IAN FARMER ASSOCIATES
Geotechnical & Environmental Specialists

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Our Ref: VM/vm/50506D/5534

3 September 2007

Andrew Limb
R J Witt Associates
7 Aberdeen Road
Croydon
Surrey
CR0 1EQ

51493

AL AL

Dear Andrew,

Re: Belsize Road, London NW6

Background

Following previous ground investigation works undertaken at the above site under contract no. 50506, IFA was instructed through Inspace Partnerships Ltd to oversee the removal of several underground fuel storage tanks and undertake additional soil sampling of the natural ground around the tanks and interceptor.

Information provided by Inspace Partnerships confirmed that there were two large underground storage tanks, six smaller underground tanks and a three-stage interceptor, all located beneath the north east of the site. A plan of the tanks was drawn up and consultation was undertaken with the Environmental Health Officer at Camden Borough Council, who specified the proposed locations for the additional soil sampling that should be undertaken as a minimum measure. The locations of the underground tanks and final sampling locations are illustrated on the attached plan (tanks are labelled T1 to T8).

Site Work

On the 20 June 2007, three soil samples (designated SS1 to SS3) were taken from the ground around one side of Tank 1, in the north eastern corner of the site (see Photo 1). In addition, three samples of the liquid contents of the interceptor (designated W1 to W3) were taken. At the time of the sampling, all of the tanks remained in-situ.

On the 31 July 2007, additional sampling was undertaken, by which time, any remaining product or liquid contents within the tanks had been drained by Adler and Allen, Tank 1 had been removed and the adjacent Tank 2 had been exposed (see Photo 2). IFA observed the excavation of Tank 2 and the breaking out of the concrete surrounds (see Photo 3), following which, a number of soil samples (designated SS1 to SS13) were obtained from the natural ground around the former tanks and to the east of the interceptor, which was still in place at the time of the sampling. The samples were collected using a mechanical excavator.

Following this, Tanks 3 and 4 of the smaller tanks were excavated (see Photo 4), along with the solid contents (predominantly concrete and hardcore) and soil samples (designated SS14 to SS17) were obtained from the natural ground around these tanks (see Photo 5).

Further sampling was undertaken on the 2 August 2007, by which time, tanks 4 and 5 had been removed. IFA observed the excavation of tanks 7 and 8 (see Photo 6) and the breaking out and removal of the concrete bases. A further seven soil samples were obtained from the natural ground around the excavation. Some hydrocarbon staining was noted above the concrete base at the north western end of the tank run (see Photo 7), although the natural material did not contain any visual contamination.

A final visit was made on the 6 August 2007 to obtain the remaining soil samples (designated SS25 to SS26) from around the interceptor, which had by this time been removed.

Ground Conditions

Made Ground was exposed across the site and in the vicinity of the tank excavations, appeared to be approximately 2.00m to 3.00m in depth. The underlying natural strata comprised the London Clay Formation, which was described as very slightly gravelly, stiff, laminated, brown and blue / grey clay with occasional orange sandy pockets. The gravel fraction was fine to medium, sub angular to angular flint.

Groundwater was not encountered at any time during the excavations or soil sampling. As the pit was excavated to the east of the interceptor to obtain the soil sample (SS7), there was an ingress of contaminated water (free product) to the base of the pit (see Photo 8), a sample of which was obtained. The ingress came from a south easterly direction and may have been an indication of a leak from the smaller tanks.

Chemical Analysis

Following the first site visit on the 20 June, the three soil samples and three interceptor water samples were submitted for chemical analysis. During the visits on the 31 July and 2 August 2007, a total of twenty-four soil samples were obtained, fourteen of which were submitted for analysis. along with the sample of contaminated liquid. A further three

samples were obtained from around the interceptor on the final visit on the 6 August 2007, all of which were submitted for analysis.

The samples were analysed for either speciated TPH (total petroleum hydrocarbons) or EPH (extractable petroleum hydrocarbons) and a number of samples were also analysed for organic matter content. A product-id was run on the sample of contaminated water from adjacent to the interceptor.

Assessment

The proposed development comprises a five-storey block of apartments with a retail area on the ground floor. The risk assessment has therefore been based on guidelines for a residential end use without plant uptake. Should the proposed end use of the site be changed in the future, further risk assessment may be required, particularly should a more sensitive end-use be envisaged.

In the absence of any current CLEA SGVs for petroleum hydrocarbons, the results of the TPH / EPH analysis have been compared to the Generic Assessment Criteria (GAC), determined by LQM and CIEH in accordance with current legislation and guidance

The majority of the chemical results were below the relevant guideline levels. The sample designated SS7, which was taken to the east of the interceptor, contained elevated concentrations of aliphatic hydrocarbons in the ranges $>C_6$-C_8 (6.5mg/kg, exceeding the guideline level of 5.37mg/kg) and C_8-C_{10} (1.5mg/kg, exceeding the guideline level of 1.46mg/kg). Whilst the concentrations in the soil are only marginally elevated, the location of sample SS7 was also where the free product was observed. The product-id indicated that the liquid sample contained approximately 15% free product (based on a visual inspection) and was primarily consistent with a mixture of degraded kerosene and lubrication oil.

Conclusions and Recommendations

Since the underground storage tanks were excavated, material has been imported to fill the voids in order to enable site works to continue. It is understood that the Made Ground above the former location of the tanks and any recently imported material will be removed from the site as waste and that the site will be stripped back to the natural ground, at the level below the base of the previous tanks.

As the majority of the chemical results were below guideline levels, it is considered that the natural ground in the vicinity of the underground tanks is generally free from contamination and suitable for the proposed use. With regard to the marginally elevated concentrations in sample SS7 and the free product observed in this area, care should be taken to excavate any visually contaminated material. Without any further testing, this material should be disposed of as hazardous waste.

Please find attached the site plan, photographs and the analytical reports, as per the electronic versions issued previously.

We would be grateful if you could approve and settle the enclosed invoice for the work carried out.

Yours sincerely

Vicky Morris
Senior Environmental Engineer

Encs. Site Plan
Site Photographs
Analytical Reports
Invoice

IAN FARMER ASSOCIATES
Geotechnical & Environmental Specialists

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Inspace Partnerships Ltd
c/o R J Witt Associates
7 Aberdeen Road
Croydon
Surrey
CR0 1EQ

Please make cheques payable to:
Ian Farmer Associates (1998) Ltd
Bank Details: NatWest
Sort Code: 52-30-44
Account Number: 23626259
PAYMENT BY BACS IS PREFERRED

INVOICE

Date: 31/08/2007
Invoice No: H07 8342
Order No:
Our Ref: DGR/eas/50506D

Re: Belsize Road, London NW6

Item	Description	Qty	Unit	Rate	Amount
1	Site Work	1	Sum	£600.00	£600.00
2	Chemical Testing	1	Sum	£1,738.00	£1,738.00
3	Reporting	1	Sum	£550.00	£550.00
			Sub Total		£2,888.00
			VAT @ 17.5%		£505.40
			Total Due		£3,393.40

TERMS: Unless specifically quoted above, this invoice is strictly net and due for payment within 30 days from date of dispatch
VAT Registration Number: 708 8530 21

IAN FARMER ASSOCIATES

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Harpenden, Herts.
AL5 4UN

tel: 01582 460018
01582 469287

e-mail: victoria.morris@ifaharpenden.co.uk

Our Ref: 50506D **Date:** 31/08/2007

Client:

Project: To Oversee Excavation of Underground Storage Tanks And Undertake Soil Sampling And Chemical

Site: Belsize Road, london NW6

Item	Description	Quantity	Unit	Rate	Amount
C1	Attendance on Site by:				
C1.2	Soils/Environmental Engineer	12	Hr	50.00	600.00
D1	Interpretive Letter Report including all site records, photographs and laboratory test results		Sum	550.00	550.00
E	**Laboratory Tests**				
E2	Chemical analysis		Sum (based on the rates in Appendix B and C)		1501.00
E2.1	Additional 75% surcharge on chemical analysis for expedited 3-day turnaround (3 samples collected 20/06/07)				154.50
E2.2	Additional 50% surcharge on chemical analysis for expedited 5-day turnaround (3 samples collected 06/08/07)				82.50
			TOTAL		2888.00

Our Ref: 50506D.qte

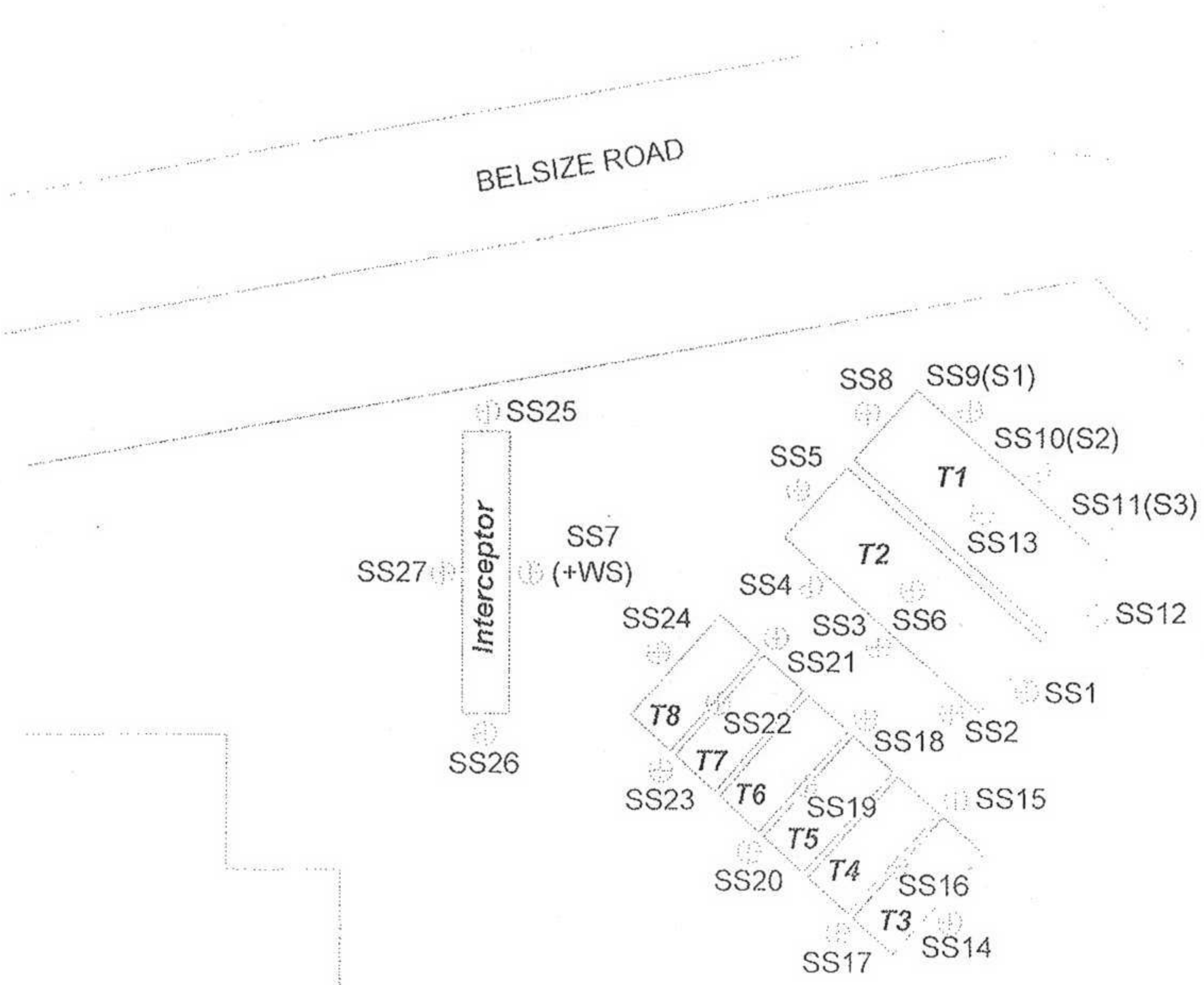
APPENDIX B - CHEMICAL TESTS ON SOILS

Item	Description	Quantity	Unit	Rate	Amount
S13	Organic matter content	8	No	8.00	64.00
S26	Extractable petroleum hydrocarbon (EPHb C10-40 and C10-12, >C12-16, >C16-21, >C21-36, 36-40)	11	No	36.00	396.00
S27	Total petroleum hydrocarbons (CWG) - speciated	9	No	85.00	765.00
				TOTAL	1225.00

Our Ref: 50506D.qte

APPENDIX C - CHEMICAL TESTS ON WATER

Item	Description	Quantity	Unit	Rate	Amount
W27.1	Total petroleum hydrocarbons (CWG) - speciated	2	No	85.00	170.00
W27.2	Extractable petroleum hydrocarbon (EPHb C10-40 and C10-12, >C12-16, >C16-21, >C21-36, 36-40)	1	No	36.00	36.00
W27.3	Product-ID	1	No	70.00	70.00
				TOTAL	276.00



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Scale	N.T.S
Drawn By	P.L.F
	1:D

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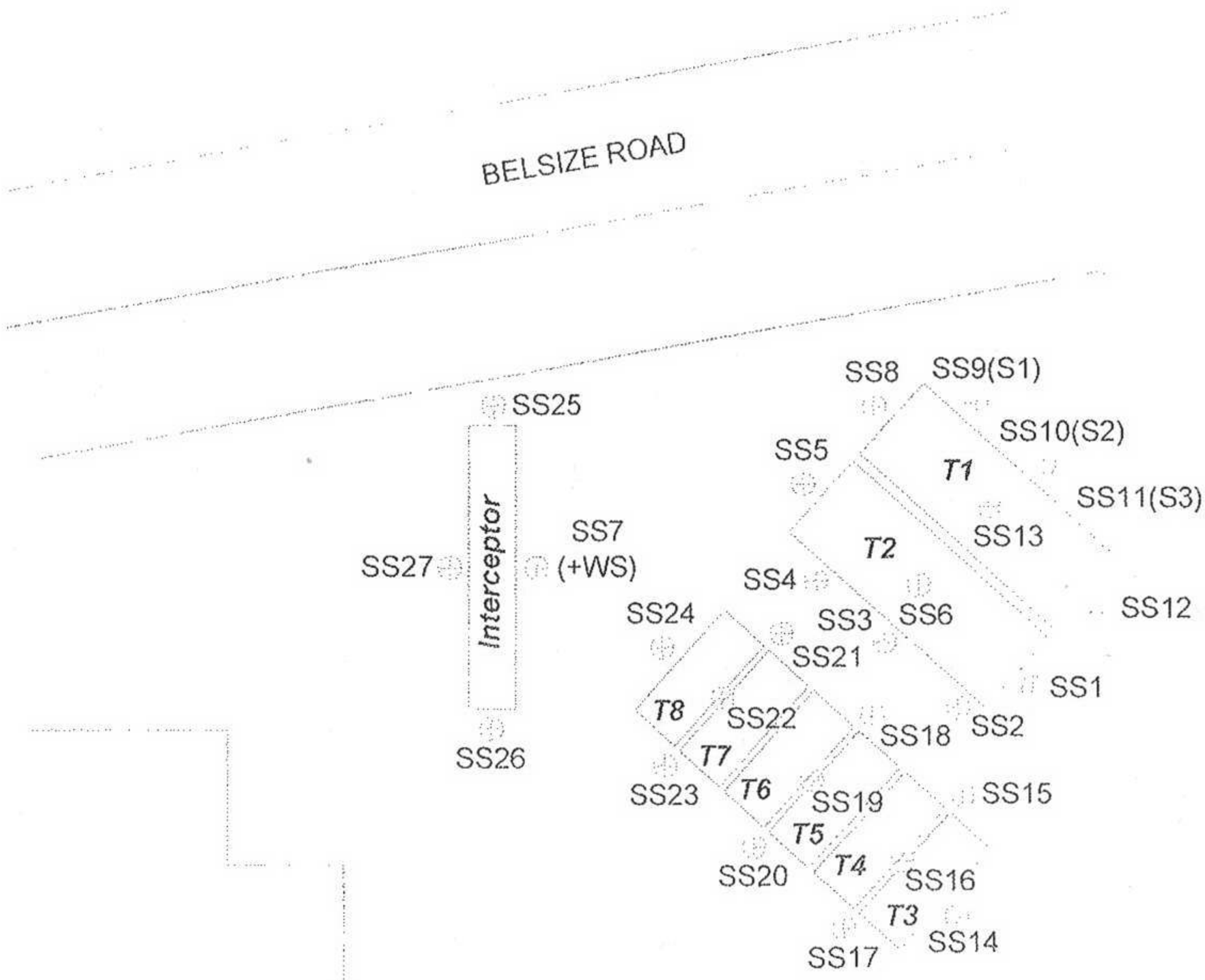
SITE PLAN

size B



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Scale	N.T.S
Drawn By	[illegible]

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Photo 1: Exposed ground around tanks 1 and 2 (20/06/07).

Photo 2: Tank 2 following removal of tank 1 and solid contents (31/07/07).