AP GEOTECHNICS
a ground investigation and consultancy service

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www.apgeotechnics.co.uk

FORMER GREGGS BAKERY
GOULD ROAD
TWICKENHAM

Underground Storage Tanks

Client
London Square

Agent
Gravity Consulting Engineers

Report No. 5864

10th October 2024

CONTENTS

FORMER GREGGS BAKERY
GOULD ROAD
TWICKENHAM

Underground Storage Tanks

Synopsis

A Phase I Environmental Assessment[1], a Phase II Geoenvironmental Investigation[2] and a Supplementary Investigation[3] have been prepared for this site and should be read in conjunction with this report.

The purpose of this report is to document the removal of the underground fuel storage tanks (USTs) and interceptor tank from site.

Soil samples were recovered from the excavations caused by the removal of the interceptor tank and USTs.

It is proposed to leave the contaminated soils encountered at depth in situ as they do not represent a significant risk of significant harm to future residents. Gas protection will be incorporated into the proposed houses at this location to guard against any possible future nuisance odours.

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1 *Report No. 4609-1; Phase I Environmental Assessment, Former Greggs Bakery, Gould Road, Twickenham TW2 6RT; AP Geotechnics Ltd.; 14 March 2017*

2 *Report No. 4609-2; Phase II Geoenvironmental Investigation, Former Greggs Bakery, Gould Road, Twickenham TW2 6RT; AP Geotechnics Ltd.; 26 September 2017*

3 *Report No. 5787 v2; Supplementary Investigation, Former Greggs Bakery, Gould Road, Twickenham TW2 6RT; AP Geotechnics Ltd.; 3 September 2024*

1
Site description

The area under investigation comprises the former Greggs Bakery in Gould Road, Twickenham. The current general arrangement is shown on Figure 1 at Appendix A.

A full site description is contained in the Phase I report to which the reader is referred.

2
Development proposals

It is intended to demolish the existing buildings and redevelop the site, predominately for residential use.

The proposed general arrangement is given at Figure 2 of Appendix A.

3
Geology

Published records of the British Geological Survey (BGS) indicate the site to lie on Kempton Park Gravel over London Clay. No Made Ground or Worked Ground is mapped at the subject site.

4
Discussion

Paperwork provided to AP Geotechnics indicates that there are three underground storage tanks (USTs) located in the area between the Enessa Works and the bakery to the north.

An unscaled plan was also included. Tank 1 has a storage capacity of 4546 litres (1000 gallons), Tank 2 has a capacity of 13 638 litres (3000 gallons) and Tank 3 is the largest with a capacity of 23 200 litres (5100 gallons). The tanks were used to store diesel and red diesel. A note from Adler & Allen Limited dated 25 July 2006 describes the decommissioning works to be carried out which comprised uplifting surplus diesel from Tank 3 and transferring it to an alternative fuel storage facility within the site, bottom out Tanks 1, 2 & 3 and prepare for foam filling and transfer tank bottoms for licensed disposal under EA consignment note. In addition, it was proposed to fill tanks 1, 2 & 3 with Bacel RG22 Resin and supply certification. The decommissioning works were carried out on 27 September 2006, as indicated by an EA consignment note dated such. However, no certification has been provided which relates to the filling of the tanks with foam. The available paperwork is reproduced at Appendix B.

Trial trenches undertaken in March 2024 and discussed in Report No. 5787 did not encounter the USTs or the interceptor tank. However, deeper excavations carried out by the demolition contractor did uncover the three USTs which were encased in concrete. The interceptor tank was also revealed and comprised a glass fibre tank, also encased in concrete. The contents of the interceptor (13 000 litres) was removed on 11 September 2024 and the Consignment Note is presented at Appendix C.

Upon removal of the concrete base of the USTs it was apparent that the underlying soils were impacted by hydrocarbons and samples were recovered and the results are presented at Appendix D. The original laboratory results sheets are presented at Appendix E. Figure 3 at Appendix A shows the approximate extent of the excavation resulting from the removal of the USTs in relation to the proposed development.

All sides of the excavation were visually uncontaminated, as were the arisings. In view of the depth of the hydrocarbon impacted soils it is proposed to leave them in situ as they do not represent a significant risk of significant harm to future residents. However, to guard against any potential future nuisance odours the houses above (Terrace D in the completed

development) will incorporate a gas proof membrane. The membrane specification is presented at Appendix F as is the design strategy proposal.

Soil samples recovered from the interceptor tank excavation confirmed the lack of visual and olfactory evidence of contamination and the excavation has been backfilled.

The UST excavation has been backfilled for health and safety reasons but this material will need to be removed and replaced with suitable material laid and compacted in an engineered manner to enable construction of conventional spread foundations.

Discussions with the Contaminated Land Officer for Merton, Richmond and Wandsworth Councils (reproduced at Appendix G) indicate that he is minded to agree with leaving the soils in situ and no further investigation is required.

The underside of the concrete base was at some 3.6 - 3.7 m depth and coincides with the local groundwater level. The Kempton Park Gravel is a Principle Aquifer the Environment Agency may therefore require additional works / monitoring.

Numerous photographs have been taken of the excavation and a selection are available at Appendix H and are presented in rough order of works.

R G Chapman
AP GEOTECHNICS LTD.
10th October 2024

PROCEDURAL NOTES for GROUND INVESTIGATIONS

General

This report has been prepared generally in accordance with CLR 11: Model Procedures for the Management of Land Contamination (Defra & Environment Agency 2004).

This report is based upon data obtained from field descriptions of the strata and examination of the samples by an engineer, together with the results of in situ and laboratory tests as appropriate. Responsibility cannot be accepted for variations in ground conditions between and around any of the exploratory points that is not revealed by the data. Whilst the report may offer an opinion on the ground conditions between exploratory points and below the depth of investigation, this is for guidance only and no liability is accepted for its accuracy. Unless specifically included in the report, it should be assumed that no testing has been carried out in respect of asbestos or Japanese Knotweed and no liability will is inferred or accepted.

Drilling procedure

Boring by light cable percussion drilling allows the ground conditions to be reasonably well established. However, a certain amount of disturbance is inevitable and some mixing of soils can occur.

Sampling procedure

"Undisturbed" samples of predominantly cohesive soils are taken with a 100mm diameter open tube sampler, generally in accordance with BS 5930: 1999.

Where appropriate, or where an undisturbed sample is unsuccessful, disturbed samples are recovered and sealed into polythene bags.

Groundwater samples are taken when water is encountered in sufficient quantity.

Standard penetration tests

The test is conducted generally in accordance with BS 1377: Part 9: 1990. The sampler tube is subject to a seating drive of 150mm into the soil at the base of the borehole. Results are given on the Borehole Records as the number of blows required to drive the sampler tube a further 300mm and this is known as the "N" value. Where the driving resistance is such that full penetration is not achieved, the test is generally terminated after 50 blows and the actual distance penetrated is recorded.

Groundwater

Groundwater observations necessarily reflect the conditions encountered at the time of the exploratory work. Long term monitoring of standpipes is usually required to establish an equilibrium water level since the normal rate of boring is too fast to permit steady state conditions to be achieved.

Groundwater levels are subject to variations caused by changes in drainage conditions and seasonal climatic changes.

Water may necessarily be added to advance the bore whilst casing may be required to maintain an open hole. These can both mask subsequent groundwater observations and are therefore noted on the individual Borehole Record.

APPENDICES

A Figures

Figure 1: Current Site Plan
Figure 2: Proposed Development
Figure 3: Approximate location of excavation to remove Underground Storage Tanks

B Underground Storage Tank Details

C Interceptor Consignment Note

D Laboratory Test Results

Contaminants in Soil

E Original Testing House Certificates

Analytical Reports

F Gas Membrane Specification

G Contaminated Land Officer Correspondence

H Photographic Volume

APPENDIX A

FIGURES

Former Greggs Bakery,
Gould Road, Twickenham,
TW2 6RT

Current Site Plan

Scale: as shown

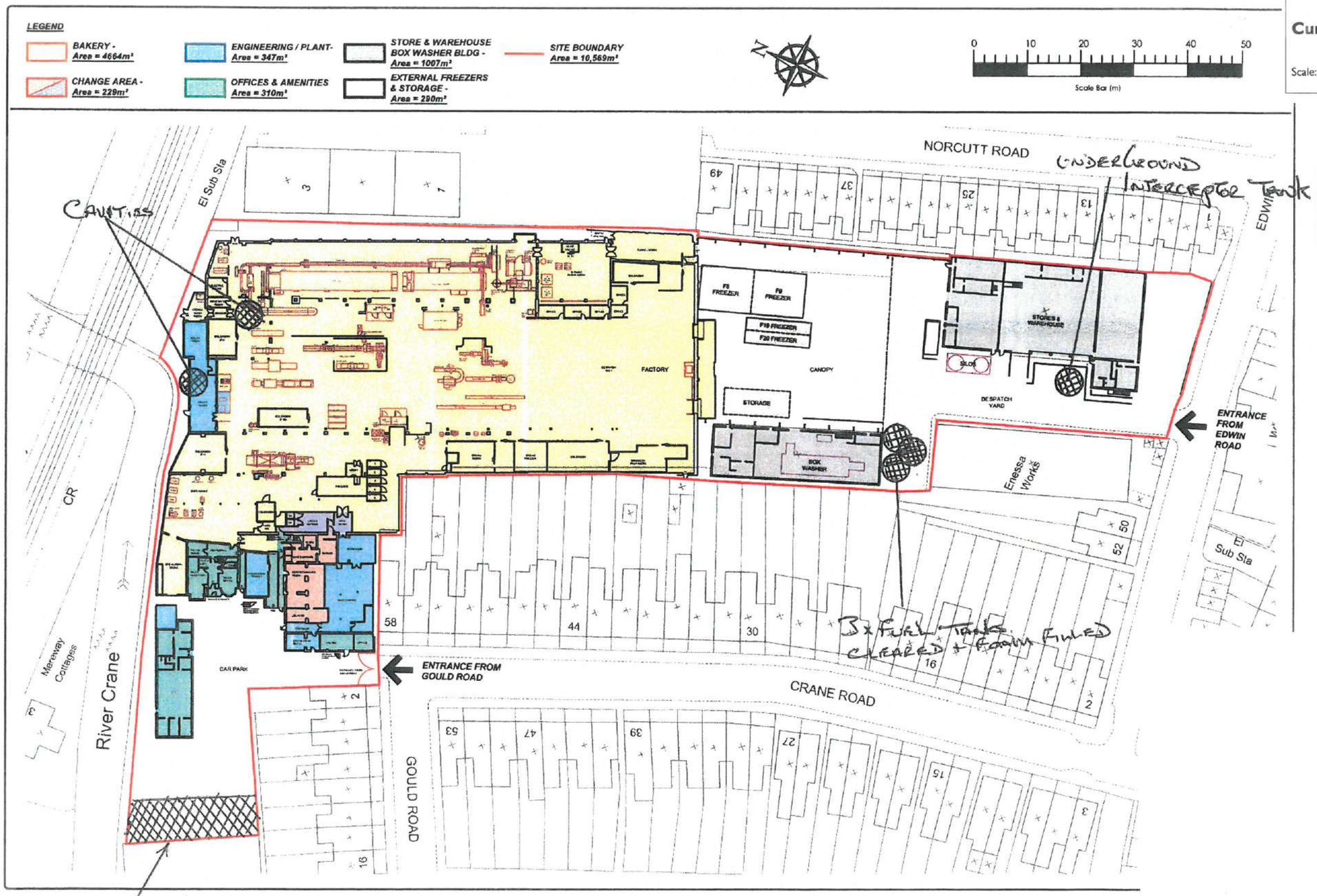


Figure 1

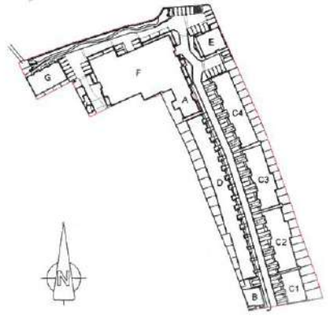
Former Greggs Bakery,
Gould Road, Twickenham,
TW2 6RT

Proposed Development

Scale: as shown

Key

- Site Boundary
- C-1 Plot Number
- Proposed New Tree
- Assent Planning Building Footprint
- Existing Ground Levels
- Proposed Ground Levels (Subject to Civil Engineer's Design)
- Ground Floor Finished Floor Level (Subject to Civil Engineer's Design)
- Existing Walls
- Parking
- Cycles



Key Plan

Scale 1:1250

Figure 2

Former Greggs Bakery,
Gould Road, Twickenham,
TW2 6RT

Approximate location of excavation to remove Underground Storage Tanks

Scale: as shown

Figure 3

APPENDIX B

UNDERGROUND STORAGE TANK DETAILS

Adler and Allan Limited, 22/42 Livingstone Road, London E15 2LJ
www.adlerandallan.co.uk email: sales@adlerandallan.co.uk
Tel: 020 8555 7111 Fax: 020 8519 3090

ALL PRICES EXCLUDE VAT

All quotations are subject to our terms and conditions, a copy of which is available upon request.

Our accounting terms are nett cash 30 days from date of invoice.

We hope you find the above quotation of interest and we look forward to hearing further from you in due course.

Yours faithfully,
Adler & Allan Limited

Steve Madeley
Operations Supervisor

KURT — 3 DAYS / 1 REMOVE LIDS
2. EMPTY
3- RINK FOAM

S.I.C CODE
AAP 698

PREMISES CODE
15.81

TOTAL
£3441:00

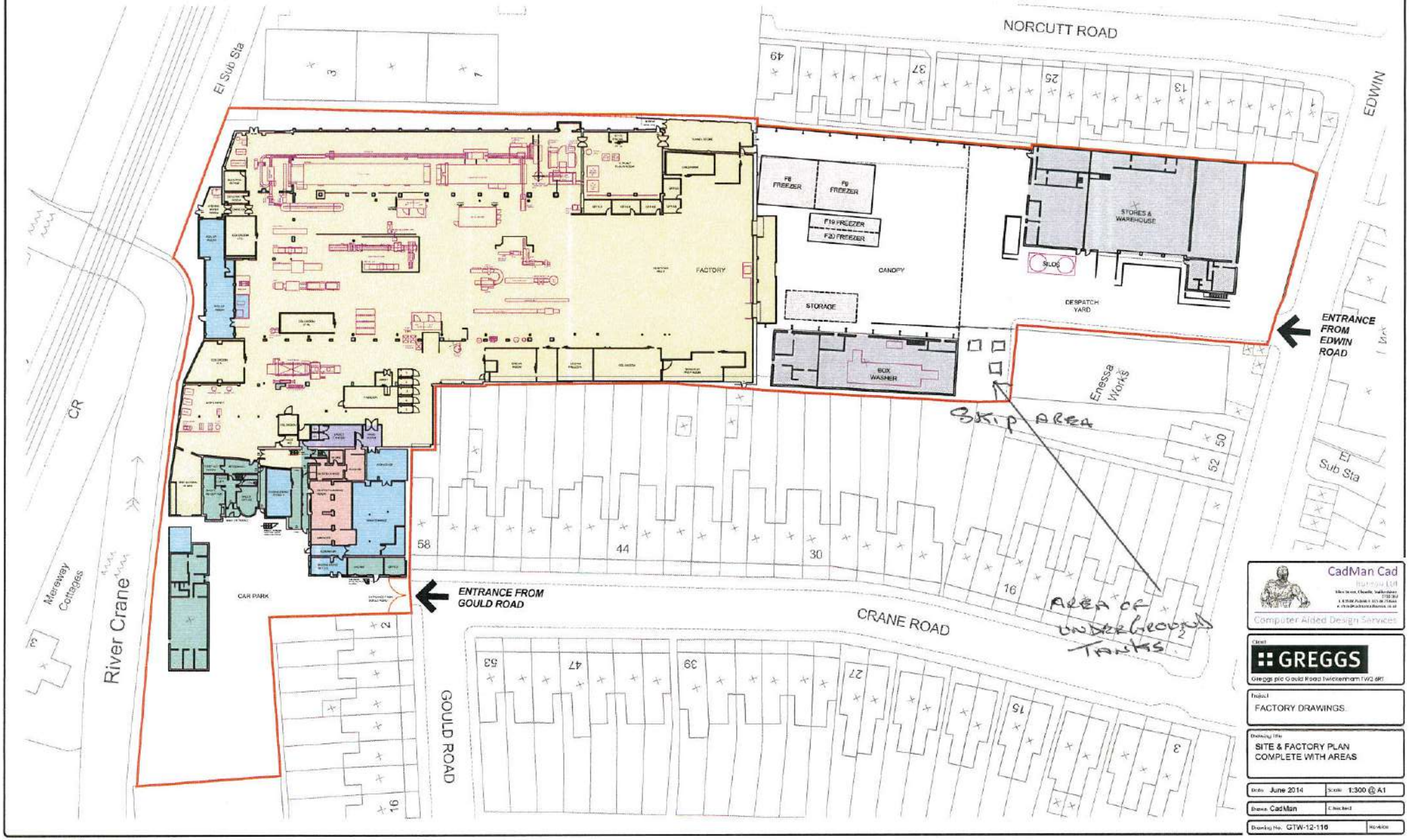
LEGEND

- BAKERY - Area = 4664m²
- CHANGE AREA - Area = 229m²
- ENGINEERING / PLANT - Area = 347m²
- OFFICES & AMENITIES Area = 310m²
- STORE & WAREHOUSE BOX WASHER BLDG - Area = 1007m²
- EXTERNAL FREEZERS & STORAGE - Area = 290m²
- SITE BOUNDARY Area = 10,569m²

N

0 10 20 30 40 50

Scale Bar (m)



CadMan Cad Services Ltd
Computer Aided Design Services

Client: GREGGS
Greggs plc Gould Road Twickenham TW2 6RT

Project: FACTORY DRAWINGS.

Drawing Title: SITE & FACTORY PLAN COMPLETE WITH AREAS

Date: June 2014	Scale: 1:300 @ A1
Drawn: CadMan	Checked:
Drawing No. GTW-12-116	Revision

GREGGS South East

ORDER

PURCHASE ORDER No. WL 14413

GREGGS SOUTH EAST

Higlare + Allan LTD

West London Service Centre
Gould Road, Twickenham, Middlesex TW2 6RT
Tel. No. 020 8894 2121 Fax No. 020 8755 1959 ☑

North London Service Centre
87 Millmarsh Lane, Enfield, Middlesex EN3 7XJ
Tel. No. 020 8805 3314/4911 Fax No. 020 8804 8301 ☐

VAT REG. No. 659 8804 74

Date: 12/9/06

Note to Supplier - *No invoice will be passed for payment unless the above order number is quoted*
Invoices are to be sent to the Accounts Department as ticked above.

DESCRIPTION	COST	
Confirmation		
As per your Quotation		
Ref/ PO 84933/SLM 25/7/06		
To Remove Surplus Diesel		
x 3 Tanks.		
+ Foam Rinse x 3 Tanks		
Supply Certification		
	£3441	00

Delivery Instructions:

Signature

Distribution: White - Supplier Blue - Accounts Pink - Remain in Book

GREGGS

DATE: 13/9/06 TIME:

NUMBER OF PAGES (INCLUDING THIS ONE) II

TO STEVE MADELEY

FAX NUMBER 0208 519 3090

FROM Mick GOODALL — CHIEF ENGINEER.

GREGGS SOUTH EAST (WLSC) FAX NUMBER: 020-8755-1959
TEL NUMBER: 020-8894-2121

MESSAGE STEVE — AS DISCUSSED ON PHONE
COMPANY ORDER ATTACHED
ESTIMATED TANK VOLUME TOTAL 42 CUB/METRE.
S.I.C CODE AAP698 — PREMISES CODE 15.81
START DATE 27/9/06 TO 29/9/06 - 3 DAYS.
REGARDS M. Goodall

GREGGS
South East

West London
Service Centre
Gould Road, Twickenham
Middlesex TW2 6RT
Tel • 020 8894 2121
Fax • 020 8755 1959

with compliments

Adler and Allan Limited, 22/42 Livingstone Road, London E15 2LJ
www.adlerandallan.co.uk email: sales@adlerandallan.co.uk
Tel: 020 8555 7111 Fax: 020 8519 3090

Our ref: P08493/SLM

25th July 2006

Gregg's

For the attention of Ian Blackwood

Via E-Mail: ian.Blackwood@greggs.co.uk

Re: Fuel transfer and tank works @ Gregg's, Twickenham & Enfield

We thank you for your enquiry and following our recent site to are pleased to provide our quotation for the works required as follows:

To supply tanker labour and equipment to perform the following works;

- **Uplift surplus diesel from tank no 3 and transfer alternative fuel storage unit within the site.**
- **Bottom out tank 1,2 & 3 and prepare for foam filling.**
- **Transfer tank bottoms for licensed disposal under EA consignment note.**

For the sum of £795.00 plus disposal
Disposal @ £78.00 per 1000-litres or part thereof Tank 3 (2000 ltr) 5,900 ltrs rounded

Supply labour and equipment to perform the following works (£468.00).

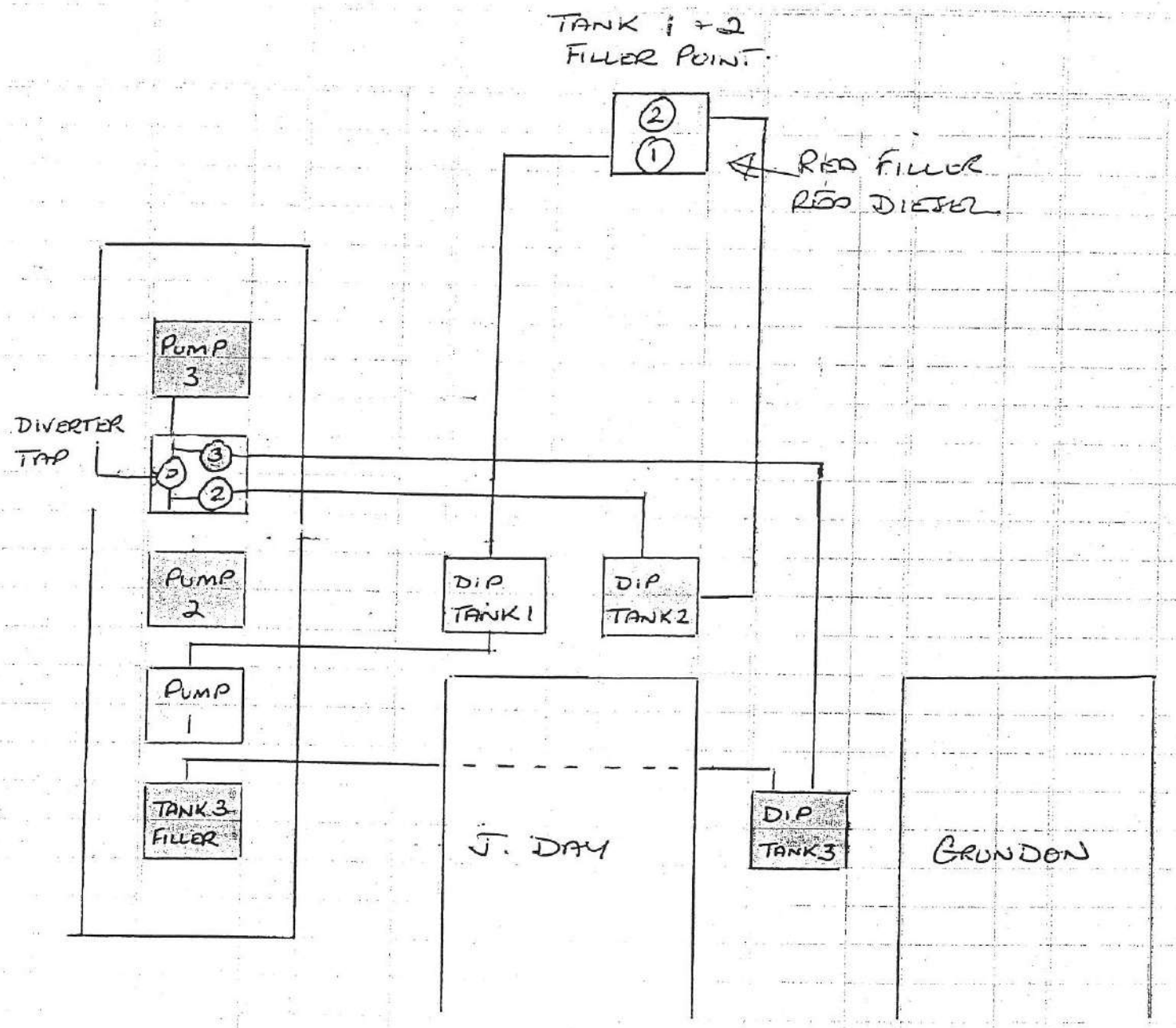
- **Foam fill tanks 1, 2 & 3 with Bacel RG22 Resin and supply certification**

For the sum of £60.00 per cubic metre > £60 x 41.5 cubic = £2,490

Notes:

- **Quotation based on weekday working.**
- **Gregg's bakery to provide site premise and SIC codes for the disposal of tank sludge.**
- **Adler and Allan do not accept retentions.**

FUEL TANK PLAN.



	LTR	
TANK 1	4546	(1000 GALLS)
TANK 2	13638	(3000 GALLS)
TANK 3	23200	(5100 GALLS)

TOTAL STORAGE 41384 (9103 GALLS).

LITRES 4.546 = 1 GALL.

Fuel Pump and Tank Locations

Tank 3 Filler Road Diesel

Pump1 Red Diesel

Pump 2 Road Diesel

Reserve

Change over taps Pumps 2 & 3

Pump 3 Road Diesel

Tank 1 — 4,546 LTR (1000 GALLS) × 0.0353 = 160.5 c/FT × 0.02832 = 4.5 c/METRE

Tank 1 Filler RED Diesel

2000 LTR Tank 3

Tank 2 — 13638 LTR (3000 GALLS) × 0.0353 = 481.4 c/FT × 0.02832 = 13.6 c/METRE

Tank 2 Filler Road Diesel

23,200 LTR (5100 GALLS) × 0.0353 = 819 c/FT × 0.02832 = 23.2 c/METRE

TOTAL STORAGE 41384 (9103 GALLS)

41.4 c/METRE.

Engineers Workshop

Form HWCN01v51

Adler and Allan Limited
22-42 Livingstone Road, London E15 2LJ
www.adlerandallan.co.uk
Tel: 020 8555 7111
Fax: 020 8519 3090

The Hazardous Waste Regulations 2005: Consignment Note

PRODUCER'S/HOLDER'S/CONSIGNOR'S COPY (Delete as appropriate)

PART A Notification details

1 Consignment note code: AAD698 / A5219

2 The waste described below is to be removed from (name, address, postcode, telephone, e-mail, facsimile):
GREGGS SOUTH EAST, EDWIN ROAD
TWICKENHAM, MIDDX, TW2 5RT

3 Premises code (where applicable): AAD698

4 The waste will be taken to (name, address and postcode):
ADLER AND ALLAN LTD, 24 SOLOMONS WAY
FERRY LANE SOUTH, RAINHAM, ESSEX
RM13 9UL

5 The waste producer was (if different from 2) (name, address, postcode, telephone, e-mail, facsimile):
AS (2)

PART B Description of the waste

If continuation sheet used, tick here ☐

1 The process giving rise to the waste(s) was: DECOMMISSIONING OF UNDERGROUND FUEL TANKS

2 SIC for the process giving rise to the waste: 15.81/

3 WASTE DETAILS (where more than one waste type is collected all of the information given below must be completed for each EWC identified)

Description of waste	List of wastes (EWC code)(6 digits) *	Quantity (kg)	The chemical/biological components of the waste and their concentrations are: Component	Concentration (% or mg/kg)	Physical form (gas, liquid, solid, powder, sludge or mixed)	Hazard code(s)	Container type, number and size
FUEL OIL + DIESEL	130701	5900 LTS	DIESEL OIL & WATER	>0.1%	MIXED	H7	2000-GALLON ROAD FUEL TANKER.

The information given below is to be completed for each EWC identified

EWC code *	Packing group(s)	UN identification number(s)	Proper shipping name(s)	UN class(es)	Special handling requirements
130701	III	1202	DIESEL	3	ADR.

PART C Carrier's certificate

(If more than one carrier is used, please attach schedule for subsequent carriers. If a schedule of carriers is attached tick here. ☐)

I certify that I today collected the consignment and that the details in A2, A4 and B3 are correct and I have been advised of any specific handling requirements.

1 Carrier name: ADLER AND ALLAN LTD

On behalf of (name, address, postcode, telephone, e-mail, facsimile):
22-42 LIVINGSTONE ROAD
LONDON, E15 2LJ

2 Carrier registration no./reason for exemption:
STL/371490/CB

3 Vehicle registration no. (or mode of transport, if not road):
OIL 6286

Signature

Date 27/09/06 Time

PART D Consignor's certificate

I certify that the information in A, B and C above is correct, that the carrier is registered or exempt and was advised of the appropriate precautionary measures. All of the waste is packaged and labelled correctly and the carrier has been advised of any special handling requirements.

1 Consignor name: X

On behalf of (name, address, postcode, telephone, e-mail, facsimile):
GREGGS SOUTH EAST
EDWIN ROAD
TWICKENHAM
MIDDX
TW2 5RT

Signature

Date Time

PART E Consignee's certificate (where more than one waste type is collected all of the information given below must be completed for each EWC)

Individual EWC code(s) received	Quantity of each EWC code received (kg)	EWC code accepted/rejected	Waste management operation (R or D code)

1 I received this waste at the address given in A4 on: Date Time

2 Vehicle registration no. (or mode of transport if not road):

Name:

On behalf of (name, address, postcode, telephone, e-mail, facsimile):

3 Where waste is rejected please provide details:

I certify that waste management licence/permit/authorised exemption no(s).

authorises the management of the waste described in B at the address given in A4.

Signature

Date Time

Form HWCN01v51

Adler and Allan Limited
22-42 Livingstone Road, London E15 2LJ
www.adlerandallan.co.uk
Tel: 020 8555 7111
Fax: 020 8519 3090

The Hazardous Waste Regulations 2005: Consignment Note

RETURN'S COPY

PART A Notification details

1 Consignment note code: AAD698/AS219

2 The waste described below is to be removed from (name, address, postcode, telephone, e-mail, facsimile):
GREGGS SOUTH EAST, EDLIN ROAD
TWICKENHAM, MIDDX, TW2 5RT

3 Premises code (where applicable): AAD698

4 The waste will be taken to (name, address and postcode):
ADLER AND ALLAN LTD, 24 SALAMONS WAY
FERRY LANE SOUTH, RAINHAM, ESSEX
RM13 9UL

5 The waste producer was (if different from 2) (name, address, postcode, telephone, e-mail, facsimile):
AS(2)

PART B Description of the waste

If continuation sheet used, tick here ☐

1 The process giving rise to the waste(s) was: DECOMMISSIONING OF UNDERGROUND FUEL TANKS

2 SIC for the process giving rise to the waste: 15.81/

3 WASTE DETAILS (where more than one waste type is collected all of the information given below must be completed for each EWC identified)

Description of waste	List of wastes (EWC code)(6 digits)	Quantity (kg)	The chemical/biological components of the waste and their concentrations are: Component	Concentration (% or mg/kg)	Physical form (gas, liquid, solid, powder, sludge or mixed)	Hazard code(s)	Container type, number and size
FUEL OIL + DIESEL	130701	5900	DIESEL OIL	>0.1%	MIXED	H7	2000-GALLON ROAD FUEL TANKER

The information given below is to be completed for each EWC identified

EWC code	Packing group(s)	UN identification number(s)	Proper shipping name(s)	UN class(es)	Special handling requirements
130701	II	1202	DIESEL	3	ADR

PART C Carrier's certificate

(If more than one carrier is used, please attach schedule for subsequent carriers. If a schedule of carriers is attached tick here. ☐)

I certify that I today collected the consignment and that the details in A2, A4 and B3 are correct and I have been advised of any specific handling requirements.

1 Carrier name: ADLER AND ALLAN LTD

On behalf of (name, address, postcode, telephone, e-mail, facsimile):
22-42 LIVINGSTONE ROAD
LONDON, E15 2LJ

2 Carrier registration no./reason for exemption:
GL/371490/CB

3 Vehicle registration no. (or mode of transport, if not road):
OK6286

Signature

Date 10 Time

PART D Consignor's certificate

I certify that the information in A, B and C above is correct, that the carrier is registered or exempt and was advised of the appropriate precautionary measures. All of the waste is packaged and labelled correctly and the carrier has been advised of any special handling requirements.

1 Consignor name:*

On behalf of (name, address, postcode, telephone, e-mail, facsimile):
GREGGS SOUTH EAST
EDLIN ROAD
TWICKENHAM
MIDDX
TW2 5RT

Signature

Date Time

PART E Consignee's certificate (where more than one waste type is collected all of the information given below must be completed for each EWC)

Individual EWC code(s) received	Quantity of each EWC code received (kg)	EWC code accepted/rejected	Waste management operation (R or D code)
130701	5900	Acc	R3

1 I received this waste at the address given in A4 on: Date 29/10/2006 Time

2 Vehicle registration no. (or mode of transport if not road):
OK6286

3 Where waste is rejected please provide details:

I certify that waste management licence/permit/authorised exemption no(s).

WML 80669

authorises the management of the waste described in B at the address given in A4.

Name: R. DUKE

On behalf of (name, address, postcode, telephone, e-mail, facsimile):

ADLER & ALLAN LTD
24 SALAMONS WAY FERRY LANE STH.
RAINHAM, ESSEX RM13 9UL
TEL: 01708 525 830 FAX: 01708 523 904

Signature

Date 29/10/2006 Time

APPENDIX C

INTERCEPTOR CONSIGNMENT NOTE

FormHWCNO1v111

Environment Agency

The Hazardous Waste Regulations 2005: Consignment Note

PRODUCER'S/HOLDER'S/CONSIGNOR'S COPY (Delete as appropriate)

If continuation please tick here ☐

PART A Notification details

1 Consignment note code GREGCS/GROUP

2 The waste described below is to be removed from (name, address, postcode, telephone, e-mail,facsimile):
SITONTS GROUP / GREGGS BAKERY
GOWERS ROAD TWICKENHAM TW2 6RT

3 Premises code (where applicable):

4 The waste will be taken to (name, address and postcode):
BIFFA
MAPLE LODGE
WD3 2SQ

5 The waste producer was (if different from 2) (name, address, postcode, telephone, e-mail,facsimile):

PART B Description of the waste

1 The process giving rise to the waste was: INTERCEPTOR

2 SIC for the process giving rise to the waste: 10.71/0

3 WASTE DETAILS (where more than one waste type is collected all of the information given below must be completed fro each EWC identified)

Description of waste	List of wastes (EWC code)(6 digits)	Quantity (kg)	The chemical biological components in the waste and their concentrations are: Component	Concentration % or mg/kg	Physical form (gas, liquid, solid, powder, sludge or mixed)	Hazard code(s)	Container type, number and size
INTERCEPTOR	130507	13000L	OIL/WATER	LESS 5%	LIQUID	HP7	TANKER

The information given below is to be completed for each EWC identified

EWC code	UN identification number(s)	Proper shipping names(s)	UN class(es)	Packing group(s)	Special handling requirements

PART C Carrier's certificate

(If more than one carrier is used, please attach schedule for subsequent carriers. If schedule of carriers is attached here. ☐)

I certify that I today collected the consignment and that the details in A2, A4 and B3 are correct and I have been advised of any specific handling requirements.

Where this note comprises part of a multiple collection the round number and collection Number are:

/

1 Carrier name: JOSH KING

On behalf of (name, address, postcode, telephone, e-mail, facsimile).
A1 WOKINGHAM WET WASTE
SILVER BIRCHES HIGHLAND AVENUE WOKINGHAM
RG41 4SP

2 Carrier registration no./reason for exemption:
CBDU/66714

3 Vehicle registration no. (or mode of transport if not road): P002 GEF

Signature

Date 11 09 2024 Time 11 58

PART D Consignor's certificate

I certify that the information in A, B and C has been completed and is correct, that the carrier is registered or exempt and was advised of the appropriate precautionary measures. All of the waste is packaged and labelled correctly and the carrier has been advised of any special handling requirements

I confirm that I have fulfilled my duty to apply the waste hierarchy as required by regulation 12 of the waste (England and Wales) Regulations 2011

1 Consignor name: BEN MILLARD

On behalf of (name, address, postcode, telephone, e-mail, facsimile).

Signature

Date 11 09 2024 Time 11 58

PART E Consignor's certificate (where more than one waste type is collected all of the information given below must be completedfor each EWC)

Individual EWC code(s) received	Quantity of each EWC code received (kg)	EWC code accepted/rejected	Waste management operation (R or D code)

1 I received this waste at the address given in A4 on: Date Time

2 Vehicle registration no. (or mode of transport if not road):

3 Where waste is rejected please provide details:

Name:
On behalf of (name, address, postcode, telephone, e-mail, facsimile).

I certify that waste permit/exempt waste operation number:

authorises the management of the waste described in B at the address given in A4.

Where the consignment forms part of a multiple collection, as identified in Part C, I certify that the total number of consignments forming the collection are:

Signature

Date Time

APPENDIX D

LABORATORY TEST RESULTS

CONTAMINANTS IN SOIL

Project: FORMER GREGGS BAKERY, GOULD ROAD, TWICKNEHAM
Client: London Square
Agent: Gravity Consulting Engineers

Project No: 5864
Sheet No: 1/1

Speciated Total Petroleum Hydrocarbons (Aromatic / Aliphatic Split with BTEX)											
Location	UST	UST	UST	UST	INT	INT	INT	INT	LQM/CIEH S4UL		
Sample	V1	V2	V3	V4	V1	V2	V3	V4			
Depth, m	3.60	3.60	3.60	3.60	3.40	3.40	3.40	3.40	residential	allotments	commercial
Determinand	Concentration, mg/kg										
Aromatic Hydrocarbons											
C5 - C7	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	300	57	86000
>C7 - C8	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	660	120	180000
>C8 - C10	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	190	51	17000
>C10 - C12	2.8	<1.0	130	120	<1.0	<1.0	<1.0	<1.0	380	74	34000
>C12 - C16	68	46	2200	2100	<2.0	<2.0	<2.0	<2.0	660	130	38000
>C16 - C21	130	100	2800	2900	<10	<10	<10	<10	930	260	28000
>C21 - C35	42	28	480	480	<10	<10	<10	<10	1700	1600	28000
Total Aromatic Hydrocarbons	**250**	**170**	**5600**	**5600**	**<10**	**<10**	**<10**	**<10**			
Aliphatic Hydrocarbons											
C5 - C6	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	160	3900	12000
>C6 - C8	<0.010	<0.010	1.1	2.3	<0.010	<0.010	<0.010	<0.010	530	13000	40000
>C8 - C10	<0.010	<0.010	18	42	<0.010	<0.010	<0.010	<0.010	150	1700	11000
>C10 - C12	3.1	2.5	490	290	<1.0	<1.0	<1.0	<1.0	760	7300	47000
>C12 - C16	110	95	4900	4300	<2.0	<2.0	<2.0	5.6	4300	13000	90000
>C16 - C21	210	180	8600	7200	<8.0	<8.0	<8.0	13			
>C21 - C35	62	51	1300	1200	<8.0	<8.0	<8.0	<8.0			
Total Aliphatic Hydrocarbons	**390**	**330**	**15000**	**13000**	**<10**	**<10**	**<10**	**19**			
Total Petroleum Hydrocarbons	**640**	**500**	**20600**	**18600**	**<10**	**<10**	**<10**	**19**			
BTEX	Concentration, µg/kg										
Benzene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	370	75	90000
Toluene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	660000	120000	180000000
Ethyl Benzene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	260000	91000	27000000
p & m-xylene	<5.0	<5.0	770	1700	<5.0	<5.0	<5.0	<5.0	310000	160000	30000000
o-xylene	<5.0	<5.0	55	130	<5.0	<5.0	<5.0	<5.0			
MTBE	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0			

Notes
Total = Sum of compounds above detection limit.
S4UL given at 6% soil organic matter
*Results given as total of (ortho), (meta) and (para) xylene. SGV given is the lowest permissible value for any xylene compound

Exceptions denoted thus: Residential XX
Commercial XX

APPENDIX E

ORIGINAL TESTING HOUSE CERTIFICATES

AP Geotechnics Ltd
51-53 Guildford Street
Chertsey
KT16 9BA

t: 01932 848460

e: richard.chapman@apgeotechnics.co.uk

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 24-042240

Project / Site name:	Greggs	**Samples received on:**	16/09/2024
Your job number:	5864	**Samples instructed on/ Analysis started on:**	16/09/2024
Your order number:		**Analysis completed by:**	20/09/2024
Report Issue Number:	1	**Report issued on:**	23/09/2024
Samples Analysed:	8 soil samples		

Signed:

Trevor Hill
Customer Service Advisor
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 24-042240
Project / Site name: Greggs

Lab Sample Number				317194	317195	317196	317197	317198
Sample Reference				UST	UST	UST	UST	INT
Sample Number				V1	V2	V3	V4	V1
Depth (m)				3.60	3.60	3.60	3.60	3.40
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**					
Stone Content	%	0.1	NONE	32.5	46.8	14.6	4.3	12.3
Moisture Content	%	0.01	NONE	12	11	9.2	10	14
Total mass of sample received	kg	0.1	NONE	0.4	0.4	0.4	0.5	0.3
Petroleum Hydrocarbons								
TPHCWG - Aliphatic >EC5 - EC6 HS_1D_AL	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010 ~	< 0.010 ~	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 HS_1D_AL	mg/kg	0.01	MCERTS	< 0.010	< 0.010	1.1 ~	2.3 ~	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 HS_1D_AL	mg/kg	0.01	MCERTS	< 0.010	< 0.010	18 ~ $%	42 ~ $%	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 EH_CU_1D_AL	mg/kg	1	MCERTS	3.1	2.5	490	290	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 EH_CU_1D_AL	mg/kg	2	MCERTS	110	95	4900	4300	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 EH_CU_1D_AL	mg/kg	8	MCERTS	210	180	8600 $$	7200 $$	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 EH_CU_1D_AL	mg/kg	8	MCERTS	62	51	1300	1200	< 8.0
TPHCWG - Aliphatic >EC5 - EC35 EH_CU+HS_1D_AL	mg/kg	10	NONE	390	330	15000	13000	< 10
TPHCWG - Aromatic >EC5 - EC7 HS_1D_AR	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010 ~	< 0.010 ~	< 0.010
TPHCWG - Aromatic >EC7 - EC8 HS_1D_AR	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010 ~	< 0.010 ~	< 0.010
TPHCWG - Aromatic >EC8 - EC10 HS_1D_AR	mg/kg	0.02	MCERTS	< 0.020	< 0.020	< 0.020 ~	< 0.020 ~	< 0.020
TPHCWG - Aromatic >EC10 - EC12 EH_CU_1D_AR	mg/kg	1	MCERTS	2.8	< 1.0	130	120	< 1.0
TPHCWG - Aromatic >EC12 - EC16 EH_CU_1D_AR	mg/kg	2	MCERTS	68	46	2200	2100	< 2.0
TPHCWG - Aromatic >EC16 - EC21 EH_CU_1D_AR	mg/kg	10	MCERTS	130	100	2800	2900	< 10
TPHCWG - Aromatic >EC21 - EC35 EH_CU_1D_AR	mg/kg	10	MCERTS	42	28	480	480	< 10
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_1D_AR	mg/kg	10	NONE	250	170	5600	5600	< 10
VOCs								
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0 ~	< 5.0 ~	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0 ~	< 5.0 ~	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0 ~	< 5.0 ~	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0 ~	< 5.0 ~	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	770 ~	1700 ~	< 5.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	55 ~	130 ~	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 24-042240
Project / Site name: Greggs

Lab Sample Number				317199	317200	317201
Sample Reference				INT	INT	INT
Sample Number				V2	V3	V4
Depth (m)				3.40	3.40	3.40
Date Sampled				Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**			
Stone Content	%	0.1	NONE	28.7	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	15	15	19
Total mass of sample received	kg	0.1	NONE	0.5	0.4	0.5
Petroleum Hydrocarbons						
TPHCWG - Aliphatic >EC5 - EC6 HS_1D_AL	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 HS_1D_AL	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 HS_1D_AL	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 EH_CU_1D_AL	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 EH_CU_1D_AL	mg/kg	2	MCERTS	< 2.0	< 2.0	5.6
TPHCWG - Aliphatic >EC16 - EC21 EH_CU_1D_AL	mg/kg	8	MCERTS	< 8.0	< 8.0	13
TPHCWG - Aliphatic >EC21 - EC35 EH_CU_1D_AL	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >EC5 - EC35 EH_CU+HS_1D_AL	mg/kg	10	NONE	< 10	< 10	19
TPHCWG - Aromatic >EC5 - EC7 HS_1D_AR	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 HS_1D_AR	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 HS_1D_AR	mg/kg	0.02	MCERTS	< 0.020	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 EH_CU_1D_AR	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 EH_CU_1D_AR	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0
TPHCWG - Aromatic >EC16 - EC21 EH_CU_1D_AR	mg/kg	10	MCERTS	< 10	< 10	< 10
TPHCWG - Aromatic >EC21 - EC35 EH_CU_1D_AR	mg/kg	10	MCERTS	< 10	< 10	< 10
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_1D_AR	mg/kg	10	NONE	< 10	< 10	< 10
VOCs						
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 24-042240
Project / Site name: Greggs

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
317194	UST	V1	3.6	Brown sand with gravel and stones
317195	UST	V2	3.6	Brown sand with gravel and stones
317196	UST	V3	3.6	Brown sand with gravel and stones
317197	UST	V4	3.6	Brown sand with gravel and stones
317198	INT	V1	3.4	Brown clay and sand with gravel and stones
317199	INT	V2	3.4	Brown clay and sand with gravel and stones
317200	INT	V3	3.4	Brown sand with gravel
317201	INT	V4	3.4	Brown clay and sand with gravel

Analytical Report Number : 24-042240
Project / Site name: Greggs

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088-PL	D/W	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Quality control parameter failure associated with individual result applies to calculated sum of individuals.
The result for sum should be interpreted with caution

~ - Quality control surrogate recovery outside of limits, other checks applied prior to reporting the data have been accepted. The result should be considered as being deviating and may be compromised.

$% - Concentration has been determined by extrapolated calibration as analyte concentration is above the concentration range for the procedure. The result should be considered as deviating and should be interpreted with caution. The result is not accredited.

$$ - Result was reported from high dilution. The result should be interpreted with caution.

Sample Deviation Report

Analytical Report Number : 24-042240

Project / Site name: Greggs

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis.Please note that the associated result(s) may be unreliable and should be interpreted with care.

Key: a - No sampling date b - Incorrect container c - Holding time d - Headspace e - Temperature

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
INT	V1	S	317198	a	BTEX and/or Volatile organic compounds in soil	L073B	a
INT	V1	S	317198	a	Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	L076B/L088-PL	a
INT	V2	S	317199	a	BTEX and/or Volatile organic compounds in soil	L073B	a
INT	V2	S	317199	a	Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	L076B/L088-PL	a
INT	V3	S	317200	a	BTEX and/or Volatile organic compounds in soil	L073B	a
INT	V3	S	317200	a	Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	L076B/L088-PL	a
INT	V4	S	317201	a	BTEX and/or Volatile organic compounds in soil	L073B	a
INT	V4	S	317201	a	Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	L076B/L088-PL	a
UST	V1	S	317194	a	BTEX and/or Volatile organic compounds in soil	L073B	a
UST	V1	S	317194	a	Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	L076B/L088-PL	a
UST	V2	S	317195	a	BTEX and/or Volatile organic compounds in soil	L073B	a
UST	V2	S	317195	a	Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	L076B/L088-PL	a
UST	V3	S	317196	a	BTEX and/or Volatile organic compounds in soil	L073B	a
UST	V3	S	317196	a	Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	L076B/L088-PL	a
UST	V4	S	317197	a	BTEX and/or Volatile organic compounds in soil	L073B	a
UST	V4	S	317197	a	Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	L076B/L088-PL	a

APPENDIX F

GAS MEMBRANE SPECIFICATION

PREMCRETE

HYDROPRUFE 9000

GAS RESISTANT DAMP-PROOF MEMBRANE

DESCRIPTION

HYDROPRUFE 9000 is a virgin polyethylene, reinforced gas membrane, incorporating an aluminium core, that provides an effective barrier to ground gases including methane, carbon dioxide and radon for the lifetime of the structure to which it has been installed. The polyester reinforcement component of the multi-layered membrane reduces the risk of tearing the membrane during the installation phase. HYDROPRUFE 9000 is suitable for welding using suitable hot air welding equipment or the laps may simply by taped jointed.

USES

HYDROPRUFE 9000 is designed to be installed beneath ground floor slab construction to protect the structures from the ingress of ground gas and ground moisture. Typical applications include residential buildings, commercial buildings, industrial units and other structures that require an effective membrane to resist ground gases and moisture.

ADVANTAGES

- Restricts the ingress of ground gas to less than 40ml /M²/24hrs
- Flexible yet robust membrane for ease of installation.
- Conforms to BS 8485:2015
- Joints may be welded, or tape joined
- Reinforcement mesh component provides extra durability and tear resistance.

COMPLIANCE

- HYDROPRUFE 9000 is certified by the British Board of Agrément

www.premcrete.com | 02380 276166 | sales@premcrete.com
44 Macadam Way, West Portway, Andover, Hampshire, SP10 3XW

PREMCRETE

Property	Test Method	Value
Weight	EN 1849-2	400 g/m^2
Thickness	EN 1849-2	0.76mm
Maximum Tensile MD	EN ISO 12311-1	224 N/5cm
Maximum Tensile CD	EN ISO 12311-1	274 N/5cm
Elongation at break MD	EN ISO 12311-2	12%
Elongation at break CD	EN ISO 12311-2	33%
Tear Resistance MD (nail shank)	EN 12310-1	250N
Tear Resistance CD (nail shank)	EN 12310-1	255N
Water Tightness	EN 1928 B	PASS
Resistance to Impact	EN 12691	>100mm
Moisture/Vapour Transmission Rate	EN 1932	<0.001g/m^2/24Hr
Methane Permeability	ISO 15105-1	12ml/m^2/24Hr
Shear Resistance at Joints	EN 12317-1	255N

www.premcrete.com | 02380 276166 | sales@premcrete.com
44 Macadam Way, West Portway, Andover, Hampshire, SP10 3XW

PROCEDURE

Surface Preparation: The sub-base should be well compacted and blinded using sand to provide a soft surface free from sharp protrusions. If the membrane is to be laid directly onto a concrete blinding or floor slab then the concrete should be trowelled to a smooth finish without excessive surface undulations. It may be necessary to install PREMCRETE PROTECTION BOARD 300 to the substrate to provide an effective barrier to minor projections which may result in puncturing the membrane during installation.

Application: HYDRORPUFE 9000 should be loose laid to the prepared sub-base, taking special care to ensure the membrane is not punctured during the installation phase. Adjacent sheets of membrane should be lapped by 150mm and the joints should be sealed using HYDROPRUFE HCR BUTYL TAPE, a double-sided tape which is placed 50mm from the edge of the sheet. The lap joint should have pressure applied to ensure a good quality seal is achieved, preferably by use of a lap roller. The lap should then be over-taped using HYDROPRUFE HCR FOIL GIRTH TAPE, to ensure the integrity of the lap joint during concrete placement. Alternatively, the membrane maybe welded using specialist hot air welding equipment. Special care should be taken around penetrations and junctions to ensure the integrity of the seal. HYDROPRUFE TOPHAT pieces should be used to seal pipe penetrations and pre-formed internal and external corners. Corner pieces may be used to provide robust detailing. Once the membrane installation is complete, PREMCRETE PROTECTION BOARD 300 should be used to protect the installed membrane from puncture during the fixing of reinforcement steel.

PACKAGING & COVERAGE

Pack Size: 2m x 50m Roll.

HYDROPRUFE HCR BUTYL TAPE: 30mm x 30m roll.

HYDROPRUFE HCR FOIL GIRTH TAPE: 100mm x 15m roll.

HYDROPRUFE DETAIL TAPE: 150mm x 15m roll.

STORAGE & SHELF LIFE

TEKNOCEM HBR should be kept in clean dry conditions at temperatures between 8^0C and 30^0C. When stored in unopened bags, the product will have a shelf life of 12 months.

HEALTH & SAFETY

See separate material safety datasheet.

PREMCRETE

PROJECT – DESIGN STRATEGY PROPOSAL

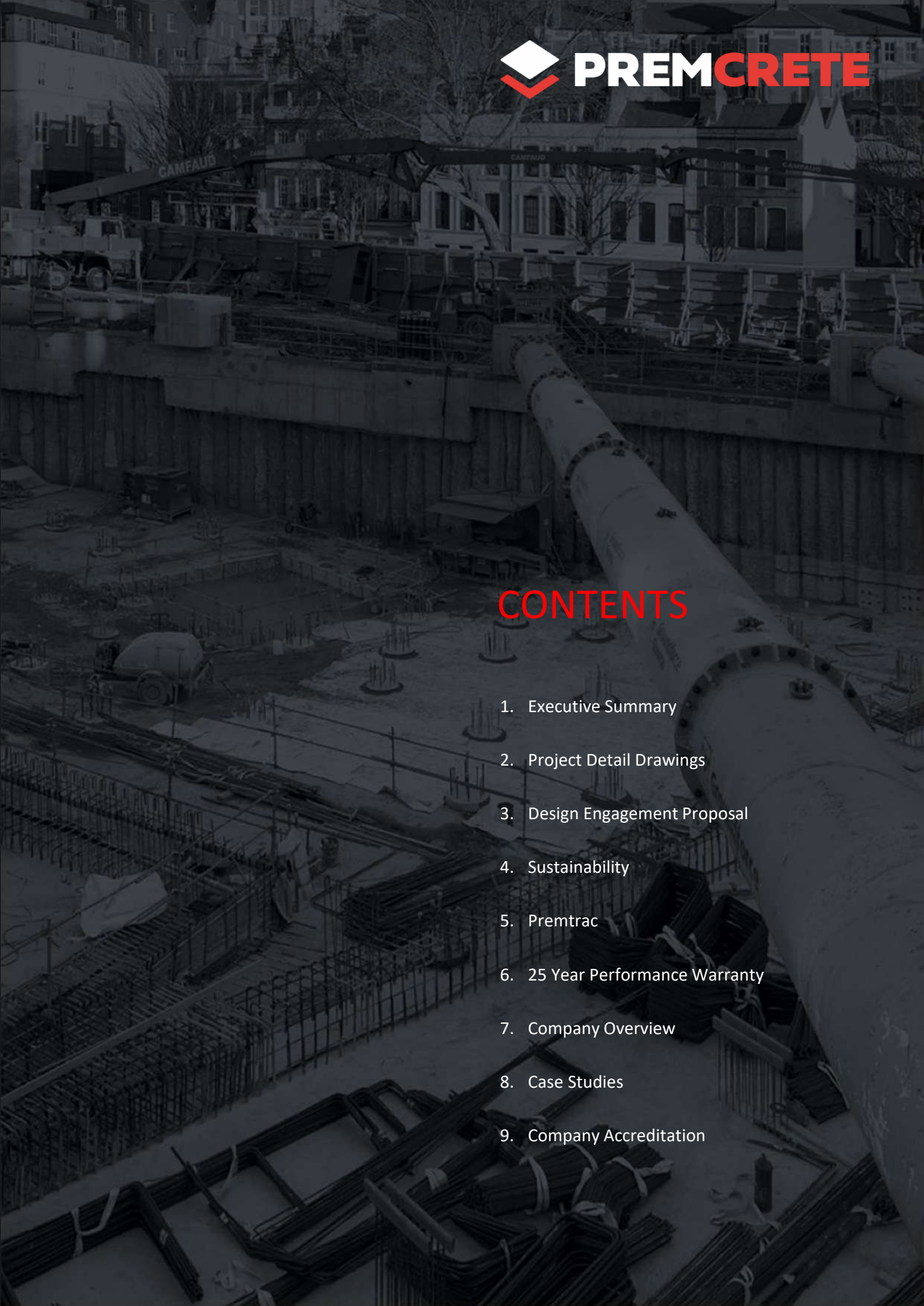
GREGGS BAKERY, TWICKENHAM

STRUCTURAL WATERPROOFING

& GAS PROTECTION

GREGGS BAKERY, TWICKENHAM

PREMCRETE



CONTENTS

1

EXECUTIVE SUMMARY

PREMCRETE

Executive Summary

Introduction

Premcrete have been invited to review the details for the former Greggs Bakery Site. This projects includes 65 flats and 51 townhouses. As mentioned in the AP Geotechnics, Ground Gas levels fall within Characteristic Situation 2 (CS2) requiring protection. It also mentions that there were very low levels of Hydrocarbons found but as this is very low levels, we are suggesting our Gas Protection System in accordance BS 8485:2015. Assuming that these buildings fit into a Type B Category, they will require 3.5 Gas Protection Points. The report mentions that there are different types of construction including ground level slabs and block and beam structures in the town houses. In the ground level slab areas, we propose the membrane beneath the slab and beneath the screed in the block and beam zone.
Our design strategy for each area of the site is shown within the below table along with a summary on how the points are achieved.

Zones	Primary Gas Protection / Waterproofing	Secondary Gas Protection / Waterproofing / Damp-Proofing	Total Gas Protection Points
Ground Level Slab Zone	Hydroprufe DPM Damp-Proof Membrane **2 Gas Protection Points**	Cast Insitu Monolithic Ground Bearing Reinforced Slab **1.5 Gas Protection Points**	**3.5 Total Gas Protection Points**
Block & Beam – Gas Risk Zone	Hydroprufe 9000 (Beneath the screed.) Gas Resistant Damp-Proof Membrane. **2 Gas Protection Points**	Ventilation from below the Block & Beam (Providing that this is a ventilated zone it will achieve the below points.) **1.5 Gas Protection Points**	**3.5 Total Gas Protection Points**
Lift Core Zones	Maxiprufe Plus Waterproof Pre-Applied Membrane **2 Gas Protection Points**	Hydrocrete Combined Crystalline and Pore-Blocking Watertight Concrete **1.5 Gas Protection Points**	**3.5 Total Gas Protection Points**
Pile Cap / Pile Head Detailing – Gas Risk Zone	Hydroprufe LG Liquid Gas Membrane	HCR Butyl Tape Double Sided gas-resistant tape for bonding membrane to pile cap perimeter	
Pile Cap / Pile Head Detailing – Damp-Proofing Zone	Hydroseal FX Cementitious Waterproof Coating	HCR Butyl Tape Double Sided gas-resistant tape for bonding membrane to pile cap perimeter	
Slab Edge Detailing – Gas Risk Zone	Hydroprufe 8000 Gas and Waterproof Self-Adhesive Membrane		
Slab Edge Detailing – Damp-Proofing Zone	Hydroprufe 3000 Waterproof Self-Adhesive Membrane		

Key Considerations

- Pile Cap Detailing – By incorporating Hydroprufe LG, which is acceptable by Structural Engineers for application to the tops of pile caps, the product cost will be reduced by up to 50% and will negate the requirement of wrapping pile caps and ground beams with a pre-applied membrane, with further significant labour savings and programme advantages.
- Minimizing of Construction Joints – Large wall and slab pours should be incorporated wherever possible, providing they are within the acceptable limits of the structural engineer's crack width design.
- Hydrocrete Watertight Concrete should be cast at a minimum of 200mm thickness, and allowance for the top 300mm within the deep monolithic concrete pours of the lift core bases.

Premcrete Advantages

- Single point 25 Year Performance Warranty for all items within the substructure waterproofing design.
- Full design responsibility for entire project covered under the one manufacturer with our £5M PI insurance.
- BBA Certified Type A, B & C waterproofing systems.
- Access to Premtrac – Online Quality Control Portal.