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TERMS OF REFERENCE FOR AQUATIC BIODIVERSITY IMPACT ASSESSMENT / COMPLIANCE STATEMENT & WATER USE LICENCE APPLICATION

PROPOSED UPGRADE OF THE GWAING WASTEWATER TREATMENT WORKS ON ERF RE/464, GEORGE

1. INTRODUCTION

Sharples Environmental Services cc (SES) has been appointed as the independent Environmental Assessment Practitioner (EAP) to conduct the Environmental Impact Assessment process for the Proposed Upgrade of the Gwaing Wastewater Treatment Works on Erf RE/464 George, Western Cape.

1.1 Location of the property

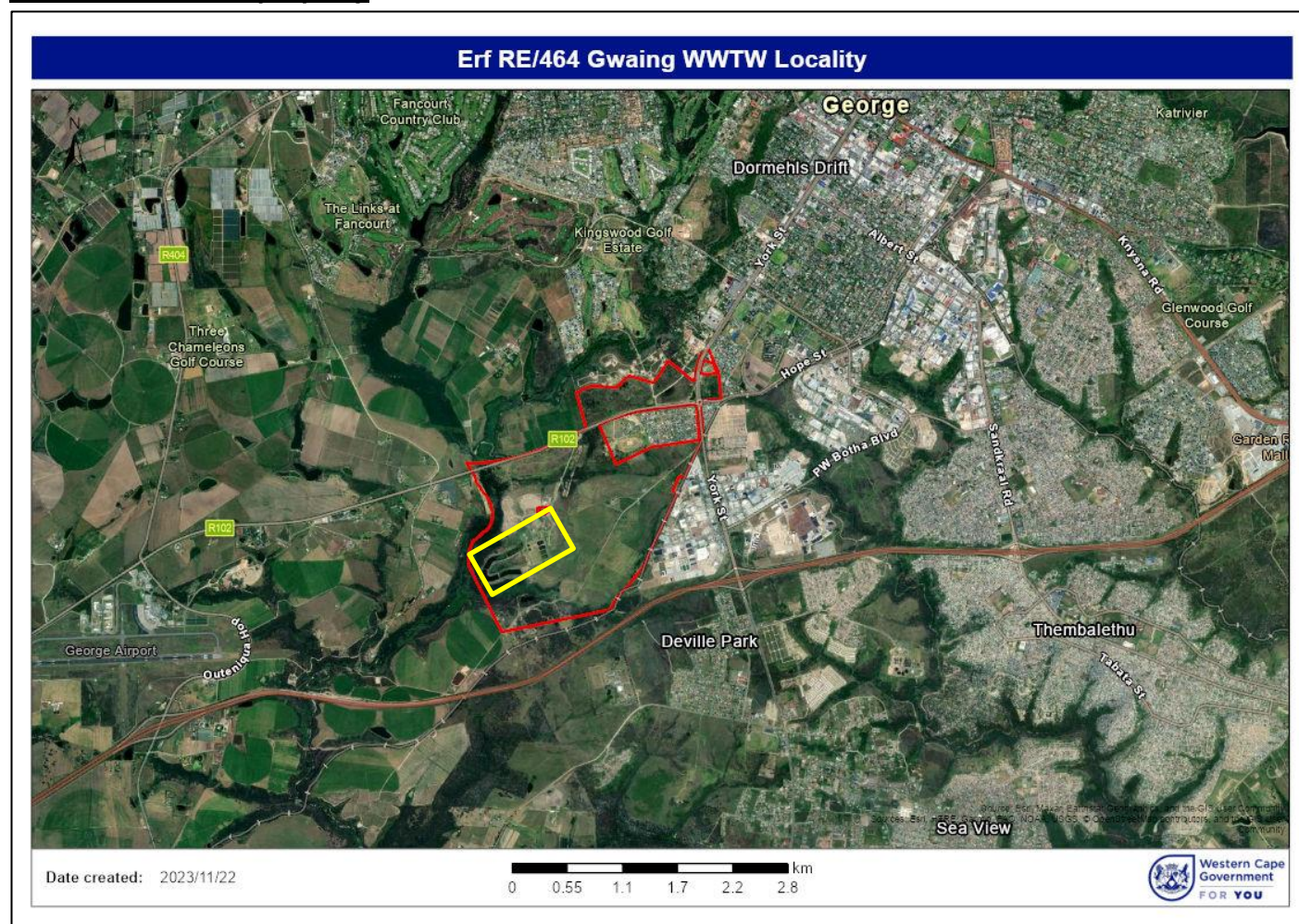


Figure 1: Locality Map of the property.

2. PROJECT DESCRIPTION

Below is a layout drawing depicting the **planned scope in green** hatching for a 33ML/day upgrade. It covers the design and implementation of up to 21ML/day with a Master Planning of ultimate capacity up to 50ML/day.

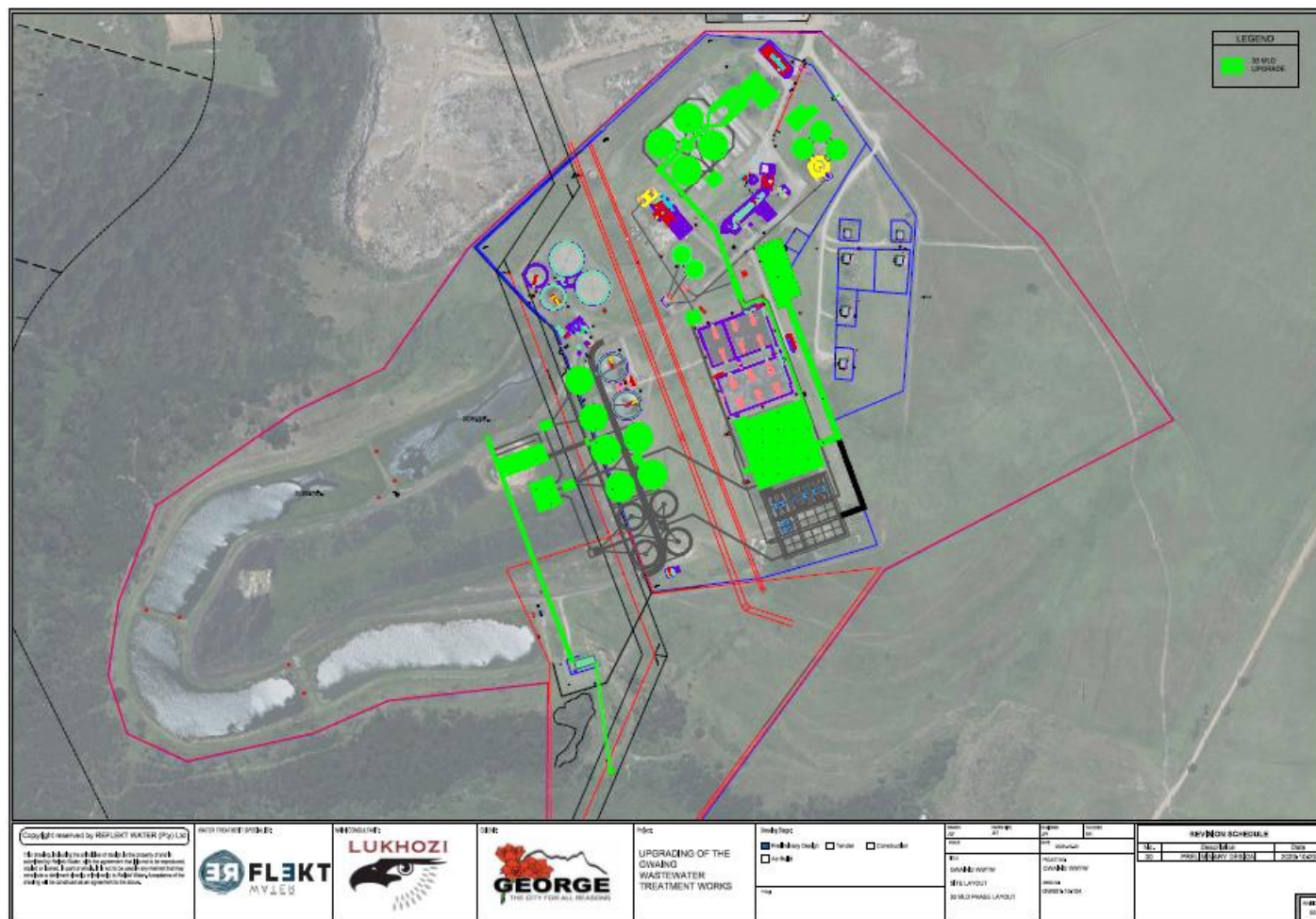


Figure 2: Site Development Plan.

3. SCREENING TOOL REPORT

A screening report was completed on 23 November 2023 and A **“Low”** environmental sensitivity rating was indicated for the Aquatic Biodiversity theme.

As per the procedures for the assessment and minimum criteria for reporting on identified environmental themes (Aquatic Biodiversity) in terms of Sections 24(5)(a) and (h) and 44 of the National Environmental Management Act, 1998, when applying for Environmental Authorisation (March 2020), “where the information gathered from the site sensitivity verification differs from the screening tool designation of “low” aquatic biodiversity sensitivity, and it is found to be of a “very high” sensitivity, an Aquatic Biodiversity Specialist Assessment must be submitted. Therefore, specialist input is required in this regard.

4. SPECIALIST INVOLVEMENT

The purpose of this study is to conduct Aquatic Biodiversity Impact Assessment of the sites to ascertain the status of the aquatic features and assess the potential impact of the proposed development on the aquatic environment. The report should not be limited to this brief. Where the specialist sees the necessity for providing other vital information or investigations, this should be included.

The specialist conducting this study must:

- Be independent and have expertise in conducting similar assessments;
- Have a suitable academic qualification in the aquatic field;
- Be registered with the South African Council for Natural Scientific Professionals (SACNASP);

- Be familiar with the assessment criteria commonly used in the EIA Process to assess and evaluate impacts, as well as the newly promulgated Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes (March 2020);
- Have good knowledge relating to assessment techniques and to relevant legislation, policies and guidelines.
- Perform the work in an objective manner, even if this results in views and findings that are not favourable to the applicant.
- Consider the DEA&DP's Guideline on Involving biodiversity specialists in the EIA process.

4.1 Terms of Reference

The assessment of the proposal will necessitate specialist input which will need to be undertaken with the Terms of Reference listed below and relevant specialist guidelines. In addition to meeting the requirements of the relevant legislation, Aquatic Biodiversity Impact Assessment reports should also meet those of the Guideline for Involving Aquatic Specialists in EIA Processes and the relevant Gazetted Protocols. The aquatic specialist must have no financial or other vested interest in the proposed development and must be professionally registered with the South African Council for Natural Scientific Professionals (SACNASP).

Phase 1 (Contextualisation of study area)

- ✓ Contextualization of the study area in terms of important biophysical characteristics and the latest available aquatic conservation planning information (including but not limited to vegetation, CBAs, Threatened ecosystems, any Red data book information, NFEPA data, broader catchment drainage and protected areas).
- ✓ Desktop delineation and illustration of all watercourses within and surrounding the study area utilising available site-specific data such as aerial photography, contour data and water resource data.
- ✓ A risk/screening assessment of the identified aquatic ecosystems to determine which ones will be impacted upon by the proposed development and therefore require groundtruthing and detailed assessment.

It should be noted that following the site verification visit, as per point 1: General Matters of the Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Aquatic Biodiversity,

"1.2. Where the information gathered from the site sensitivity verification differs from the screening tool designation of "very high" aquatic biodiversity sensitivity, and it is found to be of a "low" sensitivity, an Aquatic Biodiversity Compliance Statement must be submitted."

And,

"1.4. If any part of the proposed development footprint falls within an area of "very high" sensitivity, the assessment and reporting requirements prescribed for the "very high" sensitivity apply to the entire footprint, excluding a linear activity for which impacts on aquatic biodiversity are temporary and the land in the opinion of the aquatic biodiversity specialist, based on the mitigation and remedial measures, can be returned to the current state within two years of the completion of the construction phase, in which case a compliance statement applies. In the context of this protocol, development footprint means the area on which the proposed development will take place and includes any area that will be disturbed."

Phase 2 (Delineation and classification)

- ✓ Ground truthing, infield identification, delineation and mapping of any potentially affected aquatic ecosystems in terms of the Department of Water and Sanitation (DWA 2008) Updated Manual for the Identification and Delineation of Wetlands and Riparian Areas.
- ✓ Field delineation must follow the accepted national protocol and should result in a map that includes the identified boundary and the field data collection points (which should include at least one point outside the wetland or riparian area), and a report that explains how and when the boundary was determined.
- ✓ Classification of the identified aquatic ecosystems in accordance with the 'National Wetland Classification System for Wetlands and other Aquatic Ecosystems in South Africa' (Ollis et al. 2013) and WET-Ecoservices (Kotze et al. 2009).
- ✓ Description of the identified watercourses with photographic evidence.

A baseline description of the site is to be compiled and is to reflect the following aspects

- ✓ The aquatic ecosystem types, the presence of aquatic species, and composition of aquatic species communities, their habitat, distribution and movement patterns.
- ✓ The threat status of the ecosystem and species as identified by the screening tool.
- ✓ An indication of the national and provincial priority status of the aquatic ecosystem, including a description of the criteria for the given status (i.e., if the site includes a wetland or a river freshwater ecosystem priority area or sub catchment, a strategic water source area, a priority estuary, whether or not they are free -flowing rivers, wetland clusters, a critical biodiversity or ecologically sensitivity area).
- ✓ A description of the ecological importance and sensitivity of the aquatic ecosystem including:
 - the description (spatially, if possible) of the ecosystem processes that operate in relation to the aquatic ecosystems on and immediately adjacent to the site (e.g. movement of surface and subsurface water, recharge, discharge, sediment transport, etc.); and (b) the historic ecological condition (reference) as well as present ecological state of rivers (in- stream, riparian and floodplain habitat), wetlands and/or estuaries in terms of possible changes to the channel and flow regime (surface and groundwater).
 - Ecological infrastructure, processes and services within the site and immediate surroundings.
- ✓ Identify alternative development footprints within the preferred site which would be of a "low" sensitivity as identified by the screening tool and verified through the site sensitivity verification and which were not considered appropriate.

In the case of the specialist identifying that the sensitivity is low and as per 1.4 above, a Compliance Statement should be undertaken, as follows: **Phase 3: Compliance Statement**

- ✓ The compliance statement must be prepared by a suitably qualified specialist registered with the SACNASP, with expertise in the field of aquatic sciences.
- ✓ The compliance statement must:
 - be applicable to the preferred site and the proposed development footprint;
 - confirm that the site is of "low" sensitivity for aquatic biodiversity; and
 - indicate whether or not the proposed development will have an impact on the aquatic features.
- ✓ The compliance statement must contain, as a minimum, the following information:
 - contact details of the specialist, their SACNASP registration number, their field of expertise and a curriculum vitae;
 - a signed statement of independence by the specialist;
 - a statement on the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment;
 - a baseline profile description of biodiversity and ecosystems of the site;
 - the methodology used to verify the sensitivities of the aquatic biodiversity features on the site including the equipment and modelling used where relevant;
 - in the case of a linear activity, confirmation from the aquatic biodiversity specialist that, in their opinion, based on the mitigation and remedial measures proposed, the land can be returned to the current state within two years of completion of the construction phase;
 - where required, proposed impact management outcomes or any monitoring requirements for inclusion in the EMPr;
 - a description of the assumptions made as well as any uncertainties or gaps in knowledge or data; and
 - any conditions to which this statement is subjected.
- ✓ A signed copy of the compliance statement must be appended to the Basic Assessment Report or Environmental Impact Assessment Report.

Phase 3 (If an Aquatic Assessment is required)

- ✓ Conduct a Present Ecological State (PES), functional importance assessment and Ecological Importance and Sensitivity (EIS) assessment of the delineated wetland habitats, utilising the latest tools, such as:
 - Level 2 WET-Health tool (Macfarlane et al., 2009/2018) – PES

→ WET-Ecoservices (Kotze et al., 2009/2018) and/or the Wetland EIS assessment tool of Roundtree and Kotze (2013). - Functional assessment

- ✓ Conduct a Present Ecological State (PES) and Present Ecological Importance and Sensitivity (EIS) assessment of the delineated river/riparian habitats, utilising:
 - Qualitative Index of Habitat Integrity (IHI) tool adapted from (Kleynhans, 1996) – PES
 - DWAF (DWS) River EIS tool (Kleynhans, 1999) – EIS
- ✓ Indicate the Recommended Ecological Category (REC) of the potentially impacted aquatic ecosystems.

Phase 4 (Impact Assessment)

- ✓ Identification, prediction and description of potential impacts on aquatic habitat during the construction and operational phases of the project. Impacts are described in terms of their extent, intensity, and duration. The other aspects that must be included in the evaluation are probability, reversibility, irreplaceability, mitigation potential, and confidence in the evaluation.
- ✓ All direct, indirect, and cumulative impacts for each alternative must be rated with and without mitigation to determine the significance of the impacts.

Confirm:

- ✓ Is the proposed development consistent with maintaining the priority aquatic ecosystem in its current state and according to the stated goal.
- ✓ is the proposed development consistent with maintaining the resource quality objectives for the aquatic ecosystems present.
- ✓ how will the proposed development impact on fixed and dynamic ecological processes that operate within or across the site? This must include:
 - impacts on hydrological functioning at a landscape level and across the site which can arise from changes to flood regimes (e.g. suppression of floods, loss of flood attenuation capacity, unseasonal flooding or destruction of floodplain processes);
 - will the proposed development change the sediment regime of the aquatic ecosystem and its sub-catchment (e.g. sand movement, meandering river mouth or estuary, flooding or sedimentation patterns);
 - what will the extent of the modification in relation to the overall aquatic ecosystem be (e.g. at the source, upstream or downstream portion, in the temporary / seasonal / permanent zone of a wetland, in the riparian zone or within the channel of a watercourse, etc.); and
 - to what extent will the risks associated with water uses and related activities change;
- ✓ how will the proposed development impact on the functioning of the aquatic feature? This must include:
 - base flows (e.g., too little or too much water in terms of characteristics and requirements of the system);
 - quantity of water including change in the hydrological regime or hydroperiod of the aquatic ecosystem (e.g., seasonal to temporary or permanent; impact of over-abstraction or instream or off-stream impoundment of a wetland or river);
 - change in the hydrogeomorphic typing of the aquatic ecosystem (e.g., change from an unchannelled valley-bottom wetland to a channelled valley-bottom wetland);
 - quality of water (e.g., due to increased sediment load, contamination by chemical and/or organic effluent, and/or eutrophication);
 - fragmentation (e.g., road or pipeline crossing a wetland) and loss of ecological connectivity (lateral and longitudinal); and
 - the loss or degradation of all or part of any unique or important features associated with or within the aquatic ecosystem (e.g., waterfalls, springs, oxbow lakes, meandering or braided channels, peat soils, etc.);
- ✓ how will the proposed development impact on key ecosystems regulating and supporting services especially: (a) flood attenuation; (b) streamflow regulation; (c) sediment trapping; (d) phosphate assimilation; (e) nitrate assimilation; (f) toxicant assimilation; (g) erosion control; and (h) carbon storage
- ✓ how will the proposed development impact community composition (numbers and density of species) and integrity (condition, viability, predator-prey ratios, dispersal rates, etc.) of the faunal and vegetation communities inhabiting the site?

Phase 5 (Mitigation and monitoring)

- ✓ Recommend actions that should be taken to avoid impacts on aquatic habitat, in alignment with the mitigation hierarchy, and any measures necessary to restore disturbed areas or ecological processes.
- ✓ Determination and mapping of any necessary buffer zones with consideration to the Buffer zone guidelines for rivers, wetlands and estuaries (Macfarlane & Bredin, 2016).
- ✓ Rehabilitation guidelines for disturbed areas associated with the proposed project and monitoring.

General

- ✓ Reference all sources of information and/or data used.
- ✓ Indicate limitations and assumptions, particularly in relation to seasonality.
- ✓ Description of the methodology adopted in preparing the report
- ✓ Provide a reasoned opinion as to whether the proposed activity should be authorised
- ✓ The specialist and the report must comply with the following guidelines and legislation:
 - Appendix 6 of the Amended EIA Regulations, GN No. R. 326 (April 2017).
 - Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes (March 2020 & October 2020)
- ✓ The report should be prepared in a suitable font and submitted to SES in draft form.
- ✓ The report must contain as a bare minimum:
 - contact details of the specialist, their SACNASP registration number, their field of expertise and a curriculum vitae;
 - a signed statement of independence by the specialist;
 - a statement on the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment;
 - the methodology used to undertake the site inspection and the specialist assessment, including equipment and modelling used, where relevant;
 - a description of the assumptions made, any uncertainties or gaps in knowledge or data;
 - the location of areas not suitable for development, which are to be avoided during construction and operation, where relevant;
 - additional environmental impacts expected from the proposed development;
 - any direct, indirect and cumulative impacts of the proposed development on site; 2.7.9. the degree to which impacts and risks can be mitigated;
 - the degree to which the impacts and risks can be reversed;
 - the degree to which the impacts and risks can cause loss of irreplaceable resources;
 - a suitable construction and operational buffer for the aquatic ecosystem, using the accepted methodologies;
 - proposed impact management actions and impact management outcomes for inclusion in the Environmental Management Programme (EMPr);
 - a motivation must be provided if there were development footprints identified as per the site verification visit that were identified as having a "low" aquatic biodiversity sensitivity and that were not considered appropriate;
 - a substantiated statement, based on the findings of the specialist assessment, regarding the acceptability or not of the proposed development and if the proposed development should receive approval or not; and
 - any conditions to which this statement is subjected.
- ✓ Ensure it is clear that the mitigation hierarchy has been applied, in order, when recommendations and mitigation is applied.
- ✓ Ensure that there are no conflicting recommendations or conclusions.
- ✓ Ensure the EAP is provided with working files, ie: KML/KMZ/Shapefiles and if a buffer is recommended, please ensure relevant table of coordinates are provided.

4.2 Quotation Details

Please provide a written quote for all Phases, including a break-down of costs and indicate your availability to commence the study. The quote must be made valid for 60 days.

5. EXPECTED DELIVERABLES

An initial draft report covering the above requirements must be submitted to SES **four weeks** after the notice to proceed with above scope of work. The report must be prepared in a suitable font (such as Arial 12) and the format and content must comply with Appendix 6 of the amended EIA Regulations, 2017, as well as the Promulgated Protocols relating to Aquatic Biodiversity (dated March 2020). The final report (which shall include any amendments in response to the EAP's comments on the initial draft, if necessary) shall be delivered **two weeks** after the draft report has been accepted by the EAP.

Gwaing Wastewater Treatment Works Upgrade - Phase 2: Solar Drying Facility or BBF(Biosolids Beneficiation Facility)



BBF Concep...01.docx

Gwaing WW...BBF.kmz



luanne@sesc.net

To: jackie@confluent.co.za

Cc: michael@sesc.net

Reply Reply all Forward ...

Thu 20 Feb 2025 08:15

BBF Concept for EAP 01.docx
7 MB

Gwaing WWTW - BBF.kmz
3 KB

2 attachments (7 MB) Save All Attachments

Good morning Jackie,

As discussed over the phone, please find attached the concept design and footprint for the solar drying facility (Biosolids Beneficiation Facility).

Please provide us with a quote for a Terrestrial Biodiversity, Plant species and Animal species report.

Kind Regards

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