



Study Requirements

Riverwood Estate State Significant Precinct

December 2020



Published by NSW Department of Planning, Industry and Environment

dpie.nsw.gov.au

Title: Study Requirements

Subtitle: Riverwood Estate State Significant Precinct

First published: December 2020

© State of New South Wales through Department of Planning, Industry and Environment 2020. You may copy, distribute, display, download and otherwise freely deal with this publication for any purpose, provided that you attribute the Department of Planning, Industry and Environment as the owner. However, you must obtain permission if you wish to charge others for access to the publication (other than at cost); include the publication in advertising or a product for sale; modify the publication; or republish the publication on a website. You may freely link to the publication on a departmental website.

Disclaimer: The information contained in this publication is based on knowledge and understanding at the time of writing (December 2020) and may not be accurate, current or complete. The State of New South Wales (including the NSW Department of Planning, Industry and Environment), the author and the publisher take no responsibility, and will accept no liability, for the accuracy, currency, reliability or correctness of any information included in the document (including material provided by third parties). Readers should make their own inquiries and rely on their own advice when making decisions related to material contained in this publication.

Contents

Introduction	1
Purpose of the study	2
Scope of the study	3
Study Requirements	3
1. Place Strategy	4
2. Public Domain, Place and Urban Design	6
3. Planning	9
4. Population and demographics.....	12
5. Heritage.....	13
6. Social sustainability and infrastructure	14
7. Transport.....	16
8. Environmental Sustainability, Climate Change and Waste Management	18
9. Green Infrastructure, Ecology, Urban Forest and Greening.....	21
10. Utilities Servicing	22
11. Infrastructure	23
12. Economic feasibility	25
13. Geotechnical and Contamination	26
14. Water Quality and Stormwater	27
15. Flooding.....	29
16. Consultation.....	30

Introduction

The Riverwood Estate State Significant Precinct (SSP) is an area of over 30 hectares of Government-owned land, containing 994 social housing dwellings.

NSW Land and Housing Corporation (LAHC) is seeking to renew the estate to facilitate the redevelopment of ageing social housing stock and provide fit for purpose and deconcentrated social housing. Renewal will allow the Riverwood Estate to reach its full potential and deliver public benefit through high quality new open spaces, public domain, community facilities, exemplary sustainability outcomes and local retail that supports the needs of the future community whilst also improving accessibility and connectivity across the precinct.

The SSP process allows the Department of Planning, Industry and Environment (DPIE) to consider rezoning proposals for areas that are of state or regional planning significance such as the Riverwood Estate.

A place-based planning approach will be pursued within the SSP framework that sets out how the collaborative processes that recognise the value and need for local expertise, knowledge, responsibility and investment. The process is designed to enable a shared vision that distinguishes Riverwood from other places and draws on its identity.

The Study Requirements outlined in this document will guide LAHC's investigations into new planning controls for the Riverwood Estate Study Area shown in **Figure 1**. The Study Requirements will be prepared in collaboration with the Canterbury-Bankstown City Council (CBCC), Georges River Council (GRC), the Greater Sydney Commission (GSC), the Government Architect NSW (GANSW) and in consultation with other relevant state agencies.

LAHC will prepare the necessary studies to satisfy these requirements and support the potential redevelopment of the site. These studies will form part of LAHC's rezoning proposal and DPIE will review the studies to ensure that the Study Requirements are appropriately addressed prior to any public exhibition.



Figure 1: Riverwood SSP Study Area

Purpose of the study

LAHC (the applicant) is seeking new planning controls to enable the renewal of the Riverwood Estate State Significant Precinct (SSP).

To inform the new planning framework, the applicant must prepare a detailed study which outlines the proposal and addresses the potential impacts and ensures planning and infrastructure respond to the important issues of place. The study is informed by the Study Requirements which are outlined in this document.

The study should be more than a document to justify the proposed planning changes. The study should also ensure the opportunities for a co-ordinated approach to public spaces, commercial, residential and civic development is integrated in a sustainable and well-designed urban framework.

The Study Requirements detail the areas of study which must be addressed and provide guidance to ensure that when the study is lodged with DPIE for consideration, it is appropriate for public exhibition and consultation with the community. The study is expected to contain supporting material including but not limited to place strategy and urban design framework.

Once the study has been lodged, DPIE, in consultation with the CBCC, GRC, GSC, and GANSW, will review the study to ensure it has adequately addressed all study requirements outlined in this document. This review will also consider preliminary merit matters and ensure the study is appropriate for consultation with the community.

Following public exhibition of the proposal and supporting study, all issues raised in submissions will need to be appropriately addressed. DPIE, CBCC, GRC, GSC and GANSW then undertake an assessment of the proposal. The assessment will consider all relevant planning matters (including those outlined in the Study Requirements), as well as all submissions received throughout the exhibition period.

Scope of the study

Any proposal for Riverwood Estate SSP must address the matters outlined in this document. In summary, the matters to be addressed include preparation of a place framework, urban design framework, master plan and a planning report to guide the renewal of the area as well as a suite of other detailed technical studies that inform the proposal. This approach is designed to ensure the delivery of safe, sustainable, resilient, welcoming, attractive and connected places for the community.

The requirements outlined in this document will guide the study and must be addressed, however the applicant should be seeking to provide an exemplar proposal and as such it may be appropriate to expand on scopes, undertake more detailed studies in other disciplines and further examine the impact on areas beyond the study area boundary.

Study Requirements

The requirements that must be addressed in the preparation of any proposal for the Riverwood Estate SSP are detailed below along with the key deliverables. Deliverables must address the study requirements and integrate with each other where appropriate. Together they must clearly set out the rationale and justification for the proposal.

The study requirements have been structured to include a hierarchy of requirements and considerations for each issue. Each requirement is broken down, as follows:

- Scope and Requirement - outlines the content that the study must include
- Considerations - matters that should be taken into account when preparing the Study
- Consultation - specific parties that should be consulted to inform preparation of material in response to the Study Requirement
- Author - specific experience and/or expertise of the person to undertake the study
- Guidance documents - material relevant to the topic that is the subject of the study

1. Place Strategy

Study Requirement	Vision, Strategic Context, Local Character and Justification
	<p>Scope and Requirement</p> <p>1.1 Prepare a Strategic Place Framework for the precinct that: Identifies and understands the strategic context, confirms project objectives and outcomes and provides place-based direction for other aspects of the study, including:</p> <ul style="list-style-type: none"> • Describing the case for change, need for government intervention, strategic context • Noting State and Local Government objectives, priorities and commitments • Identifying critical targets (meaning aspects of the LAHC brief which are considered essential to the project's success, for example: no loss of social housing) • Outlines the project scope and parameters, including the study area and broader context which will be considered as part of the study • Describes the whole of Government and external stakeholder network, including potential future investors • Identifies specific local considerations <p>1.2 Defines a Place Brief including:</p> <ul style="list-style-type: none"> • Background research and findings related to the strategic context • Place audit including key place needs and opportunities • Preliminary analysis of broader networks and infrastructure; natural systems and cultural systems • Outcomes of initial engagement with local Aboriginal community to embed a Connecting with Country in development of the Place Framework, Urban Design Framework, Public Domain Strategy and Consultation Strategy • Preliminary spatial analysis and identification of sub-precincts and key sites • Results and summary of stakeholder and community collaboration/consultation • Place narratives*, drivers and character including consideration of the existing physical and social elements of the site that has assisted in building community and illustrating the history of the site and the story of its residents (for example, but not limited to: the community gardens, yards) • An emerging place vision— identity, principles and key directions • Evaluation criteria to support place vision and principles— including economic, social, environmental and cultural factors (please note these criteria should be used by the project team to refine the scheme, they should also be included in reports so that they can be used and understood by anyone engaging with or assessing the project) • High level scenarios, priorities and staging options • Next steps, including identification of threshold decisions to be resolved to address impediments and barriers <p><i>Place Narrative: an understanding of the unique combination of natural and built, cultural and historic factors that distinguishes a place from other places and is a foundation of its identity.</i></p> <p>1.3 A foundation for the Urban Design Framework, including:</p> <ul style="list-style-type: none"> • Key spatial moves and directions

Study Requirement	Vision, Strategic Context, Local Character and Justification
	<ul style="list-style-type: none"> • Stakeholder/community collaboration/consultation and how this has/will inform the proposal • Local character and identity of sub precincts— Place Narrative, Drivers and Character • Iterative options and scenario testing against evaluation criteria, informed by spatial analysis • Proposed layout and built form, including landscape, open space, density, land use and mix • Infrastructure staging and delivery plan, including early responses to staging threshold questions • Draft development staging, sequencing and implementation outline • Reference schemes and visualisations
	<p>Considerations</p> <p>Consider the broader context of the site including but not limited to the school, Washington Park, adjoining streets, Salt Pan Creek and reserve, Belmore Road, the local centres, character of the suburb</p>
	<p>Author</p> <p>The place framework is to be prepared by suitably qualified design or engagement professional(s) or otherwise suitably experienced expert to undertake the required works</p>
	<p>Consultation</p> <p>The place framework is to demonstrate consultation with Canterbury Bankstown City Council, Georges River Council, Government Architect NSW, DPIE's Place Design and Public Spaces Division and the Greater Sydney Commission.</p>
	<p>Guidance Documents</p> <ul style="list-style-type: none"> • Plan on a Page outline (DPIE); • Better Placed (Government Architect NSW); • District and Regional Plan strategies and actions on open space; • Draft Greener Places (Government Architect NSW); • Government Architect NSW Advisory Notes; • Designing with Country, discussion paper prepared by GANSW (2020); • Draft Connecting with Country Framework by GA NSW (2020); • Canterbury Bankstown City Local Strategic Planning Statement; • Georges River Council Local Strategic Planning Statement; and • Canterbury Bankstown City Council Draft Salt Pan Creek Master Plan.

2. Public Domain, Place and Urban Design

Study Requirement	Public Domain, Place and Urban Design
	<p data-bbox="347 376 657 409">Scope and Requirement</p> <p data-bbox="164 454 204 488">2.1</p> <p data-bbox="347 454 1310 488">Prepare an Urban Design Framework for the precinct that considers/addresses:</p> <ul data-bbox="347 504 1426 1753" style="list-style-type: none"> <li data-bbox="347 504 667 537">• Vision and objectives <li data-bbox="347 548 1150 582">• Public open space framework (hierarchy and connectivity, ect) <li data-bbox="347 593 1358 660">• Movement networks and hierarchy (including internal and external road network) having regard to the movement and place framework <li data-bbox="347 672 655 705">• Built form envelopes <li data-bbox="347 716 868 750">• Relationship of built form to open space <li data-bbox="347 761 751 795">• Land use mix and distribution <li data-bbox="347 806 1050 840">• Integration with surrounding context including heritage <li data-bbox="347 851 863 884">• Public space amenity impact controls <li data-bbox="347 896 708 929">• Design quality provisions <li data-bbox="347 940 1406 1030">• Findings of a solar access analysis both within the precinct, addressing open space and dwellings, and on adjoining land, including Winter Solstice and Equinox. This analysis should identify minimum solar access controls for open space; <li data-bbox="347 1041 1406 1276">• Given the proximity of the M5 Motorway and nearby industrial land uses, outline the acoustic and air quality impacts of the proposal and the mitigations measures to ensure a high standard of amenity for future residents. The <i>State Environmental Planning Policy (Infrastructure) 2007</i> and the <i>Development Near Rail Corridors and Busy Roads – Interim Guideline</i> must be addressed. These assessments should also consider other current and future local air and noise issues in the area, including potential cumulative impacts from other activities; <li data-bbox="347 1288 1390 1355">• Findings of a view corridor and visual assessment, including but not limited to an analysis of any visual impacts on surrounding areas and mitigation measures; <li data-bbox="347 1366 1406 1500">• Wind comfort, including development of wind comfort criteria for the entire precinct and all adjacent areas affected by the proposed development. At a minimum desktop analysis is required to understand wind characteristics of the precinct and proposed design response and inform criteria to ensure wind comfort. <li data-bbox="347 1512 1353 1646">• Findings of a benchmarking assessment of the proposed development against relevant best practice projects (noting that the benchmarking should be against positive attributes of comparison projects, quantifying positive attributes of comparators that the precinct will meet or exceed); and <li data-bbox="347 1657 1426 1753">• Outline draft LEP controls with a block by block approach to permissible height and FSR (including residential and non-residential) with all schedules/calculations provided for each individual block. <p data-bbox="164 1780 204 1814">2.2</p> <p data-bbox="347 1780 1390 1848">Prepare a Public Domain Strategy that guides future planning and approval processes and seeks to achieve high quality public domain outcomes including:</p> <ul data-bbox="347 1870 1374 2016" style="list-style-type: none"> <li data-bbox="347 1870 1145 1904">• A vision statement and a series of goals to achieve the vision. <li data-bbox="347 1915 1374 1982">• Public open space accessibility analysis and response (particularly for residents East of Belmore Road). <li data-bbox="347 1993 831 2016">• Understanding of recreation needs.

Study Requirement	Public Domain, Place and Urban Design
	<ul style="list-style-type: none"> • Public open space provision and identification of type that is needed. • Public open space structure • Identifying current public space, what will be upgraded and what new public space will be delivered, including links to Salt Pan Reserve (addressing Premier's Priority 11 and Public Space Charter). This should also include identifying opportunities to improve access to Salt Pan Creek from the Riverwood local centre. • Detailed site and context response, noting how the precinct public domain is integrated with its wider context. • A movement plan setting out the proposed movement corridors and connectivity network throughout the precinct, the types of movements to be captured through the precinct (i.e. walking, cycling, vehicles, employees etc), including Riverwood Station, major bus stops and key destinations such as centres and recreation areas. The plan should emphasise creating strong pedestrian corridors linking outside the precinct. • A landscape master plan for the precinct locating public space (open space, plazas, squares) that have been derived from site analysis, benchmarking assessment, the land uses (residential and non-residential activities) and urban design principles (having regard to Better Placed, Greener Places and Public Space Charter). The master plan is to include (but not limited to) public space connections, deep soils zones, urban canopy targets and outcomes, and, Water Sensitive Urban Design principles. The landscape master plan should identify any improvements to the surrounding area which are critical to realising the public domain vision statement. • A tree canopy cover analysis to ensure comfort and usability of public space, having regard to canopy tree cover. • A high-level safety and security analysis that outlines how potential future crime and safety risks in relation to the development will be addressed. The proposed development should have regard to CPTED guidelines and integrate closely with other studies. • Typical sections of street and future pathways in the precinct to demonstrate quality and best practice design principles are being met. • Design response to interfaces of the precinct including setback, landscape treatments, wide verges, height transitions and servicing requirements. This response should demonstrate consideration for future planning of adjoining sites.
2.3	<p>Prepare an Indicative Staging Strategy that identifies how staging may occur; includes detail of how the delivery of public domain will be considered and coordinated across individual development sites including construction staging. The staging strategy should include measures to the minimisation impacts for existing residents/tenants and how new works will be protected during construction of later stages.</p>
2.4	<p>Provide 3D CAD models and photomontages of the proposal from eye level positions in the public domain.</p>
2.5	<p>State Design Review Panel</p> <p>Undertake an independent design review process led by the GANSW to advise on design work in progress. Design review sessions are to commence as soon as possible after the issue of these Study Requirements.</p> <p>Prepare a Design Review Report to include all design advice letters and a record outlining how the issues raised by the panel have been addressed.</p>

Study Requirement	Public Domain, Place and Urban Design
	<p>Considerations</p> <p>All studies (including the masterplan) are to demonstrate the consideration of:</p> <ul style="list-style-type: none"> • Designing with Country, to guide how the design and operation of the precinct are informed by an understanding and acknowledgement of the Aboriginal cultural connections to the Country within which the precinct lies; • Surrounding context of the precinct, particularly the precinct's relationship to its immediate context, setting, streetscape and the social significance of the precinct; • Opportunities for new and upgraded public space and actions that outline the delivery process and funding arrangements to deliver the projects; • Breaking down types of public space into the three types used by the Department's Public Spaces Division which include: <ul style="list-style-type: none"> • Public open spaces: active and passive (including parks, gardens, playgrounds, public beaches, riverbanks and waterfronts, outdoor playing fields and courts, and publicly accessible bushland). • Public facilities: public libraries, civic/community centres, showgrounds and indoor public sports facilities. • Streets: streets, avenues and boulevards, squares and plazas, pavements, passages and lanes, and bicycle paths. • Assessment of the accessibility (including inclusive Design) of the proposed locations of public spaces in relation to matters including but not limited to, maximising connections to the broader network of new and existing public spaces and topography; • Suitability of the size, location, flexibility and extent of use of public spaces for the number and types of users and relationship to existing public spaces and parks; • Provision of continuous tree canopy over major pedestrian routes/ desire lines with additional areas of canopy cover over the remaining public places to enable shade; and • Retention of existing trees and provision of new trees, the capacity of the proposal to allow for the growth of new trees; the provision of sufficient soil volumes and quality to provide for long term tree health; Canopy design concepts that improve streetscape amenity; and how the plan can address the key strategies such as GSC Green Canopy targets and the Premier's priority for greening our city.
	<p>Consultation</p> <p>The studies are to demonstrate consultation with:</p> <ul style="list-style-type: none"> • Canterbury Bankstown City Council and Georges River Council; • DPIE's Place Design and Public Spaces Division; • The Greater Sydney Commission; and • Government Architect NSW, particularly design matters, any regarding any published or upcoming guidance materials and including the forthcoming Connecting with Country (Government Architect NSW).
	<p>Author</p> <p>The public domain, place and urban design studies are to be prepared by suitably qualified urban and landscape design professional(s) with the necessary experience and expertise to undertake the required works.</p>

Study Requirement	Public Domain, Place and Urban Design
	<p>Guidance documents</p> <p>The following documents provide guidance for this Study:</p> <ul style="list-style-type: none"> • Green Cover Technical Guidelines (NSW Government); • Draft Greener Places (Government Architect NSW); • Better Placed (Government Architect NSW); • District and Regional Plan strategies and actions on open space; • Sydney Green Grid: Spatial Framework and Project Opportunities prepared by Tyrrell Studio for DPIE in association with NSW Office of Government Architect (2017); • Evaluating Good Design Guideline (Government Architect NSW); • Implementing Good Design (Government Architect NSW); • Government Architect NSW Advisory Notes; • State Environmental Planning Policy No 65—Design Quality of Residential Apartment Development; • Apartment Design Guide; • GANSW Advisory Note on Design Excellence; • Designing with Country, discussion paper prepared by GANSW (2020); • Draft Connecting with Country Framework by GA NSW (2020); • Canterbury Bankstown City Local Strategic Planning Statement; • Georges River Council Local Strategic Planning Statement. • Canterbury Bankstown City Council’s Salt Pan Creek Master Plan; • Premiers Priority 11 - https://www.nsw.gov.au/premiers-priorities/greener-public-spaces; • Public Space Charter - https://www.dpie.nsw.gov.au/premiers-priorities/great-public-spaces/festival-of-place/public-space-charter; • Movement and Place Framework - https://www.transport.nsw.gov.au/nsw-movement-and-place-framework; • Development near rail corridors and busy roads – Interim Guideline; • Walking Space Guide - https://www.rms.nsw.gov.au/business-industry/partners-suppliers/document-types/guides-manuals/walking-space-guide.html; • State Environmental Planning Policy (Infrastructure) 2007 and the Development Near Rail Corridors and Busy Roads – Interim Guideline; • Noise Policy for Industry (EPA 2017) which provides guidance in relation to land use planning regarding industrial noise issues; and • The NSW Road Noise Policy (DECCW 2011) which provides a method to manage noise from new and redeveloped road projects, or land use developments generating additional road traffic.

3. Planning

Study Requirement	Planning
3.1	<p>Scope and Requirement</p> <p>Prepare a Planning Report for the precinct that:</p>

Study Requirement	Planning
<p>3.2</p> <p>3.3</p> <p>3.4</p>	<ul style="list-style-type: none"> • Identifies the existing planning framework, applicable strategic plans, key planning issues and relevant background; • Assesses the proposed planning framework (see study requirement 3.2 below) against relevant State and local strategic plans, strategies and policies; • Outlines the vision and priorities for the precinct; • Considers the State and regional planning significance of the precinct; • Responds to the study requirements; • Explains and justifies the proposed approach to development of the precinct, planning controls, sub-precinct planning, development standards (height, FSR, heritage etc), dwelling and building type mix; • Identifies and addresses the implications of any proposed land uses; • Considers planning pathways to deliver social and affordable housing; and • Summarises the key outcomes of the various studies undertaken and how these have informed the planning controls for the precinct. <p>Prepare draft planning controls for the precinct which include a plain English explanation of proposed zoning, maximum building heights, FSR, and car parking to be enacted by a SEPP amendment. The draft controls are to be described in an Explanation of Intended Effect (EIE). The draft planning controls must consider the relationship with SEPP Affordable Rental Housing 2009 and the proposed SEPP Housing Diversity exhibited by the Department in September 2020.</p> <p>Prepare a draft Development Control Plan or Design Guideline, including appropriate development controls to inform future development of the precinct to deliver the vision and design and place quality of the Place Framework, Urban Design Framework and Public Domain Strategy, including: public domain, street hierarchy and typologies, connectivity, car parking, accessibility, building footprints, development heights, street frontage, setbacks, typical public domain to building interfaces, building typologies, amenity, sustainability, open space and public domain, biodiversity, waste management, solar access, wind, public art, sustainability, Aboriginal cultural heritage, European heritage and heritage interpretation.</p> <p>Prepare a Design Excellence Strategy that ensures design excellence is achieved for future development in the precinct and takes into consideration any relevant design excellence provisions belonging to either Canterbury Bankstown City Council or Georges River Council as well as best practice examples. The Design Excellence Strategy should describe how future stages of the project will support design quality, including demonstration of an integrated approach to: any disbursement / tender process for the sale of land and development rights, procurement of design services, design diversity, delivery and long term management of the public domain, staging, and; design review and / or design competitions (for the precinct, individual sites and public spaces).</p>
	<p>Considerations</p> <p>The studies are to demonstrate the consideration of:</p> <ul style="list-style-type: none"> • Suitability of the precinct for any proposed land use taking into consideration environmental, social and economic factors, and any State or regional planning strategy;

Study Requirement	Planning
	<ul style="list-style-type: none"> • Current and draft Development Control Plans and Environmental Planning Instruments of relevance to the precinct; and • Guidance from the Government Architect NSW.
	<p>Consultation</p> <p>The Study is to be informed by consultation with the DPIE's Place Design and Public Spaces Division, Canterbury Bankstown City Council, Georges River Council, the Greater Sydney Commission and the NSW Government Architect.</p>
	<p>Author</p> <p>The planning documents, controls and guidelines are to be prepared by suitably qualified planning professional(s) with the necessary experience and expertise to undertake the required works.</p>
	<p>Guidance documents</p> <p>The following documents provide guidance for this Study:</p> <ul style="list-style-type: none"> • Greater Sydney Region Plan; • South District Plan; • Canterbury Bankstown City Local Strategic Planning Statement; • Georges River Council Local Strategic Planning Statement; • State Environmental Planning Policy No 65—Design Quality of Residential; Apartment Development; • Apartment Design Guide; • Green Cover Technical Guidelines (NSW Government); • Draft Greener Places (Government Architect NSW); • Better Placed (Government Architect NSW); • District and Regional Plan strategies and actions on open space; • Sydney Green Grid: Spatial Framework and Project Opportunities prepared by Tyrrell Studio for DPIE in association with NSW Office of Government Architect (2017); • Evaluating Good Design Guideline (Government Architect NSW); • Implementing Good Design (Government Architect NSW); • Government Architect NSW Advisory Notes; • GANSW Advisory Note on Design Excellence; • Designing with Country, discussion paper prepared by GANSW (2020); • Draft Connecting with Country Framework by GA NSW (2020); and • DPIE's guide to preparing planning proposals.

4. Population and demographics

Study Requirement	Population and demographics
4.1	<p>Scope and Requirement</p> <p>Prepare a Population and Demographics Study that:</p> <ul style="list-style-type: none"> • Identifies the existing situation (the baseline), including constraints, opportunities and key issues; • Outlines the likely impacts of the proposal in relation to population and demographics; and • Informs and supports the preparation of the proposed planning framework including any recommended planning controls or DCP/Design Guideline provisions.
	<p>Considerations</p> <p>The Study is to demonstrate the consideration of:</p> <ul style="list-style-type: none"> • The employment and population profile of the precinct and surrounding communities including age, ethnicity, education, employment, income, trip to work mode and other relevant information; • Key employment and population drivers and trends impacting the precinct and surrounding communities; • Time series (5-year increments) employment and population forecasts of the future precinct and local area based on existing development capacity without the proposal (to at least 2036); • Time series (5-year increments) employment and population forecasts of the future precinct and local area with the proposal (to at least 2036); and • Comparisons of forecasts with the remainder of Canterbury Bankstown LGA, Georges River Council and Greater Sydney Metropolitan Region for the purposes of comparison aligned with predicated rates of growth as per GSC estimates.
	<p>Consultation</p> <p>The Study is to be informed by consultation with the DPIE's demographics team, Canterbury Bankstown City Council, Georges River Council and the Greater Sydney Commission.</p>
	<p>Author</p> <p>The study is to be prepared by suitably qualified professional(s) with the necessary experience and expertise to undertake the required works.</p>
	<p>Guidance documents</p> <p>The following documents provide guidance for this Study:</p> <ul style="list-style-type: none"> • Canterbury Bankstown City Council's draft Local Housing Strategy (or final if available); and • Georges River Council draft Local Housing Strategy (or final if available).

5. Heritage

Study Requirement	Heritage
<p>5.1</p> <p>5.2</p> <p>5.3</p>	<p>Scope and Requirement</p> <p>Prepare an Aboriginal Cultural Heritage Study for the precinct that:</p> <ul style="list-style-type: none"> • Identifies the cultural significance of the precinct to the broader area – including but not limited to landscape systems, cultural stories and practice and living culture. • Undertakes an assessment of Aboriginal cultural heritage within or near the site including archaeology, intangible and social heritage, using existing resources or new research as necessary; • Includes a Statement of Significance to assess the likely impact of the precinct redevelopment on this identified cultural heritage; • Provides recommendations to guide the management of Aboriginal cultural heritage significance, in the context of the precinct development, and taking into account the findings of the study, any items of significance, the likely impact on Aboriginal cultural heritage as a result of the proposal and consultation; • Includes results of consultation with relevant Aboriginal stakeholders and knowledge holders for the precinct and surrounds; and • Informs and supports the preparation of the precinct planning framework (including any DCP) and any management strategies. <p>Prepare a Historical Archaeological Assessment for the precinct that:</p> <ul style="list-style-type: none"> • identifies what relics, if any, are likely to be present, assess their significance and consider the impacts from development following the proposal on this potential archaeological resource; and • where impact is likely to occur, the assessment must identify approaches to avoid and conserve significant relics through appropriate planning.
	<p>Considerations</p> <p>The studies should demonstrate consideration of:</p> <ul style="list-style-type: none"> • The significance of cultural heritage values for Aboriginal people who have a cultural association with the land – both with the precinct and the broader area; • Opportunities to celebrate Aboriginal cultural heritage on the site; • Adopted methods to ensure impacts to the heritage significance or cultural heritage values of the site and surrounding heritage items and heritage conservation areas are avoided or mitigated; and • Measures to facilitate the conservation and celebration (where appropriate) of items, areas, objects, landscape systems and places of heritage significance or cultural heritage values. <p>Please Note: the studies should be informed by a site-inspections, walking country and documentary research.</p>
	<p>Consultation</p>

Study Requirement	Heritage
	The studies are to be undertaken in consultation with Local Aboriginal Lands Councils and other relevant stakeholders, and Heritage NSW.
	<p>Author</p> <p>The Aboriginal Cultural Heritage Study is to be prepared by a suitably qualified professional(s) with extensive experience in Aboriginal cultural heritage within the Sydney context.</p> <p>The Historical Archaeological Assessment is to be prepared by a suitably qualified historical archaeologist.</p>
	<p>Guidance documents</p> <p>The following documents provide guidance for this Study:</p> <p>Aboriginal Cultural Heritage</p> <ul style="list-style-type: none"> • the Guide to investigating, assessing and reporting on Aboriginal Cultural heritage in NSW; • Aboriginal Cultural Heritage Consultation Requirements for Proponents; • Code of practice for archaeological investigation of Aboriginal objects in NSW; • Designing with Country, discussion paper by GA NSW (2020); and • Draft Connecting with Country Framework by GA NSW (2020). <p>Historical Archaeological Assessment</p> <ul style="list-style-type: none"> • Guidelines set out in the NSW heritage manual, “The Conservation Plan” and the Burra Charter; • Archaeological Assessments (1996) – https://www.heritage.nsw.gov.au/assets/Uploads/files/archaeological-assessments-guidelines.pdf; and • Assessing Significance for Historical Archaeological Sites and Relics (2009) – https://www.heritage.nsw.gov.au/assets/Uploads/a-z-publications/a-c/Assessing-Significance-A-Historical-Archaeological-Sites-and-Relics.pdf.

6. Social sustainability and infrastructure

Study Requirement	Social infrastructure
6.1	<p>Scope and Requirement</p> <p>Prepare a Social Infrastructure Study that:</p> <ul style="list-style-type: none"> • Defines an appropriate study area for the purposes of the assessment, incorporating the precinct and broader catchment/s as appropriate to assessment of individual infrastructure types; • Identifies the existing situation (the baseline), including constraints, opportunities and key issues; • Outlines the likely impacts and social infrastructure requirements resulting from the proposal;

Study Requirement	Social infrastructure
6.2	<ul style="list-style-type: none"> • Assesses needs and/or demands of the existing and future population and capacity and/or supply of the service in the precinct; • Defines the objectives, strategies, timeframes, implementation, performance indicators, and responsibilities for social and health services; and • Informs and supports the preparation of the proposed planning framework including any recommended planning controls or DCP/Design Guideline provisions that would deliver an appropriate sustainability outcome. <p>Prepare a preliminary Equity-Focused Health Impact Assessment that:</p> <ul style="list-style-type: none"> • Outlines the likely impacts on health and health infrastructure, including the likely impacts of the proposal on the health of existing community, future population and neighbouring community, including an assessment of the severity and likelihood identified positive and negative impacts; • Assesses the distribution of impacts; and • Recommends mitigation measures.
	<p>Considerations</p> <p>The studies are to demonstrate the consideration of:</p> <ul style="list-style-type: none"> • Local workforce and business needs, and opportunities to deliver a public benefit and support economic inclusion, particularly for Aboriginal and Torres Strait Islander communities and other specific sectors of the community, including through apprenticeships, training and education during the construction phase; • Existing and future populations in need of health (including medical) infrastructure and services, including but not limited to, vulnerable communities, young people, older people, etc; • Supply and demand for social infrastructure and services (including but not limited to within the defined study area catchment/s), including but not limited to open space (active and passive, indoor and outdoor), schools, community facilities, libraries, health facilities, primary health care services, childcare, other health and wellbeing services; • Measures to achieve diverse, inclusive, healthy, socially connected and sustainable precinct; • Mitigation measures to maximise positive health impacts and minimise negative health impacts of proposed development; and • How the proposal will deliver a healthy built environment and support healthy active lifestyles for residents, including consideration of the relevant guidelines.
	<p>Consultation</p> <p>The study is to be informed by consultation with the DPIE's demographics team, NSW Health and SINSW.</p>
	<p>Author</p> <p>The study is to be prepared by suitably qualified professional(s) with the necessary experience and expertise to undertake the required works.</p>

Study Requirement	Social infrastructure
	<p>Guidance documents</p> <p>The following documents provide guidance for this Study:</p> <ul style="list-style-type: none"> • Healthy Urban Development Checklist and Building Better Health Guidelines; and • Any draft or final guidelines for school planning by SINSW.

7. Transport

Study Requirement	
7.1	<p>Scope and Requirement</p> <p>Prepare a comprehensive transport strategy and transport impact assessment for the precinct, developed following a Movement and Place approach that:</p> <ul style="list-style-type: none"> • Identifies the existing situation, including constraints opportunities and key issues to inform a Study Area that appropriately covers transport infrastructure and services that should be assessed for the impact resulting from the proposed development; • The freight servicing needs of the precinct; • Reviews the trip generating potential for all proposed modes and purposes, develops mode share targets and travel demand management measures and policies (including appropriate level of on-site car parking rates consistent with the site's proximity to public transport services) to achieve these targets; • Provides an understanding of the travel behaviours and patterns (all modes) of future workers, visitors and residents of the proposal in consideration of influencing factors such as changes in demographics and land uses through benchmarking (against best practice development on similar sites), forecast modelling tools (i.e. Strategic Travel Model and Strategic Traffic Forecasting Model) and other sources of evidence; • Identifies and assesses the traffic and transport impacts resulting from the proposal with a detailed appropriate level transport network assessment for all modes including of pedestrians, cyclists, freight, on road public transport and private vehicles with consideration of the cumulative traffic and transport impacts from planned and committed developments in the surrounding area to year 2036; • Consider the transport needs of the Riverwood centre including parking needs and arrangements; • Provides details of the proposed transport strategy including, any necessary transport infrastructure and servicing improvements; the proposed approach to pedestrian and bicycle facilities, car parking; and access and egress requirements; and • Informs and supports the preparation of the proposed planning framework including any recommended planning controls or DCP/Design Guideline provisions • Recommends infrastructure upgrades providing strategic cost estimates and delivery mechanism for the additional transport infrastructure and service requirements in support of the delivery of an appropriate planning outcome.

Study Requirement	
	<p>Considerations</p> <p>The Study is to demonstrate consideration of:</p> <ul style="list-style-type: none"> • A “vision and validate” approach to the precinct and adjacent street network to develop a street user hierarchy, including movement and place considerations, for the precinct; • Inclusion of pedestrian analysis at access/egress points, at intersections with the road network along key desire lines; • Measures to safeguard future transport infrastructure and traffic changes (for example any planned/future road closures, pedestrianised street sections, one way/two-way traffic operation etc. to the adjacent transport network); • The safety of all road users, particularly pedestrians and cyclists; • The performance of the existing and future cycling, public transport and road network surrounding the precinct, including potential improvements; • Cumulative growth of the surrounding area based on committed and planned developments to the year 2036; • A realistic level of development yields that could be supported by the future planned transport infrastructures; • Potential impacts of construction traffic including a strategic construction approach and potential staging; • Access for people with disability, older people and pram users; and • The program for delivery of mitigating measures / actions to address the impact of the increased population on traffic and transport infrastructure (inside and outside the precinct), including the road network and intersections, footpaths/cycle ways and public transport.
	<p>Consultation</p> <p>The scope of the study should be prepared in consultation with TfNSW, Canterbury Bankstown City Council and Georges River Council.</p>
	<p>Author</p> <p>The study is to be prepared by a suitably qualified transport professional(s) with the necessary experience and expertise to undertake the required works, including the ability to use various strategic and detailed transport forecasting and analytic models in the context of a Movement and Place approach.</p>
	<p>Guidance documents</p> <p>The following documents provide guidance for this Study:</p> <ul style="list-style-type: none"> • Future Transport 2056; • NSW Road Planning Framework; and • The Movement and Place Practitioner’s Guide, March 2020 (Government Architect NSW and Transport for NSW).

8. Environmental Sustainability, Climate Change and Waste Management

Study Requirement	Sustainability, Climate Change and Waste Management
	<p>Scope and Requirement</p> <p>8.1 Prepare an Environmental Sustainability Study for the precinct that:</p> <ul style="list-style-type: none"> • Identifies the existing situation, including constraints, opportunities and key issues; • Outlines the likely impacts of the proposal in relation to energy use, greenhouse gas emissions, air quality, noise, water use, wastewater, solid waste and climate change resilience; • Minimise land use conflict and provide for a mix of uses in appropriate locations. • Provides detail of proposed sustainability and circular economy principles and how they will be incorporated into the proposal; • Includes an integrated water cycle management strategy supported by water sensitive urban design where it is safe and practical to do so and helps protect the environment; • Includes a principles-level waste management strategy that embraces circular economy principles; • Includes measures to address the impact of climate change including urban heat and extreme weather events; <p>8.2</p> <ul style="list-style-type: none"> • Support opportunities for sustainable and efficient use of resources to minimise waste and deliver a circular economy, and water and energy from development to result in a carbon positive precinct by 2050; • Embed circular economy design into buildings, infrastructure and domain to maximise the recycling and reuse of materials; • Facilitate and support a circular economy around repair, reuse, recycling, remanufacturing and reprocessing; • Recognise waste as a resource and the collection and transport of waste and recycling as an essential service that must be undertaken in a manner that is safe, efficient, cost effective and does not negatively impact on liveability and the environment; • The study should include supporting air quality analysis; • Informs and supports the preparation of the proposed planning framework including any recommended planning controls or DCP/Design Guideline provisions that would deliver an appropriate sustainability outcome; and • Identify appropriate sustainability benchmarks for each development/building type and/or use within the precinct. <p>Prepare a Climate Change Adaptation Report that:</p> <ul style="list-style-type: none"> • Details how the development will address temperature increases from climate change, including integration of vegetation (existing and future), permeable and reflective surfaces and Water Sensitive Urban Design features into the design of the development; and • Demonstrates consideration of the <i>Urban Green Cover in NSW Technical Guidelines</i> (OEH, 2015).

Study Requirement	Sustainability, Climate Change and Waste Management
	<p>Prepare a noise and vibration report for the proposal that:</p> <ul style="list-style-type: none"> • Identifies the existing situation, both within the Precinct and in affected adjacent areas, showing constraints, opportunities and key issues and maps any sensitive receptors; • Assesses the likely noise and vibration impacts on future development including but not limited to any potential impacts particularly in relation to road traffic, night-time economy, any sensitive land uses (including proposed and adjoining) and open space to ensure a high level of amenity is achieved; • Identifies principles for efficiency of the likely future noise, and vibration measures to minimise negative impacts on comfort and to minimise harm to people or property (to be addressed in Development Control Plan or Design Guideline); • Recommends appropriate noise, vibration and pollution development standards to be applied to subsequent planning and development stages; and • Measures to ensure appropriate validation is undertaken to demonstrate that noise criteria in the SEPP have been achieved prior to occupation.
	<p>Considerations</p> <p>The Study is to demonstrate consideration of:</p> <ul style="list-style-type: none"> • The NSW Government's net zero emissions target, by creating a low-carbon precinct; • How sustainability principles will be incorporated into the design, construction and ongoing operation phases of the redevelopment to achieve sustainability best practice initiatives; • High benchmark sustainability performance targets for the precinct and each development or use within it; • Compliance with BASIX and opportunities to deliver beyond BASIX scores; • Climate change, including the urban heat island effect, changing temperatures and rainfall patterns; • Urban forest and biodiversity; • Taking a whole-of-life approach to sustainability through planning design, construction and ongoing precinct management; • Maximising resource efficiency to contribute to net zero emissions by 2050; • The protection and enhancement of biodiversity through the greening of public and private spaces; • The replacement of any trees removed at an appropriate ratio that considers age, size, type and biodiversity value; • The use of local native plant species in street tree planting and landscaping (rather than exotic species and non-local natives); • Water, wastewater and stormwater reuse options including potential alternative water supply to achieve a water positive precinct; • Opportunities for and assessment of the feasibility of a precinct-scale energy generation and recycled water scheme; • Precinct scale measures to ensure effective operational waste management; and • Options for achieving net zero buildings and net zero precinct.

Study Requirement	Sustainability, Climate Change and Waste Management
	<p>Consultation</p> <p>The Study is to be informed by consultation with the NSW Environment Protection Authority, the Department's Public Spaces Team, GA NSW, the Greater Sydney Commission, DPIE's Environment, Energy and Science (EES) Group, Canterbury Bankstown City Council and Georges River Council.</p>
	<p>Author</p> <p>The Study is to be prepared by suitably qualified sustainability professional(s) with the necessary experience and expertise to undertake the required works.</p>
	<p>Guidance documents</p> <p>The following documents provide guidance for this study:</p> <ul style="list-style-type: none"> • The Better Practice Guide for Waste Management in Multi-Unit Dwellings (DECC 2008); • South District Plan (planning priorities S5 and S6); • Greater Sydney Region Plan (strategies 33.1 and 34.1); • Better Practice for Public Place Recycling (DEC 2005); • NSW Climate Change Policy Framework', October 2016; • NSW and ACT Regional Climate Modelling: NARCLI; • Urban Green Cover in NSW Technical Guidelines (OEH, 2015); • Greener Places (Government Architect NSW); • Risk-based Framework for Considering Waterway Health Outcomes in Strategic Land-use Planning Decisions (OEH/EPA, 2017); • NSW Water and River Flow Objectives; • The Australian Guidelines for Water Recycling: Managing Health and Environmental Risks (Environment Protection and Heritage Council, the Natural Resource Management Ministerial Council and the Australian Health Ministers' conference 2006); • United Nations Sustainable Development Goals; • Future Transport 2056; • Government Resource Efficiency Plan; • NSW Circular Economy Policy Statement; • State Environmental Planning Policy (Infrastructure) 2007 and the Development Near Rail Corridors and Busy Roads – Interim Guideline • Noise Policy for Industry (EPA 2017) which provides guidance in relation to land use planning regarding industrial noise issues; and • The NSW Road Noise Policy (DECCW 2011) which provides a method to manage noise from new and redeveloped road projects, or land use developments generating additional road traffic.

9. Green Infrastructure, Ecology, Urban Forest and Greening

Study Requirement	Green Infrastructure
9.1	<p>Scope and Requirement</p> <p>Prepare a Green Infrastructure Study for the precinct that:</p> <ul style="list-style-type: none"> • Identifies the existing situation, including constraints, opportunities and key issues; • Outlines the likely impacts of the proposal in relation to climate change, heat impacts and community health needs (i.e. mental and physical health); • Provides detail of proposed green infrastructure principles and how they will be incorporated into the proposal (consistent with Greener Places); • Includes an urban forest and greening strategy, outlining the percentage of greening and canopy cover across each land classification (e.g. streets, parks, private land) and private property zoning type; • Includes measures to address storm water retention management and opportunities for beneficial reuse; and • Informs and supports the preparation of the proposed planning framework including any recommended planning controls or DCP/Design Guideline provisions that would deliver an appropriate green infrastructure and sustainability outcome.
	<p>Considerations</p> <p>The study is to demonstrate consideration of:</p> <ul style="list-style-type: none"> • Relevant case studies and transferrable principles that will apply to the proposal; • Percentage and distribution of greening and canopy cover across all private (including green roofs and walls) and public domain areas within the precinct; • Retention of existing trees and provision of new trees, the capacity of the proposal to allow for the growth of new trees to maturity; • The provision of sufficient soil volumes and quality to provide for long term tree health; • Canopy design concepts that improve streetscape amenity; • Taking a whole-of-life approach to green infrastructure through planning design, construction and ongoing precinct management; • Impacts on biodiversity and measures to avoid and minimise impacts, protect and enhance biodiversity through the greening of public and private spaces and the retention of existing habitat including habitat provided by built structures; • The use of a diversity of local native plant species in street tree planting, open space areas and any site landscaping; • The use of advanced sized trees in any street, open space and site landscaping; • Water sensitive urban design and integration with the flood study, plus options for potential alternative water supply; • The Premier's priority for 'Greening our city' and 'Greener public spaces'; and • Management and funding arrangements to support the ongoing performance of green infrastructure including WSUD. This should include suggested measures to deliver the aspired public benefit.

Study Requirement	Green Infrastructure
	<p>Consultation</p> <p>The Study is to demonstrate that it has been undertaken in consultation with the Department's Public Spaces Team, GA NSW, the Greater Sydney Commission, DPIE's EES Group, Canterbury Bankstown City Council and Georges River Council.</p>
	<p>Author</p> <p>The Study is to be prepared by suitably qualified landscape architect with specialist advice and input as necessary from an ecologist, arborist, Water Sensitive Urban Design engineer, soil scientist and urban forestry professionals with the necessary experience and knowledge of the site and expertise to undertake the works.</p>
	<p>Guidance documents</p> <p>The following documents provide guidance for this Study:</p> <ul style="list-style-type: none"> • Greater Sydney Commission – District Plans and Greener Places - Urban Tree Canopy Guide; • guidelines set out in Southern Sydney Regional Organisation of Councils (SSROC) Connected Corridors for Biodiversity; and • Government Architect NSW – Greener Places.

10. Utilities Servicing

Study Requirement	Services and utilities
10.1	<p>Scope and Requirement</p> <p>Prepare a utilities and infrastructure servicing report that:</p> <ul style="list-style-type: none"> • Identifies the existing capacity, required capacity and augmentation need for the proposal, as well as sustainability measures (WSUD) and staging; • Provides a high-level assessment of the capacity of Sydney Water's network to service the development and the proposed servicing options considered for the development; • Outline any integrates water cycle management and/or sustainability initiatives proposed for the development, particularly if they result in a reduction in drinking water demand; and • Informs and supports the preparation of the proposed planning framework including any recommended planning controls or DCP/Design Guideline.
	<p>Considerations</p> <p>The Study is to demonstrate consideration of:</p> <ul style="list-style-type: none"> • Key service infrastructure including electricity, alternative energy systems, water, sewer, gas and telecommunications; • Digital and telecommunications infrastructure which is inclusive of and not limited to precinct-wide Wi-Fi, fibre to the premises and supporting data centres;

Study Requirement	Services and utilities
	<ul style="list-style-type: none"> • Forecast peak demand and generation forecasts based on proposed yields; • On-site electricity generation and storage, facility site requirements, easement requirements and any asset locations required; • Integrated water cycle management, alternative water supply, on-site generation and water recycling, end uses of drinking and non-drinking water; • Capacity in the existing sewerage system to cater for additional loads, and, if required, propose actions to ensure the systems environmental performance will not be compromised; and • The location of service assets in the precinct and outline how asset risk is managed.
	<p>Consultation</p> <p>The Study is to demonstrate that it has been undertaken in consultation with Ausgrid and Sydney Water, digital infrastructure and telecommunications providers and any other relevant providers. Consultation is also required with the Department's Hazard team in relation to High Pressure Gas Pipelines (Jemena Primary Loop Pipeline and APA Group Pipeline).</p>
	<p>Author</p> <p>The study is to be prepared by a suitably qualified professional(s) with the necessary experience and expertise to undertake the required works. In particular:</p> <ul style="list-style-type: none"> • The water utilities component should be prepared by a suitably qualified hydraulic consultant; and • The power utility requirements should be prepared by a suitably qualified (ASP) consultant.

11. Infrastructure

Study Requirement	Infrastructure
11.1	<p>Scope and Requirement</p> <p>Prepare a local infrastructure schedule that:</p> <ul style="list-style-type: none"> • Identifies the local infrastructure required to meet the needs of the proposal (both on and adjacent to the site), including recreation, local and regional open space (passive and active), local road network, improvements to the public domain (supporting the Riverwood Centre), community and education facilities required to meet the characteristics and likely needs of the future population; • Estimates costs and timing of the works; • Outlines the proposed ongoing responsibilities and maintenance of any proposed open space/connections, drainage reserves and community facilities; • Outlines details of any arrangements with Council for public use of community facilities or shared facilities with SINSW; and

Study Requirement	Infrastructure
11.2	<ul style="list-style-type: none"> • Outlines the scope and mechanism/s for development contributions between the proponent and Council for infrastructure that meets the needs of the future population having regard to Council’s existing contribution plans. <p>Prepare a state and regional infrastructure schedule that:</p> <ul style="list-style-type: none"> • Outlines the impact of the proposal on State and regional infrastructure, including public transport, roads, schools and regional open spaces required to meet the characteristics and likely needs of the future population; • Estimates costs and time of the works; and • Identifies the proposed contributions framework to deliver State and regional infrastructure.
	<p>Considerations</p> <p>The Study is to demonstrate consideration of:</p> <ul style="list-style-type: none"> • Local infrastructure items such as recreation, open space, community facilities, libraries, childcare, local pedestrian, cycling, local road network, improvements to the public domain (including the Riverwood Centre) and transport facilities and local drainage (as defined in the public domain plan); • Shared spaces and infrastructure which facilitate inclusivity, continual learning, innovation and collaboration; • State and regional infrastructure such as public transport, roads, hospitals and schools; • Estimated costs and timing of any required works (including how each of the works are linked to proposed staging of development of the precinct); and • Outline mechanisms to ensure delivery, including delivery program and timing and process for implementing mechanisms.
	<p>Consultation</p> <p>The local infrastructure schedule should be developed in consultation with Canterbury Bankstown City Council and Georges River Council.</p> <p>The State and regional infrastructure schedule should be developed in consultation with key agencies including TfNSW, SINSW, NSW Health and DPIE.</p> <p>The studies are to demonstrate that they have been undertaken in consultation with the Canterbury Bankstown City Council and Georges River Council in relation to local infrastructure and DPIE in relation to State infrastructure</p>
	<p>Author</p> <p>The study is to be prepared by suitably qualified professional(s) with the necessary experience and expertise to undertake the required works.</p>

12. Economic feasibility

Study Requirement	Economic productivity and job creation
12.1	<p>Scope and Requirement</p> <p>Prepare an economic and feasibility assessment of the proposal that:</p> <ul style="list-style-type: none"> • Provides an analysis of the market demand for the proposal; • Provides an assessment of the development feasibility of the proposal; • Provides an assessment of the commercial and retail needs and impact of the proposal, having regard the economic role of the centre and employment priorities and actions in the District Plan, Georges River and Canterbury Bankstown Local Strategic Planning Statement; • Clarifies or makes recommendations regarding: <ul style="list-style-type: none"> ○ amount of non-residential floor space to be provided in the precinct, ○ the location of the non-residential floor space within the precinct, ○ suggested land uses to activate the area and provide employment opportunities; and • Provides feasibility testing of development to contribute towards local, State and regional infrastructure, provision of affordable housing, and other design initiatives including but not limited to ESD, BASIX and design excellence. It is recommended the feasibility report responds to proposed design initiatives.
	<p>Considerations</p> <p>The studies are to demonstrate consideration of:</p> <ul style="list-style-type: none"> • Likely wider economic benefits of the proposal in relation to employment, commercial and retail impacts; • Market feasibility and development feasibility of the proposal; • Measures to achieve diverse, inclusive, creative, socially connected and sustainable precinct; and • Demographics of existing and future populations.
	<p>Consultation</p> <p>The study is to demonstrate that consultation has been undertaken with DPIE's demographics team and the Greater Sydney Commission.</p>
	<p>Author</p> <p>The study is to be prepared by a suitably qualified professional(s) with the necessary experience and expertise to undertake the required works.</p>

13. Geotechnical and Contamination

Study Requirement	Water Quality, Flooding and Stormwater
<p>13.1</p>	<p>Scope and Requirement</p> <p>Prepare a Geotechnical and Contamination report that:</p> <ul style="list-style-type: none"> • Provides an assessment of local soil, outlining its suitability for the proposed uses with respect to erosion, salinity and acid sulphate soils. • Provide an assessment of the proposal land uses in accordance with Section 9.1 Direction 2.6 Remediation of Contaminated Land. • Conduct investigations to assess whether the development or future land use are impacted by contamination. If contamination is identified, identify the appropriate contamination remediation, mitigation and management measures that are required to safeguard the environment and people during construction and use of the proposed development. Investigations must: <ul style="list-style-type: none"> ○ be prepared in accordance with relevant guidelines made or approved by the EPA under section 105 of the Contaminated Land Management Act 1997 (CLM Act), including any site investigations undertaken, and the subsequent report/s. ○ follow the processes outlined in State Environmental Planning Policy 55 - Remediation of Land (SEPP55), to assess the suitability of the land and any remediation required in relation to the proposed use.
	<p>Considerations</p> <p>The study is to demonstrate consideration of:</p> <ul style="list-style-type: none"> • The historical use of land, including Salt Pan Creek as a waste disposal site. • How the findings of the report impact the feasibility of development, including basement parking.
	<p>Consultation</p> <p>The study is to demonstrate that it has been undertaken in consultation with the NSW Environmental Protection Authority, Canterbury Bankstown City Council and Georges River Council.</p>
	<p>Author</p> <p>The study is to be prepared by a suitably qualified professional(s) with the necessary experience and expertise to undertake the required works.</p> <p>The reports must be prepared by consultants certified under either the Environment Institute of Australia and New Zealand's Certified Environmental Practitioner (Site Contamination) scheme (CEnvP(SC)) or the Soil Science Australia Certified Professional Soil Scientist Contaminated Site Assessment and Management (CPSS CSAM) scheme.</p> <p>To increased certainty, a NSW EPA-accredited Site Auditor should be engaged to certify the suitability of the land for the proposed use. For example, if:</p> <ul style="list-style-type: none"> ○ an area is to be developed for more sensitive land use; and, if ○ based on further site investigations and guidelines made or approved under section 105 of the CLM Act, it is determined that ongoing management of soil or groundwater contamination is required.

Study Requirement	Water Quality, Flooding and Stormwater
	<p>Guidance documents</p> <p>The following document provides guidance for this study:</p> <ul style="list-style-type: none"> • Managing Land Contamination Planning Guidelines <i>SEPP 55–Remediation of Land</i> • National Environment Protection (Assessment of Site Contamination) Measure 1999 (NEPC, amended 2013); • Managing Land Contamination: Planning Guidelines SEPP 55 –Remediation of Land, (DUAP & EPA, 1998); • Contaminated Land Guidelines: Consultants Reporting on Contaminated Sites (EPA, 2020); • Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997 (EPA, 2015); and • Other guidelines made or approved under section 105 of the Contaminated Land Management Act 1997.

14. Water Quality and Stormwater

Study Requirement	Water Quality and Stormwater
14.1	<p>Scope and Requirement</p> <p>Prepare a water quality and stormwater report that:</p> <ul style="list-style-type: none"> • Provides an assessment of any potential impacts of the proposal on the hydrology and hydrogeology of urban renewal precinct and adjoining areas, particularly water quality, groundwater level, aquifer properties and maintaining any groundwater flow to the Saltpan Creek system. • Demonstrates compliance with the DPI <i>Water's Guidelines for Controlled Activities (2012)</i>. • Provides a concept Stormwater Manager Plan outlining the general stormwater management measures for the proposal, including possible WSUD options supported by an Integrated Water Cycle management strategy. • Provides details of, and an assessment of impact of the proposal on watercourses, wetlands and riparian land on and adjoining the precinct; • Provides concept level information on the impacts of future earthworks and filling of land within the proposal. This assessment should be based on an understanding of cumulative flood impacts; and • Provides concept level details of the drainage associated with the proposed, including stormwater drainage infrastructure and address the impact of stormwater flows on the site from other catchments. • Keep water in the landscape by integrating waterways into the design of the city and residential neighbourhoods, and for the waterways to be healthy so they can provide the essential services and functions expected of a cool green corridor. • Protect, maintain and/or restore waterways, riparian corridors, water bodies and other water dependent ecosystems that make up the 'blue' components of the blue-green grid framework.

Study Requirement	Water Quality and Stormwater
	<ul style="list-style-type: none"> • Demonstrate that renewal of the precinct can satisfy the <i>NSW Water Quality and River Flow Objectives</i> and follow the protocol outlined in the <i>Risk-based Framework for Considering Waterway Health Outcomes in Strategic Land-use Planning Decisions</i> (OEH/EPA, 2017).
	<p>Considerations</p> <p>The study is to demonstrate consideration of:</p> <ul style="list-style-type: none"> • Water quality and the extent to which the proposed development protects, maintains or restores water health and the community's environmental values and use of waterways; and • WSUD options for the proposal.
	<p>Consultation</p> <p>The study is to demonstrate that it has been undertaken in consultation with Canterbury Bankstown City Council and Georges River Council.</p>
	<p>Author</p> <p>The study is to be prepared by a suitably qualified professional(s) with the necessary experience and expertise to undertake the required works.</p>
	<p>Guidance documents</p> <p>The following documents provide guidance for this Study:</p> <ul style="list-style-type: none"> • <i>DPI Water's Guidelines for Controlled Activities (2012)</i>. • <i>Risk-based Framework for Considering Waterway Health Outcomes in Strategic Land-use Planning Decisions</i> (OEH/EPA, 2017); • <i>NSW Water and River Flow Objectives</i>; and • <i>NSW Water Quality and River Flow Objectives</i> outlined in the <i>Risk-based Framework for Considering Waterway Health Outcomes in Strategic Land-use Planning Decisions</i> (OEH/EPA, 2017).

15. Flooding

Study requirement	Flooding
15.1	<p>Scope and Requirement</p> <p>Prepare a flood impact and risk assessment that:</p> <ul style="list-style-type: none"> • Identifies flooding behaviour for existing and developed scenarios in order to outline the suitability of the land for proposed uses; • Identifies flooding characteristics i.e. flow, levels, extent, velocity, rate of rise, hydraulic and hazard categories, and the flood constraints of the land for the full range of flooding up to the probable maximum flood (PMF), for both mainstream and overland flow path; • Addresses the impact of flooding on future proposed development, including flood risk to people and properties for key flood events including the 1% AEP and the PMF. The assessment should address relevant provisions of the NSW Floodplain Development Manual (2005); • Provides an assessment of possible impacts of the proposal on the flood behaviour (for example: flow levels, extent, velocities and duration of flooding) and the impact of the proposal on adjacent, downstream and upstream areas; • Provides concept level information on the impacts of future earthworks and filling of land within the proposal. This assessment should be based on an understanding of cumulative flood impacts (including upstream and downstream); • Provides preliminary assessment on recommended flood management measures, including mitigation works and development controls; • Provides recommendations regarding the most appropriate emergency response strategy to manage risk to life; and • Undertakes sensitivity analysis to address the impact of climate change due to increase of rainfall intensity.
	<p>Considerations</p> <p>The Study should:</p> <ul style="list-style-type: none"> • Ensure development in the floodplain is consistent with the NSW Flood Prone Land Policy and Principles of the NSW Floodplain Development Manual; • Maintain the flood function of the floodplain to minimise impact of the development on flood behaviour and adverse impacts to existing communities; • Ensure development is compatible with the flood constraints of the land; and • Ensure safe evacuation from the land and no adverse impacts of development on the safety of existing communities in emergency response and existing evacuation requirements.
	<p>Consultation</p> <p>The study is to demonstrate that it has been undertaken in consultation with Canterbury Bankstown City Council, Georges River Council and DPIE's EES Group.</p>

Study requirement	Flooding
	<p>Author</p> <p>The study is to be prepared by a suitably qualified professional(s) with the necessary experience and expertise in floodplain risk management to undertake the required works.</p>
	<p>Guidance documents</p> <p>The following documents provide guidance for this Study:</p> <ul style="list-style-type: none"> • the NSW Flood Prone Land Policy; and • the Principle of the NSW floodplain Development Manual.

16. Consultation

Study Requirement	Consultation
	<p>Scope and Requirement</p> <p>Prepare a consultation strategy that:</p> <p>16.1</p> <ul style="list-style-type: none"> • Outlines the proposed community consultation strategy, noting and addressing that each council should have a high level of involvement in the preparation of the draft planning controls. The strategy will address the proposed consultation with the current tenants/residents of Riverwood Estate. The strategy will also address how LAHC will engage with other landowners in the precinct including Council. <p>16.2</p> <p>Provide a consultation outcomes report that:</p> <ul style="list-style-type: none"> • Includes evidence of consultation (including letters, minutes of meetings, charrette/drop in event summaries and formal advice) and provide a summary of and outline the general outcomes of early consultation and demonstrate how the outcomes have been incorporated into the proposal.
	<p>Considerations</p> <p>The consultation strategy must address:</p> <ul style="list-style-type: none"> • Prepared of exhibition materials so that they may be readily understood; • Plain English explanations of the key aspects of the proposal including spatial arrangement of development, staging, public domain and open space, amenity, transport, and community facilities will be made available; • Provision of information that is accessible and meets the needs of the community, which might include translation services or translated material; and • Incorporate ongoing consultation with the local Aboriginal community, including Elders and organisations, into the community consultation strategy.
	<p>Consultation</p> <p>The strategy is to demonstrate that it has been undertaken in consultation with Canterbury Bankstown City Council, Georges River Council, key agencies, Multicultural</p>

Study Requirement	Consultation
	NSW, local community group representatives and any other key stakeholders. This includes consultation with Councils to identify local stakeholders.
	Author There are no specific requirements for the author of these studies.
	Guidance documents The following documents provide guidance for the strategy: <ul style="list-style-type: none">• Web Content Accessibility Guidelines 2.0 (WCAG2.0AA); and• Australian Government's Digital Service Standard.