

3 Project Description

3.1 Introduction

The project design information in this chapter reflects the information available at the time of the compilation of the Scoping Report. However, since the detailed design and EIA are being undertaken concurrently, it is possible that the project description will evolve and be refined during the final stages of the EIA process.

3.2 Background to the Project

Sedex Minerals proposed to develop the Zandkopsdrift Rare Earth Element mine on the remainder of the Farm Zandkopsdrift 537, and portion 2 of the Farm Zandkopsdrift 537, in the Northern Cape Province (See Figure 1-1). The development of the mine is subject to a separate EIA process, being conducted by Africa Geo-Environmental Services Gauteng (Pty) Ltd (AGES) (NCDENC Ref: NC/EIA/NAM/KAM/ZAN/2012).

Due to the shortage of water resources in the area, a seawater desalination plant is proposed at Volwaterbaai on the Farm Strandfontein 559, Namaqualand to supply water to the mine. Sedex Desalination, a subsidiary of Sedex Minerals, was established specifically to develop a desalination plant for this purpose. The water will be pumped via pipeline from the desalination plant to the mine, with a reservoir located at Kotzesrus. An access/maintenance road and power lines will also be established between the mine and the desalination plant.

The current design of the desalination plant and associated infrastructure is for the provision of 5.5Ml/day (2.0 Mm³/a). However, allowance has been made for future upgrades to supply up to 4.0 Mm³/a. The EIA assumes this higher capacity, for which application is being made.

3.3 Description of the Project Area

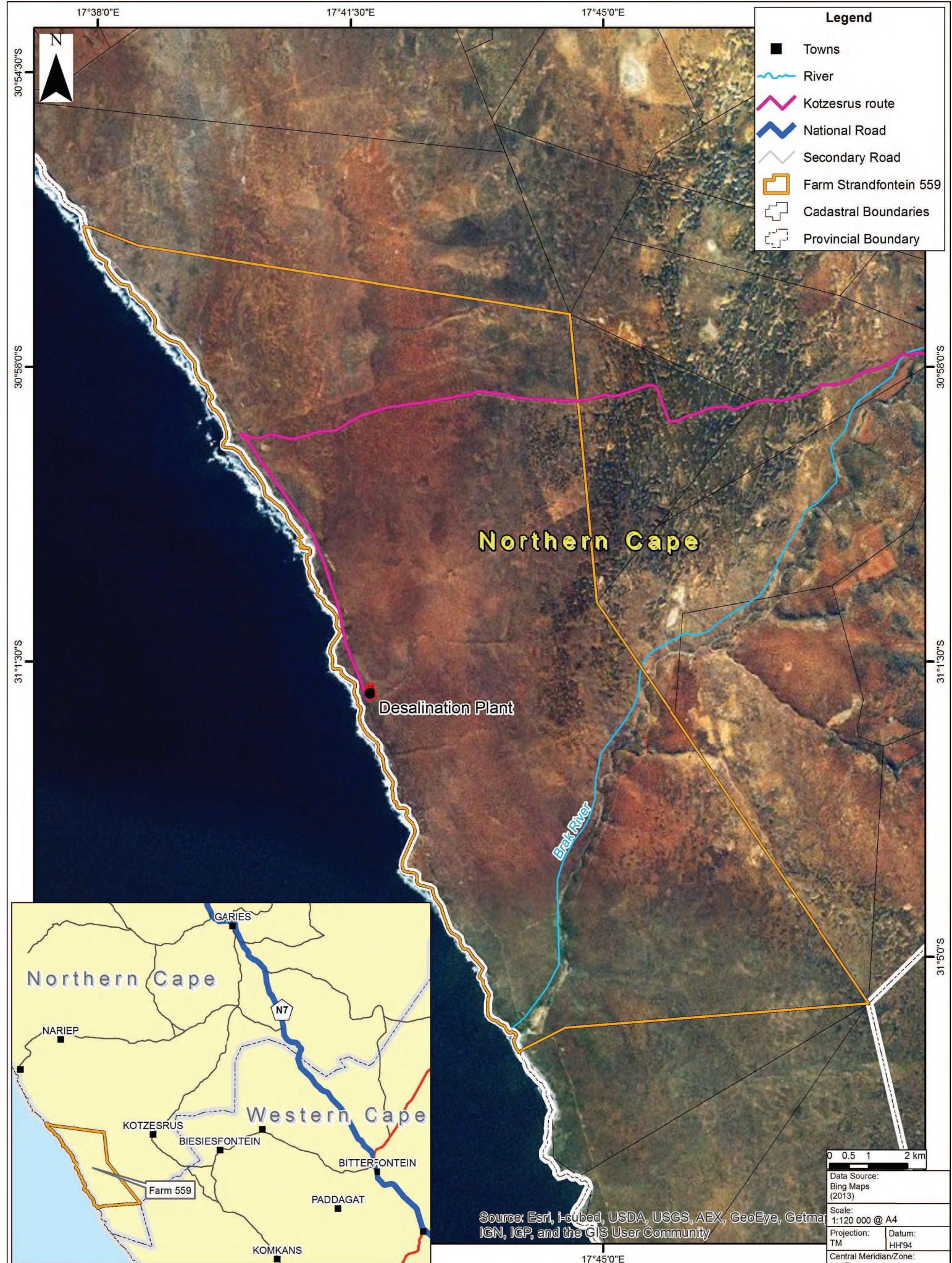
3.3.1 Site Description

The site for the desalination plant and associated infrastructure is located in Namaqualand, which stretches along the west coast of the Northern Cape and further inland. The area is known for its unique, isolated arid environment.

The proposed desalination plant will be constructed at Volwaterbaai on the Farm Strandfontein 559, located on the west coast of the Northern Cape Province approximately 55km southwest of Bitterfontein (in the Western Cape Province); approximately 15km west of the town of Kotzesrus and approximately 29km southwest of Garies (both in the Northern Cape Province) (see Figure 3-1).

Farm Strandfontein 559 is owned by Sedex Minerals and measures approximately 12 259 ha and is zoned for Agriculture. It is proposed that the small portion(s) of the property that will be required for the desalination plant will be rezoned and subdivided from the remainder of the Farm, with the possibility to sell the unutilised portions in future.

TransHex have diamond prospecting rights on the property although no mining activities are currently taking place. Forest Oil proposes to construct gas infrastructure on the property, including the construction of a desalination plant (to be established on the northern portion of the Farm), although no construction has commenced on the property. Farm Strandfontein 559 contains relatively pristine indigenous coastal vegetation that is used for grazing purposes on an intermittent basis by a farmer in the area.



VOLWATERBAAI DESALINATION PLANT AND ASSOCIATED INFRASTRUCTURE, NORTHERN CAPE
LOCATION OF DESALINATION PLANT ON FARM STRANDFONTEIN 559

The desalination plant will be located approximately 6km north of the Brak River on a typical stretch of the Namaqualand coastline, comprising rocky coastal outcrops interspersed with sandy beaches. From the desalination plant, water supply pipelines, overhead power lines and an access road servicing the plant (hereafter linear infrastructure or linear routes) will be routed along what is currently a combination of 4 x 4 tracks and dirt roads to the Zandkopsdrift Mine, a distance of approximately 42km.

The various sections of the proposed linear route between the desalination plant and the Zandkopsdrift Mine are illustrated in Figure 3-2 and Figure 3-3. The direct route between the desalination plant and the Zandkopsdrift Mine (the *Kotzesrus Route*) will:

- Follow (and be restricted to) an existing coastal dirt road in a north-westerly direction for approximately 6.5km;
- Turn to the east on a 4 x 4 track traversing Farm Strandfontein 559 and follow mostly existing 4 x 4 tracks towards Kotzesrus for approximately 17.5km through areas of natural vegetation (including sensitive Sand Fynbos vegetation) and farmland that is used mostly for grazing;
- Follow (and be restricted to) the existing gravel road between Kotzesrus and Garies, passing through agricultural (grazing) land for approximately 13km;
- Turn to the east, following an existing route for approximately 5km towards the Zandkopsdrift Mine for approximately 5km.

Two alternative routes (The *Bypass Route* and the *Alternative Bypass Route*) have been identified to bypass the town of Kotzesrus (see Section 3.5.3). These routes follow existing tracks and previously undisturbed areas over privately owned farmlands, and have been determined in consultation with the relevant property owners.

The proposed infrastructure alignment routes may also cross existing services such as water and sewer mains, telecommunications and power cables, gas and oil pipelines, other existing roads and rail infrastructure. Eskom is currently planning a 400kVA line which may cross portions of the potential route alignments in the vicinity of Kotzesrus.

3.3.2 Surrounding Land Use

The project area is typical of the sparsely inhabited Namaqualand region and the desalination plant is in a remote location. The area surrounding the desalination plant and the linear infrastructure is mostly used for agricultural purposes. Livestock (sheep) grazing is the dominant form of agricultural activity in the area. Dryland crop farming occurs closer to the Zandkopsdrift Mine. Kelp is harvested commercially along the coast.

Although there are few commercial activities in the vicinity of Kotzesrus, a small shop (the Kotzesrus Cash Store) is located in the centre of the town, mainly serving the local residents, tourists and residents of Lepelsfontein.

The properties in the vicinity of the project area (particularly those around Kotzesrus) are largely privately owned and zoned for Agriculture. Properties that may be affected by the development are shown in Figure 3-3. Property owners in control of the land in which the project infrastructure will be located are listed in Table 3-1 and an indication of the potential elements of the project that affect individual properties is provided.



Coastal gravel road leading towards desalination plant



Namaqualand Coastal vegetation on Farm Strandfontein 559



Existing 4 x 4 tracks on Farm Strandfontein 559



Sensitive Sand Fynbos vegetation en route towards Kotzesrus



Approach to town of Kotzesrus from desalination plant



Existing gravel road between Kotzesrus and Zandkopsdrift Mine



Figure 3-2: Views of the Project Area and Existing Roads

Project No.
451101

Source: SRK

Table 3-1: Affected Properties and Property Owners

Erf / Farm Number	Property owner	Relevant project elements
Farm Strandfontein 559 (RE/559)	Sedex Minerals (Pty) Ltd	Kotzesrus route and desalination plant
Riet Veldt 558 (RE/558)	de Beers Consolidated Mines Ltd	Kotzesrus route
Remainder of Farm Nuwe Begin 641 (RE/641)	Mr Fanie Nel Mrs Tilma Nel	All routes
Portion 1 of Nuwe Begin 641 (1/641)	Mr Tielman Nieuwoudt	Kotzesrus route
Portion 1 of Brakfontein 555 (Nieuwefontein)	Mr Isak Abraham Nieuwoudt	Bypass route, alternative bypass route, and (possibly) reservoirs and associated infrastructure at Kotzesrus
Welgemeend Portion 2 of Varsfontein 554 (Consolidated) (2/554)	Mr AJ Cornelissen	Bypass route, alternative bypass route, (possibly) reservoirs and associated infrastructure at Kotzesrus
Portion of Hendriksvlei, Portion 1 and Remainder of Brakfontein 551 (RE/551), Portion 5 of Klipheuwel, Remainder of Varsfontein 554 (RE/554)	Mr CA Louw	Bypass route, alternative bypass route and associated infrastructure at Kotzesrus
Portion 6 which is a Portion of Portion 5 Hendriksvlei	Buchuberg Exploration and Farming (Mr An Cornelissen)	Bypass route, Alternative bypass route
Portion 2 of Zandkopsdrift 537 (2/537)	Sedex Minerals (Pty) Ltd	Kotzesrus route and Zandkopsdrift Mine

A number of small settlements are located in the vicinity of the project area. These include:

- Kotzesrus (~15 km northwest of the proposed desalination plant);
- Lepelsfontein (~13 km southeast of the proposed desalination plant and ~10 km south of Kotzesrus);
- Stofkraal, Rietpoort and Molsvlei (in the vicinity of the Zandkopsdrift Mine); and
- Garies (~35 km northwest of the Zandkopsdrift Mine).

Kotzesrus lies approximately halfway between the Zandkopsdrift Mine and the proposed desalination plant on Farm Strandfontein 559 (see Figure 1-1) and would be most directly affected by the linear infrastructure. The major towns in the vicinity of the project area are briefly described below.

Garies

Garies is the administrative centre of the KLM. The town is located along the N7 and offers essential services to the smaller towns in the surrounding area. It has a library, town hall, clinic, high school and a police station.

Kotzesrus

Kotzesrus consists of a number of farms radiating from a water source on the Brak River, with farmsteads located at the apex of each property (near the Brak River) to form the small town (village) of Kotzesrus.

There are a limited number of structures in the village, including a shop and disused school and church buildings. The village has a very small number of permanent residents (no more than 20) and no water or electrical services are provided by the KLM.

Tourists are attracted to the town for its unique characteristics and secluded nature, especially during the Namaqualand flowering season (August–September) and the summer holiday period (December to February).