



STATEMENT OF CAPABILITY

Environmental and Geotechnical Consultancy Services

Introducing Kleinfelder Australia

Kleinfelder is an environmental and engineering consulting firm, with engineers, scientists and construction professionals, providing professional and technical services to meet and where possible exceed our clients' expectations. As part of the global Kleinfelder Group we have around 100 staff operating across Australia, delivering projects with local and international experience.

Our services include:

Contaminated Land Management

- Environmental Due Diligence
- Environmental Site Assessment
- Investigation & Assessment of Emerging Contaminants
- Environmental Remediation
- Landfill Operation & Waste Management

Geotechnical Engineering

- Investigation & Design
- Pavement Thickness Design
- Slope Stability Analysis & Remedial Works Design
- Soft Ground Construction & Improvement Measures
- Solar Pile Design & Testing

Ecology

- Flora & Fauna Impact Assessments
- Biodiversity Offsets
- Fauna Management Services
- Biodiversity Monitoring & Management
- Vegetation Mapping

Environmental Management, Approvals and Compliance

- Environmental Impact Assessment & Approvals
- Environmental Management & Compliance
- Heritage
- Bushfire Planning & Design

Land Management & Rehabilitation

- Mine Rehabilitation & Offsets
- Ecological Restoration
- Bushfire APZ Management
- Water Sensitive Urban Design



PROVIDING EXPERTISE FOR A WIDE RANGE OF MARKETS

Our highly qualified team provide innovative and sustainable solutions across all aspects of environmental consultancy and geotechnical engineering that benefit our clients, communities and environment. We empower our service lines with the agility to work standalone, or come together as a successful multi-disciplinary team to suit our clients needs. We provide our services across leading market sectors throughout Australia including all levels of government, renewable energy, power, oil and gas, port / water authorities, extractive industries, transportation and built development.

INTEGRATED MANAGEMENT SYSTEM

Kleinfelder is committed to implementing and managing all aspects of Health, Safety, Environment and Quality as an integral part of our business processes. Kleinfelder is accredited to:



A key element of our Integrated Management is the Loss Prevention System™. This is a proactive system, recognised by major international companies, to prevent or reduce losses using behavioural based tools and proven management techniques.

Environmental Due Diligence

Kleinfelder provides strategic advice to investors, developers, financiers and government bodies during the divestment, merger and acquisition of property to mitigate the risks posed by land contamination.

Projects

- Undertook pre-purchase environmental due diligence assessment of a 120 year old, 3ha industrial manufacturing facility. The rapid turnaround assessment included a gap analysis and updated assessment of groundwater quality across the site to provide information on potential contamination constraints for future ownership / redevelopment. Sydney, NSW (Arup / Microsoft)
- Kleinfelder managed their client's environmental compliance obligations for their network of 56 service stations. A key component was to complete leak detection monitoring in line with Victorian EPA UPSS 888.4 guidelines. This involved an annual groundwater monitoring program, review of stock inventory reconciliation reports, Sensitive Site monitoring and UPSS decommission assessments. Various locations, Victoria (Confidential Client)



PROFILE

Land contamination arises from the current or historical use of a property and may pose a significant risk to human health and aspects of the environment. Identifying the potential contamination status of property during the transfer process is a critical step to mitigating both financial and legal liabilities associated with the ownership of contaminated land and avoiding restricted property use.

Kleinfelder provides environmental due diligence services to support the transfer or sale of property, including mergers and acquisitions of assets. We offer a range of services from desktop reviews to full site investigations, including planning level budget estimates for the remediation of soil and groundwater.

OUR SERVICES

- Identifying environmental liabilities related to property acquisition and divestment
- Multi site due diligence assessments of large property portfolios
- Estimating the financial liability presented by soil and / or groundwater contamination
- Contamination constraints assessment of future land use to assist development decision-making
- Litigation support
- Peer review of the adequacy of due diligence reports prepared to support the transaction process

Peer review assessments can include:

- Reviewing reports and findings to ensure they are fit for purpose
- Ensuring adequacy of due diligence reports / assessments that are being used in property transfers
- Providing advice in real estate transactions and liability transfers
- Cost review
- Sediment management
- Potential contamination to soil / groundwater

Environmental Assessment and Monitoring

Kleinfelder's contaminated land team operates across Australia, undertaking site assessments and monitoring on a wide variety of operational and closed sites. We support clients in the oil and gas, utilities, and civil construction industries, as well as financial institutions, governments, local authorities, and private developers.

Projects

- Site Assessment and ongoing monitoring and remediation of former refinery site, under statutory audit in SA (Confidential Client)
- Site Assessment of former Liddell Power Station, Muswellbrook, NSW (AGL)
- Site Monitoring of Essendon Airport, VIC (Essendon Airport Pty. Ltd.)
- Site Assessment and Monitoring Program under VSCAP of site at Port Bonython, SA (Santos)
- Preliminary and Detailed Site Investigations of former industrial sites undergoing statutory audit, VIC (Gillon Group)
- Site assessment, remediation, and ongoing monitoring of former Augusta Power Stations site, Port Augusta, SA (Flinders Power)
- Site Assessment and ongoing monitoring of operational fuel terminal in SA (Confidential Client)
- Site Assessment of four sites in metropolitan Adelaide with historic chlorinated hydrocarbon groundwater contamination (SA EPA)



PROFILE

Land contamination can result from a variety of activities and, if not managed appropriately, can impact soil and water quality. The presence of toxic substances creates the potential for adverse impacts on human health and the environment. Kleinfelder undertakes environmental site assessments (ESAs), including Preliminary and Detailed Site Investigations, to assess the potential of soil and groundwater contamination and, where it exists, robustly characterise the nature, extent, and magnitude of the problem. Kleinfelder has extensive experience in conducting ESAs across a range of industries, including mining and extractive industries, petrochemical and manufacturing, as well as in the infrastructure, commercial, residential and government sectors. Kleinfelder can use the findings from ESAs to establish and inform the update of groundwater site monitoring and management plans and assist with the development of remediation and rehabilitation options.

With a reputation for delivering cost-effective and pragmatic solutions for clients facing environmental issues, Kleinfelder also has extensive experience in undertaking site monitoring programmes to comply with regulatory requirements and voluntary undertakings, interrogating mandated monitoring and management programmes to ensure data can properly inform the risk profile, and liaising closely with regulators to review and amend plans to minimize the collection of redundant data.

OUR SERVICES

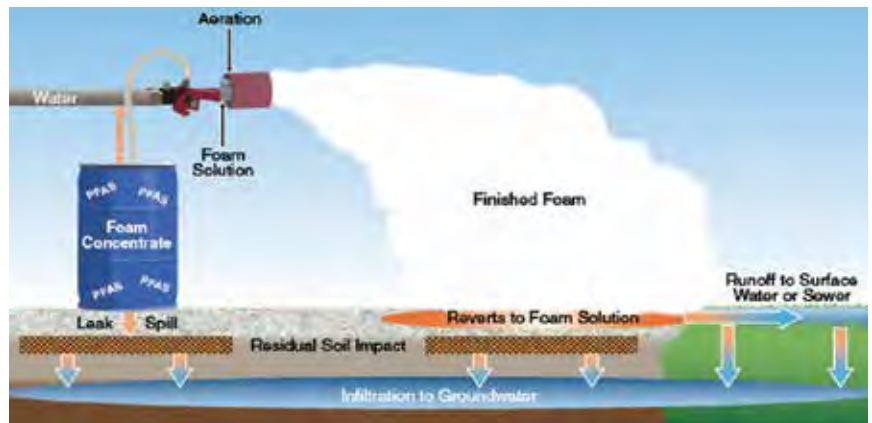
- Ground- and surface-water impact investigation and risk analysis
- Soil impact investigation and risk analysis
- Soil and groundwater management and monitoring programs
- Supporting compliance with regulatory requirements
- Waste classification and disposal advice
- Remediation options appraisal, detailed design, and validation

Emerging Contaminants - PFAS

Per- and Polyfluoroalkyl Substances (PFAS) have emerged as a contaminant of interest around the globe, particularly at sites where Aqueous Film Forming Foam (AFFF) firefighting products were used and stored. Kleinfelder is a leader in PFAS environmental issues, leading industry working groups, developing guidance documents and best practices, presenting at technical forums and conferences, and frequently interacting with regulators, clients and peers on PFAS investigation and exposure assessment.

Project examples include:

- PFAS Characterisation at Large Industrial Facility (Confidential Client)
- PFAS Characterisation at an Operating Fuel Terminal (Confidential Client)
- Assessment & Remediation at the Former Port Augusta Power Station & Leigh Creek Coal Mine (Flinders Power)
- Development of PFAS Guidance Documents for Major Oil Company (Confidential Client)
- Assessment of historical use of AFFF (Mannering Colliery)
- PFAS Characterisation and Remediation at a Metal Industrial Facility (Confidential Client)
- PFAS Characterisation, Management and Remediation at an Operational Airport (Confidential Client)



PFAS INDUSTRY THOUGHT LEADERSHIP

Kleinfelder's technical experts are global thought leaders on PFAS and actively contribute to the body of knowledge and shape the conversation on the subject matter.

- ALGA Forum, Adelaide, March 2017 - Why all the fuss about PFAS? Investigation and Remediation. Presentation.
- ACLCA Forum, SA, April 2018 - Technical Resources for Addressing Environmental Releases of PFAS. Joint Presentation with SA EPA.
- Interstate Technology and Regulatory Council (ITRC) - Kleinfelder's Global PFAS Program Director serves as a section leader for the ITRC PFAS team and co-led development of the ITRC PFAS History and Use factsheet in the U.S. The factsheet is being used as reference material by the U.S. Department of Defence in its testimony in the U.S. Congress House Energy and Commerce Subcommittee on Environment.

PFAS CHARACTERISATION, ASSESSMENT & MANAGEMENT

Our expertise provides an enhanced understanding of the PFAS conceptual site model, plume dynamics, interaction with surface water, remedial options assessments, and risk management for a variety of industries and environmental settings. We provide these services while monitoring and participating in a changing regulatory, legal, and public awareness landscape.

Environmental Remediation

Using a Single Point of Accountability (SPA) model, Kleinfelder provides the role of Principal Contractor to deliver pragmatic soil and groundwater remediation solutions as well as complete client solutions to support civil contracting needs.

Projects

- Remediation at former power station / coal mine in accordance with voluntary arrangement with the EPA. Adelaide, SA (Confidential Client)
- Emergency response for removal of asbestos in soils during solar farm construction. Finley, NSW (Signal Energy)
- Remediation of soil and groundwater at a former industrial metal plating facility involving heavy metals and PFAS. Brisbane, QLD (Confidential Client)
- In-situ remediation of hydrocarbon impacted groundwater at former service station sites. Multiple States (Confidential Client)
- Fuel release from diesel storage tank due to failed conduit. Emergency response included installing a recovery trench, soil remediation, and preparing an Extent Assessment Report (EAR). Brisbane, QLD (Confidential Client)
- Large fuel release due to faulty refueling tanker at a service station. Response included protection of adjacent waterway, extraction of fuel from drains, and soil remediation. Albury, NSW (Confidential Client)



PROFILE

Contaminated soil and groundwater present potential harm to people and the environment. Most soil and groundwater remediation projects require a degree of civil works to be undertaken in order to achieve the stated cleanup objective. Civil works may include the decommissioning of site infrastructure (above and below ground), installation of active treatment systems as well as bulk excavation and disposal of contaminated soil.

Kleinfelder provides practical and effective solutions for contaminated soil and water issues, including design, implementation, and operation and maintenance of treatment systems. Project life-cycle solutions are provided for treatment of soil and groundwater affected by a wide range of contaminants, including PFAS, petroleum hydrocarbons, chlorinated solvents, and heavy metals.

Kleinfelder operates as an SPA so that clients do not have to engage several independent organisations to meet their goals. The SPA model has proven to be a cost-effective and streamlined approach to achieve remediation and decommissioning goals. Kleinfelder designs and installs remediation solutions and provides full project management throughout the life of the system, including validation monitoring to ensure achievement of remediation goals.

OUR SERVICES

Remediation services include:

- In-situ and ex-situ soil and groundwater remediation, including soil vapour extraction
- Facility decommissioning, including demolition of buildings and infrastructure (industrial, petrochemical, and mining).
- Underground storage tank (UST) removal and disposal
- Major cut/fill earthworks, including the design and construction of capping and containment systems
- Emergency response to pollution incidents, including hazardous material source control, treatment, and disposal
- Civil earthworks 12D design to optimize site contouring and reduce remediation volumes and associated costs
- Removal and remediation of asbestos in buildings, infrastructure, and soil



Landfill Monitoring, Waste and Aftercare Management

Kleinfelder delivers best-practice, innovative and cost-effective solutions in all aspects of landfill monitoring, waste and aftercare management. With science and engineering practitioners across Australia, the Kleinfelder team is capable and accomplished in supporting clients overcome their environmental challenges.

Projects

- Conducted a comprehensive environmental assessment of a metropolitan landfill associated with a 53x Audit, including installation of LFG / leachate monitoring network, ongoing data review and assessment, additional LFG and hydrogeological assessments, stakeholder liaison and community engagement. VIC (Cleanaway)
- Five year Environmental monitoring, across 3 sites, in accordance with Environmental Management Plans (EPMs), including annual and quarterly groundwater, surface water and leachate monitoring. Prepared annual compliance reports and updates to EMPs and environmental risk assessments. Various locations, Victoria (Mitchell Shire Council)
- Three year post closure environmental monitoring program including groundwater, surface water, leachate and landfill gas. Prepared EMPs, Annual Compliance and NPI reports. VIC (Central Goldfields Shire Council)
- Hydrogeological assessment. QLD (Cleanaway (Formally TPI))



PROFILE

Key environmental challenges faced by our clients include the management of landfill gas (LFG) and leachate containing high concentrations of organic and inorganic compounds. These products unfortunately can migrate towards neighbouring sites and require technical expertise and technologies to mitigate.

The Kleinfelder waste management team have considerable experience across these areas. We are familiar with state Environmental Protection Authorities, landfill licencing, post-closure requirements, landfill environmental monitoring, environmental auditors, reporting requirements and issues faced by both metropolitan and rural landfill operators.

OUR SERVICES

- Groundwater, surface water, leachate and landfill gas monitoring
- Waste categorisation and management
- Strategic planning and post closure landfill management
- Landfill gas modelling and risk assessment
- Hydrogeological modelling and assessment
- State regulatory compliance reporting
- Landfill flare emissions monitoring
- Detailed leachate assessments (including bacterial)
- National pollution inventory (NPI) reporting
- Stakeholder and community consultation
- Human Health and Environmental Risk Assessment (HHERA)

In-Situ Remediation

Kleinfelder has a team of in-situ remediation experts with a proven track record in the area of soil and groundwater site closure. The team adopt a Single Point of Accountability (SPA) model to effectively close sites and offer our clients a proven cost-effective and streamlined approach to achieve their goals.

PROJECTS:

- Conducted over 90 Underground Storage Tank (UST) removals in the Pacific Islands and Australia. Through the program Kleinfelder performed bioremediation, operation of both fixed and mobile water treatment, MPE and SVE systems. Various locations (Confidential Client)
- Completed several soil remediation programs, including the removal of asbestos, hydrocarbon and PFAS affected materials. The programs included liaising with relevant regulatory authorities, preparation of safety and technical based documentation, engaging with technical experts, and stringent waste tracking. Adelaide, SA (Confidential Client)
- Prepared Remediation Option Assessments (ROA) for groundwater at various areas of a former refinery. This included the installation of permeable reactive barriers, the the installation of sumps for a bulk groundwater pump and treat system, slurry walls, and PlumeStop™ within a deeper regional aquifer. Adelaide, SA (Confidential Client)
- Prepared Remediation Option Assessments (ROA) at three active services station, prior to completing groundwater remediation design adopting ISCO injection technologies. The successful implementation, facilitated the completion of statutory audits and regulatory closure of all three sites. Western Australia (Confidential Client)



PROFILE

Contaminated soil and groundwater can represent a risk of harm to people and the environment. In-situ remediation is used for the remediation of harmful contaminants without the need for bulk excavation, resultant material storage, external treatment and off-site disposal. In-situ remediation often results in faster treatment and lower total life cycle costs.

Kleinfelder have significant experience in remedial design, pilot and bench test programs, permitting, installation and operation of various in-situ remediation systems. Our expertise is all in-house with the exception of global experts that allow us exclusive access to patented and proprietary technologies.

OUR SERVICES

In-situ Remediation services include:

- Groundwater Containment through recovery and treatment
- Air Sparging (AS) and Soil Vapour Extraction (SVE)
- Multi-phase extraction (MPE) systems
- In-Situ Chemical Oxidation (ISCO) and Solvent-enhanced ISCO
- Co-solvent flushing for non-aqueous phase liquid (NAPL)
- Bioremediation
- Monitored natural attenuation
- Emerging contaminants (PFAS and 1,4-Dioxane)

Geotechnical Engineering

Kleinfelder provides the highest quality geotechnical investigation, design and construction phase services to support our clients' projects from the ground up.

PROJECTS:

- Undertook exploratory test pitting, and chemical soil and geotechnical laboratory testing. Conducted thermal and in-situ electrical resistivity testing, pile load testing, and pile drivability testing for the development of a 149 MW solar farm. Provided client with a geotechnical evaluation report and corrosion protection report, then utilised both to provide an economic detailed steel pile foundation design. Glenrowan, Victoria (Signal Energy)
- Determined a target list for ground truthing, mapping and assessment of soils, to inform 350km firetrail design around a proposed training area. Included areas of soft or dispersive ground, duricrusts, silts, river crossings and naturally occurring asbestos. Greenvale QLD (Dept Defence)
- Provided pavement condition assessment, geotechnical and pavement investigation services, interpretative reporting and pavement design for a range of transport improvements projects. Lake Macquarie, NSW (LMCC)
- Completed detailed ground investigation to provide further understanding of the subsurface condition on large infrastructure project. Included over 85 geotechnical, environmental, and hydrological boreholes and performing geotechnical sampling and field tests. Torrens to Darlington, SA (DIT)



Our highly skilled and experienced staff have a strong understanding of the geotechnical issues faced by modern construction teams and how these issues can impact the overall project. Kleinfelder's geotechnical professionals provide innovative solutions and advice to mitigate project risks and anticipate and overcome challenging ground conditions.

Specialising in the design of solar array piles, Kleinfelder has provided detailed foundation design and construction supervision for solar projects generating more than 26 Gigawatts of renewable energy across Australia and the United States.

Kleinfelder's geotechnical capabilities include, but are not limited to:

- Geotechnical investigation and design
- Solar pile load testing
- Tailings dam auditing and design
- Design of shallow and piled footings for all structures
- Basement design
- Temporary works design
- Slope stability analysis and remedial works design
- Mining subsidence studies
- Design of shallow foundations for commercial, residential, industrial, and mine structures
- Pile design including settlement reducing piles
- Ground improvement measures for construction on soft ground
- Geotechnical audits and design of tailings dams
- Soil nail design and rock anchor design
- Pavement design
- Assessment of rock cuttings and design of rockfall protection measures



Flora & Fauna Impact Assessments

Kleinfelder's ecology team has the qualifications, experience, and expertise to guide and assist clients with all aspects of Flora and Fauna Impact Assessments.

PROJECTS:

- BDAR report conducted in accordance with the BAM to assess the impacts of a proposed new school. The assessment found potential for only minor indirect impacts on vegetation. Warnervale, NSW. (Warnervale Public School)
- The project involved Proposed development of a State Significant Infrastructure requiring a BDAR in accordance with the BAM. As EPBC-listed flora and fauna species identified within the immediate vicinity of the project site, an EPBC referral was also conducted. Tomago, NSW. (AGL)
- Proposed subdivision and redevelopment of client's site required submission of four BDARs and three EPBC referrals. Morisset, NSW. (Scorpi Holdings)
- A Baseline Habitat Quality Assessment for numerous biodiversity values was conducted to ensure compliance with both state and federal legislation. Rolleston, QLD. (Glencore)
- Constraints assessment conducted to compile a summary of flora, fauna, vegetation communities, and habitat features at the site. The data was used to determine vegetation condition scores and Significant Environmental Benefit (SEB) obligation for project impacted areas. Maude, SA. (Solar River Farm Project)



Across Australia, each State has its own customised approach to assess biodiversity impacts for planning applications.

STATE QUALIFIED

Kleinfelder's ecologists are qualified to provide the following assessments:

- Biodiversity Development Assessment Report (BDAR) (NSW)
- Biodiversity Certification Assessment Report (BCAR) (NSW)
- Bio-Condition Assessments (QLD)
- Vegetation Quality Assessments (VQA) (VIC)
- Native Vegetation Assessments (NVA) (SA)
- Environmental Protection and Biodiversity Conservation Assessments & Referrals (EPBC) (Commonwealth)

With significant knowledge of the Biodiversity Assessment Method (BAM) and a team of Accredited Assessors and Native Vegetation Accredited Assessors, Kleinfelder is well versed and competent in initiating appropriate impact assessment legislation methodologies.

Kleinfelder's field teams utilise the most up-to-date on-site technologies, including handheld devices (such as Trimble), ESRI Collector App, and a customised version of iForms App as well as drone technology, where appropriate. This ensures accurate, relevant, and timely data is captured for each project.

Biodiversity Offsets

Biodiversity offsets are often required for projects where residual impacts to biodiversity cannot be avoided or mitigated, or at the request of relevant consent authorities. Offset sites or stewardship sites must be managed to ensure that biodiversity values are maintained and improved in perpetuity.

PROJECTS:

- Prepared a BSSAR for a 500 ha biodiversity offset site (stewardship site) in NSW. The site successfully generated both ecosystem and species credits to be registered under the NSW Biodiversity Offset Scheme. Lower Hunter Valley, NSW (Delta Associates)
- Conducted an ecological assessment to evaluate the feasibility of a proposed biodiversity offset site to be secured in advance of a project approval. Relevant baseline information was provided to the client to highlight key development constraints. Middelmont, QLD (Anglo America)
- Assisted in establishing a biodiversity stewardship site on a 240 ha land parcel. Positive project outcomes included the generation of 1200 ecosystem credits and over 2200 species credits for threatened species, including the Squirrel Glider, Brush-tailed Phascogale and Koala. Vacy, NSW (Hayden Smith (Judy Croese))
- Assisted with the creation of a biodiversity stewardship site on a 2500 ha land parcel. A staged approach was used to develop a stewardship site that generated ecosystem credits for four Plant Community Types (PCTs) and species credits for threatened species, including the Squirrel Glider, Koala and Netted Bottle Brush. Dungog NSW. (Raglan (Mark Farrell))



PROFILE

Kleinfelder's accredited ecologists have extensive experience with biodiversity offsetting, undertaking ecological investigations and preparing all necessary documentation and approvals to guide clients through the offset pathway. Our senior ecologists have an indepth knowledge of State and Commonwealth requirements, including recent legislative reforms.

The ecology team is competent at undertaking fieldwork, biodiversity offset calculations, resultant reporting and liaising with the consent authorities. We aim to provide clients with ongoing advice and support, with an approach that is both streamline and flexible, to achieve positive offsetting outcomes.

OUR SERVICES

Kleinfelder's ecologists are qualified / accredited in each State's legislative offset requirements, including:

- Biodiversity Stewardship Site Assessment Reports (BSSAR) (NSW)
- Advanced Offsets (QLD)
- Significant Environmental Benefit (SEB) (SA)
- Flora and Fauna Guarantee Act (FFG) (VIC)
- Commonwealth Offset Assessment Guide

Fauna Management Services

Kleinfelder provides Fauna Spotter Catcher (FSC) services and Fauna Habitat services to manage risk for construction sites. Through implementation of best practice methods, fauna is safely and ethically removed during construction operations.

Projects include:

- Placed up to 14 Kleinfelder FSCs in rotation to service well construction activities and associated infrastructure (Corbet's Group). Additional fauna management services provided for existing assets (QGC). Dalby, QLD (QCLNG)
- FSC services as part of the construction of Grosvenor Mine and on-going services with Grasstree, Lake Lindsay, Oak Park, and German Creek Mines. Middelmount, QLD (Anglo America)
- FSC services as part of the construction of Byerwen Mine and the ongoing work at Sonoma Mine. Central Qld (QCoal)
- FSC services for numerous TMR civil projects in the Mackay / Whitsunday / Isaac Regions. Mackay, QLD (Department of Transport and Main Roads)
- Performed habitat feature surveys and mapping, pre-clearance fauna surveys, and FSC supervision of habitat tree felling during pre-mining operations for two mine extensions within the client's mine complex. Greater Hunter Region, NSW (Confidential Client)
- Performed FSC supervision of habitat tree felling, along with habitat feature surveys and mapping, and pre-clearance fauna surveys during pre-mining operations for the Northern Dunes Extension and Lot 2 Extension for the Tanilba Northern Dunes Sand Extraction Project. Port Stephens, NSW (Sibelco Australia)



Kleinfelder's FSCs / fauna ecologists are appropriately qualified and experienced to assess for, capture, care for, and release wildlife affected by habitat disturbance activities.

Our team is also competent in:

- Pre-clearance habitat surveys
- Fauna handling and condition assessment
- Fauna relocation, including venomous snakes
- Detailed data collection and reporting

Kleinfelder's key objective is to manage the risk posed to wildlife and to construction employees by displaced wildlife.

Each member of Kleinfelder's FSC team has successfully completed a Fauna Spotter Catcher Training Program and has been awarded national accreditation units for competency in animal management and welfare.

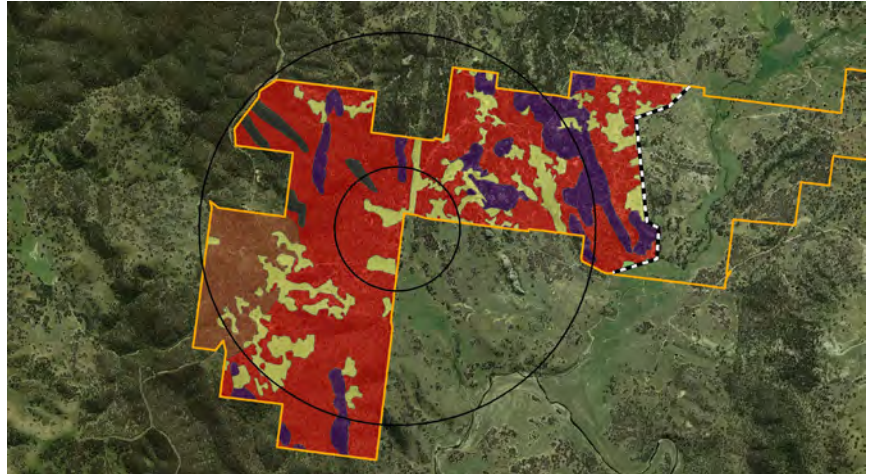
The course was jointly created by Kleinfelder and Snake and Spider Safety Awareness for Employees (SSSafe), in a VET partnership with RTO Risk Response and Rescue (RR&R). The course is the only one of its kind, offering a suite of nationally recognised, certifiable skills and competencies.

Biodiversity Monitoring, Management and Compliance

Kleinfelder's experienced team of ecologists and environmental planners can help you manage and plan for better environmental outcomes as part of your approval obligations. Our professionals will work with you to ensure your project stays compliant through the construction and operation phase, and throughout the ongoing management and monitoring phases.

PROJECTS:

- Monitored native vegetation for three of our client's facilities for more than 10 years. Monitoring included vegetation plots, fauna surveys, threatened flora counts, nest box installation and monitoring and reporting for yearly compliance obligations. Greater Hunter Region, NSW (Client Confidential)
- Management of the on-site ecological compliance component for the construction phase of a new school building. This included monitoring of clearing works, threatened fauna surveys and monitoring, and the induction of contractors and reporting. Sydney, NSW (Manly Vale Public School)
- Previously designed an offset strategy for the approval of a gas storage facility 7 years ago and have since monitored the offset sites in accordance with conditions of consent, ensuring the project remains compliant. The monitoring included floristic plots, weed management, feral animal management, track maintenance and reporting. NSW (AGL)
- Undertook the ecological and bushfire assessments more than 10 years ago and have been awarded the monitoring of the industrial subdivision and the neighboring wetlands. This involves monitoring of the mapped weed infestation, boundaries of vegetation communities and vegetation community health as well as comparing year on year results and reporting to ensure vegetation maintenance and / or improvement. Hunter Region, NSW (Redlake Enterprise)



BIODIVERSITY MANAGEMENT PLANS

Kleinfelder are adept at devising Biodiversity Management Plans (BMPs) to help our clients identify, prioritise and work to preserve conservation and rehabilitation areas on their sites. We pride ourselves on providing our clients with a coordinated approach to identify and protect the natural environment at their sites and work with them to devise:

- Rehabilitation Plans
- Vegetation Management Plans
- Fauna Habitat Plans

These seamlessly promote the best options for the specific ecosystems present and work with a longer-term view towards best management of the sites and achieving compliance.

MONITORING FOR COMPLIANCE

Approval for projects granted under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) can be subject to an audit. Therefore, Kleinfelder assists our clients by providing site monitoring and compliance assessments. Kleinfelder has undertaken such audits for major clients across mining, development and energy sectors, with many choosing to continually return to Kleinfelder for more than 10 years, citing the team's 'professionalism', 'exceptional work ethic' and 'can-do attitude' as their reasons.

Vegetation Mapping

Our team of highly skilled botanists can undertake and complete large-scale community classification and mapping projects.

PROJECTS:

- Ragland No.6 Biodiversity Stewardship Site Assessment Report. Cambra, NSW (Mark Farrell)
- AGL Macquarie Gas Fired Power Station. Tomago, NSW (Aurecon)
- Bayswater and Liddell Vegetation Mapping Project. Muswellbrook, NSW (AGL Macquarie)
- Lower Hunter Estuary Vegetation Mapping. Tomago, NSW (Office of Environment and Heritage)
- Hexham Swamp Vegetation Mapping. Hexham, NSW (Local Land Services)
- Lineal survey to obtain baseline information on weed identification, abundance and distribution. Central Highlands, QLD (Central Highlands Regional Council)



A significant number of projects undertaken by Kleinfelder involve a vegetation classification and mapping component. Therefore, Kleinfelder staff have experience in native vegetation surveys, classification and mapping across NSW, QLD, VIC and SA. This knowledge allows us to accurately utilise appropriate survey methodologies when undertaking various projects and provide reliable data and advice to our clients. Kleinfelder utilises a range of GIS systems to assist in conducting vegetation surveys during remote sensing, data capture and, mapping and graphic design stages of our clients' projects, whether they be small site assessments or large vegetation mapping projects.

OUR SERVICES

Kleinfelder offers vegetation community classification and mapping services for:

- Detailed vegetation community classification and mapping projects
- Threatened Ecological Community classification and mapping
- Assessments under the NSW Biodiversity Conservation Act 2016 (BAM)
- Stewardship Site Assessments (NSW)
- Regional Ecosystem Identification (QLD)
- Vegetation Quality Assessments (VIC)
- Native Vegetation Council Assessments (SA)

Environmental Impact Assessment and Approvals

With experience across multiple market sectors, including urban development, mining and extractive industry, energy and renewables, telecommunications, and infrastructure, our dedication to understand our clients and their projects, coupled with our experience and capability, ensures we are well positioned to achieve your project goals.

PROJECTS:

- Environmental Impact Statement (Williamstown Sand Syndicate)
- Environmental Impact Statement (Dark Creek Quarry)
- Statement of Environmental Effects (Hunter Valley Solar Farm)
- Review of Environmental Factors (Sandy Creek Road)
- Reviews of Environmental Factors (Milgang Bridge, Crawfords Bridge)
- Reviews of Environmental Factors (Alex Avenue lead in sewer, Kemps Creek water main upgrade)
- Approval Pathway, Goorgangar (Queensland Department of Transport and Main Roads)
- Planning Approvals, SA (Refinery Decommissioning)
- Development Application and post Approvals, SA (Port Augusta Power Station Remediation)
- Crown Development application, SA (Osbourne Cogeneration Plant expansion)
- Multiple subdivision development applications (Thornton North, Anambah, Lochinvar Urban release areas)



PROFILE

Kleinfelder's team can support each phase of a development, from site selection and due diligence, approvals and licensing, construction and operations, and even through to project completion. We can cover the entire development process through our in-house capabilities, including planning, environmental construction management, environmental auditing and reporting, and site rehabilitation.

Kleinfelder has experience in facilitating and implementing a wide range of consultation with land holders, stakeholder groups, public, and regulatory authorities to ensure a smooth approval process.

OUR SERVICES

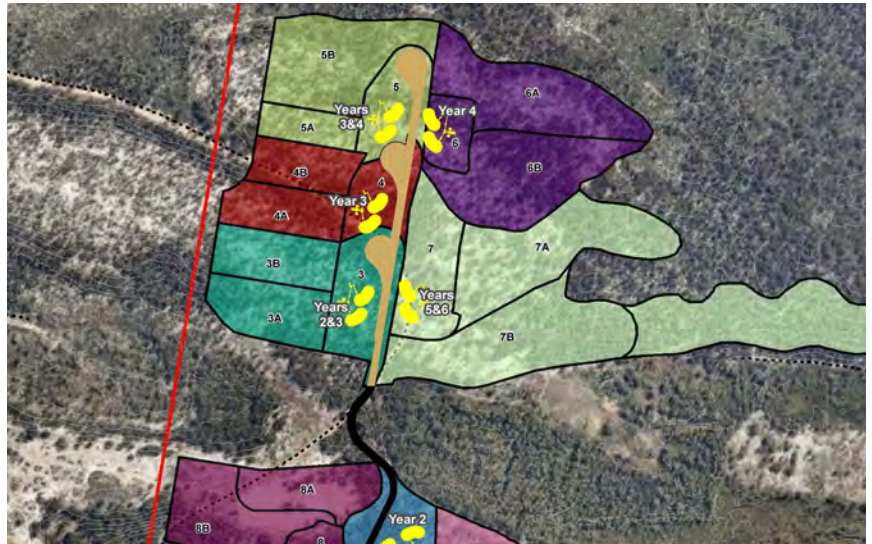
- Planning approval pathway advice
- Environmental Impact Statements (EIS)
- Environmental and social impact assessments (SEE, REF, PER)
- Direction, management and coordination of specialist studies
- Planning proposals and applications for land rezoning
- Site suitability assessment
- Due diligence, site identification, and best-use advice
- Environmental management plans
- Integration of mapping and GIS
- Regulatory and community engagement
- Compliance assistance and auditing
- Strategic planning, including masterplanning
- Sustainability plans
- ISCA accreditations, implementation and management

Environmental Management

Kleinfelder's Environmental Management, Approvals, and Compliance (EMAC) team helps maintain compliance with project approval and licencing conditions whilst providing environmental management expertise during project construction and operations.

PROJECTS:

- Collation of emissions data for National Pollutant Inventory submission and state emission compliance (Vic)
- Environmental and site contamination sampling program, 240 ha industrial site (SA)
- Environmental management plans for 37 maintenance depots, indoor air testing, and environmental awareness training (Department of Transport, Vic)
- Spotter catcher services for land clearing (Grosvenor Coal Mine, QLD)
- Environmental compliance works, including biodiversity monitoring, accommodation and employment monitoring, grassland monitoring, Construction Environmental Management Plan, and preparation of sub plans (Darlington Point Solar Farm, NSW)
- Construction Environmental Management Plan, landscape management plan, vegetation management plan, sewer trunk main (Warnervale, NSW)
- Flora and Fauna Operational Management Plan, environmental compliance works, including for installed Asset Protection Zone (Lindfield Learning Village, NSW)
- Annual Environmental Management Reports (AEMRs) for five sand quarries (NSW)



Complementing our environmental impact assessment and approvals experience, Kleinfelder can assist with your post approval obligations. We help our clients attain permits and licenses, coordinate monitoring equipment, and develop management plans to move projects through construction and into operations.

With experience during all phases of a project, our team can help you manage and maintain your project's ongoing environmental compliance. We are also suitably qualified to provide independent environmental compliance audits across a broad range of sectors.

KLEINFELDER'S ENVIRONMENTAL MANAGEMENT CAPABILITIES

- **Environmental Management Systems** – we ensure project approvals, plans, and compliance work is conducted in a way that achieves the best project outcomes.
- **Environmental Management Plans (EMP)** – we help our clients develop management plans, both EMP and CEMP, to meet approval conditions.
- **Monitoring** – by quantifying data we can demonstrate compliance with regulations and approvals. We assist our clients with ongoing site management to establish monitoring networks for air, noise, and water.
- **Management Plans** - we prepare relevant management plans such as Vegetation Management Plans, land management plans, soil management plans, bushfire management plans.

Bushfire Planning & Design

Kleinfelder has been providing bushfire consulting services for more than 15 years across Australia. Over this time, we have developed a broad range of solutions designed to overcome diverse challenges.

Projects

- Designed and certified Asset Protection Zone (APZ) for school redevelopment (School Infrastructure NSW)
- Bushfire Management Plans for all Inland Waters Holiday Parks (Reflections Holiday Parks)
- BPAD consultant review of Bushfire Audits at all Australian Defence bases (Aurecon)
- Bushfire Threat Assessment for proposed new State Significant Development (Warnervale Public School)
- Devised and conducted ecological and burn planning training workshop (Government Agencies & Local Land Services)
- Planned and managed ecological burns (Mid Coast Council)
- School bushfire protection project for 301 schools across rural Victoria (Victorian Department of Education)
- Independent consultant review of bushfire component of a planning proposal (Independent Planning Commission (IPC) NSW)



PROFILE

Kleinfelder utilises the services of Bushfire Planning and Design (BPAD) Accredited Level 3 Practitioners to provide bushfire planning and design services.

OUR SERVICES

Kleinfelder has prepared bushfire threat assessments, bushfire risk management planning, and prescribed burn planning and management in accordance with the relevant legislative policies.

Our bushfire services extend to:

- Bushfire Attack Level (BAL) Assessments
- BAL Certificate Exempt & Complying Development
- Bushfire Management Plans
- Ecological / Biodiversity Offset Burns
- Emergency Management Planning
- Fire Management Training
- Integrated Development Approvals
- Professional Review and Compliance Audits
- State Significant Development



Heritage

Kleinfelder provides a range of heritage services across a range of market sectors including renewable energy, urban development, mining and extractive industries, and infrastructure.

PROJECTS:

- Due diligence exploration for West Wallsend Colliery (NSW)
- Aboriginal cultural heritage management plan for a residential development, Fletcher (NSW)
- Aboriginal heritage impact permit, Bolwarra Heights (NSW)
- Aboriginal heritage due diligence assessment, Milgang Bridge upgrade, Ellalong (NSW)
- Archaeological assessment, Xstrata Coal, Bulga (NSW)
- Aboriginal cultural heritage assessment, Centennial-Mannering Colliery (NSW)
- Aboriginal heritage due diligence assessment, Sandy Creek Road Upgrade (NSW)
- Aboriginal heritage due diligence assessment, Black Hill Road widening project (NSW)
- Aboriginal heritage due diligence assessment, Heddon Street upgrade and cycleway (NSW)



PROFILE

Kleinfelder provides archaeological, Aboriginal cultural heritage and historic heritage services to a wide range of clients. This includes preliminary and due diligence assessments through to impact assessments and permits, traditional owner and community consultation.

We provide objective heritage advice based on a solid understanding of relevant legislation. Our assessments are made on a case-by-case basis and tailored to each individual situation for every project. We work closely with relevant stakeholders to achieve the best possible outcomes.

Our work is based on best practice processes and methodologies to ensure quality outcomes for all our clients in accordance with our ISO accredited management system.

OUR SERVICES

- Archaeological assessments
- Desktop and preliminary heritage studies
- Aboriginal due diligence assessments
- Aboriginal cultural heritage assessments reports
- Statements of heritage impacts
- Aboriginal cultural and heritage management plans
- Community and traditional owner consultation
- Aboriginal heritage impact permits
- Heritage impact permits
- Field surveys and site recordings

Land Management & Rehabilitation

With expertise in Land Management, Kleinfelder has the experience and qualifications to manage and deliver on projects requiring bush regeneration and land rehabilitation.

Projects

- Weed management in the offset lands and rehabilitated areas of the mine. (Mangoola Coal)
- Weed control on a biobanking site targeting weeds such as Lantana & African Olive. (Driftwood Regener8)
- Implemented a Vegetation Management Plan (VMP), along a creek line. Project included weed control, supply, and installation of plants and consultation with the landowner to manage the site. (Charterpac)
- Mine rehabilitation monitoring, analysis combining Landscape Functional Analysis (LFA), vegetation dynamics and walkover surveys to reassess the rehabilitation. (Duralie Open Cut Coal Mine)
- Weed control at a power station site using a variety of weed control techniques. (Origin Energy)
- Bush regeneration work across various council reserves and natural areas targeting all significant and environmental weeds. (NSW and QLD councils)
- Weed control and revegetation across a significant development site to enhance the habitat for local fauna. (SNL Building)
- Undertook infiltration capacity assessments and rectification of various WSUD assets. (Mackay Regional Council)



PROFILE

Kleinfelder's Land Management team understands the importance of habitat management within the broader landscape and can draw on the knowledge of our in-house ecology specialists to assist in delivering superior outcomes for our clients. Kleinfelder is ISO accredited in Work Health & Safety Environment and Quality.



SERVICES

Kleinfelder's Land Management professionals have experience in all aspects of Ecological Restoration, Mine Rehabilitation, Bushfire Asset Protection Zone Management and Water Sensitive Urban Design (WSUD) vegetation planning, installation and management.

Our Ecological Restoration services extend to:

- Vegetation Surveying & Assessments
- Biodiversity Offset Management
- Weed Survey & Management Plans
- Rehabilitation Monitoring
- Weed Management
- Revegetation

Environmentally Sustainable Solutions

As an ISO 14001:2015 certified company Kleinfelder Australia incorporates sustainability initiatives and practices into our integrated management system, our products and our culture. We are experienced at helping our clients evaluate current processes and future needs with an aim to develop and implement environmentally sustainable solutions.

PROJECTS:

Kleinfelder have recently completed or are currently leading several cutting-edge projects for public and private clients. These represent innovative approaches and solutions to the new risks that our clients now face. Our team has helped our clients by providing the following services:

- Green House Gas Emissions
- Water Vulnerability and Management
- Energy Management
- Climate Change
- Materials Management
- Sustainability and Risk Assessments and Report.

Specifically related to sustainability reporting our team has helped clients in both the private and public sector with inaugural and on-going reporting. Examples of our work include:

- Risk Assessment and Resiliency Planning (Annual Reporting). Confidential Client (Australia)
- Sustainability Work Shop and Inaugural Sustainability Report. Confidential Client (Australia)
- Sustainability Work Shop, Environmental Action Plan Development, Social Procurement Strategy Development, and Sustainability Goal Setting and Tracking. Australian Corporate Jet Centres (Victoria)



Sustainability is the balance between product realisation and the natural worlds – where social, economic, and environmental considerations intersect and interact. Kleinfelder's team are versed in the baselining, tracking, and analysis tools required to successfully measure and report on sustainable outcomes. Along with the use of sustainable rating schemes and a structure for organisational improvement. Select rating schemes not only improve project performance, but also align the mindsets of designers, project owners, and decision-makers, to transform the way a project is planned, designed, built, and operated.

SUSTAINABILITY QUALIFIED TEAM

The Kleinfelder team is staffed with recognised, experienced and trusted advisors on sustainability, who drive innovation that reduces adverse environmental impacts. Kleinfelder is recognised by the Institute of Sustainable Infrastructure (ISI) as an Envision-qualified company, and our team consists of Envision Sustainability Professionals (ENVSP), Infrastructure Sustainability Council Australia (ISCA) Accredited Professionals, Leadership in Energy and Environmental Design (LEED) Accredited Professionals, and Global Reporting Initiative (GRI) Certified Reporters. These specialists incorporate sustainability into our internal practices and projects and provide client specific services including:

- Cost-benefit and sustainability analysis
- Baselining and tracking water, energy, and waste usage
- Development and implementation of practices for reduction of water, energy, and waste
- Environmentally sustainable procurement
- Use of the Envision and ISCA rating scheme
- Use of the LEED rating scheme
- GRI Certified Reporting
- Sustainable remediation in line with the CRC care National Remediation Framework

