




PROPOSED TOWNSHIP DEVELOPMENT, PLOT 1890, REMAINDER OF FARM 144 AND REMAINDER OF FARM 142, BOEGOEBERG, !KHEIS LOCAL MUNICIPALITY

APPLICANT: !Kheis Local Municipality

COMMENT AND RESPONSE REPORT

(DENC Ref. No: **TBC**)

No.	Comment Date, Comment Format, Organisation/I&AP	Comment	Response from EAP/Applicant/Specialist/Project Manager <i>Please note: All registered I&APs will be given the opportunity to comment on the draft EIR.</i>
1	<p>Date: 17/06/2020 Format: Email Letter I&AP: Gariiep Watch (Chairman: Mr Ferdie Botha/ Technical Advisor: Mr Fritz Bekker)</p>	<p>Gariiep Watch is a civic society organisation that endeavours to protect the lower Orange River through effective monitoring and data collection, improved communication by role-players and the enhancement of public participation.</p> <p>We noted your abovementioned NEMA Public Participation Process (Ref. 0512) for a new township development at Topline, with much concern.</p> <p>Gariiep Watch performs quarterly water quality studies and a risk assessment procedure at various localities in the lower Orange River including the river reach flowing through the !Kheis Local Municipalities jurisdiction. Our water quality results show that a number of point and diffuse sources of sewerage pollution may be affecting the surface and ground water resources in the vicinity of these townships and beyond. Furthermore, recent site visits to sewerage water infrastructure at these !Kheis townships showed that much of the sewerage water infrastructure is not being maintained or used for it intended purpose. Pump stations to the oxidation dam systems are not working, sewerage infrastructure is being vandalized, oxidation dam linings are damaged or removed and raw sewerage is being disposed into the veld or towards dry water courses.</p>	<p>Respondent: EAP</p> <p>Noted. Thanks for your comment.</p> <p>Respondent: EAP</p> <p>Noted, issues relating to the water quality and sewage infrastructure will be addressed in the Environmental Impact Report (EIR). A Freshwater Assessment, and Engineering Report detailing services infrastructure, will be included in the EIR.</p>

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		<p>The photographs in Figure 1 show some of the oxidation dam systems encountered at !Kheis Local Municipality during 2019.</p>  <p>Figure 1: Oxidation dam systems at !Kheis Local Municipality (2019)</p> <p>The extension of existing townships that already have inadequate, unmaintained or unused sewerage infrastructure will only aggravate their pollution risk towards the downstream environment.</p> <p>We therefore object to any new township development in the !Kheis Local Municipality and request the following information:</p> <ol style="list-style-type: none"> 1. A list of all new proposed township developments in the !Kheis Local Municipality where EnviroAfrica CC is the appointed environmental practitioner. 2. Details pertaining to new sewerage infrastructure that are planned for these developments. <p>Please also register Gariep Watch as an I&AP for these new township developments.</p>	<p>1. <i>Requested information has been sent to the I&AP.</i></p> <p>2. <i>Noted, this will be addressed in the EIR. An Engineering Report detailing services infrastructure, will be included in the EIR.</i></p> <p><i>Noted, Gariep Watch has been registered as an I&AP.</i></p>

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2	Date: 19 th May 2020 Format: Email Letter I&AP: Kobus Buys (KYTO Operations)	1. Herewith our registration as I&AP to abovementioned. 2. Information of our company as follow : Name : KYTO Operations (Abattoir located next to development) Address: Portion 16 of Farm Boegoeberg Settlement no.46 Contact Details: kobus@k2o.co.za or 054-8330041	Respondent: EAP Noted. KYTO Operations have been registered as an I&AP.
3		We Daniel, Friedrich Johan Heese of ID 5804195040084 and Maryna Heese of ID 5910030127083 owners of Lot 586 and 1464, part of Lot 1028 of the Boegoeberg Settlement, would like to register as Interested & Affected Parties regarding the proposed Township Development. We would like to affirm our personal and financial interest in the development. Kindly contact us on the following e-mail addresses: marynaheese@gmail.com and dh58zar@gmail.com . This is our preferred avenue of communication.	Respondent: EAP Noted. You have been registered as an I&AP.
4	Date: 29 th June 2020 Format: Email Letter I&AP: Maryna Heese	As Interested and Affected individuals we like to comment on the new Township referenced above. Your company name allowed me to have hope that behind this new development we might find a group of people that earnestly are interested in developing a sustainable environment. The words in quotation marks come from a study of the use of earth-pipes to cool air. “Rational use of energy and power is a key to the economic development of human society and to achieve sustainable environment.” https://www.sciencedirect.com/science/article/pii/S1876610214032664 Some areas for consideration is cooling and heating of houses in an area known for very hot summers and very cold winters. If the energy exerted in digging trenches for pipes, that will form part of the water reticulation infrastructure can double up for eco-friendly earth cooling and heating systems as explained in the above link, it can be a worthwhile economic model. I am hoping that an overarching management function will form part of the project and that all these elements of development can be co-ordinated, overseen and all opportunities to incorporate cost-effective	Respondent: EAP Noted with thanks. This application for Environmental Authorisation is in line with the National Environmental Management Act (NEMA). Noted. Thank you for your research into the subject. An Engineering Report detailing services infrastructure, will also be included in the EIR.

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		<p>and ecologically sustainable solutions utilized. For example, when the foundations for homes are being dug, the alternative cooling systems installed. Boegoeberg development can become a pilot project for arid community development.</p> <p>Parks, Sport and recreational space, bigger plots and proper roads are some other concerns. I do not have any experience in the above, but do have experience in waterless sanitation options. I have compiled some thoughts, experience from others and links pertaining to waterless sanitation for your consideration.</p> <p>Do forgive me if the sanitation document is far too simplistic or lay-men orientated, but I have no idea who will read this letter and the document.</p> <p>Interested and Affected Individuals, from lot 586/and 1464 that from part of lot 1018, as part of the Boegoeberg Community, one of the closest lots to the new proposed Township.</p> <p>Kind regards Daniel and Maryna Heese</p>	<p>Noted, this will be addressed by the Municipality (Applicant) and/or town planners in the EIR.</p>
5		<p>Regarded members of the Municipality,</p> <p>Re. Toilets</p> <p>I would like to share some thoughts with you regarding the proposed new development.</p> <p>1. TOILETS. We live in a water-scarce country and the water-sources needed to have flush toilets is simply not sustainable in the long run. I have been involved with a KZN NGO in a deep rural area of South-Africa in the Umkhanyakude District. We also have severe water challenges. We in collaboration with Oxfam Australia experimented with alternatives to Flush toilets and Long-Drop Pit latrines. That was my first introduction in waterless technology. We tested two models, one a commercial self-contained unit from Enviro-loo (pictured below) that was costly and a combination of a urine-diversion seat with self-constructed chamber options. I am happy to share our limited experience with you, but highly recommend the far superior functioning model for thousands of people, that can be found with Durban Municipality (eThekwin Municipality).</p>	<p>Respondent: EAP</p> <p>Noted with thanks. The Municipality (Applicant) and/or planners will address service delivery in the EIR. An Engineering Report detailing services infrastructure, will also be included in the EIR.</p>

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		<p>They had been busy with waterless sanitation technology for over 12 years. I have supplied links to websites that explain technically on various levels, the challenges faced with introduction, the success and the research done with various options. So I have pasted both the success and failures and the reason for the failures.</p> <p>2. I will attempt to explain in layman's terms the principle behind different sanitation systems.</p> <ul style="list-style-type: none"> • In pit latrines the urine and faeces are mixed and seepage into the groundwater a reality. Apart from its environmental danger, it is often times not accepted as an option and seen as an insult to a person's humanity. The aspiration of the average person is for a flush toilet as shown in some of the articles in the websites quoted. • Flush toilets in a water-scarce country is not a long term solution in any community and all communities should re-consider the cost of using cleaned water to flush toilets. • Ablution blocks for communal use of facilities is not an option. Most people would not feel safe to walk to a communal ablution at night and I personally feels that dealing with your own bodily waste and household waste makes us responsible humans. • Urine separating systems. An extract from a document <p>The UDDTs provide the following benefits: (1) waterless operation; (2) no odour when correctly used and maintained; (3) treated faecal matter is dry, odourless and less offensive; (4) does not attract flies or other vectors; (5) treated faecal matter is partially sanitised and safer to handle; (6) aboveground design or use of containers in belowground vaults makes emptying simple; (7) minimal risk of contamination of ground and surface water resources; (8) possibility of aboveground design facilitates construction in challenging environments; and (9) possibility of construction in close proximity to or inside of the home adds security and convenience for users (Rieck <i>et al.</i> 2012). https://iwaponline.com/washdev/article/7/1/111/30518/Urine-diversion-dry-toilets-in-eThekwin</p>	

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		<p>URINE SEPERATING TOILETS. This is the system I would like to propose.</p> <p>Separating urine from faeces allows the faeces to dry out completely, killing pathogens (harmful micro-organisms) and make it manageable. The faeces dries like dog poop in the sun and become small and brittle and whitish. Because it is a waterless system, water is used for household and garden growing.</p> <p>There are various methods to separate urine and faeces.</p> <p>1. ENVIRO-LOOS</p> <p>The Enviro loos system allow both urine and faeces to enter the chamber together and then the content falls on a sloped perforated surface...a hard plastic sheet with holes at an angle, that allows the urine to seep through the holes into the bottom enclosed chamber, with a pipe that leads to a urine soak-away pit nearby. The faeces then dries out, needs to be raked to the back of the box from time to time and then the hard dry faeces needs to be collected after a year or more to be disposed of. The challenge with this system is that the holes can block and the angle is not steep enough for the faeces to slide down. They remain wetter longer and there is an extraction fan at the top of the chimney to eliminate most smells.</p> <p>It needs a full sun site, additional power for the extraction fan and people living higher might still get a whiff from the extraction fans, but the biggest deterrent is possibly the cost, it is more expensive. It is the best application for schools and community halls as seen in the photo below. The two glass tops are for the urinals. It is a very good method of coping with the urine. The urine dries into crystals.</p> <p>https://www.greenloo.org/enviro-loo-urinal.php</p> <p>2. URINE SEPERATION TWO CHAMBER SYSTEM</p> <p>a. An attempt is made to separate urine from faeces before the faeces drops down the seat. It is important for the success and acceptance of the systems to buy white high quality urine separation pedestals/seats. As can be seen in the photo below the system can be</p>	

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		<p>incorporated into the bathroom. It is advised to incorporation of a urinal against the wall in the blue bathroom picture as well. The urine can be collected in the same container the seat urine is diverted to.</p> <p>b. Build a two chamber system. Faeces are collected in one chamber until it is full, the seat is then removed and placed over the new empty chamber. The seal of the empty chamber is placed over the full chamber. The full chamber is left like it is until the second chamber is almost full. By now the faeces should be dried out. The dried out faeces is accessed through the sealed back wall and either disposed of or ground up and used as fertilizer in agricultural applications. The municipality can collect and dispose of the dried faeces.</p> <p>c. The selection of the site: It is vital for the optimal drying of the faeces that the back wall of the bathroom unit face North. To increase the absorption of the sun rays the back panel and the chimney should be painted black or be manufactured from hard black plastic. Place a mosquito net above the chimney. The bigger the chimney the greater the up draft and reduced smell.</p> <p>d. The urine can be diverted to a soak away, or a solar evaporation site similar to the environ system or utilized in a diluted form in agriculture. It is important to be aware of the hesitance of local communities to use human waste in any form as part of a greater agricultural system and extensive community awareness activities should accompany such use.</p> <p>e. By placing a bucket of sand, ash or sawdust next to the toilet with a little scoop, visual unpleasantness and smell will be further reduced. In addition, the material like ash or sand can accelerate the drying time.</p> <p>f. Should flies find their way into the system, they would try to get out and the only light will be at the top of the chimney that is sealed with a mosquito net. The flies will then fly up and down the chimney until they die. It is highly unlikely if the seat remains closed.</p> <p>In the image above the toilet stool is a porcelain seat, that can also stand on its own, going straight downward without the u-trap of standard toilet</p>	

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		<p>seats. To the right on the photo is a urinal, for the use of men, with an outlet that joins the urine caught with the separate division in the seat. This photo was sourced from https://en.wikipedia.org/wiki/Urine-diverting_dry_toilet an example from Peru.</p> <p>This is what a urine separation seat can look like. The front chamber catches the urine and the dark blue is where the faeces drops down into the chamber. In this photograph there is a division that is not there. It is a pipe that have straight sides.</p> <p>This is local, South-African manufactured urinals on the market. It is advisable that the pipes should take the shortest route out, but protected from sun and damage.</p> <p>Additional resources: 1. http://www.wrc.org.za/wpcontent/uploads/mdocs/Demonstrating%20New%20Sanitation%20Solutions%20through%20the%20Engineering%20Field%20Testing%20Platform%20in%20eThekweni.pdf This is a very comprehensive study for waterless Sanitation options as done in eThekweni (DURBAN)</p> 2. http://www.susana.org/_resources/documents/default/2-874technology-review-of-uddts-18-june-2013.pdf A comprehensive document filled with options and diagnostic fault finding. 3. https://iwaponline.com/washdev/article/7/1/111/30518/Urinediversion-dry-toilets-in-eThekweni Introduction challenges faced in eThekweni (Durban) 4. http://ccaa.iris.yorku.ca/2011/07/flushing-out-the-realities-of-urine-diversion-toilets-in-south-africa%E2%80%99s-ethekweni-municipality/ 5. https://researchspace.csir.co.za/dspace/handle/10204/839 6. https://www.fsmttoolbox.com/assets/pdf/269_-_Complete.pdf 7. https://www.greenloo.org/enviro-loo-urinal.php	