



MOOV FUEL & LUBRICANTS - KRAAIFONTEIN DEPOT

STORMWATER MANAGEMENT PLAN



JUNE 2025

K&T PROJECT REFERENCE: 17014T-01

REVISION 4



Details of this report

Client Name	MOOV Fuel & Lubricants (Pty) Ltd
Document Title	17126T - Stormwater Management Plan
K&T Project Reference	17126T
File Name	001-SWMP
Prepared By	RL Murray
Reviewed By	RL Murray

Report Revision Record

Revision	Date	Description
0	21/06/2024	Draft
1	3/07/2024	Comments added
2	17/01/2025	Wash Bay added
3	28/02/2025	Layout updated
4	9/06/2025	Report updated

This report has been prepared by Kantey & Templer (Pty) Ltd, with all reasonable skill, care and diligence within the terms of the Contract with the client, incorporating our General Terms and Conditions of Business and taking account of the resources devoted to it by agreement with the client.

We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above.

This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at their own risk.

For and on behalf of Kantey & Templer (Pty) Ltd

For and on behalf of

Kantey & Templer (Pty) Ltd

Prepared by: RL Murray

Signed:

A handwritten signature in black ink that reads 'RL MURRAY' with a stylized flourish.

Position: Associate Director

Date: 2025-06-09

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STORMWATER MANAGEMENT PLAN

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1. INTRODUCTION

Kantey and Templer were appointed by MOOV Fuel & Lubricants (PTY) Ltd to carry out a Stormwater Management Plan for their proposed new petroleum product storage facility at Kiaat Street, in Kraaifontein, Cape Town, Western Cape. This report indicates, discusses and elaborates on the proposed measures to control stormwater on the site.

2. LOCATION AND ACCESS

The site is situated at 13 Kiaat Street, in Kraaifontein. The general site is bordered to the north and south by other industrial developments, to the west by open land, and to the east by Kiaat Street. The cadastral description of the site is Erf 21594 - Kraaifontein. The site is 9746m² in extent. The site location is shown in Figure 1.

Figure 1: Site Location



The GPS coordinates for the site are 33°50'29.12"S , 18°43'42.84"E.

Access to the site is presently via Kiaat Street on the eastern border of the site.

3. DEVELOPMENT PROPOSAL

3.1 General

MOOV Fuels is the Astron Energy Western Cape Branded Marketer supplying petroleum products to 90 Caltex / Astron Energy service stations and close to 3000 commercial clients in the Western Cape.

The proposed development on the site is a new bunded storage area for diesel and petrol tanks, and loading facilities as shown on the drawings in Annexure A.

3.2 Current Stormwater System

The current storm water system is as shown in the photographic records in Annexure C and consists of:

- a) The upper hard surfaced areas of the site that are traversed by vehicles are drained via overland predominantly to the west of the site to the stormwater pond located outside of the site. The other stormwater discharges into Kiaat Street and into the municipal stormwater network.

- b) The underground piped network is minimal and 110mm diameter in size.
- c) Stormwater runoff from the building is discharged through a combination of methods (we will only report on the building which will remain):
 - a. The northern side of the existing building (area between northern face of building and boundary wall) discharge onto the paved area along the northern boundary and is then directed overland to the stormwater systems.
 - b. The southern side of the building discharges into a gutter which in turn discharges into water storage tanks for re-use. The tanks have a valved overflow that allows discharge into the existing stormwater system to the west of the site.
 - c. The existing office building discharge into gutters, downpipes and ultimately into Kiaat Street.
- d) There is an existing wash bay that drains to a three-chamber oil water separator that appears to be connected to the existing sewer system located in Kiaat Street.

3.3 Proposed Development

The proposed development will entail the construction of a tank farm and loading facility (i.e. reinforced concrete bund, storage tanks and associated piping) with a maximum combined storage capacity of 2500 m³ (with possible future expansion to 3500 m³). The receipt and distribution of these products will be via road tanker.

The configuration of the Above-ground Storage Tanks (AST) is as follows:

- 2 x 1000 m³ for the storage of diesel;
- 1 x 500 m³ for the storage of ULP95; and
- 1 x 1000 m³ for potential future storage of fuel.

The construction will include one main reinforced concrete bund with intermediate walls, thus allowing all tanks to be located within their own subdivision. A total number of four aboveground tanks can therefore be accommodated within the available space, the current proposal however is to install 3 AST's with space allowance for a future AST.

A layout of the proposed bund and position of the loading facility are shown on drawing in Annexure A.

3.4 Proposed Development Storm Water Management

3.4.1 Drainage Systems

The drainage streams on the site will be split into three drainage streams as below:

- Clean storm water (CSW)
- Accidentally oil contaminated (AOC)
- Continuously oil contaminated (COC)

The storm water infrastructure to be installed for the purpose of the proposed development should allow for the following:

- Pipe diameters : min. 375mm diam.
- Bedding : Class C
- Inlets : Manhole
- Junctions : Points of deflections on pipelines

All storm water infrastructures will be constructed in accordance with the standard requirements and specifications as published by the City of Cape Town.

3.4.1.1 Clean Storm Water (CSW)

This will include water from building roofs and hard stand areas that are not likely to come into contact with hydrocarbons.

It is proposed that an underflow / overflow discharge manhole be introduced on the western boundary and that all stormwater be passed through this device prior to discharge to the existing pond.

3.4.1.2 Accidentally Oil Contaminated (AOC)

These are areas that have a small likelihood of hydrocarbon contamination. The new tank storage bund will be assumed to be an- AOC area.

The new storage bund area will be drained to a central switching valve. This valve will normally be in the closed position. After inspection of the contents of the bund, if the water is not contaminated the water will be released via the control valve to the CSW system.

After inspection of the contents of the bund, if the water is contaminated the water will be released via the control valve to the new separator system (COC) that drains to sewer.

3.4.1.3 Continuously Oil Contaminated (COC)

These are areas where contamination of water is highly likely due to the activities that occur within this area on a daily basis. The truck loading point and any areas where loaded trucks will be staged overnight on the site will be considered a (COC) area. All COC areas will be drained directly to a new oil water separator that drains to the sewer system.

It is proposed to construct a new wash bay on the site, this wash bay will be drained to the existing oil water separator which would then drain to the sewer system.

3.5 Clean Storm water Management

The traditional design of storm water drainage systems has been to collect and convey storm water runoff as rapidly as possible to a suitable location where it can be discharged. This traditional design can however result in drainage and flooding problems downstream.

The objective of a storm water management plan is therefore to manage the storm water resources of the collective watersheds to:

- Prevent flood damage,
- Preserve the natural and beneficial functions of the natural drainage system.

The storm water management strategy will be to manage and collect surface runoff and roof water, and if necessary, pass it through a detention tank/structure system before discharging the water into the storm water drainage system at a peak discharge rate equal to or less than the pre-development flow.

For this site, the runoff will be required to pass through a new detention tank/structure system

3.6 Storm water Runoff

To determine the effective storm water catchment area, site characteristics such as slope, ground cover and rainfall intensity are considered.

For this site, the entire site is considered the catchment area.

The effective catchment areas in the post-development phase that affect the runoff volumes significantly (i.e. hardstand areas, buildings, parking areas etc.) are shown in Table 1.

Table 1: Site Coverage

Item	Development Stage	Drainage Area	Drainage Area Size (m ²)	% of Total	Total Area (m ²)
1	Pre	Ex Buildings	2930	30	9746
2		Ex Driveways & hardened areas	6816	70	
3	Post	New Bund	1130	11,6	9746
4		Ex Buildings	2405	24,7	
5		Driveways & hardened areas	6211	63,7	

The site is currently covered by hardened surfaces (driveways, hardstand areas and buildings). At present, the captured storm water runoff is allowed to flow across the site towards the western and eastern boundaries. It can be shown that the site characteristics in terms of ground cover will not change as a consequence of the proposed development and thereby will not affect the storm water flows across the site. In essence the new bund will further enhance the attenuation of runoff on the site because the release from the bund is a controlled release.

The proposed changes to the site will require a review of the existing stormwater system and the new infrastructure required.

A summary of drainage flows based on the Rational Method and Runoff Coefficient of discharge are tabulated in Table 2.

Table 2: Pre and Post Development Storm Water Peak Flow

Description	Effective Area (m ²)	1:10 Year return period Peak Flow (m ³ /s)	1:50 Year return period Peak Flow (m ³ /s)
Pre-development	9746	0.141	0.197
Post development	9746	0.141	0.197

See drawings in Annexure A of this document for the proposed storm water reticulation design.

Suggested details of typical storm water controls and structures to be implemented during construction of the new bund are available in Annexure B.

3.7 Recommendations

The following additional recommendations are suggested:

- A new oil water separator is to be installed to accommodate oily water from the bunds and loading area. Any contaminated storm water must pass through the separator to mitigate against the escape of pollutants into the storm water and sewer drainage systems.
- The storm water system must be kept separate from the wastewater (sewer) drainage system.
- The pre-development and post development runoffs are essentially the same because of the extent of hard surfaces being similar. So, no changes to the downstream drainage system of the site would be necessary. However, the local authority may require the installation of an attenuation tank at plan approval stage.
- Any oils to be stored on site are to be stored in bunded areas.
- The proposed wash bay discharge needs to pass through the existing oily water separator.



ANNEXURE A : PROPOSED SITE DRAINAGE PLAN

LEGEND

SERVICES

EXISTING SEWER PIPE

EXISTING SEWER MANHOLE

PROPOSED WASHBAY WATER PIPE

PROPOSED WASHBAY WATER MANHOLE

PROPOSED OILY WATER PIPE

PROPOSED OILY WATER MANHOLE

PROPOSED FOUL SEWER PIPE

PROPOSED FOUL SEWER MANHOLE

PROPOSED STORMWATER

The diagram illustrates a conceptual drainage layout for a site bounded by ERF 21593, ERF 11477, ERF 21594, and ERF 21596. Key features include an existing warehouse, a proposed new washbay, an existing truck staging area, and various proposed and existing drainage pipes and manholes. The layout shows connections to a municipal sewer network and a stormwater pond. Dimensions and boundaries are clearly marked.

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IMPORTANT NOTE:
NO SINGLE CONTROL POINT SHOULD BE USED IN ISOLATION. THE STATION USED MUST BE CHECKED AGAINST THE OTHER POINTS TO CONFIRM POSITION AND ELEVATION.

IMPORTANT NOTE:
ALL DIMENSIONS ARE TO READ AND NOT SCALED FROM DRAWING

FOR INFORMATION
PURPOSES ONLY

C	ISSUED FOR INFORMATION	DS	RLM	RLM	09 JUNE 2025
B	ISSUED FOR INFORMATION	DS	RLM	RLM	27 FEB 2025
A	ISSUED FOR INFORMATION	DS	RLM	RLM	21 FEB 2025
REV	DESCRIPTION	DR	CHKD	APP	DATE

	INITIALS	SIGN	DATE
DESIGNED	DS		09 JUNE 2025
DRAWN	DS		09 JUNE 2025
CHECKED	RLM		09 JUNE 2025
PROJECT ENG.	RLM		09 JUNE 2025
APPROVED	RLM		09 JUNE 2025

KANTEY & TEMPLER
CONSULTING ENGINEERS

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Cape Town: +27 21 405 9600 www.kanteys.co.za

CLIENT
MOOV FUELS

PROJECT
MOOV FUELS

TITLE
CONCEPTUAL DRAINAGE LAYOUT

SCALE : 1:250 PB A1

DRAWING No. 17014T-P0-1051 REV C

Z:\ADMIN\Jobs-1\17014T Moov Fuel SWMP\4-Cad\1-Drafting\1 Urban (1000-1999)\3 Key Plans_Gen Layouts (1051-1099)\17014T-1051 Conceptual Drainage Layout.dwg 09/06/2025 12:19 Darren Snyders



ANNEXURE B : TYPICAL STORMWATER ATTENUATION STRUCTURES AND STORMWATER CONTROLS DURING CONSTRUCTION PHASE

TYPICAL STORMWATER ATTENUATION STRUCTURES AND STORMWATER CONTROLS DURING CONSTRUCTION PHASE ONLY

Proposed Storm Water Controls-Details during Construction Phase

1. Control: Silt Fencing

Installation:

- The fence must be a total of at least 450mm in Height (300mm above ground, 150mm buried – to decrease the risk of undermining).
- These must be erected as a three-row sieving method – each row of fencing must be at most 1.5m apart.
- Poles at 1m intervals are to be tied to the fence in order to keep it upright.
- All care must be taken to ensure that silt movement does not run around this fence; wing walls of this fence must be created, alternatively sandbags as wing walls (see # 5) may be used to control and attenuate the water through the silt fence.

Uses:

- Trap sediment whilst in movement.
- To break the force of the water movement and decrease its weight.

Composition:

- Biddem, 80% Shade cloth, grass Mat ®.

Management:

- These must be cleaned of sediment and checked for damage regularly. An excessive build-up of silt against this fence will force too much weight upon it and cause it to collapse. Additionally, weak points or damage will allow silt to flow through without being sieved, and thus render the control obsolete.

2. Control: Instant Lawn

Installation:

- This can be used as either full instant lawn or Strip sods.
- Instant lawn can be costly and unless stipulated on the Final Landscape Plan, cannot be used as a permanent planting solution. Strip Sodds must be placed at most 1.5m apart in order for this to be effective. These must be pegged if used on steep embankments and require soil preparation (i.e. compost) and frequent watering in order to grow.

Uses:

- For use on steep banks – used in conjunction with the final landscape planting, will decrease the risk of sheet movement on steep banks.

Composition:

- Must be an S.E.E.H.O.A Approved Grass.

Management:

- Requires lots of water. Soil displacement over grass sods will result in the grass dying-ensure adequate controls above this method are in place.

3. Control: Poles (Banks)

Installation:

- Placed in a herringbone order.
- Must be pegged to hold the poles in position.

STORMWATER CONTROLS
CONSTRUCTION PHASE

- A soil Berm must be created and mildly compacted above the pole set-up in order to decrease the risk of undermining.

Uses:

- To slow down run-off, to decrease/ minimize the risk of sheet movement.

Composition:

- Various (Gum poles, wattle, bamboo, etc).

Management:

- These must be checked to see that they are stable – may become dangerous if large logs roll. Soil berms must be checked and repaired after rains.

4. Control: Drainage Pipes

Installation:

- Used in conjunction with sandbagging (see # 5) or Earthberms (see #6).
- Placed from the top of a platform at the low/weak point.
- Pipe to run down the bank to a flat area or into the stormwater system.
- A break pressure wall or pipe, sandbag wall (herringbone formation) is to be erected so as to break the velocity of the water movement. Ideally the pipe should release water in a sheet flow and with as little velocity as possible.
- Silt fencing must be placed in three rows (see#1), in order to sieve any sediment.
- All water on platforms must be directed to the pipe by means of trenching or sandbags – unless placed at low point. Sandbags must be placed as a “wall” structure in order to create a physical barrier to direct the water to the outfall pipe.

Uses:

- To alleviate the hazard of water ponding.
- To minimize the risk of berms breaking and damages as a result of ponding.
- To attenuate and control storm water away from the workable areas.

Composition:

- P.V.C. piping (various sizes – min 175mm), Shade Cloth fence (min 80%), sandbags or earthberms.

Management:

- Ongoing management of sandbags, fencing and pipes, checks for blockages in the pipe that will render this control obsolete.

5. Control: Sandbagging

Installation:

- Must be used as a means of walling and attenuating water only.
- Must be placed in brick formation side by side, and then the second row placed against the first for added strength.
- Must not be used to pond water on large areas.

Uses:

- For attenuating water in the movement towards drainage pipes and permanent storm water systems. Also, for the use of breaking pressure and can be used to slow down sheet movement on banks if placed in herringbone fashion.

Composition:

- Plastic, Hessian, nylon bags

STORMWATER CONTROLS
CONSTRUCTION PHASE

Management:

- Cleaning/removing silt build-up regularly, replacement of damaged bags – plastic preferred – less likely to become damaged and longer lasting

6. Control: Earth-berms

Installation:

- These must be constructed at least 1m in width and at least 750mm in height.
- All earth-berms must be compacted.
- These must be placed at least 1m away from the edge of an embankment.

Uses:

- Attenuating water to outfall pipes or into the Permanent storm water system only.
- This is not a means for damming water – ponding water can become very destructive.

Composition:

- Soil – compacted

Management:

- Cleaning/removing silt build-up re-establishment of damaged berms.

7. Control: Small Trenches with Small Earth-berms

Installation:

- These can be created horizontally across the Sheet movement of water.
- Trenches are to be dug a minimum depth of 300mm, be at least 300mm wide and must be created the full length across the affected area.
- The berm must be placed on the down side to create further height and must be compacted

Uses:

- Soil only

Management:

- Any dropped sediment in the trenches must be removed within 24 hours of damage done
- Re-establishment of damaged berms.

8. Control: Agricultural Trenches

Installation:

- These must be cut back into the angle of the slope and have a fall of at least 20 degrees. They must be constructed at least 1.2m wide and be used in conjunction with other forms of controls (i.e. silt fences must be erected in these trenches at maximum intervals of every 5m. Berms on the down slope must be compacted and they should be at least 450mm wide and 300mm high. Agricultural trenches should be constructed around the full perimeter of the site or wherever water attenuation is required. It must be constructed in such a way as to allow water to move to an area where the water (less the soil) will be managed by the estate (i.e. dams, ponds, catch pits, etc.).

Uses:

- Predominantly for use on larger projects. Only for attenuation purposes – ponding in these trenches may cause more damage if the berms were to break.

Composition:

- Trenching and small berms

Management:

STORMWATER CONTROLS
CONSTRUCTION PHASE

- Continual management is required – trenches must be cleared of sediment within 24 hours of every Rainfall. Clogging and silt build up will lead to ponding and restrict the flow of the water.



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ANNEXURE C : PHOTOGRAPHS

SITE PHOTOGRAPHS



Existing Drainage around washbay



Existing Drainage around washbay



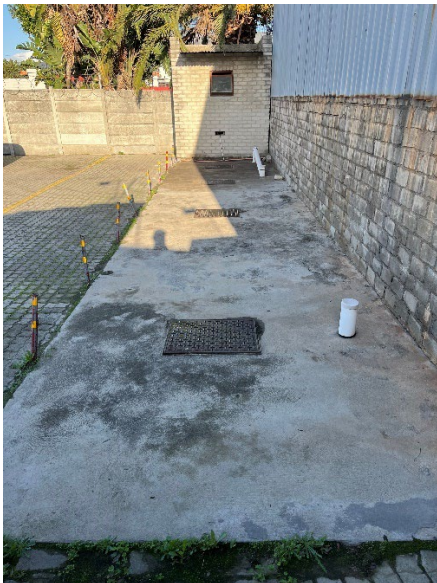
Gutters on existing buildings



Existing stormwater inlet on western boundary



Pond to west of site into which stormwater discharges



Oily water separator



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CURRICULUM VITAE



ROBERT LYNDON MURRAY

Associate Director

B Tech Urban Engineering – Civil – P E Technikon
National Diploma Engineering – P E Technikon

Professional Qualifications : PrTech Eng, BTech Eng (Civil), MSAICE, MIMESA
PrCPM

Specialisation In Firm : Civil Engineer, Project Manager

CAPABILITY SUMMARY:

EXPERIENCE TO DATE

2018 SACPCMP registration : Registered with The South African Council for the Project and Construction Management Professions (SACPCMP) as Professional Construction Project Manager Registration Number D/2613/2018

April 2010 to date : **Kantey & Templer**

Transferred to the Cape Town Office to manage the Urban section. Became an Executive Associate of the firm in March 2010. Since this date he has been responsible for the management of civil engineering projects undertaken by the urban section of the Cape Town office. Typical projects handled include;

- Sunnyside Primary School (R14m)
- Jagtershof Secondary School (R22m)
- Killarney TRA Housing (R47m)
- Hout Bay Primary School (R70m)
- Sable Square Traffic Signals (R1,6m)
- Ocean Echo Cold Store (R90m)
- Bosmans Business Centre (R70m)
- Bofors Circle Warehouse (R80m)
- Moorsom Warehouse (R85m)
- Cape Fruit Cold Store (R90m)
- Port of Ngqura Bulk Fuel Storage Facility (R1,4 billion)
- Parc-du-Cap Water treatment Plant (R630k)
- Onyx Road Widening (R2m)
- Bishops College alternative water supply (R1m)
- Maitland Mixed Use Development
- Onverwacht Road Extension (R4,5m)
- Firgrove Industrial external road upgrades (R12,5m)
- Parc-du Cap Security upgrade (R2,1m)
- UCT Jammie shuttle (R12m)
- Two-A-Day Packhouse 4 (12m)
- River Club entrance road upgrade (R1m)

- Harbour Bay mixed use development (R40m)
- UCT Educare parking (R4,7m)
- Parc-du Cap vehicle parkade (R118m)
- Millys Stop wastewater treatment works (R11m)
- Glendirk Estate services (R1,5m)
- Bishops College Pavilion services and parking (R2,5m)
- Chevron Office Relocation (R233m)
- SPCA Cape of Good Hope (R3,2m)
- UCT Hiddingh Campus Parking (R2,1m)
- Ottery residential development (R50m)
- Chevron TTLR upgrade (R129m)
- Caltex Wetlands entrance road (R1,5m)
- Beechwood Estate (R4,8m)
- Farm 640 residential development East London (R140m)
- Chevron KTF security fence upgrade (R10m)
- Chevron refiner south parking upgrade (R200k)
- Algeria Nature reserve low level crossing (R400k)
- Sishen tanks 5 & 6 (R640m)
- Cape Point Sewage Treatment Plant (R8m)
- Chevron North Parking (R10m)
- The Somerset Lifestyle Estate – Somerset West (R63m)
- Casa Maris Eco-estate (R140m)
- Makro Montague Park (R18m)
- Klein Welgemeend – Lakeside (R10m)
- Letseng Mine Services Investigation and report
- Value Logistics Cape Town (R70m)
- Value Logistics Cato Ridge Access Road
- Various Stormwater Management Plans
- Chevron refinery Drainage Study
- Outline scheme reports for developments

Feb 2003 to March 2010

: Kantey & Templer

Became an Associate of the firm in March 2008. Responsibilities and involvement on various projects in this period are listed below:

Resident Engineer:

- Oubaai Golf Estate (R73m)
- Kingswood Golf Estate Internal Services (R63m)
- Oudtshoorn Prison Structural Repair (R7,5m)
- Thesen Sawmills Civils (R6,5m)
- Kingswood Golf Course (R35,7m)
- Union Street Upgrade Phase 1 (R3,7m)
- George Airport Parking Upgrade (R4,3m)
- Great Brak Heights Slip Repair (R5m)
- Julia Avenue Slope Remediation (R5m)
- Schaapkop Electrical Platform (R5m)

Design, Documentation and Management of Civil Services

- Kraaibosch Residential Estate (R46,6m)
- Kingswood Gardens (R1,7m)
- Kingswood Golf Estate (R40m)
- Katberg Golf Estate Water Network (R3,9m)
- Welgelegen Residential Estate (R34,6m)
- Schaapkop Electrical Platform (R5m)
- Simola Golf Estate (R13m)

- BP Langlaagte (R0,3)
- BP Bloemfontein (R0,3)
- Europcar Rental Terminal (R2m)
- Joe Modisa Peace Village
- Port Elizabeth – Land Infill
- Koukamma Municipality – RDP rectifications

Project Management

- Kingswood Golf Course (R35,7m)

May 1999 to January 2003

:

Nieuwoudt & Hofmeyr

Resident Engineer:

- Thesen Islands (Phase1) (R32m)
- Trails End Residential Development

Design, Documentation and Management of Civil Services

- Schoongesicht (Plettenberg Bay)
- Watterberry Ridge (Plettenberg Bay)
- Eastford Glen (Knysna)
- Various privately owned houses

Structural design (concrete and steel)

- Thesen Islands Bridges
- Various privately owned houses
- The Boat Shed at Thesen Islands

February 1999 to May 1999

Offerman Construction

Construction:

- Construction of Sewage works extension at Drift Sands (Port Elizabeth)

January 1997 to November 1997 (Practical Year)

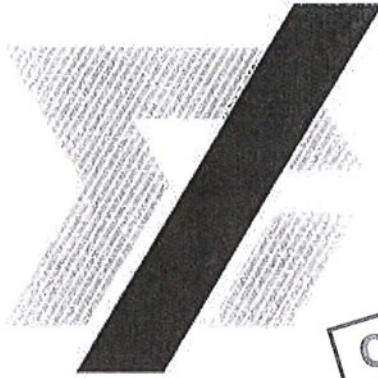
:

South Cape Civils

Construction.

- Sewerage Reticulation (Noorsekloof, Jeffrey's Bay)
- Irrigation Network (Haarlem)
- Internal Services for RDP township (Woodlands)

Engineering Council of South Africa



This is to
certify
that

Robert Lyndon Murray

is registered as

Professional Engineering Technologist

in terms of the Engineering Profession Act, 2000
(Act No. 46 of 2000)

Date

28 February 2008

Registration
Number

200870024

President

Chief Executive Officer





P E TECHNIKON

Baccalaureus Technologiae

ENGINEERING : CIVIL

Awarded to

**Robert Lyndon Murray
(ID:7701035131081)**

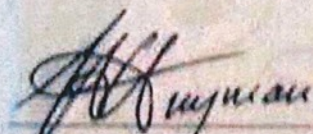
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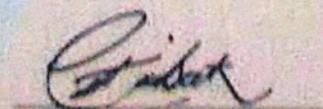
COMMISSIONER OF OATHS
Marc Charles Gore
Chartered Accountant (SA)
Membership No: 05027742
1 The Pavilion, Central Park
Esplanade, Century City, 7441

With effect from

05-FEB-2002

No 20021335


Rector and Vice-Chancellor


Registrar





*This is to acknowledge that
Robert Lyndon Murray
Attended the Course
Contract Comparisons
On 10 Sep 2010*



Brenda Lacey-Smith
Manager: School of Consulting Engineering
Signed on 13 Sep 2010

This certificate is not
valid if the number
above is not visible

577

ETQA Registration Number

Certificate

of Competency

Management of Civil Engineering Construction Processes

This is to certify that

Robert Murray

Identity Number

7701035131081

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08/05/2024
COMMISSIONER OF OATHS
Marc Charles Gore
Chartered Accountant (SA)
Membership No: 05027742
1 The Pavilion, Central Park
Esplanade, Century City, 7441

Has been assessed and proven competent in the under-mentioned unit standards and has been awarded
the skills programme

SP-ND-CM-7-E-1-20

The content of the Skills Programme is reflected on the reverse

Date of Achievement: 12 November 2008

Date of Issue: 30 April 2010



Chief Executive Officer



Manager Quality Assurance

The contents of this certificate must be validated with CETA

CONSTRUCTION EDUCATION AND TRAINING AUTHORITY

Institute of Municipal Engineering of Southern Africa



CERTIFIED A TRUE COPY

08/05/2024

THIS IS TO CERTIFY THAT

Mr R L Murray

HAS BEEN ADMITTED AS

A Professional Member

OF THE
INSTITUTE OF MUNICIPAL ENGINEERING
OF SOUTHERN AFRICA

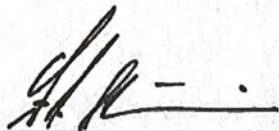
IN TERMS OF CHAPTER 4 OF THE INSTITUTE'S CONSTITUTION

5 August 2011

Date of Admission

M3519

Membership No.


President


Secretary

This Membership Certificate remains the property of the Institute and is issued on its authority alone



The South African Council for the Project and Construction Management Professions

— **CONSTRUCTING NEW PERSPECTIVES** —

Validation of Registration Status

The South African Council for the Project and Construction Management Professions (SACPCMP) confirms the registration status of

Robert Murray

who is currently registered as a

Professional Construction Project Manager

Registration Number

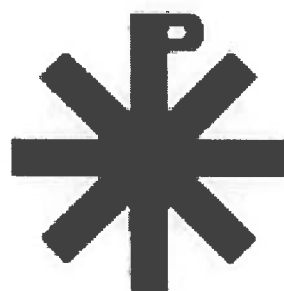
D/2613/2018

The validity period of this registration is from
01 Apr 2025 to 31 Mar 2026

This is issued as an official validation of registration of the individual mentioned herein by the SACPCMP. The South African Council for the Project and Construction Management Professions (SACPCMP) is a juristic person established by Section 2 of the Project and Construction Management Professions Act (Act No.48 of 2000) to regulate Project and Construction Management Professionals.

The use or reproduction of this validation document for reasons any other than that of the validation of the registration status of the individual mentioned herein is strictly prohibited and offenders will be subject to prosecution.





PORT ELIZABETH TECHNIKON

National Diploma

ENGINEERING : CIVIL

Awarded to

Robert Lyndon Murray
(ID:7701035131081)

With effect from

09-FEB-1999

No 19991331

Registrar

Rector and Vice-Chancellor



KANTEY & TEMPLER
CONSULTING ENGINEERS
ESTABLISHED 1953

CURRICULUM VITAE



DARREN SNYDERS

Senior Technologist
Associate Executive
PrTech Eng

Professional Qualifications	:	1993-1995- National Diploma (RNDCIV) (Civil Engineering) Peninsula Technikon 2003-2005- bachelor's degree (Urban Planning) Cape Peninsula University of Technology
Specialisation In Firm	:	Urban Engineering

CAPABILITY SUMMARY:

EXPERIENCE TO DATE

December 2022 to date	:	Kantey & Templer (Pty) Ltd
December 2018 to 2021	:	City of Cape Town – Head of Design Office
2018 - 2021	:	Welcome Zenzile – New Link Road - Review Designs - Attend site visits as required - Attend monthly meetings with contractor - Ensure project stays within budget Project Value: R4m
2019 - 2021	:	13th Avenue, Schaapkraal Philippi (Road Construction, SW and Directional Drilling) - Review Designs - Attend site visits as required to monitor site progress - Attend ad-hoc meetings with Contractor and Project initiator - Ensure project stays within budget Project Value: R2.3m
2019 - 2021	:	Kloofnek Road Widening and Signal Hill NMT - Gardens - Review Designs - Attend site visits as required to monitor site progress - Attend ad-hoc meetings with Contractor and Project initiator

- Ensure project is within budget

Project Value: R2.0m

2019 - 2020

Atlantis Cemetery Phase 4

- Review Designs
- Source available recycled asphalt from within the CCT
- Attend site visits as required to monitor site progress

Project Value: R4m

2019 - 2020

Gabion Coastal Rehab North and South - Strand

- Review Designs
- Attend site visits as required to monitor site progress
- Ensure project is within budget
- Ensure synergy w.r.t. designs between coastal engineer and civils

Project Value: R2.5m

2019 - 2020

Intersection Improvement – Olienhout & Silwerboom Platteklouf

- Review Designs
- Attend site visits as required to monitor site progress
- Ensure that NMT standards are applied to revised intersection
- Check sight distances from all approaches

Project Value: R1.5m

November 2009 to 2018

Kantey & Timpler (Pty) Ltd

2009 - 2012

Ankerlig Railway: Atlantis – Eskom

- compile site development plan
- vertical and horizontal design of railway
- design of internal roads and services
- compile services, roads, bulk earthworks, detail drawings, rail setting out

Project Value: R89 600 000

2010 – To Date

Value Logistics, New Warehouse, Joostenbergvlakte

- Bulk Earthworks design and analysis
- Roads and services design

Project Value: R66 000 000

2010 – 2011

MAKRO: Milnerton – Eris Properties

- design internal roads, parking bays and services
- compile services, roads, bulk excavation and detail drawings

Project Value: R18 000 000

2010 - 2011

Maskew Miller/Pearson SA Distribution Centre: Brackengate Park – NMC Alliance

- design road entrance, parking areas and services
- compile services, roads, bulk excavation and detail drawings

Project Value: R9 000 000

2013 – To Date

Chevron Refinery – North & South Staging Area: Cape Town, Milnerton

- design of internal roads and services
- compile services, roads, bulk excavation and detail drawings

Project Value: R45 000 000

2015

Chevron FSP Fire Station, Milnerton, Cape Town

- Bulk Earthworks design and analysis

	• Roads and services design Project Value: R150 000 000
2015 – To Date	Chevron North Parking and upgrade of drainage, Milnerton, Cape Town • Bulk Earthworks design and analysis • Parking area and services design Project Value: R10 000 000
2015 – 2016	Waterkloof Retirement Estate: Somerset – Westacre Property Group • design internal roads, parking bays and services • compile services, roads, bulk excavation and detail drawings Project Value: R9 000 000
2015 – 2016	SPCA: Grassy Park, Cape Town • design road entrance, parking areas and services • bulk earthworks design and analysis • site supervision and attend monthly meetings • monthly payment certificates and testing of services Project Value: R3,2m
2015 – To Date	Two a Day Pack Sheds: Grabouw – Two a Day • design internal roads and services • compile services, roads, bulk excavation and detail drawings Project Value: R3 000 000
2017 – To Date	Coega OTGC Oil Tanking Grindrod Calulo, Port Elizabeth • Bulk Earthworks design and analysis • Roads and Stormwater design • Set up intelligent 3D modelling for client review Project Value: R1.4 billion
FEB 2009 to SEP 2009	Senior Technologist: BSP Consulting Engineers Pty LTD on the 03 February 2009 Bongolethu Primary School (Philippi) PAWC • design roads and services • compile services, roads, bulk excavation and detail drawings • attend technical and general meetings on a monthly basis • site supervision on weekly basis Project Value: R25 500 000 Wallacedene Secondary School (Kraaifontein) PAWC • design roads and services • compile services, roads, bulk excavation and detail drawings • attend technical and general meetings on a monthly basis Project Value: R31 500 000 Ceres Hospital: New Helistop • compile layout drawing for helistop including standards and existing services, etc. • application for approval to the South African Civil Aviation Authority • compile schedule of quantities and cost estimation for helipad Project Value: R1 000 000
MAR 2008 - JAN 2009	Support Consultant, Knowledge Base Software, Tokai Provision of technical support and training to Engineers, Technologists, Surveyors, etc. In the following categories: Civil Designer (version 6.5)

- Civil Engineering Design Software
AllyCAD (version 3.6)
- Computer Aided Drawing Software

FEB 2006 - JAN 2007

Technician, Ninham Shand, Cape Town

Riebeeck Kasteel: Roads and Services

- design roads using Civil Designer 6.5
- compile road marking, services and roads drawings
- compile schedule of quantities and document

Project Value: R2 500 000

Malmesbury (Dalsig): Roads and Services

- design roads using Civil Designer 6.5
- compile road marking, services and roads drawings
- compile schedule of quantities and document

Project Value: R1 500 000

Albert Philander: Road Rehabilitation and Stormwater

- design road using Civil Designer 6.5
- compile road marking, services and roads drawings
- compile schedule of quantities and cost estimation
- payment certificates and site supervision
- liaison between relevant authorities and parties in the form of monthly site meeting

Project Value: R2 300 000

DEC 2003 - JAN 2006

Technician, Ninham Shand, Cape Town

Brackenfell Boulevard: Roads and Reticulation Design

- design road using Civil Designer 6.4
- road marking, services and roads drawings
- compile schedule of quantities

Project Value: R1 300 000

Paarl Emergency Housing: Township Roads and Reticulation

- compiling schedule of quantities
- bulk earthworks design, roads, services using Civil Designer 6.4
- drawing of layout and long sections for all roads and services
- survey of existing stormwater channel

Project Value: R2 500 000

**Deo Volente, Bellville: Private Development
(Carrick Investments)**

- compiling schedule of quantities
- bulk earthworks design, roads, services using Civil Designer 6.4
- drawing of layout and long sections for all roads and services
- site supervision and survey

Project Value: R1 300 000

Rouxville Phase 2 Development (Kulls River) : Roads and Reticulation

- bulk earthworks design, roads, services using Civil Designer 6.4
- compiling schedule of quantities
- drawing of layout and long sections for all roads and services
- site supervision and survey
- collection of as-built data

Project Value: R3 500 000

JAN 2003 - NOV 2003

Technician, Ninham Shand, Cape Town: Valleizicht: Roads and Services

- sewer and stormwater design

- design of roads on Civil Designer 6.3
- water reticulation layout design

Project Value: R1 500 000

Airports Company South Africa: New Bravo Apron

- setting up of aircraft dimension templates at maximum steering angles
- design of parking bays using Civil Designer 6.3

Project Value: R4 500 000

DEC 2001 - DEC 2003

Technician, Ninham Shand, Cape Town: Borchers Quarry Purification Works

- compiling drawings and checking of levels for clarifiers, primary and secondary splitter boxes, open concrete channels and raw sewage pipelines
- compiling drawings and checking of levels for clarifiers, primary and secondary splitter boxes, open concrete channels and raw sewage pipelines
- measuring on site the existing pipe work, clarifiers, pumps, etc.

Project Value: R10 000 000

Velddrif: Housing Project

- design, roads and services using Civil Designer 6.3
- compiling schedule of quantities bulk earthworks
- bulk earthworks design, roads, services using Civil Designer 6.3
- drawing of layout and long sections for all roads and services

Project Value: R7 500 000

Gurara 3m Diameter Steel Pipeline (73km Long): Nigeria

- longsection design of pipeline using Civil Designer 6.3
- compiling of drawings for construction

Project Value: R1.6 billion

JAN 1998 - NOV 2001

Technician, Ninham Shand, Cape Town: Moddergat River Improvement Scheme

- gabion mattresses design and setting up of drawing
- compiling schedule of quantities
- **Project Value: R1 500 000**

Oostenberg Stormwater Study

- drawing of layout and long sections for all roads and services
- survey of existing bulk stormwater in the Oostenberg Area
- capturing and analysis of data into a Stormwater modelling program

Project Value: R1 200 000

Van Riebeeck Road: Kuilsriver

- design of road using Civil Designer 6.2
- compiling schedule of quantities
- drawing of layout and long sections for Van Riebeeck Road
- verifying existing services and calculating levels

Project Value: R6 000 000

JAN 1996 - DEC 1997

**Technician, Ninham Shand, Upington
RDP-housing and Reticulation in Paballelo (225 houses) and Rosedale (120 houses)**

- housing and services : maintain project specifications and standards
- drafting : drawing up of amendments for as-builts
- ensuring adequate compaction before casting of foundations
- water pressure tests done on water pipes

- surveying : checking co-ordinates and invert levels of sewers
- measurement of work done by Contractor
- payment certificates on a monthly basis for both contracts
- status reports done on a monthly basis
- liaison between the community leaders and the local authority, namely Upington Municipality

Project Value: R5 000 000

**Rosedale Bulk Water Supply - 600 mm diameter AC pipeline
(Upgrading of Existing Development)**

- ensure that the Contractor abides to the project specifications and standards
- compaction of bedding under pipes and water pressure tests
- measurement of work done by Contractor
- payment certificates on a monthly basis

Project Value: R1 000 000

Engineering Council of South Africa



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08/05/2024
COMMISSIONER OF OATHS
Marc Charles Gore
Chartered Accountant (SA)
Membership No: 05027742
1 The Pavilion, Central Park
Esplanade, Century City, 7441

**This is to
certify
that**

Darren Snyders

is registered as

Professional Engineering Technologist

in terms of the Engineering Profession Act, 2000
(Act No. 46 of 2000)

Date

6 December 2012

**Registration
Number**

201270425

President

Chief Executive Officer





Cape Peninsula
University of Technology

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08/05/2024

COMMISSIONER OF OATHS
Marc Charles Gore
Chartered Accountant (SA)
Membership No: 05027742
1 The Pavilion, Central Park
Esplanade, Century City, 7441

THE
DEGREE
BACCALAUREUS TECHNOLOGIAE
ENGINEERING: CIVIL

is awarded to

SNYDERS, DARREN

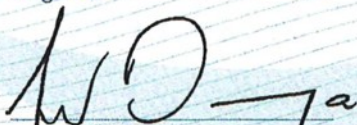
student number

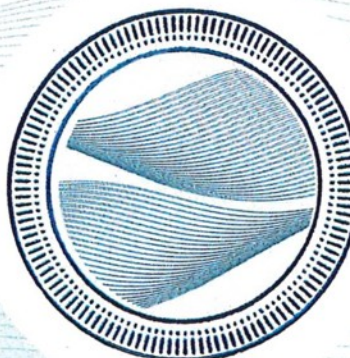
193049392

with effect from

01 DECEMBER 2005


Registrar


Vice-Chancellor



50 066



Die Suid-Afrikaanse Instituut van Siviele Ingenieurswese

Hiermee word gesertifiseer dat

CERTIFIED A TRUE COPY

Darren Snyders

behoorlik verkies is as

Lid

Lidnommer: 201300510

van

Die Suid-Afrikaanse
Instituut van Siviele Ingenieurswese
op

25 Mei 2013

Uitgereik onder die seël van die Instituut
Onder resoluë van die Raad

08/05/2014
CERTIFIED OWNER OF OATHS
Marc Charles Gore
Chartered Accountant (SA)
Membership No: 05027742
1 The Pavilion, Central Park
Esplanade, Century City, 7441

P J Kleynhans

President

Munir Saïd

Hoof Uitvoerende
Beampte



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08/05/2024
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Membership No: 05027742
1 The Pavilion, Central Park
Esplanade, Century City, 7441



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This is to certify that

Darren Snyders

has successfully completed an official Civil Designer training course
on the following module(s):

Module:	Date:	CPD Credits	CPD Number	Grade:
Road Strings	14/07/2014	1	SAICEit14/01548/17	A

conducted by the software developers, Knowledge Base

at the Cape Town Training Centre



CHIEF EXECUTIVE

INSTRUCTOR



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Port Elizabeth: +27 41 373 0738 | **George:** +27 44 874 2177 | **Port Shepstone:** +27 39 315 1519