

consulting & electrical engineering
mechanical engineering
civil engineering



Clinkscles
Maughan-Brown



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THE DIRECTORS AND ASSOCIATES

1.1 MANAGING DIRECTOR

1.1.1 Francois Pierre Conradie *PrEng, PrCPM, Cert Eng* – Director

Pierre Conradie, who is resident in the George office, started working for Clinkscales Maughan-Brown in 1976, at the Port Elizabeth office. He opened the George office in 1988 and was made a Partner in 1990. He sits on a variety of committees serving his community in both the professional and social sense. He is an Electrical Engineer with experience in many aspects of the consulting electrical engineering profession. He has specialised in the fields of township electrical reticulation, sub-stations and protection systems (up to 66kV), standby power generation plant, electric tariff and by-law investigation, streetlighting and floodlighting and electrical installations in commercial buildings.

1.2 SHAREHOLDERS

1.2.1 Brett Jon Ansell *PrEng, B Sc (Eng), MSAIEE* – Director

Brett Ansell is resident in the East London office, having joined the firm in 1999. Prior to that he worked at Natref Oil Refinery where he provided technical support to the maintenance teams in the Engineering Services Department. He was also responsible for management and implementation of an ISO9002 quality system. During his time at Clinkscales Maughan-Brown, he has been involved with the design and supervision of building service installations, reticulation, HV Substations, streetlighting and energy surveys. He has been involved in several large fast-track industrial projects. Brett became a Director in 2004.

1.2.2 Johan de Villiers *PrTechEng, BTech (Eng)* – Director

Johan de Villiers is resident in the George office, having joined the firm in 1998. He is an Electrical Engineer experienced in the design and contract administration of township reticulation, substation and protection schemes up to 22kV, overhead lines up to 22kV, streetlighting and communal TV and access control systems for residential developments. Johan became a Shareholder of the firm in 2007 and a Director in 2015.

1.2.3 Ruan Lamprecht *PrEng, B Eng* – Director

Ruan Lamprecht is resident in the Cape Town office, having joined the firm in 2001. He is a Mechanical Engineer with experience in heating, ventilation and air conditioning systems, fire protection and detection, and piped services. Ruan was appointed a Director in 2006.

1.2.4 Mzwanele Gatyeni *PrTechEng, BTech (Eng)* – Associate

Mzwanele Gatyeni is resident in the George office, having joined the firm in 1999 as a student. He obtained his B.Tech degree in 2002. He is experienced in the design and contract administration of township reticulation, indoor/outdoor substations and overhead lines up to 22kV, and streetlighting. Mzwanele became a Shareholder of the firm in 2007.

1.2.5 Robert Charles Palmer *PrEng, B Sc (ENG), SMSAIEE* – Director

Rob Palmer is resident in the Port Elizabeth office, having been with Clinkscales Maughan-Brown since 1986. He became a Partner in 1996. He is an Electrical Engineer with a wide range of experience in all aspects of consulting electrical engineering. His specialities involve electrical reticulation and sub-stations for townships, and sub-stations and electrical installations for commercial, industrial and public buildings. He also has detailed experience with sportsfield floodlighting systems up to international TV standards, fire detection and protection systems, power factor correction and instrumentation and telemetry systems.

1.2.6 **John Lofts Rauch** *PrTechEng, PrCPM, B Comm, MASHRAE, MSAIRAC* – Director

John Rauch, resident in the Port Elizabeth office, joined Clinkscales Maughan-Brown in 1988, and was appointed as a Director in 1998. He is a Mechanical Engineer with experience in most aspects of mechanical engineering services in buildings. His speciality is heating, ventilation and air conditioning systems in buildings and he has considerable expertise in all aspects of the subject, having undergone specialised training in the United States of America. He has served on the Council of the South African Institute for Refrigeration and Air Conditioning for (2 years) and as Chairman of the Port Elizabeth Branch of Consulting Engineers South Africa (2005 – 2007)

1.2.7 **Rohann La Grange Steenekamp** *PrEng, PrCPM, B Eng* – Director

Rohann Steenekamp was appointed to the firm as an Electrical Engineer in the George Office in 1996. He became a Director in 2004. His experience covers the whole range of electrical engineering, including township electrical reticulation, substations up to 66kV, investigating electricity tariffs and standard charges for municipalities, streetlighting, floodlighting and security systems for buildings.

1.2.8 **Stephen Ryan Webb** *PrTechEng, B Tech (Eng)* – Associate

Stephen Webb joined Clinkscales Maughan-Brown in 2007. Stephen is a mechanical engineer involved in the design and contract administration of heating, ventilation, air conditioning, fire protection and piped service projects to industrial, commercial and public buildings. Stephen became an Associate in 2015.

1.2.9 **Albert Zeelie** *PrTechEng, B Tech (Eng), MSAIEE* – Director

Albert Zeelie joined Clinkscales Maughan-Brown in December 1994. Albert has been involved in a wide range of electrical projects involving substations and reticulation, electrical installations for hospitals, commercial, industrial and public buildings, as well as standby power plants, UPS, fire detection and communication systems including both design, contract administration and project management. Albert became a shareholder of the firm in 2007 and a Director in 2008.

1.2.10 **Moeketsi Tsosane** *PrTechEng, B Tech (Eng)* Associate

Moeketsi Tsosane joined Clinkscales Maughan-Brown in 2010. Moeketsi is an electrical engineer involved in the design and contract administration of electrical building services, substations and electrical protection. Moeketsi became a Shareholder of the firm in 2016.

1.3 ASSOCIATES

1.3.1 **Dohan Erasmus** *PrTechEng, B Tech (Eng)*

Dohan Erasmus joined Clinkscales Maughan-Brown in 2001. Dohan is an electrical engineer that has been involved in the design, contract administration and quality control of electrical, fire detection, access control, standby generators, lightning protection, passenger lift and hoist installations. Dohan became an Associate in 2015.

1.3.2 **Robert Mansfield** *PrEng*

Rob Mansfield joined Clinkscales Maughan-Brown in 2006. Rob is an electrical engineer and experienced in a wide range of electrical services including standby power generators, forensic engineering, street lighting, sportsfield floodlighting, security systems, access control, CCTV surveillance. IT and communication networks, audio visual, CADA/Telemetry systems, UPS installations, building services electrical installations, energy surveys and load management, power factor correction, protection systems for electrical distribution networks, lightning protection, fire detection, instrumentation and process control systems. Rob became an Associate of the firm in 2014.

1.4 **CONSULTANT**

1.4.1 **Craig Ian Clarke** *PrEng, BSc (Eng), MSc (Eng)*

Craig Clarke is the retired managing director of Clinkscales Maughan-Brown, having joined the firm in 1972 and being made a partner in 1981. He is a Mechanical Engineer with experience in a very broad range of mechanical engineering services and project management. His specialities include fire protection, lifts, standby power generators, hot water and steam generation, various piped services, refrigeration and forensic engineering. He has played an active part with the organisation of Consulting Engineers South Africa having served as Branch Chairman and on Council and Exco from 1993 to 2005. Craig was National President of CESA in 2003/04. He retired as Managing Director with effect March 2009 and now consults to the company.

2	OFFICE RESOURCES The staff resources in each office are as follows:		
2.1	Port Elizabeth		
	Directors and Shareholders:		Rob Palmer John Rauch Albert Zeelie Stephen Webb Moeketsi Tsosane
	Associates:		Dohan Erasmus
	Engineers and Technicians (including Directors and Associates)	<i>Mechanical</i>	Nine
		<i>Electrical</i>	Seven
	CAD Operators and Draftspersons		Four
	Administration		Three
2.2	Cape Town		
	Director		Ruan Lamprecht
	Associate		Rob Mansfield
	Engineers and Technicians (including Directors and Associates)	<i>Mechanical</i>	Three
		<i>Electrical</i>	Three
	CAD Operators and Draftspersons		Two
	Administration		Two
2.3	East London		
	Directors and Shareholders		Brett Ansell
	Engineers and Technicians (including Directors and Associates)	<i>Mechanical</i>	One
		<i>Electrical</i>	Three
	CAD Operators and Draftspersons		One
	Administration		One
2.4	George		
	Directors and Shareholders		Pierre Conradie Rohann Steenekamp Johan de Villiers Mzwanele Gatyeni
	Engineers and Technicians (including Directors and Associates)	<i>Mechanical</i>	One
		<i>Electrical</i>	Nine
	CAD Operators and Draftspersons		Three
	Administration		Three
2.5	Windhoek		
	CMB (Namibia) (Pty) Ltd		
	Directors		Holger Rusch (Managing Director) Anke Rusch
	Engineers and Technicians (including Directors and Associates)	<i>Mechanical</i>	One
		<i>Electrical</i>	One
	Administration		One

1. OFFICE SYSTEMS

In addition to various internally developed computer software systems, the firm currently uses the following software:

Administrative: MS Office Suite (word-processing, spreadsheet, presentation graphics and database)

Autocad, Allycad, Microsoft Inventor, Autodesk Revit MEP

Drawing Office:

Engineering: SABS098 (Streetlighting design), PIN / TRILUX / RELUX (Interior lighting design), PEX (Area lighting and outdoor lighting design), WATTS 24 (Heat load calculations, duct sizing, psychometric calculations), Sprink (Sprinkler System Design), Reticmaster (Electrical Reticulation), CBI² (Electrical Distribution), MS Project (Project Management).

All offices have internet and e-mail.

2. FIRM'S EXPERTISE

The firm can claim expertise in the broadest possible range of mechanical and electrical engineering services and offers a complete service covering design, contract administration and project management. The expertise covers the following branches of Engineering:

2.1 MECHANICAL

- Alternative energy studies.
- Boilers and Steam reticulation.
- Compressed Air plant and reticulation.
- Environmental Chambers.
- Fire Protection systems – sprinklers, hydrants, hoses, foam and gas extinguishing.
- Heat Pumps.
- Heating, Ventilation and Air Conditioning.
- Hot and Cold Water generation and reticulation.
- Lifts, Hoists and Dock Levellers.
- Machinery and Materials handling installations.
- Maintenance Management systems.
- Piped Gas storage and reticulation.
- Refrigeration and Cold Stores.
- Solar Energy.
- Waste Disposal and Incineration.
- Water Treatment

2.2 ELECTRICAL

- Access Control and Security.
- Communications Systems
- Computer systems.
- Data cabling.
- Electrical Transmission, Distribution and Reticulation.
- Electronic engineering.
- Elevators and escalators.
- Energy Management and audits.
- Fire detection and alarm systems.
- Floodlighting.
- Interior / exterior illumination
- Instrumentation.
- Power factor correction.
- Public Address and Intercommunication systems.
- Standby and Prime Power generation.
- Street and Area lighting.
- Sub-stations and protection systems.
- Telemetry and SCADA.
- TV Aerial and Cable distribution.

2. RANGE OF PROJECT TYPES

The range of projects undertaken by Clinkscales Maughan-Brown includes the entire spectrum of building applications. This is covered more fully in the firm's brochure which is attached to this document, but for convenience, a summary of the main applications are given below:

- Industrial building projects.
- Commercial, Retail and Office buildings.
- Educational institutions.
- Hospitals.
- Hotels and lodges
- Institutional building complexes.
- Retirement complexes.
- Public buildings and amenities.
- Civil engineering projects, e.g. dams, water treatment works.
- Lighting of malls, highways and streets.
- Township electrical reticulation.
- Sports fields and stadia.
- Airport buildings.
- Forensic Engineering.
- Various specialised engineering applications in new and existing buildings.

More detailed information regarding specific engineering applications will gladly be provided, upon request.

1. PROJECT REFERRALS

The majority of work carried out by the firm has traditionally taken place in South Africa and Namibia where we currently have offices, but CMB has undertaken projects over many years in countries such as Botswana, Swaziland, Zimbabwe, Lesotho and Mauritius and further afield in Brazil, India and China. We see ourselves as a global player and we are actively marketing and expanding our services to other parts of the world.

CMB is proud of every one of the projects we have worked on, but there are a few particularly prestigious landmark projects which have contributed significantly to the development of the firm over the years. These are:

- The development of the original Dulux Paint Factory (now AECI Paints) in the 1960's in Port Elizabeth where CMB acted as principal agents and consulting mechanical and electrical engineers. This project established the firm's reputation and expertise in industrial work.
- Based on our considerable experience with hospitals in the Cape Province, in 1964 the firm was appointed for the mechanical and electrical consulting services for the state hospital complex in Namibia (then South West Africa). This appointment led directly to the establishment of the Windhoek office, and ensured the firm's continued strong development as a specialist in hospitals and healthcare. It also culminated in the award of the prestigious South African Association of Consulting Engineers Design Award for excellent work for our part in the Frozen Food Kitchen at the Windhoek Hospital Complex.
- The firm was appointed as Consulting Electrical Engineers to several Municipalities in the Southern Cape in the early 1960's. These marked the development of CMB's now extensive experience in all aspects of municipal electrical services and electrical reticulation in residential and industrial townships and ultimately resulted in the establishment of our Southern Cape office in George.
- A relatively small, but unique project was the underwater marine electrical cable crossing of the Knysna Lagoon. This was CMB's first appointment as electrical consulting engineers on numerous marina and coastal resort developments in South Africa, and confirmed our ability to undertake unusual and challenging projects.
- The firm's appointment as part of a consortium of mechanical and electrical consulting engineers for the development of the world renowned new Groote Schuur Hospital in Cape Town confirmed CMB's position as specialist consulting engineers in hospitals and healthcare.
- CMB acted as sub-consultants to civil engineering firm Ninham Shand for the mechanical and electrical services on the construction of the Mpopu Dam (previously the Elandsjacht Dam) in the Eastern Cape and one of the main sources of water supply to Port Elizabeth and the Nelson Mandela Metropole. The experience gained with this project further contributed to our already extensive experience in the field of civil engineering projects.

While the above projects are seen to have laid the foundations on which the firm's experience and expertise in certain fields was built, numerous other equally important appointments also contributed to the firm's development in various aspects of engineering, including Industrial, Electrical Reticulation, Tourism and Leisure, Retail and Commercial, Hospitals and Healthcare, Education and miscellaneous categories such as Civil Engineering related projects, Institutional, Street and Area Lighting, as well as International Projects.

With a large data base of work, of some 8000 separate projects, it is impractical to provide a fully representative list here. The project referrals provided comprise a selected short list of some of the projects recently completed by the firm and is intended to illustrate the range and diversity of work undertaken by Clinkscapes Maughan-Brown. More detailed information will gladly be provided on request.

The Project Referrals follow on the next page.

6.1 INDUSTRIAL PROJECTS

<u>CLIENT</u>	<u>PROJECT</u>	<u>SERVICES</u>	<u>COMPLETE</u>	<u>VALUE</u>
East London IDZ	Automotive Supplier Park, East London	Fast Track Industrial Project, comprising several factories for suppliers to the local automotive industry. Services included lighting and small power to factories and offices, site reticulation and streetlighting. Conference centre included intelligent lighting, audio and video, and video conferencing, lightning protection.	2008	R23 million
PG Bison	New Board Plant : Ugie	Construction of 1000m ³ /day chipboard factory on a greenfield site. Electrical services included 22kV reticulation and distribution, MV switchgear and transformers, LV Boards and Power Factor Correction, Standby Power Plant, Lighting and Small Power and Machine Supplies, Telemetry, Lightning Protection, Streetlighting and Area Lighting.	2008	R38 million
Furntech	Furntech building, Roodepoort	The project comprised the internal electrical, conduit/wireway for communication and alarm systems, compressed air, dust extraction and ventilation system installations to an existing, renovated building, designed for a tertiary woodworking training facility.	2009	R2,1 million
Furntech	Furntech building, Mthata	The project comprised the internal electrical, conduit/wireway for communication and alarm systems, compressed air, dust extraction and ventilation system installations to an existing, renovated building, designed for a tertiary woodworking training facility.	2009	R3,6 million
Aspen Pharmacare	Centralised Warehouse	This project involved the HVAC installation, including humidity control, of the 10 000m ² Aspen Warehouse facility. Due to the increased electrical load to the warehouse, the existing electrical supply was increased which included the construction of a new 22kV substation.	2010	R9 million
CCSABCO	Coca Cola Chimoio	This project comprised the construction of a new warehouse and installation of new RGB (returnable glass bottle) line at the existing Coca Cola Factory in Chimoio, Mozambique. CMB provided the mechanical and electrical services including electrical main supply, distribution, lighting and small power, ventilation, process water and caustic recovery system.	2010	R5 million
Cadbury Swaziland	Cadbury Swaziland	This project involved the relocation of a production facility from the UK to Swaziland and the associated building alterations to prevent cross-contamination with an adjacent line in the same building. Services included HVAC, sprinkler systems, electrical substation distribution and lighting and power, standby generator and fire detection.	2010	R10 million
Aspen Pharmacare	General Facilities Upgrade Phase 2	The project involved the construction of a new multi-storey manufacturing facility for this Pharmaceutical company. The facility incorporates ± 3800m ² of ISO Class 8 Clean Rooms and all associated plantrooms etc. CMB provided all electrical and mechanical consulting services. He work included upgrading the factory MV electrical supply and distribution system, substations, LV distribution and small power and lighting to all areas. Access control and fire detection systems were also included. The mechanical services included HVAC, steam, compressed air, hot and cold water, alcohol piping, goods hoists and fire protection.	2010	R58 million

6.1 INDUSTRIAL PROJECTS (Contd.)

<u>CLIENT</u>	<u>PROJECT</u>	<u>SERVICES</u>	<u>COMPLETE</u>	<u>VALUE</u>
Aspen Pharmacare	General Facilities Upgrade Phase 2B	The project involved the conversion of an existing Canteen into a new production facility for pharmaceutical manufacturing. The facility incorporates 1600m ² of ISO Class 8 Clean Rooms and all associated plantrooms etc. CMB provided all electrical and mechanical consulting services. The work included MV electrical supply, substation, LV distribution and small power and lighting to all areas as well as access control and fire detection systems. Mechanical services include HVAC, steam, compressed air, hot and cold water and fire protection.	2011	R37 million
Aspen Pharmacare	Unit 1 : Capacity Expansion Project.	The project involved the conversion of 600m ² of existing office space into Clean Room production areas. The work included LV distribution, small power and lighting to all areas as well as access control and fire detection. Mechanical services include HVAC, fire protection, steam, compressed air and hot and cold water.	2011	R12 million
Umicore Autocat SA (Pty) Ltd	Various Projects	CMB has provided electrical and mechanical consulting services to Umicore over a long period of time as part of an ongoing programme of expansion. The work has included upgrading of the MV electrical supply and distribution system, substations, LV distribution and small power and lighting to production, warehouse and office facilities, as well as various data and communication systems and process cabling and wiring. Mechanical services include HVAC, including specialised ventilation of process areas, process equipment and material handling, process equipment and material handling, process piping as well as all utility and building services.	2011	R10 million
Bodene	(Various)	CMB have provided electrical and mechanical services to Bodene over many years as part of an ongoing programme of expansion. The client produces sterile LVP and SVP pharmaceutical products within Clean Room facilities. Projects include electrical upgrades, HVAC upgrades, chilled water plant upgrades and various piped services such as steam, compressed air and boiler plants.	Ongoing	R10 million
Ford	Puma Engine Facility	The project involved the construction of a new 3800m ² industrial building for the assembly of the new Ford Puma engine. CMB provided electrical and mechanical consulting services which include LV electrical distribution, lighting and mechanical ventilation.	2011	R2 million
Slipknot Investments	New Factory for General Profiling	This new 7500m ² metalworking facility employs the latest CNC, waterjet and laser equipment. CMB were responsible for the main 11kV supply, substation and main LV distribution within the plant.	2012	R5 million
Kraft	New Wafer & Flour Handling lines	This project involved the conversion of an existing production facility to suit new imported plant. Services included electrical lighting & small power to GMP and energy-efficiency specifications, fire detection and HVAC.	2012	R4,5 million
Aspen Pharmacare	USM & AOS Warehouses	This project involved the provision of sprinklers and early-warning detection (beams) to an existing warehouse complex.	2014	R4,5m

6.1 INDUSTRIAL PROJECTS (Contd.)

<u>CLIENT</u>	<u>PROJECT</u>	<u>SERVICES</u>	<u>COMPLETE</u>	<u>VALUE</u>
Mondelez	Crumb tower extension	This project involved a multi-level extension to a manufacturing process area as well as 14m racked raw material store. Services included electrical substation, earthing & lightning protection, lighting & small power and cable supplies to process MCCs, HVAC (process and comfort), sprinklers, compressed air, steam, fire detection and lift.	2014	R18m
Famous Brands	Refrigerated Warehouse	Services included electrical main supply, earthing & lightning protection, lighting & small power, fire detection in office block, sprinklers, HVAC and smoke ventilation.	2014	R1,7m
Air Products	New Factory	New air separation plant at Coega IDZ. Services included MV substation equipment and reticulation, main LV distribution and office building electrical installation and HVAC.	2014	R3m
ID Logistics	Refrigerated Warehouse	14m high refrigerated racking storage for dairy products. Services included electrical main supply & substation, earthing & lightning protection, lighting & small power, fire detection in office block, sprinklers, HVAC and smoke ventilation.	2015	R6,75m
Digistics	Refrigerated Warehouse	New cold storage warehouse with freezer. Services included electrical main supply & substation, earthing & lightning protection, lighting & small power, fire detection in office block, sprinklers, HVAC and smoke ventilation.	2015	6,5m
Ford Motor Co.	Main substation switchgear	Replacement of 22kV switchgear in the main intake substation of the Struandale Ford Engine Plant.	2015	R2,5m
Mondelez	Gum wrapping line	New wrapping line for bubblegum – services included electrical substation, earthing & lightning protection, lighting & small power and cable supplies to process MCCs, HVAC, sprinklers, compressed air and fire detection	2015	R10,14m
Mondelez	New moulding line	New line for chocolate moulding and wrapping – services included electrical lighting & small power, cable supplies to process MCCs, hot and chilled water at 5 temperatures employing heat recovery chillers, and process piping.	2015	R8,15m
Aspen Pharmacare	New High Containment facility	New state of the art pharmaceutical production facility. Services included MV and LV electrical installations, Fire Detection, Generators, Access Control and CCTV, Data cabling, Compressed air, several gasses, Sprinklers, HVAC and UPS.	2015	R106m
Aspen Pharmacare	New SVP facility	New state of the art pharmaceutical production facility. Services included MV and LV electrical installations, Fire Detection, Generators, Access Control and CCTV, Data cabling, Compressed air, several gasses, Sprinklers, HVAC and UPS.	2015	R133m

6.2 ELECTRICAL RETICULATION TO RESIDENTIAL TOWNSHIPS AND INDUSTRIAL AREAS

<u>CLIENT</u>	<u>PROJECT</u>	<u>SERVICES</u>	<u>COMPLETE</u>	<u>VALUE</u>
Buchner Properties	Fountains Business Park Light Industrial Area, Jeffreys Bay	The project included the electrical reticulation and street lighting installations to the Fountains Business Park light industrial area between the Fountains Mall and Jeffreys Bay Main Intake Substation.	2008	R6,0 million
Bitou Municipality	Plettenberg Bay Brakkloof 66/11kV Substation: Phase 3	The construction of a new 66/11kV substation, including a 66kV incomer bay and a 20/25MVA transformer bay and associated protection installation.	2010	R11,5 million
Kouga Municipality	Upgrade MV Network at Jeffreys Bay and Humansdorp	Upgrade of two (2) existing 22kV overhead lines - one between Main Intake and Ashton Bay Apiesdraai Substations in Jeffreys Bay, and one between Main Industrial and TB-Hospital Substations in Humansdorp. The project also included a 2nd 66/22kV 10MVA transformer for Jeffreys Bay Main Intake Substation.	2010	R6,1 million
Kouga Municipality	2009/10 DoE Electrical Work, Humansdorp	Electrical Reticulation and service connections to 500 Sub-Economic Houses in Kwanomzamo, Humansdorp	2010	R2,5 million
George Municipality	SS-Proefplaas 66kV Substation: Phase 1	Construction of a new 66kV substation at the Outeniqua Experimental Farm to cater for the expected future demand of the Western side of George, including earth works, switch room building, and the supply and installation of 66kV and ancillary equipment for three 66kV feeder bays.	2010	R15,7 million
Knysna Municipality	Knysna Main Intake Substation: Replacement of 66/11kV Transformer No.2	The supply, installation and commissioning of a new 66kV transformer bay and associated 11kV switchgear and protection installation at Knysna Municipality's Main Intake Substation.	2010	R9,2 million
Upper Kromme Estates	Coastal Resort, Eastern Cape	CMB was responsible for the LV underground reticulation, service connections, area lighting and telephone sleeve network for 60 erven, carried out in two phases	2010	R1,2 million
George Municipality	SS-Proefplaas 66kV Substation : Phase 1, George	A new 66kV substation was constructed at the Outeniqua Experimental farm to cater for the expected future demand of the Western side of George, including earth works, switch room building and the supply and installation of 66kV and ancillary equipment for three 66kV feeder bays.	2010	R15,7 million
Kouga Municipality	Upgrade MV Network, Jeffreys Bay and Humansdorp	Upgrade of two (2) existing 22kV overhead lines – one between Main Intake and Ashton Bay Apiesdraai Substations in Jeffreys Bay and one between Main Industrial and TB Hospital Substations in Humansdorp. The project also included a 2 nd 66/22kV 10 MVA transformer for Jeffreys Bay Main Intake Substation.	2010	R6,1 million
Kouga Municipality	2009/10 DME Electrical Work, Humansdorp	Electrical Reticulation and service connections to 500 Sub-Economic Houses in Kwanomzamo, Humansdorp	2010	R2,5 million
Knysna Municipality	SS-Main Intake: Replacement of 66/11kV Transformer No 2, Knysna	The supply, installation and commissioning of a new 66kV transformer bay and associated 11kV switchgear and protection installation at Knysna Municipality's ain Intake Substation.	2010	R9,2 million

6.2 ELECTRICAL RETICULATION TO RESIDENTIAL TOWNSHIPS AND INDUSTRIAL AREAS (contd.)

<u>CLIENT</u>	<u>PROJECT</u>	<u>SERVICES</u>	<u>COMPLETE</u>	<u>VALUE</u>
Bitou Municipality	2009/10 DME: Electrification Projects, Plettenberg Bay	The project comprised the MV and LV reticulation and service connections to 317 houses at Kwanokuthula, Qolweni and Bossiesgif.	2010	R1,3 million
Bitou Municipality	Brakkloof 66/11kV Substation: Phase 3, Plettenberg Bay	The construction of a new 66/11kV substation, including a 66kV incomer bay and a 20/25MVA transformer bay and associated protection installation.	2010	R11,5 million
Gamtoos Mouth Investments	Gamtoos River, Eastern Cape	The project involved a new coastal resort township. CMB was responsible for the outdoor intake substation, MV and LV underground reticulation, miniature substations, service connections and area lighting for 500 erven, carried out in 4 phases.	Ongoing	R4 million
Kouga Municipality	Various Projects to upgrade MV and LV reticulation, St Francis Bay	The project is an ongoing process of upgrading and extending the MV network and Main Intake Substations and MV and LV underground cable networks.	Ongoing	R1,4 million
Kouga Municipality	Upgrade MV network, St Francis Bay	The project comprised the upgrade of Load Centre No's 1 and 2 in St Francis Bay and the Main Intake Substation in Cape St Francis in order to strengthen the supply capacity to the latter two towns.	Ongoing	R3,5 million
Bitou Municipality	66kV Overhead Line between Eskom's Robberg Substation and Kwanokuthula at Plettenberg Bay	The project comprised the construction of 2500m of double circuit 66kV overhead line between Eskom's Robberg Substation and Kwanokuthula to replace an existing single circuit overhead line.	2010	R3,2 million
Kouga Municipality	Upgrade 22/11kV Medium Voltage network	The project comprised the upgrade of Load Centre No's 1 and 2 in St Francis Bay and also Main Intake Substation in Cape St Francis in order to strengthen supply capacity to the latter two towns.	In progress	R3,5 million
Hessequa Municipality	2011/12 Upgrading Works	The supply and installation of the 22kV and 11kV reticulation networks by erecting a new 2nd 22kV supply to Melkhoutfontein. The upgrading of the LV overhead network in Stilbaai by replacing same with underground cables. The upgrading of the MV & LV network by installing new miniature substations in Albertinia and Gouritsmond.	2012	R2,4 million
Rhodes University	Intake substation switchgear	Replacement of 11kV switchgear in two intake substations on the Rhodes campus. Required to maintain supply to the campus whilst removing old oil-insulated panels, and replacing with Gas-Insulated Switchgear (GIS)	2015	R10m

6.3 TOURISM & LEISURE

<u>CLIENT</u>	<u>PROJECT</u>	<u>SERVICES</u>	<u>COMPLETE</u>	<u>VALUE</u>
Maponya Developments	The Gallery, Knysna	The Electrical & Mechanical installations to a 27 bedroom hotel & 9 Shops which included a new MV (11kV) electrical supply, complete main internal LV reticulation and small power & lighting distribution. The mechanical installation comprised of air conditioning, ventilation & fire protection installations.	2010	R4,3 million
Next Leisure Group	The Turbine Hotel, Knysna	The Electrical & Mechanical installations to a 28 bedroom hotel which included the upgrade of the external MV (11kV) electrical supply to the existing site, new standby generator, complete main internal LV reticulation and small power & lighting distribution. The mechanical installation comprised of the air conditioning, ventilation & fire protection installations.	2010	R3,9 million
Nelson Mandela Bay Municipality	2010 Soccer Stadium	CMB were the lead electrical consulting engineers for this 46 000 seat multi-purpose stadium constructed for the 2010 Soccer World Cup. Services include substation, LV distribution, lighting, floodlighting, wireways for low voltage services, fire detection, standby power, area lighting and the rational fire design for the stadium.	2010	R50 million
Nelson Mandela Metropolitan Municipality	Newton Park Pool	This project involved the refurbishment of an existing municipal swimming pool complex, including enclosing the main pool under a new roof. Services provided by CMB included lighting and power, Ventilation and pool piping, suitable for a rim flow design re-using the existing filtration system.	2010	R4 million
Next Leisure Group	The Turbine Hotel, Knysna	The Electrical & Mechanical installations to a 28 bedroom hotel which included the upgrade of the external MV (11kV) electrical supply to the existing site, new standby generator, complete main internal LV reticulation and small power & lighting distribution. The mechanical installation comprised of the airconditioning, ventilation and fire protection installations.	2010	R3,9 million
Sun International	Boardwalk Casino and Entertainment Complex and Hotel	The firm was responsible for all the mechanical engineering services for the original R500 million project as well as the 2012 revamp and extensions. The work included all ventilation and air conditioning systems, piped services, including hot and cold water and drainage, fire engineering, automatic sprinklers, gas extinguishing and manual fire equipment.	2012	R35 million
C & G Property Trust Mr Gui Steyn	Electrical and Mechanical Installations at new dwelling on Stand 598, Outeniqua Strand	Small Power & Lighting Installations and Conduit and Wireway Installations for a Home Automation System, CCTV, Alarm, Data & Telephone Systems and an emergency power back-up system. Domestic Lift Installation.	2015	R1,2 million
Oudtshoorn Municipality	Upgrade Electrical Reticulation Network at the Cango Caves	The work involved the upgrade to the main electrical reticulation network within the caves together with the replacement of some of the pathway and display lights.	2015	R3,345 million
Eddison Chouest	Kwandwe – new private lodge	Services included main electrical supply and substation, standby generator, earthing & lightning protection, 20kW Photovoltaic grid-tied system, HVAC and LP Gas installation for a 5000m2 luxury residence.	2015	R7m
Bekker Family Trust	Royal St Andrews Lodge	Sixty bed hotel – services included electrical lighting & small power, standby generator, HVAC, heat pumps, rainwater harvesting and RO plant and fire detection.	2015	R5,43m

6.4 HOSPITALS AND HEALTHCARE

<u>CLIENT</u>	<u>PROJECT</u>	<u>SERVICES</u>	<u>COMPLETE</u>	<u>VALUE</u>
Department of Public Works	Harry Comay TB Hospital, George: Upgrading of Hospital First Phase	Upgrading of internal electrical installations and new air-conditioning, ventilation, fire detection, water and gas installations.	2011	R660 000
Harry Comay	Harry Comay TB Hospital, George: Upgrading of Hospital Second Phase	Upgrading of internal electrical installations and new ventilation, fire detection and nurse call installations.	2011	R1,1 million
WBHO	Port Alfred and Settlers Hospital PPP	This private public partnership comprises the complete redevelopment of two existing state hospitals. CMB are the lead mechanical and electrical consulting engineers responsible for all mechanical and electrical building services as well as the fire design.	2010	R36 million
Netcare Properties	Upgrading and expansion of Greenacres Private Hospital, Port Elizabeth	The work included various projects to upgrade and expand the hospital, including the Casualty Department, new 16 bed High Care Ward, new 45 bed surgical wards as well as numerous Medical Consulting Suites. Services handled by CMB included MV and LV electrical, nurses call, fire detection, access control and generator power. Mechanical services included HVAC, medical gas and hot and cold water.	2010	R12,7 million
Eastern Cape Department of Public Works	Maintenance of Mechanical Plant	Responsible for the contract administration and consulting services for 36 month maintenance contracts, whereby contractors are performing emergency and preventative maintenance, as well as maintenance upgrades at 40 hospitals in the Eastern Cape. Services under this maintenance program includes boilers and hot water systems, laundries, kitchens, air conditioning, standby power generators, autoclave sterilizers, refrigeration and medical gas installations	2011	R235 million
Department of Public Works	Refurbishment and upgrading of Harry Comay TB Hospital, George	The Electrical installation comprised the refurbishing of the small power installation at Ward 2 & Server Room, the new main- and small power installation at the Rehabilitation centres and the installation of new lighting along the walkways. New fire detection, Nurse call and voice evacuation systems were installed inside the existing wards. New extract ventilation systems were installed in Ward 2 and the Rehabilitation centres. A new warm water ring main heat pump system was installed since the existing system was inadequate. The internal water reticulation at Ward 2 and the Rehabilitation Centres also formed part of the scope of works	2014	R1,488 million

6.4 HOSPITALS AND HEALTHCARE (contd.)

<u>CLIENT</u>	<u>PROJECT</u>	<u>SERVICES</u>	<u>COMPLETE</u>	<u>VALUE</u>
Netcare Properties	Greenacres and Cuyler Hospitals – CoC and Fire projects	These projects entailed survey and identification of non-conformances and the rectification thereof, of the entire electrical installations of these hospitals in order to obtain current Certificates of Compliance, and modifications to services to facilitate building compartmentalization to comply with new codes.	2014	R12 million
Netcare Properties	Greenacres Hospital new Pat and Cath Labs	Services for these projects included electrical, fire detection, HVAC and Medical Gas	2014	R2,5 million
Coega Development Corporation	Dora Nginza Hospital enabling works for new MH Hospital	This refurbishment project included Electrical, Fire detection and protection, Security, HVAC and Medical Gases for Pharmacy, Paediatric and Psychiatric facilities.	2015	R15 million
Coega Development Corporation	Dora Nginza Hospital – New Mental Health Hospital	This new Psychiatric hospital includes Wards, administration, Technical and Support facilities with services including Electrical, Fire detection and protection, Security, HVAC and Medical Gases	Current	R95 million

6.5 EDUCATIONAL

<u>CLIENT</u>	<u>PROJECT</u>	<u>SERVICES</u>	<u>COMPLETE</u>	<u>VALUE</u>
Rhodes University	Various	CMB have undertaken numerous projects over a long period of time at Rhodes University, including the Eden Grove Registration and Administration Building, the Africa Media Matrix Journalism Building, sixteen different student Residence Buildings, Barrett Lecture theatres (2 x 450 seats), Hamilton Computer Science Building, Alumni Centre and renovations and extensions to the Library. Services have included electrical supply and distribution and lighting and small power, data and ICT cabling and fire detection and protection. Mechanical services include HVAC, hot and cold water lifts, fire sprinkler systems.	2000 to date	R45 million
Nelson Mandela Metropolitan University, Saasveld Campus	Electrical Installation to New Buildings, George	Internal electrical, conduit/wireway for IT and alarm systems, IT services, fire detection, air conditioning and ventilation, audio visual and lift installations to new academic buildings	2009	R4,5 million
Furntech	Furntech Building, Mthatha	The project comprised the internal electrical, conduit/wireway for communication and alarm systems, compressed air, dust extraction and ventilation system installations to an existing building renovated for a tertiary woodworking training facility.	2009	R3,6 million
Nelson Mandela Metropolitan University	Nelson Mandela Metropolitan University Lecture Theatres	This project comprises a complex of three lecture theatres with total capacity of 950 seats. CMB were responsible for lighting and power, HVAC, fire detection, audiovisual and security / access control systems. The design includes integration of all these services using a Crestron System.	2010	R6,7 million
Nelson Mandela Metropolitan Municipality	Red Location Library / Museum	The construction of this library and museum forms part of the Red Location Cultural Precinct Development. CMB provided the electrical and mechanical consulting services for HVAC, Fire protection (sprinklers and gas extinguishing), electrical distribution, lighting and small power and fire detection.	2011	R3,4 million
Nelson Mandela Metropolitan University	HRTEM Laboratory	This project comprises a technical building to accommodate the High Resolution Transmission Electron Microscope, as well as adjoining offices and laboratories. CMB were responsible for the electrical lighting and power, standby power, lighting protection/earthing, HVAC and lifts. All services had to be designed taking into account extreme sensitivity to vibration and magnetic field interference.	2011	R4,6 million
Sasol	Sasol Infracem HRTEM Laboratory	This project comprises a technical laboratory suite to accommodate two High Resolution Transmission Electron Microscopes, as well as adjoining offices and laboratories. CMB were responsible for the electrical lighting and power and HVAC. All services had to be designed taking into account extreme sensitivity to vibration and magnetic field interference	2012	R 3 million
Rhodes University	Post Graduate residence	Two-storey block consisting of one- and two-bedroom flatlets. Services included main electrical supply and substation, lighting and small power, and heat pumps.	2015	R1,9m

6.5 EDUCATIONAL

<u>CLIENT</u>	<u>PROJECT</u>	<u>SERVICES</u>	<u>COMPLETE</u>	<u>VALUE</u>
Rhodes University	Education Faculty	Extensions to provide lecture facilities – services included lighting & small power, HVAC, fire detection and ICT reticulation.	2014	R2,2m
Rhodes University	New Hall 6 residence	New 2-storey undergraduate residence. Services included main electrical supply, lighting & small power, earthing & lightning protection, ventilation, heat pumps and ICT reticulation.	2014	R3,5m
Rhodes University	Cullen Bowles residence	Refurbishment of an existing residence building. The challenge was in the tight programme to carry out extensive renovations within the university vacation period. Services included electrical, new heat pumps and ICT reticulation.	2015	R0,5m

6.6 RETAIL AND COMMERCIAL

<u>CLIENT</u>	<u>PROJECT</u>	<u>SERVICES</u>	<u>COMPLETE</u>	<u>VALUE</u>
ACSA	PE Airport Upgrade	CMB provided the electrical consulting engineering for this refurbishment/upgrade of the departure terminal. Services included lighting and power, public address, CCTV and fire detection.	2010,2014	R0,6 million
Moponya Developments	The Gallery, Knysna	The Electrical & Mechanical installations to a 27 bedroom hotel & 9 shops which included a new MV (11kV) electrical supply, complete main internal LV reticulation and small power and lighting distribution. The mechanical installation comprised of airconditioning, ventilation and fire protection installations.	2010	R4,3 million
Nelson Mandela Metropolitan Municipality	Mfanasekhaya Gqobose (Eric Tindale) Building and Fidelity House	This project involves the interior renovations to the ground floor of the existing Mfanasekhaya Gqobose Building and the Fidelity Building in order to provide a new Banking Hall and Offices. CMB's services include the lighting and power and the co-ordination of services including electrical, HVAC, fire detection and CCTV. The HVAC installation involved a design and supply concept. CMB was appointed to check the HVAC design and to do the construction monitoring.	2012	R2,7 million
Eris P Property Group	FNB Regional Office Block, Port Elizabeth	CMB provided all electrical services for this 11-storey office block, including standby generators, 200kVA UPS, Fire detection and evacuation, access control and CCTV, and DSTV distribution. Particular emphasis was placed on energy-efficiency in terms of light source and occupancy sensing.	2011	R12,5 million
Inditex	New ZARA store – Walmer Park	Services included Small power & lighting, HVAC and fire detection	2013	R4,55m
Dirk Ellis Motors	VW dealership – Jeffries Bay	New building for Dirk Ellis Motors – services included Electrical installation, Fire Detection and HVAC	2013	R2,24m
Tavcor	Audi dealership – William Moffatt	New high specification building for Tavcor Motors – services included Electrical, HVAC and Fire Detection		R2,8m
Inditex	New ZARA store – Cresta	Services included Small power & lighting, HVAC and fire detection	2014	R5,12m
Pick & Pay	Lorraine store refurbishment	Refit of fire-destroyed store. Services included Electrical installation, HVAC and Fire Detection	2014	R3,88m
Pick & Pay	Walker Drive store refurbishment	Revamp of existing store. Services included Electrical, Fire Detection and HVAC	2015	R0,8m
Pick & Pay	New store - Southernwood	Services included Electrical, Generator, Fire Detection and HVAC for new store		R1,9m
Pick & Pay	Commercial Rd store refurbishment	Revamp of existing store. Services included Electrical, Fire Detection and HVAC	2014	R2,84m
Pick & Pay	New store – Atrium PE	Services included Electrical, Generator, Fire Detection and HVAC for new store	2014	R5,25m

6.7 MISCELLANEOUS

<u>CLIENT</u>	<u>PROJECT</u>	<u>SERVICES</u>	<u>COMPLETE</u>	<u>VALUE</u>
i) PROJECTS RELATED TO CIVIL ENGINEERING				
Aurecon	Outeniqua Pump Station: Emergency Scheme, George	The Electrical and Telemetry installations for the new Effluent Pumpstation constructed at the Outeniqua WWTW, for the return of treated / purified effluent into the Garden route Dam.	Ongoing	R1,6 million
Bitou Municipality	Plettenberg Bay: Telemetry Installation, Plettenberg Bay	The upgrading of the existing telemetry equipment at various outstations located within the Bitou municipal area and the integration o same onto the existing Citect SCADA software at the Bitou Municipality's Water Works.	Ongoing	R3,8 million
Aurecon	Upgrade and extension to Knysna wastewater treatment works	The upgrading, refurbishment & extension of the existing Knysna WWTW. Services included upgrading of the bulk electrical supply to the plant, installation of MCC panels and telemetry control system.	2012	R7,0 million
Bitou Municipality	Telemetry installation	The upgrading of the existing telemetry equipment at various outstations located within the Bitou municipal area and the integration of same onto the existing Citect SCADA software at the Bitou Municipality's Water Works.	2008	R3,8 million
Aurecon	Bulk Electrical Supply to Malgas Pump Scheme, George	Bulk electrical supply to pumpstation and internal electrical and air-conditioning installations	2011	R2,48 million
ii) INSTITUTIONAL				
Ubuntu Education Fund	Ubuntu Centre	This new centre comprising office, clinic, conference / presentational and training facilities was designed by an American architect and utilises construction materials and methods which are quite unique in this country. CMB's designs for the electrical, data, fire detection, HVAC and lifts had to take these into account, as well as a high degree of energy efficiency and sustainability.	2010	R2,2million
Department of Public Works	Thembaletu Magistrates Court: Additional Accommodation George	The project comprised upgrading of the existing courts and the addition of additional accommodation. Services provided are electrical, generator, access control, pabx, air-conditioning, fire detection and protection and lifts.	Ongoing	R4 million
Department of Public Works	Ford House : Alterations and Upgrade	This project involved the phased complete upgrading of the electrical and mechanical installations including a new passenger lift. Services involved included electrical, fire detection and HVAC.	2012	R1,4 million
Department of Public Works	Thembaletu Magistrates Court, George: Additional Accommodation	The project comprised upgrading of the existing courts and the addition of additional accommodation. Services provided, were electrical, generator, access control, pabx, air-conditioning, fire detection and protection and lifts.	2012	R4,1 million

6.7 MISCELLANEOUS (contd.)

<u>CLIENT</u>	<u>PROJECT</u>	<u>SERVICES</u>	<u>COMPLETE</u>	<u>VALUE</u>
iii) STREET AND AREA LIGHTING AND SPORT FIELD LIGHTING				
Büchner Property Investments	Streetlighting in St Francis Drive, Jeffreys Bay	The supply and installation of streetlighting along St Francis Drive between the Fountains Shopping Mall and entrance to the CBD of Jeffreys Bay.	2010	R1,2 million
Knysna Municipality	Streetlighting Concordia Road, Knysna	The supply and installation of streetlighting along Concordia Road (5,2km) in Knysna.	2010	R2,8 million
Knysna Municipality	Knysna Sportfields Lighting, Knysna	The project included the upgrade of the floodlight installation at the Loerie Park Sport Grounds in Knysna to ensure an average luminance of 500 lux. This project formed part of the towns preparations for the 2010 soccer world cup to host the teams of France and Denmark.	2010	R2,8 million
Buchner Properties Investments	Streetlighting in St Francis Drive, Jeffreys Bay	Streetlighting in St Francis Drive, Jeffreys Bay	2009	2,0 million
Knysna Municipality	Streetlighting Concordia Road	The supply and installation of streetlights along Concordia Road (5,2km) in Knysna.	2010	R1,2 million
Knysna Municipality	Loerie Park Sportfields: Lighting Installation	The project included the upgrade of the floodlight installation at the Loerie Park Sport Grounds in Knysna to ensure an average illuminance of 500 lux. This project formed part of the town's preparations for the 2010 soccer world cup to host the teams of France and Denmark.	2010	R2,7 million
Swellendam Municipality	Street & floodlighting Installations at Suurbraak, Barrydale, Railton & Buffeljags	The upgrade of the sportsfield lighting in Barrydale, Suurbraak and Buffelsjags by supplying and installing six (6) 18m high poles with floodlight luminaires at each field, the new floodlight installations at the cricket field in Railton and new streetlight installation along Suurbraak's Main Road (2km).	2012	R1,9 million
Kannaland Municipality	High Mast Lighting in Zoar	The project comprised the installation of 5 high mast floodlighting in Protea Park, Zoar with Municipal Infrastructure Grant (MIG) funding.	2013	R1,148 million
iv) OTHER				
Swellendam Municipality	Energy Management Plan, Swellendam	The project comprised of an energy strategy report which contained a comprehensive plan to increase energy efficiency and reduce energy demand with sustainable positive economic, social and environmental benefits, as well as to develop proposals with respect to addressing the energy needs of the Client in the next 5 years that could be considered when developing and implementing the Integrated Development Plan (IDP) of the Client.	2010	R0,3 million
George Municipality	CCTV Camera Installation, George	The supply and installation of an urban CCTV monitoring system to monitor the operation of the new integrated public transport bus network, monitoring of inter alia, 60 pole mounted cameras and electrical supply therefore and control room hardware / software recordings & monitoring equipment.	In progress	R5,0 million

6.8 INTERNATIONAL

Although Clinkscales Maughan-Brown, South Africa and CMB (Namibia) separated many years ago, and function as fully independent companies, the two firms have always maintained close links and provide assistance to one another in the form of resources and specialist advice on an ongoing basis. This international co-operation as well as experience gained over a long period of time in working outside South Africa and Namibia in countries such as Botswana, Lesotho, Swaziland, Zimbabwe, Mauritius and more recently in Brazil, India and China, resulted in the firm making a conscious decision to market and expand our services worldwide.

A few of the projects include the following:

<u>CLIENT</u>	<u>PROJECT</u>	<u>SERVICES</u>	<u>COMPLETE</u>	<u>VALUE</u>
Engelhard Technologies Group, New Jersey, USA	Catalytic Converter Plant, Maraimalai Nagar Tamilnadu Province, India	The mechanical and electrical concept design of slurry material preparation modules, including tanks, agitators, pumps, process and utility piping and a load cell mass addition control system, plus the layout of the complete production and utilities facility was done by CMB in Port Elizabeth, including equipment manufactured in the USA and India. The work included supervising the installation and commissioning of the plant in India. The services included the mechanical and electrical design of the slurry material preparation modules, including tanks, agitators, pumps, process and utility piping and a load cell mass addition control system, plus all process and utility services to the remainder of the plant.	2000	US\$10 million
Engelhard Technologies Group, New Jersey, USA	Catalytic Converter Plant, Shanghai, China	The project was very similar to the one carried out in India and again all electrical and mechanical design was completed in Port Elizabeth, where after CMB project managed and supervised construction in China.	2004	US\$9 million
Cadbury SA	Cadbury Swaziland	This project involved the relocation of a production facility from the UK to Swaziland and the associated building alterations to prevent cross-contamination with an adjacent line in the same building. Services included HVAC, sprinkler systems, electrical substation distribution and lighting and power, standby generator and fire detection.	2010	R10 million
CCSABCO	Coca Cola Chimoio	This project comprised the construction of a new warehouse and installation of new RGB (returnable glass bottle) line at the existing Coca Cola Factory in Chimoio, Mozambique. CMB provided the mechanical and electrical services including electrical main supply, distribution, lighting and small power, ventilation, process water and caustic recovery system.	2010	R5 million
Les Villas de Bel Ombre Pte Lte	Villas Valriche, Mauritius	The project comprises the construction of 300 luxury villas around a golf estate on land previously used for sugar cane production. Services include the main electrical supply and MV distribution, substation, central emergency generator plant (2MVA), LV distribution, streetlighting and fibre optic data cabling as well as HVAC, wet services, pool filtration and electrical and data cabling services in the villas.	2012	US\$ 20 million



cmb

*c o n s u l t i n g m e c h a n i c a l
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