ALLIED EXPLORATION & GEOTECHNICS LIMITED

Head Office: Unit 25 Stella Gill Industrial Estate, Pelton Fell, Chester-le-Street, Co. Durham, DH2 2RG Tel: 0191 387 4700 Fax: 0191 387 4710
Regional Office: Unit 20 Business Development Centre, Eanam Wharf, Blackburn, BB1 5BL Tel: 01772 735 300 Fax: 01772 735 999

PHOTO-IONISATION DETECTOR

Exploratory Hole No.	Depth (m)	PID (ppm)	Date Tested	Remarks
MS\BH10	11.30	See Remarks	14/06/2021	<0.1ppm
MS\BH10	12.50	See Remarks	15/06/2021	<0.1ppm
MS\BH10	13.50	See Remarks	15/06/2021	<0.1ppm
MS\BH10	14.50	See Remarks	15/06/2021	<0.1ppm
MS\BH10	15.50	See Remarks	15/06/2021	<0.1ppm
MS\BH10	16.60	See Remarks	15/06/2021	<0.1ppm
MS\BH10	17.50	See Remarks	15/06/2021	<0.1ppm
MS\BH10	18.70	See Remarks	15/06/2021	<0.1ppm
MS\BH10	19.10	See Remarks	15/06/2021	<0.1ppm
MS\BH10	20.50	See Remarks	15/06/2021	<0.1ppm
MS\BH10	21.50	See Remarks	16/06/2021	<0.1ppm
MS\BH11	0.30	See Remarks	02/06/2021	<0.1ppm
MS\BH11	0.50	See Remarks	02/06/2021	<0.1ppm
MS\BH11	1.00	See Remarks	02/06/2021	<0.1ppm
MS\BH11	1.50	See Remarks	02/06/2021	<0.1ppm
MS\BH11	2.00	See Remarks	02/06/2021	<0.1ppm
MS\BH11	2.50	See Remarks	02/06/2021	<0.1ppm
MS\BH11	3.00	See Remarks	02/06/2021	<0.1ppm
MS\BH11	3.50	See Remarks	02/06/2021	<0.1ppm
MS\BH11	4.00	See Remarks	02/06/2021	<0.1ppm
MS\BH11	4.50	See Remarks	02/06/2021	<0.1ppm
MS\BH11	5.00	See Remarks	02/06/2021	<0.1ppm
MS\BH11	5.70	See Remarks	02/06/2021	<0.1ppm
MS\BH11	6.70	See Remarks	02/06/2021	<0.1ppm
MS\BH11	7.70	See Remarks	02/06/2021	<0.1ppm
MS\BH11	8.70	See Remarks	02/06/2021	<0.1ppm
MS\BH11	9.70	See Remarks	02/06/2021	<0.1ppm
MS\BH11	10.70	See Remarks	03/06/2021	<0.1ppm
MS\BH11	11.70	See Remarks	03/06/2021	<0.1ppm
MS\BH11	12.70	See Remarks	03/06/2021	<0.1ppm
MS\BH11	13.20	See Remarks	03/06/2021	<0.1ppm
MS\BH11	13.70	See Remarks	03/06/2021	<0.1ppm
MS\BH11	14.70	See Remarks	09/06/2021	<0.1ppm
MS\BH11	15.20	See Remarks	09/06/2021	<0.1ppm
MS\BH11	16.20	See Remarks	09/06/2021	<0.1ppm
MS\BH11	17.20	See Remarks	09/06/2021	<0.1ppm
MS\BH11	18.20	See Remarks	09/06/2021	<0.1ppm
MS\BH11	19.20	See Remarks	09/06/2021	<0.1ppm
MS\BH11	20.20	See Remarks	09/06/2021	<0.1ppm
MS\BH11	21.20	See Remarks	09/06/2021	<0.1ppm

See attached Calibration Certificate for Model No. and any other details

Contract Title :- Preliminary Onshore Ground Investigation for NZT	Client :- AECOM
Calibration Compliant :- YES	Date of Issue :- 07/10/2021
Checked By :- [redacted]	Approved By :-

AEG Contract No. :- 4339

ALLIED EXPLORATION & GEOTECHNICS LIMITED

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PHOTO-IONISATION DETECTOR

Exploratory Hole No.	Depth (m)	PID (ppm)	Date Tested	Remarks
MS\BH11	22.20	See Remarks	10/06/2021	<0.1ppm
MS\BH11	23.20	See Remarks	10/06/2021	<0.1ppm
MS\BH11	24.20	See Remarks	10/06/2021	<0.1ppm
MS\BH11	25.20	See Remarks	10/06/2021	<0.1ppm
MS\BH11	26.20	See Remarks	10/06/2021	<0.1ppm
MS\BH11	27.20	See Remarks	10/06/2021	<0.1ppm
MS\BH11	28.20	See Remarks	10/06/2021	<0.1ppm
MS\BH11	29.20	See Remarks	10/06/2021	<0.1ppm
MS\BH11	30.20	See Remarks	10/06/2021	<0.1ppm
MS\BH11	31.20	See Remarks	10/06/2021	<0.1ppm
MS\BH11	32.20	See Remarks	11/06/2021	<0.1ppm
MS\BH11	33.20	See Remarks	11/06/2021	<0.1ppm
MS\BH11	34.20	See Remarks	11/06/2021	<0.1ppm
MS\BH11	35.20	See Remarks	11/06/2021	<0.1ppm
MS\BH12	0.30	See Remarks	03/06/2021	<0.1ppm
MS\BH12	0.50	See Remarks	03/06/2021	<0.1ppm
MS\BH12	1.00	See Remarks	03/06/2021	<0.1ppm
MS\BH12	1.50	See Remarks	03/06/2021	<0.1ppm
MS\BH12	2.50	See Remarks	03/06/2021	<0.1ppm
MS\BH12	2.70	See Remarks	03/06/2021	<0.1ppm
MS\BH12	3.00	See Remarks	03/06/2021	<0.1ppm
MS\BH12	3.50	See Remarks	03/06/2021	<0.1ppm
MS\BH12	4.50	See Remarks	03/06/2021	<0.1ppm
MS\BH12	5.70	See Remarks	03/06/2021	<0.1ppm
MS\BH12	6.70	See Remarks	03/06/2021	<0.1ppm
MS\BH12	7.70	See Remarks	04/06/2021	<0.1ppm
MS\BH12	8.70	See Remarks	04/06/2021	<0.1ppm
MS\BH12	9.70	See Remarks	04/06/2021	<0.1ppm
MS\BH12	10.70	See Remarks	04/06/2021	<0.1ppm
MS\BH12	11.70	See Remarks	04/06/2021	<0.1ppm
MS\BH12	12.70	See Remarks	04/06/2021	<0.1ppm
MS\BH12	13.70	See Remarks	04/06/2021	<0.1ppm
MS\BH12	14.70	See Remarks	07/06/2021	<0.1ppm
MS\BH12	15.70	See Remarks	07/06/2021	<0.1ppm
MS\BH12	16.70	See Remarks	11/06/2021	<0.1ppm
MS\BH12	17.70	See Remarks	11/06/2021	<0.1ppm
MS\BH12	18.70	See Remarks	11/06/2021	<0.1ppm
MS\BH12	19.70	See Remarks	11/06/2021	<0.1ppm
MS\BH12	20.70	See Remarks	11/06/2021	<0.1ppm
MS\BH12	21.70	See Remarks	11/06/2021	<0.1ppm

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Contract Title :- Preliminary Onshore Ground Investigation for NZT	Client :- AECOM

Calibration Compliant :- YES	Date of Issue :- 07/10/2021	Page No. :- 11 of 16
Checked By :- [redacted]	Approved By :- [redacted]	AEG Contract No. :- 4339

ALLIED EXPLORATION & GEOTECHNICS LIMITED

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PHOTO-IONISATION DETECTOR

Exploratory Hole No.	Depth (m)	PID (ppm)	Date Tested	Remarks
MS\BH12	22.70	See Remarks	11/06/2021	<0.1ppm
MS\BH12	23.70	See Remarks	11/06/2021	<0.1ppm
MS\BH12	24.70	See Remarks	14/06/2021	<0.1ppm
MS\BH12	25.70	See Remarks	14/06/2021	<0.1ppm
MS\BH12	26.70	See Remarks	14/06/2021	<0.1ppm
MS\BH12	27.70	See Remarks	14/06/2021	<0.1ppm
MS\BH12	28.70	See Remarks	14/06/2021	<0.1ppm
MS\BH12	29.70	See Remarks	16/06/2021	<0.1ppm
MS\BH13	0.30	0.1	25/06/2021	
MS\BH13	0.50	See Remarks	25/06/2021	<0.1ppm
MS\BH13	1.00	See Remarks	25/06/2021	<0.1ppm
MS\BH13	1.50	See Remarks	25/06/2021	<0.1ppm
MS\BH13	2.00	See Remarks	25/06/2021	<0.1ppm
MS\BH13	2.50	See Remarks	25/06/2021	<0.1ppm
MS\BH13	3.00	See Remarks	25/06/2021	<0.1ppm
MS\BH13	3.60	See Remarks	25/06/2021	<0.1ppm
MS\BH13	4.00	See Remarks	25/06/2021	<0.1ppm
MS\BH13	5.00	See Remarks	25/06/2021	<0.1ppm
MS\BH13	6.00	See Remarks	28/06/2021	<0.1ppm
MS\BH13	7.00	See Remarks	28/06/2021	<0.1ppm
MS\BH13	8.00	See Remarks	28/06/2021	<0.1ppm
MS\BH13	9.00	See Remarks	28/06/2021	<0.1ppm
MS\BH13	10.20	See Remarks	28/06/2021	<0.1ppm
MS\BH13	11.00	See Remarks	28/06/2021	<0.1ppm
MS\BH13	12.80	See Remarks	29/06/2021	<0.1ppm
MS\BH13	15.30	See Remarks	29/06/2021	<0.1ppm
MS\BH14	0.30	See Remarks	28/06/2021	<0.1ppm
MS\BH14	0.50	See Remarks	28/06/2021	<0.1ppm
MS\BH14	1.00	See Remarks	28/06/2021	<0.1ppm
MS\BH14	1.50	See Remarks	29/06/2021	<0.1ppm
MS\BH14	2.00	See Remarks	29/06/2021	<0.1ppm
MS\BH14	2.50	See Remarks	29/06/2021	<0.1ppm
MS\BH14	3.00	See Remarks	29/06/2021	<0.1ppm
MS\BH14	4.00	See Remarks	29/06/2021	<0.1ppm
MS\BH14	4.20	1.0	29/06/2021	
MS\BH14	4.50	See Remarks	29/06/2021	<0.1ppm
MS\BH14	6.00	See Remarks	29/06/2021	<0.1ppm
MS\BH14	7.00	See Remarks	29/06/2021	<0.1ppm
MS\BH14	8.00	See Remarks	29/06/2021	<0.1ppm
MS\BH14	9.00	See Remarks	29/06/2021	<0.1ppm

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Contract Title :- Preliminary Onshore Ground Investigation for NZT

Client :- AECOM

Calibration Compliant :- YES

Date of Issue :- 07/10/2021

Checked By :- [redacted]

Approved By :-

AEG Contract No. :- 4339

ALLIED EXPLORATION & GEOTECHNICS LIMITED

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PHOTO-IONISATION DETECTOR

Exploratory Hole No.	Depth (m)	PID (ppm)	Date Tested	Remarks
MS\BH14	10.00	See Remarks	29/06/2021	<0.1ppm
MS\BH14	11.00	See Remarks	29/06/2021	<0.1ppm
MS\BH14	12.00	See Remarks	29/06/2021	<0.1ppm
MS\BH14	12.45	See Remarks	29/06/2021	<0.1ppm
MS\BH14	13.20	See Remarks	01/07/2021	<0.1ppm
MS\BH14	14.20	See Remarks	01/07/2021	<0.1ppm
MS\BH14	14.70	See Remarks	01/07/2021	<0.1ppm
MS\BH14	15.70	See Remarks	01/07/2021	<0.1ppm
MS\BH14	16.20	See Remarks	01/07/2021	<0.1ppm
MS\BH14	17.20	See Remarks	01/07/2021	<0.1ppm
MS\BH14	17.50	See Remarks	01/07/2021	<0.1ppm
MS\BH15	0.30	See Remarks	01/07/2021	<0.1ppm
MS\BH15	0.50	See Remarks	01/07/2021	<0.1ppm
MS\BH15	1.00	See Remarks	01/07/2021	<0.1ppm
MS\BH15	1.50	See Remarks	01/07/2021	<0.1ppm
MS\BH15	1.80	See Remarks	01/07/2021	<0.1ppm
MS\BH15	2.50	See Remarks	01/07/2021	<0.1ppm
MS\BH15	2.70	See Remarks	01/07/2021	<0.1ppm
MS\BH15	3.90	See Remarks	01/07/2021	<0.1ppm
MS\BH15	4.40	See Remarks	01/07/2021	<0.1ppm
MS\BH15	5.20	See Remarks	01/07/2021	<0.1ppm
MS\BH15	6.00	See Remarks	01/07/2021	<0.1ppm
MS\BH15	7.00	See Remarks	01/07/2021	<0.1ppm
MS\BH15	8.00	See Remarks	01/07/2021	<0.1ppm
MS\BH15	9.00	See Remarks	01/07/2021	<0.1ppm
MS\BH15	10.00	See Remarks	01/07/2021	<0.1ppm
MS\BH15	11.00	See Remarks	01/07/2021	<0.1ppm
MS\BH15	12.00	See Remarks	01/07/2021	<0.1ppm
MS\BH15	12.45	See Remarks	01/07/2021	<0.1ppm
MS\BH15	13.00	See Remarks	01/07/2021	<0.1ppm
MS\BH15	13.40	See Remarks	02/07/2021	<0.1ppm
MS\BH15	14.30	See Remarks	02/07/2021	<0.1ppm
MS\BH15	15.45	See Remarks	02/07/2021	<0.1ppm
MS\BH15	15.70	See Remarks	02/07/2021	<0.1ppm
MS\BH15	16.95	See Remarks	02/07/2021	<0.1ppm
MS\BH15	18.45	See Remarks	02/07/2021	<0.1ppm
MS\BH15	19.00	See Remarks	02/07/2021	<0.1ppm
MS\BH15	20.00	See Remarks	02/07/2021	<0.1ppm
MS\BH16	0.30	See Remarks	01/07/2021	<0.1ppm
MS\BH16	0.50	See Remarks	01/07/2021	<0.1ppm

See attached Calibration Certificate for Model No. and any other details

Contract Title :-	Client :-
Preliminary Onshore Ground Investigation for NZT	AECOM

Calibration Compliant :- YES	Date of Issue :- 07/10/2021	Page No. :- 13 of 16
Checked By :- [redacted]	Approved By :-	AEG Contract No. :- 4339

ALLIED EXPLORATION & GEOTECHNICS LIMITED

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PHOTO-IONISATION DETECTOR

Exploratory Hole No.	Depth (m)	PID (ppm)	Date Tested	Remarks
MS\BH16	1.00	See Remarks	01/07/2021	<0.1ppm
MS\BH16	1.50	See Remarks	01/07/2021	<0.1ppm
MS\BH16	2.30	See Remarks	01/07/2021	<0.1ppm
MS\BH16	3.00	See Remarks	01/07/2021	<0.1ppm
MS\BH16	3.30	See Remarks	01/07/2021	<0.1ppm
MS\BH16	4.00	See Remarks	01/07/2021	<0.1ppm
MS\BH16	4.20	See Remarks	01/07/2021	<0.1ppm
MS\BH16	5.00	See Remarks	01/07/2021	<0.1ppm
MS\BH16	5.70	See Remarks	02/07/2021	<0.1ppm
MS\BH16	6.60	See Remarks	02/07/2021	<0.1ppm
MS\BH16	7.60	See Remarks	02/07/2021	<0.1ppm
MS\BH16	8.60	See Remarks	02/07/2021	<0.1ppm
MS\BH16	9.60	See Remarks	02/07/2021	<0.1ppm
MS\BH16	10.20	See Remarks	02/07/2021	<0.1ppm
MS\BH16	10.60	See Remarks	02/07/2021	<0.1ppm
MS\BH16	11.60	See Remarks	02/07/2021	<0.1ppm
MS\BH16	12.20	See Remarks	02/07/2021	<0.1ppm
MS\BH16	13.00	See Remarks	02/07/2021	<0.1ppm
MS\BH16	13.40	See Remarks	02/07/2021	<0.1ppm
MS\BH16	14.10	See Remarks	02/07/2021	<0.1ppm
MS\BH16	15.10	See Remarks	05/07/2021	<0.1ppm
MS\BH16	16.10	See Remarks	05/07/2021	<0.1ppm
MS\BH16	17.10	See Remarks	05/07/2021	<0.1ppm
MS\BH16	17.50	See Remarks	05/07/2021	<0.1ppm
MS\BH16	18.50	See Remarks	05/07/2021	<0.1ppm
MS\BH16	19.20	See Remarks	05/07/2021	<0.1ppm
MS\BH17	0.30	See Remarks	06/07/2021	<0.1ppm
MS\BH17	0.50	See Remarks	06/07/2021	<0.1ppm
MS\BH17	1.00	See Remarks	06/07/2021	<0.1ppm
MS\BH17	1.50	See Remarks	06/07/2021	<0.1ppm
MS\BH17	2.00	See Remarks	06/07/2021	<0.1ppm
MS\BH17	3.00	0.7	06/07/2021	
MS\BH17	3.50	0.7	06/07/2021	
MS\BH17	3.90	2.0	06/07/2021	
MS\BH17	5.00	0.3	06/07/2021	
MS\BH17	5.50	0.2	06/07/2021	
MS\BH17	6.00	See Remarks	06/07/2021	<0.1ppm
MS\BH17	6.50	See Remarks	06/07/2021	<0.1ppm
MS\BH17	7.00	See Remarks	06/07/2021	<0.1ppm
MS\BH17	7.20	See Remarks	06/07/2021	<0.1ppm

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Contract Title :-	Client :-
Preliminary Onshore Ground Investigation for NZT	AECOM

Calibration Compliant :-	Date of Issue :-	Page No. :-
YES	07/10/2021	14 of 16
Checked By :- [redacted]	Approved By :-	AEG Contract No. :- 4339

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PHOTO-IONISATION DETECTOR

Exploratory Hole No.	Depth (m)	PID (ppm)	Date Tested	Remarks
MS\BH17	8.00	See Remarks	06/07/2021	<0.1ppm
MS\BH17	9.00	See Remarks	06/07/2021	<0.1ppm
MS\BH17	10.50	See Remarks	06/07/2021	<0.1ppm
MS\BH17	11.00	See Remarks	06/07/2021	<0.1ppm
MS\BH17	12.00	See Remarks	06/07/2021	<0.1ppm
MS\BH17	13.20	See Remarks	06/07/2021	<0.1ppm
MS\BH17	14.20	See Remarks	06/07/2021	<0.1ppm
MS\BH17	15.00	See Remarks	07/07/2021	<0.1ppm
MS\BH17	15.35	See Remarks	07/07/2021	<0.1ppm
MS\BH17	16.00	See Remarks	07/07/2021	<0.1ppm
MS\BH17	17.00	See Remarks	07/07/2021	<0.1ppm
MS\BH17	17.70	See Remarks	07/07/2021	<0.1ppm
MS\BH17	18.70	See Remarks	07/07/2021	<0.1ppm
MS\BH17	20.00	See Remarks	07/07/2021	<0.1ppm
MS\TP01	0.30	See Remarks	16/06/2021	<0.1ppm
MS\TP01	0.50	See Remarks	16/06/2021	<0.1ppm
MS\TP01	1.00	See Remarks	16/06/2021	<0.1ppm
MS\TP01	1.50	See Remarks	16/06/2021	<0.1ppm
MS\TP01	2.00	0.2	16/06/2021	
MS\TP01	2.50	See Remarks	16/06/2021	<0.1ppm
MS\TP01	3.00	0.2	16/06/2021	
MS\TP01	3.50	See Remarks	16/06/2021	<0.1ppm
MS\TP01	4.00	See Remarks	16/06/2021	<0.1ppm
MS\TP01	4.50	See Remarks	16/06/2021	<0.1ppm
MS\TP03	0.30	0.2	14/06/2021	
MS\TP03	0.50	See Remarks	14/06/2021	<0.1ppm
MS\TP03	1.00	0.5	14/06/2021	
MS\TP03	1.50	0.2	14/06/2021	
MS\TP03	2.00	0.5	14/06/2021	
MS\TP04	0.30	0.3	14/06/2021	
MS\TP04	0.50	0.5	14/06/2021	
MS\TP04	1.00	0.5	14/06/2021	
MS\TP04	1.50	0.4	14/06/2021	
MS\TP04	2.00	See Remarks	14/06/2021	<0.1ppm
MS\TP04	2.50	0.1	14/06/2021	
MS\TP04	3.00	0.3	15/06/2021	
MS\TP04	4.00	0.3	15/06/2021	
MS\TP04	4.50	0.2	15/06/2021	
MS\TP05	0.30	0.3	17/06/2021	
MS\TP05	0.50	0.4	17/06/2021	

See attached Calibration Certificate for Model No. and any other details

Contract Title :-	Client :-
Preliminary Onshore Ground Investigation for NZT	AECOM

Calibration Compliant :- YES	Date of Issue :- 07/10/2021	Page No. :- 15 of 16
Checked By :- [redacted]	Approved By :-	AEG Contract No. :- 4339

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PHOTO-IONISATION DETECTOR

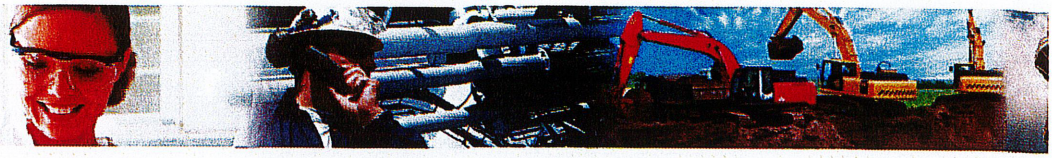
Exploratory Hole No.	Depth (m)	PID (ppm)	Date Tested	Remarks
MS\TP05	1.00	0.6	17/06/2021	
MS\TP05	1.50	0.4	17/06/2021	
MS\TP05	2.00	7.2	17/06/2021	
MS\TP05	2.50	0.1	17/06/2021	
MS\TP05	3.00	See Remarks	17/06/2021	<0.1ppm
MS\TP05	3.50	0.1	17/06/2021	
MS\TP05	4.00	0.1	17/06/2021	
MS\TP06	0.30	See Remarks	15/06/2021	<0.1ppm
MS\TP06	0.50	See Remarks	15/06/2021	<0.1ppm
MS\TP06	1.20	See Remarks	15/06/2021	<0.1ppm
MS\TP06	1.50	See Remarks	15/06/2021	<0.1ppm
MS\TP06	3.20	501.0	22/06/2021	
MS\TP07	0.30	See Remarks	17/06/2021	<0.1ppm
MS\TP07	0.50	See Remarks	17/06/2021	<0.1ppm
MS\TP07	1.00	See Remarks	17/06/2021	<0.1ppm
MS\TP07	1.50	1.1	17/06/2021	
MS\TP07	2.00	See Remarks	17/06/2021	<0.1ppm
MS\TP07	2.50	See Remarks	17/06/2021	<0.1ppm
MS\TP07	3.00	See Remarks	17/06/2021	<0.1ppm
MS\TP07	3.50	See Remarks	17/06/2021	<0.1ppm
MS\TP07	4.00	See Remarks	17/06/2021	<0.1ppm
MS\TP09	0.30	See Remarks	16/06/2021	<0.1ppm
MS\TP09	0.50	See Remarks	16/06/2021	<0.1ppm
MS\TP09	1.00	10.3	16/06/2021	
MS\TP09	1.50	See Remarks	16/06/2021	<0.1ppm
MS\TP09	2.00	0.9	16/06/2021	
MS\TP09	2.50	See Remarks	16/06/2021	<0.1ppm
MS\TP09	3.00	0.3	16/06/2021	
MS\TP09	3.50	See Remarks	16/06/2021	<0.1ppm
MS\TP09	4.00	0.5	16/06/2021	
MS\TP09	4.50	See Remarks	16/06/2021	<0.1ppm
MS\TP10	0.30	See Remarks	21/06/2021	<0.1ppm
MS\TP10	0.50	See Remarks	21/06/2021	<0.1ppm

See attached Calibration Certificate for Model No. and any other details

Contract Title :-	Client :-
Preliminary Onshore Ground Investigation for NZT	AECOM

Calibration Compliant :-	Date of Issue :-	Page No. :-
YES	07/10/2021	16 of 16
Checked By :- [redacted]	Approved By :-	AEG Contract No. :- 4339

Ribble Enviro Ltd
www.ribble-enviro.co.uk



...everything gas detection

Certificate of Calibration

Customer:	*Allied Exploration & Geotechnics Ltd*
Instrument:	MiniRAE 2000
Job:	Service, Test & Calibration
Serial number:	110-900192
Fleet Number:	N/A
Certificate no:	900192/140720
Next calibration due date:	14 July 2021
Tested on:	14 July 2020
Calibrated for:	Isobutylene

Applied Gas Concentration:	Cylinder Reference:	Initial Sensor Reading	Final Sensor Reading	Accuracy Limits
Isobutylene: 100 ppm	AG3607-3-2	94.0 ppm	100.0 ppm	± 2%

The Instrument has been calibrated after Re-Zeroing & Introducing Span Calibration Gas, using gas that is traceable to national standards and has been prepared in accordance with BS EN ISO6145-6:2008

Calibration Engineer: *P Lonsdale*

Sign: [redacted]

Quality Assessed by (Print):	C.S.	Sign:	[redacted]

Tel: 01200 445 804 **Fax:** 01200 445 809 **Email:** info@ribble-enviro.co.uk
Ribble Enviro Ltd., Unit 4, Gisburn Business Park, Gisburn, Nr Clitheroe, BB7 4JP, UK
Company Registered in England: 06140589 **VAT No.:** GB 906 6241 34

Ribble Enviro Ltd
www.ribble-enviro.co.uk

...everything gas detection

Certificate of Calibration

Customer:	*Ribble Enviro Hire Fleet*
Instrument:	MiniRAE Lite
Job:	Pre-Hire Service, Test & Calibration
Serial number:	590-901817
Fleet Number:	R33365
Certificate no:	901817 / 090421
Next calibration due date:	09 Apr 2022
Tested on:	09 Apr 2021
Calibrated for:	Isobutylene

Applied Gas Concentration:	Cylinder Reference:	Initial Sensor Reading	Final Sensor Reading	Accuracy Limits
Isobutylene: 100 ppm	AGG 4701-4-3	106.7 ppm	100.3 ppm	± 10%

The instrument has been calibrated after re-zeroing & introducing span calibration gas, using gas that is traceable to national standards and has been prepared in accordance with BS EN ISO6145-6:2017

Calibration Engineer: Chris Shillitoe

Sign: [redacted]

Tel: 01200 445 804 **Fax:** 01200 445 809 **Email:** info@ribble-enviro.co.uk
Ribble Enviro Ltd., Unit 4, Gisburn Business Park, Gisburn, Nr Clitheroe, BB7 4JP, UK
Company Registered in England: 06140589 **VAT No.:** GB 906 6241 34

..everything gas detection

Certificate of Calibration

Customer:	*Ribble Enviro Hire Fleet*
Instrument:	MultiRAE Lite
Job:	Pre-Hire Service, Test & Calibration
Serial number:	MAA30282PB
Fleet Number:	R32701
Certificate no:	MAA30282PB / 160421
Next calibration due date:	16 Apr 2022
Tested on:	16 Apr 2021
Calibrated for:	Isobutylene

Applied Gas Concentration:	*Cylinder Reference:*	*Initial Sensor Reading*	*Final Sensor Reading*	*Accuracy Limits*
Isobutylene: 100 ppm	AGG 4701-4-2	106 ppm	100 ppm	± 10%

The instrument has been calibrated after re-zeroing and introducing span calibration gas, using gas that is traceable to national standards and has been prepared in accordance with BS EN ISO 6145-6:2017

Calibration Engineer: LESLEY BAINBRIDGE

Sign: [redacted]

Quality Assessed by (Print):		Sign:	

Tel: 01200 445 804 Fax: 01200 445 809 Email: info@ribble-enviro.co.uk
Ribble Enviro Ltd., Unit 4, Gisburn Business Park, Gisburn, Nr Clitheroe, BB7 4JP, UK
Company Registered in England: 06140589 VAT No.: GB 906 6241 34

...everything gas detection

Certificate of Calibration

Customer:	RIBBLE ENVIRO HIRE FLEET
Instrument:	MultiRAE Lite
Job:	Pre-Hire Service, Test & Calibration
Serial number:	MAA30062PC
Fleet Number:	R32751
Certificate no:	MAA30062PC / 170621
Next calibration due date:	17 Jun 2022
Tested on:	17 Jun 2021
Calibrated for:	Isobutylene

Applied Gas Concentration:	Cylinder Reference:	Initial Sensor Reading	Final Sensor Reading	Accuracy Limits
Isobutylene: 100 ppm	AGG 4587-6-3	102 ppm	100 ppm	± 10%

The instrument has been calibrated after re-zeroing and introducing span calibration gas, using gas that is traceable to national standards and has been prepared in accordance with BS EN ISO 6145-6:2017

Calibration Engineer: LESLEY BAINBRIDGE

Sign: [redacted]

Quality Assessed by (Print):	Chris Shillitoe	Sign:	[redacted]

Tel: 01200 445 804 Fax: 01200 445 809 Email: info@ribble-enviro.co.uk
Ribble Enviro Ltd., Unit 4, Gisburn Business Park, Gisburn, Nr Clitheroe, BB7 4JP, UK
Company Registered in England: 06140589 VAT No.: GB 906 6241 34

Litmus Paper Test Results

IN-SITU TESTING ENCLOSURE 3

ALLIED EXPLORATION GEOTECHNICS LIMITED

Head Office: Unit 25 Stella Gill Industrial Estate, Pelton Fell, Chester-le-Street, Co. Durham, DH2 2RG - Tel: 0191 387 4700 Fax: 0191 387 4710
Regional Office: Unit 20 Business Development Centre, Eanam Wharf, Blackburn, BB1 5BL - Tel: 01254 503 200 Fax: 01254 662 590

LITMUS PAPER TESTING

Point ID	Depth (m)	Date	Reading	Remarks
LF\BH01	0.30	22/06/2021	6	
LF\BH01	0.50	22/06/2021	6	
LF\BH01	1.00	22/06/2021	6	
LF\BH01	1.50	22/06/2021	5	
LF\BH01	2.00	22/06/2021	6	
LF\BH01	2.50	22/06/2021	5	
LF\BH01	3.00	22/06/2021	5	
LF\BH01	3.50	22/06/2021	5	
LF\BH01	4.00	22/06/2021	6	
LF\BH01	28.65	25/06/2021	5	
LF\BH02	0.30	22/06/2021	-	Too dry
LF\BH02	0.50	22/06/2021	-	Too dry
LF\BH02	1.00	22/06/2021	7	
LF\BH02	1.50	22/06/2021	5	
LF\BH02	2.00	22/06/2021	5	
LF\BH02	2.70	22/06/2021	5	
LF\BH02	3.00	22/06/2021	5	
LF\BH02	3.50	22/06/2021	5	
LF\BH02	4.00	22/06/2021	5	
LF\BH02	4.50	23/06/2021	5	
LF\BH02	5.50	23/06/2021	5	
LF\BH02	6.50	23/06/2021	5	
LF\BH02	7.50	23/06/2021	5	
LF\BH02	8.70	23/06/2021	7	
LF\BH02	14.70	24/06/2021	7	
LF\BH02	28.10	02/04/2021	5	
LF\CPT02	0.85	25/05/2021	-	Too dry
LF\TP01	2.00	23/06/2021	6	
LF\TP01	3.00	23/06/2021	5	

Remarks :

Contract Title: **Preliminary Onshore Ground Investigation for NZT**

Client: **AECOM**

Checked By: [redacted]

Approved [redacted]

Date of issue: 29/07/2021

Page No. : 1

AEG Contract No. : **4339**

ALLIED EXPLORATION GEOTECHNICS LIMITED

Head Office: Unit 25 Stella Gill Industrial Estate, Pelton Fell, Chester-le-Street, Co. Durham, DH2 2RG - Tel: 0191 387 4700 Fax: 0191 387 4710
Regional Office: Unit 20 Business Development Centre, Eanam Wharf, Blackburn, BB1 5BL - Tel: 01254 503 200 Fax: 01254 662 590

LITMUS PAPER TESTING

Point ID	Depth (m)	Date	Reading	Remarks
LF\TP02	0.30	23/06/2021	6	
LF\TP02	0.50	23/06/2021	5	
LF\TP02	1.00	23/06/2021	6	
LF\TP02	2.00	23/06/2021	8	Green
LF\TP02	3.00	23/06/2021	8	Green
LF\TP02	4.00	23/06/2021	8	Green
LF\TP03	0.30	24/06/2021	6	
LF\TP03	0.50	24/06/2021	8	Green
LF\TP03	1.00	24/06/2021	8	Green
LF\TP03	2.00	24/06/2021	8	Green
LF\TP03	3.00	24/06/2021	8	Green
LF\TP03	4.00	24/06/2021	8	Green
MS\BH02	0.30	25/06/2021	7	
MS\BH02	0.50	25/06/2021	7	
MS\BH02	1.00	25/06/2021	7	
MS\BH02	1.50	25/06/2021	5	
MS\BH02	2.00	25/06/2021	7	
MS\BH02	2.25	25/06/2021	5	
MS\BH02	3.00	25/06/2021	5	
MS\BH02	3.40	25/06/2021	5	
MS\BH02	4.00	25/06/2021	5	
MS\BH02	5.00	25/06/2021	5	
MS\BH02	6.00	25/06/2021	5	
MS\BH02	7.00	25/06/2021	5	
MS\BH02	8.00	25/06/2021	5	
MS\BH02	9.00	25/06/2021	5	
MS\BH02	10.20	25/06/2021	5	
MS\BH02	11.20	25/06/2021	5	
MS\BH02	15.00	29/06/2021	5	

Remarks :

Contract Title: **Preliminary Onshore Ground Investigation for NZT**

Client: **AECOM**

Checked By: [redacted]

Approved By: [redacted]

Date of issue: 29/07/2021

AEG Contract No. : **4339**

ALLIED EXPLORATION GEOTECHNICS LIMITED

Head Office: Unit 25 Stella Gill Industrial Estate, Pelton Fell, Chester-le-Street, Co. Durham, DH2 2RG - Tel: 0191 387 4700 Fax: 0191 387 4710
Regional Office: Unit 20 Business Development Centre, Eanam Wharf, Blackburn, BB1 5BL - Tel: 01254 503 200 Fax: 01254 662 590

LITMUS PAPER TESTING

Point ID	Depth (m)	Date	Reading	Remarks
MS\BH02	16.00	29/06/2021	5	
MS\BH02	22.00	29/06/2021	5	
MS\BH02	23.80	30/06/2021	5	
MS\BH03	0.30	22/06/2021	-	Too dry
MS\BH03	0.50	22/06/2021	-	Too dry
MS\BH03	1.00	22/06/2021	-	Too dry
MS\BH03	1.50	22/06/2021	5	
MS\BH03	2.00	22/06/2021	-	Too dry
MS\BH03	2.50	22/06/2021	-	Too dry
MS\BH03	3.00	23/06/2021	7	
MS\BH03	4.50	23/06/2021	5	
MS\BH03	5.50	23/06/2021	5	
MS\BH03	6.50	23/06/2021	5	
MS\BH03	7.50	23/06/2021	5	
MS\BH03	8.50	23/06/2021	5	
MS\BH03	9.50	23/06/2021	7	
MS\BH03	10.50	23/06/2021	5	
MS\BH03	11.00	23/06/2021	7	
MS\BH03	12.00	23/06/2021	5	
MS\BH03	13.00	24/06/2021	5	
MS\BH03	14.00	24/06/2021	7	
MS\BH03	15.90	24/06/2021	7	
MS\BH03	16.50	24/06/2021	5	
MS\BH03	17.50	24/06/2021	5	
MS\BH03	18.50	24/06/2021	5	
MS\BH03	19.10	24/06/2021	5	
MS\BH03	20.00	24/06/2021	5	
MS\BH03	21.00	24/06/2021	5	
MS\BH03	22.00	25/06/2021	5	

Remarks :

Contract Title: **Preliminary Onshore Ground Investigation for NZT**

Client: **AECOM**

Checked By: [redacted]

Approved By: [redacted]

Date of issue: 29/07/2021

AEG Contract No. : **4339**

ALLIED EXPLORATION GEOTECHNICS LIMITED

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Regional Office: Unit 20 Business Development Centre, Eanam Wharf, Blackburn, BB1 5BL - Tel: 01254 503 200 Fax: 01254 662 590

LITMUS PAPER TESTING

Point ID	Depth (m)	Date	Reading	Remarks
MS\BH03	23.40	25/06/2021	5	
MS\BH04	0.30	17/06/2021	-	Too dry
MS\BH04	0.50	17/06/2021	-	Too dry
MS\BH04	1.00	17/06/2021	-	Too dry
MS\BH04	2.00	17/06/2021	5	
MS\BH04	3.00	18/06/2021	5	
MS\BH04	4.00	18/06/2021	5	
MS\BH04	5.00	18/06/2021	5	
MS\BH04	6.00	18/06/2021	5	
MS\BH04	7.00	18/06/2021	5	
MS\BH04	8.00	18/06/2021	5	
MS\BH04	9.00	18/06/2021	5	
MS\BH04	10.00	18/06/2021	5	
MS\BH04	11.00	21/06/2021	5	
MS\BH04	12.00	21/06/2021	5	
MS\BH04	15.00	21/06/2021	5	
MS\BH04	16.00	21/06/2021	5	
MS\BH04	17.00	21/06/2021	5	
MS\BH04	18.00	21/06/2021	5	
MS\BH04	19.00	21/06/2021	5	
MS\BH04	20.00	21/06/2021	5	
MS\BH04	21.00	21/06/2021	5	
MS\BH04	22.00	22/06/2021	5	
MS\BH04	22.30	22/06/2021	7	
MS\BH04	23.00	22/06/2021	5	
MS\BH04	24.00	22/06/2021	5	
MS\BH04	24.80	22/06/2021	7	
MS\BH04	25.00	22/06/2021	5	
MS\BH04	26.00	22/06/2021	5	

Remarks :

Contract Title: **Preliminary Onshore Ground Investigation for NZT**

Client: **AECOM**

Checked By: [redacted]

Approved By: [redacted]

Date of issue: 29/07/2021

AEG Contract No. : **4339**

ALLIED EXPLORATION GEOTECHNICS LIMITED

Head Office: Unit 25 Stella Gill Industrial Estate, Pelton Fell, Chester-le-Street, Co. Durham, DH2 2RG - Tel: 0191 387 4700 Fax: 0191 387 4710
Regional Office: Unit 20 Business Development Centre, Eanam Wharf, Blackburn, BB1 5BL - Tel: 01254 503 200 Fax: 01254 662 590

LITMUS PAPER TESTING

Point ID	Depth (m)	Date	Reading	Remarks
MS\BH04	27.00	22/06/2021	5	
MS\BH04	28.00	22/06/2021	5	
MS\BH04	29.00	22/06/2021	5	
MS\BH04	30.00	22/06/2021	5	
MS\BH05	0.12	16/06/2021	10	
MS\BH05	0.60	16/06/2021	5	
MS\BH05	4.40	16/06/2021	7	
MS\BH05	4.70	16/06/2021	7	
MS\BH05	7.30	16/06/2021	5	
MS\BH05	17.30	21/06/2021	7	
MS\BH06	0.50	24/05/2021	-	Too dry
MS\BH06	1.00	24/05/2021	-	Too dry
MS\BH06	1.50	24/05/2021	-	Too dry
MS\BH06	2.00	24/05/2021	5	
MS\BH06	2.50	24/05/2021	-	Too dry
MS\BH06	3.00	24/05/2021	8	
MS\BH06	3.20	24/05/2021	8	
MS\BH06	3.70	24/05/2021	5	
MS\BH06	4.50	24/05/2021	8	
MS\BH06	5.30	24/05/2021	8	
MS\BH06	5.70	25/05/2021	5	
MS\BH07	0.35	30/06/2021	5	
MS\BH07	0.50	30/06/2021	9	
MS\BH07	1.00	30/06/2021	9	
MS\BH07	2.70	30/06/2021	9	
MS\BH07	4.20	30/06/2021	9	
MS\BH07	4.65	30/06/2021	9	
MS\BH07	5.50	30/06/2021	5	
MS\BH07	7.35	30/06/2021	5	

Remarks :

Contract Title: **Preliminary Onshore Ground Investigation for NZT**

Client: **AECOM**

Checked By: [redacted]

Approved By: [redacted]

Date of issue: 29/07/2021

AEG Contract No. : **4339**

ALLIED EXPLORATION GEOTECHNICS LIMITED

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Regional Office: Unit 20 Business Development Centre, Eanam Wharf, Blackburn, BB1 5BL - Tel: 01254 503 200 Fax: 01254 662 590

LITMUS PAPER TESTING

Point ID	Depth (m)	Date	Reading	Remarks
MS\BH07	15.40	01/07/2021	5	
MS\BH08	0.36	28/05/2021	8	
MS\BH08	0.50	28/05/2021	9	
MS\BH08	1.00	28/05/2021	-	Too dry
MS\BH08	1.50	28/05/2021	5	
MS\BH08	2.00	28/05/2021	-	Too dry
MS\BH08	2.50	28/05/2021	5	
MS\BH08	3.00	28/05/2021	5	
MS\BH08	3.50	28/05/2021	5	
MS\BH08	4.00	28/05/2021	-	Material too coarse
MS\BH08	4.50	28/05/2021	5	
MS\BH08	5.00	28/05/2021	5	
MS\BH08	5.50	28/05/2021	5	
MS\BH08	6.00	28/05/2021	8	
MS\BH09	0.30	05/07/2021	8	
MS\BH09	0.50	05/07/2021	8	
MS\BH09	1.00	05/07/2021	8	
MS\BH09	1.50	05/07/2021	8	
MS\BH09	2.00	05/07/2021	9	
MS\BH09	2.50	05/07/2021	8	
MS\BH09	3.00	05/07/2021	8	
MS\BH09	3.50	05/07/2021	8	
MS\BH09	4.00	05/07/2021	8	
MS\BH09	4.65	05/07/2021	8	
MS\BH10	0.30	07/06/2021	-	Too dry
MS\BH10	0.50	07/06/2021	-	Too dry
MS\BH10	1.00	07/06/2021	-	Too dry
MS\BH10	1.50	07/06/2021	5	
MS\BH10	2.00	07/06/2021	-	Too dry

Remarks :	

Contract Title: **Preliminary Onshore Ground Investigation for NZT**	Client: **AECOM**
Checked By: [redacted]	Approved By: [redacted]
Date of issue: 29/07/2021	Page No. : 6
	AEG Contract No. : **4339**

ALLIED EXPLORATION GEOTECHNICS LIMITED

Head Office: Unit 25 Stella Gill Industrial Estate, Pelton Fell, Chester-le-Street, Co. Durham, DH2 2RG - Tel: 0191 387 4700 Fax: 0191 387 4710
Regional Office: Unit 20 Business Development Centre, Eanam Wharf, Blackburn, BB1 5BL - Tel: 01254 503 200 Fax: 01254 662 590

LITMUS PAPER TESTING

Point ID	Depth (m)	Date	Reading	Remarks
MS\BH10	2.50	07/06/2021	5	
MS\BH10	3.00	08/06/2021	-	Too dry
MS\BH10	3.50	08/06/2021	5	
MS\BH10	4.00	08/06/2021	-	Too dry
MS\BH10	4.50	14/06/2021	5	
MS\BH10	5.00	14/06/2021	-	Too dry
MS\BH10	5.50	14/06/2021	5	
MS\BH10	11.30	14/06/2021	7	
MS\BH11	0.30	02/06/2021	-	Too dry
MS\BH11	0.50	02/06/2021	-	Too dry
MS\BH11	1.00	02/06/2021	-	Too dry
MS\BH11	1.50	02/06/2021	5	
MS\BH11	2.00	02/06/2021	8.5	
MS\BH11	2.50	02/06/2021	5	
MS\BH11	3.00	02/06/2021	10	
MS\BH11	3.50	02/06/2021	5	
MS\BH11	4.00	02/06/2021	11	
MS\BH11	4.50	02/06/2021	5	
MS\BH11	5.00	02/06/2021	9	
MS\BH11	13.20	03/06/2021	8	
MS\BH12	0.30	03/06/2021	-	Too dry
MS\BH12	0.50	03/06/2021	-	Too dry
MS\BH12	1.00	03/06/2021	-	Too dry
MS\BH12	2.70	03/06/2021	8	
MS\BH12	3.00	03/06/2021	5	
MS\BH13	0.30	25/06/2021	7	
MS\BH13	0.50	25/06/2021	7	
MS\BH13	1.00	25/06/2021	7	
MS\BH13	1.50	25/06/2021	5	

Remarks :	

Contract Title: **Preliminary Onshore Ground Investigation for NZT**	Client: **AECOM**
Checked By: [redacted]	Approved By: [redacted]
Date of issue: 29/07/2021	Page No. : 7
	AEG Contract No. : **4339**

ALLIED EXPLORATION GEOTECHNICS LIMITED

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LITMUS PAPER TESTING

Point ID	Depth (m)	Date	Reading	Remarks
MS\BH13	2.00	25/06/2021	7	
MS\BH13	2.50	25/06/2021	5	
MS\BH13	3.00	25/06/2021	7	
MS\BH13	3.60	25/06/2021	7	
MS\BH13	4.00	25/06/2021	5	
MS\BH13	5.00	25/06/2021	5	
MS\BH13	6.00	28/06/2021	5	
MS\BH13	7.00	28/06/2021	5	
MS\BH13	8.00	28/06/2021	5	
MS\BH13	9.00	28/06/2021	5	
MS\BH13	10.20	28/06/2021	5	
MS\BH13	11.00	28/06/2021	5	
MS\BH14	0.30	28/06/2021	5	
MS\BH14	0.50	28/06/2021	5	
MS\BH14	1.00	28/06/2021	5	
MS\BH14	1.50	29/06/2021	5	
MS\BH14	2.00	29/06/2021	5	
MS\BH14	2.50	29/06/2021	5	
MS\BH14	3.00	29/06/2021	5	
MS\BH14	3.50	29/06/2021	5	
MS\BH14	4.00	29/06/2021	5	
MS\BH14	4.20	29/06/2021	10	Dark green
MS\BH14	4.50	29/06/2021	5	
MS\BH14	12.45	29/06/2021	5	
MS\BH15	0.30	01/07/2021	9/10	
MS\BH15	0.50	01/07/2021	9/10	
MS\BH15	1.00	01/07/2021	8/9	
MS\BH15	1.50	01/07/2021	7/8	
MS\BH15	1.80	01/07/2021	12	

Remarks :

Contract Title: **Preliminary Onshore Ground Investigation for NZT**

Client: **AECOM**

Checked By: [redacted]

Approved By: [redacted]

Date of issue: 29/07/2021

AEG Contract No. : **4339**

ALLIED EXPLORATION GEOTECHNICS LIMITED

Head Office: Unit 25 Stella Gill Industrial Estate, Pelton Fell, Chester-le-Street, Co. Durham, DH2 2RG - Tel: 0191 387 4700 Fax: 0191 387 4710
Regional Office: Unit 20 Business Development Centre, Eanam Wharf, Blackburn, BB1 5BL - Tel: 01254 503 200 Fax: 01254 662 590

LITMUS PAPER TESTING

Point ID	Depth (m)	Date	Reading	Remarks
MS\BH15	2.50	01/07/2021	12	
MS\BH15	2.70	01/07/2021	11/12	
MS\BH15	3.90	01/07/2021	8/9	
MS\BH15	4.40	01/07/2021	9	
MS\BH15	5.20	01/07/2021	6/7	
MS\BH16	0.30	01/07/2021	5	
MS\BH16	0.50	01/07/2021	9/10	
MS\BH16	1.00	01/07/2021	11	
MS\BH16	1.50	01/07/2021	7	
MS\BH16	2.30	01/07/2021	8	
MS\BH16	3.00	01/07/2021	8/9	
MS\BH16	3.30	01/07/2021	9	
MS\BH16	4.00	01/07/2021	8	
MS\BH16	4.20	01/07/2021	8/9	
MS\BH16	5.00	01/07/2021	9	
MS\BH16	5.70	02/07/2021	9	
MS\BH16	6.60	02/07/2021	6/7	
MS\BH17	0.30	06/07/2021	7/8	
MS\BH17	0.50	06/07/2021	7/8	
MS\BH17	1.00	06/07/2021	8	
MS\BH17	1.50	06/07/2021	7/8	
MS\BH17	2.00	06/07/2021	7/8	
MS\BH17	3.00	06/07/2021	8	
MS\BH17	3.50	06/07/2021	13	
MS\BH17	3.90	06/07/2021	12	
MS\BH17	5.00	06/07/2021	12	
MS\BH17	5.50	06/07/2021	12	
MS\BH17	6.00	06/07/2021	9	
MS\BH17	6.50	06/07/2021	9	

Remarks :

Contract Title: **Preliminary Onshore Ground Investigation for NZT**

Client: **AECOM**

Checked By: [redacted]

Approved By: [redacted]

Date of issue: 29/07/2021

AEG Contract No. : **4339**

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LITMUS PAPER TESTING

Point ID	Depth (m)	Date	Reading	Remarks
MS\BH17	7.00	06/07/2021	9	
MS\TP01	0.30	16/06/2021	5	
MS\TP01	0.50	16/06/2021	8	Green
MS\TP01	1.00	16/06/2021	8	Green
MS\TP01	2.00	16/06/2021	9	Dark green
MS\TP01	3.00	16/06/2021	8	Green
MS\TP01	4.00	16/06/2021	5	
MS\TP03	0.30	14/06/2021	6	
MS\TP03	0.50	14/06/2021	6	
MS\TP03	1.00	14/06/2021	6	
MS\TP03	2.00	14/06/2021	6	
MS\TP04	0.30	15/06/2021	6	
MS\TP04	0.50	15/06/2021	6	
MS\TP04	1.00	15/06/2021	6	
MS\TP04	2.00	15/06/2021	6	
MS\TP04	3.00	15/06/2021	6	
MS\TP04	4.00	15/06/2021	7	
MS\TP05	0.30	17/06/2021	5	
MS\TP05	0.50	17/06/2021	5	
MS\TP05	1.00	17/06/2021	5	
MS\TP05	2.00	17/06/2021	5	
MS\TP05	3.00	17/06/2021	5	
MS\TP05	4.00	17/06/2021	5	
MS\TP06	0.30	15/06/2021	6	
MS\TP06	0.50	15/06/2021	6	
MS\TP06	1.00	15/06/2021	6	
MS\TP07	0.30	17/06/2021	5	
MS\TP07	0.50	17/06/2021	5	
MS\TP07	1.00	17/09/2021	5	

Remarks :

Contract Title: **Preliminary Onshore Ground Investigation for NZT**

Client: **AECOM**

Checked By: [redacted]

Approved By: [redacted]

Date of issue: 29/07/2021

AEG Contract No. : **4339**

ALLIED EXPLORATION GEOTECHNICS LIMITED

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Regional Office: Unit 20 Business Development Centre, Eanam Wharf, Blackburn, BB1 5BL - Tel: 01254 503 200 Fax: 01254 662 590

LITMUS PAPER TESTING

Point ID	Depth (m)	Date	Reading	Remarks
MS\TP07	2.00	17/06/2021	5	
MS\TP07	3.00	17/06/2021	5	
MS\TP07	4.00	17/06/2021	5	
MS\TP09	0.30	16/06/2021	5	
MS\TP09	0.50	16/06/2021	5	
MS\TP09	1.00	16/06/2021	5	
MS\TP09	2.00	16/06/2021	5	
MS\TP09	3.00	16/06/2021	7	Yellow/grey
MS\TP09	4.00	16/06/2021	12	Purple
MS\TP10	0.30	21/06/2021	6	
MS\TP10	0.50	21/06/2021	6	

Remarks :

Contract Title: **Preliminary Onshore Ground Investigation for NZT**

Client: **AECOM**

Checked By: [redacted]

Approved By [redacted]

Date of issue: 29/07/2021

AEG Contract No. : **4339**

Variable Head Permeability Test Results

IN-SITU TESTING ENCLOSURE 4

ALLIED EXPLORATION & GEOTECHNICS LTD
Head Office: Unit 25 Stella Gill Industrial Estate, Pelton Fell, Chester-le-Street, County Durham, DH2 2RG
Regional Office: Suite 20 Business Development Centre, Eanam Wharf, Eanam Old Road, Blackburn, BB1 5BL

VARIABLE HEAD PERMEABILITY TEST CALCULATION
BS5930: 1999 (Amendment 1): Section 4: Clause 25.4

Installation Type : 50mm Standpipe **Method:** Falling Head **Test No:** 1 of 2

Contract & Position Details

Site: Preliminary Onshore Ground Investigation for NZT
Contract : 4339 **Exploratory Hole:** MS\BH03 (Shallow) **Depth (mBGL):** 5.00

Initial Conditions		
Top of Section:	1.20	mBGL
Base of Section:	2.70	mBGL
Diameter of Section:	178.00	mm
Measurement Offset:	0.00	mAGL
Standpipe Diameter:	50.00	mm
Initial Water Level:	2.14	mBGL
Weather Conditions:	Clear/Windy	

Intake Factor Selection	
Option	**Criteria**
○ A	Soil flush with bottom at impervious boundary
○ B	Soil flush with bottom in uniform soil
○ C	Well point or hole extended at impervious boundary
○ D	Well point or hole extended in uniform soil
○ E	Soil in casing with bottom at impervious boundary
○ F	Soil in casing with bottom in uniform soil
◉ G	Standpipe or Piezometer

Comments
(1) Refer to Exploratory Hole Record for soil conditions.

Initial Response Zone Calculations		
Length, L:	1.50	m
Diameter, D:	0.18	m
L/D:	8.43	Ratio
Response Area, A:	0.0249	m^2
Intake Factor, F:	3.7706	Coefficient

using

$2.32\pi L / \ln\{1.1(L / D)\} + \sqrt{\{1 + 1.1(L / D)^2\}}$

Permeability Equations

General Approach

$$K = \frac{A}{F * (T_2 - T_1)} .\ln(H_1/H_2) \quad \textbf{Eq.(i)}$$

Lag Time Analysis

$$K = \frac{A}{F . T} \quad \textbf{Eq.(ii)}$$

Eq.(ii) where T is the Basic Time Lag Factor coinciding with a H/H_0 of 0.37

Permeability Variable Determination

General Approach

Factor, T_1 :	n/a	Seconds
Head, H_1 :	n/a	m
Factor, T_2 :	n/a	Seconds
Head, H_2 :	n/a	m

Lag Time Analysis Approach

Lag Time, T :	26.09	Seconds

Permeability Calculation

General Approach **Eq.(i)**

K= **N/A** m/s

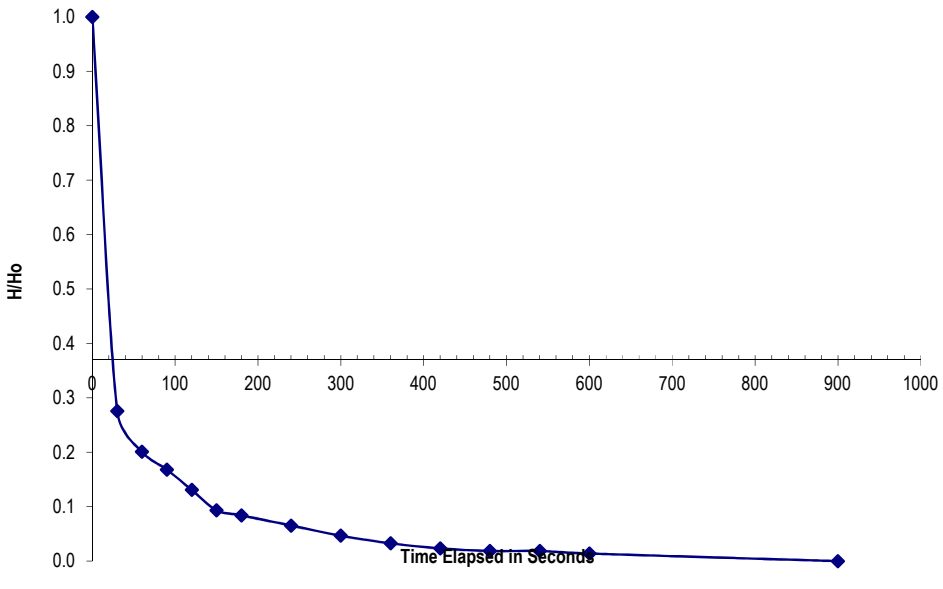
Lag Time Analysis **Eq.(ii)**

K= **2.53E-04** m/s

Readings

Minutes	Seconds	Total Seconds	Water Level Depth (m)	Head (m)	H/H_0	Notes
0	0	0	0.000	2.14	1.000	
0	30	30	1.550	0.59	0.276	
1	0	60	1.710	0.43	0.201	
1	30	90	1.780	0.36	0.168	
2	0	120	1.860	0.28	0.131	
2	30	150	1.940	0.20	0.093	
3	0	180	1.960	0.18	0.084	
4	0	240	2.000	0.14	0.065	
5	0	300	2.040	0.10	0.047	
6	0	360	2.070	0.07	0.033	
7	0	420	2.090	0.05	0.023	
8	0	480	2.100	0.04	0.019	
9	0	540	2.100	0.04	0.019	
10	0	600	2.110	0.03	0.014	
15	0	900	2.140	0.00	0.000	

Permeability Graph



Approvals

Operator	A.M	21/10/2021
Calculated	LC	15/11/2021
Checked & Approved:	KW	15/11/2021

ALLIED EXPLORATION & GEOTECHNICS LTD
Head Office: Unit 25 Stella Gill Industrial Estate, Pelton Fell, Chester-le-Street, County Durham, DH2 2RG
Regional Office: Suite 20 Business Development Centre, Eanam Wharf, Eanam Old Road, Blackburn, BB1 5BL

VARIABLE HEAD PERMEABILITY TEST CALCULATION
BS5930: 1999 (Amendment 1): Section 4: Clause 25.4

Installation Type : 50mm Standpipe **Method:** Rising Head **Test No:** 2 of 2

Contract & Position Details

Site: Preliminary Onshore Ground Investigation for NZT
Contract : 4339 **Exploratory Hole:** MS\BH03 (Shallow) **Depth (mBGL):** 5.00

Initial Conditions		
Top of Section:	1.20	mBGL
Base of Section:	2.70	mBGL
Diameter of Section:	178.00	mm
Measurement Offset:	0.00	mAGL
Standpipe Diameter:	50.00	mm
Initial Water Level:	2.14	mBGL
Weather Conditions:	Clear/Windy	

Intake Factor Selection	
Option	**Criteria**
○ A	Soil flush with bottom at impervious boundary
○ B	Soil flush with bottom in uniform soil
○ C	Well point or hole extended at impervious boundary
○ D	Well point or hole extended in uniform soil
○ E	Soil in casing with bottom at impervious boundary
○ F	Soil in casing with bottom in uniform soil
◉ G	Standpipe or Piezometer

Comments
(1) Refer to Exploratory Hole Record for soil conditions.

Initial Response Zone Calculations		
Length, L:	1.50	m
Diameter, D:	0.18	m
L/D:	8.43	Ratio
Response Area, A:	0.0249	m^2
Intake Factor, F:	3.7706	Coefficient

using

$2.32\pi L / \ln\{1.1(L / D)\} + \sqrt{\{1 + 1.1(L / D)^2\}}$

Permeability Equations

General Approach

$$K = \frac{A}{F * (T_2 - T_1)} . \ln(H_1/H_2) \quad \textbf{Eq.(i)}$$

Lag Time Analysis

$$K = \frac{A}{F . T} \quad \textbf{Eq.(ii)}$$

Eq.(ii) where T is the Basic Time Lag Factor coinciding with a H/H_0 of 0.37

Permeability Variable Determination

General Approach

Factor, T_1 :	n/a	Seconds
Head, H_1 :	n/a	m
Factor, T_2 :	n/a	Seconds
Head, H_2 :	n/a	m

Lag Time Analysis Approach

Lag Time, T :	261.00	Seconds

Permeability Calculation

General Approach **Eq.(i)**

K= **N/A** m/s

Lag Time Analysis **Eq.(ii)**

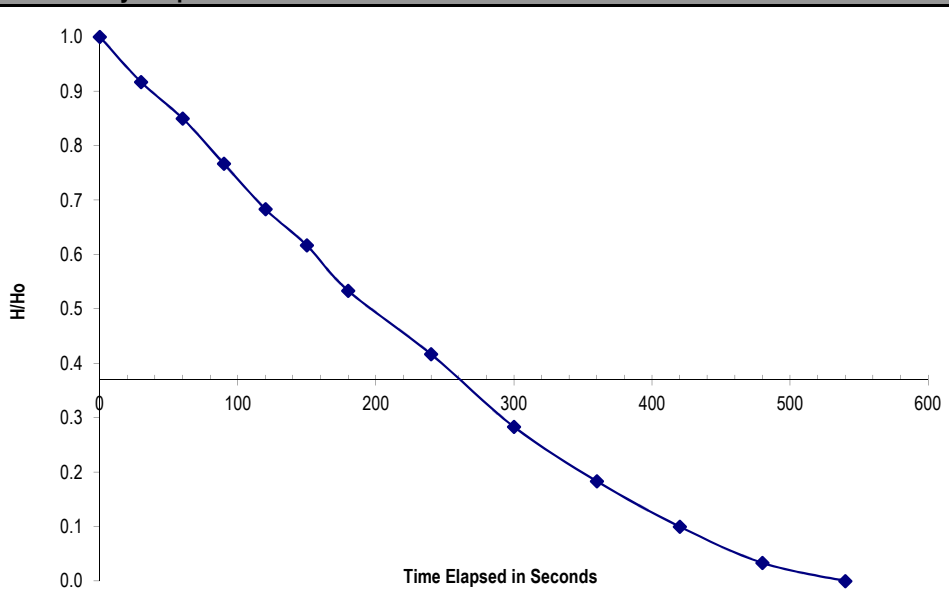
K= **2.53E-05** m/s

Approvals		
Operator	A.M	21/10/2021
Calculated	LC	15/11/2021
Checked & Approved:	K.W	15/11/2021

Readings

Minutes	Seconds	Total Seconds	Water Level Depth (m)	Head (m)	H/H_0	Notes
0	0	0	2.740	0.60	1.000	
0	30	30	2.690	0.55	0.917	
1	0	60	2.650	0.51	0.850	
1	30	90	2.600	0.46	0.767	
2	0	120	2.550	0.41	0.683	
2	30	150	2.510	0.37	0.617	
3	0	180	2.460	0.32	0.533	
4	0	240	2.390	0.25	0.417	
5	0	300	2.310	0.17	0.283	
6	0	360	2.250	0.11	0.183	
7	0	420	2.200	0.06	0.100	
8	0	480	2.160	0.02	0.033	
9	0	540	2.140	0.00	0.000	

Permeability Graph



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Regional Office: Suite 20 Business Development Centre, Eanam Wharf, Eanam Old Road, Blackburn, BB1 5BL

VARIABLE HEAD PERMEABILITY TEST CALCULATION
BS5930: 1999 (Amendment 1): Section 4: Clause 25.4

Installation Type : 50mm Standpipe **Method:** Falling Head **Test No:** 1 of 2

Contract & Position Details

Site: Preliminary Onshore Ground Investigation for NZT
Contract : 4339 **Exploratory Hole:** MS\BH05 (Deep) **Depth (mBGL):** 29.90

Initial Conditions		
Top of Section:	23.50	mBGL
Base of Section:	29.90	mBGL
Diameter of Section:	50.00	mm
Measurement Offset:	0.00	mAGL
Standpipe Diameter:	50.00	mm
Initial Water Level:	5.70	mBGL
Weather Conditions:	Rain	

Intake Factor Selection	
Option	**Criteria**
○ A	Soil flush with bottom at impervious boundary
○ B	Soil flush with bottom in uniform soil
○ C	Well point or hole extended at impervious boundary
○ D	Well point or hole extended in uniform soil
○ E	Soil in casing with bottom at impervious boundary
○ F	Soil in casing with bottom in uniform soil
◉ G	Standpipe or Piezometer

Comments

Initial Response Zone Calculations		
Length, L:	6.40	m
Diameter, D:	0.05	m
L/D:	128.00	Ratio
Response Area, A:	0.0020	m^2
Intake Factor, F:	8.3046	Coefficient

using

$2.32\pi L / \ln\{1.1(L / D)\} + \sqrt{\{1 + 1.1(L / D)^2\}}$

Permeability Equations

General Approach

$$K = \frac{A}{F * (T_2 - T_1)} . \ln(H_1/H_2) \quad \textbf{Eq.(i)}$$

Lag Time Analysis

$$K = \frac{A}{F . T} \quad \textbf{Eq.(ii)}$$

Eq.(ii) where T is the Basic Time Lag Factor coinciding with a H/H_0 of 0.37

Permeability Variable Determination

General Approach

Factor, T_1 :	n/a	Seconds
Head, H_1 :	n/a	m
Factor, T_2 :	n/a	Seconds
Head, H_2 :	n/a	m

Lag Time Analysis Approach

Lag Time, T :	1491.91	Seconds

Permeability Calculation

General Approach **Eq.(i)**

K= **N/A** m/s

Lag Time Analysis **Eq.(ii)**

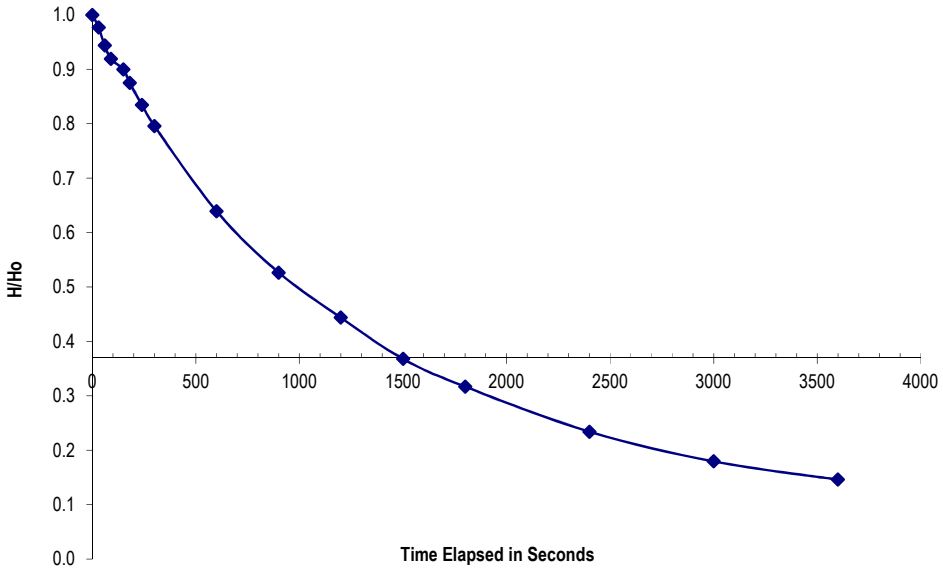
K= **1.58E-07** m/s

Approvals		
Operator	A.M	20/10/2021
Calculated	LC	15/11/2021
Checked & Approved:	KW	15/11/2021

Readings

Minutes	Seconds	Total Seconds	Water Level Depth (m)	Head (m)	H/H_0	Notes
0	0	0	0.020	5.68	1.000	
0	30	30	0.150	5.55	0.977	
1	0	60	0.340	5.36	0.944	
1	30	90	0.480	5.22	0.919	
2	30	150	0.590	5.11	0.900	
3	0	180	0.730	4.97	0.875	
4	0	240	0.960	4.74	0.835	
5	0	300	1.180	4.52	0.796	
10	0	600	2.070	3.63	0.639	
15	0	900	2.710	2.99	0.526	
20	0	1200	3.180	2.52	0.444	
25	0	1500	3.610	2.09	0.368	
30	0	1800	3.900	1.80	0.317	
40	0	2400	4.370	1.33	0.234	
50	0	3000	4.680	1.02	0.180	
60	0	3600	4.870	0.83	0.146	

Permeability Graph



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Regional Office: Suite 20 Business Development Centre, Eanam Wharf, Eanam Old Road, Blackburn, BB1 5BL

VARIABLE HEAD PERMEABILITY TEST CALCULATION

BS5930: 1999 (Amendment 1): Section 4: Clause 25.4

Installation Type : 50mm Standpipe **Method:** Rising Head **Test No:** 2 of 2

Contract & Position Details

Site: Preliminary Onshore Ground Investigation for NZT
Contract : 4339 **Exploratory Hole:** MS\BH05 (Deep) **Depth (mBGL):** 29.90

Initial Conditions		
Top of Section:	23.50	mBGL
Base of Section:	29.90	mBGL
Diameter of Section:	50.00	mm
Measurement Offset:	0.00	mAGL
Standpipe Diameter:	50.00	mm
Initial Water Level:	5.42	mBGL
Weather Conditions:	Clear/Windy	

Intake Factor Selection	
Option	**Criteria**
○ A	Soil flush with bottom at impervious boundary
○ B	Soil flush with bottom in uniform soil
○ C	Well point or hole extended at impervious boundary
○ D	Well point or hole extended in uniform soil
○ E	Soil in casing with bottom at impervious boundary
○ F	Soil in casing with bottom in uniform soil
◉ G	Standpipe or Piezometer

Comments

Initial Response Zone Calculations		
Length, L:	6.40	m
Diameter, D:	0.05	m
L/D:	128.00	Ratio
Response Area, A:	0.0020	m^2
Intake Factor, F:	8.3046	Coefficient

using

$2.32\pi L / \ln\{1.1(L / D)\} + \sqrt{\{1 + 1.1(L / D)^2\}}$

Permeability Equations

General Approach

$$K = \frac{A}{F * (T_2 - T_1)} .\ln(H_1/H_2) \quad \textbf{Eq.(i)}$$

Lag Time Analysis

$$K = \frac{A}{F . T} \quad \textbf{Eq.(ii)}$$

Eq.(ii) where T is the Basic Time Lag Factor coinciding with a H/H_0 of 0.37

Permeability Variable Determination

General Approach

Factor, T_1 :	n/a	Seconds
Head, H_1 :	n/a	m
Factor, T_2 :	n/a	Seconds
Head, H_2 :	n/a	m

Lag Time Analysis Approach

Lag Time, T :	1374.62	Seconds

Permeability Calculation

General Approach **Eq.(i)**

K= N/A m/s

Lag Time Analysis **Eq.(ii)**

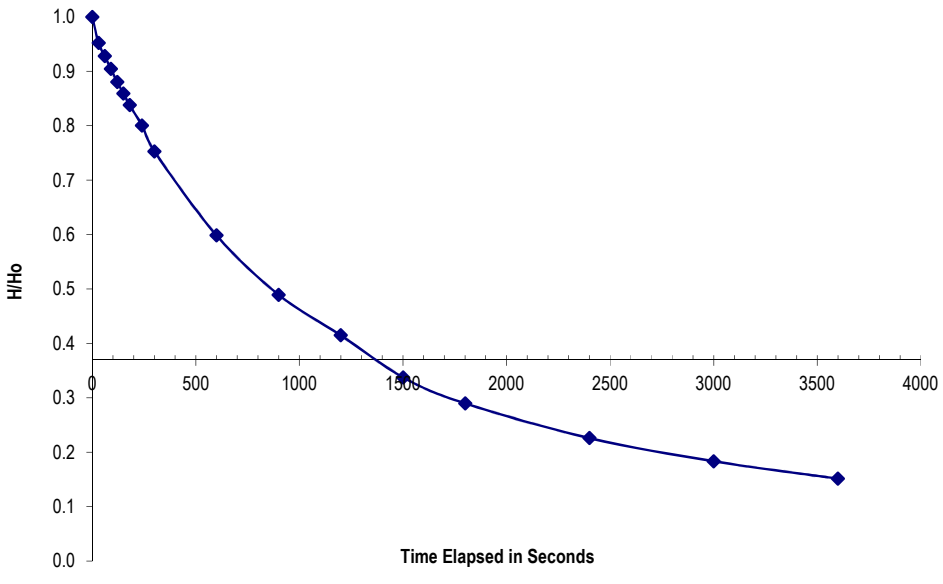
K= 1.72E-07 m/s

Approvals		
Operator	A.M	21/10/2021
Calculated	LC	15/11/2021
Checked & Approved:	KW	15/11/2021

Readings

Minutes	Seconds	Total Seconds	Water Level Depth (m)	Head (m)	H/H_0	Notes
0	0	0	9.180	3.76	1.000	
0	30	30	9.000	3.58	0.952	
1	0	60	8.910	3.49	0.928	
1	30	90	8.820	3.40	0.904	
2	0	120	8.730	3.31	0.880	
2	30	150	8.650	3.23	0.859	
3	0	180	8.570	3.15	0.838	
4	0	240	8.430	3.01	0.801	
5	0	300	8.250	2.83	0.753	
10	0	600	7.670	2.25	0.598	
15	0	900	7.260	1.84	0.489	
20	0	1200	6.980	1.56	0.415	
25	0	1500	6.690	1.27	0.338	
30	0	1800	6.510	1.09	0.290	
40	0	2400	6.270	0.85	0.226	
50	0	3000	6.110	0.69	0.184	
60	0	3600	5.990	0.57	0.152	

Permeability Graph



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VARIABLE HEAD PERMEABILITY TEST CALCULATION
BS5930: 1999 (Amendment 1): Section 4: Clause 25.4

Installation Type : 50mm Standpipe **Method:** Falling Head **Test No:** 1 of 2

Contract & Position Details

Site: Preliminary Onshore Ground Investigation for NZT
Contract : 4339 **Exploratory Hole:** MS\BH15 (Shallow) **Depth (mBGL):** 5.00

Initial Conditions		
Top of Section:	2.00	mBGL
Base of Section:	5.00	mBGL
Diameter of Section:	178.00	mm
Measurement Offset:	0.22	mAGL
Standpipe Diameter:	50.00	mm
Initial Water Level:	3.70	mBGL
Weather Conditions:	Raining	

Intake Factor Selection	
Option	**Criteria**
○ A	Soil flush with bottom at impervious boundary
○ B	Soil flush with bottom in uniform soil
○ C	Well point or hole extended at impervious boundary
○ D	Well point or hole extended in uniform soil
○ E	Soil in casing with bottom at impervious boundary
○ F	Soil in casing with bottom in uniform soil
◉ G	Standpipe or Piezometer

Comments
(1) Refer to Exploratory Hole Record for soil conditions.

Initial Response Zone Calculations		
Length, L:	3.00	m
Diameter, D:	0.18	m
L/D:	16.85	Ratio
Response Area, A:	0.0249	m^2
Intake Factor, F:	6.0902	Coefficient

using

$2.32\pi L / \ln\{1.1(L / D)\} + \sqrt{\{1 + 1.1(L / D)^2\}}$

Permeability Equations

General Approach

$$K = \frac{A}{F * (T_2 - T_1)} .\ln(H_1/H_2) \quad \textbf{Eq.(i)}$$

Lag Time Analysis

$$K = \frac{A}{F . T} \quad \textbf{Eq.(ii)}$$

Eq.(ii) where T is the Basic Time Lag Factor coinciding with a H/H_0 of 0.37

Permeability Variable Determination

General Approach

Factor, T_1 :	n/a	Seconds
Head, H_1 :	n/a	m
Factor, T_2 :	n/a	Seconds
Head, H_2 :	n/a	m

Lag Time Analysis Approach

Lag Time, T :	20.02	Seconds

Permeability Calculation

General Approach **Eq.(i)**

K= **N/A** m/s

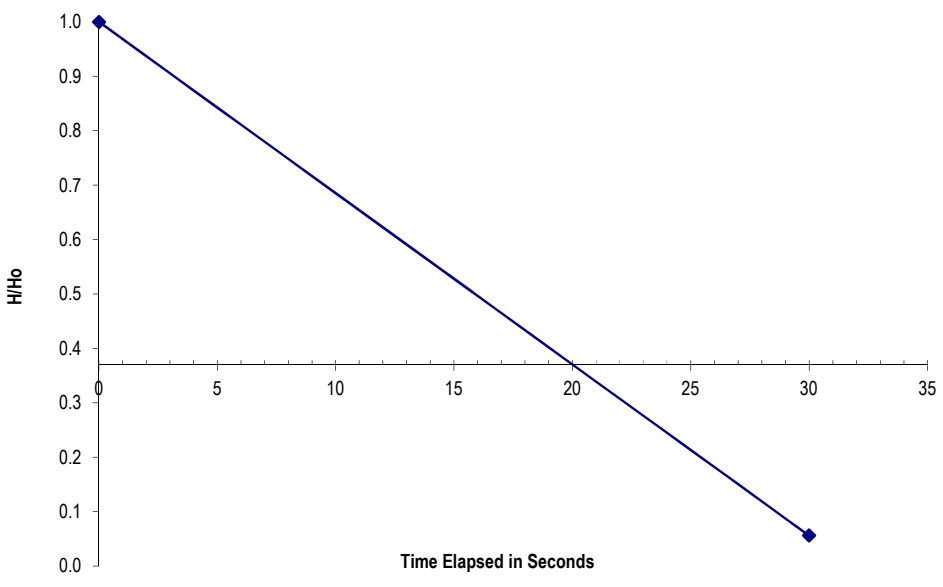
Lag Time Analysis **Eq.(ii)**

K= **2.04E-04** m/s

Readings

Minutes	Seconds	Total Seconds	Water Level Depth (m)	Head (m)	H/H_0	Notes
0	0	0	0.000	3.92	1.000	
0	30	30	3.700	0.22	0.056	

Permeability Graph



Approvals		
Operator	A.M	20/10/2021
Calculated	L.C	15/11/2021
Checked & Approved:	K.W	15/11/2021

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VARIABLE HEAD PERMEABILITY TEST CALCULATION
BS5930: 1999 (Amendment 1): Section 4: Clause 25.4

Installation Type : 50mm Standpipe **Method:** Rising Head **Test No:** 2 of 2

Contract & Position Details

Site: Preliminary Onshore Ground Investigation for NZT
Contract : 4339 **Exploratory Hole:** MS\BH15 (Shallow) **Depth (mBGL):** 5.00

Initial Conditions		
Top of Section:	2.00	mBGL
Base of Section:	5.00	mBGL
Diameter of Section:	178.00	mm
Measurement Offset:	0.00	mAGL
Standpipe Diameter:	50.00	mm
Initial Water Level:	3.49	mBGL
Weather Conditions:	Sunny	

Intake Factor Selection	
Option	**Criteria**
○ A	Soil flush with bottom at impervious boundary
○ B	Soil flush with bottom in uniform soil
○ C	Well point or hole extended at impervious boundary
○ D	Well point or hole extended in uniform soil
○ E	Soil in casing with bottom at impervious boundary
○ F	Soil in casing with bottom in uniform soil
◉ G	Standpipe or Piezometer

Comments
(1) Refer to Exploratory Hole Record for soil conditions.

Initial Response Zone Calculations		
Length, L:	3.00	m
Diameter, D:	0.18	m
L/D:	16.85	Ratio
Response Area, A:	0.0249	m^2
Intake Factor, F:	6.0902	Coefficient

using

$2.32\pi L / \ln\{1.1(L / D)\} + \sqrt{\{1 + 1.1(L / D)^2\}}$

Permeability Equations

General Approach

$$K = \frac{A}{F * (T_2 - T_1)} .\ln(H_1/H_2) \quad \textbf{Eq.(i)}$$

Lag Time Analysis

$$K = \frac{A}{F . T} \quad \textbf{Eq.(ii)}$$

Eq.(ii) where T is the Basic Time Lag Factor coinciding with a H/H_0 of 0.37

Permeability Variable Determination

General Approach

Factor, T_1 :	n/a	Seconds
Head, H_1 :	n/a	m
Factor, T_2 :	n/a	Seconds
Head, H_2 :	n/a	m

Lag Time Analysis Approach

Lag Time, T :	95.34	Seconds

Permeability Calculation

General Approach **Eq.(i)**

K= **N/A** m/s

Lag Time Analysis **Eq.(ii)**

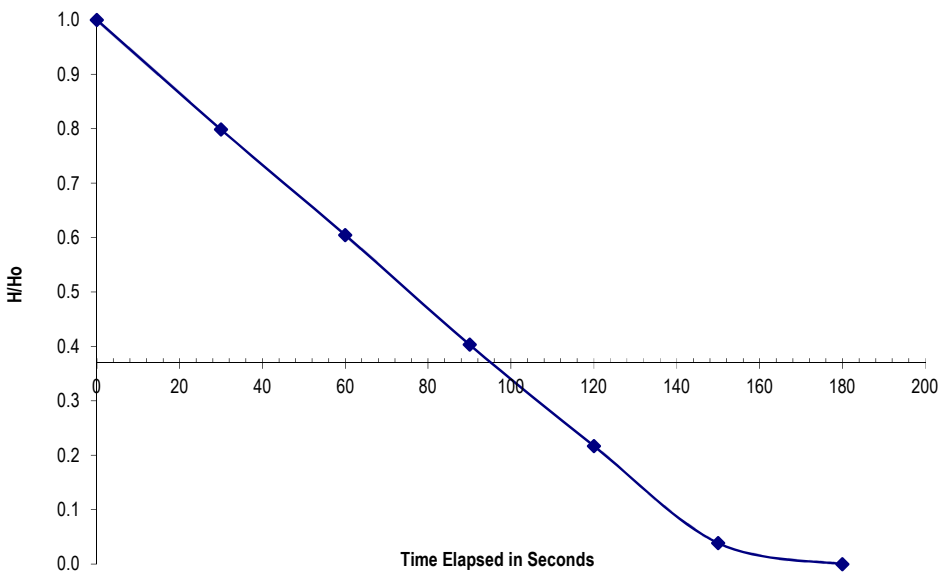
K= **4.29E-05** m/s

Approvals		
Operator	A.M	21/10/2021
Calculated	L.C.	15/11/2021
Checked & Approved:	K.W.	15/11/2021

Readings

Minutes	Seconds	Total Seconds	Water Level Depth (m)	Head (m)	H/H_0	Notes
0	0	0	4.780	1.29	1.000	
0	30	30	4.520	1.03	0.798	
1	0	60	4.270	0.78	0.605	
1	30	90	4.010	0.52	0.403	
2	0	120	3.770	0.28	0.217	
2	30	150	3.540	0.05	0.039	
3	0	180	3.490	0.00	0.000	

Permeability Graph



In-situ Water Quality Parameter Test Results

IN-SITU TESTING ENCLOSURE 5

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IN-SITU WATER QUALITY PARAMETER MONITORING RESULTS

Date of Test:	10/08/2021	**Operator:**	A.M
Weather Condition (inc temperature):		**(16-20) Sunny**	

Monitoring Point	Water Level	Time	pH	Temp (°C)	Electrical Conductivity (µs)	Redox Potential (mv)	Turbidity %	Dissolved Oxygen (MG/L)
MS\BH14 (Deep)	3.52	16:14:00	11.53	14.32	1632.60	-242.20	0.00	0.06
		16:19:00	11.56	14.23	1630.60	-246.30	0.00	0.07
		16:24:00	11.56	14.24	1633.60	-250.70	0.00	0.04
MS\BH17 (Deep)	5.54	14:16:00	11.44	16.75	2432.00	-209.60	56.50	0.17
		14:21:00	11.43	16.63	2432.60	-208.80	52.58	0.19
		14:26:00	11.43	16.43	2430.20	-213.80	54.29	0.21

Remarks :	MS\BH17 (Shallow) - Dry

Contract Title: **Preliminary Onshore Ground Investigation for NZT**		Client: **AECOM**	
Checked By: [redacted]		Approved By: [redacted]	
Date of issue: 23/08/2021	Page No. : 1 of 5	AEG Contract No. : **4339**	

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IN-SITU WATER QUALITY PARAMETER MONITORING RESULTS

Date of Test:	11/08/2021	**Operator:**	A.M
Weather Condition (inc temperature):		**(16-21) Sunny/Overcast**	

Monitoring Point	Water Level	Time	pH	Temp (°C)	Electrical Conductivity (µs)	Redox Potential (mv)	Turbidity %	Dissolved Oxygen (MG/L)
MS\BH08 (Deep)	5.70	16:43:00	8.64	17.46	2819.10	-344.20	4.09	0.02
		16:48:00	8.65	17.59	2829.00	-343.60	4.15	0.00
		16:53:00	8.64	17.85	2860.85	-342.10	4.12	0.02
MS\BH11 (Shallow)	3.93	15:21:00	8.70	18.95	1887.70	-89.10	440.20	5.96
	*							
MS\BH11 (Deep)	4.06	14:40:00	9.12	16.28	1282.00	-328.40	14.33	0.05
		14:45:00	9.12	16.32	1279.20	-332.60	14.55	0.08
		14:50:00	9.12	16.38	1278.90	-332.70	14.06	0.06
MS\BH12 (Shallow)	3.92	12:21:00	12.04	16.81	2663.50	-249.80	41.73	0.15
		12:26:00	12.04	16.84	2685.00	-256.10	39.71	0.16
		12:31:00	12.06	16.70	2684.00	-263.40	36.78	0.10

Remarks :	MS\BH08 (Shallow) - Dry * MS\BH11 (Shallow) - Well ran dry - Slow recharge - No sample obtained

Contract Title: **Preliminary Onshore Ground Investigation for NZT**	Client: **AECOM**
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Date of issue: 23/08/2021	Page No. : 2 of 5
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IN-SITU WATER QUALITY PARAMETER MONITORING RESULTS

Date of Test:	12/08/2021	**Operator:**	A.M
Weather Condition (inc temperature):		**(16 - 20) Sunny/Partly Cloudy**	

Monitoring Point	Water Level	Time	pH	Temp (°C)	Electrical Conductivity (µs)	Redox Potential (mv)	Turbidity (NTU)	Dissolved Oxygen (MG/L)
MS\BH03 (Shallow)	2.13	10:16:00	11.42	14.51	2701.70	-287.40	248.34	0.24
	2.13	10:21:00	11.36	14.56	2692.60	-283.40	146.89	0.22
	2.14	10:26:00	11.32	14.52	2618.00	-283.10	105.29	0.18
MS\BH03 (Deep)	2.13	16:20:00	12.63	15.38	24238.00	-157.10	106.36	0.07
		16:25:00	12.64	15.21	24334.00	-162.60	102.78	0.09
		16:30:00	12.65	15.10	24483.00	-161.50	105.99	0.07
MS\BH04 (Shallow)	2.30	10:24:00	8.17	14.31	2680.00	-241.30	14.20	0.03
		10:29:00	8.16	14.28	2680.50	-233.00	13.72	0.02
		10:34:00	8.16	14.39	2683.90	-230.90	11.53	0.03
MS\BH04 (Deep)	2.45	16:17:00	8.86	15.17	2597.20	-178.40	12.01	0.31
		16:22:00	8.85	15.22	2603.20	-190.70	11.74	0.27
		16:27:00	8.86	15.07	2606.70	-195.40	11.00	0.24
MS\BH05 (Shallow)	4.56	11:50:00	9.86	16.10	1073.50	-242.70	12.88	0.40
		11:55:00	9.83	16.04	1070.90	-247.90	13.85	0.38
		12:00:00	9.83	16.15	1079.70	-150.00	13.59	0.35
MS\BH05 (Deep)	6.14	13:42:00	11.05	17.08	1085.70	-211.80	44.46	0.61
	6.28	13:47:00	10.99	16.93	1090.70	-214.00	42.11	0.57
	6.37	13:52:00	10.99	16.88	1094.70	-217.10	41.27	0.62
MS\BH07 (Shallow)	4.48	13:59:00	10.02	19.69	2362.10	-173.60	312.23	0.00
	4.48	14:04:00	10.07	19.52	2487.10	-180.80	300.89	0.00
	4.48	14:09:00	10.06	19.71	2554.00	-188.90	281.60	0.00

Remarks :	MS\BH03 (Shallow), MS\BH04 (Shallow) and MS\BH09 (Deep) - 1 well volume purged

Contract Title: **Preliminary Onshore Ground Investigation for NZT**	Client: **AECOM**
Checked By: [redacted]	Approved By: [redacted]
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IN-SITU WATER QUALITY PARAMETER MONITORING RESULTS

Date of Test:	12/08/2021	**Operator:**	D.C
Weather Condition (inc temperature):		**(16-20) Partly Cloudy**	

Monitoring Point	Water Level	Time	pH	Temp (°C)	Electrical Conductivity (µs)	Redox Potential (mv)	Turbidity %	Dissolved Oxygen (MG/L)
MS\BH07 (Deep)	4.37	10:53:00	10.51	18.24	2272.90	-179.00	1750.20	0.07
		10:58:00	10.48	18.44	2288.20	-176.20	1810.50	0.06
		11:03:00	10.46	18.62	2285.00	-174.70	1717.30	0.07
MS\BH13 (Shallow)	2.11	15:04:00	8.80	16.74	5282.60	-244.40	7.61	0.03
		15:09:00	8.80	16.54	5300.00	-240.20	8.61	0.03
		15:14:00	8.80	16.68	5361.70	-235.20	11.45	0.03
MS\BH13 (Deep)	2.09	12:15:00	7.00	16.56	26341.00	-123.60	2.78	0.03
		12:20:00	6.99	16.72	26472.00	-127.00	2.91	0.03
		12:25:00	6.99	16.73	26588.00	-126.90	2.88	0.03

Remarks :	MS\BH03 (Shallow) and MS\BH09 (Deep) - 1 well volume purged

Contract Title: **Preliminary Onshore Ground Investigation for NZT**	Client: **AECOM**
Checked By: [redacted]	Approved By: [redacted]
Date of issue: 23/08/2021	Page No. : 4 of 5
AEG Contract No. : **4339**	

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IN-SITU WATER QUALITY PARAMETER MONITORING RESULTS

Date of Test:	13/08/2021	**Operator:**	A.M
Weather Condition (inc temperature):		**(16 - 20) Sunny/Partly Cloud/Windy**	

Monitoring Point	Water Level	Time	pH	Temp (°C)	Electrical Conductivity (µs)	Redox Potential (mv)	Turbidity %	Dissolved Oxygen (MG/L)
LF\BH01 (Shallow)	4.64	12:56:00	11.59	14.79	2482.00	-509.80	101.88	0.00
		13:01:00	11.58	14.86	2457.50	-510.20	111.68	0.00
		13:06:00	11.11	15.06	2418.20	-510.70	112.19	0.00
LF\BH01 (Deep)	4.64	11:28:00	11.96	14.44	4436.50	-207.40	24.83	0.21
		11:33:00	11.98	14.42	4442.10	-213.40	20.72	0.24
		11:38:00	11.97	14.78	4446.10	-224.10	23.82	0.28
MS\BH09 (Deep)	4.57	10:14:00	11.66	15.44	1206.10	-234.60	217.24	0.36
	4.58	10:19:00	11.54	15.52	1152.30	230.50	386.50	0.25
	4.60	10:24:00	11.46	15.50	1138.00	230.70	390.51	0.20
MS\BH12 (Deep)	5.85	12:43:00	12.32	14.89	7659.60	-122.20	39.44	6.71
		12:48:00	12.32	14.77	7719.70	-123.80	39.67	6.07
		12:53:00	12.33	14.90	7822.80	-128.80	40.39	6.90
MS\BH15 (Shallow)	3.21	11:44:00	11.32	19.85	2344.20	377.90	129.00	0.05
		11:49:00	11.31	20.12	2260.80	370.10	126.20	0.06
		11:54:00	11.28	20.34	2347.60	368.90	135.60	0.05
MS\BH15 (Deep)	2.51	10:09:00	10.29	16.94	2550.50	-252.50	22.00	0.11
		10:14:00	10.30	16.67	2547.20	-267.30	20.10	0.10
		10:19:00	10.31	16.79	2558.00	-274.90	21.03	0.10

Remarks :	MS\BH09 (Shallow) - Dry

Contract Title: **Preliminary Onshore Ground Investigation for NZT**		Client: **AECOM**	
Checked By: [redacted]		Approved By: [redacted]	
Date of issue: 23/08/2021	Page No. : 5 of 5	AEG Contract No. : **4339**	

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IN-SITU WATER QUALITY PARAMETER MONITORING RESULTS

Date of Test:	12/10/2021	**Operator:**	A.M/O.V.
Weather Condition (inc temperature):		**(11°C) Overcast / Drizzle**	

Monitoring Point	Water Level	Time	pH	Temp (°C)	Electrical Conductivity (µs)	Redox Potential (mv)	Turbidity %	Dissolved Oxygen (MG/L)
MS\BH05 (Shallow)	4.61	10:26:00	10.60	13.41	488.59	-161.00	0.00	8.34
		10:29:00	10.58	13.40	489.54	-160.00	0.00	8.57
		10:32:00	10.46	13.38	488.60	-159.10	0.00	8.17
MS\BH05 (Deep)	5.64	11:01:00	10.31	13.28	0.07	-153.90	0.00	10.33
		11:04:00	10.44	13.30	0.07	160.10	0.00	10.32
		11:07:00	10.38	13.30	0.07	161.50	0.00	10.30
MS\BH07 (Deep)	4.09	13:26:00	8.74	14.61	2172.80	-76.80	2091.60	0.28
		13:29:00	8.73	14.41	2177.30	-75.20	2002.80	0.22
		13:32:00	8.73	14.48	2183.60	-75.30	2005.10	0.17
MS\BH08 (Deep)	5.71	13:21:00	9.76	12.65	2788.10	-237.90	0.35	10.30
		13:24:00	9.79	12.67	2778.50	-237.40	0.23	10.11
		13:27:00	9.82	12.59	2790.80	-237.40	0.11	10.14
MS\BH09 (Deep)	4.60	09:39:00	8.79	14.30	585.20	-99.20	0.00	9.09
		09:42:00	8.80	14.30	563.99	-105.70	0.00	9.30
		09:45:00	8.87	14.31	576.11	-98.60	0.00	9.20
MS\BH12 (Shallow)	4.09	16:15:00	11.42	12.38	4921.90	-141.70	25.14	0.54
		16:18:00	11.40	12.35	4942.30	-145.60	28.33	0.28
		16:21:00	11.38	12.32	4948.60	-147.40	25.46	0.45
MS\BH13 (Shallow)	2.29	15:37:00	7.32	13.21	2.63	-143.00	0.00	10.47
		15:40:00	7.33	12.88	2.29	-139.50	0.00	10.42
		15:43:00	7.35	12.81	2.21	-135.40	0.00	10.49

Remarks :

Contract Title: **Preliminary Onshore Ground Investigation for NZT**		Client: **AECOM**	
Checked By: [redacted]		Approved By: [redacted]	
Date of issue: 10/11/2021	Page No. : 1 of 5	AEG Contract No. : **4339**	

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IN-SITU WATER QUALITY PARAMETER MONITORING RESULTS

Date of Test:	12/10/2021	**Operator:**	A.M/O.V.
Weather Condition (inc temperature):		**(11°C) Overcast / Drizzle**	

Monitoring Point	Water Level	Time	pH	Temp (°C)	Electrical Conductivity (µs)	Redox Potential (mv)	Turbidity %	Dissolved Oxygen (MG/L)
MS\BH13 (Deep)	2.28	14:51:00	10.45	12.94	30159.00	-59.30	17.12	9.15
		14:54:00	10.29	13.02	30172.00	-51.40	15.53	9.13
		14:57:00	10.17	13.07	30653.00	-44.60	14.26	9.16

Remarks :

Contract Title: **Preliminary Onshore Ground Investigation for NZT**	Client: **AECOM**

Checked By: [redacted]		Approved By: [redacted]	
Date of issue: 10/11/2021	Page No. : 2 of 5	AEG Contract No. : **4339**	

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IN-SITU WATER QUALITY PARAMETER MONITORING RESULTS

Date of Test:	13/10/2021	**Operator:**	A.M/O.V.
Weather Condition (inc temperature):		**(11-13°C) Overcast / Sunny**	

Monitoring Point	Water Level	Time	pH	Temp (°C)	Electrical Conductivity (µs)	Redox Potential (mv)	Turbidity %	Dissolved Oxygen (MG/L)
MS\BH03 (Shallow)	1.87	13:30:00	10.18	14.18	0.07	-113.70	0.00	10.25
		13:33:00	10.32	14.16	0.07	-115.80	0.00	10.16
		13:36:00	10.34	14.19	0.07	-117.20	0.00	10.12
MS\BH03 (Deep)	1.87	14:25:00	10.10	14.28	0.18	-168.90	0.00	10.54
		14:28:00	10.10	14.27	0.07	-171.10	0.00	10.54
		14:31:00	10.07	14.29	0.07	-175.00	0.00	10.49
MS\BH04 (Shallow)	2.32	10:28:00	8.13	12.63	2674.00	-164.60	8.69	0.08
		10:31:00	8.08	12.65	2676.40	-160.30	7.70	0.07
		10:34:00	8.07	12.68	2674.30	-161.30	6.28	0.07
MS\BH04 (Deep)	2.51	09:42:00	10.50	13.10	4369.30	14.70	93.03	2.45
		09:45:00	10.49	13.08	4292.30	8.20	85.81	2.32
		09:48:00	10.40	13.11	4269.70	4.40	91.52	2.39
MS\BH11 (Deep)	4.19	13:48:00	9.12	13.55	1216.40	-201.30	136.96	0.43
		13:51:00	9.11	13.64	1221.00	-208.30	127.36	0.45
		13:54:00	9.11	13.88	1220.60	-210.30	128.57	0.55
MS\BH14	3.63	11:57:00	11.24	13.59	778.47	-272.30	161.57	0.59
		12:00:00	11.24	13.64	777.12	-276.30	170.63	0.64
		12:03:00	11.20	13.68	778.46	-289.00	145.66	0.68
MS\BH15 (Shallow)	3.49	09:31:00	8.59	14.12	0.07	-71.00	0.00	10.08
		09:34:00	8.60	14.16	0.07	-63.80	0.00	10.13
		09:37:00	8.62	14.18	0.07	-62.20	0.00	10.06

Remarks :

Contract Title: **Preliminary Onshore Ground Investigation for NZT**	Client: **AECOM**
Checked By: [redacted]	Approved By: [redacted]
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AEG Contract No. : **4339**	

ALLIED EXPLORATION GEOTECHNICS LIMITED

Head Office: Unit 25 Stella Gill Industrial Estate, Pelton Fell, Chester-le-Street, Co. Durham, DH2 2RG - Tel: 0191 387 4700 Fax: 0191 387 4710
Regional Office: Unit 20 Business Development Centre, Eanam Wharf, Blackburn, BB1 5BL - Tel: 01254 503 200 Fax: 01254 662 590

IN-SITU WATER QUALITY PARAMETER MONITORING RESULTS

Date of Test:	13/10/2021	**Operator:**	A.M/O.V.
Weather Condition (inc temperature):		**(11-13°C) Overcast / Sunny**	

Monitoring Point	Water Level	Time	pH	Temp (°C)	Electrical Conductivity (µs)	Redox Potential (mv)	Turbidity %	Dissolved Oxygen (MG/L)
MS\BH15 (Deep)	3.51	10:08:00	10.91	13.81	0.07	-109.00	0.00	10.29
		10:11:00	10.72	13.72	0.07	-105.30	0.00	10.40
		10:14:00	10.63	13.64	0.07	-101.40	0.00	10.35
MS\BH17 (Deep)	5.65	11:17:00	10.65	13.43	0.07	-43.10	0.00	10.32
		11:20:00	10.67	13.26	0.07	-42.10	0.00	10.33
		11:23:00	10.66	13.19	0.07	-40.60	0.00	10.34

Remarks :

Contract Title: **Preliminary Onshore Ground Investigation for NZT**		Client: **AECOM**	
Checked By: [redacted]		Approved By: [redacted]	
Date of issue: 10/11/2021	Page No. : 4 of 5	AEG Contract No. : **4339**	

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IN-SITU WATER QUALITY PARAMETER MONITORING RESULTS

Date of Test:	14/10/2021	**Operator:**	A.M
Weather Condition (inc temperature):		**(12-14°C) Overcast / Windy**	

Monitoring Point	Water Level	Time	pH	Temp (°C)	Electrical Conductivity (µs)	Redox Potential (mv)	Turbidity %	Dissolved Oxygen (MG/L)
LF\BH01 (Shallow)	4.64	14:40:00	10.89	13.07	3017.30	-321.00	205.66	0.12
		14:43:00	10.90	13.09	3020.30	-324.50	203.08	0.10
		14:46:00	10.92	13.03	3026.60	-330.10	167.80	0.09
LF\BH01 (Deep)	4.61	13:26:00	11.81	13.80	4681.70	-280.00	1.42	0.61
		13:29:00	11.82	13.82	4768.50	-283.10	1.05	0.39
		13:32:00	11.81	13.86	4809.90	-283.40	0.73	1.01
MS\BH12 (Deep)	4.11	11:09:00	7.18	12.99	25548.00	-160.20	8.70	0.24
		11:12:00	7.18	13.00	25699.00	-167.30	7.54	0.29
		11:15:00	7.18	12.92	25608.00	-177.30	5.79	0.31

Remarks :

Contract Title: **Preliminary Onshore Ground Investigation for NZT**	Client: **AECOM**
Checked By: [redacted]	Approved By: [redacted]
Date of issue: 10/11/2021	Page No. : 5 of 5
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IN-SITU WATER QUALITY PARAMETER MONITORING RESULTS

Date of Test	15/11/2021	Operator	OV
Weather Condition (inc temperature)	Overcast (9-11°C)		

Monitoring Point	Water Level	Time	pH	Temp (°C)	Electrical Conductivity (µS/cm)	Redox Potential (mV)	Turbidity (NTU)	Dissolved Oxygen (MG/L)
MS\BH05 (Shallow)	4.61	11:19:00	6.84	13.72	9.27	160.0	0.00	9.99
		11:22:00	6.86	13.75	9.23	159.8	0.00	9.97
		11:25:00	6.88	13.77	9.20	159.5	0.00	10.01
MS\BH05 (Deep)	5.69	13:24:00	6.97	12.91	8.38	151.8	0.00	10.36
		13:27:00	6.99	12.90	8.35	151.2	0.00	10.44
		13:30:00	7.00	12.88	8.33	150.6	0.00	10.44
MS\BH07 (Deep)	4.38	15:47:00	7.20	12.13	5.22	-113.2	0.00	10.39
		15:50:00	7.23	12.21	5.17	-106.2	0.00	10.54
		15:53:00	7.25	12.24	5.14	-100.2	0.00	10.53
MS\BH08 (Deep)	5.74	14:42:00	6.90	12.02	8.33	-140.0	0.00	10.39
		14:45:00	6.87	11.96	8.26	-146.7	0.00	10.50
		14:48:00	6.85	11.92	8.21	-149.7	0.00	10.48
MS\BH09 (Deep)	4.34	10:00:00	7.34	13.63	11.09	193.4	0.00	10.44
		10:03:00	7.31	13.72	11.01	193.1	0.00	10.41
		10:06:00	7.28	13.79	10.95	192.8	0.00	10.39

Remarks :	
Contract Title: Preliminary Onshore Ground Investigation for NZT	Client: AECOM
Checked By: [redacted]	Approved By: [redacted]
Date of issue: 29/11/2021	Page No. : 1
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ALLIED EXPLORATION GEOTECHNICS LIMITED

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IN-SITU WATER QUALITY PARAMETER MONITORING RESULTS

Date of Test	16/11/2021	Operator	OV/AM
Weather Condition (inc temperature)	Rain/Overcast/Cloudy (9-11°C)		

Monitoring Point	Water Level	Time	pH	Temp (°C)	Electrical Conductivity (µS/cm)	Redox Potential (mV)	Turbidity (NTU)	Dissolved Oxygen (MG/L)
MS\BH03 (Deep)	1.98	11:44:00	7.36	12.21	3.80	-191.5	0.00	10.64
		11:47:00	7.32	12.24	3.82	-193.8	0.00	10.61
		11:50:00	7.29	12.29	3.84	-194.5	0.00	10.54
MS\BH04 (Shallow)	2.35	10:38:00	7.40	11.76	3.54	-102.5	0.00	10.76
		10:41:00	7.39	11.78	3.56	-108.3	0.00	10.79
		10:44:00	7.38	11.78	3.58	-112.4	0.00	10.70
MS\BH04 (Deep)	2.40	09:32:00	7.87	11.65	3.23	57.8	0.00	10.77
		09:35:00	7.82	11.66	3.25	57.3	0.00	10.93
		09:38:00	7.76	11.66	3.28	56.6	0.00	10.92
MS\BH13 (Shallow)	2.28	15:24:00	8.30	11.14	5380.70	-158.6	8.18	0.14
		15:27:00	8.28	11.16	5368.60	-158.8	7.24	0.12
		15:30:00	8.27	11.17	5356.80	-156.9	6.34	0.12
MS\BH13 (Deep)	2.35	14:10:00	7.33	11.65	38718.00	72.8	8.80	2.30
		14:13:00	7.31	11.62	38632.00	71.9	8.00	2.09
		14:16:00	7.31	11.66	38766.00	68.7	7.90	2.03
MS\BH14	3.60	09:44:00	11.65	11.39	1464.10	-190.1	1.59	0.83
		09:47:00	11.65	11.37	1463.80	-194.4	1.41	0.91
		09:50:00	11.65	11.39	1462.30	-200.3	1.34	0.86
MS\BH15 (Shallow)	3.53	15:07:00	6.89	11.51	30.39	-73.8	0.00	10.61
		15:10:00	6.92	11.60	29.93	-65.6	0.00	10.60
		15:13:00	6.94	11.67	29.61	-60.1	0.00	10.58
MS\BH15 (Deep)	3.57	14:02:00	6.93	12.01	37.63	-52.1	0.00	10.55
		14:05:00	6.92	12.01	37.49	-47.4	0.00	10.55
		14:08:00	6.91	11.98	37.38	-44.4	0.00	10.66
MS\BH17 (Deep)	5.64	11:57:00	11.63	11.92	2383.80	-192.7	12.50	0.68
		12:00:00	11.64	11.94	2385.70	-197.1	14.09	0.61
		12:03:00	11.64	11.92	2388.40	-198.8	12.56	0.64

Remarks :

Contract Title: **Preliminary Onshore Ground Investigation for NZT**

Client: **AECOM**

Checked By: [redacted]

Approved By: [redacted]

Date of issue: 29/11/2021

AEG Contract No. : **4339**

ALLIED EXPLORATION GEOTECHNICS LIMITED

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IN-SITU WATER QUALITY PARAMETER MONITORING RESULTS

Date of Test	17/11/2021	Operator	OV/AM
Weather Condition (inc temperature)	Overcast/Partially Cloudy/Sunny/Clear (7-11°C)		

Monitoring Point	Water Level	Time	pH	Temp (°C)	Electrical Conductivity (µS/cm)	Redox Potential (mV)	Turbidity (NTU)	Dissolved Oxygen (%)
LF\BH01 (Shallow)	4.58	15:24:00	8.70	10.97	26.93	-110.7	0.00	10.79
		15:27:00	8.69	10.89	26.66	-115.3	0.00	10.80
		15:30:00	8.69	10.82	26.42	-120.5	0.00	10.80
LF\BH01 (Deep)	4.56	15:13:00	10.85	11.08	3256.00	-220.1	60.09	0.61
		15:16:00	10.85	10.94	3258.30	-230.4	53.82	0.62
		15:19:00	10.86	10.83	3263.90	-239.7	58.20	0.58
MS\BH03 (Shallow)	1.91	09:42:00	8.26	11.00	9.89	-17.5	0.00	11.10
		09:45:00	8.24	11.24	9.87	-17.9	0.00	11.02
		09:48:00	8.14	11.20	10.01	-18.6	0.00	11.00
MS\BH11 (Deep)	4.17	11:10:00	8.97	12.13	1242.50	-178.8	18.05	0.16
		11:13:00	8.98	12.12	1243.20	-183.4	20.35	0.13
		11:16:00	8.98	12.14	1242.40	-186.9	19.87	0.15
MS\BH12 (Shallow)	4.01	13:19:00	7.02	12.92	14.90	-64.3	0.00	10.21
		13:22:00	7.00	12.93	14.94	-54.6	0.00	10.29
		13:25:00	6.99	12.87	15.02	-47.1	0.00	10.20
MS\BH12 (Deep)	3.98	10:44:00	7.31	12.14	12.95	-171.6	0.00	10.67
		10:47:00	7.27	12.14	13.04	-175.6	0.00	10.63
		10:50:00	7.23	12.13	13.08	-178.3	0.00	10.63

Remarks :	

Contract Title:	Client:
Preliminary Onshore Ground Investigation for NZT	AECOM

Checked By: [redacted]	Approved By: [redacted]	
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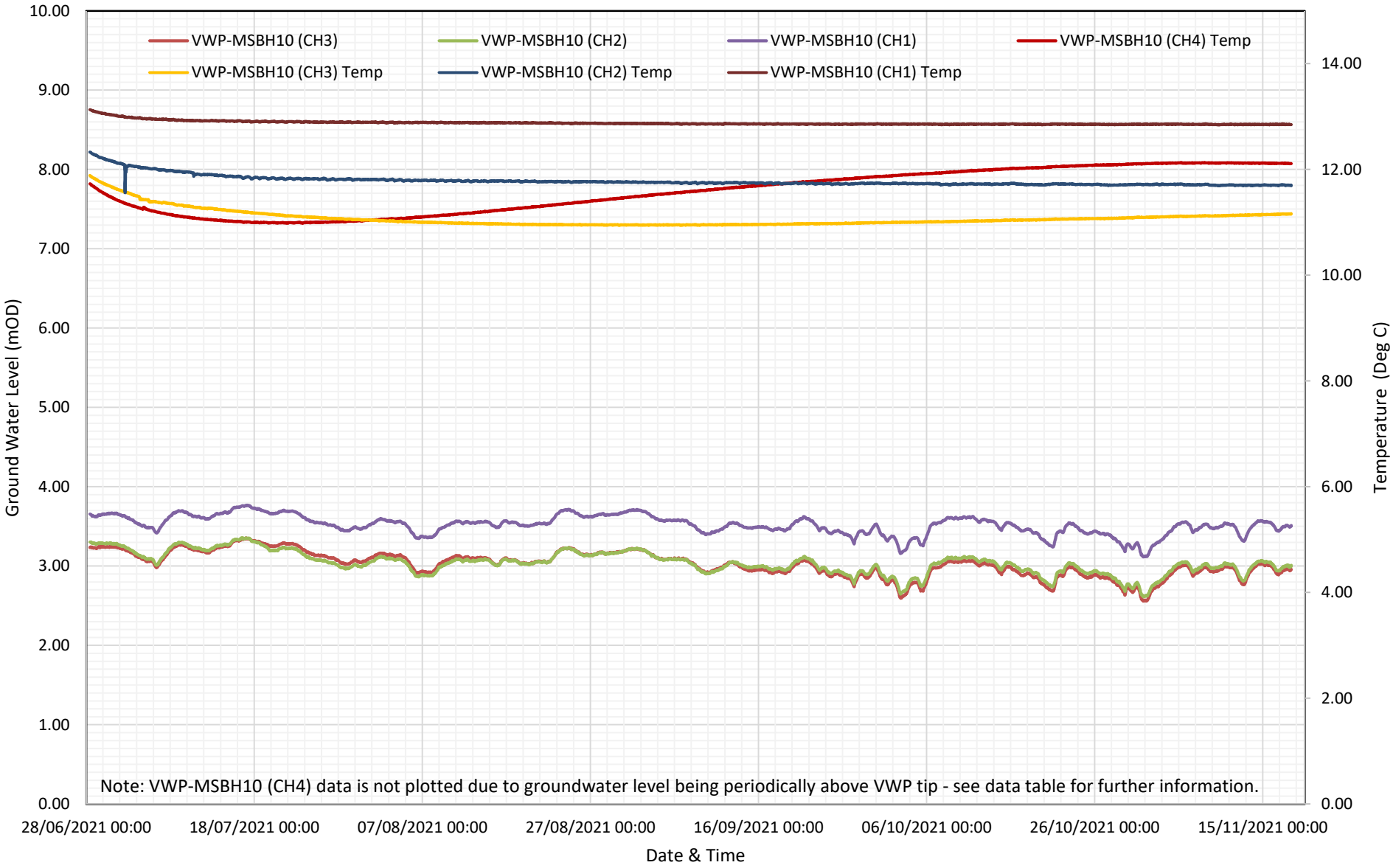
Vibrating Wire Piezometer Test Results

IN-SITU TESTING ENCLOSURE 6

IN-SITU VIBRATING WIRE PIEZOMETER READINGS