

28/07/2021



Eric Tran
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Dear Eric

Re: 20-729 Tilbuster Solar Farm Biodiversity Offset Strategy

NGH Pty Ltd have prepared a preliminary biodiversity offset strategy for the Tilbuster Solar Farm. This strategy reflects and is informed by the updated *Biodiversity Development Assessment Report: Tilbuster Solar Farm v1.4*.

The strategy aims to:

- Provide certainty to the proponent, community and agency stakeholders that suitable physical offset site(s) exist for securing the majority of the proposal's offset obligations determined by the *Biodiversity Conservation Act 2016* (BC Act).
- Set out a preliminary strategy for meeting any residual components of the obligation, in accordance with the scheme.

The strategy is detailed overleaf.

If you have any questions, please contact me or Clancy Bowman on (02) 8202 8349. We would be pleased to discuss any aspect of this project with you further.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Brooke Marshall'.

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Introduction

Background

Enerpac Australia Pty Ltd (Enerpac) proposes to construct, operate, and decommission a photovoltaic (PV) solar farm with an estimated capacity of 150 Megawatts (MW) that would be supplied directly to the national electricity grid.

The Tilbuster Solar Farm (the proposal) would be located on a rural property approximately 17 km north of Armidale in the Armidale Regional Council Local Government Area (LGA) on a 310 hectare (ha) plot of land that is currently owned by one landowner (**the Development site**). 178.6ha of this land (Lot 3 DP800611, Lot 1 DP225170 and Lot 1 DP585523) would be developed for the solar farm and associated infrastructure (**the Development footprint**).

The proposal requires development consent under Part 4 of the *Environmental Planning and Assessment Act 1979* (NSW) (EP&A Act). The proposal is State Significant Development (SSD) under the EP&A Act as it is development for the purpose of electricity generating works with a capital investment value of greater than \$30 million (clause 20, Schedule 1 of the *State Environmental Planning Policy (State and Regional Development) 2011*).

NGH Consulting Pty Ltd (NGH) prepared the Environmental Impact Statement (EIS) for the proposal on behalf of the Enerpac (the proponent), addressing the key environmental issues as specified in the Secretary's Environmental Assessment Requirements (SEARs). The EIS was submitted to NSW Department of Planning, Industry and Environment (DPIE) in 2020.

The EIS was placed on public exhibition from 21st of October 2020 to 18th November 2020. During this period, submissions from the local community, public authorities and other interested parties and stakeholders were received in relation to the proposal.

Post-EIS exhibition, a Submissions Report (NGH, 2021a) and Amendment Report (NGH, 2021b) have been prepared by NGH on behalf of the proponent to provide more information in response to submissions and to explain and assess changes to the project since the submission of the EIS.

One issue of interest to the community and government agencies is biodiversity offsets. The project requires native vegetation clearing and under the *Biodiversity Conservation Act 2016* (BC Act), a biodiversity offsets obligation will result. In this case the clearing of Box Gum Woodland triggered assessment as a Serious and Irreversible Impact and raised concerns about whether this type of vegetation could be readily offset. It is noted that the Proponents have several options under the Biodiversity Offset Scheme (BOS) to retire credits.

Aims and scope

This report outlines a preliminary Offset Strategy to:

- Provide certainty to the proponent, community and agency stakeholders that suitable physical offset site(s) exist for securing the majority of the proposal's offset obligations determined by the *Biodiversity Conservation Act 2016* (BC Act). This is the preferred option under the scheme.
- Set out a strategy for meeting any residual components of the obligation, in accordance with the scheme.

The report outlines:

- The proposal's offset obligations,

- The proposal's preferred offset mechanism,
- The outcomes of preliminary offset investigations, and
- The feasibility of securing offset obligations with the proposal's local area.

It is informed by the *Biodiversity Development Assessment Report: Tilbuster Solar Farm v1.4* (NGH, 2021c) prepared by NGH Pty Ltd.

The Biodiversity Assessment Report (BDAR) for Tilbuster Solar Farm presented with the EIS has been updated to reflect layout changes now shown in in the Submissions Report (NGH, 2021a) and Amendment Report (NGH, 2021b).

Offset obligations

The BDAR (NGH, 2021c) involved comprehensive mapping and assessment of the biodiversity values and impacts of the proposal in accordance with the *Biodiversity Assessment Method* (BAM). Assuming a worst-case scenario, it was determined that the proposal will incur unavoidable impacts on several threatened ecological communities (TECs) and threatened species.

Under the BC Act, these development impacts will generate offset obligations for the proposal that the proponent must meet. Ecosystem and species credits are generated, based on the amount and quality of the vegetation being removed and the likely impact of this on relevant threatened species. The ecosystem and species credits generated by the clearing are equivalent to the offset requirement for the project and are outlined in Table-1 and Table-2 below respectively. In summary, offsets are required for:

- Three Plant Community Types (PCTs); two of these qualify as the Threatened Ecological Community (TEC) *White box Yellow box Blakely's red gum woodland* (Box-gum Woodland TEC). This TEC is also a 'Serious and Irreversible Impact' (SAIL) candidate under the BC Act.
- Four threatened species; three of these have been confirmed to occur onsite and one is assumed, based on the type of habitat that is present.

We note the estimated credit requirements are based on the Tilbuster Solar Farm development footprint current as of July 2021, as shown in the Amendment Report (NGH, 2021b).

Table-1 Ecosystem credit requirements for Tilbuster Solar Farm

Plant Community Type	Associated Threatened Ecological Community (BC Act)	Impact area (ha)	Ecosystem credits
PCT 567 Broad-leaved Stringybark - Yellow Box shrub/grass open forest of the New England Tableland Bioregion	<i>White box Yellow box Blakely's red gum woodland</i> (Box-gum Woodland EEC)	69.9	269
PCT 575 Tenterfield Woollybutt - Silvertop Stringybark open forest of the New England Tableland Bioregion	N/A	1.1	18
PCT 704 Blakely's Red Gum - Yellow Box grassy open forest or woodland of the New	<i>White box Yellow box Blakely's red gum woodland</i> (Box-gum Woodland EEC)	44.8	103

Plant Community Type	Associated Threatened Ecological Community (BC Act)	Impact area (ha)	Ecosystem credits
England Tableland Bioregion			
Total (TEC)	<i>White box Yellow box Blakely's red gum woodland (Box-gum Woodland TEC)</i>	114.7	372

Table-2 Species credit requirements for Tilbuster Solar Farm

Threatened species	Area of habitat loss (ha)	Species credits
Pale-headed Snake	6.6 (assumed habitat)	83
Koala	15.9	299
Southern Myotis	53.3	123
Greater Glider	3.3	55

The full Biodiversity Credit Report for Tilbuster Solar Farm is provided in the BDAR v1.4 (NGH, 2021c).

Figure-1 below maps the areas generating offsets. The 'disturbance footprint' for which consent is sought takes in all construction and operational impacts anticipated for the project. Refer to the BDAR (NGH, 2021c) for full assessment assumptions, methodology and detailed results.

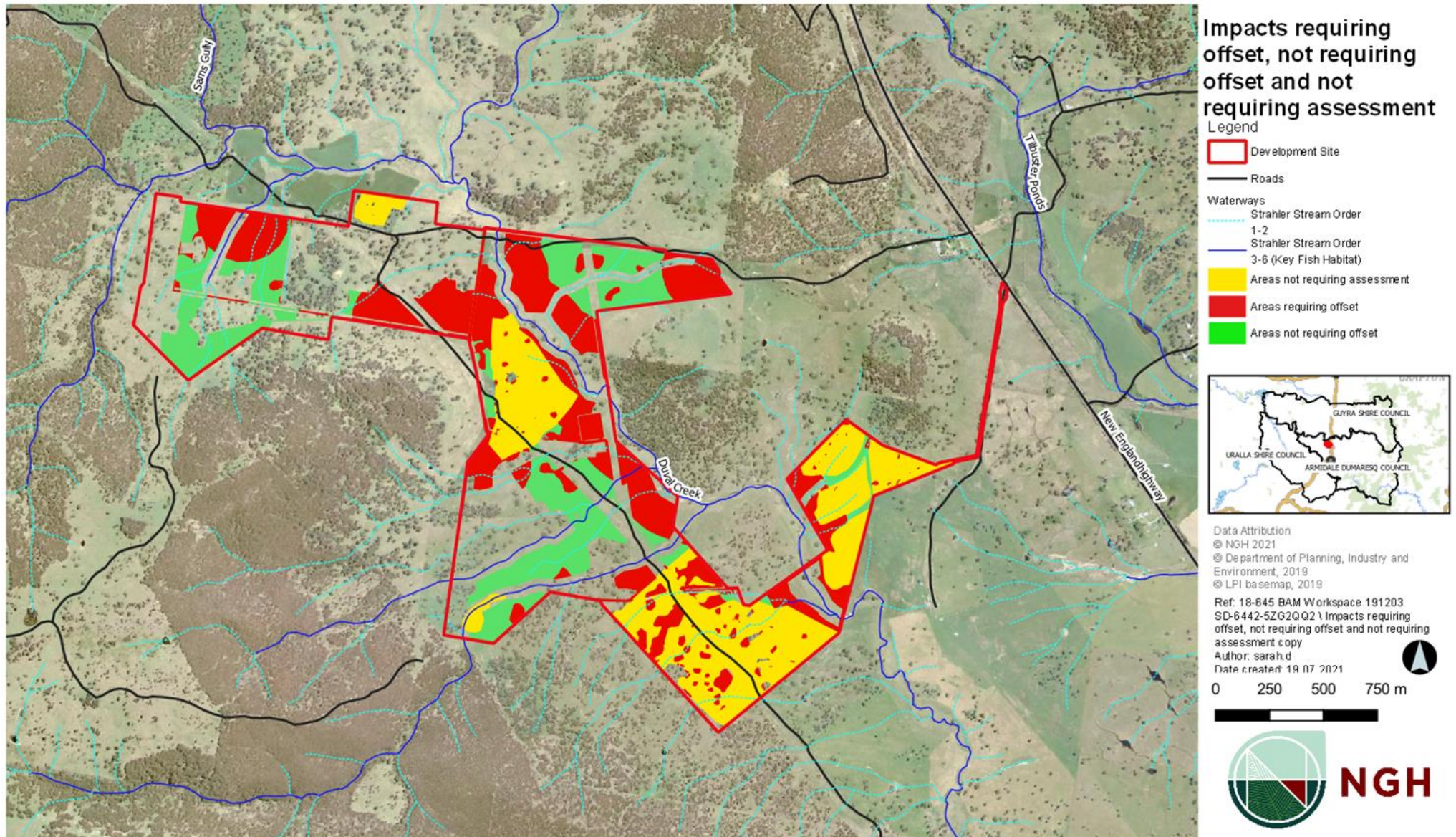


Figure-1 Impacts generating offsets (red).

Proposed offset mechanism

The retirement of biodiversity (ecosystem and species) credits must be carried out in accordance with the NSW BOS. Generally, three options can be considered:

- (a) Acquiring or retiring credits under the BOS
 - i. Purchasing 'like-for-like' credits from the market, where credits are required through a negotiated purchase with a private seller,
 - ii. Establishing a physical biodiversity stewardship that meets the 'like-for-like' requirements to satisfy credit obligations;
- (b) Making payments into the Biodiversity Conservation Fund (BCF) using the offset payments calculator; or,
- (c) Funding a biodiversity action that benefits the threatened entity impacted by the development.

Options (a) and (b) are most relevant to this project.

Serious and Irreversible Impacts

White Box-Yellow Box- Blakely's Red Gum Woodland (Box-gum Woodland EEC) is listed as a Serious and Irreversible Impact (SAIL) entity. This community is under severe pressure in the catchment from historic and ongoing land clearing activities in the area that interrupt community connectivity and degrade community condition. NGH's estimates are that:

- 115868 ha are present within the New England Tablelands Bioregion, with a further 162000 ha mapped as derived grasslands.
- Up to 235.2 ha occur within the Development site
- The 114.4ha that would be cleared under the Proposal equates to just over 0.1% of the community in the New England Tablelands Bioregion
- The likely remaining 120.9ha within the Development site avoided by the Development Footprint would remain unchanged from the current existing condition.

Prior to and since the EIS was exhibited, further work on the project layout has been undertaken to reduce the impact on this community and look for ways to retain connectivity between remnants that can be avoided onsite. This was undertaken in consultation with BCD. In total, 114.4ha of Box Gum Woodland would now be removed as part of the proposal; a reduction of 12.1 ha since the EIS was exhibited. This will require the proponent to retire 372 ecosystem credits for the Box Gum Woodland EEC under the BOS; a reduction of 235 ecosystem credits since the EIS was exhibited.

Given the risks of SAIL, option a) (ii) under the BC Act is preferred. Establishing a physical biodiversity stewardship that meets the 'like-for-like' requirements to satisfy credit obligations close to the impact site will provide more certainty around protecting and managing remnants of this community locally and in perpetuity. As part of the development of the Tilbuster Solar Farm, the proponent has worked with involved and neighbouring landowners to investigate the potential to secure and manage a physical biodiversity stewardship site adjacent to the solar farm. The Stewardship site would:

- Meet BC Act offset obligations, in terms of type and quantum of vegetation and habitat required.
- Be managed in perpetuity to restore and improve Box Gum Woodland EEC.

- Be assessed, secured and managed as a Stewardship Site, via a Stewardship Agreement pursuant to the BC Act; including the development of a detailed management plan and payment of requisite funds to manage the site in perpetuity (calculated via a Total Fund Deposit). This will ensure the management of the site is effective and ongoing.

Maximising the protection of Box Gum Woodland EEC on the stewardship site will be the priority in delineating its boundary. Other ecosystem credits and species credits are more likely to be met by either purchasing credits on the open market (option a (i)) or making payment into the BCF (option b), depending on the final stewardship site boundaries. It is also possible that further survey work may be undertaken and if it is not found to be present onsite, a modification application to reduce the consented obligation for Pale-headed Snake may be submitted.

Investigations to date

NGH has completed a preliminary investigation of potential physical biodiversity stewardships sites for Box Gum Woodland EEC within proximity to the Proposal's Development footprint. Investigation included desktop and site validation. Limitations are acknowledged below.

Desktop mapping

Desktop vegetation mapping involved mapping known vegetation communities across the adjacent blocks with vegetation data derived from the 'State Vegetation Map (SVM) for the Northern Rivers Catchment Management Authority' (VIS_ID 524). Vegetation communities identified in the SVM were converted to PCTs.

Site inspections

Site investigations of possible biodiversity stewardship sites for Box-Gum Woodland EEC within the proposal site and on adjacent lands were conducted by two NGH ecologists in November 2019, as part of BDAR assessment surveys. Areas outside of the proposal site were assessed from a distance only.

Results

The preliminary results indicate that three key areas have potential to provide like for like, in perpetuity offsets for the project. Furthermore, they are contiguous with the Development footprint and would provide enhanced community connectivity adjacent to the impact areas.

One site is located within the existing Development site and two are located on immediately adjacent blocks (refer Figure-2) as described in Table-3.

Without collection of a full dataset of vegetation plot data, in accordance with the BAM, accurate credit estimations cannot be calculated. However, based on extrapolation of existing data (including vegetation mapping and BAM plot data collected for the Development site), opportunities were identified for:

- Securing all PCTs required within the investigated sites
- Undertaking active restoration and management to increase the credits per ha generated at the offsites sites and thereby speeding the recovery of some low to moderate condition areas.

Table-3 Potential biodiversity stewardship sites for Box Gum Woodland EEC

Site	Lot/DP	Title	Area (ha)	Comment
Site A (internal)	Lot 1/DP585523	Freehold	27.88	<ul style="list-style-type: none"> • BGW TEC confirmed • Generally condition of vegetation was low to moderate and heavily affected by drought conditions • Credits per ha estimated as: <ul style="list-style-type: none"> ○ 3-5 with required management ○ 6-7 with active management
Site B (external)	Lot 1/DP585523	Freehold	181.83	Vegetation mapping indicates possibility. Needs to be ground-truthed to verify.
Site C (external)	Lot1/DP585523 and Lot 3/DP800611	Freehold	69.06	Vegetation mapping indicates possibility. Needs to be ground-truthed to verify.
Total			278.77	

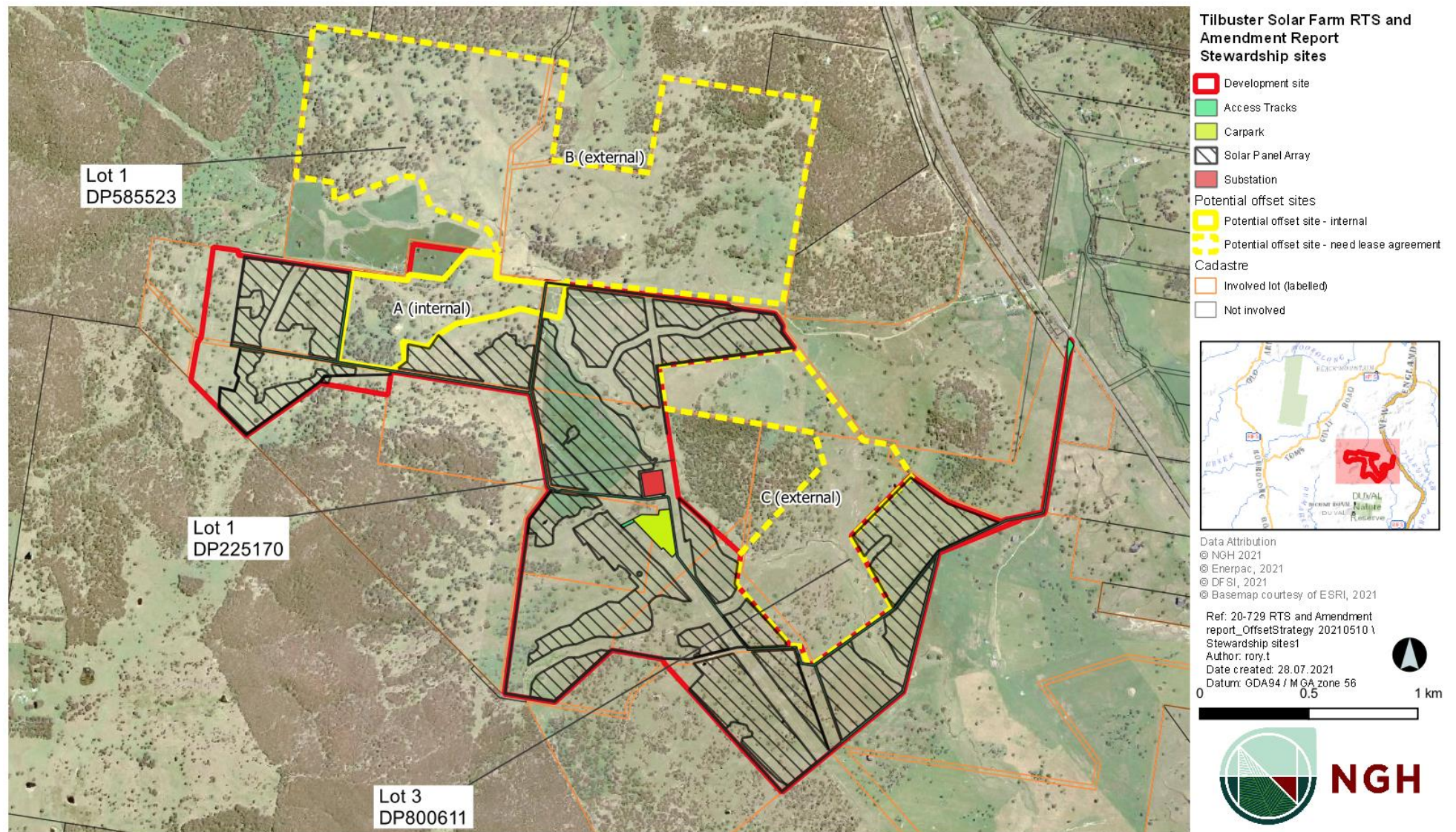


Figure-2 Potential stewardships sites for the Tilbuster solar farm

The assessed offset potential of Sites A, B and C are summarised in Table-4 below in terms of the offset requirement of the project. It accompanies Figure- 3 below. Calculated potential offset areas identified in the table are informed by either targeted vegetation surveys conducted within the Development site (as described in the revised BDAR v1.4) or extrapolated from desktop vegetation mapping of adjacent land.

Table-4 Estimated offset contributions (area) for Box Gum Woodland EEC by stewardship site.

Offset requirement	Impact area (ha)	Ecosystem credits required	Within the stewardship investigation area	Potential offset area (ha)	Area ratio (potential ha /required ha)
PCT 567 Broad-leaved Stringybark - Yellow Box shrub/grass open forest of the New England Tableland Bioregion	69.9	269	Site (a) – internal	23.0 (BDAR)	1.6:1 (114.4:69.9)
			Site (b) - external north	98.7	
			Site (c) – external south east	15.6	
PCT 704 Blakely's Red Gum - Yellow Box grassy open forest or woodland of the New England Tableland Bioregion	44.8	103	Site (a) – internal	0.02 (BDAR)	0.3:1 (13.9:/44.8)
			Site (b) - external north	1.2	
			Site (c) – external south east	12.7	
Box Gum Woodland EEC (PCT 567 + PCT 704)	114.7	372		128.2	1/1 (128.2:114.7)

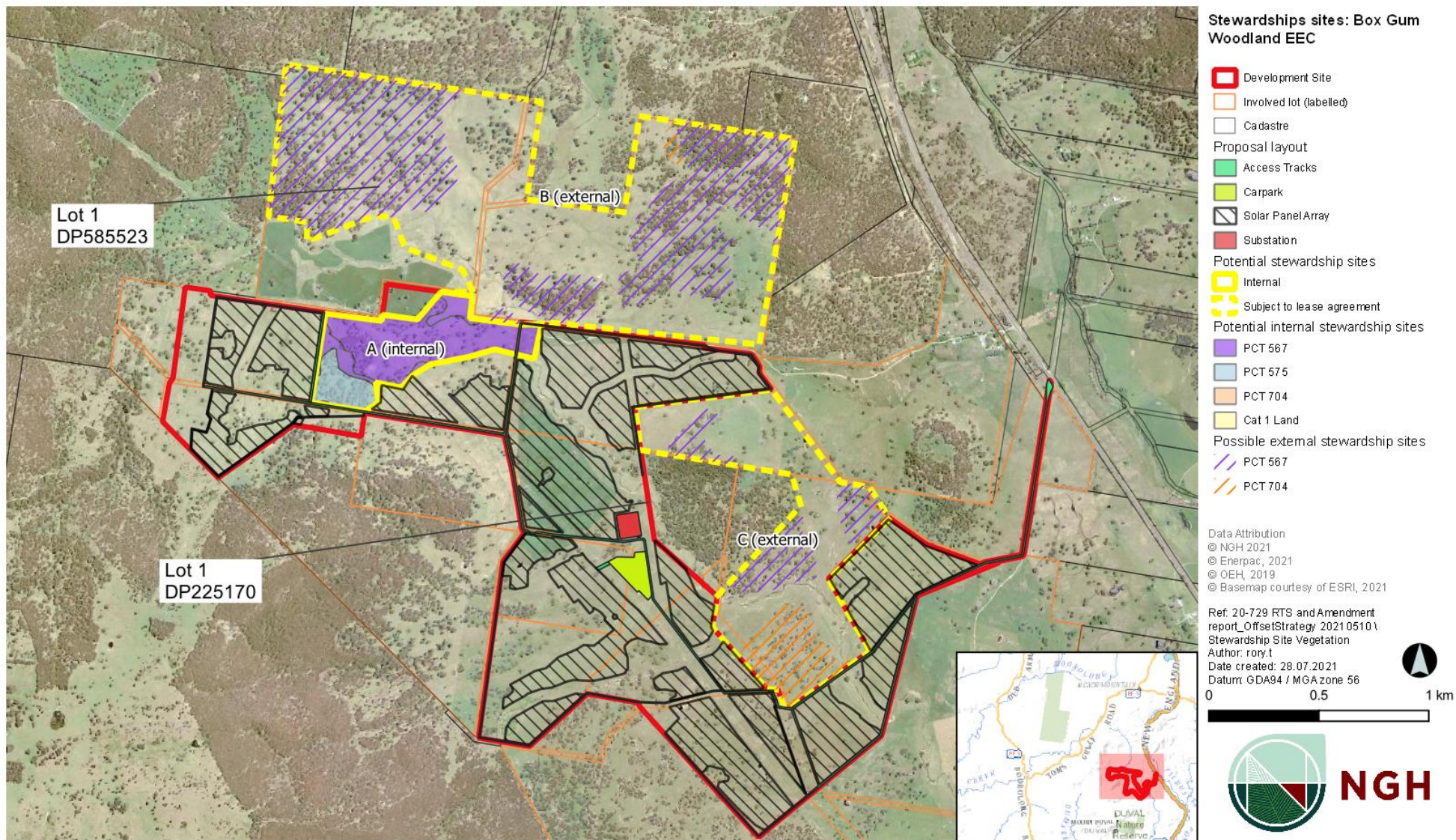


Figure- 3 Potential internal and external stewardship sites by PCT

Conclusion

In conclusion, this preliminary offset strategy indicates that it may be feasible for the Proponent to offset some of their credit requirements for the proposed Tilbuster Solar Farm in the local area. For areas where less than 1:3 impact to offset ratio is achievable, NGH's experience is that active management of those offset areas would be required to meet offset obligations. This would be informed by further targeted surveys and data collection in the future, in particular on external sites B and C.

The Proponent already has lease arrangements in place over the internal site (Site A), but would need to negotiate and/or enter lease arrangements to secure the adjacent external blocks (B and C) as future physical stewardship sites for Box Gum Woodland EEC.

Future actions would include:

1. Further consultation with landowners to ensure they are amenable to offsets being secured on their land.
2. Targeted biodiversity surveys on the external sites (B and C) to characterise and quantify the specific offset potential of these sites for BGW EEC.
3. Collaborating with landholders to progress Biodiversity Stewardship Agreements including the development of management actions for the sites.

References

- DPIE. (2010, May 25). *Vegetation Map for the Northern Rivers CMA VIS_ID 524*. Retrieved from SEED NSW: https://datasets.seed.nsw.gov.au/dataset/vegetation-map-for-the-northern-rivers-cma-vis_id-524fdb07
- NGH. (2020). *Biodiversity Development Assessment Report: Tilbuster Solar Farm (v1.2)*. Sydney: NGH.
- NGH. (2021a). *Tilbuster Solar Farm Submissions Report*.
- NGH. (2021b). *Tilbuster Solar Farm Amendment Report* .
- NGH. (2021c). *Biodiversity Development Assessment Report: Tilbuster Solar Farm (v1.4)*. Sydney: NGH .