King's House School, Richmond

Biodiversity Net Gain and Ecological Enhancement / Mitigation Summary

January 2021

Job No. 7514.5

The Ecology Consultancy

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1. INTRODUCTION

Background

1.1   The Ecology Consultancy was commissioned by Land Use Consultants (LUC) on behalf of King's House School to produce an update Biodiversity Net Gain Assessment (BNG) and summary of the Biodiversity Enhancements and Mitigation measures in regard to the redevelopment of King's House School, London Borough of Richmond.

1.2   The scope of this report is twofold:

- Assessing the quantitative change in 'Biodiversity Units' resulting from the proposed development, based on the current landscaping strategy and baseline conditions.

- To summarise the embedded ecological mitigation and enhancement as detailed in the previous ecology reports and Landscape Plan as shown in appendix (The Ecology Consultancy, 2021a, b, c).

Site Context and Status

1.3   The proposed development is located at King's House School, Kings Road, London Borough of Richmond-upon-Thames, hereafter referred to as the site. The site is located in a suburban environment with the local area dominated by residential properties and associated gardens. The nearest large areas of greenspace are East Sheen and Richmond Cemeteries and Pesthouse Common Site of Importance for Nature Conservation (SINC), an area of grassland habitat located 300 metres (m) east of the site. The site is approximately 0.4 hectares (ha) in size and is centred on Ordnance Survey National Grid reference TQ1871 7475.

Development proposals

1.4   A number of the existing school buildings, including the existing music block, gym, PE store, side extension and garage will be demolished in order to create a central quad area and facilitate construction of the new teaching block.' The new classroom block is due to be built to the South of the site resulting in the removal of two trees, (T20 and G2.1), as well as areas of scrub, introduced shrub and amenity garden (David Miller Architects, 2020).

1.5   As part of the proposed landscaping new shrub and tree planting will be included along the southern and western boundary as well as a biodiverse roof on sections of the new building (LUC London, 2020)

2. ECOLOGICAL MITIGATION AND ENHANCENT SUMMARY

HABITAT CONSTRAINTS / COMPENSATION

Habitats

2.1   The development will remove sections of building, hardstanding, scattered trees, introduced shrub and amenity grassland to facilitate development of an extension to the existing school building. The landscaping plans incorporate new areas of semi-natural habitat that achieves overall biodiversity net gain. A summary of the biodiversity net gain assessment is given below at Section 3.

Removal of Schedule 9 invasive species

2.2   It is an offence to allow the spread of species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) into the wild. Montbretia is a Schedule 9 species which was recorded on site and is located within the proposed works footprint. It is therefore recommended that a management plan is produced to ensure that this species does not spread. Further details are included in the Preliminary Ecological Appraisal (The Ecology Consultancy, 2020a).

FAUNAL MITIGATION

Nesting birds

2.3   If the construction of the new building and site clearance during the breeding season (March to August inclusive) is unavoidable then potential nesting habitat must be inspected by an ecologist within 48 hours of works commencing, to identify active birds' nests. Should they be present, the nest and a suitable buffer of habitat around it must be retained until the young have left the nest. Further details are included in the Preliminary Ecological Appraisal (The Ecology Consultancy, 2020a).

Bat surveys

2.4   Update surveys will be required in May to August of 2021 on buildings with moderate potential to support roosting bats. These surveys will then inform the CEMP (The Ecology Consultancy, 2020c).

Construction Environmental Management Plan (CEMP)

2.5 A CEMP will be produced which will detail measures taken to minimise the disturbance on bats on buildings during the construction and operational phase. Further details of CEMP requirements for bats are provided in the Preliminary Roost Assessment report (The Ecology Consultancy, 2020c). This also includes outline details of the proposed lighting strategy for bats (The Ecology Consultancy, 2020c).

HABITAT ENHANCEMENTS

2.6 To ensure that Biodiversity Net Gain is achieved the following recommendations will need to be included within the landscaping proposals.

Native scrub planting

2.7 Native scrub species are included in the landscaping plans to enhance the site (David Miller Associates, 2020b). Planting will include native species and/or species of recognised wildlife value and include nectar-rich and berry producing plants, of value to Richmond BAP species such as hedgehog and house sparrow. Larger shrub/trees should be under-planted to create greater structure and cover for wildlife. Further details are provided in the Preliminary Ecological Appraisal report (The Ecology Consultancy, 2020a).

Native tree planting

2.8 Tree species to include a mixture of fruiting species, species which could be that can provide forage to wildlife and be harvested by pupils. Suitable species include cherry, plum, apple and hazel as well as rowan, hawthorn and birch. Further details are provided in the Preliminary Ecological Appraisal report (The Ecology Consultancy, 2020a).

Biodiverse

2.9 A biodiverse roof is to be included as part of the landscaping proposals on site (David Miller Associates, 2020b). The biodiverse roof to include additional habitat features such as temporary pools, invertebrate boxes / log piles and varying substrate depths (80 to 150mm). It is recommended that advice is sought from a professional green roof consultancy in order to design the specification of the green roof in-line with the environmental goals of the development. Further details are provided in the Preliminary Ecological Appraisal report (The Ecology Consultancy, 2021a).

Species-rich lawn turf

2.10 The new area of grassland is to be sown with a seed mix that realises a native species-rich lawn turf comprising a range of wildflowers within the sward. This flower-rich amenity grassland will enhance the site for wildlife, whilst maintaining a tidy finish to landscaping. Further details are provided in the Preliminary Ecological Appraisal report (The Ecology Consultancy, 2021a).

Climbers

2.11 Climber trellises will be incorporated into the proposed landscaping, a trellis featuring climbing plants of known value to invertebrates. Climber species will include jasmine, honeysuckle and common ivy. These species are also known to have wildlife value to other species by providing nectar for butterflies, moths and other pollinators as well as cover for birds and invertebrates in winter.

FAUNAL ENHANCEMENTS

Provision of nesting opportunities for birds

2.12 At least x6 bird boxes suitable for declining species such as house sparrow and swift (both Richmond and London BAP species and Species of Principal Importance) will be integrated within the fabric of the new building. Further details are provided in the Preliminary Ecological Appraisal report (The Ecology Consultancy, 2021a).

Provision of roosting opportunities for bats

2.13 At least x3 Bat boxes will be integrated within the fabric of the new building. The results of the recommended further bat surveys would provide more details of the most suitable designs and locations. Further details are outlined in the Preliminary Roost Assessment report (The Ecology Consultancy, 2021c).

Provision of stag beetle habitat

2.14 A loggery will be constructed on site to provide future breeding habitat for stag beetles, which will comprise partially or totally buried logs with surface above ground, which can potentially be used as an educational tool. Further details are provided in the Preliminary Ecological Appraisal report (The Ecology Consultancy, 2021a).

3. BIODIVERSITY NET GAIN SUMMARY

3.1 This report summarises the Biodiversity Net Gain calculations provided in the Defra Biodiversity Metric 2.0 Calculation Tool Beta Test (Natural England, 2019a), to be appended to this report.

METHODOLOGY

3.2 The Biodiversity Net Gain Assessment is based on the Biodiversity Net Gain Good Practice Principals for development (Baker et. al., 2019), the Defra Technical Supplement (Natural England, 2019b) and calculated using the Defra Biodiversity Metric 2.0 Calculation Tool Beta Test (Natural England, 2019a). Using this approach, the value of a site is quantified in Biodiversity Units, calculated based on extent and quality of the habitats present.

3.3 The information provided in the Preliminary Ecological Appraisal for this site (The Ecology Consultancy, 2021) has been used to inform the assessment for habitats present prior to the development, and information provided by the design team and client has been used to inform the assessment of habitats proposed (LUC London, 2020). The Biodiversity Unit value for the site prior to development and the Biodiversity Unit value for the site post-development were compared to assess whether the development will result in a net gain in the overall biodiversity value of the site.

Assumptions and Limitations

3.4 All habitats within the site prior to development and within the proposals are of moderate distinctiveness or below. In line with Natural England guidance, default connectivity scores have been attributed to these habitats.

3.5 The site is not located within a strategically important location for biodiversity (The London Borough of Richmond, 2018), therefore all habitats were assessed as having a Low Strategic Significance.

3.6 A number of habitats to be created on site are not accounted for in the UK Habitat Classification System (UKHab) and therefore assumptions have been made as to which categories in the tool best represent those habitats.

3.7 Assumptions have been made as to what the condition of the proposed habitats on site will be, using a 'moderate' condition score, to calculate the post development units. The above

enhancement measures detailed in this report must be integrated to achieve biodiversity net gain.

3.8   Tree areas were calculated using Root Protection Area (RPA) found in the Tree survey schedule (Nicholas Jones Consultants, 2020). Trees were then classified according to size: small, medium and large. The area for trees was then deducted from the habitat areas which they intersected.

RESULTS

Baseline Biodiversity Units

3.9   The biodiversity value of the habitats on site prior to construction (baseline) is shown in Table 1 below. Full details of the calculations can be found within the Biodiversity Metric 2.0 Calculation Tool spreadsheet.

Table 3.1 – Biodiversity Score Pre-development based on Preliminary Ecological Appraisal

Habitat	Area (ha)	Distinctiveness	Condition	Ecological Connectivity	Strategic Significance	Habitat Units Retained	Habitat Units Lost
Urban - Amenity grassland	0.0178	Low	Fairly Poor	Low	Low	0	0.05
Urban - Introduced shrub	0.0118	Low	Fairly Poor	Low	Low	0.02	0.01
Urban - Developed land; sealed surface	0.25	Very Low	N/A - Other	N/A	Low	0	0
Heathland and shrub - Bramble scrub	0.026	Medium	Fairly Poor	Low	Low	0	0.16
Urban - Street Tree	0.144	Low	Moderate	Low	Low	0.52	0.06
TOTAL RETAINED / LOST				0.54		0.29	
TOTAL EXISTING						0.83	

3.10   The biodiversity value of the site prior to clearance is **0.83** units, of this 0.54 units are retained and **0.29** units are being lost.

Ensuring biodiversity net gain through on-site compensation

3.11   The site comprised habitats of moderate, low and very low distinctiveness that are common in the local area. With exception of Urban - Introduced shrub and Urban - Street Tree, none of the existing habitats on site will be retained under the current layout. In line with the principles of Biodiversity Net Gain.

3.12   The current proposals, presented in the plans provided by LUC (LUC, 2021) include new areas of native scrub planting, native tree planting, biodiverse roof installation, native climbers, green walls and species rich lawn turf

3.13   A calculation has been provided to determine the biodiversity value for the proposed habitat areas at the site, as shown in Table 3.2.

Table 3.2 – Biodiversity Score Post-development based on current landscape plans

Habitat Recreation	Area (ha)	Distinctiveness	Condition	Ecological Connectivity	Strategic Significance	Time delay (years)	Difficulty	Biodiversity Units
Urban - Developed land; sealed surface		V.Low	N/A - Other	N/A	Low	0	Low	0.00
Urban - Extensive green roof	0.0357	Medium	Moderate	Low	Low	3	Medium	0.17
Urban - Amenity grassland	0.01275 697	Low	Moderate	Low	Low	3	Low	0.05
Urban - Ground based green wall	0.00953 4992	Low	Moderate	Low	Low	3	Medium	0.02

Urban - Introduced shrub	0.02087 202	Low	Fairly Good	Low	Low	1	Low	0.10
Urban - Street Tree	0.005	Low	Moderate	Low	Low	27	Low	0.01
Grassland - Other neutral grassland	0.005517 686	Medium	Fairly Good	Low	Low	12	Low	0.04
TOTAL HABITAT UNITS				**0.39**				

3.14 The total number of biodiversity units provided on site (including retained habitat) within the proposed habitat areas in the current landscaping plans is **0.39 units.**

3.15 As such the proposed development will result in a net gain in biodiversity of **0.10** biodiversity units and a net percentage increase of **+12.53%**

REFERENCES

Baker, J., Hoskin, R. and Butterworth, T. (2019) *Biodiversity Net Gain Good Practice Principles for Development.* CIRIA, London

David Miller Associates (2020) New Application – Pre-application Advice 01: Kings House School. Doc No: KHS-DMA-XX-XX-RP-A-0010102152.

LUC London (2020) *Kings House School: Landscape Sketch Proposal.* Drawing number: LD-PLN-061120

Natural England (2019a). *The Biodiversity Metric 2.0. Technical Supplement Beta Version.* Available at: http://publications.naturalengland.org.uk/publication/5850908674228224

Natural England (2019b). *The Biodiversity Metric 2.0. User Guide Beta Version.* Available at: http://publications.naturalengland.org.uk/publication/5850908674228224

Nicholas Jones Consultants (2020). *King's House School Tree Survey Schedule.* Document number: NJCL 308-1

The Ecology Consultancy (2021a) *King's House School: Preliminary Ecological Appraisal.* Report reference: 7514.6

The Ecology Consultancy (2021b) *King's House School: Ground level tree assessment report.* Report reference: 7514.6

The Ecology Consultancy (2021c) *King's House School: Preliminary roost assessment report.* Report reference: 7514.6

The London Borough of Richmond (2018). *Local Plan -* https://www.richmond.gov.uk/media/15935/adopted_local_plan_interim.pdf [accessed 10/01/2021]

APPENDIX 1: LANDSCAPE PLAN

The soft palette seeks to add interest and enrich the setting of the external spaces. Biodiversity will be enhanced through a proposed palette that favours native species and offers year round interest.

The majority of species are shade tolerant with new understory planting proposed under existing trees. Within the Headmaster's Garden herbaceous planting will be largely ornamental whereas the outdoor learning garden will have a more robust palette with a central orchard meadow.

The architectural proposals allow for further planting opportunities for climbers as well as large areas of biodiverse roof.
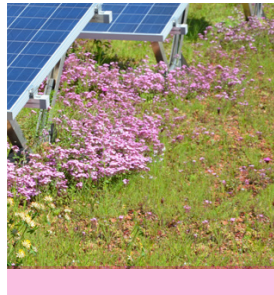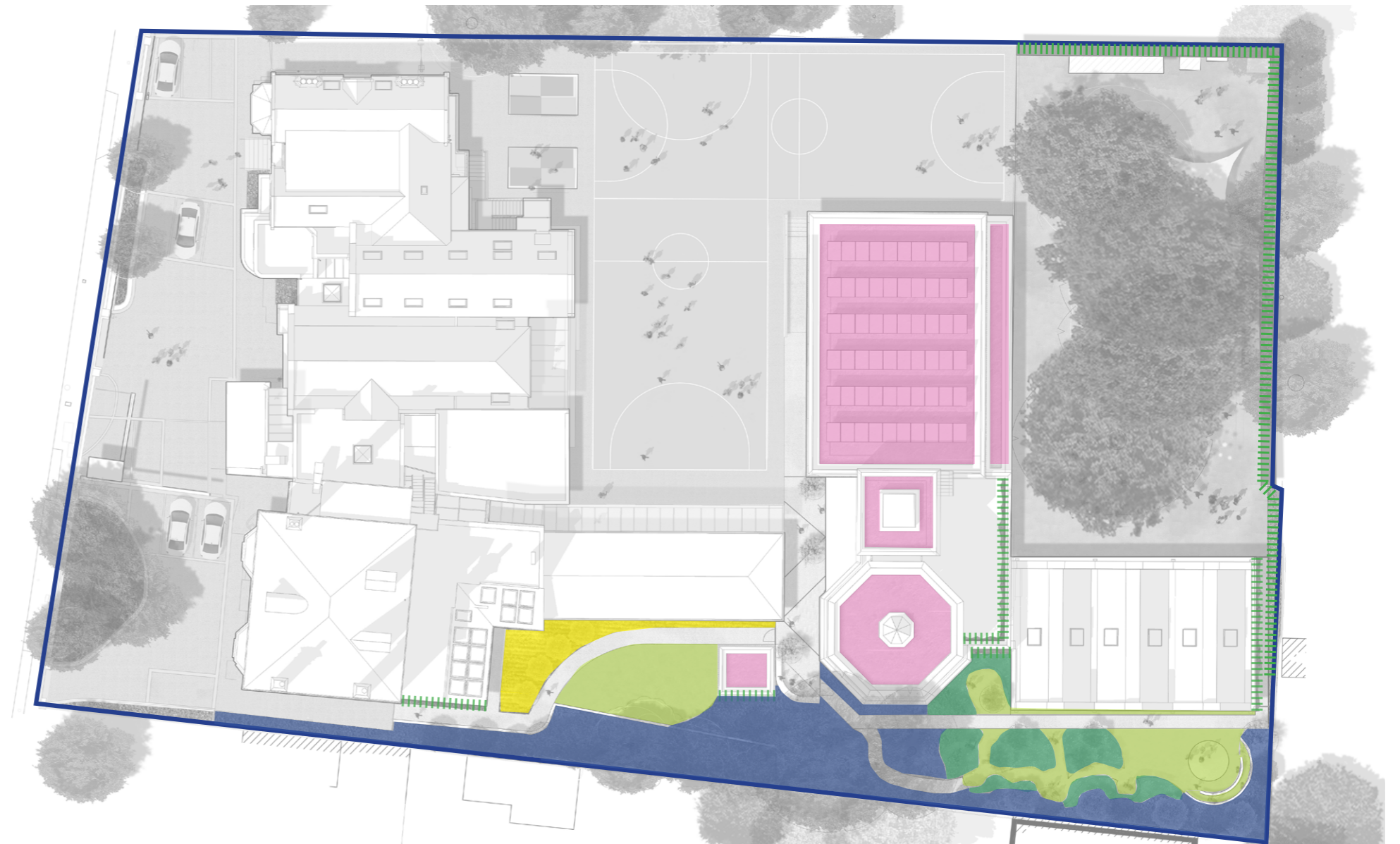
Biodiverse roof

Lawn

Meadow / Wildflower
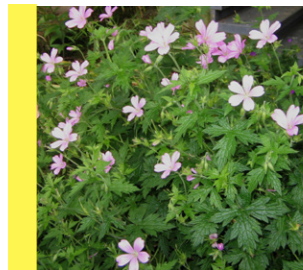
Geranium species

Anemone species
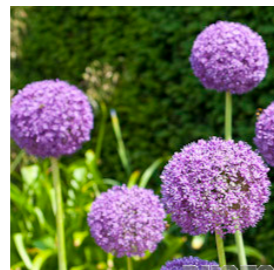
Allium

Aster divaricatus
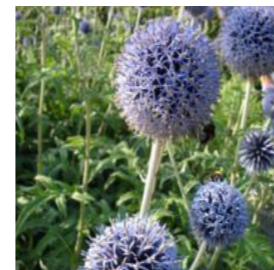
Echinops bannaticus

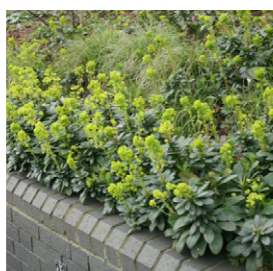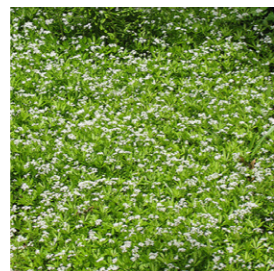Lavandula angustifolia

Rosa canina

Clematis vitalba
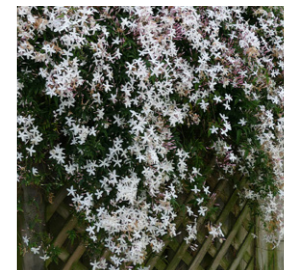
Jasminum officinale
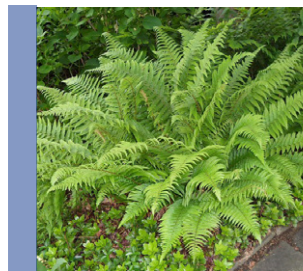
Dryopteris filix-mas
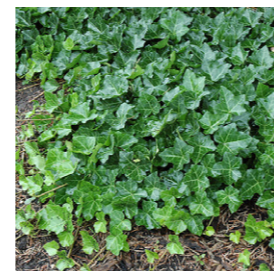

Euphorbia amygdaloides

Galium odoratum

Ligustrum vulgare

Hedera helix 'Hibernica'

Liriope muscari

Asplenium scolopendrium

Lonicera periclymenum

David Miller Architects

The architectural proposals respond to the trees on site retaining all but two of the existing. Prominent trees such as the Holm Oaks in the north east of the site are framed and their importance reinforced.

On the southern boundary the existing tree line is retained where possible (a category B Holly & a category C Ash are proposed to be removed to facilitate development) and further tree planting is added to bolster this area and mitigate for any loss.

The proposed trees are an opportunity to add further character to the spaces as well as enhance biodiversity. Learning opportunities have also been created through this planting choosing species with year round interest.

Two existing young Holm Oak Trees (which currently fall below the BS categorisation to appear on the survey) are proposed to be removed to facilitate construction. These will be replanted off site and then reinstated in the same position following the completion of the works. If either of the trees fail following replanting they will be replaced with the same species of the same size.

Note that any resurfacing or proposed pathways within root protection areas is to be of a no dig construction.
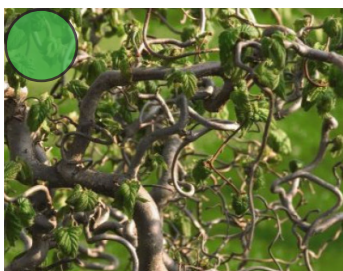
Please refer to the Arborist's Arboricultural Assessment submitted as part of this proposals for more detail on existing trees.
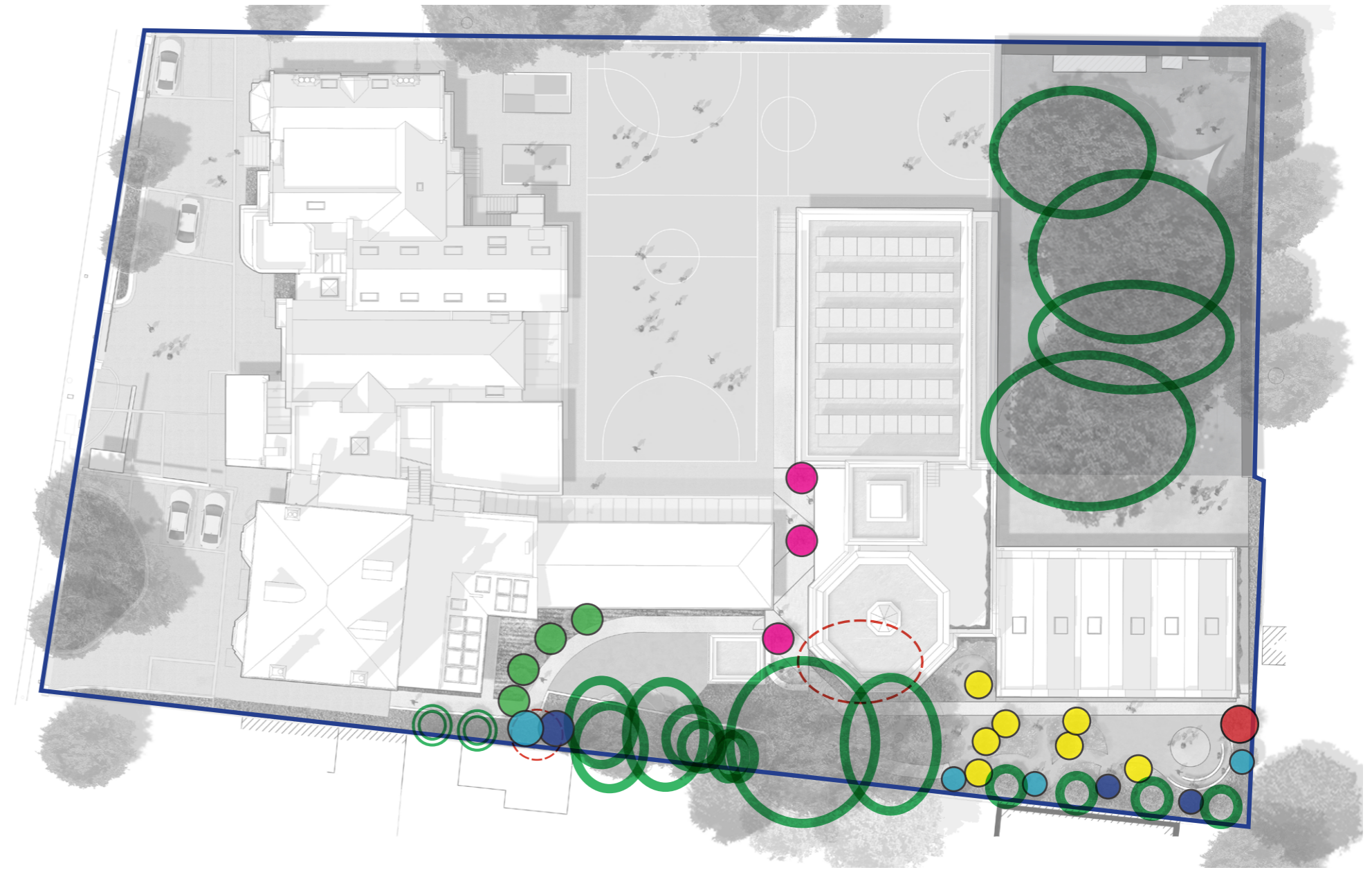
Prunus avium - 1-1.5m height
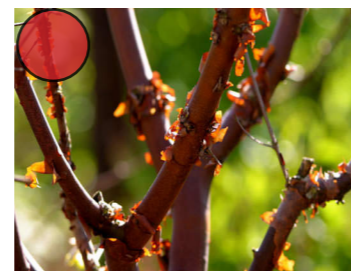Multi-stem tree
(3 No.)

Ilex Aquifolium - 10L. Single
stem tree / large shrub
(3No.)

Corylus avellana 'contorta'
- 20L. Large Shrub
(4 No.)

Malus sargentii 'Tina' - 10L.
pot single stem tree
(7 No.)

Acer griseum - 18-20cm girth
single stem tree
(1 No.)

Crataegus - 10-12cm girth
single stem tree
(4 No.)

Existing trees retained

Trees proposed removed to facilitate
construction then reinstated following
completion of the works (2No.)

Trees proposed to be
removed (2No.)

7

David Miller Architects