creative minds safe hands

Remediation Case Study

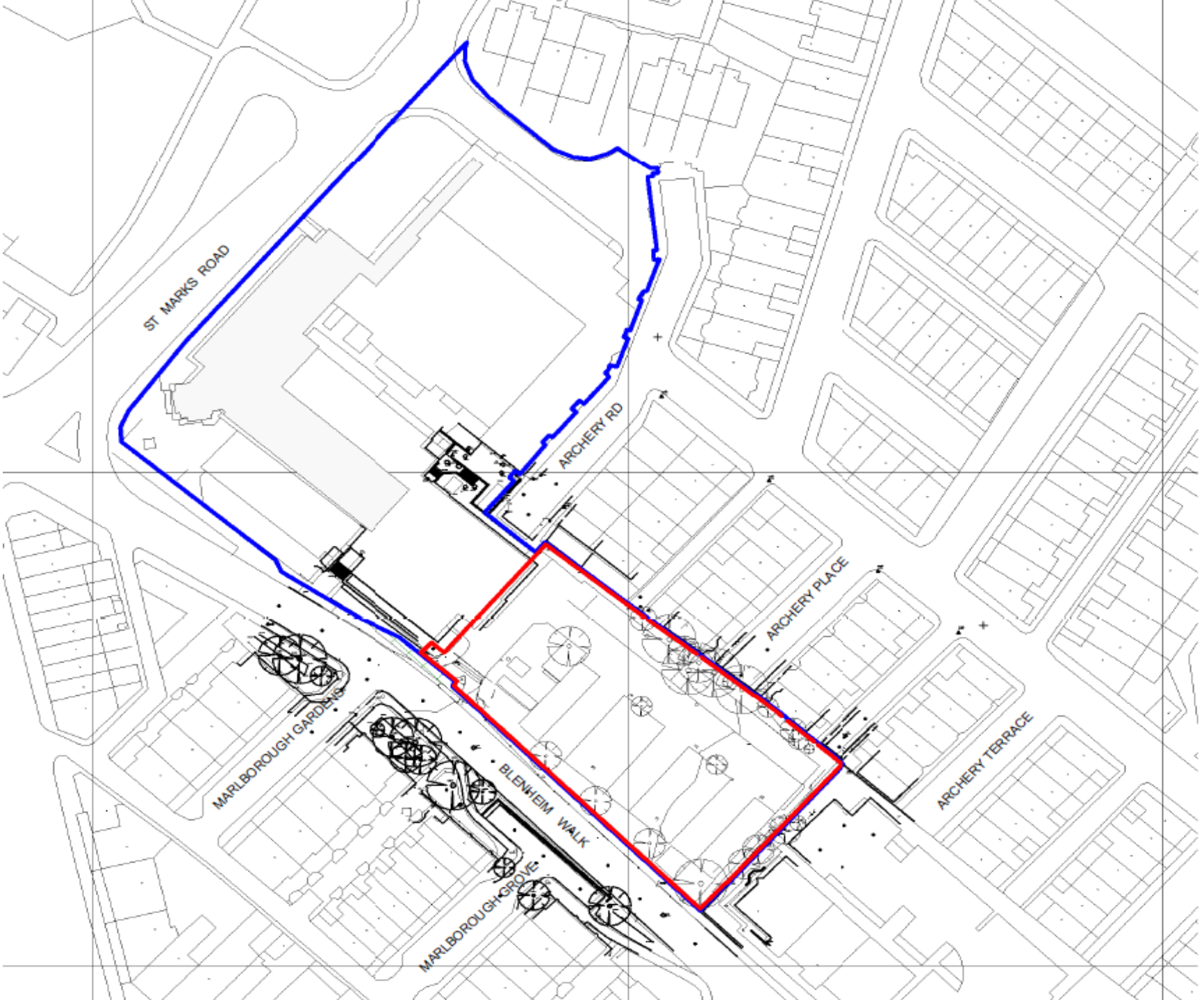
Leeds Arts University

Brownfield Briefing Award Winner 2017
Best Re-use of Materials

Agenda

- Leeds College of Art / Leeds Arts University
- £1M project with 99.9% re-use of materials
  - Site information
  - Contamination
  - Tender
  - Contract to encourage re-use
  - Site works

- Quarry Hill
- £4M enabling works with 0% re-use
  - Brief Comparison

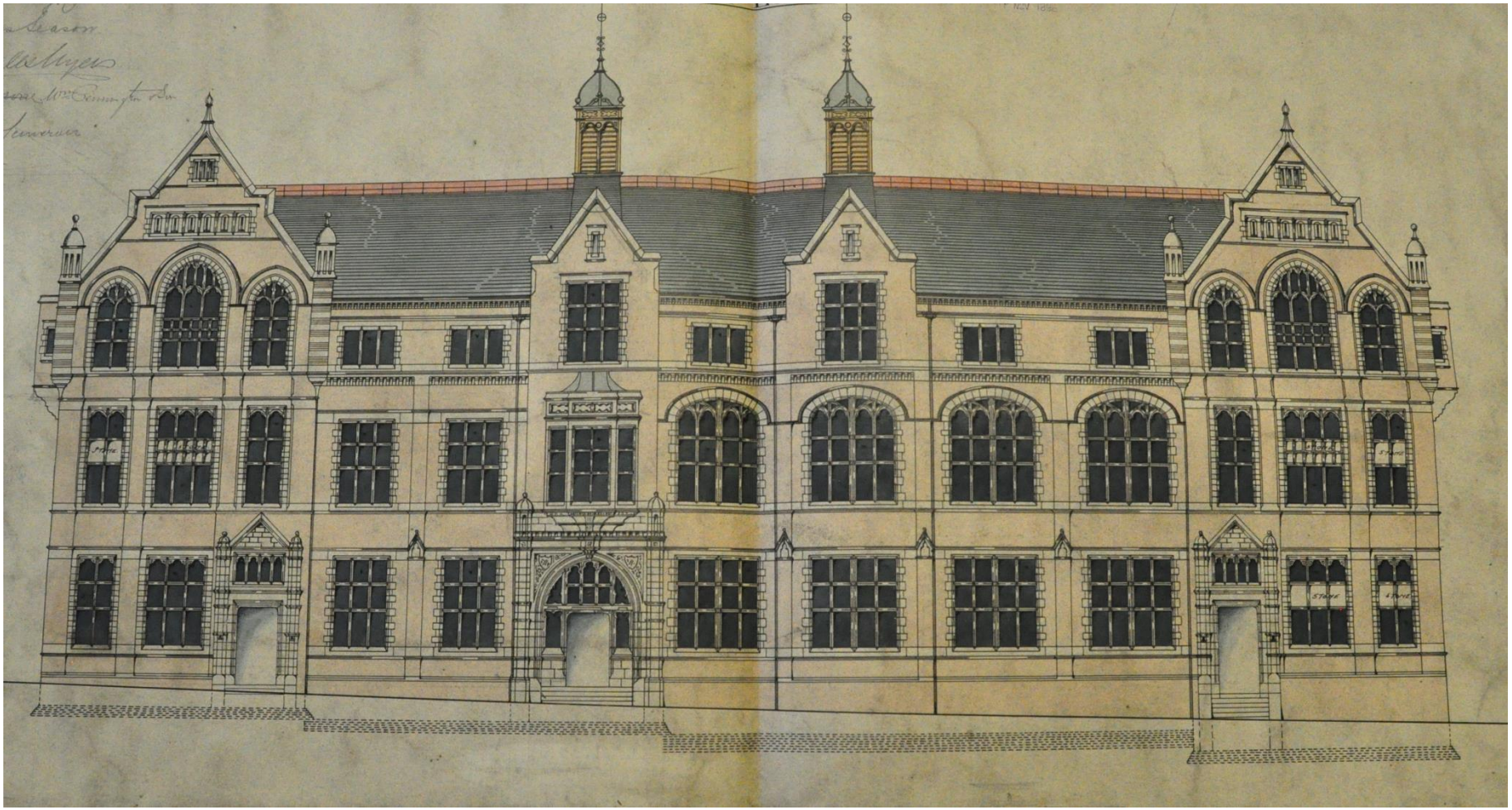

ST MARKS ROAD
ARCHERY RD
ARCHERY PLACE
ARCHERY TERRACE
MARLBOROUGH GARDENS
BLENHEIM WALK
MARLBOROUGH GROVE


BAGBY SQUARE
Ridge House
BAGBY ROAD
RITTER STREET
BAGBY TER
ST. MARK'S
DEVON
LEICESTER PLACE
WINFIELD PLACE
WINFIELD TER
WINFIELD GR.
WINFIELD ROAD
GROSVENOR CRES.
GROSVENOR TERRACE
BLENHEIM CRES.
BLENHEIM AVE
LEICESTER GROVE
Meth Chapel
ELDON PLACE
BACK ELDON STREET
BLENHEIM WALK
ARCHERY PL.
ARCHERY ROAD
ARCHERY TER.
ARCHERY ST.
BLENHEIM SQUARE
Institute for Blind & Deaf Children
School
All Souls' Church
Vicarage
BLACKMAN LANE
BLENHEIM MOUNT
LOFTHOUSE PLACE
ELLA STREET
BLENHEIM PLACE
BACK CARLTON GR.
CRAVEN TERRACE
CROSS STREET
WOODHOUSE LANE
DE GREY ROAD
BLANDFORD GDNS.
BLANDFORD GR.
BACK BLENHEIM TERRACE
CHURCHILL GDNS.
Emmanuel Church
Institute
Trinity Church (Congregational)
HILLARY PLACE
GROVE TERRACE
Sunday School
Sun. Sch.
Chapel
100m
B.M. 278·9
279
270
B.M. 220·3
230
B.M. 239·9
246
B.M. 249·0
238
B.M. 233·9
B.M. 234·1
226
262
B.M. 264·6
B.M. 256·2
B.M. 246·7
202

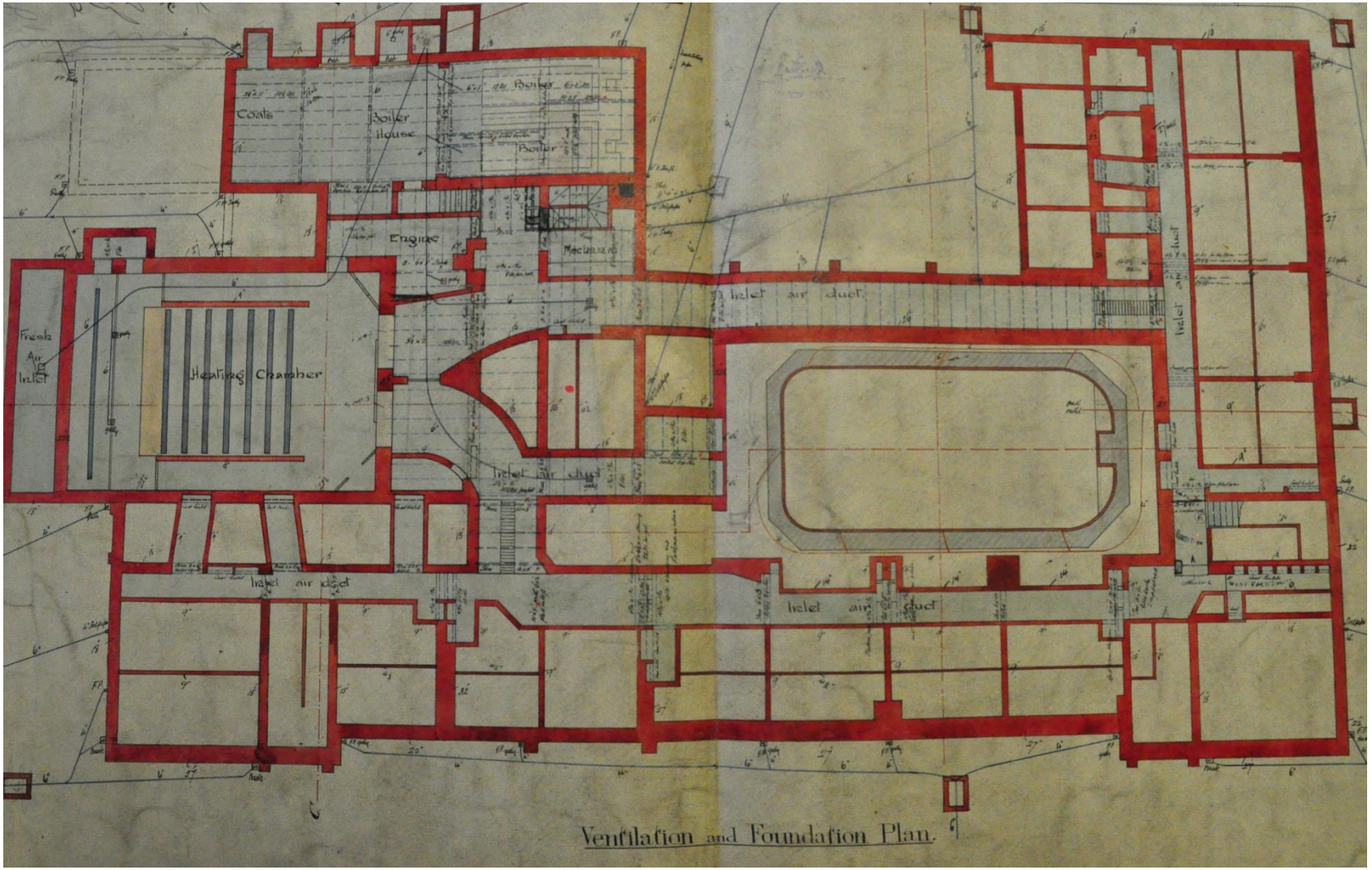
Car Park

Former School Site

Architect's Plans 1895



Pool / Boilers / Pipework



Proposed Development

Legislation and Guidance

- Control of Asbestos Regulations 2012
- L143 Approved Code of Practice 2013
- CAR-SOIL 2016 – Guidance

- Asbestos Licensing Regulations 1983
  - Contractors working with asbestos insulation or spray coating were required to have a HSE licence.

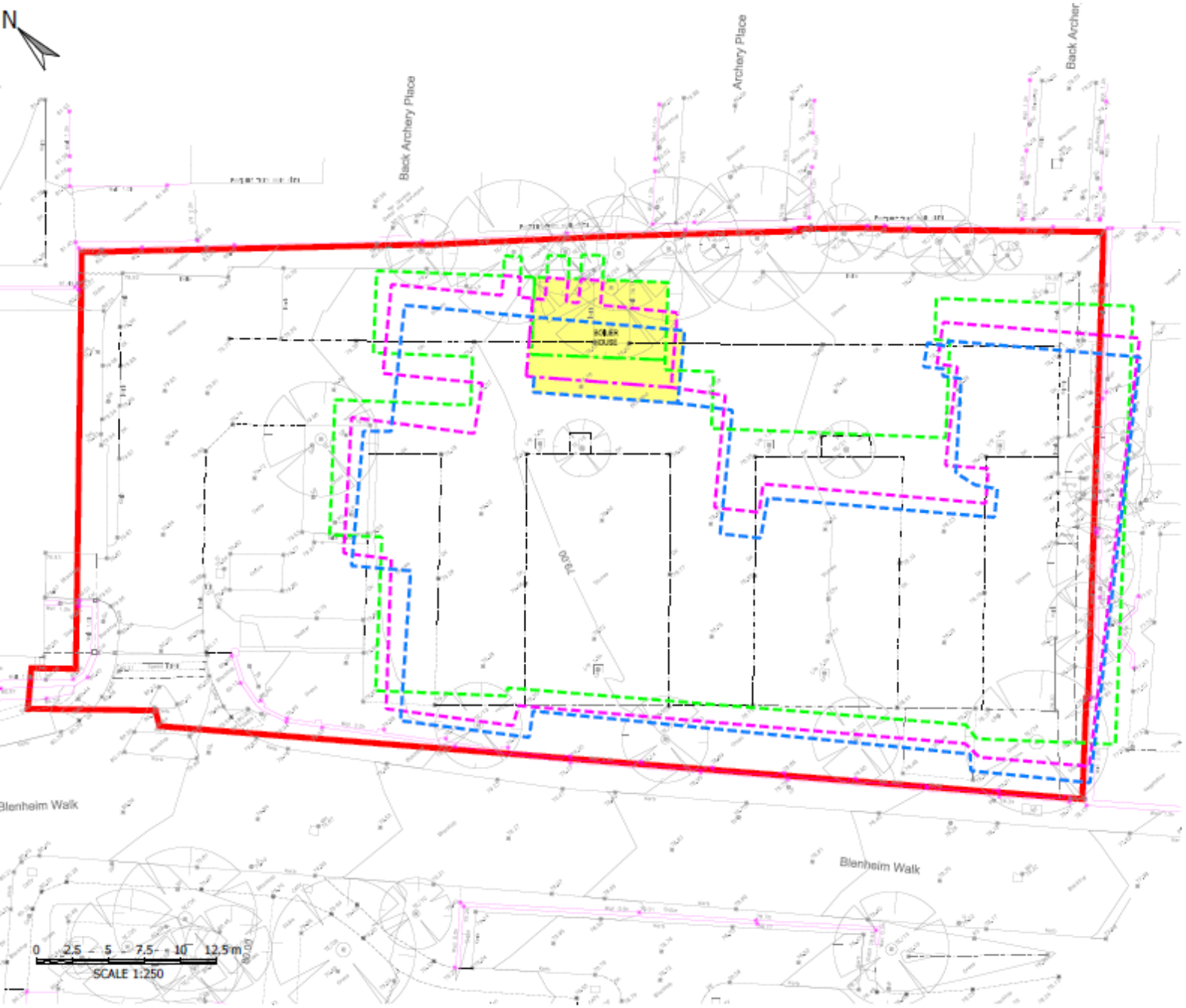
- Asbestos Licensing Regulations 1998
  - Extended 1983 regulations to include work with asbestos insulation board also required a licence.

Tender

- Identify soils remediation contractors with asbestos licence.
  - Very few
- Some remediation contractors partner with licensed contractors
- Sanctus successful contractor

Case Study 2 – CAR-SOIL

- Tender returns evaluated for quality in light of CAR-SOIL



KEY

SITE BOUNDARY

NOTE

THE RED LINE BOUNDARY SHOWN ON WYG DRAWINGS IS INDICATIVE AND REFERENCE MUST BE MADE TO THE LAND REGISTRY TITLE NUMBER WYK704716 FOR THE DEFINITIVE LEGAL SITE RED LINE BOUNDARY.

APPROXIMATE FOOTPRING OF FORMER COUNTY SECONDARY SCHOOL (PRESENT 1908-1978 - ALIGNED TO HISTORICAL GRID)

APPROXIMATE FOOTPRINT OF FORMER COUNTY SECONDARY SCHOOL (PRESENT 1908-1978 - ALIGNED TO HISTORICAL FEATURES)

APPROXIMATE FOOTPRINT OF FORMER COUNTY SECONDARY SCHOOL (PRESENT 1908-1978 - FROM C&S DRAWING BASED ON OBSERVED FEATURES IN GROUND MEASURED IN RELATION TO EXISTING SITE FEATURES)

INDICATIVE LOCATION OF BOILER HOUSE (SEE DRAWING A093936-3/09)

REV	DESCRIPTION	BY	CHK	APP	DATE

Client:
LEEDS COLLEGE OF ART

ABBEDALE COURT
HEADINGLEY
LEEDS
LS6 2SS

TEL: +44 (0)113 278 7111
FAX: +44 (0)113 278 3467
e-mail: leeds@wyg.com

Project: A093936-3
LEEDS COLLEGE OF ART
NEW BUILDING

Drawing Title:
HISTORICAL LAYOUT PLAN

Scale @ A3	Drawn	Date	Checked	Date	Approved	Date
1:250	PMC	03.06.16	SAE	03.06.16	PG	03.06.16

Project No.	Type	Drawing No.	Revision
A093936-3	N	04	

Site Location

Contract / Programme

- NEC3 Option A – Lump Sum
  - Short programme with Liquidated damages
- Asbestos removal – remeasurable item
  - Focus on accountability of asbestos removal
  - Savings from minimising off-site disposal shared between Contractor and Client
- Continual review of Geotechnical requirements
  - Frequency of testing reduced as consistent results
  - To assist programme
  - Maximise re-use

Licenses

- Environmental Permit
  - Deployment
  - 6 weeks after submission (~7-8 weeks after appointment)
  - So no processing of soils (hand picking) until in place.

- HSE Notification for Licensed Works
  - Via ASB5 form (online)
  - 2 weeks until served
  - No licensed asbestos removal until in place

- F10
  - Issued on appointment by CDM Advisor
  - In place immediately on issue

Earthworks

- Non-Licensed Work
  - Excavate soils / structures, process / crush and backfill
  - Temporary works around periphery of site
  - 8-9m deep excavations next to road, retaining wall & basements, office block and college.

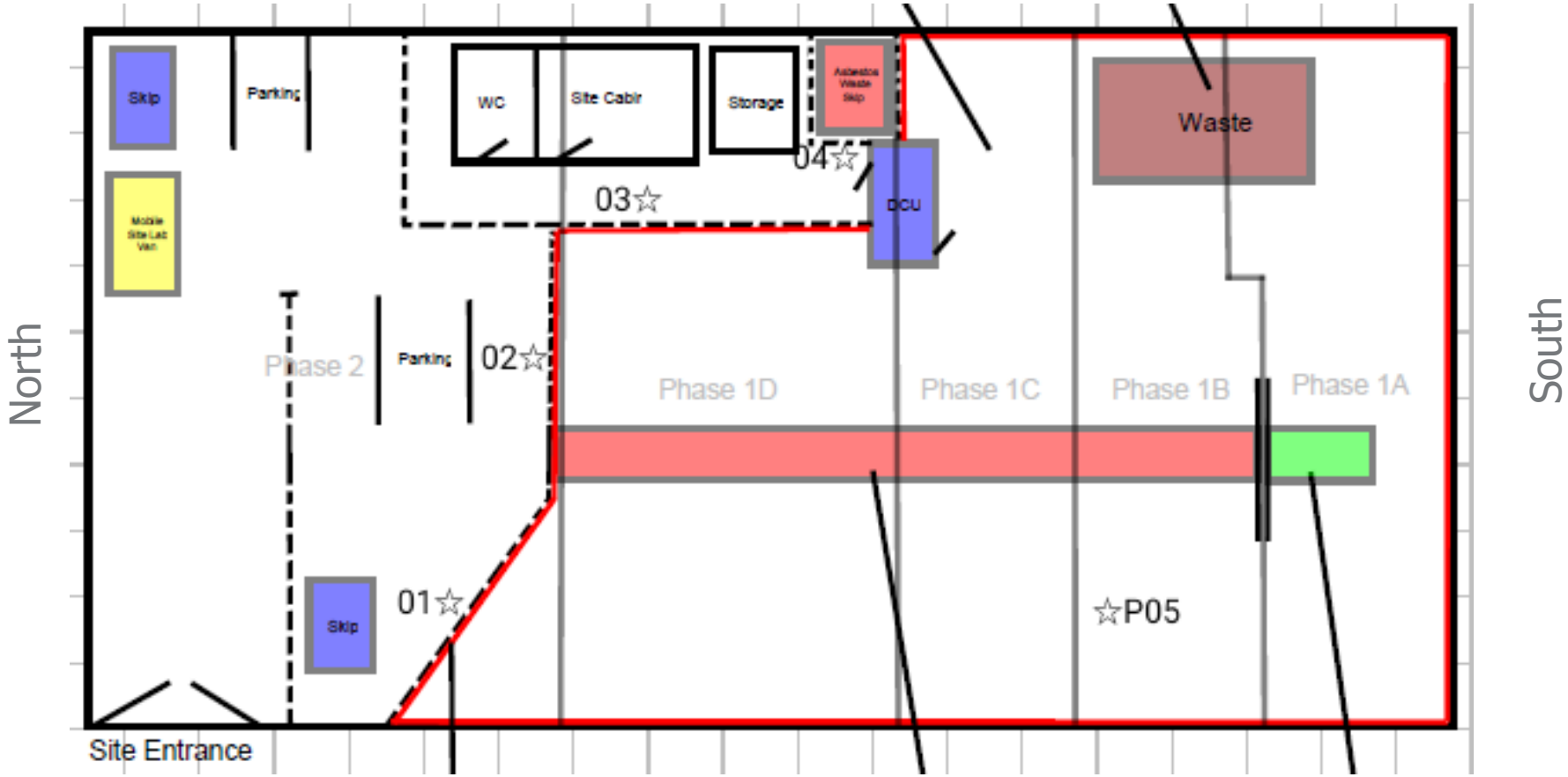
Temporary Works

Summary of Asbestos Works

- Licensed Works
  - Daily Air monitoring
  - Boilers – Trial pits to assess status to prep ASB5
    - Discovered previously removed
    - But found elsewhere on site
  - Insulation Board / Sprayed asbestos
    - Removed by hand – bagged, labelled as asbestos, and placed in covered skips.
    - Other suspect material, collected and tested in batches, then disposed of appropriately.
  - Lagged Pipework
    - Removed via confined works

Programme

- Risk to Programme (Delay damages)



Temporary Works

Swimming Pool

Re-use

- 8,035m^3 of material was excavated and broken out,
  - Following hand picking and processing, only 100m^3 of material was recorded as having any asbestos fibres at all
    - Reduce risk to piling rigs – placed under ground bearing slab area
  - 120m^3 of tarmacadam taken off-site for re-use;
  - 10m^3 of excess oversized concrete taken off-site for re-use elsewhere;
  - 70m^3 of topsoil was taken off-site for re-use;
  - 9.7 tonnes of asbestos contaminated waste (including asbestos impacted PPE / RPE) disposed of.

- Only 0.1% of soils were disposed of at landfill (10m^3),

- Therefore (excluding asbestos waste) 97.4% of material was re-used on site and 99.9% re-used / recycled in total.

Closure – Verification Report

- Verification report completed within 1 week of completion of site works
  - Finished on site on Saturday. Monday morning handover
  - Draft report issued 1 week before finished.

- Data uploaded to Cloud server throughout project
  - Continual checks on progress

  - Allowed rapid handover to Piling Contractor

New College Building

Overview

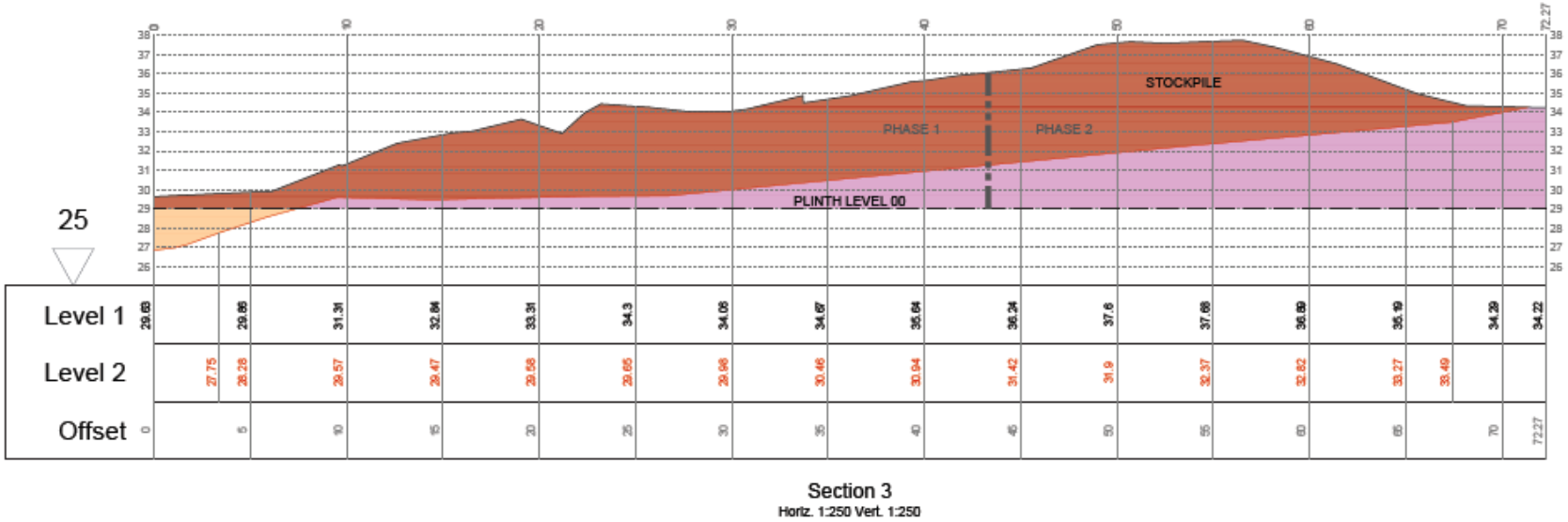
- Case Study 1 – Licensed – Leeds College of Art
  - Licensed Asbestos in Soil Removal in a City Centre
  - ~100% of Made Ground being processed for re-use on site

- Case Study 2 – Non-Licensed – Quarry Hill
  - 17,000m^3 of waste with two pieces of ACMs identified in SI
  - 100% of Made Ground going off-site to accommodate new building

Case Study 2 – Quarry Hill Flats

Case Study 2 – Non-Licensed Contractor

Case Study 2


25
STOCKPILE
PHASE 1
PHASE 2
PLINTH LEVEL 00
Level 1
Level 2
Offset
Section 3
Horiz. 1:250 Vert. 1:250

Case Study 2

- WM3 states on p21:
  - *If the waste contains fibres that are free and dispersed then the waste will be hazardous if the waste as a whole contains 0.1% or more asbestos. If the waste contains any identifiable pieces of suspected asbestos containing material they must be assessed as set out below. This would also apply to any dispersed fibres produced by deliberately breaking up such identifiable pieces. Where the waste contains identifiable pieces of asbestos containing material (i.e. any particle of a size that can be identified as potentially being asbestos by a competent person if examined by the naked eye), then these pieces must be assessed separately.* ***The waste is hazardous if the concentration of asbestos in the piece of asbestos containing material is 0.1% or more.***

Case Study 2

- General waste categories
  - Hazardous
  - Non-hazardous
  - Inert

- Waste also contained hazardous levels of hydrocarbons and PAHs.

Case Study 2 – Disposal Costs

Disposal Route	Cost per m^3 disposal	%	m^3	Cost
Inert - brick and concrete rubble	£15.00	60%	10,200	£153,000
Inert - Soil	£25.00	5%	850	£21,250
Non hazardous soils	£40.00	10%	1,700	£68,000
Hazardous - to Soil Treatment Facility No asbestos	£120.00	10%	1,700	£204,000
Hazardous - to Soil treatment facility - contains <0.001% asbestos	£150.00	10%	1,700	£255,000
Hazardous - untreatable - disposal to landfill - contains >0.001% asbestos	£200.00	5%	850	£170,000
Asbestos disposal (3 tonnes - minimum charge)	£1,000.00	0.008%		£1,000
SUM		**100%**	**17,000**	**£872,250**

Leeds City College – Quarry Hill

RemSoc

- AGM – Nov 2018
- Join the LinkedIn Group - 346 members

- Conference being planned for 2019
  - Possibly with SoBRA

- Remediation Framework
  - Incorporated into updated CLR11

- Early Careers Practitioners
  - Webinars

- Remediation Technologies

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QUESTIONS

If you would like any more information, please visit www.**wyg.com**