



TWEEDIE EVANS CONSULTING

**...delivering practical long term solutions for
contaminated land management, brownfield
regeneration and geotechnical design**



www.tecon.co.uk

Modern sustainable land development and management requires a diverse skill range together with a flexible and versatile approach.

At **TEC** we have the knowledge, experience and technical expertise to offer this approach to developers, contractors, employers, project managers, project financiers, other professional consultants and insurers from the inception and feasibility of any project, through the planning process to project delivery and beyond.

TEC services embrace desk study appraisals; design, specification and supervision of ground investigation contracts; soils and water laboratory testing; analysis and interpretation of data; preparation of factual and interpretation reports; and detailed engineering design and assessment.

TEC has the expertise and vision to understand risk exposure and, working in partnership with our clients, delivers cost-effective solutions to help achieve our client's objectives by effectively managing the environmental risk and liability.



Whether you are:

- the owner of previously used industrial land wanting to realise its full potential?
- a property developer seeking a new investment opportunity?
- a financial institution that is prepared to finance a redevelopment project or runs a portfolio of property?
- a Local Authority employee with the responsibility for property portfolio management or development planning matters?



Whatever your interest in land re-use, you need to understand the liabilities associated with contaminated land.

The value of land as an asset often depends upon the actual and perceived liabilities associated with its past uses. Therefore, to realise the asset fully and return the land to a beneficial state requires a systematic and thorough appraisal of information concerning the site.

TEC provides a comprehensive range of services from the provision of advice on the potential liabilities, associated with the ownership of land that may be contaminated, through to the provision of solutions for the regeneration of even the most problematic sites.

Whatever your interest in land regeneration you will benefit from the expert advice on the assessment, investigation and remediation of potentially contaminated brownfield land provided by **TEC.**

Managing Environmental Liability

For years contaminated or potentially contaminated land has carried a stigma of environmental pollution. As a consequence, ownership has often been accompanied by a number of problems:

- Constraints on financing
- Difficulty in obtain planning consents
- Health and safety issues
- Risk perception (real or otherwise)
- Restricted ability to sell, and
- Impaired owner reputations.



Property transactions, site regeneration, industrial plant use and other past or present potentially contaminative land uses carry an environmental risk and potential long-term legal and financial liability.

Brownfield and contaminated land represents a number of difficult long-term environmental risk exposures that are often not easy to understand or manage. Uncertainty, associated with environmental risk factors, such as concerns about blight, uncertain remediation costs, regulator action and third party liabilities, can combine to impair the value or development potential of otherwise promising sites. As a consequence, such 'distressed' property holdings can stagnate and it is not possible to liberate their value.



At **TEC** we recognise that there are two fundamental aspects to the problem of suspect or contaminated land:

- Firstly, the uncertainty surrounding the land devalues it;
- secondly, environmental risks that do exist expose organisations to possible liability, which is often difficult to quantify in extent or cost.

At **TEC** we understand the environmental risks and utilise our extensive brownfield and environmental knowledge to create added value and provide certainty wherever possible.

We have the expertise and vision to understand risk exposure and, working in partnership with our clients, deliver cost-effective solutions to help achieve business objectives by effectively managing the environmental risk and liability.



We have the knowledge, experience and technical expertise to offer a wide range of services to developers, contractors, employers, project managers, project financiers, other professional consultants and insurers from the inception and feasibility of any project, through the planning process to project delivery and beyond.

Contaminated Land

Many sites are contaminated with a range of chemical contaminants (brownfield sites). Some have additional issues with microbial and radioactive contamination due to their prior use.

TEC has the specialisms and expertise to identify the nature and extent of problems present, prepare risk assessments and identify a range of options for remediation of the site and the financial implications and opportunities for each option.



Legislation and Policy Advice

TEC works closely with legal advisers to ensure that the legal and technical advice provided in respect of legislation and policy is effectively integrated. Representing the Client's interests also involves liaison with the regulatory authorities, particularly with the Environment Agency and the various departments within the Local Authority (Environmental Health, Building Control, Planning etc.).

Effective communication with these regulatory authorities and legal advisers is vital to ensure that the main regulatory regimes that are in place are fully complied with. Advising upon the responsibilities of compliance with the existing regulatory regimes, while keeping abreast of likely changes in EU and UK policy, is a major element of **TEC's** service to our Clients.



The advice provided ensures that while projects meet all strict legal requirements they also embody the concepts of 'good practice' that have been developed through the establishment of excellent working relationships between the regulatory authorities, developers, and their professional advisers.

Liability Screening and Due Diligence

The request for advice is often triggered by a commercial property transaction when a buyer requires comfort with respect to the uncertainty associated with contaminated land issues.

Similarly, financial institutions providing commercial lending, with land as collateral will frequently require assurance with respect to issues which potentially affect the value of that security. Advice is also often required by individual property holders, of any scale, who have concerns relating to retained land which may potentially be affected by contamination.



While we understand that Contamination Risk Management for a development site can, on occasions, be an extensive process, we also understand the need for a rapid liability assessment of a potential site and have developed the **TEC Environmental Health Check** which provides an initial inexpensive screening of the likely environmental risk exposure associated with the site or sites.



Geo-Environmental Investigation and Assessment

Central to our integrated, rapid response service is **TEC's** access to a number of UKAS and Mcerts accredited laboratories, which allows a high degree flexibility while, at the same time, providing the control necessary to work within tight timescales. The ability to integrate the taking, analysis, and subsequent interpretation of samples as one seamless process is of considerable value in making an accurate assessment of site conditions and the extent of ground and groundwater contamination.



Remediation Design and Supervision

Where appropriate, we offer a complete service from the initial site appraisal, through design and remediation contracting supervision services to final verification and approval, enabling most contaminated sites to be returned to beneficial use.

TEC has the knowledge and experience to enable us to design schemes using the most appropriate technology in isolation or combination. This may involve bioremediation, stabilisation, vacuum extraction / air sparging, soil washing or, where more appropriate, engineering solutions such as encapsulation or disposal may be utilised. Our site supervision ensures the site remediation is undertaken to a clearly defined specification, so that the scheme fully meets regulatory authority requirements and our client's objectives.



Ground Gas Mitigation

Contaminated land is often associated with the presence of ground gas which is frequently as a result of on-site or nearby landfilling activities. **TEC** has the expertise to provide the required assessment of such sites and to provide appropriate mitigation strategies for both perceived and actual on-site gas risks.

Contaminated Land Remediation Expenditure Relief

The introduction of tax credits for the remediation of contaminated land in the 2001 Finance Act offers some significant financial benefits to owners of contaminated sites as well as developers (as long as they did not cause the contamination themselves). **TEC** not only provides a comprehensive range of services from the provision of advice on the potential liabilities associated with the ownership of land, but is able to provide expert advice and the technical assessment required to claim contaminated land tax credits.

TEC Environmental Health Check

Environmental liabilities are often sticking points or even deal breakers in property transactions. However, as the Turnbull Report reflected, 'profit is the reward for risk acceptance, not risk avoidance' and an appropriate appetite for risk is an essential part of sound commercial practice.

A major problem associated with environmental risk such as land contamination is the difficulty of accurate quantification. To a large extent this contributes to the stigma it brings and the mismatch in some cases between the actual and perceived risk.

However, regardless of the context, the majority of deals share similar objectives and intended outcomes. These include the following:

- Maximised profitability
- Minimised risk and uncertainty
- Avoidance of project delays and cost-overruns
- Full regulatory approval
- An easy and clean exit.

The goal of the **TEC Environmental Health Check** is provide a preliminary assessment of the likely business implications of environmental issues associated with a site or business.

What does the Health check provide?

- A review and gap analysis of available environmental data
- An assessment of the key environmental liabilities relating to potential ground and groundwater contamination
- An assessment of the exposure to potential liabilities in terms of likely clean-up costs and third party liabilities
- Risk-based categorisation of the site
- An assessment of the potential environmental issues to impact on rental income (or business interruption costs)
- Clear risk management recommendations to mitigate exposure to potential liabilities
- Where applicable, an assessment of the Director's personal and contractual environmental liabilities



Identifying a property's or a portfolio's exposure to environmental liabilities requires a blend of technical, legal, commercial and property skills. TEC has the skills required to deliver effectively a fixed-price review of your environmental liabilities and how best to manage them.

Contaminated Land Remediation Expenditure Relief

The introduction of tax credits for the remediation of contaminated land in the 2001 Finance Act offers some significant financial benefits to owners of contaminated sites as well as developers, so long as they did not cause the contamination themselves.

In short, a company may treat qualifying land remediation expenditure as if it were an amount equal to 150% of the actual amount of expenditure and claim relief for that enhanced amount in the relevant accounting period. The qualifying land remediation expenditure must relate to any estate, interest or right in or over land acquired by the company for the purposes of a Schedule A business or trade carried on by the company.



Key Points of the Legislation

If you have or are proposing to purchase land that is, or may be to some extent contaminated, the new Finance Act provides the following advantages:

- The Finance Act, 2001, offers property developers &/or owners a 150% Tax Credit for the costs of cleaning up the land. Therefore, should you pay Corporation Tax at 30%, you could get 45% of your remediation expenditure back depending upon your financial status.
- The legislation is not retrospective and the Tax Credits can only be claimed for qualifying expenditure incurred after 11 May 2001, but can be claimed up to 2 years after the expenditure.
- A claim for a tax credit must be made in writing, in the form of a (quarterly to annual) tax return within two years of the end of the accounting period in which the expenses incurred.
- To qualify, the site (or any part thereof) must have been contaminated at the time of purchase.
- The purchase price for land can reflect its contaminated state, but the conveyance contract cannot refer to this cost reduction as a subsidy. Therefore, the price needs to be fixed before purchase with no retrospective payment from the vendor for remedial costs.
- Preparatory works costs (such as site investigation and consultancy costs) can be included, so long as remediation has subsequently been undertaken.
- The "polluter" cannot claim tax credits under any circumstances. Nor can a third party that acquires a controlling stake in the shares of a company that caused the contamination.
- Tax Credits can be claimed (where suitable records exist) for direct costs and sub-contractor costs.
- This legislation is to be reviewed after five years and may then be revised or repealed.

TEC not only provides a comprehensive range of services from the provision of advice on the potential liabilities associated with the ownership of land, but is able to provide expert advice and the technical assessment required to claim contaminated land tax credits.

Geotechnical Engineering

TEC can deliver a comprehensive range of geotechnical engineering services, including feasibility and desk study appraisals, ground risk assessment management, design, specification and supervision of ground investigation contracts, interpretation of data, preparation of factual and interpretative reports, engineering design and value engineering analysis, provision of technical specifications, site supervision of earthworks and geotechnical processes during construction and expert opinions for investigations of failures and claims.



Our skills and expertise extend across the full range of geotechnical services and we understand the interaction of the geotechnical aspects of a scheme with other contributory issues, such as environment and planning. Practical problem solving is at the core of our values and, as a consequence, **TEC** provides innovative, yet cost effective, solutions to sensitive issues.

Highway Design

TEC has an extensive experience gained from both public and private sectors in geotechnical aspects of Highway Design and Construction, including feasibility studies, full geotechnical design services, ground investigation, geotechnical contract supervision, preparation of geotechnical aspects of tender documentation for Design and Build contracts and site liaison roles.



Rail Design

TEC has wide ranging experience in rail projects in the UK. Our experience includes geotechnical design services, geotechnical contract supervision, preparation of geotechnical aspects of tender documentation for Design and Build contracts and design on a number of major slope stability improvement schemes. We have provided remedial recommendations and designs including gabion walls, reinforced soil, sheet piling, granular replacement, drainage and soil nailing solutions as well as bridge abutment assessments.



Redevelopment

Re-development of a site often results in the need to provide extensive information on the geology and geotechnical suitability of the soils. A geotechnical investigation and assessment can be carried out at the same time as any geo-environmental investigations, providing an overall cost saving. **TEC** provides a full range of geotechnical engineering services for both urban and rural development.



Expert Witness

Geotechnical issues underlie many contractual claims, and are often of key importance in the resolution of arbitration and litigation proceedings. We have experience in preparing expert opinions and investigations of failures and claims.

It is recognised that our clients require high quality dedicated specialist geotechnical engineering solutions and support as well as TEC's contaminated land and remediation expertise.

Richard Evans
MSc BSc DIC CEng CGeol MIMM FGS
Geo-Environmental / Geotechnics

Richard specialises in geotechnics and contaminated land issues. He has over 17 years experience in geotechnics and ground remediation and has experience in all aspects of environmental engineering.

Richard is responsible for the development of geotechnical and geo-environmental consultancy services for **TEC** and has technical responsibility for all geotechnical aspects of projects undertaken for the company.



With an extensive range of experience working on contaminated sites including inner city, chemical works, gas works and industrial facilities, Richard has undertaken the design and delivery of geo-environmental investigations, reporting, qualitative and quantitative risk assessments, landfill design, negotiation of remedial strategies with regulatory bodies and delivery of remediation proposals.

Richard also has wide ranging experience gained from both public and private sectors in geotechnical assessment and design. His experience has been in an extensive variety of development and infrastructure schemes, including feasibility studies and initial assessment work, ground investigation, geotechnical design, remediation and Contract supervision, including Design and Build contracts.

Prior to working for **TEC**, Richard held successive positions in a number of major consultancies where he gained a broad experience in brownfield development and remediation and in the geotechnical aspects of highway, rail and development engineering. He has undertaken geotechnical site liaison roles on a variety of large construction sites, including Employer's Agents role for DBFO schemes and Geotechnical Liaison Engineer's role and has supervised the remediation of contaminated industrial and brown land sites.

Key Skills:

- Chartered Engineer and Chartered Geologist with broad experience in the geotechnical and geo-environmental assessment for a wide variety of development and infrastructure schemes throughout the UK and overseas.
- Geotechnical and geological desk studies and feasibility assessments for road, rail and tunnelling schemes throughout UK and overseas.
- Design and delivery of geo-environmental investigations, reporting, qualitative, semi-qualitative and quantitative risk assessments, landfill design, negotiation of remediation strategies with the regulatory authorities and delivery of remediation proposals for a variety of sites, including city regeneration schemes, and the redevelopment of former gas-works, papermills, rail engineering works, metal plating works, sewage treatment works, dock areas, chemical works and other industrial sites.
- Design and delivery of geotechnical investigations (both overseas and in the UK), geophysical surveys, hydrographical and topographical surveying, down-hole geophysical techniques and advanced in-situ testing. Interpretative reporting on ground and groundwater conditions for a variety of projects.
- Strong geotechnical design experience, including a variety of founding methods, retaining measures, ground improvement methods and embankment and cutting design and stabilisation measures for earthworks, natural slopes and structures.
- Extensive experience of development and construction sites, including the supervision of remediation for contaminated industrial and brown land sites and geotechnical site liaison roles on a variety of large construction sites. He also has experience of large development sites.

Ewan Tweedie

Geo-Environmental Services

Ewan is responsible for the development of geo-environmental consultancy services for **TEC** and has technical responsibility for all geo-environmental aspects of projects for the company.

Ewan has been in the industry for ten years and has wide ranging experience gained from both public and private sectors in geo-environmental assessment for a wide variety of development schemes, including feasibility studies and initial assessment work, ground investigation, remediation and geotechnical design and Contract supervision.



Prior to working for **TEC**, Ewan held successive positions in a number of consulting practices and local authority where he gained a broad experience in brownfield development and remediation.

Ewan has project managed geo-environmental studies and remediations throughout the UK and overseas both in the role as consultant and regulatory authority. He has been responsible for major schemes involving contaminated land identification, analysis, risk assessment and remediation of both ground and groundwater. He has extensive experience of the legislation involved in the control and redevelopment of contaminated land and also the measures required within these regulatory regimes to minimise environmental risk and associated liability.

He has extensive experience of large development sites, including the supervision of remediation for contaminated industrial and brown land sites.

Prior to joining the commercial sector Ewan undertook academic research in the field of groundwater / rock geochemical interactions.

Key Skills:

- Contaminated land specialist with eight years post academic experience
- Broad experience in the geotechnical and geo-environmental assessment for a wide variety of development schemes
- Extensive experience of the legislation involved in the control and redevelopment of contaminated land and also the measures required within these regulatory regimes to minimise environmental risk and associated liability.
- Development and supervision of remediation schemes including qualitative and quantitative "Risk Assessments" considering impacts on both groundwater and human targets, applying CLEA, U.S. EPA critical / acute methodology, SNIFFER, P20, RBCA and current UK Guidance. Experience of up to date QRA modelling software including RAM and CONSIM.
- Regulatory authority negotiations relating to mitigation of site environmental liabilities in most commercial environments included major re-developments and properties transfers. Extensive experience of large development sites, including the supervision of remediation for contaminated industrial and brown land sites.
- Particular expertise within the area of ground / landfill gas assessment and design of remedial measures.
- Extensive experience of large development sites, including the supervision of remediation for contaminated industrial and brown land sites.
- Broad experience of the provision of soils and hydrogeological impact assessments for inclusion within Environmental Statements for large scale strategic development.

TEC Services Summary

At **TEC** we provide consultancy and management services to a diverse range of clients from the property, land, financial, legal and construction sectors as well as local authorities and government agencies. In addition, we provide specialist sub-consultancy services to other third party professional bodies.

In addition to our services, we have made informal alliances with a number of other specialist consultancies to provide a further range of services such as architectural design, transportation, highway and drainage design, ecology, archaeology, landscape design, acoustics, flood assessment etc. This enables us to provide a more 'complete' service, where appropriate, and provides a single point of contact for the consultancy team. We feel that such an arrangement provides the benefits of having all consultancy services under a single 'umbrella' while maintaining the advantages offered by using small highly focused businesses.

Our **Environmental Risk Assessment and Management** services include:

- Contamination risk management
- Redevelopment and investment potential
- Property portfolio management
- Development planning
- Land appraisal
- Liability screening (**TEC Environmental Health Check**)
- Brownfield risk assessment
- Legislation and policy advice
- Local Authority liaison
- Environmental Agency liaison
- Financial security appraisals
- Ground investigations
- Hazard identification and toxicity assessment
- Remediation and recovery strategy
- Contaminated land Remediation Expenditure Tax Relief
- IPPC Application site reporting
- Waste management
- Environmental Statement chapters (Environmental Impact Assessment)

Our fully integrated **Geotechnical Engineering** include the following:-

- Desk study appraisals including review of historical and geological information, mining records and aerial photographs
- Design, specification and supervision of site investigations
- Laboratory testing including physical and chemical testing
- Factual and interpretative reporting
- Value engineering either at bid stage or during design/construction
- Detailed geotechnical engineering design supported by a comprehensive range of specialist software
 - ✦ Highway/Railway/Development earthworks
 - ✦ soft ground and hard rock tunnels
 - ✦ road pavements
 - ✦ shallow and piled foundations
 - ✦ sub-grade and slope drainage
 - ✦ cantilevered and propped embedded retaining walls
 - ✦ free standing retaining walls such as reinforced soil, crib walls, cantilevered reinforced concrete walls and gabion structures
 - ✦ Deep basement structures
 - ✦ ground stabilisation techniques including ground anchorages and soil nailing
 - ✦ ground improvement including lime stabilisation, vibro-replacement, vibro-compaction and dynamic compaction
 - ✦ soft ground engineering
- Provision of technical specifications
- Construction supervision
- Investigations of failures and claims
- Expert opinions and witness work

Why Should You Choose TEC?

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From project conception and investigation through planning to construction you can be confident that:

- **TEC** have the experience and versatility to provide a total long term practical solution
- Our integrated service ensures the potential of each site is fully realised
- Our extensive understanding of the regulatory and relevant planning processes allows a proactive approach
- Our depth and range of experience enables us to offer a complete range of specialist advice and review
- Our strong (informal) links with other environmental, legal and planning consultants together with transportation, civil and structural engineering professionals provides us with the back up often required for more complex sites

As registered members of **Constructionline TEC** has a proven assurance of quality. As members we can demonstrate that we have met the technical and financial standards required by the Department of Industry (DTI) for work in the public and private sectors.

Our emphasis is placed on service, efficiency and technical ability together with flexibility to respond to the demands of each individual project.

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