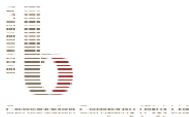



|   |                                  |   |
|---|----------------------------------|---|
| <br>Bombela Concession Company (Pty) Ltd | Gautrain Rapid Rail Link Project | <br>ILISO consulting |
|   | Bombela Concession Company       |   |

#### 4. FINAL WATER USES

This section summarises the final water uses associated with the final route and alignment of the Gautrain. The final schedule for water uses is attached in **Appendix E** and includes all the drainage channels, culverts, drains etc.

##### 4.1 21 (A) ABSTRACTION

The abstraction of water from various different surface water sources at different stages of the project is authorised in terms of the existing WUL until December 2012. Raw water will be abstracted from abstraction points on the Modderfontein Spruit and Hennops River (**Figure 4-1**). The abstraction is of a temporary nature and only associated with construction activities which will cease at the end of August 2012. The water abstracted will be used for dust suppression and rehabilitation and maintenance activities as may be necessary.

**Table 4-1: Abstraction water uses**

| Chainage | Licence Application reference | Water Source         | Volume (m <sup>3</sup> /day) | X      | Y        | Brief method statement                         |
|----------|-------------------------------|----------------------|------------------------------|--------|----------|--|
| 301+200  | WTP 7                         | Modderfontein Spruit | 600                          | -87978 | -2883425 | Pumped by 150 mm hose into 18 kℓ water tankers |
| 414+816  | WTP11                         | Hennops River        | 600                          | -80758 | -2861868 | Pumped into 18 kℓ tankers.                     |

Subsequently abstraction has stopped at Modderfontein Spruit near Founders Hill Township, Swart Spruit, Jukskei at Viaduct 11, Jukskei at the Depot, Rietspruit near Viaduct 4, Jukskei near Viaduct 2, Apies, Apies near Viaduct 7, Walker Spruit and Centenary Road and will be removed from the new license. No abstraction has taken place or will take place from Modderfontein Dam 1 and 2 and therefore is removed from this application.



**Plate 4-1: Abstraction from the Hennops River**

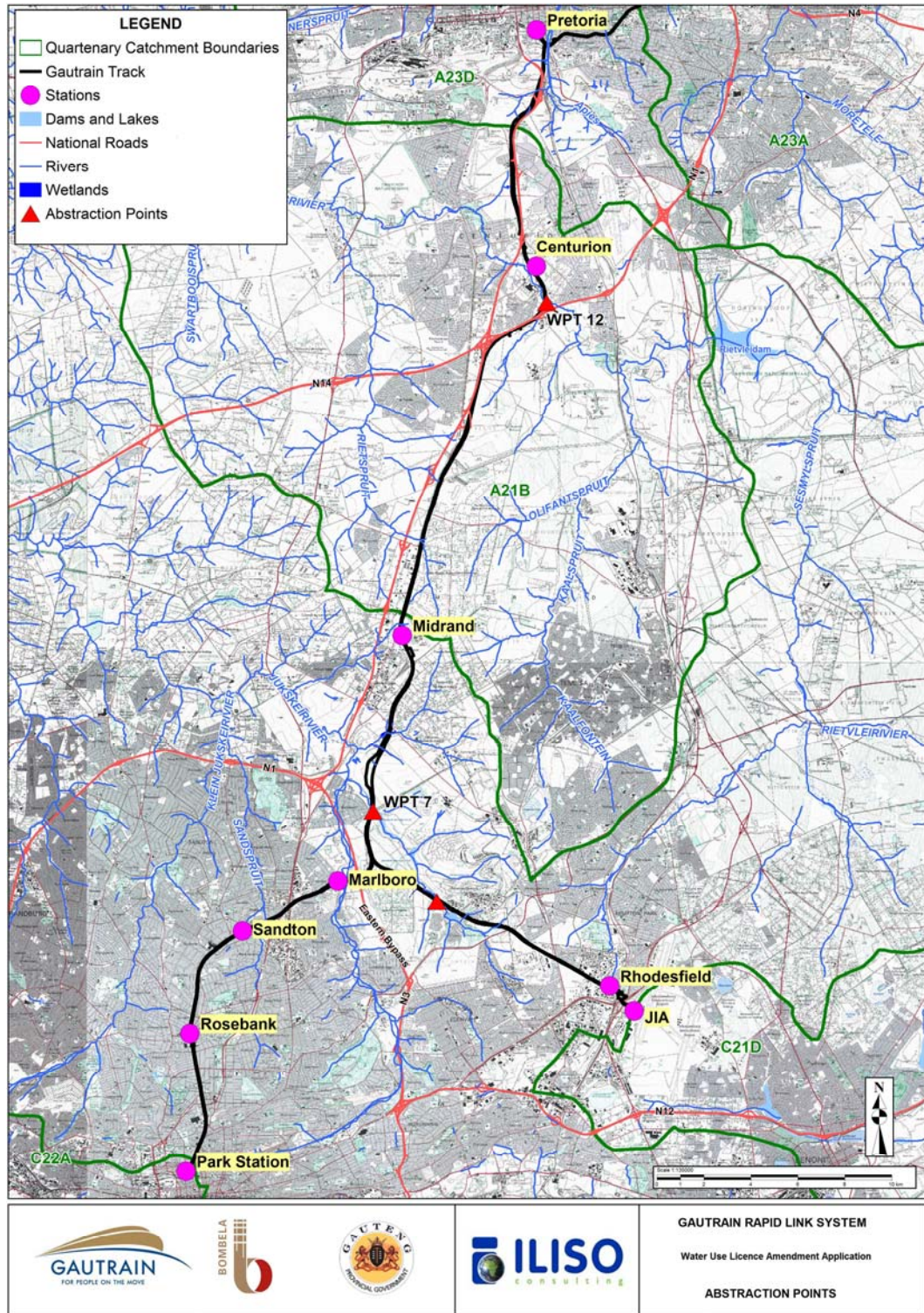
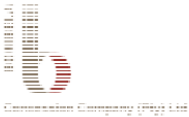



Figure 4-1: Points where water is abstracted from the resource

|   |                                  |   |
|---|----------------------------------|---|
|  | Gautrain Rapid Rail Link Project |  |
|   | Bombela Concession Company       |   |



**4.2 21(C & I) IMPEDING OR DIVERTING THE FLOW OF WATER IN A WATER COURSE AND ALTERING THE BED, BANKS COURSE OR CHARACTERISTICS OF A WATER COURSE**

**4.2.1 River Crossings**

**Table 4-2** summarises the permanent river crossings, location of the viaducts, Magisterial District and the Regional Service Authority of the permanent structures.

The river crossings are via bridges that span the entire width of the watercourse and were designed not to obstruct the flow. In some cases a pier was constructed in the river bed and required access to this section. These activities constitute a water use and require an authorisation from the Department of Water Affairs.

River crossings 1 – 10 are authorised in the existing WUL, while Culvert 8, Viaduct 15, Culvert 10, Culvert 11, Jean Avenue Culvert, Nelmapius Culvert and the Louwlandia stormwater channel crossing are new water uses that are included in this report. The river crossings are depicted in **Figure 4-2** and the detailed design reports are included in **Appendix G**.

|   |   |   |
|---|---|---|
|  | <b>Gautrain Rapid Rail Link Project</b> |  |
|   | <b>Bombela Concession Company</b>       |   |

**Table 4-2: River crossings**

| Water Use Activity   | Location   | River catchment                | Magisterial District | Regional Services Authority                    | Status    | X      | Y        |
|--|--|--------------------------------|----------------------|--|-----------|--------|----------|
| <b>Centenary Way Road</b> with one major and other various culverts  | Centenary Road just south of the alignment                                 | Modderfontein                  | Ekurhuleni           | Ekurhuleni Metropolitan Municipality           | Permanent | -82988 | -2888378 |
| <b>River crossing 1:</b><br>Near Centenary Way Road at <b>Viaduct 13</b> (Modderfontein Spruit)                                      | Crossing between piers 2 and 3 of Viaduct 13                               | Modderfontein Spruit           | Ekurhuleni           | Ekurhuleni Metropolitan Municipality           | Permanent | -82657 | -2888325 |
| <b>River crossing 2:</b><br><b>Viaduct 11</b> (Jukskei River - Marlboro)   | Crossing between piers 2 and 3 of Viaduct 11, just before Marlboro Station | Tributary of the Jukskei River | Sandton              | City of Johannesburg Metropolitan Municipality | Permanent | -89177 | -2886448 |
| <b>River crossing 3:</b><br><b>Viaduct 1</b> (Jukskei River - Marlboro)  | Crossing between piers 1 and 2 of Viaduct 1, just before Marlboro Station  | Jukskei River                  | Sandton              | City of Johannesburg Metropolitan Municipality | Permanent | -89119 | -2886439 |
| <b>River crossing 4:</b><br><b>Viaduct 2</b> (chainage 301200) (Modderfontein Spruit).<br>Service road running adjacent to Viaduct 2 | Near Conservation Area, Modderfontein.                                     | Modderfontein Spruit           | Modderfontein        | City of Johannesburg Metropolitan Municipality | Permanent | -88007 | -2883382 |
| <b>River crossing 6:</b><br><b>Viaduct 4</b> (Rietspruit - Teasers)  | Between Old Pretoria Main Road and Olifantsfontein Road, Midrand.          | Riet Spruit                    | Midrand              | City of Johannesburg Metropolitan Municipality | Permanent | -85984 | -2872053 |