



## **GYRO GROUP**

### **DIESEL TANK COMPLIANCE – PHASE II EXTENSION**

### **MONITORING WELL INSTALLATION & GROUNDWATER ASSESSMENT REPORT**

**Telkom The Core**

**July 2023**

**SEC REFERENCE NUMBER: E21102**

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|                            |                |                            |                                            |
|----------------------------|----------------|----------------------------|--------------------------------------------|
| <b>Site contact name:</b>  | Willie Jordaan | <b>Contact Details:</b>    | 021 641 8104                               |
| <b>Date of assessment:</b> | 04/07/23       | <b>Report compiled by:</b> | Sillito Environmental Consulting (Pty) Ltd |

The Gyro Group requested Sillito Environmental Consulting (Pty) Ltd (SEC) to initially conduct Phase 1 assessments across a number of sites across South Africa. The aim of these assessments was to provide an indication of the environmental setting of the site, the location and accessibility of the Underground Storage Tanks (USTs) and the associated fuel delivery infrastructure and a preliminary indication of the potential risk associated with the historic fuel storage at the site. In addition, underground utility scanning was carried out in the vicinity of the tanks to determine the presence and location of any services in this area.

Upon completion of this work SEC was subsequently requested to complete Phase II Assessments at these sites.

The scope of work for the Phase II assessments is defined as follows:

1. Obtaining the required approvals prior to proceeding with the fieldwork.
2. Double checking for services prior to any intrusive works.
3. The installation of monitoring wells as required and the screening of drill chips during the drilling phase and the creation of a summary table of the findings.
4. Development of the wells and completion of the installation.
5. Return to site to take water samples once the wells had stabilised.

### 1.Site details:

|                                                   |                                                          |                                   |                                                                                |
|---------------------------------------------------|----------------------------------------------------------|-----------------------------------|--------------------------------------------------------------------------------|
| <b>Site Name</b>                                  | Telkom Core                                              |                                   |                                                                                |
| <b>Site Address</b>                               | 61 Oak Avenue, Highveld<br>Telkom Park, Centurion        | <b>Telephone Number:</b>          | 021 311 8267                                                                   |
|                                                   |                                                          | <b>Fax Number:</b>                | N/A                                                                            |
| <b>GPS coordinates:</b>                           | 25°52'39.47"S                                            | <b>Landowner:</b>                 | Telkom                                                                         |
|                                                   | 28°11'11.94"E                                            |                                   |                                                                                |
| <b>Current supplier:</b>                          | Bidvest                                                  | <b>Total throughput/month:</b>    | Unknown                                                                        |
| <b>Reconciliation records kept (dip records):</b> | The tanks are electronically monitored onsite by Bidvest | <b>Previous Tank Repairs:</b>     | According to the site contact (Settley Rangata) no tank repairs have been done |
|                                                   |                                                          | <b>Previous pipeline Repairs:</b> | None                                                                           |
| <b>Description of current use of property:</b>    | The site is a Telkom Exchange                            |                                   |                                                                                |

|                                                              |                                             |                                                                                                                                                                                                                                      |  |
|--------------------------------------------------------------|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Description of historical use of property:                   | The site has always been a Telkom Exchange  |                                                                                                                                                                                                                                      |  |
| Description of land-use immediately adjacent to the UST/site | North:                                      | The Core building, beyond which is an access road, beyond which is the Telkom Park site boundary, beyond which are commercial activities in the form of Office Parks                                                                 |  |
|                                                              | East:                                       | The Core site boundary, beyond which is an access road, beyond which are Telkom Offices                                                                                                                                              |  |
|                                                              | South                                       | The Core site boundary, beyond which is an access road, beyond which is Telkom, The Hub                                                                                                                                              |  |
|                                                              | West:                                       | The Core site boundary, beyond which is an access road, beyond which is a parking area, beyond which is the Telkom Park site boundary, beyond which is Oak Avenue beyond which are commercial activities in the form of Office Parks |  |
| Potential Offsite sources of hydrocarbons                    | None identified in the vicinity of the site |                                                                                                                                                                                                                                      |  |
| Historical impact to soil and/or groundwater:                | None                                        |                                                                                                                                                                                                                                      |  |

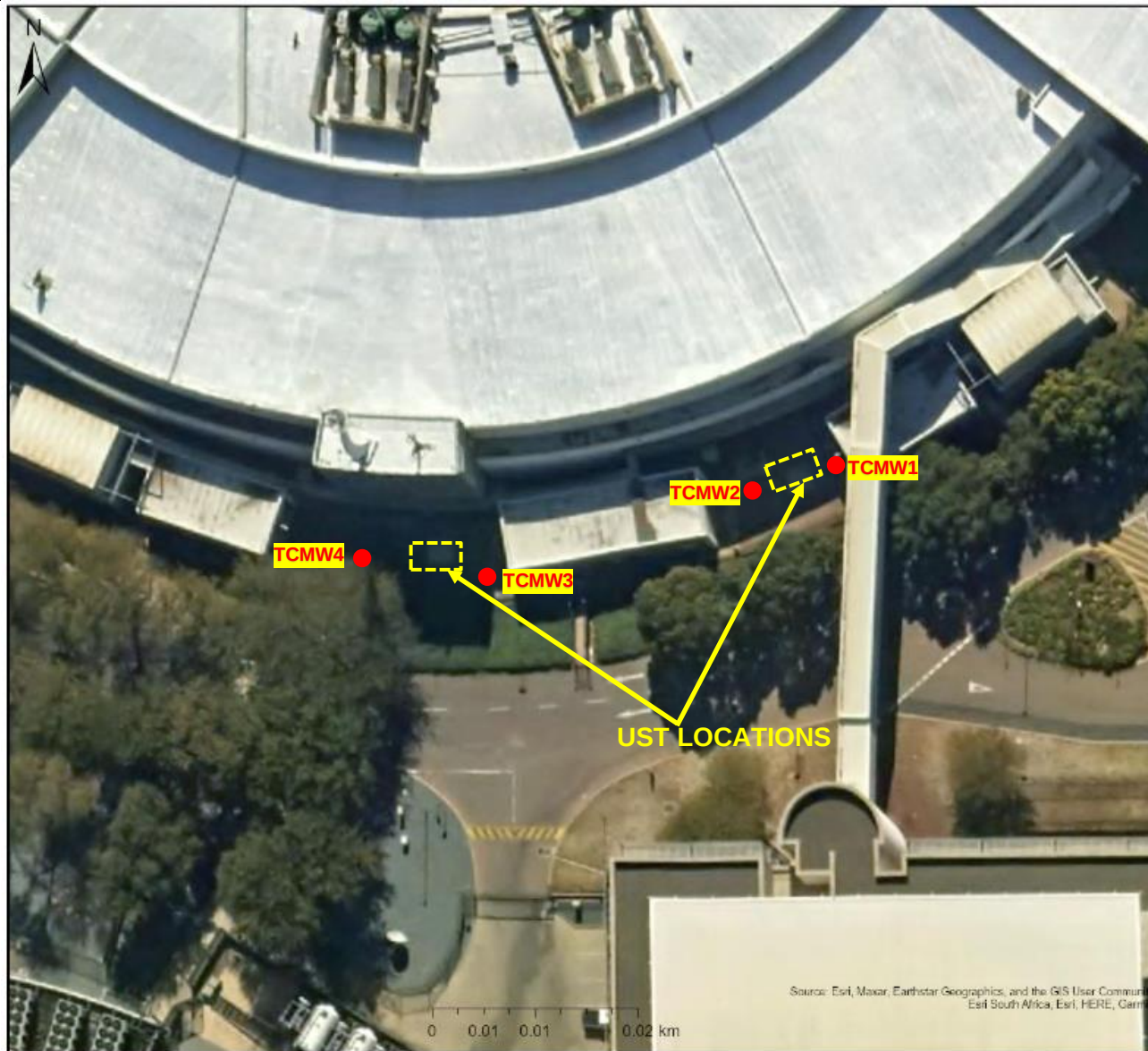
## 2. Tankage:

|                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                          |          |                        |                            |                |   |
|-----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------------------------|----------------------------|----------------|---|
| Aboveground storage tanks (ASTs) – include bulk to farmer (BTF) tanks | Tank number:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Capacity (litres)                                                                                                                                                                                                        | Product: | Estimated age of tank: | Tank construction details: | Comments:      |   |
|                                                                       | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | N/A                                                                                                                                                                                                                      | N/A      | N/A                    | N/A                        | N/A            |   |
| Underground storage tanks (USTs)                                      | Tank number:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Capacity (litres)                                                                                                                                                                                                        | Product: | Estimated age of tank: | Tank construction details: | Comments:      |   |
|                                                                       | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 23 000                                                                                                                                                                                                                   | Diesel   | Unknown                | Steel                      | In Use         |   |
|                                                                       | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 23 000                                                                                                                                                                                                                   | Diesel   | Unknown                | Steel                      | In Use         |   |
|                                                                       | Type of testing:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | According to the previous site contact (Settley Rangata), vacuasonic and water ingress tests are conducted on a regular basis, however, the site contact could not provide the exact dates when the tests are conducted. |          |                        |                            |                |   |
|                                                                       | Date of last test:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Unknown as the site contact did not have the information.                                                                                                                                                                |          |                        |                            |                |   |
| Integrity testing:                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                          |          |                        |                            |                |   |
| Pumps (Y/N)                                                           | Type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Submersible                                                                                                                                                                                                              | N        | Suction                | Y                          | Leak Detectors | N |
| Site observations (surface staining, housekeeping etc.):              | <ul style="list-style-type: none"><li>The two USTs were remote filled, with the filler points located outside The Core premises.</li><li>The fillers points are housed in brick chambered manholes with no provisions for secondary containment.</li><li>The tank manholes were found to be sealed with no provisions for secondary containment</li><li>No hydrocarbon staining was observed in the vicinity of the filler points and tank manholes</li><li>No tank leak detection wells (TLDWs) were observed in the vicinity of the tanks.</li></ul> |                                                                                                                                                                                                                          |          |                        |                            |                |   |

## 3. Environmental Setting:

|                                                                      |                                                                                                    |
|----------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| <b>Hydrocensus and NGA search results:</b>                           | <ul style="list-style-type: none"> <li>No registered groundwater users were identified.</li> </ul> |
| <b>Sensitive receptors (rivers, streams, wetlands, schools etc.)</b> | <ul style="list-style-type: none"> <li>None.</li> </ul>                                            |

**Figure 1: Tank Locations & Monitoring Well Positions**



**Title**  
Site Image

**Project Title**  
Telkom The Core

**Project Number**  
E21102

**Legend:**

Tank Locations 

Monitoring Well 

#### 4. GEOHYDROLOGICAL SETTING

Based on the fieldwork assessment as well as reference to Google Earth the site has a slight slope to the north-east of  $<2^{\circ}$ .

The 1: 250 000 scale geological map for the area (2528 Johannesburg) indicates that the site is underlain at depth by the Malmani Subgroup bedrock comprising dolomite, stromatolitic, interbedded chert, minor carbonaceous shale, limestone, and quartzite.

The 1:500 000 scale hydrogeological map series and the 1:3 000 000 scale Aquifer Classification Map of South Africa compiled by the Department of Water and Sanitation indicates that the site is underlain predominantly carbonate rocks (dolomite). This results in the formation of a karst aquifer in this area with borehole yields typically ranging from  $> 5.0$  l/s.

The aquifer is further classified as having a high vulnerability<sup>1</sup> and a high susceptibility<sup>2</sup> rating. Water quality is good with electrical conductivity values ranging between 0 and 70 mS/m.

Please refer to **Figure 1** for the site location information and to **Figure 2** for the site layout and new monitoring well positions.

#### 5. PROJECT METHODOLOGY

A total of four monitoring wells were advanced at this site, with two wells per UST at locations based on the information identified during the Phase I work and accessible locations. The monitoring wells were advanced to depths ranging between 13 and 15 m bgl between 04/07/23 and 08/07/2023. During the monitoring well installation, drill chip samples were recovered at 1m bgl intervals and screened in field for volatile organic carbons (VOCs) using a Photo Ionisation Detector (PID). The results of this screening are presented in **Tables 1 to 4** below. None detect levels were recorded for all drill chips tested. See **Appendix A** for typical photographs taken during the drilling operations.

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<sup>1</sup> Vulnerability: likelihood of contaminants reaching a specific position in the groundwater system after introduction at some location above the uppermost aquifer

<sup>2</sup> Susceptibility: a qualitative measure of the relative ease with which a groundwater body can be potentially contaminated by anthropogenic activities and includes both aquifer vulnerability and the relative importance of the aquifer in terms of its classification.

**Table 1: Drill Chip Headspace Screening Values and Soil Type**

| Monitoring Well | Depth (m) | Headspace [ppm] | Drill Chip Geology                                                                                                                                  |
|-----------------|-----------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| TCMW1           | 0-1       | 0               | Dry reddish brown to greenish grey, sandy fine to coarse gravel. Fill. Fill comprising angular brick to subrounded dolerite and dolomite fragments. |
|                 | 1-2       | 0               |                                                                                                                                                     |
|                 | 2-3       | 0               | Dry, bluish grey, sandy to coarse gravel. Highly to slightly weathered with depth. Dolomite.                                                        |
|                 | 3-4       | 0               |                                                                                                                                                     |
|                 | 4-5       | 0               |                                                                                                                                                     |
|                 | 5-6       | 0               |                                                                                                                                                     |
|                 | 6-7       | 0               | Dry, blueish grey, coarse gravel. Unweathered                                                                                                       |
|                 | 7-8       | 0               |                                                                                                                                                     |
|                 | 8-9       | 0               |                                                                                                                                                     |
|                 | 9-10      | 0               |                                                                                                                                                     |
|                 | 10-11     | 0               |                                                                                                                                                     |
|                 | 11-12     | 0               |                                                                                                                                                     |
|                 | 12-13     | 0               |                                                                                                                                                     |
|                 | 13-14     | 0               |                                                                                                                                                     |
|                 | 14-15     | 0               |                                                                                                                                                     |

**Table 2: Drill Chip Headspace Screening Values and Soil Type**

| Monitoring Well | Depth (m) | Headspace [ppm] | Drill Chip Geology                                                                                                                                  |
|-----------------|-----------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| TCMW2           | 0-1       | 0               | Dry reddish brown to greenish grey, sandy fine to coarse gravel. Fill. Fill comprising angular brick to subrounded dolerite and dolomite fragments. |
|                 | 1-2       | 0               |                                                                                                                                                     |
|                 | 2-3       | 0               | Dry, bluish grey, sandy to coarse gravel. Highly to slightly weathered with depth. Dolomite.                                                        |
|                 | 3-4       | 0               |                                                                                                                                                     |
|                 | 4-5       | 0               |                                                                                                                                                     |
|                 | 5-6       | 0               |                                                                                                                                                     |
|                 | 6-7       | 0               | Dry, blueish grey, coarse gravel. Unweathered                                                                                                       |
|                 | 7-8       | 0               |                                                                                                                                                     |
|                 | 8-9       | 0               |                                                                                                                                                     |
|                 | 9-10      | 0               |                                                                                                                                                     |
|                 | 10-11     | 0               |                                                                                                                                                     |
|                 | 11-12     | 0               |                                                                                                                                                     |
|                 | 12-13     | 0               |                                                                                                                                                     |
|                 | 13-14     | 0               |                                                                                                                                                     |
|                 | 14-15     | 0               |                                                                                                                                                     |

**Table 3: Drill Chip Headspace Screening Values and Soil Type**

| Monitoring Well | Depth (m) | Headspace [ppm] | Drill Chip Geology                                                                                                                                  |
|-----------------|-----------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| TCMW3           | 0-1       | 0               | Dry reddish brown to greenish grey, sandy fine to coarse gravel. Fill. Fill comprising angular brick to subrounded dolerite and dolomite fragments. |
|                 | 1-2       | 0               |                                                                                                                                                     |
|                 | 2-3       | 0               | Dry, bluish grey, sandy to coarse gravel. Highly to slightly weathered with depth. Dolomite.                                                        |
|                 | 3-4       | 0               |                                                                                                                                                     |
|                 | 4-5       | 0               |                                                                                                                                                     |
|                 | 5-6       | 0               |                                                                                                                                                     |
|                 | 6-7       | 0               | Dry, blueish grey, coarse gravel. Unweathered                                                                                                       |
|                 | 7-8       | 0               |                                                                                                                                                     |
|                 | 8-9       | 0               |                                                                                                                                                     |
|                 | 9-10      | 0               |                                                                                                                                                     |
|                 | 10-11     | 0               |                                                                                                                                                     |
|                 | 11-12     | 0               |                                                                                                                                                     |
|                 | 12-13     | 0               |                                                                                                                                                     |
|                 | 13-14     | 0               |                                                                                                                                                     |
|                 | 14-15     | 0               |                                                                                                                                                     |

**Table 4: Drill Chip Headspace Screening Values and Soil Type**

| Monitoring Well | Depth (m) | Headspace [ppm] | Geology                                                                                                                                             |
|-----------------|-----------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| TCMW4           | 0-1       | 0               | Dry reddish brown to greenish grey, sandy fine to coarse gravel. Fill. Fill comprising angular brick to subrounded dolerite and dolomite fragments. |
|                 | 1-2       | 0               |                                                                                                                                                     |
|                 | 2-3       | 0               | Dry, bluish grey, sandy to coarse gravel. Highly to slightly weathered with depth. Dolomite.                                                        |
|                 | 3-4       | 0               |                                                                                                                                                     |
|                 | 4-5       | 0               |                                                                                                                                                     |
|                 | 5-6       | 0               |                                                                                                                                                     |
|                 | 6-7       | 0               | Dry, blueish grey, coarse gravel. Unweathered                                                                                                       |
|                 | 7-8       | 0               |                                                                                                                                                     |
|                 | 8-9       | 0               |                                                                                                                                                     |
|                 | 9-10      | 0               |                                                                                                                                                     |
|                 | 10-11     | 0               |                                                                                                                                                     |
|                 | 11-12     | 0               |                                                                                                                                                     |
|                 | 12-13     | 0               |                                                                                                                                                     |

After the installation of the monitoring wells, the wells were developed and then allowed to stabilise for a period of time before groundwater sampling was carried out on the 08/07/23. The wells were inspected and dipped prior to sampling. A total of four (4) groundwater samples were recovered, one from each of the monitoring wells TCMW1 to TCMW4 inclusive.

The recovered samples were sent for analysis to a SANAS accredited laboratory after the following sampling procedure, as listed below:

1. The wells were dipped using a Solinst Interface meter to determine groundwater depth and the presence or absence of any potential Free Phase Product.
2. Low flow sampling was carried out using a peristaltic pump and monitored using a YSI probe inserted into a flow cell. Once the Electrical Conductivity groundwater values had stabilised to within 10%, a groundwater sample was selected and placed in duplicate laboratory-supplied sample bottles.
3. A portion of the recovered groundwater sample was also headspace screened in the field using a calibrated and certified PID.
4. The samples were placed in a cool, dark container and delivered to a SANAS-accredited laboratory for screening analysis which was accompanied by the appropriate Chain of Custody (COC) documentation.

## 6. FIELDWORK FINDINGS & SOURCE PATHWAY RECEPTOR CONSIDERATIONS

The monitoring well data has been included in **Table 2** below and includes the headspace volatile organic carbons (VOC) concentrations and static groundwater levels taken during the sampling event.

**Table 2: Monitoring Well Data**

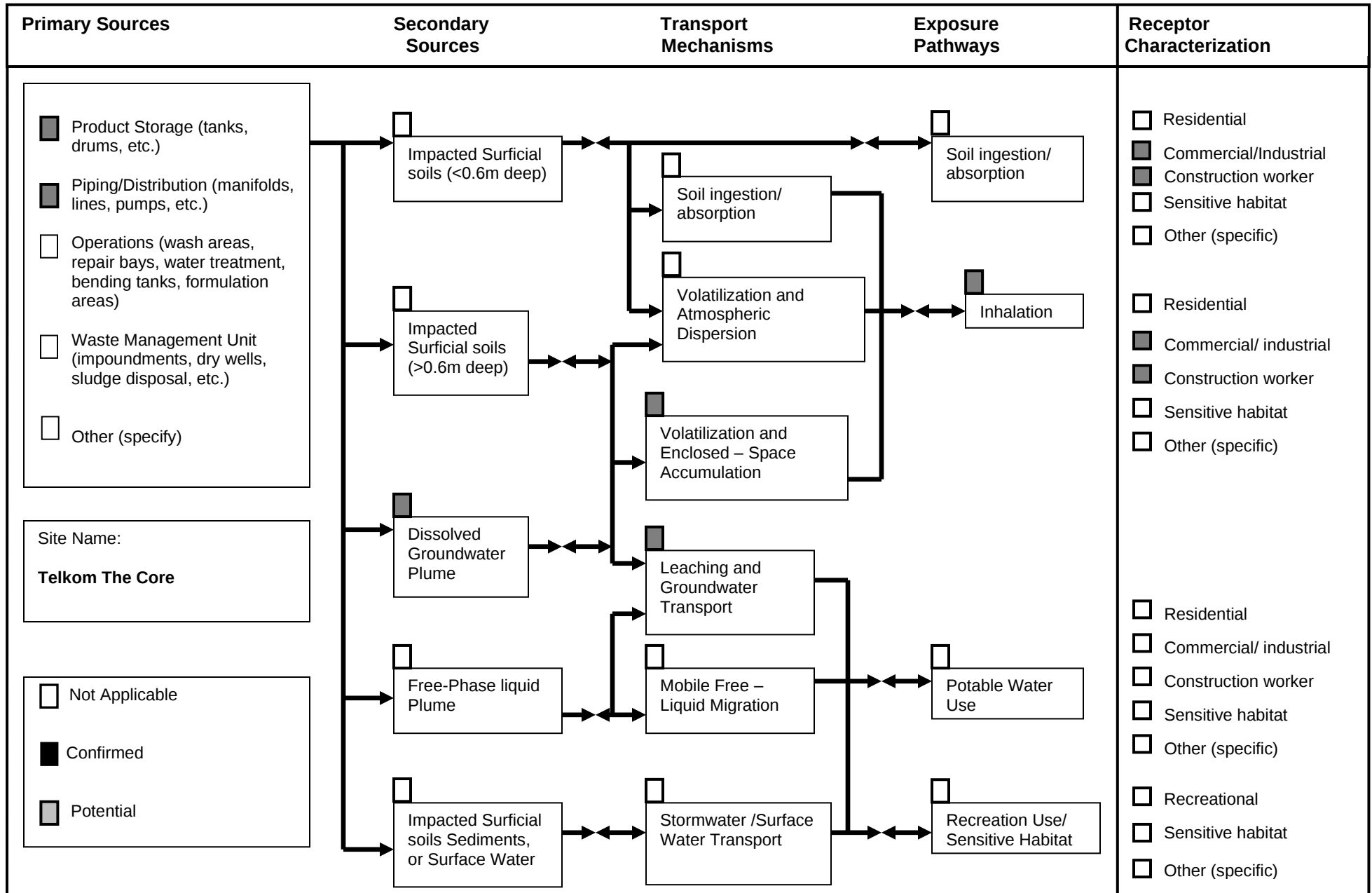
| Well ID | Well Depth (m bgl) | 08/07/2023               |                       |
|---------|--------------------|--------------------------|-----------------------|
|         |                    | SGL <sup>1</sup> (m bgl) | HC <sup>2</sup> (ppm) |
| TCMW1   | 15                 | 10.49                    | 0                     |
| TCMW2   | 15                 | 10.54                    | 0                     |
| TCMW3   | 15                 | 9.84                     | 0                     |
| TCMW4   | 13                 | 12.14                    | 0                     |

1 Static groundwater level (meters below ground level)

2 Head Space Concentration (parts per million)

In order to assess the potential risk at the site, a graphic has been presented in **Figure 2** below, which identifies the likely source, pathway, and receptor linkages (SPR) and the identified potentially complete SPR linkages. The potential receptors considered are the current users on site. The identified potential exposure pathways include the inhalation of petroleum vapours from indoor and outdoor air from a groundwater source.

Figure 2: Source-Pathway-Receptor



## 7. SCREENING TOOLS CONSIDERED & LABORATORY RESULTS

The laboratory results for the groundwater analyses are summarised in **Table 3** below and have been assessed using RISC (Risk Integrated Software for Clean-ups) Version 5, Tier 1 screening levels. The source pathway receptor scenarios considered for this site, were for the inhalation of indoor and outdoor air from a groundwater source. All scenarios considered a commercial land-use type environment.

Where any of the laboratory results exceeded the screening values considered these results have been highlighted in red. Values highlighted in **plain red** have exceeded the RISC Screening Levels for a Tier 1 assessment. Values faded out are below the detection level for the analysis whilst screening levels faded out have not been exceeded.

RISC 5 Tier 1 is a general, conservative risk-based assessment. These assessments use conservative human health risk-based screening values for soil and water which have been calculated using accepted US EPA algorithms, toxicological data and exposure and point of receptor assumptions based on empirically derived data.

The laboratory result transcripts can be found in the **APPENDIX B** below.

**Table 3: Groundwater Analytical Results (mg/l)**

| Sampling Date                  | 08/07/2023                 |                            |                           |                            | RISC Tier 1                              |                                           |
|--------------------------------|----------------------------|----------------------------|---------------------------|----------------------------|------------------------------------------|-------------------------------------------|
| Determinant                    | TCMW1<br>at 10.49 m<br>bgl | TCMW2<br>at 10.54 m<br>bgl | TCMW3<br>at 9.84 m<br>bgl | TCMW4<br>at 12.14 m<br>bgl | Commercial Land-Use                      |                                           |
|                                |                            |                            |                           |                            | Inhalation of<br>Indoor Air <sup>1</sup> | Inhalation of<br>Outdoor Air <sup>1</sup> |
| VOC-PID (ppm)                  | 0                          | 0                          | 0                         | 0                          | NVD                                      | NVD                                       |
| <b>GRO</b>                     |                            |                            |                           |                            |                                          |                                           |
| Methyl tert-Butyl Ether (MTBE) | <0.005                     | <0.005                     | <0.005                    | <0.005                     | 2 418.946                                | >Sol                                      |
| Tert-amyl Methyl Ether (TAME)  | <0.005                     | <0.005                     | <0.005                    | <0.005                     | NVD                                      | NVD                                       |
| Benzene                        | <0.0004                    | <0.0004                    | <0.0004                   | <0.0004                    | 0.066                                    | 26.265                                    |
| Toluene                        | <0.001                     | <0.001                     | <0.001                    | <0.001                     | 27.685                                   | >Sol                                      |
| Ethylbenzene                   | <0.0004                    | <0.0004                    | <0.0004                   | <0.0004                    | 72.406                                   | >Sol                                      |
| m+p-Xylene                     | <0.0008                    | <0.0008                    | <0.0008                   | <0.0008                    | 8.147                                    | >Sol                                      |
| o-Xylene                       |                            |                            |                           |                            |                                          |                                           |
| Trimethylbenzene, 1,2,4-       | <0.0004                    | <0.0004                    | <0.0004                   | <0.0004                    | NVD                                      | NVD                                       |
| Trimethylbenzene, 1,3,5-       | <0.0004                    | <0.0004                    | <0.0004                   | <0.0004                    | NVD                                      | NVD                                       |
| Naphthalene                    | <0.0004                    | <0.0004                    | <0.0004                   | <0.0004                    | 2.993                                    | >Sol                                      |
| <b>TPH</b>                     |                            |                            |                           |                            |                                          |                                           |
| C7 – C9                        | <0.010                     | <0.010                     | <0.010                    | <0.010                     | NVD                                      | NVD                                       |
| C10-C14                        | <0.060                     | <0.060                     | <0.060                    | <0.060                     | NVD                                      | NVD                                       |
| C15-C36                        | <0.412                     | <0.412                     | <0.412                    | <0.412                     | NVD                                      | NVD                                       |

<sup>1</sup> Groundwater [mg/l] – Commercial land use

## 8. FINDING & COMMENTS

1. A total of four monitoring wells were installed at the site by percussion drilling between 04/07/23 and 07/07/2023 after which each of the wells was developed and headworks installed.
2. During the drilling installation of the wells, soil samples were obtained at 1m intervals and screened for Volatile Organic Compounds (VOCs) in field using a certified and calibrated Photo Ionisation Detector (PID). None detect values of 0 ppm were record throughout the drilling operations.
3. The wells were left to stabilise and were subsequently inspected, dipped, and sampled on the 08/07/2023.
4. The average static groundwater level as of 08/07/2023 was 10.75 m bgl and will show seasonal groundwater fluctuations.
5. PID headspace screening values for the groundwater in the monitoring wells registered 0 ppm for all samples.
6. One groundwater sample was recovered per well and the laboratory results indicated none detect levels for all additives and BTEXN compounds analysed in all four samples.
7. In terms of the TPH banding analysis results, the C<sub>7</sub> – C<sub>9</sub>, C<sub>10</sub> – C<sub>14</sub> and C<sub>15</sub> – C<sub>36</sub> carbon group ranges, indicated nondetectable levels in all groundwater samples.

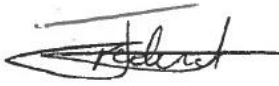
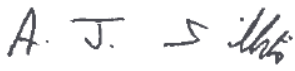
8. In terms of assessing the risk associated with the groundwater, the risk scenarios considered for the site were for the inhalation of indoor and outdoor air from a groundwater source in a commercial land-use environment, which indicated the following:
  - a. The RISC Tier 1 screening levels for the risk scenarios considered for the site were not exceeded.
9. Based on the risk scenarios considered for the site, the fieldwork carried out and laboratory results received, there is no potential risk currently defined to on-site receptors from a groundwater source and no remedial action is required.

## 9. RECOMMENDATIONS

Based on the work completed at the site and the current assessment finding, the following is recommended:

1. Annual sampling of the groundwater from the monitoring wells should be carried out so that any potential subsurface impacts associated with the fuel storage facility can be determined, and actions taken as required based on the findings.

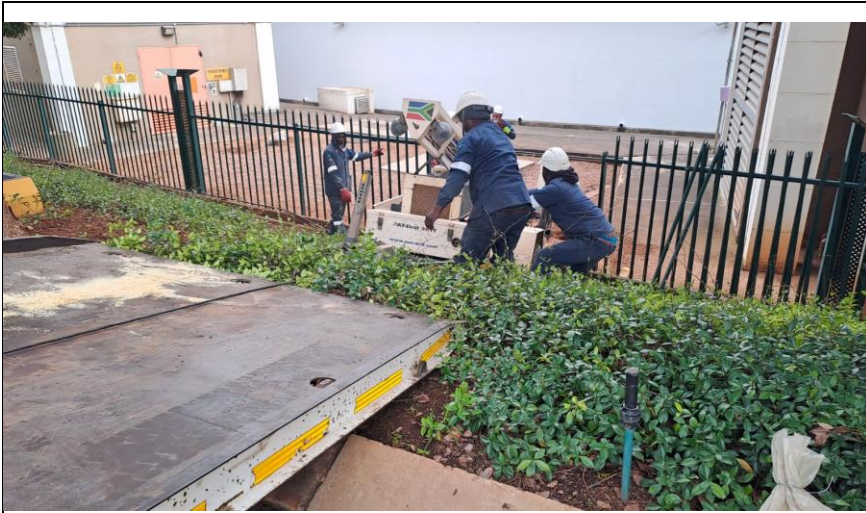
We trust that this summary report contains sufficient information. Should you have any further questions please contact the author.

|                                                                                                                                                                                                       |                                                                                                                                                                                                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Report compiled by:</b></p>  <p>Jody Fredericks</p> <p>BSc. Hons<br/>(Environmental &amp; Water Science)</p> | <p><b>Report reviewed by:</b></p>  <p>Adrian Sillito</p> <p><i>Pr. Sci.Nat Registration Number</i><br/><i>400046/93</i></p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## SILLITO ENVIRONMENTAL CONSULTING

[https://sillito.sharepoint.com/jobs/SEC Jobs/E21102/Outputs/Drilling & Sampling Reports/Gauteng/2023/Gyro Telkom The Core Monitoring Well Installation & Groundwater Assessment Report - September 2022.docx](https://sillito.sharepoint.com/jobs/SEC%20Jobs/E21102/Outputs/Drilling%20&%20Sampling%20Reports/Gauteng/2023/Gyro%20Telkom%20The%20Core%20Monitoring%20Well%20Installation%20&%20Groundwater%20Assessment%20Report%20-%20September%202022.docx)

## **APPENDIX A: SITE PHOTOGRAPHS**



**Photograph 1:** Drill rig accessing the site.



**Photograph 2:** General view of the drill rig during drilling.



**Photograph 3:** Typical completed monitoring well and headworks.



**Photograph 4:** Typical completed monitoring well and headworks.



## **APPENDIX B: LABORATORY CERTIFICATES**

## TEST REPORT

### 44822A

**Test Description:** BTEXMN/Gasoline Range Organics and Total Petroleum Hydrocarbons

**Test Method:** EPL-T-012 (BTEX/GRO) and EPL-T-011(TPH)

#### Client and Project Information

**Client:** Sillito Environmental Consulting  
**Address:** Suite 105, Block B2, Tokai Village Centre  
Vans Road, Tokai, Cape Town  
7966

**Attention:** Jody Fredericks  
**Tel:** (082) 935 0438  
**Email:** jody@environmentalconsultants.co.za

**Project number:** E21102  
**Project name:** Telkom Park -The Core

#### Sample Information

**Sample ID:** TCMW01  
**Dilutions:** BTEX/GRO = No Dilution, TPH = No Dilution  
**Container:** Glass

**Matrix:** Water  
**Storage:** Fridge at 0-6°C

**Date Received:** 2023/07/07  
**Date Analysed:** 2023/07/09  
**Date Issued:** 2023/07/13

#### BTEXMN and Gasoline Range Organics

| PARAMETER              | RESULT        |
|------------------------|---------------|
| MTBE                   | <5 µg/liter   |
| TAME                   | <5 µg/liter   |
| Benzene                | <0.4 µg/liter |
| Toluene                | <1 µg/liter   |
| Ethylbenzene           | <0.4 µg/liter |
| m+p-Xylene             | <0.8 µg/liter |
| o-Xylene               | <0.4 µg/liter |
| 1,3,5-Trimethylbenzene | <0.4 µg/liter |
| 1,2,4-Trimethylbenzene | <0.4 µg/liter |
| Naphthalene            | <0.4 µg/liter |
| TPH GRO C7-C9          | <10 µg/liter  |

#### Total Petroleum Hydrocarbon (C10-C36)

| PARAMETER         | RESULT        |
|-------------------|---------------|
| TPH C10-C14       | <60 µg/liter  |
| TPH C15-C36       | <412 µg/liter |
| TPH C10-C36 Total | <412 µg/liter |

#### Disclaimers

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**Reinardt Cromhout**  
Authorised Signatory

## TEST REPORT

### 44822A

**Test Description:** BTEXMN/Gasoline Range Organics and Total Petroleum Hydrocarbons

**Test Method:** EPL-T-012 (BTEX/GRO) and EPL-T-011(TPH)

#### Client and Project Information

**Client:** Sillito Environmental Consulting  
**Address:** Suite 105, Block B2, Tokai Village Centre  
 Vans Road, Tokai, Cape Town  
 7966

**Attention:** Jody Fredericks  
**Tel:** (082) 935 0438  
**Email:** jody@environmentalconsultants.co.za

**Project number:** E21102  
**Project name:** Telkom Park -The Core

#### Sample Information

**Sample ID:** TCMW02  
**Dilutions:** BTEX/GRO = No Dilution, TPH = No Dilution  
**Container:** Glass

**Matrix:** Water  
**Storage:** Fridge at 0-6°C

**Date Received:** 2023/07/07  
**Date Analysed:** 2023/07/09  
**Date Issued:** 2023/07/13

#### BTEXMN and Gasoline Range Organics

| PARAMETER              | RESULT        |
|------------------------|---------------|
| MTBE                   | <5 µg/liter   |
| TAME                   | <5 µg/liter   |
| Benzene                | <0.4 µg/liter |
| Toluene                | <1 µg/liter   |
| Ethylbenzene           | <0.4 µg/liter |
| m+p-Xylene             | <0.8 µg/liter |
| o-Xylene               | <0.4 µg/liter |
| 1,3,5-Trimethylbenzene | <0.4 µg/liter |
| 1,2,4-Trimethylbenzene | <0.4 µg/liter |
| Naphthalene            | <0.4 µg/liter |
| TPH GRO C7-C9          | <10 µg/liter  |

#### Total Petroleum Hydrocarbon (C10-C36)

| PARAMETER         | RESULT        |
|-------------------|---------------|
| TPH C10-C14       | <60 µg/liter  |
| TPH C15-C36       | <412 µg/liter |
| TPH C10-C36 Total | <412 µg/liter |

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**Reinardt Cromhout**  
 Authorised Signatory

Page 2 of 2

## TEST REPORT

**Test Description:** BTEXMN/Gasoline Range Organics and Total Petroleum Hydrocarbons

**Test Method:** EPL-T-012 (BTEX/GRO) and EPL-T-011(TPH)

**44923A**

### Client and Project Information

**Client:** Sillito Environmental Consulting

**Address:** Suite 105, Block B2, Tokai Village Centre  
Vans Road, Tokai, Cape Town  
7966

**Attention:** Jody Fredericks

**Tel:** (082) 935 0438

**Email:** jody@environmentalconsultants.co.za

**Project number:** E21102

**Project name:** Telkom Park - The Core

### Sample Information

**Sample ID:** TCMW3

**Dilutions:** BTEX/GRO = No Dilution, TPH = No Dilution

**Container:** Glass

**Matrix:** Water

**Storage:** Fridge at 0-6°C

**Date Received:** 2023/07/12

**Date Analysed:** 2023/07/13

**Date Issued:** 2023/07/17

### BTEXMN and Gasoline Range Organics

| <u>PARAMETER</u>       | <u>RESULT</u> |
|------------------------|---------------|
| MTBE                   | <5 µg/liter   |
| TAME                   | <5 µg/liter   |
| Benzene                | <0.4 µg/liter |
| Toluene                | <1 µg/liter   |
| Ethylbenzene           | <0.4 µg/liter |
| m+p-Xylene             | <0.8 µg/liter |
| o-Xylene               | <0.4 µg/liter |
| 1,3,5-Trimethylbenzene | <0.4 µg/liter |
| 1,2,4-Trimethylbenzene | 0.9 µg/liter  |
| Naphthalene            | <0.4 µg/liter |
| TPH GRO C7-C9          | <10 µg/liter  |

### Total Petroleum Hydrocarbon (C10-C36)

| <u>PARAMETER</u>  | <u>RESULT</u> |
|-------------------|---------------|
| TPH C10-C14       | <60 µg/liter  |
| TPH C15-C36       | <412 µg/liter |
| TPH C10-C36 Total | <412 µg/liter |

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**Reinardt Cromhout**  
Authorised Signatory

## TEST REPORT

### 44923A

**Test Description:** BTEXMN/Gasoline Range Organics and Total Petroleum Hydrocarbons

**Test Method:** EPL-T-012 (BTEX/GRO) and EPL-T-011(TPH)

#### Client and Project Information

**Client:** Sillito Environmental Consulting  
**Address:** Suite 105, Block B2, Tokai Village Centre  
 Vans Road, Tokai, Cape Town  
 7966

**Attention:** Jody Fredericks  
**Tel:** (082) 935 0438  
**Email:** jody@environmentalconsultants.co.za

**Project number:** E21102  
**Project name:** Telkom Park - The Core

#### Sample Information

**Sample ID:** TCMW4  
**Dilutions:** BTEX/GRO = No Dilution, TPH = No Dilution  
**Container:** Glass

**Matrix:** Water  
**Storage:** Fridge at 0-6°C

**Date Received:** 2023/07/12  
**Date Analysed:** 2023/07/13  
**Date Issued:** 2023/07/17

#### BTEXMN and Gasoline Range Organics

| <u>PARAMETER</u>       | <u>RESULT</u> |
|------------------------|---------------|
| MTBE                   | <5 µg/liter   |
| TAME                   | <5 µg/liter   |
| Benzene                | <0.4 µg/liter |
| Toluene                | <1 µg/liter   |
| Ethylbenzene           | <0.4 µg/liter |
| m+p-Xylene             | <0.8 µg/liter |
| o-Xylene               | <0.4 µg/liter |
| 1,3,5-Trimethylbenzene | <0.4 µg/liter |
| 1,2,4-Trimethylbenzene | 0.8 µg/liter  |
| Naphthalene            | <0.4 µg/liter |
| TPH GRO C7-C9          | <10 µg/liter  |

#### Total Petroleum Hydrocarbon (C10-C36)

| <u>PARAMETER</u>  | <u>RESULT</u> |
|-------------------|---------------|
| TPH C10-C14       | <60 µg/liter  |
| TPH C15-C36       | <412 µg/liter |
| TPH C10-C36 Total | <412 µg/liter |

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**Reinardt Cromhout**  
 Authorised Signatory



## **GYRO GROUP**

### **DIESEL TANK COMPLIANCE – PHASE II EXTENSION**

### **MONITORING WELL INSTALLATION & GROUNDWATER ASSESSMENT REPORT**

**Telkom Nexus**

**July 2023**

**SEC REFERENCE NUMBER: E21102**

**PO Box 30134, Tokai, 7966  
Telephone: 021 712 5060  
Email: [info@environmentalconsultants.co.za](mailto:info@environmentalconsultants.co.za)**

|                            |                |                            |                                            |
|----------------------------|----------------|----------------------------|--------------------------------------------|
| <b>Site contact name:</b>  | Willie Jordaan | <b>Contact Details:</b>    | 021 641 8104                               |
| <b>Date of assessment:</b> | 27/06/2023     | <b>Report compiled by:</b> | Sillito Environmental Consulting (Pty) Ltd |

The Gyro Group requested Sillito Environmental Consulting (Pty) Ltd (SEC) to initially conduct Phase 1 assessments across a number of sites across South Africa. The aim of these assessments was to provide an indication of the environmental setting of the site, the location and accessibility of the Underground Storage Tanks (USTs) and the associated fuel delivery infrastructure and a preliminary indication of the potential risk associated with the historic fuel storage at the site. In addition, underground utility scanning was carried out in the vicinity of the tanks to determine the presence and location of any services in this area.

Upon completion of this work SEC was subsequently requested to complete Phase II Assessments at these sites.

The scope of work for the Phase II assessments is defined as follows:

1. Obtaining the required approvals prior to proceeding with the fieldwork.
2. Double checking for services prior to any intrusive works.
3. The installation of monitoring wells as required and the screening of drill chips during the drilling phase and the creation of a summary table of the findings.
4. Development of the wells and completion of the installation.
5. Return to site to take water samples once the wells had stabilised.

### 1.Site details:

|                                                   |                                                          |                                   |                                                                                |
|---------------------------------------------------|----------------------------------------------------------|-----------------------------------|--------------------------------------------------------------------------------|
| <b>Site Name</b>                                  | Telkom Nexus                                             |                                   |                                                                                |
| <b>Site Address</b>                               | 61 Oak Avenue, Highveld Centurion                        | <b>Telephone Number:</b>          | 021 641 8104                                                                   |
|                                                   |                                                          | <b>Fax Number:</b>                | N/A                                                                            |
| <b>GPS coordinates:</b>                           | 25°52'42.54"S                                            | <b>Landowner:</b>                 | Telkom                                                                         |
|                                                   | 28°11'7.48"E                                             | <b>Telephone Number:</b>          | 0817119417                                                                     |
| <b>Current supplier:</b>                          | Bidvest                                                  | <b>Total throughput/month:</b>    | Unknown                                                                        |
| <b>Reconciliation records kept (dip records):</b> | The tanks are electronically monitored onsite by Bidvest | <b>Previous Tank Repairs:</b>     | According to the site contact (Settley Rangata) no tank repairs have been done |
|                                                   |                                                          | <b>Previous pipeline Repairs:</b> | None                                                                           |

|                                                              |                                                            |                                                                                                                           |  |
|--------------------------------------------------------------|------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|--|
| Description of current use of property:                      | The site is a Telkom Exchange and Data Centre              |                                                                                                                           |  |
| Description of historical use of property:                   | The site has always been a Telkom Exchange and Data Centre |                                                                                                                           |  |
| Description of land-use immediately adjacent to the UST/site | North:                                                     | Site boundary, beyond which is Oak Avenue, beyond which are commercial activities                                         |  |
|                                                              | East:                                                      | The Nexus complex, beyond which is covered parking , beyond which is M36 Highway, beyond which are residential activities |  |
|                                                              | South                                                      | Covered parking, beyond which is site boundary, beyond which is M36 Highway, beyond which are residential activities      |  |
|                                                              | West:                                                      | Site boundary, beyond which is Oak Avenue, beyond which are commercial activities                                         |  |
| Potential Offsite sources of hydrocarbons                    | None identified in the vicinity of the site                |                                                                                                                           |  |
| Historical impact to soil and/or groundwater:                | None                                                       |                                                                                                                           |  |

## 2.Tankage:

|                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                        |          |                        |                            |                |   |
|-----------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------------------------|----------------------------|----------------|---|
| Aboveground storage tanks (ASTs) – include bulk to farmer (BTF) tanks | Tank number:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Capacity (litres)                                                                                                                                                                                                      | Product: | Estimated age of tank: | Tank construction details: | Comments:      |   |
|                                                                       | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | N/A                                                                                                                                                                                                                    | N/A      | N/A                    | N/A                        | N/A            |   |
| Underground storage tanks (USTs)                                      | Tank number:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Capacity (litres)                                                                                                                                                                                                      | Product: | Estimated age of tank: | Tank construction details: | Comments:      |   |
|                                                                       | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 23 000                                                                                                                                                                                                                 | Diesel   | Unknown                | Steel                      | In Use         |   |
|                                                                       | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 23 000                                                                                                                                                                                                                 | Diesel   | Unknown                | Steel                      | In Use         |   |
|                                                                       | 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 14 000                                                                                                                                                                                                                 | Diesel   | Unknown                | Steel                      | In Use         |   |
|                                                                       | 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 14 000                                                                                                                                                                                                                 | Diesel   | Unknown                | Steel                      | In Use         |   |
| Integrity testing:                                                    | Type of testing:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | According to the previous site contact (Settley Rangata), vacuonic and water ingress tests are conducted on a regular basis, however, the site contact could not provide the exact dates when the tests are conducted. |          |                        |                            |                |   |
|                                                                       | Date of last test:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Unknown as the site contact did not have the information                                                                                                                                                               |          |                        |                            |                |   |
| Pumps (Y/N)                                                           | Type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Submersible                                                                                                                                                                                                            | N        | Suction                | Y                          | Leak Detectors | Y |
| Site observations (surface staining, housekeeping etc.):              | <ul style="list-style-type: none"><li>The four (4) USTs are remote filled and are located on one tank farm.</li><li>The remote fillers are housed in brick manholes with no proper containment manholes.</li><li>The tank access manholes were found to be sealed with no secondary containment.</li><li>No hydrocarbon staining was observed in the vicinity of the filler points and tank manholes.</li><li>Seven (7) tank leak detection wells (TLDWs) were observed in the vicinity of the tank farm. Upon inspection, the wells were found to be dry at an average depth of 2.5m bgl.</li></ul> |                                                                                                                                                                                                                        |          |                        |                            |                |   |

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### 3.Environmental Setting:

---

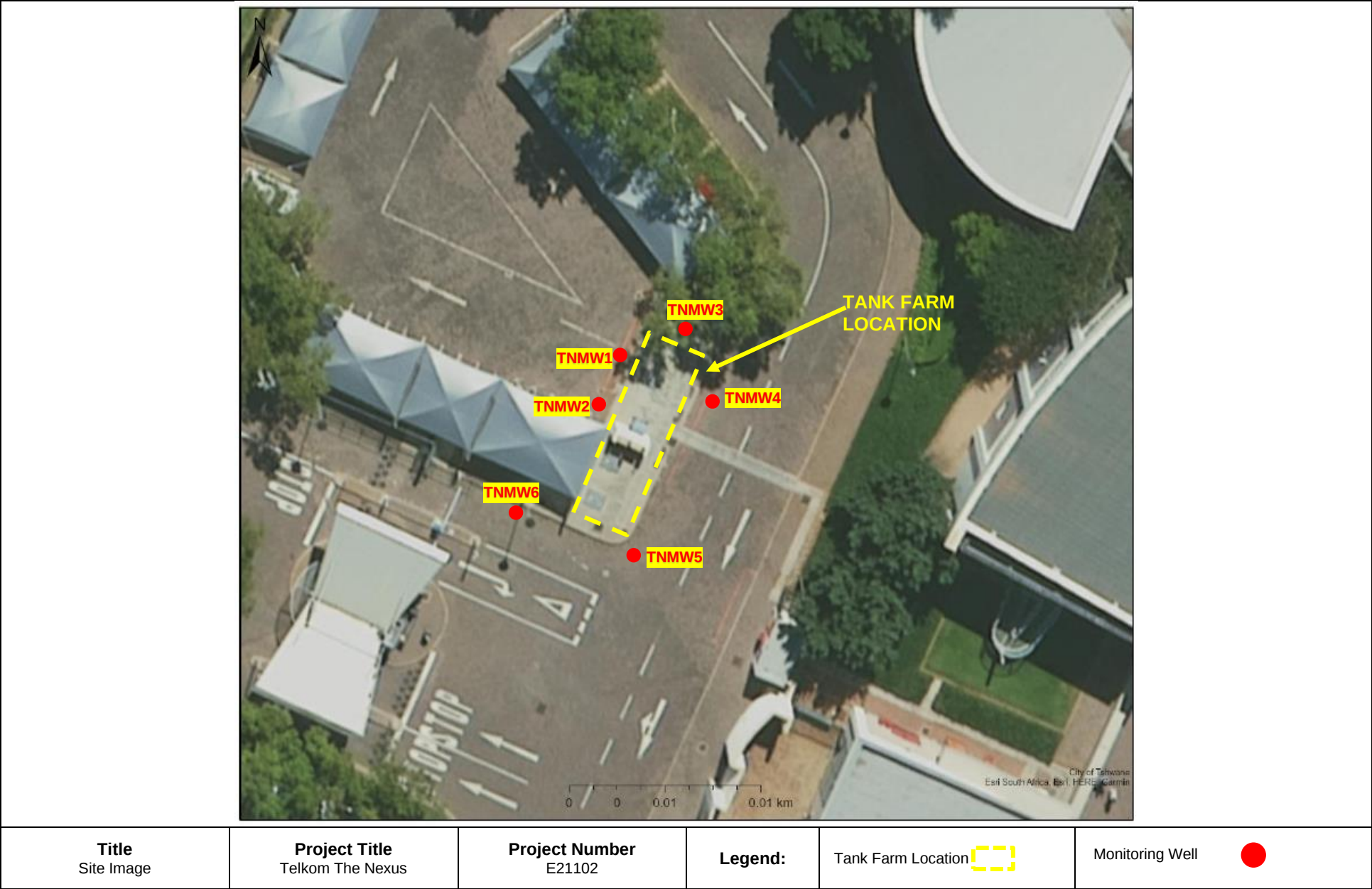
Hydrocensus  
and NGA search  
results:

- No registered groundwater users were identified in the vicinity of the site.

Sensitive  
receptors  
(rivers, streams,  
wetlands,  
schools etc.)

- None
-

Figure 1: Tank Farm Location & Monitoring Well Positions



#### 4. GEOHYDROLOGICAL SETTING

Based on the fieldwork assessment as well as reference to Google Earth the site has a slight slope to the north-east of  $<2^{\circ}$ .

The 1: 250 000 scale geological map for the area (2528 Johannesburg) indicates that the site is underlain at depth by the Malmani Subgroup bedrock comprising dolomite, stromatolitic, interbedded chert, minor carbonaceous shale, limestone, and quartzite.

The 1:500 000 scale hydrogeological map series and the 1:3 000 000 scale Aquifer Classification Map of South Africa compiled by the Department of Water and Sanitation indicates that the site is underlain predominantly carbonate rocks (dolomite). This results in the formation of a karst aquifer in this area with borehole yields typically ranging from  $> 5.0$  l/s.

The aquifer is further classified as having a high vulnerability<sup>1</sup> and a high susceptibility<sup>2</sup> rating. Water quality is typically good with electrical conductivity values ranging between 0 and 70 mS/m.

Please refer to **Figure 1** for the site location information and to **Figure 2** for the site layout and new monitoring well positions.

#### 5. PROJECT METHODOLOGY

A total of six monitoring wells were advanced at this site, around the margins of the tank farm area. These were positioned at locations based on the information identified during the Phase I work. The monitoring wells were all advanced to depths of 15 m bgl between 27/06/23 and 29/06/2023. During the monitoring well installation, drill chip samples were recovered at 1m bgl intervals and screened in field for volatile organic carbons (VOCs) using a Photo Ionisation Detector (PID). The results of this screening are presented in **Tables 1** to **6** below. Trace levels for hydrocarbons were found in all monitoring wells with the highest value recorded in monitoring well TNMW3 with a value of 66 ppm at 4 m depth.

See **Appendix A** for typical photographs taken during the drilling operations.

---

<sup>1</sup> Vulnerability: likelihood of contaminants reaching a specific position in the groundwater system after introduction at some location above the uppermost aquifer

<sup>2</sup> Susceptibility: a qualitative measure of the relative ease with which a groundwater body can be potentially contaminated by anthropogenic activities and includes both aquifer vulnerability and the relative importance of the aquifer in terms of its classification.

**Table 1: Drill Chip Headspace Screening Values and Soil Type**

| Monitoring Well | Depth (m) | Headspace [ppm] | Drill Chip Geology                                                                                                                                                          |
|-----------------|-----------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TNMW1           | 0-1       | 0               | Dry, reddish brown to greenish grey with depth. Sandy fine to coarse gravel. Fill. Gravel sized fill fragments comprising angular brick to subrounded dolerite and dolomite |
|                 | 1-2       | 0               |                                                                                                                                                                             |
|                 | 2-3       | 0               | Dry, blueish grey, sandy top coarse gravel. Grading from completely to slightly weathered with depth. Dolomite boulder to bedrock.                                          |
|                 | 3-4       | 0               |                                                                                                                                                                             |
|                 | 4-5       | 27              |                                                                                                                                                                             |
|                 | 5-6       | 6               |                                                                                                                                                                             |
|                 | 6-7       | 55              | Dry, blueish grey, hard to very hard bedrock, coarse gravel, slightly weathered to unweathered with depth. Dolomite bedrock.                                                |
|                 | 7-8       | 50              |                                                                                                                                                                             |
|                 | 8-9       | 45              |                                                                                                                                                                             |
|                 | 9-10      | 42              |                                                                                                                                                                             |
|                 | 10-11     | 10              |                                                                                                                                                                             |
|                 | 11-12     | 5               |                                                                                                                                                                             |
|                 | 12-13     | 4               |                                                                                                                                                                             |
|                 | 13-14     | 3               |                                                                                                                                                                             |
|                 | 14-15     | 3               |                                                                                                                                                                             |

**Table 2: Drill Chip Headspace Screening Values and Soil Type**

| Monitoring Well | Depth (m) | Headspace [ppm] | Drill Chip Geology                                                                                                                                                              |
|-----------------|-----------|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TNMW2           | 0-1       | 0               | Dry, reddish brown to greenish grey with depth. Sandy fine to coarse gravel. Fill.<br>Gravel sized fill fragments comprising angular brick to subrounded dolerite and dolomite. |
|                 | 1-2       | 0               |                                                                                                                                                                                 |
|                 | 2-3       | 0               | Dry, blueish grey, sandy top coarse gravel. Grading from completely to slightly weathered with depth. Dolomite boulder to bedrock.                                              |
|                 | 3-4       | < 1             |                                                                                                                                                                                 |
|                 | 4-5       | < 1             |                                                                                                                                                                                 |
|                 | 5-6       | < 1             |                                                                                                                                                                                 |
|                 | 6-7       | < 1             |                                                                                                                                                                                 |
|                 | 7-8       | 3               | Dry, blueish grey, hard to very hard bedrock, coarse gravel, slightly weathered to unweathered with depth. Dolomite bedrock.                                                    |
|                 | 8-9       | 44              |                                                                                                                                                                                 |
|                 | 9-10      | 22              |                                                                                                                                                                                 |
|                 | 10-11     | 8               |                                                                                                                                                                                 |
|                 | 11-12     | 3               |                                                                                                                                                                                 |
|                 | 12-13     | 3               |                                                                                                                                                                                 |
|                 | 13-14     | 2               |                                                                                                                                                                                 |
|                 | 14-15     | 2               |                                                                                                                                                                                 |

**Table 3: Drill Chip Headspace Screening Values and Soil Type**

| Monitoring Well | Depth (m) | Headspace [ppm] | Drill Chip Geology                                                                                                                                                           |
|-----------------|-----------|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TNMW3           | 0-1       | 0               | Dry, reddish brown to greenish grey with depth. Sandy fine to coarse gravel. Fill. Gravel sized fill fragments comprising angular brick to subrounded dolerite and dolomite. |
|                 | 1-2       | < 1             |                                                                                                                                                                              |
|                 | 2-3       | < 1             | Dry, blueish grey, sandy top coarse gravel. Grading from completely to slightly weathered with depth. Dolomite boulder to bedrock.                                           |
|                 | 3-4       | < 1             |                                                                                                                                                                              |
|                 | 4-5       | < 1             |                                                                                                                                                                              |
|                 | 5-6       | < 1             |                                                                                                                                                                              |
|                 | 6-7       | < 1             |                                                                                                                                                                              |
|                 | 7-8       | 9               | Dry, blueish grey, hard to very hard bedrock, coarse gravel, slightly weathered to unweathered with depth. Dolomite bedrock.                                                 |
|                 | 8-9       | 66              |                                                                                                                                                                              |
|                 | 9-10      | 34              |                                                                                                                                                                              |
|                 | 10-11     | 14              |                                                                                                                                                                              |
|                 | 11-12     | 7               |                                                                                                                                                                              |
|                 | 12-13     | 6               |                                                                                                                                                                              |
|                 | 13-14     | 4               |                                                                                                                                                                              |
|                 | 14-15     | 3               |                                                                                                                                                                              |

**Table 4: Drill Chip Headspace Screening Values and Soil Type**

| Monitoring Well | Depth (m) | Headspace [ppm] | Drill Chip Geology                                                                                                                                                           |
|-----------------|-----------|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TNMW4           | 0-1       | 0               | Dry, reddish brown to greenish grey with depth. Sandy fine to coarse gravel. Fill. Gravel sized fill fragments comprising angular brick to subrounded dolerite and dolomite. |
|                 | 1-2       | 0               |                                                                                                                                                                              |
|                 | 2-3       | 0               | Dry, blueish grey, sandy top coarse gravel. Grading from completely to slightly weathered with depth. Dolomite boulder to bedrock.                                           |
|                 | 3-4       | 0               |                                                                                                                                                                              |
|                 | 4-5       | 0               |                                                                                                                                                                              |
|                 | 5-6       | 0               |                                                                                                                                                                              |
|                 | 6-7       | 0               |                                                                                                                                                                              |
|                 | 7-8       | 0               | Dry, blueish grey, hard to very hard bedrock, coarse gravel, slightly weathered to unweathered with depth. Dolomite bedrock.                                                 |
|                 | 8-9       | 15              |                                                                                                                                                                              |
|                 | 9-10      | 9               |                                                                                                                                                                              |
|                 | 10-11     | 4               |                                                                                                                                                                              |
|                 | 11-12     | 2               |                                                                                                                                                                              |
|                 | 12-13     | 2               |                                                                                                                                                                              |
|                 | 13-14     | 1               |                                                                                                                                                                              |
|                 | 14-15     | <1              |                                                                                                                                                                              |

**Table 5: Drill Chip Headspace Screening Values and Soil Type**

| Monitoring Well | Depth (m) | Headspace [ppm] | Drill Chip Geology                                                                                                                                                           |
|-----------------|-----------|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TNMW5           | 0-1       | < 1             | Dry, reddish brown to greenish grey with depth. Sandy fine to coarse gravel. Fill. Gravel sized fill fragments comprising angular brick to subrounded dolerite and dolomite. |
|                 | 1-2       | < 1             |                                                                                                                                                                              |
|                 | 2-3       | < 1             | Dry, blueish grey, sandy top coarse gravel. Grading from completely to slightly weathered with depth. Dolomite boulder to bedrock.                                           |
|                 | 3-4       | < 1             |                                                                                                                                                                              |
|                 | 4-5       | < 1             |                                                                                                                                                                              |
|                 | 5-6       | < 1             |                                                                                                                                                                              |
|                 | 6-7       | < 1             | Dry, blueish grey, hard to very hard bedrock, coarse gravel, slightly weathered to unweathered with depth. Dolomite bedrock.                                                 |
|                 | 7-8       | 12              |                                                                                                                                                                              |
|                 | 8-9       | 13              |                                                                                                                                                                              |
|                 | 9-10      | 9               |                                                                                                                                                                              |
|                 | 10-11     | 3               |                                                                                                                                                                              |
|                 | 11-12     | 2               |                                                                                                                                                                              |
|                 | 12-13     | 2               |                                                                                                                                                                              |
|                 | 13-14     | 1               |                                                                                                                                                                              |
|                 | 14-15     | < 1             |                                                                                                                                                                              |

**Table 6: Drill Chip Headspace Screening Values and Soil Type**

| Monitoring Well | Depth (m) | Headspace [ppm] | Drill Chip Geology                                                                                                                                                           |
|-----------------|-----------|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TNMW6           | 0-1       | < 1             | Dry, reddish brown to greenish grey with depth. Sandy fine to coarse gravel. Fill. Gravel sized fill fragments comprising angular brick to subrounded dolerite and dolomite. |
|                 | 1-2       | < 1             |                                                                                                                                                                              |
|                 | 2-3       | < 1             | Dry, blueish grey, sandy top coarse gravel. Grading from completely to slightly weathered with depth. Dolomite boulder to bedrock.                                           |
|                 | 3-4       | < 1             |                                                                                                                                                                              |
|                 | 4-5       | < 1             |                                                                                                                                                                              |
|                 | 5-6       | < 1             |                                                                                                                                                                              |
|                 | 6-7       | 18              | Dry, blueish grey, hard to very hard bedrock, coarse gravel, slightly weathered to unweathered with depth. Dolomite bedrock.                                                 |
|                 | 7-8       | 46              |                                                                                                                                                                              |
|                 | 8-9       | 37              |                                                                                                                                                                              |
|                 | 9-10      | 28              |                                                                                                                                                                              |
|                 | 10-11     | 9               |                                                                                                                                                                              |
|                 | 11-12     | 7               |                                                                                                                                                                              |
|                 | 12-13     | 5               |                                                                                                                                                                              |
|                 | 13-14     | 4               |                                                                                                                                                                              |
|                 | 14-15     | 2               |                                                                                                                                                                              |

After the installation of the monitoring wells, the wells were developed and then allowed to stabilise for a period of time before groundwater sampling was carried out on the 08/07/23. The wells were inspected and dipped prior to sampling. A total of six (6) groundwater samples were recovered, one from each of the monitoring wells TNMW1 to TNMW6 inclusive.

The recovered samples were sent for analysis to a SANAS accredited laboratory after the following sampling procedure, as listed below:

1. The wells were dipped using a Solinst Interface meter to determine groundwater depth and the presence or absence of any potential Free Phase Product.
2. Low flow sampling was carried out using a peristaltic pump and monitored using a YSI probe inserted into a flow cell. Once the Electrical Conductivity groundwater values had stabilised to within 10%, a groundwater sample was selected and placed in duplicate laboratory-supplied sample bottles.
3. A portion of the recovered groundwater sample was also headspace screened in the field using a calibrated and certified PID.
4. The samples were placed in a cool, dark container and delivered to a SANAS-accredited laboratory for screening analysis which was accompanied by the appropriate Chain of Custody (COC) documentation.

## 6. FIELDWORK FINDINGS & SOURCE PATHWAY RECEPTOR CONSIDERATIONS

The monitoring well data has been included in **Table 2** below and includes the headspace volatile organic carbons (VOC) concentrations and static groundwater levels taken during the sampling event.

**Table 2: Monitoring Well Data**

| Well ID | Well Depth (m bgl) | 08/07/2023               |                       |
|---------|--------------------|--------------------------|-----------------------|
|         |                    | SGL <sup>1</sup> (m bgl) | HC <sup>2</sup> (ppm) |
| TNMW1   | 15                 | 8.70                     | < 1                   |
| TNMW2   | 15                 | 8.77                     | 2                     |
| TNMW3   | 15                 | 9.07                     | 2                     |
| TNMW4   | 15                 | 9.00                     | < 1                   |
| TNMW5   | 15                 | 8.72                     | < 1                   |
| TNMW6   | 15                 | 8.75                     | 0                     |

1 Static groundwater level (meters below ground level)

2 Head Space Concentration (parts per million)

In order to assess the potential risk at the site, a graphic has been presented in **Figure 2** below, which identifies the likely source, pathway, and receptor linkages (SPR) and the identified potentially complete SPR linkages. The potential receptors considered are the current users on site. The identified potential exposure pathways include the inhalation of petroleum vapours from indoor and outdoor air from a groundwater source.



## 7. SCREENING TOOLS CONSIDERED & LABORATORY RESULTS

The laboratory results for the groundwater analyses are summarised in **Table 3** below and have been assessed using RISC (Risk Integrated Software for Clean-ups) Version 5, Tier 1 screening levels. The source pathway receptor scenarios considered for this site, were for the inhalation of indoor and outdoor air from a groundwater source. All scenarios considered a commercial land-use type environment.

Where any of the laboratory results exceeded the screening values considered these results have been highlighted in red. Values highlighted in **plain red** have exceeded the RISC Screening Levels for a Tier 1 assessment. Values faded out are below the detection level for the analysis whilst screening levels faded out have not been exceeded.

RISC 5 Tier 1 is a general, conservative risk-based assessment. These assessments use conservative human health risk-based screening values for soil and water which have been calculated using accepted US EPA algorithms, toxicological data and exposure and point of receptor assumptions based on empirically derived data.

The laboratory result transcripts can be found in the **APPENDIX B** below.

**Table 3: Groundwater Analytical Results (mg/l)**

| Sampling Date                     | 08/07/23                  |                           |                           |                           |                           |                           | RISC Tier 1                              |                                           |
|-----------------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|------------------------------------------|-------------------------------------------|
| Determinant                       | TNMW1<br>at 8.70 m<br>bgl | TNMW2<br>at 8.77 m<br>bgl | TNMW3<br>at 9.07 m<br>bgl | TNMW4<br>at 9.00 m<br>bgl | TNMW5<br>at 8.72 m<br>bgl | TNMW6<br>at 8.75 m<br>bgl | Commercial Land-Use                      |                                           |
|                                   |                           |                           |                           |                           |                           |                           | Inhalation of<br>Indoor Air <sup>1</sup> | Inhalation of<br>Outdoor Air <sup>1</sup> |
| VOC-PID (ppm)                     | < 1                       | 2                         | 2                         | < 1                       | < 1                       | < 1                       | NVD                                      | NVD                                       |
| Methyl tert-Butyl<br>Ether (MTBE) | <0.005                    | <0.005                    | <0.005                    | <0.005                    | <0.005                    | <0.005                    | 2 418.946                                | >Sol                                      |
| Tert-amyl Methyl<br>Ether (TAME)  | 0.0089                    | 0.029                     | 0.024                     | 0.0064                    | <0.005                    | <0.005                    | NVD                                      | NVD                                       |
| Benzene                           | <0.0004                   | 0.011                     | <0.0004                   | <0.0004                   | <0.0004                   | <0.0004                   | 0.066                                    | 26.265                                    |
| Toluene                           | <0.001                    | 0.001                     | <0.001                    | <0.001                    | <0.001                    | <0.001                    | 27.685                                   | >Sol                                      |
| Ethylbenzene                      | <0.0004                   | <0.0004                   | <0.0004                   | <0.0004                   | <0.0004                   | <0.0004                   | 72.406                                   | >Sol                                      |
| m+p-Xylene                        | <0.0008                   | <0.0008                   | <0.0008                   | <0.0008                   | <0.0008                   | <0.0008                   | 8.147                                    | >Sol                                      |
| o-Xylene                          |                           |                           |                           |                           |                           |                           |                                          |                                           |
| Trimethylbenzen<br>e, 1,2,4-      | <0.0004                   | <0.0004                   | <0.0004                   | <0.0004                   | <0.0004                   | <0.0004                   | NVD                                      | NVD                                       |
| Trimethylbenzen<br>e, 1,3,5-      | <0.0004                   | <0.0004                   | <0.0004                   | <0.0004                   | <0.0004                   | <0.0004                   | NVD                                      | NVD                                       |
| Naphthalene                       | <0.0004                   | <0.0004                   | <0.0004                   | <0.0004                   | <0.0004                   | <0.0004                   | 2.993                                    | >Sol                                      |
| <b>TPH GRO</b>                    |                           |                           |                           |                           |                           |                           |                                          |                                           |
| C7 - C9                           | <0.010                    | <0.010                    | <0.010                    | <0.010                    | <0.010                    | <0.010                    | NVD                                      | NVD                                       |
| <b>TPH DRO</b>                    |                           |                           |                           |                           |                           |                           |                                          |                                           |
| C10 - C14                         | < 0.060                   | < 0.060                   | < 0.060                   | < 0.060                   | < 0.060                   | < 0.060                   |                                          |                                           |
| C15 – C36                         | < 0.412                   | < 0.412                   | < 0.412                   | < 0.412                   | < 0.412                   | < 0.412                   |                                          |                                           |

## 8. FINDING & COMMENTS

1. A total of three monitoring wells were installed at the site by percussion drilling between 27/06/23 and 29/06/2023 to 15 m below ground level, after which each of the wells was developed and headworks installed.
2. During the drilling installation of the wells, drill chip samples were obtained at 1m intervals and screened for Volatile Organic Compounds (VOCs) in field using a certified and calibrated Photo Ionisation Detector (PID). Detectable levels of hydrocarbons were found in most of the monitoring wells, although the values were very low and with a maximum value of 66 ppm in monitoring well TNMW3 at 9 m depth. This would indicate that historically there has been diesel product loss at the site and possibly an overfill or series of overfills.
3. The monitoring wells were left to stabilise and were subsequently inspected, dipped, and sampled on the 08/07/2023.
4. The average static groundwater level as of 08/07/2023 was 8.75 m bgl and this will show seasonal fluctuations in level.
5. PID headspace screening values for the groundwater in the monitoring wells registered between < 1 ppm to 2 ppm in all wells with the 2-ppm value recorded in TNMW2 and TNMW3.

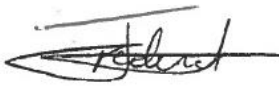
6. One groundwater sample was recovered per well and the samples were sent to a SANAS accredited laboratory for analysis.
7. The laboratory results indicated detectable levels for the additive TAME in four of the six wells sampled. TAME is a highly soluble additive normally associated with petrol. Its presence in the groundwater around a diesel tank farm is not expected. The levels are low and not problematic, but the source is uncertain and could be from a variety of possibilities. These could include petrol contaminated diesel being delivered to the site and a possible overfill at the filler points or from a spillage nearby not associated with the diesel storage.
8. The only BTEXN compounds detected in the samples were benzene and toluene and these were in sample TNMW2 only which also had the highest concentration of TAME recorded.
9. In terms of the TPH banding analysis results, the  $C_7 - C_9$ ,  $C_{10} - C_{14}$  and  $C_{15} - C_{36}$  carbon group ranges indicated nondetectable levels in all groundwater samples analysed.
10. In terms of assessing the risk associated with the hydrocarbons in the groundwater, the risk scenarios considered for the site were for the inhalation of indoor and outdoor air from a groundwater source in a commercial land-use environment, which indicated the following:
  - a. The RISC Tier 1 screening levels for the risk scenarios considered for the site were not exceeded.
11. Based on the risk scenarios considered for the site, the fieldwork carried out and laboratory results received, there is a no potential risk currently defined to on-site receptors from a groundwater source and no remedial actions are required.

## 9. RECOMMENDATIONS

Based on the work completed at the site and the current assessment findings, the following is recommended:

1. Annual sampling of the groundwater from the monitoring wells should be carried out so that any potential subsurface impacts associated with the fuel storage facility can be determined, and actions taken as required based on the findings.

We trust that this summary report contains sufficient information. Should you have any further questions please contact the author.

|                                                                                                                                                                                                       |                                                                                                                                                                                                   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Report compiled by:</b></p>  <p>Jody Fredericks</p> <p>BSc. Hons<br/>(Environmental &amp; Water Science)</p> | <p><b>Report reviewed by:</b></p>  <p>Adrian Sillito</p> <p>Pr. Sci.Nat Registration Number<br/>400046/93</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## **SILLITO ENVIRONMENTAL CONSULTING**

[https://sillito.sharepoint.com/jobs/SEC Jobs/E21102/Outputs/Drilling & Sampling Reports/Gauteng/2023/Gyro Telkom The Nexus Monitoring Well Installation & Groundwater Assessment Report - July 2023.docx](https://sillito.sharepoint.com/jobs/SEC%20Jobs/E21102/Outputs/Drilling%20&%20Sampling%20Reports/Gauteng/2023/Gyro%20Telkom%20The%20Nexus%20Monitoring%20Well%20Installation%20&%20Groundwater%20Assessment%20Report%20-%20July%202023.docx)

# **APPENDIX A: SITE PHOTOGRAPHS**



**Photograph 1:** General view of the drill rig during drilling operations.



**Photograph 2:** General view of the Nexus tank farm during drilling operations.



**Photograph 3:** Typical completed monitoring well and headworks.



**Photograph 4:** Typical completed monitoring well and headworks.

# **APPENDIX B: LABORATORY CERTIFICATES**

## TEST REPORT

### 44725A

**Test Description:** BTEXMN/Gasoline Range Organics and Total Petroleum Hydrocarbons

**Test Method:** EPL-T-012 (BTEX/GRO) and EPL-T-011(TPH)

#### Client and Project Information

**Client:** Sillito Environmental Consulting  
**Address:** Suite 105, Block B2, Tokai Village Centre  
Vans Road, Tokai, Cape Town  
7966

**Attention:** Jody Fredericks  
**Tel:** (082) 935 0438  
**Email:** jody@environmentalconsultants.co.za

**Project number:** E21102  
**Project name:** Telkom Park - The Nexus

#### Sample Information

**Sample ID:** TNMW01  
**Dilutions:** BTEX/GRO = No Dilution, TPH = No Dilution  
**Container:** Glass

**Matrix:** Water  
**Storage:** Fridge at 0-6°C

**Date Received:** 2023/07/05  
**Date Analysed:** 2023/07/05  
**Date Issued:** 2023/07/11

#### BTEXMN and Gasoline Range Organics

| PARAMETER              | RESULT        |
|------------------------|---------------|
| MTBE                   | <5 µg/liter   |
| TAME                   | 8.9 µg/liter  |
| Benzene                | <0.4 µg/liter |
| Toluene                | <1 µg/liter   |
| Ethylbenzene           | <0.4 µg/liter |
| m+p-Xylene             | <0.8 µg/liter |
| o-Xylene               | <0.4 µg/liter |
| 1,3,5-Trimethylbenzene | <0.4 µg/liter |
| 1,2,4-Trimethylbenzene | <0.4 µg/liter |
| Naphthalene            | <0.4 µg/liter |
| TPH GRO C7-C9          | <10 µg/liter  |

#### Total Petroleum Hydrocarbon (C10-C36)

| PARAMETER         | RESULT        |
|-------------------|---------------|
| TPH C10-C14       | <60 µg/liter  |
| TPH C15-C36       | <412 µg/liter |
| TPH C10-C36 Total | <412 µg/liter |

#### Disclaimers

- 1) The results only relate to the test items provided, in the condition as received.
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- 4) A = Concentration outside calibration range, O = Outsourced analysis, UTD = Unable to Determine.
- 5) Uncertainty of measurement for all methods included in the SANAS Schedule of Accreditation is available on request.

**Reinardt Cromhout**  
Authorised Signatory

## TEST REPORT

### 44725A

**Test Description:** BTEXMN/Gasoline Range Organics and Total Petroleum Hydrocarbons

**Test Method:** EPL-T-012 (BTEX/GRO) and EPL-T-011(TPH)

#### Client and Project Information

**Client:** Sillito Environmental Consulting  
**Address:** Suite 105, Block B2, Tokai Village Centre  
Vans Road, Tokai, Cape Town  
7966

**Attention:** Jody Fredericks  
**Tel:** (082) 935 0438  
**Email:** jody@environmentalconsultants.co.za

**Project number:** E21102  
**Project name:** Telkom Park - The Nexus

#### Sample Information

**Sample ID:** TNMW02  
**Dilutions:** BTEX/GRO = No Dilution, TPH = No Dilution  
**Container:** Glass

**Matrix:** Water  
**Storage:** Fridge at 0-6°C

**Date Received:** 2023/07/05  
**Date Analysed:** 2023/07/05  
**Date Issued:** 2023/07/11

#### BTEXMN and Gasoline Range Organics

| PARAMETER              | RESULT        |
|------------------------|---------------|
| MTBE                   | <5 µg/liter   |
| TAME                   | 29 µg/liter   |
| Benzene                | 11 µg/liter   |
| Toluene                | 1 µg/liter    |
| Ethylbenzene           | <0.4 µg/liter |
| m+p-Xylene             | <0.8 µg/liter |
| o-Xylene               | <0.4 µg/liter |
| 1,3,5-Trimethylbenzene | <0.4 µg/liter |
| 1,2,4-Trimethylbenzene | <0.4 µg/liter |
| Naphthalene            | <0.4 µg/liter |
| TPH GRO C7-C9          | <10 µg/liter  |

#### Total Petroleum Hydrocarbon (C10-C36)

| PARAMETER         | RESULT        |
|-------------------|---------------|
| TPH C10-C14       | <60 µg/liter  |
| TPH C15-C36       | <412 µg/liter |
| TPH C10-C36 Total | <412 µg/liter |

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**Reinardt Cromhout**  
Authorised Signatory

## TEST REPORT

### 44725A

**Test Description:** BTEXMN/Gasoline Range Organics and Total Petroleum Hydrocarbons

**Test Method:** EPL-T-012 (BTEX/GRO) and EPL-T-011(TPH)

#### Client and Project Information

**Client:** Sillito Environmental Consulting  
**Address:** Suite 105, Block B2, Tokai Village Centre  
Vans Road, Tokai, Cape Town  
7966

**Attention:** Jody Fredericks  
**Tel:** (082) 935 0438  
**Email:** jody@environmentalconsultants.co.za

**Project number:** E21102  
**Project name:** Telkom Park - The Nexus

#### Sample Information

**Sample ID:** TNMW03  
**Dilutions:** BTEX/GRO = No Dilution, TPH = No Dilution  
**Container:** Glass

**Matrix:** Water  
**Storage:** Fridge at 0-6°C

**Date Received:** 2023/07/05  
**Date Analysed:** 2023/07/05  
**Date Issued:** 2023/07/11

#### BTEXMN and Gasoline Range Organics

| PARAMETER              | RESULT        |
|------------------------|---------------|
| MTBE                   | <5 µg/liter   |
| TAME                   | 24 µg/liter   |
| Benzene                | <0.4 µg/liter |
| Toluene                | <1 µg/liter   |
| Ethylbenzene           | <0.4 µg/liter |
| m+p-Xylene             | <0.8 µg/liter |
| o-Xylene               | <0.4 µg/liter |
| 1,3,5-Trimethylbenzene | <0.4 µg/liter |
| 1,2,4-Trimethylbenzene | <0.4 µg/liter |
| Naphthalene            | <0.4 µg/liter |
| TPH GRO C7-C9          | <10 µg/liter  |

#### Total Petroleum Hydrocarbon (C10-C36)

| PARAMETER         | RESULT        |
|-------------------|---------------|
| TPH C10-C14       | <60 µg/liter  |
| TPH C15-C36       | <412 µg/liter |
| TPH C10-C36 Total | <412 µg/liter |

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Authorised Signatory

Page 3 of 6

## TEST REPORT

### 44725A

**Test Description:** BTEXMN/Gasoline Range Organics and Total Petroleum Hydrocarbons

**Test Method:** EPL-T-012 (BTEX/GRO) and EPL-T-011(TPH)

#### Client and Project Information

**Client:** Sillito Environmental Consulting

**Address:** Suite 105, Block B2, Tokai Village Centre  
Vans Road, Tokai, Cape Town  
7966

**Attention:** Jody Fredericks

**Tel:** (082) 935 0438

**Email:** jody@environmentalconsultants.co.za

**Project number:** E21102

**Project name:** Telkom Park - The Nexus

#### Sample Information

**Sample ID:** TNMW04

**Dilutions:** BTEX/GRO = No Dilution, TPH = No Dilution

**Container:** Glass

**Matrix:** Water

**Storage:** Fridge at 0-6°C

**Date Received:** 2023/07/05

**Date Analysed:** 2023/07/05

**Date Issued:** 2023/07/11

#### BTEXMN and Gasoline Range Organics

| PARAMETER              | RESULT        |
|------------------------|---------------|
| MTBE                   | <5 µg/liter   |
| TAME                   | 6.4 µg/liter  |
| Benzene                | <0.4 µg/liter |
| Toluene                | <1 µg/liter   |
| Ethylbenzene           | <0.4 µg/liter |
| m+p-Xylene             | <0.8 µg/liter |
| o-Xylene               | <0.4 µg/liter |
| 1,3,5-Trimethylbenzene | <0.4 µg/liter |
| 1,2,4-Trimethylbenzene | <0.4 µg/liter |
| Naphthalene            | <0.4 µg/liter |
| TPH GRO C7-C9          | <10 µg/liter  |

#### Total Petroleum Hydrocarbon (C10-C36)

| PARAMETER         | RESULT        |
|-------------------|---------------|
| TPH C10-C14       | <60 µg/liter  |
| TPH C15-C36       | <412 µg/liter |
| TPH C10-C36 Total | <412 µg/liter |

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**Reinardt Cromhout**  
Authorised Signatory

## TEST REPORT

### 44725A

**Test Description:** BTEXMN/Gasoline Range Organics and Total Petroleum Hydrocarbons

**Test Method:** EPL-T-012 (BTEX/GRO) and EPL-T-011(TPH)

#### Client and Project Information

**Client:** Sillito Environmental Consulting  
**Address:** Suite 105, Block B2, Tokai Village Centre  
 Vans Road, Tokai, Cape Town  
 7966

**Attention:** Jody Fredericks  
**Tel:** (082) 935 0438  
**Email:** jody@environmentalconsultants.co.za

**Project number:** E21102  
**Project name:** Telkom Park - The Nexus

#### Sample Information

**Sample ID:** TNMW05  
**Dilutions:** BTEX/GRO = No Dilution, TPH = No Dilution  
**Container:** Glass

**Matrix:** Water  
**Storage:** Fridge at 0-6°C

**Date Received:** 2023/07/05  
**Date Analysed:** 2023/07/05  
**Date Issued:** 2023/07/11

#### BTEXMN and Gasoline Range Organics

| PARAMETER              | RESULT        |
|------------------------|---------------|
| MTBE                   | <5 µg/liter   |
| TAME                   | <5 µg/liter   |
| Benzene                | <0.4 µg/liter |
| Toluene                | <1 µg/liter   |
| Ethylbenzene           | <0.4 µg/liter |
| m+p-Xylene             | <0.8 µg/liter |
| o-Xylene               | <0.4 µg/liter |
| 1,3,5-Trimethylbenzene | <0.4 µg/liter |
| 1,2,4-Trimethylbenzene | <0.4 µg/liter |
| Naphthalene            | <0.4 µg/liter |
| TPH GRO C7-C9          | <10 µg/liter  |

#### Total Petroleum Hydrocarbon (C10-C36)

| PARAMETER         | RESULT        |
|-------------------|---------------|
| TPH C10-C14       | <60 µg/liter  |
| TPH C15-C36       | <412 µg/liter |
| TPH C10-C36 Total | <412 µg/liter |

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**Reinardt Cromhout**  
 Authorised Signatory

## TEST REPORT

### 44725A

**Test Description:** BTEXMN/Gasoline Range Organics and Total Petroleum Hydrocarbons

**Test Method:** EPL-T-012 (BTEX/GRO) and EPL-T-011(TPH)

#### Client and Project Information

**Client:** Sillito Environmental Consulting  
**Address:** Suite 105, Block B2, Tokai Village Centre  
 Vans Road, Tokai, Cape Town  
 7966

**Attention:** Jody Fredericks  
**Tel:** (082) 935 0438  
**Email:** jody@environmentalconsultants.co.za

**Project number:** E21102  
**Project name:** Telkom Park - The Nexus

#### Sample Information

**Sample ID:** TNMW06  
**Dilutions:** BTEX/GRO = No Dilution, TPH = No Dilution  
**Container:** Glass

**Matrix:** Water  
**Storage:** Fridge at 0-6°C

**Date Received:** 2023/07/05  
**Date Analysed:** 2023/07/05  
**Date Issued:** 2023/07/11

#### BTEXMN and Gasoline Range Organics

| PARAMETER              | RESULT        |
|------------------------|---------------|
| MTBE                   | <5 µg/liter   |
| TAME                   | <5 µg/liter   |
| Benzene                | <0.4 µg/liter |
| Toluene                | <1 µg/liter   |
| Ethylbenzene           | <0.4 µg/liter |
| m+p-Xylene             | <0.8 µg/liter |
| o-Xylene               | <0.4 µg/liter |
| 1,3,5-Trimethylbenzene | <0.4 µg/liter |
| 1,2,4-Trimethylbenzene | <0.4 µg/liter |
| Naphthalene            | <0.4 µg/liter |
| TPH GRO C7-C9          | <10 µg/liter  |

#### Total Petroleum Hydrocarbon (C10-C36)

| PARAMETER         | RESULT        |
|-------------------|---------------|
| TPH C10-C14       | <60 µg/liter  |
| TPH C15-C36       | <412 µg/liter |
| TPH C10-C36 Total | <412 µg/liter |

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**Reinardt Cromhout**  
 Authorised Signatory



## **GYRO GROUP**

### **DIESEL TANK COMPLIANCE – PHASE II EXTENSION**

### **MONITORING WELL INSTALLATION & GROUNDWATER ASSESSMENT REPORT**

**Telkom The Hub**

**July 2023**

**SEC REFERENCE NUMBER: E21102**

**PO Box 30134, Tokai, 7966  
Telephone: 021 712 5060  
Email: [info@environmentalconsultants.co.za](mailto:info@environmentalconsultants.co.za)**

|                            |                |                            |                                            |
|----------------------------|----------------|----------------------------|--------------------------------------------|
| <b>Site contact name:</b>  | Willie Jordaan | <b>Contact Details:</b>    | 021 641 8104                               |
| <b>Date of assessment:</b> | 30/06/2023     | <b>Report compiled by:</b> | Sillito Environmental Consulting (Pty) Ltd |

The Gyro Group requested Sillito Environmental Consulting (Pty) Ltd (SEC) to initially conduct Phase 1 assessments across a number of sites across South Africa. The aim of these assessments was to provide an indication of the environmental setting of the site, the location and accessibility of the Underground Storage Tanks (USTs) and the associated fuel delivery infrastructure and a preliminary indication of the potential risk associated with the historic fuel storage at the site. In addition, underground utility scanning was carried out in the vicinity of the tanks to determine the presence and location of any services in this area.

Upon completion of this work SEC was subsequently requested to complete Phase II Assessments at these sites.

The scope of work for the Phase II assessments is defined as follows:

1. Obtaining the required approvals prior to proceeding with the fieldwork.
2. Double checking for services prior to any intrusive works.
3. The installation of monitoring wells as required and the screening of drill chips during the drilling phase and the creation of a summary table of the findings.
4. Development of the wells and completion of the installation.
5. Return to site to take water samples once the wells had stabilised.

### 1.Site details:

|                                                   |                                                          |                                   |                                                                                         |
|---------------------------------------------------|----------------------------------------------------------|-----------------------------------|-----------------------------------------------------------------------------------------|
| <b>Site Name</b>                                  | Telkom Hub                                               |                                   |                                                                                         |
| <b>Site Address</b>                               | 61 Oak Avenue, Highveld Centurion                        | <b>Telephone Number:</b>          | 021 641 8104                                                                            |
|                                                   |                                                          | <b>Fax Number:</b>                | N/A                                                                                     |
| <b>GPS coordinates:</b>                           | 25°52'39.79"S                                            | <b>Landowner:</b>                 | Telkom                                                                                  |
|                                                   | 28°11'18.03"E                                            | <b>Telephone Number:</b>          | 0817119417                                                                              |
| <b>Current supplier:</b>                          | Bidvest                                                  | <b>Total throughput/month:</b>    | Unknown                                                                                 |
| <b>Reconciliation records kept (dip records):</b> | The tanks are electronically monitored onsite by Bidvest | <b>Previous Tank Repairs:</b>     | According to the previous site contact (Settley Rangata) no tank repairs have been done |
|                                                   |                                                          | <b>Previous pipeline Repairs:</b> | None                                                                                    |

|                                                              |                                                            |                                                                                                                                                           |  |
|--------------------------------------------------------------|------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Description of current use of property:                      | The site is a Telkom Exchange and Data Centre              |                                                                                                                                                           |  |
| Description of historical use of property:                   | The site has always been a Telkom Exchange and Data Centre |                                                                                                                                                           |  |
| Description of land-use immediately adjacent to the UST/site | North:                                                     | Access road beyond which is undercover parking, beyond which are commercial activities in the form of Office Parks                                        |  |
|                                                              | East:                                                      | Access road beyond which is undercover parking, beyond which is the site boundary beyond which is the M36 Highway beyond which are Residential properties |  |
|                                                              | South                                                      | Access road beyond which is undercover parking, beyond which is the site boundary beyond which is the M36 Highway beyond which are Residential properties |  |
|                                                              | West:                                                      | Access road beyond which is undercover parking, beyond which is the site boundary beyond which is the M36 Highway beyond which are Residential properties |  |
| Potential Offsite sources of hydrocarbons                    | None identified in the vicinity of the site                |                                                                                                                                                           |  |
| Historical impact to soil and/or groundwater:                | None                                                       |                                                                                                                                                           |  |

## 2.Tankage:

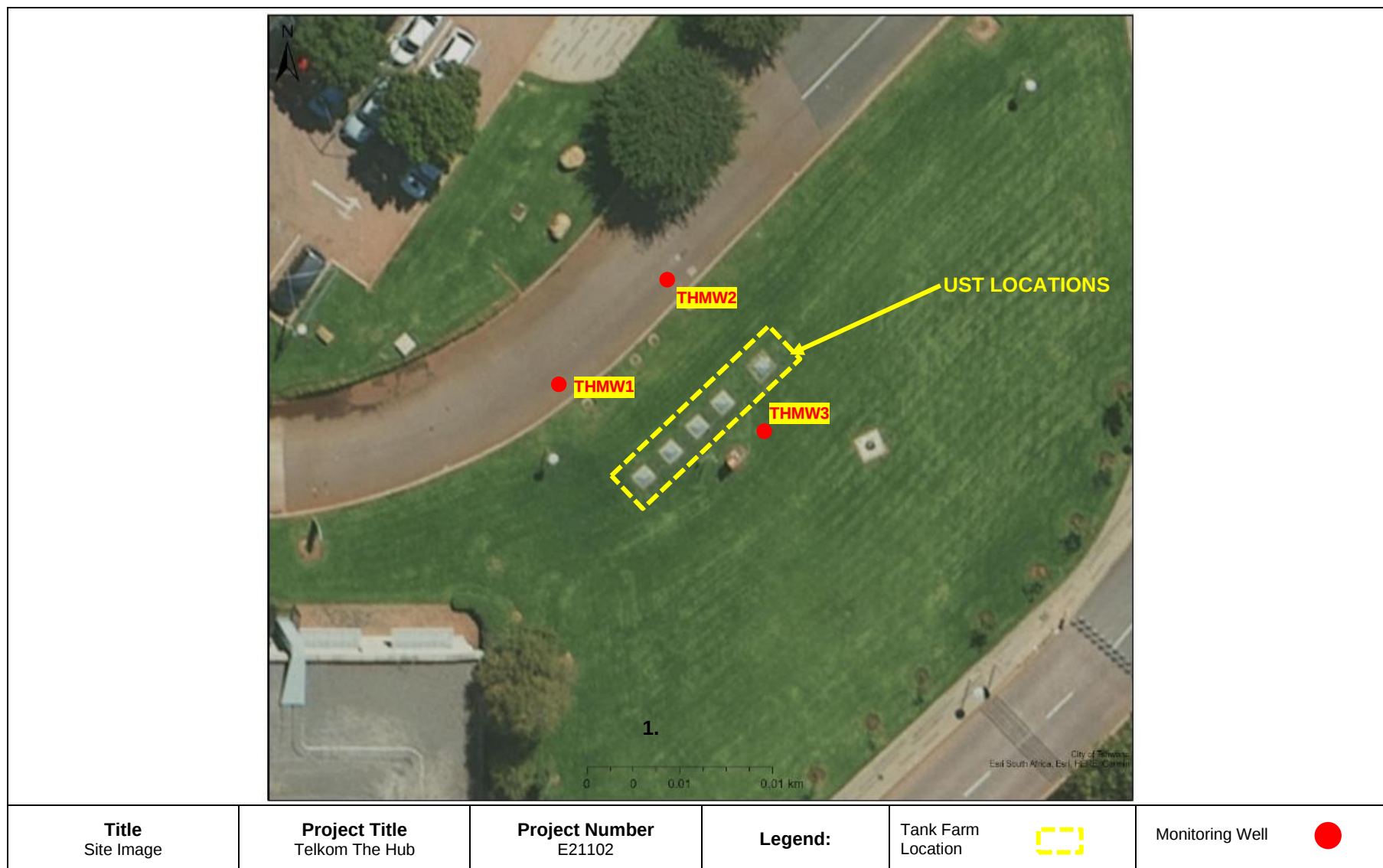
|                                                                       |                    |                                                           |                                                                                                                                                                                                                          |                        |                            |                |   |
|-----------------------------------------------------------------------|--------------------|-----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|----------------------------|----------------|---|
| Aboveground storage tanks (ASTs) – include bulk to farmer (BTF) tanks | Tank number:       | Capacity (litres)                                         | Product:                                                                                                                                                                                                                 | Estimated age of tank: | Tank construction details: | Comments:      |   |
|                                                                       | N/A                | N/A                                                       | N/A                                                                                                                                                                                                                      | N/A                    | N/A                        | N/A            |   |
| Underground storage tanks (USTs)                                      | Tank number:       | Capacity (litres)                                         | Product:                                                                                                                                                                                                                 | Estimated age of tank: | Tank construction details: | Comments:      |   |
|                                                                       | 1                  | 14 000                                                    | Diesel                                                                                                                                                                                                                   | Unknown                | Steel                      | In Use         |   |
|                                                                       | 2                  | 14 000                                                    | Diesel                                                                                                                                                                                                                   | Unknown                | Steel                      | In Use         |   |
|                                                                       | 3                  | 9 000                                                     | Diesel                                                                                                                                                                                                                   | Unknown                | Steel                      | In Use         |   |
|                                                                       | 4                  | 9 000                                                     | Diesel                                                                                                                                                                                                                   | Unknown                | Steel                      | In Use         |   |
|                                                                       | 5                  | 9 000                                                     | Diesel                                                                                                                                                                                                                   | Unknown                | Steel                      | In Use         |   |
|                                                                       | Integrity testing: | Type of testing:                                          | According to the previous site contact (Settley Rangata), vacuasonic and water ingress tests are conducted on a regular basis, however, the site contact could not provide the exact dates when the tests are conducted. |                        |                            |                |   |
| Date of last test:                                                    |                    | Unknown as the site contact did not have the information. |                                                                                                                                                                                                                          |                        |                            |                |   |
| Pumps (Y/N)                                                           | Type               | Submersible                                               | N                                                                                                                                                                                                                        | Suction                | Y                          | Leak Detectors | Y |

|                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Site observations (surface staining, housekeeping etc.): | <ul style="list-style-type: none"> <li>• The five (5) USTs are remote filled and are located on one tank farm.</li> <li>• The remote fillers are housed in brick manholes with no proper containment manholes.</li> <li>• The tank access manholes were found to be sealed with no secondary containment.</li> <li>• No hydrocarbon staining was observed in the vicinity of the filler points and tank manholes.</li> <li>• No tank leak detection wells (TLDWs) were observed in the vicinity of the tank farm.</li> </ul> |
|----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### 3.Environmental Setting:

|                                                               |                                                                                                                                  |
|---------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| Hydrocensus and NGA search results:                           | <ul style="list-style-type: none"> <li>• No registered groundwater users were identified in the vicinity of the site.</li> </ul> |
| Sensitive receptors (rivers, streams, wetlands, schools etc.) | <ul style="list-style-type: none"> <li>• None</li> </ul>                                                                         |

**Figure 1: Tank Farm Location & Monitoring Well Positions**



#### 4. GEOHYDROLOGICAL SETTING

Based on the fieldwork assessment as well as reference to Google Earth the site has a slight slope to the north of  $<2^{\circ}$ .

The 1: 250 000 scale geological map for the area (2528 Johannesburg) indicates that the site is underlain at depth by the Malmani Subgroup bedrock comprising dolomite, stromatolitic, interbedded chert, minor carbonaceous shale, limestone, and quartzite. During the drilling of the monitoring wells a summary of the soil profile encountered is presented in Section 4 below.

The 1:500 000 scale hydrogeological map series and the 1:3 000 000 scale Aquifer Classification Map of South Africa compiled by the Department of Water and Sanitation indicates that the site is underlain predominantly carbonate rocks (dolomite). This results in the formation of a karst aquifer in this area with borehole yields typically ranging from  $> 5.0$  l/s.

The aquifer is further classified as having a high vulnerability<sup>1</sup> and a high susceptibility<sup>2</sup> rating. Water quality is good with electrical conductivity values ranging between 0 and 70 mS/m.

The aquifer is further classified as having a most vulnerability<sup>3</sup> and a high susceptibility<sup>4</sup> rating. Water quality is moderate with electrical conductivity values ranging between 70 and 300 mS/m.

Please refer to **Figure 1** for the site location information and to **Figure 2** for the site layout and new monitoring well positions.

#### 5. PROJECT METHODOLOGY

A total of three monitoring wells were advanced at this site, with two wells located on the downgradient side of the tank farm area and one upgradient. These were at locations based on the information identified during the Phase I work. The monitoring wells were all advanced to depths of 15 m bgl between 30/06/23 and 03/07/2023. During the monitoring well installation, drill chip samples were recovered at 1m bgl intervals and screened in field for volatile organic carbons (VOCs) using a Photo Ionisation Detector (PID). The results of this screening

---

<sup>1</sup> Vulnerability: likelihood of contaminants reaching a specific position in the groundwater system after introduction at some location above the uppermost aquifer

<sup>2</sup> Susceptibility: a qualitative measure of the relative ease with which a groundwater body can be potentially contaminated by anthropogenic activities and includes both aquifer vulnerability and the relative importance of the aquifer in terms of its classification.

<sup>3</sup> Vulnerability: likelihood of contaminants reaching a specific position in the groundwater system after introduction at some location above the uppermost aquifer

<sup>4</sup> Susceptibility: a qualitative measure of the relative ease with which a groundwater body can be potentially contaminated by anthropogenic activities and includes both aquifer vulnerability and the relative importance of the aquifer in terms of its classification.

are presented in **Tables 1 to 3** below. Trace levels for hydrocarbons were found on Monitoring Wells THMW1 and THMW2. See **Appendix A** for typical photographs taken during the drilling operations.

**Table 1: Drill Chip Headspace Screening Values and Geology Type**

| Monitoring Well | Depth (m) | Headspace [ppm] | Drill Chip Geology                                                                                                                                                         |
|-----------------|-----------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| THMW1           | 0-1       | 1               | Dry, reddish brown, clayey silty, fine sand to coarse gravel. Completely weathered residual dolomite.                                                                      |
|                 | 1-2       | < 1             | Dry, pale brown to blueish grey, hard to very hard rock, dolomite boulder.                                                                                                 |
|                 | 2-3       | < 1             |                                                                                                                                                                            |
|                 | 3-4       | < 1             |                                                                                                                                                                            |
|                 | 4-5       | < 1             |                                                                                                                                                                            |
|                 | 5-6       | 0               | Moist, very dark brown, clayey to silty matrix with angular dolomite gravel framework. Becoming fine greenish grey silty fine sand. Highly weathered to residual dolomite. |
|                 | 6-7       | 0               |                                                                                                                                                                            |
|                 | 7-8       | 0               |                                                                                                                                                                            |
|                 | 8-9       | < 1             |                                                                                                                                                                            |
|                 | 9-10      | 0               |                                                                                                                                                                            |
|                 | 10-11     | < 1             |                                                                                                                                                                            |
|                 | 11-12     | 0               |                                                                                                                                                                            |
|                 | 12-13     | 0               | Dry, white to blueish grey, angular chip fragments comprising hard to very hard rock. Dolomite.                                                                            |
|                 | 13-14     | 0               |                                                                                                                                                                            |
|                 | 14-15     | < 1             |                                                                                                                                                                            |

**Table 2: Drill Chip Headspace Screening Values and Geology Type**

| Monitoring Well | Depth (m) | Headspace [ppm] | Drill Chip Geology                                                                                                                                                         |
|-----------------|-----------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| THMW2           | 0-1       | < 1             | Dry, reddish brown, clayey silty, fine sand to coarse gravel. Completely weathered residual dolomite.                                                                      |
|                 | 1-2       | < 1             | Dry, pale brown to blueish grey, hard to very hard rock, dolomite boulder.                                                                                                 |
|                 | 2-3       | < 1             |                                                                                                                                                                            |
|                 | 3-4       | < 1             |                                                                                                                                                                            |
|                 | 4-5       | < 1             |                                                                                                                                                                            |
|                 | 5-6       | < 1             | Moist, very dark brown, clayey to silty matrix with angular dolomite gravel framework. Becoming fine greenish grey silty fine sand. Highly weathered to residual dolomite. |
|                 | 6-7       | < 1             |                                                                                                                                                                            |
|                 | 7-8       | < 1             |                                                                                                                                                                            |
|                 | 8-9       | < 1             |                                                                                                                                                                            |
|                 | 9-10      | < 1             |                                                                                                                                                                            |
|                 | 10-11     | < 1             |                                                                                                                                                                            |
|                 | 11-12     | < 1             |                                                                                                                                                                            |
|                 | 12-13     | < 1             | Dry, white to blueish grey, angular chip fragments comprising hard to very hard rock. Dolomite.                                                                            |
|                 | 13-14     | < 1             |                                                                                                                                                                            |
|                 | 14-15     | < 1             |                                                                                                                                                                            |

**Table 3: Drill Chip Headspace Screening Values and Geology Type**

| Monitoring Well | Depth (m) | Headspace [ppm] | Drill Chip Geology                                                                                                                                                         |
|-----------------|-----------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| THMW3           | 0-1       | 0               | Dry, reddish brown, clayey silty, fine sand to coarse gravel. Completely weathered residual dolomite.                                                                      |
|                 | 1-2       | 0               | Dry, pale brown to blueish grey, hard to very hard rock, dolomite boulder.                                                                                                 |
|                 | 2-3       | 0               |                                                                                                                                                                            |
|                 | 3-4       | 0               |                                                                                                                                                                            |
|                 | 4-5       | 0               |                                                                                                                                                                            |
|                 | 5-6       | 0               |                                                                                                                                                                            |
|                 | 6-7       | 0               | Moist, very dark brown, clayey to silty matrix with angular dolomite gravel framework. Becoming fine greenish grey silty fine sand. Highly weathered to residual dolomite. |
|                 | 7-8       | 0               |                                                                                                                                                                            |
|                 | 8-9       | 0               |                                                                                                                                                                            |
|                 | 9-10      | 0               |                                                                                                                                                                            |
|                 | 10-11     | 0               |                                                                                                                                                                            |
|                 | 11-12     | 0               |                                                                                                                                                                            |
|                 | 12-13     | 0               | Dry, white to blueish grey, angular chip fragments comprising hard to very hard rock. Dolomite.                                                                            |
|                 | 13-14     | 0               |                                                                                                                                                                            |
|                 | 14-15     | 0               |                                                                                                                                                                            |

After the installation of the monitoring wells, the wells were developed and then allowed to stabilise for a period of time before groundwater sampling was carried out on the 08/07/23. The wells were inspected and dipped prior to sampling. A total of three (3) groundwater samples were recovered, one from each of the monitoring wells THMW1 to THMW3 inclusive.

The recovered samples were sent for analysis to a SANAS accredited laboratory after the following sampling procedure, as listed below:

1. The wells were dipped using a Solinst Interface meter to determine groundwater depth and the presence or absence of any potential Free Phase Product.

2. Low flow sampling was carried out using a peristaltic pump and monitored using a YSI probe inserted into a flow cell. Once the Electrical Conductivity groundwater values had stabilised to within 10%, a groundwater sample was selected and placed in duplicate laboratory-supplied sample bottles.
3. A portion of the recovered groundwater sample was also headspace screened in the field using a calibrated and certified PID.
4. The samples were placed in a cool, dark container and delivered to a SANAS-accredited laboratory for screening analysis which was accompanied by the appropriate Chain of Custody (COC) documentation.

## 6. FIELDWORK FINDINGS & SOURCE PATHWAY RECEPTOR CONSIDERATIONS

The monitoring well data has been included in **Table 2** below and includes the headspace volatile organic carbons (VOC) concentrations and static groundwater levels taken during the sampling event.

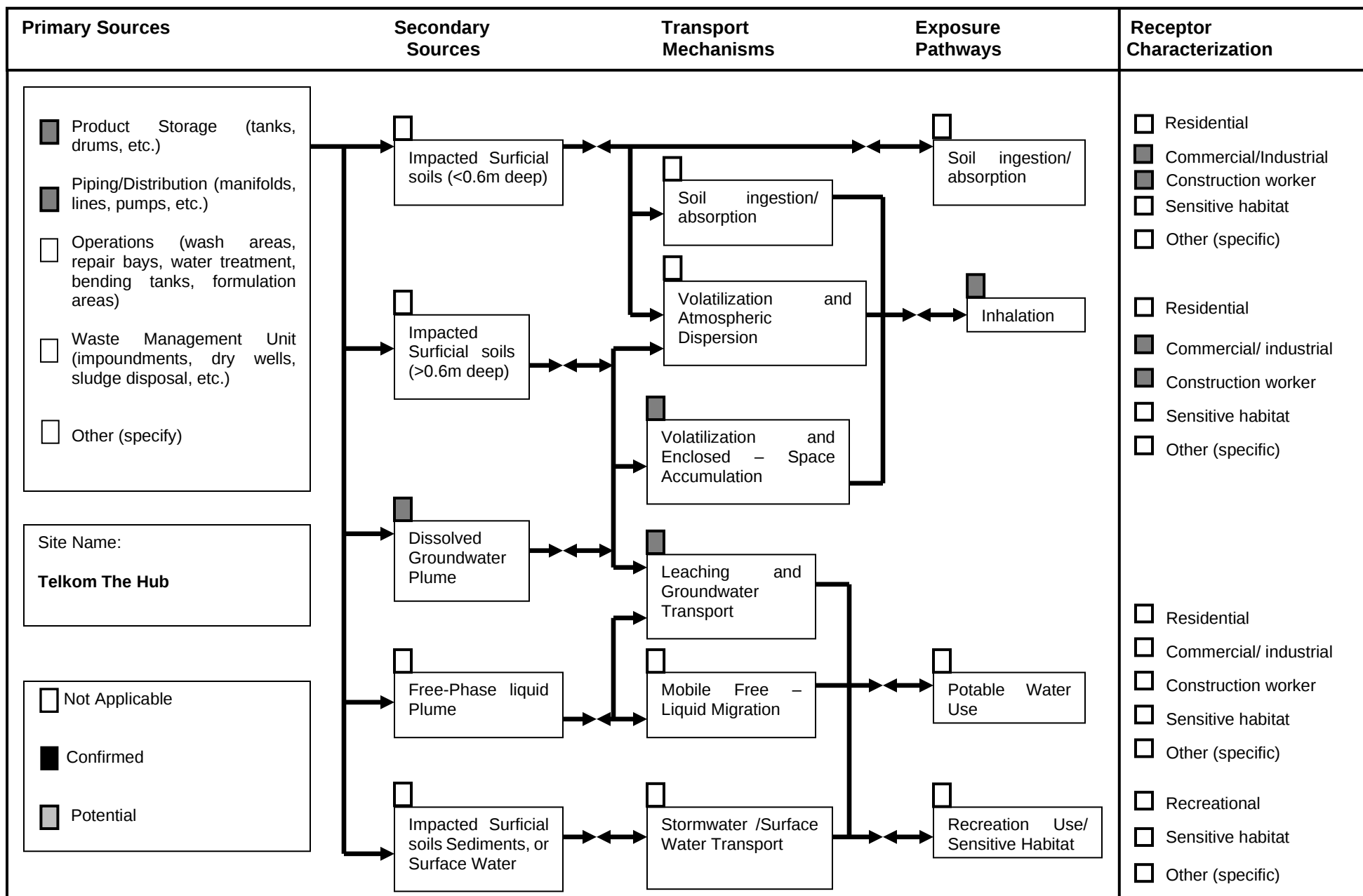
**Table 2: Monitoring Well Data**

| Well ID | Well Depth (m bgl) | 08/07/2023               |                       |
|---------|--------------------|--------------------------|-----------------------|
|         |                    | SGL <sup>1</sup> (m bgl) | HC <sup>2</sup> (ppm) |
| THMW1   | 15                 | 13.21                    | < 1                   |
| THMW2   | 15                 | 13.29                    | 0                     |
| THMW3   | 15                 | Dry                      | -                     |

1 Static groundwater level (meters below ground level)

2 Head Space Concentration (parts per million)

In order to assess the potential risk at the site, a graphic has been presented in **Figure 2** below, which identifies the likely source, pathway, and receptor linkages (SPR) and the identified potentially complete SPR linkages. The potential receptors considered are the current users on site. The identified potential exposure pathways include the inhalation of petroleum vapours from indoor and outdoor air from a groundwater source.



## 7. SCREENING TOOLS CONSIDERED & LABORATORY RESULTS

The laboratory results for the groundwater analyses are summarised in **Table 3** below and have been assessed using RISC (Risk Integrated Software for Clean-ups) Version 5, Tier 1 screening levels. The source pathway receptor scenarios considered for this site, were for the inhalation of indoor and outdoor air from a groundwater source. All scenarios considered a commercial land-use type environment.

Where any of the laboratory results exceeded the screening values considered these results have been highlighted in red. Values highlighted in **plain red** have exceeded the RISC Screening Levels for a Tier 1 assessment. Values faded out are below the detection level for the analysis whilst screening levels faded out have not been exceeded.

RISC 5 Tier 1 is a general, conservative risk-based assessment. These assessments use conservative human health risk-based screening values for soil and water which have been calculated using accepted US EPA algorithms, toxicological data and exposure and point of receptor assumptions based on empirically derived data.

The laboratory result transcripts can be found in the **APPENDIX B** below.

**Table 3: Groundwater Analytical Results (mg/l)**

| Determinant                       | TCMW1<br>at 13.21 m bgl | TCMW2<br>at 13.29 m bgl | TCMW3 | Commercial Land-Use                      |                                           |
|-----------------------------------|-------------------------|-------------------------|-------|------------------------------------------|-------------------------------------------|
|                                   |                         |                         |       | Inhalation of<br>Indoor Air <sup>1</sup> | Inhalation of<br>Outdoor Air <sup>1</sup> |
| VOC-PID (ppm)                     | < 1                     | 0                       | Dry   | NVD                                      | NVD                                       |
| Methyl tert-Butyl<br>Ether (MTBE) | <0.005                  | <0.005                  |       | 2 418.946                                | >Sol                                      |
| Tert-amyl Methyl<br>Ether (TAME)  | <0.005                  | <0.005                  |       | NVD                                      | NVD                                       |
| Benzene                           | <0.0004                 | <0.0004                 |       | 0.066                                    | 26.265                                    |
| Toluene                           | <0.001                  | <0.001                  |       | 27.685                                   | >Sol                                      |
| Ethylbenzene                      | <0.0004                 | <0.0004                 |       | 72.406                                   | >Sol                                      |
| m+p-Xylene                        | <0.0008                 | <0.0008                 |       | 8.147                                    | >Sol                                      |
| o-Xylene                          |                         |                         |       |                                          |                                           |
| Trimethylbenzene,<br>1,2,4-       | <0.0004                 | <0.0004                 |       | NVD                                      | NVD                                       |
| Trimethylbenzene,<br>1,3,5-       | <0.0004                 | <0.0004                 |       | NVD                                      | NVD                                       |
| Naphthalene                       | <0.0004                 | <0.0004                 |       | 2.993                                    | >Sol                                      |
| <b>TPH GRO</b>                    |                         |                         |       |                                          |                                           |
| C7 – C9                           | <0.010                  | <0.010                  |       | NVD                                      | NVD                                       |

## 8. FINDING & COMMENTS

1. A total of three monitoring wells were installed at the site by percussion drilling between 30/06/23 and 03/07/2023 to 15 m below ground level, after which each of the wells was developed and headworks installed.
2. During the drilling installation of the wells, soil samples were obtained at 1m intervals and screened for Volatile Organic Compounds (VOCs) in field using a certified and calibrated Photo Ionisation Detector (PID). Detectable levels of hydrocarbons were found through most of drill chip samples recovered from THMW1 and THMW2 monitoring wells. The values were very low and with a maximum value of 1 ppm, that latter in THMW1 at 1m depth. These detectable levels could however indicate that historically there has been a diesel product loss or losses at the site and possibly an overfill or series of overfills maybe the source.
3. The monitoring wells were left to stabilise and were subsequently inspected, dipped, and sampled on the 08/07/2023. Monitoring well THMW3 was noted to be dry.
4. The average static groundwater level on 08/07/2023 was 13.25 m bgl and which will show seasonal groundwater fluctuations in level.
5. PID headspace screening values for the groundwater in the monitoring wells registered < 1 ppm in THMW1 and 0 in THMW2.

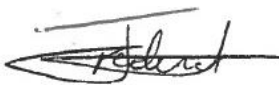
6. One groundwater sample was recovered per well and the laboratory results indicated none detect levels for all additives and BTEXN compounds analysed for in both samples.
7. In terms of the TPH banding analysis results, the C<sub>7</sub> – C<sub>9</sub>, C<sub>10</sub> – C<sub>14</sub> and C<sub>15</sub>– C<sub>36</sub> carbon group ranges indicated nondetectable levels in all groundwater samples analysed.
8. In terms of assessing the risk associated with the groundwater, the risk scenarios considered for the site were for the inhalation of indoor and outdoor air from a groundwater source in a commercial land-use environment, which indicated the following:
  - a. The RISC Tier 1 screening levels for the risk scenarios considered for the site were not exceeded.
9. Based on the risk scenarios considered for the site, the fieldwork carried out and laboratory results received, there is a no potential risk currently defined to on-site receptors from a groundwater source and no remedial actions are required.

## 9. RECOMMENDATIONS

Based on the work completed at the site and the current assessment findings, the following is recommended:

1. Annual sampling of the groundwater from the monitoring wells should be carried out so that any potential subsurface impacts associated with the fuel storage facility can be determined, and actions taken as required based on the findings.

We trust that this summary report contains sufficient information. Should you have any further questions please contact the author.

|                                                                                                                                                                                      |                                                                                                                                                                                             |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Report compiled by:</b><br><br>Jody Fredericks<br>BSc. Hons<br>(Environmental & Water Science) | <b>Report reviewed by:</b><br><br>Adrian Sillito<br><i>Pr. Sci.Nat Registration Number</i><br>400046/93 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## SILLITO ENVIRONMENTAL CONSULTING

[https://sillito.sharepoint.com/jobs/SEC Jobs/E21102/Outputs/Drilling & Sampling Reports/Gauteng/2023/Gyro Telkom The Hub Monitoring Well Installation & Groundwater Assessment Report - July 2023.docx](https://sillito.sharepoint.com/jobs/SEC%20Jobs/E21102/Outputs/Drilling%20and%20Sampling%20Reports/Gauteng/2023/Gyro%20Telkom%20The%20Hub%20Monitoring%20Well%20Installation%20and%20Groundwater%20Assessment%20Report%20-%20July%202023.docx)

# **APPENDIX A: SITE PHOTOGRAPHS**



**Photograph 1:** Drilling in progress at the site.



**Photograph 2:** General view of the drill rig during drilling.



**Photograph 3:** Completed monitoring wells and headworks.



**Photograph 4:** Completed monitoring well and headworks.

# **APPENDIX B: LABORATORY CERTIFICATES**