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PHASE 3: REMEDIATION STRATEGY

VISTRY GROUP

PROPOSED RESIDENTIAL DEVELOPMENT

LAND TO THE NORTH OF SHAW LANE

CARLTON

BARNSLEY

S71 3HH

Project No: 25-899

Prepared By:

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Date: 30th July 2026

Approved By:

Mark Berriman

Date: 30nd July 2026

The information and/or advice contained in this Phase 3: Remediation Strategy is based solely on, and is limited to, the boundaries of the site, the immediate area around the site, and the historical use(s) unless otherwise stated. This 'Report' has been prepared in order to collate information relating to the physical, environmental and industrial setting of the site, and to highlight, where possible, the likely problems that might be encountered when considering the future development of this site for the proposed end use. All comments, opinions, diagrams, cross sections and/or sketches contained within the report, and/or any configuration of the findings is conjectural and given for guidance only and confirmation of the anticipated ground conditions should be considered before development proceeds. Agreement for the use or copying of this report by any Third Party must be obtained in writing from Arc Environmental Limited (ARC). If a change in the proposed land use is envisaged, then a reassessment of the site should be carried out.

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APPENDICES

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1.0 Introduction: - July 2026

As requested by Vistry and following the results of the supplementary Phase 2: Ground Investigation Report (GIR) completed for this site, a Phase 3: Remediation Strategy (RS) has been prepared for the proposed residential development. The end use of the site is classified as 'Residential with Homegrown Produce' (Private Gardens) and 'Public Open Space (POS)'.

The ground conditions and potential contamination issues associated with this site have been investigated and assessed through the completion of the Phase 2: Ground Investigation Report (GIR). This document has been used to aid the completion of this RS, and which should be read in conjunction with the following report:

- Phase 2: Ground Investigation Report (GIR) Report Ref. 25-899, Arc Environmental Ltd., May 2026.

2.0 Site Details: -

Table 2.1

Site Name & Address:	Land north of Shaw Lane, Carlton, Barnsley, S71 3HH.
National Grid Reference:	437370, 410320 (representative of the central part of the site).
Description of Location:	The site is located within an area of agricultural fields. A railway line is present directly to the east of the site, with industrial land use beyond (scrap yards, etc.) and a canal is located directly to the west. The remaining land surrounding the site is primarily agricultural in nature.
Site Location plan:	See Appendix I.
Layout plan (existing):	See Appendix I.
Layout plan (proposed):	See Appendix I.
Client:	Vistry Group.
Project Type:	CLEA Classification 'Residential with Homegrown Produce' and 'Public Open Space (POS)'.
Brief Summary of Ground Contamination Issues:	Elevated levels of Benzo(a)anthracene, Benzo(a)pyrene Benzo(b)fluoranthene, Chrysene and Dibenz(ah)anthracene have been recorded and represent a potential risk to human health where exposure pathways are available. In addition, 2 no past site investigations also found elevated levels of PAHs and the presence of asbestos on-site.

3.0 Scope of Works: -

This RS has been prepared generally in accordance with EA (Environment Agency) guidance for Land Contamination Risk Management (LCRM: October 2020) which replaces CLR11: Model Procedures for the Management of Land Contamination, in order to provide a framework for establishing the most appropriate remediation option(s) for this site, based upon the findings of the Phase 2: GIR.

This RS can be used to support the current planning application for the proposed development, and allow the Design Team, Main Contractor and chosen Sub-contractors to incorporate the necessary remediation works into the overall development design and construction works.

The information contained in this RS is limited to the areas of the site as indicated on the Existing Site Layout Plan and Proposed Development Layout Plans attached in Appendix I. The validation of the implementation of the RS will be dealt with in a final Validation Report, once all the remediation works have been completed.

4.0 Summary of Ground Contamination Assessment: -

From the results and ground contamination risk assessments completed as part of the supplementary Phase 2: GIR works, elevated levels of Benzo(a)anthracene, Benzo(a)pyrene Benzo(b)fluoranthene, Chrysene and Dibenz(ah)anthracene have been recorded and represent a potential risk to human health where exposure pathways are available. In addition, previous reports have also identified asbestos on-site.

4.0 Summary of Ground Contamination Assessment (Cont'd): -

Due to the nature of the site as a residential housing development, the site comprises both areas of residential gardens which are classified in CLEA as Residential with Homegrown Produce, and areas of public open space, which are classified in CLEA as Public Open Space (Residential).

When using these two classifications, the site has been assessed and categorised into three distinct zones and plan of the required validation works has been produced. A summary of the requirements can be found in Table 4.1 below and on the following page.

Table 4.1

Zone	Results	Comments
Zone A	No raised levels of analytes detected above critical concentrations within this zone.	Remediation: • No further remediation is required on in-situ materials within this zone. Usage as site-won materials: • Soils may be used as site-won materials for any robust clean cover system. • Sub-soils / clays may be used as site-won materials for any robust clean cover system. Usage for cut & fill operations: • Materials may be used for cut and fill operations in all areas with no further requirements provided they have the correct geotechnical parameters.
Zone B	Raised levels of multiple analytes above critical concentrations for areas classified for use as 'Residential with Homegrown Produce' (Private Gardens).	Remediation: • All areas within this zone categorised as 'Residential with Homegrown Produce' (Private Gardens) will require the use of a robust clean cover system totalling at least 600mm in thickness. Usage as site-won materials: • Soils may be used as site-won materials for robust clean cover system of 'Public Open Space (POS)' **only**. • Sub-soils / clays may be used as site-won materials for robust clean cover system of 'Public Open Space (POS)' **only**. Usage for cut & fill operations: • Materials may be used for cut & fill operations in **most** areas with no further requirements provided they have the correct geotechnical parameters. • If materials are used in areas categorised as "Residential with Homegrown Produce' (Private Gardens), a robust clean cover system totalling at least 600mm in thickness **must** be used to cover these materials, regardless of location on-site.

4.0 Summary of Ground Contamination Assessment (Cont'd): -

Table 4.1

Zone	Results	Comments
Zone C	Raised levels of multiple analytes above critical concentrations for areas classified for use as 'Residential with Homegrown Produce' and 'Public Open Space (Residential)'.	Remediation: • All areas within this zone categorised as 'Residential with Homegrown Produce' (Private Gardens) will require the use of a robust clean cover system totalling at least 600mm in thickness. • All areas within this zone categorised as 'Public Open Space (POS)' will require the use of a robust clean cover system totalling at least 300mm in thickness. Usage as site-won materials: • Soils **must not** be used as site-won materials for robust clean cover systems of either 'Residential with Homegrown Produce' or 'Public Open Space (POS)' • Sub-soils / clays **must not** be used as site-won materials or robust clean cover systems of either 'Residential with Homegrown Produce' or 'Public Open Space (POS)' Usage for cut & fill operations: • Materials may be used for cut & fill operations in **some** areas with no further requirements provided they have the correct geotechnical parameters. • If materials are used in areas categorised as "Residential with Homegrown Produce' (Private Gardens), a robust clean cover system totalling at least 600mm in thickness **must** be used to cover these materials, regardless of location on-site. • If materials are used in areas categorised as 'Public Open Space (POS)', a robust clean cover system totalling at least 300mm in thickness **must** be used to cover these materials, regardless of location on-site.

A drawing showing this Clean Cover Plan can be found in Appendix II.

5.0 Remediation Strategy: -

Following the ground contamination risk assessment completed for this site, the following measures are deemed as the most appropriate remediation solution for this site, the details of which are discussed in the following Sections.

5.1 Principles of Protection: -

5.1.1 Watching Brief, Removal of Contamination & Cut and Fill Operations: -

To identify any areas of unknown or unforeseen ground contamination which may be present in the made ground, a site wide watching brief will be undertaken by the Main Contractor as part of the site strip and preparation works.

5.0 Remediation Strategy: -

5.1 Principles of Protection (Cont'd): -

5.1.1 Watching Brief, Removal of Contamination & Cut and Fill Operations (Cont'd): -

During the site strip operations, the Main Contactor must ensure that all materials from all zones are carefully watched and monitored to ensure that no cross-contamination of materials occurs. When excavated, materials should be stored safely and separately from one another, ensuring several systems are used to reduce the risks of cross-contamination i.e. using 'Visqueen' sheeting, constructing bunds around stockpiles, covering stockpiles with sheeting and reducing the possibility of dust generation.

In addition, during the site strip operations, additional validation testing should be completed to ensure that all materials from Zones B and C have been collected, and no contaminated materials remain / have been missed.

It is understood that a large-scale cut & fill operation is to be completed on-site. As part of the earthworks process, some materials from Zones B & C may be used in the process. The Main Contractor must accurately record the usage and location of these materials as, if these materials are used in the fill process, regardless of their location on-site, the appropriate robust clean cover system dependent on the material used must be emplaced over them to break the *source-pathway-receptor* pollutant link.

In addition, as part of the initial site strip and preparation works, site awareness during all future groundworks (foundation excavations, service trenches, etc.) and the construction phase, as part of the site wide watching brief, will ensure that any areas of unforeseen or unknown ground contamination are identified. In the event that significant ground contamination is found then this will be dealt with separately and the ground contamination risk assessment updated to determine the appropriate action required.

In this instance the Main Contractor should notify Arc Environmental Ltd. as soon as possible to allow for further sampling and screening to be undertaken. Details of the appropriate course of action undertaken to deal with these materials will be provided to the Local Authority prior to carrying out any remediation. Further remediation and validation works may then be necessary.

5.1.2 Robust Clean Cover System of Zone B: -

For areas of future gardens within this zone, a robust clean cover system must be put in place (i.e. a minimum of 300mm of clean subsoil materials and 300mm of clean topsoil to at least 600mm total thickness). The emplacement of the robust clean cover system or complete removal of the made ground materials will remove the potential risk to future end users.

Should any materials from Zone B be used for cut and fill operations, the area where these materials are used must also be considered the same as Zone B, and the appropriate associated actions must be taken.

5.1.3 Robust Clean Cover System of Zone C: -

For areas of future gardens within this zone, a robust clean cover system must be put in place (i.e. a minimum of 300mm of clean subsoil materials and 300mm of clean topsoil to at least 600mm total thickness.

In addition, for areas of public open space within this zone, a robust clean cover system must be put in place (i.e. a minimum of 300mm of clean subsoil materials to at least 300mm total thickness). The emplacement of the robust clean cover system or complete removal of the made ground materials will remove the potential risk to future end users.

5.0 Remediation Strategy: -

5.1 Principles of Protection (Cont'd): -

5.1.3 Robust Clean Cover System of Zone C (Cont'd): -

Should any materials from Zone C be used for cut and fill operations, the area where these materials are used must also be considered the same as Zone C, and the appropriate associated actions must be taken.

5.1.4 Re-use of Site Won Materials: -

Where topsoil and / or sub-soil are required for the robust clean cover system within areas of 'Residential with Homegrown Produce' (Private Gardens), materials originating from Zone A may be used.

Where topsoil and / or sub-soil are required for the robust clean cover system within areas of 'Public Open Space (POS)', materials originating from Zone A and Zone B may be used.

For materials required for the cut and fill operations, materials originating from Zone A may be used in all areas with no further requirements provided they have the correct geotechnical parameters. Should materials from Zone B or Zone C be used, the areas where they are used must be considered as part of the respective zone, and the appropriate robust clean cover system must be implemented, regardless of the location of the area on-site.

5.1.5 Waste Management / Disposal: -

Excavated materials which are to be discarded and removed from this site as a waste to landfill, will need to be classified in accordance with the 'Guidance on the Classification and Assessment of Waste (1st Edition v1.1, 2018) – Technical Guidance WM3'. Additional analysis and screening is likely to be required to confirm where these materials can be disposed of, dependant on the final volumes to be disposed of. This will ensure that all waste discarded from this site is dealt with appropriately.

5.2 Implementation of Remediation Strategy: -

Prior to the commencement of the site works and in conjunction with the Main Contractor, as part of the development Materials Management Plan (MMP), the appointed Groundworks Sub-contractors should prepare and submit suitable Methodologies for the implementation of all the remediation elements detailed in this Remediation Strategy. This should include detailed plans on how different materials will be extracted, how they will be stored, and methodologies to ensure that no cross-contamination will occur during site operations. In addition, a clear plan as to how the location of differing materials from Zones A, B and C used in cut and fill operations will be tracked and recorded, to ensure that the associated required robust clean cover systems can be implemented accurately, before any operations begin on-site.

This should be submitted to Arc Environmental Ltd. for approval a minimum of 2 weeks before commencing site works, to ensure that the methodology will meet the requirements of the Remediation Strategy and allow for any amendments to be made that might be required.

5.2.1 Watching Brief, Removal of Contamination & Cut and Fill Operations: -

A site wide watching brief will be completed by the Main Contractor. During the site strip and preparation works, in order to examine all the made ground materials and identify and potential areas of unknown or unforeseen ground contamination for chemical screening and potential removal from site and to identify whether additional remedial measures are required.

5.0 Remediation Strategy (Cont'd): -

5.2 Implementation of Remediation Strategy (Cont'd): -

5.2.1 Watching Brief, Removal of Contamination & Cut and Fill Operations (Cont'd): -

Any additional materials identified as potentially containing elevated contaminants will be excavated and temporary stockpiled on a 'Visqueen' base and covered to avoid potential cross-contamination or rainwater run-off, whilst samples undergo laboratory screening and the risk assessment is completed.

As part of this process, additional validation testing should be completed to ensure that all contaminated materials from Zones B and C have been identified and stripped, to ensure that no contaminated materials remain and no cross-contamination materials from Zone A takes place during any future on-site operations.

Where materials contain contaminants which exceed the assessment criteria for this site (Residential with Homegrown Produce) and/or represent a potential future leachate risk, these materials will be removed from site and disposed of appropriately. The number of samples screened, and risk assessed will be dependent upon the actual volume of materials identified as potentially contaminated, with the screening frequency matching the YALPAG guidance for brownfield soils (1 sample per $100m^3$, with a minimum of 6 samples tested).

It is understood that a large-scale cut & fill operation is to be completed on-site. As part of the earthworks process, some materials from Zones B & C may be used in the process. The Main Contractor must accurately record the usage and location of these materials as, if these materials are used in the fill process, regardless of their location on-site, and the appropriate robust clean cover system dependent on the material used, must be emplaced over them to break the *source-pathway-receptor* pollutant link.

As such, it is highly recommended a detailed zoning plan is made by the Main Contractor / Principal Groundworks Contractor identifying where Zone A, Zone B and Zone C materials will be used / emplaced during the cut and fill operations. This plan will then be re-assessed and used to identify additional areas where robust clean cover systems will be required for both areas of 'Residential with Homegrown Produce' (Private Gardens) and 'Public Open Space (POS)' dependent on the associated materials used.

Following completion of the initial site wide watching brief completed by the Main Contractor, covering the site strip and preparation works, the watching brief will continue by the Main Contractor to cover all further groundworks such as excavations for services, foundations, etc. During this process, additional controls will need to put in place for all excavations to ensure all materials are correctly identified and handled, to allow them to be appropriately transported and stockpiled to ensure that no cross-contamination will occur.

If any unknown or unforeseen ground contamination is identified, the Main Contractor should notify Arc Environmental Ltd. as soon as possible to allow for further sampling and screening to be undertaken, using the same criteria as above.

Details of the appropriate course of action undertaken to deal with these materials will need to be agreed with the Local Authority by the Main Contractor prior to carrying out any remediation and validation works.

5.0 Remediation Strategy (Cont'd): -

5.2 Implementation of Remediation Strategy (Cont'd): -

5.2.2 Robust Clean Cover System of Zone B: -

The investigation identified that the made ground present below the site within this zone contains elevated levels of com PAH's that represent a potential risk to future end users, where exposure pathways are available. Based on the ground contamination risk assessments undertaken, it was established that remediation works will be required in order to remove several exposure pathways (i.e. ingestion of soil and indoor dust, consumption of home grown produce and attached soil, dermal contact (indoor), dermal contact (outdoor), inhalation of dust (indoor) and inhalation of dust (outdoor)) and break the established *source-pathway-receptor* pollutant linkage and negating the risks posed towards the future site end-users.

In all areas of 'Residential with Homegrown Produce' (Private Gardens) within Zone B, the clean cover system will comprise, in thickness, at least 600mm of clean materials, with a minimum of 300mm of topsoil and 300mm of sub-soil or capping clays.

The use of cover systems reduces the hazards posed towards human health from ground contamination and provides a suitable medium for plant growth.

5.2.3 Robust Clean Cover System of Zone C: -

The investigation identified that the made ground present below the site within this zone contains elevated levels of some PAH's and the presence of asbestos that represent a potential risk to future end users, where exposure pathways are available. Based on the ground contamination risk assessments undertaken, it was established that remediation works will be required in order to remove several exposure pathways (i.e. ingestion of soil and indoor dust, consumption of home grown produce and attached soil, dermal contact (indoor), dermal contact (outdoor), inhalation of dust (indoor) and inhalation of dust (outdoor)) and break the established *source-pathway-receptor* pollutant linkage and negating the risks posed towards the future site end-users.

In all areas of 'Residential with Homegrown Produce' (Private Gardens) within Zone C, the robust clean cover system will comprise, in thickness, at least 600mm of clean materials, with a minimum of 300mm of topsoil and 300mm of sub-soil or capping clays.

In addition, in all areas of Public Open Space (POS), the robust clean cover system will comprise, in thickness, at least 300mm of clean material typically comprising 300mm of topsoil.

The use of cover systems reduces the hazards posed towards human health from ground contamination and provides a suitable medium for plant growth.

5.2.4 Re-use of Site Won Materials: -

Where topsoil and / or sub-soil are required for the robust clean cover system within areas of 'Residential with Homegrown Produce' (Private Gardens), materials originating from Zone A may be used.

Where topsoil and / or sub-soil are required for the robust clean cover system within areas of 'Public Open Space (POS)', materials originating from Zone A and Zone B may be used.

Materials originating from Zone C may not be used for any part of any robust clean cover system.

5.0 Remediation Strategy (Cont'd): -

5.2 Implementation of Remediation Strategy (Cont'd): -

5.2.4 Re-use of Site Won Materials (Cont'd): -

For materials required for the cut and fill operations, materials originating from Zone A may be used in all areas with no further requirements provided they have the correct geotechnical parameters. Should materials from Zone B or Zone C be used, the areas where they are used must be considered as part of the respective zone, and the appropriate robust clean cover system must be implemented, regardless of the location of the area on-site.

Following excavation and processing on site, the site won materials will be temporary stockpiled on site before re-use. It is understood that any excess site won materials will be removed from site and disposed of appropriately.

5.2.5 Waste Management / Disposal: -

As part of the remediation validation works for this Remediation Strategy, detailed monitoring of the handling and disposal of all the materials that need to be discarded as a waste will be undertaken by the Main Contractor and the records submitted to Arc Environmental Ltd. for inclusion in the final Validation Report.

Additional analysis and screening is likely to be required to classify any material to be disposed of to landfill. This will ensure that all waste discarded from this site is dealt with appropriately.

5.2.6 Risk Assessment (Construction Workforce): -

When considering the potential risks to the construction workforce, it will be necessary to ensure that the appropriate level of protection is provided, and these should be detailed in the site health and safety management scheme (designed by the Main Contractor), during all construction activities. These measures should include appropriate PPE and good site practice, and the results of all the contamination screening undertaken (all results contained within all the site investigation reports) can be used when assessing the required level of protection (based on the acute exposure risk).

For further guidance, reference should be made to the Health and Safety Executive (HSE) document EH40/2005 (Second edition, published 2011) Workplace Exposure Limits.

6.0 Validation Requirements

To ensure that all elements of the Remediation Strategy are properly implemented, the following validation works should be undertaken and documented within a final Validation Report, confirming that each element of the remediation works has been completed. The validation works will comprise the following:

6.1 Watching Brief, Removal of Contamination & Cut and Fill Operations: -

Validation of the site wide watching brief will be through documented records by the Main Contractor, additional site visits (if required), photograph records, chemical testing results and detailed material zoning drawings by the Main Contractor.

In addition, if no further areas of unknown or unforeseen contamination are encountered, the Main Contractor will provide written confirmation of this. All these records must be included in the final Validation Report.

6.0 Validation Requirements (Cont'd): -

6.1 Watching Brief, Removal of Contamination & Cut and Fill Operations (Cont'd): -

Following the excavation and removal of any contaminated made ground materials, validation screening will be undertaken by Arc Environmental Ltd., on the sides and base of the excavations, and these will be assessed against the relevant Validation Screening Assessment Criteria given in Appendix III. The results of the validation screening will be included in the final Validation Report.

6.2 Validation of Robust Clean Cover Systems: -

Only clean subsoil and topsoil materials will be used in the robust clean cover systems.

For robust clean cover systems within areas of 'Residential with Homegrown Produce' (Private Gardens), these materials can comprise a combination of site-won materials from Zone A and clean materials imported to site.

For robust clean cover systems within areas of 'Public Open Space (POS)', these materials can comprise a combination of site-won materials from Zone A and B, as well as clean materials imported to site.

Should materials be imported to site, the confirmation of the origin/supplier, volume and suitability for use on this site of the imported materials will be provided by the Main Contractor to Arc Environmental Ltd. a minimum of 1 week before importation to site.

The validation screening should meet the YALPAG Verification Requirements for Cover Systems, Technical Guidance for Developers, Landowners and Consultants – Yorkshire and Lincolnshire Pollution Advisory Group (YALPAG), Version 3.4, November 2017, with the testing schedules and frequencies dependent upon the origin/source of imported topsoil and subsoil materials. A copy of the range of the recommended testing schedules and frequencies can be seen in Table 6.1 on the following page. The results of the validation screening will be included in the final Validation Report.

To ensure all elements of this Remediation Strategy are correctly implemented, Validation works resulting in a final Validation Report will be prepared by ARC, verifying that the remediation works and will comprise:

- Validation and chemical analysis that all materials from Zones B & C were identified and handled appropriately during the site strip operations
- Detailed plans of cut and fill material usage locations, with evidence provided by the Main Contractor
- Geographical location from which any imported clean cover material was sourced
- Description and chemical analysis for any clean cover material brought to site
- Confirmation of clean cover thickness (minimum 600mm for private gardens & 300mm for POS)
- Photographic evidence – showing emplacement / confirming thickness and including a scale
- Chemical Analysis of in-situ clean cover materials from within Zones B & C
- Plans showing pertinent information relating to remediation

6.0 Validation Requirements (Cont'd): -

6.2 Validation of Robust Clean Cover Systems (Cont'd): -

It should be noted that during the watching brief, if any visual and / or olfactory evidence of unidentified or unforeseen potentially contaminated materials is identified, then the site should notify Arc Environmental as soon as it is possible to allow for further sampling and screening to be undertaken. Details of the appropriate course of action undertaken to deal with these materials will be provided to the Local Authority, prior to carrying out any additional remediation works, if required.

We would propose to adopt the Yorkshire and Lincolnshire Pollution Advisory Group (YALPAG) 'Verification Requirements for Cover Systems', Ver 4.1 May 2021, (See Table 6.1 below) sampling frequency as follows:

Table 6.1 - Verification Requirements for Cover Systems', Ver 4.1 June 2021 - Sampling Frequency

Type	Number of Samples	Testing Schedule	Assessment Criteria
Virgin quarried material	1 or 2 depending on the type of stone utilised, to confirm the inert nature of the material.	Standard metals/metalloids (should include as a minimum As, Cd, Cr, Cr (VI), Cu, Hg, Ni, Pb, Se & Zn)	This needs to be agreed with the Local Authority. The assessment criteria needs to be UK based, e.g. LQM, S4ULs, Defra C4SLs or other similarly derived GACs.
Crushed hardcore, stone, brick (excluding asphalt)	Minimum 1 per 500m^3.	Standard metals/metalloids (as above) PAH (16 USEPA specification) Total TPHs Asbestos Any additional analysis dependant on the history of the donor site (e.g. phenol, total cyanide, BTEX, MTBE).	
Greenfield soils / manufactured soils	Minimum 3. Dependant on source and receptor, between 1 per 50m^3 and 1 per 250m^3 (whichever is greater).	Standard metals/metalloids (as above) PAH (16 USEPA specification) Asbestos pH Soil organic matter (SOM) (or calculated from total organic carbon (TOC)) Any additional analysis dependant on the history of the donor site (e.g. phenol, total cyanide, BTEX, MTBE).	
Brownfield soils / screened soils	Minimum 6. Dependant on source and receptor, between 1 per 50m^3 and 1 per 100m^3 (whichever is greater).	Standard metals/metalloids (as above) PAH (16 USEPA specification) TPH (CWG banded) Asbestos pH SOM (or calculated from TOC) Any additional analysis dependant on the history of the donor site (e.g. phenol, total cyanide, BTEX, MTBE).	

(Table taken from the Verification Requirements for Cover Systems – Technical Guidance for Developers and Consultants – Yorkshire and Lincolnshire Pollution Advisory Group (YALPAG) June 2021)

Following emplacement of the robust clean cover system, in the areas of future gardens and soft landscaping, the minimum thickness (photographic records) and eventual final volumes of the clean cover will be validated by Arc Environmental Ltd. Validation sampling and screening will also be undertaken to confirm the suitability of these materials for use on this site.

6.0 Validation Requirements (Cont'd): -

6.2 Validation of Robust Clean Cover Systems (Cont'd): -

Within Zones B and C, including areas which may have been revised to be within Zones B and C due to cut and fill materials, it is recommended, as per YALPAG guidance, that a ratio of at least 1 no. in every 3 no. plots is tested.

Within Zone A, it is recommended, as per YALPAG guidance, that a ratio of 1 no. test be completed for every c.250m^3 of materials used.

This testing regime should be discussed and confirmed with the Local Authority by the Main Contractor prior the validation screening process.

Prior to delivery, the Main Contractor will be responsible for providing screening results of any imported materials to site, to verify that they meet the criteria given in Table 6.2 below. These results should be passed onto Arc Environmental a minimum of 1 week prior to delivery and should not be more than 2 months old.

Table 6.2 - (Assessment Criteria for Imported Soils)

Analyte				**Analyte**	Critical Conc. (C_C) mg/kg		
Metals/Metalloids	Critical Conc. (C_C) mg/kg			**Speciated PAH's (Cont'd)**	1% SOM	2.5% SOM	6% SOM
Arsenic	37[1]			Benzo(a)anthracene	7.2[1]	11[1]	13[1]
Cadmium	11[1]			Benzo(a)pyrene	2.2[1]	2.7[1]	3.0[1]
	pH 5.0-6.0	pH 6.0–7.0	pH >7.0	Benzo(b)fluoranthene	2.6[1]	3.3[1]	3.7[1]
	3.0[5]	3.0[5]	3.0[5]	Benzo(ghi)perylene	320[1]	340[1]	350[1]
Chromium III	910[1]			Benzo(k)fluoranthene	77[1]	93[1]	100[1]
	pH 5.0-6.0	pH 6.0–7.0	pH >7.0	Chrysene	15[1]	22[1]	27[1]
	400-600[5]	400-600[5]	400-600[5]	Dibenz(ah)anthracene	0.24[1]	0.28[1]	0.3[1]
Chromium VI	6[1]			Fluoranthene	280[1]	560[1]	890[1]
Copper	2,400[1]			Fluorene	170[1]	400[1]	860[1]
	pH <6.0	pH 6.0–7.0	pH >7.0	Indeno(123cd)pyrene	27[1]	36[1]	41[1]
	<100[4]	<135[4]	<200[4]	Naphthalene	2.3[1]	5.6[1]	13[1]
Lead	200[2]			Phenanthrene	95[1]	220[1]	440[1]
Mercury	40[1]			Pyrene	620[1]	1,200[1]	2,000[1]
	pH 5.0-6.0	pH 6.0–7.0	pH >7.0	**Speciated TPH**	1% SOM	2.5% SOM	6% SOM
	1.0-1.5[5]	1.0-1.5[5]	1.0-1.5[5]	Aliphatic EC5-EC6	42[1]	78[1]	160[1]
Nickel	180[1]			Aliphatic EC6-EC8	100[1]	230[1]	530[1]
	pH <6.0	pH 6.0–7.0	pH >7.0	Aliphatic EC8-EC10	27[1]	65[1]	150[1]
	<60[4]	<75[4]	<110[4]	Aliphatic EC10-EC12	130[1]	330[1]	760[1]
Selenium	250[1]			Aliphatic EC12-EC16	1,100[1]	2,400[1]	4,300[1]
	pH 5.0-6.0	pH 6.0–7.0	pH >7.0	Aliphatic EC16-EC35	65,000[1]	92,000[1]	110,000[1]
	3.0-5.0[5]	3.0-5.0[5]	3.0-5.0[5]	Aliphatic EC35-EC44	65,000[1]	92,000[1]	110,000[1]
Zinc	3,700[1]			Aromatic EC5-EC7	70[1]	140[1]	300[1]
	pH <6.0	pH 6.0–7.0	pH >7.0	Aromatic EC7-EC8	130[1]	290[1]	660[1]
	<200[4]	<200[4]	<300[4]	Aromatic EC8-EC10	34[1]	83[1]	190[1]
Cyanide	34[3]			Aromatic EC10-EC12	74[1]	180[1]	380[1]
Asbestos	None Present			Aromatic EC12-EC16	140[1]	330[1]	660[1]
Speciated PAH's	1% SOM	2.5% SOM	6% SOM	Aromatic EC16-EC21	260[1]	540[1]	930[1]
Acenaphthene	210[1]	510[1]	1,100[1]	Aromatic EC21-EC35	1,100[1]	1,500[1]	1,700[1]
Acenaphthylene	170[1]	420[1]	920[1]	Aromatic EC35-EC44	1,100[1]	1,500[1]	1,700[1]
Anthracene	2,400[1]	5,400[1]	11,000[1]				

[1] = LQM S4UL's (2014 & 2015) – *Residential with home-grown produce*, [2] = CL:AIRE C4SL's – *Residential with home-grown produce,* [3] = ATRISK^{SOIL} SSV, [4] = Potentially Phytotoxic Elements – BS3882:2015 & BS8601:2013, [5] = Sewage sludge in agriculture: code of practise for England, Wales and Northern Ireland (May 2018) – Potentially toxic elements limits in soils for arable farming and grassland. Note the TPH total should not exceed 1000mg / kg to avoid bringing potentially Hazardous Material on to site.

6.3 Validation of Waste Management / Disposal: -

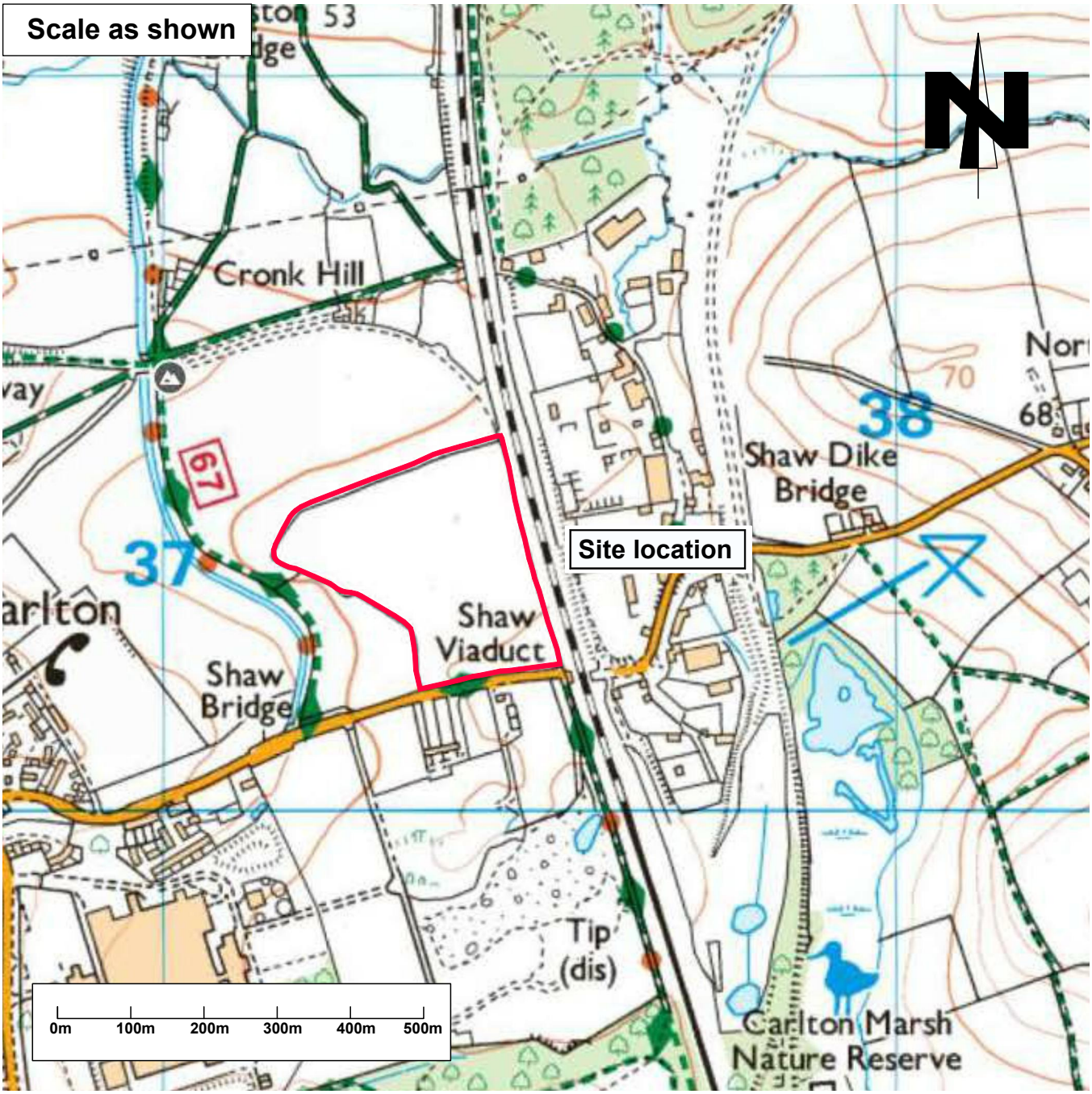
- Confirmation of Waste Classification (WM3) and suitability for disposal at chosen landfill (WAC Testing certificates where required).
- Collection and inclusion of all documentary evidence relating to the disposal of waste to landfill from this site, i.e. waste consignment/transfer notes, landfill tip receipts, etc.
- The Main Contractor will be responsible for the collation of all relevant documentation and will provide this to Arc Environmental Ltd. for inclusion in the final Validation Report.

6.4 Validation Report: -

Following completion of all of the required remediation works, a final Validation Report will need to be produced and submitted to the LA confirming all the works undertaken and verification that the Remediation Strategy has met all the requirements for the development of this site. The Validation Report will also include details of all variations to the Remediation Strategy, where these occur.

END OF REPORT

APPENDIX I



Client:
VISTRY WEST YORKSHIRE

Project Title:	Drawing Title:
Proposed Residential Development Shaw Lane Carlton	Location Plan

rev.	date	amendments	drawn	chckd

Job Reference:	Drawing Number:	Revision:
25-843	–	–

Drawn by:	Date:	Scale at A4:
P.D	08.05.26	As shown

Checked by:	Approved by:	
S.D	S.D	The contractor shall check all dimensions on site before commencement of any works. No dimensions to be scaled off this drawing.

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The contractor shall check all dimensions on site before commencement of any works. No dimensions to be scaled off this drawing.
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LEGEND

—	APPROXIMATE SITE BOUNDARY

rev.	date	amendments	drawn	chckd

Client:
VISTRY WEST YORKSHIRE

Project Title:
Proposed Residential Development
Shaw Lane
Carlton

Drawing Title:
Aerial Photograph

Scale at A3:	Date:	Drawn by:	Approved by:
NTS @ A3	24.06.26	P.D	S.D

Job Ref:	Drg no:	Rev:
25-899	–	–

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LEGEND

	APPROXIMATE SITE BOUNDARY

rev.	date	amendments	drawn	chckd

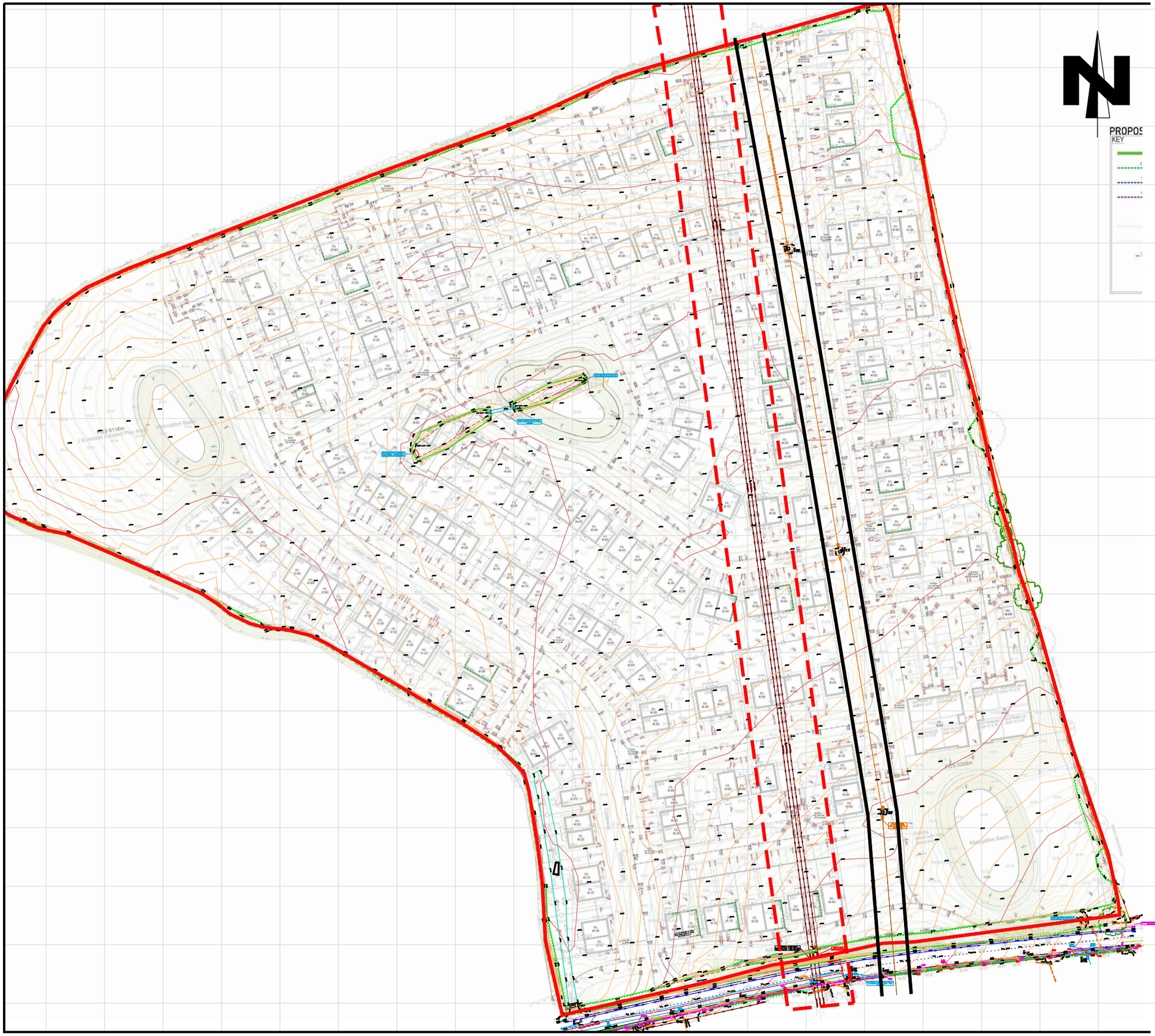
Client:
VISTRY WEST YORKSHIRE

Project Title:
Proposed Residential Development
Shaw Lane
Carlton

Drawing Title:
Existing Site Layout Plan

Scale at A3:	Date:	Drawn by:	Approved by:
NTS @ A3	24.06.26	P.D	S.D

Job Ref:	Drg no:	Rev:
25-899	–	–



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LEGEND

	APPROXIMATE SITE BOUNDARY

rev.	date	amendments	drawn	chckd

Client:
VISTRY WEST YORKSHIRE

Project Title:
Proposed Residential Development
Shaw Lane
Carlton

Drawing Title:
Proposed Development Layout Plan

Scale at A3:	Date:	Drawn by:	Approved by:
NTS @ A3	24.06.26	P.D	S.D

Job Ref:	Drg no:	Rev:
25-899	–	–

APPENDIX II