

# Albert Mfula

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## PROFILE

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Over the years, I have developed a well-tested enthusiasm for hard work and relish new environment. I am driven by challenges and problems. I have learnt to be flexible and to work well with others, respecting their efforts and learning from them. My keen interest in lifelong learning is shown by my career path; I am motivated by new skills, processes, procedures and real life applications

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## CAREER HISTORY

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### **GYOURY SELF PARTNERSHIP, ST ALBANS, UK**

**MARCH 2018 – Date**

**Position:** Structural Design Engineer

Key projects:

#### **Travelodge Hotel - Eagle House, South Ruislip for Coal Pension Fund**

The redevelopment involved demolition of the existing buildings and construction of a new 4 storey proprietary timber frame hotel to provide 79No. Bedrooms, bar and dining area including a basement requiring up to about 3m of excavation or lower ground floor including up to 21 car parking spaces and associated landscaping.

- I reduced the timber frame loading ie gravitation loading arising from imposed and dead loads and transferred the loads onto the substructure.
- To meet the requirement for large open spaces, the bar and dining areas, at ground level, I designed the steel portal frames spanning 8m composed of 356 UC / 305 UC steel beam and steel columns, supported on pile caps. Other areas with timber frame from roof to foundation level; I reduced designed ground beams for line loads.
- I designed for the lateral loads arising from wind effects which I transferred reinforced concrete lift shaft shear walls via the diaphragm action of the engineered timber floor and proprietary load bearing knauf timber walls. The load from the lift shaft was then transferred to the foundation, ie pile cap/piles
- I specified and provided loading for the sheet pile/contiguous bored piled walls next to the LUL/network rail tracks.

#### **34 Sandpit Lane, St Albans - 3 storey, 5 bedroomed house - Poor founding soils and lack of information challenges,**

With the architect not anymore involved on the project, I made certain assumptions on the building construction to design the raft/pile foundation consisting of 74No.300 dia bored micro-piles, raft and ground beams.

To avoid costly construction delays, I quickly reduced superstructure unfactored loads to the foundation.

- I prepared a full structural package for the superstructure, consisting of cranked roof beams, second floor and first floor steelwork, engineered timber floor, steel columns supported on pile caps

#### **Round Green, Luton.Client: Sherriff Construction**

- Using trial whole information, I confirmed that the existing foundation had adequate structural capacity in bearing capacity to with the additional loading arising from one extra apartment floor construction. To achieve this I configured to new supporting steel beams at roof and floor levels to evenly distribute additional loading and hence reduce the net increment in the load – no foundation underpinning was therefore required.

### **Rosway Drive, Bushey, for Hightown Housing Association Limited**

- With the development founded within the zone of influence of many trees, with high plasticity soils, with 125kN/m<sup>2</sup> -150kN/m<sup>2</sup> allowable bearing capacity with a potential of foundation depths in excess of 2.5m, requiring anti-heave precautions in accordance with NHBC Chapter 4.2, I proposed the use of ground beam / pile foundation.

### **475 Blackfen Road, Sidcup**

- I designed the concrete superstructure frame founded on ground beam/piled foundation system.
- I designed the staircase walls as strong points which transferred lateral load into the ground via the pile cap / pile arrangement.
- For robustness/stability I designed joints to be monolithic with RC beam and columns. My design ensured that column/pile cap connected as fixed ends consequently the frame will be able to cater for site discrepancies and tolerances due to lack of fit and vertical alignment of RC columns etc.
- I allowed adequate ties in the frame to reduce possibility of progressive collapse ; building Regulations – Party A

Key roles on typical structural projects:

- Using architectural drawings to familiarise myself with the proposals relative to the existing structure by way of a site visit and structural inspection
- Creating structural layouts and preparing structural and loading calculations and designs for the structural elements to Euro codes and British standards.
- Producing GA drawings

### **RCA Structures, Bishops Stortford, UK**

**FEB 2016 – MARCH 2018**

**Date**

**Position:** Structural Design Engineer

I work on both commercial and domestic structural work. I have worked on prestigious projects such as the Channel Tunnel Rail Link, Crossrail projects. I regularly perform steel designs on Domestic and Commercial projects.

Key roles:

- Using your skills and experience to deliver innovative, economical yet robust and sustainable design solutions to Euro codes and British standards, irrespective of the complexity or scale of the project.
- Producing GA drawings, carrying out surveys and attend site meetings

### **LWC ENGINEERING, LOUGHTON, UK**

**MARCH 2015 - JAN 2016**

**Position:** Estimator / Structural Steel Detailer

Employed as a Structural Steel Detailer for LWC working on a wide variety of steel projects from bespoke residential to commercial, education and local statutory organisations.

Key roles:

- Liaising with clients, architects and engineers in producing drawings based on their specification
- Producing GA drawings , fabrication drawings, bolt and material lists for workshop and supplies and clients
- Preparing quotations on new projects
- Working to budget and quotation
- Carryout surveys and attend site meetings
- Prompt and thorough response to all workshop and site requests for information.
- Using own initiative and work with minimum supervision
- Liaising with all parties with regarding to deliver solutions
- Coordinate aspects of the project with all relevant team members.

**Position:** Key Accounts Manager / Construction Specialist

Employed as a Construction Specialist and then appointed to do 80% of Key Accounts Management & 20% Construction Specialist role.

Position my work involves, working with project owners, architects and engineers who design and conceive buildings and infrastructure & influencing the specification process so that the end user is encouraged to use a specific product, system or application. I have integrated myself into construction and design teams, develop long-term partnerships and relationships and have become the expert in construction solutions.

*Roles & Responsibilities***SAFETY**

- Increase safety awareness on safe cement handling for staff and supervisors directly involved in cement handling. Promote Visual Felt Leadership Health and Safety Objectives in the Team

**FINANCIAL TARGETS**

## EBITDA

- Achieve 74.4 M€ EBITDA and sales volume of 1121kT

**Key Accounting roles**

- Participate in all product development assignments
- Manage price negotiations with your contractors to achieve at least 5% average selling price increase for Key account
- Volume targets: Q1: 54Kt, Q2: 62Kt, Q3: 66Kt Q4: 62Kt
- Achieve a bulk volume of 10% of Domestic sales
  - a) Secure volumes through 2016 by signing following key contracts
  - b) Support sales reps and other KAMs on technical issues relating to cement , concrete & aggregates
  - c) Product training of internal and external customer at least once in each quarter

*Construction Specialist roles*

*Analyze roads market in the country and the players involved along the value chain of a road project*

- Identify relevant key design stakeholders and sign MoU with them.
- Drive and coordinate a long-term engagement with selected strategic specifiers in and outside projects
- Influence the design and engineering of solutions in line with Lafarge's strategy

*Identify roads projects in the pipeline*

- Identify and assess roads projects in the country
- Investigate potential contractors likely to bid for the project
- Plan regular touch points to understand customers' projects pipeline and associated challenges.

*Develop the integrated offer including products and services*

- Hold the responsibility of the offer in front of CEO
- Create tailor-made offer based on understanding contractors' needs
- Propose additional products and services specific to the project and relevant for the contractor
- Support the Launch of the concrete lab & bulk spreading offers for the roads segment.

*Input into marketing plan and strategy*

- Build a country strategic plan / Marketing Plan and link to specification initiatives
- Identify relevant key design stakeholders

**ILIFA AFRICA ENGINEERS, SECUNDA, SOUTH AFRICA****MARCH 2010 TO DEC 2012**

ILIFA Africa Engineers is a consulting engineering firm in South Africa specialising in civil and structural engineering and project management.

**Position:** Associate Director/Project Manager

Employed as Project Manager and rose to Associate Director heading the Structural Team since April 2011 and is managing a team of Engineers, Technicians and draughtspersons on projects for our client SASOL Secunda.

**Design**

Personally;

- Responsible for carrying out structural and civil designs and project management of projects within the petrochemical environment.
- Providing mentorship directly to (5) Technicians and one (1) Junior Engineer.

### **Management**

Personally;

- Involved in developing the quality control documentation for the office.
- Involved in developing drawing standards for the office.
- Certifying payment certificate for Contractors.
- Supervision of Construction works and signing off Quality Control forms on behalf of the client.

### **Major projects undertaken;**

**Project:** *Replacing the eastern PCWMU line at Sasol Synfuels, Secunda*

**Client:** SASOL Civil Engineering & Governance – **Detailed Engineering stage**

The expected cost of the project was based on a VROOM of R265million.

#### Project Description

The current PCWMU line lines are nearing the end of its service life and needs to be replaced. It was determined at pre-feasibility studies that in order to meet the expected increase in demand for the PCWMU line as part of Secunda growth Programme, the best option is to increase the line size from 24” to 30” for the line to Unit 245. The pumps will not require further upgrade.

Recommendations for the extension of pipe racks to accommodate future lines and an investigation to identify alternative routes in existing pipe racks were also required.

Tasks undertaken;

#### **Design**

Personally;

- Responsible for carrying out visual assessment of the existing civil infrastructures along the PCWMU line to establish their capacity to carry the new 30” line. I set up prokon models to simulate the existing pipe rack and used to models to draw conclusions on the capacities of the pipe racks.
- Supervised the drafting team as they produced working drawings
- Square checked Bill of materials and Scope of works documents produced by Technologists and technicians

#### **Project Management**

- Attended design meetings and reported on design progress to the client.
- Monitored design fees on the project
- Addressed design scope changes and communicated to the client and amended design fees accordingly.

**Project:** *Sulphuric Acid Pump Base and Drainage at Sasol Synfuels, Secunda*

**Client:** Worley parsons, Secunda, on behalf of Sasol - **Basic Engineering stage**

Project estimated cost: R1billion

#### Project Description

An environmentally challenging project; the existing pipelines connected to pumps carry sulphuric from the nearby storage tanks. Over the years of poor maintenance and neglect, the sulphuric acid spillage has caused serious environmental problems; the soil is heavily contaminated with the sulphuric acid, causing heaving of the soils and causing failure of the bund walls and visually contaminating the surrounding soils.

The client has embarked on a refurbishment programme affected portions of the eastern and Western tanks farm areas.

I carried out the following design work;

- Designed new bundle reinforced concrete walls and pump bases
- Carried out topographical survey which was used to design of the new drainage systems
- Coordinated with other specialists such as piping, electrical and mechanical engineers from Worley parsons in carrying the design.

**Project:** Detail design for Conveyor 03CV 191A, 203 CV191B head end drive and elements at Waste Ash at Sasol Synfuels, Secunda

**Client:** Worley parsons, Secunda, on behalf of Sasol - **Detailed Engineering stage**

### **Project Description**

The client requested for design civil and structural design work for new Conveyor 203 CV191B head end drive and elements at Waste Ash to replace the existing conveyor. One critical consideration in the client brief was that the design needed to take into account the fact that excavating and casting of new reinforced concrete footings for all mechanical structures would need to be carried out without affecting the operation of the existing 203 CV 191 B conveyor in order to limit the shut down time for mechanical equipment installation.

To address this critical requirement I proposed that;

- Pre-casted concrete footing is adopted as opposed to in-situ concrete footing.

In addition, I also carried out the following tasks;

- I set up prokon models to design the structural steelwork and foundations for the conveyor.
- Supervised the drafting team as they produced working drawings
- Square checked Bill of materials and Scope of works documents produced by Technologists and technicians
- Coordinated with other specialists such as Conveyor mechanical engineers, electrical and the client ,Worley parsons in carrying the design

**Project:** Social Housing Project Ext 23, Govan Mbeki Municipality

**Client:** Govan Mbeki Housing Company – **Structural design and construction supervision**

Project Cost: Estimated cost: R500 million

### **Project Description**

Phases 1 and 2 for the construction of masonry clad double story housing units.

The design adopted Raft foundations because of the poor clay founding soil founding material.

Precast pre-stressed staircase used for speed of construction and for quality control purposes.

I carried out the following tasks;

- Set up prokon structural analysis models to design the raft foundation.
- Supervised the drafting team as they produced working drawings
- Organised and supervised topographical surveys for the purpose of preparing earthworks drawings.
- Coordinated with other design team members such as Architect, contractor and project manager in carrying the design and chaired design meetings.

### **URS/ SCOTT WILSON METRO, LONDON**

**JAN 2008 – FEB 2010**

Scott Wilson is a global integrated design and engineering consultancy with a worldwide network of offering Strategic Consultancy and multi-disciplinary professional services in the Railways, Buildings & Infrastructure, Environment & Natural Resources and Roads Sectors.

**Position:** Design Civil Engineer - Railway

**Project:** East London Line Project for Transport for London (TfL)

**Client:** Balfour Beatty and Carillion joint venture (BB/C JV) on behalf of Transport for London

### **Project Description: East London line infrastructure**

In October 2006, TfL awarded a £363m contract to the Balfour Beatty and Carillion joint venture (BB/C JV) for rebuilding the East London Line (ELL) between Dalston Junction and West Croydon. The scope of structural work involved construction of four new stations at Shoreditch High Street, Hoxton, Haggerston and Dalston Junction. I carried out design works for Hoxton Station.

### **Hoxton Station**

Fully responsible for carrying out structural design and project management of the Secondary Means of Escape and Ticket hall Station buildings.

*Among the duties;*

- Liaised with third parties and other design team members to ensure coordination of design activities.
- Nominated to act as the first contact between Scott Wilson and the site personnel.
- In charge of Quality Assurance issues.

## **My Responsibilities**

As part of my duties, the contractor would call me out to site when a holding point was reached during construction to check that the work carried out was in accordance with our drawings and specifications.

## **Structures duties**

### **Alternative solution considered**

I reviewed, the alternative solution to SME comprised the original provision of “safe holding areas” at the end of each platform were not acceptable due to fire safety considerations.

The provision of “safe holding areas” as means of escape in case of fire were in compliance with the station operators’ legal obligation to be able to completely clear staff and passengers from the premises, in case of a fire emergency, in accordance with the Fire Precautions (Workplace) regulations and the Regulatory reform (Fire Safety) Order 2005

As a Design Engineer, I was personally responsible for the;

### **Viaduct level**

Carrying out full designs; from Form A stage (Approval In Principle design) to Form B stage (Detailed design) for the Secondary means of escape reinforced concrete (RC)/steel decking ramp and walkways on the north end of each platform.

### **Walkway structural design**

Using the BS 8004 British code of practice for design of foundations, I designed the 150mm thick walkway using 5kN/m<sup>2</sup> pedestrian loading applied over a 1m wide across the 3m width of the walkway, 150mm thick concrete strip acting as a ground bearing reinforced concrete beam.

### **Form B Design**

Finalised Form B stage (Detailed design) for the;

- Secondary means of escape, steel framed staircases at Pearson’s street level
- The main station entrance canopies.
- New Ticket Hall Single storey staff/operational rooms to house staff, plant and operational areas.

### **Secondary means of escape, steel framed staircases**

I designed the steel framed staircase structures as ‘free-standing’ braced structures so that no significant load transfer to the viaduct takes place. Therefore, vertical deflection governed the design of the structure. The design adopted the limit state principle. I designed all connections as pin jointed because it was cheaper than full moment connections. I developed 3-D models using S-Frame structural analysis software and as a precaution, I checked the software output, such as moments in steel column generated by wind loading, for accuracy using hand calculations.

### **Main station entrance canopies & New Ticket Hall Single storey staff/operational rooms**

Ticket Hall Single storey buildings constructed from RC hollow rib roof slabs, cladded block work walls, supported by a suspended RC floor slab/beam on mass concrete trench fill foundation.

I was responsible for;

- Finalising the designs of reinforced concrete (RC) floor slabs, beams, hollow rib roofs and checking reinforcement and general arrangement drawings for precision before issue.
- Designing the block piers and wall panels to replace stainless steel wind posts on the perimeter block walls.
- Coordinating designs by other designers: namely Mechanical and Electrical Engineers to ensure effective interface between various disciplines.
- Designing and detailing the connections for the roof supporting steel work and detailing the supports.

### **New Ticket Hall Single storey staff/operational rooms to house staff, plant and operational areas**

As part of the Architect’s value engineering revisions, I re-analysed, the steel canopy structure.

the canopy reinforced concrete trench fill foundation details.

I also checked and approved construction drawings before issue to site.

### **Significant design considerations**

The requirements for SME at Hoxton were identified in TRV(Technical Requirements Variation) 60 and during design development the following revisions to the requirements were carried out by the design team that are considered to have promoted economy in the capital and whole life costs.

### **I initiated the following design changes;**

The TRV (Technical Requirements Variation) identified;

Provision of a curved Nissen roof to be provided to stairs and landing.

- My proposal to substitute curved Nissen roof by a single roof at high level comprising 'corus' decking laid to falls was adopted. This resulted in cost savings associated with a simpler roof structure and reduced the requirement for drainage gutters/pipe work.

### **A requirement for precast concrete treads.**

I put forward the suggestion to substitute with durbar steel treads plates. This promoted capital cost savings and were also easier to install and maintain. Durbar plate is also lighter than concrete and the design criteria has been to reduce the weight of the superstructure to avoid any requirement for piled foundations. In addition, durbar plate has been selected as the use of steel would mean that a single fabricator could be selected and this would reduce site co-ordination issues

### **PELL FRISCHMAN CONSULTING ENGINEERS, HERTFORDSHIRE, UK : JUNE 2005 – DEC 2007**

In 82 years, Pell Frischman Consulting Engineers has have grown into a worldwide multi-disciplinary engineering consultancy with more than 1300 staff, 16 regional offices in UK and a turnover approaching £50 million.

**Position:** Design Civil Engineer - Railway

- Responsible for carrying out structural designs and project management of projects.

### **Major projects undertaken:**

*Slope Stability Assessment of earth structure CTS1, P116 CTS2 & P116 CTS5, located between Hillingdon and Uxbridge Stations*

Pell Frischmann was commissioned to carry out a CAT III design check on the detailed design report prepared by Metronet Alliance, for slope stabilisation for earth structure CTS1, P116 CTS2 & P116 CTS5.

Metronet proposed using a combination of 600 diameters, spaced bored piles and reinforced concrete pile caps improve the stability the embankment slopes at various CTS locations.

I was in charge of;

- Evaluating capacities of the 600 diameter bored piles by checking the bending and shear capacities.
- Evaluating the capacities of proposed pile cap beams in shear and bending resulting from active soil pressure and surcharge.
- Quality Assurance system, I reviewed materials specifications report and detailed design report.

### **HADHAM ENGINEERING METAL FABRICATION LTD, HERTFORDSHIRE , UK FEB 2003 – MAY 2005**

**Position :** Structural Steel Detailer & Designer

Duties included Liaising with architects and engineers during structural steel detailing and construction on a continuous basis to ensure effective project design and construction. Gathered site measurements and supervised projects.

### **WBHO CONSTRUCTION (PTY) LTD, JOHANNESBURG, SOUTH AFRICA JAN 1999 - JAN 2002**

As a leading force in construction in Southern Africa, WBHO Construction [Pty] Limited is principally involved in Building Construction, Civil Engineering and Roads and Earthworks. .

**Project :** *Construction of Emerald Casino Resort : Entertainment Centre, Hotel and a Casino, Vanderbylpark, Gauteng , South Africa (480million), Client:* Emerald Safari International

**Project Description:** Emerald Casino with an estimated construction cost of R480million project involving the construction of entertainment centre, Hotel and Casino in Vanderbijlpark.

**Client:** Safari International

**Job Description:** Site Engineer – The reinforced concrete structure of the Hotel

### *Responsibilities*

This project introduced me to site work. I was responsible for the liaising and coordinating the construction works with supervising engineer and the construction team.

### *Quality Control - drawings*

I had the overall responsibility of reviewing working drawings submitted by the design teams on the project. As part of the review I checked for dimensional accuracy. I also reviewed the electrical, mechanical, plumbing drawings against structural drawings to identify and eliminate any interface issues. There was a tight building program that meant that I had to push the structural engineers for buildable details.

### *Quality Control – site work*

I also conducted spot checks on the work done by the foreman such as fixing levels and setting out.

### *Construction schedule*

I monitored the construction tasks on the contract schedule and liaised with the Contracts Manager for the appropriate action if required in order to stay on track.

### *Material procurement*

I investigated the options of using local material suppliers to aid with speed of construction works. I replaced a lot of suppliers from Johannesburg with the local supplier around Vereeniging and Vanderbijlpark. I coordinated the ordering of building materials with the foreman.

**BCP (BRAFD & CONNING) CONSULTING ENGINEERS, SOUTH AFRICA    MAY 1994 – DEC 1999**

**Position: Civil/Structural Engineer**

### **AWARDS AND ACHIEVEMENTS**

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**1990 - 1992:** Offered a scholarship by Zambia Electricity Supply Corporation from third year to fifth year at the University of Zambia.

**2009 to 2010:** Successfully put together a study group of Civil Engineers to meet fortnightly on Monday evenings to go through past Institution of Structural Engineers, UK (IStruct E) paper exam Questions. As part of this initiative, organised a series Geotechnical lecture sessions by an Expert from Geomatrix Geotechnical Specialists.

**Extracurricular activities - 2014:** Community works Offering Free of charge Tuitions in O levels to Grades 10 to 12 students - Musamba Compound (Next to Lafarge)

### **PUBLICATIONS AND COURSES**

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**1999 – 2000:** Research Assistant - University of Natal: Did a research entitled: Evaluating the Implementation of Civil and Building SMME contracts in Kwazulu-Natal, Province and published a paper in Natal University, Pietermaritzburg, journal (Part of small business study)

**Feb – 17 May 2017 :** Preparation Course For The Institution Of Structural Engineers CM (Part 3) Examination 22, organised by the North Thames Branch of The Institution of Structural Engineers

**July – Aug 2016 -** Writtle University College: Welding For Beginners - course runs one evening a week for ten weeks, suitable for beginners is designed to give practical instruction on Health and Safety of welding processes and equipment, Plasma Cutting, Oxy-Acetylene Welding and Cutting (O/A), Manual Metal Arc Welding (MMA), Metal Inert Gas Welding (MIG), Bronze Welding and Macro-Echting

### **AWARDS AND ACHIEVEMENTS:**

1990 - 1992: Offered a scholarship by Zambia Electricity Supply Corporation from third year to fifth year at the University of Zambia.

## **PROFESSIONAL MEMBERSHIPS**

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Graduate Member of Institution of Civil Engineers (UK) – aiming for full chartered status in 2021

## **EDUCATION**

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**B.Eng** Civil Engineering University of Zambia, 1993

**PRINCE2** Foundation, currently pursuing **Prince2** Practitioner, 2020

## **COMPUTER SKILLS**

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**Marketing & Sales:** Sales Force Effectiveness Software Package

**Project Management:** Ms Projects

**Documentation:** Ms Office

**Drafting:** Auto-CAD

**Earthworks & Civils:** Civil Designer,

**Structural analysis and design:** PROKON, Strap, Scale, Super Stress, TEDDS

**Permits:** SASOL Secunda SH & E Training Passport with inductions with certifications to work in Sasol Synfuels Business Units.

London Underground Line Entry Permit, PTS orientation