



Photo 43: Ground conditions beneath the broken out concrete in the south-western basement area. Photograph taken facing the north-east on 09/11/2021.



Photo 44: Imported materials used in the backfill of the excavations. Photograph taken of the upper raft, facing the north and north-west on 09/11/2021.



Photo 45: Excavation along the southern basement wall. Photograph taken facing the south-east on 09/11/2021.



Photo 46: Progress photo of the excavation works along the southern basement wall. Photograph taken facing the north / north-east on 09/11/2021.



Photo 47: Ground condition along the southern basement wall – sample LR03. Photograph taken facing the south on 09/11/2021.



Photo 48: View of the backfill in the south-western area of the basement. Photograph taken facing the north on 09/11/2021.



Photo 49: Ground conditions along the south of the basement wall. Sample LR04 retrieved from here. Photograph taken on 09/11/2021.



Photo 50: The excavated area where the contamination was previously encountered, south of the basement area. Stockpiled material to the right of the photograph. Samples LR05 and LR06 retrieved from base of the excavation. Photograph taken facing the north on 10/11/2021.



Photo 51: View of the excavation towards the eastern basement boundary. Photograph taken facing the north-east on 10/11/2021.



Photo 52: View of the excavation towards the south-eastern basement boundary. Measuring staff indicates location of LR07. Photograph taken facing the south-east on 10/11/2021.



Photo 53: View of the excavation towards in the south-eastern corner of the basement boundary. Photograph taken facing the south on 10/11/2021.



Photo 54: View of the excavation along the southern basement boundary. Measuring staff marks location of sample LR08. Photograph taken facing the south on 10/11/2021.



Photo 55: View of the excavated material from the southern-eastern basement area. Photograph taken on 10/11/2021.



Photo 56: View of the excavated material from the southern-eastern basement area. Photograph taken on 10/11/2021.

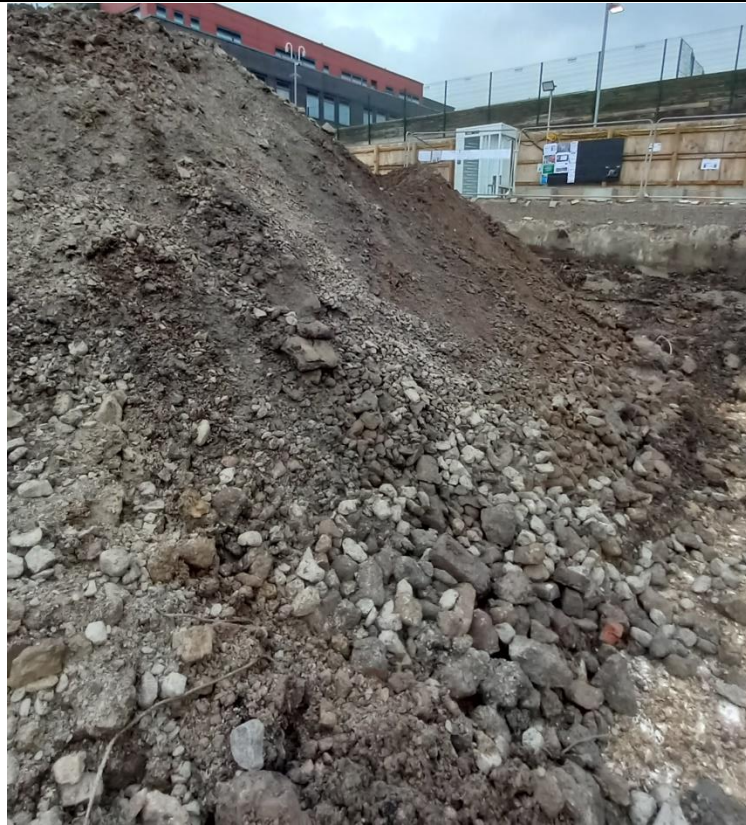


Photo 57: View of the excavated material from the southern-eastern basement area. Photograph taken on 10/11/2021.



Photo 58: View of the excavated area in the south-east of the basement prior to backfill. Photograph taken facing the south on 10/11/2021.

APPENDIX C– WATCHING BRIEF SITE RECORDS

job title Abraham Moss Library and Leisure Centre

job no. 1620005164

date 18/10/2021

file ref. WB-Day 1: 18/10/2021

visit to Abraham Moss (AM) Construction Site

by CD

met George Holgate – Laing O'Rourke (LOR)
Phil Davies – LOR Site Managers

purpose Site visit to undertake Environmental Watching Brief

Notes	Action
CD attended the Abraham Moss 'Site' at 10:00 on 18/10/2021 at the request of the client to provide on-site support and undertake an environmental Watching Brief (WB) during the reduced level excavations in the former swimming pool basement area. The excavation planned for the basement was required for two reasons. The first to remove unsuitable [soft] soils to form a level area where a stable development platform could be founded with site won aggregates [crushed demolition arisings]. The excavation depth is set at 1,000mm below the top of the existing foundation slab level with the aggregate being laid in 250mm layers and rolled 11 times by the compaction plant (+ the addition of a basal geotextile). The second reason is for the removal of hydrocarbon impacted soils which were previously identified during the phased ground investigations. The soils were found to contain low concentrations hydrocarbons, albeit at concentrations lower than the commercial GAC. These impacted soils are primarily identified by odour with limited evidence of local hydrocarbon sheens (albeit minor) on the soils. There was no accompanying sheen on locally perched/ponding groundwaters etc. The Ramboll Remediation Strategy recommended the localised removal of any soils found to contain elevated concentrations of hydrocarbon with confirmatory validation samples taken at the extends of the excavation. It should be noted that within the development area a number of natural and Made Ground units are present with a dark grey/ black appearance. These soils have been previously analysed and were found not to contain significant concentrations of hydrocarbons and the colouration related to organic content rather than as an indicator of potential contamination. This information has been relayed to the LOR management team).	
The reduced level excavations were found to have commenced along the northern basement boundary prior to Ramboll site attendance. An area covering the full northern length of the basement and 5m wide had been excavated to 1,000mm below ground level, a geotextile laid and crushed demolition arisings placed in the 250mm layers as planned. A 2m wide boarder of concrete slab within the basement is to be retained until the basement walls are propped (north and northeast corner) or full removed (remainder of the site area).	
The site contacts confirmed no soils in this area were identified as to contain hydrocarbons. This assertion is further supported by the recent Ramboll ground investigations in this area where also did not encountered any impacted materials.	
During the WB, the next 5m wide strip of soils were observed being excavated to target depth. The soil comprised approximately 300mm of mixed granular Made Ground overlying natural grey silt/sand. No visual or olfactory evidence of contamination was noted. Groundwater seepages were noted (recently heavy rain) but no discolouration or sheens noted. PID sampling of the arisings from this strip all recorded values of less than 20ppm. Validation samples were not taken until the extend of the potential contamination area is known i.e. until the excavation progress southwards.	

job title Abraham Moss Library and Leisure Centre

job no. 1620005164

date 18/10/2021

file ref. WB-Day 1: 18/10/2021

visit to Abraham Moss (AM) Construction Site

by CD

met George Holgate – Laing O'Rourke (LOR)
Phil Davies – LOR Site Managers

purpose Site visit to undertake Environmental Watching Brief

Notes	Action
Once the excavation was complete, a geotextile (white Terram) was laid over the base and crushed demolition arisings played in 250mm layers. (stoning up) These layers were compacted using a large roller, passing 11 times over each layer The arisings (separated of large concrete cobbles etc) are stockpiled separately from the more general arisings from outside of the basement area (see photo record for more details). Two other stockpiles are present of site – general arisings from outside of the basement area and a potentially 'hazardous' stockpile for the basement hydrocarbon impacted arisings. Ramboll through professional judgement and PID reading are to direct waste materials to the most appropriate stockpile for off-site disposal. During the site visit CD also inspected the remainder of the site area and no evidence of potential contamination was noted. Albeit G. Holgate of LOR queried the presence of the dark organic rich soils and if they potentially contaminated etc. (the material was not contaminated). The equipment and fuel stores on site all appeared in good working order and no evidence of recent fuel spills or oil leaks were noted. Within the basement and in other areas of the site, sump/puddle pumps were being used to move water to the open excavation in the south of the basement area (adjacent to the access ramp/hydrocarbon impacted area) forming a temporary sump. Within the temporary sump the groundwater was noted to be free of significant discolouration and totally absent of any hydrocarbon sheens. The water from the sump was pumped to Silt Buster and a pH & CO2 adjusting machine before being discharge to an adjacent fowl water drain under a temporary United Utilities Trade Effluent Discharge Consent (provided to RUK under separate cover). CD Left site at 15:00 during the stoning up works to undertaken field note write up off-site.	

job title	Abraham Moss Library and Leisure Centre	job no.	1620005164
date	19/10/2021	file ref.	WB-Day 2: 19/10/2021
visit to	Abraham Moss (AM) Construction Site	by	CD
met	George Holgate – Laing O’Rourke (LOR) Phil Davies – LOR Site Managers		
purpose	Site visit to undertake Environmental Watching Brief		

Notes	Action
CD attended the Abraham Moss ‘Site’ at 08:00 on 19/10/2021 at the request of the client to provide on-site support and undertake an environmental Watching Brief (WB) during the reduced level excavations in the former swimming pool basement area. Upon attendance the site operatives were completing the final roller passed of the newly built up areas along the norther site area. Following this the next strip of reduced level excavation was commenced immediately south of the previous days work. But due to very heavy rain, the puddle pump was unable to keep up with the flow of water in to the excavation as such the operatives only completed the reduced level dig to approximately 300mm below slab level. Further reduced levels excavation were undertaken along the western site boundary forming an horizontal L shape, again only to ~300mm to minimise water issues. During the excavation the Ramboll Watching Brief did not observant any evidence of hydrocarbon impacts and PID readings from multiple areas did not exceed 20ppm. Once the lateral extent of the hydrocarbon impact is known validation samples will be recovered. Within the many puddles and temporary sumps-site, no hydrocarbon sheets were noted. Following completion of the 300mm RL dig, the operatives switched to breaking out further areas of concrete. The site foreman stated this would continue in to the following day and no further excavations were planned for remainder of the day. Across the wider site area, the upper raft excavations and backfilling works were continuing as previously recorded. No visual or olfactory evidence of contamination were noted. CD Left site at 15:30 during the concrete breaking works to undertake field note write up off-site.	

job title	Abraham Moss Library and Leisure Centre	job no.	1620005164
date	20/10/2021	file ref.	WB-Day 2: 20/10/2021
visit to	Abraham Moss (AM) Construction Site	by	CD & VG
met	George Holgate – Laing O’Rourke (LOR) Phil Davies – LOR Site Managers		
purpose	Site visit to undertake Environmental Watching Brief		

Notes	Action
CD attended the Abraham Moss ‘Site’ at 08:30 on 20/10/2021 at the request of the client to provide on-site support and undertake an environmental Watching Brief (WB) during the reduced level excavations in the former swimming pool basement area. Upon attendance the site operatives were still breaking out the concrete slab at the foot of the access ramp. The breaking out and subsequent movement of the arising to the stockpile area lasted until 14:00, coinciding with very heavy rain showers. After 14:00 the reduced level excavation works commenced again within the eastern edge of the basement area. Generally the ground conditions comprised a granular Made Ground with frequent red brick and timber approximately 300mm below the base of the former slab level. Below this were mixed deposits of cohesive and granular superficial deposits. No evidence of significant hydrocarbon impacted were noted and no iridescent hydrocarbon sheens found within in the standing water or temporary sumps. Due to concrete saw cutting works on-site but LOR dewatering pumps were not able to be used until later in the afternoon resulting in a build up for groundwater in the basemen area. VG attended site at 14:30 to received a site briefing and handover by CD. CD left site at 16:00.	

job title	Abraham Moss Library and Leisure Centre	job no.	1620005164
date	21/10/2021	file ref.	WB-Day 4: 21/10/2021
visit to	Abraham Moss (AM) Construction Site	by	Viktoriya Grygoryshchak (VG)
met	George Holgate – Laing O’Rourke (LOR) Phil Davies – LOR Site Managers		
purpose	Site visit to undertake Environmental Watching Brief		

Notes	Action
VG attended the Abraham Moss ‘Site’ at 08:15 on 21/10/2021 at the request of the client to provide on-site support and undertake an environmental Watching Brief (WB) during the reduced level excavations in the former swimming pool basement area. The reducing works in the basement area in the centre of the site (zone D and adjacent concrete slab area – see below) have continued from the previous day whereby the ground level was reduced by further ~300mm. The excavation extended to the concrete slab between zones D and E. Stockpiles of site won material comprised of grey fine sand and dark brown sandy clay with high organic content. No olfactory or visual evidence of significant contamination was noted or recorded. There were minimal discoloured batches of ground with a PID reading of 1.4ppm (considered to be very low). Around 12pm, sheeting was laid down ready for backfill on one of the excavated tracks. PID concentrations from around the excavation (sides and base) ranged between 0.0ppm and 1.4ppm – see overleaf. Excavation works were completed around 14:00 and VG was advised that no other excavation works are to take place. The excavation was backfilled and rolled to new levels. VG off-site at 14:30 during the backfilling to undertake field note write-up off-site.	

job title Abraham Moss Library and Leisure Centre

job no. 1620005164

date 21/10/2021

file ref. WB-Day 4: 21/10/2021

visit to Abraham Moss (AM) Construction Site

by Viktoriya Grygoryshchak (VG)

met George Holgate – Laing O’Rourke (LOR)
Phil Davies – LOR Site Managers

purpose Site visit to undertake Environmental Watching Brief

Notes	Action

job title	Abraham Moss Library and Leisure Centre	job no.	1620005164
date	26/10/2021	file ref.	WB-Day 5: 26/10/2021
visit to	Abraham Moss (AM) Construction Site	by	Viktoriya Grygoryshchak (VG)
met	George Holgate – Laing O’Rourke (LOR) Phil Davies – LOR Site Managers		
purpose	Site visit to undertake Environmental Watching Brief		

Notes	Action
VG attended the Abraham Moss ‘Site’ at 13:15 on 26/10/2021 at the request of the client to provide on-site support and undertake an environmental Watching Brief (WB) during the excavations works beneath the removed basement walls in the former swimming pool area for development of a new ramp. Approximate extent of the removed walls are highlighted yellow overleaf. The yellow and white hashed area depicts the zone whereby ~500mm of material was excavated out; the base lined with a geotextile and backfilled to level, to be ready for engineer fill of material for the new ramp. The zone that was excavated had the dimensions of approximately 5m length, 2m width by 0.5m depth. No evidence of significant contamination was noted. Faint organic odour was noted due to the highly organic content in the underlying geology. PID readings of material along the removed walls was recorded between 8.0ppm and 10.9ppm – this comprised of the grey sand and the dark brown organic clay materials. No sheens or olfactory evidence of hydrocarbons were noted. VG off-site at 17:10 during the backfilling of the excavated area.	

job title Abraham Moss Library and Leisure Centre

job no. 1620005164

date 26/10/2021

file ref. WB-Day 5: 26/10/2021

visit to Abraham Moss (AM) Construction Site

by Viktoriya Grygoryshchak (VG)

met George Holgate – Laing O’Rourke (LOR)
Phil Davies – LOR Site Managers

purpose Site visit to undertake Environmental Watching Brief

Notes	Action
Site plan diagram showing construction areas A, B, C, D, and E. Areas A, B, and C are at the top, D is in the middle, and E is at the bottom. Various monitoring points are labeled: VS09, VS20, VS19, VS18, VS15, VS14, VS16, VS17, VS08, and LR01/LR02. The plan includes dimensions, a north arrow, and notes about slab depths and existing foundations.	

job title Abraham Moss Library and Leisure Centre

job no. 1620005164

date 27/10/2021

file ref. WB-Day 6: 27/10/2021

visit to Abraham Moss (AM) Construction Site

by VG / ER

met George Holgate – Laing O'Rourke (LOR)
Phil Davies – LOR Site Managers

purpose Site visit to undertake Environmental Watching Brief

Notes	Action
VG and ER attended the Abraham Moss 'Site' at 08:10 on 27/10/2021 at the request of the client to provide on-site support and undertake an environmental Watching Brief (WB) during the reduced level excavations in the former swimming pool basement area. A groundwater sample was obtained from the Silt Buster for chemical analysis to satisfy the trade effluent discharge requirements. The sample was subsequently collected by an i2 Analytical courier for analysis. At the same time, the material (noted with rebar and brick fill) extracted from the walls of the basement area was being loaded into trucks and removed off-site. The water was pumped out of the existing pit in zone E (see below) to allow for the concrete slab (between zones D and E) to be broken out. The slab was broken out and removed by around 2pm. VG and ER inspected the area underneath the former concrete slab where contamination was encountered in August 2021. PID readings of the material were taken across the area and ranged between 6.5ppm and 27.4ppm (approximately 0.5mbgl). The material was noted to have faint organic odour, but no sheens or hydrocarbon odours were noted. The material was described to be very dark brown very gravelly sandy clay with high organic content and brick, mudstone and concrete gravel. No soil samples were retrieved from this area as sample VS17 was previously taken from north of the contamination, with no elevated contaminant exceedances noted. Zone E was excavated from around 4pm. In the south-western corner of the site, approximately 15m from the contamination impact, very dark brown soils were encountered. This dark soil had a faint gaseous smell. A PID reading of the stockpiled material registered a 13.9ppm value (~0.5mbgl). These soils were stockpiled to the south-east of the basement area. VG and ER left site at 16:45. The activities undertaken the following day (28/10/21) aimed to infill the excavated basement area to make the ground level even.	

job title Abraham Moss Library and Leisure Centre

job no. 1620005164

date 27/10/2021

file ref. WB-Day 6: 27/10/2021

visit to Abraham Moss (AM) Construction Site

by VG / ER

met George Holgate – Laing O’Rourke (LOR)
Phil Davies – LOR Site Managers

purpose Site visit to undertake Environmental Watching Brief

Notes	Action

RECORD OF SITE VISIT

Page 1 of 2

job title	Abraham Moss Library and Leisure Centre	job no.	1620005164
date	28/10/2021	file ref.	WB-Day 7: 28/10/2021
visit to	Abraham Moss (AM) Construction Site	by	ER
met	George Holgate – Laing O’Rourke (LOR) Phil Davies – LOR Site Managers		
purpose	Site visit to undertake Environmental Watching Brief		

Notes	Action
ER attended the Abraham Moss ‘Site’ at 08:00 on 28/10/2021 at the request of the client to provide on-site support and undertake an environmental Watching Brief (WB) during the reduced level excavations in the former swimming pool basement area. The soils in the basement area continued to being excavated and transferred to the stockpile in the south-east of the pool basement area. The soils were medium brown with a high organic content. An odour was noted that faintly resembled gas. No hydrocarbon odours were noted. A geotextile (white Terram) was laid over the base of the excavated basement area (Zone E) and crushed demolition arisings were added to infill the excavated area. These crushed demolition arising layers were compacted incrementally throughout the day. The materials were provided by LOR. A site employee confirmed to ER that the week commencing 1st November, the concrete slab overlaying the contamination impact will be removed. No significant areas of contamination were noted within the stockpiled material. Small fraction of soil emitted a gas-like odour; however, nothing malodorous was noted. Likewise, no discoloured areas of soil were noted, and no hydrocarbon sheens were detected. A PID reading of the material was obtained from the stockpiled material, which peaked at 10.0ppm. The soils were predominantly more saturated at depth (due to the low-lying water table) and ranged from sandy to clayey soils. In the afternoon, more crushed demolition arisings were received for the infilling of the excavation area. By 4pm, works in Zone E were complete. ER left site at 16:30, as no excavation work was to be undertaken beyond then.	

RECORD OF SITE VISIT

Page 2 of 2

job title Abraham Moss Library and Leisure Centre

job no. 1620005164

date 28/10/2021

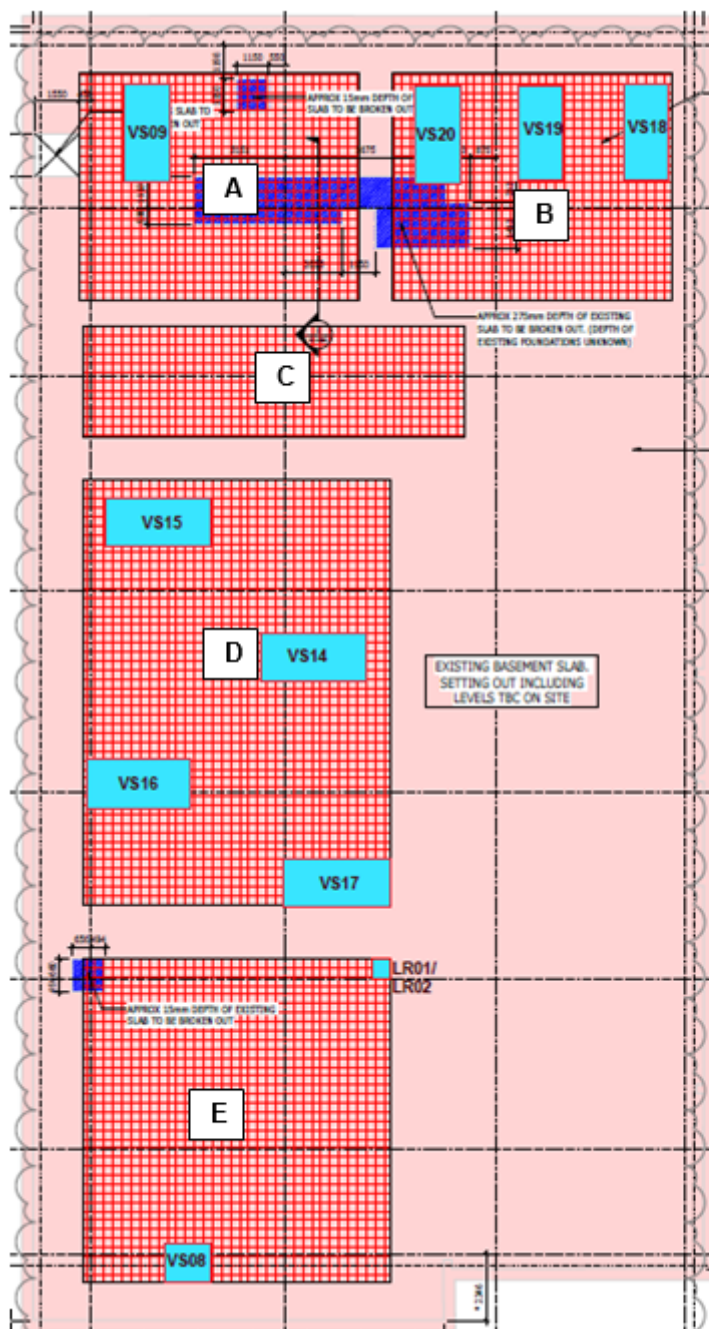
file ref. WB-Day 7: 28/10/2021

visit to Abraham Moss (AM) Construction Site

by ER

met George Holgate – Laing O'Rourke (LOR)
Phil Davies – LOR Site Managers

purpose Site visit to undertake Environmental Watching Brief



RECORD OF SITE VISIT

job title	Abraham Moss Library and Leisure Centre	job no.	1620005164
date	01/11/2021	file ref.	WB-Day 8: 01/11/2021
visit to	Abraham Moss (AM) Construction Site	by	VG
met	George Holgate – Laing O’Rourke (LOR) Phil Davies – LOR Site Managers		
purpose	Site visit to undertake Environmental Watching Brief		

Notes	Action
VG attended the site at 08:00 on the 1st of November to provide an on-site support and undertake a Watching Brief during the excavation works which were planned for the week (as informed to Ramboll on the 28th October by the contractor). After an initial site walkover, VG met Philip Davies and VG was informed that no excavation works are to take place until towards the end of the week. The interim works comprised of removal of side and back walls in the Basement Area; removal of former ramp to create a new ramp; and pumping out the water out of the trenches to backfill these with engineered material. RUK was not required to be on-site for the duration of these works, and will be advised on when the client requires further support on-site. VG left site at 10:00.	

RECORD OF SITE VISIT

Page 1 of 2

job title	Abraham Moss Library and Leisure Centre	job no.	1620005164
date	09/11/2021	file ref.	WB-Day 9: 09/11/2021
visit to	Abraham Moss (AM) Construction Site	by	VG
met	George Holgate – Laing O’Rourke (LOR) Phil Davies – LOR Site Managers		
purpose	Site visit to undertake Environmental Watching Brief		

Notes	Action
VG attended the Abraham Moss ‘Site’ at 08:10 on 09/11/2021 at the request of the client to provide on-site support and undertake an environmental Watching Brief (WB) during the reduced level excavations in the former swimming pool basement area. The earth from the former south-western wall area was removed, and comprised of red brown to very dark brown highly organic sandy clay geology. No sheens or odours were noted. Mild to moderate organic odour was noted in the western corner of the basement, and the PID peaked at 11.3ppm. The excavated material was stockpiled towards the centre and east of the basemen area. The excavated trenches were lined with a geotextile and filled with imported materials. The water pump was installed in the excavation of the south-western wall. All stockpiled material was taken off-site. The trenches had seepages of groundwater at shallow depths, which did not appear to have any sheens, odours or NAPL present. The geology extending from the south-western corner comprised of brick fill made ground, organic-rich sandy clay and orange sand. Rare terracotta pipe and plastic sheeting were excavated. The path of excavation is highlighted in yellow overleaf. VG was informed by LOR that the excavation of the area overlying the unexpected contamination was to be undertaken at a later date (possibly 15th November). The works to be undertaken in the interim comprise of excavation around the perimeter of the site (along the former concrete walls in the basement). VG recovered two soil samples from the SW wall before it was backfilled. Sample LR03 PID= 20.0ppm at 0.50 – 0.70mbgl (made ground of light brown sandy very gravelly clay with brick gravel); and LR04 PID=22.0ppm at 0.60 – 0.80mbgl (the organically-rich sandy clay with a mild foul odour). VG left the site at 16:30 as no more excavations were to be undertaken.	

RECORD OF SITE VISIT

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job title Abraham Moss Library and Leisure Centre

job no. 1620005164

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date 09/11/2021
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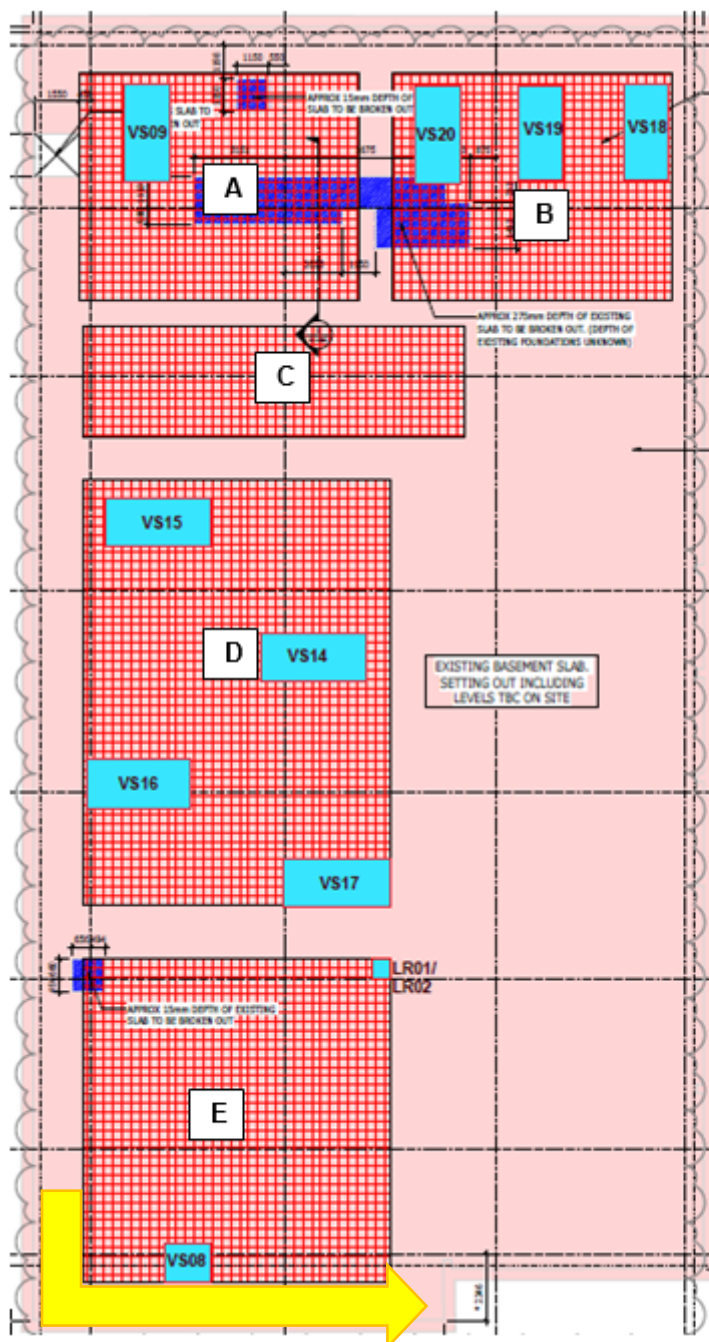
file ref. WB-Day 9: 09/11/2021

visit to Abraham Moss (AM) Construction Site

by VG

met George Holgate – Laing O’Rourke (LOR)
Phil Davies – LOR Site Managers

purpose Site visit to undertake Environmental Watching Brief



RECORD OF SITE VISIT

Page 1 of 2

job title	Abraham Moss Library and Leisure Centre	job no.	1620005164
date	10/11/2021	file ref.	WB-Day 10: 10/11/2021
visit to	Abraham Moss (AM) Construction Site	by	VG
met	George Holgate – Laing O’Rourke (LOR) Phil Davies – LOR Site Managers		
purpose	Site visit to undertake Environmental Watching Brief		

Notes	Action
VG was called onto site at 12:40 following the unplanned excavation in the area of the unexpected contamination. The approximate area which was excavated is highlighted in green overleaf. VG attended the site at 14:00 to collect soil samples within the excavation (base and sides), as well as to inspect the stockpiled soils, take PID readings and note visual or olfactory evidence of any potential contamination. LOR contractor undertaking the excavation did not report any hydrocarbon odours during the excavation of the area. LOR mentioned a foul smell which was associated with the organic layer; for which a soil sample was previously collected (LR04). Ramboll did not identify any areas or signs of hydrocarbon contamination within the excavation or the accessible parts of the stockpile. Two soil samples were recovered from the base of the excavation; one was taken as close as possible to the LR01/LR02 position (LR05), and the other taken approximately 2m south-east of that (LR06). LR07 and LR08 were taken along the south-eastern wall. Positions of the sampling locations have been added overleaf. Sample details: • LR05 at 0.7 – 0.9m. PID: 2.2ppm. Material comprises of grey speckled black fine sand with occasional vegetation or roots; • LR06 at 0.7 – 0.9m. PID: 2.0ppm. Material comprises of grey speckled black fine sand with occasional vegetation or roots; • LR07 at 0.5 – 0.7m. PID: 0.5ppm. Material comprises of grey yellow and black slightly clayey gravelly fine to medium sand with rare to occasional angular to sub-angular gravel of brick and concrete; and • LR08 at 0.6 – 0.7m. PID: 0.7ppm. Material comprises of grey yellow and black slightly clayey gravelly fine to medium sand with rare to occasional angular to sub-angular gravel of brick and concrete. Occasional organic material (wood, roots, vegetation). No hydrocarbon odours or sheens. *Depths recorded from new ground level – following the removal of the slab. Six locations of the stockpile were bagged and PID screened. The PID values ranged between 0.6ppm and 2.3ppm. VG left site at 16:00 after collecting all required samples.	

RECORD OF SITE VISIT

Page 2 of 2

job title Abraham Moss Library and Leisure Centre

job no. 1620005164

date 10/11/2021

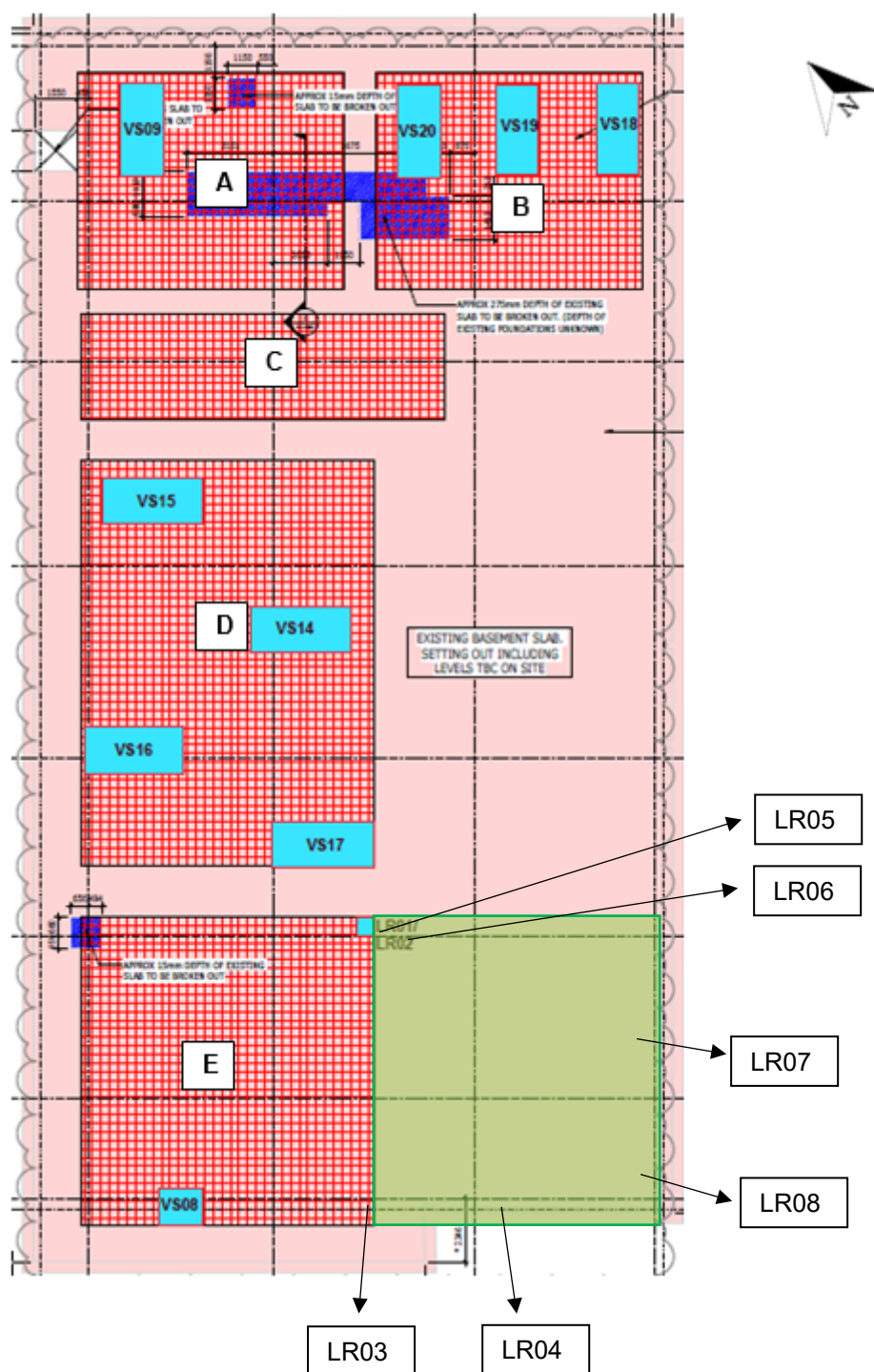
file ref. WB-Day 10: 10/11/2021

visit to Abraham Moss (AM) Construction Site

by VG

met George Holgate – Laing O'Rourke (LOR)
Phil Davies – LOR Site Managers

purpose Site visit to undertake Environmental Watching Brief



APPENDIX D- PID CALIBRATION CERTIFICATE

PID Service and Calibration

PID Serial Number

595 - 002467

Customer and Company

Chris Dawson - Ramboll

	Reading	Target	Acceptable	Pass	Lot no / Expiry date
100ppm Isobutylene gas	100.0	100	± 10% *	✓	W0186781-2 14/09/21
Fresh Air	0.0	0.0	± 10% *	✓	

This PID was calibrated and was within acceptable range on the day of calibration. The PID can keep calibration for up to 30 days. If measurements become unstable re-calibrate the PID using the Isobutylene gas provided. * On bump test after calibration.

Service Checklist

- ☒ PID Turns on/off
- ☒ Sensor block cleaned
- ☒ Pump rebuilt
- ☒ Internal tubes replaced
- ☒ Metal filter and o-ring changed
- ☒ Charger PAT Tested

Comments

Other work carried out

* Serviced & calibrated to manufacturers standards

Signed:



 Date: 04/11/20

Name:

Reece Munn

 Cross checked contents initials: TR



VAN WALT
Monitoring your needs

OUTWARDS CHECKLIST

PID Service and Calibration

PID Serial Number

595 - 000722

Customer and Company

Mike Hazlehurst - Ramboll

	Reading	Target	Acceptable	Pass	Lot no / Expiry date
100ppm Isobutylene gas	100.0	100	$\pm 10\%$ *	✓	W0186791-2 14/09/21
Fresh Air	0.0	0.0	$\pm 10\%$ *	✓	

This PID was calibrated and was within acceptable range on the day of calibration. The PID can keep calibration for up to 30 days. If measurements become unstable re-calibrate the PID using the Isobutylene gas provided. * On bump test after calibration.

Service Checklist

Comments

- ☒ PID Turns on/off
- ☒ Sensor block cleaned
- ☒ Pump rebuilt
- ☒ Internal tubes replaced
- ☒ Metal filter and o-ring changed
- ☒ Charger PAT Tested

Other work carried out

* Serviced & calibrated to manufacturers standards.

Signed:

Date: 16/08/21

Name:

Reece Munn

Cross checked contents initials:

TR

**APPENDIX E– ADDITIONAL VERIFICATION SAMPLES
ANALYTICAL CERTIFICATES**

**Viktoriya Grygoryshchak**

Ramboll UK
1 Broad Gate
The Headrow Leeds
LS1 8EQ

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

t: 01923 225404

f: 01923 237404

e: reception@i2analytical.com

e: viktoriya.grygoryshchak@ramboll.co.uk

Analytical Report Number : 21-22328

Project / Site name:	Abraham Moss Leisure Centre	Samples received on:	11/11/2021
Your job number:	162005164-001	Samples instructed on/ Analysis started on:	11/11/2021
Your order number:	16200041417	Analysis completed by:	18/11/2021
Report Issue Number:	1	Report issued on:	18/11/2021
Samples Analysed:	6 soil samples		

Signed:

Izabela Wójcik

Izabela Wójcik
Technical Reviewer (Reporting Team)
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: 21-22328
 Project / Site name: Abraham Moss Leisure Centre
 Your Order No: 16200041417

Lab Sample Number				2079655	2079656	2079657	2079658	2079659
Sample Reference				LR03	LR04	LR05	LR06	LR07
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50-0.70	0.60-0.80	0.70-0.90	0.70-0.90	0.50-0.70
Date Sampled				09/11/2021	09/11/2021	10/11/2021	10/11/2021	10/11/2021
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	30	60	14	15	14
Total mass of sample received	kg	0.001	NONE	1.2	1.1	1.1	1.1	1.1

Monoaromatics & Oxygenates

Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	52	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	62	< 10	< 10	< 10	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 21-22328
 Project / Site name: Abraham Moss Leisure Centre
 Your Order No: 16200041417

Lab Sample Number				2079660
Sample Reference				LR08
Sample Number				None Supplied
Depth (m)				0.60-0.70
Date Sampled				10/11/2021
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	
Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	15
Total mass of sample received	kg	0.001	NONE	1.1

Monoaromatics & Oxygenates

Benzene	µg/kg	1	MCERTS	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 21-22328

Project / Site name: Abraham Moss Leisure Centre

* 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 *
2079655	LR03	None Supplied	0.50-0.70	Brown clay and loam with gravel.
2079656	LR04	None Supplied	0.60-0.80	Brown clay and loam with gravel.
2079657	LR05	None Supplied	0.70-0.90	Brown sandy loam.
2079658	LR06	None Supplied	0.70-0.90	Brown sandy loam.
2079659	LR07	None Supplied	0.50-0.70	Brown sandy clay.
2079660	LR08	None Supplied	0.60-0.70	Brown clay and sand.

Analytical Report Number : 21-22328

Project / Site name: Abraham Moss Leisure Centre

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	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.	L019-UK/PL	D	NONE
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' 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.

**APPENDIX F– ADDITIONAL VERIFICATION SAMPLES
SCREENING SHEET**

Project Number: 1620005164-001
Project / Site name: Abraham Moss Leisure Centre
Client: Laing O'Rourke

Sample Reference						LR03	LR04	LR05	LR06	LR07	LR08
Sample Number						None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)						0.50-0.70	0.60-0.80	0.70-0.90	0.70-0.90	0.50-0.70	0.60-0.70
Date Sampled						09/11/2021	09/11/2021	10/11/2021	10/11/2021	10/11/2021	10/11/2021
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	Generic Assessment Criteria (GAC) for soils - Commercial / Industrial	Maximum Concentration In soils						
Stone Content	%	0.1	NONE	-	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	-	-	30	60	14	15	14	15
Total mass of sample received	kg	0.001	NONE	-	-	1.2	1.1	1.1	1.1	1.1	1.1

Monoaromatics & Oxygenates

Benzene	µg/kg	1	MCERTS	15	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	33000	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	3200	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	3300	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	3700	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	3800	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	2400	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	5300	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	1300	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	6100	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	43000	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	1000000	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	1000000	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-		< 10	< 10	< 10	< 10	< 10	< 10

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	-	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	-	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	2200	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	11000	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	35000	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	29000	10	10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	29000	52	52	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	62	62	< 10	< 10	< 10	< 10	< 10

Notes

Concentrations above GAC highlighted

Ramboll E&H Soil Screening Sheet V1 Used for assessment.

APPENDIX G- WASTE DISPOSAL RECORDS

The Hazardous Waste Regulations 2005: Weighbridge Ref DW2224441 Consignment Note



Environment
Agency

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

PART A Notification details

- 1 Consignment note code: **EXPAND / 000001**
- 2 The waste described below is to be removed from (name, address, postcode, telephone, e-mail, facsimile):
**Expanded Ltd
Abraham Moss Lesiure Centre
Cresent Road
Crumpsall
M8 5UF**
- 3 The waste will be taken to (name, address and postcode):
**Maw Green Soil Treatment Facility,
Maw Green Road, Crewe,
CW1 5NG**
- 4 The waste producer was (if different from 2) (name, address, postcode, telephone, e-mail, facsimile):
**Expanded Limited,
Bridge Place 1&2, Anchor Boulevard,
Crossways Dartford, Kent. DA2 6SN**

PART B Description of the waste

If continuation sheet used, tick here ☐

- 1 The process giving rise to the waste(s) was: **Excavation**
- 2 SIC (2007) for the process giving rise to the waste: **41.20 /**
- 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 in the waste and their concentrations are:		Physical form (gas, liquid, solid, powder, sludge or mixed)	Hazard code(s)	Container type, number and size
			Component	Concentration (% or mg/kg)			
Soil and stones containing hazardous substances	1 7 0 5 0 3*	20,000	TPH	>0.1%	Solid	HP7 & HP11	8W

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

EWC code	UN identification number(s)	Proper shipping name(s)	UN class(es)	Packing group(s)	Special handling requirements
1 7 0 5 0 3*	N/A	N/A	N/A	N/A	Standard PPE

PART C Carrier's certificate

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

I certify that I today collected the consignment and that the details in A2, A3 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: **J.O'SHEA AND SONS LTD**
On behalf of (name, address, postcode, telephone, e-mail, facsimile):
**Orchard Street, Pendleton,
Salford, M6 6FL**
- 2 Carrier registration no./reason for exemption:
CBDU 90839
- 3 Vehicle registration no. (or mode of transport, if not road): **MV70WZH**

Signature **[Signature]**

Date **07122021**

Time **0930**

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: **Expanded Limited**
On behalf of (name, address, postcode, telephone, e-mail, facsimile):
**Bridge Place, Anchor Boulevard,
Crossways Dartford, Kent. DA2 6SN**

Signature **[Signature]**

Date **07122021**

Time **0930**

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)
170503	18.28	ACC	R05

- 1 I received this waste at the address given in A3 on: Date **07122021** Time **0930**

- 2 Vehicle registration no. (or mode of transport if not road): **MV70WZH**

- 3 Where waste is rejected please provide details:

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

**Provectus Soils Management
Maw Green Soil Treatment Centre
Maw Green Road
Crewe CW1 5NG**

Signature **[Signature]**

Date **07122021**

Time **0930**

I certify that waste permit/exempt waste operation number:

BS7722ID

authorises the management of the waste described in B at the address given in A3.

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:

[Box]

The Hazardous Waste Regulations 2005: Weighbridge Ref DW2224411 2224211

Consignment Note



Environment
Agency

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

PART A Notification details

- 1 Consignment note code: **EXPAND / 00002**
- 2 The waste described below is to be removed from (name, address, postcode, telephone, e-mail, facsimile):
**Expanded Ltd
Abraham Moss Lesiure Centre
Crescent Road
Crumpsall
M8 5UF**
- 3 The waste will be taken to (name, address and postcode):
**Maw Green Soil Treatment Facility,
Maw Green Road, Crewe,
CW1 5NG**
- 4 The waste producer was (if different from 2) (name, address, postcode, telephone, e-mail, facsimile):
**Expanded Limited,
Bridge Place 1&2, Anchor Boulevard,
Crossways Dartford, Kent. DA2 6SN**

PART B Description of the waste

If continuation sheet used, tick here ☐

- 1 The process giving rise to the waste(s) was: **Excavation**
- 2 SIC (2007) for the process giving rise to the waste: **41.20 /**
- 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 in the waste and their concentrations are:		Physical form (gas, liquid, solid, powder, sludge or mixed)	Hazard code(s)	Container type, number and size
			Component	Concentration (% or mg/kg)			
Soil and stones containing hazardous substances	170503*	20,000	TPH	>0.1%	Solid	HP7 & HP11	8W

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

EWC code	UN identification number(s)	Proper shipping name(s)	UN class(es)	Packing group(s)	Special handling requirements
170503*	N/A	N/A	N/A	N/A	Standard PPE

PART C Carrier's certificate

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

I certify that I today collected the consignment and that the details in A2, A3 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: **J.O'SHEA AND SONS LTD**
On behalf of (name, address, postcode, telephone, e-mail, facsimile):
**Orchard Street, Pendleton,
Salford, M6 6FL**

- 2 Carrier registration no./reason for exemption:
CBDU 90839

- 3 Vehicle registration no. (or mode of transport, if not road): **MK21 ETX**

Signature **M. L...**

Date **07122021** Time **0755**

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: **Expanded Limited**
On behalf of (name, address, postcode, telephone, e-mail, facsimile):
**Bridge Place, Anchor Boulevard,
Crossways Dartford, Kent. DA2 6SN**

Signature **D. S...**

Date **07122021** Time **0755**

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)
170503	19.08	ACC	ROS

- 1 I received this waste at the address given in A3 on: Date **07122021** Time **0935**

- 2 Vehicle registration no. (or mode of transport if not road): **MK21 ETX**

- 3 Where waste is rejected please provide details:

I certify that waste permit/exempt waste operation number:

BS7722ID

authorises the management of the waste described in B at the address given in A3.

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:

Name: **A Stockton**
On behalf of (name, address, postcode, telephone, e-mail, facsimile): **Provetus Soils Management**

Maw Green Soil Treatment Centre

Maw Green Road

Crewe CW1 5NG

Signature **A. Stockton**

Date **07122021** Time **0935**

The Hazardous Waste Regulations 2005: Weighbridge Ref DW2224411 Consignment Note



Environment
Agency

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

PART A Notification details

- 1 Consignment note code: **EXPAND / 0000** **03**
- 2 The waste described below is to be removed from (name, address, postcode, telephone, e-mail, facsimile):
Expanded Ltd
Abraham Moss Lesiure Centre
Cresent Road
Crumpsall
M8 5UF
- 3 The waste will be taken to (name, address and postcode):
Maw Green Soil Treatment Facility,
Maw Green Road, Crewe,
CW1 5NG
- 4 The waste producer was (if different from 2) (name, address, postcode, telephone, e-mail, facsimile):
Expanded Limited,
Bridge Place 1&2, Anchor Boulevard,
Crossways Dartford, Kent. DA2 6SN

PART B Description of the waste

If continuation sheet used, tick here ☐

- 1 The process giving rise to the waste(s) was: **Excavation**
- 2 SIC (2007) for the process giving rise to the waste: **41.20 /**
- 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 in the waste and their concentrations are:		Physical form (gas, liquid, solid, powder, sludge or mixed)	Hazard code(s)	Container type, number and size
			Component	Concentration (% or mg/kg)			
Soil and stones containing hazardous substances	1 7 0 5 0 3*	20,000	TPH	>0.1%	Solid	HP7 & HP11	8W

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

EWC code	UN identification number(s)	Proper shipping name(s)	UN class(es)	Packing group(s)	Special handling requirements
1 7 0 5 0 3*	N/A	N/A	N/A	N/A	Standard PPE

PART C Carrier's certificate

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

I certify that I today collected the consignment and that the details in A2, A3 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: **J.O'SHEA AND SONS LTD**
 On behalf of (name, address, postcode, telephone, e-mail, facsimile):
Orchard Street, Pendleton,
Salford, M6 6FL
- 2 Carrier registration no./reason for exemption:
CBDU 90839
- 3 Vehicle registration no. (or mode of transport, if not road): **MV19 UZM**

Signature **W. B. ...**

Date **7/12/21** Time **07:33**

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: **Expanded Limited**
 On behalf of (name, address, postcode, telephone, e-mail, facsimile):
Bridge Place, Anchor Boulevard,
Crossways Dartford, Kent. DA2 6SN

Signature **[Signature]**

Date **7/12/21** Time **08:03**

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)
170503	20.70	ACC	R05

- 1 I received this waste at the address given in A3 on: Date **07/12/2021** Time **09:35**

- 2 Vehicle registration no. (or mode of transport if not road): **MV19 UZM**

- 3 Where waste is rejected please provide details:

I certify that waste permit/exempt waste operation number:

BS7722ID
 authorises the management of the waste described in B at the address given in A3.

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:

Name: **A-Stockton**
 On behalf of (name, address, postcode, telephone, e-mail, facsimile): **Provectus Soils Management**

Maw Green Soil Treatment Centre

Maw Green Road
Crewe CW1 5NG

Signature **A. Stockton**

Date **07/12/2021** Time **09:35**

The Hazardous Waste Regulations 2005: Weighbridge Ref DW2224211 Consignment Note



Environment
Agency

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

PART A Notification details

- 1 Consignment note code: **EXPAND / 00004**
- 2 The waste described below is to be removed from (name, address, postcode, telephone, e-mail, facsimile):
**Expanded Ltd
Abraham Moss Lesiure Centre
Cresnet Road
Crumpsall
M8 5UF**
- 3 The waste will be taken to (name, address and postcode):
**Maw Green Soil Treatment Facility,
Maw Green Road, Crewe,
CW1 5NG**
- 4 The waste producer was (if different from 2) (name, address, postcode, telephone, e-mail, facsimile):
**Expanded Limited,
Bridge Place 1&2, Anchor Boulevard,
Crossways Dartford, Kent. DA2 6SN**

PART B Description of the waste

If continuation sheet used, tick here ☐

- 1 The process giving rise to the waste(s) was: **Excavation**
- 2 SIC (2007) for the process giving rise to the waste: **41.20 /**
- 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 in the waste and their concentrations are:		Physical form (gas, liquid, solid, powder, sludge or mixed)	Hazard code(s)	Container type, number and size
			Component	Concentration (% or mg/kg)			
Soil and stones containing hazardous substances	170503*	20,000	TPH	>0.1%	Solid	HP7 & HP11	8W

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

EWC code	UN identification number(s)	Proper shipping name(s)	UN class(es)	Packing group(s)	Special handling requirements
170503*	N/A	N/A	N/A	N/A	Standard PPE

PART C Carrier's certificate

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

I certify that I today collected the consignment and that the details in A2, A3 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: **J.O'SHEA AND SONS LTD**
On behalf of (name, address, postcode, telephone, e-mail, facsimile):
**Orchard Street, Pendleton,
Salford, M6 6FL**
- 2 Carrier registration no./reason for exemption:
CBDU 90839
- 3 Vehicle registration no. (or mode of transport, if not road): **MV70WZH**

Signature **[Signature]**

Date **07122021**

Time **1045**

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: **Expanded Limited**
On behalf of (name, address, postcode, telephone, e-mail, facsimile):
**Bridge Place, Anchor Boulevard,
Crossways Dartford, Kent. DA2 6SN**

Signature **[Signature]**

Date **07122021**

Time **1045**

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)
170503	18.66	ACC	R05

- 1 I received this waste at the address given in A3 on: Date **07122021**

Time **1200**

- 2 Vehicle registration no. (or mode of transport if not road): **MV70WZH**

- 3 Where waste is rejected please provide details:

Name: **A Stockton**
On behalf of (name, address, postcode, telephone, e-mail, facsimile):
Provectus Soils Management

Maw Green Soil Treatment Centre

Maw Green Road

Crewe CW1 5NG

Signature **[Signature]**

Date **07122021**

Time **1200**

I certify that waste permit/exempt waste operation number:

BS7722ID

authorises the management of the waste described in B at the address given in A3.

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:

The Hazardous Waste Regulations 2005: Weighbridge Ref DW/2224444

Consignment Note



Environment
Agency

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

PART A Notification details

- 1 Consignment note code: **EXPAND / 000003**
- 2 The waste described below is to be removed from (name, address, postcode, telephone, e-mail, facsimile):
Expanded Ltd
Abraham Moss Lesiure Centre
Crésent Road
Crumpsall
M8 5UF
- 3 The waste will be taken to (name, address and postcode):
Maw Green Soil Treatment Facility,
Maw Green Road, Crewe,
CW1 5NG
- 4 The waste producer was (if different from 2) (name, address, postcode, telephone, e-mail, facsimile):
Expanded Limited,
Bridge Place 1&2, Anchor Boulevard,
Crossways Dartford, Kent. DA2 6SN

PART B Description of the waste

If continuation sheet used, tick here ☐

- 1 The process giving rise to the waste(s) was: **Excavation**
- 2 SIC (2007) for the process giving rise to the waste: **41.20 /**
- 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 in the waste and their concentrations are:		Physical form (gas, liquid, solid, powder, sludge or mixed)	Hazard code(s)	Container type, number and size
			Component	Concentration (% or mg/kg)			
Soil and stones containing hazardous substances	1 7 0 5 0 3*	20,000	TPH	>0.1%	Solid	HP7 & HP11	8W

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

EWC code	UN identification number(s)	Proper shipping name(s)	UN class(es)	Packing group(s)	Special handling requirements
1 7 0 5 0 3*	N/A	N/A	N/A	N/A	Standard PPE

PART C Carrier's certificate

PART D Consignor's certificate

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

I certify that I today collected the consignment and that the details in A2, A3 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: **J.O'SHEA AND SONS LTD**
 On behalf of (name, address, postcode, telephone, e-mail, facsimile):
Orchard Street, Pendleton,
Salford, M6 6FL
- 2 Carrier registration no./reason for exemption:
CBDU 90839
- 3 Vehicle registration no. (or mode of transport, if not road): **MK21 ETX**

Signature **m. lal**

Date **07122021** Time **11:00**

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: **Expanded Limited**
 On behalf of (name, address, postcode, telephone, e-mail, facsimile):
Bridge Place, Anchor Boulevard,
Crossways Dartford, Kent. DA2 6SN

Signature **[Signature]**

Date **07122021** Time **11:10 AM**

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)
170503	19.08	ACC	RoS

- 1 I received this waste at the address given in A3 on: Date **07122021** Time **12:10**

- 2 Vehicle registration no. (or mode of transport if not road): **MK21 ETX**

- 3 Where waste is rejected please provide details:

I certify that waste permit/exempt waste operation number:

BS7722ID

authorises the management of the waste described in B at the address given in A3.

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:

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

Provetus Soils Management
Maw Green Soil Treatment Centre

Maw Green Road
Crewe CW1 5NG

Signature **[Signature]**

Date **07122021** Time **12:10**

The Hazardous Waste Regulations 2005: Weighbridge Ref DW2224414 2224211

Consignment Note



Environment
Agency

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

PART A Notification details

- 1 Consignment note code: **EXPAND / 00006**
- 2 The waste described below is to be removed from (name, address, postcode, telephone, e-mail, facsimile):
Expanded Ltd
Abraham Moss Lesiure Centre
Crescent Road
Crumpsall
M8 5UF
- 3 The waste will be taken to (name, address and postcode):
Maw Green Soil Treatment Facility,
Maw Green Road, Crewe,
CW1 5NG
- 4 The waste producer was (if different from 2) (name, address, postcode, telephone, e-mail, facsimile):
Expanded Limited,
Bridge Place 1&2, Anchor Boulevard,
Crossways Dartford, Kent. DA2 6SN

PART B Description of the waste

If continuation sheet used, tick here ☐

- 1 The process giving rise to the waste(s) was: **Excavation**
- 2 SIC (2007) for the process giving rise to the waste: **41.20 /**
- 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 in the waste and their concentrations are:		Physical form (gas, liquid, solid, powder, sludge or mixed)	Hazard code(s)	Container type, number and size
			Component	Concentration (% or mg/kg)			
Soil and stones containing hazardous substances	170503*	20,000	TPH	>0.1%	Solid	HP7 & HP11	8W

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

EWC code	UN identification number(s)	Proper shipping name(s)	UN class(es)	Packing group(s)	Special handling requirements
170503*	N/A	N/A	N/A	N/A	Standard PPE

PART C Carrier's certificate

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

I certify that I today collected the consignment and that the details in A2, A3 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: **J.O'SHEA AND SONS LTD**
 On behalf of (name, address, postcode, telephone, e-mail, facsimile):
Orchard Street, Pendleton,
Salford, M6 6FL
- 2 Carrier registration no./reason for exemption:
CBDU 90839
- 3 Vehicle registration no. (or mode of transport, if not road): **MV19UZN**

Signature **W.B.**

Date **7/12/21** Time **1656**

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: **Expanded Limited**
 On behalf of (name, address, postcode, telephone, e-mail, facsimile):
Bridge Place, Anchor Boulevard,
Crossways Dartford, Kent. DA2 6SN

Signature **16 R**

Date **7/12/21** Time **1656**

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)
170503	18.68	ACC	ROS

- 1 I received this waste at the address given in A3 on: Date **07122021** Time **1215**

- 2 Vehicle registration no. (or mode of transport if not road): **MV19UZN**

- 3 Where waste is rejected please provide details:

Name: **A Stockton**
 On behalf of (name, address, postcode, telephone, e-mail, facsimile): **Provectus Soils Management**

Maw Green Soil Treatment Centre

Maw Green Road
Crewe CW1 5NG

Signature **A Stockton**

Date **07122021** Time **1215**

I certify that waste permit/exempt waste operation number:

BS7722ID

authorises the management of the waste described in B at the address given in A3.

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:

The Hazardous Waste Regulations 2005: Weighbridge Ref DW/2224411 2224211

Consignment Note



Environment
Agency

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

PART A Notification details

- 1 Consignment note code: **EXPAND / 00007**
- 2 The waste described below is to be removed from (name, address, postcode, telephone, e-mail, facsimile):
Expanded Ltd
Abraham Moss Lesiure Centre
Crescent Road
Crumpsall
M8 5UF
- 3 The waste will be taken to (name, address and postcode):
Maw Green Soil Treatment Facility,
Maw Green Road, Crewe,
CW1 5NG
- 4 The waste producer was (if different from 2) (name, address, postcode, telephone, e-mail, facsimile):
Expanded Limited,
Bridge Place 1&2, Anchor Boulevard,
Crossways Dartford, Kent. DA2 6SN

PART B Description of the waste

If continuation sheet used, tick here ☐

- 1 The process giving rise to the waste(s) was: **Excavation**
- 2 SIC (2007) for the process giving rise to the waste: **41.20 /**
- 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 in the waste and their concentrations are:		Physical form (gas, liquid, solid, powder, sludge or mixed)	Hazard code(s)	Container type, number and size
			Component	Concentration (% or mg/kg)			
Soil and stones containing hazardous substances	1 7 0 5 0 3*	20,000	TPH	>0.1%	Solid	HP7 & HP11	8W

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

EWC code	UN identification number(s)	Proper shipping name(s)	UN class(es)	Packing group(s)	Special handling requirements
1 7 0 5 0 3*	N/A	N/A	N/A	N/A	Standard PPE

PART C Carrier's certificate

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

I certify that I today collected the consignment and that the details in A2, A3 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: **J.O'SHEA AND SONS LTD**
 On behalf of (name, address, postcode, telephone, e-mail, facsimile):
Orchard Street, Pendleton,
Salford, M6 6FL
- 2 Carrier registration no./reason for exemption:
CBDU 90839
- 3 Vehicle registration no. (or mode of transport, if not road): **MV70WZH**

Signature *[Signature]*

Date **07122021** Time **1345**

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: **Expanded Limited**
 On behalf of (name, address, postcode, telephone, e-mail, facsimile):
Bridge Place, Anchor Boulevard,
Crossways Dartford, Kent. DA2 6SN

Signature *[Signature]*

Date **07122021** Time **1345**

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)
170503	18.66	ACC	R05

- 1 I received this waste at the address given in A3 on: Date **07122021** Time **1510**

- 2 Vehicle registration no. (or mode of transport if not road): **MV70WZH**

- 3 Where waste is rejected please provide details:

I certify that waste permit/consignment was operation number **BS7722ID**
 authorises the management of the waste described in B at the address given in A3.

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:

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

Proventus Soils Management
Maw Green Soil Treatment Centre
Maw Green Road
Crewe CW1 5NG

Signature *[Signature]*

Date **07122021** Time **1510**

APPENDIX B

V2: RAMBOLL TECHNICAL NOTE 1

LAND QUALITY: TECHNICAL NOTE

Job **Abraham Moss Library and Leisure Centre, Manchester**
 Client **Laing O'Rourke**
 Memo no. **Land Quality 1 (Version P01)**
 Report Ref: **LP44107-RAM-ZZZ-XX-RP-Y-00008 P01 Technical Note**
 Date **28th September 2021**
 Planning Ref: **125033/VO/2020**
 To **Laing O'Rourke**
 From **Viktoriya Grygoryshchak, Chris Dawson, Approved by Phil Studds (Ramboll)**
 Copy to **Manchester City Council – Environmental Health Team**

1. INTRODUCTION

Ramboll UK Limited (Ramboll) has been appointed by Laing O'Rourke (LOR - the Client and project Principal Contractor) on behalf of Manchester City Council (MCC) to provide land quality support during the demolition of the existing Abraham Moss Library and Leisure Centre and formation of replacement facilities.

The new facilities will include the construction of a two-storey structure housing a gym, sports hall and a library with a semi-basement structure to accommodate a replacement swimming pool with associated plant.

The site location and the development site areas are shown on Drawings 1620005164/E/01 and LP44107-EWA-XXX-XX-DR-A-91010 P02 provided within Appendix A.

As detailed within the Ramboll Remedial Strategy (updated issue - Issue P01, April 2021) in March 2020, Manchester City Council (MCC) granted full planning permission for the development of the new library and leisure centre.

The planning condition determination notice (125033/VO/2020) stipulates a number of requirements within Planning Condition No.5. These requirements are briefly summarised below:

- A) Submission of an updated site investigation and risk assessment once the site building have been demolished;
- B) Submission of a [revised] remediation strategy;

If land quality risks are identified:

- C) Submission of site investigation proposal (included within April 2021 Remediation Strategy Issued P01);
- D) Preparation of investigation report and updated remediation strategy;
- E) Submission of verification report;

In the event that unexpected contamination is identified:

- F) MCC are to be notified and provided with a revised remediation strategy.

1.1 Objectives

The purpose of this technical report is to document the post-demolition ground investigation and to provide an updated site-specific risk assessment, as well as to provide any additional recommendations / requirements which are over and above those already identified within the Ramboll April 2021 Remediation Strategy.

1.2 Previous reports

The following reports have been prepared for the site which should be read in conjunction with this report:

- Ramboll (2019) Abraham Moss Library & Leisure Centre, Manchester – Contaminated Land and Geotechnical **Desk Study** Report. Revision 1, Ramboll UK Ltd, June 2019;
- Ramboll (2019) Abraham Moss Library & Leisure Centre, Manchester – Ground Investigation **Factual Report**, Revision 1, Ramboll UK Ltd, June 2019;
- Ramboll (2019) Abraham Moss Library & Leisure Centre, Manchester – Ground Investigation **Contaminated Land Interpretive Report**. Revision 2, Ramboll UK Ltd, October 2019; and
- Ramboll (2021) Abraham Moss Library & Leisure Centre, Manchester – **Remedial Strategy**. Issue P01, Ramboll UK Ltd, April 2021.

A number of additional reports have been prepared by Ramboll in relation to the formation of the temporary library and sports hall facilities on adjacent land. These reports are not considered relevant to this Technical Note other than in the context that no areas of significant contamination were identified during the ground investigations for these areas.

The above reports are available to MCC via the Planning Portal under Application No. 125033/VO/2019 and 14955/VO/2019.

2. DEMOLITION PHASE GROUND INVESTIGATIONS

As detailed within the Ramboll Remedial Strategy (April 2021, Issue P01), additional ground investigations were required following demolition of the leisure centre superstructure. To date, four separate sampling events have been undertaken on the; 9th June, 27th July, 5th August and 7th September 2021.

During the sampling events the site area was an active demolition site. The demolition works were phased to permit the investigations and sampling works to be undertaken safely.

The site area is primarily divided into two main sections. The former swimming pool plant basement to the south-east of the site is at approximately 62.37m Above Ordnance Datum (mAOD) which is approximately 2.5m below the level of the main leisure centre foundation level of approximately 65m AOD. This area is herein referred to as the 'Basement Area' – the area boundary of which is outlined in blue in Figure 1 below.

The north-west of the site is the main leisure centre (sports hall, gym, library etc.) which is herein referred to as the 'Upper Raft' (albeit the actual original foundation is the combination of piles and raft) – the area boundary of which is outlined in green in Figure 1 below:

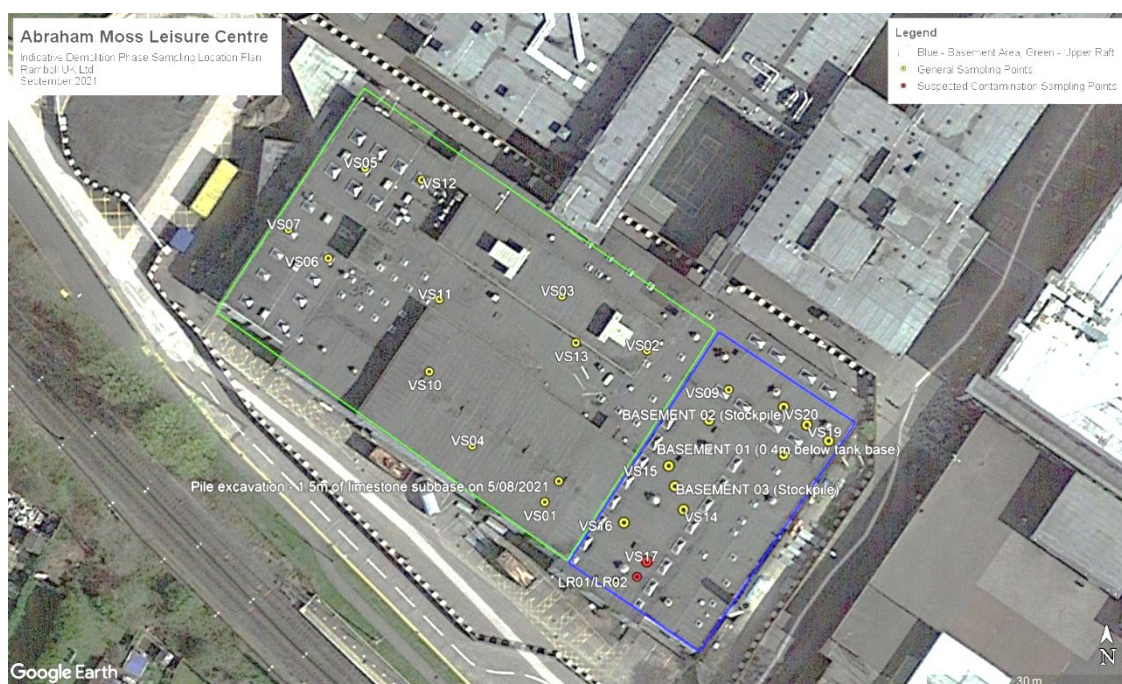


Figure 1: Site Layout Plan and Sampling Location (shown prior to demolition – not to scale). Blue outline depicts the Basement area. Green outline depicts Upper Raft area.

The exploratory hole location plan is included as Figure 1 in Appendix A.

2.1 June 2021 Sampling Event

Following the demolition of the superstructure above the basement and the removal of the swimming pool plant room equipment, it became apparent that a number of areas in the basement were not founded on a full basement width concrete slab as anticipated. The perimeter of the basement and the areas along the centre and eastern half of the basement contained a slab approximately 400mm in thickness.

The western and northern areas were found to contain compacted arisings and aggregate above the surrounded slab area; within the areas which formerly housed various tanks required for the swimming pool infrastructure.

During the course of the geotechnical Cone Penetrating Testing (CPT) works, a Ramboll site engineer was able to recover two samples of the formerly compacted material from tank the areas which have been temporarily stockpiled within the basement (Samples 'Basement -02' and 'Basement-03').

A third sample was recovered from a hand-dug inspection pit within an area of cleared basement where no foundation slab was present. The sample was recovered from a depth of between 0.4 and 0.5m below the basement slab level (sample 'Basement-01'), at approximately 61.95m AOD.

Figure 2 indicates the sampling locations in Appendix A. The engineering sample descriptions and field screening results are provided within Table 1 in Appendix B.

In brief, arisings from the hand pit at Basement-01 comprised a gravely sandy silty clay with gravel of brick, concrete with rare clinker and fine wood fragments. Samples Basement-02 and Basement-03 were composite samples taken from the stockpile, and comprised sandy gravel of brick, concrete and limestone aggregate with rare clinker and coal.

The samples were field screened with a Photo Ionisation Detector (PID) with a peak reading of 0.9 ppm (parts per million).

The samples were submitted for a general brownfield suite of testing which included heavy metals, pH, phenol, speciated Polycyclic Aromatic Hydrocarbons (PAHs), Total Petroleum Hydrocarbons (TPH) and asbestos. The samples were also submitted for single-stage full Waste Acceptance Criteria analysis (WAC).

The laboratory results are provided within Appendix C.

2.2 July 2021 Sampling Event

Following further demolition of the leisure centre superstructure, access was permitted to the Upper Raft area. A Ramboll site engineer attended site and with the aid of LOR provided excavator was able to recover seven soil samples for laboratory analysis.

During the investigation works, the ground conditions generally comprised variable thicknesses and composition of Made Ground overlying superficial deposits which were present from approximately 1.5mbgl. The Made Ground was a mixture of angular gravel of limestone (sub-base / imported aggregate material); granular Made Ground with gravel of brick, mudstone, coal, glass and metal; and a cohesive organic-rich clay Made Ground also with gravel of brick, mudstone, coal and glass.

The superficial deposits generally varied between cohesive organic-rich sandy clay and granular sand deposits.

A total of seven samples (VS01-07) were recovered from a range of locations, depths and material types, and submitted for laboratory analysis of heavy metals, pH, phenols, PAHs, TPHs, asbestos. Two of the samples were also submitted for volatile and semi-volatile organic compounds (VOCs/SVOCs). Five samples were also submitted for WAC analysis.

Selected strata were field screened with PID with a peak reading of 16.8 parts per million in VS04 (which is considered low). No visual or olfactory evidence of contamination was identified during the investigation works.

The engineering sample descriptions and field screening results are provided within the Table 1 in Appendix B.

The laboratory analysis are results are provided within Appendix C.

2.3 August 2021 Sampling Event

Following the removal of the upper raft foundations further access was granted to permit soil sampling within the footprint of the building, predominantly within the upper raft area. During the course of the August sampling event, contractors were removing section of the basement foundation and encountered pile foundations (note: basement structure was previously assumed to be built on a raft foundation) and an area of soil with moderate hydrocarbon odours - see samples LR01 and LR02 below for details.

The ground conditions broadly correspond to those encountered during the July sampling event, but within the south-east area of the basement, a small area of Made Ground (very gravelly sand with brick, concrete and coal) was found to emit hydrocarbon odours.

Two samples of the suspected impacted soils were recovered together (LR01/02) with an additional two samples from the basement area (VS08-09) and four samples from previously inaccessible area from the upper raft (VS10-13).

A total of eight samples were recovered from a range of locations, depths and material types and submitted for laboratory analysis including heavy metals, pH, phenols, PAHs, TPHs, asbestos and TOC. Three samples were submitted for WAC analysis.

Selected strata were field screened with a photo ionisation detector (PID) with a peak reading of 373.7ppm. The remainder of recovered samples recorded a maximum reading of 11.9ppm in VS11. Other than the soils from LR01 and LR02, no visual or olfactory evidence of contamination was identified during the investigation works.

The engineering sample descriptions and field screening results are provided within the Table 1 in Appendix B.

The laboratory analysis are results are provided within Appendix C.

2.4 September 2021 Sampling Event

Following the removal of stockpiles from the basement area, Ramboll attended the site to carry out a series of trial pits within the area that is not underlain by the concrete slab.

Seven trial pits were advanced to confirm the underlying geology which generally consisted of Made Ground described as dark brown to black clayey and gravelly sand with brick, wood, tile concrete and gravel. A soft red brown organic-rich sandy clay was recorded across the basement (apart from VS19 and VS20). This was underlain by grey speckled black fine sand, which was also encountered in the northern area of the Upper Raft.

Selected strata were field screened with a photo ionisation detector (PID) with a peak reading of 67.5ppm in sample VS17, located underneath the existing slab, just north of LR01/LR02. With exception of sample VS17, the PID readings ranged between 0.1 ppm and 33.4ppm (in VS14).

Two soil samples were collected for analysis of heavy metals, PAHs, TPHs and asbestos. Sample VS17 was also analysed for VOCs and SVOCs due to the elevated PID reading and presence of a slight iridescent sheen. Faint hydrocarbon odours were noted in VS14 and VS17. No other visual or olfactory evidence of contamination was identified.

The engineering sample descriptions and field screening results are provided within the Table 1 in Appendix B.

The laboratory analysis are results are provided within Appendix C.

2.5 Hydrocarbon impacted soils LR01-02 and VS17

The suspected hydrocarbon-impacted soils were encountered immediately below the pool foundation slab near the southern basement boundary. The impact was encountered directly beneath the slab, and it was possible to view it from the south-west only. A concrete slab extended roughly south-west to the north-east, with the impact recorded in the corner as shown in Figure 2 below (LR01/LR02).

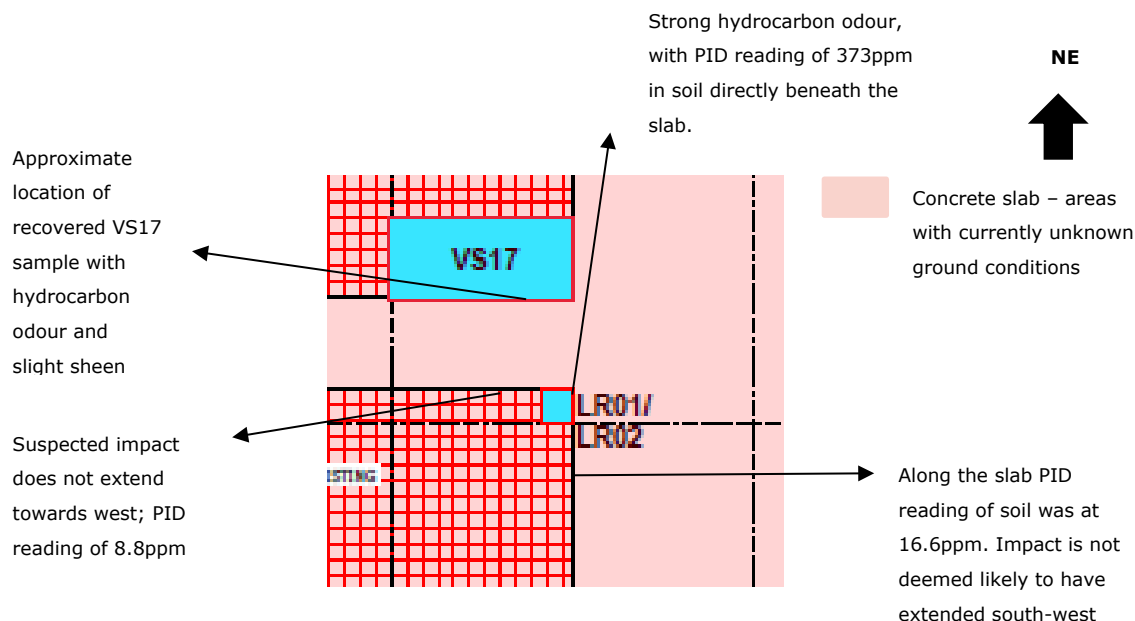
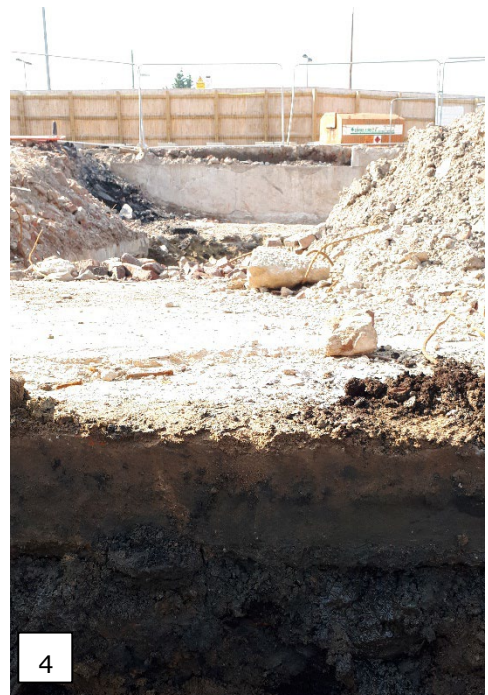


Figure 2: Summary of delineated suspected contamination in the Basement Area

Due to the presence of the slab, it was only possible to view the impact from the south-west, therefore it is not possible to say if the impact extends to the north, east and south of the site. Soil samples were taken to record PID concentrations in the available excavation; directly north-west of the impact and south-west of the impact. Figure 2 illustrates the PID results which were lower than the recorded peak of the suspected impact at 373ppm. Therefore, the impact is not believed to extend to the north-west and south-west of the site.

Based on site observations, the impact appears to be shallow (<1m below the foundation slab level) and it is not visibly stained, rather it was recorded to be notably odorous. Excavations alongside the impact (as seen in Photographs 1 and 2 below) allowed shallow groundwaters to pool, and no significant hydrocarbon related sheens were noted, indicating the impact is not widespread, nor likely to be within the local water table.

During the additional site visit in September, an area was excavated directly across from LR01/LR02. Sample VS17 (see Photographs 3 and 4 overleaf), which is directly north-east of the aforementioned suspected impact, was noted to have olfactory evidence of potential hydrocarbon impact and a PID reading of 67.3ppm. PID reading of 1.3ppm was recorded beneath the suspected impact at 0.6m. Further north-east of VS17, soils were recorded with faint hydrocarbon odour and PID of 33.4ppm in VS14 at 0.50mbgl (within the same material as impacted soils).



Photographs 1 to 4: **Photograph 1:** Sample Location LR01 and 02 showing foundation slab; **Photograph 2:** showing excavation alongside impact (no contamination identified); **Photograph 3:** View of the VS17 soils and **Photograph 4:** Location of VS17 in relation to LR01/LR02.

No other areas were accessed to delineate the suspected impact, and so the ground conditions (and full extent of the hydrocarbon impact) beneath the slab to the north-east, east and south of the site are currently unknown and not fully delineated. . This will be further discussed following a risk assessment within this Technical Note, and within an updated Remedial Strategy document.

No leachate testing was undertaken on the impacted soils due to the nature of its highly agitated preparation method which would provide a overly cautious/worst-case assessment of potential leaching conditions, rather than realistic representation of the actual groundwater quality. As such, the impact will be considered qualitatively in terms of the source-pathway-receptor and the existing groundwater monitoring data.

Due to the low recorded concentrations of volatile hydrocarbon fractions reported, and in conjunction with the 2019 ground gas risk assessment (reported within 2019 Interpretive Report), Ramboll consider this localised hydrocarbon impact does not present an increased risk to human health from gaseous vapours over and above the Characteristic Situation 2 assessment already provided. No further assessment actions are considered to be required. It should be noted below that the localised excavation and removal from site of the hydrocarbon impacted soils is to be recommended, which will further reduce the potential from vapour risk.

3. LABORATORY ANALYSIS AND SCREENING ASSESSMENT

A total 20 soil samples were submitted for laboratory analysis from the demolition phase ground investigation. Based on the Conceptual Site Model (CSM) (construction of a two-storey structure housing a gym, sports hall and a library with a semi-basement structure to accommodate a replacement swimming pool) commercial / industrial GACs are appropriate given the commercial nature of the leisure centre. Details of the UK framework for risk assessment and GAC are provided in Appendix D.

3.1 Risk to Human Health

The soil analysis results are presented in comparison to the GAC in Appendix E. Table 1 below summarises the contaminants of concern identified at concentrations above the GAC in one or more samples.

Table 1: Summary of Elevated Chemical Concentrations in Soil

Determinand	GAC ²	Units	No. of Samples	No. of Exceedances	Maximum (location mbgl)
pH	N/A	pH units	17	9	10.4 pH (VS17, 0.40 - 0.50m)
Naphthalene	110	mg/kg	15	1	8.8 (VS02, 1.50-1.80m)
Benzo(a)pyrene	76	mg/kg	15	2	20 (VS02, 1.50-1.80m)
Lead	2,300	mg/kg	15	2	680 (VS04, 0.1-0.4m)

The pH across the samples taken from the above ground investigations ranges between 7.2 and 10.4. The alkaline pH is considered unlikely to present a significant risk to human health and pH will not be considered further as a potential contaminant.

The recorded concentrations are well below the commercial / industrial GACs for naphthalene, benzo(a)pyrene and lead.

No exceedances in concentrations were recorded against the GAC in the hydrocarbon impacted soil samples; LR01, LR02 and VS17.

Furthermore, taking into consideration that the proposed development will comprise of hardstanding and structures, it is considered unlikely that there would be a viable pathway for the contaminants of concern to pose a potential risk to human health of future site users or adjacent site users.

3.2 Risk to Controlled Waters

The site is underlain by Secondary A aquifer in relation to the Glaciofluvial Sheet deposits in the east of the site; and Secondary Undifferentiated aquifer in relation to the Glacial Till deposits in the west of the site. The bedrock below the site is a Principal Aquifer albeit at significant depth.

Based on the observations and laboratory analysis from the 2021 sampling events combined with the groundwater sampling and monitoring undertaken in June 2019, there is no evidence to suggest that the hydrocarbon impacted soils identified to date present a significant risk to the local water environment.

Furthermore, any potential leaching of the impacted soils would be limited with the underlying cohesive deposits with a thickness range of between 3.9m and greater than 12m. Bedrock underlying the site is a Principal Aquifer which was not encountered within 25mbgl exploratory hole locations during the 2019 ground investigation. Given the presence of significant thicknesses of underlying cohesive superficial deposits, it is considered unlikely that observed deeper groundwater unit within the Principal would be impacted by the shallow soils.

3.3 Refined Conceptual Site Model

The information presented above has been collated and evaluated to refine the conceptual site model identified within the Ramboll 2019 Interpretative Report.

3.3.1 Sources

The potential contamination sources are summarised in Table 2 based on the site investigation results.

Table 2: Potential Sources

Source	Comments
Soil impacts	There are no elevated contaminant concentrations against the commercial / industrial end-use assessment criteria. However, soils in the basement area (LR01/LR02/VS17) were noted have mild to moderate hydrocarbon odour.
Groundwater impacts	No obvious source of potential groundwater impacts has been observed to date (<i>i.e.</i> absence of elevated concentrations in groundwater monitoring data or the presence of free phase hydrocarbons within ponding groundwater, see photo 2 above); however, there is a potential of groundwater impacts within areas not previously accessed (<i>i.e.</i> beneath the concrete slab in the basement raft area). Slightly iridescent sheen was noted on the water in the hydrocarbon-impacted soils which could potentially pose a risk.
Areas of unexpected contamination	Areas not yet investigated within the basement area (albeit this is likely a small area) have the potential to have unexpected

Source	Comments
<i>i.e.</i> hydrocarbon impact beneath the slab	contamination due to being inaccessible (see Figure 2, Appendix A for details). The most likely scenario would be for the impact identified within LR01/02 and VS17 to extent to the east of the current source area. Based on the extent of the post demolition sampling exercises undertaken across the remainder of the basement area and the upper raft area in July, August and September 2021 and the 2019 site wide ground investigation, the potential for any areas of unexpected contamination is considered low, albeit this risk cannot be fully discounted.

Note: risks from ground gas sources and risk to water supply pipes are addressed within the 2019 Contaminated Land Interpretive Report and 2021 Remedial Strategy documents and are not discussed herein again.

3.3.2

Receptors

The site-specific receptors that could potentially be affected by the contamination hazards are summarised in Table 3.

Table 3: Potential Receptors

Feature	Details
On-Site	
Future site users	Users of the community leisure centre facilities – staff, visitors, maintenance workers <i>etc.</i>
Construction workers	Any workers coming in contact with the ground or confined space in which gases may build up.
Controlled Waters	Superficial deposits classified as Secondary A Aquifer within Glaciofluvial Sheet deposits present to the east of the site. Bedrock aquifer classified as a Principal Aquifer; however, the presence of cohesive superficial deposits is likely to mean the groundwater contained within the superficial deposits are not in hydraulic continuity with the Principal Aquifer. The site is not located within a groundwater source protection zone and there are no active groundwater abstraction licences listed within 1km of the site.
Off- Site	
Surface water feature	An unnamed surface water feature is present 355m southeast of the location of the proposed building. This feature flows towards the river Irk approximately 780m southeast of the temporary leisure facilities.
Adjacent site users and structures	Adjacent site users (<i>e.g.</i> , residential properties in the vicinity of the site and school users) may be exposed to wind-blown dusts <i>etc.</i>

3.3.3

Pathways

In order for the contaminants identified in this site investigation to reach potential receptors, there has to be a viable pathway for the contaminant. Potential pathways were identified within the preliminary conceptual model and are discussed further in Table 4 below in relation to the identified source impacts and receptors identified.

Table 4: Potential Pathways

Receptor	Pathway	Comments
Human health	Direct contact / inhalation and ingestion of dusts, vapours and gases	Direct contact with the underlying soils is unlikely to occur for future and adjacent site users as a 500mm thick concrete slab is proposed as part of the site development. Risks from potential contact with the soils for construction workers will be mitigated with the provision of correct PPE.
Controlled waters	Leaching and vertical migration of soil impacts	Due to the presence of cohesive superficial deposits, there is limited potential for leachate generation or migration. Moreover, the site development plans comprises of placement of a 500mm thick concrete slab across the full building footprint which would further limit potential for migration and generation of leachate.
	Lateral migration via groundwater to watercourses and underlying Principal Aquifer	A discontinuous and variable groundwater body has been typically identified in the superficial deposits from the 2019 ground investigation. The nearest watercourse is a drain approximately 335m south-east of the site. There was no indication of migration of the hydrocarbon impact towards the south-west of the site. Soils were noted with hydrocarbon odour to north-east of the LR01/LR02, with a maximum PID of 67.3ppm. From the available collected PID in soils data, the impact is not believed to extend to the north-west and south-west of the site. However, ground conditions beneath the slab to the north-east, east and south of the site are currently unknown to be able to delineate the suspected hydrocarbon impact It should also be noted that any groundwater from the adjacent chemical landfill will also likely be migrating towards these water features. Principal bedrock aquifer was not encountered within 25mbgl during the 2019 ground investigation. Given the presence of significant thicknesses of underlying cohesive superficial deposits, it is considered unlikely that the observed deeper groundwater unit would be impacted by the shallow soils.
Buildings and structures	Direct contact with building materials or service	The presence of olfactory evidence of hydrocarbons indicates that soil stratum may be unsuitable for standard water supply pipes. This is be further addressed within an updated Remedial Strategy document.

3.4 Qualitative Risk Assessment

Potential pollutant linkages are identified using the source-pathway-receptor framework detailed above. An assessment of the potential significance of each linkage is then made by consideration of the likely magnitude and mobility of the source, the sensitivity of the receptor and nature of the migration/exposure pathways.

Table 5 below summarises the pollutant linkages and risk ratings associated with the leisure centre development.

Table 5: Risk Assessment

Hazard / Pollutant	Pathway	Receptor	Potential Severity	Probability of Risk	Level of Risk
Soil impacts –No elevated contaminant concentrations against the commercial / industrial end-use assessment criteria. However, soils in the basement area (LR01/LR02/VS17) were noted have mild to moderate hydrocarbon odour.	Direct contact / inhalation and ingestion of dusts, vapours and gases	Future site users	Medium	Unlikely	Low
		Adjacent site users	Medium	Unlikely	Low
		Construction workers	Medium	Likely	Moderate*
	Direct contact	Construction materials, structures and buildings	Medium	Unlikely	Low
	Leaching and subsequent migration	Underlying aquifers	Mild	Low	Low
		Surface watercourses	Mild	Low	Low
Potential groundwater impacts within the shallow groundwater	Inhalation of vapours	Future site users	Medium	Unlikely	Low
		Adjacent site users	Medium	Unlikely	Low
		Construction workers	Medium	Low	Low / Moderate*
	Leaching and subsequent migration	Underlying aquifers	Mild	Low	Low
		Surface watercourses	Mild	Low	Low
	Areas of unexpected contamination i.e. hydrocarbon impact beneath the slab	Direct contact / inhalation and ingestion of dusts, vapours and gases	Future site users	Medium	Low
Adjacent site users			Medium	Low	
Construction workers			Medium	Low	
Direct contact		Construction materials, structures and buildings	Medium	Low	
Leaching and subsequent migration		Underlying aquifers	Mild	Low	
		Surface watercourses	Mild	Low	
Notes					
*Given the use of appropriate PPE and on-site health and safety precautions, risk to site construction workers would be reduced to low.					
Should the development proposals alter significantly a review of this risk assessment may be required. In particular if wider or new areas of landscaping / open areas are planned.					

3.5 Significant Risks to be mitigated

Although the risk to controlled waters from the hydrocarbon-impacted soils is deemed to be relatively low, localised excavation, separation and removal of the potentially impacted soils

(those which are odorous and visibly impacted) should be undertaken where reasonable practical mitigating any remaining risks to the local water environment.

Ramboll understands that within the basement area site development plans indicate that the existing 400mm concrete slab (where present) plus an additional 600mm of the underlying soils will be excavated and removed to allow for the formation of a new 500mm thick reinforce foundation raft. Where the existing foundation slab is absent 1,000mm of existing soils are to be removed). Any impacted soils should be kept separate from visibly and olfactorily clean material and managed separately.

4. **REMEDIATION STRATEGY AND METHOD STATEMENT**

The following text is a brief summary of details provided within the updated Ramboll 2021 Remedial Strategy document (Issue P02) provided under separate cover.

Details regarding the identification of contamination, sampling strategy, stockpiling waste management and unexpected contamination protocols are set out within the updated Ramboll 2021 (P02 September 2021) Remedial Strategy and shall not be duplicated herein.

Based on the relatively small volume of the hydrocarbon impacted soils which have been identified date and to support a general improvement of the local groundwater regime, Ramboll propose that there is a localised removal of impacted soils that are notably odorous and / or visibly stained where reasonably practicable.

A Watching Brief carried out by the Project Environmental Consultant (PEC) would be required to verify the removal of the impacted soils; and sample recovery would be required to confirm suitability of the remaining soils in the ground. Ramboll do not propose the reuse of any site won soils from the impacted source zone.

4.1 **Method Outline for Contaminant Source Removal Works**

- Submit all relevant reports to the Local Planning Authority;
- Where direct transfer to suitable storage container / lorry is not possible, a segregated and bunded storage area shall be set-up for the storage of contaminated arisings prior to off-site disposal (e.g. an impermeable membrane ground cover). Water run-off from the arisings shall not be allowed to drain into ground; instead, the run-off shall be collected within a suitable container for off-site disposal or disposal in line with the trade effluent consent requirement. Cover sheeting shall be provided should rain be anticipated;
- Visibly and / or olfactory impacted soils above the water table are to be excavated, (stockpiled if required), and removed from site for off-site disposal under an appropriate Duty of Care (e.g., to a waste treatment facility or directly to landfill);
- Where visible and / or olfactory impacted soils are noted below the water table, these soils are to be removed where it is permissible and safe to do so;
- The lateral extent of the excavation shall be determined by the PEC Watching Brief using a combination of a notable decrease in the significance of visual and / or olfactory observations, and the use of a photoionization detector (peak reading of the impacted soils was recorded at 372ppm during the recent investigation);
- Confirmatory validation samples are to be taken from residual soils on each excavation face and the base (where possible) and submitted for speciated hydrocarbon analysis

to demonstrate that the impacted soil removal work has been carried out appropriately;

- The excavation is to be backfilled with chemically and geotechnical suitable materials. The chemical suitability requirements are set out in the Ramboll 2021 Remedial Statement (Issue P02, September 2021) document. Geotechnical requirements will be provided by others;
- Full time supervision by the PEC is recommended when excavating within the impacted area;
- Details of the source removal works, the validation sampling results and site records are to be provided within the final project Validation Report (/Closure report).

In the event that during the Watching Brief significant visible or olfactory contamination is identified, the unexpected contamination protocol provided within the Ramboll 2021 Remedial Strategy (Issue P02) is to be implemented and the local authority informed immediately.

4.2 Waste Assessment

The assessment has been undertaken using available soil chemical data and HazWasteOnline, a web-based tool for classifying waste. The software utilises Environment Agency guidance and European regulations to classify samples in line with current requirements. Further details of the waste classification methodology are provided in Appendix D.

The analytical results of 19 soil samples were entered into HazWasteOnline™ to provide a preliminary waste classification assessment. The HazWasteOnline™ output sheets are provided in Appendix F. All soil samples were classified to be 'Non-Hazardous'.

The contractor appointed to dispose of the impacted soils should provide their preferred waste receiver with the laboratory analysis provided within the Technical Note.

Details of the disposal routes shall be provided to the PEC for inclusion within the Validation Report.

4.2.1 Landfill Acceptance Criteria Testing

Eleven soil samples were selected for laboratory landfill acceptance criteria (WAC) testing (full suite at 1:10 leachate preparation). The samples were selected on the basis of being representative of the encountered ground conditions and providing a good spatial coverage of the site. The following samples were submitted for testing –

In the Upper Raft Area:

- VS01 at 0.20 – 0.30m;
- VS03 at 0.40 – 0.50m;
- VS04 at 0.10 – 0.40m;
- VS06 at 0.20 – 0.30m;
- VS07 at 0.40 – 0.50m; and
- VS11 at 0.70 – 0.80m.

In the Basement Area:

- Basement-01 (0.40m below tank base);
- Basement-02 (stockpile);
- Basement-03 (stockpile);
- LR01 at 0.30m (impacted soils); and
- VS09 at 0.40 – 0.50m.

Five of the samples do not exceed the Inert Waste Landfill Criteria. The remaining six samples have exceeded the Inert Waste Landfill Criteria for the following determinands:

- LR01: Mineral oil recorded at 670mg/kg in relation to Inert Waste Threshold (IWT) of 500mg/kg; and antimony at 0.41mg/kg in relation to IWT of 0.06mg/kg;
- VS09: Antimony recorded at 0.13mg/kg in relation to IWT of 0.06mg/kg;
- VS11: Total Organic Carbon recorded at 3.6% in relation to IWT of 3%; total PAH of 187mg/kg in relation to IWT of 100mg/kg and antimony of 0.15mg/kg in relation to IWT of 0.6mg/kg;
- VS01: Sulphate recorded at 8,000mg/kg in relation to IWT of 1,000mg/kg, and Total Dissolved Solids (TDS) at 5,500mg/kg in relation to IWT of 4,000mg/kg;
- VS04: Sulphate recorded at 1,400mg/kg in relation to IWT of 1,000mg/kg; and
- VS03: Sulphate recorded at 2,800mg/kg in relation to IWT of 1,000mg/kg.

Based on the information available, the likely waste classification of the soils underlying the development is expected to be 'Non-Hazardous'.

Any Made Ground to be disposed off-site should be segregated according to material type to ensure any concrete or demolition waste is separated from the soils waste and allowed to be disposed under the correct waste code. Any material different from the encountered material during the ground investigation, and any material with visible contamination should be separated from the remaining soils.

Any material to be disposed of as hazardous or inert waste must have WAC analysis provided to confirm appropriate class of landfill. WAC testing was completed on 11 samples and indicated five of these samples were suitable for inert landfill.

The classification of waste reported above must be confirmed by the receiving landfill prior to disposal and managed under a Duty of Care.

5. CONCLUSIONS AND FURTHER WORKS

Based on the observations of visual and olfactory contamination, supporting chemical analysis and risk assessment, Ramboll consider the presence of the odorous soils to present a low risk to the controlled water environment and human health. However, for best practice, Ramboll recommends localised removal of the material which is olfactorily or visually impacted by contamination for off-site disposal.

An outline method for undertaking the source removal works is provided here-in and should be undertaken as soon as reasonably practicable. Further details are provided within the Ramboll 2021 Remedial Strategy (Issue P02) provided under separate cover.

Appendices:

Appendix A – Drawings and Figures

Appendix B – Field Description of Soils

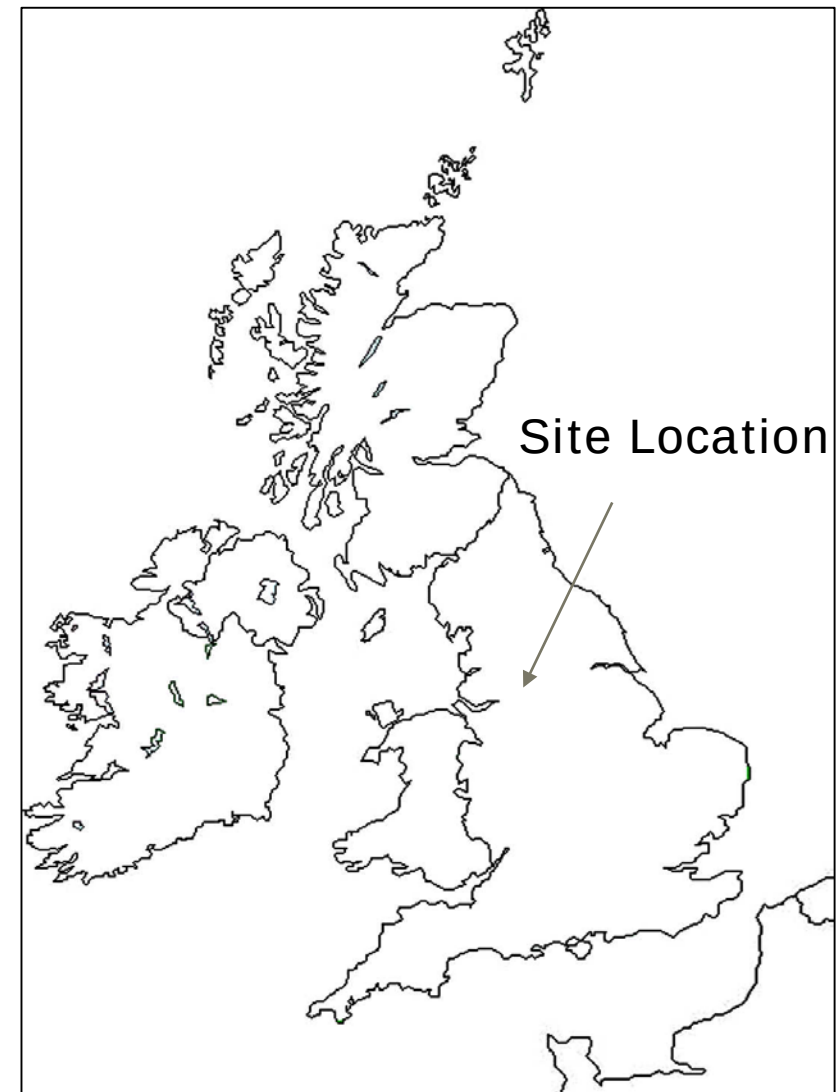
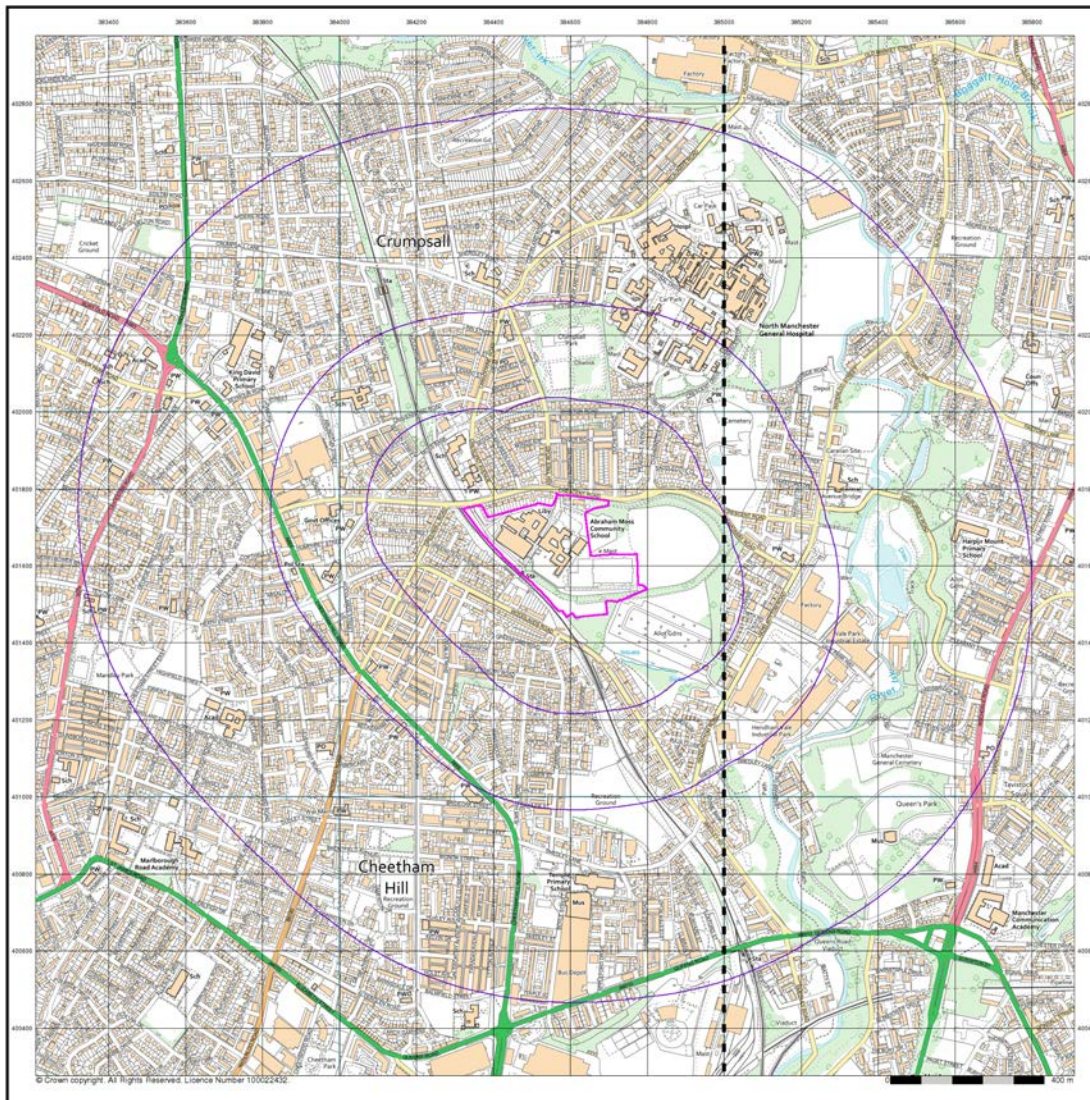
Appendix C - Laboratory Analysis

Appendix D- UK Legislative Context and Ground Contamination Assessment Methodologies

Appendix E – Risk to Human Health Screening Outputs

Appendix F – HazwasteOnline Classification Report

APPENDIX A – DRAWINGS AND FIGURES



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Project: Abraham Moss

Title: Site Location Plan

Status:

Description: Site Location Plan

Date: Jan 19

Scale: NTS

Date: Jan 19

Drawn: CD

Checked: HC

Figure 1620005164/E/01

Rev: -