APPENDIX H – IMPACT ASSESSMENT AND SCORING MATRIX

PROJECT IMPACT ASSESSMENT, SIGNIFICANCE AND MITIGATION MEASURES SUMMARY

The following impact rating approach used by Eco Route cc is a basic exponential rating system to assess actual and potential negative and positive environmental impacts.

Environmental activities or aspects are identified based on:

- the phases of the project,
- the nature (or description) of the actual and potential impacts of the activities.

For every project activity or aspect, various environmental impacts are listed. Every negative impact is allocated a -value as per each of the following criteria:

- Probability (Likelihood)
- Extent
- Duration (Frequency)
- Consequence (Receiving Environment)
- Magnitude (Intensity/severity)

Every positive impact is allocated a +value as per each of the following criteria:

- Probability (Likelihood)
- Extent
- Duration (Frequency)
- Magnitude (Intensity/severity)

Once a value is allocated for each of the criteria, the scores are averaged to determine the final impact rating (see Table 1 below).

Eco Route then further assesses environmental significance, based on the nature of the impact, as per the score and colour key, which forms part of Table 1 below. This results in impacts having either a low (indicated in green), medium (indicated in yellow) or high (indicated in orange and red) negative significance, and a low (light blue), medium (blue) or a high (dark blue) positive significance

Note: i. As a baseline, impact rating values/scores are allocated taking the **worst-case** scenario into account, i.e. with no mitigation. The baseline rating is compared with those after mitigation has been taken into account, i.e. the post-mitigation rating. Post mitigation rating is used for the actual impact assessment.

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SIGNIFICANCE CRITIERIA	Very High	High	Medium	Low	Negligible (very low)
Value	**16**	**8**	**4**	**2**	**1**
Probability (likelihood) **(P)**		Definite. Impact will definitely occur (impact will occur regardless of any prevention measures)	Highly probable. Very likely for impact to occur.	Probable. Impact may likely occur.	Improbable. Low likelihood/unlikely for impact to occur.
Extent (E)	Impact potentially reaches beyond national boundaries	Impact has definite provincial/potential national consequences	Impact confined to regional area/ town	Impact confined to local region and impact on neighbouring properties	Impact confined to project property / site
Duration (D)		Permanent The impact is expected to have a permanent impact, with very little to no rehabilitation possible	Long-Term The impact is expected to last for a long time after construction with rehabilitation expected to be 15-50 years. Impact is reversible but only with long-term mitigation	Medium-term The impact is expected to last for some time after construction with rehabilitation expected to be 2 - 15 years. Impact is reversible but only with on-going mitigation	Short-term / temporary The impact is expected to be temporary or last for a relatively short time with rehabilitation expected to be <2years. The impact is reversible through natural process and/or some mitigation.
Magnitude (Intensity/ Severity) **(M)**	It is expected that the activity will have a very severe to permanent impact on the surrounding environment. Functioning irreversibly impaired. Rehabilitation often impossible or unfeasible	It is expected that the activity will have a severe impact on the surrounding environment. Functioning may be severely impaired and may be temporarily cease. Rehabilitation will be needed to restore system integrity	It is expected that the activity will have an impact on the surrounding environment, but it will maintain its function, even if moderately modified (overall integrity not compromised). Rehabilitation easily achieved	It is expected that the activity will have a perceptible impact on the surrounding environment, but it will maintain its function, even if slightly modified (overall integrity not compromised). Rehabilitation easily achieved	It is expected that the impact will have little or no effect on the integrity of the surrounding environment
Receiving environment (Consequence): **(RE)**	Very sensitive, pristine area – protected site or species permanently or seasonally present	Unused area containing only indigenous fauna / flora species	Unused area containing indigenous and alien fauna / flora species	Semi-disturbed area already rehabilitated / recovered from prior impact, or with moderate alien vegetation	Disturbed area/ transformed/ heavy alien vegetation

ENVIRONMENTAL RATING SIGNIFICANCE KEY:

Negative Impacts

SIGNIFICANCE	RATING	Final rating score/value range
Very Significant	Very High	-11 to -16
Significant	High	-7 to <-11
Increasing Significance	Medium	≥-5 to <-7
	Medium Low	-4 to ≤-5
Insignificant	Low	-3 to <-4
	Very Low	-1 to <-2

Positive Impacts

SIGNIFICANCE	RATING	Final rating score/value range
Significant	High	10 to 16
Increasing Significance	Medium	4 to <10
Insignificant	Low	1 to <4

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Table 1. Environmental Significance Rating Methodology (rating criteria and significance key)

No.	Aspect / Impact	Preferred Alternative (Southern Refined Layout)	Alternative 1 – Previous Layout (Southern Earlier Layout)	No-Go
1	Visual / Construction	Compact clustered footprint within screened degraded CBA2 area; temporary construction visibility limited and largely absorbed by dune vegetation/topography. **Low (Neg)**	Slightly less visually contained layout with greater exposure from limited nearby viewpoints during construction. **Medium-Low (Neg)**	No impact
2	Noise	Typical small-scale residential construction noise of limited duration; nearest receptors relatively distant. **Low (Neg)**	Similar noise levels, but slightly longer internal movement / less efficient layout may marginally increase disturbance duration. **Low (Neg)**	No impact
3	Waste	Manageable construction rubble, packaging and domestic waste; small footprint allows effective containment and removal. **Low (Neg)**	Similar waste streams; slightly less efficient site arrangement may increase temporary storage needs. **Low (Neg)**	No impact
4	Heritage	No known heritage resources within footprint; chance-find procedure applies. **Very Low (Neg)**	Also low risk, though slightly broader earlier disturbance envelope increases uncertainty marginally. **Low (Neg)**	No impact
5	Coastal / Stormwater / Geophysical	Refined layout avoids D7 weak zone and mapped higher-risk erosion areas; stormwater and erosion controls effective. **Low (Neg)**	Earlier layout partially intersected geotechnically weaker area, increasing temporary erosion / instability risk during construction. **Medium-Low (Neg)**	No impact
6	Terrestrial Biodiversity	Disturbance confined to degraded CBA2 area dominated by invasive vegetation; no CBA1 or forest loss. **Low (Neg)**	Also within degraded southern area, but less optimal avoidance of sensitive edges and movement corridors. **Medium-Low (Neg)**	No impact
7	Traffic / Access	Use of existing access alignment / Bushy Way corridor; limited construction traffic. **Low (Neg)**	Similar traffic generation, though slightly less efficient internal access arrangement. **Low (Neg)**	No impact
8	Dust & Air Quality	Localised dust from limited excavation and access works; readily controlled through watering and housekeeping. **Low (Neg)**	Slightly higher dust potential due to more exposed disturbed surfaces in previous layout. **Medium-Low (Neg)**	No impact
9	Safety	Standard construction risks manageable through OHSA compliance, fencing, signage and supervision. **Low (Neg)**	Slightly elevated safety risk due to geotechnically weaker ground conditions. **Medium-Low (Neg)**	No impact
10	Fire Risk	Temporary construction fire risk manageable through controls and no open flames. **Low (Neg)**	Similar risk profile. **Low (Neg)**	No impact

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No.	Aspect / Impact	Preferred Alternative (Southern Refined Layout)	Alternative 1 – Previous Layout (Southern Earlier Layout)	No-Go
1	Visual	Low-profile clustered structures integrated into dune vegetation and coastal landscape; limited visibility from public viewpoints. **Low–Very Low (Neg)**	Slightly less visually screened configuration with marginally greater prominence from selected viewpoints. **Low (Neg)**	No impact
2	Noise	Quiet private residential use; no industrial activity. Minor domestic noise only. **Very Low (Neg)**	Same low-intensity residential use. **Very Low (Neg)**	No impact
3	Conservation / Biodiversity Stewardship	Long-term alien clearing, rehabilitation, access control and active management improve ecological condition of undeveloped remainder. **High (Pos)**	Positive stewardship also possible, but layout less optimal in relation to environmental constraints. **Medium–High (Pos)**	Loss of active rehabilitation opportunity; invasive species likely persist. **Medium–High (Neg)**
4	Waste (Domestic / Maintenance)	Low-volume domestic waste managed through municipal removal / private collection; conservancy tank servicing required. **Low (Neg)**	Similar waste profile. **Low (Neg)**	No impact
5	Socio-economic	Supports local maintenance jobs, property value, rates base, and modest local expenditure without burdening municipal services. **Medium–High (Pos)**	Similar positive effect, but reduced by lower environmental efficiency of layout. **Medium (Pos)**	No direct benefits gained. **Medium (Neg)**
6	Heritage	No operational heritage impacts anticipated. **No impact**	Same – no heritage interaction. **No impact**	No impact
7	Coastal / Geotechnical Risk	Refined layout avoids D7 weak zone and higher-risk areas, improving long-term resilience and reducing maintenance risk. **Very Low (Neg)**	Slightly elevated long-term maintenance / stability risk due to earlier proximity to weaker geotechnical area. **Low (Neg)**	No impact
8	Traffic / Access	Very low private-use traffic volumes; negligible effect on local roads. **Very Low (Neg)**	Similar very low traffic generation. **Very Low (Neg)**	No impact
9	Lighting / Fauna Disturbance	Controlled low-intensity downward lighting limits disturbance to nocturnal fauna. **Low (Neg)**	Similar use, though slightly less optimal screening may increase spill potential. **Low (Neg)**	No impact

10	Infrastructure Demand	Fully off-grid services create no demand on municipal electricity or sewer infrastructure. **High (Pos)**	Same off-grid benefit. **High (Pos)**	No impact

No.	Aspect / Impact	Preferred Alternative (Southern Refined Layout)	Alternative 1 – Previous Layout (Southern Earlier Layout)	No-Go
1	Visual Disturbance	Temporary visual disturbance during structure removal and rehabilitation; site readily restorable to natural condition. Very Low (Neg)	Similar disturbance, though slightly less efficient earlier layout may create broader temporary visual exposure. Low (Neg)	None
2	Noise	Short-term demolition / removal noise associated with small-scale structures. Low (Neg)	Similar noise impacts with slightly longer duration possible. Low (Neg)	None
3	Waste (Demolition)	Building rubble, timber, steel, glass and service materials manageable; many materials recyclable or reusable. Low (Neg)	Similar waste streams, but slightly less efficient access / layout may increase removal complexity. Low (Neg)	None
4	Heritage	Chance-find protocol applies during any excavation or removal works; overall very low risk. Negligible	Same requirement with marginally larger earlier disturbance envelope. Very Low (Neg)	None
5	Socio-economic	Minor temporary disruption during removal works, offset by short-term contractor employment. Very Low (Neg)	Similar impact with slightly longer disturbance duration possible. Low (Neg)	No impact
6	Biodiversity / Rehabilitation Opportunity	Positive opportunity to fully rehabilitate footprint using indigenous vegetation and remove remaining infrastructure. Medium (Pos)	Similar rehabilitation opportunity, though previous layout may require more remediation in weaker areas. Low–Medium (Pos)	None
7	Soil / Erosion Risk	Limited short-term soil disturbance during removal, controllable through rehabilitation measures. Low (Neg)	Slightly elevated erosion risk due to earlier proximity to weaker geotechnical area. Medium-Low (Neg)	None
8	Traffic / Access	Temporary contractor vehicle access for removal only. Very Low (Neg)	Similar temporary traffic effect. Very Low (Neg)	None

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Nature of Impact			Without Mitigation (Baseline)					With Mitigation						
Number	Aspect	Impact	Probability (Likelihood)	Extent	Duration (Frequency)	Magnitude (Intensity/ Severity)	Receiving Environment (Significance/ Consequence)	Without Mitigation Score (Baseline)	Probability (Likelihood)	Extent	Duration (Frequency)	Magnitude (Intensity/ Severity)	Receiving Environment (Significance/ Consequence)	With Mitigation Score (Impact Assessment)
CONSTRUCTION PHASE – PREFERRED ALTERNATIVE (Portion 79)														
1	Geographical / Topographical	Disturbance of sandy soils, excavation and minor reshaping within compact footprint	3	2	2	2	2	11 = Low	2	1	1	1	2	7 = Very Low
2	Coastal / Geophysical	Temporary erosion, runoff and dune instability risk during construction	3	2	2	3	3	13 = Medium-Low	2	1	1	1	3	8 = Very Low
3	Terrestrial (Botanical & Faunal)	Disturbance of degraded CBA2 vegetation; temporary fauna displacement	3	2	2	2	3	12 = Low	2	1	1	1	3	8 = Very Low
4	Visual	Temporary visual intrusion from machinery, stockpiles and construction activity	3	2	2	2	4	13 = Medium-Low	2	1	1	1	4	9 = Low
5.1	Socio-economic	Temporary disturbance (traffic / noise) to neighbouring properties	3	2	2	2	3	12 = Low	2	1	2	1	3	9 = Very Low

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5.2	Socio-economic	Short-term job creation and local economic benefit	+4	+2	+2	+2	+4	14 = Medium Positive	+4	+2	+2	+2	+4	14 = Medium Positive
6	Heritage	Possible chance finds during excavation	2	1	2	1	3	9 = Very Low	1	1	1	1	3	7 = Negligible
7.1	Noise	Temporary increase in construction noise	4	2	2	2	3	13 = Medium-Low	2	1	2	1	3	9 = Low
7.2	Dust	Dust from excavation and vehicle movement	4	2	2	2	3	13 = Medium-Low	2	1	2	1	3	9 = Low
8.1	Waste	General construction waste generation	3	1	2	2	3	11 = Low	1	1	1	1	3	7 = Negligible
9.1	Cumulative	Incremental disturbance within sensitive coastal landscape	3	2	2	2	4	13 = Medium-Low	2	1	2	1	4	10 = Low

OPERATIONAL PHASE – PREFERRED ALTERNATIVE (Portion 79)														
Number	**Aspect**	**Impact**	**Probability**	**Extent**	**Duration**	**Magnitude**	**Receiving Environment**	**Without Mitigation Score**	**Probability**	**Extent**	**Duration**	**Magnitude**	**Receiving Environment**	**With Mitigation Score**
1	Geographical Stability	Long-term stability of structures, access and drainage requiring maintenance	2	1	3	2	3	11 = Low	1	1	3	1	3	9 = Very Low
2	Coastal Functioning	Minor runoff / erosion risk if systems poorly maintained	2	1	3	2	4	12 = Low	1	1	3	1	4	10 = Very Low
3	Terrestrial Ecology	Long-term stewardship, alien clearing and rehabilitation	+4	+2	+4	+3	+5	18 = High Positive	+4	+2	+4	+3	+5	18 = High Positive

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		improve site condition												
4	Visual Character	Permanent presence of low-profile clustered structures with limited visibility	2	2	4	2	4	14 = Medium-Low	1	1	4	1	4	10 = Low
5	Socio-economic Benefits	Local maintenance jobs, private investment, no municipal burden	+4	+2	+4	+3	+4	17 = High Positive	+4	+2	+4	+3	+4	17 = High Positive
6	Operational Noise	Minor domestic activity only	1	1	3	1	3	8 = Very Low	1	1	3	1	3	8 = Very Low
7	Waste	Low domestic waste volumes / conservancy servicing	1	1	3	1	3	8 = Very Low	1	1	3	1	3	8 = Very Low
8	Heritage	No heritage interaction during operation	1	1	3	1	3	8 = Very Low	1	1	3	1	3	8 = Very Low
9	Cumulative	Long-term conservation management and ecological improvement	+3	+2	+4	+3	+5	17 = High Positive	+3	+2	+4	+3	+5	17 = High Positive