Role definition

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| Job title: | Graduate Engineer – High Voltage |
| Reports to: | Office Lead, Power  |
| Direct reports: | N/A |
| Business unit: | Baker Hicks Limited | Location: | London |

Summary

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| Baker Hicks have grown rapidly in the Transmission & Distribution sector over the last six years and have been successful in winning a number of major projects within the UK. As the demand to deliver exceptional engineering design from our clients continues to grow, an opportunity has arisen for a Graduate Electrical Engineer.  |

Key objectives

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| The Graduate Electrical Engineer – HV role will be reporting to the Senior / Principal Engineer – Power and will be responsible to ensure the quality and consistency of output in the production and control of drawings and technical documents. You will also work with the Sector Director - Power to assist during the bid process in order to secure further work.  |

Principal responsibilities and accountabilities

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| The candidate will gain experience (depending on role) in the production of all designs, calculations, reports & drawings associated with new or refurbishment EHV projects from 11kV – 400kV covering EHV cabling, primary design, earthing design and protection & control. This will cover the production of bonding line diagrams, primary layouts, cable rating calculations, induced voltage calculations, short circuit force calculations, thermo-mechanical thrust calculations, pulling tension calculations, production of material specification lists and other technical documentation. The candidate must have a sound level of maths and science, preferably from a power engineering background and have good communication skills. In the role they will manage the production of deliverables through a robust checking process but must also develop drawing office standards, mentor and train the CAD technicians and when work dictates support the actual delivery of the outputs.The candidate must be enthusiastic, mature enough to operate in a diverse team and work without full time supervision. This role can lead to many career paths for the employee as they develop through the Baker Hicks engineering development process.  |
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Person specification

Qualifications and training

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| * Minimum BEng / Bsc in Electrical Engineering with Power / High Voltage background
* Ideally MEng / Msc in Electrical Engineering with Power / High Voltage background
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Technical skills and experience

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| You will be trained and working with fellow HV Senior, Principal & Associate Engineers and develop skills to deliver the following key technical tasks:1. Primary Design:

 Delivering primary design requirements, inclusive but not limited to:* + Primary layouts for substation
	+ Transformer, shunt reactors, NER’s, Reactive & Capacitive compensation
	+ GIS & AIS switchgear
	+ Earth Switches, CT’s VT’s, Surge Arrestors, Circuit Breakers, post insulators, Disconnectors, etc
	+ Step & touch potentials
	+ Impressed voltage studies
	+ Earthing study & earth return
	+ Busbar short circuit forces
	+ Insulation coordination
	+ Control and Protection requirements
	+ Type registration
	+ FAT of equipment
	+ Writing technical specifications for procurement
	+ Calculations & Technical reports
1. HV Cable Design:

 Delivering project cable system design requirements, inclusive but not limited to:* + Current ratings (IEC60287)
	+ Forced ventilation design for cable tunnels
	+ Impressed voltage calculations
	+ Emergency, Cyclic & Short term overload ratings
	+ Cable crossing ratings
	+ Producing Bonding diagrams
	+ Producing Material Schedules & Technical specifications
	+ Thermo-mechanical design calculation
	+ Effective thermal resistivity calculations
	+ Induced voltage calculations
	+ Cable pulling tension calculations
	+ Short circuit current rating and electromotive force calculations
	+ Producing Joint bay, trench, CSE, cable routing designs (concept & detailed)
	+ SVL (Sheath Voltage Limiter) sizing
	+ EMF plots
* Preparation and checking of feasibility studies, outline and detailed design technical reports and other written deliverables.
* Design and checking of detailed construction design drawings.
* Production of design concepts, drawings, specifications and other technical documents.
* Delivery of work to programme, budget and specification.
* Take part in Design & HAZID (hazard identification) reviews as appropriate.
* The adherence to and control of documents and drawings in accordance with Baker Hicks management procedures.
* Design input/output within the designated risk management process.
* Development of team specific standards to ensure the consistency of the output.
* Support in the development of the team CAD technicians.
* Accept ownership of work to be done (i.e. being required to undertake specific actions within an agreed job boundary, the execution of a delegated task, activity or process).
* Providing programme updates to the Lead Engineers for the duration of the project lifecycle.
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| * Highlighting any quality and delivery risks.
* Provide a technical interface with 3rd parties.
* Understanding of IEC standards.
* Experience in software packages such as MathCAD, CYMCAP, COMSOL, MATLAB, ETAP, PowerWorld, IPSa, DigSilent, ERACS etc.
* Experience in guiding CAD technicians working in packages such as Microstation, Revit, AutoCAD, etc.
* Be proficient with associated technical specifications from clients such as National Grid, SSEN, Scottish Power, UKPN, WPD, ENWL, etc.
* Good computer and report writing skills.
* Good interpersonal skills and the ability to work well within a team.
* Good attitude to obtaining new skills and capable at transferring existing skills to overcome new challenges.
* Must be competent at creating and laying out quality drawings that contractors, suppliers and fabricators can understand.
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