SAMPLE REPORT

CONTAMINATED LAND: A MODERN MID-LIFE CRISIS

Government austerity, Brexit uncertainty, industry self-regulation and a shrinking pot of polluted sites have placed considerable strains on the UK’s maturing contaminated land sector. But there are still opportunities to be found not least around the national infrastructure pipeline and the emerging PFAS agenda, as well as demand for expertise from less mature markets internationally.

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- Richard Clayton, Director and Head of Ground Risk and Remediation, WSP
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The coming of age of contaminated land

Environment Analyst explores the forces, both positive and negative, shaping demand for environmental consultancy in the maturing UK contaminated site assessment and remediation sector, and how this relates to the bigger, global market picture.

Contaminated land: on the surface it is not a subject that stirs the emotions, it rarely makes the headlines, almost never features in political debates and consequently most people in the UK are probably unaware we even have areas of land with substances that pose a tangible risk to human health. But when you dig a little deeper you find community disputes, local outrage and industrial legal battles. Unlike other current blockbuster environmental issues such as climate change, air quality and biodiversity, this subject seems to avoid national attention, until it affects the area you live in.

In this subterranean theatre of operation, contaminated land clean up has assumed a comparatively low profile even as an army of professionals continue to chip away at the identification and remediation of polluted sites around the UK. This is precisely why it might be one of the environmental sectors greatest success stories over the last few decades.

In a world where major incidents (Seveso, Chernobyl, Brent Spar, the Volkswagen emissions scandal) can propel environmental issues into the spotlight you would be forgiven for thinking there are no major areas of contamination in the UK or around the world. As the proverb goes: no news is good news... or is it?

Dig a little deeper into the world’s site contamination issues and you will find whole swathes of land which pose risks to human health. Europe has a legacy of thousands of sites where activities are still occurring, and even more deindustrialising residential areas because issues are so bad and the contamination areas. In 2012 the World Health Organisation concluded environmental (both indoor and outdoor) pollution led to an estimated 7 million early deaths globally.

In the UK, the report suggested the HS2 Channel Tunnel and Crossrail project were amongst the areas with the highest contamination risk. This may not have been a headline-grabbing subject but it was a crucial one, affecting the nation’s infrastructure. In the same period, Scotland’s salmon-fishing industry was put at risk by contamination from chemically contaminated sediments in key rivers and estuaries featuring in the Scottish Executive’s report to the Secretary of State. In both instances the remediation strategies were shared across and between the public and private sectors.

In an industry that in the UK has grown by 50% in the last three years, there is significant scope for growth. Of course, reinvestment is required to help kickstart the sector’s recovery. But that is the very principle environmental consultancy is about: helping businesses and households to understand their current state and to predict and prevent problems in the future.
Contaminated land consultancy by numbers

First let’s have some market context.

Contaminated site assessment and remediation consulting is the fourth largest service area in the UK’s £1.5bn environmental consultancy industry, accounting for around 12% of the total or £220m in market revenues per year (EA, Jan 19).

For many years in the 90s and 90s – prior to the economic crash – it remained the top earner in the EC sector, but the recession and the gradual clean up of many of the most contaminated sites has since undermined its relative importance to environmental consultants as a source of income. Environmental impact assessment (EIA), ecology & wildlife and water resources management & quality services have risen up the agenda instead. Indeed, this area of consultancy has taken a decade to very slowly recover to its pre-recession value, although when inflation is also reflected in the market revenue figures it is still down on where it was ten years ago (EA, Jan 19).

And as recently as 2017, contaminated land was the only service area in the entire EC market which underwent a decline (5%) as property & development markets and transactional work struggled in the aftermath of the UK’s vote to leave the EU and work associated with the oil & gas sector (both domestically and overseas) continued to suffer on account of commodity pricing trends. This in itself is not entirely surprising. But even when the UK isn’t in the midst of one of the largest political/economic upheavals in its history, this area of the market is notoriously unpredictable – and volatile. Only two years prior, in 2015, it recorded annual growth of 18%.

Environment Analyst’s industry analysis shows how it presents EC managers with a frustrating arena within the medium-term business cycle. Sectoral growth trend is in at around +3% per annum that drops to +1 or -1% or similar level, with occasional large jumps dependent on impulsive project awards.

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<th>Revenue (£m)</th>
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Management (LMG), RSK and WSP. The consensus from our expert panel is that demand for contaminated land expertise is still booming in many areas, despite our broader market surveys conveying a more cautious picture.

Remediation contracting woes

The contracting side has struggled in recent years from a perfect storm of challenges. Last year Hydrock announced it was placing its remediation contracting business (DBS Remediation) into administration - only for the latter to be subsequently snapped up by rival contractor Vertase FLI. At the time Hydrock Group managing director Brian McCombell blamed the entry of other competitors and fierce competition in the space for creating market saturation, leading to "high-risk, low margin work" with clients often demanding fixed-price contracts. The rise of risk-based contaminated land management has also arguably favoured consulting solutions over more traditional dig and treat options.

Competitive landscape

Creative-based environmental consulting and services firm RSK is the UK’s largest contaminated land consultancy with over 395 staff in its geoscientific business generating around £25m a year domestically in this area alone. AECOM, WSP, Artesis and BPS follow in the rankings and together the top five account for around 40% of the UK contaminated land consulting market (See Figure 4).

RSK has around 400 additional staff in its wider ground engineering and environmental contracting business, which has undergone significant growth over the last three years through acquisition. This has been driven by a greater ability to develop and build new business development teams within the UK. The successful delivery of complex and high-profile projects has also played a role in this success. Developed new business development and another quarter has contributed to its success, along with the acquisition of WSP’s contaminated land business.
Digging deeper: contaminated land market drivers

When it comes to the contaminated land assessment and remediation consulting services, the majority of work is driven through the planning, development and regeneration of previously developed (brownfield) sites. This is why brownfield land is quite commonly, although mistakenly, assumed to be contaminated. Land contamination can also occur on greenfield sites – from incidents like spillages, leaks and waste dumping – but brownfield sites are far more common.

Former paint works, chemical plants, steel mills and landfills are just some of the likely protagonists. The exact nature of contamination is always site specific but commonly include arsenic, cadmium, chromium, lead, oil and asbestos.

The regeneration of brownfield land, particularly in the south east, north west and central England either by developers, land investors or land-owning utilities like the National Grid has proven fertile ground for consultants. Underpinning this is the UK’s housing crisis and the need to deliver 300,000 new homes a year. A number of initiatives from tax incentives, government backed ‘help-to-buy’ schemes and planning reform have been implemented to get Britain building again. As a result, house building has been steadily on the rise since the recession, but delivery still sits well below the target and remains below where it was prior to the recession (Figure 1).

A number of other industries have the potential to unleash contaminated land work for consultants, notably the oil & gas sector through fracking (hydraulic fracturing) and the decommissioning of offshore assets. But these areas remain in their infancy as yet.

“Virtually all the contaminated land work done today is to release land for house building on post-industrial brownfield sites,” says LMP’s Nathaniel. “There may be a bit of due diligence, a bit of permitting etc. but the vast majority of contaminated land support work is related to this regime.”

Clayton agrees house building is an important role, but for the most part, can be gained from house building projects today. Clayton explains: “It’s as a result of the growth in this area. There is a lot of focus on this area.”

Today...
contamination assessment are fundamentally still the same: making sure land is suitable for its intended use and not presenting a significant risk to health or the environment,” says Hood. “The majority of this is now wrapped up via the planning regime but the end goal remains broadly consistent.”

But perhaps the recent project Jacobs’ is most proud of is the award-winning clean up of one of Europe’s largest contaminated sites – the Avenue coking works in the East Midlands. Working with Homes England, VSD Avenue and Turner & Townsend, Jacobs led the £180m remediation of the 98 hectare site over an incredible 19-year timeframe, into a site suitable for 500 homes and 70 hectares of public space. The team’s approach to tackling less small scale, local work and more large scale infrastructure projects,” says Clayton. “This has created opportunities for SMEs to fill that gap.”

“We have certainly seen the larger multidisciplinary firms become more, shall we say distracted, by the large infrastructure schemes,” Delta-Simons’ Ferguson concurs. “That has given us an opportunity to really consolidate our position within the mid-to-small tier contaminated land schemes.”

The prevalence of major infrastructure schemes – and a procurement trend to merge engineering and technical consultancy services into major frameworks (EA, 2019) – has led to a blunting of the focus of traditional service provision. Instead, delivery, remediation, demolition and other construction activities are not only converging but the business models are highly commoditised.

The desire to offer a one-stop-shop from consulting to delivery, with an ambition to bring new approaches to one environment, such as RSK acquiring land capability to take contracts.

Figure 6: Trends in NGIP DCO submissions 2010-19 (to date)
The plight of Part 2A

The legal instrument under which contaminated land should be addressed in the UK is Part 2A of the 1990 Environmental Protection Act, introduced in 2000. Under this instrument, local authorities are required “from time to time” inspect their area for areas of jurisdiction for contamination and instruct liable parties to remediate the land. Some of these sites will be designated as “special sites” due to their capacity to do harm to humans or the natural environment. Since 2000, over 11,000 sites have been inspected of which 511 were found to need remediation. However, more often than not given the age of some of the industrial heritage - the liable parties have long since gone out of business. So who is liable? Well, the current landowner. There are around 17,000 brownfield sites across England and 62% of them are privately owned, compared to 12% in public ownership. The rest, are unknown. If the liable person cannot be found for any contaminant linkages, then the costs fall to the state.

But since the recession, the government’s pursuit of an austerity agenda has served to undermine the potency of public sector involvement in the Part 2A regime to the point where they have become de-facto administrators.

Between 2010 and 2020, English local authorities will have lost 60% of every £1 of government funding - equivalent to a loss of £18bn. By 2025 the funding black hole - or the difference between spending demands and availability - is expected to be £32bn. With priority services to fund identifying and remediating sites, the scheme announced by Lord de Mauley in 2012 was a surprise to an industry that was relying on a £2bn in 2013/14. The £53bn-worth of assets expected to be in that final year. So, in April 2013, it was officially terminated.

So whilst there is an urgent need to continue to remediate contaminated land, it is evident that the public sector will require additional funding to redress the losses already taken.
Brownfield first?

As LAcs can no longer afford to investigate contaminated land themselves, they have turned to the development and construction community to take the lead in remediating the remaining sites, by leveraging the Town and Country Planning Regime.

The UK government has long touted its support for a “brownfield first” outlook on new housing. In 2014, former housing minister James Brokenshire announced the government target to see that 90% of suitable brownfield sites gain planning permission by 2020. But in order to measure this, the UK needed an accurate way of establishing how much brownfield land there was - cue the brownfield register.

In 2017, the government made it a requirement for local planning authorities to publish a list of brownfield sites which would be suitable for housing, and an estimation of how many homes it could accommodate. Research undertaken by the CPRE found these sites could support one million additional homes, something Homes England has agreed with. But CPRE has also found the UK is a long way off Brokenshire’s 90% target with the planning permission level more like 90%.

Meanwhile the revised National Planning Policy Framework published last year urged LAcs to make use of brownfield registers and ‘permission in principle’ mechanisms. The government’s planning rulebook stated “substantial weight” must be given to the value of reusing brownfield land but stops short of prioritising brownfield land over greenfield land.

“The reality is the brownfield first policy does not seem to have worked,” suggests Clayton.

“The government focus is on building as many homes as possible. From a construction company’s point of view, greenfield sites are easier to build on and deliver better returns. It’s simple economics. The returns they get on greenfield sites are so much higher.”

“So you can’t rely solely on a developer for voluntarily remediate contaminated land because it isn’t their business to do it. Assume they will remediate if they are required to by a Suitable Person (SPA).”

As of September, the register was set to be updated.

“DIY regulation doom”

In addition to weakened regulation and enforcement, the long post-recession years had a devastating impact on the UK contaminated land sector (SA 01 May 2009). While the underlying market drivers appear to have recovered to an extent, the ground practitioners are still being shaped by the fallout from the credit crunch.

The UK’s austerity response to the recession and subsequent under-resourcing, has over time created industry intervention to tackle a series of issues. A number of self-regulatory schemes such as the Land Fund Mark Scheme (LFS) have been established to improve and enhance the brownfield sector. It has been a challenge, however, to ensure that the funding and support adequately sustain the scheme.

“Now, the key issue is that there is no funding to ensure that the scheme can continue its work,” says David Hutchinson, chairman of the LFS.

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being done in the right way. But we wouldn’t need an SQP system if everything on local authority’s desk was of high quality.”

For Nathanael the issues in the private sector are only serving to exacerbate the resource constraints felt by the public sector. “The level of detail going into to support planning is not what it should be, so the public sector is having to work harder because the private sector didn’t get it right the first time.”

And for Clayton there is also a moral hazard associated with self regulation which has been compounded by a lower level of involvement from the Environment Agency. In time, he believes the sector could be opening the door to more litigation.

“I am not suggesting industry is knowingly trying to not remediate, but we don’t have anybody testing report conclusions, so at the minute I don’t think it is doing as much remediation as it should be,” he says. “We could be sleepwalking into a new era.”

Clayton clearly thinks the resource constraints on Environment Agency could be a factor here. “I think we took for granted how good we had it with the Agency. Their involvement made us more conservative, which would then balance with the developer’s view. What we ended up with was a balanced stakeholder negotiation.”

PFAS proliferation

Undoubtedly the hot topic in the contaminated world at the moment is per- and polyfluoroalkyl substances (PFAS), otherwise known as perfluorinated chemicals (PFCs). They are described by the US Centers for Disease Control as “one of the most seminal public health challenges for the next decade.”

PFAS are chemical substances manufactured to make products resistant to oil and heat. They are not new, having been in production since the 1930s and 1940s when they were being used in firefighting foam. PFAS has infiltrated thousands of products (such as Teflon, PFOA, although it is not a PFAS), and water treatment plants.

The OHA have brought forward clear guidance for land management schemes, and if an approach is wrong then prosecution could follow. This will only result in more disputes and litigation,” Clayton suggests.

I don’t think we ever realised what a good moral compass that was.”

He believes the Environment Agency now follows a more prescriptive attitude towards the rest of land which reflects its capacity and resource constraints. The measured negotiations seem to have given way to a more litigious, stand-off teacher pupil approach.

“The EA is now starting to say to developers: ‘you are responsible landowners’, it is up to you to appoint suitably qualified consultants to design and deliver a suitable contaminated land management scheme, and if it

 SAMPLE REPORT
PFAS: how worried should we be?

PFAS can be found at any site used for making equipment, textiles and furnishings, performance plastics or firefighting foam. PFAS contamination has been found in 700 communities and could be in the drinking water of 100m Americans, over 200 military sites and industrial areas. As such they present a serious environmental challenge, but there are also opportunities.

In the US, Jacobs considers itself to be on the "leading edge" of remediation research for PFAS treatment solutions. Earlier this year, the Dallas-headquartered consultancy demonstrated a number of new treatment regimes including granular activated carbon (GAC), anion exchange resin (AER) and reverse osmosis (RO) for extracted groundwater or drinking water (EA14 Feb 13).

Arcadis too pitches itself as the "leading supplier of management solutions for PFAS globally" and has recently helped Brisbane Airport reduce its firefighting foam spill.

The next problem is that PFA are resistant to most forms of conventional treatment technologies including direct oxidation, biodegradation, vapor extraction, air stripping and UV photolysis. As such they present a serious environmental challenge, but where there are challenges there are opportunities.

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International markets

Environmental Consulting Strategies and Market Assessment Report indicates over a quarter (27%) of the total global EC sector revenues presently comes from contaminated land and related services - equivalent to a market size $9.3bn. But not all is well within this service area, which has seen a 25% reduction in value over the last decade or so largely thanks to the dynamics of the largest single market for EC services - the US.

AECOM, Arcadis, Jacobs, Tetra Tech and ERN are the top five players globally. However, EA’s latest Global EC Market Trends through the first half of this year found global contaminated land prospects could be on the rise, with perceived prospects now at their peak for a decade with a projected compound annual growth rate of 6.9% for the next five years – bettered only by global demand within the EC disciplines of ecological/wildlife and climate change & energy services.

US situation

As the world’s largest market for contaminated land consulting, sites in the US are addressed through the Superfund system, which is the common name for the regime enacted through the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). Superfund is a huge driver of consultancy and contracting work and enjoys almost bipartisan support from both sides of the House of Congress. In 2020, the US Federal Administration plans to make $1.2bn available to spend on Superfund sites, up $95m from 2019.

Hence the individual contracts available under Superfund remediation programmes are often substantial. In the last six months: Tetra Tech won a technical assessment and response contract for the US EPA’s regions 4.

"The US EPA to make $1.2bn available to Superfund sites."

5 and 7 worth a combined $183m, Jacobs secured a $25m project for the Velasco site in St Louis, and TRC was awarded a $36m nine-year contract to oversee the remediation of the 5,000 acre aviation centre in New Jersey.

A recent industry survey by Environmental Business Journal found around one-quarter of respondents expect federal remediation work via the DOD and DOE to increase between 2018-20, compared to one-third who forecast a decline. However, contaminated land and remediation support for private development clients was found to be the only environmental and market respondents had significant optimism for, with just under two fifths forecasting growth here, compared to one-fifth anticipating decline.
Eastern promise

Looking at another market with significant growth potential, China has made great strides in recent years to embed a willingness to tackle the country’s serious environmental issues into its growth strategy. In 2013 the country introduced the China Environmental Protection Law which marked a shift from the permitting of industrial facilities, to the monitoring of compliance. The Ministry of Ecology and Environment (MEE), set up in 2017, has been working to enforce the EPL with a much tougher stance.

The start of this year also marked a key moment for the contaminated land sector in China when the Law on Soil Pollution Prevention came into effect. It has transformed the legal mechanisms for tackling contaminated sites from scattered, ambiguous provisions buried in other instruments to a far more comprehensive approach to investigating, preventing and cleaning up soil pollution. It also places responsibility on landowners to investigate soil, quantify risks and where necessary take remediation action. However, it will only be catastrophic cases of safety concerns that will lead to prosecution and imprisonment.

The report declared: “The overall condition of the Chinese soil allows no optimism.” The International Institute for Sustainable Development has estimated that cleaning up China’s toxic soil will cost CNY96bn, or $13bn – equivalent to the country’s annual GDP. China had a plan which ran between CNY30 billion and CNY50 billion a year to combat pollution and contaminated land in 2015.