Lake Macquarie City Council

31 March 2014

Committee Secretary
Senate Environment and Communications References Committee
PO Box 6100
Parliament House
CANBERRA 2600
ec.sen@aph.gov.au

Dear Madam/Sir

Subject: Submission – Inquiry into Environmental Offsets

This submission by Lake Macquarie City Council officers has been prepared to assist the Inquiry into Environmental Offsets currently being undertaken by the Senate Environment and Communications References Committee. Lake Macquarie City Council is the fourth largest local government area in NSW by way of population, and has extensive experience with the determination and implementation of biodiversity offsets within its local government area.

Council is a leader in applying biodiversity offset policy at the local level, with broad experience in the development and application of biodiversity offset policy, including offsets under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* and NSW policy and legislation. Lake Macquarie City contains extensive areas of native vegetation subject to development pressure from urban growth, coal mining and infrastructure projects and is regularly dealing with offset proposals.

Council is a participant in the Commonwealth's Lower Hunter Regional Sustainability Planning Program, which is linked to the Lower Hunter Strategic Assessment currently underway to support decision-making under the *Environment Protection and Biodiversity Conservation Act 1999*. With the co-operation of the Commonwealth and NSW Governments, Council has also prepared local planning and management guidelines for several nationally listed threatened species, which include offset arrangements for these species.

Council has a number of different roles in relation to the provision of offsets. It is concurrently an approval authority for development, a development proponent for infrastructure and other development activities requiring offsets, and is an offset provider responsible for managing land to protect biodiversity values in perpetuity. It has reviewed biodiversity offsetting principles in the preparation of its draft Biodiversity Offsets Policy 2011, which is yet to be finalised. This draft policy and the accompanying working draft calculator is enclosed for information.

126-138 Main Road Speers Point NSW 2284 ● Box 1906 Hunter Region Mail Centre NSW 2310
Phone: 02 4921 0333 ● Fax: 02 4958 7257 ● ABN 81 065 027 868
E: council@lakemac.nsw.gov.au F: www.facebook.com/lakemaccity T: www.twitter.com/lakemac
www.lakemac.com.au

Our Ref: F2004/07319 Your Ref:

On the basis of Council's experience in applying biodiversity offset principles, I provide the following comments for consideration by the Inquiry:

1. Offsets are an important tool for slowing the decline in biodiversity values associated with development.
2. Biodiversity offsets are now accepted practice within both Government and the development industry.
3. Following a global review of offsetting practice, Lake Macquarie City Council's draft policy proposes five principles for the provision of offsets, consistent with NSW and Commonwealth principles. These can be summarised as (1) offsets are a last resort after measures to avoid or mitigate impacts, (2) must be based on sound ecological studies, (3) must achieve in perpetuity benefits, (4) require net gain in terms of offset area and biodiversity values, and (5) arrangements must be enforceable.
4. Drawing on consultation with the community and development industry, there is a clear need for consistent offset principles at local, state and national levels. Desirably, these principles should be included in legislation.
5. Biodiversity offsets should be integrated into strategic land use planning frameworks.
6. Appropriate governance arrangements are required to maintain a spatial register of offsets and commitments, and to maintain offset land in the long term.
7. There is scientific debate as to the extent to which rehabilitation of degraded or cleared ecosystems can compensate for loss of native vegetation and ecosystems that are in better condition.
8. Offsets should not be used to justify development that removes or adversely impacts ecosystem services or native vegetation that cannot be replaced (including last remaining patches of rare vegetation communities or habitats, and important native vegetation linkages).

Other issues Council would like to raise for the Committee's consideration are that having regard to mining interests and legislation, it may not be possible to apply offsets under arrangements such as the NSW BioBanking Scheme or to enforce in perpetuity management of offset land. Maintenance of offsets also may present difficulties, for example in relation to:

- underground mine subsidence and associated damage to offset areas, and
- financing and securing land management in perpetuity.

Council has extensive experience in the application of offset practice. The Council would be happy to provide further information in relation to the matters described above.

Yours faithfully

Dr Alice Howe

Manager Sustainability

[Encl]

Biodiversity Offsets Policy for Lake Macquarie LGA

BACKGROUND

Continuing growth and development within the City of Lake Macquarie is expected to lead to further biodiversity loss. Where development proposals will have adverse impacts on biodiversity and natural ecosystems, and there is no feasible alternative or ameliorative measure to avoid the impact or loss of values, biodiversity offsets provide a way to compensate for the impacts. Biodiversity offsets are widely accepted as a planning tool and are regularly required by the State and Commonwealth governments.

This policy applies within the City of Lake Macquarie to development applications and rezoning proposals made under Parts 3 and 4 of the Environmental Planning and Assessment Act 1979. The policy may also be applied in other circumstances such as clearing of land for purposes such as providing infrastructure such as pipelines, roads and transmission lines. The policy provides a framework for assessment of development proposals, and negotiation of legal agreements and/or arrangements to provide compensation for loss of existing biodiversity

This policy complements the existing strategic planning context for offsets in Lake Macquarie City provided for by the Lower Hunter Regional Strategy 2006, the Lower Hunter Regional Conservation Plan 2009, and the Councils Biodiversity Planning Policy for LEP Rezoning Proposals 2009 and should be read in conjunction with these documents. Lifestyle 2020 also provides a broad strategic planning framework, although it predates the general emergence of offsets as a policy issue.

The policy applies to all land within the City of Lake Macquarie with native vegetation and biodiversity values. Such land is generally shown mapped on the vegetation maps described as *Lake Macquarie City Council Working Draft Composite Vegetation Community Mapping (December 2009*).

The policy takes into account NSW Government legislation and policy, which aims to maintain or improve biodiversity values. It also acknowledges Principles for the use of biodiversity offsets in NSW *Guidelines for Biocertification of Environmental Planning Instruments, Appendix II* (Department of Environment and Climate Change 2007) and the *Draft Policy Statement: Use of environmental offsets under the Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth Department of the Environment and Water Resources 2007).

POLICY STATEMENT

Lake Macquarie City Council policy is to ensure that loss of native vegetation and biodiversity within the City as a result of development will be subject to an appropriate offset or compensation, having regard to the extent and magnitude of that loss. The Council will not support new development likely to result in the removal of native vegetation or to significantly affect native vegetation and biodiversity unless an appropriate biodiversity offset and/or equivalent habitat is provided.

The policy will apply where the consequence of a proposed development would be to remove or adversely affect native vegetation and biodiversity values, and on-site conservation is not possible, practical or sufficient or it is not in the community's interest to conserve native vegetation on site.

The objective of the policy is to:

1. facilitate ecologically sustainable development within the City, and
2. offset/compensate for predicted impacts of a development proposal on biodiversity values, and
3. apply guidelines within Lake Macquarie local government area which are generally consistent with the NSW Government and Commonwealth Government policy and principles for biodiversity offsetting, and
4. achieve Lake Macquarie City Council's targets for retention and improvement of native vegetation.

Where native vegetation and biodiversity values on a development site are proposed to be destroyed, and the feasibility of all practical alternatives has been fully reviewed, biodiversity offsets may be provided as outlined in the policy guidelines and criteria.

POLICY GUIDELINES

A 'biodiversity offset' refers to actions taken outside a development site (ie the area to be disturbed by a development) to compensate for the direct, indirect and/or consequential effects of that development on native vegetation and biodiversity.

The policy does not apply where the biodiversity impacts of a development could be reasonably avoided or mitigated. When undertaking any assessment, the Council will take into account social and economic factors and strategic planning considerations.

Offset criteria will be developed to guide the application of the policy, and offsets that may be appropriate. It is important that such criteria remain flexible and are trialed in practice. Due to the variability of development and development sites, it is not possible for criteria to be prescriptive.

Lake Macquarie City Council will consider the policy in the assessment of development and rezoning applications made under Parts 3 and 4 of the Environmental Planning and Assessment Act 1979. The policy will also be taken into consideration by the Council in making comments on other proposals for development.

The following principles will apply in implementing the policy:

1. Biodiversity offsets will be used as a last resort, after consideration of alternatives to avoid and/or mitigate impacts.
2. Offsets must be based on sound ecological studies (of both the area to be disturbed by the development and the offset area) and principles.
3. Offsetting must achieve benefits in perpetuity.
4. Offsets must be based on the principle of 'net gain' in terms of both the area of native vegetation and biodiversity values.
5. Offset arrangements must be enforceable.

Applying the policy may not satisfy biodiversity offset requirements of other agencies for the purpose of their legislative responsibilities. These agencies are the NSW Department of Environment, Climate Change and Water (Threatened Species Conservation Act 1995 and Native Vegetation Act 2005), the Commonwealth Department of Environment, Heritage and the Arts (Environment Protection and Biodiversity Conservation Act 1999), and the Hunter-Central Rivers Catchment Management Authority (Native Vegetation Act 2005). The policy is not intended to meet the NSW Government 'improve or maintain' criteria in all cases.

Biodiversity Offsets Policy for Lake Macquarie LGA

Explanatory notes – Working draft offset criteria & calculator

A preliminary working draft calculator has been prepared by Lake Macquarie City Council to inform the preparation of its proposed biodiversity offsets policy.

The draft calculator does not form part of the proposed policy on exhibition. It provides background information to outline how the policy could be implemented.

The proposed biodiversity offsets policy could apply the BioBanking methodology developed by the NSW Government, or alternatively could use a simplified calculator along the lines outlined in the working draft.

The biodiversity offsets policy is based on a "net gain" as opposed to "improve and maintain" and therefore will not have the same offset requirements as BioBanking. From trials conducted to date, BioBanking has higher requirements.

Where the Office of Environment and Heritage and/or Commonwealth are involved in development or rezoning, Council will work with these organisations to arrive at a negotiated offset package. The calculator provides a guide to Council's requirements and preferences in such negotiations.

The calculator is required in order to provide some consistency with regard to Council's requirements. Nevertheless, its application must also remain flexible to allow for the different circumstances and processes that apply to different developments.

The working draft Lake Macquarie calculator uses a similar approach to the BioBanking methodology and considers native vegetation values, species values, and habitat connectivity in a more simplified way. It quantitatively identifies the biodiversity values of a site, and includes replacement ratios for these values based on an evaluation of current industry practice. The replacement ratio of 2.5:1 in the draft calculator for native vegetation is more transparent and generally lower than ratios obtained when using the BioBanking methodology. Matters taken into account and criteria apply reflect current practice in assessing rezoning and development proposals.

The acceptability of an offset proposal is considered separately to the identification of biodiversity values on a site and replacement requirements. Whether or not an offset proposal is acceptable takes into account a range of strategic planning and management issues, using a points system.

The working draft calculator has been prepared to provide an indication of how the policy might be applied within the Lake Macquarie local government area. It is indicative only, and has not been endorsed by the Council. It is intended that the final criteria and calculator would be developed over a 12 – 18 month trial period, based on a review of site specific case studies and comments from users during this period.

If a biodiversity offsets policy is adopted by Council, the proposed criteria and calculator will be trialled and are intended to be incorporated in the Lake Macquarie Development Control Plan.

Biodiversity Offsets Policy for Lake Macquarie LGA

Offset criteria & calculator

BACKGROUND

Requirements and criteria for applying the Biodiversity Offsets Policy are included in this document. It must be read in conjunction with the Biodiversity Offsets Policy.

The criteria and calculator are used to determine biodiversity offsets, and are for internal Council staff use only. They are being piloted as part of an 18 month trial of the Policy and have not been formally adopted by Council. The calculator will be applied on a case by case basis, taking into account the circumstances of each case.

A separate checklist and worksheet has also been prepared to enable specific proposals to be evaluated in terms of the Policy..

BIODIVERSITY OFFSET CRITERIA

When will biodiversity offsets apply?

The Policy does not apply where the biodiversity impacts of a development could be reasonably avoided or mitigated.

Biodiversity offsets will only be considered where all of the following criteria have been satisfied:

- Adequate evaluation of biodiversity values has been undertaken, at both the site and landscape scales. This must take into account both extent (area) and quality (habitat structure, ecological composition and function).
- For key species (eg listed threatened species), an evaluation of local population viability has been undertaken.
- The offset is identified in, and forms part of the development or rezoning application.
- The proposed offset is expected to achieve an identified strategic planning objective.
- Biodiversity values can be reasonably offset because these are rare or have been identified as significant. Within the Lake Macquarie LGA biodiversity values that cannot generally be offset are (1) most listed endangered ecological communities, plus 20m buffer where applicable, (2) large forest owl nest and roost trees plus 100m native vegetation buffer, (3) wetlands, (4) rainforest vegetation communities, plus at least 20m buffer where applicable, and (5) habitat corridor links.

Where an applicant intends to use the NSW Government BioBanking scheme (ie obtain a credit statement or a biobank statement) or a rezoning proposal will be biocertified in accordance with the requirements of the Threatened Species Conservation Act 1995, then the procedures in that Act and accompanying regulations will apply. In this case, proposals are not expected to meet the requirements of this Policy.

The biocertification and BioBanking methods may be used to develop an offsets package acceptable to both Council and relevant NSW Government and Commonwealth agencies. In such cases, the requirements of this Policy will apply in conjunction with biocertification and BioBanking calculations.

What is the threshold above which offsets are required?

Where the total area of native vegetation loss is less than 0.5 ha, or where a total of less than 10 individual trees will be removed, no offsets will be required. Consideration may be given to a simplified offsets system for such situations in the future.

Quantifying biodiversity values

Consideration will not be given to applying this Policy unless appropriate biodiversity surveys have been undertaken and biodiversity values have been identified and quantified. Information required to be submitted with any proposal to apply the policy is shown in Appendix 1.

Biodiversity surveys must be carried out in accordance with the Lake Macquarie Flora and Fauna Survey Guidelines.

The measures used to quantify biodiversity values are the same ones used to calculate the biodiversity offsets.

Calculating biodiversity offsets

A biodiversity offsets calculator is used to determine the biodiversity offset required to compensate for the loss of biodiversity values that has been quantified following appropriate biodiversity surveys.

Different requirements apply to on-site offsets and off-site offsets. On-site offsets are where biodiversity mitigation measures are provided solely on the same land as the project area (or site). On-site offsets which retain important biodiversity values in-situ are preferable where feasible. Off-site offsets are measures provided on land outside the project area.

Off-site offsets do not apply where on-site measures can be taken to fully offset likely impacts. Off-site offsets will be considered only where on-site offsets are not possible or not feasible, or where a proposed development is in accordance with an adopted strategic plan, that development achieves the strategic planning objectives in the plan, and there is a demonstrated public benefit resulting from the development of the land.

The offsets calculator distinguishes between four different types of offset arrangements, any or all of which can be used:

1. Balancing biodiversity losses (eg acquisition of offset land or biobanking credits)
2. Improving biodiversity security (eg dedication of land to DECCW or LMCC, voluntary conservation agreement)
3. Improving management (eg plan of management and rehabilitation program)
4. Indirect improvements (eg financial contribution to LMCC or a trust for offset land purchase, rehabilitation, reserve management, or scientific studies)

Negotiated offsets

The Council may consider a negotiated arrangement for biodiversity offsets as an alternative in exceptional circumstances, where use of the calculator is not feasible and/or the Council is satisfied that a biodiversity outcome is achieved which is equal to or better than would result from using the calculator.

Offset transfer & administration

Offsets will be determined and administered as part of development approval or rezoning processes. Administrative processes necessary to implement the Policy include:

- Reviewing flora and fauna studies
- Calculating biodiversity offsets
- Negotiating voluntary planning agreements or other legal agreements (where required)
- Compiling a register of biodiversity offset lands and offset contributions (map and schedule)
- Accounting for financial contributions and undertaking management of reserves in accordance with plans of management and contributions
- Rezoning land and preparation of DCPs to reflect offsets and management arrangements

STEPS IN CALCULATING OFFSETS

Step 1 is to undertake appropriate surveys to enable the biodiversity values of the land to be accurately determined.

Step 2 will determine whether offsets are appropriate. This will take into account whether the site has significant biodiversity values (eg important site for a threatened plant species such as *Tetratheca juncea*), its broader context (eg an important habitat link for Squirrel Gliders) and the land use context. This step involves a decision as to whether it is possible or feasible to avoid losing those values, in other words whether impacts can be reasonably be avoided or mitigated.

Step 3 is to calculate the offsets that will be required, based on scientific surveys. The quantification of offset requirements is based on (1) Native vegetation and habitat, (2) Key species, and (3) Connectivity. Table 1 describes the method for quantifying values in terms of area of habitat and numbers of features (eg habitat trees).

Step 4 is to generate an offset proposal. Some offset measures are preferred to others, having regard to strategic land use planning considerations. A points system is used to make priority offsets more attractive, and a minimum number of points (10) is to be achieved if an offset proposal is to be satisfactory. The priorities and points are outlined in Table 2 and are listed in order of preference. These points are calculated independently from the offset areas and values identified in Table 1. When this step has been completed, development proponents are able to determine the extent and characteristics of land that will be required for a biodiversity offset.

Criteria for the acquisition of offset land are outlined in Appendix 3, and the Council's preferences for offsets are identified in Appendix 4.

OFFSET CALCULATOR

The calculator aims to identify the quantum of loss of biodiversity, including area of native vegetation, habitat for important identified species and habitat connectivity. Equivalent offset gains must then be calculated to achieve a specified replacement ratio as outlined in Table 1. In addition, each offset proposal is required to meet a minimum of 10 points to be acceptable, based on the offset options available in Table 2. This takes into account a range of strategic planning considerations.

Table 1 – How is the biodiversity offset quantified?

	Planning and development criteria	**Minimum replacement ratio**	**Comments**
1 NATIVE VEGETATION & HABITAT Identify vegetation community, habitat quality and quantity (square metres or ha). The calculator assumes that vegetation is mapped by Council as bushland or partially cleared bushland and is in high or moderate condition or better. See Appendix 2 for vegetation communities.			
EECs and significant vegetation	Protect & enhance where possible with buffers EECs should be offset by EECs, preferably of the same type (ie like for like)	5:1 #	Equivalent habitat offsets for each vegetation community are generally required. See Appendix 2.
Other mapped native vegetation	Generally desirable to protect	2.5:1 #	Habitat connectivity (corridors) is important to consider
Freshwater aquatic habitat	Generally protect and enhance. Maintain fish passage. Offsets with new structures (eg dams) may be possible	1:1	Equivalent or improved habitat provided
Intertidal habitat	Generally protect and enhance	1:1	
Seagrass	Generally protect and enhance	1:1	
Habitat trees, tree hollows (species, hollow size and number) and other habitat attributes (may include rocks, overhangs, intertidal areas, etc)	Generally protect and retain	2:1	Small, medium and large sized hollows need to be identified
	Calculate total area and habitat attributes		
2 KEY SPECIES Identify key values for important species, vegetation communities, numbers of rare or threatened plants, etc (number or area to be offset). Note that for species that are not listed offset ratios will need to be determined based on available information			
Many significant species occur in the LGA (including 86 threatened species, some identified below)	Protect & enhance these values where possible	2:1	Refer to LMCC State of the Environment report & recent TSC Act 1995 listings
Tetratheca juncea	Prevent clearing, maintain fire frequency, monitor populations, maintain minimum patch size to support a viable population	5:1 number of plant clumps	Refer to *Tetratheca juncea* Management Plan
Angophora inopina	Prevent clearing, maintain fire frequency, monitor	5:1 number	

	Planning and development criteria	**Minimum replacement ratio**	**Comments**
	populations, maintain minimum patch size to support a viable population	of plants	
Grevillea parviflora	Prevent clearing, maintain fire frequency, monitor populations, maintain minimum patch size to support a viable population	5:1 number of plants	
Acacia bynoeana	Preserve remaining habitat from development	5:1 area of habitat	
Squirrel Glider	Maintain habitat fragments of >4ha in size, connected by 2 or more habitat corridors with a habitat fragment separation of not greater than 1km	2:1 area, 1:1 corridor links	Based on Morisset Squirrel Glider Review 2008. Offset area requires suitable hollow bearing trees
Forest owls	Maintain native vegetation within 100 m of nest & roost trees Minimum of 300 ha of forest habitat retained within 2 km of nest & roost trees	N/A	Large forest owl nest and roost trees plus native vegetation buffer should not be offset
	Total numbers, and areas		
3 CONNECTIVITY Identify regional and local habitat links, and importance of maintaining these (number of links, width and area)			
Number of habitat links lost	Habitat connectivity is to be maintained or improved	1:1	No reduction of overall corridor links is acceptable
Reduction of width of habitat links (metres and total area)	Habitat links should be maintained or rehabilitated to a width of not less than 50 metres. Use calculation ratio for relevant vegetation community if appropriate.	2:1	Links less than 50 metres wide may not be ecologically valuable in the long term and are subject to indirect impacts.
	Total links, width, and area		

Notes

1 - If a condition assessment shows that the existing vegetation communities are not in a moderate, high or better condition, then offset ratios need to be reviewed. It is generally assumed that offset vegetation will have an equivalent vegetation condition to vegetation in the project area.

2 - # Replacement ratios may be higher if the BioBanking or Biocertification methodology is used to calculate offsets.

Table 2 – How is the acceptability of the biodiversity offset calculated?

Offset type	Option	Offset value (points)	Comment
1 BALANCING BIODIVERSITY LOSSES	Acquisition of offset land *	5	
	Purchase or creation and retirement of biobanking credits	10	
	Offsetting significant vegetation (eg EEC) with non significant vegetation	Minus 2 points	
2 IMPROVING BIODIVERSITY SECURITY	Dedication of land to DECCW for reservation	10	
	Dedication of land to Council^	5	
	Voluntary conservation agreement (DECCW)	3	
	Property vegetation plan (CMA)	1	
	Private agreement (eg covenant)^	1	
3 IMPROVING MANAGEMENT	Preparation of plan of management with bond*^	2	Done in accordance with required guidelines
	Rehabilitation program with bond*^	0.5 points per fully funded year	Must be done in conjunction with a plan of management
4 INDIRECT IMPROVEMENTS	Cash payment to Council trust fund for offset land purchase	4	
	Cash payment to other trust fund for land purchase	2	
	Financial contribution towards management of land, in accordance with a plan of management	0.5 points per fully funded year	
	Scientific studies	0 – 1 point	May be acceptable depending on circumstances of case

Offset type	Option	Offset value (points)	Comment
5 MODIFYING FACTORS These factors may be included where applicable and take into account strategic planning benefits and risk. Use of these modifiers must be fully justified	Enhancing corridors and connectivity	Plus 1 – 3 points	Where the location of purchase of land brings a benefit in enhancing connectivity links
	Key species benefits (eg protection of habitat trees, or critical habitat)	Plus 1 – 5 points	For example, Tetratheca juncea Management Plan identifies significant areas for protection of this species
	Increasing protected land area and improving shape	Plus 1 – 2 points	
	Offset vegetation provided is in lower condition than existing vegetation	Minus 1 – 5 points	To be determined based on condition assessment
	Protecting ecosystem services (eg riparian areas or wetlands)	Plus 1 – 3 points	
	Out of LGA offsets	Minus 5 points	
	Out of Sydney Bioregion offsets	Minus 10 points	
	Out of Lower Hunter Region	Minus 15 points	
	No management performance guarantee	Minus 2 points	
	Vulnerability of offset to disturbance (eg bushfires or potential urban impacts)	Minus 2 points	
	Private land management agreement with no security (eg bond)	Minus 2 points	

Notes:
1 - A minimum of 10 points are required for a proposal to be acceptable.
*2 - * Should be complemented by a measure to improve biodiversity security or on public land.*
3 - ^ Should be within Lake Macquarie City.

Once an offset proposal can secure an appropriate offset area, and equivalent offset values, and a minimum of 10 points has been achieved, then the offset will be considered by Council.

Land subject to a prior legal agreement or arrangement that it be conserved may be included as an offset for the calculation, but only insofar as it improves management and security.

DEFINITIONS

Project site– means the land to which the application or proposal relates. This includes the lot or lots on which the project is situated.

Project (or development) area – means the area of the site directly affected by the proposal, and subject to development and disturbance.

Affected area – means the area likely to be affected by an action. This includes the project area and any additional areas likely to be affected, either directly or indirectly. This is the area that must be subject to ecological survey.

Equivalent habitat – in relation to offsets means vegetation or habitat that is approximately the same in terms of area and values as the vegetation or habitat that is to be removed on the development site.

On-site offset – means a biodiversity offset on the same parcel of land as the development site.

Off-site offset – means a biodiversity offset on a different parcel of land to the development site. This offset may adjoin the development site (on a separate lot) or be physically separated from the development site.

Biodiversity security – refers to the ownership and land tenure of land with biodiversity values. This ranges from land with a high degree of protection which is dedicated for conservation purposes such as reserved land under the National Parks and Wildlife Act 1974, to land with no specific legislative protection such as private land with no conservation covenant.

Improved management – means an action to improve the biodiversity values on offset land, and may include rehabilitation or protective works.

Indirect improvement – means an action to improve biodiversity values that is not directly related to the provision of offset land, or improved management of land. Indirect improvements might include financial contributions to Council, scientific studies or the like.

Replacement ratio – means the amount by which the area of vegetation removed from the project area must be multiplied by to achieve an acceptable replacement offset area. This is normally expressed as X:1 where X is the amount by which the removed vegetation must be multiplied.

APPENDIX 1

INFORMATION TO BE SUBMITTED WITH A BIODIVERSITY OFFSET APPLICATION

Proposals for offsets shall accompany, and form part of, a development application.

Where offset land has been identified as part of a proposal, ecological surveys are to be undertaken for both the project area and the offset area in accordance with Council's requirements. Surveys shall also be undertaken for the affected area. Note that surveys of offset sites will need to focus on issues relevant to the calculation of offsets, including key biodiversity values and the management of the offset land. Therefore, comprehensive biodiversity surveys may not always be required.

The following information is to be included to accompany a proposal which includes a proposed biodiversity offset and shall be sufficient to apply the biodiversity offset calculator in Table 1:

1. Flora and fauna survey complying with the Lake Macquarie Flora and Fauna Survey Guidelines
2. Map of existing vegetation communities (with classification compatible with the *Lake Macquarie City Council Working Draft Composite Vegetation Community Mapping (December 2009*) supplied in digital format, suitable for GIS) for the development site, the land parcel and the proposed offset area
3. Map showing vegetation condition for the development site, the land parcel and the proposed offset area
4. Map of habitat trees and tree hollows classified according to size (small, medium and large)
5. Any other relevant information to enable the objectives of the Biodiversity Offsets Policy to be met

Offset requirements may be calculated in an ecological report. However, the final calculation of the values to be offset will be determined by the Council.

Where an off-site offset is likely to be required as part of a development application, and no site with suitable characteristics has been identified as an offset, the application shall document the proposed process for securing a suitable offset.

Information is to be provided to Council in a digital form, in accordance with any standard requirements that may apply. Full data must be provided to enable Council to undertake calculations required to apply the calculator.

APPENDIX 2

VEGETATION COMMUNITIES & ENDANGERED ECOLOGICAL COMMUNITIES

Include table showing list of all mapped vegetation communities and the equivalent Keith vegetation class, EEC, and whether the community is determined as significant. The table is based on *Lake Macquarie City Council Working Draft Composite Vegetation Community Mapping (December 2009*).

This table can be used as a guide to what vegetation communities are considered if significance within Lake Macquarie City, where offset sites should be investigated and offset ratios that may be appropriate.

(Note: The table can be accessed at S:\Ecological Information\Offsets)

APPENDIX 3

CRITERIA FOR ACQUISITION OF BIODIVERSITY OFFSET LAND IN LAKE MACQUARIE

The following criteria (in general order of priority) will be used to review the suitability of land for acquisition of biodiversity offset sites:

1. Vegetation community values – Sites are to contain high value vegetation communities (eg endangered ecological communities or regionally significant vegetation – see Appendix 1)
2. Size and shape – Sites should have a minimum area of 10 ha, and preferably larger. A minimum area may not apply where an offset will improve habitat connectivity. The shape should minimise the perimeter as far as possible and enable practical land management.
3. Species values – Sites with key species such as threatened species are preferable for acquisition for conservation.
4. Connectivity – Sites should contribute to local and regional habitat connectivity.
5. Condition – Sites should have good natural resilience and be capable of being restored to a good condition at minimal cost.
6. Low management cost – Cost of management should be minimal.
7. Adjoining land uses – Where possible, sites should adjoin an existing conservation reserve and nearby land uses should be compatible with conservation.
8. Planning controls - Land is zoned for conservation under a relevant planning instrument.

APPENDIX 4

PREFERENCES FOR EVALUATING BIODIVERSITY VALUES

Biodiversity value is made up of several components:

- Landscape context
- Area
- Connectivity
- Patch Size and configuration
- Condition (based on mapping of vegetated land and partially cleared vegetation)
- Habitat attributes
- Vegetation type
- Value of vegetation type eg EEC

All these components will be considered by Council in determining the appropriateness and acceptability of an offset package. Council's preferences for each component are outlined in the table below:

Biodiversity component	**Preference**
Area	The area of each habitat type and vegetation community, and their condition will be compared to the area to be impacted by the development and the offset area.
Landscape context	Offsets adjacent to conservation reserves are preferred, eg adjoining a State Forest, National Park or Council reserve (classified natural area).
Connectivity	Offset areas must not be isolated. Connectivity will be assessed having regard to Council's Native Vegetation and Corridors Maps and field verification. Connectivity should be assessed for all species but with focus on any species of concern. Assessment will take into account width of interface at crossing points, and opportunities and works to improve connectivity.
Patch Size and configuration	Edge to area ratio will be considered. Areas with less perimeter/edge and in comparison to core area are preferred.
Condition	A condition assessment & map should be prepared for both the development and offset site. This can be done from air photos with field verification. The assessment method is to be consistent with Council's native vegetation and corridors map, which identifies cleared and partially cleared categories. It is preferable for offset areas be of equal or better condition than the area to be impacted by the development. Generally, cleared land would not be accepted as an offset unless there was some overriding biodiversity reason to do so e.g. re-establishment of a small area of native vegetation corridor or crossing point. If offset areas are not of equal or greater condition more

	land area may be require and/or arrangements would need to be in place to improve the condition of the offset lands to equal or greater condition. Note that any land to be dedicated to Council will have to support a weed free self-sustaining ecosystem or be brought up to this standard prior to dedication. This must have regard to the ecological resilience of the site. Partially cleared land identified on Council's vegetation mapping may be used to offset partially cleared land for offset calculations, subject to its rehabilitation potential. Cleared land cannot be included in offset calculations, but may be used in an offset proposal where there is potential for it to be reasonably rehabilitated (eg improving a corridor or riparian area).
Habitat attributes	It is desirable for vegetation structure in offset areas to be the same as on the development site, ie: Rainforest should be offset with rainforest, Dry heath should be offset with heath, and Wet heath should be offset by wet heath etc Riparian or wetland vegetation should be offset with riparian/wetland vegetation. Seasonal food sources for species of concern will be considered. Habitat trees – number and size of hollows for the site to be impacted and the offset site are to be compared. The area of the offset may have to be increased to offset the number of hollows lost. Other habitat attributes such as inter tidal areas, riparian areas, fallen timber, surface rocks outcrops overhangs etc should be offset with equivalent habitat types.
Vegetation type	It is desirable for vegetation types to be impacted to be offset by vegetation types of equal or greater value within the same ecosystem (See Appendix 2). Offsets must be from within the same ecosystem type as the vegetation to be impacted for vegetation communities with the following ecosystem types: Rainforest, Wetlands and Heath. Woodland and Forest are interchangeable. If an EEC (pink) or under conserved (blue) or limited extent (orange) communities are included in the offset that is over and above the necessary ratio to offset impacts on them then this may be an offset for any vegetation type. EECs should generally be offset by EECs, preferably of the same type (ie like for like).

APPENDIX 5

METHODOLOGY FOR NATIVE VEGETATION MAPPING AND CORRIDORS

May be included to ensure consultant reports use a consistent method compatible with Council mapping.

APPENDIX 6

METHODOLOGY FOR DETERMINING VEGETATION/HABITAT CONDITION

May be included to ensure consultant reports use a consistent and reliable method for evaluating condition.