

Nature of Impact			Impact Assessment Ranking and Proposed Mitigation		
No.	Aspect	Impact	Environmental Significance (without Mitigation)	Proposed Mitigation (i.e. Proposed mitigation to reverse/ avoid, manage or mitigate identified impacts associated with construction, operation, and decommissioning/ closure phases)	Environmental Significance (After Mitigation)
<p>Alternative Layout (Alternatives 1 and 2) - impacts and significance (with and without mitigation) remain the same as impacts identified for the preferred layout except for impacts listed below. Please note that only alternative layouts were considered for this application and not any site alternatives (please see Section 2).</p>					
CONSTRUCTION PHASE					
1	Watercourse	<p>Sedimentation of drainage line due to the uncontrolled stormwater runoff naturally flowing towards the drainage line.</p> <p>This layout will involve situating households closer to/ within the section of the drainage line (located in close proximity to, as well as within the development footprint). Therefore, the proposed development (and operation phase) is more likely to impact the drainage line.</p>	-8	<p>The irrigation canal was constructed underneath the drainage line where stormwater flows within the drainage line. The stormwater will flow across the dirt road and into a cut-off trench, subsequently flowing into a concrete gully and then the Orange River. Therefore, the sedimentation of the drainage line must be mitigated. The following mitigation measures must be implemented:</p> <ul style="list-style-type: none"> - Construction only during the dry season, - Limit the footprint, - Vegetate disturbed areas. - All construction activities, within close proximity to the drainage line, must be carried out with extreme caution; - All construction activities, within close proximity to the drainage line, must be carried out with extreme caution; - Applicable erosion mitigation measures must be implemented¹; - The proposed access road must be strictly adhered to. No ad hoc roads are permitted; - Excluding the proposed access road, the associated drainage line must be demarcated as a “no-go” zone; - No storage of materials, including stockpiling of any material, is permitted within 32m of the drainage line or irrigation canal; - Any soil which has been exposed due to construction activities must be rehabilitated to prevent erosion; - Vegetation must be cleared in phases (i.e. where construction activities are to be conducted) to reduce the extent of soil susceptible to erosion at any point in time; 	-5

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				<ul style="list-style-type: none"> - Temporary stormwater measures, such as the use of temporary berms, with silt traps (e.g. shade netting) to prevent stormwater runoff flowing into the drainage line, should be implemented to ensure that material does not wash into the drainage line during construction; - Once areas of exposed soil have been adequately shaped, these areas must be rehabilitated with vegetation characteristic of the Lower Gareip Alluvial (EN) or Bushman Arid Grassland vegetation type (see Figure 10 in DBAR). Any implemented erosion mitigation measures can only be removed once vegetation has established; - Stormwater runoff from any platforms must be diverted away from the drainage line. If no formalized stormwater network exists, water should be directed to a temporary detention pond to reduce the sedimentation of stormwater networks on site; - The contractor must check the site for erosion after each rainfall event and rectify any areas eroded/ susceptible to erosion. 	
4		<p>Contamination of drainage line and irrigation canal due to inappropriate dumping of waste, storage and use of hazardous materials/ substances.</p> <p>This layout will involve situating households closer to/ within the</p>	-9	<p>As per the Engineer's Services Report, all existing households within the Gariep Settlement are serviced by Ventilated Improved Pit (VIP) toilets as no bulk sewer infrastructure is present. The construction of a full-borne sewerage system is recommended.</p> <p>The following mitigation measures must be implemented:</p> <ul style="list-style-type: none"> - Construction only during the dry season, - Limit the footprint, - Vegetate disturbed areas. 	-4

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		<p>section of the drainage line (located in close proximity to, as well as within the development footprint). Therefore, the proposed development (and operation phase) is more likely to impact the drainage line.</p>		<ul style="list-style-type: none"> - All construction activities, within close proximity to the drainage line, must be carried out with extreme caution; - Adequate waste disposal must be implemented on site. - All hazardous materials and substances must be stored within a secured (i.e. lockable), undercover area with a hardened surface; - Any spillage must be immediately cleaned. Contaminated soil must be collected, stored, and disposed of at a registered, hazardous disposal facility. A disposal receipt is required as proof of safe disposal. A complete spill kit is required; - The use of hazardous materials and substances, such as cement mixing, must be conducted on hardened surfaces (such as batching boards or concrete) protected from stormwater runoff; - Used oil must be collected, securely stored and disposed of by a registered used-oil contractor. The collection and disposal of used oil must be recorded and proof of disposal (i.e. disposal receipt) must be obtained and kept on site; - The construction site camp must be located at least 50m away from the watercourse; - Vehicle washing and maintenance areas must be demarcated. - All waste, generated, must be collected, stored, and disposed of at the relevant (general or hazardous) waste disposal facility; - MSDS of all hazardous materials must be kept on site. <p>As per the Botanical Assessment (Appendix D1), the Municipality must ensure that adequate waste and sewerage facilities and or services are established to service this community.</p>	

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5	Waste	<p>Insufficient number of toilets and / or inappropriate disposal of sewage generated during the construction phase.</p> <p>This layout will involve situating households closer to/ within the section of the drainage line (located in close proximity to, as well as within the development footprint). Therefore, the proposed development (and operation phase) is more likely to impact the drainage line.</p>	-8	<p>The increase in construction personnel during the construction phase will require an appropriate number of toilet facilities for the site. This impact can be fully mitigated.</p> <ul style="list-style-type: none"> - Appropriate and sufficient toilet facilities (1 toilet per 15 employees) must be provided by the contractor; - All toilet facilities must be checked on a daily basis; - All toilet facilities must be emptied and cleaned on a weekly basis or as agreed (in writing) with the ECO and DENC. - A registered waste removal company must remove sewage waste from the site or be disposed of at a permitted WWTW. - Toilet waste receipts must be obtained, and kept on site, for proof of safe disposal. 	-5
6	Waste	<p>Temporary increase in waste and litter contaminating the receiving environment (including the Gariep Canal)</p> <p>This layout will involve situating households closer to/ within the section of the drainage</p>	-6	<p>The construction phase of the project will see an increase in construction staff on site and therefore an increase in waste.</p> <ul style="list-style-type: none"> - Littering will not be permitted on site; - A designated waste storage area must be established at the construction site camp. Appropriate waste receptacles must be set up at intervals along any pipeline routes and emptied into the main waste storage area at the end of each day; - Waste must be removed from site and disposed of at a registered waste disposal site; 	-3

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		line (located in close proximity to, as well as within the development footprint). Therefore, the proposed development (and operation phase) is more likely to impact the drainage line.		- Safe disposal slips for the disposal of all waste must be obtained and kept on site as proof of safe disposal.	
DECOMMISSIONING AND CLOSURE PHASE					
29	Waste	Demolition of infrastructure resulting in waste accumulation on-site and surrounding area. This layout will involve situating households closer to/ within the section of the drainage line (located in close proximity to, as well as within the development footprint). Therefore, the proposed development (and operation phase) is more likely to impact the drainage line.	-7	The following mitigation measures must be implemented: - All infrastructure which has been demolished must be consolidated, removed, and disposed of at a registered disposal facility. Waste receipts are required as proof of safe disposal; - The burying and/or burning of waste is strictly prohibited.	-3

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30	Soil and water sources	Exposed soil becoming prone to erosion resulting in the sedimentation of the drainage line. This layout will involve situating households closer to/ within the section of the drainage line (located in close proximity to, as well as within the development footprint). Therefore, the proposed development (and operation phase) is more likely to impact the drainage line.	-8	The following mitigation measures must be implemented: - Previously transformed areas must be ripped and subsequently rehabilitated with indigenous vegetation characteristic of the Lower Gareip Alluvial (EN) and Bushman Arid Grassland (LT). Previously implemented erosion mitigation measures must remain in place.	-4