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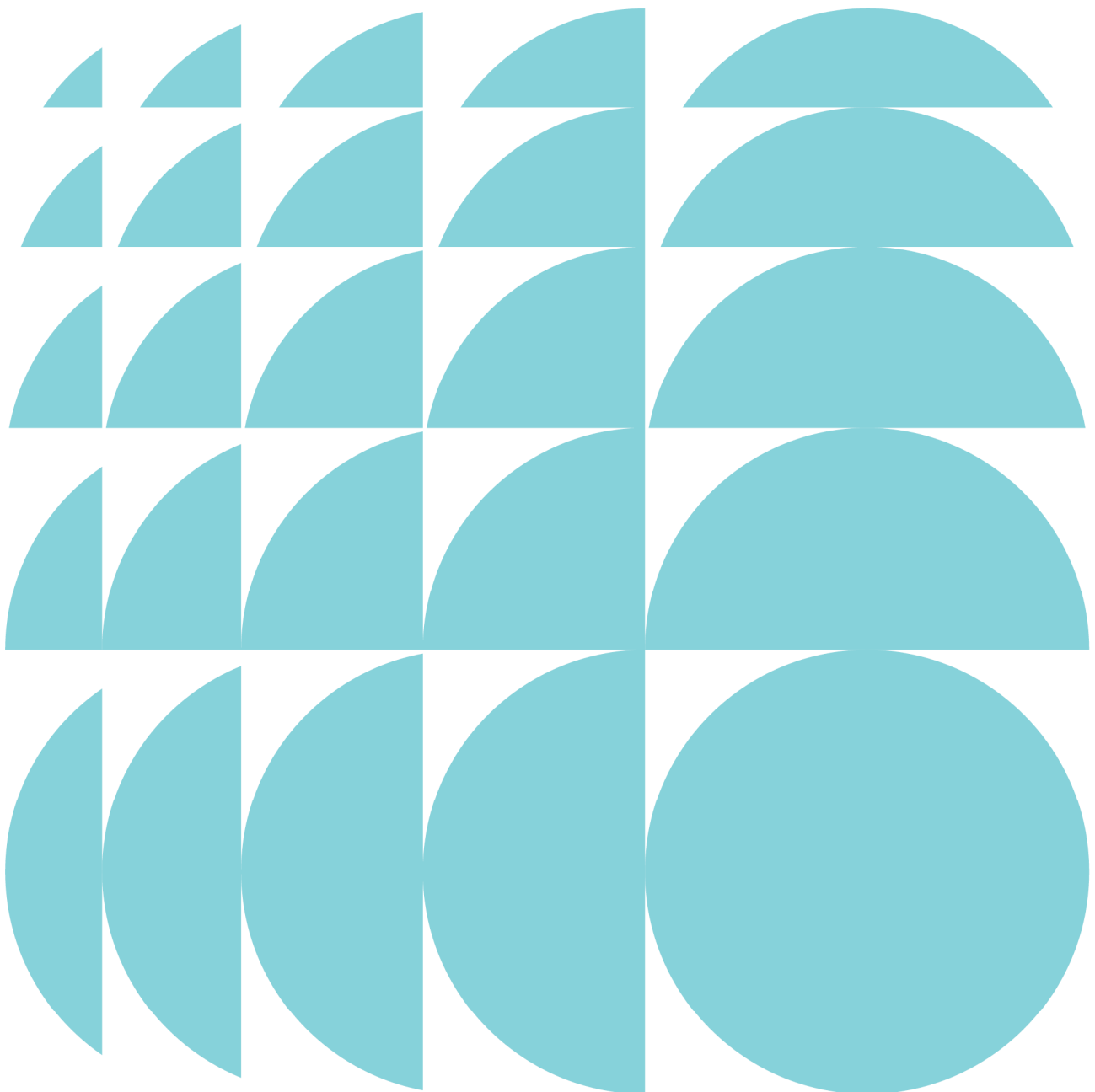
Submission

Draft Greater Newcastle Metropolitan Plan

1207 New England Highway, Lochinvar

Submitted to Department of Planning and
Environment on behalf of Belford Land
Corporation Pty Ltd

28 February 2018 | 16692



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Ethos Urban

1.0 Introduction

JBA has been engaged by Belford Land Corporation Pty Ltd ('Belford') to make a submission to the Department of Planning and Environment on the *Draft Greater Newcastle Metropolitan Plan 2036* (DGNMP). The submission specifically requests that land at 1207 New England Highway, Lochinvar ('the Site') be included as part of the adjacent Thornton to Lochinvar Priority Housing Release Area in the final *Greater Newcastle Metropolitan Plan*. The submission also provides comment on a number of key initiatives in the draft plan.

Belford is a significant land owner in the Hunter Valley, owning a number of sites at Lochinvar, Branxton, North Pokolbin and Belford. These landholdings are currently in the planning stage or under development for a variety of land uses including residential, large lot residential, rural lifestyle and small-lot viticulture and tourism.

This submission acknowledges the timely need for a review of development potential at Lochinvar. Since inception over a decade ago, the former *Lower Hunter Regional Strategy* ('LHRS') inadequately facilitated housing delivery throughout the locality. New dwellings have been provided at rates significantly below established levels during a period where regional population growth has exceeded predictions. In particular, a lack of progress on or commitment to the development of the Lochinvar Structure Plan area, despite having been zoned for over a decade, should signal that a review of the locality is required to ensure that suitable alternative land, able to be adequately serviced, can progress to development during the life of the new strategic plan.

Belford commends the Department of Planning and Environment for releasing the DGNMP. The creation of a consolidated strategic planning framework for Greater Newcastle is welcomed, given the recently strengthened linkages between Newcastle and the Lower Hunter through land use and infrastructure changes, notably the completion of the Hunter Expressway. The DGRMP will provide a single metropolitan planning framework for the Greater Newcastle urban area, within and complementary to, the overall *Hunter Regional Plan*.

Belford previously provided a submission in response to the exhibition of the *Draft Hunter Regional Plan* and *Draft Plan for Hunter City* in 2016. In that submission, Belford raised a number of key concerns with the content of the draft plans and the direction of strategic planning in the Lower Hunter Region. Key concerns included:

- A lack of recognition of the emerging role the Hunter Expressway will play in terms of reshaping the economic and development dynamics of the region;
- The plans did not adequately acknowledge the emerging 'Central Hunter Valley' subregion that includes significant growing urban areas between Maitland and Singleton;
- The plans did not provide clarity with respect to criteria for the assessment of new land release areas to maintain a sufficient supply of residential land; and
- The plans lacked clear accountability and timeframes for actions to be undertaken.

Belford acknowledges that the finalised *Hunter Regional Plan* and the DGNMP have gone a significant way to addressing the above concerns. In particular, the extension of the boundary of the Greater Newcastle metropolitan area to include the "Central Hunter Valley" townships of Greta and Branxton-Huntlee will provide for a more holistic and coordinated approach to land use planning. The regional plan is also to be commended for acknowledging the role of the Hunter Expressway with a

clear action for the preparation of a strategy to consider future land uses and urban development for the corridor it traverses.

2.0 Purpose of Submission

The purpose of this submission is to provide justification for the recognition of Belford's Lochinvar land within the final *Greater Newcastle Metropolitan Plan* as being suitable for future urban development. In this vein, Belford has provided a detailed analysis of the Site and prepared a preliminary master plan to demonstrate that the Site is suitable to accommodate up to 1,700 residential lots adjacent to existing urban zoned land, identified in the draft plan as being a priority housing release area (Thornton-Lochinvar).

The preliminary master plan has had regard to the physical characteristics of the Site and the context of the surrounding area. The report canvasses the key planning issues associated with the Site to a level of detail appropriate to support a future Planning Proposal to Maitland City Council.

This submission addresses the following matters identified in the Department's guidelines for planning proposals:

- justification;
- relationship to strategic planning frameworks;
- environmental, social and economic impacts; and
- stakeholder consultation.

An assessment of the Site and the preliminary master plan proposal against the Directions and Actions in the *Hunter Regional Plan 2036* is included at **Appendix A** to this submission. In addition, a number of specialist technical studies have been undertaken to test the suitability of the Site for future urban development. These include:

- preliminary master plan prepared by JBA Urban;
- land capability and soil assessment, prepared by SLR Consulting
- utility infrastructure assessment prepared by DGP Water.
- traffic assessment prepared by Better Transport Futures;
- preliminary flooding and stormwater management assessment prepared by Royal HaskoningDHV.

The above studies demonstrate that there are no major constraints to future urban development of the Site. The studies are available to be provided to the department upon request.

Inclusion of the Belford Site in the Thornton-Lochinvar priority housing release area would facilitate two of the three key actions in Outcome 3 of the DGNMP:

- Prioritise the delivery of housing supply;
- Unlock supply in priority release areas and strategic centres.

3.0 Lochinvar Urban Release Area

The Lochinvar Urban Release Area was the subject of a structure plan approved by Maitland City Council in 2007 as a priority area to accommodate regional population growth under the former LHRS. This land has yet to be developed and has not delivered a single lot – a decade after the approval of the structure plan. While there have been recent development applications lodged in the structure plan area for residential subdivision (a decade after the approval of the Structure Plan), there has been no physical commencement of development. The land is currently in fragmented ownership with the majority of land owners occupying the land for rural lifestyle purposes and having little or no development experience or expertise. There is a lack of consolidation of landholdings to create a critical scale of development that would facilitate trunk infrastructure provision. This situation is not expected to change in the short to medium term and undermines the ability for the regional plan and metropolitan plan to achieve their objectives with regard to delivering additional dwellings, particularly at the western end of the metropolitan region.

In contrast, the 182 hectare parcel of land owned by Belford is immediately adjacent to the Structure Plan area, is in single ownership and is of a scale that can economically fund the provision of trunk infrastructure to the locality. In turn this will act as a catalyst to development of the rest of the structure plan area.

The Site has a significant (815m) direct frontage to the New England Highway. It is strategically located in close proximity, to the existing Lovedale Road interchange with the Hunter Expressway providing excellent transport connections to other sections of the Newcastle / Hunter City urban area. The Site is also located in close proximity to Lochinvar Railway Station.

The New England Highway corridor has significant constraints and challenges with regard to future urban development, particularly with regard to flooding, which limits the ability for contiguous consolidated urban development and infrastructure. Many areas identified for future urban development in this corridor are in locations that are remote from established urban areas due to the need to avoid flood affected land. This creates difficulties and expense in terms of providing infrastructure and services. Lochinvar lacks these constraints and, with the opening of the Hunter Expressway, is more conveniently located with regard to transport and access to the Greater Newcastle metropolitan area. However, as discussed above, identified future urban areas at Lochinvar are being held back by fragmented land ownership.

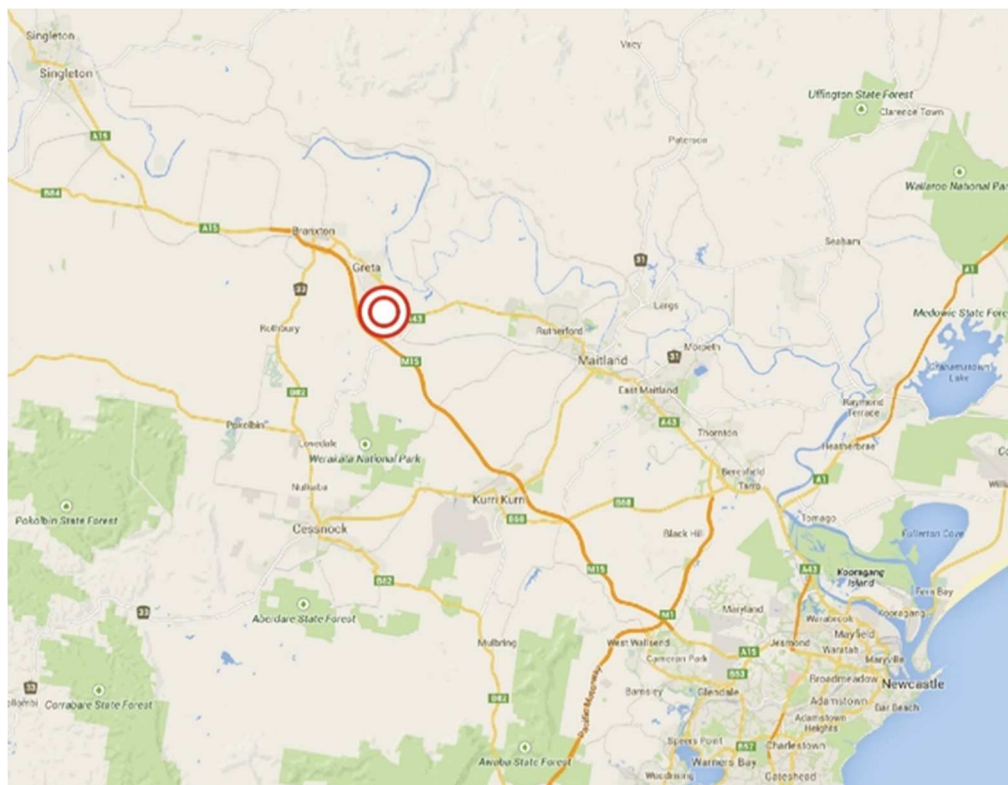
4.0 The Lochinvar Site

4.1 Site Location and Context

The subject Site is a strategic parcel of land located at 1207 New England Highway, Lochinvar. Approximately 40 kilometres northwest of the Newcastle Central Business District, the Site is within the Maitland Local Government Area (LGA).

Situated between the major regional towns of Maitland and Singleton, the Site is positioned in a rural area undergoing significant transformation. Major residential developments have been approved throughout the surrounding areas of Lochinvar, Belford and Branxton.

The locational context of the Site is illustrated at **Figure 1** below.



📍 The Site

Figure 1 – Site Location

Source: Google Maps

4.2 Site Description

The Site is legally described as Lot 1012 in DP 1145415 and Lot 1204 in DP 1141532. The subject land is approximately 182 hectares in size and is owned entirely by Belford Land Corporation Pty Ltd.

The Site possesses an 815m frontage to the New England Highway, and is adjacent to the New England Highway/Allandale Road intersection. The proximity of the Site to Lochinvar enables the land to be connected to existing services and infrastructure.

A low range of hills are situated to the west of the Site (immediately opposite Allandale Road). This landform is a natural visual barrier between Lochinvar and Greta, the next village to the west.

An aerial photo of the Site is shown at **Figure 2**.

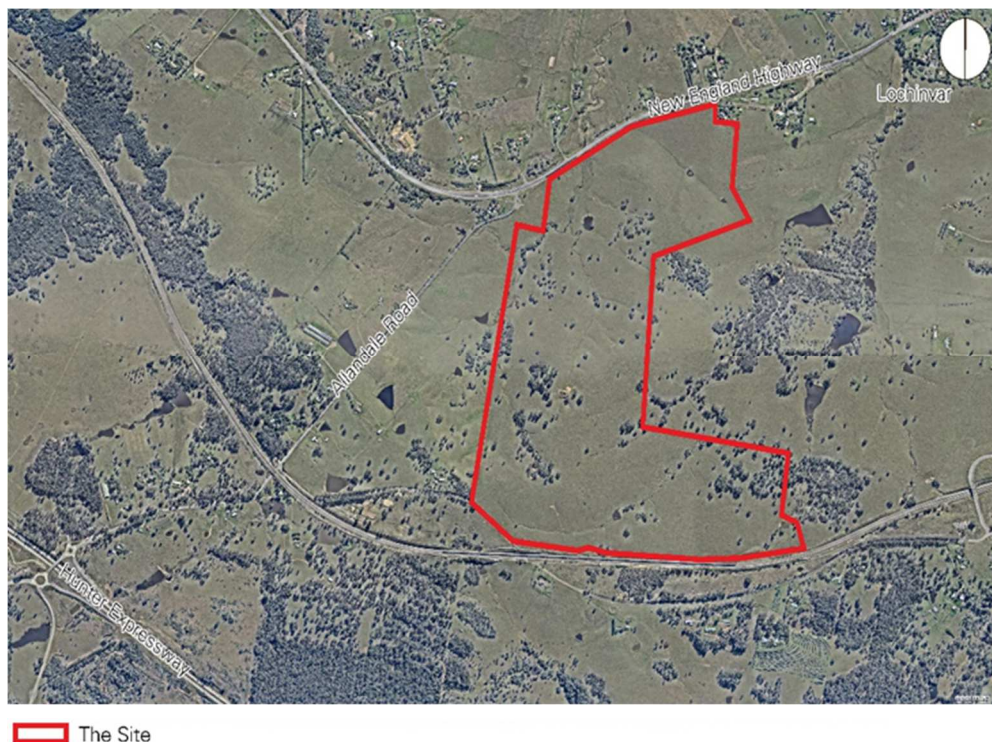


Figure 2 – Aerial Photograph of the Site

Source: Nearmap

4.3 Existing Development and Site Characteristics

The Site is currently vacant and does not contain any existing buildings or significant structure with the exception of a few farm dams.

4.3.1 Site Access and Transport

Vehicular Access

Vehicular access to the Site is currently available from Allandale Road and Old North Road separately via unsealed roads/tracks.

The Site is also immediately adjacent to the New England Highway/Allandale Road intersection. This intersection links Lochinvar to the Hunter Expressway which directly connects the Site to the City of Newcastle. The Site is also accessible from the Lochinvar village centre and Maitland via the New England Highway.

Public Transport

The Site adjoins the Main Northern Railway and is proximate to Lochinvar Station (approx. 1km). Approximately four passenger services stop at Lochinvar Station daily en-route to Newcastle. Hunter Valley Buses also operates routes 179 and 180 along the New England Highway to Maitland.

4.3.2 Vegetation

There is no significant vegetation on the landholding. The Site is subject to dry-land grazing and trees are generally scattered across the Site and along drainage lines. However, smaller clusters nevertheless appear throughout the southern portion of the Site.

4.3.3 Soils

The Site includes a mix of Brown Dermosol, Brown Ferrosol, Red Sodosol and Black Dermosol soils across the Site.

4.3.4 Mine Subsidence

The Site is not within a proclaimed mine subsidence district and there are no recorded mine workings on the Site. This has been confirmed by the Mine Subsidence Board.

4.3.5 Topography

The Site is gently undulating with some steeper areas in the south west corner. The most elevated sections of the Site are 70m - 110m AHD along the southern boundary of the Site, sloping northwards towards the New England Highway (40m AHD). A handful of small drainage lines run generally south-north across the Site.

The topography of the Site is shown in **Figure 3**.

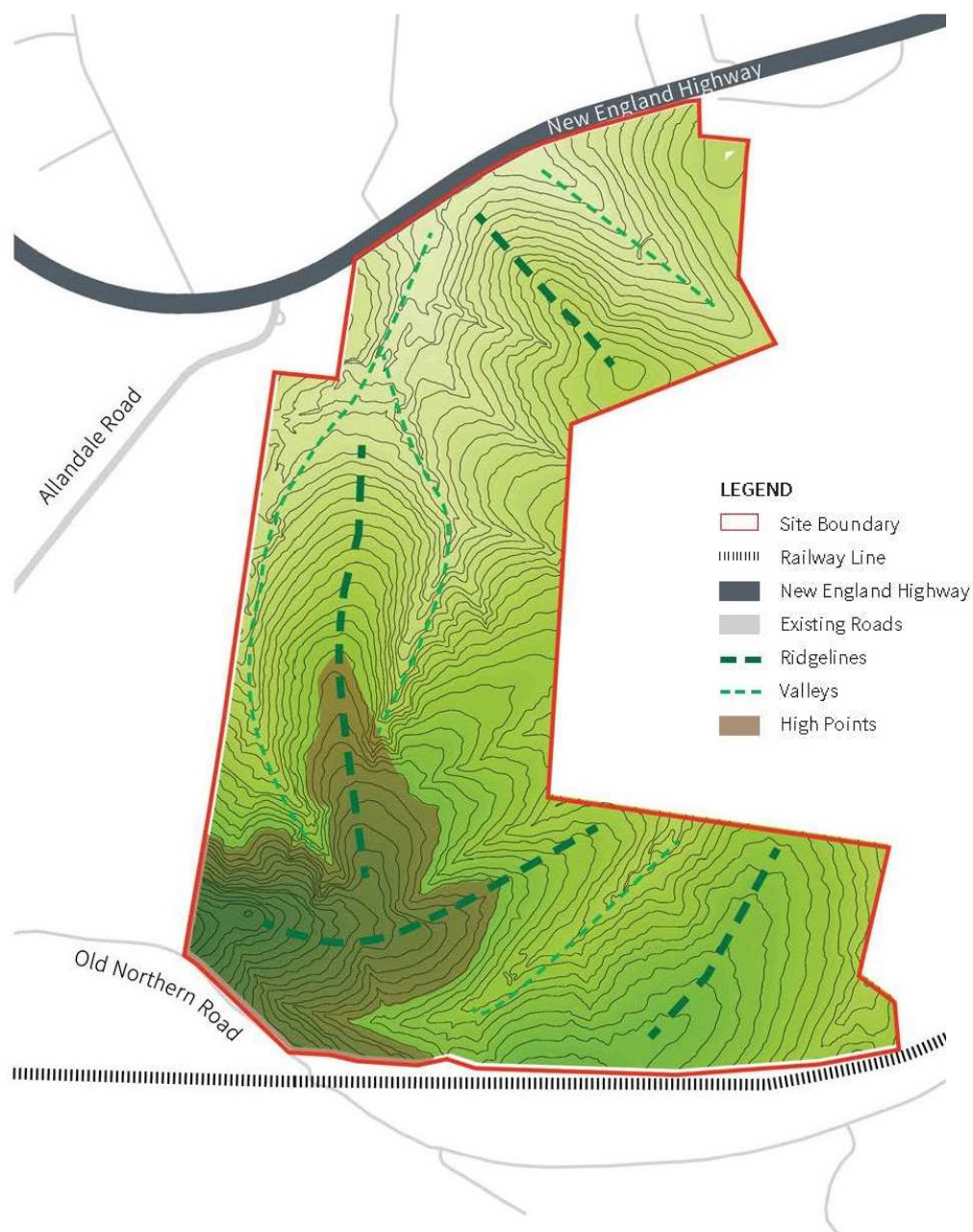


Figure 3- Site Topography

Source: Nearmap

4.3.6 Heritage

The subject land does not contain any items of heritage significance. Notwithstanding, the Site adjoins the locally listed 'Main Northern Railway' (I119) and neighbours 'St Helena Cottage' (I103).

4.4 Surrounding Development

At its closest point, the Site is approximately 900m from the current developed edge of Lochinvar and 1.5km from the village centre. The residential areas of the village consist primarily of detached, single storey dwellings on suburban lots (see **Figure 4**). The Village also includes the educational

institutions of Lochinvar Public School, St Patrick's Primary School and All Saints College, St Joseph's Campus.



Figure 4 – Characteristic urban development in Lochinvar

Source: Nearmap

The Lochinvar centre (and immediate surrounds) has also been identified by Maitland City Council ('Council') as an 'Urban Release Area'. The precinct will therefore be the subject of notable transformation, with future low density residential development accommodating a growing regional population. This is discussed in detail in **Section 5.3**.

Outside of the Lochinvar centre, prevailing land uses are rural in nature. Lots are significantly larger, and development is sparse. Existing vegetation also varies. Some lands are predominantly cleared, while others feature denser bush. A characteristic residential lot in rural Lochinvar, with unsealed access roads and a large proportion of grazing land, is illustrated at **Figure 5**.



Figure 5 - A characteristic residential lot in rural Lochinvar

Source: Google Maps

5.0 Strategic Context

5.1 Hunter Regional Plan 2036

The Hunter Regional Plan 2036 was adopted in 2016 and provides an overarching framework to guide subsequent and more detailed land use plans, development proposals and infrastructure funding decisions. The Hunter Region consists of ten local government areas being: Port Stephens, Newcastle, Lake Macquarie, Cessnock, Maitland, Dungog, Mid Coast, Singleton, Muswellbrook and Upper Hunter.

The Regional Plan, while high level in its context, has statutory weight under the EP&A Act and is required to be taken into consideration in the preparation of District Plans, Local Environmental Plans and Planning Proposals to amend Local Environmental Plans.

The Hunter Regional Plan includes a goal of delivering 70,000 new dwellings in the region by 2036. The additional housing is proposed to be delivered by way of focusing delivery in established areas through infill development and greenfield development.

The Regional Plan has extended the boundaries of Greater Newcastle to include the Site and the other urban or urban release areas of Branxton-Huntlee, North Rothbury and Greta. The Greater Newcastle 2036 map in the Regional Plan identifies a “Growth Corridor” linking these areas to Lochinvar and Maitland to the east. The Greater Newcastle Metropolitan Area and associated growth corridor areas is shown in **Figure 6**.

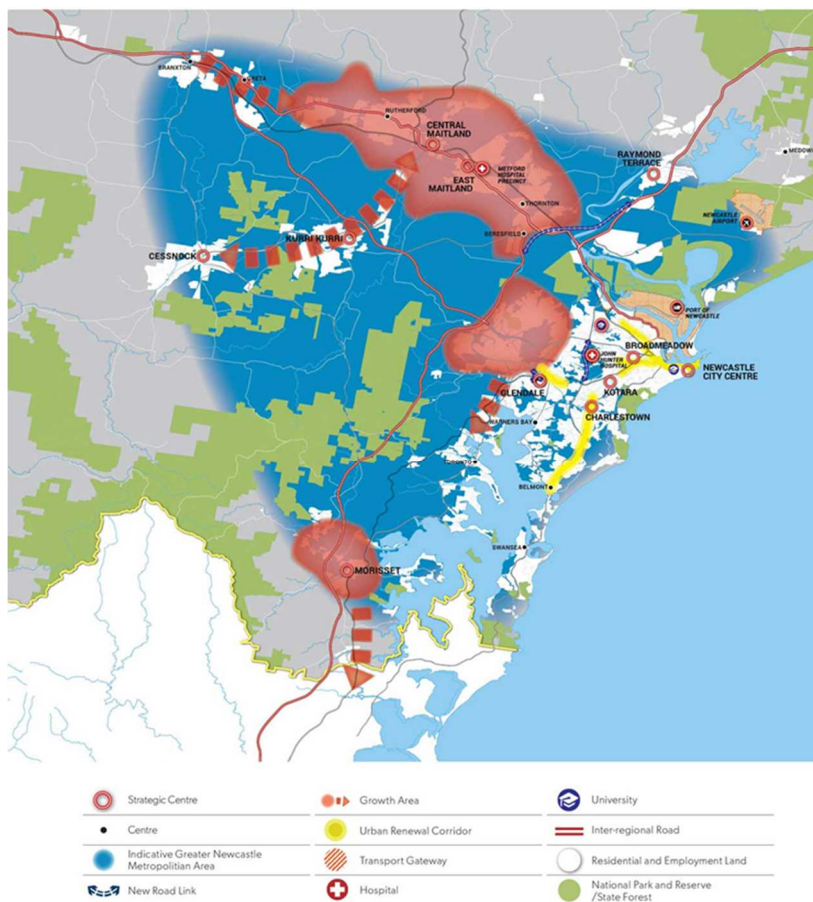


Figure 6 - Hunter Regional Plan

Source: Department of Planning and Environment

The accompanying Implementation Plan sets nine priority actions for the 2016-2018 period. Three of these actions are directly relevant to the Site and could shape its future regional strategic context:

- Action 1 - Prepare a metropolitan plan for Greater Newcastle;
- Action 3 - Prepare a strategy for land along the Hunter Expressway that considers its regional-shaping potential.
- Action 7 - Establish and implement an Urban Development Program to develop data on existing zoned land supply and the servicing status of land available; and

These three actions will shape the likely future strategic context of the Site. The *draft Greater Newcastle Metropolitan Plan* was released by the Department for public exhibition on 30th November 2017.

The Urban Development Program will monitor the demand and supply of residential land and inform future regional, district and local strategies regarding future areas for new residential development. This is an important initiative as there are currently significant areas of zoned land in the Lochinvar locality, that have not progressed to development in over a decade and are distorting the true land supply situation.

The strategy for land along the Hunter Expressway has yet to be released, however give the Site's location with direct access to Allendale Road and the Lochinvar Interchange, the Site should be considered as part of the strategy. The Site's location provides convenient access to the expressway via Allendale Rod, however is not within the immediate expressway corridor and as such would not conflict or compete with potential future employment land uses needing direct access.

An assessment of the proposal against the Goals, Directions and Actions of the Hunter Regional Plan 2036 is at **Appendix A**.

5.2 Maitland Urban Settlement Strategy (MUSS)

The current Maitland Urban Settlement Strategy was first prepared in 2001 and covers the period 2001 to 2020. The strategy is required to be reviewed every five years. The last review was undertaken in 2012 and Maitland City Council is currently in the process of undertaking a further review of the strategy. This submission has been prepared to inform the review process.

The 2007 review of the Strategy incorporated the Lochinvar Structure Plan area. The Structure Plan proposes the development of up to 5,000 residential lots to the south and west of the town and includes a town centre. The Belford Site is to the west of and adjoining the Structure Plan. **Figure 7** show the relative locations.

To date, and a decade after the land was included in the MUSS and zoned for urban purposes in 2011, the land has yet to be serviced or developed.

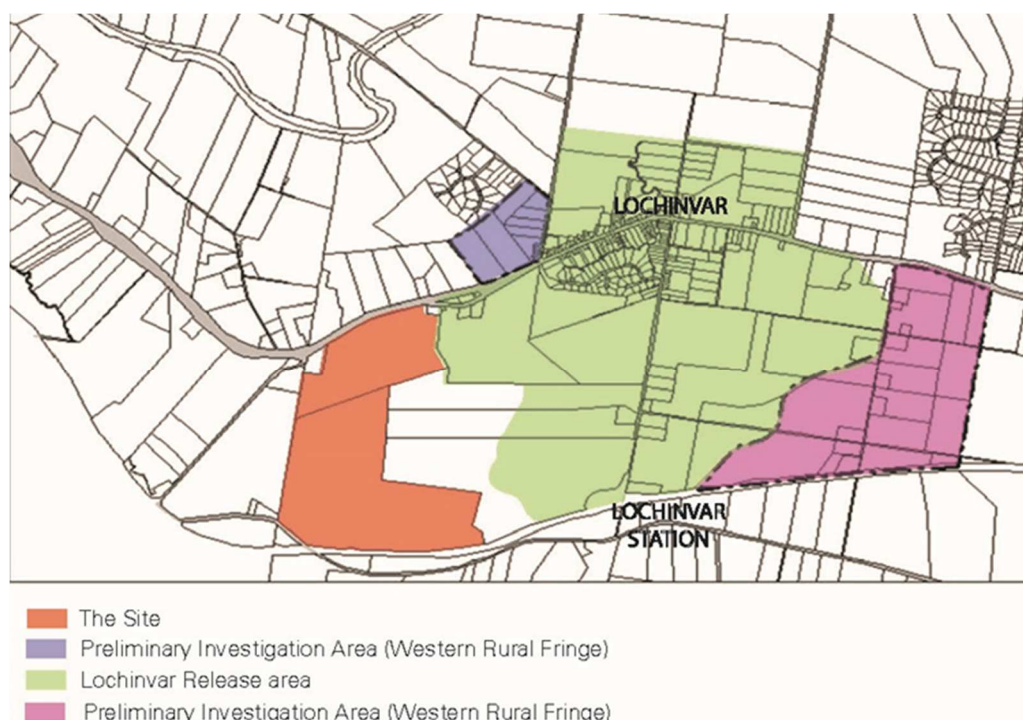


Figure 7 - Lochinvar Structure Plan

Source: Department of Planning and Environment

6.0 Consultation

In the preparation of this submission, Belford Land Corporation and its technical specialist team have met with or consulted with the following State and Local Government agencies:

- Department of Planning and Environment (March 2016)
- Hunter Development Corporation (March 2017)
- Maitland City Council (March 2016)
- Hunter Water Corporation
- Ausgrid
- Jemina
- NBN Co.

7.0 Development Concept

7.1 Overview

Ethos Urban has undertaken an Urban Design Analysis for the Site. The Urban Design Analysis has examined the Site's existing strategic and physical context and developed a structure plan for a future residential subdivision on the Site based on a number of key design principles:

1. Retain publicly accessible high points with views and embellish riparian corridor landscapes;

2. Create a network of pedestrian paths across riparian corridors to better connect open space and neighbourhoods;
3. Establish possible connections to adjoining land to allow people to live in well-connected communities;
4. Design the road layout to follow contours where possible, meet potential connections and retain open space and views;
5. Define three distinct neighbourhoods; and
6. Locate activity centres to reinforce community identity.

7.2 Structure Plan

The preliminary Structure Plan for the Site is shown in **Figure 8** below.

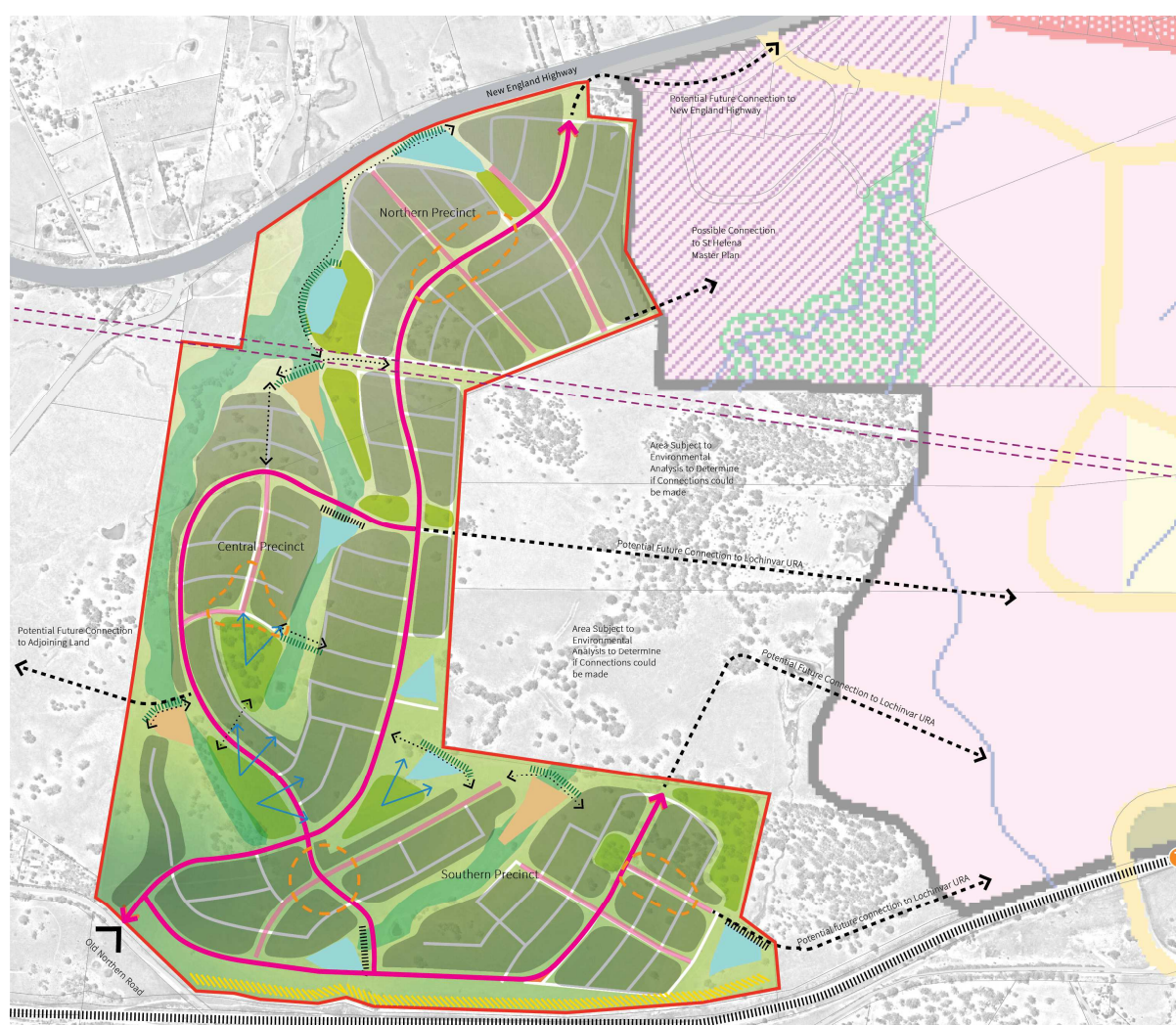


Figure 8 – Preliminary Structure Plan

Source: Ethos Urban

The structure plan has been formulated taking into account the design principles articulated in **Section 7.1**, and specialist technical input on traffic and access, the provision of utility services, land capability and flooding and stormwater management. These specialist reports are able to be

provided to the Department upon request and are summarised in **Section 8**. The structure plan includes the following key components:

- Pedestrian and Car Environment – Neighbourhoods are compact and pedestrian friendly. Block size and structure to promote walkability and permeability for both vehicles and pedestrians.
- Road Network – Primarily roads are located on ridges and aligned with contours. A network of streets is designed to encourage walking, reduce the number and length of automobile trips and to conserve energy.
- Publicly Accessible High and Low Points – Pedestrian links and open space aligned with high points and watercourses. Large areas of recreation have been created that are uninterrupted and retain existing views, vegetation and natural drainage systems such riparian corridors.
- Vehicular and Pedestrian Crossings – Crossings are aligned with embankment areas so that the natural flow of watercourses is not disturbed. Crossings increase the connections between neighbourhoods so that they are not isolated as well as allow independence to those who do not drive.
- Variety of Development Types – Appropriate building typologies and densities should respond to the landscape in which each precinct sits and the current demand for housing. Increased densities should occur around places of high amenity such as public places of shared use as well as areas closest to the New England Highway and Old Northern Road.
- Centres of Activity – Public gathering places and Mixed-Use areas have been identified. These areas are located at important sites to reinforce community identity. They have a distinctive form that is easily recognisable in the landscape and are accessible by all. They are located within close proximity to the intersection of primary and secondary roads and open space.
- Existing and Proposed Access – Existing access into the Site is limited. Possible future access through adjoining land will allow people to have more choice, live in well-connected communities and reduce bottlenecks on existing roads.
- Direct Connection to Lochinvar – Lochinvar Urban Release Area comprises a total of 650 hectares with an approximate yield of 5,000 lots. The Lower Hunter Regional Strategy (Dept. of Planning, 2006) identifies the Lochinvar URA as a regionally significant development area. Vehicular connections between The Site and Lochinvar URA have been made to allow people to access the future town centre and community facilities.

There is the potential for the Structure Plan to yield up to 1,700 lots, depending on the basis of an average lot size of 500m². This has been used as the basis for assessment in the studies undertaken.

8.0 Planning Justification

This submission has been prepared to provide justification for the Site to be included in the Thornton-Lochinvar priority housing release area as being suitable for future urban development, during the implementation period of the GNMP.

The following Section outlines the justification for the Site to be identified for urban development purposes:

8.1 Land Capability

SLR Consulting has prepared a Land Capability Assessment for the Site. The assessment includes a range of criteria including:

- Agricultural capability of the Site and the presence of Biophysical Strategic Agricultural Land (BSAL);
- Phase 1 Contamination assessment.

8.1.1 Agricultural Capability and BSAL

Fifteen samples from four soil profiles were collected at the subject Site and subsequently utilised in a laboratory testing programme. Brown Dermosol, Brown Ferrosol, Red Sodosol and Black Dermosol soils were determined to exist within the Site.

While the Dermosol and Ferrosol soils were recognised as the soil types most suited to continued small scale agricultural pursuits given their moderately high inherent fertility, SLR Consulting concluded that:

All soils found within the Site have suitable physical and chemical characteristics for the establishment of small scale intensive agricultural production such as vineyards and olive groves.

Notwithstanding, it was specifically noted that the Sodosol soils were not considered to be “valuable agricultural land”. Possessing a moderately low inherent fertility, Sodosol soils are structurally and chemically unsuited to cropping or other high impact land uses.

Furthermore, the Site was acknowledged as possessing minor soil salinity which would not preclude small scale intensive agricultural activities like vine and olive production. Given the soil types and topography of the Site, SLR Consulting identified that the risk of increased soil salinity as a result of these activities would also be negligible.

SLR Consulting has concluded that there is no BSAL within the Site. The topography of the land does not lend toward soils of high agricultural value, and all samples from the four respective soil profiles failed at least one of the criteria for BSAL classification.

8.1.2 Contamination

A site inspection did not reveal any potential sources of contamination from previous agricultural activities, with no infrastructure or areas of historic chemical storage or disposal present. Resultantly, no samples were collected for further testing.

SLR has concluded that the potential for soil contamination is negligible.

8.2 Utility Infrastructure

A utility infrastructure investigation was undertaken for the Site and proposed development by DPG Water. The investigations looked at the following:

- Water;
- Wastewater;
- Electricity;
- Gas; and
- Communications

These services are discussed in greater detail below.

8.2.1 Water and Wastewater

Hunter Water Corporation (HWC) has recently completed a number of upgrades to the Lochinvar water and wastewater supply area to deliver capacity for approximately 5,000 new homes in the Lochinvar area. These 5,000 homes were identified as part of the Maitland City Council Lochinvar Urban Settlement Strategy. This proposed development Site is located just to the west of the area identified in the Lochinvar Urban Settlement Strategy and was not part of the 5,000 additional homes contemplated by HWC when undertaking these upgrades.

HWC advises that there is sufficient capacity in the Lochinvar water and wastewater system to support the development initially, however the current spare capacity in their network is not sufficient for this development combined with the other 5,000 lots that have been identified for development in the surrounding area.

Notwithstanding this, HWC has advised that the capacity in their system is not specifically reserved for the area identified in the Lochinvar Urban Settlement Strategy and developments outside this Lochinvar Urban Settlement Strategy are able to access this available capacity on a first come first served basis.

Pipeline upgrades would be required to transfer potable water into the development. All wastewater would need to be transferred to the Lochinvar 1 WWPS which is to the east of the Site. There is sufficient capacity in the Farley Waste Water Treatment Plant for the development however there would be significant costs in upgrading the transportation network to get the wastewater from the development Site to the Lochinvar 1 WWPS.

8.2.2 Electricity

AusGrid have advised that based on a high-level load analysis of their network there is sufficient capacity on the 11kV network to supply the current approved development. Minor upgrade works will be required and these have been outlined by AusGrid. However, AusGrid have advised that based on a high-level load analysis there is presently insufficient capacity on the 11kV network for the proposed development.

8.2.3 Gas

Jemena advised that there is an existing DN250 400 kPa gas main located along the New England Highway in Lochinvar near the corner of the New England Highway and Allandale Road in

Lochinvar. Jemena has advised that this existing gas main has sufficient capacity for this development at this time.

8.2.4 Telecommunications

NBN Co advised that there is currently sufficient capacity within their network to provide a broadband service to this development and provided a quote to outline the fees that would be applicable as well as advice on how to proceed with the provision of NBN services for the development.

8.2.5 Preliminary Costing

DPG has undertaken high level preliminary cost estimates for the recommended infrastructure connections to the Site. The costings are based on engineer's estimates of the likely quantum of work, however have been prepared in advance of any detailed subdivision design which would form part of a future development application. These are able to be provided to the Department as a separate submission.

8.3 Traffic and Transport

A traffic and transport assessment for future development on the Site was undertaken by Better Transport Futures (BTF). BTF undertook traffic surveys over three consecutive days from 11 May to 13 May 2017 at the intersections of:

- Hunter Expressway (on ramp / Lovedale Road)
- Hunter Expressway (off ramp / Lovedale Road)
- New England Highway / Allandale Road

Existing flow conditions on the arterial and local road system supporting the Site are well within the relevant technical and environmental capacity limits. The surveys of the intersection flows indicate that junctions operate efficiently, with low delays and little to no queueing occurring. The existing public transport systems provide some access to the surrounding town centres, however, these services will not be sufficient to cater for the full scale of the Lochinvar Urban Release Area and are slated for future improvement.

SIDRA Intersection modelling, based on up to 1,700 lots in the preliminary structure plan, was undertaken to examine the impacts of the traffic generated by the Site on the relevant surrounding road network.

The results of this modelling are presented below:

- The intersection of the New England Highway & Allandale Road is functioning with a high level of efficiency under the existing traffic demand and will maintain this high level of efficiency when the traffic generated by the Site is added to both the existing and 2025 future traffic cases. It is unclear if this intersection has sufficient capacity to safely cater for the traffic generation of the entire Lochinvar Urban Release area;
- A single "seagull" designed intersection is sufficient to provide access for the traffic generated by the Site to the New England Highway, so long as sufficient sight distances can be achieved.

- The roundabout intersections that provide access to and from the Hunter Expressway will operate retain a high level of efficiency in both the “Existing + Development” and “2025 + Development” traffic cases. It is unclear if these intersections have sufficient capacity to safely cater for the traffic generation of the entire Lochinvar Urban Release area.
- The Site has the opportunity to utilise Old North Road to provide a more efficient route to and from the Hunter Expressway. The intersection of Old North Road and Allandale Road has been assessed to operate at a high level of efficiency in both the “Existing + Development” and “2025 + Development” traffic cases. Widening of Old North Road will be necessary if this alternative access route is utilised, however, it is recommended that use of this alternative access would be of benefit to both the residents of the subdivision by providing efficient access to the Expressway and the wider area by reducing trips on the New England Highway.

Based on the results of the SIDRA Intersection analysis, BTF recommended that a single access point to the New England Highway be provided, with secondary access to Old North Road to the south. Traffic modelling demonstrates that this access strategy will have acceptable impacts on the surrounding road network in both the existing and future (2025) cases.

BTF concluded that the proposed development of the Site could be approved on traffic and transport considerations. It recommended that the following access principles be included for future development:

- The implementation of a single “Seagull” design intersection will provide safe and efficient access to the New England Highway for residents;
- A secondary access to Old Northern Road to the south of the Site, which should be accompanied by widening works to Old Northern Road, will provide more efficient access to the Hunter Expressway and reduce the number of trips on the New England Highway that occur as a result of the development.

BTF expected that wider upgrades of the road network surrounding the Site would be necessary to accommodate the traffic generated by the completed Lochinvar Urban Release Area, however, these upgrades are required irrespective of the development of the subject Site.

8.4 Flooding and Stormwater Management

Royal HaskoningDHV (RH) was engaged by Belford to provide advice on flooding, riparian corridor and stormwater constraints and potential management methods for their Lochinvar landholdings.

8.4.1 Riparian Corridors

RH undertook an analysis of the topography and watercourses across the Site. A watercourse characterisation was undertaken using the Strahler System of ordering watercourses. Based on this assessment, riparian corridors were developed for the Site to inform the preliminary structure plan. These corridors are shown in **Figure 9** below and protect second and third order streams on the Site. First order streams are able to be removed subject to the agreement of the Department of Primary Industries – Water.

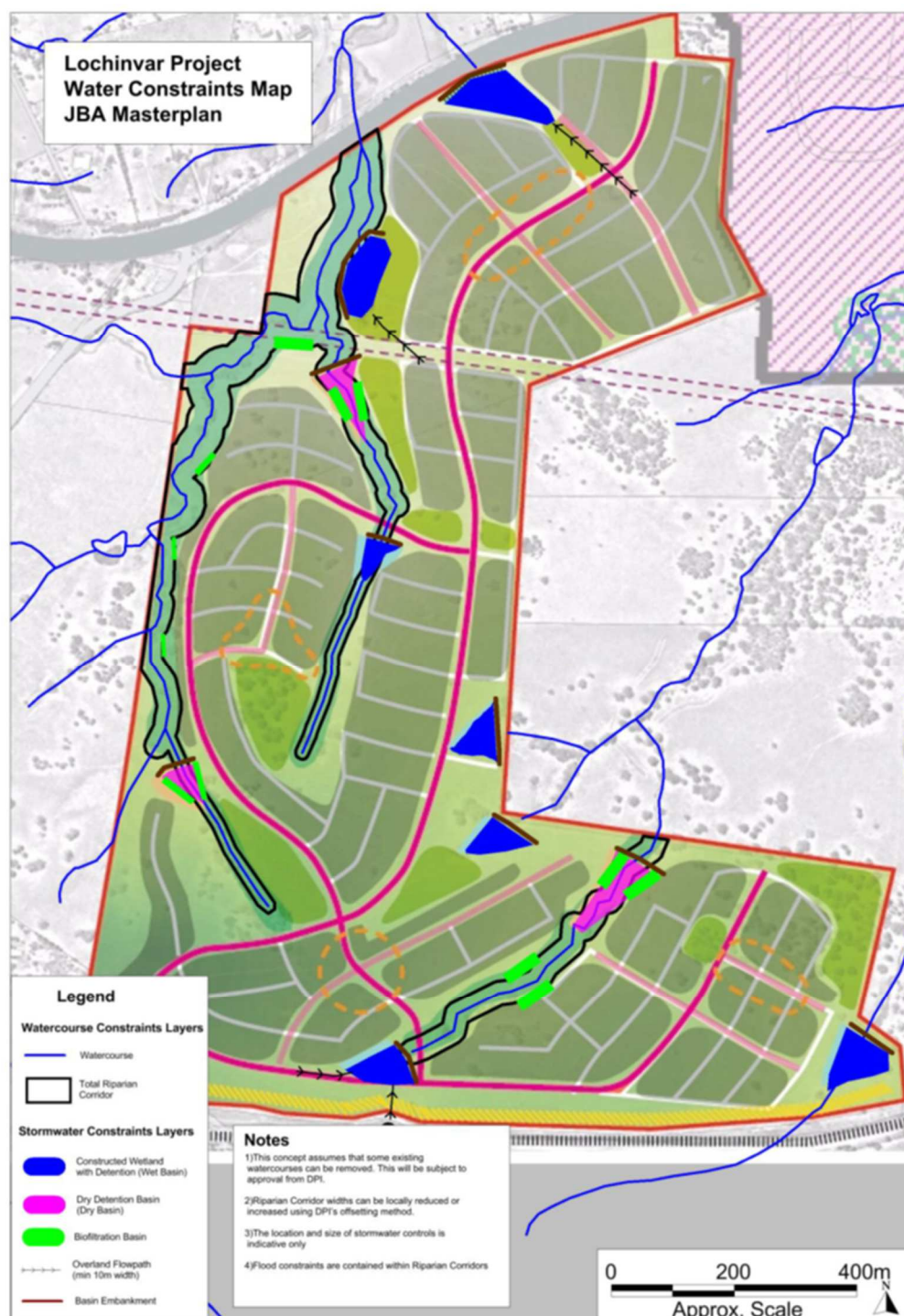


Figure 9 – Preliminary Stormwater Management Strategy Source: Royal Haskoning DHV / Ethos Urban

8.4.2 Stormwater Management

A potential stormwater management strategy was prepared by RH to inform the preliminary masterplan. Broadly, the strategy includes:

- **Online Detention Basins:** A number of online dry detention basins are located on first and second order watercourses - online basins are generally not permitted on third order watercourses. The online detention basins are generally located in the upstream portion of the Site and are

intended to provide compensatory detention for runoff from development areas that drain into the watercourse further downstream.

- Constructed wetlands are opportunistically located in areas that have favourable topography and are on drainage lines that, subject to DPI-Water determination, will not be considered watercourses.
- Overland flow paths have been identified in areas of the development where overland flows are expected to exceed the safe carrying capacity of a road reserve.
- Localised bio-retention basins are located on the periphery of riparian corridors to treat runoff from urban catchments that do not drain to a constructed wetland.

The stormwater strategy overlain on the preliminary structure plan is depicted in **Figure 9**.

8.4.3 Flooding

The flood risk assessment concluded that flooding is not expected to materially constrain the development potential of the Site with flood extents generally contained within riparian corridors. The 1% AEP flood extent on the Site and its relationship to the preliminary structure plan is shown in **Figure 10**.

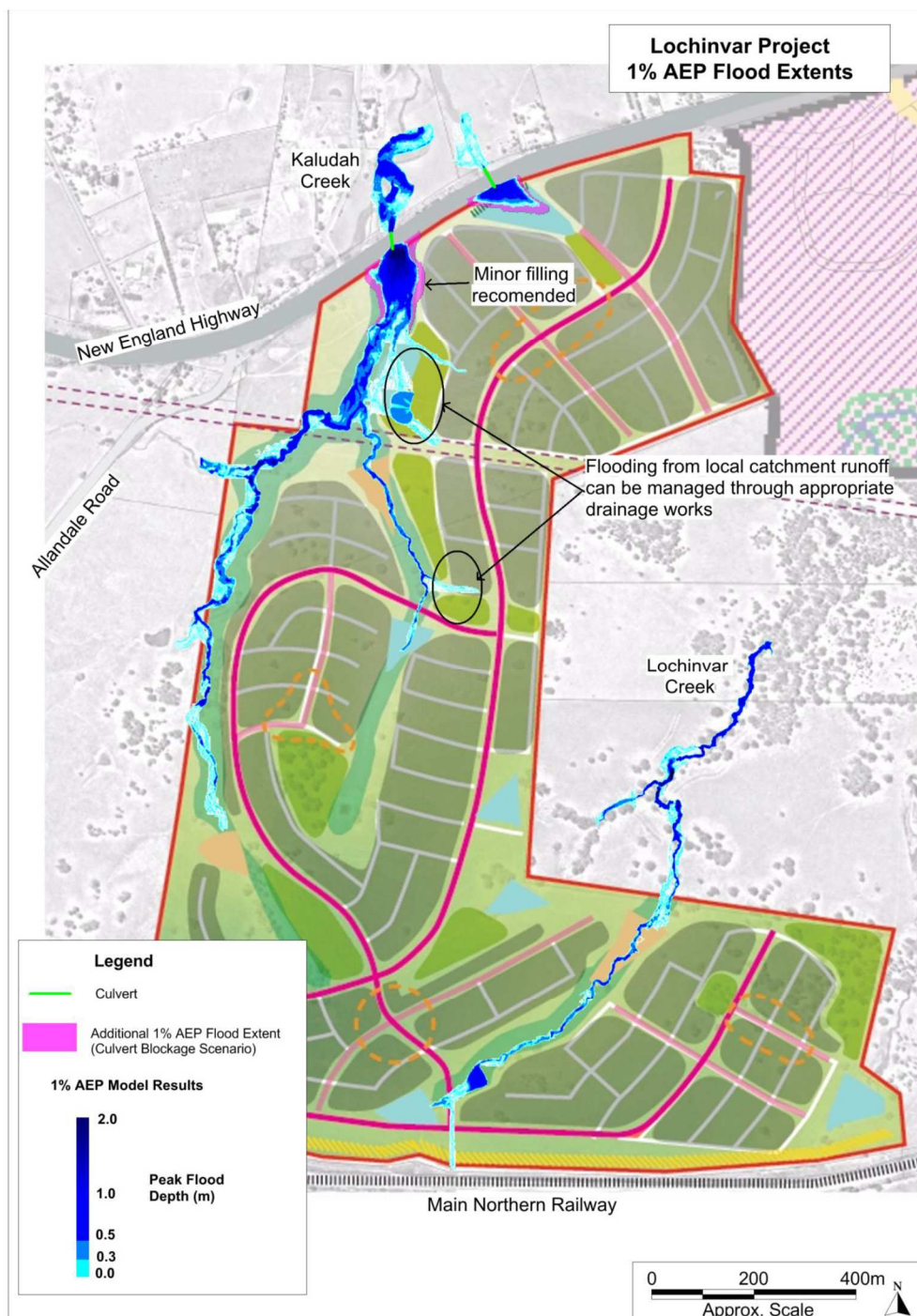


Figure 10 – 1% AP Flood ExtentSource: Royal Haskoning DHV / Ethos Urban

9.0 Conclusion and recommendation

This submission has been prepared to provide justification for the inclusion of the Site at 1207 New England Highway, Lochinvar in the Thornton-Lochinvar priority housing release area in the final *Greater Newcastle Metropolitan Plan*.

The Site has the following attributes that support future urban development:

- The Site is located immediately adjacent to the existing urban zoned Lochinvar Structure Plan area that is identified as part of the priority housing release area;
- The Site has access to the New England Highway and Allendale Road. The Site is in close proximity to the Hunter Expressway's Lovedale Road interchange.
- The Site is able to be connected to existing urban services including water, sewerage, telecommunications and energy. There is existing capacity for water and wastewater to service the Site on a first-come first-served basis. A preliminary costing has been provided for required upgrades and connections.
- The Site is not located on Biophysical Strategic Agricultural Land (BSAL);
- There is low potential for contamination to be present on the Site;
- The Site is not constrained by flooding or stormwater management issues;
- The Site is generally consistent with the Goals, Directions and Actions outlined in the *Hunter Regional Plan 2036* and located within an identified growth area under the Plan.

The above findings are based on a Preliminary Structure Plan prepared by Ethos Urban that demonstrates that the Site could deliver up to 1,700 lots. The structure plan has been developed in collaboration with the specialist studies prepared by the project team. the studies have confirmed that the Site could support this level of development.

It is therefore requested that serious consideration be given to the inclusion of the Site as part of the Thornton-Lochinvar priority housing release area in the final *Greater Newcastle Metropolitan Plan 2036*.