLP regulation.

According to Globally Harmonized System, (GHS):

- This product does not require a hazard warning label in accordance with GHS criteria for this product.

Labeling of Special Preparation(s):

- This product is not combustible in the form in which it is shipped by the manufacturer, but may form a combustible dust through downstream activities (e.g., grinding, pulverizing) that reduce its particle size.
- High risk of slipping due to leakage/spillage of this product

D1270

D1130

According to Regulation 2012 OSHA Hazardous Communication Standard; 29 CFR Part 1910.1200:

Precautionary Statement(s):

General:

P103 ..... Read label before use.

Prevention:

P250 ..... Do not subject to grinding or friction.
P261 ..... Avoid breathing dust.
P273 ..... Avoid release to the environment.
P280 ..... Wear protective gloves, clothing, and eye protection.
P285 ..... In case of inadequate ventilation wear respiratory protection.

Response:

P301/330/331/314 ... IF SWALLOWED: Rinse mouth with water. Do NOT induce vomiting. Get medical advice or attention if you feel unwell.
P305/335/352/332/313 IF ON SKIN (or hair): Brush off loose particles from skin. Wash with plenty of soap and water. If skin irritation or a rash occurs: Get medical advice.
P304/340/342/315 ... IF INHALED: Remove person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms: Get immediate medical attention.
P305/351/338/337/313 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice or attention.
P306/362/364 ..... IF ON CLOTHING: Take off contaminated clothing, and wash it before reuse.
P370/378 ..... IN CASE OF FIRE: Use dry powder or foam to extinguish.
P391 ..... Collect spillage.

Storage:

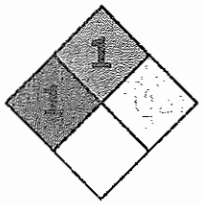
P402/404 ..... Store in a dry place. Store in a closed container.

Disposal:

P501 ..... Dispose of contents or container in accordance with local, regional, national, and/or international regulations.

2.3 HAZARD DESCRIPTIONS:

NFPA Ratings *(Scale 0 – 4)*:



Health = 1
Fire = 1
Reactivity = 0

HMIS Ratings *(Scale 0 – 4)*:

Health = 1
Flammability = 1
Physical Hazard = 0
Personal Protection = E

WHMIS 2015 - Symbols: Not hazardous under WHMIS.

Other Hazards: Not hazardous substance or mixture.

2.4 HAZARDS NOT OTHERWISE CLASSIFIED (HNOC) OR NOT COVERED BY GHS:

Results of PBT and vPvB Assessment:

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

According to Regulation 1994 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200:

If applicable information is provided in this section on other hazards which do not result in classification but which may contribute to the overall hazards of the substance or mixture.

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Emergency Overview:

Caution:

- Causes eye irritation.
- May cause some irritation to the respiratory system if dust is inhaled.
- The statements are based on the properties of the individual components.
- Wear NIOSH-certified chemical goggles.
- Use NIOSH approved respirator as needed to mitigate exposure.
- Caution - Slippery when wet!
- Wear protective clothing.
- Refer to MSDS Section 7 for Dust Explosion information.
- This type of product has a tendency to create dust if roughly handled. It does not burn readily but as with many organic powders, flammable dust clouds may be formed in air.
- Organic powders may be capable of generating static discharges and creating explosive mixtures in air. Handle with caution.
- Avoid creating dusty conditions, dust build-up or formation of dust clouds.
- Avoid all sources of ignition: heat, sparks, open flame.
- Caution - Slippery when wet!

Information Concerning Particular Hazards for Human and Environment:

- No Applicable

Note

- This document has been prepared in accordance with standards for workplace safety, which require the inclusion of all known hazards of the product or its ingredients regardless of the potential risk. The precautionary statements and warnings included may not apply in all cases. Your needs may vary depending upon the potential for exposure in your workplace.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 COMPONENTS OF SUBSTANCE OR MIXTURE:

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

- This product does not contain any components classified as hazardous under the referenced regulation.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC:

- No dangerous ingredients

REACH - Candidate List of Substances of Very High Concern for Authorization (Article 59).

- No applicable

SECTION 4. FIRST-AID MEASURES

4.1 DESCRIPTION OF FIRST AID MEASURES:

After Clothing Contact:

- Remove contaminated clothing.
- Wash all soiled clothing before reuse.

After Ingestion:

- Have victim rinse mouth with water, then drink of water.
- Do not induce vomiting.
- Get medical advice or attention if you feel unwell.

After Inhalation:

- Remove person to fresh air and keep comfortable for breathing.
- If respiratory symptoms persists seek medical attention.

After Skin Contact:

- Brush off loose particles from skin.
- Wash with plenty of water.
- If skin irritation or a rash occurs get medical advice or attention.
- Wash all soiled clothing before reuse.

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After Eye Contact:

- Wear appropriate protective equipment.
- Protect unharmed eye.
- If in contact with eyes, rinse cautiously with water for several minutes under running water with eyelids held open.
- Remove contact lenses, if present and easy to do and continue rinsing.
- If eye irritation persists get medical advise or attention.

4.2 MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED:

Symptoms:

- The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11.
- Slight irritant effect on skin and mucous membranes.
- Gastric or intestinal disorders when ingested.
- Further important symptoms and effects are so far not known.

Hazards:

- No hazard is expected under intended use and appropriate handling.

4.3 INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED:

Note To Physician:

Treatment:

- Treat according to symptoms (decontamination, vital functions), no known specific antidote.

SECTION 5. FIRE-FIGHTING MEASURES

5.1 EXTINGUISHING MEDIA:

Suitable Extinguishing Media:

- Dry powder, foam.

Unsuitable Extinguishing Media:

- Water jet.
- Carbon Dioxide

Additional Information:

- If water is used, restrict pedestrian and vehicular traffic in areas where slip hazard may exist.

5.2 SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE / CONDITIONS OF FLAMMABILITY:

Hazards During Fire-fighting:

- May form combustible dust concentrations in air.
- Not considered flammable.
- Formation of toxic gases is possible during heating or in case of fire.
- Carbon monoxide and carbon dioxide, nitrogen oxides (NOx) and ammonia.
- Very slippery when wet.

Flammability Classification (OSHA 29 CFR 1910.106):

- Not flammable.

Auto Ignition Temp:

- Non-combustible.

5.3 SPECIAL PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIREFIGHTERS:

Protective Equipment for Firefighters:

- Wear a self-contained breathing apparatus.
- Wear full protective suit.

Special Fire-Fighting Procedures:

- The degree of risk is governed by the burning substance and the fire conditions.

Further Information:

- Dusty conditions may ignite explosively in the presence of an ignition source causing flashfire.

5.4 IMPACT SENSITIVITY:

Assessment:

- Not shock-sensitive.

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SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1 PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES:

- Use personal protective clothing.
- Keep unprotected persons away.
- Use respiratory protective device against the effects of fumes/dust/aerosol.
- Restrict access to area until completion of clean-up.
- All persons dealing with clean-up should wear the appropriate protective clothing and equipment.
- Ensure adequate ventilation.
- Avoid formation of dust.
- Product forms slippery surface when combined with water.
- Refer to Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION, for additional information on acceptable personal protective equipment.

6.2ENVIRONMENTAL PRECAUTIONS:

- Ensure spilled product does not enter drains, sewers, waterways, or confined spaces.
- Do not discharge into drains, water courses or onto the ground.
- If necessary, dike well ahead of the spill to prevent runoff into drains, sewers, or any natural waterway or drinking supply.

6.3METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP:

For Small Amounts:

Dry Form:

For Small Amounts:

- Pick up with suitable appliance and dispose of.
- Pick up mechanically.
- Avoid raising dust.
- Dispose contaminated material as waste according to item 13.

For Large Amounts:

- Contain with dust binding material and dispose of.
- Pick up mechanically.
- Avoid raising dust.
- Send for recovery or disposal in suitable receptacles.
- Dispose contaminated material as waste according to item 13..

Wet Form:

- Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust). Pick up mechanically.
- Send for recovery or disposal in suitable receptacles.
- Dispose contaminated material as waste according to item 13.

Further Accidental Release Measures:

- Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air).
- Avoid the formation and build-up of dust – danger of dust explosion.
- Dust in sufficient concentration can result in an explosive mixture in air.
- Non-sparking tools should be used.
- Handle to minimize dusting and eliminate open flame and other sources of ignition. Forms slippery surfaces with water.

6.4REFERENCE TO OTHER SECTIONS:

- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.
- See Section 13 for disposal information.

SECTION 7. HANDLING AND STORAGE

7.1 PRECAUTIONS FOR SAFE HANDLING:

- Prevent formation of dust.
- Any deposit of dust which cannot be avoided must be regularly removed.
- Use only in well ventilated areas.

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- Use respiratory protective device against the effects of dust.
- Breathing must be protected when large quantities are decanted without local exhaust ventilation.
- Do not dry clean dust covered objects and floors. Wash thoroughly with plenty of water.
- Forms slippery surfaces with water.
- Handle in accordance with good industrial hygiene and safety practice.
- Obey all label warnings, especially during container cleaning.
- Do not remove label until container is thoroughly cleaned.
- Do not use container for food, feed or drinking water.

Protection Against Fire and Explosion:

- Avoid dust formation.
- Dust in sufficient concentration can result in an explosive mixture in air.
- Handle to minimize dusting and eliminate open flame and other sources of ignition.
- Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces.
- Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations.
- Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres.
- Protect from heat.
- Keep respiratory protective device available.
- *Refer to NFPA 654, Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids (2013 Edition) for safe handling.*

7.2 CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES:

Storage:

Requirements to Be Met by Storerooms and Receptacles:

- Store only in the original receptacle.
- Avoid storage near extreme heat, ignition sources or open flame.
- Protect from humidity and water.

Information About Storage in One Common Storage Facility:

- Store away from foodstuffs.
- Do not store together with oxidizing and acidic materials.
- Do not store together with alkalis (caustic solutions).

Further Information on Storage Conditions:

- Store in unopened original containers in a cool and dry place.
- This product is hydroscopic.
- Avoid wet, damp or humid conditions, temperature extremes and ignition sources.

Unsuitable Materials for Containers:

- Aluminum

Storage Stability:

- Avoid extreme heat.

Protect from Temperatures Above:

- 70 °C (158 °F)

7.3 SPECIFIC END USE(S):

- Apart from the uses mentioned in section 1.2, no further relevant information available.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ADDITIONAL INFORMATION ABOUT DESIGN OF TECHNICAL SYSTEMS:

Appropriate Engineering Controls:

Advice on System Design:

- No further data; see section 7.

8.1 CONTROL PARAMETERS:

Components with Limit Values that Require Monitoring at the Workplace:

- Not required.

DNELs:

- No further relevant information available.

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PNECs:

- No further relevant information available.

Components with Occupational Exposure Limits:

- Particles, not otherwise specified, respirable.
- Particles, not otherwise specified, inhalable.

Additional Information:

- The lists that were valid during the creation were used as basis.

8.2 EXPOSURE CONTROLS:

Engineering Controls:

- Provide appropriate exhaust ventilation at places where dust is formed.

Personal Protective Equipment:

General Protective and Hygienic Measures:

- The usual precautionary measures for handling chemicals should be followed.
- Keep away from foodstuffs, beverages and feed.
- Do not inhale dust
- Avoid contact with the eyes.
- Avoid long term contact with the skin.
- Ensure that washing facilities are available at the work place.

Respiratory Protection:

- Respiratory protection may not be required under normal operating conditions if adequate ventilation is provided.

- When applicable suitable respiratory protection for lower concentrations or short-term effect: Particle filter with medium efficiency for solid and liquid particles (e.g., EN 143, Type P2).
- For spills, respiratory protection may be advisable.

Body Protection:

- Light protective work clothing.

Hand Protection:

- *Chemical resistant protective gloves (EN 374).*

- *Suitable materials also with prolonged, direct contact (Recommended: Protective index 6, corresponding > 480 minutes of permeation time according to EN 374): e.g. nitrile rubber (0.4 mm), chloroprene rubber (0.5 mm), polyvinyl chloride (0.7 mm) and other Supplementary note: The specifications are based on tests, literature data and information of glove manufacturers or are derived from similar substances by analogy. Due to many conditions (e.g. temperature) it must be considered, that the practical usage of a chemical-protective glove in practice may be much shorter than the permeation time determined through testing. Manufacturer's directions for use should be observed because of great diversity of types.*

Eye / Face Protection:

- Safety glasses with side-shields (frame goggles) (e.g. EN 166)

Other Protective Equipment:

- An eyewash station and safety shower should be made available in the immediate working area.
- Other equipment may be required depending on workplace standards.

8.3 GENERAL SAFETY AND HYGIENE CONSIDERATIONS:

- Handle in accordance with good industrial hygiene and safety practice. Ensure adequate ventilation.
- Wearing of closed work clothing is recommended. No eating, drinking, smoking or tobacco use at the place of work.

Limitation and Supervision of Exposure into the Environment:

- No special environmental precautions required.

Risk Management Measures:

- See Section 7 for additional information.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES:

Appearance:

Physical State:	Dry/Solid.
Form:	Granular to powder.
Color:	Clear, opaque to white/whitish.
Odor:	Oderless.

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Odor Threshold (ppm): ..... Not determined.
Molecular Formula: ..... Trade Secret
Molecular Weight: ..... Trade Secret
Specific Gravity (water = 1): ..... Not Applicable
Bulk Density (at 20 °C or 68 °F): ..... Approx. 0.75 g/cm³ – (700 kg/m³) or 0.0253 lb/in³ – (5.84 lb/gal)
pH (Value): ..... 7.0 - 9.0 (in 5% solution at 20 °C or 68 °F)
Change In Condition:
Freeze Point: ..... Not determined.
Melting Point: ..... Not determined.
Melting Range: ..... Not determined.
Boiling Point: ..... Not determined.
Boiling Range: ..... Not determined.
Evaporation Rate: ..... The product is a non-volatile solid.
Flash Point (°C) [Closed cup]: ..... Not Applicable
Flammability (solid, gaseous): ..... Not highly flammable.
Danger of Explosion: ..... Product does not present an explosion hazard in its supplied form.
Explosive Properties:
Lower Explosion Limit: ..... For solids not relevant for classification and labelling.
Upper Explosion Limit: ..... For solids not relevant for classification and labelling.
Auto-Ignition Point (°C): ..... Not self-igniting
Auto-ignition: ..... 400 °C (BAM) – 410 °C (BAM)
Minimum Ignition Energy (°C): ..... >999 mJ
Burning Number: 5
Dust Explosion Class: ..... St 1
Oxidizing Properties: ..... The substance or mixture is not classified as oxidizing.
Vapor Pressure (mm Hg): ..... The product has not been tested.
Vapor Density (Air=1): ..... No data available.
Relative Density (g/ml @ 20 °C): ..... No data available.
Solubility / Miscibility (Water): ..... Soluble (Forms a viscous solution.)
Solubility (Quantitative): ..... No data available.
Solubility (Qualitative): ..... No data available.
Partition Coefficient (n-octanol/water): .. No data available.
Auto-ignition Point (°C): ..... Not self-igniting
Decomposition Temperature (°C): ..... No decomposition if used as directed.
Viscosity (mPa.s):
Dynamic: ..... Not Applicable
Kinematic: ..... Not Applicable
Volatiles (% by weight): ..... Not determined.
Volatile Organic Compounds (VOC's): ..... Not Applicable
Absolute Pressure of Container: ..... Not Applicable
Flame Projection Length: ..... Not Applicable
Other Physical/Chemical Comments: ..... If necessary, information on other physical and chemical parameters is indicated in this section.

SECTION 10. STABILITY AND REACTIVITY

10.1 REACTIVITY:

- Stable under normal conditions of use and storage.
- No hazardous reactions if stored and handled as prescribed/indicated. 10.2 Chemical Stability:

Thermal **Decomposition / Conditions to be Avoided:**

- No decomposition if used and stored according to specifications.

10.3 POSSIBILITY OF HAZARDOUS REACTIONS:

- As the product is supplied it is not capable of dust explosion; however enrichment with fine dust causes risk of dust explosion.
- Reacts with strong oxidizing agents.
- Reacts with strong acids.

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10.4 CONDITIONS TO AVOID:

- Avoid extreme heat.
- Avoid humidity.
- Avoid water.
- Avoid electro-static discharge.
- Avoid dust formation.
- Store away from acids and oxidizing agents.

10.5 INCOMPATIBLE MATERIALS:

- No further relevant information available.

10.6 HAZARDOUS DECOMPOSITION PRODUCTS:

- Carbon monoxide and carbon dioxide
- Nitrogen oxides (NOx)
- Ammonia

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 INFORMATION ON TOXICOLOGICAL EFFECTS:

Acute Toxicity:

Primary Irritant Effect:

Inhalation:

- Product dust may be irritating to the respiratory system.

Skin:

- Slight irritant effect on skin and mucous membranes.

Eye:

- Irritating effect on eye.

Ingestion:

- Not expected to be irritating.

Sensitization:

- No sensitizing effects known.

Additional Toxicological Information:

- When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.
- The product is not subject to classification according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version.

Assessment of Acute Toxicity:

- Based on the ingredients, there is no suspicion of a skin-sensitizing potential.

Aspiration Hazard:

- No aspiration hazard expected.

Chronic Toxicity/Effects:

Repeated Dose Toxicity:

Assessment of Repeated Dose Toxicity:

- Based on our experience and the information available, no adverse health effects are expected if handled as recommended with suitable precautions for designated uses. The product has not been tested. The statement has been derived from the properties of the individual components.

Genetic Toxicity:

Assessment of Mutagenicity:

- Based on the ingredients, there is no suspicion of a mutagenic effect.

Carcinogenicity:

Assessment of Carcinogenicity:

- The whole of the information assessable provides no indication of a carcinogenic effect.

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Carcinogenic Categories:

IARC (International Agency for Research on Cancer)	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a probable, possible or confirmed human carcinogen.
OSHA - CA (Occupational Safety & Health Administration)	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen.
NTP (National Toxicology Program)	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen.
ACGIH (The American Conference of Governmental Industrial Hygienists)	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen.

Reproductive Toxicity:

Assessment of Reproduction Toxicity:

- Based on the ingredients, there is no suspicion of a toxic effect on reproduction.

Other Information:

- The product has not been tested. The statements on toxicology have been derived from products of a similar structure and composition.

Symptoms of Exposure:

- No significant symptoms are expected due to the non-classification of the product.

Additional Toxicological Information:

- When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

SECTION 12. ECOLOGICAL INFORMATION

12.1 TOXICITY:

Aquatic Toxicity: No further relevant information available.

12.2 PERSISTENCE AND DEGRADABILITY:

- Biodegradable, Photodegradable.

12.3 BIOACCUMULATIVE POTENTIAL:

- No further relevant information available.

12.4 MOBILITY IN SOIL:

- No further relevant information available.

Additional Ecological Information:

General Notes:

- Water Hazard Class 1 (Self-Assessment): slightly hazardous for water.

Other Ecotoxicological Advice:

- Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- Do not contaminate any lakes, streams, ponds, groundwater or soil. Avoid flushing into drains. In the event of a large spillage contain product as thoroughly as possible and dispose of in accordance with local regulations.
- The product has not been tested.
- The statement has been derived from substances/products of a similar structure or composition.

12.5 RESULTS OF PBT AND VPVB ASSESSMENT:

PBT: Not applicable

VPVB: Not applicable

12.6 OTHER ADVERSE ECOLOGICAL EFFECTS:

- No further relevant information available.

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SECTION 13. DISPOSAL CONSIDERATIONS

13.1 WASTE TREATMENT METHODS:

Unused Material and Residue:

Recommendations:

- Can be burned with household garbage after consulting with the waste disposal facility operator and the pertinent authorities and adhering to the necessary technical regulations.
- Smaller quantities can be disposed of with household waste.
- The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes. Residual materials should be treated as hazardous.

Uncleaned Packagings:

Recommendations:

- Disposal must be made according to official regulations.

Recommended Cleansing Agents:

- Water, if necessary together with cleansing agents.

RCRA:

- Not a hazardous waste under RCRA (40 CFR 261).

SECTION 14. TRANSPORTATION INFORMATION

14.1 UN Number: (DOT, ADR, ADN, IMDG, IATA)	Not Regulated
14.2 UN Proper Shipping Name: (DOT, ADR, ADN, IMDG, IATA)	Not Regulated
14.3 Transport Hazard Class(es): (DOT, ADR, ADN, IMDG, IATA)	Not Regulated
14.4 Packing Group: (DOT, ADR, IMDG, IATA)	Not Regulated
14.5 Environmental Hazard(s): Marine Pollutant:	Not Regulated
14.6 Special Precautions for User:	No
14.7 Transport in Bulk According to Annex II of MARPOL73/78 & the IBC Code: UN "Model Regulation":	Not Regulated

Special Precautions for User:

- None reported by the manufacturer.

Environmental Hazards:

- See ECOLOGICAL INFORMATION, Section 12.

SECTION 15. REGULATORY INFORMATION

15.1 SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS/LEGISLATION SPECIFIC FOR THE SUBSTANCE OR MIXTURE UNITED STATES (USA) COMPONENTS LISTED BELOW ARE PRESENT ON THE FOLLOWING U.S. FEDERAL CHEMICAL LISTS:

SARA:

Section 302 (Extremely Hazardous Substances Listings):	None of the chemical substances in this product are subject to reporting.
Section 311/312 (Hazardous Chemical Inventory):	No SARA Hazards
Section 365 (Extremely Hazardous Substances Listing):	None of the chemical substances in this product are listed.
Section 313 (Specific Toxic Chemical Listings):	None of the chemical substances in this product are listed.
TSCA (Toxic Substances Control Act):	All chemical substances in this product are either listed on the TSCA Inventory or in compliance with a TSCA Inventory exemption.

Clean Air Act:

Section 12 (40 CFR 61):	This product does not contain any hazardous air pollutants (HAP)
Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F):	None of the chemical substances in this product are listed.

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Clean Water Act:

Section 311, Table 116.4A (List of Hazardous Substances):	This product does not contain any hazardous substances listed.
Section 311, Table 117.3 (Reportable Quantities of Hazardous Substances List):	None of the chemical substances in this product are listed.
Section 307 (Toxic and Priority Pollutants):	This product does not contain any toxic or priority pollutants.

Proposition 65 (California):

Chemicals Known to Cause Cancer:	None of the chemical substances in this product are listed.
Chemicals Known to Cause Reproductive Toxicity for Females:	None of the chemical substances in this product are listed.
Chemicals Known to Cause Reproductive Toxicity for Males:	None of the chemical substances in this product are listed.
Chemicals Known to Cause Developmental Toxicity:	None of the chemical substances in this product are listed.

Other U.S. States and Communities:

RTKHSL (Right to Know Hazardous Substance List):	None of the chemical substances in this product are listed.

Carcinogenic Categories:

EPA (Environmental Protection Agency):	None of the chemical substances in this product are listed.
IARC (International Agency for Research on Cancer):	None of the chemical substances in this product are listed.
TLV (Threshold Limit Value Established by ACGIH):	None of the chemical substances in this product are listed.
NIOSH-CA (National Institute for Occupational Safety and Health):	None of the chemical substances in this product are listed.

Canada:

DSL (Canadian Domestic Substances List):	All of the chemical substances in this product are either listed on the DSL inventory or in compliance with a DSL exemption.
Canadian Ingredient Disclosure List (limit 0.1%):	None of the chemical substances in this product are listed.
Canadian Ingredient Disclosure List (limit 1.0%):	None of the chemical substances in this product are listed.

Other Regulations, Limitations and Prohibitive Regulations:

Substances of Very High Concern (SVHC) According to REACH, Article 57	None of the chemical substances in this product are listed.

Switzerland:

CH INV (New Notified Substances and Declared Preparations):	YES. The mixture contains a polymer. The monomers for this polymer have been notified.

Germany:

MAK (German Maximum Workplace Concentration):	None of the chemical substances in this product are listed.

Australia:

AICS (Australia Inventory of Chemical Substance):	YES. On the inventory, or in compliance with the inventory.

New Zealand:

NZIoC (New Zealand Inventory of Chemical Substances):	NO. On the inventory, or in compliance with the inventory.

Japan:

ENCS (Existing and New Chemical Substances Inventory):	YES. On the inventory, or in compliance with the inventory.
ISHL (Inventory of Chemical):	YES. On the inventory, or in compliance with the inventory.

Korea:

KECI (Korean Existing Chemicals Inventory):	YES. On the inventory, or in compliance with the inventory.

Philippines:

PICCS (Philippines Inventory of Chemicals and Chemical Substances):	YES. On the inventory, or in compliance with the inventory.

China

IECSC (Inventory of Existing Chemical Substances in China):	YES. On the inventory, or in compliance with the inventory.

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For explanation of abbreviation see section 16.

Further Information:

- This product is to be considered as a preparation according to EU-legislation.

15.2 CHEMICAL SAFETY ASSESSMENT:

- A Chemical Safety Assessment has not been carried out.

SECTION 16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations. Note: The responsibility to provide a safe workplace remains with the user. The user should consider the health hazards and safety information contained herein as a guide and should take those precautions required in an individual operation to instruct employees and develop work practice procedures for a safe work environment. The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by the use of this material. It is the responsibility of the user to comply with all applicable laws and regulations applicable to this material.

Abbreviations and acronyms:

ADRADR: Accord Européen sur le Transport des Marchandises Dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
AICS: Australia Inventory of Chemical Substances
CA: California
CAS: Chemical Abstract Services (division of the American Chemical Society)
CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CFR: Code of Federal Regulations
CH INV: Switzerland. New Notified Substances and Declared Preparations
CSA: Canadian Standards Association
DNEL: Derived No-Effect Level (REACH)
DOT: Department of Transportation
DSL: Canadian Domestic Substance List
ECHA: European Chemical Agency
ENCS: Japanese Existing and New Chemical Substances Inventory
EPA: Environmental Protection Agency
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
HMIS: Hazardous Materials Identification System
HSDB: Hazardous Substances Data Bank
IARC: International Agency for Research on Cancer
IATA: International Air Transport Association
ICAO: International Civil Aviation Organisation
IECSC: Inventory of Existing Chemical Substances in China
IMDG: International Maritime Dangerous Goods
Inh: Inhalation
ISHL: Japanese Inventory of Chemical Substances
KECI: Korean Existing Chemicals Inventory
LC: Lethal Concentration
LD: Lethal Dose
MA: Massachusetts
MAK: German Maximum Workplace Concentration
MN: Minnesota
NFPA: National Fire Protection Association
NIOSH: National Institute of Occupational Safety and Health
NJ: New Jersey
NTP: National Toxicology Program
NZIoC: New Zealand Inventory of Chemical Substances
OSHA: Occupational Safety and Health Administration
PA: Pennsylvania
PEL: Permissible Exposure Limit
PICCS: Philippines Inventory of Chemicals and Chemical Substances
PNEC: Predicted No-Effect Concentration (REACH)
RCRA: Resource Conservation and Recovery Act
REACH: EC 1907/2006
RI: Rhode Island
RTECS: Registry of Toxic Effects of Chemical Substances
SARA: Superfund Amendments and Reauthorization Act
STEL: Short Term Exposure Limit
TDG: Canadian Transportation of Dangerous Goods Act & Regulations
TLV: Threshold Limit Values
TSCA: Toxic Substance Control Act
TWA: Time Weighted Average
WHMIS: Workplace Hazardous Materials Identification System

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References:

Canadian Centre for Occupational Health and Safety, CCInfoWeb Databases, 2015 (Chempendium, RTECs, HSDB, INCHEM).
European Chemicals Agency, Classification Legislation, 2015
Material Safety Data Sheet from Manufacturer/Distributor.
OECD: Organization for Economic Co-operation and Development, 2015

Version 1.0	For the New GHS SDS Standard	Revision Date: 12/15/2014
Version 1.1	Hazard and Precautionary Statements	Revision Date: 02/04/2015
Version 1.2	Updated Graphics	Revision Date: 03/09/2015
Version 1.3	UN#, ICC GHS Edits	Revision Date: 05/20/2015
Version 1.4	Edits in Section 9	Revision Date: 05/21/2015
Version 1.5	Edits to Section 5	Revision Date: 06/02/2015
Version 1.6	Additions to Section 9	Revision Date: 06/25/2015

Other Special Considerations for Handling: Provide adequate information, instruction and training for operators.

Miscellaneous Hazard Classes:

Canadian Carcinogenicity Hazard Class: *Not Applicable.*

Physical Hazards Not Otherwise Classified (PHNOC): *Not Applicable.*

Health Hazards Not Otherwise Classified (HHNOC): *Not Applicable.*

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Prepared By: K. Gifford Goodhue, Jr.	Verified By: Mark Walters on 07/31/2017
Issue Date: 07/31/2017	Print Date: 07/31/2017

End of Safety Data Sheet

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SECTION 1. IDENTIFICATION OF SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 PRODUCT IDENTIFIER:

Product or Trade Name: EnhancIT®100

1.2 RELEVANT IDENTIFIED USES OF THE SUBSTANCE OR MIXTURE AND USES ADVISED AGAINST:

Recommended Use(s)*: Deep foundations excavation fluid additive, drilling fluid additive, rheology modifier, filtrate control agent, membrane enhancer

* *The "Recommended Use(s)" identified for this product is provided solely to comply with a US Federal requirement and is not part of the seller's published specification. The terms of this Safety Data Sheet (SDS) do not create or infer any warranty, express or implied, including by incorporation into or reference in the seller's sales agreement.*

Use Application(s): Professional Use Only

Recommended Restrictions: No restrictions on use known.

1.3 DETAILS OF THE SUPPLIER OF THE SUBSTANCE/MIXTURE AND SAFETY DATA SHEET:

Manufacturer/Supplier:

KB International LLC
735 Broad Street
Suite 209
Chattanooga, TN 37402
USA

Telephone Number: +1 (423) 266-6964

E-mail: info@kbtech.com

1.4 EMERGENCY CONTACT AND TELEPHONE NUMBER:

Emergency Contact: ChemTel, Inc.

Emergency Telephone Number: +1 (800) 255-3924

1.5 OTHER MEANS OF IDENTIFICATION:

Chemical Family: Acryl amid copolymers, anionic; Polysaccharide copolymers, anionic.

SECTION 2. HAZARDS IDENTIFICATION

2.1 CLASSIFICATION OF THE SUBSTANCE OR MIXTURE:

Classification according to Regulation (EC) No 1272/2008:

The substance is not classified as hazardous according to the CLP regulation.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC:

Hazard Warnings:

- The product does not require a hazard warning label in accordance with EC Directives.

(This substance has been classified in accordance with the hazard criteria of the CPR and the SDS contains all the information required by the CPR.)

Information Concerning Particular Hazards for Human and Environment:

- Heightened danger of slipping when the product is spilled on the floor.
- The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

Classification system:

- The classification is according to the latest editions of the EU-lists, and extended by company and literature data.
- The classification is in accordance with the latest editions of international substances lists, and is supplemented by information from technical literature and by information provided by the company.

According to Regulation 2012 OSHA Hazardous Communication Standard; 29 CFR Part 1910.1200:

Classification of the Product:

- No need for classification according to GHS criteria for this product.

2.2 LABEL ELEMENTS:

According to Regulation (EC) No. 1272/2008:

- The product is classified and labelled according to the CLP regulation.

According to Globally Harmonized System, (GHS):

- This product does not require a hazard warning label in accordance with GHS criteria for this product.

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Labeling of Special Preparation(s):

- This product is not combustible in the form in which it is shipped by the manufacturer, but may form a combustible dust through downstream activities (e.g., grinding, pulverizing) that reduce its particle size.

According to Regulation 2012 OSHA Hazardous Communication Standard; 29 CFR Part 1910.1200:

Precautionary Statement(s):

General:

P103 ..... Read label before use.

Prevention:

P250 ..... Do not subject to grinding or friction.
P261 ..... Avoid breathing dust.
P273 ..... Avoid release to the environment.
P280 ..... Wear protective gloves, clothing, and eye protection.
P285 ..... In case of inadequate ventilation wear respiratory protection.

Response:

P301/330/331/314 ... IF SWALLOWED: Rinse mouth with water. Do NOT induce vomiting. Get medical advice or attention if you feel unwell.
P305/335/352/332/313 IF ON SKIN (or hair): Brush off loose particles from skin. Wash with plenty of soap and water. If skin irritation or a rash occurs: Get medical advice.
P304/340/342/315 ... IF INHALED: Remove person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms: Get immediate medical attention.
P305/351/338/337/313 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice or attention.
P306/362/364 ..... IF ON CLOTHING: Take off contaminated clothing, and wash it before reuse.
P370/378 ..... IN CASE OF FIRE: Use dry powder or foam to extinguish.
P391 ..... Collect spillage.

Storage:

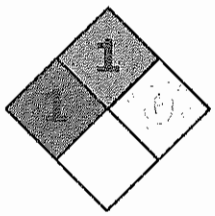
P402/404 ..... Store in a dry place. Store in a closed container.

Disposal:

P501 ..... Dispose of contents or container in accordance with local, regional, national, and/or international regulations.

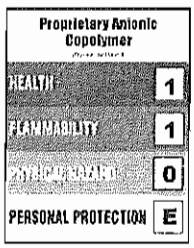
2.3 HAZARD DESCRIPTIONS:

NFPA Ratings *(Scale 0 – 4)*:



Health = 1
Fire = 1
Reactivity = 0

HMIS Ratings *(Scale 0 – 4)*:



Health = 1
Flammability = 1
Physical Hazard = 0

WHMIS 2015 - Symbols: Not hazardous under WHMIS.

Other Hazards: Not hazardous substance or mixture.

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2.4 HAZARDS NOT OTHERWISE CLASSIFIED (HNOC) OR NOT COVERED BY GHS:

Results of PBT and vPvB Assessment:

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

According to Regulation 1994 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200:

If applicable information is provided in this section on other hazards which do not result in classification but which may contribute to the overall hazards of the substance or mixture.

Emergency Overview:

Caution:

- Causes eye irritation.
- May cause some irritation to the respiratory system if dust is inhaled.
- The statements are based on the properties of the individual components.
- Wear NIOSH-certified chemical goggles.
- Use NIOSH approved respirator as needed to mitigate exposure.
- Caution - Slippery when wet!
- Wear protective clothing.
- Refer to MSDS Section 7 for Dust Explosion information.
- This type of product has a tendency to create dust if roughly handled. It does not burn readily but as with many organic powders, flammable dust clouds may be formed in air.
- Organic powders may be capable of generating static discharges and creating explosive mixtures in air. Handle with caution.
- Avoid creating dusty conditions, dust build-up or formation of dust clouds.
- Avoid all sources of ignition: heat, sparks, open flame.
- Caution - Slippery when wet!

Information Concerning Particular Hazards for Human and Environment:

- No Applicable

Note

- This document has been prepared in accordance with standards for workplace safety, which require the inclusion of all known hazards of the product or its ingredients regardless of the potential risk. The precautionary statements and warnings included may not apply in all cases. Your needs may vary depending upon the potential for exposure in your workplace.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 COMPONENTS OF SUBSTANCE OR MIXTURE:

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

- This product does not contain any components classified as hazardous under the referenced regulation.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC:

- No dangerous ingredients

REACH - Candidate List of Substances of Very High Concern for Authorization (Article 59).

- No applicable

SECTION 4. FIRST-AID MEASURES

4.1 DESCRIPTION OF FIRST AID MEASURES:

After Clothing Contact:

- Remove contaminated clothing.
- Wash all soiled clothing before reuse.

After Ingestion:

- Have victim rinse mouth with water, then drink of water.
- Do not induce vomiting.
- Get medical advice or attention if you feel unwell.

After Inhalation:

- Remove person to fresh air and keep comfortable for breathing.
- If respiratory symptoms persists seek medical attention.

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After Skin Contact:

- Brush off loose particles from skin.
- Wash thoroughly with plenty of water.
- If skin irritation or a rash occurs get medical advice or attention.
- Wash all soiled clothing before reuse.

After Eye Contact:

- Wear appropriate protective equipment.
- If in contact with eyes, rinse cautiously with water for several minutes under running water with eyelids held open.
- Remove contact lenses, if present and easy to do and continue rinsing.
- If eye irritation persists get medical advise or attention.

4.2 MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED:

Symptoms:

- The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11.
- Slight irritant effect on skin and mucous membranes.
- Gastric or intestinal disorders when ingested.
- Further important symptoms and effects are so far not known.

Hazards:

- No hazard is expected under intended use and appropriate handling.

4.3 INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED:

Note To Physician:

Treatment:

- Treat according to symptoms (decontamination, vital functions), no known specific antidote.

SECTION 5. FIRE-FIGHTING MEASURES

5.1 EXTINGUISHING MEDIA:

Suitable Extinguishing Media:

- Dry powder, foam.

Unsuitable Extinguishing Media:

- Water jet.
- Carbon Dioxide

Additional Information:

- If water is used, restrict pedestrian and vehicular traffic in areas where slip hazard may exist.

5.2 SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE / CONDITIONS OF FLAMMABILITY:

Hazards During Fire-fighting:

- May form combustible dust concentrations in air.
- Not considered flammable.
- Formation of toxic gases is possible during heating or in case of fire.
- Carbon monoxide and carbon dioxide, nitrogen oxides (NOx) and ammonia.
- Very slippery when wet.

Flammability Classification (OSHA 29 CFR 1910.106):

- Not flammable.

Auto Ignition Temp:

- Non-combustible.

5.3 SPECIAL PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIREFIGHTERS:

Protective Equipment for Firefighters:

- Wear a self-contained breathing apparatus.

Special Fire-Fighting Procedures:

- The degree of risk is governed by the burning substance and the fire conditions.

Further Information:

- Dusty conditions may ignite explosively in the presence of an ignition source causing flash fire.

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5.4 IMPACT SENSITIVITY:

Assessment:

- Not shock-sensitive.

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1 PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES:

- Use personal protective clothing.
- Keep unprotected persons away.
- Use respiratory protective device against the effects of fumes/dust/aerosol.
- Restrict access to area until completion of clean-up.
- All persons dealing with clean-up should wear the appropriate protective clothing and equipment.
- Ensure adequate ventilation.
- Avoid formation of dust.
- Product forms slippery surface when combined with water.
- Refer to Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION, for additional information on acceptable personal protective equipment.

6.2 ENVIRONMENTAL PRECAUTIONS:

- Ensure spilled product does not enter drains, sewers, waterways, or confined spaces.
- Do not discharge into drains, water courses or onto the ground.
- If necessary, dike well ahead of the spill to prevent runoff into drains, sewers, or any natural waterway or drinking supply.

6.3 METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP:

For Small Amounts:

Dry Form:

For Small Amounts:

- Pick up with suitable appliance and dispose of.
- Pick up mechanically.
- Avoid raising dust.
- Dispose contaminated material as waste according to item 13.

For Large Amounts:

- Contain with dust binding material and dispose of.
- Pick up mechanically.
- Avoid raising dust.
- Send for recovery or disposal in suitable receptacles.
- Dispose contaminated material as waste according to item 13.

Wet Form:

- Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust). Pick up mechanically.
- Send for recovery or disposal in suitable receptacles.
- Dispose contaminated material as waste according to item 13.

Further Accidental Release Measures:

- Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air).
- Avoid the formation and build-up of dust — danger of dust explosion.
- Dust in sufficient concentration can result in an explosive mixture in air.
- Non-sparking tools should be used.
- Handle to minimize dusting and eliminate open flame and other sources of ignition. Forms slippery surfaces with water.

6.4 REFERENCE TO OTHER SECTIONS:

- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.
- See Section 13 for disposal information.

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SECTION 7. HANDLING AND STORAGE

7.1 PRECAUTIONS FOR SAFE HANDLING:

- Prevent formation of dust.
- Any deposit of dust which cannot be avoided must be regularly removed.
- Use only in well ventilated areas.
- Use respiratory protective device against the effects of dust.
- Breathing must be protected when large quantities are decanted without local exhaust ventilation.
- Do not dry clean dust covered objects and floors. Wash thoroughly with plenty of water.
- Forms slippery surfaces with water.
- Handle in accordance with good industrial hygiene and safety practice.
- Obey all label warnings, especially during container cleaning.
- Do not remove label until container is thoroughly cleaned.
- Do not use container for food, feed or drinking water.

Protection Against Fire and Explosion:

- Avoid dust formation.
- Dust in sufficient concentration can result in an explosive mixture in air.
- Handle to minimize dusting and eliminate open flame and other sources of ignition.
- Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces.
- Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations.
- Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres.
- Protect from heat.
- Keep respiratory protective device available.
- *Refer to NFPA 654, Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids (2013 Edition) for safe handling.*

7.2 CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES:

Storage:

Requirements to Be Met by Storerooms and Receptacles:

- Store only in the original receptacle.
- Avoid storage near extreme heat, ignition sources or open flame.
- Protect from humidity and water.

Information About Storage in One Common Storage Facility:

- Store away from foodstuffs.
- Do not store together with oxidizing and acidic materials.
- Do not store together with alkalis (caustic solutions).

Further Information on Storage Conditions:

- Store in unopened original containers in a cool and dry place.
- This product is hydroscopic.
- Avoid wet, damp or humid conditions, temperature extremes and ignition sources.

Unsuitable Materials for Containers:

- Aluminum

Storage Stability:

- Avoid extreme heat.

Protect from Temperatures Above:

- 70 °C (158 °F)

7.3 SPECIFIC END USE(S):

- Apart from the uses mentioned in section 1.2, no further relevant information available.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ADDITIONAL INFORMATION ABOUT DESIGN OF TECHNICAL SYSTEMS:

Appropriate Engineering Controls:

Advice on System Design:

- No further data; see section 7.

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8.1 CONTROL PARAMETERS:

Components with Limit Values that Require Monitoring at the Workplace:

Components	CAS No.	Value	Control Parameters	Update	Basis	Form of Exposure
Dust		TWA*	4 mg/m3	1997-01-01	GB EH40	Total Dust

STEL: Short term exposure limit *TWA: Time Weight Average*

DNELs:

· No further relevant information available.

PNECs:

· No further relevant information available.

Additional Information:

· The lists that were valid during the creation were used as basis.

8.2 EXPOSURE CONTROLS:

Engineering Controls:

· Provide appropriate exhaust ventilation at places where dust is formed.

Personal Protective Equipment:

General Protective and Hygienic Measures:

· The usual precautionary measures for handling chemicals should be followed.
· Keep away from foodstuffs, beverages and feed.
· Do not inhale dust
· Avoid contact with the eyes.
· Avoid long term contact with the skin.
· Ensure that washing facilities are available at the work place.

Respiratory Protection:

· Respiratory protection may not be required under normal operating conditions if adequate ventilation is provided.
· When applicable suitable respiratory protection for lower concentrations or short-term effect: Particle filter with medium efficiency for solid and liquid particles (e.g., EN 143, Type P2).
· For spills, respiratory protection may be advisable.

Body Protection:

· Light protective work clothing.

Hand Protection:

· *Chemical resistant protective gloves (EN 374).*
· *Suitable materials also with prolonged, direct contact (Recommended: Protective index 6, corresponding > 480 minutes of permeation time according to EN 374): e.g. nitrile rubber (0.4 mm), chloroprene rubber (0.5 mm), polyvinyl chloride (0.7 mm) and other Supplementary note: The specifications are based on tests, literature data and information of glove manufacturers or are derived from similar substances by analogy. Due to many conditions (e.g. temperature) it must be considered, that the practical usage of a chemical-protective glove in practice may be much shorter than the permeation time determined through testing. Manufacturer's directions for use should be observed because of great diversity of types.*

Eye / Face Protection:

· Safety glasses with side-shields (frame goggles) (e.g. EN 166)

Other Protective Equipment:

· An eyewash station and safety shower should be made available in the immediate working area.
· Other equipment may be required depending on workplace standards.

8.3 GENERAL SAFETY AND HYGIENE CONSIDERATIONS:

· Handle in accordance with good industrial hygiene and safety practice. Ensure adequate ventilation.
· Wearing of closed work clothing is recommended. No eating, drinking, smoking or tobacco use at the place of work.

Limitation and Supervision of Exposure into the Environment:

· No special environmental precautions required.

Risk Management Measures:

· See Section 7 for additional information.

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SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES:

Appearance:

Physical State:	Dry/Solid.
Form:	Granular to powder.
Color:	Clear to white / whitish.
Odor:	Odorless.
Odor Threshold (ppm):	Not determined.
Molecular Formula:	Trade secret
Molecular Weight:	Trade secret
Specific Gravity (water = 1):	Not applicable
Bulk Density (at 20 °C or 68 °F):	Approx. 0.6 - 0.8 g/cm³ – (600 - 800 kg/m³) or 0.0217 - 0.0289 lb/in³ – (5.01 - 6.68 lb/gal)
pH (Value):	6.0 - 8.5 (in 1% solution at 20 °C or 68 °F)

Change In Condition:

Freeze Point:	Not determined.
Melting Point:	Not determined.
Melting Range:	Not determined.
Boiling Point:	Not determined.
Boiling Range:	Not determined.
Flash Point (°C) [Closed cup]:	Not applicable
Evaporation Rate:	The product is a non-volatile solid.
Flammability (solid, gaseous):	Not highly flammable.
Danger of Explosion:	Product does not present an explosion hazard in its supplied form.

Explosive Properties:

Lower Explosion Limit:	For solids not relevant for classification and labelling.
Upper Explosion Limit:	For solids not relevant for classification and labelling.
Auto-ignition Temperature:	420 °C (788 °F)
Self-Igniting	Product is not self-igniting.
Minimum Ignition Energy (°C):	>999 mJ
Burning Number:	5
Dust Explosion Class:	St 1
Oxidizing Properties:	The substance or mixture is not classified as oxidizing.
Vapor Pressure (mm Hg):	The product has not been tested.
Vapor Density (Air=1):	No data available.
Relative Density (g/ml @ 20 °C):	No data available.
Solubility / Miscibility (Water):	Soluble (Forms a viscous solution.)
Solubility (Quantitative):	No data available.
Solubility (Qualitative):	No data available.
Partition Coefficient (n-octanol/water):	No data available.
Auto-Ignition Point (°C):	Not self-igniting
Decomposition Temperature (°C):	No decomposition if used as directed.

Viscosity (mPa.s):

Dynamic:	10 - 18,000 mPa.s at 25 °C
Kinematic:	No data available.
Volatiles (% by weight):	Not determined
Volatile Organic Compounds (VOC's):	Not applicable
Absolute Pressure of Container:	Not applicable
Flame Projection Length:	Not applicable
Other Physical/Chemical Comments:	If necessary, information on other physical and chemical parameters is indicated in this section.

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SECTION 10. STABILITY AND REACTIVITY

10.1 REACTIVITY:

- Stable under normal conditions of use and storage.
- No hazardous reactions if stored and handled as prescribed/indicated.

10.2 CHEMICAL STABILITY:

Thermal Decomposition / Conditions to be Avoided:

- No decomposition if used and stored according to specifications.
- May form combustible dust concentrations in air.

10.3 POSSIBILITY OF HAZARDOUS REACTIONS:

- As the product is supplied it is not capable of dust explosion; however enrichment with fine dust causes risk of dust explosion.
- Reacts with strong oxidizing agents.
- Reacts with strong acids.

10.4 CONDITIONS TO AVOID:

- Avoid extreme heat.
- Avoid humidity.
- Avoid water.
- Avoid electro-static discharge.
- Avoid dust formation.
- Store away from acids and oxidizing agents.

10.5 INCOMPATIBLE MATERIALS:

- None known.

10.6 HAZARDOUS DECOMPOSITION PRODUCTS:

- Carbon monoxide and carbon dioxide

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 INFORMATION ON TOXICOLOGICAL EFFECTS:

Acute Toxicity/Effects:

Assessment of Acute Toxicity:

- Based on the ingredients, there is no suspicion of a skin-sensitizing potential.
- Virtually nontoxic after a single ingestion.

Oral:

LD 50: > 5,000 mg/kg

Species: > Rat

Read-across: (Analogy)

Primary Irritant Effect:

Inhalation:

- Product dust may be irritating to the respiratory system.

Skin:

- Slight irritant effect on skin and mucous membranes.

Eye:

- Eye contact causes irritation.

Ingestion:

- Not expected to be irritating.

Sensitization:

- No sensitizing effects known.

Additional Toxicological Information:

When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

The product is not subject to classification according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version.

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Assessment of Acute Toxicity:

- Based on the ingredients, there is no suspicion of a skin-sensitizing potential.

Aspiration Hazard:

- No aspiration hazard expected.

Chronic Toxicity/Effects:

Repeated Dose Toxicity:

Assessment of Repeated Dose Toxicity:

- Based on our experience and the information available, no adverse health effects are expected if handled as recommended with suitable precautions for designated uses. The product has not been tested. The statement has been derived from the properties of the individual components.

Genetic Toxicity:

Assessment of Mutagenicity:

- Based on the ingredients, there is no suspicion of a mutagenic effect.

Carcinogenicity:

Assessment of Carcinogenicity:

- The whole of the information assessable provides no indication of a carcinogenic effect.

Carcinogenic Categories:

IARC (International Agency for Research on Cancer)	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a probable, possible or confirmed human carcinogen.
OSHA - CA (Occupational Safety & Health Administration)	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen.
NTP (National Toxicology Program)	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen.
ACGIH (The American Conference of Governmental Industrial Hygienists)	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen.

Reproductive Toxicity:

Assessment of Reproduction Toxicity:

- Based on the ingredients, there is no suspicion of a toxic effect on reproduction.

Other Information:

- The product has not been tested. The statements on toxicology have been derived from products of a similar structure and composition.

Symptoms of Exposure:

- No significant symptoms are expected due to the non-classification of the product.

Additional Toxicological Information:

- When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

SECTION 12. ECOLOGICAL INFORMATION

12.1 TOXICITY:

Aquatic Toxicity: No further relevant information available.

12.2 PERSISTENCE AND DEGRADABILITY:

- Chemically degradable, Photodegradable.

12.3 BIOACCUMULATIVE POTENTIAL:

- Based on the structural properties of the polymer(s) in this mixture, the polymers are not biologically available.
- Accumulation in organisms is not to be expected.

12.4 MOBILITY IN SOIL:

Assessment of Bioaccumulation Potential:

- Not readily biodegradable (by OECD criteria).

Additional Ecological Information:

General Notes:

- Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water.

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Other Ecotoxicological Advice:

- Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- Do not contaminate any lakes, streams, ponds, groundwater or soil. Avoid flushing into drains. In the event of a large spillage contain product as thoroughly as possible and dispose of in accordance with local regulations.
- The product has not been tested.
- The statement has been derived from substances/products of a similar structure or composition.

12.5 RESULTS OF PBT AND VPVB ASSESSMENT:

PBT: Not applicable

VPVB: Not applicable

12.6 OTHER ADVERSE ECOLOGICAL EFFECTS:

- No further relevant information available.

SECTION 13. DISPOSAL CONSIDERATIONS

13.1 WASTE TREATMENT METHODS:

Unused Material and Residue:

Recommendations:

- Can be burned with household garbage after consulting with the waste disposal facility operator and the pertinent authorities and adhering to the necessary technical regulations.
- Smaller quantities can be disposed of with household waste.
- The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes. Residual materials should be treated as hazardous.

Uncleaned Packagings:

Recommendations:

- Disposal must be made according to official regulations.

Recommended Cleansing Agents:

- Water, if necessary together with cleansing agents.

RCRA:

- Not a hazardous waste under RCRA (40 CFR 261).

SECTION 14. TRANSPORTATION INFORMATION

14.1 UN Number: (DOT, ADR, ADN, IMDG, IATA)	Not Regulated
14.2 UN Proper Shipping Name: (DOT, ADR, ADN, IMDG, IATA)	Not Regulated
14.3 Transport Hazard Class(es): (DOT, ADR, ADN, IMDG, IATA)	Not Regulated
14.4 Packing Group: (DOT, ADR, IMDG, IATA)	Not Regulated
14.5 Environmental Hazard(s) – UN "Model Regulation":	Not Regulated
14.6 Special Precautions for User:	No
14.7 Transport in Bulk According to Annex II of MARPOL 73/78 & the IBC Code – UN "Model Regulation":	Not Regulated

Special Precautions for User:

- None reported by the manufacturer.

Environmental Hazards:

- See ECOLOGICAL INFORMATION, Section 12.

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SECTION 15. REGULATORY INFORMATION

15.1 SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS/LEGISLATION SPECIFIC FOR THE SUBSTANCE OR MIXTURE UNITED STATES (USA)
COMPONENTS LISTED BELOW ARE PRESENT ON THE FOLLOWING " U.S. FEDERAL AND INTERNATIONAL LISTS:

SARA:

Section 302 (Extremely Hazardous Substances Listings):	None of the chemical substances in this product are subject to reporting.
Section 311/312 (Hazardous Chemical Inventory):	No SARA Hazards
Section 355 (Extremely Hazardous Substances Listing):	None of the chemical substances in this product are listed.
Section 313 (Specific Toxic Chemical Listings):	None of the chemical substances in this product are listed.
TSCA (Toxic Substances Control Act):	All chemical substances in this product are either listed on the TSCA Inventory or in compliance with a TSCA Inventory exemption.

Clean Air Act:

Section 12 (40 CFR 61):	This product does not contain any hazardous air pollutants (HAP).
Section 112(r) for Accidental Release Prevention (40 CFR 66.130, Subpart F):	None of the chemical substances in this product are listed.

Clean Water Act:

Section 311, Table 116.4A (List of Hazardous Substances):	This product does not contain any hazardous substances listed.
Section 311, Table 117.3 (Reportable Quantities of Hazardous Substances List):	None of the chemical substances in this product are listed.
Section 307 (Toxic and Priority Pollutants):	This product does not contain any toxic or priority pollutants.

Proposition 65 (California):

Chemicals Known to Cause Cancer:	None of the chemical substances in this product are listed.
Chemicals Known to Cause Reproductive Toxicity for Females:	None of the chemical substances in this product are listed.
Chemicals Known to Cause Reproductive Toxicity for Males:	None of the chemical substances in this product are listed.
Chemicals Known to Cause Developmental Toxicity:	None of the chemical substances in this product are listed.

Other U.S. State and Community Hazardous Substance Lists:

RTKHSL (Right to Know Hazardous Substance List):	None of the chemical substances in this product are listed.

Carcinogenic Categories:

EPA (Environmental Protection Agency):	None of the chemical substances in this product are listed.
IARC (International Agency for Research on Cancer):	None of the chemical substances in this product are listed.
TLV (Threshold Limit Value Established by ACGIH):	None of the chemical substances in this product are listed.
NIOSH-CA (National Institute for Occupational Safety and Health):	None of the chemical substances in this product are listed.

Canada:

DSL (Canadian Domestic Substances List):	All of the chemical substances in this product are either listed on the DSL Inventory or in compliance with a DSL exemption.
Canadian Ingredient Disclosure List (limit 0.1%):	None of the chemical substances in this product are listed.
Canadian Ingredient Disclosure List (limit 1.0%):	None of the chemical substances in this product are listed.

Other Regulations, Limitations and Prohibitive Regulations:

Substances of Very High Concern (SVHC) According to REACH, Article 57	None of the chemical substances in this product are listed.

Switzerland:

CH INV (New Notified Substances and Declared Preparations):	YES. The mixture contains a polymer. The monomers for this polymer have been notified.

Germany:

MAK (German Maximum Workplace Concentration):	None of the chemical substances in this product are listed.

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Australia:

AICS (Australia Inventory of Chemical Substance):	YES. On the inventory, or in compliance with the inventory.

New Zealand:

NZIoC (New Zealand Inventory of Chemical Substances):	NO. On the inventory, or in compliance with the inventory.

Japan:

ENCS (Existing and New Chemical Substances Inventory):	YES. On the inventory, or in compliance with the inventory
ISHL (Inventory of Chemical):	YES. On the inventory, or in compliance with the inventory

Korea:

KECI (Korean Existing Chemicals Inventory:	YES. On the inventory, or in compliance with the inventory.

Philippines:

PICCS (Philippines Inventory of Chemicals and Chemical Substances):	YES. On the inventory, or in compliance with the inventory.

China

IECSC (Inventory of Existing Chemical Substances in China):	YES. On the inventory, or in compliance with the inventory.

For explanation of abbreviation see section 16.

Further Information:

- This product is to be considered as a preparation according to EU-legislation.

15.2 CHEMICAL SAFETY ASSESSMENT:

Product Information:

- Not required

SECTION 16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations. Note: The responsibility to provide a safe workplace remains with the user. The user should consider the health hazards and safety information contained herein as a guide and should take those precautions required in an individual operation to instruct employees and develop work practice procedures for a safe work environment. The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by the use of this material. It is the responsibility of the user to comply with all applicable laws and regulations applicable to this material.

Abbreviations and acronyms:

ADR/ADR:	Accord Européen sur le Transport des Marchandises Dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
AICS:	Australia Inventory of Chemical Substances
CA:	California
CAS:	Chemical Abstract Services (division of the American Chemical Society)
CERCLA:	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CFR:	Code of Federal Regulations
CH INV:	Switzerland New Notified Substances and Declared Preparations
CSA:	Canadian Standards Association
DNEL:	Derived No-Effect Level (REACH)
DOT:	Department of Transportation
DSL:	Canadian Domestic Substance List
ECHA:	European Chemical Agency
ENCS:	Japanese Existing and New Chemical Substances Inventory
EPA:	Environmental Protection Agency
GHS:	Globally Harmonized System of Classification and Labeling of Chemicals
HMIS:	Hazardous Materials Identification System
HSDB:	Hazardous Substances Data Bank
IARC:	International Agency for Research on Cancer
IATA:	International Air Transport Association
ICAO:	International Civil Aviation Organisation
IECSC:	Inventory of Existing Chemical Substances in China
IMDG:	International Maritime Dangerous Goods
Inh:	Inhalation
ISHL:	Japanese Inventory of Chemical Substances
KECI:	Korean Existing Chemicals Inventory
LC:	Lethal Concentration
LD:	Lethal Dose
MA:	Massachusetts
MAK:	German Maximum Workplace Concentration

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MN: Minnesota
NFPA: National Fire Protection Association
NIOSH: National Institute of Occupational Safety and Health
NJ: New Jersey
NTP: National Toxicology Program
NZIoC: New Zealand Inventory of Chemical Substances
OSHA: Occupational Safety and Health Administration
PA: Pennsylvania
PEL: Permissible Exposure Limit
PICCS: Philippines Inventory of Chemicals and Chemical Substances
PNEC: Predicted No-Effect Concentration (REACH)
RCRA: Resource Conservation and Recovery Act
REACH: EC 1907/2006
RI: Rhode Island
RTECS: Registry of Toxic Effects of Chemical Substances
SARA: Superfund Amendments and Reauthorization Act
STEL: Short Term Exposure Limit
TDG: Canadian Transportation of Dangerous Goods Act & Regulations
TLV: Threshold Limit Values
TSCA: Toxic Substance Control Act
TWA: Time Weighted Average
WHMIS: Workplace Hazardous Materials Identification System

References:

Canadian Centre for Occupational Health and Safety, CCInfoWeb Databases, 2015 (Chempendium, RTECs, HSDB, INCHEM).
European Chemicals Agency, Classification Legislation, 2015
Material Safety Data Sheet from Manufacturer/Distributor.
OECD: Organization for Economic Co-operation and Development, 2015

Version 1.0	For the New GHS SDS Standard	Revision Date: 12/15/2014
Version 1.1	Hazard and Precautionary Statements	Revision Date: 02/04/2015
Version 1.2	Updated Graphics	Revision Date: 03/09/2015
Version 1.3	UN#, ICC GHS Edits	Revision Date: 05/20/2015
Version 1.4	Edits in Section 9	Revision Date: 05/21/2015
Version 1.5	Edits to Section 5	Revision Date: 06/02/2015
Version 1.6	Additions to Section 9	Revision Date: 06/25/2015

Other Special Considerations for Handling: Provide adequate information, instruction and training for operators.

Miscellaneous Hazard Classes:

Canadian Carcinogenicity Hazard Class: *Not Applicable.*
Physical Hazards Not Otherwise Classified (PHNOC): *Not Applicable.*
Health Hazards Not Otherwise Classified (HHNOC): *Not Applicable.*

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Prepared By: K. Clifford Goodhue, Jr.	**Verified By:** Mark Walters on 07/31/2017
Issue Date: 09/31/2017	**Print Date:** 07/31/2017

End of Safety Data Sheet

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SECTION 1. IDENTIFICATION OF SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 PRODUCT IDENTIFIER:

Product or Trade Name: EnhancIT® 200

1.2 RELEVANT IDENTIFIED USES OF THE SUBSTANCE OR MIXTURE AND USES ADVISED AGAINST:

Recommended Use(s)*: Deep foundations excavation fluid additive, drilling fluid additive, membrane enhancer, agglomeration aid

- *The "Recommended Use(s)" identified for this product is provided solely to comply with a US Federal requirement and is not part of the seller's published specification. The terms of this Safety Data Sheet (SDS) do not create or infer any warranty, express or implied, including by incorporation into or reference in the seller's sales agreement.*

Use Application(s): Professional Use Only

Recommended Restrictions: No restrictions on use known.

1.3 DETAILS OF THE SUPPLIER OF THE SUBSTANCE/MIXTURE AND SAFETY DATA SHEET:

Manufacturer/Supplier:

KB International LLC
735 Broad Street
Suite 209
Chattanooga, TN 37402
USA

Telephone Number: +1 (423) 266-6964

E-mail: info@kbtech.com

1.4 EMERGENCY CONTACT AND TELEPHONE NUMBER:

Emergency Contact: ChemTel, Inc.

Emergency Telephone Number: +1 (800) 255-3924

1.5 OTHER MEANS OF IDENTIFICATION:

Chemical Family: acrylic amide copolymer, cationic

SECTION 2. HAZARDS IDENTIFICATION

2.1 CLASSIFICATION OF THE SUBSTANCE OR MIXTURE:

Classification system:

- The classification is according to the latest editions of the EU-lists, and extended by company and literature data.
- The classification is in accordance with the latest editions of international substances lists, and is supplemented by information from technical literature and by information provided by the company.

Classification According to 2012 OSHA HCS; 29 CFR Part 1910.1200:

No need for classification according to GHS criteria for this product.

2.2 LABEL ELEMENTS:

According to Globally Harmonized System, (GHS):

The product does not require a hazard warning label in accordance with GHS criteria.

Hazards Not Otherwise Classified:

Very slippery when wet.

Labeling of Special Preparations (GHS):

This product is not combustible in the form in which it is shipped by the manufacturer, but may form a combustible dust through downstream activities (e.g. grinding, pulverizing) that reduce its particle size.

According to Regulation 1994 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200:

Emergency Overview:

Caution - Slippery when wet!
Use with local exhaust ventilation.
Avoid dust formation.
May cause eye irritation.
Wear protective clothing.

According to Regulation (EC) No. 1272/2008 [CLP]:

The substance is not classified as hazardous according to the CLP regulation.

According to Directive 67/548/EEC or 1999/45/EC:

No need for classification according to criteria for this product.

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Information Concerning Particular Hazards for Human and Environment:

Ecological Evaluation(s):

Based on the aquatic LC50s for components in this formulation for which we have aquatic toxicity data, this formulation would be characterized as having "low toxicity" to aquatic species at typical recommended dosages.

Precautionary Statement(s):

General:

P103	Read label before use.

Prevention:

P250	Do not subject to grinding or friction.
P261	Avoid breathing dust.
P273	Avoid release to the environment.
P280	Wear protective gloves, clothing, and eye protection.
P285	In case of inadequate ventilation wear respiratory protection.

Response:

P301/330/331/314 ...	IF SWALLOWED: Rinse mouth with water. Do NOT induce vomiting. Get medical advice or attention if you feel unwell.
P305/335/352/332/313	IF ON SKIN (or hair): Brush off loose particles from skin. Wash with plenty of soap and water. If skin irritation or a rash occurs: Get medical advice.
P304/340/342/315 ...	IF INHALED: Remove person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms: Get immediate medical attention.
P305/351/338/337/313	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice or attention.
P306/362/364	IF ON CLOTHING: Take off contaminated clothing, and wash it before reuse.
P370/378	IN CASE OF FIRE: Use dry powder or foam to extinguish.
P391	Collect spillage.

Storage:

P402/404	Store in a dry place. Store in a closed container.

Disposal:

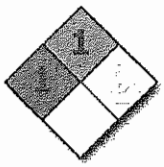
P501	Dispose of contents or container in accordance with local, regional, national, and/or international regulations.

2.3 HAZARD DESCRIPTIONS:

WHMIS 2015 - Symbols:

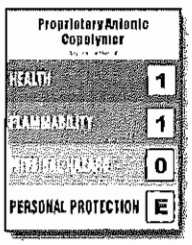
Not hazardous under WHMIS.

NFPA Ratings *(Scale 0 – 4)*:



Health = 1
Fire = 1
Reactivity = 0

HMIS Ratings *(Scale 0 – 4)*:



Health = 1
Flammability = 1
Physical Hazard = 0

2.4 HAZARDS NOT OTHERWISE CLASSIFIED (HNOC) OR NOT COVERED BY GHS:

Results of PBT and vPvB Assessment:

PBT: Not applicable.

vPvB: Not applicable.

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According to Regulation 1994 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200:

If applicable information is provided in this section on other hazards which do not result in classification but which may contribute to the overall hazards of the substance or mixture.

Emergency Overview:

Caution:

- Causes eye irritation.
- May cause some irritation to the respiratory system if dust is inhaled.
- The statements are based on the properties of the individual components.
- Wear NIOSH-certified chemical goggles.
- Use NIOSH approved respirator as needed to mitigate exposure.
- Caution - Slippery when wet!
- Wear protective clothing.
- Refer to MSDS Section 7 for Dust Explosion information.
- This type of product has a tendency to create dust if roughly handled. It does not burn readily but as with many organic powders, flammable dust clouds may be formed in air.
- Organic powders may be capable of generating static discharges and creating explosive mixtures in air. Handle with caution.
- Avoid creating dusty conditions, dust build-up or formation of dust clouds.
- Avoid all sources of ignition: heat, sparks, open flame.
- Caution - Slippery when wet!

Note

- This document has been prepared in accordance with standards for workplace safety, which require the inclusion of all known hazards of the product or its ingredients regardless of the potential risk. The precautionary statements and warnings included may not apply in all cases. Your needs may vary depending upon the potential for exposure in your workplace.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 COMPONENTS OF SUBSTANCE OR MIXTURE:

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

CAS#	EINECS#	INDEX#	DIRECTIVE 67/548/EEC CLASSIFICATION SYMBOL	DIRECTIVE 67/548/EEC CLASSIFICATION	Content(WW)	Chemical Name
Trade Secret	Trade Secret	Trade Secret	Xi R36	EYE IRRIT.2, H319	≈25.0%	amide coplymer, cationic
Trade Secret	Trade Secret	Trade Secret	N/A	N/A	≈15%	amide copolymer, anionic
Trade Secret	Trade Secret	Trade Secret	N/A	N/A	≈30%	acrylic polymer, cationic
124-04-9	204-673-3	607-144-00-9	Xi R36	EYE IRRIT.2, H319	≈0.25~1.25%	adipic acid

SECTION 4. FIRST-AID MEASURES

4.1 DESCRIPTION OF FIRST AID MEASURES:

After Clothing Contact:

- Remove contaminated clothing.
- Wash all soiled clothing before reuse.

After Ingestion:

- Have victim rinse mouth and then drink plenty of water.
- Do not induce vomiting.
- Get medical advice or attention if you feel unwell.

After Inhalation:

- Remove person to fresh air and keep comfortable for breathing.
- If respiratory symptoms persists seek medical attention.

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After Skin Contact:

- Brush off loose particles from skin.
- Wash thoroughly with plenty of water.
- If skin irritation or a rash occurs get medical advice or attention.
- Wash all soiled clothing before reuse.

After Eye Contact:

- Wear appropriate protective equipment.
- If in contact with eyes, rinse cautiously with water for at least 15 minutes under running water with eyelids held open.
- Remove contact lenses, if present and easy to do and continue rinsing.
- If eye irritation persists get medical advise or attention.

4.2 MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED:

Symptoms:

- The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11.
- Slight irritant effect on skin and mucous membranes.
- Irritant to eyes.
- Gastric or intestinal disorders when ingested.
- Further important symptoms and effects are so far not known.

Hazards:

- No hazard is expected under intended use and appropriate handling.

4.3 INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED:

Note To Physician:

Treatment:

- Treat according to symptoms (decontamination, vital functions), no known specific antidote.

SECTION 5. FIRE-FIGHTING MEASURES

5.1 EXTINGUISHING MEDIA:

Suitable Extinguishing Media:

- Dry powder, foam.

Unsuitable Extinguishing Media:

- Water jet.
- Carbon Dioxide

Additional Information:

- If water is used, restrict pedestrian and vehicular traffic in areas where slip hazard may exist.

5.2 SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE / CONDITIONS OF FLAMMABILITY:

Hazards During Fire-fighting:

- May form combustible dust concentrations in air.
- Not considered flammable.
- Carbon oxides, nitrogen oxides.
- The substances/groups of substances mentioned can be released in case of fire.
- Very slippery when wet.

Flammability Classification (OSHA 29 CFR 1910.106):

- Not flammable.

Auto Ignition Temp:

- Non-combustible.

5.3 SPECIAL PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIREFIGHTERS:

Protective Equipment for Firefighters:

- Wear a self-contained breathing apparatus.

Special Fire-Fighting Procedures:

- The degree of risk is governed by the burning substance and the fire conditions.

Further Information:

- Dusty conditions may ignite explosively in the presence of an ignition source causing flash fire.

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5.4 IMPACT SENSITIVITY:

Assessment:

- Not shock-sensitive.

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1 PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES:

- Use personal protective clothing.
- Keep unprotected persons away.
- Use respiratory protective device against the effects of fumes/dust/aerosol.
- Restrict access to area until completion of clean-up.
- All persons dealing with clean-up should wear the appropriate protective clothing and equipment.
- Ensure adequate ventilation.
- Avoid formation of dust.
- Product forms slippery surface when combined with water.
- Refer to Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION, for additional information on acceptable personal protective equipment.

6.2 ENVIRONMENTAL PRECAUTIONS:

- Ensure spilled product does not enter drains, sewers, waterways, or confined spaces.
- Do not discharge into drains, water courses or onto the ground.
- If necessary, dike well ahead of the spill to prevent runoff into drains, sewers, or any natural waterway or drinking supply.

6.3 METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP:

For Small Amounts:

Dry Form:

For Small Amounts:

- Pick up with suitable appliance and dispose of.
- Pick up mechanically.
- Avoid raising dust.
- Dispose contaminated material as waste according to item 13.

For Large Amounts:

- Contain with dust binding material and dispose of.
- Pick up mechanically.
- Avoid raising dust.
- Send for recovery or disposal in suitable receptacles.
- Dispose contaminated material as waste according to item 13.

Wet Form:

- Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust). Pick up mechanically.
- Send for recovery or disposal in suitable receptacles.
- Dispose contaminated material as waste according to item 13.

Further Accidental Release Moasures:

- Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air).
- Avoid the formation and build-up of dust — danger of dust explosion.
- Dust in sufficient concentration can result in an explosive mixture in air.
- Non-sparking tools should be used.
- Handle to minimize dusting and eliminate open flame and other sources of ignition. Forms slippery surfaces with water.

6.4 REFERENCE TO OTHER SECTIONS:

- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.
- See Section 13 for disposal information.

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SECTION 7. HANDLING AND STORAGE

7.1 PRECAUTIONS FOR SAFE HANDLING:

- Prevent formation of dust.
- Any deposit of dust which cannot be avoided must be regularly removed.
- Use only in well ventilated areas.
- Use respiratory protective device against the effects of dust.
- Breathing must be protected when large quantities are decanted without local exhaust ventilation.
- Do not dry clean dust covered objects and floors. Wash thoroughly with plenty of water.
- Forms slippery surfaces with water.
- Handle in accordance with good industrial hygiene and safety practice.
- Obey all label warnings, especially during container cleaning.
- Do not remove label until container is thoroughly cleaned.
- Do not use container for food, feed or drinking water.

Protection Against Fire and Explosion:

- Avoid dust formation.
- Dust in sufficient concentration can result in an explosive mixture in air.
- Handle to minimize dusting and eliminate open flame and other sources of ignition.
- Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces.
- Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations.
- Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres.
- Protect from heat.
- Keep respiratory protective device available.
- *Refer to NFPA 654, Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids (2013 Edition) for safe handling.*

7.2 CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES:

Storage:

Requirements to Be Met by Storerooms and Receptacles:

- Store in unopened original containers in a cool and dry place.
- Avoid storage near extreme heat, ignition sources or open flame.
- Protect from humidity and water.

Information About Storage in One Common Storage Facility:

- Store away from foodstuffs.
- Do not store together with oxidizing and acidic materials.
- Do not store together with alkalis (caustic solutions).

Further Information on Storage Conditions:

- Store in cool, dry conditions in well sealed receptacles.
- This product is hydroscopic.
- Avoid wet, damp or humid conditions, temperature extremes and ignition sources.

Unsuitable Materials for Containers:

- Aluminum

Storage Stability:

- Avoid extreme heat.

Protect from Temperatures Above:

- 70 °C (158 °F)

7.3 SPECIFIC END USE(S):

- Apart from the uses mentioned in section 1.2, no further relevant information available.

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SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ADDITIONAL INFORMATION ABOUT DESIGN OF TECHNICAL SYSTEMS:

Appropriate Engineering Controls:

Advice on System Design:

- No further data; see section 7.

8.1 CONTROL PARAMETERS:

Components with Occupational Exposure Limit Values that Require Monitoring at the Workplace:

- Adipic acid - 124-04-9
- **TWA (Intl)** - Long-term value: 5 mg/m³
- **TLV (USA)** - Long-term value: 5 mg/m³
- **EL (Canada)** - Long-term value: 5 mg/m³
- **EV (Canada)** - Long-term value: 5 mg/m³

DNELs:

- No further relevant information available.

PNECs:

- No further relevant information available.

Additional Information:

- The lists that were valid during the creation were used as basis.

8.2 EXPOSURE CONTROLS:

Personal Protective Equipment:

General Protective and Hygienic Measures:

- The usual precautionary measures for handling chemicals should be followed.
- Keep away from foodstuffs, beverages and feed.
- Do not inhale dust.
- Avoid contact with the eyes.
- Avoid long term contact with the skin.
- Ensure that washing facilities are available at the work place.

Respiratory Protection:

- Respiratory protection may not be required under normal operating conditions if adequate ventilation is provided.
- When applicable suitable respiratory protection for lower concentrations or short-term effect: Particle filter with medium efficiency for solid and liquid particles (e.g., EN 143, Type P2).
- For spills, respiratory protection may be advisable.

Body Protection:

- Light protective work clothing.

Hand Protection:

- *Chemical resistant protective gloves (EN 374).*
- *Suitable materials also with prolonged, direct contact (Recommended: Protective index 6, corresponding > 480 minutes of permeation time according to EN 374): e.g. nitrile rubber (0.4 mm), chloroprene rubber (0.5 mm), polyvinyl chloride (0.7 mm) and other Supplementary note: The specifications are based on tests, literature data and information of glove manufacturers or are derived from similar substances by analogy. Due to many conditions (e.g. temperature) it must be considered, that the practical usage of a chemical-protective glove in practice may be much shorter than the permeation time determined through testing. Manufacturer's directions for use should be observed because of great diversity of types.*

Eye / Face Protection:

- Safety glasses with side-shields (frame goggles) (e.g. EN 166)

Other Protective Equipment:

- An eyewash station and safety shower should be made available in the immediate working area.
- Other equipment may be required depending on workplace standards.

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8.3 GENERAL SAFETY AND HYGIENE CONSIDERATIONS:

- Handle in accordance with good industrial hygiene and safety practice. Ensure adequate ventilation.
- Wearing of closed work clothing is recommended. No eating, drinking, smoking or tobacco use at the place of work.

Limitation and Supervision of Exposure into the Environment:

- No special environmental precautions required.

Risk Management Measures:

- See Section 7 for additional information.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES:

Appearance:

Physical State:	Dry/Solid.
Form:	Granular to powder.
Color:	Clear, opaque to off-white.
Odor:	Oderless.
Odor Threshold (ppm):	Not determined.
Molecular Formula:	Trade Secret
Molecular Weight:	Trade Secret
Specific Gravity (water = 1):	Not Applicable
Bulk Density (at 20 °C or 68 °F):	Approx. 0.60 - 0.75 g/cm³ – (600 - 750 kg/m³) or 0.0217 - 0.0271 0 lb/in³ – (5.01 - 6.26 lb/gal)
pH (Value):	6.0 - 8.5 (in 1% solution at 20 °C or 68 °F)
Change In Condition:	
Freeze Point:	Not determined.
Melting Point:	Not determined.
Melting Range:	Not determined.
Boiling Point:	Not determined.
Boiling Range:	Not determined.
Evaporation Rate:	The product is a non-volatile solid.
Flash Point (°C) [Closed cup]:	Not Applicable
Flammability (solid, gaseous):	Not highly flammable.
Danger of Explosion:	Product does not present an explosion hazard in its supplied form.
Explosive Properties:	
Lower Explosion Limit:	For solids not relevant for classification and labelling.
Upper Explosion Limit:	For solids not relevant for classification and labelling.
Auto-Ignition Temperature (°C):	420 °C (788 °F)
Self-Igniting	Product is not self-igniting.
Minimum Ignition Energy (°C):	>999 mJ
Burning Number:	5
Dust Explosion Class:	St 1
Oxidizing Properties:	The substance or mixture is not classified as oxidizing.
Vaper Pressure (mm Hg):	The product has not been tested.
Vapor Density (Air=1):	No data available.
Relative Density (g/ml @ 20 °C):	No data available.
Solubility / Miscibility (Water):	Soluble (Forms a viscous solution.)
Solubility (Quantitative):	No data available.
Solubility (Qualitative):	No data available.
Partition Coefficient (n-octanol/water):	Study scientifically not justified.
Auto-ignition Point (°C):	Not self-igniting
Decomposition Temperature (°C):	No decomposition if stored and handled as prescribed/indicated.
Viscosity (mPa.s):	
Dynamic:	Not Applicable
Kinematic:	Not Applicable
Volatiles (% by weight):	The product is a non-volatile solid.
Volatile Organic Compounds (VOC's):	Not Applicable
Absolute Pressure of Container:	Not Applicable

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Flame Projection Length: ..... Not Applicable

Other Physical/Chemical Comments: ..... If necessary, information on other physical and chemical parameters is indicated in this section.

SECTION 10. STABILITY AND REACTIVITY

10.1 REACTIVITY:

- Stable under normal conditions of use and storage.
- No hazardous reactions if stored and handled as prescribed/indicated.

10.2 CHEMICAL STABILITY:

Decomposition Products:

- No hazardous decomposition products if stored and handled as prescribed/indicated.

Thermal Decomposition:

- No decomposition if used and stored according to specifications.

10.3 POSSIBILITY OF HAZARDOUS REACTIONS:

- The product is not a dust explosion risk as supplied; however the build-up of fine dust can lead to a risk of dust explosions.
- Reacts with strong oxidizing agents.
- Reacts with strong acids.

10.4 CONDITIONS TO AVOID:

- Avoid extreme heat.
- Avoid humidity.
- Avoid water.
- Avoid electro-static discharge.
- Avoid dust formation.
- Store away from acids and oxidizing agents.

10.5 INCOMPATIBLE MATERIALS:

- Strong acids, strong bases, strong oxidizing agents.

10.6 HAZARDOUS DECOMPOSITION PRODUCTS:

- Carbon monoxide and carbon dioxide
- Nitrogen oxides (NOx)

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 INFORMATION ON TOXICOLOGICAL EFFECTS:

Acute Toxicity/Effects:

Assessment of Acute Toxicity:

- Based on the ingredients, there is no suspicion of a skin-sensitizing potential.
- Virtually nontoxic after a single ingestion.

Oral:

Type of value: LD50
Species: rat
Value: > 2,000 mg/kg
Method: OECD Guidline 401

Irritation / Corrosion:

Assessment of Irritating effects:

Skin:

- Slight irritant effect on skin and mucous membranes.

Eye:

- Eye contact causes irritation. Species: rabbit

Sensitization:

- No sensilizing effects known.

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Additional Toxicological Information:

- When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.
- The product is not subject to classification according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version.

Assessment of Acute Toxicity:

- Based on the ingredients, there is no suspicion of a skin-sensitizing potential.

Aspiration Hazard:

- No aspiration hazard expected.

Chronic Toxicity/Effects:

Repeated Dose Toxicity:

Assessment of Repeated Dose Toxicity:

- Based on our experience and the information available, no adverse health effects are expected if handled as recommended with suitable precautions for designated uses. The product has not been tested. The statement has been derived from the properties of the individual components.

Genetic Toxicity:

Assessment of Mutagenicity:

- Based on the ingredients, there is no suspicion of a mulagenic effect.

Carcinogenicity:

Assessment of Carcinogenicity:

- The whole of the information assessable provides no indication of a carcinogenic effect.

Carcinogenic Categories:

IARC (International Agency for Research on Cancer)	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a probable, possible or confirmed human carcinogen.
OSHA - CA (Occupational Safety & Health Administration)	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen.
NTP (National Toxicology Program)	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen.
ACGIH (The American Conference of Governmental Industrial Hygienists)	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen.

Reproductive Toxicity:

Assessment of Reproduction Toxicity:

- Based on the ingredients, there is no suspicion of a toxic effect on reproduction.

Other Information:

- The product has not been tested. The statements on toxicology have been derived from products of a similar structure and composition.

Symptoms of Exposure:

- No significant symptoms are expected due to the non-classification of the product.

Additional Toxicological Information:

- When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

SECTION 12. ECOLOGICAL INFORMATION

12.1 TOXICITY:

Aquatic Toxicity:

Assessment of Aquatic Toxicity:

- Acute effects on aquatic organisms are due to the cationic charge of the polymer, which is quickly neutralized in natural water courses by irreversible adsorption onto particles, hydrolysis and dissolved organic carbon. Fish toxicity and aquatic toxicity are drastically reduced by rapid irreversible adsorption onto suspended and/or dissolved organic matter. The hydrolysis products are not acutely harmful to aquatic organisms. Tested was a substance with a high cationic charge density. As the acute effects are associated with the charge density, substances with a lower charge density are expected to have a lower toxicity.

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Toxicity to Fish:

Type Test: LC50 (96 h)

Method: Static

Species: Fish

Result: 1 - 10 mg/l

Aquatic Invertebrates:

Acute:

Type Test: LC50 (48)

Species: Ceriodaphnia dubia

Result: 1.6 mg/l

Comment: Under static conditions in the presence of 10 mg/l humic acid.

Chronic:

Type Test: 7 d

Species: Ceriodaphnia dubia

Result: 0.96 mg/l

Test Conditions: Under static-renewal conditions in the presence of humic acid.

Aquatic Plants:

Toxicity to Aquatic Plants:

- The product has not been tested.

12.2 PERSISTENCE AND DEGRADABILITY:

Information on Biological / Abiological Degradation

Degree of Elimination: < 10 % (28 d)

Evaluation: Not readily biodegradable (by OECD criteria).

12.3 BIOACCUMULATIVE POTENTIAL:

- Based on the structural properties of the polymer(s) in this mixture, the polymers are not biologically available.
- Accumulation in organisms is not to be expected.

12.4 MOBILITY IN SOIL:

Assessment of Bioaccumulation Potential:

- Not readily biodegradable (by OECD criteria).

Information On:

- Cationic polymers

Adsorption to Solid Phase:

- Expected.

Additional Ecological Information:

General Notes:

- Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water.

Other Ecotoxicological Advice:

- Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- Do not contaminate any lakes, streams, ponds, groundwater or soil. Avoid flushing into drains. In the event of a large spillage contain product as thoroughly as possible and dispose of in accordance with local regulations.
- The product has not been tested.
- The statement has been derived from substances/products of a similar structure or composition.

12.5 RESULTS OF PBT AND VPVB ASSESSMENT:

PBT: Not applicable

VPVB: Not applicable

12.6 OTHER ADVERSE ECOLOGICAL EFFECTS:

- No further relevant information available.

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SECTION 13. DISPOSAL CONSIDERATIONS

13.1 WASTE TREATMENT METHODS:

Unused Material and Residue:

Recommendations:

- Must not be disposed together with household garbage. Do not allow product to reach sewage system. Can be burned with household garbage after consulting with the waste disposal facility operator and the pertinent authorities and adhering to the necessary technical regulations.
- The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes. Residual materials should be treated as hazardous.

Uncleaned Packaging Disposal:

Recommendations:

- Recommend crushing, puncturing or other means to prevent unauthorized use of used containers.
- Disposal must be made according to official regulations.

Recommended Cleansing Agents:

- Water, if necessary together with cleansing agents.

RCRA:

- Not a hazardous waste under RCRA (40 CFR 261).

SECTION 14. TRANSPORTATION INFORMATION

14.1 UN Number: (DOT, ADR, ADN, IMDG, IATA)	Not classified as a dangerous good under transport regulations.
14.2 UN Proper Shipping Name: (DOT, ADR, ADN, IMDG, IATA)	Not classified as a dangerous good under transport regulations.
14.3 Transport Hazard Class(es): (DOT, ADR, ADN, IMDG, IATA)	Not classified as a dangerous good under transport regulations.
14.4 Packing Group: (DOT, ADR, IMDG, IATA)	Not classified as a dangerous good under transport regulations.
14.5 Environmental Hazard(s): Marine Pollutant:	Not classified as a dangerous good under transport regulations.
14.6 Special Precautions for User:	No
14.7 Transport in Bulk According to Annex II of MARPOL 73/78 & the IBC Code; UN "Model Regulation":	Not classified as a dangerous good under transport regulations.

Special Precautions for User:

- None reported by the manufacturer.

Environmental Hazards:

- See ECOLOGICAL INFORMATION, Section 12.

SECTION 15. REGULATORY INFORMATION

15.1 SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS/LEGISLATION SPECIFIC FOR THE SUBSTANCE OR MIXTURE UNITED STATES (USA) COMPONENTS LISTED BELOW ARE PRESENT ON THE FOLLOWING U.S. FEDERAL CHEMICAL LISTS:

SARA:

Section 302 (Extremely Hazardous Substances Listings):	None of the chemical substances in this product are subject to reporting.
Section 311/312 (Hazardous Chemical Inventory):	No SARA Hazards
Section 355 (Extremely Hazardous Substances Listing):	None of the chemical substances in this product are listed.
Section 313 (Specific Toxic Chemical Listings):	None of the chemical substances in this product are listed.
TSCA (Toxic Substances Control Act):	All chemical substances in this product are either listed on the TSCA Inventory or in compliance with a TSCA Inventory exemption.

Clean Air Act:

Section 12 (40 CFR 61):	This product does not contain any hazardous air pollutants (HAP)
Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F):	None of the chemical substance(s) in this product are listed.

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Clean Water Act:

Section 311, Table 116.4A (List of Hazardous Substances):	This product does not contain any hazardous substance(s) listed.
Section 311, Table 117.3 (Reportable Quantities of Hazardous Substances List):	None of the chemical substance(s) in this product are listed.
Section 307 (Toxic and Priority Pollutants):	This product does not contain any toxic or priority pollutants.

Proposition 65 (California):

Chemicals Known to Cause Cancer:	This product does not contain any hazardous substance(s) listed.
Chemicals Known to Cause Reproductive Toxicity for Females:	None of the chemical substance(s) in this product are listed.
Chemicals Known to Cause Reproductive Toxicity for Males:	None of the chemical substance(s) in this product are listed.
Chemicals Known to Cause Developmental Toxicity:	None of the chemical substance(s) in this product are listed.

State RTKHSL (Right to Know Hazardous Substance List):

State	CAS Number	Chemical Name
Massachusetts	124-04-9	Adipic Acid
New Jersey	124-04-9	Adipic Acid
Pennsylvania	124-04-9	Adipic Acid

Carcinogenic Categories:

EPA (Environmental Protection Agency):	None of the chemical substance(s) in this product are listed.
IARC (International Agency for Research on Cancer):	None of the chemical substance(s) in this product are listed.
TLV (Threshold Limit Value Established by ACGIH):	None of the chemical substance(s) in this product are listed.
NIOSH-CA (National Institute for Occupational Safety and Health):	None of the chemical substance(s) in this product are listed.

Canada:

DSL (Canadian Domestic Substances List):	All of the chemical substance(s) in this product are either listed on the DSL inventory or in compliance with a DSL exemption.
WHMIS (Workplace Hazardous Materials Information System)	None of the chemical substance(s) in this product are listed.
NPRI (The National Pollutant Release Inventory)	YES. On the inventory, or in compliance with the inventory.
CEPA (Canadian Environmental Protection Act)	YES. On the inventory, or in compliance with the inventory.
Canadian Ingredient Disclosure list (limit 0.1%)	None of the ingredients is listed.
Canadian Ingredient Disclosure list (limit 1%)	124-04-9 adipic acid

Other Regulations, Limitations and Prohibitive Regulations:

Substances of Very High Concern (SVHC) According to REACH, Article 57	None of the chemical substances in this product are listed.

Switzerland:

CH INV (New Notified Substances and Declared Preparations):	YES. Adipic acid has been notified.

Germany:

MAK (German Maximum Workplace Concentration):	None of the chemical substance(s) in this product are listed.

Australia:

AICS (Australia Inventory of Chemical Substance):	YES. On the inventory, or in compliance with the inventory.

New Zealand:

NZIoC (New Zealand Inventory of Chemical Substances):	NO. On the inventory, or in compliance with the inventory.

Japan:

ENCS (Existing and New Chemical Substances Inventory):	YES. On the inventory, or in compliance with the inventory.
ISHL (Inventory of Chemical):	YES. On the inventory, or in compliance with the inventory.

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Korea:

KECI (Korean Existing Chemicals Inventory):	YES. On the inventory, or in compliance with the inventory

Philippines:

PICCS (Philippines Inventory of Chemicals and Chemical Substances):	YES. On the inventory, or in compliance with the inventory

China

IECSC (Inventory of Existing Chemical Substances in China):	YES. On the inventory, or in compliance with the inventory

15.2 CHEMICAL SAFETY ASSESSMENT:

- A Chemical Safety Assessment has not been carried out.

SECTION 16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations. Note: The responsibility to provide a safe workplace remains with the user. The user should consider the health hazards and safety information contained herein as a guide and should take those precautions required in an individual operation to instruct employees and develop work practice procedures for a safe work environment. The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by the use of this material. It is the responsibility of the user to comply with all applicable laws and regulations applicable to this material.

Abbreviations and acronyms:

ADRADR: Accord Européen sur le Transport des Marchandises Dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
AICS: Australia Inventory of Chemical Substances
CA: California
CAS: Chemical Abstract Services (division of the American Chemical Society)
CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CFR: Code of Federal Regulations
CH INV: Switzerland, New Notified Substances and Declared Preparations
CSA: Canadian Standards Association
DNEL: Derived No-Effect Level (REACH)
DOT: Department of Transportation
DSL: Canadian Domestic Substance List
ECHA: European Chemical Agency
ENCS: Japanese Existing and New Chemical Substances Inventory
EPA: Environmental Protection Agency
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
HMIS: Hazardous Materials Identification System
HSDB: Hazardous Substances Data Bank
IARC: International Agency for Research on Cancer
IATA: International Air Transport Association
ICAO: International Civil Aviation Organisation
IECSC: Inventory of Existing Chemical Substances in China
IMDG: International Maritime Dangerous Goods
Inh: Inhalation
ISNL: Japanese Inventory of Chemical Substances
KECI: Korean Existing Chemicals Inventory
LC: Lethal Concentration
LD: Lethal Dose
MA: Massachusetts
MAK: German Maximum Workplace Concentration
MN: Minnesota
NFPA: National Fire Protection Association
NIOSH: National Institute of Occupational Safety and Health
NJ: New Jersey
NTP: National Toxicology Program
NZIoC: New Zealand Inventory of Chemical Substances
OSHA: Occupational Safety and Health Administration
PA: Pennsylvania
PEL: Permissible Exposure Limit
PICCS: Philippines Inventory of Chemicals and Chemical Substances
PNEC: Predicted No-Effect Concentration (REACH)
RCRA: Resource Conservation and Recovery Act
REACH: EC 1907/2006
RI: Rhode Island
RTECS: Registry of Toxic Effects of Chemical Substances
SARA: Superfund Amendments and Reauthorization Act
STEL: Short Term Exposure Limit
TDG: Canadian Transportation of Dangerous Goods Act & Regulations
TLV: Threshold Limit Values

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TSCA: Toxic Substance Control Act
TWA: Time Weighted Average
WHMIS: Workplace Hazardous Materials Identification System

References:

Canadian Centre for Occupational Health and Safety, CCInfoWeb Databases, 2015 (Chempendium, RTECs, HSDB, INCHEM).
European Chemicals Agency, Classification Legislation, 2015
Material Safety Data Sheet from Manufacturer/Distributor.
OECD: Organization for Economic Co-operation and Development, 2015

Version 1.0	For the New GHS SDS Standard	Revision Date: 12/15/2014
Version 1.1	Hazard and Precautionary Statements	Revision Date: 02/04/2015
Version 1.2	Updated Graphics	Revision Date: 03/09/2015
Version 1.3	UN#, IDG GHS Edits	Revision Date: 05/20/2015
Version 1.4	Edits in Section 9	Revision Date: 05/21/2015
Version 1.5	Edits to Section 5	Revision Date: 06/02/2015
Version 1.6	Additions to Section 9	Revision Date: 06/25/2015

Other Special Considerations for Handling:

- Provide adequate information, instruction and training for operators.

Miscellaneous Hazard Classes:

Canadian Carcinogenicity Hazard Class: *Not Applicable.*
Physical Hazards Not Otherwise Classified (PHNOC): *Not Applicable.*
Health Hazards Not Otherwise Classified (HHNOC): *Not Applicable.*

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End of Safety Data Sheet

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SECTION 1. IDENTIFICATION OF SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 PRODUCT IDENTIFIER:

Product or Trade Name: KobbleBLOK®

1.2 RELEVANT IDENTIFIED USES OF THE SUBSTANCE OR MIXTURE AND USES ADVISED AGAINST:

Recommended Use(s)*: Deep foundations excavation fluid additive, drilling fluid additive, filtrate control agent, lost circulation additive

* *The "Recommended Use(s)" identified for this product is provided solely to comply with a US Federal requirement and is not part of the seller's published specification. The terms of this Safety Data Sheet (SDS) do not create or infer any warranty, express or implied, including by incorporation into or reference in the seller's sales agreement.*

Use Application(s): Professional Use Only

Recommended Restrictions: No restrictions on use known.

1.3 DETAILS OF THE SUPPLIER OF THE SUBSTANCE/MIXTURE AND SAFETY DATA SHEET:

Manufacturer/Supplier:

KB International LLC
735 Broad Street, Suite 209
Chattanooga, TN 37402 USA

Telephone Number: +1 (423) 266-6964

E-mail: info@kbtech.com

1.4 EMERGENCY CONTACT AND TELEPHONE NUMBER:

Emergency Contact: ChemTel, Inc.

Emergency Telephone Number: +1 (800) 255-3924

1.5 OTHER MEANS OF IDENTIFICATION:

Chemical Family: Propriety aryl-amide copolymer, nonionic

SECTION 2. HAZARDS IDENTIFICATION

2.1 CLASSIFICATION OF THE SUBSTANCE OR MIXTURE:

Classification according to Regulation (EC) No 1272/2008:

- The product is classified and labelled according to the CLP regulation.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC:

Hazard Warnings:

- The product does not require a hazard warning label in accordance with EC Directives.

(This substance has been classified in accordance with the hazard criteria of the CPR and the SDS contains all the information required by the CPR.)

Information Concerning Particular Hazards for Human and Environment:

- Heightened danger of slipping when the product is spilled on the floor.
- The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

Classification system:

- The classification is according to the latest editions of the EU-lists, and extended by company and literature data.
- The classification is in accordance with the latest editions of international substances lists, and is supplemented by information from technical literature and by information provided by the company.

According to Regulation 2012 OSHA Hazardous Communication Standard; 29 CFR Part 1910.1200:

Classification of the Product:

- No need for classification according to GHS criteria for this product.

2.2 LABEL ELEMENTS:

According to Regulation (EC) No. 1272/2008:

- The product is classified and labelled according to the CLP regulation.

According to Globally Harmonized System, (GHS):

- This product does not require a hazard warning label in accordance with GHS criteria for this product.

Labeling of Special Preparation(s):

- This product is not combustible in the form in which it is shipped by the manufacturer, but may form a combustible dust through downstream activities (e.g., grinding, pulverizing) that reduce its particle size.
- High risk of slipping due to leakage/spillage of this product

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According to Regulation 2012 OSHA Hazardous Communication Standard; 29 CFR Part 1910.1200:

Precautionary Statement(s):

General:

P103 ..... Read label before use.

Prevention:

P250 ..... Do not subject to grinding or friction.

P280 ..... Wear protective gloves, clothing, and eye protection.

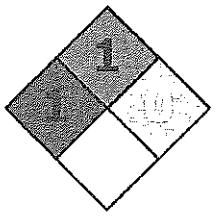
P285 ..... In case of inadequate ventilation wear respiratory protection.

Disposal:

P501 ..... Dispose of contents or container in accordance with local, regional, national, and/or international regulations.

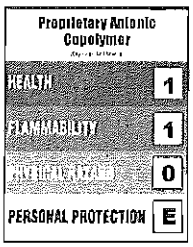
2.3 HAZARD DESCRIPTIONS:

NFPA Ratings *(Scale 0 – 4)*:



Health = 1
Fire = 1
Reactivity = 0

HMIS Ratings *(Scale 0 – 4)*:



Health = 1
Flammability = 1
PhysicalHazard=0

WHMIS 2015 - Symbols: Not hazardous under WHMIS.

Other Hazards: Not hazardous substance or mixture.

2.4 HAZARDS NOT OTHERWISE CLASSIFIED [HNOC] OR NOT COVERED BY GHS:

Results of PBT and vPvB Assessment:

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

According to Regulation 1994 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200:

If applicable information is provided in this section on other hazards which do not result in classification but which may contribute to the overall hazards of the substance or mixture.

Emergency Overview:

Caution:

- This type of product has a tendency to create dust if roughly handled. It does not burn readily but as with many organic powders, flammable dust clouds may be formed in air.
- May cause some eye irritation which should cease after removal of the product.
- May cause some irritation to the respiratory system if dust is inhaled.
- Use NIOSH approved respirator as needed to mitigate exposure.
- Wear NIOSH-certified chemical goggles.
- Avoid dust formation.
- Avoid creating dusty conditions, dust build-up or formation of dust clouds.
- Organic powders may be capable of generating static discharges and creating explosive mixtures in air. Handle with caution.
- Wear protective clothing.
- Avoid all sources of ignition: heat, sparks, open flame.
- Caution - Slippery when wet!

Information Concerning Particular Hazards for Human and Environment:

- No Applicable

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SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 COMPONENTS OF SUBSTANCE OR MIXTURE:

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

- This product does not contain any components classified as hazardous under the referenced regulation.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC:

- No dangerous ingredients

REACH - Candidate List of Substances of Very High Concern for Authorization (Article 59).

- No applicable

SECTION 4. FIRST-AID MEASURES

4.1 DESCRIPTION OF FIRST AID MEASURES:

After Clothing Contact:

- Take off contaminated clothing.
- Wash it before reuse.

After Ingestion:

- Have victim rinse mouth with water, then drink of water.
- Do not induce vomiting.
- Get medical advice or attention if you feel unwell.

After Inhalation:

- Remove person to fresh air and keep comfortable for breathing.
- If they experience respiratory symptoms get immediate medical advice or attention.

After Skin Contact:

- Brush off loose particles from skin.
- Wash with plenty of water.
- If skin irritation or a rash occurs get medical advice or attention.
- Wash all soiled clothing before reuse.

After Eye Contact:

- Wear appropriate protective equipment.
- Protect unharmed eye.
- If in contact with eyes, rinse cautiously with water for several minutes.
- Remove contact lenses, if present and easy to do and continue rinsing.
- If eye irritation persists get medical advise or attention.

4.2 MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED:

Symptoms:

- The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11.
- Slight irritant effect on skin and mucous membranes.
- Gastric or intestinal disorders when ingested.
- Further important symptoms and effects are so far not known.

Hazards:

- No hazard is expected under intended use and appropriate handling.

4.3 INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED:

Note To Physician:

Treatment:

- Treat according to symptoms (decontamination, vital functions), no known specific antidote.

SECTION 5. FIRE-FIGHTING MEASURES

5.1 EXTINGUISHING MEDIA:

Suitable Extinguishing Media:

- Dry powder, foam.

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Unsuitable Extinguishing Media:

- Do not use water.
- Do not use a solid water stream as it may scatter and spread fire.
- Do not use carbon dioxide

Additional Information:

- Restrict pedestrian and vehicular traffic in areas where slip hazard may exist.

5.2 SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE / CONDITIONS OF FLAMMABILITY:

Hazards During Fire-fighting:

- Not considered flammable.
- Formation of toxic gases is possible during heating or in case of fire.
- Carbon monoxide and carbon dioxide, nitrogen oxides (NOx) and ammonia.
- Very slippery when wet.

Flammability Classification (OSHA 29 CFR 1910.106):

- Not flammable.

Auto Ignition Temp:

- Non-combustible.

5.3 SPECIAL PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIREFIGHTERS:

Protective Equipment for Firefighters:

- Wear a self-contained breathing apparatus.
- Wear full protective suit.

Special Fire-Fighting Procedures:

- The degree of risk is governed by the burning substance and the fire conditions.
- Contaminated extinguishing water must be disposed of in accordance with official regulations.

Further Information:

- Dusty conditions may ignite explosively in the presence of an ignition source causing flash fire.

5.4 IMPACT SENSITIVITY:

Assessment:

- Not shock-sensitive.

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1 PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES:

- Use respiratory protective device against the effects of fumes/aerosol.
- Restrict access to area until completion of clean-up.
- All persons dealing with clean-up should wear the appropriate protective clothing and equipment.
- Ensure adequate ventilation.
- Avoid formation of dust.
- Product forms slippery surface when combined with water.
- Refer to Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION, for additional information on acceptable personal protective equipment.

6.2 ENVIRONMENTAL PRECAUTIONS:

- Ensure spilled product does not enter drains, sewers, waterways, or confined spaces.
- If necessary, dike well ahead of the spill to prevent runoff into drains, sewers, or any natural waterway or drinking supply.
- Do not discharge into drains, water courses or onto the ground.

6.3 METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP:

For Small Amounts:

Dry Form:

For Small Amounts:

- Pick up with suitable appliance and dispose of.
- Avoid raising dust.
- Dispose contaminated material as waste according to item 13.

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For Large Amounts:

- Contain with dust binding material and dispose of.
- Avoid raising dust.
- Send for recovery or disposal in suitable receptacles.
- Dispose contaminated material as waste according to item 13.

Wet Form:

- Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust). Pick up mechanically.
- Send for recovery or disposal in suitable receptacles.
- Dispose contaminated material as waste according to item 13.

For Larger Amounts:

- Contain with dust binding material and dispose of.
- Avoid raising dust.
- Send for recovery or disposal in suitable receptacles.
- Dispose contaminated material as waste according to item 13.

Further Accidental Release Measures:

- Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air).
- Avoid the formation and build-up of dust — danger of dust explosion.
- Dust in sufficient concentration can result in an explosive mixture in air.
- Handle to minimize dusting and eliminate open flame and other sources of ignition. Forms slippery surfaces with water.

6.4 REFERENCE TO OTHER SECTIONS:

- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.
- See Section 13 for disposal information.

SECTION 7. HANDLING AND STORAGE

7.1 PRECAUTIONS FOR SAFE HANDLING:

- Prevent formation of dust.
- Any deposit of dust which cannot be avoided must be regularly removed.
- Use only in well ventilated areas.
- Use respiratory protective device against the effects of dust.
- Breathing must be protected when large quantities are decanted without local exhaust ventilation.
- Do not dry clean dust covered objects and floors. Wash thoroughly with plenty of water.
- Forms slippery surfaces with water.
- Handle in accordance with good industrial hygiene and safety practice.
- Obey all label warnings, especially during container cleaning.
- Do not remove label until container is thoroughly claaned.
- Do not use container for food, feed or drinking water.

Protection Against Fire and Explosion:

- Avoid dust formation. Dust in sufficient concentration can result in an explosive mixture in air.
- Handle to minimize dusting and eliminate open flame and other sources of ignition.
- Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces.
- Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations.
- Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres.
- Protect from heat.
- Keep respiratory protective device available.
- *Refer to NFPA 654, Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids (2013 Edition) for safe handling.*

7.2 CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES:

Storage:

Roquirements to Be Met by Storerooms and Receptacles:

- Store only in the original receptacle.
- Avoid storage near extreme heat, ignition sources or open flame.
- Protect from humidity and water.

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Information About Storage in One Common Storage Facility:

- Store away from foodstuffs.
- Do not store together with oxidizing and acidic materials.
- Do not store together with alkalis (caustic solutions).

Further Information on Storage Conditions:

- Store in unopened original containers in a cool and dry place.
- This product is hydroscopic.
- Avoid wet, damp or humid conditions, temperature extremes and ignition sources.

Unsuitable Materials for Containers:

- Aluminum

Storage Stability:

- Avoid extreme heat.

Protect from Temperatures Above:

- 70 °C (158 °F)

7.3 SPECIFIC END USE(S):

- Apart from the uses mentioned in section 1.2, no further relevant information available.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ADDITIONAL INFORMATION ABOUT DESIGN OF TECHNICAL SYSTEMS:

Appropriate Engineering Controls:

Advice on System Design:

- No further data; see section 7.

8.1 CONTROL PARAMETERS:

Components with Limit Values that Require Monitoring at the Workplace:

- Not required.

DNELs:

- No further relevant information available.

PNECs:

- No further relevant information available.

Components with Occupational Exposure Limits:

- Particles, not otherwise specified, respirable.
- Particles, not otherwise specified, inhalable.

Additional Information:

- The lists that were valid during the creation were used as basis.

8.2 EXPOSURE CONTROLS:

Engineering Controls:

- Provide appropriate exhaust ventilation at places where dust is formed.

Personal Protective Equipment:

General Protective and Hygienic Measures:

- The usual precautionary measures for handling chemicals should be followed.
- Vacuum clean contaminated clothing. Do not blow or brush off contamination.
- Keep away from foodstuffs, beverages and feed.
- Do not inhale dust / smoke / mist.
- Avoid contact with the eyes.
- Avoid long term contact with the skin.
- Ensure that washing facilities are available at the work place.

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Respiratory Protection:

- Respiratory protection may not be required under normal operating conditions if adequate ventilation is provided.

- When applicable suitable respiratory protection for lower concentrations or short-term effect: Particle filter with medium efficiency for solid and liquid particles (e.g., EN 143, Type P2).
- For spills, respiratory protection may be advisable.

Body Protection:

- Protective work clothing.

Hand Protection:

- *Chemical resistant protective gloves (EN 374).*

- *Snitable materials also with prolonged, direct contact (Recommended: Protective index 6, corresponding > 480 minutes of permeation time according to EN 374): e.g. nitrile rubber (0.4 mm), chloroprene rubber (0.5 mm), polyvinyl chloride (0.7 mm) and other Supplementary note: The specifications are based on tests, literature data and information of glove manufacturers or are derived from similar substances by analogy. Due to many conditions (e.g. temperature) it must be considered, that the practical usage of a chemical-protective glove in practice may be much shorter than the permeation time determined through testing. Manufacturer's directions for use should be observed because of great diversity of types.*

Eye / Face Protection:

- Safety glasses with side-shields (frame goggles) (e.g. EN 166)

Other Protective Equipment:

- An eyewash station and safely shower should be made available in the immediate working area.
- Other equipment may be required depending on workplace standards.

8.3 GENERAL SAFETY AND HYGIENE CONSIDERATIONS:

- Handle in accordance with good industrial hygiene and safety practice. Ensure adequate ventilation.
- Wearing of closed work clothing is recommended. No eating, drinking, smoking or tobacco use at the place of work.

Limitation and Supervision of Exposure into the Environment:

- No special environmental precautions required.

Risk Management Measures:

- See Section 7 for additional information.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES:

Appearance:	
Physical State:	Dry/Solid.
Form:	Granular to Powder.
Color:	Clear, opaque to white.
Odor:	Oderless.
Odor Threshold (ppm):	Not determined.
Molecular Formula:	Trade Secret
Molecular Weight:	Trade Secret
Specific Gravity (water = 1):	Not Applicable
Bulk Density (at 20 °C or 68 °F):	Approx. 0.75 g/cm³ – (700 kg/m³) or 0.0253 lb/in³ – (5.84 lb/gal)
pH (Value):	7.0 - 9.0 (in 5% solution at 20 °C or 68 °F)
Change In Condition:	
Freeze Point:	Not determined.
Melting Point:	Not determined.
Melting Range:	Not determined.
Boiling Point:	Not determined.
Boiling Range:	Not determined.
Evaporation Rate:	The product is a non-volatile solid.
Flash Point (°C) [Closed cup]:	Not Applicable
Flammability (solid, gaseous):	Not highly flammable.
Danger of Explosion:	Product does not present an explosion hazard in its supplied form.
Explosive Properties:	
Lower Explosion Limit:	For solids not relevant for classification and labelling.
Upper Explosion Limit:	For solids not relevant for classification and labelling.

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Auto-Ignition Point (°C): ..... Not self-igniting
Auto-ignition: ..... 400 °C (BAM) – 410 °C (BAM)
Minimum Ignition Energy (°C): ..... >999 mJ
Burning Number: 5
Dust Explosion Class: ..... St 1
Oxidizing Properties: ..... The substance or mixture is not classified as oxidizing.
Vapor Pressure (mm Hg): ..... The product has not been tested.
Vapor Density (Air=1): ..... No data available.
Relative Density (g/ml @ 20 °C): ..... No data available.
Solubility / Miscibility (Water): ..... Soluble (Forms a viscous solution.)
Solubility (Quantitative): ..... No data available.
Solubility (Qualitative): ..... No data available.
Partition Coefficient (n-octanol/water): .. No data available.
Auto-ignition Point (°C): ..... Not self-igniting
Decomposition Temperature (°C): ..... No decomposition if used as directed.
Viscosity (mPa.s):
Dynamic: ..... Not Applicable
Kinematic: ..... Not Applicable
Volatiles (% by weight): ..... Not determined.
Volatile Organic Compounds (VOC's): ..... Not Applicable
Absolute Pressure of Container: ..... Not Applicable
Flame Projection Length: ..... Not Applicable
Other Physical/Chemical Comments: ..... If necessary, information on other physical and chemical parameters is indicated in this section.

SECTION 10. STABILITY AND REACTIVITY

10.1 REACTIVITY:

- Stable under normal conditions of use and storage.

10.2 CHEMICAL STABILITY:

Thermal Decomposition / Conditions to be Avoided:

- No decomposition if used and stored according to specifications.
- May form combustible dust concentrations in air.

10.3 POSSIBILITY OF HAZARDOUS REACTIONS:

- As the product is supplied it is not capable of dust explosion; however enrichment with fine dust causes risk of dust explosion.
- Reacts with strong oxidizing agents.
- Reacts with strong acids.

10.4 CONDITIONS TO AVOID:

- Store away from acids and oxidizing agents.

10.5 INCOMPATIBLE MATERIALS:

- No further relevant information available.

10.6 HAZARDOUS DECOMPOSITION PRODUCTS:

- Carbon monoxide and carbon dioxide
- Nitrogen oxides (NOx)
- Ammonia

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 INFORMATION ON TOXICOLOGICAL EFFECTS:

Acute Toxicity:

Primary Irritant Effect:

Inhalation:

- Product dust may be irritating to the respiratory system.

Skin:

- Slight irritant effect on skin and mucous membranes.

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Eye:

- Irritating effect on eye.

Ingestion:

- Not expected to be irritating.

Sensitization:

- No sensitizing effects known.

Additional Toxicological Information:

- When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.
- The product is not subject to classification according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version.

Carcinogenic Categories:

IARC (International Agency for Research on Cancer)	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a probable, possible or confirmed human carcinogen.
OSHA - CA (Occupational Safety & Health Administration)	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen.
NTP (National Toxicology Program)	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen.
ACGIH (The American Conference of Governmental Industrial Hygienists)	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen.

SECTION 12. ECOLOGICAL INFORMATION

12.1 TOXICITY:

Aquatic Toxicity: No further relevant information available.

12.2 PERSISTENCE AND DEGRADABILITY:

- Biodegradable, Photodegradable.

12.3 BIOACCUMULATIVE POTENTIAL:

- No further relevant information available.

12.4 MOBILITY IN SOIL:

- No further relevant information available.

Additional Ecological Information:

General Notes:

- Water Hazard Class 1 (Self-Assessment): slightly hazardous for water.
- Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

12.5 RESULTS OF PBT AND VPVB ASSESSMENT:

PBT: Not applicable

VPVB: Not applicable

12.6 OTHER ADVERSE ECOLOGICAL EFFECTS:

- No further relevant information available.

SECTION 13. DISPOSAL CONSIDERATIONS

13.1 WASTE TREATMENT METHODS:

Unused Material and Residue:

Recommendations:

- Can be burned with household garbage after consulting with the waste disposal facility operator and the pertinent authorities and adhering to the necessary technical regulations.
- Smaller quantities can be disposed of with household waste.
- The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes. Residual materials should be treated as hazardous.

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Uncleaned Packagings:

Recommendations:

- Disposal must be made according to official regulations.

Recommended Cleansing Agents:

- Water, if necessary together with cleansing agents.

SECTION 14. TRANSPORTATION INFORMATION

14.1 UN Number: (DOT, ADR, ADN, IMDG, IATA)	Not Regulated
14.2 UN Proper Shipping Name: (DOT, ADR, ADN, IMDG, IATA)	Not Regulated
14.3 Transport Hazard Class(es): (DOT, ADR, ADN, IMDG, IATA)	Not Regulated
14.4 Packing Group: (DOT, ADR, IMDG, IATA)	Not Regulated
14.5 Environmental Hazard(s): Marine Pollutant:	Not Regulated
14.6 Special Precautions for User:	No
14.7 Transport in Bulk According to Annex II of MARPOL 73/78 & the IBC Code: UN "Model Regulation":	Not Regulated

Special Precautions for User:

- None reported by the manufacturer.

Environmental Hazards:

- See ECOLOGICAL INFORMATION, Section 12.

SECTION 15. REGULATORY INFORMATION

15.1 SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS/LEGISLATION SPECIFIC FOR THE SUBSTANCE OR MIXTURE UNITED STATES (USA) COMPONENTS LISTED BELOW ARE PRESENT ON THE FOLLOWING U.S. FEDERAL CHEMICAL LISTS:

SARA:

Section 302 (Extremely Hazardous Substances Listings):	None of the chemical substances in this product are subject to reporting.
Section 311/312 (Hazardous Chemical Inventory):	No SARA Hazards
Section 355 (Extremely Hazardous Substances Listing):	None of the chemical substances in this product are listed.
Section 313 (Specific Toxic Chemical Listings):	None of the chemical substances in this product are listed.
TSCA (Toxic Substances Control Act):	All chemical substances in this product are either listed on the TSCA Inventory or in compliance with a TSCA Inventory exemption.

Clean Air Act:

Section 12 (40 CFR 61):	This product does not contain any hazardous air pollutants (HAP)
Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F):	None of the chemical substances in this product are listed.

Clean Water Act:

Section 311, Table 116.4A (List of Hazardous Substances):	This product does not contain any hazardous substances listed.
Section 311, Table 117.3 (Reportable Quantities of Hazardous Substances List):	None of the chemical substances in this product are listed.
Section 307 (Toxic and Priority Pollutants):	This product does not contain any toxic or priority pollutants.

Proposition 65 (California):

Chemicals Known to Cause Cancer:	None of the chemical substances in this product are listed.
Chemicals Known to Cause Reproductive Toxicity for Females:	None of the chemical substances in this product are listed.
Chemicals Known to Cause Reproductive Toxicity for Males:	None of the chemical substances in this product are listed.
Chemicals Known to Cause Developmental Toxicity:	None of the chemical substances in this product are listed.

Other U.S. States and Communities:

RTKHSL (Right to Know Hazardous Substance List):	None of the chemical substances in this product are listed.

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Carcinogenic Categories:

EPA (Environmental Protection Agency):	None of the chemical substances in this product are listed.
IARC (International Agency for Research on Cancer):	None of the chemical substances in this product are listed.
TLV (Threshold Limit Value Established by ACGIH):	None of the chemical substances in this product are listed.
NIOSH-CA (National Institute for Occupational Safety and Health):	None of the chemical substances in this product are listed.

Canada:

DSL (Canadian Domestic Substances List):	All of the chemical substances in this product are either listed on the DSL inventory or in compliance with a DSL exemption.
Canadian Ingredient Disclosure List (limit 0.1%):	None of the chemical substances in this product are listed.
Canadian Ingredient Disclosure List (limit 1.0%):	None of the chemical substances in this product are listed.

Other Regulations, Limitations and Prohibitive Regulations:

Substances of Very High Concern (SVHC) According to REACH, Article 57	None of the chemical substances in this product are listed.

Switzerland:

CH INV (New Notified Substances and Declared Preparations):	YES. The mixture contains a polymer. The monomers for this polymer have been notified.

Germany:

MAK (German Maximum Workplace Concentration):	None of the chemical substances in this product are listed.

Australia:

AICS (Australia Inventory of Chemical Substance):	YES. On the inventory, or in compliance with the inventory.

New Zealand:

NZIoC (New Zealand Inventory of Chemical Substances):	NO. On the inventory, or in compliance with the inventory.

Japan:

ENCS (Existing and New Chemical Substances Inventory):	YES. On the inventory, or in compliance with the inventory.
ISHL (Inventory of Chemical):	YES. On the inventory, or in compliance with the inventory.

Korea:

KECI (Korean Existing Chemicals Inventory):	YES. On the inventory, or in compliance with the inventory.

Philippines:

PICCS (Philippines Inventory of Chemicals and Chemical Substances):	YES. On the inventory, or in compliance with the inventory.

China

IECSC (Inventory of Existing Chemical Substances in China):	YES. On the inventory, or in compliance with the inventory.

For explanation of abbreviation see section 16.

Further Information:

- This product is to be considered as a preparation according to EU-legislation.

15.2 CHEMICAL SAFETY ASSESSMENT:

- A Chemical Safety Assessment has not been carried out.

SECTION 16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations. Note: The responsibility to provide a safe workplace remains with the user. The user should consider the health hazards and safety information contained herein as a guide and should take those precautions required in an individual operation to instruct employees and develop work practice procedures for a safe work environment. The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by the use of this material. It is the responsibility of the user to comply with all applicable laws and regulations applicable to this material.

Abbreviations and acronyms:

ADR/ADR: Accord Européen sur le Transport des Marchandises Dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

AICS: Australia Inventory of Chemical Substances

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CA: California
CAS: Chemical Abstract Services (division of the American Chemical Society)
CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CFR: Code of Federal Regulations
CH INV: Switzerland. New Notified Substances and Declared Preparations
CSA: Canadian Standards Association
DNEL: Derived No-Effect Level (REACH)
DOT: Department of Transportation
DSL: Canadian Domestic Substance List
ECNA: European Chemical Agency
ENCS: Japanese Existing and New Chemical Substances Inventory
EPA: Environmental Protection Agency
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
HMIS: Hazardous Materials Identification System
HSDB: Hazardous Substances Data Bank
IARC: International Agency for Research on Cancer
IATA: International Air Transport Association
ICAO: International Civil Aviation Organisation
IECSC: Inventory of Existing Chemical Substances in China
IMDG: International Maritime Dangerous Goods
Inh: Inhalation
ISHL: Japanese Inventory of Chemical Substances
KECI: Korean Existing Chemicals Inventory
LC: Lethal Concentration
LD: Lethal Dose
MA: Massachusetts
MAK: German Maximum Workplace Concentration
MN: Minnesota
NFPA: National Fire Protection Association
NIDSH: National Institute of Occupational Safety and Health
NJ: New Jersey
NTP: National Toxicology Program
NZIoC: New Zealand Inventory of Chemical Substances
OSHA: Occupational Safety and Health Administration
PA: Pennsylvania
PEL: Permissible Exposure Limit
PICCS: Philippines Inventory of Chemicals and Chemical Substances
PNEC: Predicted No-Effect Concentration (REACH)
RCRA: Resource Conservation and Recovery Act
REACH: EC 1907/2006
RI: Rhode Island
RTECS: Registry of Toxic Effects of Chemical Substances
SARA: Superfund Amendments and Reauthorization Act
STEL: Short Term Exposure Limit
TDG: Canadian Transportation of Dangerous Goods Act & Regulations
TLV: Threshold Limit Values
TSCA: Toxic Substance Control Act
TWA: Time Weighted Average
WHMIS: Workplace Hazardous Materials Identification System

References:

Canadian Centre for Occupational Health and Safety, CCInfoWeb Databases, 2015 (Chempendium, RTECs, HSDB, INCHEM).
European Chemicals Agency, Classification Legislation, 2015
Material Safety Data Sheet from Manufacturer/Distributor.
OECD: Organization for Economic Co-operation and Development, 2015

Version 1.0	For the New GHS SDS Standard	Revision Date: 12/15/2014
Version 1.1	Hazard and Precautionary Statements	Revision Date: 02/04/2015
Version 1.2	Updated Graphics	Revision Date: 03/09/2015
Version 1.3	UN#, ICC GHS Edits	Revision Date: 05/20/2015
Version 1.4	Edits in Section 9	Revision Date: 05/21/2015
Version 1.5	Edits to Section 5	Revision Date: 06/02/2015
Version 1.6	Additions to Section 9	Revision Date: 06/25/2015

Other Special Considerations for Handling: Provide adequate information, instruction and training for operators.

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Miscellaneous Hazard Classes:

Canadian Carcinogenicity Hazard Class: *Not Applicable.*

Physical Hazards Not Otherwise Classified (PHNOC): *Not Applicable.*

Health Hazards Not Otherwise Classified (HNNOC): *Not Applicable.*

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Current Document Titled: *Safety Data Sheet KobbleBLOK*	**Supersedes Document Code:** *"KobbleBLOK SDS 08/1072017-gg-ver3-rev3.*
Current SDS Code: *"KobbleBLOK SDS 08/07/2017-gg-ver3-rev4"*	**Previous Document Date of Release:** 10/17/2016
Revision Date: 08/07/2017	**Version No.** 3 **Revision No.** 3
Prepared By: K. Gifford Goodhue, Jr.	**Verified By:** Mark Walters on 08/07/2017
Issue Date: 08/07/2017	**Print Date:** 08/07/2017

End of Safety Data Sheet

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Annex 2 Laboratory Analysis of SlurryPro CDP for Priority Pollutants

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ANALYTICAL INDUSTRIAL RESEARCH LABORATORIES,INC.
1550 37TH STREET, NE
CLEVELAND, TENNESSEE 37312
(423)476-7766 Fax: (423)476-7714

Environmental Testing
IEC/ISO 17025 Certification 3009.01
State of Tenn """(ID#-02034)
Alabama Dept. of Environmental Management (#110780)

Scope of Accreditation:
Wastewater, Surface Water, Ground Water, Drinking Water, Solid/Hazardous Waste, Soil/Sediments, and Sludges.

Lab. Report 242689

Date Received 12/17/2010
Date Sampled None Given
Date Requested 12/30/2010
Rush Status Normal
Phone (423) 266-6964
Extension
D Fax (832) 201-9196
0 eMail:
PO#

2925
KB International, LLC
Attention: Kenneth Goodhue
735 Broad Street, Suite 209
Chattanooga, TN 37402

Sample Information

Sample # 1
KB Mixture

Lab Report: 242689	Result		LCL	Method	SDL	Date	Time	Analyst
Priori Pollutant Semi-Volatiles								
1,2,4--Trichlorobenzene	<10	ug/L	10	625	10	1/4/2011	0:57	RRP
1,2Dichlorobenzene	<10	ug/L	10	625	10	1/4/2011	0:57	RRP
1,2 Diphenylhydrazine	<10	ug/L	10	625	10	1/4/2011	0:57	RRP
1,3-Dichlorobenzene	<10	ug/L	10	625	10	1/4/2011	0:57	RRP
1,4-Dichlorobenzene	<10	ug/L	10	625	10	1/4/2011	0:57	RRP
2,4,6-Trichlorophenol	<10	ug/L	10	625	10	1/4/2011	0:57	RRP
2,4-Dichlorophenol	<10	ug/L	10	625	10	1/4/2011	0:57	RRP
2,4-Dimethylphenol	<10	ug/L	10	625	10	1/4/2011	0:57	RRP
2,4-Dinitrophenol	<50	ug/L	50	625	50	1/4/2011	0:57	RRP
2,4-Dinitrotoluene	<10	ug/L	10	625	10	1/4/2011	0:57	RRP
2,6-Dinitrotoluene	<10	ug/L	10	625	10	1/4/2011	0:57	RRP
2-Chloronaphthalene	<10	ug/L	10	625	10	1/4/2011	0:57	RRP
2-Chlorophenol	<10	ug/L	10	625	10	1/4/2011	0:57	RRP
2-Methyl-4,6-Dinitrophenol	<50	ug/L	50	625	50	1/4/2011	0:57	RRP
2-Nitrophenol	<50	ug/L	50	625	50	1/4/2011	0:57	RRP
3,3'-Dichlorobenzidine	<20	ug/L	20	625	20	1/4/2011	0:57	RRP
3--methyl.4-dllorophenol	<10	ug/L	10	625	10	1/4/2011	0:57	RRP
4-Bromophenylphenyl ether	<10	ug/L	10	625	10	1/4/2011	0:57	RRP
4-Chlorophenyl phenyl ether	<10	ug/L	10	625	10	1/4/2011	0:57	RRP
4-Nitrophenol	<50	ug/L	50	625	50	1/4/2011	0:57	RRP
Acenaphthene	<10	ug/L	10	625	10	1/4/2011	0:57	RRP
Acenaphthylene	<10	ug/L	10	625	10	1/4/2011	0:57	RRP
Anthracene	<10	ug/L	10	625	10	1/4/2011	0:57	RRP
Benzidine	<80	ug/L	80	625	80	1/4/2011	0:57	RRP
Benzo(a)anthracene	<10	ug/L	10	625	10	1/4/2011	0:57	RRP
Benzo(a)pyrene	<10	ug/L	10	625	10	1/4/2011	0:57	RRP
Benzo(b)fluoranthene	<10	ug/L	10	625	10	1/4/2011	0:57	RRP
Benzo(g,h,i)perylene	<10	ug/L	10	625	10	1/4/2011	0:57	RRP
Benzo(k)fluoranthene	<10	ug/L	10	625	10	1/4/2011	0:57	RRP
Bis (2-chloroethoxy) methane	<10	ug/L	10	625	10	1/4/2011	0:57	RRP
Bis (2-chloroethyl) ether	<10	ug/L	10	625	10	1/4/2011	0:57	RRP
Bis (2-chloroisopropyl) ether	<10	ug/L	10	625	10	1/4/2011	0:57	RRP
Bis (2-ethylhexyl) phthalate	<10	ug/L	10	625	10	1/4/2011	0:57	RRP
Bis(chloromethyl)ether	<10	ug/L	10	625	10	1/4/2011	0:57	RRP
Butylbenzyl phthalate	<10	ug/L	10	625	10	1/4/2011	0:57	RRP
Chrysene	<10	ug/L	10	625	10	1/4/2011	0:57	RRP
Dibenz(a,h)anthracene	<10	ug/L	10	625	10	1/4/2011	0:57	RRP

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Priority Pollutant Semi-Volatiles							
Diethyl phthalate	<10	ug/l	10	625	10	1/4/2011 0:57	RRP
Dimethylphthalate	<10	ug/l	10	625	10	1/4/2011 0:57	RRP
di n Butyl phthalate	<10	ug/L	10	625	10	1/4/2011 0:57	RRP
di-n-Octylphthalate	<10	ug/L	10	625	10	1/4/2011 0:57	RRP
Fluoranthene	<10	ug/L	10	625	10	1/4/2011 0:57	RRP
Fluorene	<10	ug/L	10	625	10	1/4/2011 0:57	RRP
Hexachlorobenzene	<10	ug/L	10	625	10	1/4/2011 0:57	RRP
Hexachlorobutadiene	<10	ug/L	10	625	10	1/4/2011 0:57	RRP
Hexachloroeyelopentadiene	<10	ug/L	10	625	10	1/4/2011 0:57	RRP
Hexachloroethane	<2	ug/L	2	625	2	1/4/2011 0:57	RRP
Indeno(1,2,3-cd)pyrene	<10	ug/L	10	625	10	1/4/2011 0:57	RRP
Isophorone	<10	ug/L	10	625	10	1/4/2011 0:57	RRP
Naphthalene	<10	ug/L	10	625	10	1/4/2011 0:57	RRP
Nitrobenzene	<10	Ug/L	10	625	10	1/4/2011 0:57	RRP
N-Nitrosodimethylamine	<10	ug/L	10	625	10	1/4/2011 0:57	RRP
N-Nitroso-di propylamine	<10	ug/L	10	625	10	1/4/2011 0:57	RRP
N-Nitrosodiphenyl amine	<10	ug/L	10	625	10	1/4/2011 0:57	RRP
Pentachlorophenol	<20	ug/L	20	625	20	1/4/2011 0:57	RRP
Phenanthrene	<10	ug/L	10	625	10	1/4/2011 0:57	RRP
Phenol	<10	ug/l	10	625	10	1/4/2011 0:57	RRP
Pyrene	<10	ug/L	10	625	10	1/4/2011 0:57	RRP
2,3,7,8-TCDO	<10	pg/L	10	16138	10	1121/2011	SET
Priority Pollutant Metals							
Antimony (Sb)	<10	ug/L	10	200.7	10	1/6/2011 21:00	SLC
Arsenic (As)	<10	ug/L	10	200.7	10	1/6/2011 21:00	SLC
Beryllium (Be)	<1	ug/L	1	200.7		1/6/2011 21:00	SLC
Cadmium (Cd)	<1	ug/L	1	200.7	1	1/6/2011 21:00	SLC
Chromium (Cr)	<5	ug/L	5	200.7	5	1/6/2011 21:00	SLC
Copper (Cu)	<1	ug/L	1	200.7	1	1/6/2011 21:00	SLC
Lead (Pb)	10	ug/L	10	200.7	10	1/6/2011 21:00	SLC
Nickel (Ni)	<10	ug/L	10	200.7	10	1/6/2011 21:00	SLC
Selenium (Se)	<5	ug/L	5	200.7	5	1/6/2011 21:00	SLC
Silver (Ag)	<1	ug/L	1	200.7	1	1/6/2011 21:00	SLC
Thallium (Tl)	<10	ug/L	10	200.7	10	1/6/2011 21:00	SLC
Zinc (Zn)	<2	ug/L	2	200.7	2	1/6/2011 21:00	SLC
Priority Pollutant Metals-Mercury							
Mercury (Hg)	<0.2	ug/L	0.2	245.1	0.2	12/30/2010 8:50	ADG
Priority Pollutant Herbicides							
2,4,5-TP (Silvex)	<10	ug/L	10	615	10	1/7/2011 13:12	SLC
2,4-D	<5	ug/L	5	615	5	1/7/2011 13:12	SLC
Priority Pollutant Pesticides							
4,4'-DDD	<0.1	ug/L	0.1	608	0.1	1/5/2011 1:06	SLC
4,4'-DDE	<0.1	Ug/L	0.1	608	0.1	1/5/2011 1:06	SLC
4,4'-DDT	<0.1	ug/L	0.1	608	0.1	1/5/2011 1:06	SLC
Aldrin	<0.05	ug/l	0.05	608	0.05	1/5/2011 1:06	SLC
alpha-BHC	<0.05	Ug/L	0.05	608	0.05	1/5/2011 1:06	SLC
alpha-Endosulfan	<0.05	ug/L	0.05	608	0.05	1/5/2011 1:06	SLC
Aroclor 1016	<1	ug/L		608	1	1/5/2011 1:06	SLC
Aroclor 1221	<1	Ug/L		608		1/5/2011 1:06	SLC
Aroclor 1232	<1	ug/L		608		1/5/2011 1:06	SLC
Aroclor 1242	<1	ug/L		608		1/5/2011 1:06	SLC
Aroclor 1248	<1	ug/L		608		1/5/2011 1:06	SLC
Aroclor 1254	<1	ug/L		608		1/5/2011 1:06	SLC
Aroclor 1260	<1	ug/L		608		1/5/2011 1:06	SLC
beta BHC	<0.05	ug/L	0.05	608	0.05	1/5/2011 1:06	SLC
beta-Endosulfan	<0.1	ug/L	0.1	608	0.1	1/5/2011 1:06	SLC
Chlordane	<1	ugJL	1	608	1	1/5/2011 1:06	SLC
delta-BHC	<0.2	Ug/L	0.2	808	0.2	1/5/2011 1:06	SLC

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Priority Pp/lut@t Pesticides							
Oieldrin	<0.1	ug/L	0.1	608	0.1	1/5/2011 1:06	SLC
Endosutfan sulfate	<0.2	ug/L	0.2	608	0.2	1/5/2011 1:06	SLC
Endrin	<0.1	ug/L	0.1	608	0.1	1/5/2011 1:06	SLC
.Endrinaldehyde·	<0.2	ug/L.	0.2	608	0.2	1/5/2011 1:06	SLC
Heptachlor	<0.05	ug/L	0.05	608	0.05	1/5/2011 1:06	SLC
Heptachlor Epcxlde	<0.05	ug/L	0.05	608	0.05	1/5/2011 1:06	SLC
Lindane (gamma·BHC)	<0.05	ug/L	0.05	608	0.05	1/5/2011 1:06	SLC
Toxaphene	<1	ug/L		608	1	1/5/2011 1:06	SLC
PJitJrity PollHtant Cyanide							
Cyanide	<0.1	mg/l	0.02	4500-CN-C,E	0.1	12/23/2010 13:20	OAG
Prlorl!J., Pollutant Volatfes							
1,1,1 Trichloroethane	<5	ug/L	5	82608	5	1/11/2011 21:40	GWL
1,1,2,2-Tetrachloroethane	<5	ug/L	5	82608	5	1/11/2011 21:40	GWL
1,1,2-Trichloroethane	<5	ug/L	5	82608	5	1/11/2011 21:40	GWL
1,1 Dichloroethane	<5	ug/L	5	82608	5	1/11/2011 21:40	GWL
1,1 Dichloroethene	<S	ug/l	5	82608	5	1/11/2011 21:40	GWL
1,2·Dichlorobenzene	<5	ug/l	5	82608	5	1/11/2011 21:40	GWL
1,2-Dichloroethane	<5	ug/L	5	8260B	5	1/11/2011 21:40	GWL
1,2-Dichloroprcpane	<5	ug/L	5	82608	5	1/11/2011 21:40	GWL
1,3-Dichlcmbenzene	<5	ug/L	5	82608	5	1/11/2011 21:40	GWL
1,4-Dichlorobenzene	<5	ug/L	5	82808	5	1/11/2011 21:40	GWL
2-Chloroethyl vinyl ether	<5	ug/L	5	8260B	5	1/11/2011 21:40	GWL
Aerolain	<5	ug/L	5	82608	5	1/11/2011 21:40	GWL
Aerylonltrile	<5	ug/L	5	8260B	5	1/11/2011 21:40	GWL
Benzene	<5	ug/l	5	82608	5	1/11/2011 21:40	GWL
Bromodichloromethane	<5	ug/L	5	82608	5	1/11/2011 21:40	GWL
Bromoform	<5	ug/L	5	82608	5	1/11/2011 21:40	GWL
Bromomethane	<5	ug/L	5	82606	5	1/11/2011 21:40	GWL
Carbon Tetrachloride	<5	ug/L	5	82608	5	1/11/2011 21:40	GWL
Chlorobenzene	<5	ug/L	5	8260B	5	1/11/2011 21:40	GWL
Chloroethane	<5	ug/L	5	8260B	5	1/11/2011 21:40	GWL
Chloroform	<5	ug/L	5	82608	5	1/11/2011 21:40	GWL
Chloromethane	<5	ug/L	5	82608	5	1/11/2011 21:40	GWL
cis-1,3-Dichloropropene	<5	ug/L	5	82608	5	1/11/2011 21:40	GWL
Dibromochloromethane	<5	ug/L	5	82608	5	1/11/2011 21:40	GWL
Dichlorodiflucromethane	<5	ug/L	5	82606	5	1/11/2011 21:40	GWL
Ethyl benzene	<5	ug/L	5	82608	5	1/11/2011 21:40	GWL
Methyl@ne Chloride	<5	ug/L	5	82608	5	1/11/2011 21:40	GWL
Tetrachloroethene	<5	ug/L	5	82608	5	1/11/2011 21:40	GWL
Toluene	<5	ug/l	5	82608	5	1/11/2011 21:40	GWL
trans-1,2-Dichloroethene	<5	Ug/L	5	82608	5	1/11/2011 21:40	GWL
trans-1,3-Dichlcrcpropene	<5	ug/l	5	8260B	5	1/11/2011 21:40	GWL
Trichloroethene	<5	ug/L	5	82608	5	1/11/2011 21:40	GWL
Trichloroflucromethane	<5	ug/L	5	82808	5	1/11/2011 21:40	GWL
Vinyl Chloride	<5	ug/l	5	82608	5	1/11/2011 21:40	GWL

Lowest Calibration Level [tCL]• reporting limit; Sample Detection Level (SDL). Sumplc:: Specific.

QA/QC Procedures rc::quired by the Method(s) were followed unless otherwise noted. Performance and acceptance standards for required QA/QC procedures were uch1cved unless othc:rwisc noted. No significant modifications have been made to this Method(s). lunest that. based upon my inquiry of those individuals immediately responsible for reviewing the information, the material contained in this repon is, to the: best of my knowledge and belief. 11ccurate and complete.

Tiie>e rcsuhs relate only to the items tested. This report shall not be reproduced except in full and with permission of this laboru(fy. Th<: laboratory retains sole ow11crshipofdata until full rmburscmenr has enmade.

Repbapproved by:

- c.;c

-uJ;'"-<LAM'

Thun;dBy, April 21, 2011

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Appendix E – CFA and Steel Jetty Pile Method Statement

ALIGN

QMP04 FM03 Rev 03

METHOD STATEMENT for HS2 Test Piles		
Contract: Colne Valley Test Piles		
Method Statement Produced by: XXXX		Date Issued 23/01/19
Method Statement N° : **T24390-HS2**		Revision: 1
Method Statement Title: Installation of Test Piles		

Content :

Introduction	2
Purpose and Scope of Works	2
References (Specification / Calculations / Drawings etc.)	2
Personnel, Responsibilities, Supervision, Labour Resources, Skills, Competence, Records of Training (CVs)	2
Health & Safety and Environmental Risk Assessments	3
Sequence and Methods of Work	6
Emergecny Responce	6
Monitoring of Works	6
Inspection & Test Plans / Checklists / Hold Points	9
Material Control / Certificates of Conformity / COSHH assessments	4
Plant Resources / Certification	4
Programe	4
Other	4
Appendicies	4

Attached document including risk assessment:

Principal Reviewer's Name:	**Principal Reviewer's Signature:**	/ /
Principal Reviewer's Name:	**Principal Reviewer's Signature:**	/ /

The content of this document (and the attached Risk Assessment) must be explained to the workforce and signatures, confirming that they understand and will comply, obtained before work can start.

Other Reviewer's **Name:**	Other Reviewers **Reviewer's Signature:**	/ /

This Method Statement must be reviewed again if there is an incident or changes affecting the activity and before: (no later than 6 months hence) →	Next Review Date:

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(The result of every review must be recorded, signed, dated and attached hereto.)	__/__/__

1. Introduction

VolkerGround Engineering are to complete steel tubular test piling in 2no locations for the Colne Valley Viaduct scheme. The test will operate from 4no anchor reaction piles installed as CFA, whilst installing the CFA anchor piles it has been decided to also install a CFA test pile in each area.

2. Purpose and Scope of Works

Test piles

A412 – Location 1
Test Tube – 1no 35m length tube 864mm OD 16mm wt
Test Pile – 1no 600mm dia pile 25m length
Anchor Piles – 8no 600mm dia pile 23m length

Harvil Road – Location 2
Test Tube – 1no 33m length tube 864mm OD 16mm wt
Test Pile – 1no 600mm dia pile 25m length
Anchor Piles – 8no 600mm dia pile 23m length
The Concrete mix is C28/35 DC2

3. References (Specification / Calculations / Drawings etc.)

- The Concrete mix is C28/35 DC2

4. Personnel, Responsibilities, Supervision, Labour Resources, Skills, Competence, Records of Training

xxxx Operation Manager Concrete Visiting xxxx
xxxx Operations Manager Steel Visiting
xxxx Senior Contracts Engineer Visiting xxxx
Piling Supervisor (Lift Supervisor) Full Time
1 Piling Supervisor (Lift Supervisor) SSSTS / First Aid
1 Rig Operator CPCS CSCS
1 Rig Banksman CPCS CSCS
1 Pump man (CFA) CPCS CSCS
1 Labourer CSCS CPCS

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5 Health & Safety and Environmental Risk Assessments

Health & Safety Risk Assessments

4. RISK ASSESSMENT for			CFA Pile Installation				RAMS Ref.	C12970-01	Rev			
No.	Hazard	Undesired Event	Persons at Risk	Severity	Probability	Risk Rating	Control Measures *(List control measures that are required)*	Residual Risk Severity	Residual Risk Probability	Residual Risk Rating	Actio
		whilst cleaning top of pile					• Should the platform be loose then plywood boards to be used for operatives to stand on whilst clearing top of pile				
16	Working at height	Use of MEWP Use of Ladder	All	5	4	20	• Operatives to be trained and competent to operate MEWP. • MEWP operator to wear safety harness at all times when in the basket. • No works to be carried out underneath basket, exclusion zone to be established by banksman • Platform to be level and in accordance to FPS attendances • Rescue plan to be in pluce in the case of failure to operate the MEWP from the basket. • All ladders to be approved aluminium ladders maximum 3m length. • Ladder to be footed by attendee operative at all times when in use. • Ladder to be used on a stable level platform. • Safe working load of ladder to be abided by	5	1	5	

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D1193

4. RISK ASSESSMENT for			CFA Pile Installation				RAMS Ref.	C12970-01	Rev				1
No.	Hazard	Undesired Event	Persons at Risk	Severity	Probability	Risk Rating	Control Measures (List control measures that are required)		Residual Risk: Severity	Residual Risk: Probability	Residual Risk: Risk Rating	Actioned by	Date
			s										
	Pile installation	Concrete burns and splashes	Site operatives	5	4	20	• Correct PPE to be worn at all times. • Wash concrete off skin immediately.		4	2	8		
	Pile installation	Open holes/wet bores	Site operatives/Engineer	5	4	20	• Piles to be protected once reinforcement cage installed		4	1	4		
10	Operating plant/machinery	Injury to personnel working adjacent to Machine	All	5	5	25	• All plant movements to be supervised by qualified Banksman at all times. • Banksman to establish "No Entry Controlled Zone". • Only personnel nominated by the Banksman may enter this zone. • Footpath to be closed off within proximity of piling and access area.		5	1	5		
12	Refuelling, general maintenance, General use of equipment	Contaminating Site Area Oil spills	All	3	5	15	• Plant to carry spill kits at all times and plant working. • All re-fuelling to be undertaken within controlled areas. • Any spillages or leaks to be reported to the site supervisor immediately and dealt with accordingly. • Drip trays to be used under all equipment		3	1	3		
14	Access/Egress from rig and crane	Injury	Plant Operator	3	4	12	• Access onto track and cab in forward direction. • Egress from cab by backing down steps. • Slew cab towards track where possible to reduce reach for grab rope/handle. • Use grab rope/handle to lower down from track. • Ensure three points of contact at all times.		3	1	3		
15	Pile Installation	Open hole and bore stability	Piling operative	3	4	12	• Assess platform around pile bore before clearing top surface. • Attendant machine to remove as much spoil as possible.		3	1	3		

4. RISK ASSESSMENT for			CFA Pile Installation				RAMS Ref.	C12970-01	Rev				1
No.	Hazard	Undesired Event	Persons at Risk	Severity	Probability	Risk Rating	Control Measures (List control measures that are required)		Residual Risk: Severity	Residual Risk: Probability	Residual Risk: Risk Rating	Actioned by	Date
	Movement of plant on-site/installation of sheet piles	Plant instability due to inadequato support.	All	5	3	15	• Level Working Piling Platform to be constructed in accordance with ALIGN Temporary Works procedures. • Sufficient platform width required for working with mobile crane. • Working Platform certificate provided by ALIGN. • Plate Bearing Tests to be completed by ALIGN (If Required). • Working Platform certificate provided by ALIGN. • Daily visual inspection of working platform. • If platform has been damaged stop all works and report to supervisor.		5	1	5		
2	Delivery of Equipment & Rigs	Collision with plant/personal	All	5	4	20	• Delivery Wagons to comply with the Site Traffic Management Plan and adhere to the Delivery Route instructions. • Site Speed limit Maximum of 5mph • All deliveries to be guided into position by a banksman. • ALIGN to provide banksman to stop or traffic if required on entry to site. • Banksman to ensure delivery wagons do not block road and that priority is given to non-construction traffic.		5	1	5		
3	Delivery of Materials	Live building, public interface	Operatives, Public	5	5	25	• ALIGN to provide banksmen to control the traffic whilst entering site. VGE to bank wagons on site. • Speed limit to be enforced and speed to be limit to walking pace. • ALIGN to provide and manage exclusion zone • Vehicles to travel in forward gear at all times where possible. • Banksman to be present when reversing to the works area. • Vehicles to be road legal.		5	2	10		
3	Lifting of cages	Collision with plant/ personnel Failure of plant	All	4	5	20	• Weight of lift to be within capabilities of excavator. • Qualified Lift Supervisor to be present for all excavator lifts • Trial lift where piles hoisted approx. 150mm above ground to be undertaken prior to removing from wagon.		4	2	8		

4. RISK ASSESSMENT for			CFA Pile Installation				RAMS Ref.	C12970-01	Rev				1
No.	Hazard	Undesired Event	Persons at Risk	Severity	Probability	Risk Rating	Control Measures *(List control measures that are required)*		Residual Risk Severity	Residual Risk Probability	Residual Risk Rating	Actioned by	Date
5	Pile Installation	Contact with buried services	Rig operator, operatives	5	4	20	• Prior to any excavation or CFA pile installation area to be CAT Scanned by a trained operative (ALIGN). • Service Drawings to be checked and any identified services marked on the ground using timber pegs or spray paint (ALIGN). • Other than that notified above, service drawings for area have not identified any services within the piled area, however operatives should proceed with care. • If any unidentified services are located cease work and contact ALIGN • Piling to be controlled on a Permit to Dig briefed and issued to Piling Foreman.		5	1	5		
6	Pile Installation	Injury to site personnel working adjacent to Excavator and Piling rig.	Site operatives	5	4	20	• All plant movements to be supervised by qualified Banksman at all times • Banksman to establish "No Entry Controlled Zone" extending a minimum of 10m beyond the perimeter of the Excavator and rig. Only personnel nominated by the Banksman may enter this zone.		5	2	10		
7	Pile Installation	Spoil falling from auger string and entrapment with auger string	Site operatives	5	4	20	• Exclusion zone to be established. • Primary Auger clenner to be usod • Auger to be stopped should there be a build-up on the augers. • Additional guarding added to the auger cleaner. • Secondary hydraulic auger cleaner not to be used.		4	2	8		
8	Pile Installation	Concrete blockage	Site operatives	5	4	20	• Release pressure in pipeline prior to opening joint/clamp. • Site Foreman to be informed immediately of any blockage		4	2	8		
9	Pile Installation	Blowing out of concrete lines	Site operative	5	4	20	• Locate plant away from site boundnry. • Set up exclusion zone to ensure only key operatives in area		4	2	8		

4. RISK ASSESSMENT for			CFA Pile Installation				RAMS Ref.	C12970-01	Rev				1
No.	Hazard	Undesired Event	Persons at Risk	Severity	Probability	Risk Rating	Control Measures *(List control measures that are required)*		Residual Risk Severity	Residual Risk Probability	Residual Risk Rating	Actioned by	Date
							• When lifting single piles, Pile quick release shackle to be used. • Guide rope to be utilised when lifting piles and ether large items. • No lifting to be undertaken if wind speed exceeds 10m/s (22mph) or operatives do not feel it is safe to do so. • Banksman to ensure materials are not slewed over operatives working. • Operatives to ensure they do not stand beneath a suspended load. • Lifting gear to be selected by a competent person (Qualified Slinger / Signaller) and capncity and condition checked. • Lifts to be in nccordance with Lift Plan. • All excavators to have Rated Capacity Indicator or SLI, audible/visual warning + boom warning device • Lift exclusion zoae to be set up. VGE Banksman to ensure no unauthorised person entering lifting area. • All lifting equipment will have a current test certificate checked by VGE supervisor and be in good working order. Certs will be held on the main hub and cbecked by slinger/signaller. damaged or faulty equipment should not be used and immediately quarantined. • Lifting to take place on firm/level ground.						
4	Operating plant/machinery	Injury te personnel working adjacent to crane	All	5	5	25	• All plant movements to be supervised by qualified Banksman at all times. • Banksman to establish "No Entry Controlled Zone". Only personnel nominated by the Banksman mny enter this zone • Footpath to be closed off within proximity of piling and access area.		5	1	5		
5	Crane-age	Weather condiliens	All	4	4	16	• Crane team to be present at all times during lift operations • Lift Supervisor to stand down crnneage works during high wind condiliens.		4	1	4		

6 Sequence and Methods of Work

(including measures to prevent likely NCRs, sequencing, Temporary Works, Permits to Work, etc)

Pre-requisites to starting on site

- A site safety induction is to be provided by ALIGN which will include the site emergency procedures and personnel authorised to give instructions.
- All VGE Personnel will be inducted into this Method Statement and Risk Assessment and will be briefed by the Piling Foreman and a copy given to the ALIGN Site Manager.
- Clear and safe access and egress to and from the site for our personnel and adequate demarcation from other operations (Site clearance etc).
- Suitable haul road & access to all areas for the works, including stable and well maintained piling platforms.
- Provisions of barriers around the perimeter of the site. This may need to be extended in height where the pile locations are located within close proximity of the boundary.
- Adequate Welfare facilities.
- A signed Permit to Work for pile installation operations (Appendix A).
- Other permits as necessary (eg Hot Works permit for cutting/ burning operations).
- Clear delineation and notification of any live overhead or underground services.
- Protection of road surfaces on entry to site.
- Crane request permits to be issued for the piling rigs and cranes.
- Prior to works commencing, ALIGN will issue a signed copy of the FPS Working Platform Certificate and Permit to Dig.

Working at height

At all times when working at height a trained operative will use MEWP. Only competently trained personnel will operate these items of plant in accordance with the provisions of the risk assessments

Offloading equipment

See appended task sheet.

Rigging/De-Rigging CFA rig

Rigging/derigging will take place once onsite. Additional rigging may be required to access the required platform levels.

See appended task sheet

Installation of Continuous Flight Augured Piling

- The Piling Foreman will liaise with ALIGN and agree the piling sequence to ensure that he piles are set out and the sequence does not affect the integrity of the previously installed piles. The piles will be set out with tagged steel pins driven into the ground. Two reference pins for each pile will be set out by the rig banksman, at 90° to each other to monitor the starting position of the auger.
- The piles will be drilled to the following tolerances:
- Plan position at platform level + 75mm
- Verticality 1:75
- At the start of each day, the concrete hose and pipes will be lubricated with Prima Pump (or similar).
- The VGE rig banksman will track the rig forward so the auger is positioned centrally over the setting out pin and a bung inserted into the auger stem.
- Once the auger and mast is vertical the mast foot will be lowered to the ground for stability.
- The auger will be lowered to the ground and the rig banskman will check the position against the previously installed reference pins.

D1336

D1196

- If the auger is within the positional tolerance then the rig banksman will instruct the rig driver to commence drilling.

- The auger position will be checked against the reference pins once the drill depth is circa 2m.
- The augers will be drilled to the required depth. The rate of penetration (per meter) will not exceed the agreed figure. The auger gates will remain closed at all times during drilling.
- Upon reaching the designed toe level, the rig banksman will signal to the pump operator to commence pumping.
- The pump operator will ensure that the delivery ticket is in accordance with the approved mix design. Any concrete which has passed 2 hours from batching will be inspected and a slump test carried out. An additional set of 4no cubes will also be taken.
- The auger will not be raised until the pre-charge volume has been pumped through the concrete line and augers.
- Once the pre-charge volume has been achieved, the rate of extraction will be controlled by the oversupply figure recorded on the rig instrumentation. Providing there is an oversupply of concrete, there is no requirement for concrete pressure. The augers will be extracted with them rotating in a forward direction.
- The oversupply should indicate a 2m head of concrete from the auger tip. Should this not be evident then the Piling Foreman will be informed immediately.
- In the event of a concrete blockage, the augers will be revered out leaving the spoil within the bore. Once cleared, the pile will be re-drilled 1m into the concreted bore.
- The bore spoil will be removed from the augers by means of an auger cleaner attached to the piling rig. The attendant excavator will continuously remove the spoil during the concreting process..
- When the tip of the auger is at ground level, the rig banksman will signal to the pump man to stop pumping.
- The mast foot will be lifted and the piling rig will the tracked away from the pile position.
- The attendant excavator will load the dumper with pile spoil. The dumper will then distribute to an agreed location with ALIGN adjacent to the piling area.

Plunging Reinforcement cage/bar

- The Piling Foreman will ensure that the reinforcement cage is in accordance with pile schedule.
- The pile cage will be positioned adjacent to the piling rig by the attendant excavator/crane.
- The rig banksman will clear the pile head of any spoil and ensure the concrete is not contaminated.
- The cage will be lifted and placed into the concrete using the attendant /excavator.
- The cage will generally be lowered into the bore under its own self weight. However, the attendant machine may be used to push the cage to the required level providing the cage is not damaged.
- The rig banksman will check the final level of the cage and ensure it is positioned centrally within the concrete.
- A road cone will be placed over fresh concrete to provide hole protection.

D1337

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	Installing 864mm steel tube • The 16/20 Leader Rig will lift the steel tube from horizontal to vertical with the doughnut chains on the vibro hammer. • The tube will then be guided into position and installed to 1m above platform level as per the appended visual task sheet. • Welding screens will be erected surrounding the tubular joint. This will shield from weather conditions and protect others from Arc eye. • The welder will weld a back ring section into position prior to the crane lifting the bracing plate into position on the driven pile. • The crane will then lift the top section of tube from horizontal to vertical on land. • The crane will then slew and position the top tube section over the required drive pile. • The crane will then lower the tubular section as required over the back ring. • The welder will proceed to weld the top and bottom section tubes together. • HOLD POINT Temporary Works Supervisor to check bracing plates to weld procedure drawings. • Once complete the quick release shackles will be removed. • The pile will then be driven to final level utilising the CX110 Impact Hammer suspended from the crane.
7.	
8.	Monitoring of Works- • ALIGN will be responsible for clearly marking the pile positions, providing levels and asbuilts. • The VGE Piling Foreman will ensure that the materials delivered are in accordance with the pile design. • Concrete cubes (1 set of 4no per 50m3) will be taken and crushed in accordance with the project specification. • The VGE Piling Foreman will ensure that the piles are installed in accordance with the pile schedule and relevant drawings. • Pile Installation Records will be kept and issued to ALIGN on a daily basis. • Inspection Test Plan.
9.	

D1338

D1198

Quality- Inspection & Test Plans / Checklists / Hold Points

1 **Material Control / Certificates of Conformity / COSHH assessments**

COSHH Assessments and Risk Assessments

The following Risk and generic COSHH assessments have been developed for this method statement are attached on the following pages:

C1113/RA01/Rev0. Site Specific Risk Assessment.

COSHH Assessments:

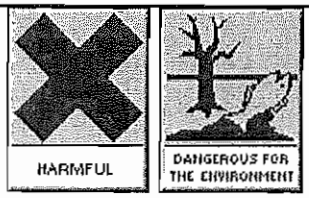
CA001	Diesel (Gas Oil)	June 2013
CA003	Engine Oil	June 2013
CA004	Grease	June 2013
CA005	Hydraulic Oil	June 2013
CA006	Oxygen	June 2013
CA007	Propane	June 2013

These Risk Assessments, and generic COSHH Assessments are applicable to all our works and are available for review at any time. All site personnel will be briefed on these assessments in the pre commencement induction.

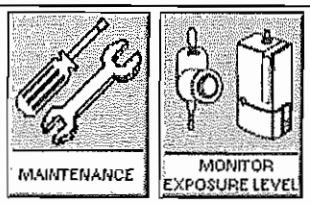
CA 001 DIESEL (GAS OIL)

Assessment	71819	**Keyword**	Diesel Fuel
Material/Pro	Diesel (Gas Oil)	**Data Sheet**	01
Exposure		**Last**	14/02/2007
Supplier	Crown Oil Ltd	**Health**	MEDIUM HAZARD
Physical	Liquid	**Env. Hazard**	HIGH HAZARD
UN Number	1202	**Pkg Group**	III
Contents	Hazardous components as follows: - Complex mixtures of distillate hydrocaVBA ons mainly parafinnic, naphthenic and arom range C10 – C28		
IMC Notes		**Discontinue**	No

Hazards



Considerations



If using engineering controls/non disposable RPE ensure maintenance (reg 9)

Health

- LIMITED EVIDENCE OF A CARCINOGENIC EFFECT
- HARMFUL: MAY CAUSE LUNG DAMAGE IF SWALLOWED
- REPEATED EXPOSURE MAY CAUSE SKIN DRYNESS OR CRACKING
- MAY CAUSE EYE IRRITATION
- TOXIC TO AQUATIC ORGANISMS, MAY CAUSE LONG-TERM ADVERSE EFFECTS IN THE AQUATIC ENVIRONMENT
- Do not breathe in vapour
- When using do not eat, drink or smoke
- Avoid contact with skin and eyes

Spillage

- VENTILATE AREA
- DO NOT ALLOW SPILLAGE TO ENTER MAIN DRAINS / SEWERS / WATER COURSES
- WEAR NITRILE GLOVES

- WEAR EYE PROTECTION (GRADE 3) IF SPLASHES ARE LIKELY
- WEAR RPE WITH AN ORGANIC FILTER (A)
- WEAR PROTECTIVE OVERALLS & CHEMICAL/SAFETY FOOTWEAR
- ABSOVBA IN SAND OR INERT ABSOVBA ANT MATERIAL
- COLLECT INTO A CONTAINER & CLOSE THE LID
- DISPOSE OF USING SUITABLE PROCEDURE OR SEEK L.A GUIDANCE

First Aid

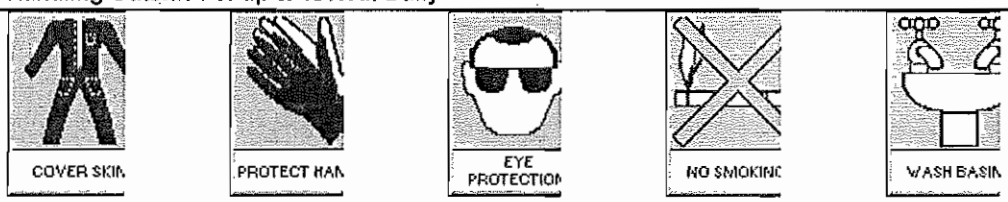
- INHALATION – REMOVE TO FRESH AIR AND REST
- AFTER A SIGNIFICANT EXPOSURE CALL FOR MEDICAL ASSISTANCE
- INGESTION – DO NOT INDUCE VOMITING

- INGESTION – GIVE PLENTY OF WATER IN SIPS
- INGESTION – GET IMMEDIATE MEDICAL ATTENTION
- EYE – IRRIGATE WITH WATER FOR AT LEAST 15 MINUTES
- SKIN – WASH WITH SOAP / CLEANSER AND RINSE WITH WATER
- IF IRRITATION PERSISTS CONSULT A DOCTOR

Fire

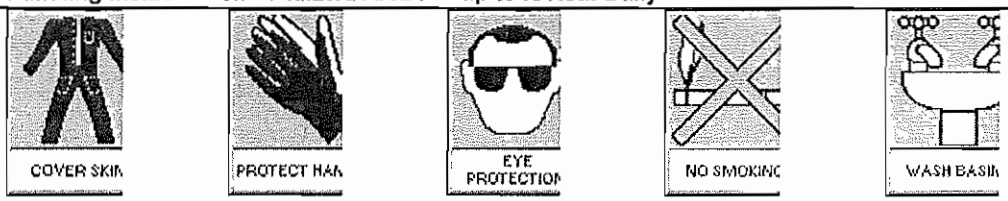
- ISOLATED SMALL SCALE FIRE:-
  - WATER FOG – CAVBA ON DIOXIDE – POWDER – FOAM
  - DO NOT USE WATER JET
- LARGE FIRE:-
  - EVACUATE AREA, CALL FIRE BRIGADE OR FOLLOW SITE PROCEDURE
  - WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING
  - TOXIC FUMES ARE PRODUCED WHEN THIS SUBSTANCE IS INVOLVED IN A FIRE
  - CONTACT WATER SERVICES CO. AND EA IF WATERCOURSES ARE CONTAMINATED
  - AVOID CONTAMINATION OF WATERCOURSES BY FIREFIGHTING RUN-OFF

Handling Outside For up to ½ Hour Daily



KEEP SKIN COVERED | AVOID SKIN CONTACT | IF SPLASH LIKELY | EATING OR DRINKING | WASH AFTER CONTACT

Handling Inside a Well Ventilated Area For up to ½ Hour Daily

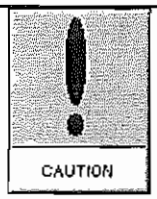


KEEP SKIN COVERED | AVOID SKIN CONTACT | IF SPLASH LIKELY | EATING OR DRINKING | WASH AFTER CONTACT

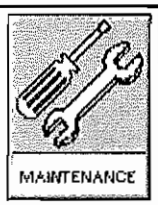
CA 003 ENGINE OIL (GENERIC)

Assessment	863	**Keyword**	Oil (Engine)
Material/Pro	Engine Oil - Generic	**Data Sheet**	03
Exposure	Mineral Oil 5mg/m3 8hTWA 15mSTEL WEL	**Last**	08/06/2007
Supplier	Various	**Health**	MEDIUM HAZARD
Physical	LIQUID	**Env. Hazard**	LOW HAZARD
UN Number	None	**Pkg Group**	N/A
Contents	Mineral Oil: 100%		
IMC		**Discontinue**	No
Notes			

Hazards



Considerations



If using engineering controls/non disposable RPE ensure maintenance (reg 9)
Consider skin check (reg 11)

Health

- USED MINERAL OIL MAY CAUSE SKIN CANCER
- MAY BE HARMFUL IF INGESTED IN QUANTITY
- MAY CAUSE EYE IRRITATION
- SKIN – IRRITATION AND DERMITITIS MAY RESULT FROM PROLONGED CONTACT

D1342

D1202

- Do not breathe mist
- When using do not eat, drink or smoke
- Avoid contact with eyes

Spillage

- VENTILATE AREA
- DO NOT ALLOW SPILLAGE TO ENTRE DRAINS / SEWERS / WATER COURSES
- WEAR NITRILE GLOVES
- WEAR EYE PROTECTION (GRADE 3) IS SPLASHING IS LIKELY
- WEAR PROTECTIVE CLOTHING IF WHOLE CONTAINER IS SPILT
- ABSOVBA IN SAND OR INERT ABSOVBA ANT MATERIAL
- COLLECT INTO A CONTAINER AND CLOSE LID
- DISPOSE OF USING SUITABLE PROCEDURE OR SEEK L.A GUIDANCE

First Aid

- INHALATION – REMOVE TO FRESH AIR AND REST
- AFTER A SIGNIFICANT EXPOSURE CALL FOR MEDICAL ASSISTANCE IMMEDIATELY
- INGESTION – DO NOT INDUCE VOMITING
- INGESTION – GIVE PLENTY OF WATER IN SIPS
- IF FEELING UNWELL CONSULT A DOCTOR IMMEDIATELY
- EYE – IRRIGATE WITH WATER FPOR AT LEAST 15 MINUTES
- SKIN – WASH WITH SOAP/CLEANSER AND RINSE WITH WATER
- IF IRRITATION PERSISTS THEN CONSULT A DOCTOR

Fire

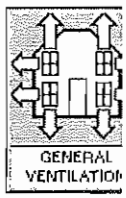
- ISOLATED SMALL SCALE FIRE:-
  - USE POWDER – FOAM – CAVBA ON DIOXIDE (CO2)
  - DO NOT USE WATER JET
- LARGE FIRE:-
  - EVACUATE AREA, CALL FIRE BRIGADE OR FOLLOW SITE PROCEDURE
  - WEAR SELF CONTAINED BREATHING APPARATUS AND PROECTIVE CLOTHING
  - TOXIC FUMES ARE PRODUCED WHEN SUBSTANCE IS INVOLVED IN A FIRE

General Exposure in Any Area (Not Confined) For up to 2 Hours Daily

KEEP SKIN COVERED

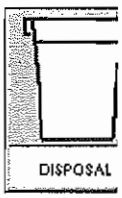
NITRILE

IF SPLASH LIKELY



EATING OR DRINKING

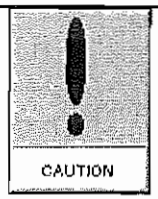
IF SOILED



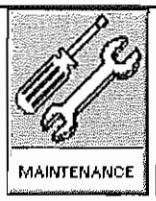
CA 004 GREASE (GENERIC)

Assessment	867	**Keyword**	Grease
Material/Pro	Grease (Generic)	**Data Sheet**	04
Exposure	Mineral Oil 5mg/m3 8hTWA 15mSTEL WEL	**Last**	24/07/2008
Supplier	Various	**Health**	MEDIUM HAZARD
Physical	LIQUID	**Env. Hazard**	LOW HAZARD
UN Number	N/A	**Pkg Group**	N/A
Contents	Mineral Oil Thickners & Additives		
IMC Notes		**Discontinue**	No

Hazards



Considerations



If using engineering controls/non disposable RPE ensure maintenance (reg 9)
Consider skin check (reg 11)

Health

- USED MINERAL OIL MAY CAUSE SKIN CANCER
- MAY BE HARMFUL IF INGESTED IN QUANTITY
- MAY CAUSE EYE IRRITATION
- SKIN – IRRIATION AND DERMITITIS MAY RESULT FROM PROLONGUED CONTACT
- Do not breathe mist
- When using do not eat, drink or smoke
- Avoid contact with skin and eyes

Spillage

- VENTILATE AREA
- DO NOT ALLOW SPILLAGE TO ENTER MAIN DRAINS / SEWERS / WATER COURSES
- WEAR NITRILE GLOVES
- WEAR EYE PROTECTION (GRADE3) IF SPLASHING IS LIKELY
- WEAR PROTECTIVE CLOTHING IF WHOLE CONTAINER IS SPILT
- ABSOVBA IN SAND OR INERT ABSOVBA ANT MATERIAL
- COLLECT INTO A CONTAINER AND CLOSE LID
- DISPOSE OF USING SUITABLE PROCEDURE OR SEEK L.A GUIDANCE

First Aid

- INHALATION – REMOVE TO FRESH AIR AND REST
- AFTER A SIGNIFICANT EXPOSURE CALL FOR MEDICAL ASSISTANCE IMMEDIATELY
- INGESTION – DO NOT INDUCE VOMITING
- INGESTION – GIVE PLENTY OF WATER IN SIPS
- IF FEELING UNWELL CONSULT A DOCTOR IMMEDIATELY
- EYE – IRRIGATE WITH WATER FOR AT LEAST 15 MINUTES
- SKIN – WASH WITH SOAP / CLEANSER AND RINSE WITH WATER
- IF IRRITATION PERSISTS THEN CONSULT A DOCTOR
- HIGH PRESSURE INJECTION OF MATERIAL INTO SKIN – GET IMMEDIATE MEDICAL ATTENTION

Fire

- ISOLATED SMALL SCALE FIRE:-
  - USE POWDER – FOAM – CAVBA ON DIOXIDE (CO_2)
  - DO NOT USE WATER JET
- LARGE FIRE:-
  - EVACUATE AREA, CALL FIRE BRIGADE OR FOLLOW SITE PROCEDURE
  - WEAR SELF CONTAINED BREATHING APPARATUS AND PROCTECTIVE CLOTHING
  - TOXIC FUMES ARE PRODUCED WHEN SUBSTANCE IS INVOLVED INA FIRE

Gun Applying in Any Area (Not Confined) For up to 2 Hours Daily

D1345

D1205

KEEP SKIN COVERED

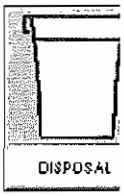
NITRILE

IF SPLASH LIKELY

EATING OR DRINKING

WASH AFTER CONTACT

IF



CA 004 HYDRAULIC OIL

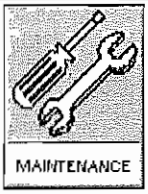
Assessment	14658	**Keyword**	Hydraulic Oil
Material/Pro	Hydraulic Oils	**Data Sheet**	05
Exposure	500mg/m3 8hrTWA * EH40	**Last Modified**	06/07/2001
Supplier	Various	**Health Hazard**	LOW HAZARD
Physical	LIQUID	**Env. Hazard**	LOW HAZARD
UN Number	N/A	**Pkg Group**	N/A
Contents	HydrocaVBA on Oil (CAS: 64742-65-0) (<1% Benzene) (99 – 99.5%) Addatives (0.5%)		
IMC		**Discontinued**	No
Notes			

Hazards

D1346

D1206

Considerations



If using engineering controls ensure maintenance (Reg 9)

Health

- MAY BE HARMFUL IF INGESTED IN QUANTITY
- MAY CAUSE EYE IRRITATION
- SKIN – IRRITATION AND DERMITITIS MAY RESULT FROM PROLONGED CONTACT
- Do not breathe in vapour
- When using do not eat, drink or smoke
- Avoid contact with skin and eyes

Spillage

- VENTILATE AREA
- DO NOT ALLOW SPILLAGE TO ENTER MAIN DRAINS / SEWERS / WATER COURSE
- WEAR NITRILE GLOVES
- WEAR EYE PROTECTION (GRADE 3) IF SPASHING IS LIKELY
- WEAR PROTECTIVE CLOTHING IF WHOLE CONTAINER IS SPILT
- ABSOVBA IN SAND OR INERT ABSOVBA ANT MATERIAL
- COLLECT INTO A CONTAINER AND CLOSE THE LID
- DISPOSE OF USING SUITABLE PROCEDURE OR SEEK L.A GUIDANCE

First Aid

- INHALATION – REMOVE TO FRESH AIR AND REST
- AFTER A SIGNIFICANT EXPOSURE CALL FOR MEDICAL ASSISTANCE IMMEDIATELY
- INGESTION – DO NOT INDUCE VOMITING
- INGESTION – GIVE PLENTY OF WATER IN SIPS
- IF FEELING UNWELL CONSULT A DOCTOR IMMEDIATELY
- EYE – IRRIGATE WITH WATER FOR AT LEAST 15 MINUTES
- SKIN – WASH WITH SOAP/CLEANSER AND RINSE WITH WATER
- IF IRRITATION PERSISTS THEN CONSULT A DOCTOR

Fire

- ISOLATED SMALL SCALE FIRE:-
  - USE POWDER – FOAM – CAVBA ON DIOXIDE(CO_2)
  - DO NOT USE WATER JET
- LARGE FIRE:-
  - EVACUATE AREA, CALL FIRE BRIGADE OR FOLLOW SITE PROCEDURE
  - WEAR SELF CONTAINED BREATHING APPARATUS
  - TOXIC FUMES ARE PRODUCED WHEN SUBSTANCE IS INVOLVED IN A FIRE

Hand Applying Inside a Well Ventilated Area For up to ½ Hour Daily

D1347

D1207

AVOID SKIN CONTACT

NITRILE

IF SPLASH LIKELY

EATING OR DRINKING

WASH AFTER CONTAC

AFTER USE

CA 006 OXYGEN

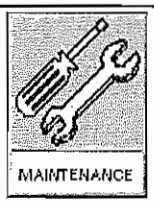
Assessment	19932	**Keyword**	Gas
Material/Pro	Oxygen	**Data Sheet**	06
Exposure		**Last**	01/08/2008
Supplier	BOC Gases	**Health**	MEDIUM HAZARD
Physical	Gas	**Env. Hazard**	LOW HAZARD
UN Number	1072	**Pkg Group**	II
Contents	Oxygen: 99.5%		
IMC		**Discontinue**	No
Notes			

D1348

D1208

Hazards

Considerations



If using engineering controls/non disposable RPE ensure maintenance (reg 9)

Health

- CONTACT WITH COMBUSTABLE MATERIAL MAY CAUSE FIRE
- MAY BE HARMUL IF INGESTED IN QUANTITY
- MAY CAUSE EYE IRRITATION
- Do not breathe gas
- When using do not eat, drink or smoke
- Avoid oxygen rich (>21%) atmospheres
- Ensure adequate ventilation
- Clothing impregnated with Oxygen should be ventilated with a 15 minute walk in fresh air

Leakage

- FOR LARGE LEAKS EVACUATE AREA
- ELIMINATE IGNITION SOURCES
- VENTILATE AREA
- SHUT OFF AT SOURCE
- ALLOW TO DISSIPATE
- ALL LEAKS SHOULD BE HANDLED BY DESIGNATED RESPONDERS
- PREVENT FROM ENTERING SEWERS, BASEMENTS AND WORKPITS WHERE ITS ACCUMULATION CAN BE DANGEROUS.

First Aid

- AVOID LEAKS AND DIRECT INHALATION
- INHALATION – REMOVE TO FRESH AIR AND REST
- AFTER SIGNIFICANT EXPOSURE CALL FOR MEDICAL ASSISTANCE
- WEAR APPROPRIATE PPE WHEN USING OXYGEN, IF BURNT WITH FLAME SEEK MEDICAL ATTENTION IMMEDIATELY

Fire

- ISOLATED SMALL SCALE FIRE:-
  - IF POSSIBLE STOP FLOW OF PRODUCT
  - MOVE AWAY FROM CONTAINER AND TRY TO COOL FROM A PROTECTED POSITION
  - ALL KNOWN FIRE EXTINGUISHERS CAN BE USED ON OXYGEN CONTAINERS
- LARGE FIRE:-
  - EVACUATE AREA, CALL FIRE BRIGADE OR FOLLOW SITE PROCEDURE
  - KEEP CLEAR EXPOSURE TO FIRE MAY CAUSE CONTAINER TO RUPTURE OR EXPLODE

Connecting Oxygen Inside a Well Ventilated Space All Day

D1349

D1209

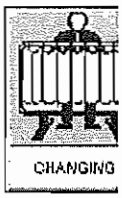
KEEP SKIN

IF CONTACT LIKELY

IF CONTACT LIKELY

EATING OR DRINKING

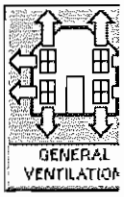
WASH AFTER CONTACT



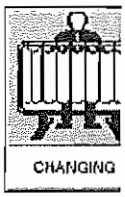
General Exposure to Oxygen Inside a Well Ventilated Area All Day

KEEP SKIN COVERED

IF CONTACT LIKELY



EATING OR DRINKING



IF HEAVILY SOILED

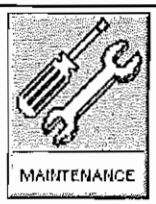
AFTER USE

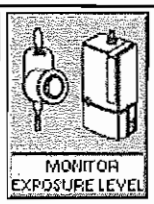
CA007 PROPANE

Assessment	1153	**Keyword**	Gas
Material/Pro	Propane	**Data Sheet**	07
Exposure		**Last**	12/08/2008
Supplier	BOC Ltd	**Health**	MEDIUM HAZARD
Physical	Gas	**Env. Hazard**	MEDIUM HAZARD
UN Number	1978	**Pkg Group**	N/A
Contents	Propane 100%		
IMC		**Discontinue**	No
Notes			

Hazards

Considerations





If using engineering controls/non disposable RPE ensure maintenance (reg 9)
Asphyxiant gas, ensure that oxygen level does not fall below 18%

Health

- EXTREMELY FLAMMABLE
- ASPHIXIANT PROPERTIES
- CAN CAUSE COLD BURNS
- Do not breathe gas
- When using do not eat, drink or smoke
- Avoid contact with skin and eyes

Leakage

- EVACUATE AREA
- VENTILATE AREA AND EXCLUDE ALL SOURCES OF IGNITION
- WEAR SELF CONTAINED BREATHING APPARATUS
- SHUT OFF AT SOURCE
- ALLOW TO DISSIPATE
- ENSURE AREA IS SAFE BEFORE RE-ENTRY
- ALL LEAKS TO BE HANDLED BY DESIGNATED RESPONDERS

First Aid

- INHALATION – REMOVE TO FRESH AIR AND REST
- AFTER A SIGNIFICANT EXPOSURE CALL FOR MEDICAL ASSISTANCE IMMEDIATELY
- EYE CONTACT – IRRIGATE USING EYE WASH AND GET IMMEDIATE MEDICAL ATTENTION
- SKIN – WARM EXPOSED AREA SLOWLY
- SKIN CONTACT – RINSE WITH WATER AND GET IMMEDIATE MEDICAL ATTENTION

Fire

- ISOLATED SMALL SCALE FIRE:-
  - ALL KNOWN EXTINGUISHERS CAN BE USED ON FIRE
- LARGE FIRE:-
  - EVACUATE AREA, CALL FIRE BRIGADE OR FOLLOW SITE PROCEDURE
  - WEAR SELF CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING
  - TOXIC FUMES ARE PRODUCED WHEN SUBSTANCE IS INVOLVED IN A FIRE
  - KEEP CONTAINERS COOL WITH WATER SPRAY

Handling Propane Cylinders In Any Areas (Not Confined) For up to ½ Hour Daily

D1351

D1211

KEEP SKIN COVERED

HEAVY DUTY

IF CONTACT LIKELY

EATING OR DRINKING

WASH AFTER CONTACT

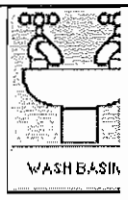
Connecting Propane Inside Poorly Ventilated Areas For up to ½ Hour, in a Well Ventilated Area For up to 8 and Outside All Day

KEEP SKIN COVERED

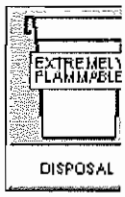
HEAVY DUTY

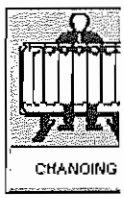
IF CONTACT LIKELY

EATING OR DRINKING



WASH AFTER CONTACT





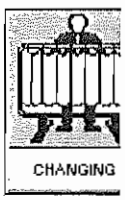
Changing Propane Inside in a Well Ventilated Area For up to 2 Hours Daily

KEEP SKIN

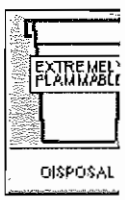
HEAVY DUTY

IF CONTACT LIKELY

EATING OR DRINKING



IF HEAVILY SOILED

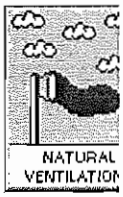


Changing Propane Outside For up to 2 Hours

KEEP SKIN COVERED

HEAVY DUTY

IF CONTACT LIKELY



EATING OR DRINKING

IF HEAVILY SOILED

AFTER USE

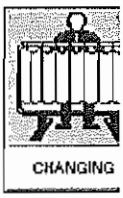
Burning with Propane Inside and Outside All Day

KEEP SKIN COVERED

HEAT RESISTANT

IF CONTACT LIKELY

EATING OR DRINKING



IF HEAVILY SOILED

1

D1353

D1213

Plant Resources / Certification

CFA

Soilmec SR95 CFA Rig

- MEWP
- Static concrete pump
- Crawler Crane
- Attendant 13t exc. and wheeled dumper

Steel Tube

- Crawler Crane – 130T
- 16.20 Leader Rig
- CX110 Impact Hammer

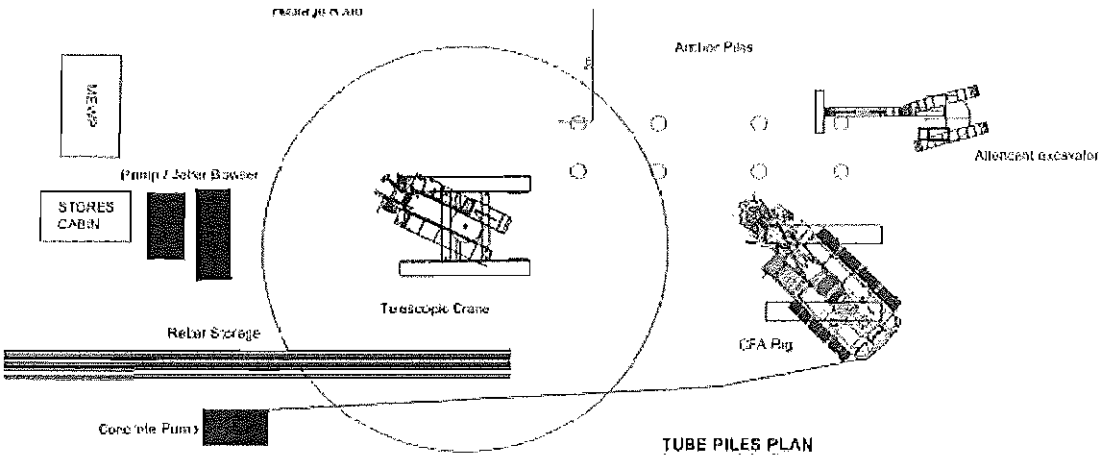
The proposed plant to be used on this project will be as follows:

- 300mm diameter augers
- Fuel Tank
- Weld Set 300amp
- Jetwash Bowser
- ALL CERTIFICATION WILL ARRIVE ONSITE WITH PLANT DELIVERY

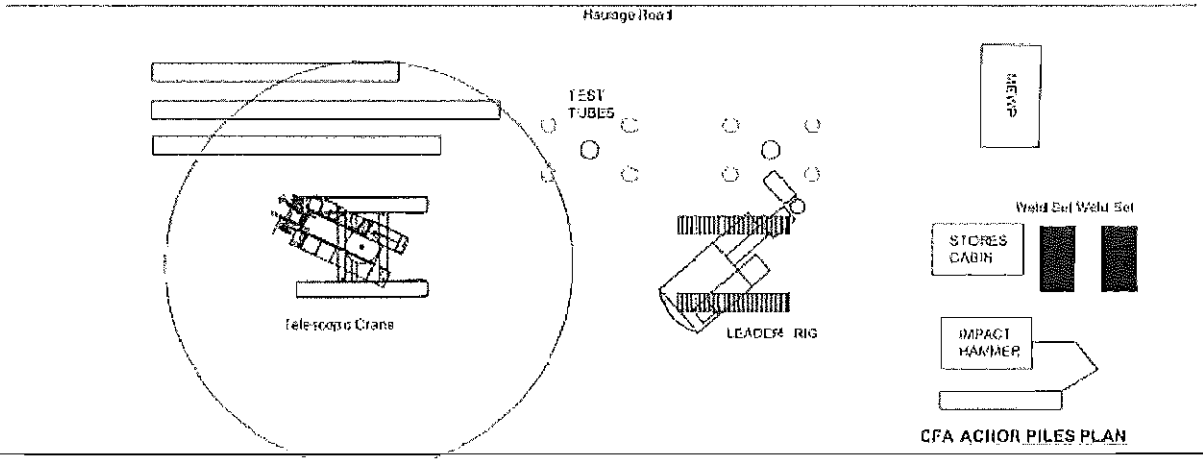
D1354

D1214

Site Layout



TUBE PILES PLAN



CFA ACNOR PILES PLAN

1	**Security.** Security under Principle contractor .
1	

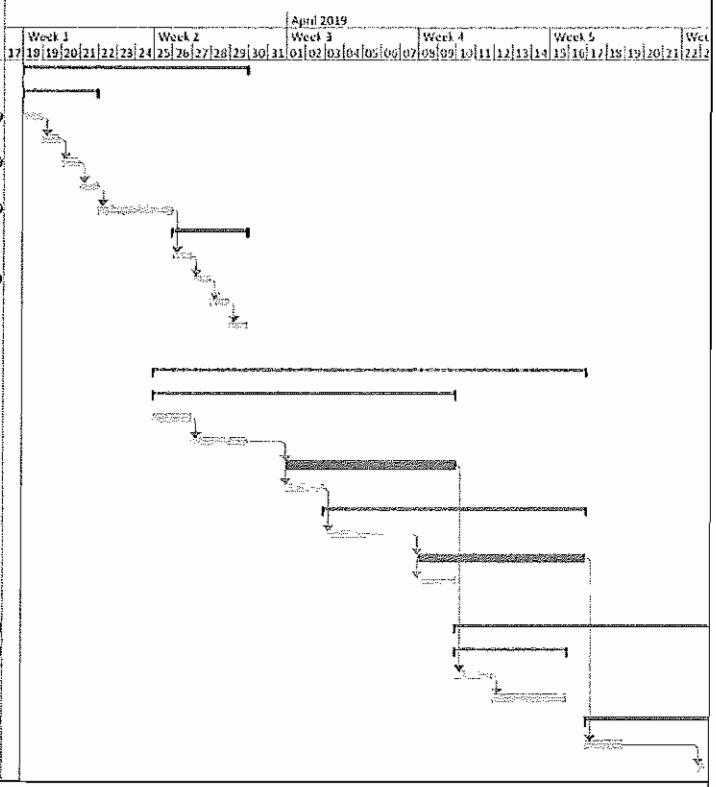
D1355

D1215

Programme

Project: Colne Valley Testing — Target Programme of Works — VolkerGround Engineer

ID	Task Name	Duration	Start	Finish
1	Tube Installation	10 days	Mon 18/03/19	Fri 29/03/19
2	Loc1 - A412	4 days	Mon 18/03/19	Thu 21/03/19
3	Mobilise to site	1 day	Mon 18/03/19	Mon 18/03/19
4	Install Bottom tube section	1 day	Tue 19/01/19	Tue 19/03/19
5	Weld splice joint	1 day	Wed 20/03/19	Wed 20/03/19
6	Drive tube to level & impact	1 day	Thu 21/03/19	Thu 21/03/19
7	Complete intersite move to L2	2 days	Fri 22/03/19	Mon 25/03/19
8	Loc2 - Harvil Road	4 days	Tue 26/03/19	Fri 29/03/19
9	Install Bottom tube section	1 day	Tue 26/03/19	Tue 26/03/19
10	Weld splice joint	1 day	Wed 27/03/19	Wed 27/03/19
11	Drive tube to level & impact	1 day	Thu 28/03/19	Thu 28/03/19
12	Demobilise from site	1 day	Fri 29/03/19	Fri 29/03/19
13				
14	CFA Anchor Installation	17 days	Mon 25/03/19	Tue 16/04/19
15	Loc1-A412	12 days	Mon 25/03/19	Tue 09/04/19
16	Mobilise to site	2 days	Mon 25/03/19	Tue 26/03/19
17	Install 8no anchor piles & Test Pile	1 days	Wed 27/03/19	Fri 29/03/19
18	Curing period	7 days	Mon 01/04/19	Tue 09/04/19
19	Complete intersite move to L2	2 days	Mon 01/04/19	Tue 02/04/19
20	Loc2 - Harvil Road	10 days	Wed 03/04/19	Tue 16/04/19
21	Install 8no Anchor Piles & Test Pile	3 days	Wed 03/04/19	Fri 05/04/19
22	Curing Period	7 days	Mon 08/04/19	Tue 16/04/19
23	Demobilise from site	2 days	Mon 08/04/19	Tue 09/04/19
24				
25	Testing	9 days	Wed 10/04/19	Wed 24/04/19
26	Loc1 - A412	4 days	Wed 10/04/19	Mon 15/04/19
27	Complete testing Tube	2 days	Wed 10/04/19	Thu 11/04/19
28	Complete testing CFA	2 days	Fri 12/04/19	Mon 15/04/19
29	Loc2 - Harvil Road	4 days	Wed 17/04/19	Wed 24/04/19
30	Complete testing Tube	2 days	Wed 17/04/19	Thu 18/04/19
31	Complete testing CFA	2 days	Tue 23/04/19	Wed 24/04/19



*Based on a 5 day working week - Target Durations Only - V&E require continuity of works

Project: Colne Valley Testing — Programme:V — Date: Thu

1 Nuisance ***(noise, dust, vibration)***

VGE will provide details of anticipated noise and vibration levels anticipated for our proposed plant and equipment on request from ALIGN . Actual site levels may vary from those stated depending on actual ground conditions and the degree of exposure at the work location. Exposure levels for working adjacent to a CFA Rig are shown below;

Piling Foreman

95.4 dB(A) x 2.5hrs - next to pile (upto 5m distance)
87.4 dB(A) x 2 hrs - near pile (upto 10m distance)
82.5 dB(A) x 4.5 hrs - in piling area (upto 20m distance
50.0 dB(A) x 1 hr - break time (assumed)
Gives daily noise exposure of 91.0 dB LEPD
Required hearing protection = SNR 25-35, Foreman provided with ear protection which gives SNR=35

Rig Driver

80 dB(A) in cab with door closed
Noise level below 80dB(A), the lower action value, no hearing protection required. VGE recommend ear protection.

Noise Exposure to adjacent works

Working at a minimum distance of 15m to the piling works this produces a noise level of 90dB(A). Assuming that the works are to continue for a minimum of 10hrs the operatives will be exposed to approximately 4.5 hour of noise producing a daily exposure of 88dB LEPD. This is in line with the upper exposure levels given by HSE, VGE recommend noise protection to be worn when working within 25m of the piling operations push in ear protection is adequate SNR=35. Operatives passing the piling works can be subjected for up to 30minutes at 15m before noise protection is required (Exposure limit of 78dB LEPD).

1	Resource Use *(fuel, water, aggregates, etc.)* ALIGN to provide water supply – To fill jet wash bowser daily
1	***Housekeeping*** All vehicles and plant will be kept in a clean condition. The working area will be kept clean and clear of trip hazards. Any spillages will be reported to ALIGN and cleared immediately. All waste will be deposited into skips provided by ALIGN for disposal. All plant will carry a comprehensive spill kit.
1	**SHE Monitoring**
1	VGE Supervisor to be responsible for Safety, Health and Environment relating to the VGE's work. ALIGN site supervisor to be responsible for Safety, Health and Environment of all other works VolkerStevin Health and Safety advisor is xxxx Volkers Stevin Health and Safety Advisor will undertake once monthly visits or as and when required.
1	**Deliveries** All deliveries to be given the main compound address detailed below xxxx The rig will track off the low loader on site onto the piling mat via the access ramp. All traffic management will be provided by ALIGN . Should the rig be required to track on the rod then plywood sheets will be utilised. Offloading of the plant and ancillary equipment will be carried out within the site. The attendant excavator will be located on the piling platform, all delivery wagons to adjacent to the piling mat to be unloaded. All delivery vehicles will arrive with suitable edge protection. Working Hours Mon – Fri 7.30am to 6.00pm

D1357

D1217

Appendix F – Active Treatment System Risk Assessment

Appendix F Active Treatment Risk Assessment

1 Active Water Treatment Option

1.1.1 As part of the testing and refinement of procedures and processes, the potential to avoid tankering all contaminated runoff from site has been assessed. This would be likely to consist of installing a Siltbuster treatment plant on site, to reduce suspended solids and adjust pH before discharge. The Siltbuster treatment plant would be likely to involve:

- a settlement unit for reduction of suspended solids;
- an optional mix tank, where CO2 and/or flocculant/coagulant would be added to correct for alkaline pH and/or to improve suspended solids settlement rate; and,
- additional monitoring before the treated water would be discharged at greenfield runoff rate.

1.1.2 Active treatment for suspended solids in the mix tank would involve automatic flow proportional coagulant/flocculant dosing to improve the rate at which suspended solids settle out of suspension to achieve a concentration in the resultant discharge water of <60mg/l suspended solids.

1.1.3 The coagulant or flocculant selected for this role will be either a polymer named Aquatreat 430 or Polyaluminium chloride hydroxide sulphate (PAC), with the material safety data sheets provided in Annex 1. Siltbuster has indicated that they have at least 20 units operational across the UK currently, using one or other of these substances.

2 Toxicity Information

1.1.4 The safety data sheet for Aquatreat 430, which is included in Annex 1, indicates that it is not itself classified as hazardous according to EC1272/2008, but contains the following hazardous compounds:

- C11-C15 alkanes, (<3%)
- C14-C18 n-alkanes (20-45%), and
- Isotridecanol (<5%).

1.1.5 It is a liquid, has a relative density of 1.1, is chemically stable under normal storage conditions and is not readily biodegradable but is not expected to bioaccumulate. It has an acute toxicity LD50 of >5,000mg/kg if ingested and an LC50 acute toxicity to fish of >100mg/l.

1.1.6 Polyaluminium chloride hydroxide sulphate (PAC) (CAS 39290-78-3) is classified as hazardous under EC1272/2008 (see M5DS in Annex 1). It is a liquid with a pH of 2-3 and appears to primarily be considered hazardous due to its potential as a skin and eye irritant. It is soluble and has a relative density of 1.2 – 1.3 and so would sink in water. It has an acute toxicity LD50 of >5,000mg/kg if ingested and an acute toxicity to fish LC50 of approximately 1,500mg/l.

3 Risk Assessment

1.1.7 The Active treatment option is only a temporary activity as it would only be implemented during piling at LTP2. It is likely to only occur over a relatively short period. In addition, active treatment would not be implemented continuously, with chemical dosing only occurring when there is high sediment loading, such as at times of heavy rainfall and when piling is active.

1.1.8 This risk assessment is focussed on surface water and not groundwater as the discharge point is to a surface water feature. Risks are therefore primarily to ecological receptors (aquatic flora and fauna).

1.1.9 Risks to surface water are from discharge of flocculant to the environment within the effluent water and may occur as a result of either carry over of flocculant or over-dosing of the treatment tank.

1.1.10 Overdosing would be prevented by implementation of an automated system to apply coagulant/flocculant. Initial dosing rates will be set based on the solids concentration in the tank and are expected to be in the order of 5-10mg/l for PAC and 2-5mg/l for polymer, with only 0.2%-0.3% of the dosing made up of the active chemicals, with the rest made up with potable water. Subsequently the dosing is flow proportional so that dosing is changed automatically to accommodate for any fluctuation in incoming flow rate. If there is a striking change in the solids concentration the dosing rates of coagulant/flocculant may need to be adjusted manually by site personnel. These set rates and flow proportional setup ensure that overdosing of the treatment tank does not occur.

1.1.11 Carry-over estimates for each of the above listed products during normal operation are in the order of 0.3µg/l for Aquatreat 430 and 0.09mg/l for PAC and indicate that only very small concentrations of flocculant would be present in the discharge during normal operation. These concentrations are at least 3 orders of magnitude below the LC50 for fish and so are unlikely to result in harm to surface water environmental receptors. The risk to surface water from these products is therefore very low.

3.1 Summary

3.1.1 The above assessment indicates that the risks from using the coagulant/flocculants proposed to treat the drainage from the piling mat is extremely low, given the low dose used, the dosing controls in place and the very low carryover for the chemicals.

4 Monitoring

4.1.1 Samples would be collected from the outfall of the treatment tank and analysed for hydrocarbons, trace metals, major ions pH and electrical conductivity (EC) to confirm the above controls are working as intended and to determine if the concentrations of these determinands are increasing due to the use of these coagulant/flocculants.

5 Conclusions

5.1.1 The above assessment, which is based upon information received from Siltbuster indicates that Aquatreat and PAC have low and relatively low toxicity and are not expected to bioaccumulate. However, they do contain substances defined as hazardous substances, but would be present at concentrations that only pose an extremely low risk of polluting surface water. The treatment system is not expected to be in continuous operation and given the low doses used, the dosing controls and the very low carryover for the chemicals it is unlikely that there will be any effect on the receiving waters as a result of the discharge.

Annex 1 Safety Data Sheets

Section 1: Identification of Substance/mixture and of the company undertaking

1.1: Product Identifier

Product Name AQUATREAT 430

1.2: Relevant Identified use of substance/mixture and uses advised against

1.3: Details of the Supplier of the safety data sheet

Company Name: Aquatreat

Albany House
North Dock
Llanelli
Carmarthenshire
SA15 2LF

Telephone: 01554 775236

Fax: 01554 772253

E-mail: enquiries@aquatreat.co.uk

Website: www.aquatreat.co.uk

1.4: Emergency Telephone Numbers:

Emergency Telephone: 0333 333 9499

Section 2: Hazards Identification

2.1: Classification of substance/mixture according to Regulation (EC) No 1272/2008

Classification under CLP: NC Not Classified

Additional Information:

2.2: Label Elements: Labelling according to Regulation (EC) No 1272/2008 [CLP/GHS]

Label elements under CLP: NC Not Classified as Hazardous

Signal Words:

Hazard Pictograms:

Precautionary Statements

Avoid release to the environment.

IF ON SKIN: Wash with plenty of soap and water.

Dispose of contents/container to an authorised waste disposal facility

2.3: Other Hazards

Section 3: Composition information on hazardous ingredients

Alkanes C11-C15, iso - Reach Reg No: 01-2119456810-40-XXXX

EINECS	CAS No	Classification according to Regulation (EC) 1272:2008	Percent
920-901-0		Asp. Tox.1; H304, EUH066	<3%

Hydrocarbons C14-C18, n-alkanes, isoalkanes, cyclics <2% - Reach No: 01- 2119457736-27-XXXX

EINECS	CAS No	Classification according to Regulation (EC) 1272:2008	Percent
927-632-8		Asp.Tox 1; H304, EUH066	20 - 45

Isotridecanol, ethoxylated

EINECS	CAS No	Classification according to Regulation (EC) 1272:2008	Percent
		Acute Tox.4;H302, H318	<5%

Section 4: First Aid Measures

4.1 : Description of First Aid measures

Skin Contact: Wash off immediately with soap and plenty of water. Remove any contaminated clothing. In case of persistent irritation consult a physician

Eye Contact: Rinse immediately with plenty of water, also under the eyelids,for at least 15 minutes. Seek medical attention immediately

Ingestion: Rinse mouth with water. Do not induce vomitting. Call a physician or poison centre immediately

Inhalation: Move to fresh air.

4.2 : Most important symptoms and effects both accute and delayed

Skin Contact: Repeated exposure may cause skin dryness and/or cracking

Eye Contact:

Ingestion:

Inhalation:

4.3: Indication of any immediate medical treatment and special treatment required

None reasonably foreseeable

Section 5: Fire fighting measures

5.1: Extinguishing media

Water, water spray, Foam, Carbon Dioxide, Dry Foam

Unsuitable Media

None

5.2: Special hazards arising from the substance/mixture

Carbon Oxides, Nitrogen oxides. Hydrogen Cyanide may be produced in the event of combustion in an oxygen deficient atmosphere

5.3: Advice for firefighters

Wear self contained apparatus and protective clothing

D1364

D1224

Section 6: Accidental Release Measures

6.1: Personal precautions, protective equipment and emergency procedures

Refer to section 8 for details of appropriate ppe

6.2: Environmental precautions

Do not contaminate water courses

6.3: Methods and Materials for containment and clean up

Do not flush with water. Soak up with absorbent material. Sweep up and place in suitable containers for disposal.

6.4: References to other sections

Section 7.0: Handling and Storage

7.1: Precautions for safe handling

Avoid contact with eyes and skin

7.2: Conditions for safe storage.

Store away from sources of heat and ignition. Freezing conditions will affect the physical condition and may damage the material. Incompatible with oxidising materials

7.4: Specific End Use(s)

Section 8: Exposurecontrols/PersonalProtection

8.1: Control Parameters

None known

WORKPLACE EXPOSURE		Respirable Dust	
8 Hour TWA	15MinSTEL	8 HoursTWA	15MinSTEL

8.2: Exposure Controls

Engineering Measures	Use local exhaust ventilation if misting occurs. Natural ventilation is adequate where misiting does not occur
Respiratory Protection	Not normally required
Hand Protection	PVC or other plastic material gloves
Eye Protection	Safety glasses with side shields
Skin Protection	Coverall or aprons and rubber footware where physical contact may occur.

Section 9.0: Physical and ChemicalProperties

9.1: Information on basic physical and chemical properties

State: Liquid

Colour: Milky

Odour: Aliphatic

Relative Density: 1.1

pH: 5.5 -8.5 @5g/l

9.2: Other Information

D1365

D1225

Section 10: Stability and Reactivity

10.1: Reactivity

Stable under normal storage conditions

10.2: Chemical Stability

Stable under normal storage conditions

10.3: Possibility of Hazardous Reactions

Oxidising agents may cause an exothermic reaction

10.4: Conditions to Avoid

Protect from Frost heat and sunlight

10.5: Incompatible Materials

Oxidising agents

10.6: Hazardous Decomposition Products

Thermal decomposition may produce Carbon Oxides, Nitrogen oxides. Hydrogen Cyanide may be produced in the event of combustion in an oxygen deficient atmosphere

Section 11: Toxicological Information

Aquatreat 430

Dermal	Rat	LD50	>5000mg.kg (estimated)
Oral	Rat	LD50	>5000mg/kg (estimated)

Section 12: Ecological Information

12.1: Toxicity

Acute toxicity to fish, LC50, Oncorhynchus mykiss, 96H, >100 mg/l (estimated), LC50 Danio rerio, 96H, >100 mg.L (estimated)

12.2: Persistence and Biodegradable

Not readily biodegradable.

12.3: Bioaccumulative Potential

This product is not expected to bioaccumulate

12.4: Mobility in Soil

No data available

12.5: Results of PBT and vPvB Assessment

Not PBT or vPvB in accordance with the criteria of Annex XIII of REACH

12.6: Other adverse effects

None

Section 13: Disposal Information

Dispose of in accordance with local or national regulations

D1366

D1226

Section 14: Transport Information

UN Number	
Shipping Name	Not classified for traqnsport
Transport Class	
Packing Group	
Environment Hazard	
Special Precautions	

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Section 15: Regulatory Information

15.1: Safety, Health and Environmental regulations/legislation specific for the substance/mixture

15.2: Chemical safety assessment

Section 16: Other information

The above information is based on our present knowledge of the product at the time of publication. It is given in good faith, no warranty is implied as to the quality or specification of the product. Information contained in this data does not constitute an assessment of workplace risks. The user must satisfy himself that the product is entirely suitable for their purpose

SAFETY DATA SHEET according to Regulation (EC) No. 1907/2006

Polyaluminium chloride hydroxide sulphate (PAC)

Version 5.0
Revision Date 2010/12/03

Print Date 2010/12/03
MSDS code: MPAC100

1. Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name	:	Polyaluminium chloride hydroxide sulphate (PAC)
CAS-No.	:	39290-78-3
EC-No.	:	254-400-7

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the Substance/Mixture	:	At this time we do not yet have information on identified uses. They will be included in this safety data sheet when available.
Recommended restrictions on use	:	At that time we do not yet have information on use restrictions. They will be included in this safety data sheet when available.

1.3. Details of the supplier of the safety data sheet

Company	:	Brenntag UK & Ireland Albion House, Rawdon Park GB LS19 7XX Leeds Yeadon
Telephone	:	0113 3879 200
Telefax	:	0113 3879 280
E-mail address	:	msds@brenntag.co.uk

1.4. Emergency telephone number

Emergency telephone number	:	Emergency only telephone number (open 24 hours): 01865 407333 (N.C.E.C. Culham)

2. Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

REGULATION (EC) No 1272/2008			
Hazard class	**Hazard category**	**Target Organs**	**Hazard statements**

D1368

D1228

Hazard class	Hazard category	Target Organs	Hazard statements
Skin corrosion/irritation	Category 2		H315
Serious eye damage/eye irritation	**Category 2**		**H319**

For the full text of the H-Statements mentioned in this Section, see Section 16.

Classification according to EU Directives 67/548/EEC or 1999/45/EC

Directive 67/548/EEC or 1999/45/EC	
Hazard symbol / Category of danger	**Risk phrases**
Irritant (Xi)	R36/38

For the full text of the R-phrases mentioned in this Section, see Section 16.

Most important adverse effects

Human Health : See section 11 for toxicological information.
No further information available.

Physical and chemical hazards : See section 9 for physicochemical information.
No further information available.

Potential environmental effects : See section 12 for environmental information.
No further information available.

2.2. Label elements

Labelling according to Regulation (EC) No 1272/2008

Hazard symbols :

Signal word : Warning

Hazard statements : H315 Causes skin irritation.
H319 Causes serious eye irritation.

D1369

D1229

Precautionary statements

General	:	P264	Wash hands thoroughly after handling.
		P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
		P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
		P332 + P313	If skin irritation occurs: Get medical advice/ attention.
		P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
		P337 + P313	If eye irritation persists: Get medical advice/ attention.

Additional Labelling:

EUH210 Safety data sheet available on request.

Hazardous components which must be listed on the label:

- Aluminum chloride hydroxide sulfate

2.3. Other hazards

No other information is available.

3. Composition/information on ingredients

3.1. Substances

Chemical nature : Aqueous solution

Chemical Name	Identification Number		Amount [%]
Aluminum chloride hydroxide sulfate	CAS-No.	: 39290-78-3	< 100
	EC-No.	: 254-400-7	

D1370

D1230

4. First aid measures

4.1 Description of first aid measures

General advice	: Take off all contaminated clothing immediately.
In case of skin contact	: Wash off immediately with soap and plenty of water. If skin irritation persists, call a physician.
In case of eye contact	: Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Call a physician immediately.
If swallowed	: Clean mouth with water and drink afterwards plenty of water.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms	: No further information available.
Effects	: No further information available.

4.3 Indication of immediate medical attention and special treatment needed

Treatment	: Treat symptomatically. No further information available.

5. Fire-fighting measures

5.1. Extinguishing media

Suitable extinguishing media	: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable extinguishing media	: No information available.

5.2. Special hazards arising from the substance or mixture

Specific hazards during fire	: The product itself does not burn.

D1371

D1231

fighting	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

5.3. Advice for firefighters

Special protective equipment for fire-fighters	:	Wear self contained breathing apparatus for fire fighting if necessary.
Further information	:	No further information available.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions	:	Wear personal protective equipment. Avoid contact with skin and eyes.

6.2 Environmental precautions

Environmental precautions	:	No special precautions required.

6.3 Methods and materials for containment and cleaning up

Methods and materials for containment and cleaning up	:	Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders). Treat recovered material as described in the section "Disposal considerations". Flush away residuals with plenty of water.

6.4 Reference to other sections

For personal protection see section 8.

7. Handling and storage

7.1 Precautions for safe handling

D1372

D1232

Advice on safe handling	:	Avoid contact with skin, eyes and clothing. Handle in accordance with good industrial hygiene and safety practice.
Hygiene measures	:	Wash hands before breaks and immediately after handling the product. Keep away from food, drink and animal feedingstuffs. When using do not eat or drink.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers	:	Keep in an area equipped with acid resistant flooring. Use acid resistant materials only. Use chloride resistant materials only. Keep container tightly closed.
Advice on protection against fire and explosion	:	Normal measures for preventive fire protection.
Advice on common storage	:	Store separate from acidic- and chloride sensitive materials.
German storage class	:	8B: Non-combustible substances, corrosive
Storage temperature	:	0 - 30 °C

7.3 Specific end uses

Specific use(s)	:	No information available.

8. Exposure controls/personal protection

8.1. Control parameters

Component: Aluminum chloride hydroxide sulfate	CAS-No. 39290-78-3

D1373

D1233

Other OELs

Regulatory Basis	:	UK. EH40 Workplace Exposure Limits (WELs)
Regulatory List	:	EH40 WEL
Value type	:	Time Weighted Average (TWA):
Value	:	2 mg/m3

8.2. Exposure controls

Engineering measures

Refer to protective measures listed in sections 7 and 8.

Personal protective equipment

Respiratory protection

Advice	:	Breathing apparatus needed only when aerosol or mist is formed.

Hand protection

Advice	:	Neoprene gloves Protective gloves should be replaced at first signs of wear.
Glove thickness	:	0.75 mm

Eye protection

Advice	:	Tightly fitting safety goggles

Skin and body protection

Advice	:	Protective suit

Environmental exposure controls

General advice	:	No special precautions required.

9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

D1374

D1234

Form	:	liquid
Colour	:	clear to slight cloudy
Odour	:	odourless
Odour Threshold	:	Currently we do not have any Information from our supplier about this.
pH	:	2 - 3 20 °C
Freezing point	:	-12 °C
Boiling point	:	> 100 °C
Flash point	:	not applicable
Evaporation rate	:	Currently we do not have any Information from our supplier about this.
Flammability (solid, gas)	:	Currently we do not have any Information from our supplier about this.
Upper explosion limit	:	Currently we do not have any Information from our supplier about this.
Lower explosion limit	:	Currently we do not have any Information from our supplier about this.
Vapour pressure	:	Currently we do not have any Information from our supplier about this.
Relative vapour density	:	Currently we do not have any Information from our supplier about this.
Density	:	ca. 1.192 - 1.3 g/cm3 20 °C
Water solubility	:	completely soluble
Partition coefficient: n-octanol/water	:	Currently we do not have any Information from our supplier about this.
Ignition temperature	:	Currently we do not have any Information from our supplier about this.
Thermal decomposition	:	Currently we do not have any Information from our supplier about this.

D1375

D1235

Viscosity, kinematic	:	Currently we do not have any Information from our supplier about this.
Explosive properties	:	Currently we do not have any Information from our supplier about this.
Oxidizing properties	:	Currently we do not have any Information from our supplier about this.

9.2 Other information

No further information available.

10. Stability and reactivity

10.1. Reactivity

Advice : No information available.

10.2. Chemical stability

Advice : No decomposition if stored and applied as directed.
No further information available.

10.3. Possibility of hazardous reactions

Hazardous reactions : No information available.

10.4. Conditions to avoid

Conditions to avoid : Extremes of temperature and direct sunlight.

10.5. Incompatible materials

Materials to avoid : Oxidizing agents
Bases

10.6. Hazardous decomposition products

Hazardous decomposition products : Oxygen
hydrogen chloride

11. Toxicological information

11.1. Information on toxicological effects

D1376

D1236

Product:	**CAS-No.**
	39290-78-3

Acute toxicity

Oral

Value type	:	LD50
Value	:	> 5,000 mg/kg
Species	:	rat

Irritation

Skin

Remarks	:	Irritating to skin.

Eyes

Remarks	:	Irritating to eyes.

Sensitisation

Remarks	:	No sensitizing effect known.

12. Ecological information

12.1. Toxicity

Component: Aluminum chloride hydroxide sulfate	**CAS-No.**
	39290-78-3

Acute toxicity

Fish

Species	:	Leuciscus idus (Golden orfe)
Exposure Time	:	48 h
Value type	:	LC50

D1377

D1237

Value : ca. 1,500 mg/l

12.2. Persistence and degradability

12.3. Bioaccumulative potential

12.4. Mobility in soil

12.5. Results of PBT and vPvB assessment

12.6. Other adverse effects

Product:	CAS-No.
	39290-78-3

Additional ecological Information

Remarks : Solutions with low pH-value must be neutralized before discharge. Ecological injuries are not known or expected under normal use.

13. Disposal considerations

13.1. Waste treatment methods

Product : Can be disposed as waste water, when in compliance with local regulations.

Contaminated packaging : Empty remaining contents. Rinse with plenty of water. Store containers and offer for recycling of material when in accordance with the local regulations.

European Waste Catalogue Number : No waste code according to the European Waste Catalogue can be assigned for this product, as the intended use dictates the assignment. The waste code is established in consultation with the regional waste disposer.

14. Transport information

14.1. UN number

D1378

D1238

3264

14.2. UN proper shipping name

ADR : CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Aluminum chloride hydroxide sulfate)

RID : CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Aluminum chloride hydroxide sulfate)

IMDG : CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Aluminum chloride hydroxide sulfate)

14.3. Transport hazard class(es)

ADR-Class	: 8
(Labels; Classification Code; Hazard identification No; Tunnel restriction code)	8; C1; 80; (E)
RID-Class	: 8
(Labels; Classification Code; Hazard identification No)	8; C1; 80
IMDG-Class	: 8
(Labels; EmS)	8; F-A, S-B

14.4. Packaging group

ADR : III

RID : III

IMDG : III

14.5. Environmental hazards

Labeling according to 5.2.1.8 ADR	: no
Labeling according to 5.2.1.8 RID	: no
Labeling according to 5.2.1.6.3 IMDG	: no
Classification as environmentally hazardous according to 2.9.3 IMDG	: no

D1379

D1239

14.6. Special precautions for user

Not applicable.

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

IMDG : Not applicable.

15. Regulatory information

15.1. Safety, health and environmental regulations/legislation specific fo r the substance or mixture

15.2. Chemical Safety Assessment

Currently we do not have any Information from our supplier about this.

16. Other information

Full text of R-phrases referred to under sections 2 and 3.

R36/38 Irritating to eyes and skin.

Full text of H-Statements referred to under sections 2 and 3.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

Further information

Other information : The information provided in this Safety Data Sheet is correct to

D1380

D1240

the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. Restricted to professional users. Attention - Avoid exposure - obtain special instructions before use.

|| Indicates updated section.

D1381

D1241

EXHIBIT 33

Expert Report of James Talbot

ASSESSMENT OF THE REPORT "HYDROGEOLOGICAL AND SURFACE WATER RISK ASSESSMENT FOR LOAD TEST PILING LOCATION 2" IN THE CONTEXT OF THE SITE OF SPECIAL CONTAMINATION

A REPORT BY

JAMES D. R. TALBOT, PhD, MSc, BSc, ARCS, MRSC, CChem

July, 2020

Executive Summary

This assessment addresses the question if there is reasonable cause to believe whether the report issued by ALIGN on behalf of HS2 for installation of piles (LTP2) has omitted consideration of the proximity of the Special Site of Contamination known as the Newyears Green Landfill Site. The fact that this remit was to consider whether an *omission* occurred that was relevant to the granting of consent of the work to be carried out makes this a slightly different question than the more standard one regarding prediction of the future environmental impact (i.e. water quality) of the Special Site of Contamination concerning the load test piling location, LTP2. To this end, systems tools have been used extensively to critique the assessment process and it is concluded is that it is desirable and should have been possible to include an initial assessment of the risk of pollution and mitigation of risk from the Special Site of Contamination without adversely affecting the delivery of the work package involved in the task. It is the personal opinion of the author that this ought have been done before consent was sought for the work.

Furthermore there are concerns in some of the assumptions given in the assessment concerning long-term structural health of the piles, particularly those of Section 5.4.3 which unless supported with considerable documented evidence might reasonably cause alarm to both expert personnel and the layperson when considering transport of pollutants over the long term. Finally a suggestion has been made as to what knowledge-based mitigation could be made to mitigate the risk of the task without affecting the work involved and with minimal cost.

1.1 Scope

This report was commissioned by Mr Shahid Khan of Advice Wise Solicitors, 24 Cameron Road, Ilford, Essex, on behalf of Mrs Sarah Green. The remit given was to assess the report "Hydrogeological and Surface Water Risk Assessment for Load Test Piling Location 2, document 1MC05-ALJ-EV-NOT-CS01_CLO1-100368". This report (called "the report" in this work) was submitted by ALIGN, working on behalf of HS2 and approved for issue on 22/01/19. The brief given by Mr Khan for this assessment was

"to consider whether there is an omission of the Special Site of Contamination which means that the presence of leachate is not being assessed……(and) consider the assessment of corrosion prediction especially in an area where there is leachate".

1.2 Source Texts

The following source texts have been used as source material for this assessment

Document for Review

"The Report"

Hydrogeological and Surface Water Risk Assessment for Load Test Piling Location 2, Author, ALIGN (for HS2), Reference 1MC05-ALJ-EV-NOT-CS01_CLO1-100368, (2019)

Water Chemistry Prediction and Hydrogeology

"Drever"

J. I. Drever, "The Geochemistry of Natural Waters; Surface and Groundwater Environments, Third Edition", Prentice-Hall Inc, New Jersey, USA. (1997)

"Snoeyink"

V. L. Snoeyink and D. Jenkins, "Water Chemistry", John Wiley and Sons, New York. (1980)

Corrosion Prediction

"Tretherway"

K. R.Tretherway and J. Chamberlain, "Corrosion for Science and Engineering, Second Edition, Longman Publishing, Harlow, UK. (1995)

"Ahmad"

Z. Ahmad, "Principles of Corrosion Engineering and Corrosion Control", Butterworth-Heinemann, Amsterdam, Netherlands. (2006)

"Fontana"

M. G. Fontana and N. D. Greene, "Corrosion Engineering", McGraw-Hill Book Company, New York, USA. (1967)

"Talbot"

D. E. J. Talbot and J. D. R. Talbot, "Corrosion Science and Technology, Third Edition", CRC Press, Boca Raton, USA. (2018)

Geology

"Bailey"

H. W. Bailey, "The Geology of the Newyears Green Area, Hillingdon, London, Commissioned Report. (March 2019)

1.3 Principles

The guiding principles of assessment of risk to water quality are laid out in the DEFRA guidelines, conveniently quoted in Section 3.8 of Appendix D of the report when referring to the use of polyacrylamide gel in the installation of the piles. These are (from "Defra, 2010, Environmental Permitting Environmental Permitting Guidance Groundwater Activities for the Environmental Permitting (England and Wales) Regulations 2010").

"4.20 A reasonable measure would be one where the necessary technical precautions to prevent inputs to groundwater are technically feasible, not disproportionately costly and are within the control of the operator. Such measures could include; source control, alteration of discharge mechanism, treatment of the discharge, interception or diversion of contaminated groundwater, and diversion of the discharge to another disposal route. For new developments this could include simply not conducting the activity in a location where valuable groundwater resources would be particularly vulnerable to inputs of hazardous substances"

"4.27 It is the clear objective of the GWDD to prevent the input of all hazardous substances into groundwater. Clearly the interpretation of "prevent" is important in this context and is to be interpreted having regard to the Common Implementation Strategy guidance issued by the European Commission... .... This recognises that, whilst the aim is to avoid the introduction of hazardous substances into groundwater, it may not be technically feasible to stop all inputs of hazardous substances. Moreover some inputs are environmentally insignificant and in such instances the exemption noted in paragraph 3(3)(b) of Schedule 22 may be applied"

"(Additional note) For example, an environmentally insignificant input into groundwater would be one that could not have any effect in (i) any of the receptors noted in the Water Framework/GWDD definition of pollution (ii) the chemical status if a groundwater body; or

(iii) could give rise to a significant and sustained rising trend in the concentrations of pollutants in groundwater as noted in those directives"

It should also be noted that the underlying principle is governed by the statement "*It is the clear objective of the GWDD to prevent the input of all hazardous substances into groundwater"* and therefore if the issue of leachate from the Special Site of Contamination as a potential pollutant is to be discounted as insignificant that this comes under the condition. "*Moreover some inputs are environmentally insignificant and in such instances the exemption noted in paragraph 3(3)(b) of Schedule 22 may be applied.*" Thus the remit of this work effectively becomes to consider whether this exemption was correctly applied to a source of leachate from the Special Site of Contamination, or whether its omission was an oversight.

For a pollutant - leachate or otherwise - to be environmentally insignificant one of three primary conditions must be satisfied and shown in an assessment beyond reasonable doubt. There is also a secondary condition in case there is a negative reinforcement between B & C, for example if containment were to cause a change in chemical composition. These conditions are given in Table 1.

It should be noted that there is a hierarchy in these conditions. Thus if condition A for a particular pollutant is satisfied then conditions B, C and D do not apply. Similarly if condition B applies, then only condition D need also be considered. Finally it should be noted that if conditions A and B do not apply then a risk assessment for condition C must be done to determinate that exemption via the application of *paragraph 3(3)(b) of Schedule 22* is justified as quoted above. It should be noted here that the position stated as laid out in section 5.4 of the report issued by ALIGN for HS2 is that transport of pollutants is not possible since there are no vertical pathways after piling. This is condition B in Table 1.

2.1. Systems Review

The process whereby it can be determined whether the potential for leachate from the Special Site of Contamination should have been considered, is to apply the constraints of Table 1 in turn.

Condition A There is no source of environmental hazard

A full overview of the hydrogeological aspects of the Newyears Green Area is given by Bailey. The locations are given by document number, 1MC05-ALJ-TP-MAP-CS01_CL01-000002. The Special Site of Contamination (the Newyears Green Landfill site) is approximately 500 meters from the test piles. The report states

"3.4.3 The NYGB……skirts the former Newyears Green landfill site in a culvert…… The NYGB is also fed by groundwater, giving high base flows in winter……"

"4.2.9 There is the potential for the piles to introduce vertical pathways that could provide a route for contamination of the Chalk aquifer from surface/shallow sources of pollution derived from historical pollution within the wider area. Although the superficial sands and gravels may naturally be in hydraulic continuity with the Chalk, the degree of water movement may be limited by the presence of silts in the sand and gravels, in addition to the presence of putty chalk at the top of the weathered horizons. Any construction activity that could result in a preferential pathway between the sand and gravel and the chalk aquifer, particularly where the latter is well fissured, could result in greater water movement than is currently the case." This could result in the introduction of pollutants into the chalk aquifer."

The likely cause is that the Special Site of Contamination is the source of leachate pollution into the aquifer. Leachate is caused by the anaerobic digestion of organic material in buried covered-in domestic refuse sites and contains low-chain fatty acids, especially acetic acid together with mobilised toxic metals, micro-organic species and a high bioflux of anaerobic bacteria. As such it is a potential hazard to water courses and also a potential risk to corrosion of steels due to the presence of acidic material and stimulated microbially induced corrosion (MIC) of buried steel.

If an environmental pollution source is remote from the site of environmental assessment then condition A may still apply. It is noted here that the closure of Ickenham Pumphouse (approximately 1000 metres from the Special Site of Contamination) in 1997 was due to hydrogeological contamination arising from leached material attributed to the Newyears Green landfill site and this implies considerable mobility of leachate products over distance. The hydrogeological aspects are discussed in detail by Bailey. When considered alongside the potential (Section 3.4.3 in the report) for groundwater exchange of the Newyears Green Bourne (NYGB) with groundwater believed to be contaminated with leachate products, in the absence

of other evidence, this raises a possibility of faster transport of contaminants than simply by subsurface percolation. Interestingly the report also states.

"4.3.5 Indirect effects could occur if pollutants (particles or chemicals) migrate within groundwater which subsequently discharges at one of the water features listed above. This is not considered to be a significant risk due to the fact there are no major springs feeding the watercourses in this area, indicating that baseflow supporting these features is largely diffuse and from superficial deposits as much as from the Chalk and so less sensitive to any increased turbidity carried within it. In addition, the proposed works are largely to be undertaken in the chalk, with casing installed through the superficial deposits. As most interaction with surface water features will be via the superficial deposits, primarily the sand and gravel, no significant adverse effects via the diffuse flow pathway to surface water are anticipated."

This specifically does not mention the Site of Special Contamination and might be an oversight.

Provisional Assessment: Condition A does not apply

Condition B There is no transport process available

The report states

"5.4.3 Literature review of the degradation (rusting) of steel pipes below the water table indicated a loss of steel thickness of the order of 1mm from both the inside and outside of the steel tubes over a 100 year period. Generation of rust would serve to reduce the rate of loss beyond that as the rust forms a protective layer that seals off the steel from the environment and also expands into the already compressed natural deposit to reduce the space available to form a preferential pathway."

Since condition A (from above) is not satisfied, the assessment regarding the impact of leachate products and the effect of LTP2 relies entirely on the assumed permanent structural integrity of installations preventing vertical transport (Section 5.4) of the report. Section 5.4.3 raises considerable concerns. Namely

(a) no record of the evidence (the literature relied upon is not quoted and thus cannot be independently reviewed)

(b) corrosion prediction is essentially a time dependent phenomenon. The layperson can appreciate that a steel pipe in the ground will not rust in five minutes but is probably

not likely to survive one million years. It is thus obvious that corrosion prediction ultimately depends on the intended lifetime of the structure. In the report no lifetime description is given and although one could be implied (100 years) from the corrosion rate quoted, it must be noted here that the pollution source (Special Site of Contamination) has an infinite life as it is impractical for it to be removed, and the piles have no stated lifetime before removal or repair.

(c) the materials specifications (grade of steel etc.) are not given at all. It is impossible to assume a rate of corrosion rate without knowing the composition and processing history of the installed materials.

(d) the corrosion rate is given in Section 5.4.3 of the report as a steady state rate (one millimetre over a 100 year period) with no attribution. The phases of the corrosion product varies with the partial pressure of carbon dioxide which can vary within an aquifer and can occur as either iron oxides (for example magnetite) or iron carbonate (siderite) (see Drever, p144-148.). Thus to quote a single steady state corrosion rate seems simplistic. The rate of corrosion and the nature of the scale formed is notoriously vulnerable to varying local surface factors; very often heterogeneity of the metal-surface condition in terms of species supply stimulates electrochemical cells to accelerate corrosion. Bailey notes that the geological strata of the aquifers underlying the Newyears Green area exhibit heterogeneity, both in terms of solution features and in lithological barriers within the chalk. Thus even if a single value for steady state corrosion were applicable, to have a uniform corrosion rate at each point of the steel is very unlikely.

(f) mechanical integrity of corrosion products to fill space cannot not be assumed. When a metal transforms into a corrosion product it replaces the metal. Since the product almost always has a different relative density to the metal it means that there are internal stresses within the corrosion product. The parameter which describes this is the *Pilling-Bedworth Ratio*, (Fontana and Greene pp 347-349) originally conceived for metals and their oxides, but can be used for other corrosion products. When the Pilling-Bedworth Ratio (PB) is 1.0, the corrosion product occupies the same volume as the metal. If it is much less than 1.0 or greater than 1.0 the product is under internal stress and likely to spall from the metal surface leaving it unprotected and prone to corrosion. This effect

is progressively more likely the thicker is the corrosion layer. For magnetite the PB ratio is 2.1, and for siderite it is 4.3.

(g) corrosion lifecycle analysis takes ino account the role of human factors - misdesign (giving rise differential aeration or local action cells), change of economic circumstances over the years (deferred maintenance, interruption of supply chain etc.), misoperation, in-service modification, and other factors over the lifetime of the product. Corrosion prediction is thus far too complicated to assume a steady state of corrosion over 100 years, even if the chemical kinetics of the system were constant. For more information on corrosion prediction and human factors the reader is referred to Chapter 11,"Corrosion Management", in Tretherway (pp 240-255) and Chapter 30, "Prediction of Corrosion Failures", in Talbot (pp 473-536). In situations where the confidence of lifecycle assessment due to corrosion is in doubt it is advisable to maintain a Masterfile with the information required (metal specifications, environmental assays and monitoring during installation, maintenance reports, modifications, change of circumstances, etc.) and review it periodically.

"5.4.5 It is therefore concluded that there is very limited potential for creation of such pathways in either the short or long term from piling activities. Mitigation is therefore not required....."

From the foregoing discussions, the statement "Mitigation is not required" cannot be justified

Provisional Assessment: Condition B for exemption cannot be not applied as it stands

Condition C The potential environmental damage is within prescribed limits

Since condition B does not apply, an assessment for the potential environmental damage of leachate in the aquifer should be done. An initial one can be carried out by modelling the chemical interactions of leachate with water chemistry using standard software designed for this (for example PHREEQC, freeware issued by the US Geological Survey). A more detailed description is given in Drever, Chapter 16 "Transport and Reaction Modelling", pp 353-378

Provisional Assessment: Task not yet done

Condition D There is no destructive synergy between B and C

Since leachate is of microbiological origin, there is always the possibility that the steel in the piles might exhibit accelerated corrosion due to stimulated Microbially Induced Corrosion (MIC). This needs to be assessed.

Provisional Assessment: Ongoing Issue to be Reviewed Regularly

3.0 Mitigation

As mentioned previously, from the regulations

"4.27 It is the clear objective of the GWDD to prevent the input of all hazardous substances into groundwater. Clearly the interpretation of "prevent" is important in this context and is to be interpreted having regard to the Common Implementation Strategy guidance issued by the European Commission… …. This recognises that, whilst the aim is to avoid the introduction of hazardous substances into groundwater, it may not be technically feasible to stop all inputs of hazardous substances. Moreover some inputs are environmentally insignificant and in such instances the exemption noted in paragraph 3(3)(b) of Schedule 22 may be applied"

Thus where the cost and disruptions to operations are minimal all reasonable steps should be taken to mitigate the risk. Deciding the optimal procedures that need to be implemented is beyond the scope of this present document. However it is sometimes prudent to deliberately construct a knowledge-based scheme to ensure that the issue is not (a) overlooked or omitted (the remit of this assessment) in the future and (b) that impact assessments are kept as up to date as possible. This type of tool is often of minimum cost as an exercise as it is largely desk-based and takes little time. A suggested example knowledge-based scheme for considering the impact of leachate ingress from the Special Site of Contamination and the effect of test piles LTP2 is given in Table 2.

Tables

Table 1. Systems Condition Hierarchy of Assessment of Environmental Hazard.

Primary

A	There is no source of environmental hazard
B	There is no transport process available
C	The potential environmental damage is within prescribed limits according to the "additional note" quoted above in Section 1.3 of this report

Secondary

D	There is no destructive synergy between B and C

Table 2. Suggested Knowledge-Based Mitigation.

	Structural Health Assessment and Prediction	*Task*
1	Corrosion	Creation of a Masterfile
2	Cementitious Material	*Add to Masterfile if required*
	Geochemical Assessment	
3	Initial Modelling	Use of PHREEQC or equivalent
4	Risk Assessment	Assessment of geochemical impact of leachate from model
5	Fate Modelling and Monitoring	*As required*
	Periodic Review	
6	Assignment of Risk Lifetime (example 100 years)	From risk assessment
7	Review period (example every 10 years)	Notification of stakeholders of "state of play" of risk (no change/change etc.)

The Author

Dr Talbot has published on freshwater chemistry and on corrosion science and also on water quality with an emphasis of long term prediction of complicated systems. Corrosion expertise is best illustrated by the book "Corrosion Science and Technology, Third edition, D. E. J. Talbot and J. D. R. Talbot, CRC Press (550 pages), 2018. The author synopsis from this work reads

"*James D R Talbot, PhD, graduated with a BSc ARCS from Imperial College London, and earned an MSc from Brunel University. He earned a PhD from the University of Reading for research on the physical chemistry of aqueous solutions and its application to natural waters. Dr Talbot worked at the River Laboratory of the Institute of Freshwater Ecology, Dorset, United Kingdom, where he assessed and predicted physical chemical changes occurring in river management. He has written papers on the speciation of solutes in natural waters. From 2000 to 2006 he was a lecturer in materials research chemistry at Cranfield University in the United Kingdom, where he specialized in the physicochemical aspects of corrosion, polymer science and process science. He is presently a chemist with interests in species-specific corrosion mechanisms. Dr Talbot is a current member of the Structure and Properties of Materials Committee of the Institute of Metals, Minerals and Mining. He has published in the fields of corrosion, polymer chemistry, solution chemistry and the chemistry of natural waters*"

Water quality prediction experience is best illustrated by two reports where Dr Talbot was principal author for water quality assessment whilst employed at the NERC Institute of Freshwater Ecology. These are

"The NRA Severn-Thames Transfer Project: An Assessment of the Effect of Mixing of Source Waters on the Chemical Composition", W. A. House, J. D. R. Talbot, J. T. Smith, R. Sadak and A. J. Lawlor, NERC Report RL/T0407307/1, (July 1996)

"The Severn-Thames Transfer Project: Phase II. Chemical Interactions of Transferred Sediment with the Host Water", J. D. R. Talbot, W. A. House, G. P. Irons, K. J. Clarke and A. J. Lawlor, NERC Final Report. (July 1997).

These reports were commissioned by the Environment Agency and represent multi-parameter assessment and prediction of water quality for the proposed Severn to Thames transfer pipeline.

For: Claimants
P.E. Thompson
Statement No. 1
Exhibit: "PET1" to "PET4"
Date: 2 February 2018

Claim No:

IN THE HIGH COURT OF JUSTICE
BUSINESS AND PROPERTY COURTS
PROPERTY, TRUSTS AND PROBATE LIST (ChD)

(1) THE SECRETARY OF STATE FOR TRANSPORT
(2) HIGH SPEED TWO (HS2) LTD

Claimants

-and-

(1) PERSONS UNKNOWN ENTERING OR REMAINING WITHOUT THE CONSENT OF THE CLAIMANT(S) ON LAND AT HARVIL ROAD, HAREFIELD IN THE LONDON BOROUGH OF HILLINGDON SHOWN COLOURED GREEN, BLUE AND PINK AND EDGED RED ON THE PLANS ANNEXED TO THE CLAIM FORM

(2) PERSONS UNKNOWN INTERFERING WITH THE PASSAGE BY THE CLAIMANTS AND THEIR AGENTS, SERVANTS, CONTRACTORS, SUB-CONTRACTORS, GROUP COMPANIES, LICENSEES, INVITEES OR EMPLOYEES WITH OR WITHOUT VEHICLES, MATERIALS AND EQUIPMENT TO, FROM, OVER AND ACROSS THE PUBLIC HIGHWAYS IN THE LONDON BOROUGH OF HILLINGDON SHOWN COLOURED ORANGE AND PURPLE ON THE PLANS ANNEXED TO THE CLAIM FORM

(3) SARAH GREEN

(4) MARK KEIR

(5) GRAHAM MARSH

(6) SOFIA KAZI

(7) THORN RAMSAY

(8) VAJDA ROBERT MORDECHAJ

Defendants

WITNESS STATEMENT OF PATRICIA EMELDA THOMPSON

I, **PATRICIA EMELDA THOMPSON**, of High Speed Two (HS2) Ltd, 2 Snowhill, Queensway, Birmingham, B4 6GA WILL SAY as follows:-

1. I am employed by the Second Claimant Senior Engagement Manager Area South. My role involves speaking, meeting and corresponding with the local community and acting as a point of liaison with the Second Claimant and its suppliers through the construction period of the Scheme. I am authorised to

make this Statement on behalf of the Claimants in this claim. I make this statement in support of the Claimants' claim for an injunction in respect of the Land from matters that are within my own knowledge and information obtained from the Claimants' records unless stated otherwise.

2. I have read the Witness Statement of Robert William McCrae in draft and filed in support of this claim, which refers to engagement with the local community and with the Defendants. The purpose of my statement is to describe that engagement in more detail. The same defined terms are used in this statement as in the Witness Statement of Robert William McCrae.

HS2 Community Engagement

3. A Scheme of this scale brings with it huge challenges around community engagement. Our aspiration is to be a good neighbour every single day, by respecting the people and communities we impact and being sensitive to their needs and concerns. It is important to us to communicate clearly about how people can get involved in the project and how we will keep people informed of progress or opportunities. We work hard with our suppliers to ensure communications are tailored to local needs through community newsletters or noticeboards and, where possible, we join or meet with local groups that are already in existence, such as local resident associations or parish councils. Our Community Engagement Strategy is set out in the document attached and marked **Exhibit "PET1"** (and which is publicly available online at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/654904/hs2_community_engagement_strategy.pdf).

Consultation and engagement before and during the passing of the Bill

4. Prior to depositing The High Speed Rail (London - West Midlands) Bill ("the Bill") with Parliament, the Second Claimant engaged in an extensive program of consultation and engagement with affected parties. Details of that consultation and engagement activity are set out in the Second Claimant's published Information Paper G1: Consultation and Engagement, a copy of which is attached and marked **Exhibit "PET2"**.

5. The Bill was a hybrid Bill and, as such, subject to a petitioning process following its deposit with Parliament. In total, 3,408 petitions were lodged against the Bill and its Additional Provisions (2,586 in the Commons and 822 in the Lords) and Select Committees were established in each House to consider those petitions.

6. The Government was able to satisfy a significant number of petitioners without the need for a hearing before the Committees. In some cases in the Commons this involved making changes to the project to reduce impacts or enhance local mitigation measures and many of these were included within one of the

Additional Provisions to the Bill deposited during the Commons Select Committee stage.

7. Of the 822 petitions submitted to the House of Lords Select Committee, the locus of 278 petitions was successfully challenged. Of the remaining 544 petitions the Select Committee heard 314 petitions in formal session, with the remainder withdrawing, or choosing not to appear before the Select Committee, mainly as a result of successful prior negotiation with the Claimants.

8. Not all the concerns raised during the petitioning processes were environmental in nature, but the majority of petitions did include at least some environmental concerns (e.g. the general impact of construction, and specific matters such as construction traffic, noise, dust and settlement were frequently mentioned).

9. In addition to considering the petitions of those directly and specially affected by the Scheme, the Commons Select Committee was also responsible for scrutinising and approving a significant number of changes made to the project, as prescribed in the Additional Provisions. Many changes were aimed, in whole or in part, at reducing environmental impacts. Examples include the provision of higher noise barriers in three locations along the Colne Valley viaduct.

10. During the Lords Select Committee process, over 2,400 further assurances were issued, providing binding commitments on the Claimants, bringing the total number of individual assurances offered over the course of the two Select Committee stages to well over 4,500.

11. A number of parties submitted petitions and were heard by the Select Committees in relation to the Scheme in the vicinity of the Land, including the Third and Fourth Defendants.

12. The Third Defendant was a petitioner during the passing of the Bill before both the House of Commons Select Committee and the House of Lords Select Committee. Copies of her petitions and the responses from the respective Select Committees are attached and marked **Exhibit "PET3"**. Both the Third and Fourth Defendants spoke before the House of Lords Select Committee.

13. Accordingly, the Third and Fourth Defendants and other parties affected by the Scheme in the vicinity of the Land had the opportunity to advance their concerns about the Scheme in the vicinity of the Land via the prescribed Parliamentary process and those concerns were given due consideration by the Claimants and responses provided.

14. The Second Claimant has been holding community events in the area since 2012, including six Community Forum meetings over the course of 2012/13, which offered residents the opportunity to raise issues of importance to them and to reach consensus on preferred mitigations for the Scheme.

15. Most recently the Second Claimant organised a tranche of five engagement events in the London Borough of Hillingdon in the latter half of 2016 which attracted over 850 attendees:

(a) Property Compensation Surgery in Ickenham, 28 June 2016, 83 attendees;

(b) Tunnel Depth Engagement Event in Ruislip, 12 September 2016, 140 attendees;

(c) Traffic Study Event in Ickenham, 13 October 2016, 180 attendees;

(d) Traffic Study Event in Ickenham, 3 November 2016, 368 attendees; and

(e) Community Engagement Event in Harefield, 5 November 2016, 95 attendees.

16. These events allowed local residents an opportunity to question the Second Claimant, provide feedback and gain an understanding of the reasons why the solutions to be adopted through Hillingdon have been selected.

17. Accordingly, there were numerous and varied ways in which those affected by the Scheme could and did make their views known and have them considered and taken into account by the Claimants during the passing of the Act.

Addressing Local Concerns since the Act was passed

18. There is strong opposition to the Scheme in the local community. Many are vehemently opposed to the principle of the Scheme, considering it to have an inadequate business case and representing poor value for money. The main areas of concern relate to potential effects arising during the construction of the project and in particular in the above ground section. Generally this relates to environment effects such as removal of trees, noise, dust, air quality deterioration, light pollution, traffic etc.

19. The local community have requested that Northolt tunnel is extended as a minimum to beyond Breakspear Road South, but ideally beyond and replacing the Colne Valley Viaduct. This would, in their opinion avoid the adverse effects that they otherwise consider will arise due to the construction of the Scheme. The feasibility of extending the tunnel has been assessed by the Claimants and rejected on the basis of technical, financial and safety considerations.

20. There are a number of action groups voicing opposition to the Scheme both on a national and local level. Many operate under the umbrella group "Stop HS2", which describes itself as the national grassroots campaign against the Scheme (see Exhibit "RWM5" to the witness statement of Robert William McCrae). Other groups include "Utopian Bohemians" and "Colne Valley Action Group". These groups have participated in lawful and peaceful protest and campaigned via the

Internet / social media, demonstrating that there are many legitimate ways in which they may voice their concerns that do not involve unlawful interference with the Claimants' rights. They are promoting a Parliamentary petition entitled: "Cancel HS2 Immediately and repeal the 2013 and 2017 High Speed Rail Acts" (a copy of the front page of that petition is attached and marked **Exhibit "PET4"**).

21. Meetings have been held with local groups in Hillingdon throughout 2017 and are scheduled to continue during 2018. The Second Claimant continues to hold open events for the residents in the area and also has a dedicated web portal (https://hs2inhillingdon.commonplace.is) "HS2 in Hillingdon" to keep people informed of what is planned in the area. The Second Claimant also operates a Freephone helpdesk that operates 24 hours a day, 365 days a year and email for general enquiries.

Attempts to engage with Defendants

22. I have had telephone calls and email exchanges with the Third Defendant and have also met with her, albeit in less than ideal circumstances (see further below) to discuss her concerns about the Scheme in the vicinity of the Land. Unfortunately, the Third Defendant has to date not been persuaded by the materials that have been provided to her that she should refrain from engaging in unlawful activity at the Land. I am in the process of trying to arrange a further meeting with the Third Defendant and a small group of others who have indicated that they would like to meet to discuss the works on the Land.

Incident on 2 October 2017

23. On the 2nd October 2017 I was called out of a meeting at the Second Claimant's offices in Triton Square, London by the Area Security South Manager. He briefed me on an incident at Harvil Road during which protestors had climbed underneath a digger. He informed me that one of the protestors was the Third Defendant and asked if I knew her. I confirmed that I did know her from my Community Engagement role in Hillingdon and had met her on a number of occasions at events where we discussed HS2 plans in the area and that she had also been involved in the petitioning process at Bill stage.

24. The Area Security South Manager arranged for me to speak with the Third Defendant on his phone at approximately 11:30am. The Third Defendant asked about whether the Second Claimant had all of the planning consents and permission required in place to carry out work on the site. She also stated her belief that works were being undertaken on "public land" and wished to see proof of ownership. I explained that the Blue Land was owned by the First Claimant and that Second Claimant is the nominated undertaker. I also explained that we were not carrying out any permanent earth works to the site and that therefore we did not require planning permission. The Third Defendant stated that our

works were illegal and that we did need planning permission. She told me that HS2 needed to be stopped to save the planet and she wanted to see the documentation which allowed us to do works without planning permission. I told her that I was happy to show her the relevant Information Paper and happy to come on site and speak with her. She asked me to please come along and talk to her.

25. I left Triton Square at c.12:45pm in a taxi, accompanied by the Project Manager for the site. We arrived c.1:30pm and were met by the CSJV Security Manager, who briefed us. He escorted us to the location of the Third Defendant, who was underneath a large digger. I then talked to her – an amiable conversation as we knew each other. I explained again the Claimants' powers/position and showed her Information Paper B3, which explains the disapplication and modification of various parts of existing legislation by the Act, including certain requirements in relation to planning permission. A copy of Information Paper B3 is attached to the witness statement of Robert William McCrae and marked Exhibit "RWM4". I sat with her and then talked it through and let her read the Paper. She was amiable, but took exception to passages in the Paper regarding waterways and the removal of trees. I explained that clause 30 (now section 30 of the Act) disapplies tree preservation orders made under section 198(1) or 202 (1) of the Town and Country Planning Act 1990 and regulations made under section 202a of that Act, and the provisions of section 211 of that Act dealing with trees in conservation areas, in relation to certain tree works. The Third Defendant wanted to know if we had spoken to the London Borough of Hillingdon. I confirmed that we had and explained that we had all of our permissions in place. The Third Defendant reiterated her opinion that HS2 had to be stopped to save the planet.

26. Myself and the security team passed on a coat and drinks provided by other protestors to the Third Defendant and allowed another protestor to give her some food. I gave her my last Ritz cracker. I asked if she would leave the digger and come and talk and explained that I was concerned about her welfare. We provided her with legal documentation regarding our ownership of Blue Land. She was unfortunately not convinced by the documentation provided.

27. During this time I also spoke to another male protestor who entered onto the Blue Land and approached the security team. He was being very aggressive, shouting at the security team and the security team asked him to leave. I intervened and explained the works that were being carried out on the Blue Land. I gave him my contact details and told him that I was happy to talk to him off site to discuss HS2 plans. He left at that point.

28. All in all, I spent about 4 and half hours on and off talking with the Third Defendant. Sadly, she refused to leave the site or accept the papers I showed her. I left the site at approximately 8:38pm. I understand that the Third

Defendant spent the night under the digger and was then removed from site the following day.

I believe that the facts stated in this witness statement are true.

Signed:
PATRICIA EMELDA THOMPSON

Dated: 2 February 2018

For: Claimants
P.E. Thompson
Statement No. 1
Exhibit: "PET1" to "PET4"
Date: 2 February 2018

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(1) THE SECRETARY OF STATE FOR TRANSPORT
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(8) VAJDA ROBERT MORDECHAJ

Defendants

EXHIBIT "PET1"
TO THE WITNESS STATEMENT OF PATRICIA EMELDA THOMPSON

Community Engagement Strategy

HS2 Ltd's approach to community engagement and what it means for you

Department for Transport

High Speed Two (HS2) Limited has been tasked by the Department for Transport (DfT) with managing the delivery of a new national high speed rail network. It is a non-departmental public body wholly owned by the DfT.

High Speed Two (HS2) Limited,
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Snow Hill Queensway
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Telephone: 08081 434 434

General email enquiries: HS2enquiries@hs2.org.uk

Website: www.gov.uk/hs2

recycle

Printed in Great Britain on paper containing at least 75% recycled fibre.

HS2 is a transformative project

HS2 will form the new backbone of our national rail network, providing new capacity and better connecting our major cities, while creating more space for commuter and freight trains on our busiest lines. But you won't need to travel on HS2 to feel its benefits. By working with HS2 Ltd, communities have an opportunity now to make the very best of the arrival of HS2 for their local area.

We are at a turning point in the project's history – construction has started for Phase One of the new railway and your elected MPs will shortly begin debating Phase 2a of the project as the legislation for this section of the route enters Parliament.

At every point of this process I am demanding of HS2 Ltd that they treat those who are affected by the disruption caused by the construction and operation of the line with respect and integrity. It is something we must get right. This strategy outlines this approach, which I wholeheartedly support.

Since becoming the Minister for HS2 earlier this year I have heard from many communities regarding their experiences of how HS2 Ltd have been engaging with you and I will continue to challenge HS2 Ltd, on your behalf, to ensure they stand by the commitments outlined in this document.

Paul Maynard

Parliamentary Under Secretary of State for Rail, Accessibility and HS2

Respecting our communities

HS2 is the largest infrastructure project in Europe, 345 miles of new high speed railway connecting 8 out of 10 of the UK's largest cities. This means, unfortunately, that we cannot avoid affecting local residents and businesses, and so we have to be an exemplar project in our approach to engagement with communities. For me this means HS2 and our suppliers being actively involved with the community to build mutually beneficial, long term relationships. By doing so we will better understand local concerns and how we can work together to minimise disruption to peoples' lives, and where we make mistakes, learning from these will help us to constantly improve our engagement approach.

One of our guiding principles is to be a good neighbour and respect the communities we are working with and the environment in which they live. The legacy of HS2 will be judged on how the communities up and down the route feel they have been treated by us and our contractors. For me as Chief Executive this legacy is as important as our ability to deliver the railway safely, on time and to budget.

Mark Thurston

Chief Executive Officer, High Speed Two (HS2) Ltd

Welcome to the Community Engagement Strategy

We are the largest construction project within Europe and, by association, we are facing the largest community engagement challenge currently in the UK. How we and our contractors behave is as important to the railway's success as delivering the project on time and ensuring value for money for the tax payer.

Our aspiration is to be a good neighbour every single day, by respecting the people and communities we impact and being sensitive to their needs, earning our social licence to operate.

We want to be clear about how you can get involved in the project and how we will keep you informed of progress or opportunities such as jobs, apprenticeships or small business contracts. We will work hard with our suppliers to ensure communications are tailored to local needs through community newsletters or noticeboards and, where possible, we will join local groups or meetings that are already in existence, such as local resident association or parish council meetings.

To be successful, we need to work with communities and build respectful, long-term relationships. I appreciate this will take time; we will need to demonstrate we are listening to and acting on the concerns of communities. Engagement Managers will be based out in the communities, providing timely responses to questions or complaints and acting as the voice of their community within the organisation. We have set out the ten commitments that we will use as the basis to measure our success, and that of our suppliers, in how we deliver the new railway.

These commitments will drive our thinking, actions and decision making, and those of our suppliers. Together, we will work hard to build trust and create opportunities for two way conversations with communities over the life of the project.

Julie King

Director of Community Engagement, High Speed Two (HS2) Ltd

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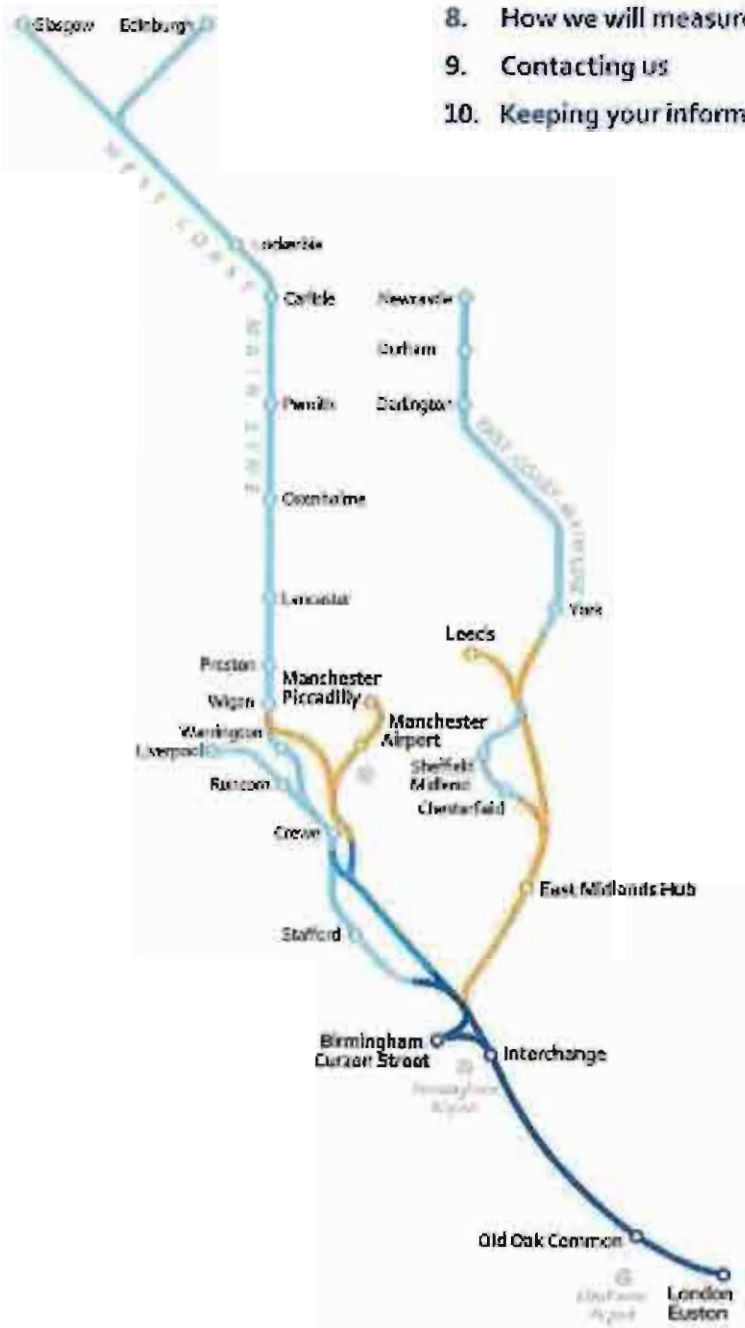

Network map

- New station (Phase One)
- New station (Phase 2b)
- Destinations served by HS2 services on existing network
- HS2 Line (Phase One)
- HS2 Line (Phase 2a)
- HS2 Line (Phase 2b)
- HS2 services on existing network

You can check maps to see the planned routes for the High Speed Two (HS2) rail network at www.gov.uk/check-hs2-route

1 Introduction

A new railway

"HS2 will change the economic geography of this country for the better, but for those we impact during construction the focus is more personal and, literally, closer to home. HS2 has to bridge that gap and strive to address people's concerns fairly and with appropriate sensitivity."

Sir David Higgins, Chairman, HS2 Ltd

High Speed Two (HS2) is a new railway that will become the backbone of our national railway system.

It will create more seats for passengers on our crowded railways and better connect our cities and towns. It will help to provide growth and regeneration in our economy.

HS2 Ltd is the company created by the Government to make HS2 happen.

The route

Our plan is to build and deliver the new railway in two phases.

Phase One will link London with the West Midlands. Construction on Phase One will begin this year, and we expect passenger services to start operating in 2026.

Phase Two is being planned, and will link the West Midlands with Manchester, and with the East Midlands, South Yorkshire, Leeds and beyond. We expect the first Phase Two passenger services to start operating between the West Midlands and Crewe in 2027, and the full service by 2033.

Benefits

Throughout its life, HS2 will provide important benefits not only for the national economy but for the communities and areas it passes through. These benefits include jobs for local people, opportunities for small businesses, and apprenticeships across many disciplines. Through our suppliers we will invest in the communities in which the railway will operate.

We have the opportunity to develop a modern railway that eliminates risks to the health and safety of our workforce, passengers and the communities in which we operate. Safety will always be our first priority.

Engagement

The planning and construction of HS2 is a huge operation – it is currently the largest infrastructure project in Europe. How we and our suppliers respond to the views of local people, and how we behave, are as important to the railway's success as its engineering and our ability to deliver within budget.

This engagement programme is what this Strategy is all about.

"We need communities, businesses, passengers and our partners to put forward their views to ensure that the very best solution is taken forward, balancing the impact on residents, who may be affected by HS2 construction, with the broader benefits in terms of jobs and investment in the short, medium and long term."

Cllr Rachel Bailey, Leader, Cheshire East Council

Why community engagement matters to HS2

"I welcome the Community Engagement Strategy which represents a positive step forward for the organisation. It remains vital that HS2 continues to listen and respond to the communities affected by the new railway. I will monitor and review how the project is being delivered in line with the commitments set out in this strategy"

Deborah Fazan, HS2 Residents' Commissioner

HS2 affects the lives of thousands of people. The benefits will be huge, but the impact will be huge too.

Our aspiration is to be a good neighbour every single day, by respecting the people and communities we impact and being sensitive to their needs, earning our social licence to operate.

In order to build the railway, we must earn the trust and credibility to do so. We need to demonstrate that we understand local concerns, and that we have taken all reasonable steps to address issues that have been raised, whilst continually looking to lessen the impacts of the project.

Our success will depend on our ability to talk to local communities and act on what they tell us.

Of course, we will not always be able to do what some people or groups want us to do. When this happens we will be upfront, explaining why we cannot do it and what can be done instead.

In this Strategy we go into more detail about what community engagement is, how we are carrying out this important programme, and what it means for the communities concerned.

2 What is community engagement?

In order to deliver HS2 successfully, we need to understand and manage the full impact of the project.

The best way we can do this is by talking and listening to those affected, as well as working closely with local authorities and elected representatives.

Community engagement is about creating a long-term and trusted two-way conversation with the communities in which the railway will be built and operated. But it is not only about talking and listening. It is also about demonstrating how the views of local people are being taken into consideration in the design, construction and operation of the new railway.

What we mean by community

When we talk about community we mean any person, people, business or organisation who:

- will be affected by the new railway or its construction;
- has a special interest in HS2, such as environmental or technical stakeholders;
- is elected to represent the communities in which the new railway will operate; and
- is responsible for holding us to account.

How we will engage

We are committed to engaging with all these communities on the various aspects of the new railway, and we will do so using four types of engagement.

Informing

We will keep communities informed on the issues that affect them through clear, timely and tailored communications.

Involving

We will create opportunities for local communities to get involved throughout the design and delivery of the project, so that we take into consideration how they live, work and play.

Consulting

We will arrange formal, written, public consultations on the project. These will include making plans available for public review and seeking views from a range of interested parties to inform their development and delivery.

Responding

We will provide free and accessible options for communities to contact us to seek information and raise their concerns. We will respond to their requests and comments in a timely and comprehensive way.

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Our Community Engagement Team

Everyone at HS2 Ltd, including our suppliers, has a responsibility to understand the impact their decisions and actions have upon the communities along the line of route and, in turn, on the reputation of the organisation.

Our Community Engagement Team acts as the voice of the local communities within HS2 Ltd and our suppliers, to help make this happen.

Each community is represented by an Engagement Manager within the Community Engagement Team who will work with them to develop a Local Area Engagement Plan. Our Engagement Managers will work with teams throughout HS2 Ltd to ensure communities' perspectives are considered and reflected where needed.

Best and relevant practice

We recognise that there is a large amount of existing best practice and guidance to support great community engagement, which we will apply to the HS2 project where it makes sense.

We will take the best of the best from other programmes to help us deliver an outstanding engagement programme of our own. We will also tap into the skills and experience of local authorities, the independent Design Panel, Residents' Commissioner and Construction Commissioner, to help us deliver great community engagement.

We will also create a specialist Community Engagement Panel who will give us expert advice and support to ensure our engagement programme is both innovative and comprehensive.

Code of Construction Practice

The Code of Construction Practice forms part of the Secretary of State's Environmental Minimum Requirements for the construction of the railway from London to the West Midlands. It sets out the standards and responsibilities to protect communities and the environment during construction.

The Code includes the requirement for local, site-specific measures to limit disturbance from construction activities, as far as reasonably practical. It covers areas such as hours of work, pollution, security, traffic and transport, noise and vibration, cultural heritage, ecology, landscape, air quality, water resources, flood risk, ground settlement, land quality, waste and agriculture, forestry and soil.

Future construction of the railway from the West Midlands to Crewe, Manchester, the East Midlands, South Yorkshire, Leeds and beyond, subject to approvals, will also follow the Code, which sets the minimum standard required in delivering the new railway. We will also learn lessons from contruction activities already undertaken.

A copy of the Code can be found here: **www.gov.uk/government/uploads/system/uploads/attachment_data/file/593592/Code_of_Construction_Practice.pdf**

3 Our Engagement Strategy

Our values

Our vision is for HS2 to be a catalyst for growth across Britain.

We translate this vision into our mission, which is to deliver a new railway to better connect people.

We will do this, in part, by carrying out an exceptional community engagement programme and by being a good neighbour.

We will be judged not only by what we deliver, but by the way in which we deliver it.

We will demonstrate our values of Leadership, Respect, Integrity and Safety in the way we and our suppliers behave.

Here is how our vision, mission and values translate into the behaviours we want to see across HS2 Ltd and our supply chain every day.

Leadership

We will be transparent in our decision-making, and ensure we fully understand the impact of all our decisions. We will be open and accountable, and show we understand the needs and views of local communities. We will be collaborative and consistent in our engagement and communications.

Respect

We will listen, build trust, minimise surprises and anticipate concerns and address them up front. We will create a sense of community ownership and awareness of feelings and opinions. We will respond to our communities and stakeholders in a timely and accessible manner.

Integrity

We will be open and honest when sharing information. If we are not able to make a requested change we will explain why. We will deliver on our promises and do so collaboratively. We will report on our discussions and consultations fairly.

Safety

We will be inclusive in all our engagement activities. We will create safe environments and prioritise the health, safety and wellbeing of communities and our workforce. We will identify impacts and feed them back into the business.

We want you to be able to recognise an HS2 person – whether they are a member of staff, a contractor or a supplier – because they are delivering these behaviours every day.

We are not there yet, but we are committed to the hard work ahead to turn our aims into reality.

HS2 benefits

The HS2 programme will deliver a wide range of benefits to communities and businesses along the route as well as to the UK as a whole. These benefits range from jobs and skills now, through to making it easier for people, skills, goods and services to move around the country – giving people more choice about where they live, work or run their business.

More jobs and apprenticeships

Delivering HS2 will create approximately 25,000 jobs across the construction industry and supply chain, followed by ongoing employment opportunities that will result from operating the railway.

The creation of the National College for High Speed Rail, with campuses at Doncaster and Birmingham, together with the 2,000 apprenticeships resulting from HS2, will help people improve their skills and boost their individual earning power. This will benefit the wider economy and improve the national skills base.

More information on jobs at HS2 Ltd and the apprenticeship programme can be found here: **careers.hs2.org.uk/**

More opportunities for business

HS2 will provide new opportunities for jobs and for regenerating local environments, boosting economic development long term.

Small and medium-sized businesses will be able to access a wider range of people, services, skills and suppliers. They also have new opportunities to connect with larger businesses as they become part of the wider HS2 supply chain.

For example, in Doncaster a pre-fabrication facility will help prepare key contruction materials to be used in the southern end of the route. This facility is supporting new jobs and apprenticeships.

More information on how to register for business opportunities with HS2 can be found here: **www.gov.uk/government/collections/hs2-business**

More trains and more seats

HS2 passengers will benefit from more frequent, faster and more reliable train services, with greater choice and convenience across the rail network.

HS2 will bring more destinations within easy reach, increasing employment and leisure options. As travellers switch to HS2, the existing rail network will also see benefits: crowding will reduce and capacity for freight will increase, taking many lorries off busy roads.

The new line is being designed to withstand adverse weather, making the railway more reliable and reducing the risk of personal and business costs associated with disruption.

"The hope is that alongside the honest conversation about the impact of HS2 locally, we can also see local businesses benefiting from one of the largest infrastructure projects this country has ever seen."

Phillipa Batting, Managing Director, Buckinghamshire Business First

4 Property compensation schemes

Communities and businesses located near the approved or proposed route will have access to the range of statutory and discretionary property schemes. Which scheme applies depends on the location of the property, as summarised in the diagram below.

We can help you to find out in which of the following four areas your property is located: safeguarded area; rural support zone; homeowner payment zone; or outside these zones.

If you are in a safeguarded area you can apply to sell your property through the Express Purchase scheme.

If you are in a rural support zone, you can apply for either a Cash Offer or Voluntary Purchase scheme, or the Need to Sell scheme.

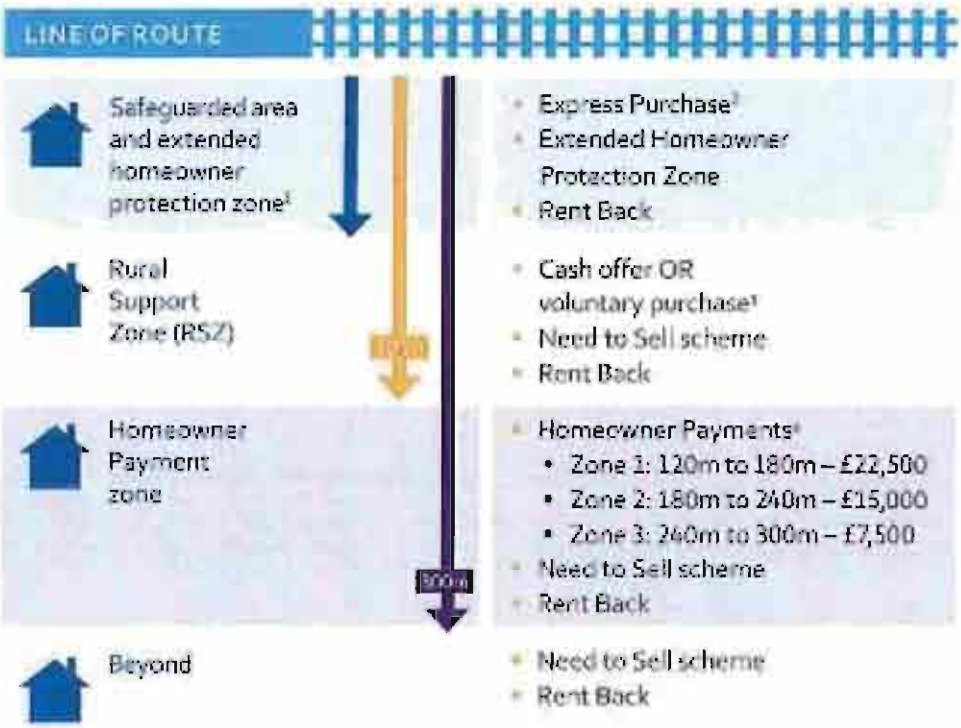
If you are in a homeowner payment zone between London and the West Midlands you can apply for the Homeowner Payment scheme. You cannot yet apply for this if you are affected by the railway between the West Midlands and Crewe, Leeds and Manchester.

This scheme is available once this section of the railway receives consent from the UK Government through Royal Assent.

If your property is affected but is outside all of these zones and safeguarded areas, or is not covered by one of these schemes, you can still apply for the Need to Sell scheme.

More information on all these schemes, as well as maps to help identify your location and distance from the new railway, can be found here: **www.gov.uk/claim-compensation-if-affected-by-hs2**

You can also call the Freephone Community Helpline on **08081 434 434** for more information or to ask a question.



[1]Usually 60m in rural areas. [2]Surface safeguarding only. [3]Applies to rural areas only and does not extend to areas beyond deep tunnels. [4]Only available after Royal Assent of the Bill. Applies to rural areas only and does not extend to areas beyond deep tunnels.

The above zones are generally based on distance from the line:

- the safeguarded area is the land expected to be needed to build and operate the railway;
- the rural support zone extends 120 metres from the centre-line of the line of route; and
- the homeowner payment zone applies in rural areas only and is between 120 and 300 metres from the centre of the railway.

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5 Our Community Commitments

Through our Residents' Charter we have identified ten Community Commitments which we will use as the basis for measuring our success, and that of our suppliers, in how we deliver the new railway.

"As construction begins, we want to send a strong reminder to HS2 and its contractors to abide to its binding duty of care and consider the impact on farmers' homes and livelihoods."

Guy Smith, Vice President, National Farmers' Union

We will:

1. Continue to build respectful, long-term relationships with our communities, and actively encourage our workforce to listen to local concerns and be considerate and accountable for their actions at all times.
2. Work with our communities to develop local two-way engagement and communication programmes, and ensure these are accessible and tailored to local needs.
3. Make sure communities are made aware in advance of any activities taking place in their area.
4. Operate a Freephone Community Helpline 24 hours a day, 365 days a year.
5. Make health and safety a priority for our communities and our workforce.
6. Respect the wellbeing of our communities, minimising disruption to their lives with local mitigation plans and activities, ensuring we meet the standards set out in the Code of Construction Practice.
7. Leave a positive and sustainable legacy for the communities in which we operate.
8. Respond to questions and complaints quickly and efficiently, with an acknowledgement within 2 working days, and responding within a maximum of 20 working days if we cannot answer the query straight away.
9. Promote awareness of all our property schemes so that anyone who may be eligible has all the information they need and is aware of the support available to them.
10. Display the Residents' Commissioner's and Construction Commissioner's contact details on all relevant materials, along with the HS2 Helpline information and complaints procedure.

"I'm not one of those that's dead against it, I do get why it's needed. But I think it's so important that they listen to what the residents have to say because this is going to affect our village so much, not just once it's up and running but all the disruption it's going to cause while it's being constructed."

Amanda Turner, Route-side resident, Leicestershire

Greater detail on these ten Community Commitments will be included in the Local Area Engagement Plans which we will be developing in partnership with local communities.

We will continue to monitor and report on our progress, and also to look for ways to improve how we carry out our business.

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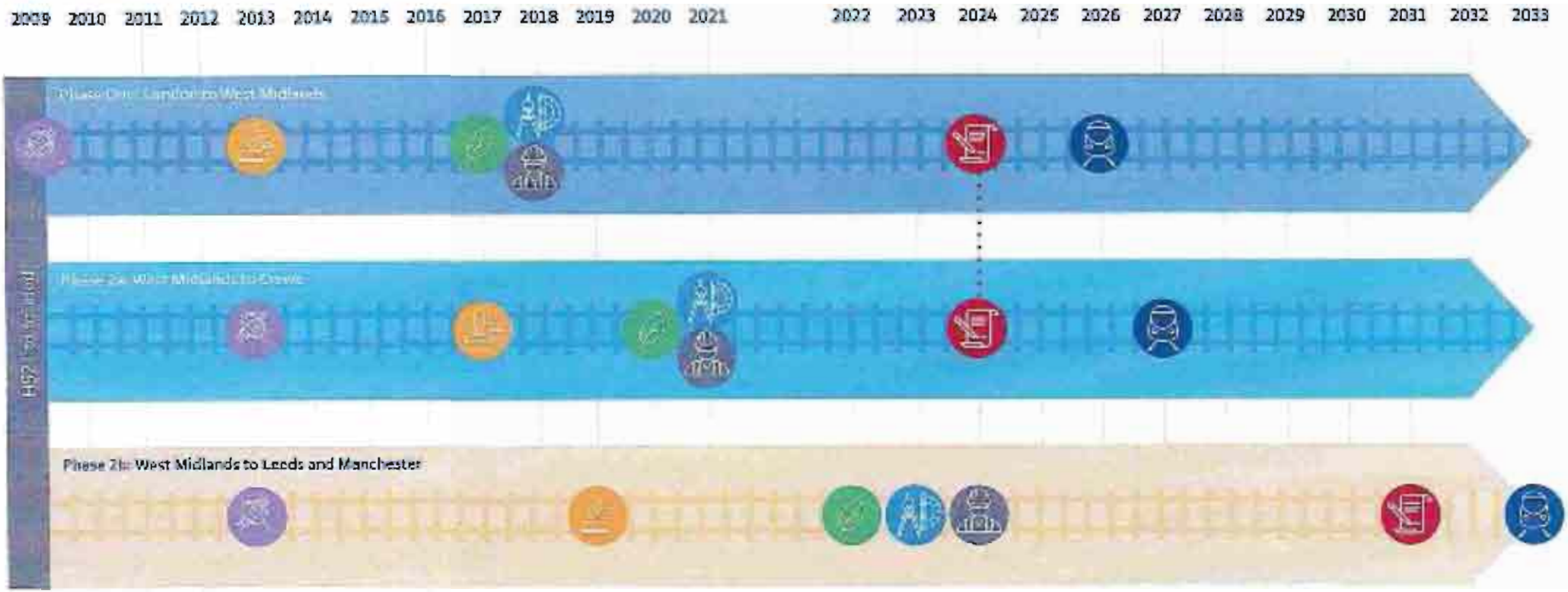
6 HS2 timeline



Delivery of the railway runs to 2038, with services running from 2026 onwards.
This diagram shows the changing focus over that time – from planning and approvals, to design and construction and into railway operations.

Initial route investigations
Activities can include formal consultations to understand the views of communities and impact assessments to understand how the environment may be affected and what mitigation measures will be required.

Permissions and approvals
A formal parliamentary process where the delivery of the railway is discussed within the UK Parliament. During this period those communities directly affected are able to formally petition, communicating their views to Parliament.

Ground investigations, ecological and archaeological works
Can involve formal requests for access to land or property to conduct surveys which inform the design of the railway. Activities include protecting ecological species and their habitats, recording our history through an extensive archaeology programme and digging holes in specific locations along the line of route to investigate what is beneath the surface.

Set up for construction
Activities could include removing or installing office space, delivering or removing equipment or materials within the site, and an increased number of HS2 Ltd personnel on site.

Construction
Activities could include preparing the ground for construction and delivering the physical works required to build the new railway.

Operational testing
Activities could include testing trains and the track by running trains along the line of route.

Operational railway
The railway becomes part of the UK transport network with services operating.

7 Including everyone

How we will engage with communities

In line with our commitment to two-way engagement tailored to local needs, we will use a range of activities to ensure the programme is genuinely collaborative.

Details on how these will be used locally will be determined in the Local Area Engagement Plans, which will be developed with each respective local community.

Examples of how we will engage with communities include:

Informing

Local events that are open to the public and at which specialist staff are present to answer questions or concerns, ensuring supporting media to publicise the events.

Production of leaflets or letters that are distributed to properties, businesses or land owners who are along the line of route or impacted by construction.

A dedicated HS2 website that provides route-wide and local information as well as using appropriate social media platforms.

Provision of documents, information and maps that are available online or on request via a dedicated Freephone Community Helpline.

Specific targeting of local publications and media to inform communities of activities taking place in their area.

Involving

Conversations with communities delivered locally, through dedicated Engagement Managers.

Specific workshops and discussions on the design of key features along the line of route, such as stations, vent shafts, viaducts and hoardings.

Interactive archaeology and ecology programmes.

Bilateral meetings with local authorities and elected members along the line of route.

Participating in existing community forums and events.

An education programme for schools affected by the construction programme.

Local Community Investment Programmes that provide sustainable benefits.

"I'm actually really impressed today with how much time they've given to talk to us. I am still concerned by what effect, particularly the building of the line, might have, but just the organisation and resources that have been made available today is great."

Resident at a Phase 2b information event, Measham

Consulting

Specific consultation programmes focused on land and property schemes available and bilateral discussions with those affected.

Formal consultations for route design and Environmental Impact Assessments along the line of route.

Publication of consultation reports covering the main themes of the consultation responses, setting out what decisions were taken as a result of the process.

Provision of clear information at consultation events and in communications to ensure communities understand next steps.

Responding

Dedicated communications channels, where people can contact HS2 Ltd with enquiries by telephone, email, post or online.

A route-wide engagement team who are visible, agile and responsive to their communities.

A knowledgeable public response team who are well informed and able to answer questions and respond to concerns in a timely manner.

Attendance at and participation in local events.

Provision of regular feedback on activities and how community views have been addressed.

Provision of a clear complaints process that is accessible to all.

Inclusivity and accessibility

We have an Equality, Diversity and Inclusion (EDI) Policy, which represents best practice in ensuring inclusivity and access for all. We will use the EDI Policy to guide our approach to engagement.

We will make equality, diversity and inclusion part of all our activities, and look to prevent discrimination, harassment and bullying.

We will seek opportunities to promote inclusive development so that no one experiences disproportionate disadvantage as a result of the planning, design, construction and operation of HS2.

We will also create opportunities for local people and companies to benefit from the investment in HS2, such as through the National College for High Speed Rail.

In addition, we will take a number of practical steps to help maximise access to the engagement activities. Where possible we will:

- provide, on request, translations of documents and publicity materials, including this Strategy;
- use accessible venues for consultation and engagement events;
- provide hearing loops/sign language experts at venues;
- provide interpreter services at venues; and
- provide transport to enable attendance at events in remote areas.

"I want to thank your Engagement Manager for taking the time to visit us at home. It was very helpful to have the scheme explained in such detail so that we can understand the impact of the HS2 here. We've also now received the large print maps from you, so we can study them in our own time. Thank you for all your help."

Sight-impaired resident, Long Eaton

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8 How we will measure our success

Every six months, we will publish progress reports which measure our progress against our ten Community Commitments.

We will know we have been successful when there are real examples of achieving our ten Community Commitments.

Every six months we will publish progress reports which measure our progress against the Commitments.

As well as providing transparency about our performance, these reports will help us to continuously learn and improve.

The reports will show how well we and our contractors are performing across a range of indicators:

- how well we handle your enquiries;
- how well we handle your complaints;
- our progress against our Strategy and our Local Engagement Plans;
- our contractors' progress against their engagement delivery plans;
- how well we are informing communities about works taking place in their area;
- how well we demonstrate that we are continually looking to lessen the impacts of the programme;
- what long-term benefits our investment programme is delivering in communities;
- evidence that our staff and contractors understand, and are behaving consistently with, this Strategy; and
- review and analysis of the feedback on how we are doing.

In addition, we will use and learn from the independent assessments and reports that will be provided by the Residents' Commissioner and Construction Commissioner.

"This document is important because it sets out standards which we can expect HS2 to follow. I will be monitoring these independently through HS2's construction and challenging HS2 to meet these standards."

Gareth Epps,
Independent HS2 Construction Commissioner

9 Contacting us

Community Helpline

We will operate a Freephone Community Helpline 24 hours per day, 365 days per year, for the duration of the project to answer questions, manage all complaints and coordinate incident responses.

The Helpline is available at **HS2enquiries@hs2.org.uk** and telephone **08081 434 434**.

We also operate a Freephone Minicom service on **08081 456 472** for those with hearing difficulties.

You can also write to us at:

HS2 Community Hub
High Speed Two (HS2) Ltd
Two Snowhill
Snow Hill Queensway
Birmingham B4 6GA

We will include these contact details on all community engagement materials.

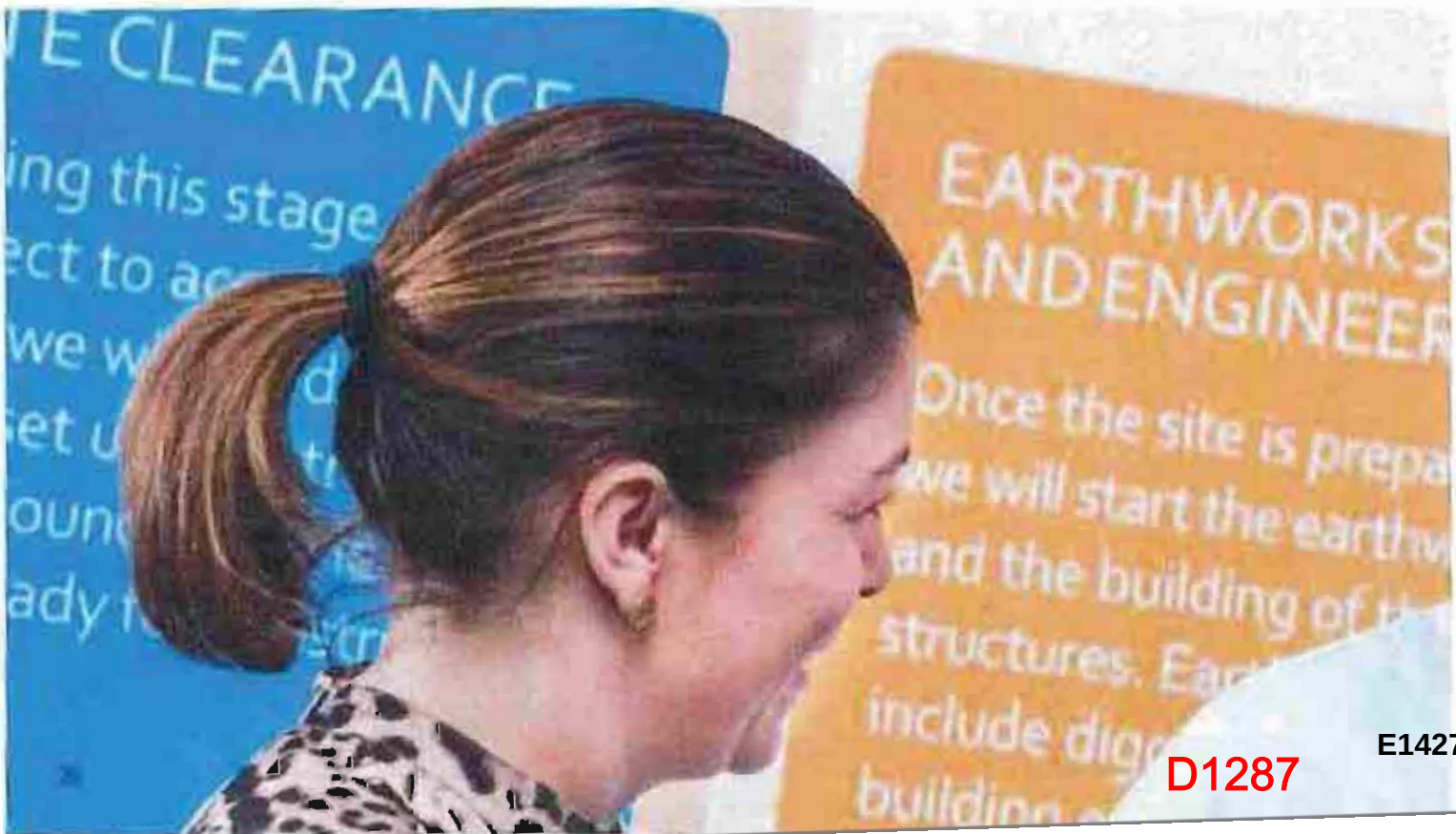
Copies of this Strategy

Please contact us via the above details if you would like a translated, large print or Braille copy of this Strategy.

Holding us to account

If you are unhappy for any reason you can make a complaint via the helpline. We will acknowledge your complaint within 2 working days and let you have a full response within 20 working days. If it is not possible to respond fully within this timescale, we will write and let you know why and say when you should expect to receive a full response.

24/7 Freephone **08081 434 434**
Email **HS2enquiries@hs2.org.uk**
Minicom **08081 456 472**



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Residents' Commissioner

The independent Residents' Commissioner holds HS2 Ltd accountable to the commitments made in the Residents' Charter.

The Residents' Commissioner oversees and monitors our commitments to you, produces a periodic report, published at **www.gov.uk/government/collections/hs2-ltd-residents-commissioner** and meets regularly with the HS2 Ltd Chairman about emerging trends and concerns.

The Residents' Commissioner does not investigate individual cases, act as an arbitrator for individual resident concerns, or deal with complaints.

The Residents' Commissioner can be contacted on **residentscommissioner@hs2.org.uk** **www.gov.uk/government/publications/hs2-residents-charter**

Construction Commissioner

The independent Construction Commissioner's role has been developed to mediate and monitor the way in which HS2 Ltd manages and responds to construction complaints.

The Construction Commissioner will mediate any unresolved construction related disputes between HS2 Ltd and individuals or bodies, and provide advice to members of the public about how to make a complaint about construction.

The Construction Commissioner regularly meets with the HS2 Ltd Chief Executive Officer to raise any concerns or emerging trends across the project.

The Construction Commissioner can be contacted on **complaints@hs2-cc.org.uk** and you can visit the dedicated website at **www.hs2-cc.org.uk**

10 Keeping your information safe

We know how important it is to protect your privacy and to comply with relevant data protection and privacy legislation.

If we ask for your personal information, we will:

- let you know why we need it;
- only ask for what we need and not collect excessive or irrelevant information;
- make sure nobody has access to it who should not;
- not share it with other organisations unless we have told you in advance or unless we are obliged to do so by law;
- only keep it for as long as we need to; and
- not make it available, or sell it, for commercial use, such as marketing.

In dealing with your personal information, we will:

- value the personal information entrusted to us and make sure we respect that trust;
- abide by the law when it comes to handling personal information;
- consider the privacy risks when we are planning to use or hold personal information in new ways, such as introducing new systems; and
- provide training to staff who handle personal information and respond appropriately if personal information is not used or protected properly.

To help us keep your information accurate and up to date, we ask you to give us accurate information and tell us as soon as possible of any change of circumstances.

You can find out what personal information, if any, we hold about you by making a 'subject access request'.

If we do hold information about you, once we have confirmed your identity, we will give you a description of it, why we are holding it and who it could be disclosed to, and will provide you with a copy of the information in an intelligible form.

If you wish to make a subject access request, please contact us via the details below.

It will help us to locate any data we might hold about you if, in making your request, you could state what dealings we have had with you and why you expect us to hold information about you.

It is not the policy of HS2 Ltd to charge for subject access requests.

If you are unhappy with the way we have handled your personal information and wish to make a complaint, please contact our Data Protection Officer.

We will acknowledge your complaint within 2 working days and let you have a full response within 20 working days. If it is not possible to respond fully within this timescale, we will write and let you know why and say when you should expect to receive a full response.

gov.uk/hs2

High Speed Two (HS2) Limited
Two Snowhill,
Snow Hill Queensway,
Birmingham B4 6GA

Freephone Community Helpline: **08081 434 434**
Email: **HS2enquiries@hs2.org.uk**
Minicom: **08081 456 472**

E1430

D1290

For: Claimants
P.E. Thompson
Statement No. 1
Exhibit: "PET1" to "PET4"
Date: 2 February 2018

Claim No:

IN THE HIGH COURT OF JUSTICE
BUSINESS AND PROPERTY COURTS
PROPERTY, TRUSTS AND PROBATE LIST (ChD)

(1) THE SECRETARY OF STATE FOR TRANSPORT
(2) HIGH SPEED TWO (HS2) LTD

Claimants

-and-

(1) PERSONS UNKNOWN ENTERING OR REMAINING WITHOUT THE CONSENT OF THE CLAIMANT(S) ON LAND AT HARVIL ROAD, HAREFIELD IN THE LONDON BOROUGH OF HILLINGDON SHOWN COLOURED GREEN, BLUE AND PINK AND EDGED RED ON THE PLANS ANNEXED TO THE CLAIM FORM

(2) PERSONS UNKNOWN INTERFERING WITH THE PASSAGE BY THE CLAIMANTS AND THEIR AGENTS, SERVANTS, CONTRACTORS, SUB-CONTRACTORS, GROUP COMPANIES, LICENSEES, INVITEES OR EMPLOYEES WITH OR WITHOUT VEHICLES, MATERIALS AND EQUIPMENT TO, FROM, OVER AND ACROSS THE PUBLIC HIGHWAYS IN THE LONDON BOROUGH OF HILLINGDON SHOWN COLOURED ORANGE AND PURPLE ON THE PLANS ANNEXED TO THE CLAIM FORM

(3) SARAH GREEN

(4) MARK KEIR

(5) GRAHAM MARSH

(6) SOFIA KAZI

(7) THORN RAMSAY

(8) VAJDA ROBERT MORDECHAJ

Defendants

EXHIBIT "PET2"
TO THE WITNESS STATEMENT OF PATRICIA EMELDA THOMPSON

HIGH SPEED TWO PHASE ONE INFORMATION PAPER

G1: CONSULTATION AND ENGAGEMENT

This paper outlines how the HS2 project has engaged with those with an interest in the Proposed Scheme, including formal public consultation.

It will be of particular interest to those potentially affected by the Government's proposals for high speed rail.

This paper was prepared in relation to the promotion of the Bill for Phase One of the scheme which is now enacted. Although the contents were maintained and updated as considered appropriate during the passage of the Bill (including shortly prior to the enactment of the Bill in February 2017) the contents are now historic and are no longer maintained.

If you have any queries about this paper or about how it might apply to you, please contact the HS2 Helpdesk in the first instance.

The Helpdesk can be reached at:

High Speed Two (HS2) Limited
Two Snowhill, Snow Hill Queensway
Birmingham, B4 6GA

by email: HS2enquiries@hs2.org.uk

or by phone: 08081 434 434 (lines are open 24 hours)

Version 1.4
Last updated 23rd February 2017

G1: CONSULTATION AND ENGAGEMENT

1. Introduction

1.1. High Speed Two (HS2) is the Government's proposal for a new, high speed north-south railway. The proposal is being taken forward in two phases: Phase One will connect London with Birmingham and the West Midlands and Phase Two will extend the route to Manchester, Leeds and beyond.

1.2. HS2 Ltd is the non-departmental public body responsible for developing and promoting these proposals. The company works to a Development Agreement made with the Secretary of State for Transport.

1.3. In November 2013, HS2 Ltd deposited a hybrid Bill[1] with Parliament to seek powers for the construction and operation of Phase One of HS2 (sometimes referred to as 'the Proposed Scheme'). The Bill is the culmination of nearly six years of work, including an Environmental Impact Assessment (EIA), the results of which were reported in an Environmental Statement (ES) submitted alongside the Bill. The Secretary of State has also published draft Environmental Minimum Requirements (EMRs), which set out the environmental and sustainability commitments that will be observed in the construction of the Proposed Scheme.

1.4. The Bill is being promoted through Parliament by the Secretary of State for Transport (the 'Promoter'). The Secretary of State will also appoint a body responsible for delivering the Proposed Scheme under the powers granted by the Bill.

1.5. This body is known as the 'nominated undertaker'. There may well be more than one nominated undertaker – for example, HS2 Ltd could become the nominated undertaker for the main railway works, while Network Rail could become the nominated undertaker for works to an existing station such as Euston. But whoever they are, all nominated undertakers will be bound by the obligations contained in the Bill and the policies established in the EMRs.

1.6. These information papers have been produced to explain the commitments made in the Bill and the EMRs and how they will be applied to the design and construction of the Proposed Scheme. They also provide information about the Proposed Scheme itself, the powers contained in the Bill and how particular decisions about the project have been reached.

2. Overview

2.1. This information paper provides the details of the consultation and engagement carried out during the development of both the strategy for high speed rail in the UK and the route between London and the West Midlands of HS2 (Phase

[1] The High Speed Rail (London – West Midlands) Bill, hereafter 'the Bill'.

One). There is also consultation and engagement on the route between the West Midlands and Manchester and Leeds (Phase Two), but that is not covered in this paper.

2.2. Recognising the challenge of consulting and engaging effectively with a large number of affected parties in a fast developing project, HS2 Ltd has sought to be flexible in its approach and continues to learn from experience. HS2 Ltd has followed and, where practicable, exceeded the legislative requirements and guidance on consultation and engagement noted in Section 3.

3. Legislation and guidance

3.1. Consultation and engagement on the Proposed Scheme has been carried out in compliance with relevant guidance and legislation, including:

- the second provision of the Aarhus Convention (June 1998);
- Cabinet Office guidance on Consultation, published in July 2012;
- prior to July 2012, the Cabinet Office's Code of Practice on Consultation issued in July 2008; and
- the Gunning Principles, which are a set of criteria for assessing the fairness of a public consultation.

4. Objectives of consultation and engagement

4.1. The objectives of consultation and engagement have been as follows:

- to work with stakeholders and communities to foster understanding of the Proposed Scheme;
- to provide information on a wide range of subjects relating to the Proposed Scheme, including general information and defined proposals;
- to understand both general concerns and specific issues that interested parties may have;
- to consult and engage at stages in the project that enable feedback received to be used most effectively;
- to provide effective means for interested parties to submit views on proposals;
- to enable informed and transparent decisions to be made by Ministers and by HS2 Ltd;
- to develop an improved scheme and propose steps to avoid, reduce or, where reasonably practicable, off-set any significant adverse effects that have been identified; and
- to contribute to the deposit of a robust hybrid Bill.

5. Stakeholders

5.1. In engaging and consulting on the Proposed Scheme, the following categories of stakeholder have been involved:

- Members of Parliament;
- Local Authorities (members, officers and functions);
- statutory consultees (identified through other Acts), utility companies and major asset owners;
- community groups and stakeholder organisations;
- directly affected parties (including property owners and businesses); and
- the general public.

6. Consultation and engagement chronology

6.1. Consultation and engagement activities on the strategy for high speed rail and Phase One have taken place in the context of four broad stages:

- January 2009 - March 2010: initial development of proposals for a new high speed railway between London and the West Midlands and the case for high speed services to northern England and Scotland;
- March 2010 - February 2011: from publication of the case for high speed rail and preferred Phase One route, up to public consultation;
- February 2011 - January 2012: public consultation and post consultation work on the proposed high speed rail strategy and Phase One route; and
- January 2012 - November 2013: publication of decisions on HS2 and the Phase One line of route, and preparation of the hybrid Bill and supporting documents.

6.2. The specific engagement and consultation activities are set out in the table below:

Table 1.1 – Engagement and Consultation activities

Purpose	Period
Engagement with local authorities and other key stakeholders to seek input on station options	January 2009 – March 2010
Public awareness and engagement	March 2010 – February 2011
Consultation on the Exceptional Hardship Scheme	March 2010 – June 2010

Purpose	Period
Consultation on the proposed high speed rail strategy and the suggested route between London and the West Midlands	February 2011 – July 2011
Public awareness and engagement including holding regular forums with different stakeholders (see section 1.7 for further details)	January 2012 – November 2013
Consultation on the Draft Environmental Impact Assessment Scope and Methodology Report	April 2012 – May 2012
Consultation on Property Compensation	October 2012 – January 2013
Consultation on Safeguarding	October 2012 – January 2013
Consultation on Draft Environmental Statement and Draft Code of Construction Practice	May 2013 – July 2013
Consultation on Design Refinements	May 2013 – July 2013
Re-consultation on Property Compensation	September 2013 – December 2013

7. Consultation activities

7.1. In the main, consultations have involved:

- supporting media to publicise the consultation and any local events;
- the production of leaflets and letters which are distributed to properties within the broad vicinity of the line of route;
- online information, in some instances with a dedicated consultation website;
- documents and maps which are available from the website and on request via a dedicated consultation telephone number;
- local events which are open to the public and at which relevant specialist staff are present to answer questions;
- dedicated response channels, where people can respond by email, post or online;
- independent handling, analysis and reporting of consultation responses;
- the publication of a consultation report covering the main themes of the consultation responses once the consultation has closed; and

- the publication of a decisions document, setting out decisions taken as a result of the consultation process.

8. Engagement with stakeholders

8.1. The diagram below (Figure 1.1) sets out the stakeholder engagement undertaken between January 2012 and November 2013.

Figure 1.1

8.2. In addition, there has been extensive bilateral discussion with many stakeholders, included affected parties.

8.3. A Customer Records Management (CRM) system has been used to track correspondence, emails and telephone calls with stakeholders.

9. Public awareness

9.1. Dedicated press handling on the Proposed Scheme has been in place since early in the project.

9.2. Further, both online and offline communication methods have been adopted to communicate the project. This has included the development of a dedicated HS2 website and the use of social media (e.g. Twitter, Facebook etc).

9.3. A public enquiries team has been in place since the spring of 2010, with a dedicated telephone number, email address and postal address.

10. Accessibility

10.2. A variety of mechanisms have been used to facilitate participation in consultations, such as:

- provision on request of translations of documents and publicity materials;
- wheelchair accessible venues for consultation and engagement events;
- Hearing Loops at certain venues;

- interpreter services at certain venues;
- provision of transport to facilitate attendance at events in remote areas; and
- facilitating responses from people with disabilities.

11. Continued engagement

11.1. There is a commitment to continue engaging with stakeholders on the Proposed Scheme as it progresses. As part of the Bill process, there will be a consultation on the Environmental Statement. In addition, the draft Code of Construction Practice sets out that there will be community engagement, particularly focussing on those who may be affected by construction impacts.

12. More information

12.1. More detail on the Bill and related documents can be found at: www.gov.uk/HS2

For: Claimants
P.E. Thompson
Statement No. 1
Exhibit: "PET1" to "PET4"
Date: 2 February 2018

Claim No:

IN THE HIGH COURT OF JUSTICE
BUSINESS AND PROPERTY COURTS
PROPERTY, TRUSTS AND PROBATE LIST (ChD)

(1) THE SECRETARY OF STATE FOR TRANSPORT
(2) HIGH SPEED TWO (HS2) LTD

Claimants

-and-

(1) PERSONS UNKNOWN ENTERING OR REMAINING WITHOUT THE CONSENT OF THE CLAIMANT(S) ON LAND AT HARVIL ROAD, HAREFIELD IN THE LONDON BOROUGH OF HILLINGDON SHOWN COLOURED GREEN, BLUE AND PINK AND EDGED RED ON THE PLANS ANNEXED TO THE CLAIM FORM

(2) PERSONS UNKNOWN INTERFERING WITH THE PASSAGE BY THE CLAIMANTS AND THEIR AGENTS, SERVANTS, CONTRACTORS, SUB-CONTRACTORS, GROUP COMPANIES, LICENSEES, INVITEES OR EMPLOYEES WITH OR WITHOUT VEHICLES, MATERIALS AND EQUIPMENT TO, FROM, OVER AND ACROSS THE PUBLIC HIGHWAYS IN THE LONDON BOROUGH OF HILLINGDON SHOWN COLOURED ORANGE AND PURPLE ON THE PLANS ANNEXED TO THE CLAIM FORM

(3) SARAH GREEN

(4) MARK KEIR

(5) GRAHAM MARSH

(6) SOFIA KAZI

(7) THORN RAMSAY

(8) VAJDA ROBERT MORDECHAJ

Defendants

EXHIBIT "PET3"
TO THE WITNESS STATEMENT OF PATRICIA EMELDA THOMPSON

HL: 521

To the House of Lords
Session 2015–16

PETITION against the

High Speed Rail (London – West Midlands) Bill

THE PETITION OF Sarah Green on behalf of Arthur Daily Trips (Canal boat company).

Declares that:

The petitioner is specially and directly adversely affected by Clauses 29, 30 and 31 and Part 4, Canal and River Trust

Your petitioner

The petitioner is Sarah Green. She runs a small passenger boat business called Arthur Daily Trips, operating a luxury, purpose built passenger boat called Arthur on the Grand Union Canal (GUC) in the destination location of the countryside in the Colne Valley, West London. In 2015 Arthur Daily Trips was rated 3 in the top things to do in Uxbridge on the Trip Advisor website. Arthur Daily Trips conducts skippered and hosted cruises for private hire. Our customer base includes faith groups, older people's groups, families celebrating special occasions, staff groups from local businesses, groups of tourists and London residents who want a taste of the countryside in the Green belt on the edge of London. Specific trips that we host include: Countryside cruises from the Swan and Bottle, Uxbridge to Widewater Lock (Moorhall Road Harefield) return, the Fish and Chip shop run, again from Swan and Bottle to Widewater Lock return, Cruise to a view, Swan and Bottle to Black Jacks Lock, Old Orchard pub, return and customised country cruises that include canal side picnics and nature walks in adjacent nature reserves. On all of these trips land on both sides of the canal for approximately a mile is deemed to be within the Act limits and subject to destruction of trees, other vegetation clearance and wildlife and habit loss.

Your petitioner's concerns

Your Petitioner is concerned that the construction and operation of the high speed railway and associated development at the Colne Valley, specifically the banks of the Grand Union Canal through Denham Country Park, poses a risk to the commercial and employment activities undertaken by Arthur Daily Trips. Our commercial activities are of an echo-tourist nature directly serving passengers wishing to experience closeness to nature, tranquillity and beauty of the waterways in the Colne Valley. The amount of canal side land within Act limits is unreasonably extensive. Canal boats travel slowly, especially passed moored boats and in wildlife settings approximately 2 miles per hour. Passing HS2 building site environments on both the Hillingdon side and South Buckingham side of the canal for half an hour on the outward journey and half an hour on the return journey will eliminate countryside cruising within the Colne Valley. This will directly and adversely affect the business of Arthur Daily Trips.

Clause 29 takes away protection from common land and green spaces for all land that falls within the limits of the Act. It is unreasonable that so much countryside beside the canal is covered in the Act.

E1440

D1300

Clause 30 takes away protection for trees and trees in conservation areas. It is particularly unreasonable that so many canal side trees are included within the limits of the Act. The mile of trees in question currently flourish on both the Hillingdon and South Buckinghamshire sides of the Grand Union Canal, they provide delight to human senses, and spiritual, physical and emotional environment that supports human well being and closeness to nature. This area of canal is teaming with wildlife, many species of dragonfly and small fish breed within tree roots on the offside of the canal and wildfowl including shovelers, gadwalls, geese, swans and other ducks regularly share the waterway with our passengers. The canopies of mature green vegetation both sides of the canal provide roosting habitats for numerous song birds who provide the soundscape for the countryside trips.

The following enactments have protected and enabled this beautiful setting to develop over many years and it is unreasonable that they be taken away: (a) an order under section 198(1) or 202(1) of the Town and Country Planning Act 1990 and regulations under section 202A(1) of that Act (tree preservation orders), and (b) section 211(1) and (5) of that Act (preservation of trees in conservation areas).

Clause 31 takes away all previous controls on protection of land when rerouting utilities. In this Bill long stretches of canal side land are targeted for redirection of utilities and the installation of such will incur great loss of natural environment for leisure, pleasure and echo-tourist boating activities.

Clauses 29, 30 and 31 should not be passed on lengthy stretches of canal side land immediately adjacent to the GUC in the Colne Valley because environmental (ecological) sustainability has implications for the economic sustainability of local eco-tourism and specifically of Arthur Daily Trips. In the Colne Valley the HS2 project should be developed to ensure both economic and environmental sustainability for all business sectors and not just transport.

Agenda 21 (UNCED, 1992b) views tourism of a form of land use that is potential significance for improving both the economic and environmental sustainability of a region.

The World Summit on Sustainable Development (Johannesburg, 2002) placed ecotourism development for the preservation of biodiversity as one of its five major areas of action. Echo-tourism and bio-diversity has been given misleading and trivial regard within the act.

Within the Colne Valley, plans need to be revised so that long sections of GUC are not ruined for current and future use in the leisure, pleasure and echo-tourism sectors.

Part 4 Canal and River Trust 42 (3) (a) (b) and 43 are misleading and unreasonable.

In answer to Arthur Daily Trips' Commons petition, HS2 indicated that Canal and River Trust were dealing with all canal matters and that there was no necessity for individual business or leisure and pleasure customers to petition. Part 4, Canal and River Trust shows that this is not the case. CRT are a trust with specific aims of protecting waterway environments, protecting spaces where people can interact with nature, next to soothing water. The first statement on CRT website reads 'We love and care for your canals and rivers because everyone deserves a place to escape to.'

This is especially true in the Colne Valley which is the Greens lungs on the edge of London. Part 4 of the Act, 42 (3) (a) (b) and 43 puts CRT in an untenable position as the Bill states that approval for plans must not be unreasonably withheld by CRT. From the perspective of CRT business and leisure and pleasure customers it would be unreasonable for CRT to gives permissions that are in contravention of CRT mission and value statements.

The prayer

The petitioner therefore asks the House of Lords that she, or someone representing her in accordance with the rules and Standing Orders of the House, be given an opportunity to give evidence on all or some of the issues raised in this petition to the Select Committee which considers this Bill.

AND the petitioner remains,

SARAH GREEN

Proprietor of ARTHUR DAILY TRIPS

July 2016

HIGH SPEED RAIL (LONDON - WEST MIDLANDS) BILL

HOUSE OF LORDS SELECT COMMITTEE

Petition No. 521: Sarah Green on behalf of Arthur Daily Trips

Promoter's Response Document

INTRODUCTION

This Promoter's Response Document (PRD) forms the Promoter's response to Petition No. 521, from Sarah Green on behalf of Arthur Daily Trips.

In this PRD, 'the Promoter' means the Secretary of State and HS2 Ltd acting on his behalf.

The purpose of the PRD is to advise you and the Select Committee of the Promoter's position in relation to the petitioning points raised. It is intended that the PRD will alleviate many of the concerns raised in the petition.

The Table of Contents overleaf lists the page number, petitioning points in the order they appear in the petition, and a summary statement of the issue(s) contained in the petition for quick reference. Other supporting material (e.g. reports, drawings and photographs) referred to in the response points are attached where applicable.

Copies of the HS2 Information Papers referred to in the response points can be found at https://www.gov.uk/government/collections/high-speed-rail-london-west-midlands-bill.

Department for Transport
High Speed Two (HS2) Limited

BACKGROUND

The Petitioner is Sarah Green, petitioning on behalf of Arthur Daily Trips. The Petitioner operates a business offering public excursions on the Grand Union Canal. The Petitioner does not own any land affected by the Proposed Scheme.

On 20 February 2015 the Petitioner was sent a PRD for her Petition against the Bill in the House of Commons (Petition No. 1765); the Petitioner appeared before the House of Commons Select Committee on 17 June 2015.

PETITION NO. 521

SARAH GREEN ON BEHALF OF ARTHUR DAILY TRIPS

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Page No.	Petition Paragraph No.	Issue
4	3, 9 – 12	Socio-economics
7	4 – 8	Clauses 29, 30 and 31

ATTACHMENTS

Title	
Annex A	PRD for House of Commons Petition No. 1765 dated February 2025

D1305

HOUSE OF LORDS SELECT COMMITTEE

HIGH SPEED RAIL (LONDON - WEST MIDLANDS) BILL

PROMOTER'S RESPONSE TO PETITION OF: Sarah Green on behalf of Arthur Daily Trips

PETITION NO: 521

PARAGRAPH NO: 3, 9 – 12

ISSUE RAISED: Socio-economics

PETITION PARAGRAPH:

Your Petitioner is concerned that the construction and operation of the high speed railway and associated development at the Colne Valley, specifically the banks of the Grand Union Canal through Denham Country Park, poses a risk to the commercial and employment activities undertaken by Arthur Daily Trips. Our commercial activities are of an echo-tourist nature directly serving passengers wishing to experience closeness to nature, tranquillity and beauty of the waterways in the Colne Valley. The amount of canal side land within Act limits is unreasonably extensive. Canal boats travel slowly, especially passed moored boats and in wildlife settings approximately 2 miles per hour. Passing HS2 building site environments on both the Hillingdon side and South Buckingham side of the canal for half an hour on the outward journey and half an hour on the return journey will eliminate countryside cruising within the Colne Valley. This will directly and adversely affect the business of Arthur Daily Trips.

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The World Summit on Sustainable Development (Johannesburg, 2002) placed ecotourism development for the preservation of biodiversity as one of its five major areas of action. Echo-tourism and bio-diversity has been given misleading and trivial regard within the act.

Within the Colne Valley, plans need to be revised so that long sections of GUC are not ruined for current and future use in the leisure, pleasure and echo-tourism sectors.

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In answer to Arthur Daily Trips' Commons petition, HS2 indicated that Canal and River Trust were dealing with all canal matters and that there was no necessity for individual business or leisure and pleasure customers to petition. Part 4, Canal and River Trust shows that this is not the case. CRT are a trust with specific aims of protecting waterway environments, protecting spaces where people can interact with nature, next to soothing water. The first statement on CRT website

reads 'We love and care for your canals and rivers because everyone deserves a place to escape to.'

This is especially true in the Colne Valley which is the Greens lungs on the edge of London. Part 4 of the Act, 42 (3) (a) (b) and 43 puts CRT in an untenable position as the Bill states that approval for plans must not be unreasonably withheld by CRT. From the perspective of CRT business and leisure and pleasure customers it would be unreasonable for CRT to gives permissions that are in contravention of CRT mission and value statements.

PROMOTER'S RESPONSE:

Construction effects of the Proposed Scheme

1. Following the consideration of the House of Commons Select Committee, the Promoter is satisfied that the concerns related to the effects of the construction of the Proposed Scheme have been considered and responded to in the Promoter's Response Document (PRD) issued in response to Petition No. 1765 against the Bill in the House of Commons, and refers to page 4 of that PRD for a full response on these matters.

Canal and River Trust

2. Part 4 of Schedule 32 to the Bill contains provisions to protect the canals and waterways owned or managed by the Canal and River Trust.

3. The Canal and River Trust has the right to consider and approve plans submitted to them by the nominated undertaker under paragraph 42 (1) and (2) of Part 4 of Schedule 32 to the Bill and, as necessary, require the use of protective works in order to maintain the safety or stability of the canal:

> 'Before beginning to construct any specified work, the nominated undertaker must submit to Canal & River Trust plans of the work and such further particulars available to it as Canal & River Trust may within 14 days of the submission of the plans reasonably require.
>
> Any specified work must not be constructed except in accordance with such plans as may be approved in writing by Canal & River Trust or determined under paragraph 50'.

4. In accordance with paragraph 43(1), specified works and any protective works must be constructed in such a manner as to cause 'as little interference as may be reasonably practicable with the passage of vessels using canal and use of the towpath'.

Effects on business and tourism

5. The Environmental Statement (ES) considers any significant effects of the Proposed Scheme on individual businesses and the wider economy and identifies a range of mitigation measures that could be used to reduce or eliminate these effects. In addition, the draft Code of Construction Practice sets out a series of measures and standards that the Promoter and the contractors appointed to deliver the Proposed Scheme will be required to meet for the duration

of the construction of the Proposed Scheme. This will ensure that potential impacts are kept to a practicable minimum.

6. The ES does not report any significant and widespread impacts on businesses in this area and the Promoter is not aware of any evidence supporting Petitioners' claims that businesses will suffer a widespread down-turn.

Sustainable development

7. As explained in paragraph 3.1 of HS2 Information Paper D1, Design Policy, the Promoter and the nominated undertaker will seek to ensure that amongst other considerations that:

- 'the design contributes to the government's pursuit of sustainable development, as set out in the National Planning Policy Framework, which involves seeking positive improvements in the quality of the built, natural and historic environment, as well as in people's quality of life;
- the design of all visible elements of the built and landscaped environment are sympathetic to their context, environment and social setting; and
- the design cohesion is achieved through a strong aesthetic ethos and a recognisable architectural language.'

HOUSE OF LORDS SELECT COMMITTEE

HIGH SPEED RAIL (LONDON - WEST MIDLANDS) BILL

PROMOTER'S RESPONSE TO PETITION OF: Sarah Green on behalf of Arthur Daily Trips

PETITION NO: 521

PARAGRAPH NO: 4 – 8

ISSUE RAISED: Clauses 29, 30 and 31

PETITION PARAGRAPH:

Clause 29 takes away protection from common land and green spaces for all land that falls within the limits of the Act. It is unreasonable that so much countryside beside the canal is covered in the Act.

Clause 30 takes away protection for trees and trees in conservation areas. It is particularly unreasonable that so many canal side trees are included within the limits of the Act. The mile of trees in question currently flourish on both the Hillingdon and South Buckinghamshire sides of the Grand Union Canal, they provide delight to human senses, and spiritual, physical and emotional environment that supports human well being and closeness to nature. This area of canal is teaming with wildlife, many species of dragonfly and small fish breed within tree roots on the offside of the canal and wildfowl including shovelers, gadwalls, geese, swans and other ducks regularly share the waterway with our passengers. The canopies of mature green vegetation both sides of the canal provide roosting habitats for numerous song birds who provide the soundscape for the countryside trips.

The following enactments have protected and enabled this beautiful setting to develop over many years and it is unreasonable that they be taken away: (a) an order under section 198(1) or 202(1) of the Town and Country Planning Act 1990 and regulations under section 202A(1) of that Act (tree preservation orders), and (b) section 211(1) and (5) of that Act (preservation of trees in conservation areas).

Clause 31 takes away all previous controls on protection of land when rerouting utilities. In this Bill long stretches of canal side land are targeted for redirection of utilities and the installation of such will incur great loss of natural environment for leisure, pleasure and echo-tourist boating activities.

Clauses 29, 30 and 31 should not be passed on lengthy stretches of canal side land immediately adjacent to the GUC in the Colne Valley because environmental (ecological) sustainability has implications for the economic sustainability of local eco-tourism and specifically of Arthur Daily Trips. In the Colne Valley the HS2 project should be developed to ensure both economic and environmental sustainability for all business sectors and not just transport.

PROMOTER'S RESPONSE:

1. The Promoter notes the Petitioner's concern regarding clauses 29, 30 and 31 of the Bill. The Bill seeks to disapply some of the existing legislation requirements and create a tailor-made regime, based on that successfully applied to HS1 and Crossrail. This tailor-made regime creates controls appropriate for a project that has been specifically approved in Parliament replacing those consents that the Bill disapplies. This regime is made up of a range of elements including the environmental commitments that the Secretary of State is making in the Environmental Minimum Requirements (EMRs), as well as the protective provisions and planning regime set out in the Bill. Together these ensure that there is a proper measure of scrutiny and control over the details of the Proposed Scheme's design and construction.

Clause 29 – commons and open space

2. Clause 29 provides that no restriction set out in enactments which regulate the use of commons, town or village greens, open spaces or allotments can prevent or restrict actions authorised under the Bill for Phase One purposes or on Phase One land. The term 'enactment' includes subordinate legislation such as regulations or byelaws (see clause 64(1) of the Bill). Clause 29 ensures that the specific powers to carry out works under the Bill override any restrictions in general legislation which could otherwise prevent the construction of Phase One.

Clause 30 – trees

3. Clause 30 and paragraph 7 of Schedule 2 make special provision in relation to trees. It is necessary that a nominated undertaker should have power to remove or carry out other works on trees growing on, or overhanging, land used for building or operating the railway.

4. Regulation 13 of the Town and Country Planning (Tree Preservation) (England) Regulations 2012 ('the 2012 Regulations') prohibits certain works to trees protected by a tree preservation order or in a conservation area. This is subject to exemptions.

5. Clause 30 applies where tree works need to be carried out in relation to trees growing on land either within the Bill limits or to be used for Phase One purposes. The restrictions in the 2012 Regulations on the carrying out of tree works to a tree protected by a tree preservation order or in a conservation area are disapplied in relation to tree works required to enable Phase One to be constructed, maintained or operated.

6. Paragraph 7 of Schedule 2 provides for cases where trees overhang or otherwise encroach on land used for Phase One purposes. The nominated undertaker may serve a tree works notice on the occupier of the neighbouring land, requiring the occupier to remove the tree or to carry out tree works. Unless the notice is successfully challenged by the occupier, the tree works must be carried out by the occupier or, in default, may be carried out by the nominated undertaker. The power to require tree works can only be used where the works are necessary to enable Phase One to be constructed or maintained, or are required for reasons of safety in connection with the construction or operation. The power is not unique. For example, telecommunications operators have similar powers to require the lopping of trees to prevent interference with their apparatus.

7. Restrictions relating to trees which are subject to a tree preservation order or in a conservation area are disapplied as regards works required by a tree works notice.

8. Regulation 14(1)(a) of the 2012 Regulations provides exemptions for tree works carried out by a statutory undertaker or tree works to implement a specific planning permission. However, because it is uncertain whether this exemption applies to all the circumstances catered for by clause 30 and paragraph 7 of Schedule 2, it is desirable that the position is clarified by making specific provision in the Bill.

Clause 31 – overhead lines

9. Clause 31 relates to the installation and diversion of overhead lines. Some overhead lines will need to be diverted for Phase One as specified in Schedule 3 to the Bill. Subsection (1) of the clause removes the need for the Secretary of State's consent under the Electricity Act 1989 where the overhead line work is within the Act limits, is a work authorised by the Bill and has deemed planning permission under the Bill.

10. This rule also applies where the work is done by an electricity undertaker. For cases where this exclusion does not apply to overhead line works arising for or as a consequence of Phase One (say, because an overhead line diversion goes outside the Act limits), the duty of the Secretary of State to hold a public inquiry in every case where the planning authority has objected is also removed. The decision on whether or not to hold a public inquiry is at the Secretary of State's discretion, having considered the number and substance of any objections.

1765

IN PARLIAMENT
HOUSE OF
COMMONS
SESSION
2013 - 2014

HIGH SPEED RAIL (LONDON TO WEST MIDLANDS) BILL

Against – On Merits – Praying to be heard by counsel, &c.

TO THE HONOURABLE THE COMMONS OF THE UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND IN PARLIAMENT ASSEMBLED.

THE HUMBLE PETITION of ***Arthur Daily Trips, 73 Iver Lane, Cowley, Uxbridge, UB8 2JE (passenger boat, operating on Grand Union canal, Denham Country Park).***

SHEWETH as follows:-

1. A Bill (hereinafter referred to as "the Bill") has been introduced and is now pending in your honourable House intituled "A Bill to make provision for a railway between Euston in London and a junction with the West Coast Main Line at Handsacre in Staffordshire, with a spur from Old Oak Common in the London Borough of Hammersmith and Fulham to a junction with the Channel Tunnel Rail Link at York Way in the London Borough of Islington and a spur from Water Orton in Warwickshire to Curzon Street in Birmingham; and for connected purposes."

2. The Bill is presented by Mr Secretary McLoughlin, supported by The Prime Minister, The Deputy Prime Minister, Mr Chancellor of the Exchequer, Secretary Theresa May, Secretary Vince Cable, Secretary Iain Duncan Smith, Secretary Eric Pickles, Secretary Owen Paterson, Secretary Edward Davey, and Mr Robert Goodwill.

3. Clauses 1 to 36 set out the Bill's objectives in relation to the construction and operation of the railway mentioned in paragraph 1 above. They include provision for the construction of works, highways and road traffic matters, the compulsory acquisition of land and other provisions relating to the use of land, planning permission, heritage issues, trees and noise. They include clauses which would disapply and modify various enactments relating to special categories of land including burial grounds, consecrated land, commons and open spaces, and other matters, including overhead lines, water, building regulations and party walls, street works and the use of lorries.

4. Clauses 37 to 42 of the Bill deal with the regulatory regime for the railway.

5. Clauses 43 to 65 of the Bill set out a number of miscellaneous and general provisions, including provision for the appointment of a nominated undertaker ("the Nominated Undertaker") to exercise the powers under the Bill, transfer schemes, provisions relating to statutory undertakers and the Crown, provision about the compulsory acquisition of land for regeneration, reinstatement works and provision about further high speed railway works. Provision is also made about the application of Environmental Impact Assessment Regulations.

E1452

D1312

6. The works proposed to be authorised by the Bill ("the Authorised Works") are specified in clauses 1 and 2 of and Schedule 1 to the Bill. They consist of scheduled works, which are described in Schedule 1 to the Bill and other works, which are described in clause 2 of the Bill.

7. Your Petitioner is concerned that the construction and operation of the high speed railway and associated development at ***the Colne Valley, Denham Country Park*** poses a risk to the commercial and employment activities undertaken by ***Arthur Daily Trips.*** The current plans for HS2 mean activities will be significantly disrupted due to ***interference with navigation of Grand Union Canal, this will limit passenger journeys on our trip boat Arthur. Planned closure of the tow path between bridges 182 and 180 will reduce stopping and mooring of Arthur within Denham Country Park and limit passenger activities within the Country Park. Construction of access roads, demolition of trees and destruction of wildlife habitats will impact negatively on passenger experience. Arthur Daily Trips currently attracts passengers into the first real taste of countryside West of London. Air pollution and noise from the construction of HS2 will be detrimental to our business, deter passengers and reduce beauty and value of passenger experience. HS2 plans to store significant amount of spoil and top soil in the area adjacent to the Grand Union canal, for long periods, thus reducing the beauty and tranquillity. Large quantities of dust will impact air quality. Air and water quality will be impacted adversely and this will impact the health of skipper, crew and passengers. One of the main attractions of our canal trips is the close proximity to nature and wildlife, HS2 plans to cut across the main wildlife corridor to the west of London. The construction and operation of HS2 will seriously affect the habitats and movement of mammals, insects, amphibians and birds in the Colne Valley and will be a great loss to visitors and passengers. In light of the above the route alignment of HS2 in the Colne Valley should be changed to a tunnel from a surface route.*** This petition is made on behalf of ***Arthur Daily Trips, Sarah Green and Josephine Asher.***

8. Your Petitioner is concerned about the impact of the construction and operation of a high speed railway and its associated development including but not limited to construction compounds, storage compounds, overhead cranes the use of overhead cranes, construction compounds at ***Denham Country Park, Colne Valley.***

Your Petitioner requests that the nominated undertaker is subject to binding mitigation measures to mitigate the impacts of the works. These binding mitigation measures should include but not be limited to restrictions on noise, dust, vibration construction hours, vehicle movements, operating hours, design of structures to ensure the ***Arthur Daily Trips*** can continue to function after the construction of HS2 commences.

Your petitioner submits that the nominated undertaker has no incentive to minimize harmful environmental impacts arising from the construction and operation of the high-speed railway and submits that measures designed to ensure effective monitoring of compliance with these restrictions and enforcement of these restrictions be introduced to the Bill. The nominated undertake should also mitigate the impact of noise, noise, dust, vibration and impacts on visual amenity through measures such as noise insulation and barriers, sheeting of haulage vehicles, hand piling, and sympathetic design in keeping with the surrounding area.

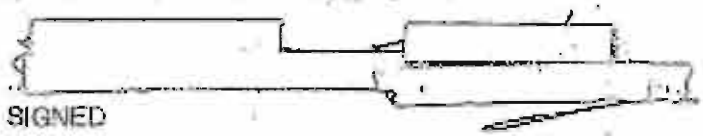
9. In light of the above, the Petitioner reserves the right to raise the above matters and any further matters of concern relating to the substance of the Bill and this Petition that may arise from continuing discussions, the preparation and publication of reports, any possible revisions that may be made to current work site proposals or any other matters relevant to our expressed concerns that may occur in due course and prior to our representation before the Select Committee.

10. For the foregoing and connected reasons your Petitioner respectfully submits that, unless clauses of the Bill are removed or amended, then the Bill should not be allowed to pass into law.

11. There are other clauses and provisions in the Bill which, if passed into law as they now stand will prejudicially affect your Petitioner and their rights, (including their human rights) interests and property and for which no adequate provision is made to protect your Petitioner and other clauses and provisions necessary for their protection and benefit are omitted therefrom.

YOUR PETITIONER THEREFORE HUMBLY PRAY your Honourable House that the Bill may not be allowed to pass into law as it now stands and that they may be heard by their Counsel, Agents and witnesses in support of the allegations of this Petition against such of the clauses and provisions of the Bill as affect the property, rights and interests of your Petitioner and in support of such other clauses and provisions as may be necessary or expedient for their protection, or that such other relief may be given to your Petitioner in the premises as your Honourable House shall deem meet.

AND your Petitioners will ever pray, &c



SIGNED

IN PARLIAMENT
HOUSE OF
COMMONS
SESSION
2013- 2014

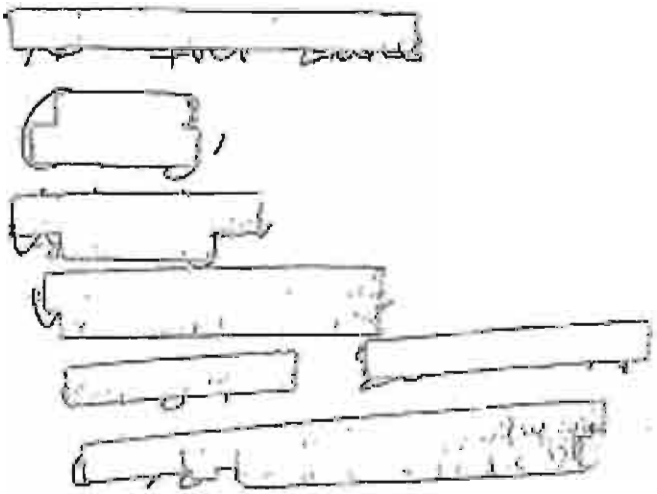
HIGH SPEED RAIL (LONDON TO WEST MIDLANDS BILL)

PETITION OF ~~*[Name of business]*~~ Arthur Daily Trips

AGAINST, By counsel, &c

[Name, address and telephone number(s) of the business]

Sarah Green & Josephine Asher



D1315

EXHIBIT LIST

Reference No: HOC/01785
Petitioner: Arthur Daily Trips
Published to Collaboration Area: Friday 12-Jun-2015

No	Exhibit Name	Page
1	A1080 Arthur (A1080)	2
2	A1081 Low water (A1081)	3
3	A1082 High water (A1082)	4
4	A1083 Canal bank (A1083)	5
5	A1084 ADT_TOWP (A1084)	6
6	A1085 Engineering (A1085)	7
7	A1086 Heritage (A1086)	8
8	A1087 ADT stops (A1087)	9
9	A1088 ADT towpath closure (A1088)	10

E1457

D1317

D1318

A1281

E1458

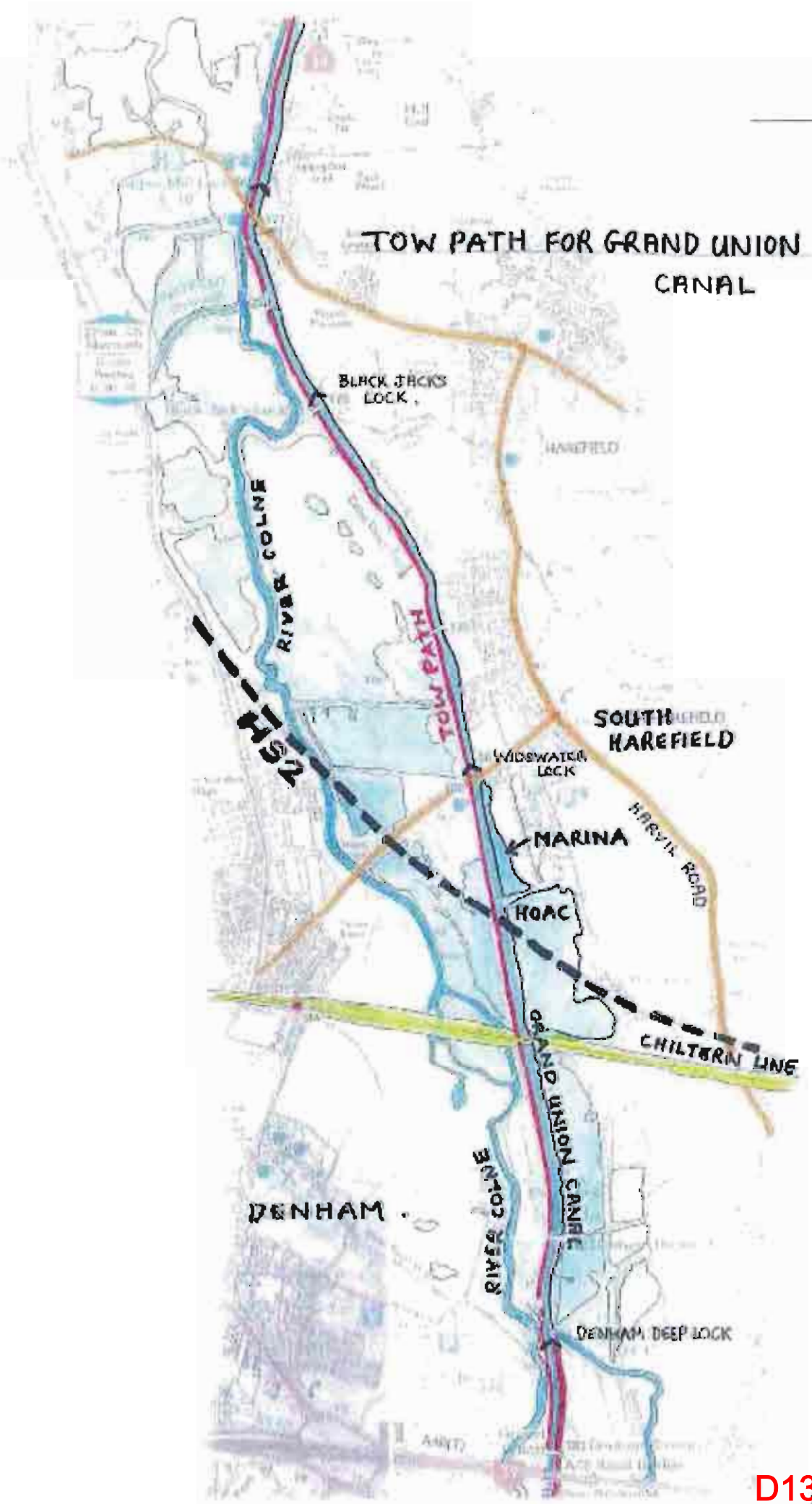
HOC/01765/0003

D1319

A1482

E1459

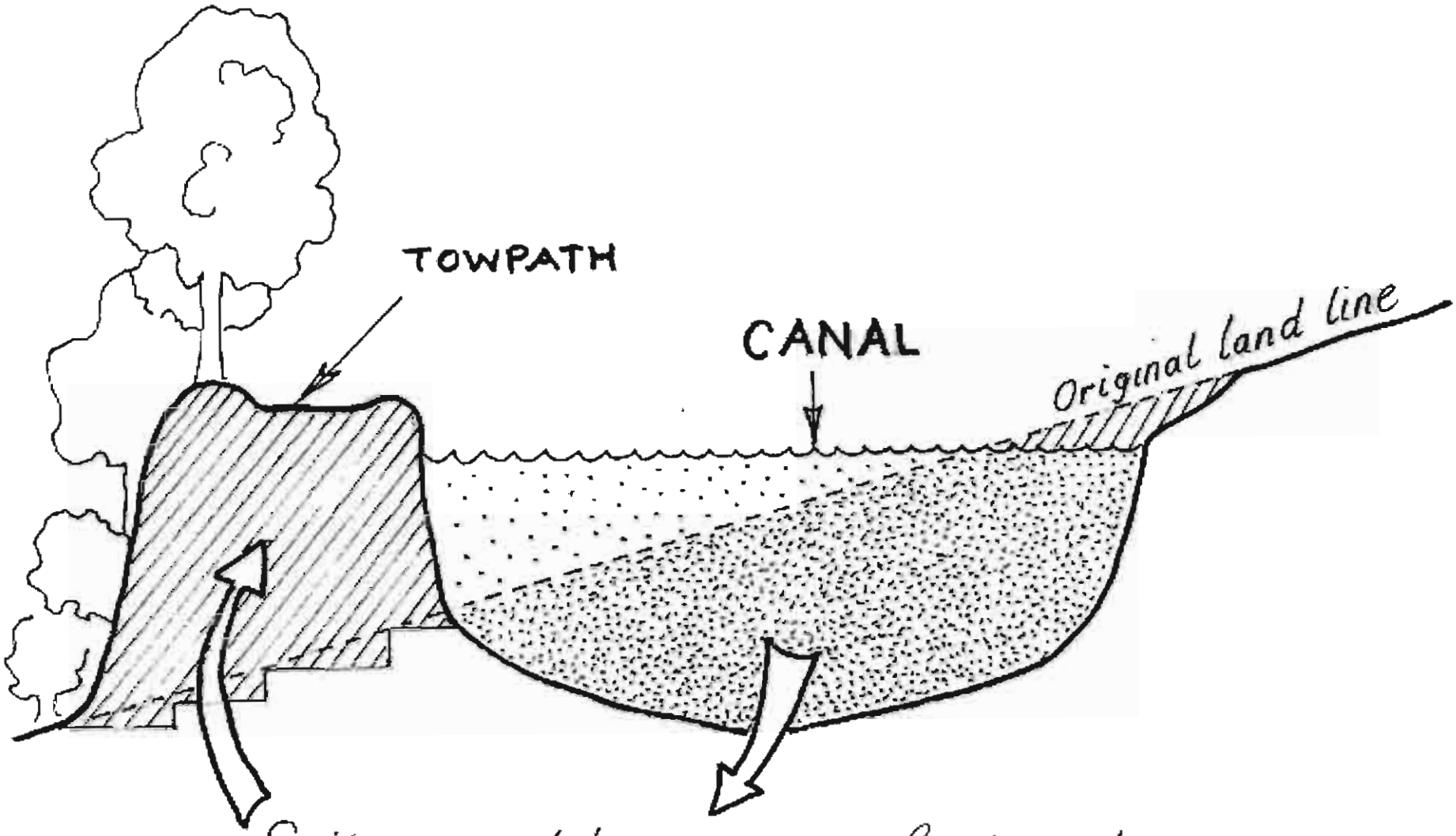
HOC/01765/0004



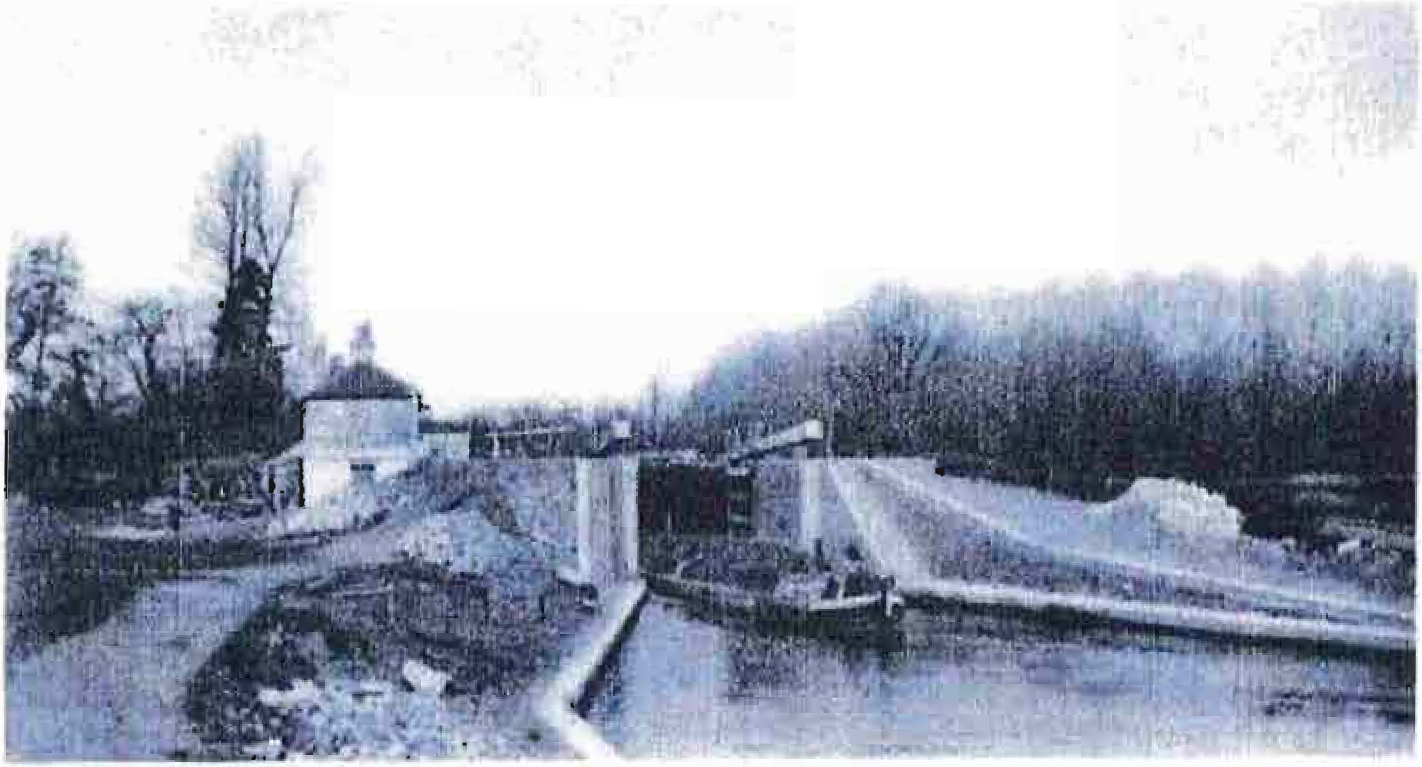
A1084

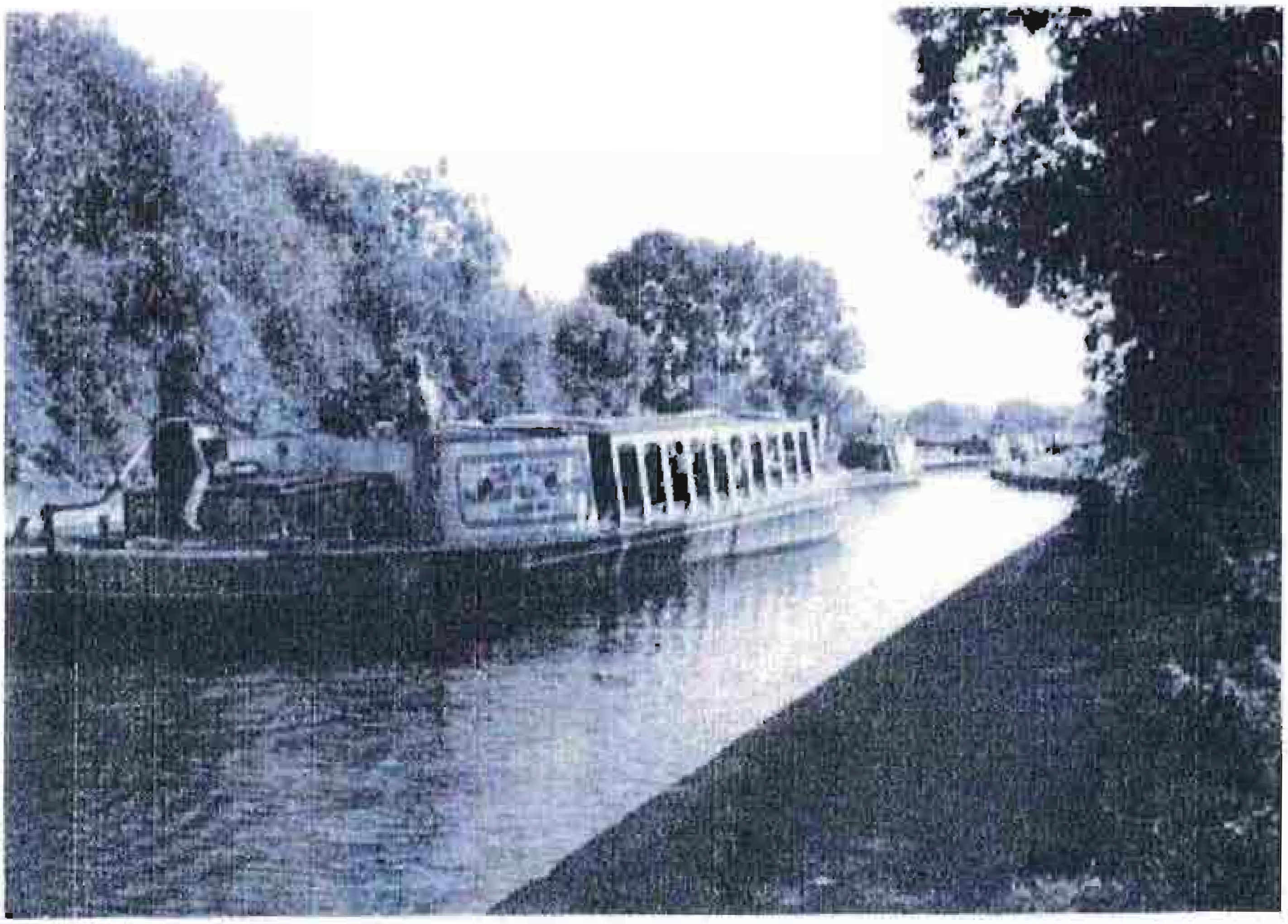
E1461

D1321

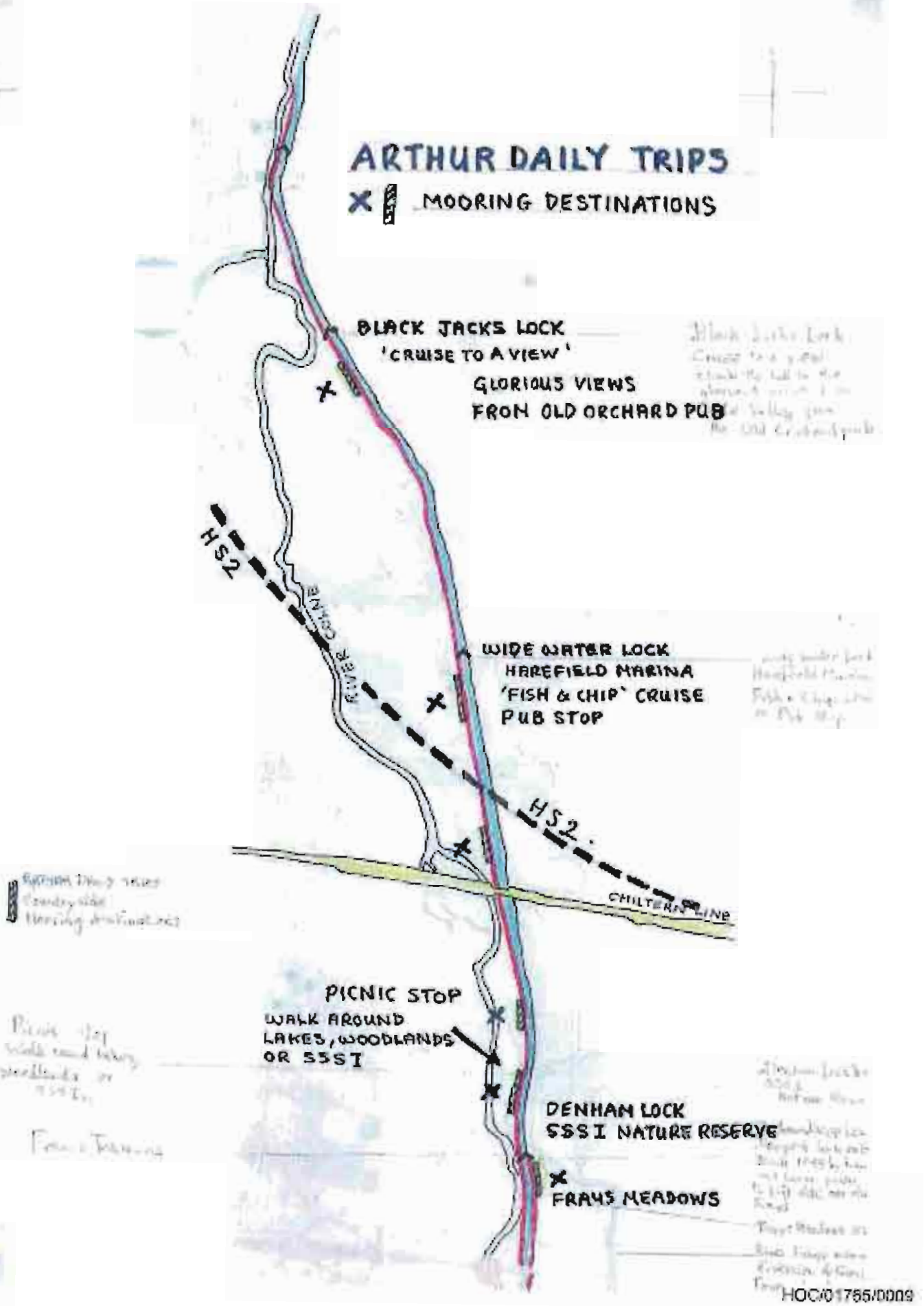


Soil removed to make canal channel and used to make bank and towpath





HOC/017

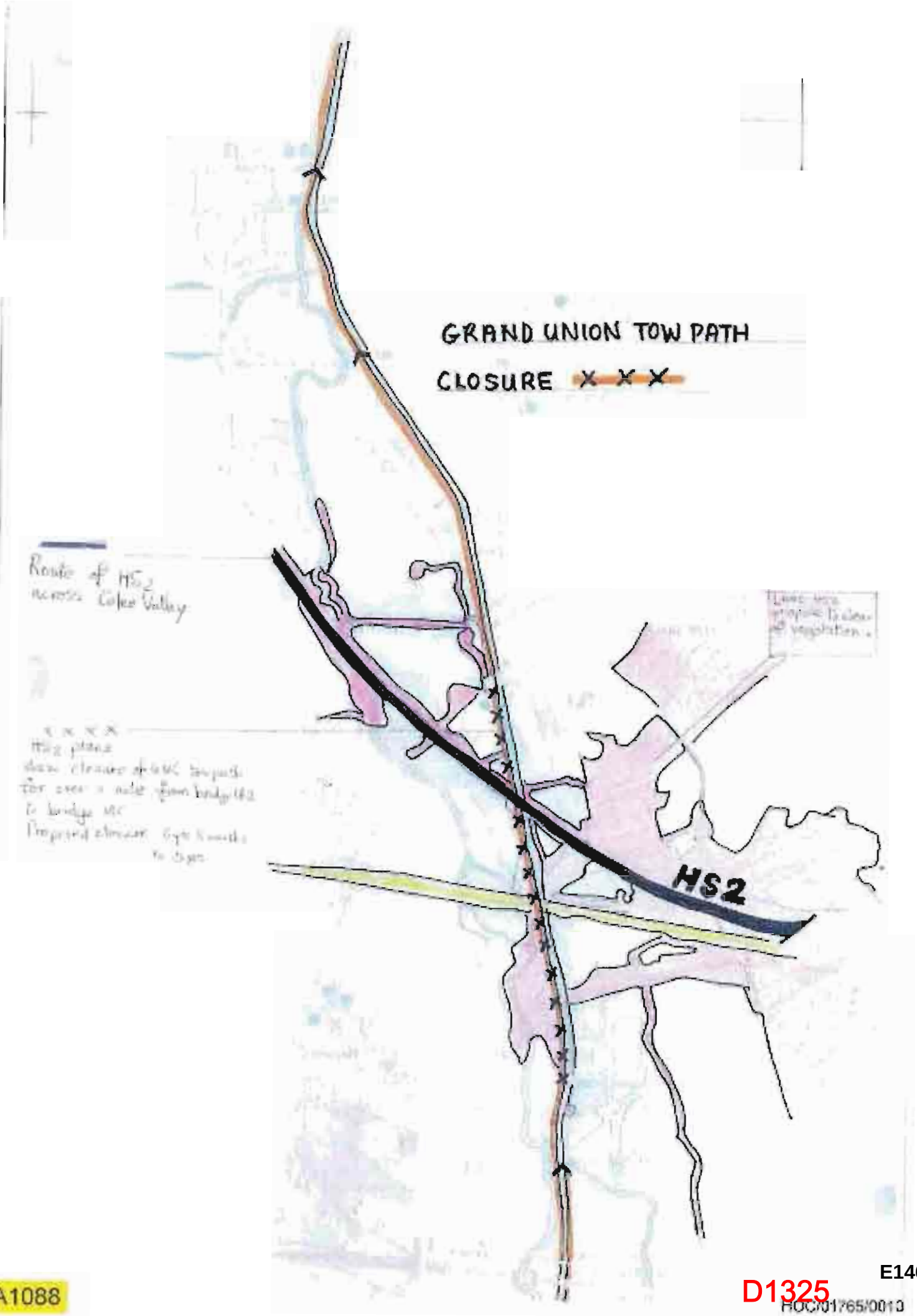


A1087

HOC/01765/0009

E1464

D1324



A1088

E1465

D1325

ROC/01765/0013

February 2015

HIGH SPEED RAIL (LONDON - WEST MIDLANDS) BILL

HOUSE OF COMMONS SELECT COMMITTEE

Petition No. 1765: Arthur Daily Trips

Promoter's Response Document

INTRODUCTION

This Promoter's Response Document (PRD) forms the Promoter's response to Petition No. 1765, from Arthur Daily Trips.

In this PRD, 'the Promoter' means the Secretary of State and HS2 Ltd acting on his behalf.

The purpose of the PRD is to advise you and the Select Committee of the Promoter's position in relation to the petitioning points raised. It is intended that the PRD will alleviate many of the concerns raised in the petition.
The Table of Contents overleaf lists the page number, petitioning points in the order they appear in the petition, and a summary statement of the issue(s) contained in the petition for quick reference. Other supporting material (e.g. reports, drawings and photographs) referred to in the response points are attached.

Copies of the Information Papers referred to in the response points can be found at:
https://www.gov.uk/government/collections/high-speed-rail-london-west-midlands-bill

Department for Transport
High Speed Two (HS2) Limited

BACKGROUND

The Petitioner is Arthur Daily Trips. The Petitioner operates a business offering public excursions on the Grand Union Canal. The Petitioner does not own any land affected by the Proposed Scheme.

PETITION NO. 1765

ARTHUR DAILY TRIPS

TABLE OF CONTENTS

Page No.	Petition Paragraph No.	Issue
4	7	Effect on business
5	7-8	Construction

ATTACHMENTS

Title	
Map of Petitioner's Location	SC-02-3311

D1328

HOUSE OF COMMONS SELECT COMMITTEE

HIGH SPEED RAIL (LONDON - WEST MIDLANDS) BILL

PROMOTER'S RESPONSE TO PETITION OF:	Arthur Daily Trips
PETITION NO:	1765
PARAGRAPH NO:	7
ISSUE RAISED:	Effect on business
PETITION PARAGRAPH:	Your Petitioner is concerned that the construction and operation of the high speed railway and associated development at the Colne Valley, Denham Country Park poses a risk to the commercial and employment activities undertaken by Arthur Daily Trips. The current plans for HS2 mean activities will be significantly disrupted due to interference with navigation of Grand Union Canal, this will limit passenger journeys on our trip boat Arthur. Planned closure of the tow path between bridges 182 and 180 will reduce stopping and mooring of Arthur within Denham Country Park and limit passenger activities within the Country Park;

PROMOTER'S RESPONSE:

Effect of the construction of the Proposed Scheme

1. The Environmental Statement (ES) Volume 2 CFA7, Colne Valley identifies in paragraph 2.3.42 that footpath U75 located on the Grand Union Canal west towpath will be temporarily closed with a temporary alternative route to the east for a period of approximately three years and nine months adding an additional 600m. It will then be permanently reinstated along its existing alignment.

2. The Grand Union Canal itself, however, will not be closed for navigation other than for short periods while temporary works over the canal are erected or dismantled.

HOUSE OF COMMONS SELECT COMMITTEE

HIGH SPEED RAIL (LONDON - WEST MIDLANDS) BILL

PROMOTER'S RESPONSE TO PETITION OF:	Arthur Daily Trips
PETITION NO:	1765
PARAGRAPH NO:	7-8
ISSUE RAISED:	Construction

PETITION PARAGRAPH:

7. Construction of access roads, demolition of trees and destruction of wildlife habitats will impact negatively on passenger experience. Arthur Daily Trips currently attracts passengers into the first real taste of countryside West of London. Air pollution and noise from the construction of HS2 will be detrimental to our business, deter passengers and reduce beauty and value of passenger experience. HS2 plans to store significant amount of spoil and top soil in the area adjacent to the Grand Union canal, for long periods, thus reducing the beauty and tranquillity. Large quantities of dust will impact air quality. Air and water quality will be impacted adversely and this will impact the health of skipper, crew and passengers. One of the main attractions of our canal trips is the close proximity to nature and wildlife, HS2 plans to cut across the main wildlife corridor to the west of London. The construction and operation of HS2 will seriously affect the habitats and movement of mammals, insects, amphibians and birds in the Colne Valley and will be a great loss to visitors and passengers. In light of the above the route alignment of HS2 in the Colne Valley should be changed to a tunnel from a surface route. This petition is made on behalf of Arthur Daily Trips, Sarah Green and Josephine Asher.

8. Your Petitioner is concerned about the impact of the construction and operation of a high speed railway and its associated development including but not limited to construction compounds, storage compounds, overhead cranes the use of overhead cranes, construction compounds at Denham Country Park, Colne Valley.

Your Petitioner requests that the nominated undertaker is subject to binding mitigation measures to mitigate the impacts of the works. These binding mitigation measures should include but not be limited to restrictions on noise, dust, vibration construction hours, vehicle movements, operating hours, design of structures to ensure the Arthur Daily Trips can continue to function after the construction of HS2 commences.

Your Petitioner submits that the nominated undertaker has no incentive to minimize harmful environmental impacts arising from the construction and operation of the high-speed railway and submits that measures designed to ensure effective monitoring of compliance with these restrictions and enforcement of these, restrictions be introduced to the Bill. The nominated undertaker should also mitigate the impact of noise, noise, dust, vibration and impacts on visual amenity through measures such as noise insulation and barriers, sheeting of haulage vehicles, hand piling, and sympathetic design in keeping with the surrounding area.

PROMOTER'S RESPONSE:

1. The Environmental Statement (ES) proposes mitigation measures where likely temporary or permanent effects arising as a result of the Proposed Scheme have been identified. These are reported for this area in the ES Volume 2 CFA 7 report, available here:

https://www.gov.uk/government/publications/hs2-phase-one-environmental-statement-volume-2-community-forum-area-reports-and-map-books/

2. As HS2 Information Paper D3, Code of Construction Practice sets out, the draft Code of Construction Practice (CoCP) will be the means through which the Promoter will manage the effects of the construction of the Proposed Scheme on communities and the environment. It is part of the environmental and sustainability commitments that the Government will enter into through the Bill process. These commitments are known as the Environmental Minimum Requirements (EMRs) and consist of a series of framework documents which will:

- 'define the ways in which the nominated undertaker will engage with people affected by the Proposed Scheme; and
- explain how measures designed to protect communities and the environment will be put in place alongside detailed design development and construction'.

3. It is right that the draft CoCP, as part of the draft EMRs, should evolve and be subject to refinement, amendment and expansion. This is because elements of design, assessment and Parliamentary processes may develop during the passage of the Bill. A final version of the CoCP will be produced as and when the Bill achieves Royal Assent. As HS2 Information Paper D3 explains, 'the draft CoCP sets out a series of measures and standards that the Promoter and contractors appointed to deliver the Proposed Scheme will be required to meet for the duration of the construction of the Proposed Scheme. It will also ensure that potential impacts on people and the natural environment are kept to a practicable minimum'. The draft CoCP 'builds on direct experience from other major infrastructure schemes, such as HS1, Crossrail, which all followed a similar approach'.

Controls

4. The draft CoCP requires the nominated undertaker and its contractors to 'comply with all the measures set out in it as well as all applicable environmental legislation prevailing at the time of construction. The nominated undertaker and contractors will also be required to comply with relevant local standards and conditions that may be agreed with local authorities'. With regard to the term 'reasonably practicable', the commitments made by the Secretary of State through the EMRs, including the draft CoCP, are significant and onerous. Furthermore, they developed from EMRs that have been highly effective in controlling and reducing the environmental effects of previous national infrastructure projects.

5. This is explained further in Information Paper D3, Code of Construction Practice. The latest version of the draft CoCP can be found at:
www.gov.uk/government/uploads/system/uploads/attachment_data/file/259617/Vol5_draft_code_of_construction_practice_CT-003-000.pdf.

6. HS2 Information Paper E1, Control of Environmental Impacts, describes the controls contained in the Bill, in general legislation and in the Environmental Minimum Requirements (EMRs), including the CoCP, which, along with any undertakings given by the Secretary of State:
'will ensure that impacts which have been assessed in the Environmental Statement (ES) will not be exceeded, unless any new impact or impacts in excess of those assessed in the ES:

- Results from a change in circumstances which was not likely at the time of the ES;
- Would not be likely to be environmentally significant;
- Results from a change or extension to the project, where that change or extension does not itself require environmental impact assessment under either (i) article 4(1) of and paragraph 24 of Annex 1 to the EIA Directive; or (ii) article 4(2) of and paragraph 13 of Annex 2 to the EIA Directive, or
- Would be considered as part of a separate consent process (and therefore a further EIA if required).'

7. As mentioned above, the draft Code of Construction Practice (CoCP) will form part of the Environmental Minimum Requirements (EMRs). Paragraph 1.1.4 of the draft EMRs (General Principles) explains that any nominated undertaker will be contractually bound to comply with the controls set out in the draft EMRs and as they may be developed during the passage of the Bill through Parliament.

8. The draft CoCP sets out general standards/controls that the nominated undertaker will put in place to manage environmental effects arising from construction activity. It is accepted that, as part of the EMRs, the draft CoCP will evolve and be subject to refinement and expansion as elements of the design and assessment are developed through the Parliamentary process and passage of the Bill. More information is available in HS2 Information Paper E1, Control of Environmental Impacts.

9. Section 6 of HS2 Information Paper D3, Code of Construction Practice, explains how the requirements of the draft CoCP will be passed onto contractors and enforced.

Enforceability

10. As explained in HS2 Information Paper D3, Code of Construction Practice, the provisions of the draft CoCP will be written into construction contracts.

11. HS2 Information Paper D3 explains that:

> 'To ensure compliance with the environmental mitigation set out in the draft CoCP, the nominated undertaker will develop an environmental management system (EMS) in accordance with BS EN ISO 14001, the International Standard for Environmental Management Systems, full details of which are available from the International Organization for Standardisation'.

12. The Promoter's policy on community relations is set out in HS2 Information Paper G2, Community relations. General information regarding construction activities and their planned duration will be made available through the ongoing community engagement programme. An HS2 24-hour helpline and small claims procedure will also be put in place. In addition, an independent Complaints Commissioner will be appointed to investigate construction related complaints against the nominated undertaker. This is explained further in HS2 Information Paper G3, Complaints Commissioner, Information Paper C10, Small Claims Scheme and Information Paper D3, Code of Construction Practice.

13. If a local authority or individual believes that the nominated undertaker is not complying with the EMRs then ultimately it has recourse to the Secretary of State, who can intervene if the nominated undertaker is not meeting its obligations. This is set out in paragraph 3.1.11 of the draft EMRs (General Principles).

14. Local authorities will not be required to monitor construction sites – monitoring will be undertaken by the nominated undertaker. The nominated undertaker will be legally bound to ensure it meets the requirements in the CoCP and does not breach any controls within it. Accordingly the nominated undertaker will put it place appropriate monitoring practices.

Visual effects

15. The design of the Proposed Scheme to date provides the level of detail necessary for the purposes of the Bill and the requirements of the Environmental Impact Assessment Regulations. The design of the Proposed Scheme will be developed during the detailed design process, for example noise barriers associated with railway structures, to achieve the noise and vibration objectives detailed in the relevant HS2 Information Papers[1]. This work will be completed after the Bill has secured Royal Assent and local planning authorities will be able to have an appropriate level of input into and approve the detailed design thereby ensuring that the design and appearance of permanent structures fits into the local context and environment. This is explained further in the HS2 Information Paper B1, The Main

[1] HS2 Information Paper E20, Control of Airborne Noise from Altered Roads and the Operational Railway, HS2 Information Paper E21, Control of Ground-Borne Noise and Vibration from the Operation of Temporary and Permanent Railways, HS2 Information Paper E22, Control of Noise from the Operation of Stationary Systems, and HS2 Information Paper E23, Control of Construction Noise and Vibration.

Provisions of the Planning Regime and HS2 Information Paper G6, Design Development.

16. As HS2 Information Paper D1, Design Policy sets out, 'the Promoter and the nominated undertaker will seek to ensure that ... the design of all visible elements of the built and landscaped environment are sympathetic to their context, environment and social setting'.

Dust

17. Section 7 of the draft CoCP outlines that the nominated undertaker will require its contractors to manage dust, air pollution, odour and exhaust emission during the construction works in accordance with Best Practicable Means (BPM). This will include the following as appropriate:

- reference to the general site management and good housekeeping procedures (relevant to limiting dust and air pollution);
- controls and measures to control or mitigate the effect of potential nuisance caused by the construction works;
- dust and air pollution monitoring measures to be employed during construction of the project; and
- measures relevant to control risks associated with asbestos dust.

18. Section 6 of Information Paper D3, Code of Construction Practice, explains how the requirements of the draft CoCP will be passed onto contractors and enforced, as outlined above.

Noise

19. The Promoter's policy on assessing and controlling potential noise and vibration impacts caused by the construction and operation of the new railway is set out within HS2 Information Papers E20, E21, E22 and E23[4]. The policy was developed through a detailed process and reviewed by professionals able to provide an independent and experienced perspective through the Promoter's review groups and represents the Promoter's interpretation of the Government's Noise Policy Statement for England (NPSE). The setting of Lowest Observable Adverse Effect Levels (LOAELs) and Significant Observable Adverse Effect Level (SOAELs) also underwent consultation with relevant Departments (such as the Department for the Environment, Food and Rural Affairs (DEFRA)) prior to the Environmental Statement being published by the Department for Transport. Accordingly, the Promoter's setting of values for LOAELs and SOAELs had due regard to established practice, research results, guidance in national and international standards, guidance from national and international agencies and independent review by academic, industry and Government employees, along with the Promoter's representatives on the review groups.

20. With respect to the effects of noise on outdoor recreational and leisure spaces and facilities including bridleways, footpaths, canal towpaths, sports grounds, racecourses, golf courses, show grounds and nature reserves, principally because of the transitory nature of their use, no likely significant adverse noise effects on people, wildlife, horses and livestock have been identified. There is

[4] HS2 Information Papers E20, Control of Airborne Noise from Altered Roads and the Operational Railway; E21, Control of Ground-borne Noise and Vibration from the Operation of Temporary and Permanent Railways; E22, Control of Noise from the Operation of Stationary Systems and E23 Control of Construction Noise and Vibration.

further detail in the ES: Sound, noise and vibration: methodology, assumptions and assessment (route-wide) (Ref: volume 5 appendix SV-001-000, ES 3.5.0.10 Annexes F and G). Such facilities and spaces may benefit collaterally from measures provided to reduce impacts at dwellings and other noise sensitive receptors in the vicinity.

21. The design of the Proposed Scheme to date provides the level of detail necessary for the purposes of the Bill and the requirements of the Environmental Impact Assessment Regulations. The design of the Proposed Scheme will be developed during the detailed design process, for example noise barriers associated with railway structures, to achieve the noise and vibration objectives detailed in the HS2 Information Papers referenced above. This work will be completed after the Bill has secured Royal Assent and local planning authorities will be able to have an appropriate level of input into and approve the detailed design thereby ensuring that the design and appearance of permanent structures fits into the local context and environment. This is explained further in the HS2 Information Paper B1, The Main Provisions of the Planning Regime and HS2 Information Paper G6, Design Development.

22.In accordance with the draft Code of Construction Practice (CoCP), the contractors appointed to construct the railway will be required to employ 'Best Practicable Means' as defined by the Control of Pollution Act 1974 to control noise and vibration. The measures proposed will be detailed in the prior consent application to the relevant local authority under Section 61 of the Control of Pollution Act 1974. Monitoring will be undertaken as necessary to demonstrate compliance with the commitments made.

Tunnel under the Colne Valley

23. The Promoter acknowledges that there would be environmental benefits if a Colne Valley tunnel was proposed in lieu of the viaduct. However, the use of the viaduct to cross the Colne Valley is based on a combination of practical, financial and safety considerations. The lakes are large former gravel pits and the ground beneath falls well below the water level. This means that tunnelling, whilst possible, would likely be more difficult and expensive than elsewhere on the route.

24. The Promoter maintains that in order for a tunnel to pass beneath the lakes at sufficient depth and maintain appropriate design standards the tunnel would need to link the existing Northolt tunnel with the Chiltern tunnel, in effect creating a 34km long tunnel. It should be noted that apart from the Channel tunnel, which is about 50km in length, such a length of tunnel would be unprecedented in the UK mainland for a transport facility and would be about the seventh longest rail tunnel in the world by the time it was constructed. It would have significant impact on power, safety, tunnel ventilation requirements and on traveller experience. Separate petitions for northbound extensions of the Chiltern tunnel would further exacerbate these concerns.

25. With regard to tunnel construction feasibility, it is considered that additional tunnelling under the Colne Valley would need to be undertaken from the current West Hyde construction site area. This would be co-incident with the Chiltern tunnel construction area, but with increased removal of tunnel spoil required by road. A longer tunnel would also require more extensive provision for fire safety and emergency public evacuation in the event of a train failure or fire, to comply with European tunnel safety requirements. It is envisaged that, following construction, the retention of an open length of track (or 'intervention gap') at West Hyde and complying with safety regulations, would help support the tunnel safety requirements.

26. A tunnel extension under the Colne Valley would also need to retain provision for subsequent tunnel

links to Heathrow, should these connections subsequently be incorporated into the Proposed Scheme. This would require a large underground cavern on the south side of the Colne Valley, constructed within the water bearing aquifer, adding to construction risks. Provision for turn-outs from the north would need to be accommodated within the intervention gap. Tunnel construction works would also lie within Affinity Water Source Protection Zone (SPZ) 1 abstraction zones and would be likely to have restrictions applied in respect of working methods with increased risk to programme flexibility.

27. The introduction of additional tunnelling under the Colne Valley would significantly increase construction costs compared to the Proposed Scheme, after allowing for savings in utility diversions and landscaping that would be realised through use of a tunnel.

28. The Proposed Scheme includes extensive environmental measures to mitigate construction and operational impacts of the viaduct and it is considered that these, together with the additional costs and construction risks that a tunnel would cause, outweigh the lesser environmental impacts that would arise from a Colne Valley tunnel.

For: Claimants
P.E. Thompson
Statement No. 1
Exhibit: "PET1" to "PET4"
Date: 2 February 2018

Claim No:

IN THE HIGH COURT OF JUSTICE
BUSINESS AND PROPERTY COURTS
PROPERTY, TRUSTS AND PROBATE LIST (ChD)

(1) THE SECRETARY OF STATE FOR TRANSPORT
(2) HIGH SPEED TWO (HS2) LTD

Claimants

-and-

(1) PERSONS UNKNOWN ENTERING OR REMAINING WITHOUT THE CONSENT OF THE CLAIMANT(S) ON LAND AT HARVIL ROAD, HAREFIELD IN THE LONDON BOROUGH OF HILLINGDON SHOWN COLOURED GREEN, BLUE AND PINK AND EDGED RED ON THE PLANS ANNEXED TO THE CLAIM FORM

(2) PERSONS UNKNOWN INTERFERING WITH THE PASSAGE BY THE CLAIMANTS AND THEIR AGENTS, SERVANTS, CONTRACTORS, SUB-CONTRACTORS, GROUP COMPANIES, LICENSEES, INVITEES OR EMPLOYEES WITH OR WITHOUT VEHICLES, MATERIALS AND EQUIPMENT TO, FROM, OVER AND ACROSS THE PUBLIC HIGHWAYS IN THE LONDON BOROUGH OF HILLINGDON SHOWN COLOURED ORANGE AND PURPLE ON THE PLANS ANNEXED TO THE CLAIM FORM

(3) SARAH GREEN

(4) MARK KEIR

(5) GRAHAM MARSH

(6) SOFIA KAZI

(7) THORN RAMSAY

(8) VAJDA ROBERT MORDECHAJ

Defendants

EXHIBIT "PET4"
TO THE WITNESS STATEMENT OF PATRICIA EMELDA THOMPSON

Petitions

UK Government and Parliament

Petition Cancel HS2 immediately and repeal the 2013 and 2017 High Speed Rail Acts.

HS2 is a vanity project, lobbied for by the firms who will make billions out of building it, at a time of continued austerity and cuts to essential services. Independent economists, rail experts and environmentalists have all heavily criticised the project, but Governments have refused to listen.

▼More details

HS2 is not a 'magic wand' to cure the North-South divide. All the international evidence shows it will reinforce the dominance of London and increase regional divisions.

In 20 years HS2 would deliver capacity where it is needed the least, with the lowest flexibility, at the greatest cost, whilst more beneficial rail projects have already been cancelled.

The official cost of HS2 has almost quadrupled since it was proposed in 2008, and it will carry on rising unless it is immediately cancelled.

Sign this petition

25,552 signatures

Show on a map

100,000

Government responded

> HS2 will provide new rail network capacity, drive economic growth, create jobs and investment, train the next generation of engineers and better connect our major cities. It is on time and on budget.

▶Read the response in full

At 100,000 signatures...

At 100,000 signatures, this petition will be considered for debate in Parliament

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E1478

D1338

- Created by Joe Rukin
- Deadline 21 March 2018 All petitions run for 6 months
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E1479

D1339

Claim No:
IN THE HIGH COURT OF JUSTICE
BUSINESS AND PROPERTY COURTS
PROPERTY, TRUSTS AND PROBATE LIST (ChD)
BETWEEN

(1)THE SECRETARY OF STATE FOR TRANSPORT
(2) HIGH SPEED TWO (HS2) LTD

Claimants

-and-

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(8) VAJDA ROBERT MORDECHAJ

Defendants

WITNESS STATEMENT OF PATRICIA EMELDA THOMPSON

Eversheds Sutherland (International) LLP
1 Callaghan Square
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CF10 5BT

Tel 020 7497 9797
Fax 020 7919 4919
DX 33016 Cardiff
www.eversheds-sutherland.com

Ref: DILCOC/293109-000765

Solicitors for the Claimants

For: Claimants
R.W McCRAE
Statement No. 1
Exhibit:"RWM1" to "RWM8"
Date: 30 January 2018

Claim No:

IN THE HIGH COURT OF JUSTICE
BUSINESS AND PROPERTY COURTS
PROPERTY, TRUSTS AND PROBATE LIST (ChD)

(1) THE SECRETARY OF STATE FOR TRANSPORT
(2) HIGH SPEED TWO (HS2) LTD

Claimants

-and-

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Defendants

WITNESS STATEMENT OF ROBERT WILLIAM McCRAE

I, **ROBERT WILLIAM McCRAE**, of High Speed Two (HS2) Ltd, 2 Snowhill, Queensway, Birmingham, B4 6GA WILL SAY as follows:-

1. I am the Second Claimant's Project Director for Sector S2 (Northolt Tunnels) of Phase One of the High Speed Railway Project (commonly referred to as "HS2") ("the Scheme"). I am authorised to make this Statement on behalf of the Claimants in this claim. I make this statement in support of the Claimants' claim

for an injunction in respect of the land edged red on Plan A ("Plan A") attached to the Claim Form ("the Land") from matters that are within my own knowledge and information obtained from the Claimants' records unless stated otherwise.

The Scheme and the Land

2. Construction of Phase One of the Scheme is authorised by the High Speed Rail (London – West Midlands) Act 2017 ("the Act").

3. The Government and the Second Claimant engaged in extensive consultation and engagement prior to deposition the Bill that led to the Act with Parliament and as the it was a hybrid Bill, it was also subject to a petitioning process during which almost three and a half thousand petitions were considered by Select Committees. The consultation and engagement process is explained in more detail in the witness statement of Patricia Thompson in support of this claim. The Claimants are committed to continuing to engaging with stakeholders on the Scheme as it progresses. In addition, the HS2 Code of Construction Practice requires community engagement, particularly focussing on those who may be affected by construction impacts.

4. The Act was the culmination of nearly five years of work, including an Environmental Impact Assessment, the results of which were reported in an Environmental Statement submitted alongside the Bill. The First Claimant has also published Environmental Minimum Requirements, which set out the environmental and sustainability commitments that will be observed in the construction of the Scheme. All of these documents are publicly available online at: https://www.gov.uk/government/collections/hs2-phase-one-environmental-statement-documents and https://www.gov.uk/government/publications/environmental-minimum-requirements .

5. On 24 February 2017 the Second Claimant was appointed as nominated undertaker pursuant to section 45 of the Act by way of the High Speed Rail (London-West Midlands) (Nomination) Order 2017. The Second Claimant is responsible for the successful delivery of the Scheme.

6. The Land lies within the limits of deviation of the Act.

7. Section 4(1) of the Act gives the First Claimant power to acquire so much of the land within the Act limits as may be required for Phase One purposes. Pursuant to section 4(4) of the Act, the First Claimant may acquire by way of General Vesting Declaration ("GVD").

8. Section 15 and Schedule 16 of the Act gives the Second Claimant the power to take temporary possession of land within the Act limits for Phase One purposes.

9. The First Claimant is the owner of that part of the Land coloured blue on Plan A ("the Blue Land"), which is registered at HM Land Registry under title number AGL375556, an Official Copy of which is attached hereto and marked **Exhibit "RWM1"**.

10. The First Claimant has executed GVDs pursuant to Section 4 of the Act (the registration of which with HM Land Registry is pending) and accordingly is the owner of that part of the Land coloured pink on Plan A ("the Pink Land"). Copies of the GVDs are attached hereto and marked **Exhibit "RWM2".**

11. The Second Claimant has taken temporary possession of that part of the Land coloured green on Plan A ("the Green Land") pursuant to section 15 and Schedule 16 of the Act. A schedule setting out the details of the notices served pursuant to paragraph 4(1) of Schedule 16 of the Act and the dates on which possession was taken by the Second Claimant pursuant to those notices is attached hereto and marked **Exhibit "RWM3"**. In respect of the plot marked S232_045 on Plan A, notice have been served and the Second Claimant is entitled to take possession and will be taking possession in the very near future (handover arrangements are currently being made with the paper title owner, Network Rail Infrastructure Limited, as the land is railway embankment).

12. A variety of enabling works for the Scheme are currently taking place or are scheduled to have commenced on the Land, which include initial site clearance, the diversion of utilities (including 18" and 48" high pressure gas mains), access road construction, demolition works, survey and environmental mitigation works. It is anticipated that the enabling works will be completed by early 2019. The works are being carried out by the Second Claimant's enabling works contractor Costain Skanska Joint Venture ("CSJV") and by the Murphy Group ("Murphys") contractors on behalf of Cadent Gas Ltd ("Cadent"). Significant heavy plant and material movements are required both in and out of the site to service these works. Details of the works being carried out have been made publicly available online: https://hs2inhillingdon.commonplace.is/schemes/proposals/works-between-breakspear-road-south-and-harvil-road/details and https://s3-eu-west-1.amazonaws.com/commonplace-customer-files/hs2inhillingdon/AWNC1001_HARVILROAD.pdf and a copy of this information, along with the Second Claimant's Information Papers B1 (which explains the planning permission position with regard to the Scheme) and B3 (which explains the disapplication by the Act of certain legislation relating to the works) and which are also published online, are attached hereto and marked **Exhibit "RWM4"**.

13. The environmental mitigation works include the creation of ponds for great crested newts, woodland creation, habitat creation and advanced planting. It is critical that the works related to great crested newt habitats are completed by March 2018 due to breeding season and the time taken for site maturity.

14. Following completion of the enabling works, the Scheme's main works contractor will commence earthworks and other works associated with the construction of the railway, which works are anticipated to run until 2023, when the Rail Systems Contractor will take over, using this area for track, electrification, signalling and associated works for the line eastward towards Euston and northwards towards Calvert. All works are planned to complete in 2026 with the opening of the railway for operation.

15. There are two main entrances to the Land in use for the purposes of the works, known and the "North Compound Entrance" and the "South Compound Entrance". The position of these entrances are marked on Plan A. Both entrances consist of a hard tarmac surfaced widened entrance to allow vehicles to turn into and to exit the site. Each entrance has a bell-mouth that will allow a vehicle to pull in safely off the main road before being allowed to enter the site through a manned entry gate / barrier, to which all vehicles have to report before entering the site. Two further similar entrance ways are planned within the next six to twelve months into the plot labelled C111_046 (at the north-west end of Plan A) and into the plot labelled S232_040 (at the south-east end of Plan A)

16. The North Compound Entrance and the South Compound Entrance abut the Harvil Road public highway, but have not been adopted or dedicated as highway themselves and we therefore consider it unlikely that they have highway status. However, the Claimants have a right to access the Land from the public highway and obstruction of these areas is therefore a nuisance in addition to being a trespass and the Claimants are entitled to seek to restrain those activities. Obstruction of these areas can also have the effect of causing an obstruction to the highway itself where large vehicles are prevented from fully exiting the highway and therefore remain partly or wholly on the highway. It is notable that the Defendants have sought to exploit the position, preferring to have their activities classified as trespass rather than obstruction of the highway in order to avoid arrest whilst maintaining their disruption to the works on the Land (see, for example, the incidents on 9 and 10 January 2018 described in the Second Witness Statement of Julie Amber Dilcock).

17. In view of the concentrated activities of the Defendants in the vicinity of these entrances to date, the Claimants reasonably fear that these activities will continue and that they will also take place in the vicinity of the two further planned entrances when they are opened. Accordingly, the Claimants are seeking specifically to restrain obstructive activities (as set out in the draft Order) in the vicinity of these entrances, being the areas coloured purple on Plans A, B, C, D, E and F attached to the Claim Form and marked "Exclusion Zone A", "Exclusion Zone B", Exclusion Zone C" and "Exclusion Zone D".

18. The land coloured orange ("Orange Highway") on Plan B is designated public highway.

19. Two public rights of way cross the Land: U34 and U42, the locations of which are shown on Plan A. Section 3 and paragraph 2(2) of Schedule 4 of the Act provide for U42 to be partially stopped up and diverted onto a new permanent alignment as part of the works taking place on the Land. The Claimants are not seeking to prevent lawful use of these public rights of way.

Opposition to the Scheme works on the Land

20. There is local opposition to the Scheme and petitions were submitted by the community and members of protest groups during the passage of the Bill through Parliament. The opposition ranges across issues related to disruption, noise, visual impact, economic feasibility / benefits and environmental impact. The "About Us" page from the website of the group "Stop HS2" sets out some of the issues with which those who are opposed to the Scheme are concerned and a copy of this is attached hereto and marked **Exhibit "RWM5"**. Local opposition is discussed further in the Witness Statement of Patricia Thompson in support of this claim.

Trespass and Obstruction

21. Since the beginning of October 2017, there have been in excess of 45 incidents of trespass on the Land and to vehicles and obstruction of the Orange Highway and access thereto and therefrom by way of "direct action" protest against the Scheme.

22. On 16 October 2017, an "encampment" was established by those protesting against the Scheme, partly on the verge of Harvil Road public highway, opposite the North Compound Entrance ("the Encampment"), consisting of tents and a fire-pit and seating area and including banners demonstrating the occupants' opposition to the Scheme. Photographs of the Encampment are attached hereto and marked **Exhibit "RWM6"**. The location of the Encampment is indicated by a dark blue rectangle and labelled on Plan A. A number of individuals are now regularly sleeping there (including the Third and Fifth Defendants) and a constant presence is maintained. The Defendants appear to have used the Encampment as a base of operations for their trespass and obstruction activities and the constant presence of Defendants in the Encampment means that those working on the site are under threat of such activities 24 hours a day. See, for example, the descriptions in the Second Witness Statement of Julie Amber Dilcock of the incidents on 21 October 2017 (trespass and damage to site fencing during darkness and following an "event" at the Encampment) and 30 November and 2 December 2017 (Seventh Defendant climbing onto the welfare cabin at North Compound Entrance at the site in the early hours of the morning).

23. The Second Claimant has a structured contingency, assessment and validation, activation and response to any Incidents which our suppliers trigger if they request HS2 support through the Helpdesk (HS2 Enquiries Desk) and incident reporting via an electronic system known as AssessNet. In respect of protestor Incidents we have a settled designated process for assessment, validation, escalation and decision making with support from specialist security and Enforcement Officer professionals and from the police where required.

24. AssessNET is the Second Claimant's on-line incident reporting system, which is where we capture a range of different incidents, (including health, safety, security and environmental) that have occurred on our work areas or through the work being carried out by the Second Claimant or its supply chain. This is to facilitate capture and recording of information, support any necessary investigation and also allows any learning points to be shared. The Second Claimant's principal supply chain companies have direct access to AssessNET. They are able to record incidents directly on to the system, or call them into the HS2 Enquiries Desk for the team there to record.

25. A schedule of incidents at the Land produced from the information recorded on the AssessNET system and information obtained from video footage and material posted on the internet by protestors, giving brief details of each incident is attached hereto and marked **Exhibit "RWM7"**. The Second Witness Statement of Julie Amber Dilcock given in support of this claim describes some of those incidents in greater detail by way of illustration of the nature and extent of the interference with their rights that the Claimants have been experiencing. Information about the identification of the named Defendants is set out in the Witness Statement of the Claimants' solicitor, Julie Amber Dilcock, given in support of this claim.

26. In general, the Claimants and their contractors have been subject to a near constant level of disruption by way of trespass and obstruction of access to the Land since the beginning of October. The Defendants have clearly stated - both to contractors and via social media - their intention to significantly slow down or stop the work on the Land because they are opposed to the Scheme. They have trespassed on the Land on multiple occasions and have issued encouragement via social media to others to come and trespass on the Land. Their activities have impeded contractors going about their lawful business on the Land and hampered the work on the Scheme, causing delays and creating an unreasonably difficult and stressful work environment for those who work on the Land.

27. The police have made arrests and have had to commit significant resources to attending incidents at the Land, dealing with obstruction of the highway and overseeing the removal of the Defendants from the Land specialist security

officers in order to prevent a breach of the peace or other criminal offences being committed.

28. Harvil Road is the main route to Harefield Hospital and accordingly, activities that prevent or obstruct the flow of traffic along that road, in addition to causing hazards and an unreasonable interference with use of the road by the Second Claimant's contractors and suppliers and members of the public, also have the potential to cause serious consequences for those needing to get to and from the Hospital.

29. The Second Claimant has an agreed traffic management plan with Hillingdon Borough Council which provides for traffic management zones ("TMZ") to be created adjacent to the entrances to the Land when vehicles require access, this is to facilitate the safe movement of large vehicles in and out of the site. The TMZs are established by contractors using cones, heras fencing and temporary traffic control prior to arrival or departure of a vehicle and then removed after the operation has taken place to minimise disruption to the flow of traffic on the road. The activities of the Defendants in obstructing the passage of vehicles into and out of the site have resulted in incidents where the applicable TMZ has been in place for much longer than would ordinarily be required, causing unnecessary disruption to the passage of traffic on the road. By way of example, see the incident on 17 November 2017 described in the Second Witness Statement of Julie Amber Dilcock, where the Third Defendant climbed on top of an excavator machine on a low loader in the TMZ and remained there for almost 5 hours, meaning that the machine could not be unloaded, the low loader had to remain in the TMZ and the TMZ had to remain in place.

Health and Safety Concerns

30. Harvil Rd is a particularly busy road and interference with our vehicles as they enter or leave the site puts the safety of the protestors and other road users at risk. We have on a number of occasions had to suspend vehicle movements in and out of the site due to the activities of the Defendants because of the risk of injury to them, to our contractors and other road users. We have serious concerns that if the activities of the Defendants continue, there is a high likelihood that someone will be seriously injured.

31. On site, we already have a large amount of heavy plant and more will be added as works progress, the dangers posed by that machinery to unauthorised individuals walking and running through the Land or sitting or lying down are obvious. All staff and contractors working on the site are provided with intensive training and inductions so they fully understand the hazards posed by working on such on site and they are provided with appropriate personal protective equipment, including high visibility clothing. Without such familiarisation anyone entering the site puts themselves at risk when in the vicinity of hazardous

operations. The Claimants are acutely aware of the hazards associated with major construction sites and wish to ensure that only those competent to do so and with a full understanding of all site hazards enter our sites. Again, we have serious concerns that if the activities of the Defendants continue, there is a high likelihood that someone will be seriously injured.

32. Whilst the disruption and delay caused to the works by the activities of the Defendants was a significant factor in the Claimants deciding to seek an injunction, the main factor was serious concerns about the safety of employees, contractors, suppliers and the Defendants themselves and those concerns mean that the Claimants felt compelled to act to try to prevent further such dangerous activities.

Attempts to engage with protestors

33. The Claimants fully understand that in addition to huge benefits, the impact of the Scheme will be huge too. Understanding local concerns and taking all reasonable steps to address any issues that are raised whilst continually seeking to lessen the impacts of the project are extremely important to the Claimants. The Claimants' community engagement strategy is discussed in more detail in the statement of Patricia Thompson in support of this claim.

34. Numerous attempts have been made to engage with and communicate information to those opposed to the Scheme. We are realistic about the fact that we are unlikely to alter their views about the merits of the Scheme, but we have sought to explain the dangers of the activities they are engaged in and have requested that they cease the acts of trespass and obstruction. Unfortunately, the Defendants have signalled their intention to continue.

35. Prior to issuing this claim, we sent letters before action and posted up warning notices around the North Compound Entrance and delivered copies of the same to the Encampment. The letters addressed to individuals all had the same content and a copy of the letter addressed to the Third Defendant is attached hereto and marked **Exhibit "RWM8"** by way of example. A copy of the notice is also attached hereto and marked **Exhibit "RWM8"**. The letters warned that the Claimants intended to apply for an injunction and invited the recipients to undertake not to engage in any further unlawful activity. No such undertakings have been received. A letter was received from the Third Defendant in response and which signals her intent to continue her activities (a copy of that letter is appended to the Second Witness Statement of Julie Amber Dilcock).

Other means of protest

36. The Defendants clearly have other lawful means of protest available to them and which can be exercised without infringing the criminal law, trespassing upon the Land or vehicles or obstructing access to the Land.

Need for an Injunction

37. Given the large number of incidents of trespass and obstruction experienced by the Claimants at the Land since October 2017 and the stated commitment of the Defendants to continue with the unlawful activity, the Claimants reasonably fear that the Land remains at significant risk of trespass by the Defendants and that incidents of trespass to vehicles and obstruction access will continue. In fact, the Claimants consider it likely that unlawful activity by the Defendants will escalate as works on the Land progress if unchecked by the Court. The Defendants' activities place both themselves and the Claimants' contractors and employees at significant risk of injury or even death and it is that overriding concern that has led to the Claimants' decision to seek the assistance of the Court in preventing further incidents.

38. The incidents that have already occurred have caused loss and damage via damage to property, suspension and delay of works and the need to incur the costs of specialist security to respond to and deal with incidents. A significant amount of police time has also been expended. The incidents are distressing to the Claimants' contractors and employees. It remains the case that the Defendants do not have the consent or permission of the Claimants to enter onto the Land and the Claimants do not want the Defendants on the Land.

39. The Claimants are therefore asking the Court to make an injunction in the form attached to the Application Notice.

I believe that the facts stated in this witness statement are true.

Signed: .....
ROBERT WILLIAM McCRAE

Dated: 30 January 2018

For: Claimants
R.W McCRAE
Statement No. 1
Exhibit: "RWM1" to "RWMB"
Date: 30 January 2018

Claim No:

IN THE HIGH COURT OF JUSTICE
BUSINESS AND PROPERTY COURTS
PROPERTY, TRUSTS AND PROBATE LIST (ChD)

(1) THE SECRETARY OF STATE FOR TRANSPORT
(2) HIGH SPEED TWO (HS2) LTD

Claimants

-and-

(1) PERSONS UNKNOWN ENTERING OR REMAINING WITHOUT THE CONSENT OF THE CLAIMANT(S) ON LAND AT HARVIL ROAD, HAREFIELD IN THE LONDON BOROUGH OF HILLINGDON SHOWN COLOURED GREEN, BLUE AND PINK AND EDGED RED ON THE PLANS ANNEXED TO THE CLAIM FORM

(2) PERSONS UNKNOWN INTERFERING WITH THE PASSAGE BY THE CLAIMANTS AND THEIR AGENTS, SERVANTS, CONTRACTORS, SUB-CONTRACTORS, GROUP COMPANIES, LICENSEES, INVITEES OR EMPLOYEES WITH OR WITHOUT VEHICLES, MATERIALS AND EQUIPMENT TO, FROM, OVER AND ACROSS THE PUBLIC HIGHWAYS IN THE LONDON BOROUGH OF HILLINGDON SHOWN COLOURED ORANGE AND PURPLE ON THE PLANS ANNEXED TO THE CLAIM FORM

(3) SARAH GREEN

(4) MARK KEIR

(5) GRAHAM MARSH

(6) SOFIA KAZI

(7) THORN RAMSAY

(8) VAJDA ROBERT MORDECHAJ

Defendants

EXHIBIT "RM1"
TO THE WITNESS STATEMENT OF ROBERT WILLIAM McCRAE

HM Land Registry

Official copy of register of title

Title number AGL375556 | Edition date 04.10.2016

- This official copy shows the entries on the register of title on 24 JAN 2018 at 09:24:15.
- This date must be quoted as the "search from date" in any official search application based on this copy.
- The date at the beginning of an entry is the date on which the entry was made in the register.
- Issued on 24 Jan 2018.
- Under s.67 of the Land Registration Act 2002, this copy is admissible in evidence to the same extent as the original.
- This title is dealt with by HM Land Registry, Wales Office.

A: Property Register

This register describes the land and estate comprised in the title.

HILLINGDON

1 The Freehold land shown edged with red on the plan of the above title filed at the Registry and being Land on the east side of Harvil Road and on the south west side of Newyeare Green Lane, Harefield.

2 (28.04.2016) The land has the benefit of any legal easements granted by a Transfer of the land in this title dated 15 April 2016 made between (1) Intervet UK Production Limited and (2) The Secretary of State for Transport but is subject to any rights that are reserved by the said deed and affect the registered land.

NOTE 1:-Copy filed.

NOTE 2: No copy of the Agreement dated 15 April 2016 referred to has been lodged at the Land Registry.

3 (28.04.2016) The Transfer dated 15 April 2016 referred to above contains provisions as to light or air and boundary structures and a provision excluding the operation of section 62 of the Law of Property Act 1925 as therein mentioned.

B: Proprietorship Register

This register specifies the class of title and identifies the owner. It contains any entries that affect the right of disposal.

Title absolute

1 (28.04.2016) PROPRIETOR: THE SECRETARY OF STATE FOR TRANSPORT of Great Minster House, 33 Horseferry Road, London SW1P 4DR.

2 (28.04.2016) RESTRICTION: No disposition of the part of the registered estate shown edged yellow on the title plan by the proprietor of the registered estate is to be registered without a certificate signed by the proprietor for the time being of the estate registered under title number MX334605 or their conveyancer that the provisions of clause 6 of the Transfer dated 15 April 2016 made between (1) Intervet UK Production Limited and (2) The Secretary of State for Transport have been complied with or that they do not apply to the disposition.

E1491

D1351

Title number AGL375556

C: Charges Register

This register contains any charges and other matters that affect the land.

1 The land tinted mauve on the title plan is subject to rights of drainage.

2 A Conveyance of other land dated 12 April 1929 and made between (1) George Rose (Vendor) (2) Barclays Bank Limited (3) The Great Western and Great Central Railways Joint Committee and (4) Great Western Railway Company And the London and North Eastern Railway Company contains covenants by the Vendor affecting the land tinted mauve on the title plan but no particulars thereof were supplied on first registration.

3 A Conveyance dated 29 January 1930 made between (1) George Rose (Vendor) (2) Barclays Bank Limited and (3) Horatio Greenfield contains covenants by the Vendor affecting the land tinted mauve on the title plan details of which are set out in the schedule hereto.

4 A Conveyance of the land tinted mauve on the title plan and other land dated 28 November 1935 made between (1) George Rose (Vendor) (2) The North Central Wagon Company Limited (Mortgagee) and (3) Harmans Uxbridge Brewery Limited (Purchaser) contains covenants details of which are set out in the schedule of restrictive covenants hereto.

5 A Conveyance affecting the land edged blue and edged yellow on the title plan and other land dated 31 December 1936 made between (1) George Rose (Vendor) and (2) Walter Randle Giles (Purchaser) contains covenants details of which are set out in the schedule of restrictive covenants hereto.

6 The land tinted pink on the title plan is subject to rights relating to the laying, using and maintenance of gas mains, pipes and ancillary apparatus granted by a Deed dated 31 December 1965 made between (1) Glaxo Laboratories Limited and (2) North Thames Gas Board. The said Deed also contains restrictive covenants.

NOTE: Copy filed under MX334605.

7 The land tinted blue on the title plan is subject to the easements rights and restrictive covenants contained in and granted by a Deed of Grant dated 19 June 1973 made between (1) Glaxo Laboratories Limited and (2) Lee Valley Water Company.

NOTE: Copy filed under MX334605.

8 By a Deed of Variation dated 23 January 1981 made between (1) Glaxo Operations UK Limited and (2) British Gas Corporation supplemental to the Deed of Grant dated 31 December 1969 referred to above the extent of the land affected thereby was amended to exclude the land tinted pink and hatched blue and to additionally include the land tinted yellow on the title plan.

NOTE: No copy of the Deed referred to above is held by Land Registry.

9 (22.06.1995) The land is subject to the rights granted by a Deed dated 9 March 1995 made between (1) Mallinckrodt Veterinary Limited and (2) Three Valleys Water Plc.

The said Deed also contains restrictive covenants by the grantor.

NOTE:-Copy filed under MX334605.

10 (29.06.2008) The land is subject to the rights granted by a Deed of Grant dated 2 June 2008 made between (1) S-P Veterinary Limited and (2) National Grid Gas Plc.

The said Deed also contains restrictive covenants by the grantor.

NOTE:-Copy filed under MX334605.

Schedule of restrictive covenants

1 The following are details of the covenants contained in the Conveyance

Schedule of restrictive covenants continued

dated 29 January 1930 referred to in the Charges Register:-

Not at any time hereafter to use or allow any part of the said Harefield Place Estate for the time being remaining vested in him to be used as a hotel or country club but this shall not preclude the Vendor his heirs executors administrators or assigns the owner or owners for the time being of the residue of the said Harefield Place Estate from erecting or allowing to be erected on such site as he or they may desire in the neighbourhood of South Harefield Station an inn or tavern or public house or other provision for the ordinary accommodation of travellers (not to be used however for residential purposes) or from using or allowing to be used any part of the said Harefield Place Estate or any premises that are now or may hereafter be erected thereon for the purposes of golf tennis or other sports or games clubs with clubhouses and the usual accommodation And further that on any sale or lease by the Vendor of all or any part of the said Harefield Place Estate as is now vested in him the Vendor will impose such a restriction covenant or covenants as will prohibit the lessee or purchaser from committing any breach of the said covenant by the Vendor in this clause contained and upon his so doing the vendor shall be released from all personal liability under the covenants in this clause contained.

2 The following are details of the covenants contained in the Conveyance dated 28 November 1935 referred to in the Charges Register:-

"FOR the benefit of the Harefield Place Estate belonging to the Vendor and so as to bind the premises described in the said First Schedule the Purchasers hereby covenant with the vendor and as a separate covenant with the Mortgagees that they the Purchaser and the persons deriving title under them will henceforth at all times hereafter observe and perform all and singular the restrictions and stipulations contained in the Fourth Schedule hereto.

THE FOURTH SCHEDULE

1. The building line is to be at the distance from the road prescribed by the Uxbridge Urban District Council Town Planning Scheme.

2. Plans showing the positions of all buildings proposed to be erected upon the land described in the said First Schedule (hereinafter in this Schedule referred to as "the Land") together with sections showing the height of such buildings are to be submitted to and approved by the vendor's Surveyors before the Purchasers commence to build but such consent shall not be unreasonably withheld. The Purchasers shall pay the sum of £2.2.0. for the approval by the Vendor's Surveyors of the plan or plans submitted to them of any building proposed to be erected upon the land.

4. No corrugated iron building shall at any time be erected on the land.

5. No temporary building of any kind is to be erected on the land except sheds or workshops to be used only for the works incidental to the erection of the buildings which may be erected and subject to the permission of the Vendors' Surveyors and under their directions.

6. No clay earth sand or gravel shall without the consent of the vendor be excavated or removed from the land other than necessary for the purposes of the buildings to be erected nor shall any brickmaking be carried on or any sale of building materials be held there.

7. No clay or earth shall be burnt into ballast on the land and no excavation for the purpose of obtaining gravel or sand shall be made thereon in such a manner as to withdraw support from any adjoining owner's land or below the level and within six feet of any adjoining building without the consent of such adjoining owner.

8. The Purchaser shall within one month from the completion of their purchase erect and for ever maintain suitable boundary fences on the sides marked "T" on the said plan "A" Such fences shall not be less than. Four feet or more than Six feet in height and shall be of a

Schedule of restrictive covenants continued

description and pattern approved by the Vendor's Surveyors. If the Purchasers shall make default in erecting such fences as aforesaid the adjoining owner or the Vendor shall be at liberty forthwith to erect such fences and to erect and keep in repair a temporary fence and the Purchasers shall on demand repay to such adjoining owner or to the Vendor all money expended in so doing.

9. In respect of the residue of the Harefield Place Estate and of any land belonging to him the Vendor reserves the right (subject to the covenant by the Vendor affecting the land described in the Second Schedule hereto hereinbefore contained) to deal therewith without reference to and independent of these restrictions and stipulations.

10. The Purchasers shall be at liberty to carry on upon the land the trade or business of an Inn Tavern and Public House keeper with such provision for the ordinary non-residential accommodation of travellers subject thereto no building erected on the land shall be used as a Hotel or country club or for the purpose of any gold tennis or other sports or games Club or an advertising station school or chapel or convalescent home or hospital or for the reception of persons mentally afflicted or (so long as the necessary licenses can be obtained for the carrying on of the trade or business of an Inn or Tavern or public house with such provision for the ordinary non-residential accommodation of travellers) for any other trade or business and no fence shall be used for exhibiting advertisements and no hut shed caravan or house-on-wheels shall be placed or used on any portion of the land and the land or any house or building thereon shall not be used for any purpose which may be a nuisance or annoyance to any adjoining owner or to the Vendor his successors or assigns or the neighbourhood.

11. No right of light air or other easement shall pay or be deemed to pass by virtue of the conveyance to the Purchasers which shall in any way prevent or interfere with the development of the adjoining land of the Vendor for building purposes or prevent the Vendor or his successors in title from erecting buildings thereon as he or they may think fit".

NOTE: The "T" marks referred to in clause 9 above affect the eastern and northern boundaries of the land tinted mauve on the title plan.

3 The following are details of the covenants contained in the Conveyance dated 31 December 1936 referred to in the Charges Register:-

The Purchaser to the intent that this covenant should be binding so far as might be on the owner for the time being of the hereditaments thereby conveyed but upon the Purchaser only so long as he was the owner of the same hereditaments thereby covenanted with the Vendor for the benefit of the remaining part of the Vendors Harefield Place Estate that the purchaser and his successors in title would at all times thereafter observe and perform the restrictions and conditions set out in the second Schedule thereto.

THE SECOND SCHEDULE above referred to

1. Not at any time thereafter to use or allow any part of the said property to be used as a Hotel or Country club but this should not preclude the Vendor his heirs executors administrators or assigns the owner or owners for the time being of the residue of the said Harefield Place Estate from erecting or allowing to be erected on such site as he or they might desire in the neighbourhood of South Harefield Station an Inn or Tavern or Public House or other provision for the ordinary accommodation of travellers (not to be used however for residential purposes) or from using or allowing to be used any part of the said Harefield Place Estate or any premises that were then or might thereafter be erected thereon for the purposes of golf Tennis or other Sports or Games Clubs with Club houses and the usual accommodation.

2. Not at any time thereafter to use or permit to be used the said property or any part thereof or any buildings then or thereafter to be erected thereon for the trade or business of a licensed victualler or seller of beer and/or wines and spirits.

Title number AGL375556

End of register

D1355

For: Claimants
R.W McCRAE
Statement No. 1
Exhibit:"RWM1" to "RWM8"
Date: 30 January 2018

Claim No:

IN THE HIGH COURT OF JUSTICE
BUSINESS AND PROPERTY COURTS
PROPERTY, TRUSTS AND PROBATE LIST (ChD)

(1) THE SECRETARY OF STATE FOR TRANSPORT
(2) HIGH SPEED TWO (HS2) LTD

Claimants

-and-

(1) PERSONS UNKNOWN ENTERING OR REMAINING WITHOUT THE CONSENT OF THE CLAIMANT(S) ON LAND AT HARVIL ROAD, HAREFIELD IN THE LONDON BOROUGH OF HILLINGDON SHOWN COLOURED GREEN, BLUE AND PINK AND EDGED RED ON THE PLANS ANNEXED TO THE CLAIM FORM

(2) PERSONS UNKNOWN INTERFERING WITH THE PASSAGE BY THE CLAIMANTS AND THEIR AGENTS, SERVANTS, CONTRACTORS, SUB-CONTRACTORS, GROUP COMPANIES, LICENSEES, INVITEES OR EMPLOYEES WITH OR WITHOUT VEHICLES, MATERIALS AND EQUIPMENT TO, FROM, OVER AND ACROSS THE PUBLIC HIGHWAYS IN THE LONDON BOROUGH OF HILLINGDON SHOWN COLOURED ORANGE AND PURPLE ON THE PLANS ANNEXED TO THE CLAIM FORM

(3) SARAH GREEN

(4) MARK KEIR

(5) GRAHAM MARSH

(6) SOFIA KAZI

(7) THORN RAMSAY

(8) VAJDA ROBERT MORDECHAJ

Defendants

EXHIBIT "RM2"
TO THE WITNESS STATEMENT OF ROBERT WILLIAM McCRAE

HIGH SPEED RAIL (LONDON – WEST MIDLANDS) ACT 2017

HIGH SPEED RAIL (LONDON – WEST MIDLANDS) GENERAL VESTING DECLARATION No. 43

This **GENERAL VESTING DECLARATION** is executed on 7th November 2017 by the Secretary of State for Transport ("the Authority").

WHEREAS:

(1) On 23 February 2017 the High Speed Rail (London – West Midlands) Act 2017 ("the High Speed Rail Act") received Royal Assent authorising the Authority to acquire the land specified in the Schedule hereto.

(2) Section 4(1) of the High Speed Rail Act authorises the Authority to acquire compulsorily so much of the land within the limits of the High Speed Rail Act as may be required for Phase One purposes[1].

(3) Section 4(4) of the High Speed Rail Act provides that the Compulsory Purchase (Vesting Declarations) Act 1981 ("the 1981 Act") applies as if the High Speed Rail Act were a compulsory purchase order and paragraph 3[2] of Schedule 6 to the High Speed Rail Act provides that the 1981 Act shall have effect subject to the modifications specified in that paragraph.

(4) Notice pursuant to section 3A[3] of the 1981 Act was first published on 27 October 2017. That notice included the particulars specified in section 3A(3) of the 1981 Act.

NOW THIS DEED WITNESSETH that, in exercise of the powers conferred on it by section 4 of the 1981 Act, the Authority hereby declares:-

1. The land described in the Schedule hereto (being part of the land authorised to be acquired by the High Speed Rail Act) and more particularly delineated and shown coloured pink on the plan annexed hereto, together with the right to enter upon and take possession of the land, shall vest in the Authority as from the end of the period of 3 months from the date on which the service of notices required by section 6[4] of the 1981 Act is completed.

For the purposes of Section 2(2) of the 1981 Act, the specified period in relation to the land comprised in this declaration is one year and one day.

---

1 Phase One Purposes has meaning given by section 67 of the High Speed Rail Act.

2 Paragraph 3 as substituted by section 12 of, and paragraph 6 of Schedule 14 to, the High Speed Rail Act.

3 Section 3A of the 1981 Act as inserted by paragraph 3(4) of Schedule 6 to the High Speed Rail Act as substituted by section 11 of, and paragraphs 6 and 7 of Schedule 14 to, that Act.

4 Section 6 as modified by paragraph 3(6) of Schedule 6 to the High Speed Rail Act, as substituted by section 11 of, and paragraph 6 of Schedule 14 to, that Act.

SCHEDULE

London Borough of Hillingdon

(1) Plot No.	(2) Description
01557	All interests in 70517.95 square metres, or thereabouts, of agricultural land and woodland (Copthall Covert).

E1498

D1358

IN WITNESS WHEREOF the Secretary of State for Transport has hereunto set its corporate seal on the day in the year first written above.

The **CORPORATE SEAL** of the SECRETARY OF STATE FOR TRANSPORT hereunto affixed to this deed is authenticated by

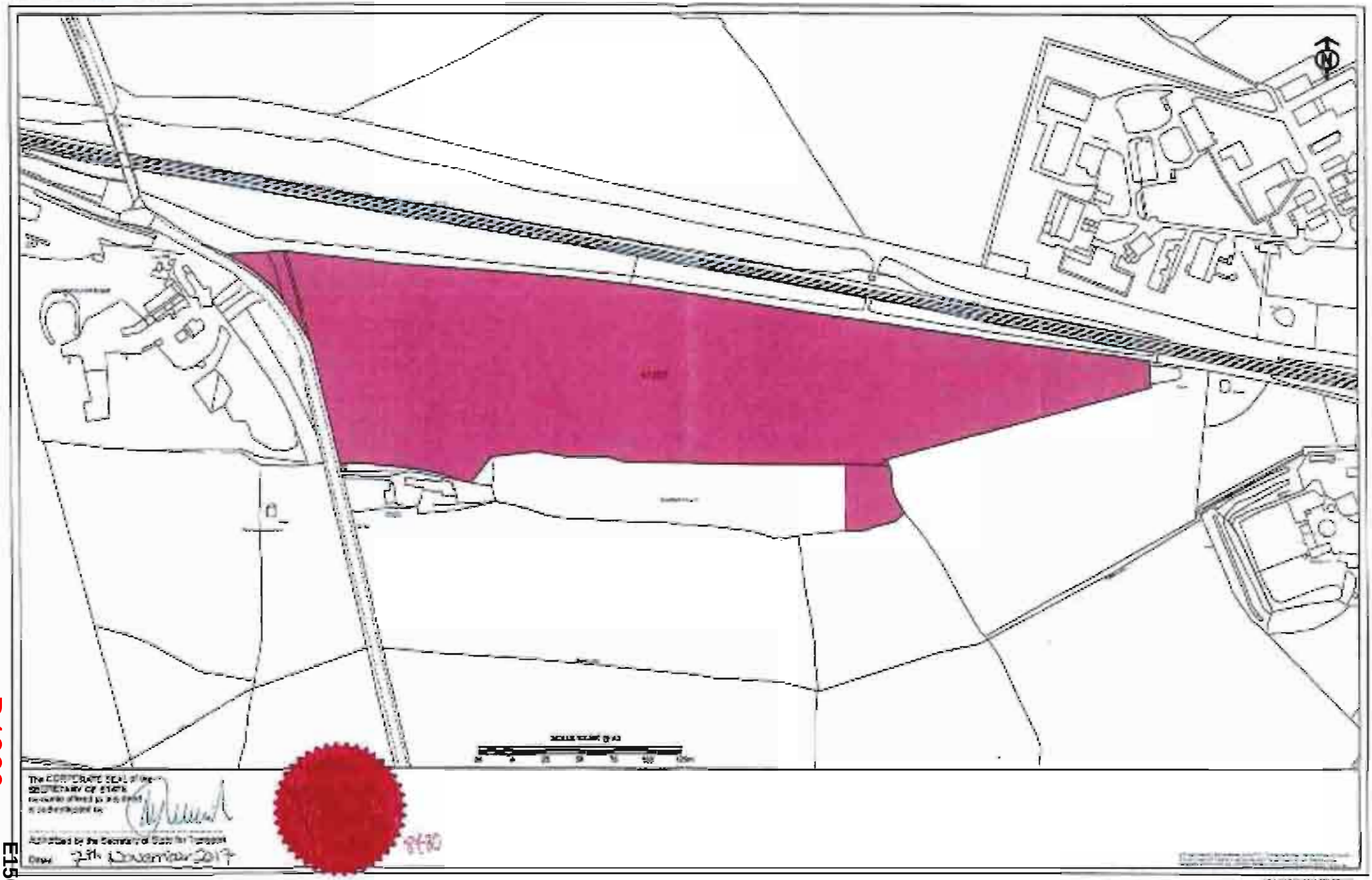
SEAL REF No. 0071(8430

.....

Authorised Signatory

Dated : 7th November 2017

HIGH SPEED RAIL (LONDON – WEST MIDLANDS) ACT 2017
GENERAL VESTING DECLARATION No. 43
SHEET 1 of 1



D1360

E1500

HIGH SPEED RAIL (LONDON – WEST MIDLANDS) ACT 2017

HIGH SPEED RAIL (LONDON – WEST MIDLANDS) GENERAL VESTING DECLARATION No. 33

This **GENERAL VESTING DECLARATION** is executed on 6th September 2017 by the Secretary of State for Transport ("the Authority").

WHEREAS:

(1) On 23 February 2017 the High Speed Rail (London – West Midlands) Act 2017 ("the High Speed Rail Act") received Royal Assent authorising the Authority to acquire the land specified in the Schedule hereto.

(2) Section 4(1) of the High Speed Rail Act authorises the Authority to acquire compulsorily so much of the land within the limits of the High Speed Rail Act as may be required for Phase One purposes[1].

(3) Section 4(4) of the High Speed Rail Act provides that the Compulsory Purchase (Vesting Declarations) Act 1981 ("the 1981 Act") applies as if the High Speed Rail Act were a compulsory purchase order and paragraph 3[2] of Schedule 6 to the High Speed Rail Act provides that the 1981 Act shall have effect subject to the modifications specified in that paragraph.

(4) Notice pursuant to section 3A[3] of the 1981 Act was first published on 25 August 2017. That notice included the particulars specified in section 3A(3) of the 1981 Act.

NOW THIS DEED WITNESSETH that, in exercise of the powers conferred on it by section 4 of the 1981 Act, the Authority hereby declares:-

1. The land described in the Schedule hereto (being part of the land authorised to be acquired by the High Speed Rail Act) and more particularly delineated and shown coloured pink on the plan annexed hereto, together with the right to enter upon and take possession of the land, shall vest in the Authority as from the end of the period of 3 months from the date on which the service of notices required by section 6[4] of the 1981 Act is completed.

For the purposes of Section 2(2) of the 1981 Act, the specified period in relation to the land comprised in this declaration is one year and one day.

---

1 Phase One Purposes has meaning given by section 67 of the High Speed Rail Act

2 Paragraph 3 as substituted by section 11 of, and paragraph 6 of Schedule 14 to, the High Speed Rail Act.

3 Section 3A of the 1981 Act as inserted by paragraph 3(2) of Schedule 6 to the High Speed Rail Act as substituted by section 11 of, and paragraphs 6 and 7 of Schedule 14 to, that Act.

4 Section 6 as modified by paragraph 3(3) of Schedule 6 to the High Speed Rail Act, as substituted by section 11 of, and paragraph 6 of Schedule 14 to, that Act

E1501

D1361

SCHEDULE

London Borough of Hillingdon

(1) Plot No.	(2) Description
01191	All interests in 859.60 square metres, or thereabouts, of shrubland and public bridleway (U42) (west of Breakspear Road South).
01192	All interests in 4721.09 square metres, or thereabouts, of agricultural land (north west of Breakspear Road South).
01193	All interests in 1606.55 square metres, or thereabouts, of house, garage, garden and premises (Gatemead Farm, Breakspear Road South).

IN WITNESS WHEREOF the Secretary of State for Transport has hereunto set its corporate seal on the day in the year first written above.

The **CORPORATE SEAL** of the SECRETARY OF STATE FOR TRANSPORT hereunto affixed to this deed is authenticated by

.....

Authorised Signatory

Dated: 6th September 2017

SEAL REF No. DfT 8341

HIGH SPEED RAIL (LONDON – WEST MIDLANDS) ACT 2017
GENERAL VESTING DECLARATION No.33
SHEET 1 of 1

The CORPORATE SEAL of the SECRETARY OF STATE hereunto affixed to this deed is authenticated by

Authorised by the Secretary of State for Transport

Dated 6th September 2017

SEAL REF No. 1 DfT 6341

D1364

E1504

HIGH SPEED RAIL (LONDON – WEST MIDLANDS) ACT 2017

HIGH SPEED RAIL (LONDON – WEST MIDLANDS) GENERAL VESTING DECLARATION No. 8

This **GENERAL VESTING DECLARATION** is executed on 18th July 2017 by the Secretary of State for Transport ("the Authority").

WHEREAS:

(1) On 23 February 2017 the High Speed Rail (London – West Midlands) Act 2017 ("the High Speed Rail Act") received Royal Assent authorising the Authority to acquire the land specified in the Schedule hereto.

(2) Section 4(1) of the High Speed Rail Act authorises the Authority to acquire compulsorily so much of the land within the limits of the High Speed Rail Act as may be required for Phase One purposes[1].

(3) Section 4(4) of the High Speed Rail Act provides that the Compulsory Purchase (Vesting Declarations) Act 1981 ("the 1981 Act") applies as if the High Speed Rail Act were a compulsory purchase order and paragraph 3[2] of Schedule 6 to the High Speed Rail Act provides that the 1981 Act shall have effect subject to the modifications specified in that paragraph.

(4) Notice pursuant to section 3A[3] of the 1981 Act was first published on 12 July 2017. That notice included the particulars specified in section 3A(3) of the 1981 Act.

NOW THIS DEED WITNESSETH that, in exercise of the powers conferred on it by section 4 of the 1981 Act, the Authority hereby declares:-

1. The land described in the Schedule hereto (being part of the land authorised to be acquired by the High Speed Rail Act) and more particularly delineated and shown coloured pink on the plan annexed hereto, together with the right to enter upon and take possession of the land, shall vest in the Authority as from the end of the period of 3 months from the date on which the service of notices required by section 6[4] of the 1981 Act is completed.

For the purposes of Section 2(2) of the 1981 Act, the specified period in relation to the land comprised in this declaration is one year and one day.

---

1 Phase One Purposes has meaning given by section 67 of the High Speed Rail Act.

2 Paragraph 3 as substituted by section 11 of, and paragraph 6 of Schedule 14 to, the High Speed Rail Act.

3 Section 3A of the 1981 Act as inserted by paragraph 3(a) of Schedule 6 to the High Speed Rail Act as substituted by section 11 of, and paragraphs 6 and 7 of Schedule 14 to, that Act.

4 Section 6 as modified by paragraph 3(c) of Schedule 6 to the High Speed Rail Act, as substituted by section 11 of, and paragraph 6 of Schedule 14 to, that Act.

SCHEDULE

London Borough of Hillingdon

(1) Plot No	(2) Description
01252	All interests in 10214.72 square metres, or thereabouts, of grassland and hedgerow (Dogs Trust Rehoming Centre, Harvil Road)

E1506

D1366

IN WITNESS WHEREOF the Secretary of State for Transport has hereunto set its corporate seal on the day in the year first written above.

The CORPORATE SEAL of the SECRETARY OF STATE FOR TRANSPORT hereunto affixed to this deed is authenticated by

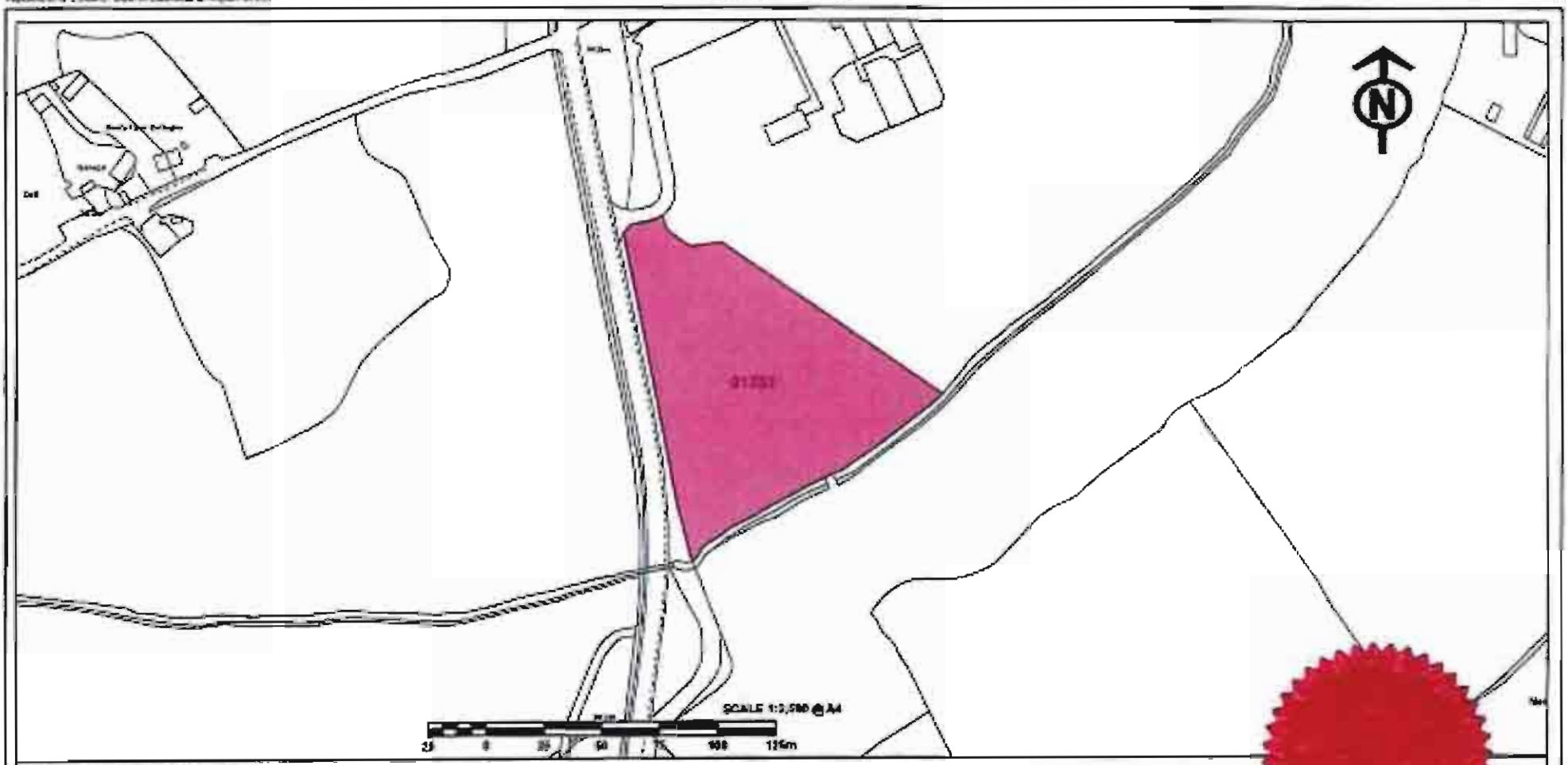
SEAL

....

Authorised Signatory

Dated: 18th July 2017

HIGH SPEED RAIL (LONDON – WEST MIDLANDS) ACT 2017
GENERAL VESTING DECLARATION No. 8
SHEET 1 of 1



The CORPORATE SEAL of the
SECRETARY OF STATE
hereunto affixed to this deed
is authenticated by

Sarah Lavery

Authorised by the Secretary of State for Transport

Dated 18 July 2017

8219

HS2-HS2-GI-TEM-000-000030

D1368

E1508

For: Claimants
R.W McCRAE
Statement No. 1
Exhibit:"RWM1" to "RWM8"
Date: 30 January 2018

Claim No:

IN THE HIGH COURT OF JUSTICE
BUSINESS AND PROPERTY COURTS
PROPERTY, TRUSTS AND PROBATE LIST (ChD)

(1) THE SECRETARY OF STATE FOR TRANSPORT
(2) HIGH SPEED TWO (HS2) LTD

Claimants

-and-

(1) PERSONS UNKNOWN ENTERING OR REMAINING WITHOUT THE CONSENT OF THE CLAIMANT(S) ON LAND AT HARVIL ROAD, HAREFIELD IN THE LONDON BOROUGH OF HILLINGDON SHOWN COLOURED GREEN, BLUE AND PINK AND EDGED RED ON THE PLANS ANNEXED TO THE CLAIM FORM

(2) PERSONS UNKNOWN INTERFERING WITH THE PASSAGE BY THE CLAIMANTS AND THEIR AGENTS, SERVANTS, CONTRACTORS, SUB-CONTRACTORS, GROUP COMPANIES, LICENSEES, INVITEES OR EMPLOYEES WITH OR WITHOUT VEHICLES, MATERIALS AND EQUIPMENT TO, FROM, OVER AND ACROSS THE PUBLIC HIGHWAYS IN THE LONDON BOROUGH OF HILLINGDON SHOWN COLOURED ORANGE AND PURPLE ON THE PLANS ANNEXED TO THE CLAIM FORM

(3) SARAH GREEN

(4) MARK KEIR

(5) GRAHAM MARSH

(6) SOFIA KAZI

(7) THORN RAMSAY

(8) VAJDA ROBERT MORDECHAJ

Defendants

EXHIBIT "RM3"
TO THE WITNESS STATEMENT OF ROBERT WILLIAM McCRAE

Schedule 16 Land

Parcel label on Plan A	Date of Service of Notices	Date on which Possession was taken
S232_005	08/03/2017	14/08/2017.
S232_036	26/07/2017	26/08/2017
S232_045	18/09/2017	30 days' notice was given. Second Claimant entitled to possession from 18.9.17. Handover arrangements currently under discussion with Network Rail due to the nature of this land (railway embankment)
S232_051	18/10/2017	20/11/2017
C111_002	11/04/2017	11/05/2017
C111_046	03/11/2017	04/12/2017

For: Claimants
R.W McCRAE
Statement No. 1
Exhibit:"RWM1" to "RWM8"
Date: 30 January 2018

Claim No:

IN THE HIGH COURT OF JUSTICE
BUSINESS AND PROPERTY COURTS
PROPERTY, TRUSTS AND PROBATE LIST (ChD)

(1) THE SECRETARY OF STATE FOR TRANSPORT
(2) HIGH SPEED TWO (HS2) LTD

Claimants

-and-

(1) PERSONS UNKNOWN ENTERING OR REMAINING WITHOUT THE CONSENT OF THE CLAIMANT(S) ON LAND AT HARVIL ROAD, HAREFIELD IN THE LONDON BOROUGH OF HILLINGDON SHOWN COLOURED GREEN, BLUE AND PINK AND EDGED RED ON THE PLANS ANNEXED TO THE CLAIM FORM

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(4) MARK KEIR

(5) GRAHAM MARSH

(6) SOFIA KAZI

(7) THORN RAMSAY

(8) VAJDA ROBERT MORDECHAJ

Defendants

EXHIBIT "RM4"
TO THE WITNESS STATEMENT OF ROBERT WILLIAM McCRAE

Works between Breakspear Road South and Harvil Road

6 comments

The new HS2 railway is proposed to travel through the area between Breakspear Road South and Harvil Road, via a series of embankments and cuttings. This is a key area for the construction of the new railway as it will be the location for the main construction compound that will support the construction of half of the new HS2 Northolt Tunnel (that travels from Old Oak Common to Ickenham, approximately at Ruislip Golf Club) and the railhead that will allow surplus excavated material to be removed by rail. This map provides an overview of where the Copthall Cutting is and where the construction compound is located.

To enable construction works to take place for the new railway essential preparation must take place first, such as ecological and archaeological surveys, ground investigations, utility diversions, and demolitions. These works are known as enabling works and are currently taking place to the east of Harvil Road.

48 inch gas main diversion

Since August 2017, HS2 contractors have been undertaking works to prepare for diverting the 48" gas main, including clearing trees and vegetation. Prior to any of the clearance works taking place, HS2 and our contractors completed all necessary ecological surveys and inspections, further details of which are outlined below.

Cadent Gas and their contractors will be installing a new pipeline from south of the Chiltern Mainline to a shaft north of the Chiltern Line. This section of tunnel will be connected to the existing pipeline via open-cut (trenched)

sections at a shallow depth running east from the shafts. These works are scheduled to commence at the end of November beginning of December. The pipeline is an important supply for London and we need to carry out this diversion to continue to ensure a safe and reliable gas supply to the area.

For more information on what work is taking place for the 48 inch Cadent Gas main diversion, please refer to this briefing note.

Frequently asked questions

We have received several enquiries from local residents and other interested people about the works that are currently taking place on land between Breakspear Road South and Harvil Road. The most common of these are detailed below with answers:

Does HS2 have planning permission in place to conduct these works?

Yes, on 23 February 2017 Royal Assent was granted for Phase One of HS2, which comprises of a new high speed railway between London and the West Midlands (the "HS2 Act") following three years of scrutiny. The HS2 Act grants HS2 and those working on behalf of HS2 the powers to construct the new railway.

Section 20 to the HS2 Act grants deemed planning permission under Part 3 of the Town and Country Planning Act 1990 ("the TCPA") for works authorised by the HS2 Act. More information can be found at Information Paper B1: Main provisions of the planning regime and Information Paper B3: Disapplication of legislation.

As part of the HS2 Act, certain approvals need to be obtained from the relevant planning authority (Hillingdon Council) for details on the following:

- Plans and specifications of certain works;
- Matters ancillary to development (construction arrangements)
- Road Transport (lorry routes)
- Bringing into use
- Site restoration schemes

HS2 is continuing to work with Hillingdon Council on these permissions where they are required for all works in the London Borough of Hillingdon.

E1513

D1373

Do HS2 have permission to fell trees on site?

The legal authority to clear the site is contained within the HS2 Act. In this instance, no further planning approval is required for the preparatory works our contractors are undertaking at Harvil Road. HS2 Ltd has all the necessary permissions to undertake these works.

HS2 will continue to work over the lifetime of the project with Hillingdon Council on these permissions where they are required for works in the London Borough of Hillingdon.

What ecological surveys have taken place?

All works at the site are being undertaken in accordance with the HS2 Environmental Minimum Requirements and the Act of Parliament permitting construction and operations of HS2 Phase One. The gas pipeline works will be undertaken by Cadent Gas under its own permitted development rights and in compliance with HS2's Environmental Minimum Requirements. For more information, please refer to Environmental minimum requirements for HS2 phase one.

HS2 and our contractors have completed all necessary ecological surveys and inspections ahead of the clearance works east of Harvil Road.

The HS2 approach to protected species mitigation is guided by the HS2 Act and its Environmental Minimum Requirements, and all works are subject to section 4.8.1 of the Environmental Memorandum document: *"Where effects on protected species are identified, the appropriate licenses will be obtained from Natural England prior to any works being undertaken. This includes species protected by the Habitats Regulations 2010 and the Wildlife and Countryside Act 1981".*

To ensure that section 4.8.1 can be implemented extensive surveys for protected species have been undertaken since 2012 (or as soon as land access arrangements could be agreed with a landowner) to provide the level of information required to inform mitigation measures necessary. Wherever protected species are identified as potentially impacted by the works then appropriate mitigation will be implemented to ensure all works accord with the relevant legislation.

Where a licence from Natural England is required to lawfully undertake the work then this will be applied for through the usual processes. HS2 has worked very closely with Natural England to put in place extensive mitigation

proposals for great crested newts and badgers, and have consequently secured organisational licences (i.e. to cover the entire Phase One route) for these species, under which all works will comply with. All other protected species licences will be applied for based upon whether there is potential to impact a species (as defined by their legal protection) on a site by site basis.

Surveys have not identified the need for any protected species licences for these works, and there are no predicted impacts (direct or indirect) to Newyears Green Covert Ancient Woodland . Please see this map.

This table confirms the HS2 ecology survey work undertaken at the site clearance area east of Harvil Road since November 2013, when HS2 deposited the hybrid Bill for Phase One of the route. Details of HS2 ecology survey work undertaken prior to November 2013 are available in the Environmental Statement.

Are bats and badgers legally protected?

Yes – badgers and all species of bat are legally protected in the UK.

Badgers – do you have a licence?

HS2 has been granted a route-wide licence for badgers by Natural England. This allows us to work in areas where badgers are present.

Are there badgers on site?

The site has been surveyed for badgers and, while some signs of badger activity, including latrines (dung pits), were found on site, active badger setts have not been recorded on site to date and there are no active badger setts immediately adjacent to the site.

What are you doing to protect badgers on site?

There is no requirement for a specific mitigation plan for badgers during the site clearance works undertaken to date as no active setts have been recorded on site.

Nonetheless, best practice measures are being implemented by the contractor e.g. covering any excavations overnight or providing an escape ramp to prevent any animals becoming entrapped.

As badgers are a mobile species, updated surveys will be undertaken as works continue to ensure that all works are undertaken in accordance with the legal protection afforded to badgers.

E1515

D1375

Bats – do you have a licence?

No - a bat mitigation licence is only required if there is evidence of bats roosting in the trees being felled.

As part of our preparation for the start of works, we have surveyed the whole site, using a range of survey methods. No evidence of roosting bats has been found in the area that our contractors are clearing.

How do you know bat roosts weren't missed during the surveys?

All precautions are being taken to reduce any risk, including re-inspection by ecologists of trees with moderate or high potential to support bat roosts trees prior to felling. Should any bat roosts be identified then works in that location will cease and appropriate mitigation and licensing requirements followed.

We will also continue to update our surveys as works continue to ensure that all works are undertaken in accordance with the law.

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6 comments

View 6 comments

NOTICE OF THE CREATION OF A NEW ECOLOGY HABITAT

What are we doing?

HS2 has made a commitment to ensure there is no overall loss of biodiversity as a result of constructing the new railway. As part of this, we are creating an ecology habitat in your local area.

Works are scheduled to start in early January 2018 and will be completed by the end of April 2018.

The different sites we are constructing will be created for specific protected species, such as reptiles, bats and badgers as well as providing habitat for other plants and animals to flourish in.

An ecology contractor called Ecosulis will carry out the construction of the site on our behalf.
The site is located adjacent to Harvil Road as shown on the map overleaf.

Some of the key features of your local site are as follows;

- Two wildlife ponds with aquatic planting
- One hibernacula – places that newts can go in the winter
- One Reptile basking unit
- One egg laying unit
- Over 8,000 m2 of natural grassland
- Over 3,000 m2 of trees

How will this affect me?

There will be a small number of HGV movements on local roads, particularly around the site being when it is being set up and when work finishes. The contractor will be closely monitoring any mud on the roads around the site and will take actions to keep your roads clean.

Working hours

- Normal working hours: Monday to Friday 8am-6pm
- Our contractors may also be on site for one hour's start-up and shutdown outside of these times.

What to expect

- During the works the site will be patrolled by onsite security personnel 24hrs a day seven days a week.
- Activities will vary during the phases of construction, with both quiet and busier periods.
- A small number of HGVs mainly on local roads. These vehicles will use only agreed routes.

What we will do

- Manage any environmental impacts, such as traffic and noise.
- Respond promptly to any complaints and take appropriate action.
- Inform you of any changes to the dates we have given you.
- Take care to respect your community and the environment.

For more information contact our helpline (available 24/7) on 08081 434 434
or email hs2enquiries@hs2.org.uk Visit our website at www.gov.uk/hs2

High Speed Two (HS2) Limited
Two Snowhill, Snow Hill Queensway, Birmingham B4 6GA

There will be several excavators and dumper trucks working on site which will produce noise whilst operating, which we apologise in advance for. In addition to this there will be a tractor and other agricultural equipment used for landscaping the site.

We expect there to be a maximum of twelve workers on the site at the busiest times. There may also be additional personnel on site conducting safety and quality checks. A small welfare and storage area will be set up to provide facilities to the workers and to store materials each night.

All Public Rights of Way close to our works will be kept open but there may be minor localised diversion to the path or other safety measures required for temporary periods.

We will be writing to you again in February 2018 to update you on how the works are progressing.

Please contact us on the number below if you notice any problems with the site or the works you need to report to us.
The site, once constructed, will be inspected and maintenance works carried out when needed.

Any questions?

If you have any questions or if you would like to find out more, you can get in touch quoting reference AWN/AWE1C108/01/17

- **Write to:** HS2 Helpdesk, Two Snowhill, Snow Hill Queensway, Birmingham, B4 6GA
- **Email:** hs2enquiries@hs2.org.uk
- **Telephone:** 08081 434 434

Please contact us if you would like a free copy of this leaflet in large print, braille, audio or easy read. We can also provide the information in different languages. You are welcome to ask someone to represent you in any discussions with HS2 Ltd.

Working hours

- Normal working hours: Monday to Friday 8am-6pm
- Our contractors may also be on site for one hour's start-up and shutdown outside of these times.

What to expect

- During the works the site will be patrolled by security personnel 24hrs a day seven days a week.
- Activities will vary during the phases of construction, with both quiet and busier periods.
- A small number of HGVs mainly on local roads. These vehicles will use only agreed routes.

What we will do

- Manage any environmental impacts, such as traffic and noise.
- Respond promptly to any complaints and take appropriate action.
- Inform you of any changes to the dates we have given you.
- Take care to respect your community and the environment.