

Impacts to Nature

Nature

Credit: 35

Points: 2

Outcome

Ecological value is conserved and protected.

Criteria

Minimum Expectation	Nil	<ul style="list-style-type: none"> The building was not built on, or significantly impacted, a site with a high ecological value. The building's light pollution has been minimised. There is ongoing monitoring, reporting, and management of sensitive ecosystems within the site.
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Credit Achievement	2 points	<p>In addition to the <i>Minimum Expectation</i>:</p> <ul style="list-style-type: none"> The building's design and construction conserves existing natural soil, hydrological flows, and native vegetation elements. If deemed necessary by an Ecologist, at least 50% of existing site with high biodiversity value is retained.
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Additional information

Stage implementation

Strategy	Brief	Concept	Design	Tender	Construction	Handover	Use
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Synergies with other credits

- Nature Connectivity
- Biodiversity Enhancement
- Waterway Protection
- Nature Stewardship

Sustainable Development Goals

- Goal 14 (Life Below Water)
- Goal 15 (Life on Land)

Relevant reporting initiatives

- GRESB

Requirements

Minimum Expectation

The project must comply with **all three** of the following criteria:

- Site Ecological Value
- Managing Light Pollution Impacts
- Sensitive Ecosystem Management Plan

Site Ecological Value

- This requirement is met where: The type of development that is proposed in the project area meets the intent of the underlying planning zone.
- At the date of purchase or option contract, land clearing does not occur on the site as a result of the building, infrastructure, or construction works on the following:
 - Native forest
 - Highly productive land
 - Natural wetlands, lakes, and rivers
 - Land containing significant indigenous vegetation, naturally uncommon ecosystems, or significant habitats for indigenous flora & fauna – especially for any nationally threatened species or organisms.
 - Any legally protected area defined under the Conservation Act 1987, Reserves Act 1977, QEII National Trust Act 1977, or RMA Section 108 (1), (c) and (d).
 - Where mapped, any Significant Natural or Significant Ecological Areas as designated by Councils.
- If the project site is adjacent, within 100 meters, or contains the above and these are being protected, the construction and future operations of the site takes measures to reduce their impact to the above as follows:
 - Both the Waterway Protection *Credit Achievement* and the *Credit Achievement* for this credit (Impacts to Nature) is met
 - The light pollution impacts are managed
 - Where the site is next to a wetland (as above), by also putting in place Wetland Protection Measures

This requirement applies to the condition of the site that existed at the date of site purchase or option contract (previous condition of the site).

In cases where the site has been owned by the current owner for more than five years (from the project's Green Star registration date), the requirements are applied to the state of the site that existed at least five (but not more than ten years) prior to the project's Green Star registration date.

Where the previous condition of the site is unclear, a qualified Ecologist shall assess the site and decide of its ecological value at the approximate time of purchase.

Managing Light Pollution Impacts

Light pollution to neighbouring bodies

The project team must demonstrate that all outdoor lighting on the project complies with values set up in Table 3.2 and Table 3.3 of AS/NZS 4282:2019 Control of the obtrusive effects of outdoor lighting. Project team should justify their choice of environmental zone as per Table 3.1 in AS/NZS 4282:2019.

The conditions apply to all boundaries, apart from boundaries with roads. The boundary shall be taken as the site boundary, with no setback and no consideration of the location of adjacent buildings (i.e., worst-case scenario).

The system must comply with both non-curfew and curfew requirements.

Light pollution to night sky

It must be demonstrated that **one** of the following specified reductions in light pollution has been achieved by the project:

- Control of upward light output ratio (ULOR)
- Control of upward waste light ratio (UWLR)
- Control of direct illuminance

This covers all external lighting of a project. In addition to other types of external lighting, for the purposes of this credit, luminaires inside glazed atria and those on the uppermost (uncovered) deck of an outdoor car park are considered external.

Control of Upward Light Output Ratio (ULOR)

For this option, the project team must demonstrate that no external luminaire on the project has a ULOR that exceeds 5%, relative to its actual mounted orientation. Project teams must demonstrate that the ULOR provided or calculated in the documentation, is relevant to the as-installed orientation of the luminaire.

Control of Upward Waste Light Ratio (UWLR)

An external luminaire with a UWLR not exceeding 5% may be used to demonstrate evidence as required by the requirements in Light Pollution - Light Pollution to Night Sky.

Control of Direct Illuminance

For this option, the project team must demonstrate that direct illuminance from external luminaires on the project produces a maximum initial point illuminance value no greater than:

- 0.5 Lux to the site boundary
- 0.1 Lux to 4.5 metres beyond the site into the night sky, when modelled using a calculation plane set at the highest point of the building

Calculations shall be in accordance with AS/NZS 4282:2019.

The calculation plane must cover the area between the site boundary and building façade or vertical service to be illuminated. The horizontal calculation plane shall be set at the top of the building fabric, excluding spires. Calculation plane grid points shall have a 0.5m spacing. All illumination results shall be reported to within 2 decimal places.

Sensitive Ecosystem Management Plan

The site-specific Sensitive Ecosystem (including wetlands) Management Plan must be prepared by a qualified Ecologist or other qualified professional and include requirements for ongoing quarterly monitoring, annual reporting, and management of the ecosystem for a minimum of five years. The plan must be exhibited to the public on the applicant's website or the local council's offices or library for a minimum of 24 months.

Credit Achievement

In addition to the *Minimum Expectation*, the project must comply with **both** of the following criteria:

- Protecting Ecological Values
- Retaining High Biodiversity Values

Protecting Ecological Values

Ecological value assessment

A pre-development site ecological value assessment is undertaken by a suitably qualified ecologist.

In the assessment, the project team must demonstrate how they have attempted to understand their site's historical and current ecological context by documenting the site's current ecological values by type and biomass. This includes terrestrial and aquatic ecological values, geologic features, and soils (including interaction with living things). When determining biodiversity value, the project must reference local, regional, state, and national priorities and strategies.

The project should use this investigation as a foundation to appropriately identify if there is potential for any future ecological value to be incorporated on site.

Protecting ecology

Based on the understanding of the site, the project team must show how ecological values will be protected including:

- The proportion of existing vegetated area being retained and the biodiversity value of this area, including identifying species names.
- Identifying local and regional threats and mitigation requirements.
- Listing active management strategies to be employed to protect the integrity of ecological values throughout the project planning, construction, and occupancy.
- Documenting the community engagement process, and outline risks and opportunities to enhance the site.
- Detailing consultation outcomes with local stakeholders including Mana Whenua and environmental groups.

Retaining High Biodiversity Values

Where the area has been deemed an area of high biodiversity value by an assessment undertaken by an ecologist, the project must retain at least 50% of this area contiguously.

The project team must then provide a narrative as to how the following impacts to nature and the community have been mitigated:

- Light and noise pollution (this is met if required for the *Minimum Expectation*)
- Habitat disturbance and connectivity (deemed met if *Biodiversity Enhancement* and *Nature Connectivity* credits are achieved)
- On-site and downstream water quality (Deemed met if *Waterway Protection* credit is achieved)
- Migratory paths of insects, birds, or other species
- Two local issues appropriate to the project site (e.g., pest management and groundwater)

Consideration must be given to these impacts during demolition, siteworks, construction, or future occupation.

Where no existing biodiversity is identified through the process outlined above, the project team is not required to provide a narrative to describe how the listed impacts to nature and the community have been mitigated, but instead how the project will add biodiversity value to the site.

Submission content

Submissions for this credit must contain:

- **Submission form**
- **Evidence** to support claims made in the submission

Recommended evidence:

- Extracts from the Development Application
- Zoning Plans
- Light pollution
 - As Built drawings indicating the location of all external luminaires and showing the aiming point and mounting orientation of all external luminaires
 - Luminaire schedule for all external lighting, nominating the type, lighting distribution and quantity of each luminaire and including the relevant photometric data such as ULOR
 - Calculation Plots for all external lighting, showing that all grid points on the calculation plane return compliant Lux values
 - Excerpt from lighting control system, or similar, demonstrating automatic deactivation of lights, based on external lux levels, where deactivation is required to achieve compliance

- If triggering the sensitive ecosystem requirements:
 - Sensitive Eco-system Management Plan
 - Evidence as per Waterway Protection credit
- Ecological assessment report
- Evidence that recommendations from the qualified ecologist have been incorporated into the design:
 - Narrative from Ecologist
 - As built drawings

Alternate documentation can also be used by project teams to demonstrate compliance.

The recommended evidence listed above is applicable to the as built submission. See the ***Error! Reference source not found.*** section in the Introduction for more information on submitting evidence for the Design assessment.

The key requirement is that evidence is provided to support each claim made within the Submission form.

Guidance

Light pollution

Exclusions

Signage related to emergency exits and external emergency lighting that only illuminates in the event of an emergency/power failure are excluded from the requirements of this credit.

Lighting related to other safety requirements are excluded, (for example, the lighting of ATMs) from the Light Pollution to Neighbouring bodies, but not from Light Pollution to Night Sky.

External emergency lighting that is integrated into the general external lighting scheme must comply with the requirements of the credit. For example, lights that act as general lighting but have a battery pack to ensure that they also stay on in the event of a power failure must comply.

Control of upward light output (ULOR)

A luminaire with a ULOR as nominated in the manufacturer's data sheet, will have a different ULOR when the mounting orientation of the luminaire is changed. If any external luminaire is mounted in an orientation other than the one nominated by the manufacturer, the ULOR must be recalculated and provided by project teams.

Awnings

Awnings can be used as a means of achieving compliance with the 5% ULOR requirement where a section drawing showing the light output of the luminaire can be provided, and where the awning has the effect of blocking 95% of the output of the lamp above the horizontal. This requirement is not met where it is not clear if the awning is a permanent structure.

Time clock

Projects using a time clock methodology must ensure that all the relevant building lights are commissioned to ensure that the lights are operating as designed. Evidence of commissioning must be submitted as part of the Green Star assessment.

For the purposes of the credit criteria Building Commissioning, all building lights, including those installed with a time clock, fall within the definition of 'nominated building systems'.

Relationship to Nature Connectivity and Biodiversity Enhancement credits

Should 50% of the existing site be retained, this may be captured in both the Biodiversity Enhancement and Nature Connectivity credits.

Definitions

Upward light output ratio

The ratio of the luminous flux emitted by a luminaire above the horizontal to that emitted by the lamp.

Outdoor lighting

Outdoor lighting refers to lighting under the control of the building management, including digital signs and screens. In addition to other types of external lighting, for the purposes of this credit luminaires inside glazed atria and those on the uppermost (uncovered) deck of an outdoor car park are external.

Qualified ecologist

An Ecologist who has a degree in Ecology or similar and/or a minimum of five years continuous experience working as an ecologist.

Highly productive land

Highly Productive Land (HPL) is defined as land which is classed as either Land Use Capability (LUC) class 1, 2, or 3. This covers land of the highest capability and versatility to support primary production. HPL excludes all urban zoned areas and all future urban zoned areas in District Plans. Evidence of the LUC class can be provided by referring to the NZ Land Resource Inventory which maps the LUC distributions across New Zealand.

Natural wetland

A 'natural wetland' includes any permanently or intermittently wet area, shallow water, or land water margin that supports a natural ecosystem of plants and animals that are adapted to wet conditions. A 'wetland' is an area where a water table is at, near, or above the surface or where soils are water-saturated for a sufficient length of time that excess water and resulting low oxygen levels are principal determinants of vegetation and soil development.

The definition of 'wetland' does not include continually or intermittently flowing bodies of fresh water such as:

- Rivers
- Streams
- Modified watercourses
- Creeks
- Ephemeral Creeks

Neither does the definition of 'natural wetland' include a wetland constructed by artificial means (unless it was constructed to offset impacts on, or restore, an existing or former natural wetland); or any area of improved pasture that, at the commencement date, is dominated by (that is more than 50% of) exotic pasture species and is subject to temporary rain-derived water pooling.

Supporting information

The following resources support this credit:

- The New Zealand Wetlands Management Policy
- AS/NZS 4282:2019 Control of the Obtrusive Effects of Outdoor Lighting
- [Building with Nature](#): Prioritising Ecology and Biodiversity for Better Buildings and Cities
- National Light Pollution Guidelines for Wildlife Including Marine Turtles, Seabirds and Migratory Shorebirds (<https://www.environment.gov.au/biodiversity/publications/national-light-pollution-guidelines-wildlife>)
- The New Zealand Land Resource Inventory (<https://iris.scinfo.org.nz/layer/48076-nzlr-land-use-capability/>)