

B.3 – Hunter River Floodplain

Introduction

There are risks associated with the use of the floodplain or physical works and structures in the floodplain. The *Maitland Local Environmental Plan 2011* and this DCP section identify controls for managing the development of flood prone land. In the event of any inconsistency between this DCP section and the LEP, the LEP will prevail to the extent of the inconsistency.

Under the *Local Government Act 1993*, the management of flood prone land is primarily the responsibility of local governments. Local governments are required to implement the provisions of the NSW Government's Flood Prone Land Policy and associated NSW Floodplain Development Manual 2005.

The onus is on the proponent to provide an adequate level of information to support any development on land below the FPL. The Council will require a Statement of Environmental Effects (or an Environmental Impact Statement if the proposal is designated development) justifying the development in its location.

1. Application of section

Maitland LEP 2011 clause 5.21 Flood planning, associated Flood Planning Map and also any additional mapping that may be adopted by the Council for the purposes of defining the flood planning area specifies the land to which this section applies.

This section also applies to critical infrastructure and facilities within the Probable Maximum Flood (PMF) area.

NOTE: This DCP section does not apply to areas affected by flooding from local drainage.

2. Flood hazards, costs, and risks to life

2.1 Development below the Flood Planning Level (FPL)

Objectives

- The proposal is supported by adequate information to assess the impact of the proposal on flood behaviour, the environment, flood affectation and risk to life and

property associated with the use of land.

Development controls

1. An application for development below the FPL must demonstrate:
 - a. the proposed development will not increase the flood hazard or flood damage or adversely increase flood affectation on other properties, as assessed by a suitably qualified hydraulic engineer;
 - b. the design of the proposed development is such that the risks of structural failure or damage in the event of flooding (including damage to other property) up to the FPL would be minimal, as assessed by a suitably qualified structural engineer;
 - c. the proposed development has been designed to withstand the effects of inundation of floodwaters up to the FPL, with contents or fittings susceptible to flood damage being located above this level;
 - d. if levees are proposed to protect a development, the impact of the levees on flood behaviour must be assessed and the habitable floor level of the proposed development behind the levee must still be set at or above the FPL (assuming no levee is in place);
 - e. the proposed measures to allow the timely, orderly and safe evacuation of people from the site (these measures should be permanent and maintenance free), and the measures proposed to safeguard goods, material, plant and equipment in a flood. These measures should be compatible with the SES' Maitland City Local Flood Plan (including vol 1 The Maitland City Flood Emergency Sub Plan);
 - i. in rural areas, the proposals for the evacuation of any livestock in a flood;
 - ii. the measures to reduce the risks that the development will allow the accumulation and build-up of debris being carried by floodwaters (particularly associated with fences in flood liable areas);
 - iii. the design complies with the Table 1: Flood Aware Design Requirements for Residential Development on Flood Prone Land (in this DCP section); and
 - iv. Details of any proposed filling to be provided.
2. Survey plans shall be dimensioned in metres with levels to Australian Height Datum (AHD), prepared and signed by a Registered Surveyor.
3. The type and extent of survey information likely to be required to support a development in a flood liable area is as follows:
 - a. the location of the site relative to other features such as roads, bridges, etc;
 - b. the assessed flood levels at the site (for the 1:100 ARI as a minimum and PMF where critical infrastructure is proposed), the origin of that level and how it was derived;
 - c. the position of existing buildings (if any) and proposed buildings and works on the site;
 - d. the existing and proposed floor levels of buildings on the site;
 - e. the existing ground levels around all existing buildings on the site, or if the site is vacant, ground levels on the site and on adjacent properties within approximately 30 metres of the boundary of the site;
 - f. the locations should be shown of any structure of the Hunter Flood Mitigation

- Scheme (such as levee banks, spillways, floodgates etc.), which are inside or within 100 metres of the subject property site; and
- g. the position and floor and ground levels of buildings on adjacent properties, and the use of the properties within 100 metres of the subject site.

2.2 Development in Floodways

Objectives

- To avoid significant adverse impacts on flood behaviour and the environment.
- To ensure development does not increase flood affectation elsewhere on the floodplain.
- To minimise the flood risk to life and property associated with the use of land.
- To ensure the integrity of the Hunter Valley Flood Mitigation Scheme is protected.

Development Controls

1. No building or structure is to be erected on land identified as floodway on the Hydraulic Category Maps.
2. No fill is permitted on land identified as floodway on the Hydraulic Category Maps.
3. Minor alterations to ground levels associated with surface treatments, below ground structures, or minor landscaping are permitted provided they do not alter the flow distribution or flood behaviour within the floodway.
4. New development shall be designed to avoid fences in floodways.
5. Where dividing fences across floodways are unavoidable, they are to be constructed only of open type fencing that does not restrict the flow of flood waters. The fencing design should be resistant to blockage or designed to be collapsible under heavy flood loadings.
6. Flood mitigation works are permitted with consent subject to Council being satisfied that the works meet the objectives of this DCP and the Flood Risk Management Plan.
Note: Flood mitigation works are permitted without consent under the *State Environmental Planning Policy (Transport and Infrastructure) 2021* if they are carried out by or on behalf of a public authority.
7. Development within the vicinity of Hunter Valley Flood Mitigation Scheme structures (including levees, floodgates, spillways and drains) operated by the NSW Office of Environment and Heritage are referred to that agency for concurrence in accordance with the *Water Management Act 2000*.

2.3 Filling of Flood Storage and Flood Fringe Areas

Objectives

- To avoid significant adverse impacts on flood behaviour and the environment.
- To ensure filling does not increase flood affectation elsewhere on the floodplain.
- To minimise the flood risk to life and property associated with the use of land.
- To ensure development on land that is compatible with the land's flood hazard, taking into account projected changes as a result of climate change is permitted.

Development controls

1. An application for filling within the flood storage or flood fringe areas must be supported by a fully dynamic computer flood model unless:
 - a. There is no net importation of fill within the 1:100 ARI flood extent; or
 - b. Filling up to 7,000m³ or 20% of the total 1:100 ARI flood storage/flood fringe volume of the lot (whichever fill volume is lower) that;
 - i. is associated with construction of a dwelling in rural zones, and
 - ii. where construction of a dwelling is permitted; and
 - iii. all of other flood requirements (such as evacuation) is achieved; and/or
 - c. Filling up to 3,500m³ or 10% of the total 1:100 ARI flood storage/flood fringe volume of the lot (whichever fill volume is lower) associated with construction of a mound to provide refuge for stock during floods.

2.3 General Building Requirements

These provisions apply to all development below the flood planning level.

Objectives

- To minimise the flood risk to life and property associated with the use of land.

Development Controls

1. All habitable finished floors shall be no lower than the FPL.
2. Parts of buildings and structures at or below the FPL shall be constructed in accordance with Table 1: Flood Aware Design Requirements for Residential Development on Flood Prone Land. The development shall be certified by a qualified Structural Engineer that the building has been designed to withstand the depth of inundation, buoyancy and flow velocity forces (including potential for debris impact) at the development site for a 1:100 ARI event.
3. Flood-free access shall be provided from the development to an appropriate evacuation facility (as identified in the Maitland Local Flood Plan), at the 1:20 ARI flood level or higher.
4. Provision shall be made for the safe evacuation of people from the development

in accordance with the Maitland Local Flood Plan.

5. Sufficient storage space for household effects shall be provided above the FPL.
6. Electrical fixtures such as light fittings and switches shall be sited above the FPL unless they are on a separate circuit (with earth leakage protection) to the rest of the building.
7. Requirements 1, 3, 4 and 6 do not apply to the following development:
 - The extension of an existing dwelling house by no more than 50% of its internal floor area,
 - An addition to an existing dwelling house with an area of no more than 50% of the internal floor area of that dwelling to be used for the purpose of a dual occupancy.
 - Tourist and visitor accommodation.

2.4 Multi-Storey Residential Development

Objectives

- Where new multi-storey residential buildings are proposed below the FPL they shall be designed to meet the following additional requirements.
- The flood risk to life and property associated with the use of land is minimised.
- Developments are resilient to flooding.

Development Controls

1. Development for a multi-storey residential building shall be designed and constructed in accordance with the requirements of Table 1: Flood Aware Design Requirements for Residential Development on Flood Prone Land.

2.5 Basement Car Parking

Objectives

- Minimise the flood risk to life and property associated with the use of land.

Development controls

1. Basement garages will generally only be supported where all potential water entry points are at or above the 1:100 ARI.
2. Where this cannot be achieved the following requirements are to be met:
 - a. The basement should be designed so that the structural integrity of the building is not compromised if the basement is either partially or fully inundated during a flood.

Note: A tanked (watertight) basement may not be appropriate due to buoyancy during flood inundation. It may be necessary to allow the basement to fill with water during a flood
 - b. All exit points below the FPL must be able to be closed and locked to prevent

- access during floods.
- c. A steel mesh gate should be used for the vehicle entry/exit points to allow the in-flow of floodwaters.
 - d. All services (electricity, water, fire, air conditioning etc.) must be designed to prevent damage up to the FPL.
 - e. At least one stair well from the basement should extend to at least the FPL. This exit should have a lockable entry but be able to be opened from the basement side (as with a fire door).
 - f. The owner(s) of the building should consult with the SES to determine the most appropriate mechanisms for evacuation/management of the basement car park where the projected flood level would result in its inundation.

2.6 Additions and Renovations

Objectives

- Minimise the flood risk to life and property associated with the use of land.
- Investment in works that provide future protection of the dwelling against flood is encouraged.

Development controls

1. All applications for renovations and additions are encouraged to comply with the General building requirements.
2. In deciding whether to support an application for additions and/or renovations of the existing floor area below the FPL, Council will consider whether the renovations, additions and alterations are likely to significantly add to the life span of the residential building and its exposure to future flood impacts.
3. Proposals for additions and renovations will be required to comply with the General building requirements in the following circumstances:
 - a. following a flood event where there has been inundation of the dwelling necessitating the removal and replacement of external and/or internal cladding material; or
 - b. following a flood event where there has been structural compromise to the dwelling which requires remediation; or
 - c. there is a proposal to increase the enclosed habitable floor space of the dwelling by more than 50%; or
 - d. there is a proposal to undertake major renovations to the dwelling (e.g. Re-piering, exterior re-cladding, internal re-lining); or
 - e. the proposed works have the potential to impact on flood behaviour.

2.7 House Raising and Flood Proofing

Objectives

- House raising and flood proofing works do not adversely impact on the existing streetscape.

Development controls

1. The development will require assessment against the residential design provisions in this DCP.
2. In assessing an application for house raising or flood proofing, Council will consider the impacts of the works on the streetscape.
3. In heritage conservation areas the proposal must address the relevant provisions relating to heritage conservation.

2.8 Critical Infrastructure and Facilities

Objectives

- Key infrastructure is protected from floods greater than a 1:100 ARI flood event.
- Effective emergency response is maintained during a greater than a 1:100 ARI flood event.

Development controls

1. The following developments are unlikely to be supported on land below the PMF:
 - a. hospitals and ancillary services
 - b. regional communication centres
 - c. State Emergency Services stations
 - d. sewage plants
 - e. electricity plants or substations unless the plant is designed for controlled failure or shut-off when flooding occurs
 - f. installations containing control equipment for critical infrastructure; and
 - g. operational centres for flood emergency response.

2.9 Mitigating Circumstances

Objectives

- Merit-based assessment of a development is available only in extenuating circumstances.

Development controls

1. Council may consent to a development³ where:
 - a. The land use is permitted in the zone; and
 - b. Full compliance with the flood-related development controls is impossible or unreasonable.

Note: Examples of circumstances where an alternative merits-based assessment may be considered include:

Rural Dwellings where:

- a. An owner is required to live on-site in order to manage an agricultural enterprise and*
 - b. The dwelling is located on the landholding on which the major operational part of the enterprise is located; and*
 - c. A dwelling is permitted on the land*
2. Any application will be subject to a comprehensive merits-based assessment against the objectives of the DCP and Clause 7.3 of the LEP.
3. Any application under this clause must be supported by detailed justification including any relevant studies.

Table 1: Flood Aware Design Requirements for Residential Development on Flood Prone Land.

BUILDING ELEMENT	REQUIREMENT	NOTES
Part of Building Below the FPL		
Ground Floor Levels		
Ground floor levels to be established a minimum of 300mm above natural ground level	Mandatory	- Provides some protection against low level more frequent flooding. - Enables creation of deep wall cavity below finished floor level for silt entrapment. - Provides for improved design response in heritage conservation areas.
Ground Floor Construction		
Concrete slab on ground	Preferred	In areas of high silt deposition use a deeper slab rebate (minimum 2 bricks high) to hold more silt without it bridging the wall cavity.
Infill concrete slab	Preferred	This method allows for a higher ground floor level to provide increased protection against inundation from low level, more frequent flooding. A deeper slab rebate is still recommended.
Ground Floor Finishes		
Float-finish Concrete	Preferred	Allows for easier post-flood cleaning / hose-down.
Walls (external)		
Cavity brick	Preferred	- Provide for ingress of water to balance hydrostatic forces inside and outside the walls via vents and flaps (which are compatible with energy conservation requirements). - Include openings into cavity brick walls to facilitate removal of silt from the cavity.
Solid concrete (tilt panel or formed in situ)	Acceptable	- Provide for ingress of water as above. - External surface of solid concrete walls may require architectural detailing (eg. horizontal fillet lines) particularly if the building is being located within a heritage conservation area.
Walls (internal)		
Cavity brick	Preferred	These materials provide good structural performance when subject to inundation and facilitate easier post-flood clean-up.
Single skin brick	Preferred	
Solid concrete (tilt panel or formed in situ)	Acceptable	

Building Element	Requirement	Notes
Wall finishes		
Exposed face brick	Preferred	• Rendering/ painting of masonry walls is acceptable however painting of walls may lead to increased dry-out time and the need for repainting.
Rendered/bagged finish – painted	Preferred	
Stairs (internal)		
Open stair treads in solid hardwood timber Minimum stair width 1000mm	Mandatory	• Solid timber hardwood treads better suited to immersion. • Stairway width to be suitable for ease of movement of personal belongings to first floor level in preparation for a major flood event.
Doors		
Solid core (external)	Preferred	• Solid core doors have generally improved response to immersion. • Hollow core doors should only be used in conjunction with removable hinges to allow them to be easily relocated to the first floor in a flooding scenario.
Solid core internal or hollow core on removable hinges	Preferred	
Windows		
Aluminium framing	Mandatory	• In heritage conservation areas wide commercial/semi-commercial frame sections to be used to resemble painted timber window treatment.
Ground Floor Cabinetry (for non-habitable spaces)		
Removable vanity cabinet	Preferred	• The cost of flooding can be further reduced if joinery items located on the ground floor can be relocated to the first floor in advance of inundation. • Ensure that flood resistant materials are used in cabinet construction.
Removable laundry cabinet(s)	Preferred	
Storage cupboards to be removable	Preferred	
Electrical Services		
Elevate switchboard as high as possible at exterior of building.	Mandatory	• Consult with electrical service provider to ensure that height of meter box is consistent with its requirements.
Ensure wiring is located as far as practicable within the roof space and as high as possible within walls.		• Ensure that all electrical design and installation is undertaken by licenced contractors and that all relevant design and installation standards are complied with.
Where possible all cable runs should be one length to avoid the	Mandatory	• Ensure that all electrical design and

Building Element	Requirement	Notes
need for electrical junction boxes.		installation is undertaken by licenced contractors and that all relevant design and installation standards are complied with.
Power points should be elevated to at least 600mm above ground floor level to provide some measure of protection against more frequent inundation.		
For two-storey construction lighting and power for each floor should be provided in separate circuits.		
Earth Leakage protection should be provided to all circuits.		
Conduits should be installed to allow free drainage as floodwater recedes.		
Expensive fixed electrical equipment such as air-conditioners and hot water systems should be mounted high to reduce the chance of inundation.		• These types of equipment should be located at the rear of buildings where they are not visible to the public domain and screened.
External Water Tanks		
Above ground	Preferred	• Ensure that tank is located directly adjacent to external wall of building. • Ensure that tank is appropriately fixed to mass concrete foundation to protect against buoyancy forces. • Ensure that all stormwater lead-in pipes are 'snug-fit' against building and tank.
Below ground	Preferred	• Ensure that tank is appropriately anchored to resist buoyancy forces resulting from subsurface waterlogging. • Ensure that all stormwater lead-in pipes are 'snug-fit' against building and buried to appropriate depth.

Building Element	Requirement	Notes
Part of Building Above the FPL		
First Floor Levels ⁴		
First floor levels to be established at or above the relevant flood planning level (FPL) for the site.	Mandatory	• Ensures a higher order of protection for a significant part of the structure in the 1:100 ARI flood event. Provides for storage of all ground floor furnishings and personal effects above the 1:100 ARI. Provides opportunity for residents to take refuge above the 1:100 ARI event until evacuation occurs.
First floor frame / structure		
Suspended concrete	Preferred	Offers best performance in inundation event
Solid sawn timber frame	Acceptable	Ensure drying to prevent decay – in some cases this might involve removal of ceiling to lower floor. Allow for some loss of load bearing capacity when saturated. Ensure adequate blocking to provide extra restraint and resist distortion. Ensure good ventilation of enclosed areas to reduce the risk of timber decay. Ensure use of either galvanised or stainless steel fasteners
Manufactured engineered beams	Acceptable	
Ground floor ceiling		
Fibre cement sheeting (e.g. villaboard)	Preferred	• In some cases removal of ceiling may be required to assist in drying of floor /ceiling framing. • Under-floor thermal or noise insulation should be avoided where possible. If inundation occurs it should be removed post-flood to assist drying.
First Floor Flooring		
Suspended concrete floor	Preferred	• Offers best performance in inundation event
Fibre cement sheeting	Preferred	• In these cases it is important that the floor framing be exposed post-flood to enable structural timbers to dry out.
Select plywood flooring with	Acceptable	

⁴ Although the following components of the building will be at a level above the 1:100 ARI event the following construction requirements will nonetheless provide improved performance in inundation events that may be caused by wave action or for events that exceed the 1:100 ARI scenario. Other requirements apply to evacuation planning that must be undertaken to cater for a 1:100 ARI flood.

Building Element	Requirement	Notes
waterproof glue bond		
Walls to Upper Floors (external)		
Cavity brick	Preferred	• Offers best performance in inundation event and can be constructed as a vertical extension to the ground floor cavity brick walls.
Brick veneer - timber framing	Preferred	• In these cases it is important that the wall framing (in whole or in part, be exposed post-flood to enable structural timbers to dry out – this usually involves removal of the lower section of internal wall sheeting. • Providing a 20-30mm gap between the bottom plate and the internal wall sheeting will provide access for cleaning the wall cavity and ventilation following a flood. • Ensure use of either galvanised or stainless steel fasteners.
Brick Veneer - steel framing	Preferred	• In these cases it is important that the wall framing (in whole or in part, be exposed post-flood to ensure that the steel frame sections are not ponding any water – this usually involves removal of the lower section of internal wall sheeting. • Holes will need to be drilled in the sides of the bottom plate channel to allow the channel to drain after a flood. • Providing a 20-30mm gap between the bottom plate and the internal wall sheeting will provide access for cleaning the wall cavity and ventilation following a flood.
Clad frame - timber	Acceptable	• In these cases it is important that the wall framing (in whole or in part, be exposed post-flood to enable structural timbers to dry out – this usually involves removal of the lower section of external/internal wall sheeting. • Providing a 20-30mm gap between the bottom plate and the internal wall sheeting will provide access for cleaning the wall cavity and ventilation following a flood. • External cladding material should perform satisfactorily when subject to inundation.

Building Element	Requirement	Notes
		Sheeting that requires joints to be 'set' may need to be reset following inundation and dry-out. • Ensure use of either galvanised or stainless steel fasteners
Clad Frame - steel	Acceptable	• In these cases it is important that the wall framing (in whole or in part, be exposed post-flood to ensure that the steel frame sections are not ponding any water – this usually involves removal of the lower section of external/internal wall sheeting. • Holes will need to be drilled in the sides of the bottom plate channel to allow the channel to drain after a flood. • Providing a 20-30mm gap between the bottom plate and the internal wall sheeting will provide access for cleaning the wall cavity and ventilation following a flood. • External cladding material should perform satisfactorily when subject to inundation. Sheeting that requires joints to be 'set' may need to be reset following inundation and dry-out.
Insulation	Preferred	• Wall insulation should comprise a non-absorbent material such as polystyrene panel.
Frame connections	Preferred	• Use flood compatible wall plate connectors and brick ties to strengthen structure.
Walls to Upper Floors (internal)		
Solid brick / masonry	Preferred	• Offers best performance in inundation event • Usually only used where first floor is suspended concrete or where the upper floor walls sit directly above lower floor walls.
Frame - timber	Acceptable	• Internal linings should be horizontally jointed to allow for removal of lower section of wall lining to allow for drying of frame. The use of an alternative material to gyprock for the lower half of internal walls –fibre cement based products such as profiled panelling which is screw fixed are recommended – to enable these to be more easily removed.

Building Element	Requirement	Notes
		• Providing a 20-30mm gap between the bottom plate and the internal wall sheeting will provide access for cleaning the wall cavity and ventilation following a flood. • Sheeting that requires joints to be 'set' may need to be reset following inundation and dry-out.
Frame - steel	Acceptable	• Internal linings should be horizontally jointed to allow for removal of lower section of wall lining to allow for drying of frame. The use of an alternative material to gyprock for the lower half of internal walls – fibre cement based products such as profiled panelling which is screw fixed are recommended – to enable these to be more easily removed. • Holes will need to be drilled in the sides of the bottom plate channel to allow the channel to drain after a flood. • Providing a 20-30mm gap between the bottom plate and the internal wall sheeting will provide access for cleaning the wall cavity and ventilation following a flood. • Sheeting that requires joints to be 'set' may need to be reset following inundation and dry-out.
Evacuation Point		
Provision of street facing verandah or balcony at first floor level.	Mandatory	• Street facing evacuation point makes it easier for emergency rescue personnel to identify and access residents in need to evacuation.
Provide external stairs (minimum 1000mm in width) towards front of dwelling to facilitate easier evacuation.	Preferred	• An external staircase located on the street elevation of the building connecting the ground floor level to a first floor veranda or balcony can provide improved evacuation opportunity in a larger flood event when there is substantial inundation of the ground floor. <i>Note: This may not be possible in heritage conservation areas where the design needs to integrate with streetscape.</i> • Stairway to comprise open, solid hardwood timber treads better suited to immersion.

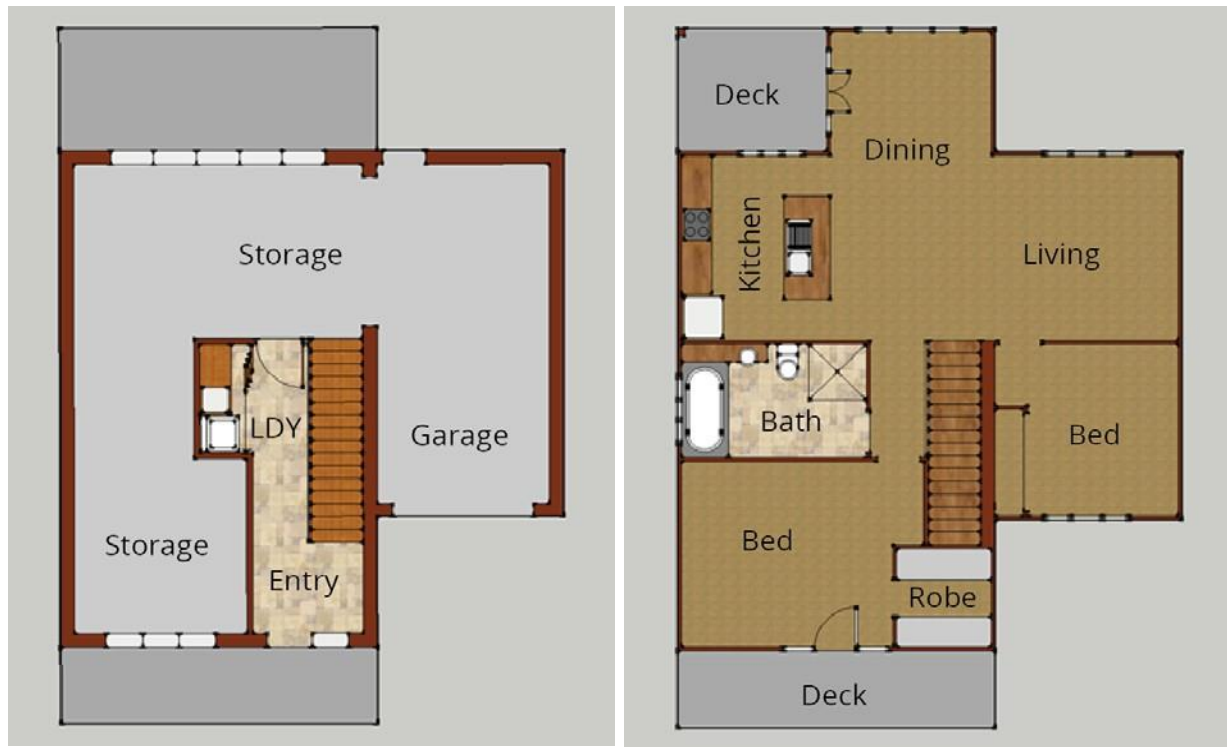


Figure 1: New Residential Development on Flood Prone Land: All habitable floor space located above the FPL. Ground floor area nominated for use as garaging and/or storage (non-habitable space).

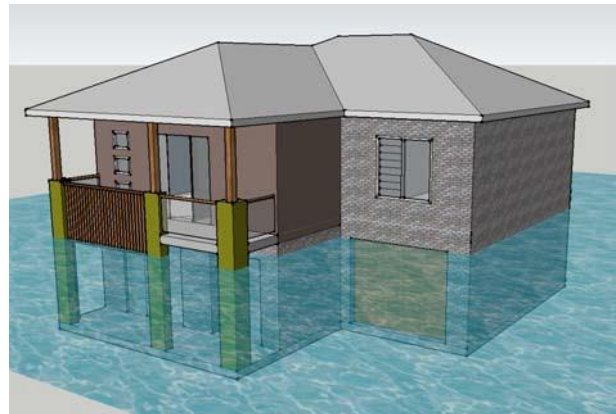
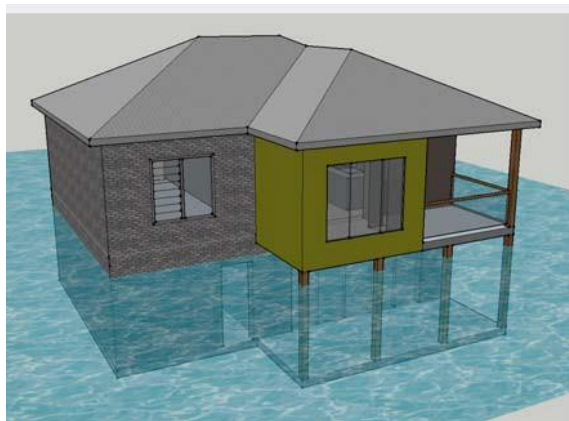


Figure 2: Typical elevations of building with non-habitable floor space below the FPL.

Definitions

◆ The following definitions are provided to help interpret this development control plan. These definitions do not replace the definitions of the Maitland Local Environmental Plan. Where an inconsistency exists, the definition in the LEP prevails.

Annual exceedance probability (AEP)	The chance of a flood of a given or larger size occurring in any one year, usually expressed as a percentage. For example, if a peak flood discharge of 500 m ³ /s has an AEP of 5%, it means that there is a 5% chance (that is one-in-20 chance) of a 500 m ³ /s or larger event occurring in any one year (see ARI).
Australian height datum (AHD)	A common national surface level datum approximately corresponding to mean sea level.
Average annual damage (AAD)	Depending on its size (or severity), each flood will cause a different amount of flood damage to a flood prone area. AAD is the average damage per year that would occur in a nominated development situation from flooding over a very long period of time.
Average recurrence interval (ARI)	The long term average number of years between the occurrence of a flood as big as, or larger than, the selected event. For example, floods with a discharge as great as, or greater than, the 20 year ARI flood event will occur on average once every 20 years. ARI is another way of expressing the likelihood of occurrence of a flood event.
Consent authority	The Council, government agency or person having the function to determine a development application for land use under the EP&A Act. The consent authority is most often the Council, however legislation or an EPI may specify a Minister or public authority (other than a Council), or the Director General of DIPNR, as having the function to determine an application.
Discharge	The rate of flow of water measured in terms of volume per unit time, for example, cubic metres per second (m ³ /s). Discharge is different from the speed or velocity of flow, which is a measure of how fast the water is moving for example, metres per second (m/s).
Effective warning time	The time available after receiving advice of an impending flood and before the floodwaters prevent appropriate flood response actions being undertaken. The effective warning time is typically used to move farm equipment, move stock, raise furniture, evacuate people and transport their possessions.
Emergency management	A range of measures to manage risks to communities and the environment. In the flood context it may include measures to prevent, prepare for, respond to and recover from flooding.

Flash flooding	Flooding which is sudden and unexpected. It is often caused by sudden local or nearby heavy rainfall. Often defined as flooding which peaks within six hours of the causative rain.
Flood awareness	Flood awareness is an appreciation of the likely effects of flooding and a knowledge of the relevant flood warning, response and evacuation procedures.
Flood fringe areas	The remaining area of flood prone land after floodway and flood storage areas have been defined.
Flood liable land	Is synonymous with flood prone land. Note that the term flood liable land covers the whole of the floodplain, not just that part below the FPL (see flood planning area).
Flood mitigation structure	A levee, control bank, spillway or flood-gate forming part of the Hunter Valley Flood Mitigation Scheme, as identified on the database held by authority responsible for management of the Scheme
Floodplain	Area of land which is subject to inundation by floods up to and including the PMF event, that is, flood prone land.
Flood plan (local)	A sub-plan of a disaster plan that deals specifically with flooding. They can exist at State, Division and local levels. Local flood plans are prepared under the leadership of the State Emergency Service.
Flood planning area	The area of land below the FPL and thus subject to flood related development controls. The concept of flood planning area generally supersedes the "flood liable land" concept in the 1986 Manual.
Flood planning level (FPL)	For the purposes of this document FPL means the level of a 1:100 ARI (average recurrent interval) flood event plus a 0.5m freeboard.
Flood proofing	A combination of measures incorporated in the design, construction and alteration of individual buildings or structures subject to flooding, to reduce or eliminate flood damages.
Flood prone land	Is land susceptible to flooding by the Probable Maximum Flood (PMF) event. Flood prone land is synonymous with flood liable land.
Flood readiness	Flood readiness is an ability to react within the effective warning time.
Flood risk	Potential danger to personal safety and potential damage to property resulting from flooding. The degree of risk varies with circumstances across the full range of floods. Flood risk in this manual is divided into 3 types, existing, future and continuing risks. They are described below.

	- Existing flood risk: the risk a community is exposed to as a result of its location on the floodplain. - Future flood risk: the risk a community may be exposed to as a result of new development on the floodplain. - Continuing flood risk: the risk a community is exposed to after floodplain risk management measures have been implemented. For a town protected by levees, the continuing flood risk is the consequences of the levees being overtopped. For an area without any floodplain risk management measures, the continuing flood risk is simply the existence of its flood exposure.
Flood storage areas	Those parts of the floodplain that are important for the temporary storage of floodwaters during the passage of a flood. The extent and behaviour of flood storage areas may change with flood severity, and loss of flood storage can increase the severity of flood impacts by reducing natural flood attenuation. Hence, it is necessary to investigate a range of flood sizes before defining flood storage areas.
Floodway areas	Those areas of the floodplain where a significant discharge of water occurs during floods. They are often aligned with naturally defined channels. Floodways are areas that, even if only partially blocked, would cause a significant redistribution of flood flows, or a significant increase in flood levels.
Freeboard	Freeboard provides reasonable certainty that the risk exposure selected in deciding on a particular flood chosen as the basis for the FPL is actually provided. It is a factor of safety typically used in relation to the setting of floor levels, levee crest levels, etc. Freeboard is included in the FPL.
Habitable room	in a residential situation: a living or working area designed, constructed or adapted for activities normally associated with domestic living, such as a lounge room, dining room, rumpus room, kitchen, bedroom or workroom. A garage, storage room, laundry, lobby, bathroom or external verandah, balcony or terrace is not categorised as a habitable room. in an industrial or commercial situation: an area used for offices or to store valuable possessions susceptible to flood damage in the event of a flood.
Hazard	A source of potential harm or a situation with a potential to cause loss.
Hydraulics	Term given to the study of water flow in waterways; in particular, the evaluation of flow parameters such as water level and velocity.
Hydrograph	A graph which shows how the discharge or stage/flood level at any particular location varies with time during a flood.

Hydrology	Term given to the study of the rainfall and runoff process; in particular, the evaluation of peak flows, flow volumes and the derivation of hydrographs for a range of floods.
Local overland flooding	Inundation by local runoff rather than overbank discharge from a stream, river, estuary, lake or dam.
Local drainage	Smaller scale problems in urban areas. They are outside the definition of mainstream flooding in this glossary.
Mainstream flooding	Inundation of normally dry land occurring when water overflows the natural or artificial banks of a stream, river, estuary, lake or dam.
Mathematical/ computer models	The mathematical representation of the physical processes involved in runoff generation and stream flow. These models are often run on computers due to the complexity of the mathematical relationships between runoff, stream flow and the distribution of flows across the floodplain.
Probable maximum flood (PMF)	The PMF is the largest flood that could conceivably occur at a particular location, usually estimated from probable maximum precipitation, and where applicable, snow melt, coupled with the worst flood producing catchment conditions. Generally, it is not physically or economically possible to provide complete protection against this event. The PMF defines the extent of flood prone land, that is, the floodplain. The extent, nature and potential consequences of flooding associated with a range of events rarer than the flood used for designing mitigation works and controlling development, up to and including the PMF event should be addressed in a floodplain risk management study.
Risk	Chance of something happening that will have an impact. It is measured in terms of consequences and likelihood. In the context of the manual it is the likelihood of consequences arising from the interaction of floods, communities and the environment.
Survey plan	A plan prepared by a registered surveyor.

3. Flood maps

3.1 Flood Extent Map Series

Flood Extent Maps show the following:

1. 1:100 ARI Flood Extent (shown pale blue)
2. Flood Planning Area being the 1:100 ARI Flood Extent plus 0.5m freeboard (shown dark blue hatching); and
3. Probable Maximum Flood (PMF) extent (shown as red line).

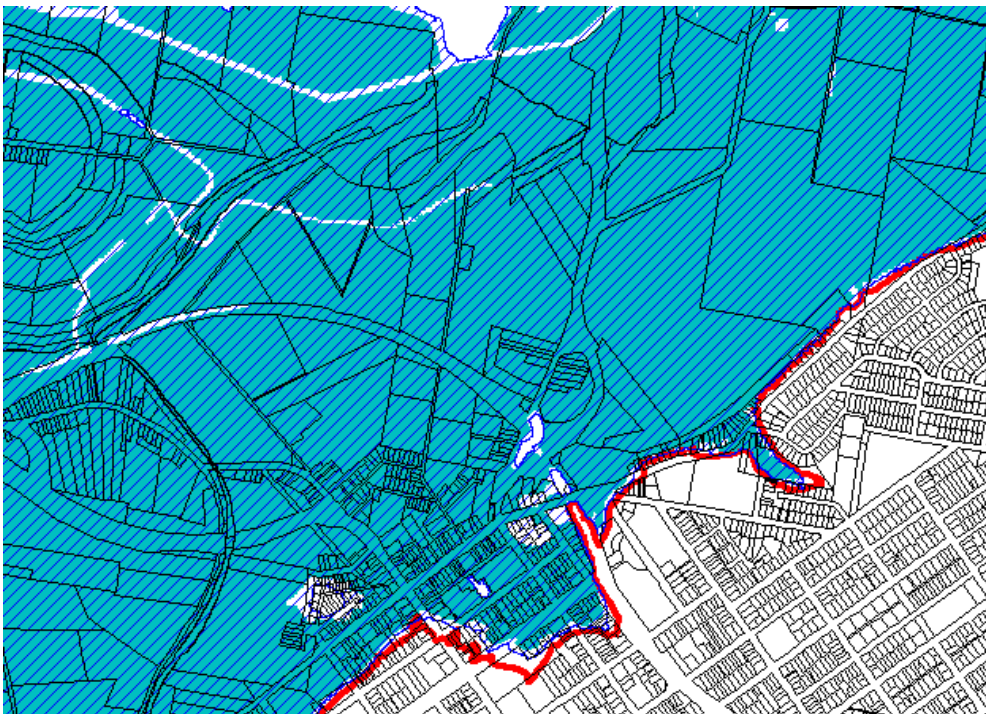


Figure 3: Example of flood extent mapping.

3.2 Flood Depth Maps Series

Flood Depth Maps show the following depth scenarios as they apply in the 1:100 ARI flood event:

1. Depth less than 0.5m (shown in blue); and
2. Depth greater than 0.5m (shown in red).

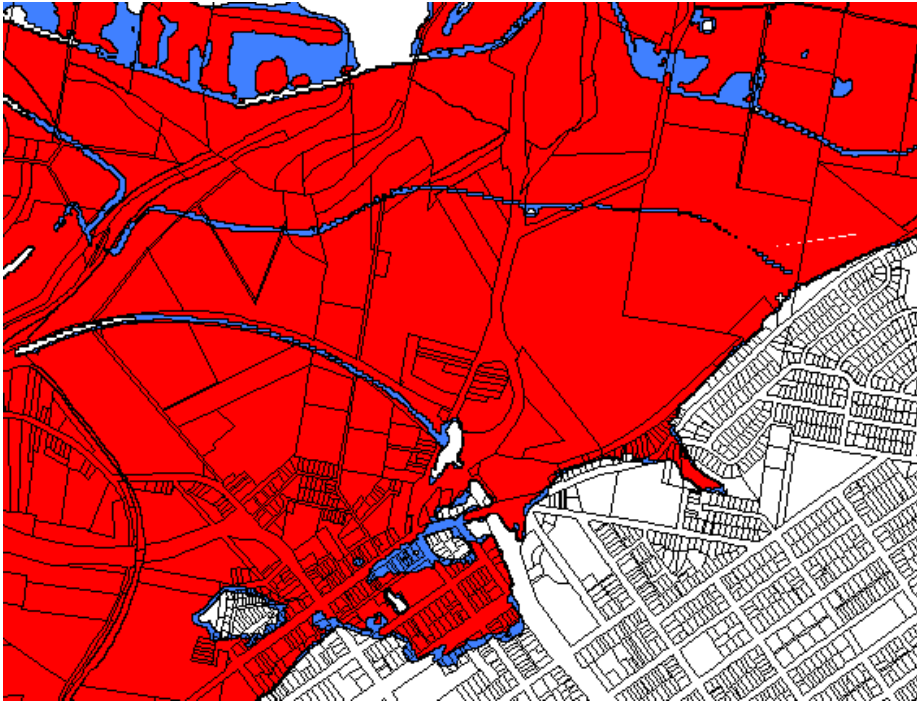


Figure 4: Example of flood depth mapping.

3.3 Flood Velocity Map Series

Flood Velocity Maps show the following velocity scenarios as they apply in the 1:100 ARI flood event:

1. Velocities less than 0.5 metres per second (shown in blue); and
2. Velocities greater than 0.5 metres per second (shown in red).

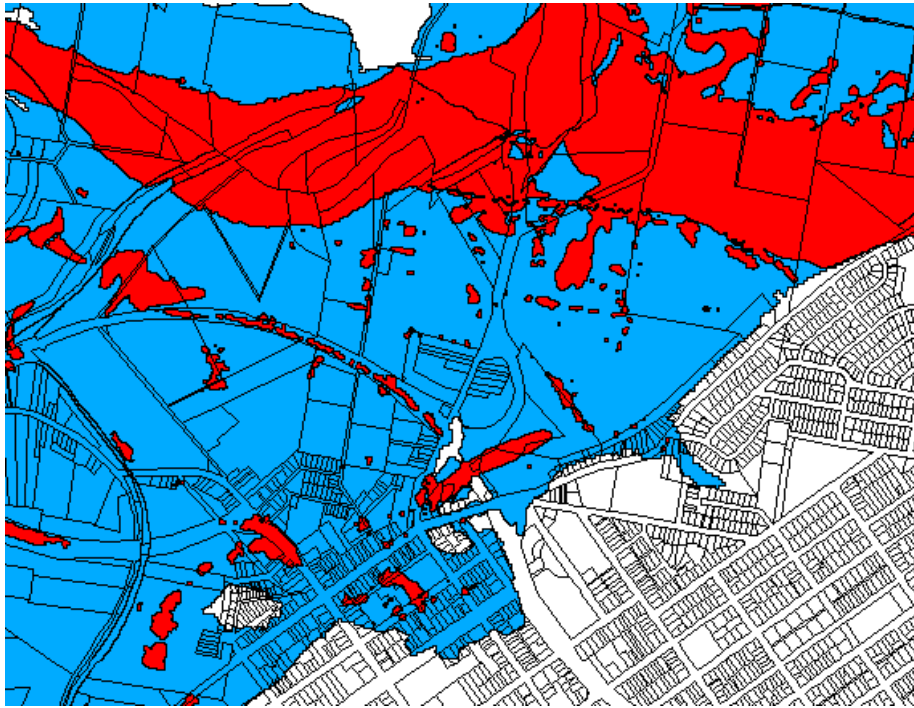


Figure 5: Example of flood velocity mapping.

3.4 Hydraulic Category Maps

Hydraulic Category Maps provide an overview of the various hydraulic categories as they apply in the 1:100 ARI flood event. There is no technical definition of hydraulic categorisation that would be suitable for all catchments, and different approaches must be used in different areas, based on the specific features of the study catchment in question. Where a proponent holds the view that the hydraulic categorisation differs from that shown on the relevant DCP map then the proponent will be responsible for having a suitably qualified consultant undertake the appropriate modelling investigations/analysis to support this view.

The following hydraulic categorisations have been mapped:

- Flood Fringe comprises areas outside the Floodway where peak depth < 1.5 m (shown blue);
- Flood Storage comprises areas outside the Floodway where peak depth > 1.5 m (shown yellow); and
- Floodway (shown red) is defined as areas where:
 - the peak value of velocity multiplied by depth ($V \cdot D$) > $1.0 \text{ m}^2/\text{s}$ and peak velocity > 0.1 m/s, or
 - peak velocity > 0.8 m/s.

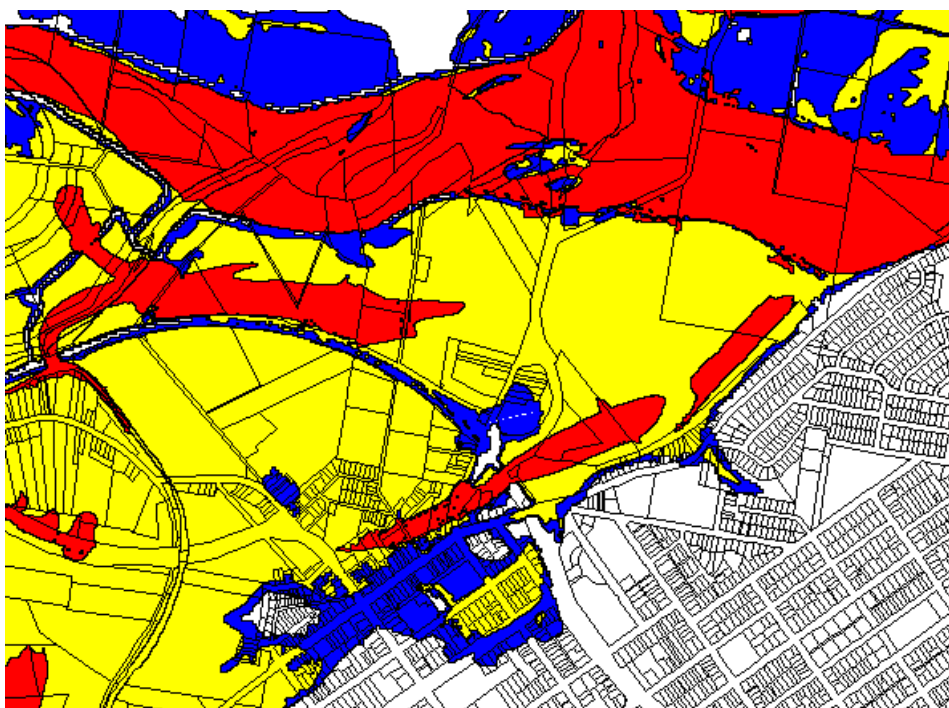


Figure 6: Example hydraulic category mapping.

3.5 Hazard Category Maps

Hazard Category Maps show the various flood hazard categories as they apply in the 1:100 ARI flood event:

- Low Hazard (shown in blue); and
- High Hazard (shown in red).

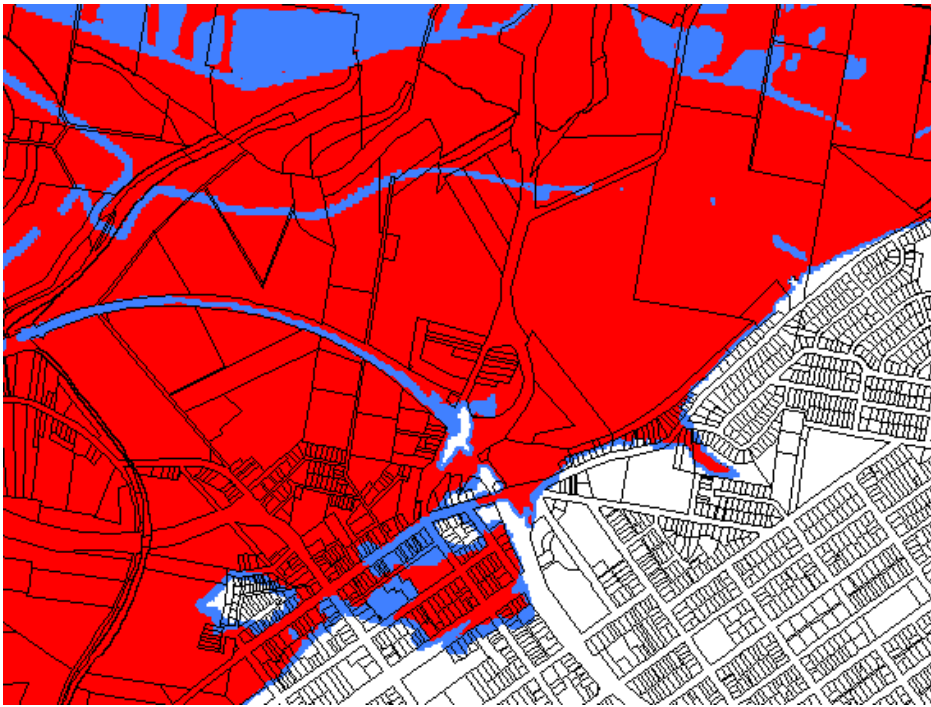


Figure 7: Example View of Flood Hazard Category Mapping.



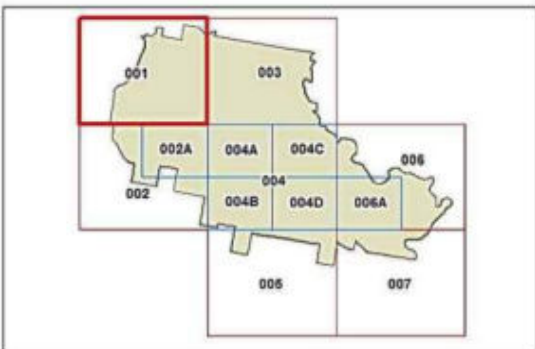
Maitland Citywide Development Control Plan 2011

Floodplain Management DCP - Flood Depth_Sheet 001

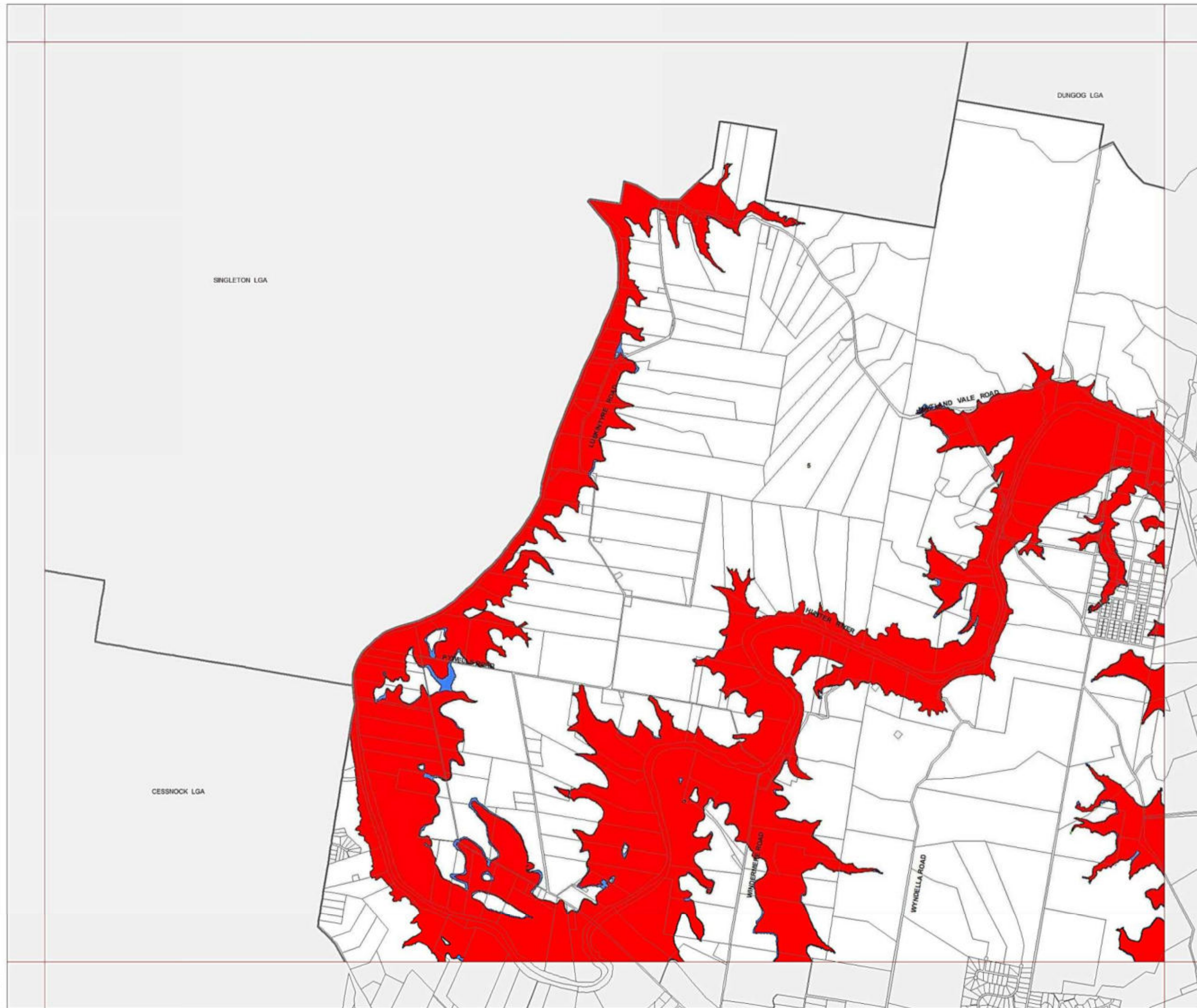
- Depth less than 0.5 metres
- Depth greater than 0.5 metres
- Subject to Further Investigation

Cadastre

- Base data 03/03/1997 © NSW LPMA
- Addendum data 01/04/2011 © Maitland City Council



Projection: GDA 1994
Zone 56
Map identification number:
Floodplain Management DCP (Depth)_FLD_001_040_20140611





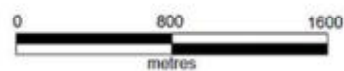
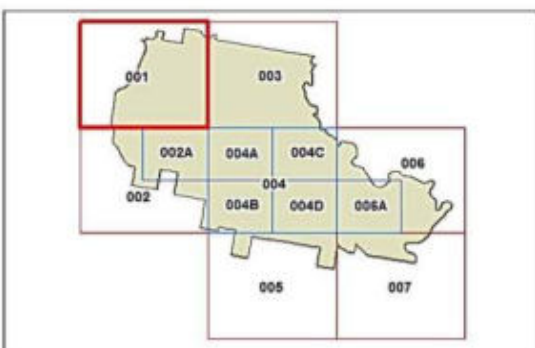
Maitland Citywide Development Control Plan 2011

Floodplain Management DCP - Flood Extents_Sheet 001

- Probable Maximum Flood (PMF)
- Flood Planning Area (1:100 ARI plus 0.5m)
- 1:100 ARI (1% Annual Exceedance Probability)

Cadastre

- Base data 03/03/1997 © NSW LPMA
- Addendum data 01/04/2011 © Maitland City Council

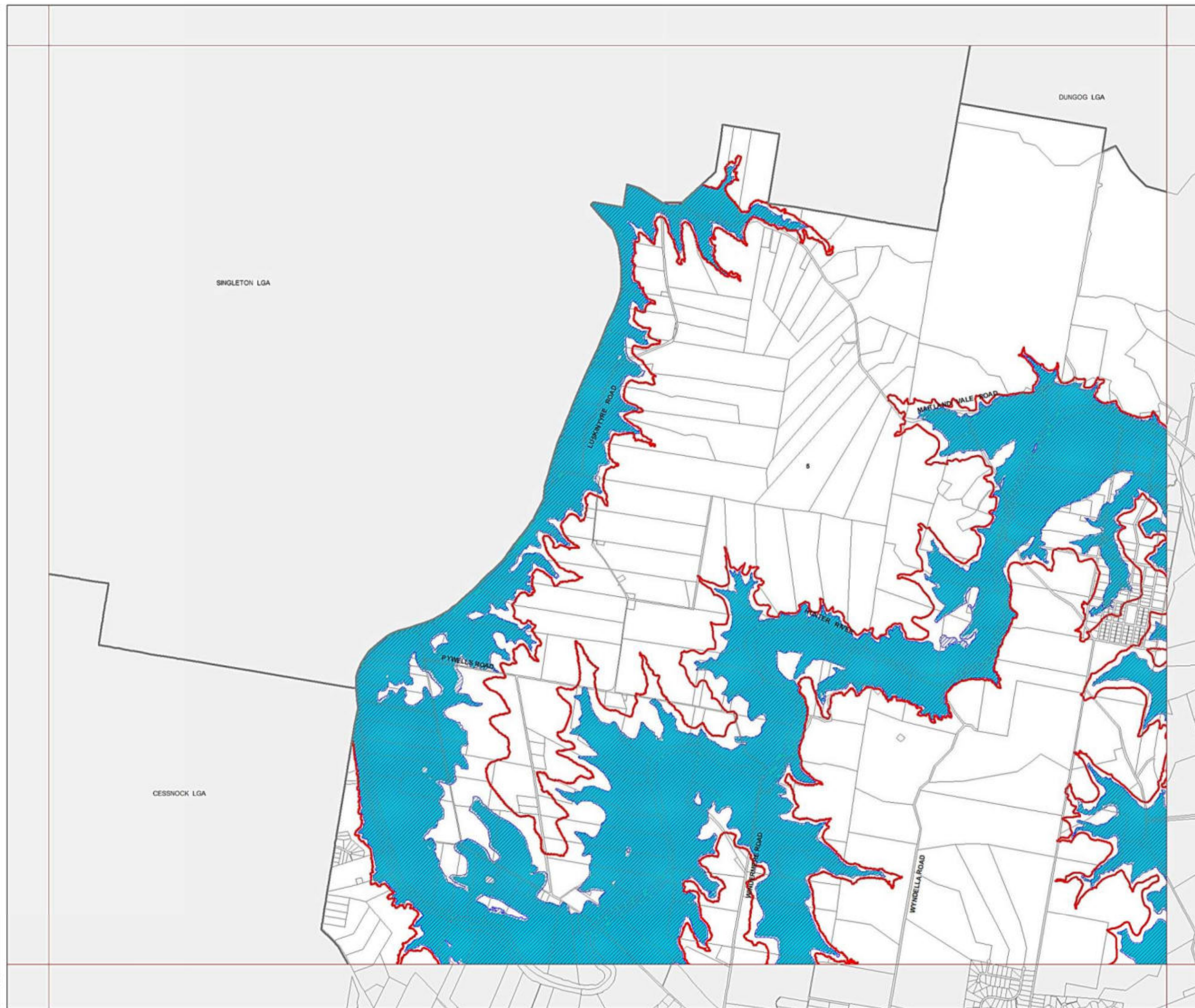


Scale: 1:40,000 @ A3

Projection: GDA 1994
Zone 56

Map identification number:

Floodplain Management DCP_FLD_001_040_20140827





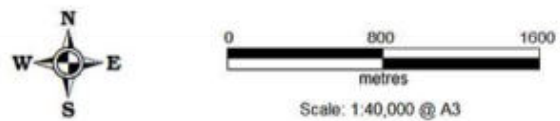
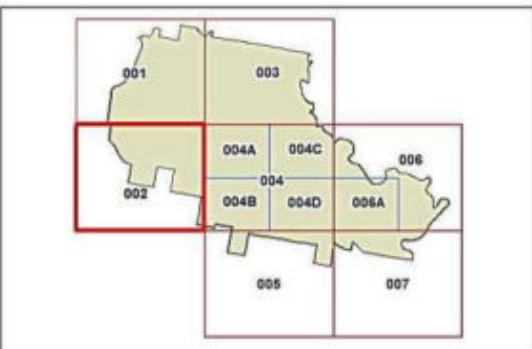
Maitland Citywide Development Control Plan 2011

Floodplain Management DCP - Flood Extents_Sheet 002

- Probable Maximum Flood (PMF)
- Flood Planning Area (1:100 ARI plus 0.5m)
- 1:100 ARI (1% Annual Exceedance Probability)

Cadastre

- Base data 03/03/1997 © NSW LPMA
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Projection: GDA 1994
Zone 56
Map identification number:
Floodplain Management DCP_FLD_002_040_20140827





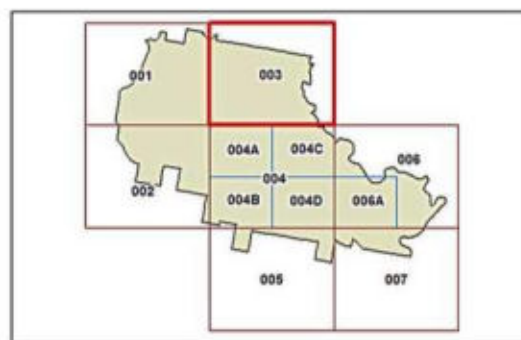
Maitland Citywide Development Control Plan 2011

Floodplain Management DCP - Flood Extents_Sheet 003

- Probable Maximum Flood (PMF)
- Flood Planning Area (1:100 ARI plus 0.5m)
- 1:100 ARI (1% Annual Exceedance Probability)

Cadastre

- Base data 03/03/1997 © NSW LPMA
- Addendum data 01/04/2011 © Maitland City Council



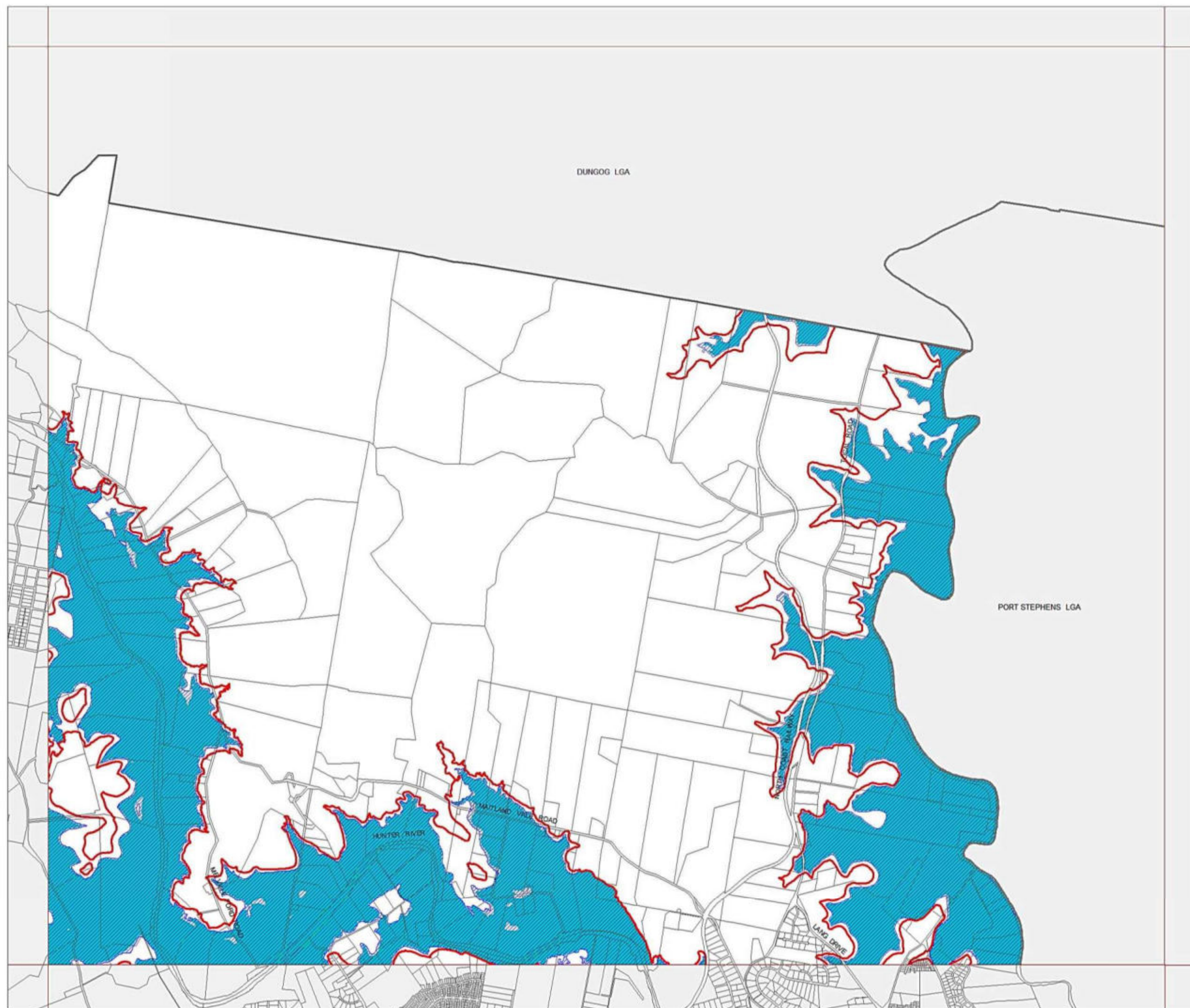
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Scale: 1:40,000 @ A3

Projection: GDA 1994
Zone 56

Map identification number:

Floodplain Management DCP_FLD_003_040_20140827





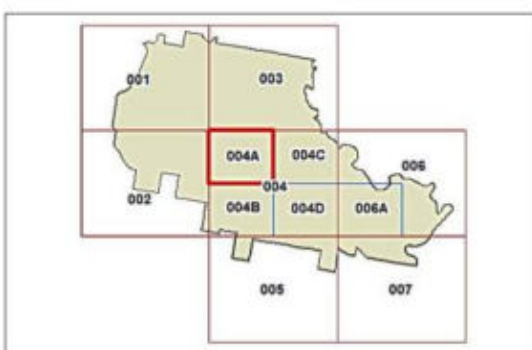
Maitland Citywide Development Control Plan 2011

Floodplain Management DCP - Flood Extents_Sheet 004A

- Probable Maximum Flood (PMF)
- Flood Planning Area (1:100 ARI plus 0.5m)
- 1:100 ARI (1% Annual Exceedance Probability)

Cadastre

- Base data 03/03/1997 © NSW LPMA
- Addendum data 01/04/2011 © Maitland City Council



Scale: 1:20,000 @ A3

Projection: GDA 1994
Zone 56

Map identification number:
Floodplain Management DCP_FLD_004A_020_20140827





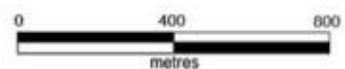
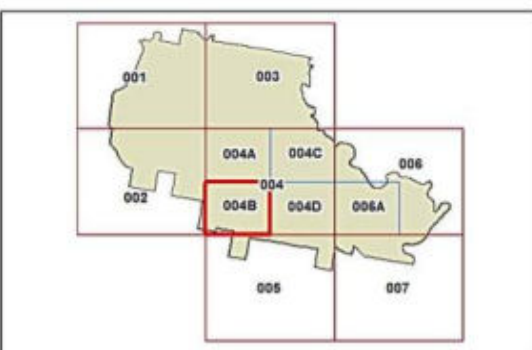
Maitland Citywide Development Control Plan 2011

Floodplain Management DCP - Flood Extents_Sheet 004B

- Probable Maximum Flood (PMF)
- Flood Planning Area (1:100 ARI plus 0.5m)
- 1:100 ARI (1% Annual Exceedance Probability)

Cadastre

- Base data 03/03/1997 © NSW LPMA
- Addendum data 01/04/2011 © Maitland City Council

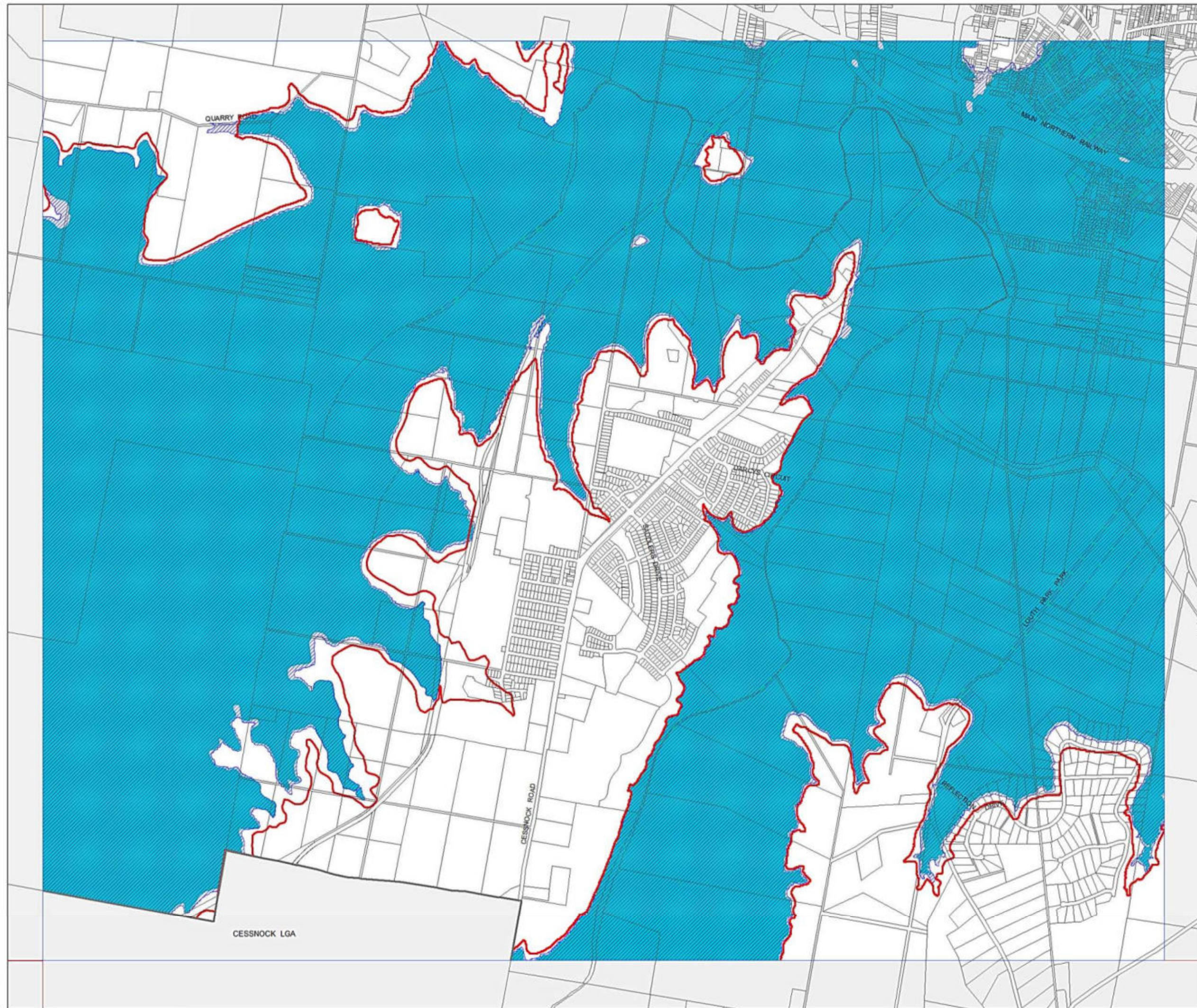


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Projection: GDA 1994
Zone 56

Map identification number:

Floodplain Management DCP_FLD_004B_020_20140827





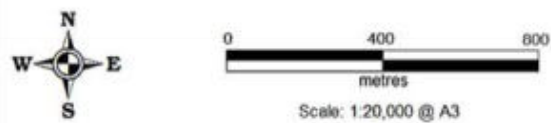
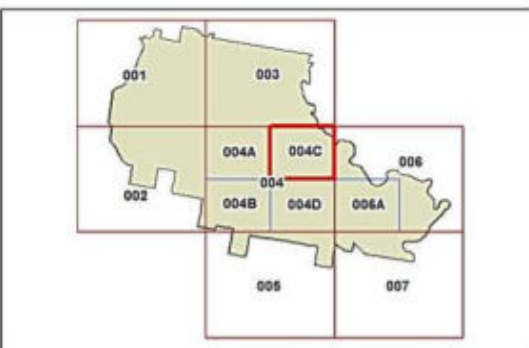
Maitland Citywide Development Control Plan 2011

Floodplain Management DCP - Flood Extents_Sheet 004C

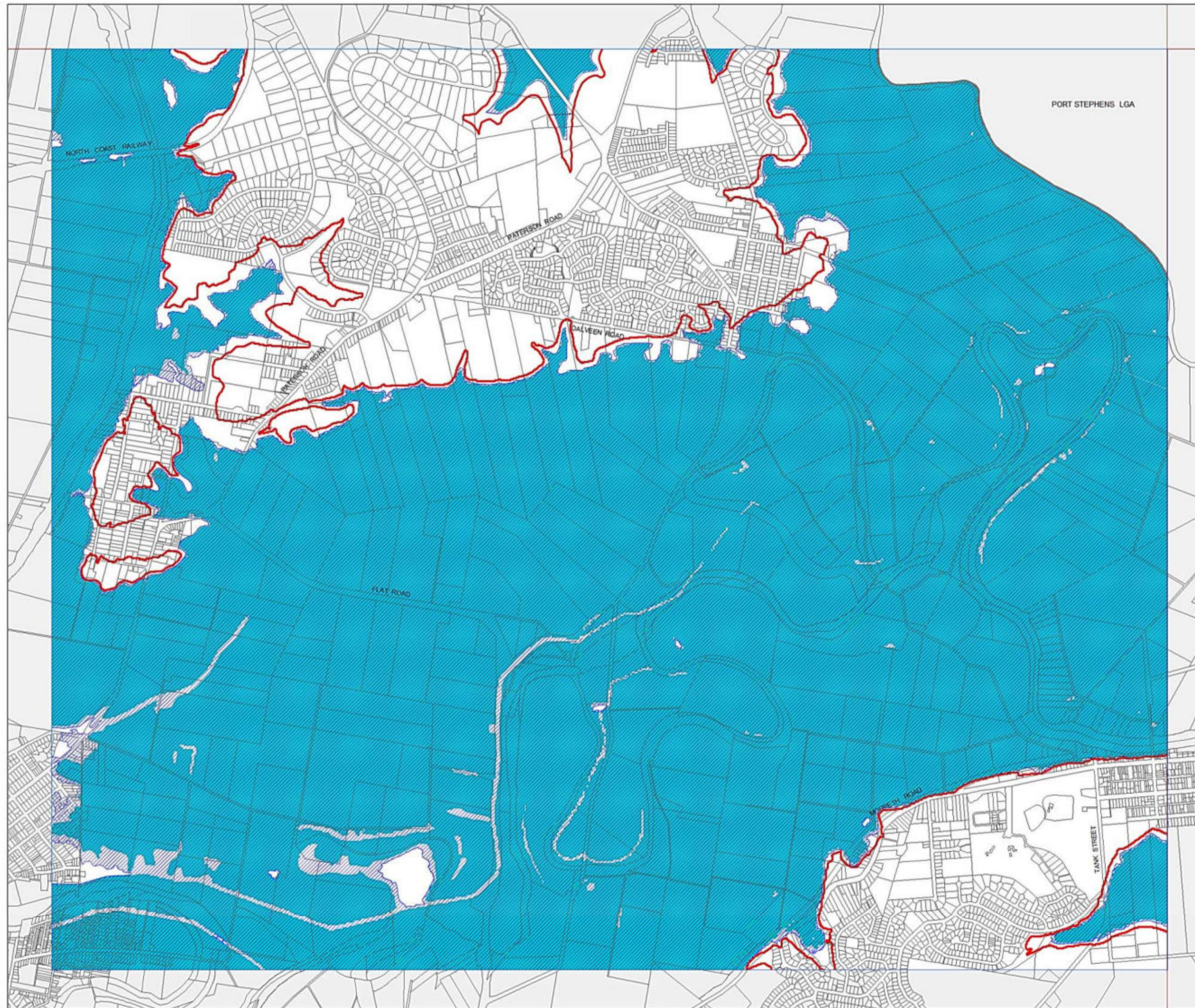
- Probable Maximum Flood (PMF)
- Flood Planning Area (1:100 ARI plus 0.5m)
- 1:100 ARI (1% Annual Exceedance Probability)

Cadastre

- Base data 03/03/1997 © NSW LPMA
- Addendum data 01/04/2011 © Maitland City Council



Projection: GDA 1994
Zone 56
Map identification number:
Floodplain Management DCP_FLD_004C_020_20140827





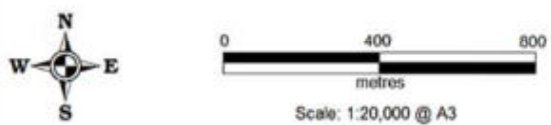
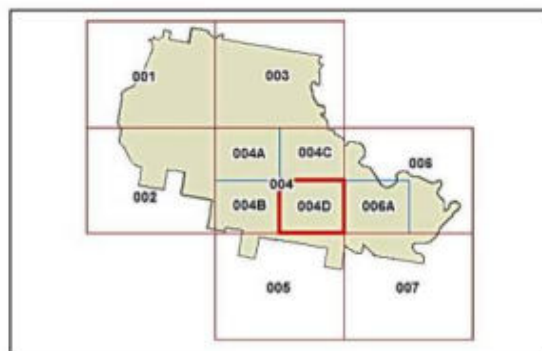
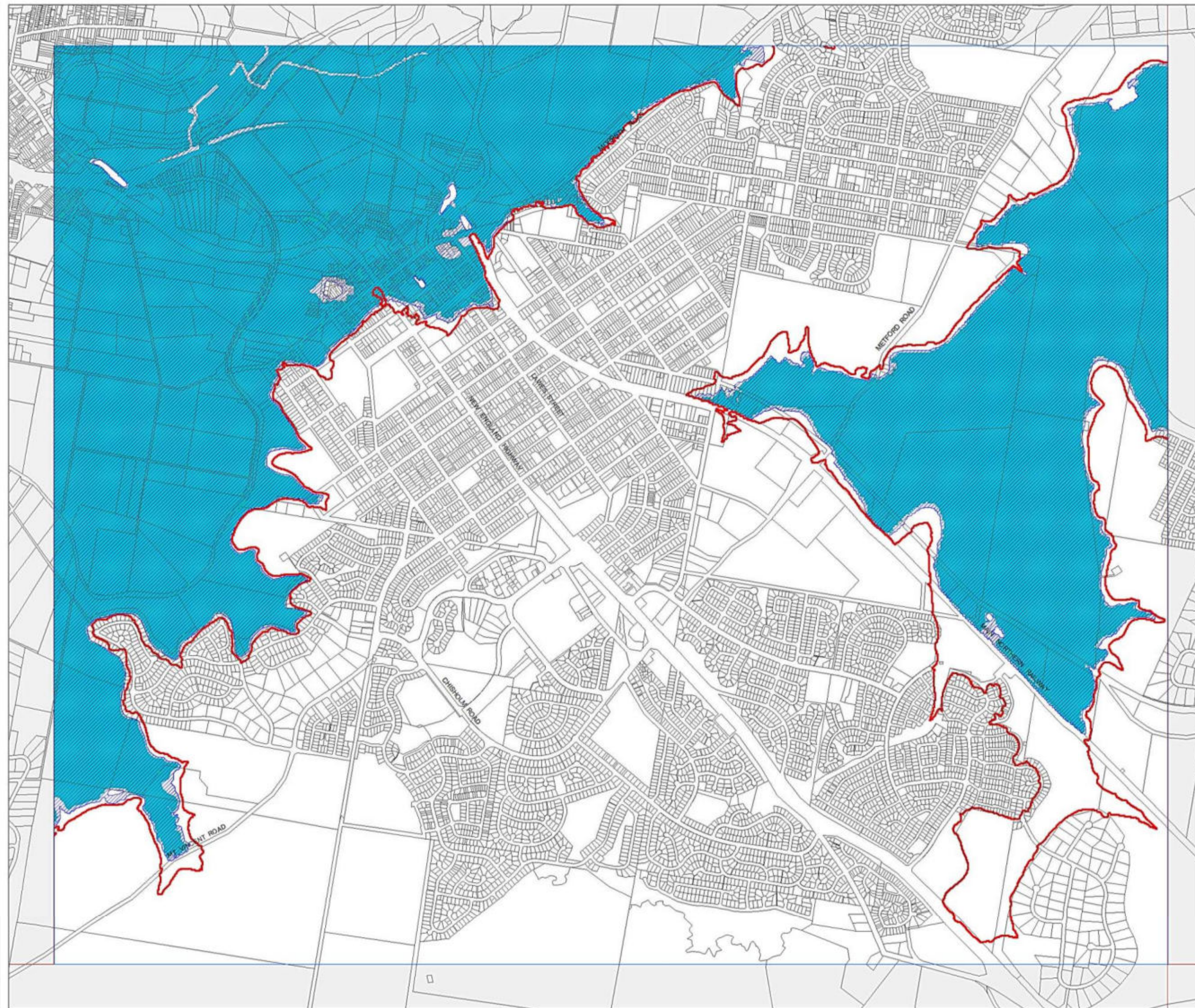
Maitland Citywide Development Control Plan 2011

Floodplain Management DCP - Flood Extents_Sheet 004D

- Probable Maximum Flood (PMF)
- Flood Planning Area (1:100 ARI plus 0.5m)
- 1:100 ARI (1% Annual Exceedance Probability)

Cadastre

- Base data 03/03/1997 © NSW LPMA
- Addendum data 01/04/2011 © Maitland City Council





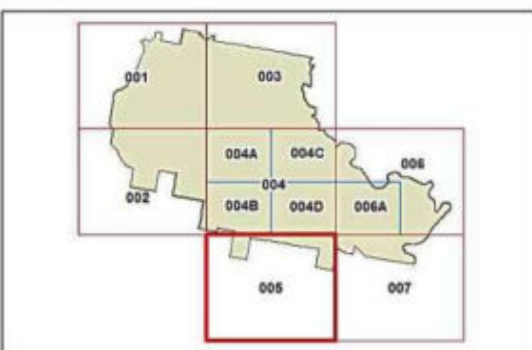
Maitland Citywide Development Control Plan 2011

Floodplain Management DCP - Flood Extents_Sheet 005

- Probable Maximum Flood (PMF)
- Flood Planning Area (1:100 ARI plus 0.5m)
- 1:100 ARI (1% Annual Exceedance Probability)

Cadastre

- Base data 03/03/1997 © NSW LPMA
- Addendum data 01/04/2011 © Maitland City Council

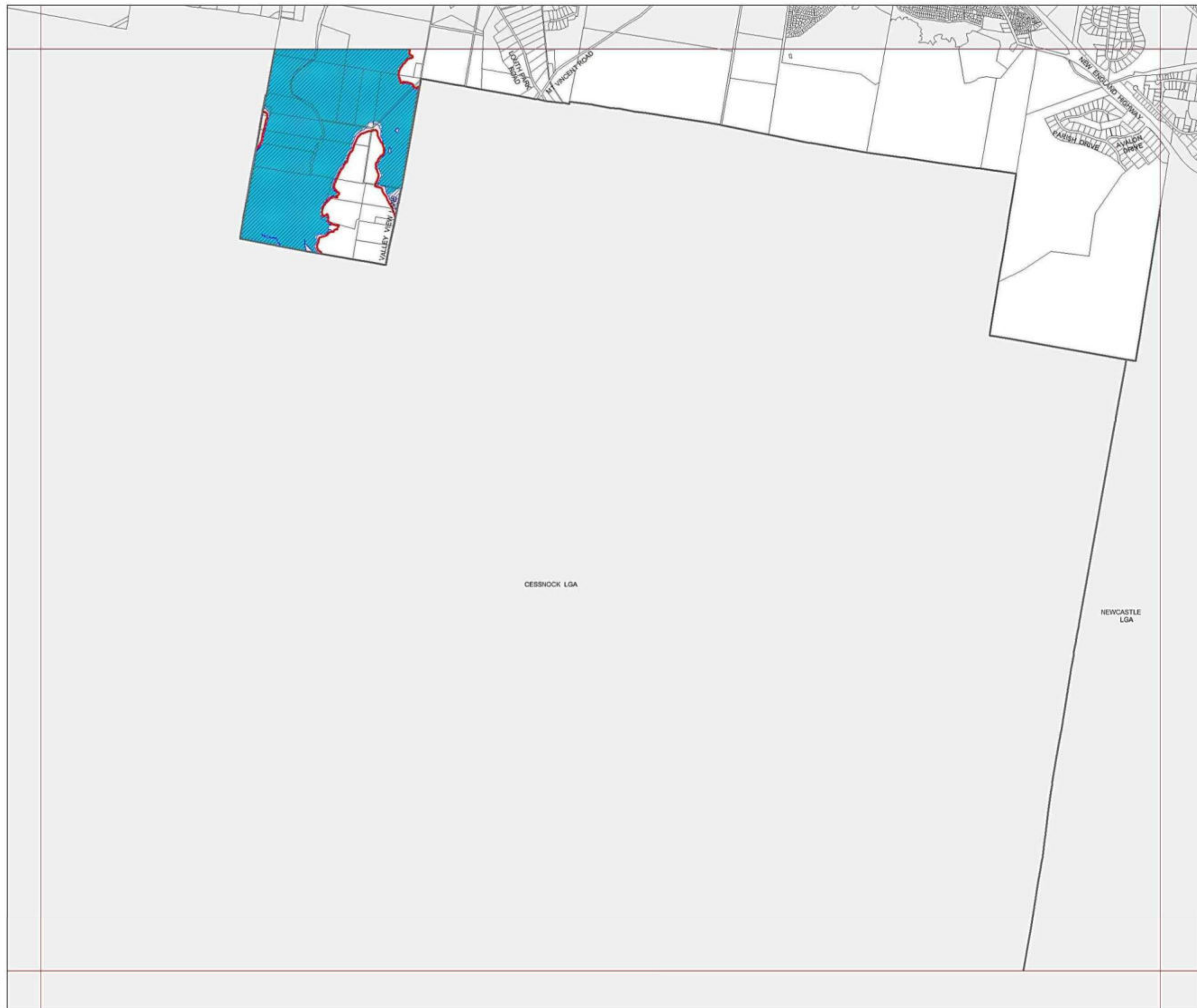


Scale: 1:40,000 @ A3

Projection: GDA 1994
Zone 56

Map identification number:

Floodplain Management DCP_FLD_005_040_20140827





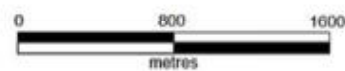
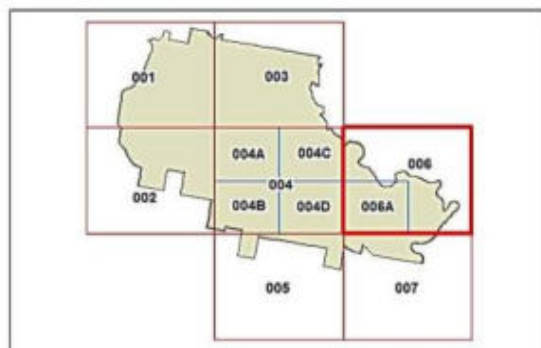
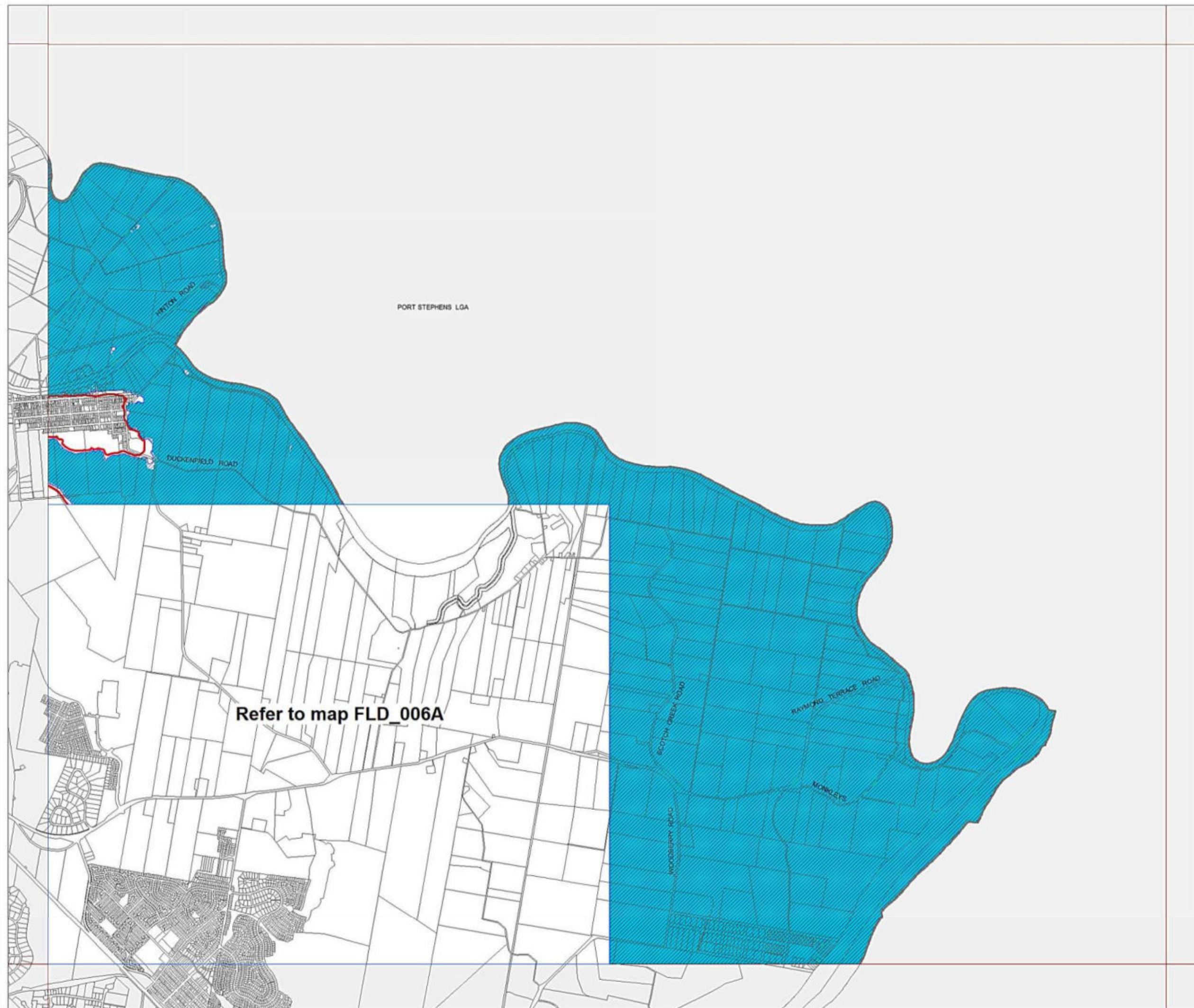
Maitland Citywide Development Control Plan 2011

Floodplain Management DCP - Flood Extents_Sheet 006

- Probable Maximum Flood (PMF)
- Flood Planning Area (1:100 ARI plus 0.5m)
- 1:100 ARI (1% Annual Exceedance Probability)

Cadastral

- Base data 03/03/1997 © NSW LPMA
- Addendum data 01/04/2011 © Maitland City Council



Scale: 1:40,000 @ A3

Projection: GDA 1994
Zone 56

Map identification number:

Floodplain Management DCP_FLD_006_040_20140827



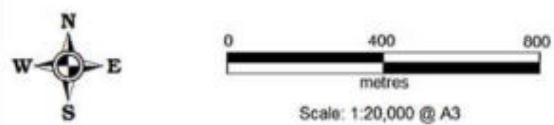
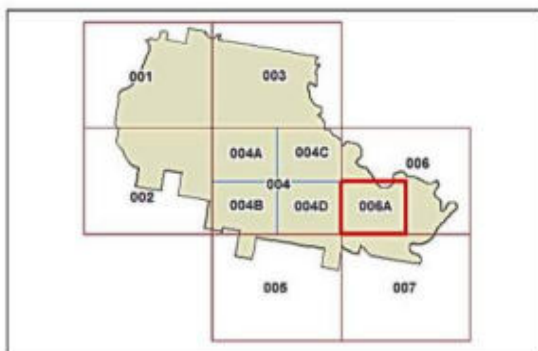
Maitland Citywide Development Control Plan 2011

Floodplain Management DCP - Flood Extents_Sheet 006A

- Probable Maximum Flood (PMF)
- Flood Planning Area (1:100 ARI plus 0.5m)
- 1:100 ARI (1% Annual Exceedance Probability)

Cadastre

Base data 03/03/1997 © NSW LPMA
Addendum data 01/04/2011 © Maitland City Council



Projection: GDA 1994
Zone 56
Map identification number:
Floodplain Management DCP_FLD_006A_020_20140827



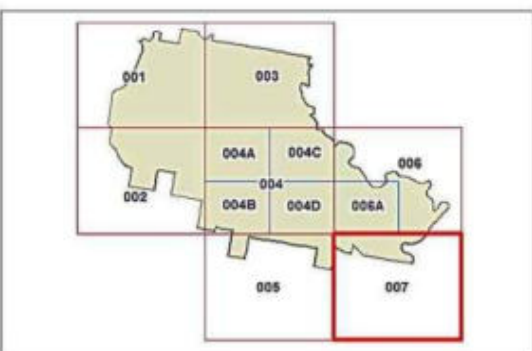
Maitland Citywide Development Control Plan 2011

Floodplain Management DCP - Flood Extents_Sheet 007

- Probable Maximum Flood (PMF)
- Flood Planning Area (1:100 ARI plus 0.5m)
- 1:100 ARI (1% Annual Exceedance Probability)

Cadastre

- Base data 03/03/1997 © NSW LPMA
- Addendum data 01/04/2011 © Maitland City Council



Scale: 1:40,000 @ A3

Projection: GDA 1994
Zone 56

Map identification number:

Floodplain Management DCP_FLD_007_040_20140827





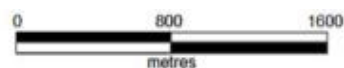
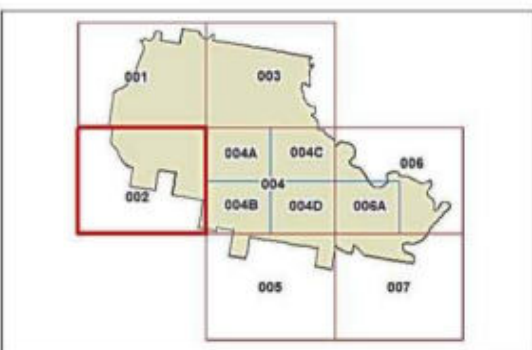
Maitland Citywide Development Control Plan 2011

Floodplain Management DCP - Flood Depth_Sheet 002

-  Depth less than 0.5 metres
-  Depth greater than 0.5 metres
-  Subject to Further Investigation

Cadastre

-  Base data 03/03/1997 © NSW LPMA
-  Addendum data 01/04/2011 © Maitland City Council

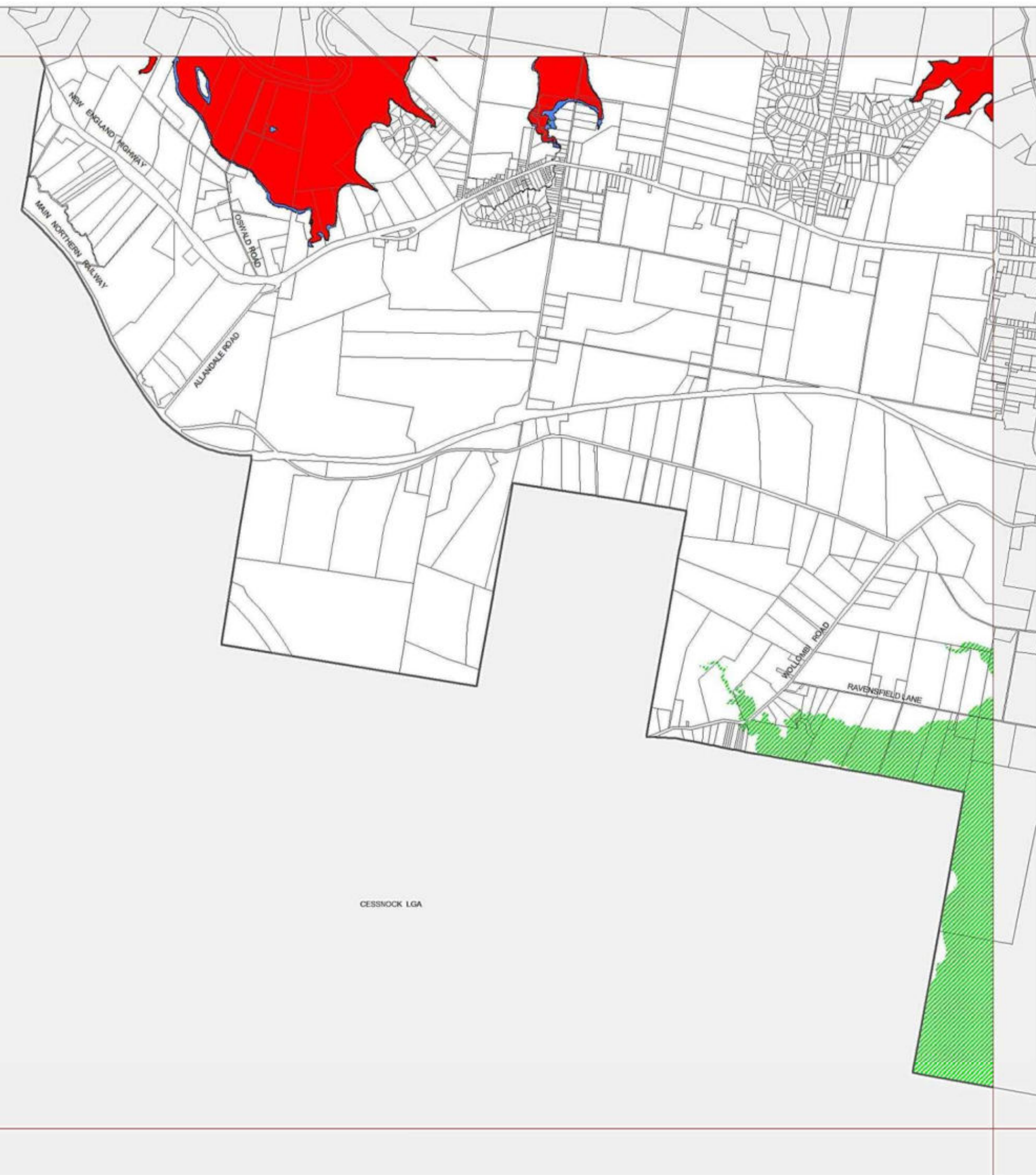


Scale: 1:40,000 @ A3

Projection: GDA 1994
Zone 56

Map identification number:

Floodplain Management DCP (Depth)_FLD_002_040_20140611





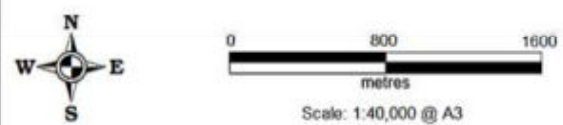
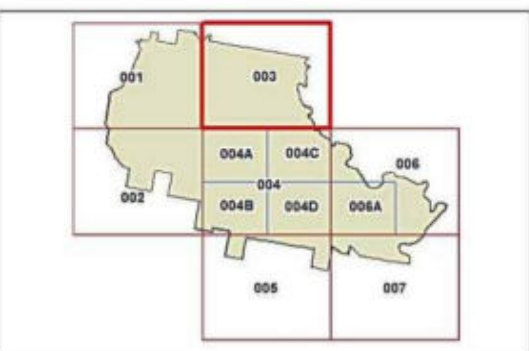
Maitland Citywide Development Control Plan 2011

Floodplain Management DCP - Flood Depth_Sheet 003

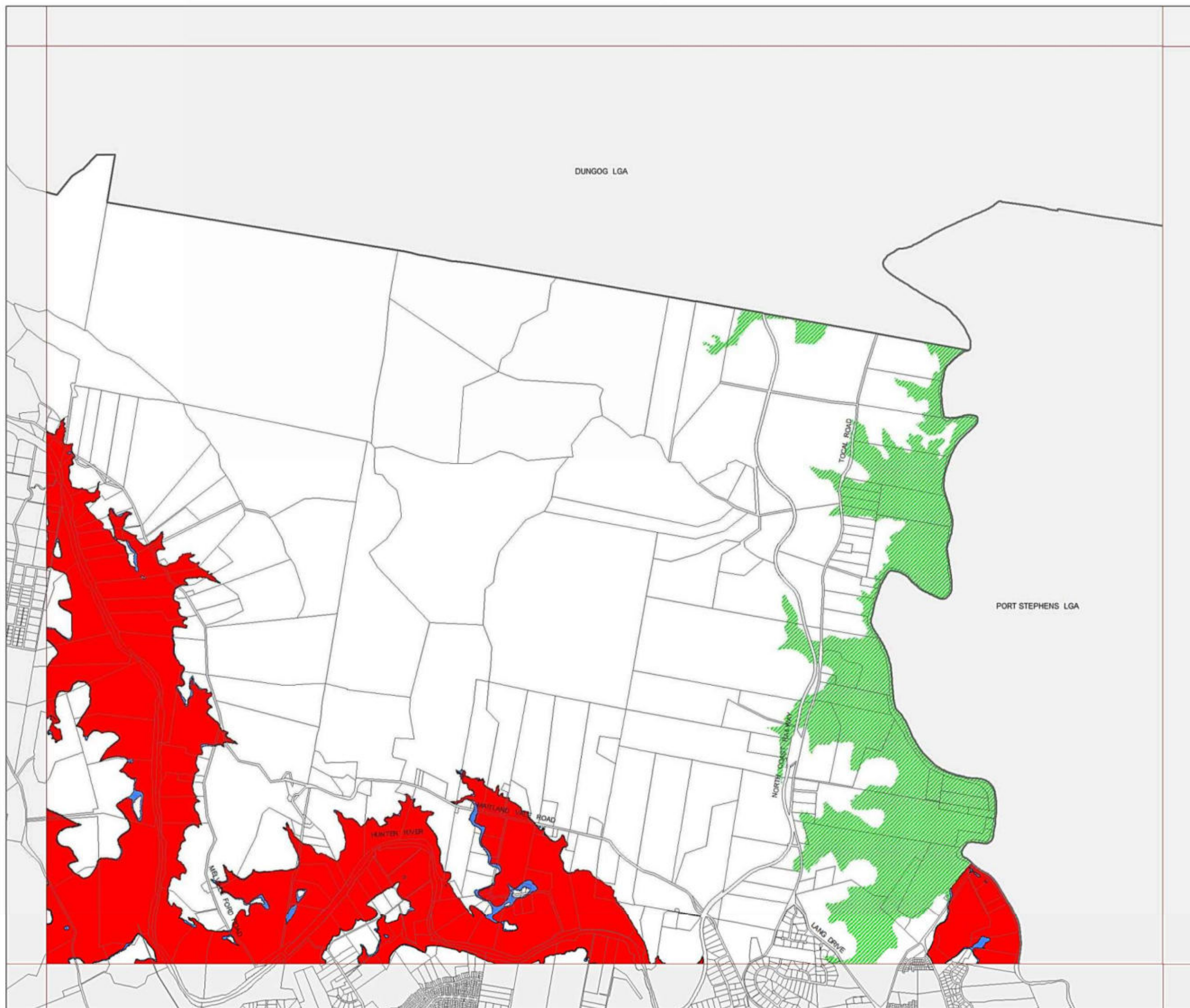
- Depth less than 0.5 metres
- Depth greater than 0.5 metres
- Subject to Further Investigation

Cadastre

Base data 03/03/1997 © NSW LPMA
Addendum data 01/04/2011 © Maitland City Council



Projection: GDA 1994
Zone 56
Map identification number:
Floodplain Management DCP (Depth)_FLD_003_040_20140611





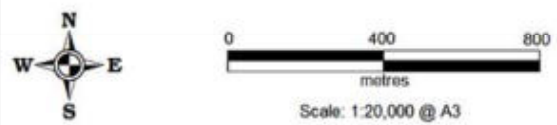
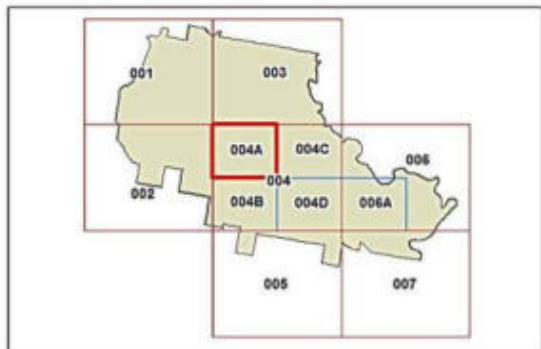
Maitland Citywide Development Control Plan 2011

Floodplain Management DCP - Flood Depth_Sheet 004A

- Depth less than 0.5 metres
- Depth greater than 0.5 metres
- Subject to Further Investigation

Cadastre

Base data 03/03/1997 © NSW LPMA
Addendum data 01/04/2011 © Maitland City Council



Projection: GDA 1994
Zone 56
Map identification number:
Floodplain Management DCP (Depth)_FLD_004A_020_20140611



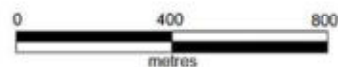
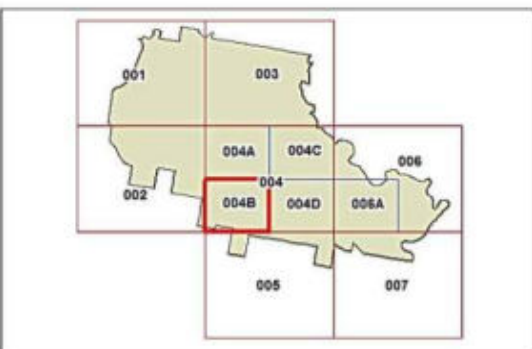
Maitland Citywide Development Control Plan 2011

Floodplain Management DCP -
Flood Depth_Sheet 004B

- Depth less than 0.5 metres
- Depth greater than 0.5 metres
- Subject to Further Investigation

Cadastre

- Base data 03/03/1997 © NSW LPMA
- Addendum data 01/04/2011 © Maitland City Council

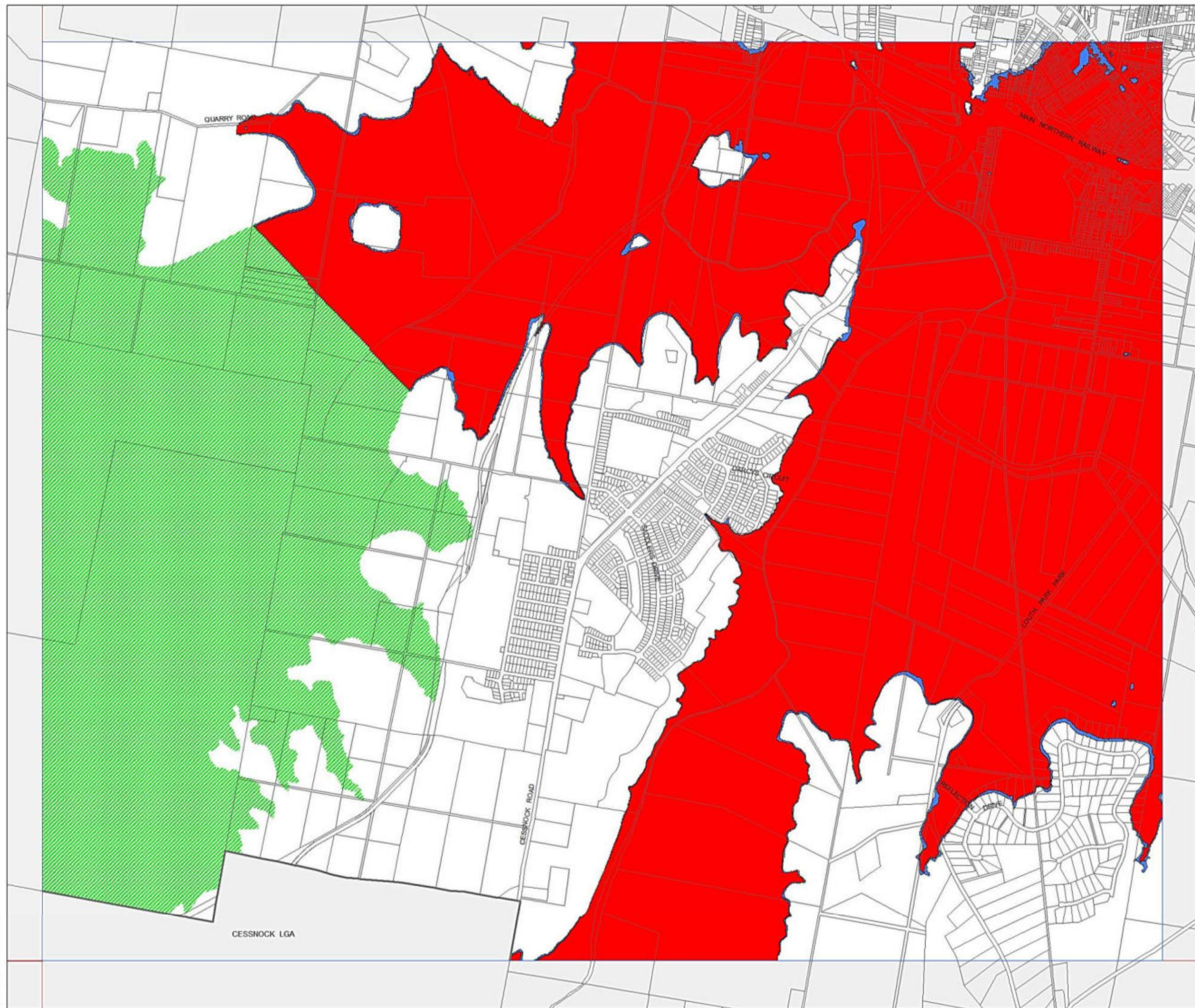


Scale: 1:20,000 @ A3

Projection: GDA 1994
Zone 56

Map identification number:

Floodplain Management DCP (Depth)_FLD_004B_020_20140611





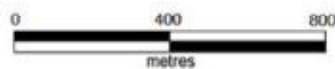
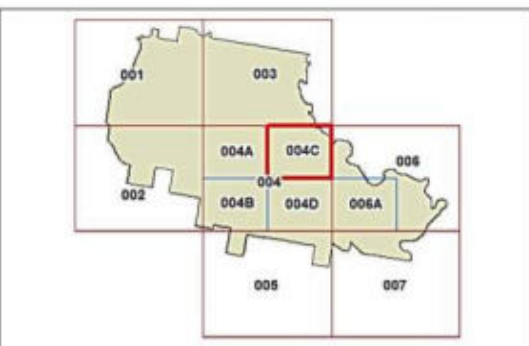
Maitland Citywide Development Control Plan 2011

Floodplain Management DCP - Flood Depth_Sheet 004C

- Depth less than 0.5 metres
- Depth greater than 0.5 metres
- Subject to Further Investigation

Cadastre

Base data 03/03/1997 © NSW LPMA
Addendum data 01/04/2011 © Maitland City Council

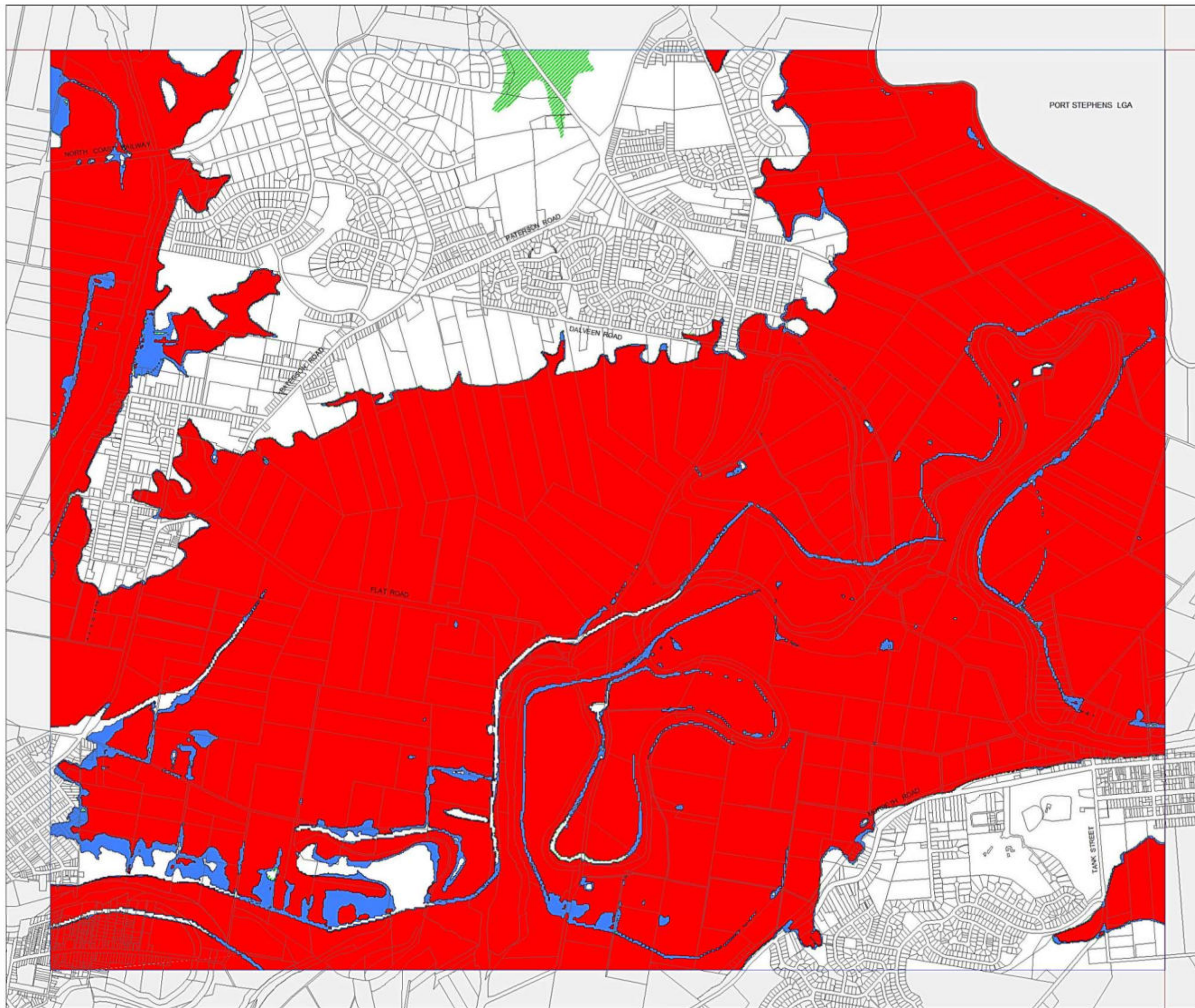


Scale: 1:20,000 @ A3

Projection: GDA 1994
Zone 56

Map identification number:

Floodplain Management DCP (Depth)_FLD_004C_020_20140611





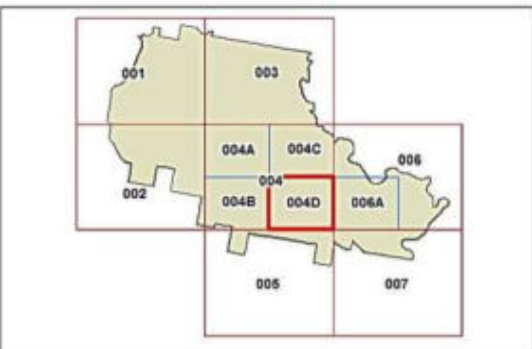
Maitland Citywide Development Control Plan 2011

Floodplain Management DCP -
Flood Depth_Sheet 004D

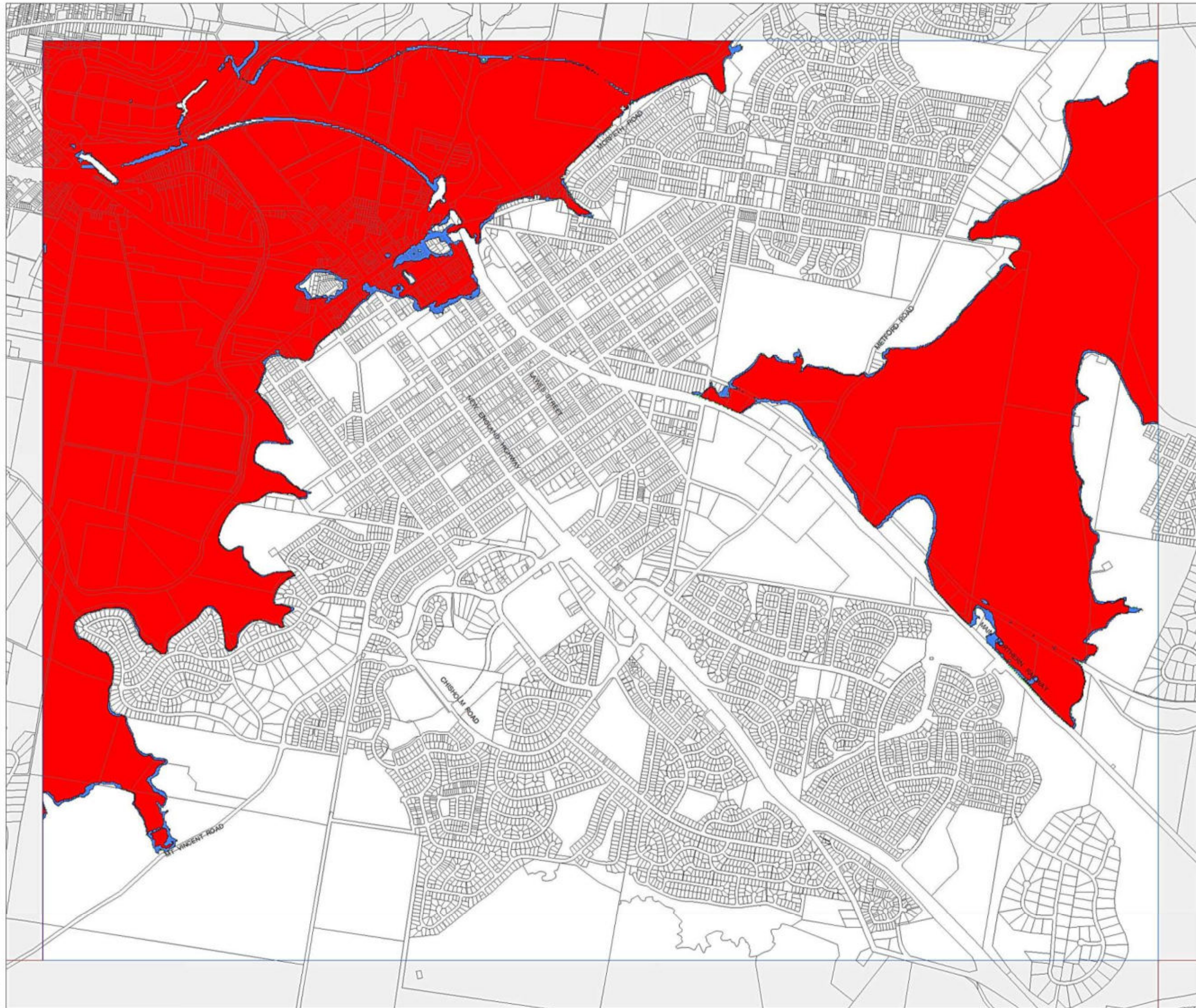
- Depth less than 0.5 metres
- Depth greater than 0.5 metres
- Subject to Further Investigation

Cadastre

Base data 03/03/1997 © NSW LPMA
Addendum data 01/04/2011 © Maitland City Council



Projection: GDA 1994
Zone 56
Map identification number:
Floodplain Management DCP (Depth)_FLD_004D_020_20140611





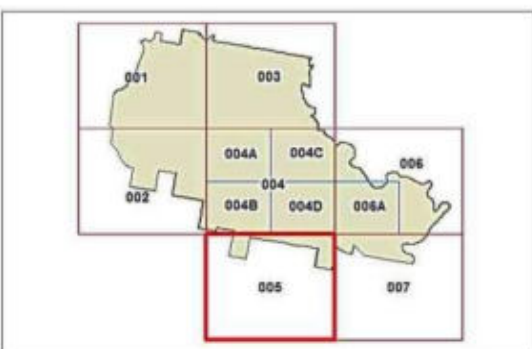
Maitland Citywide Development Control Plan 2011

Floodplain Management DCP - Flood Depth_Sheet 005

- Depth less than 0.5 metres
- Depth greater than 0.5 metres
- Subject to Further Investigation

Cadastre

Base data 03/03/1997 © NSW LPMA
Addendum data 01/04/2011 © Maitland City Council

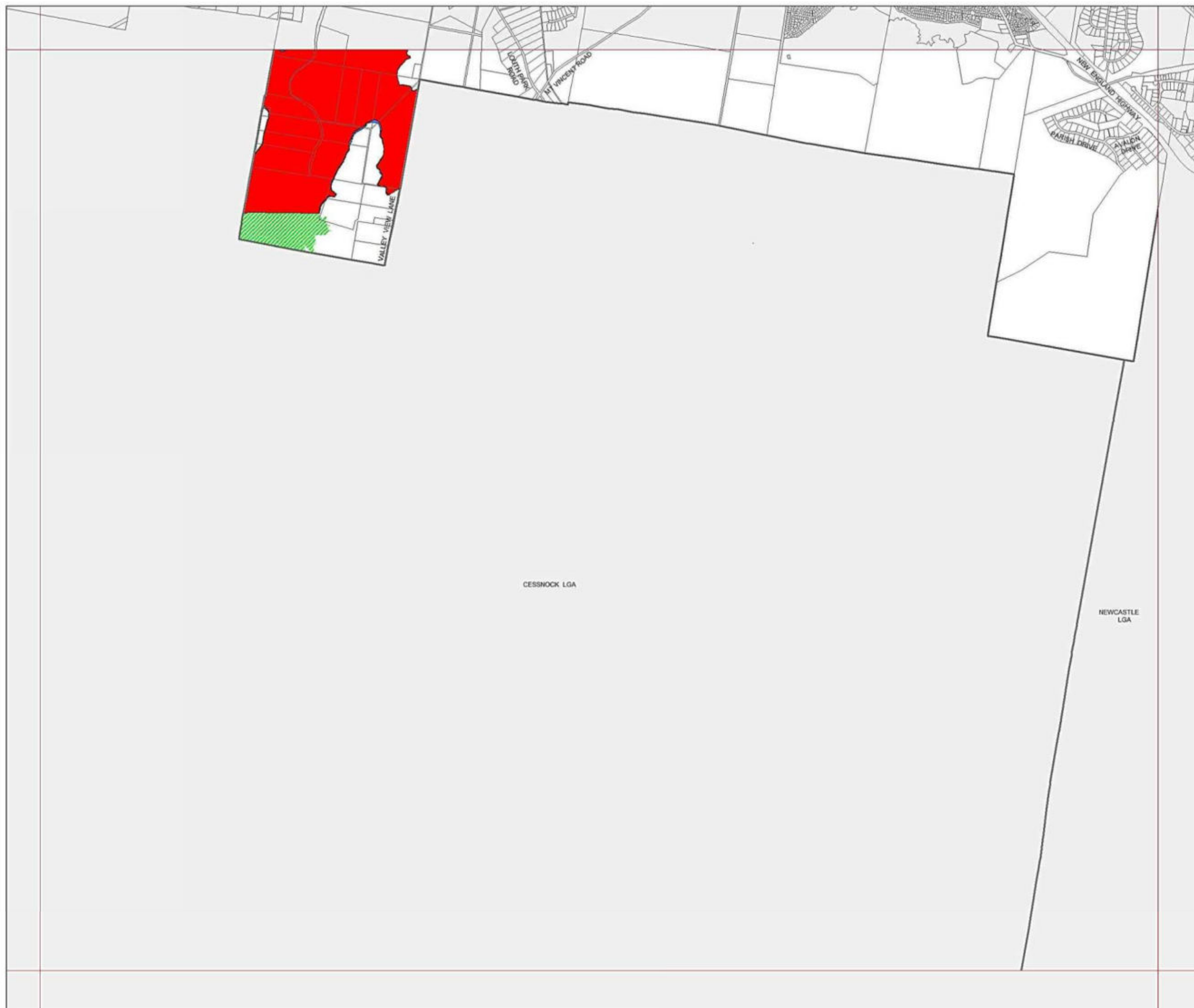


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Projection: GDA 1994
Zone 56

Map identification number:

Floodplain Management DCP (Depth)_FLD_005_040_20140611





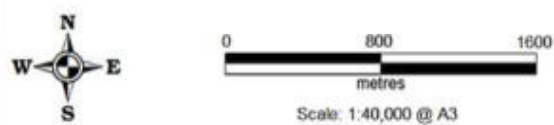
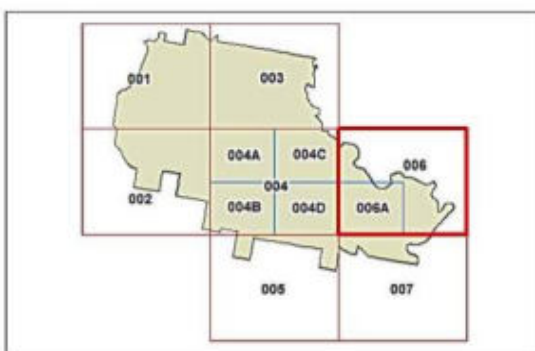
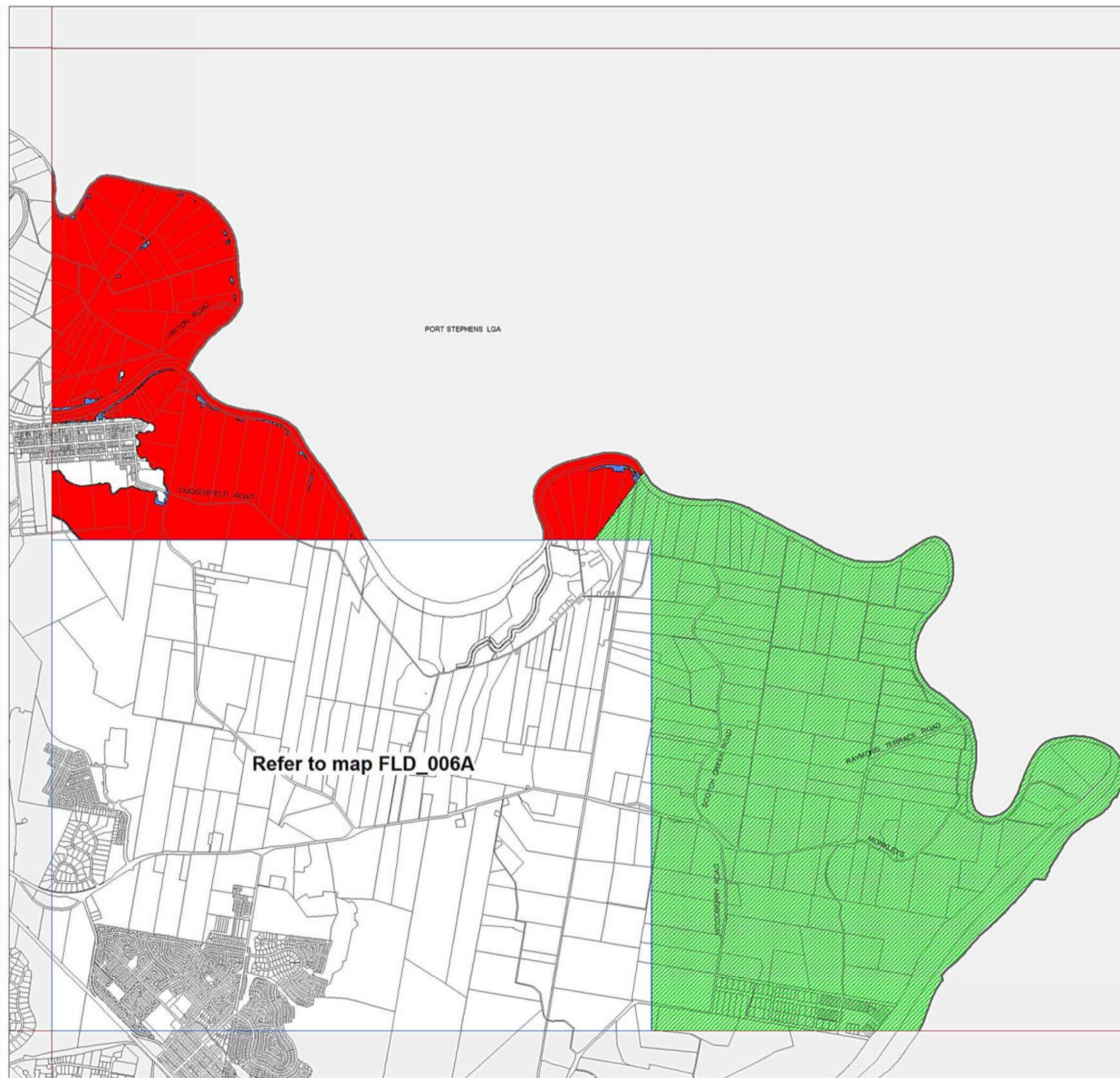
Maitland Citywide Development Control Plan 2011

Floodplain Management DCP - Flood Depth_Sheet 006

-  Depth less than 0.5 metres
-  Depth greater than 0.5 metres
-  Subject to Further Investigation

Cadastre

-  Base data 03/03/1997 © NSW LPMA
-  Addendum data 01/04/2011 © Maitland City Council





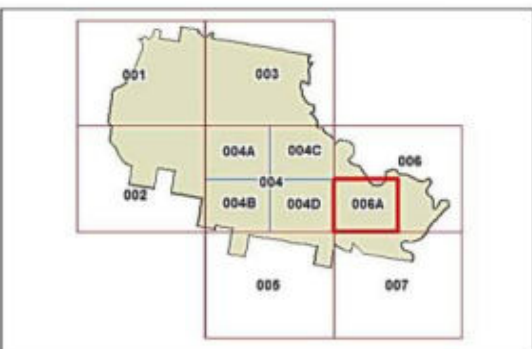
Maitland Citywide Development Control Plan 2011

Floodplain Management DCP -
Flood Depth_Sheet 006A

-  Depth less than 0.5 metres
-  Depth greater than 0.5 metres
-  Subject to Further Investigation

Cadastre

 Base data 03/03/1997 © NSW LPMA
Addendum data 01/04/2011 © Maitland City Council



Scale: 1:20,000 @ A3

Projection: GDA 1994
Zone 56

Map identification number:

Floodplain Management DCP (Depth)_FLD_006A_020_20140611





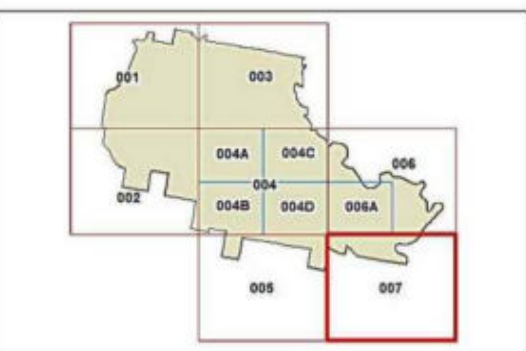
Maitland Citywide Development Control Plan 2011

Floodplain Management DCP - Flood Depth_Sheet 007

- Depth less than 0.5 metres
- Depth greater than 0.5 metres
- Subject to Further Investigation

Cadastre

Base data 03/03/1997 © NSW LPMA
Addendum data 01/04/2011 © Maitland City Council

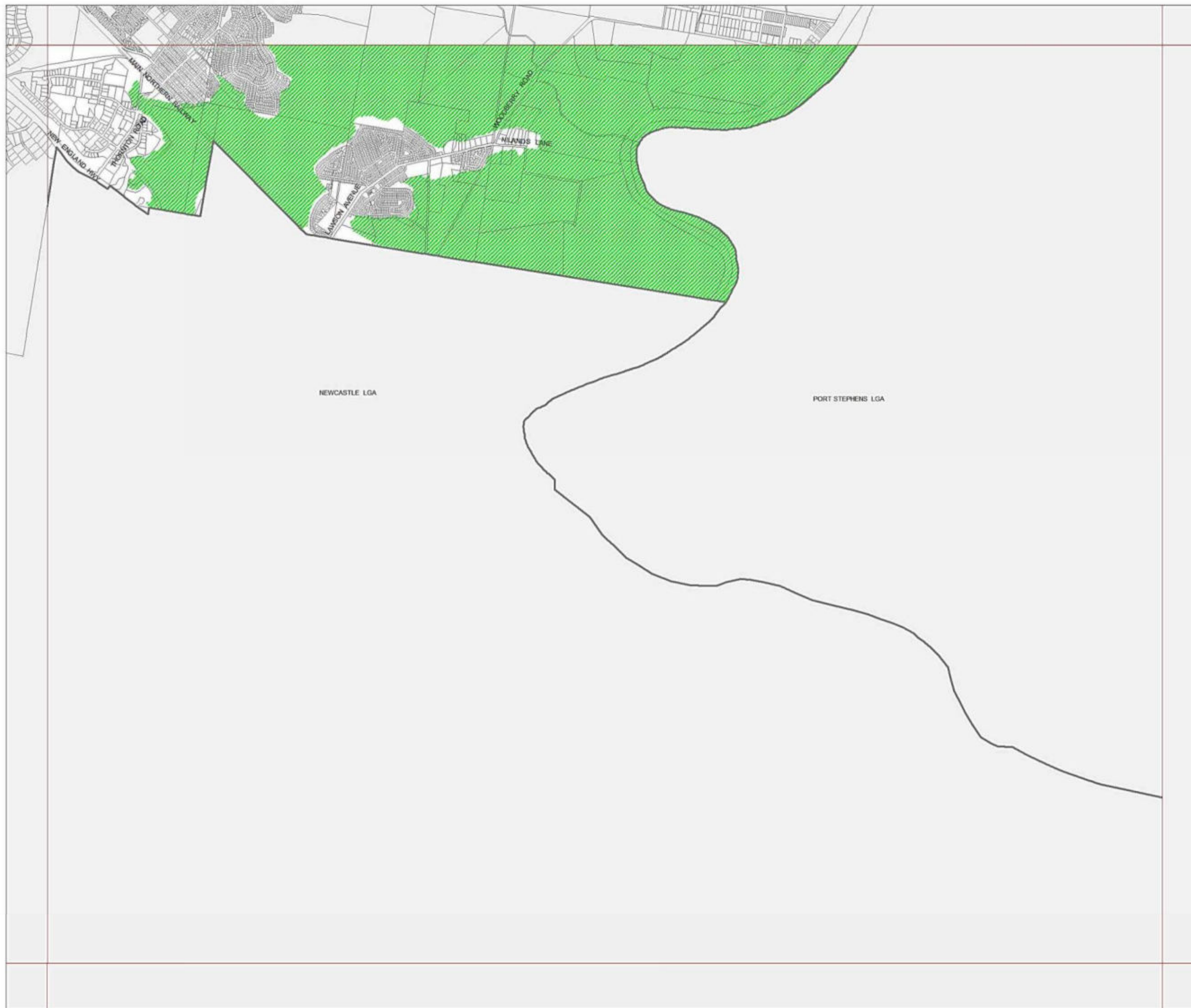


Scale: 1:40,000 @ A3

Projection: GDA 1994
Zone 56

Map identification number:

Floodplain Management DCP (Depth)_FLD_007_040_20140611





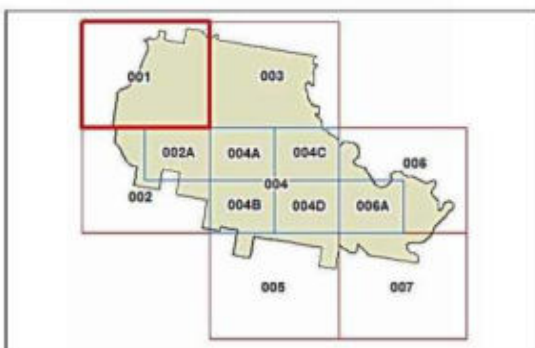
Maitland Citywide Development Control Plan 2011

Floodplain Management DCP - Flood Velocity_Sheet 001

- Velocity less than 0.5 metres per second
- Velocity greater than 0.5 metres per second
- Subject to Further Investigation

Cadastre

Base data 03/03/1997 © NSW LPMA
Addendum data 01/04/2011 © Maitland City Council

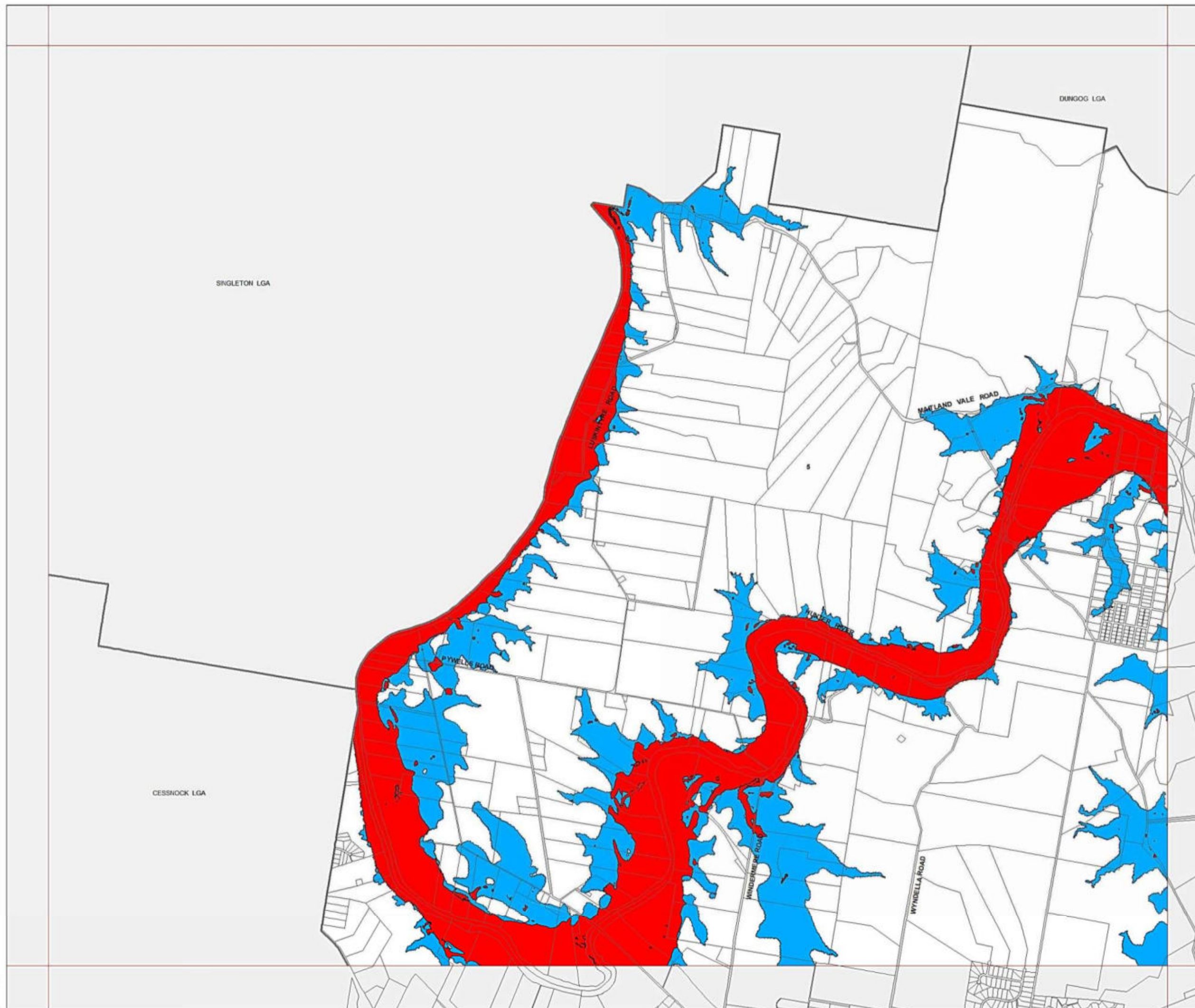


Scale: 1:40,000 @ A3

Projection: GDA 1994
Zone 56

Map identification number:

Floodplain Management DCP (Velocity)_FLD_001_040_20140611





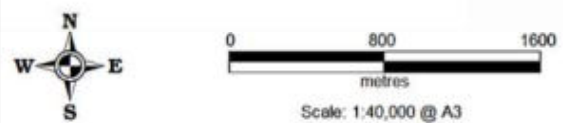
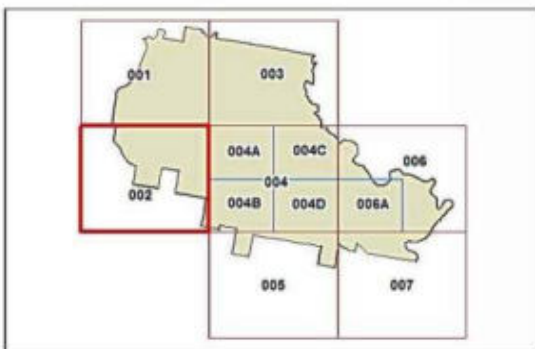
Maitland Citywide Development Control Plan 2011

Floodplain Management DCP - Flood Velocity_Sheet 002

- Velocity less than 0.5 metres per second
- Velocity greater than 0.5 metres per second
- Subject to Further Investigation

Cadastre

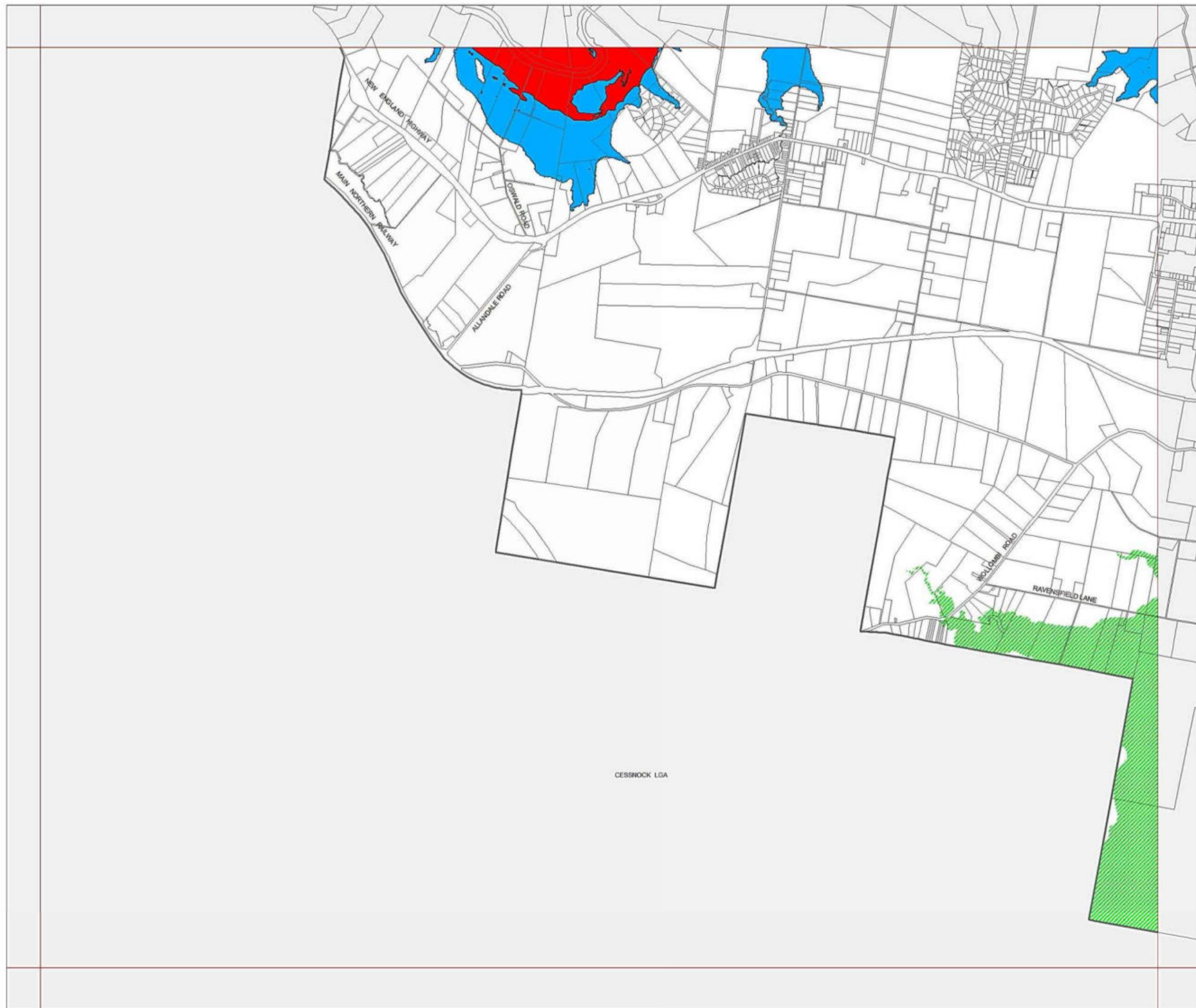
Base data 03/03/1997 © NSW LPMA
Addendum data 01/04/2011 © Maitland City Council



Projection: GDA 1994
Zone 56

Map identification number:

Floodplain Management DCP (Velocity)_FLD_002_040_20140611





Maitland Citywide Development Control Plan 2011

Floodplain Management DCP - Flood Velocity_Sheet 003

Velocity less than 0.5 metres per second

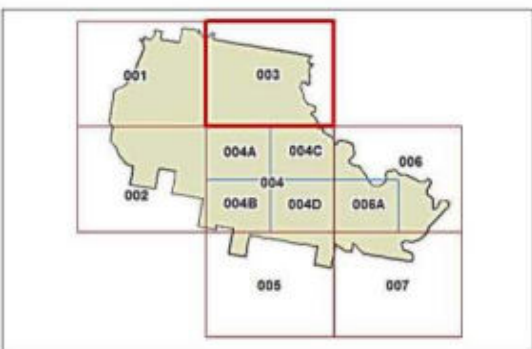
Velocity greater than 0.5 metres per second

Subject to Further Investigation

Cadastre

Base data 03/03/1997 © NSW LPMA

Addendum data 01/04/2011 © Maitland City Council

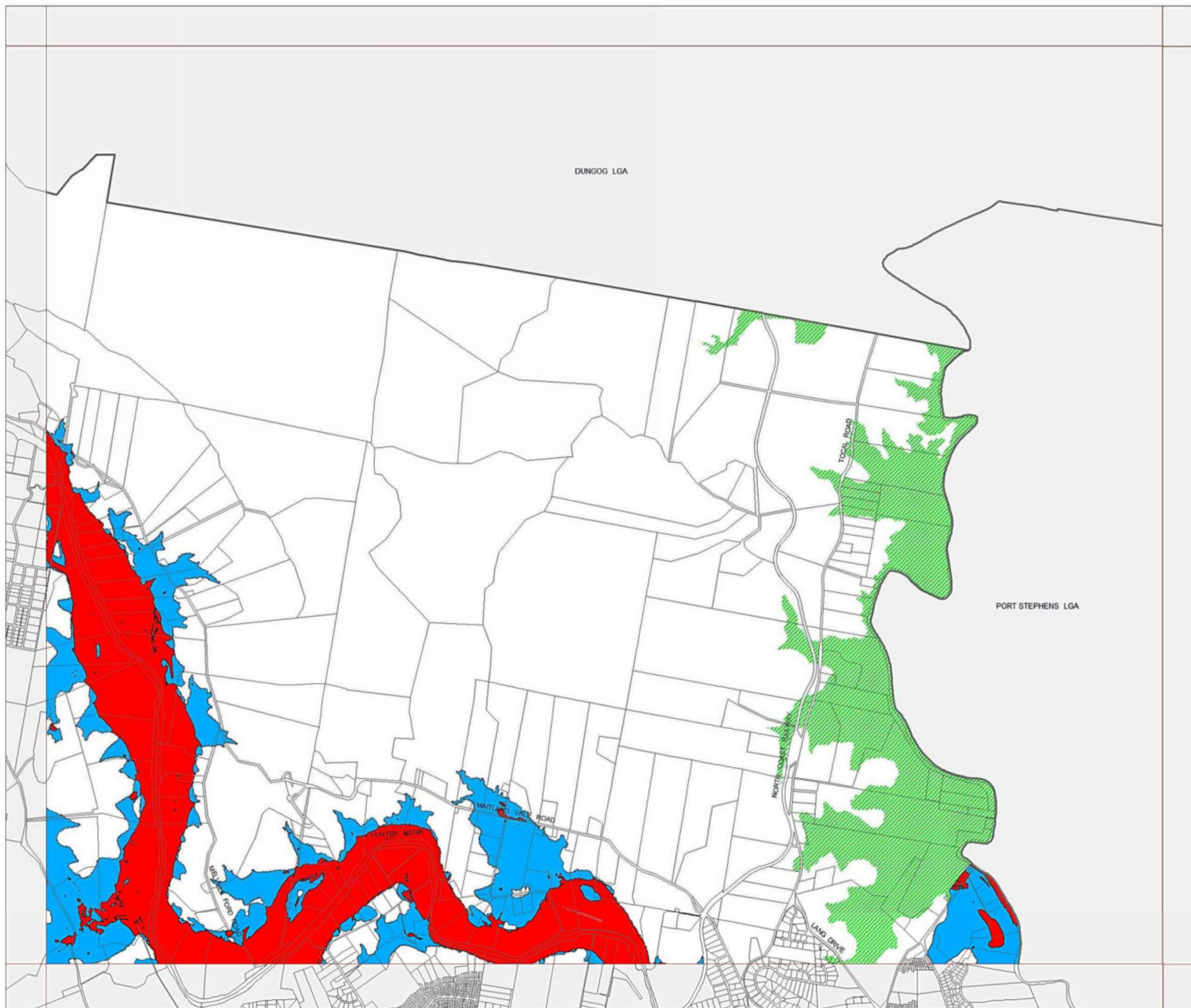


Scale: 1:40,000 @ A3

Projection: GDA 1994
Zone 56

Map identification number:

Floodplain Management DCP (Velocity)_FLD_003_040_20140611





Maitland Citywide Development Control Plan 2011

Floodplain Management DCP - Flood Velocity_Sheet 004A

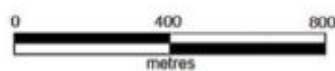
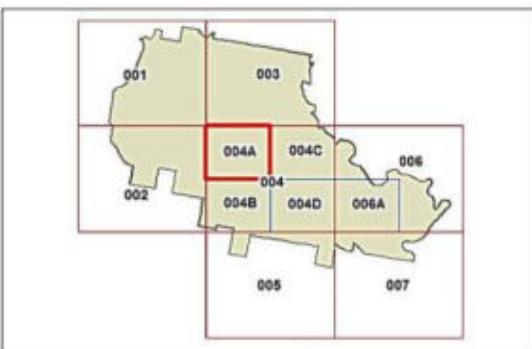
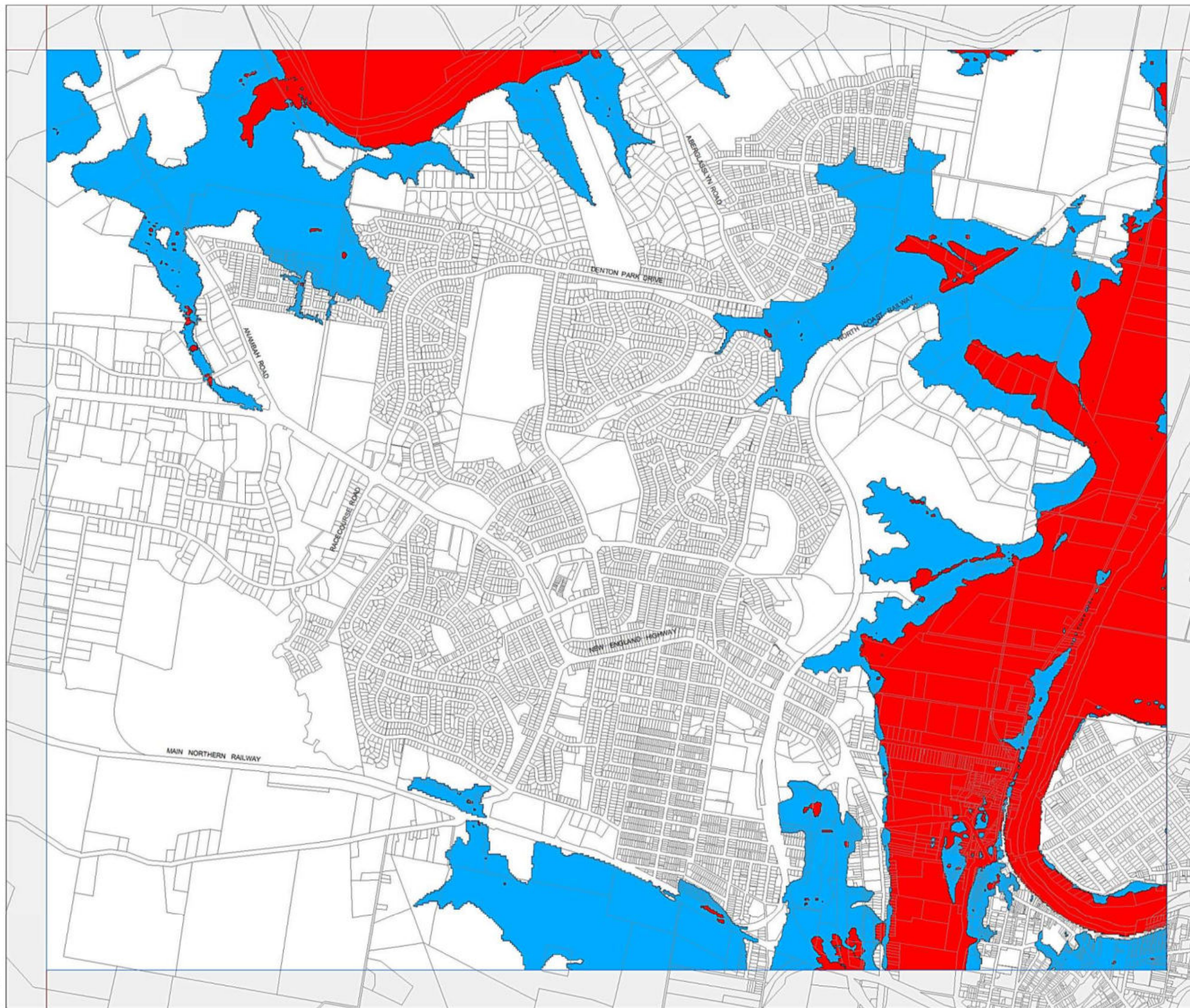
Velocity less than 0.5 metres per second

Velocity greater than 0.5 metres per second

Subject to Further Investigation

Cadastre

Base data 03/03/1997 © NSW LPMA
Addendum data 01/04/2011 © Maitland City Council



Scale: 1:20,000 @ A3

Projection: GDA 1994
Zone 56

Map identification number:

Floodplain Management DCP (Velocity)_FLD_004A_020_20140611



Maitland Citywide Development Control Plan 2011

Floodplain Management DCP - Flood Velocity_Sheet 004B

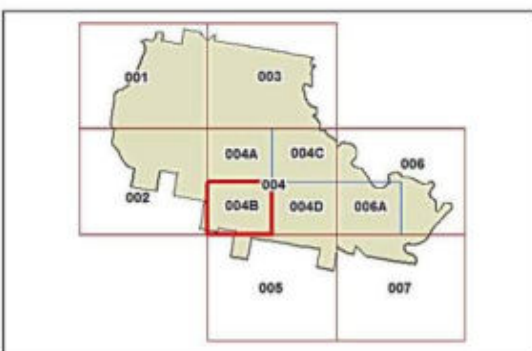
Blue Velocity less than 0.5 metres per second

Red Velocity greater than 0.5 metres per second

Green Subject to Further Investigation

Cadastre

Base data 03/03/1997 © NSW LPMA
Addendum data 01/04/2011 © Maitland City Council

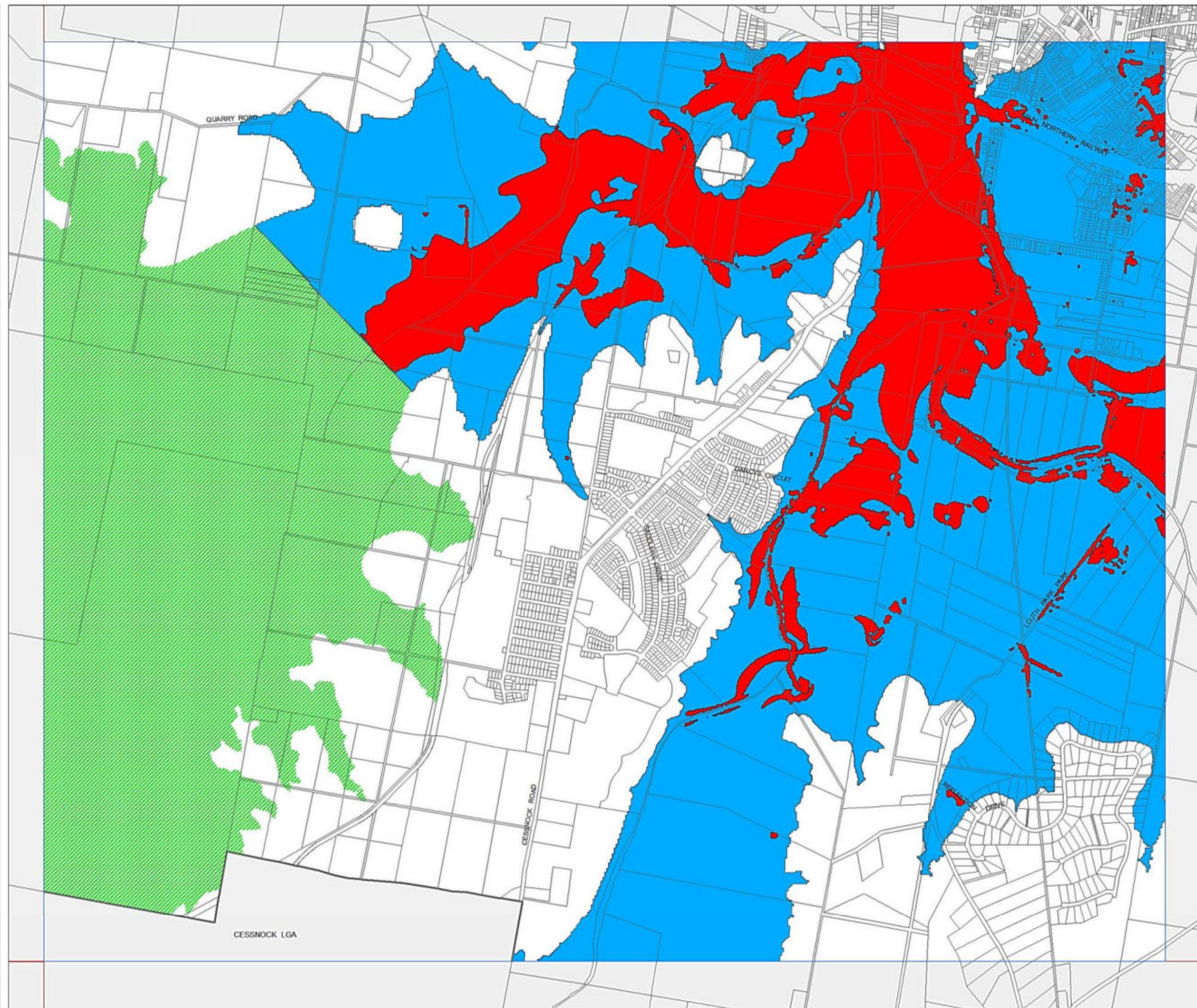


Scale: 1:20,000 @ A3

Projection: GDA 1994
Zone 56

Map identification number:

Floodplain Management DCP (Velocity)_FLD_004B_020_20140611





Maitland Citywide Development Control Plan 2011

Floodplain Management DCP - Flood Velocity_Sheet 004C

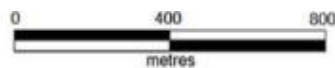
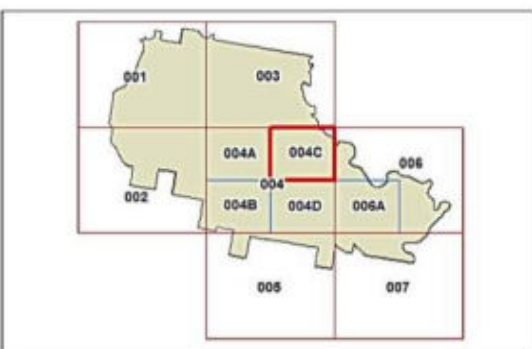
Blue Velocity less than 0.5 metres per second

Red Velocity greater than 0.5 metres per second

Green Subject to Further Investigation

Cadastral

Base data 03/03/1997 © NSW LPMA
Addendum data 01/04/2011 © Maitland City Council

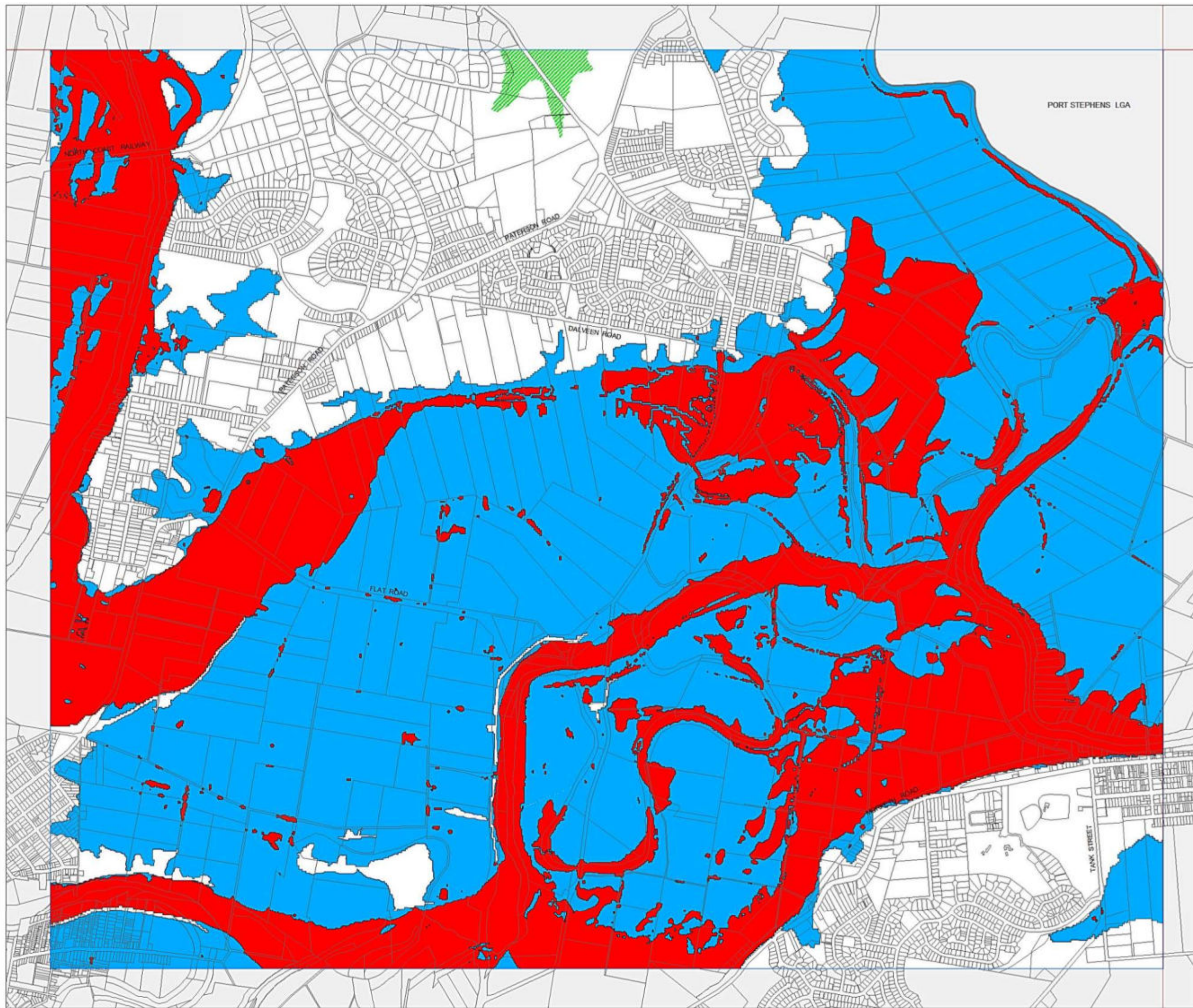


Scale: 1:20,000 @ A3

Projection: GDA 1994
Zone 56

Map identification number:

Floodplain Management DCP (Velocity)_FLD_004C_020_20140611





Maitland Citywide Development Control Plan 2011

Floodplain Management DCP -
Flood Velocity_Sheet 004D

Velocity less than 0.5 metres per second

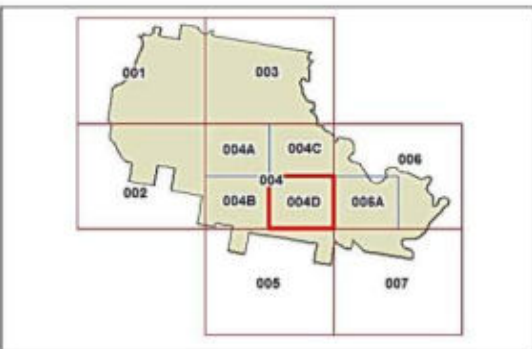
Velocity greater than 0.5 metres per second

Subject to Further Investigation

Cadastre

Base data 03/03/1997 © NSW LPMA

Addendum data 01/04/2011 © Maitland City Council

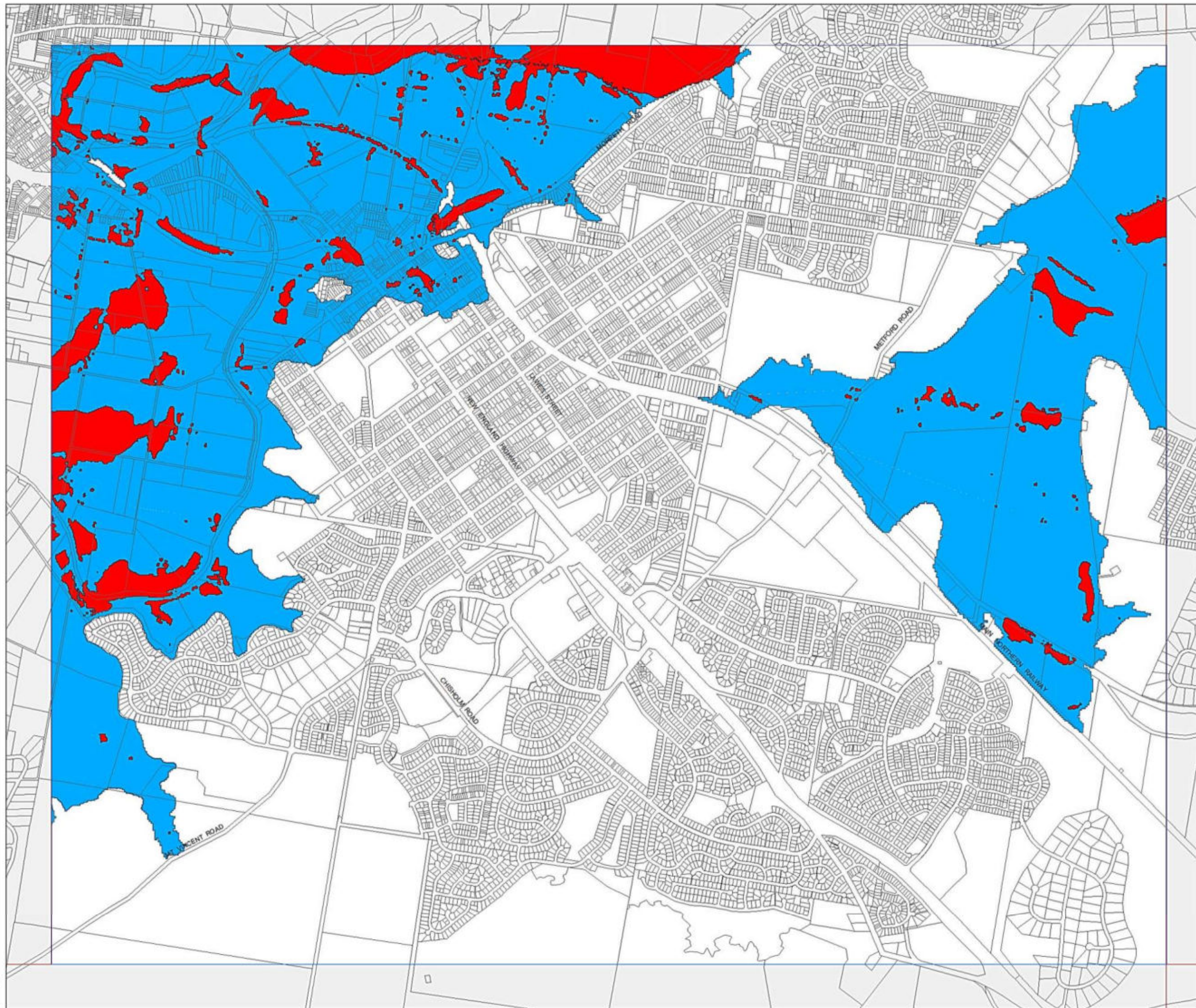


Scale: 1:20,000 @ A3

Projection: GDA 1994
Zone 56

Map identification number:

Floodplain Management DCP (Velocity)_FLD_004D_020_20140611





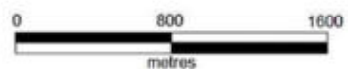
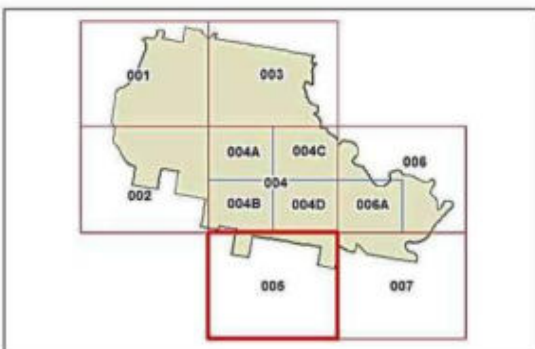
Maitland Citywide Development Control Plan 2011

Floodplain Management DCP - Flood Velocity_Sheet 005

-  Velocity less than 0.5 metres per second
-  Velocity greater than 0.5 metres per second
-  Subject to Further Investigation

Cadastre

-  Base data 03/03/1997 © NSW LPMA
-  Addendum data 01/04/2011 © Maitland City Council

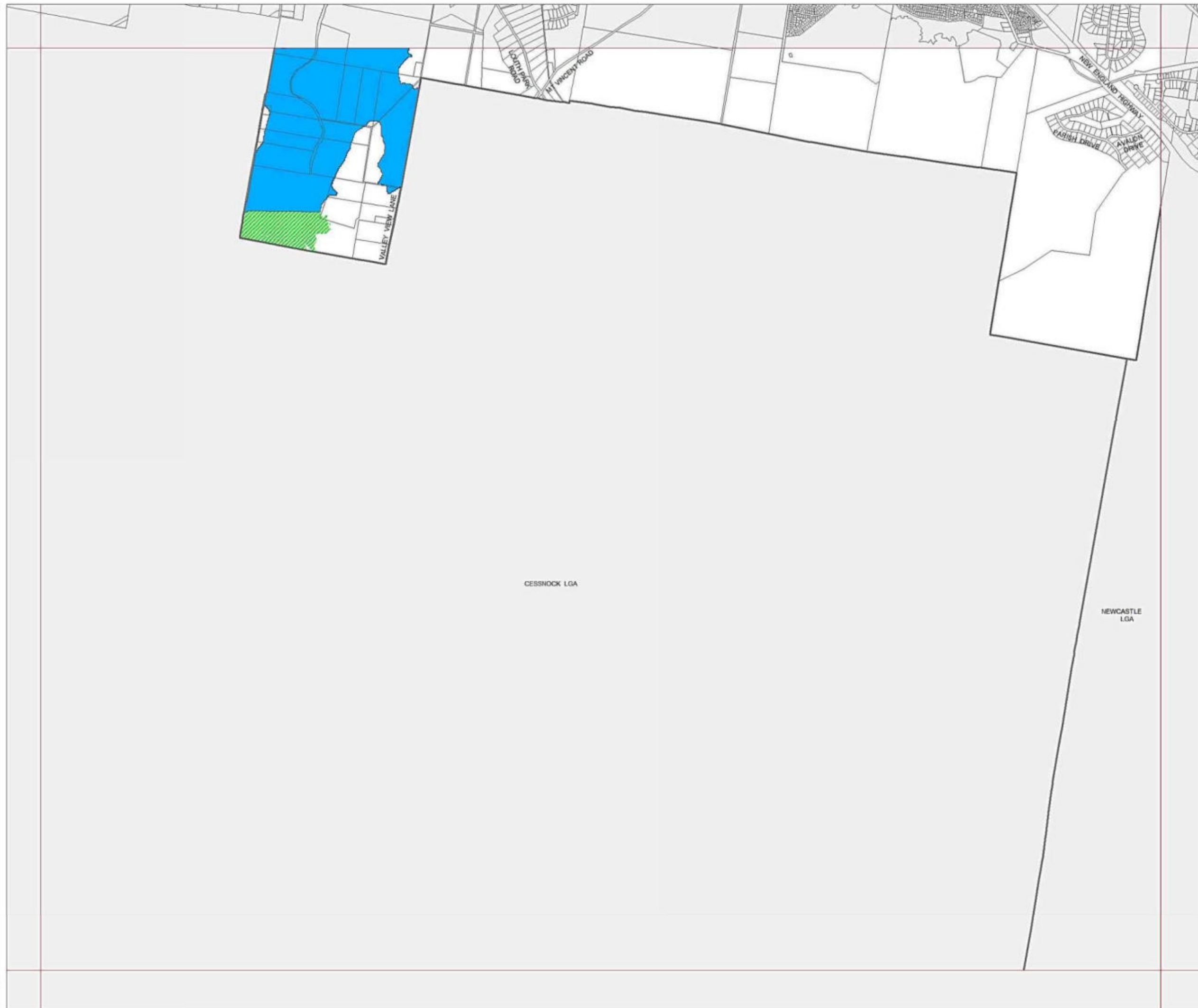


Scale: 1:40,000 @ A3

Projection: GDA 1994
Zone 56

Map identification number:

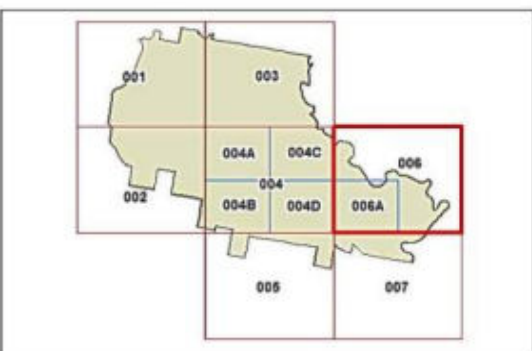
Floodplain Management DCP (Velocity)_FLD_005_040_20140611





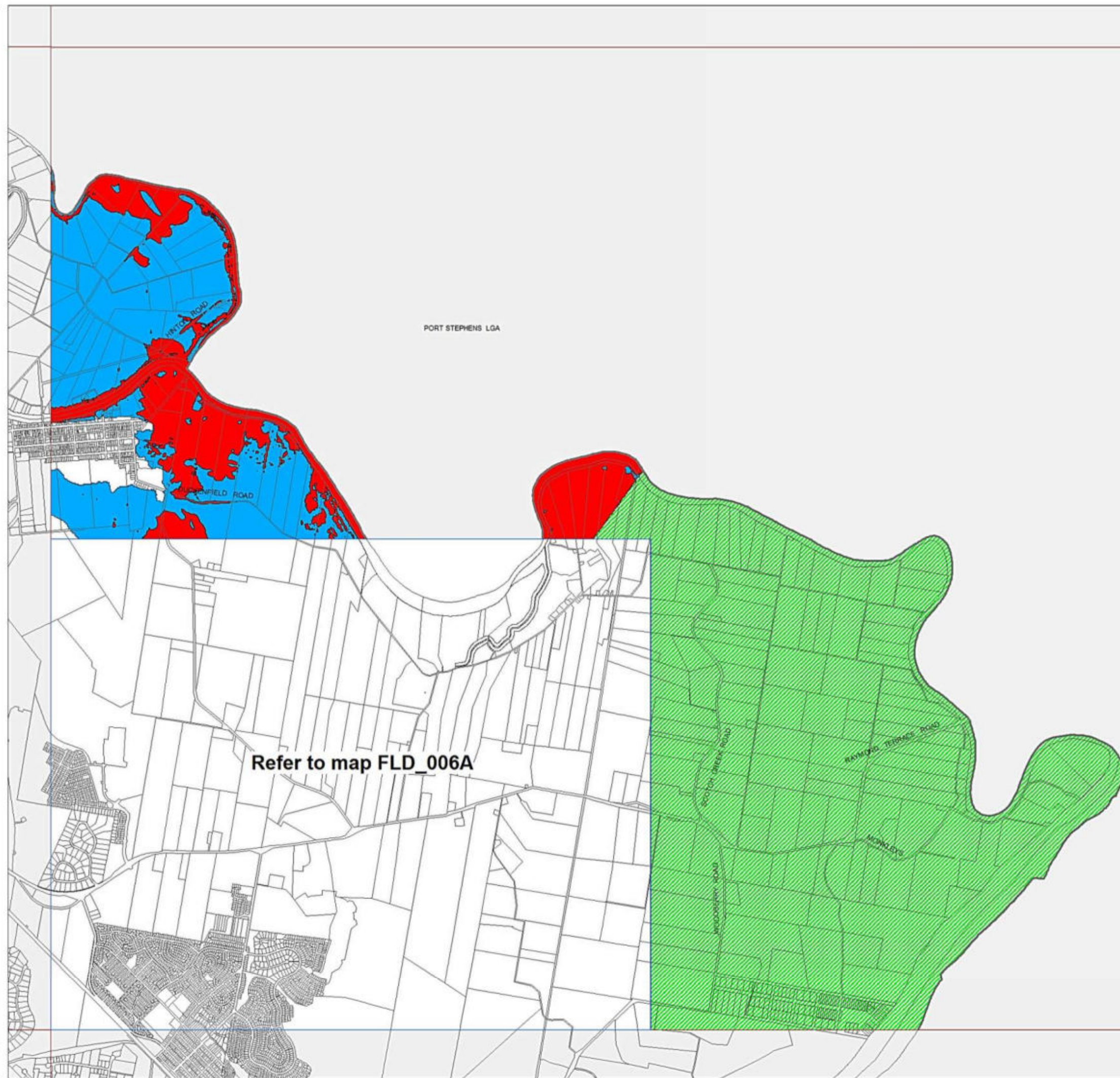
 Velocity less than 0.5 metres per second
 Velocity greater than 0.5 metres per second
 Subject to Further Investigation

Cadastre
☐ Base data 03/03/1997 © NSW LPMA
☐ Addendum data 01/04/2011 © Maitland City Council



Projection: GDA 1994
Zone 56

Map identification number:
Floodplain Management DCP (Velocity)_FLD_006_040_20140611





Maitland Citywide Development Control Plan 2011

Floodplain Management DCP - Flood Depth_Sheet 006A

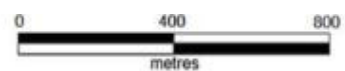
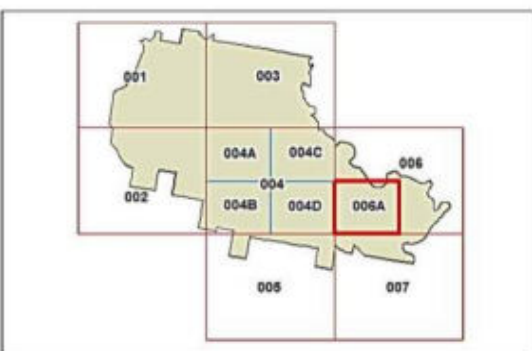
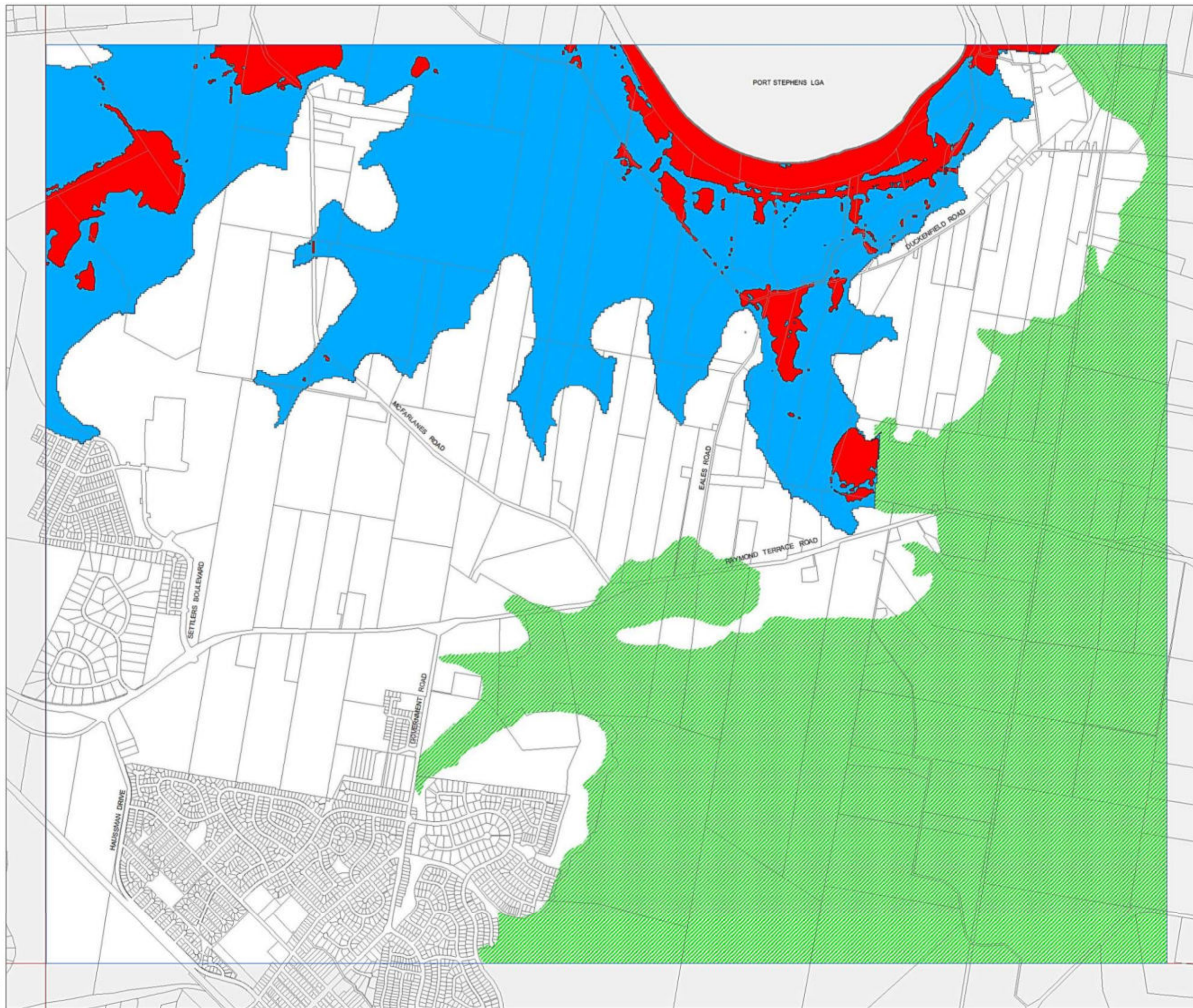
Velocity less than 0.5 metres per second

Velocity greater than 0.5 metres per second

Subject to Further Investigation

Cadastral

Base data 03/03/1997 © NSW LPMA
Addendum data 01/04/2011 © Maitland City Council



Scale: 1:20,000 @ A3

Projection: GDA 1994
Zone 56

Map identification number:

Floodplain Management DCP (Velocity)_FLD_006A_020_20140611



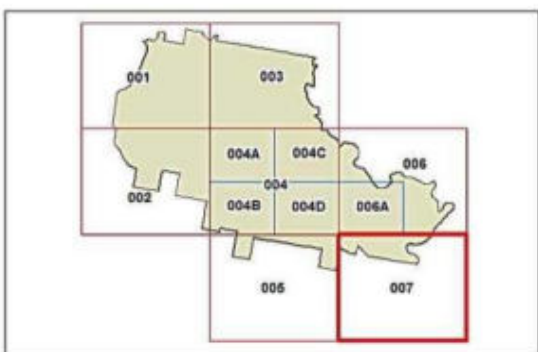
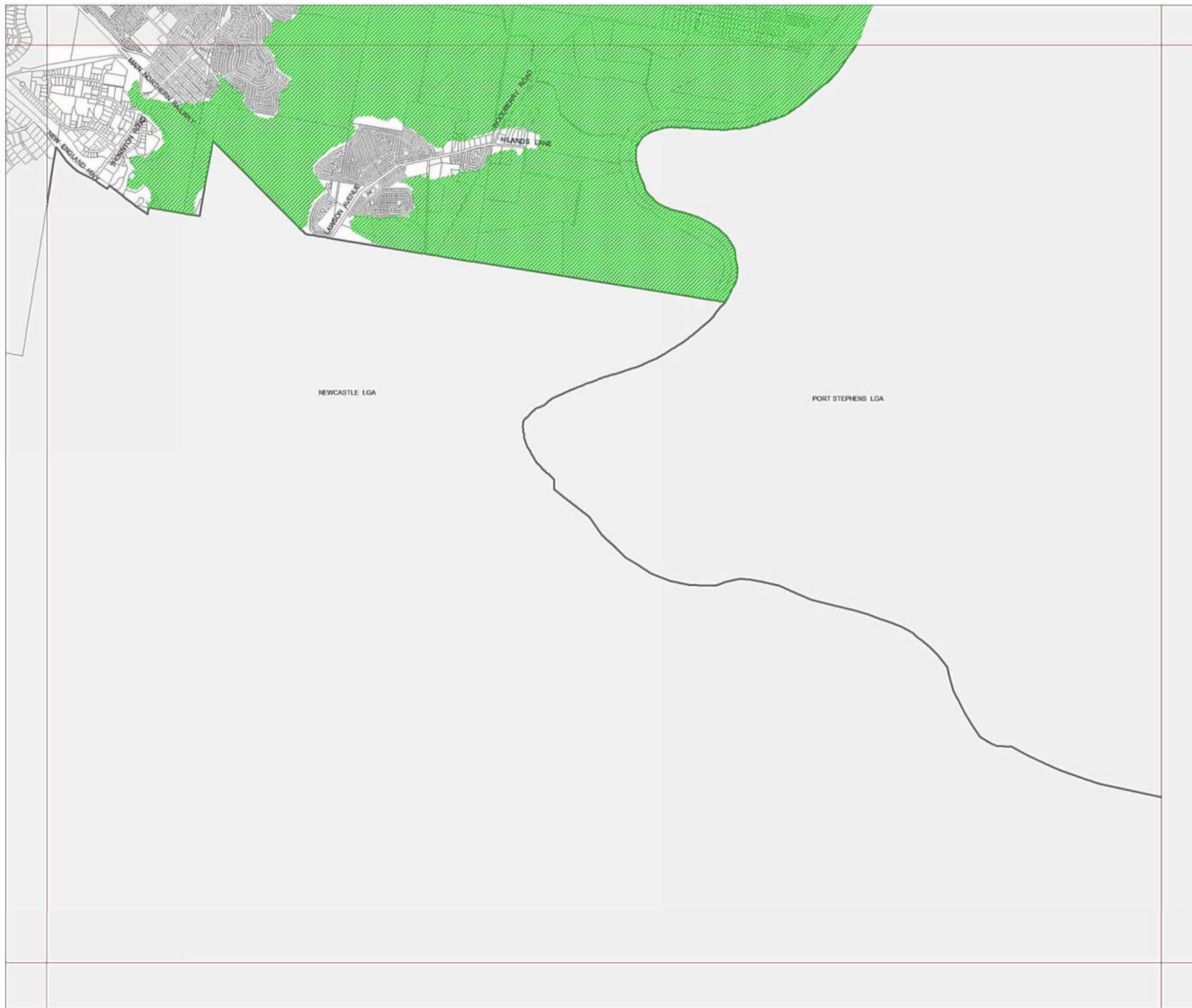
Maitland Citywide Development Control Plan 2011

Floodplain Management DCP - Flood Velocity_Sheet 007

- Velocity less than 0.5 metres per second
- Velocity greater than 0.5 metres per second
- Subject to Further Investigation

Cadastre

Base data 03/03/1997 © NSW LPMA
Addendum data 01/04/2011 © Maitland City Council





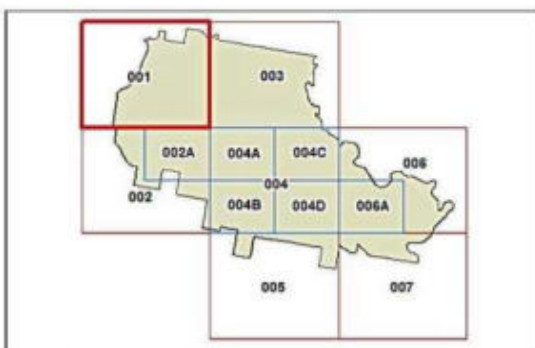
Maitland Citywide Development Control Plan 2011

Floodplain Management DCP - Hydraulic Categories_Sheet 001

-  Flood Storage
-  Flood Fringe
-  Floodway
-  Subject to Further Investigation

Cadastre

 Base data 03/03/1997 © NSW LPMA
Addendum data 01/04/2011 © Maitland City Council

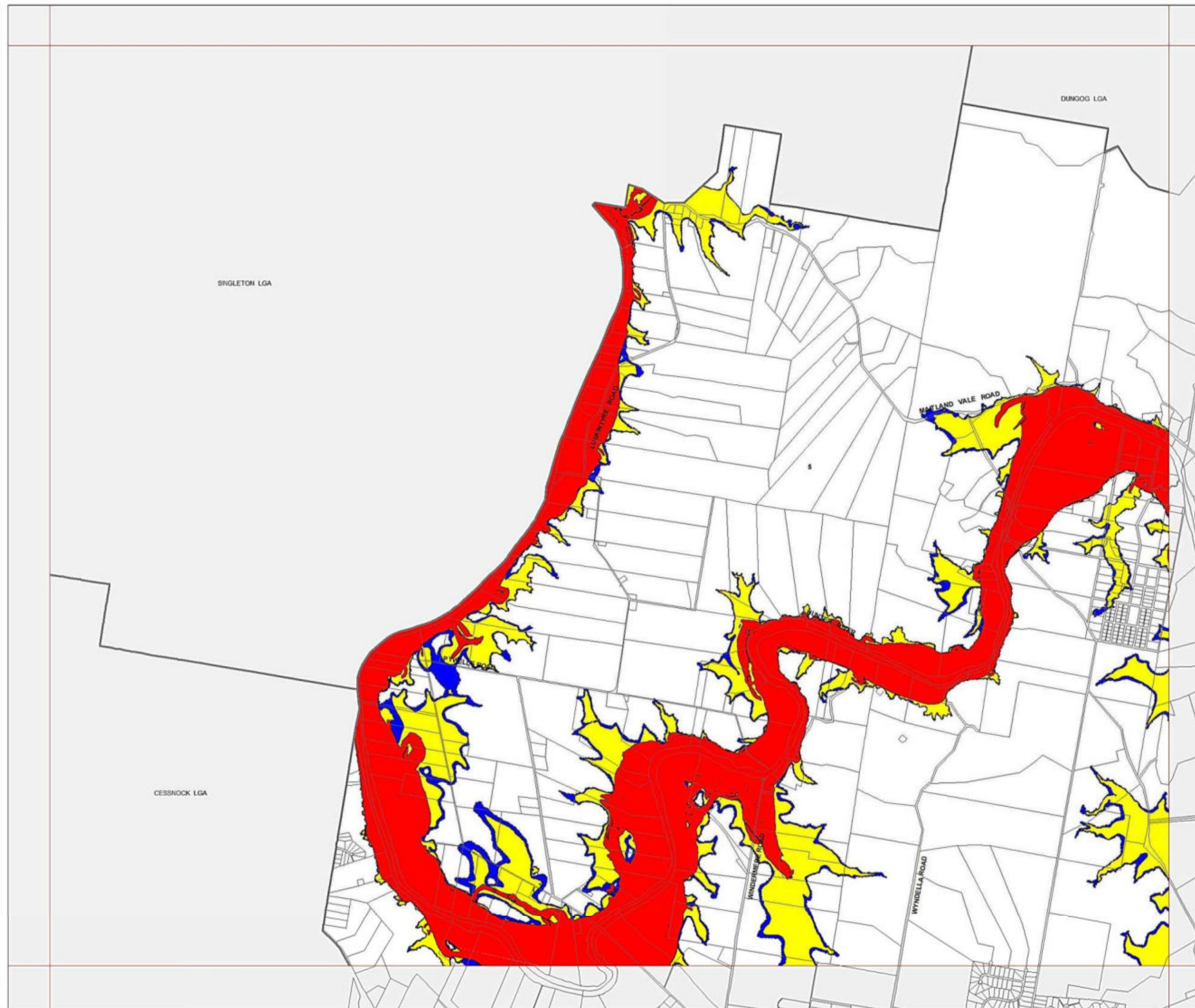


Scale: 1:40,000 @ A3

Projection: GDA 1994
Zone 56

Map identification number:

Floodplain Management DCP (Hydraulic Categories)_FLD_001_040_20140611





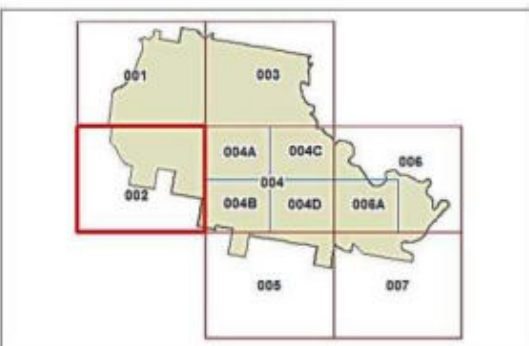
Maitland Citywide Development Control Plan 2011

Floodplain Management DCP - Hydraulic Categories_Sheet 002

-  Flood Storage
-  Flood Fringe
-  Floodway
-  Subject to Further Investigation

Cadastre

 Base data 03/03/1997 © NSW LPMA
 Addendum data 01/04/2011 © Maitland City Council

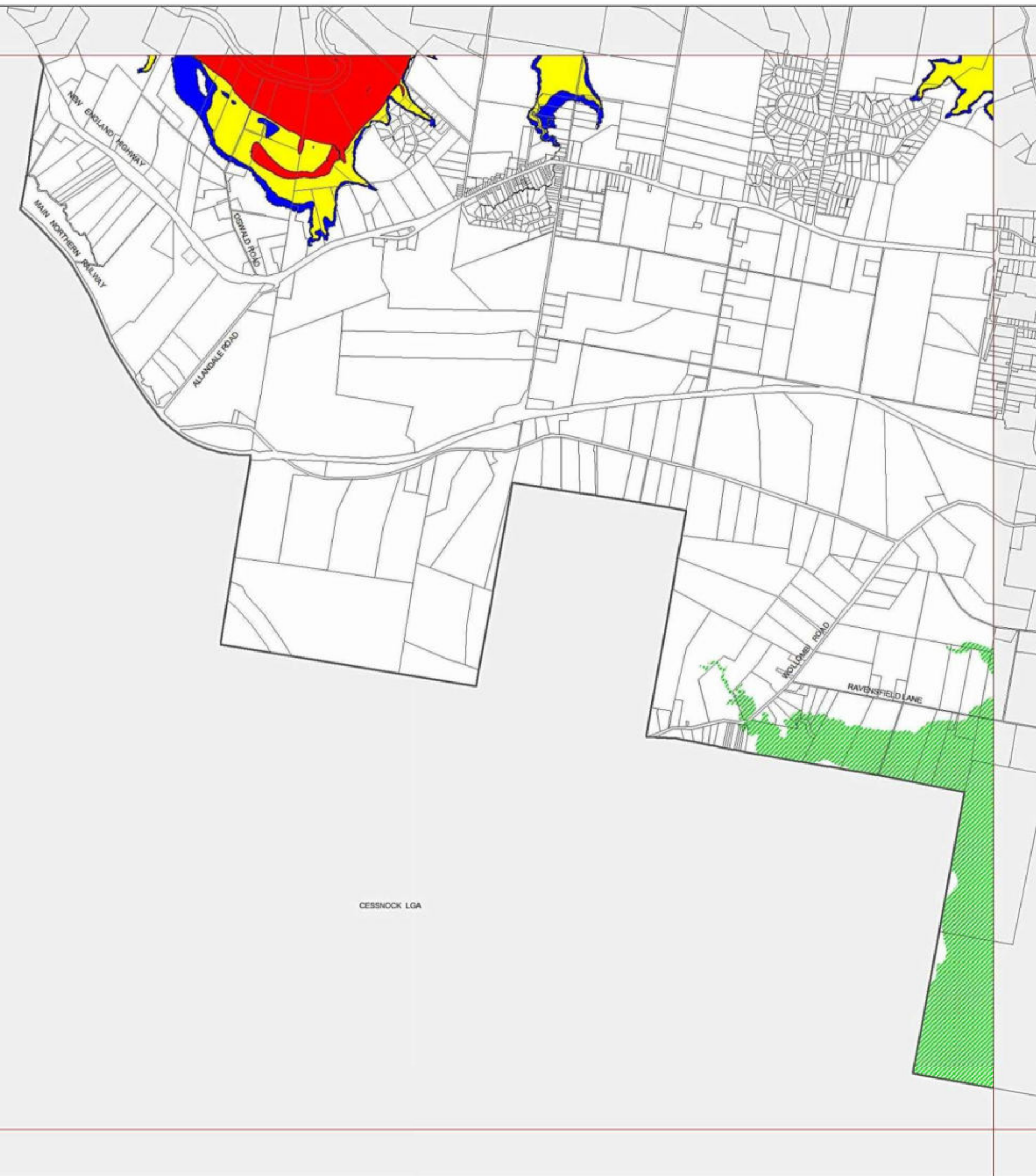


Scale: 1:40,000 @ A3

Projection: GDA 1994
Zone 56

Map identification number:

Floodplain Management DCP (Hydraulic Categories)_FLD_002_040_20140611





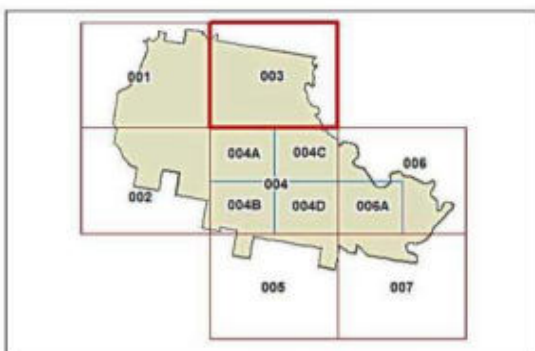
Maitland Citywide Development Control Plan 2011

Floodplain Management DCP - Hydraulic Categories_Sheet 003

- Flood Storage
- Flood Fringe
- Floodway
- Subject to Further Investigation

Cadastre

Base data 03/03/1997 © NSW LPMA
Addendum data 01/04/2011 © Maitland City Council



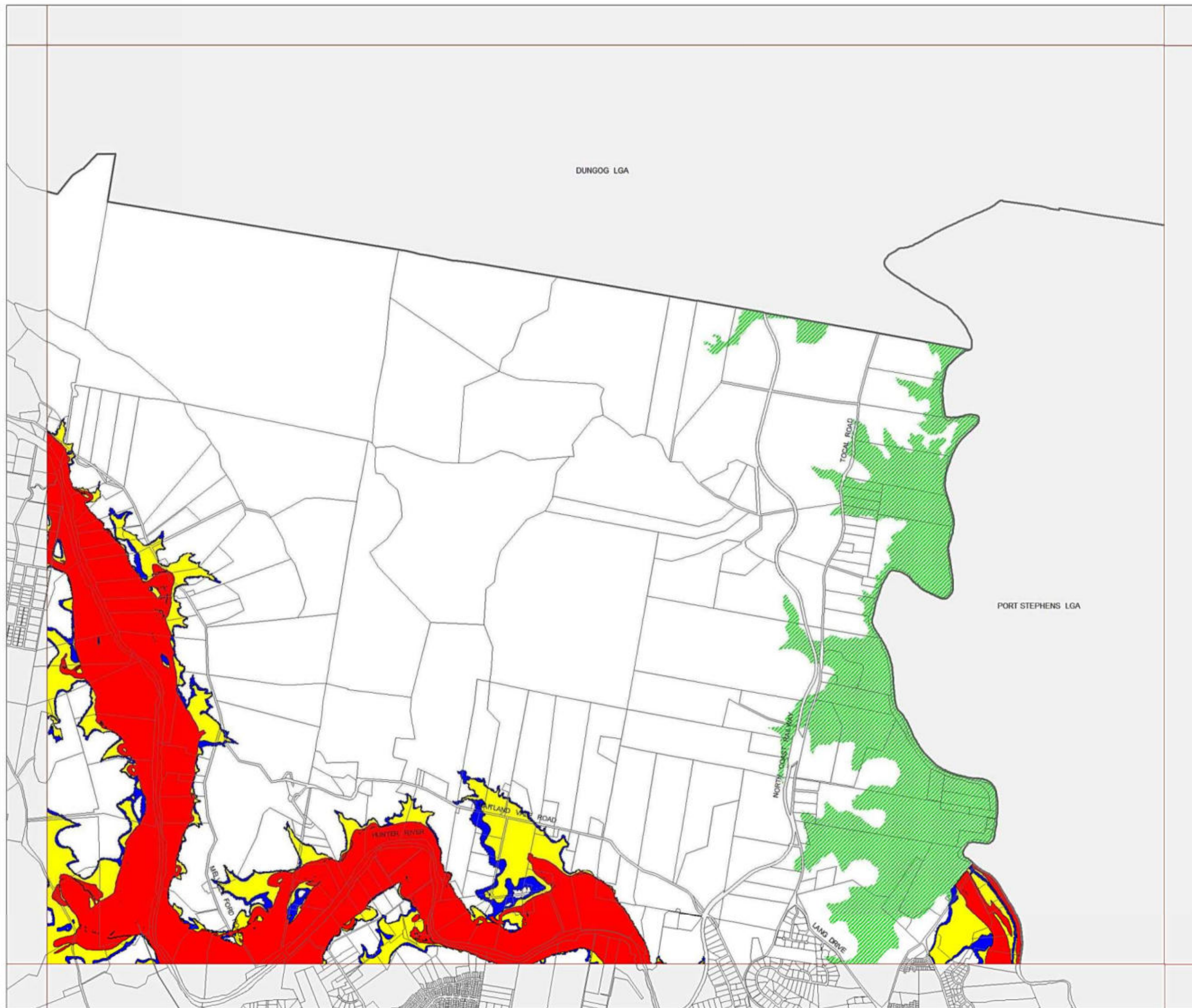
0 800 1600
metres

Scale: 1:40,000 @ A3

Projection: GDA 1994
Zone 56

Map identification number:

Floodplain Management DCP (Hydraulic Categories)_FLD_003_040_20140611





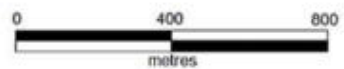
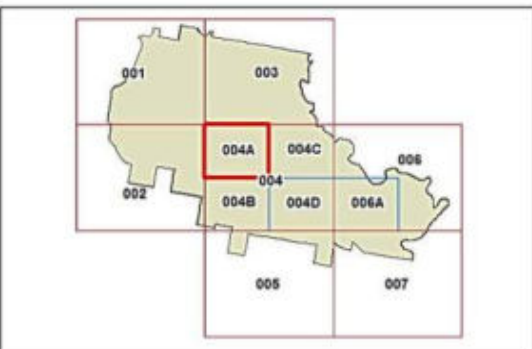
Maitland Citywide Development Control Plan 2011

Floodplain Management DCP - Hydraulic Categories_Sheet 004A

- Flood Storage
- Flood Fringe
- Floodway
- Subject to Further Investigation

Cadastre

Base data 03/03/1997 © NSW LPMA
Addendum data 01/04/2011 © Maitland City Council

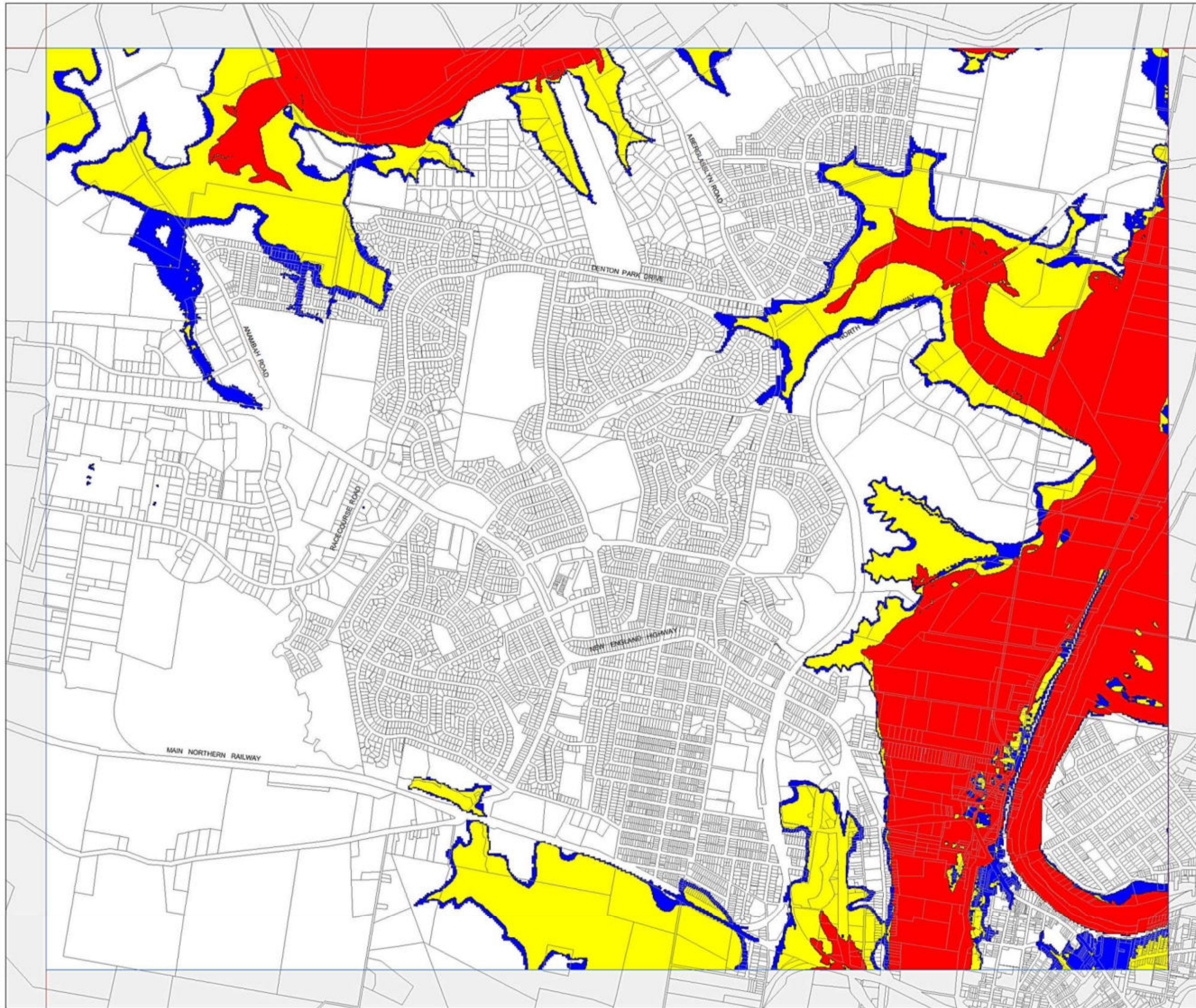


Scale: 1:20,000 @ A3

Projection: GDA 1994
Zone 56

Map identification number:

Floodplain Management DCP (Hydraulic Categories)_FLD_004A_020_20140611





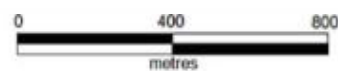
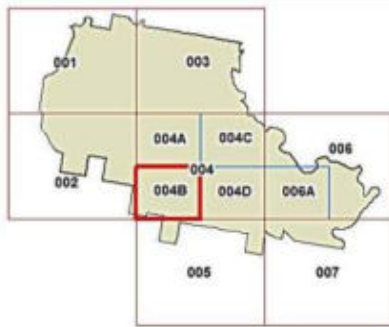
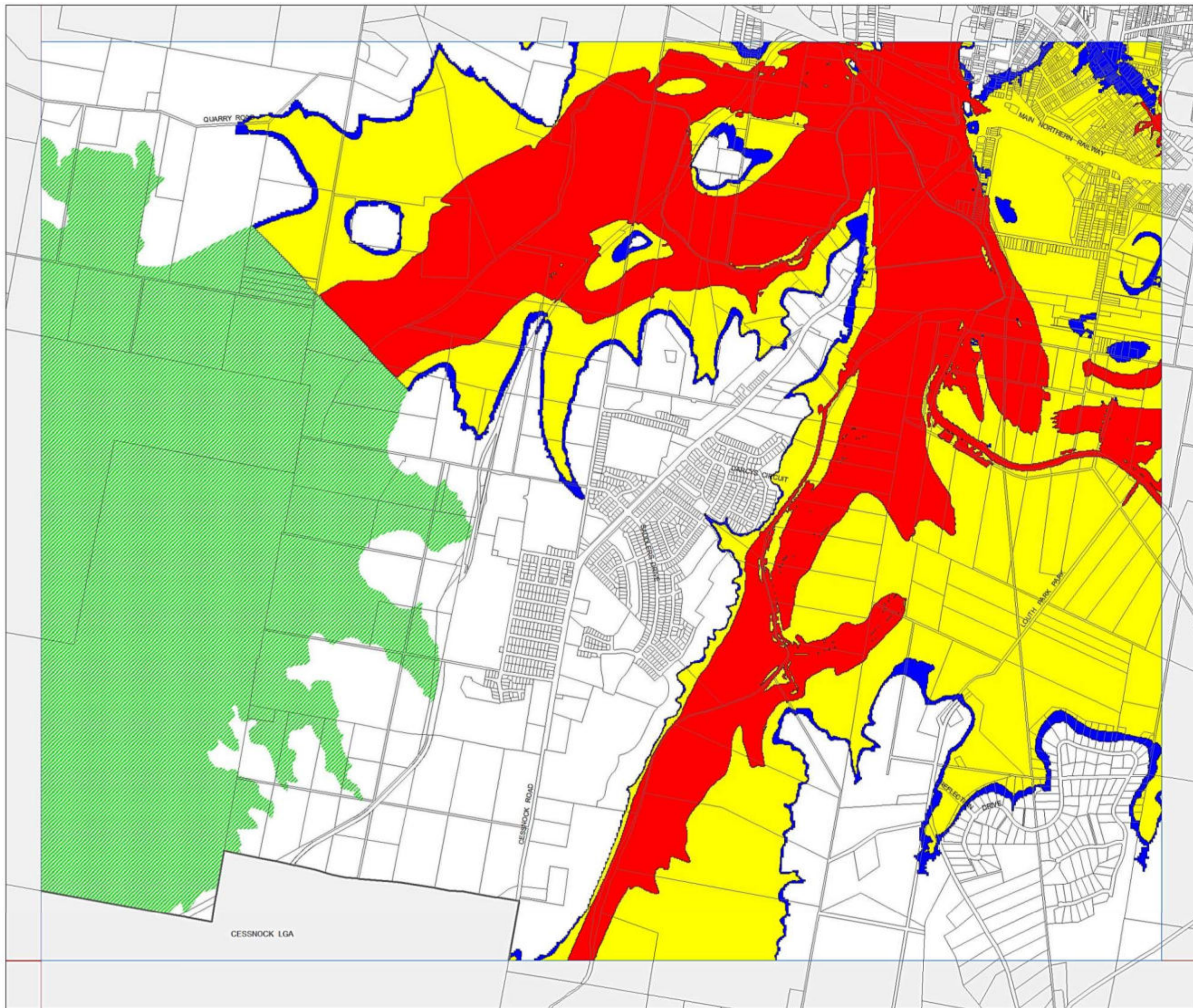
Maitland Citywide Development Control Plan 2011

Floodplain Management DCP - Hydraulic Categories_Sheet 004B

-  Flood Storage
-  Flood Fringe
-  Floodway
-  Subject to Further Investigation

Cadastre

-  Base data 03/03/1997 © NSW LPMA
-  Addendum data 01/04/2011 © Maitland City Council



Scale: 1:20,000 @ A3

Projection: GDA 1994
Zone 56

Map identification number:

Floodplain Management DCP (Hydraulic Categories)_FLD_004B_020_20140611



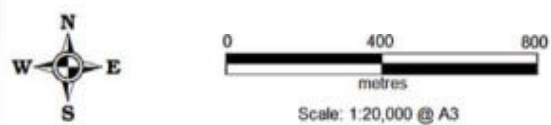
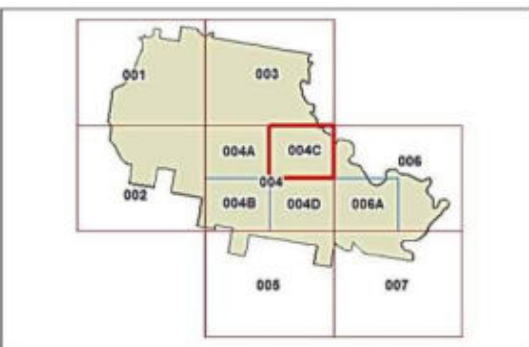
Maitland Citywide Development Control Plan 2011

Floodplain Management DCP -
Hydraulic Categories_Sheet 004C

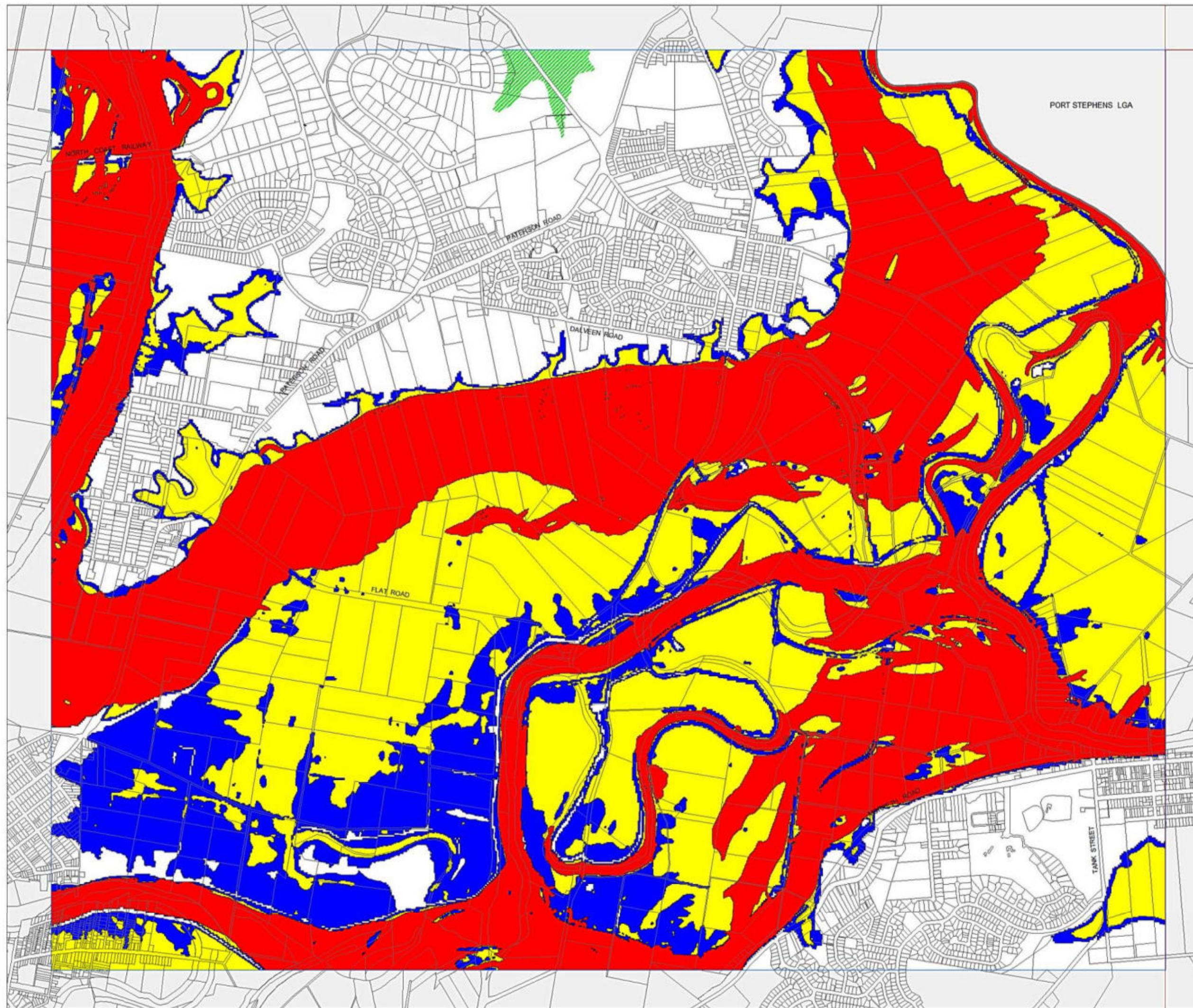
- Flood Storage
- Flood Fringe
- Floodway
- Subject to Further Investigation

Cadastral

Base data 03/03/1997 © NSW LPMA
Addendum data 01/04/2011 © Maitland City Council



Projection: GDA 1994
Zone 56
Map identification number:
Floodplain Management DCP (Hydraulic Categories)_FLD_004C_020_20140611





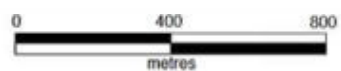
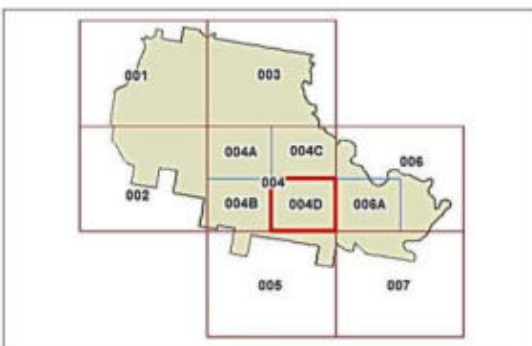
Maitland Citywide Development Control Plan 2011

Floodplain Management DCP -
Hydraulic Categories_Sheet 004D

- Flood Storage
- Flood Fringe
- Floodway
- Subject to Further Investigation

Cadastre

Base data 03/03/1997 © NSW LPMA
Addendum data 01/04/2011 © Maitland City Council

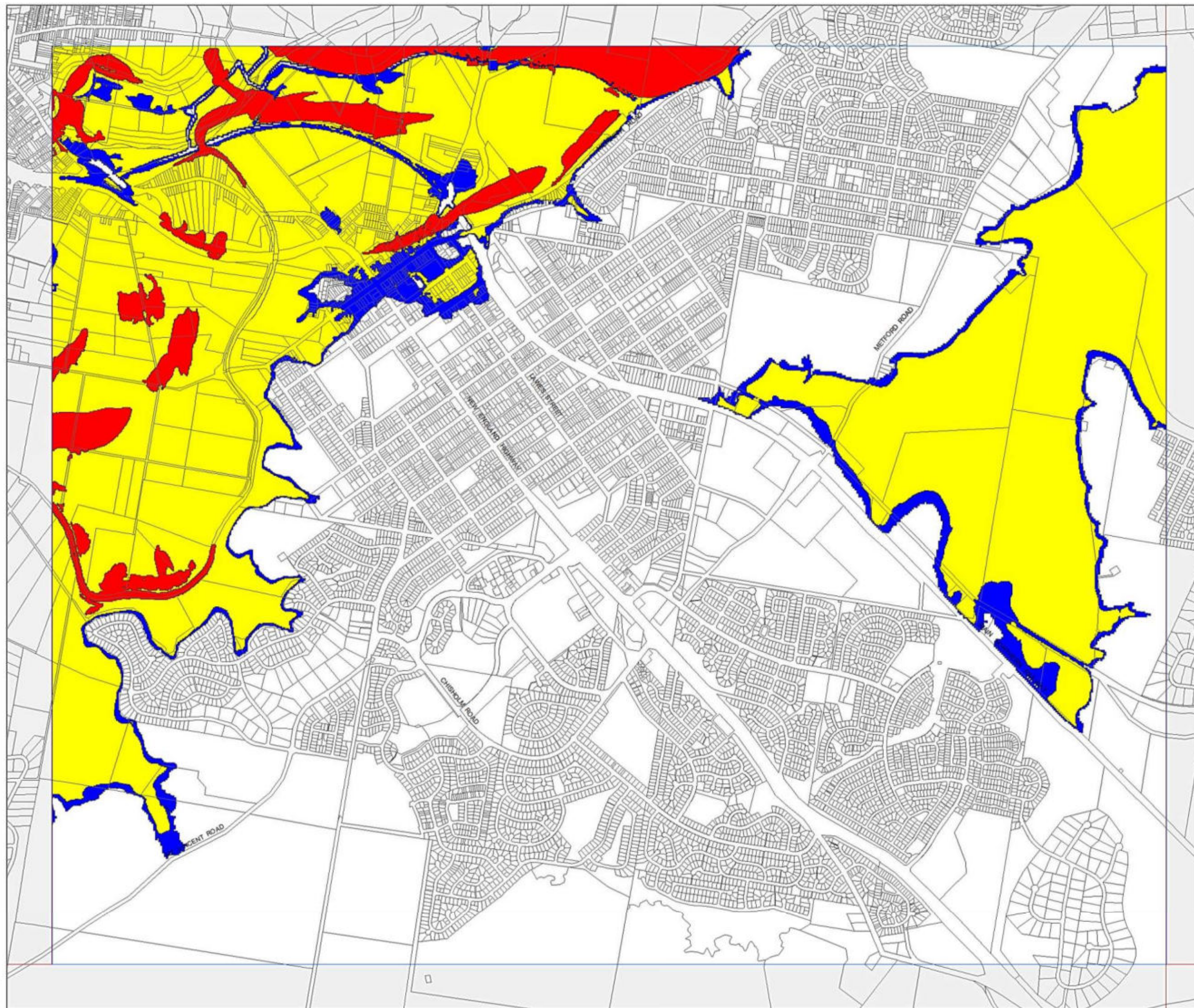


Scale: 1:20,000 @ A3

Projection: GDA 1994
Zone 56

Map identification number:

Floodplain Management DCP (Hydraulic Categories)_FLD_004D_020_20140611





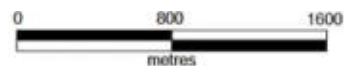
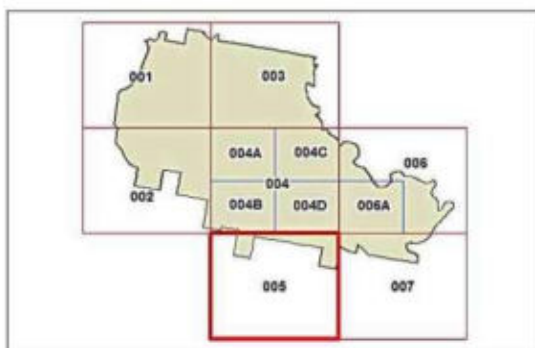
Maitland Citywide Development Control Plan 2011

Floodplain Management DCP - Hydraulic Categories_Sheet 005

-  Flood Storage
-  Flood Fringe
-  Floodway
-  Subject to Further Investigation

Cadastre

 Base data 03/03/1997 © NSW LPMA
 Addendum data 01/04/2011 © Maitland City Council

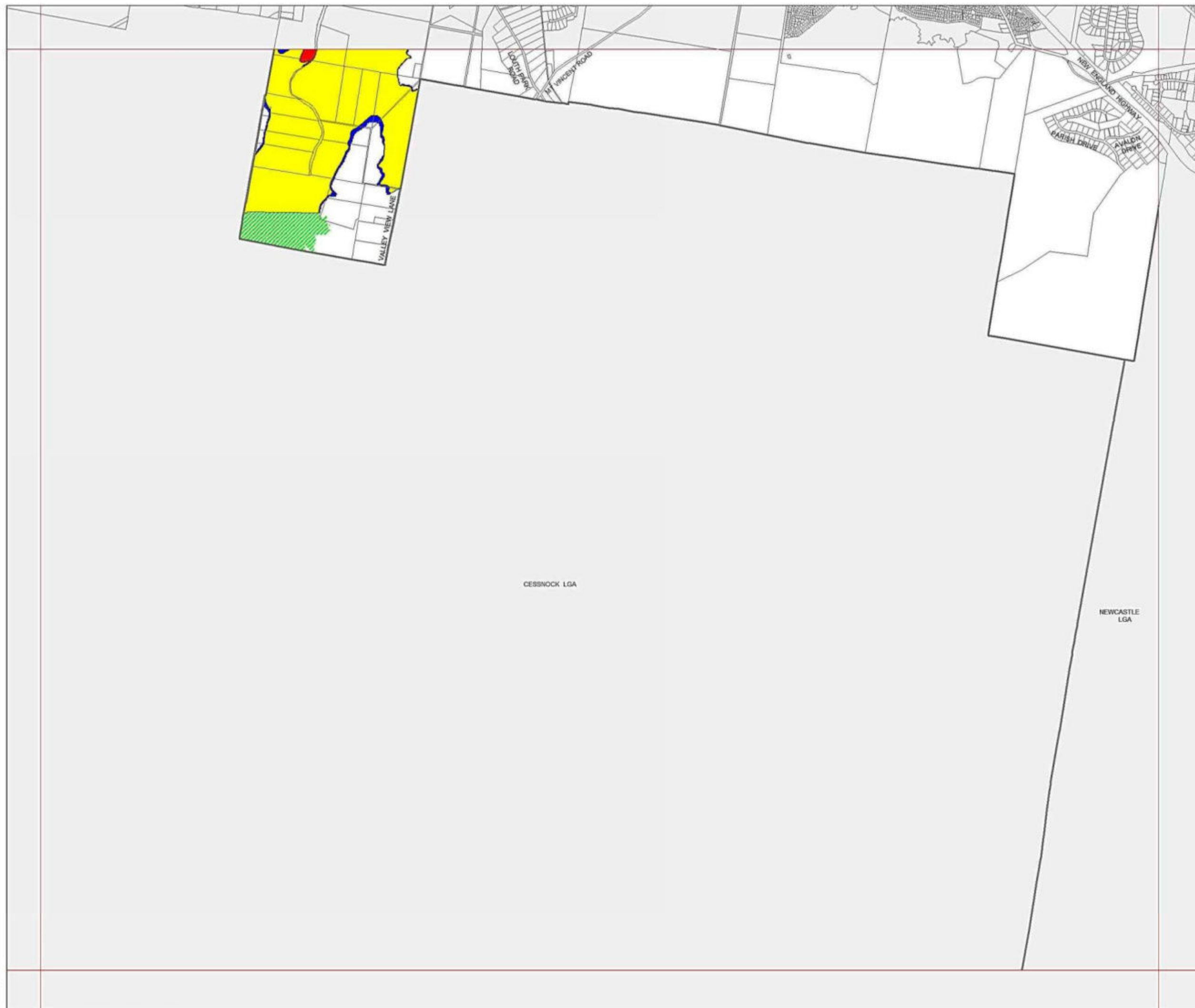


Scale: 1:40,000 @ A3

Projection: GDA 1994
Zone 56

Map identification number:

Floodplain Management DCP (Hydraulic Categories)_FLD_005_040_20140611





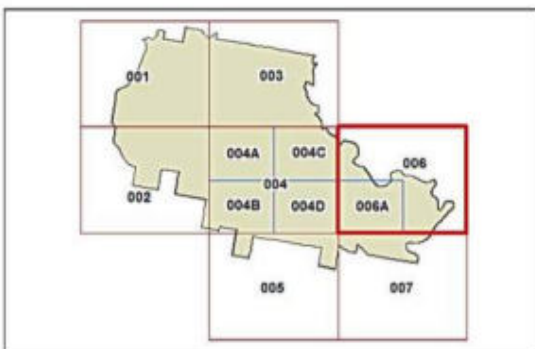
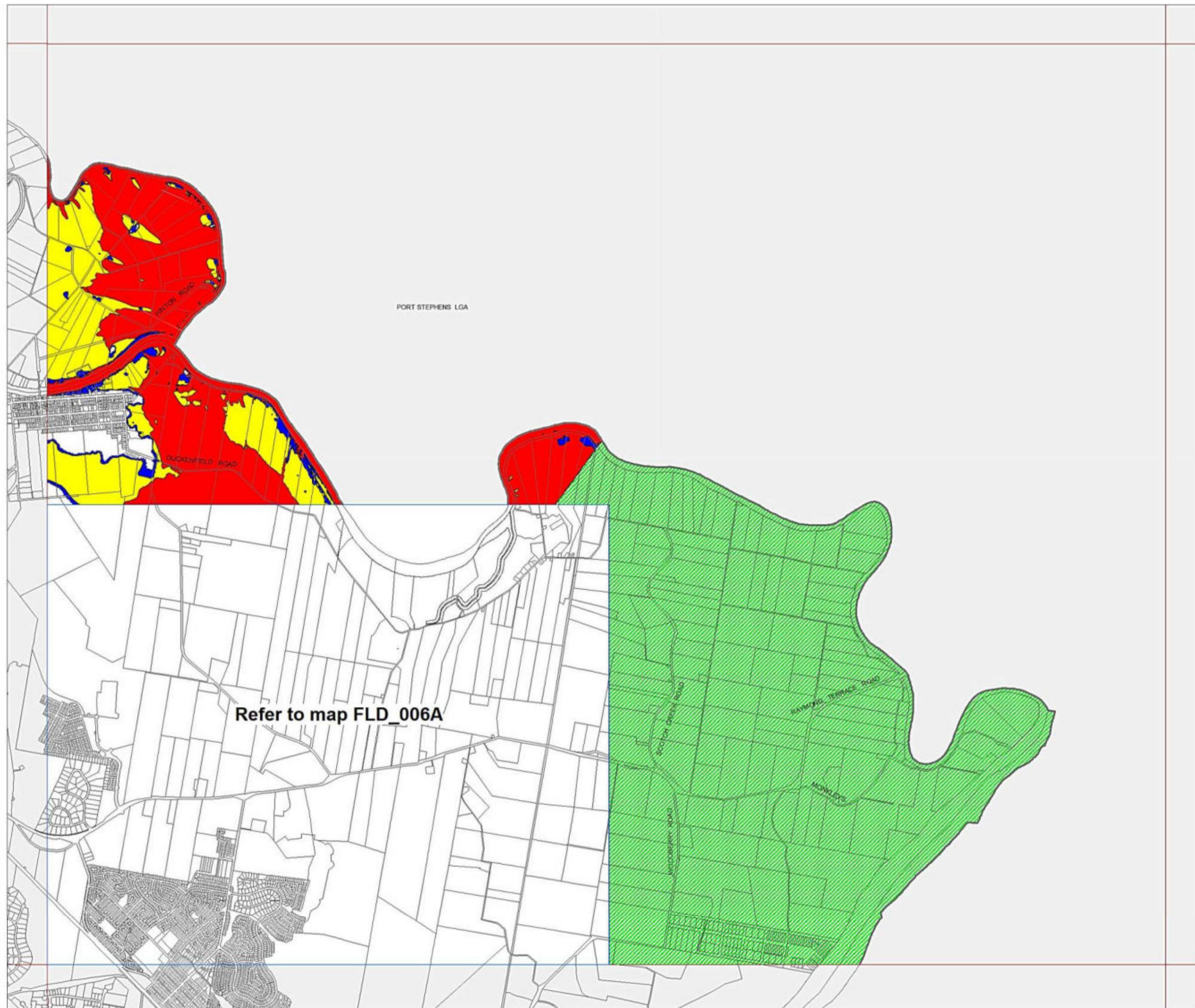
Maitland Citywide Development Control Plan 2011

Floodplain Management DCP - Hydraulic Categories_Sheet 006

- Flood Storage
- Flood Fringe
- Floodway
- Subject to Further Investigation

Cadastre

Base data 03/03/1997 © NSW LPMA
Addendum data 01/04/2011 © Maitland City Council



Scale: 1:40,000 @ A3

Projection: GDA 1994
Zone 56

Map identification number:

Floodplain Management DCP (Hydraulic Categories)_FLD_006_040_20140611



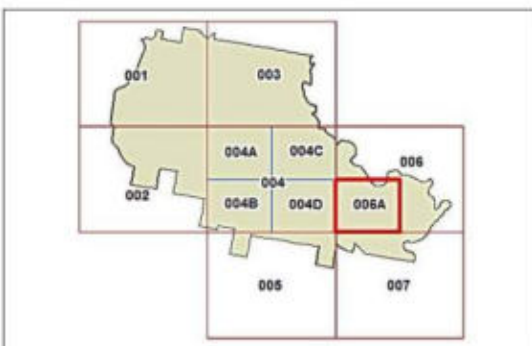
Maitland Citywide Development Control Plan 2011

Floodplain Management DCP - Hydraulic Categories_Sheet 006A

-  Flood Storage
-  Flood Fringe
-  Floodway
-  Subject to Further Investigation

Cadastre

 Base data 03/03/1997 © NSW LPMA
 Addendum data 01/04/2011 © Maitland City Council

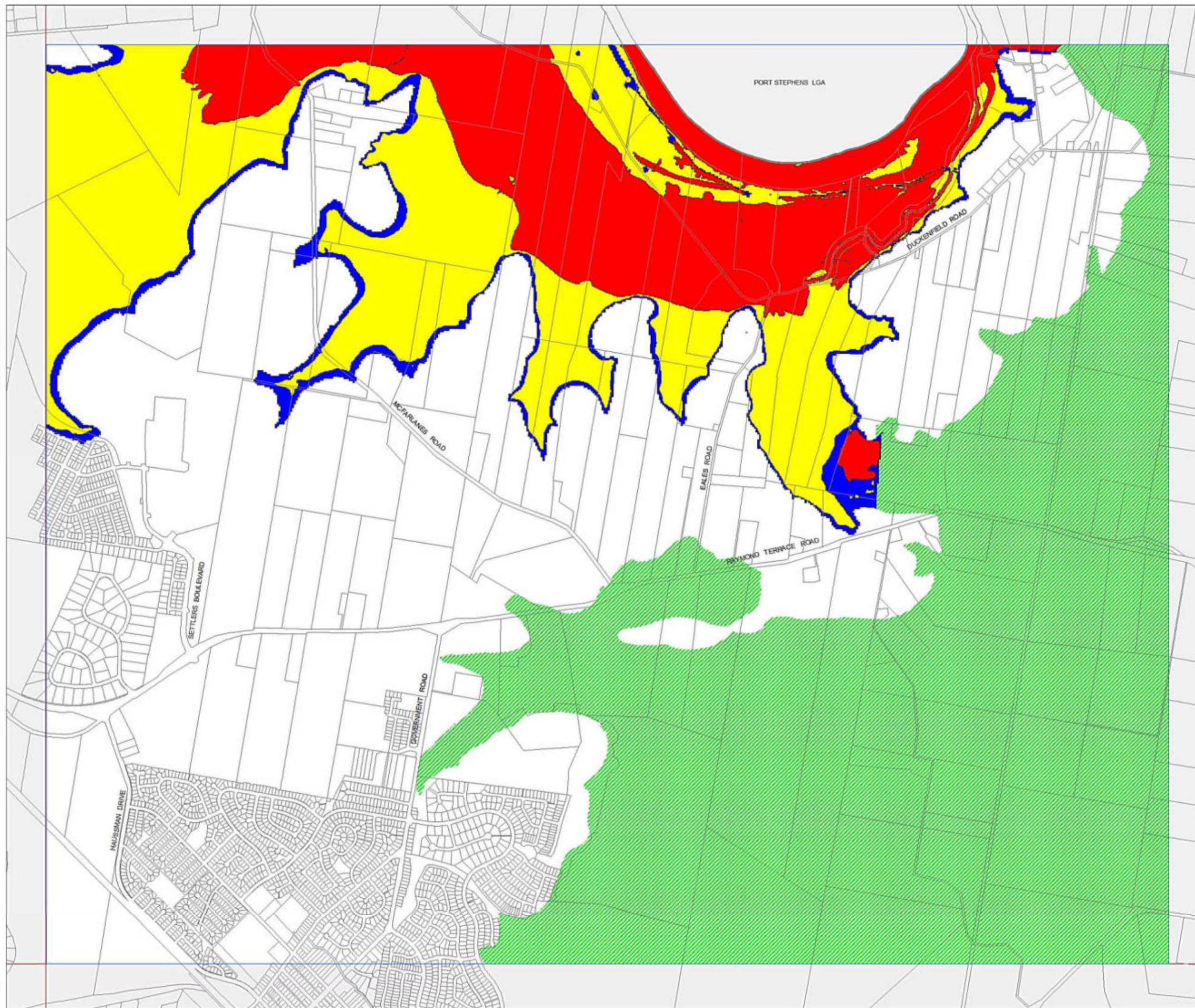


Scale: 1:20,000 @ A3

Projection: GDA 1994
Zone 56

Map identification number:

Floodplain Management DCP (Hydraulic Categories)_FLD_006A_020_20140611





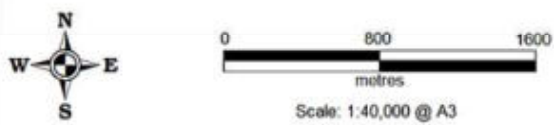
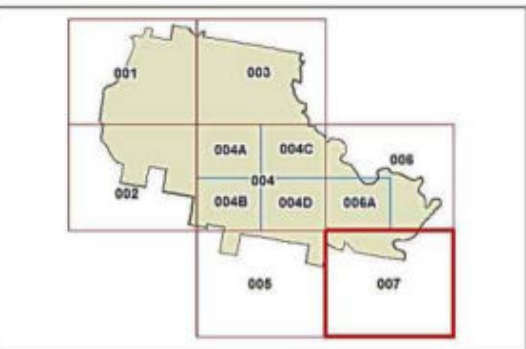
Maitland Citywide Development Control Plan 2011

Floodplain Management DCP - Hydraulic Categories_Sheet 007

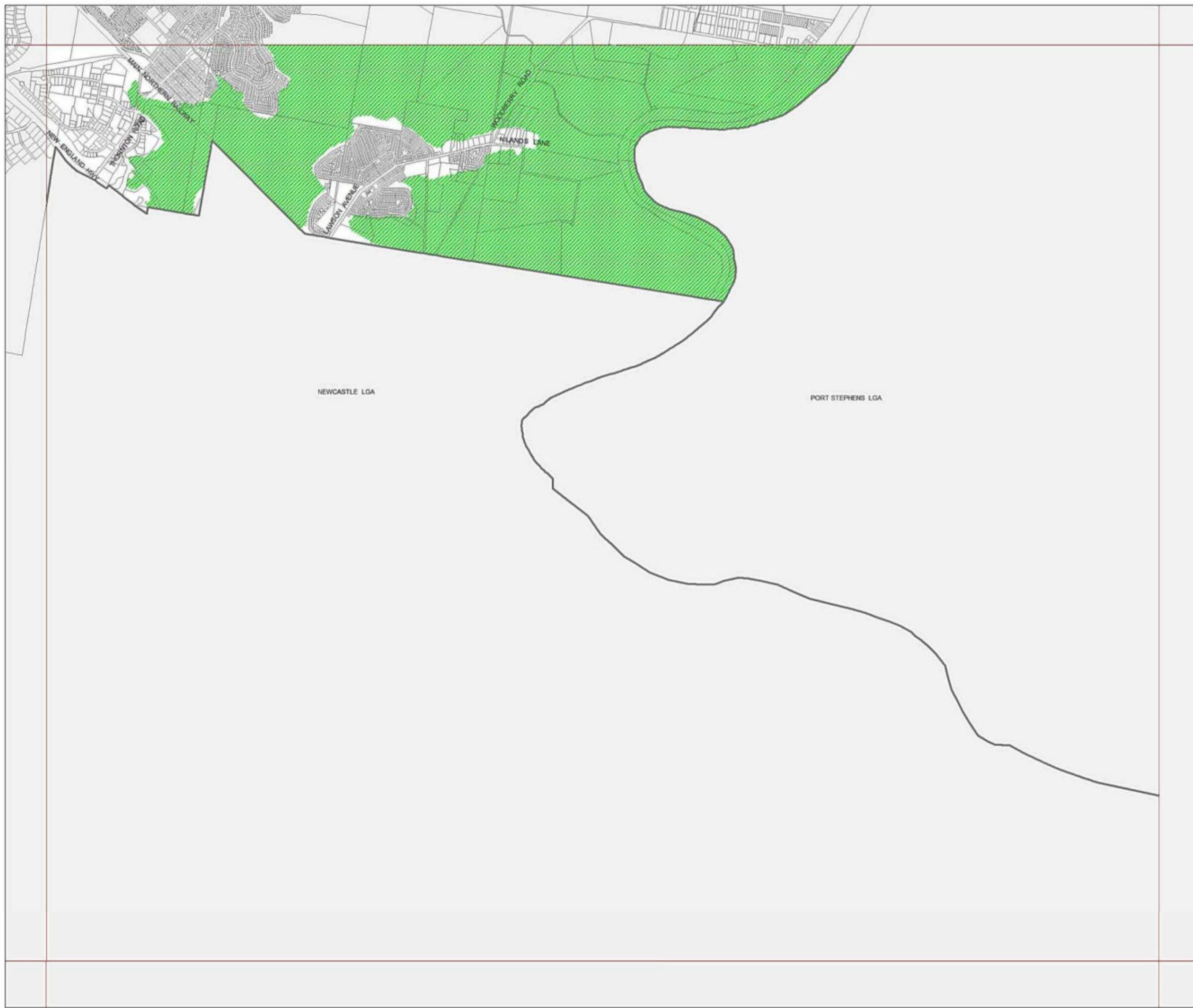
-  Flood Storage
-  Flood Fringe
-  Floodway
-  Subject to Further Investigation

Cadastre

 Base data 03/03/1997 © NSW LPMA
 Addendum data 01/04/2011 © Maitland City Council



Projection: GDA 1994
Zone 56
Map identification number:
Floodplain Management DCP (Hydraulic Categories)_FLD_007_040_20140611





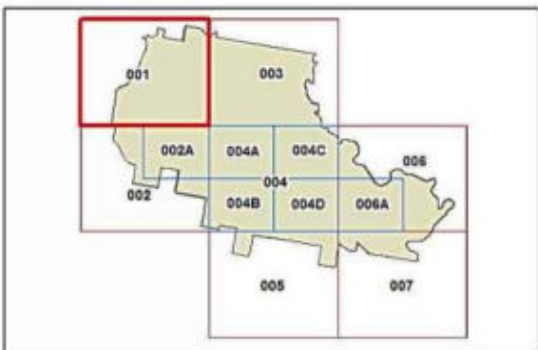
Maitland Citywide Development Control Plan 2011

Floodplain Management DCP - Flood Hazard_Sheet 001

- Low Hazard
- High Hazard
- Subject to Further Investigation

Cadastre

Base data 03/03/1997 © NSW LPMA
Addendum data 01/04/2011 © Maitland City Council

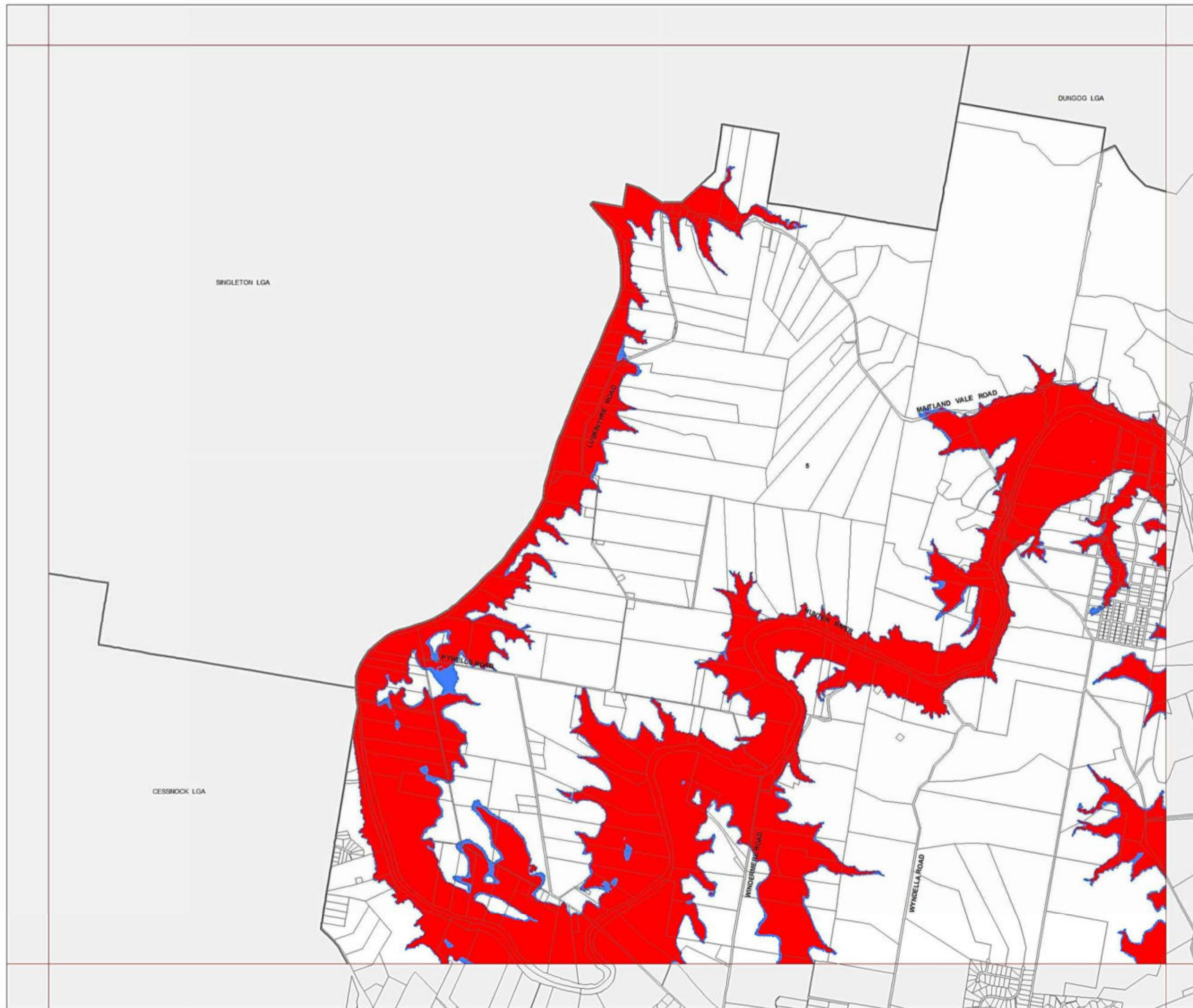


Scale: 1:40,000 @ A3

Projection: GDA 1994
Zone 56

Map identification number:

Floodplain Management DCP (Hazard)_FLD_001_040_20140611





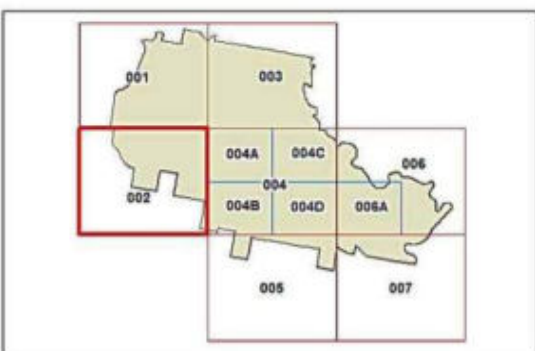
Maitland Citywide Development Control Plan 2011

Floodplain Management DCP - Flood Hazard_Sheet 002

-  Low Hazard
-  High Hazard
-  Subject to Further Investigation

Cadastre

-  Base data 03/03/1997 © NSW LPMA
-  Addendum data 01/04/2011 © Maitland City Council

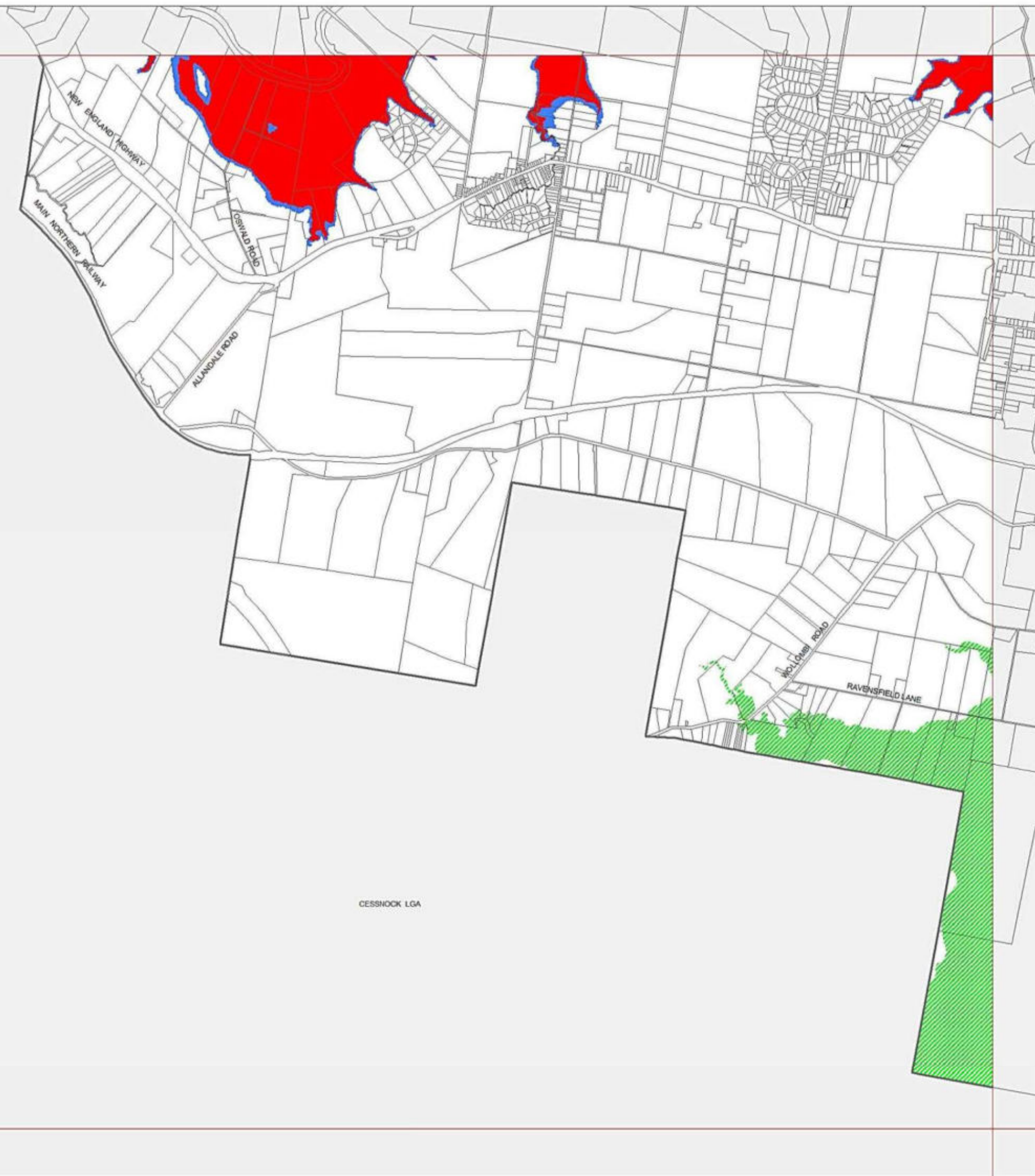


Scale: 1:40,000 @ A3

Projection: GDA 1994
Zone 56

Map identification number:

Floodplain Management DCP (Hazard)_FLD_002_040_20140611





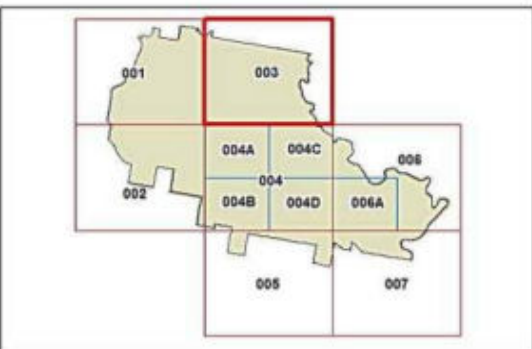
Maitland Citywide Development Control Plan 2011

Floodplain Management DCP -
Flood Hazard_Sheet 003

- Low Hazard
- High Hazard
- Subject to Further Investigation

Cadastre

Base data 03/03/1997 © NSW LPMA
Addendum data 01/04/2011 © Maitland City Council

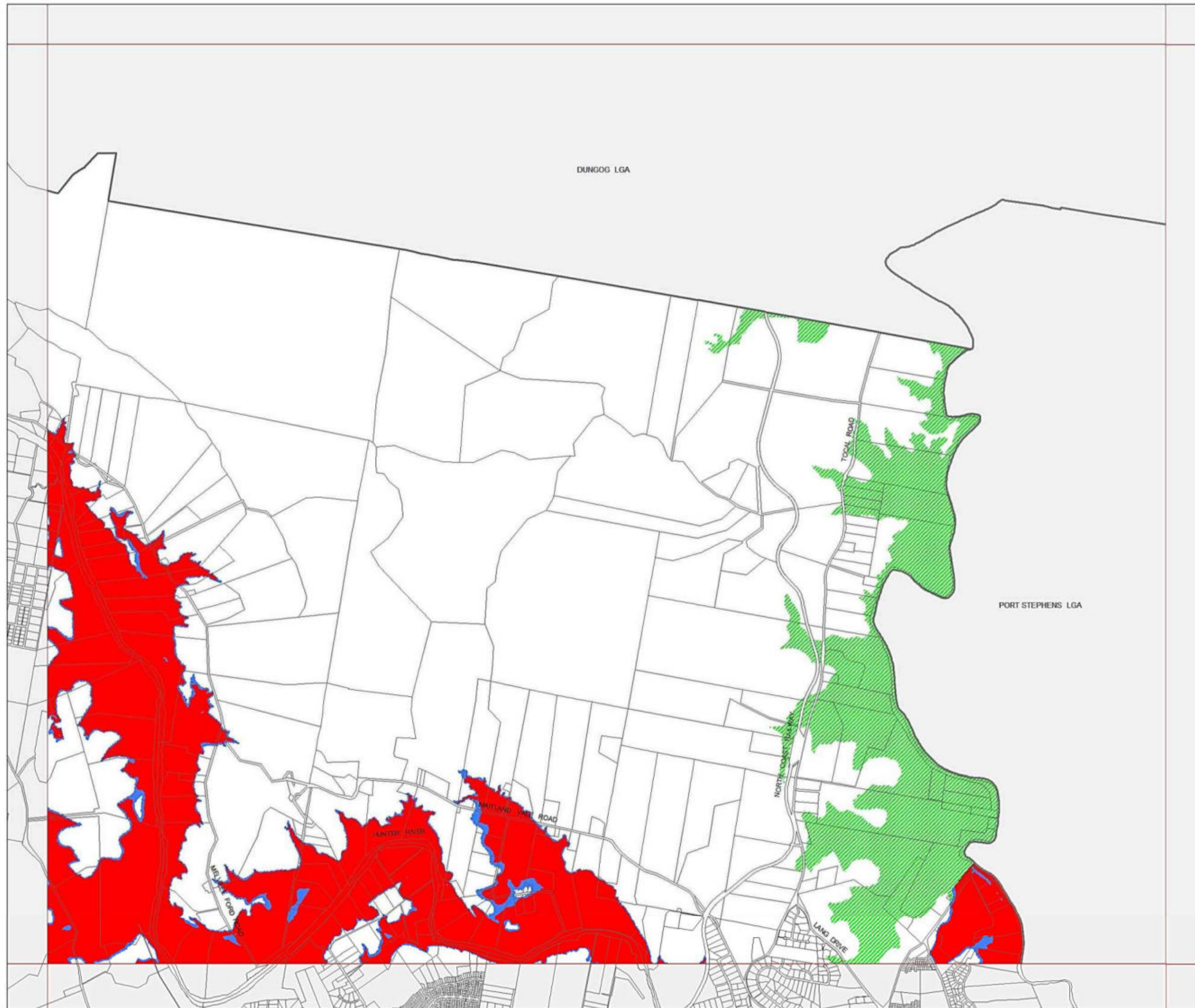


Scale: 1:40,000 @ A3

Projection: GDA 1994
Zone 56

Map identification number:

Floodplain Management DCP (Hazard)_FLD_003_040_20140611





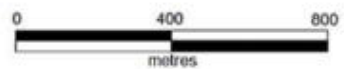
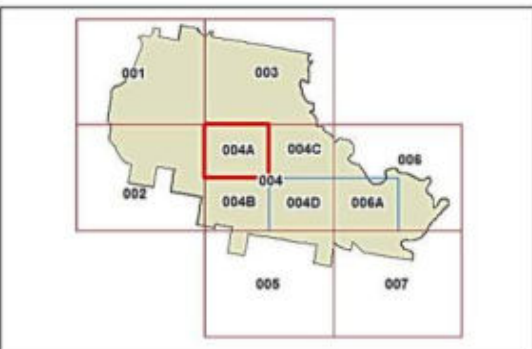
Maitland Citywide Development Control Plan 2011

Floodplain Management DCP -
Flood Hazard_Sheet 004A

- Low Hazard
- High Hazard
- Subject to Further Investigation

Cadastre

Base data 03/03/1997 © NSW LPMA
Addendum data 01/04/2011 © Maitland City Council

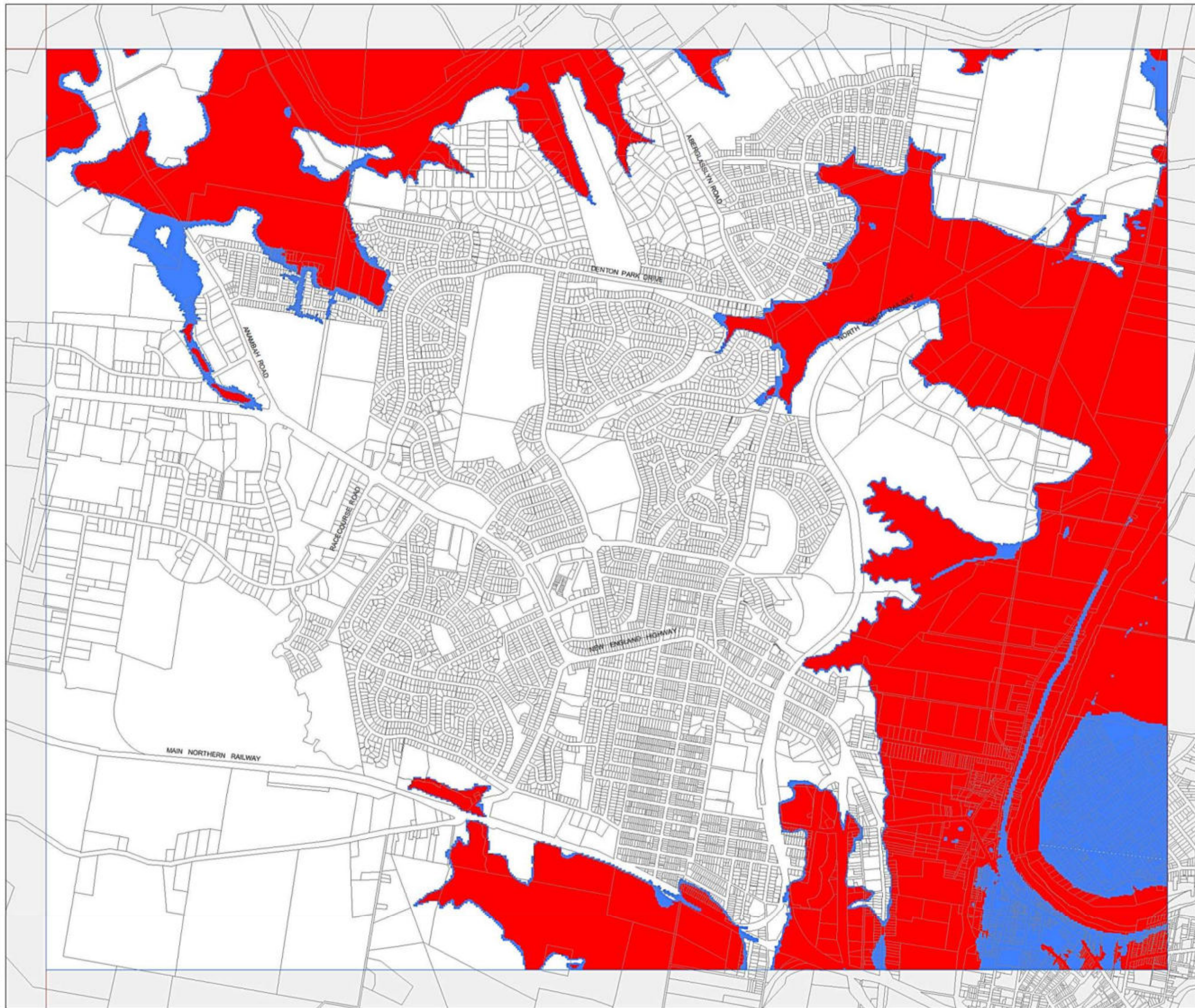


Scale: 1:20,000 @ A3

Projection: GDA 1994
Zone 56

Map identification number:

Floodplain Management DCP (Hazard)_FLD_004A_020_20140611



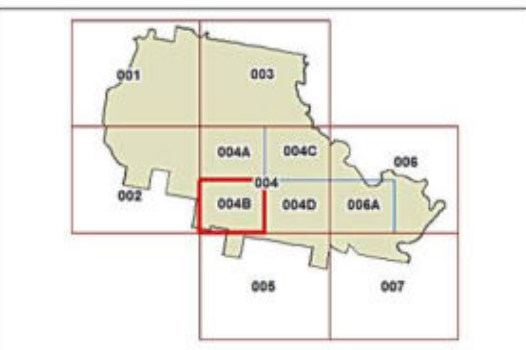


Floodplain Management DCP -
Flood Hazard_Sheet 004B

 Low Hazard
 High Hazard
 Subject to Further Investigation

Cadastre

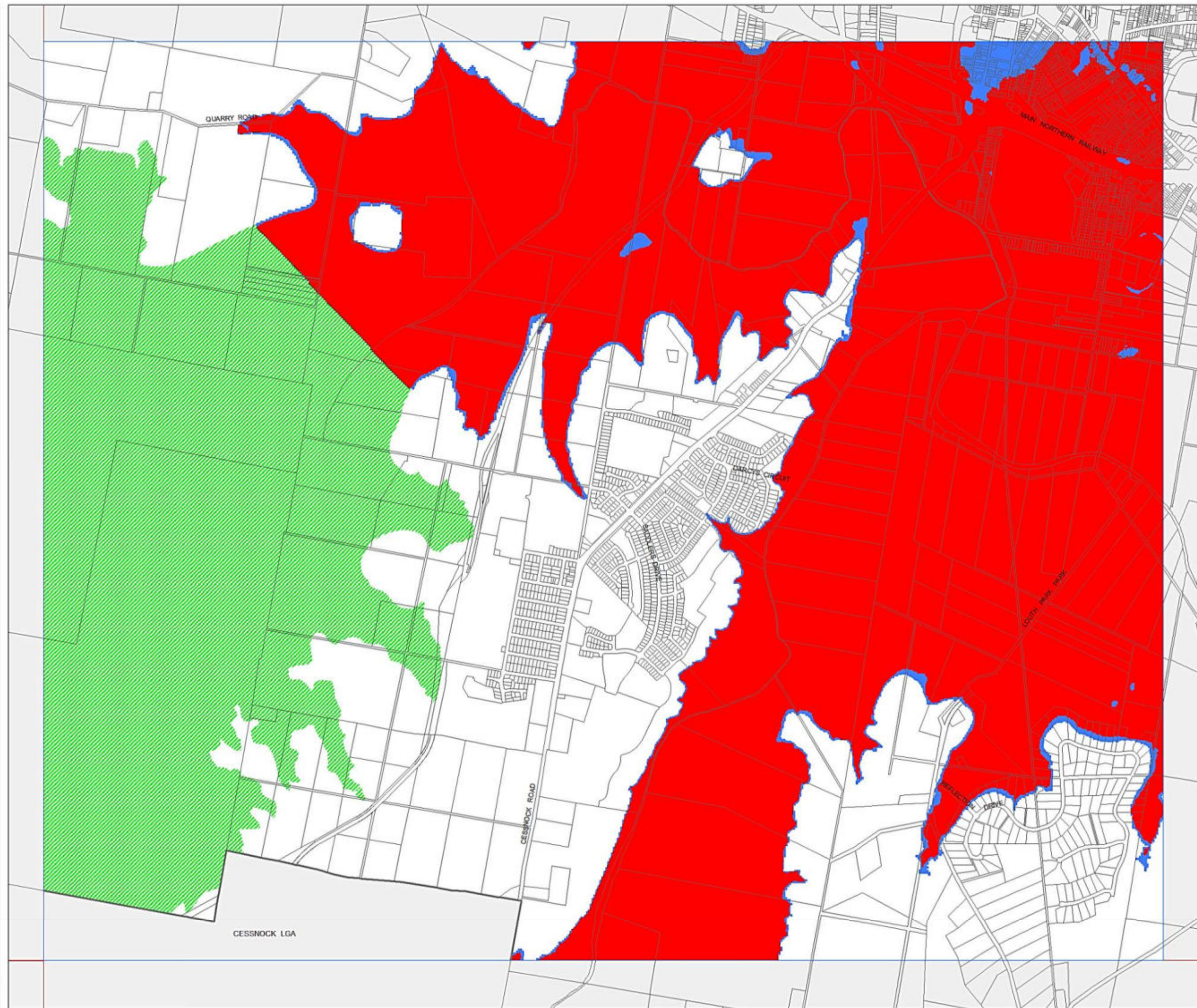
Base data 03/03/1997 © NSW LPMA
Addendum data 01/04/2011 © Maitland City Council



Projection: GDA 1994
Zone 56

Map identification number:

Floodplain Management DCP (Hazard)_FLD_004B_020_20140611





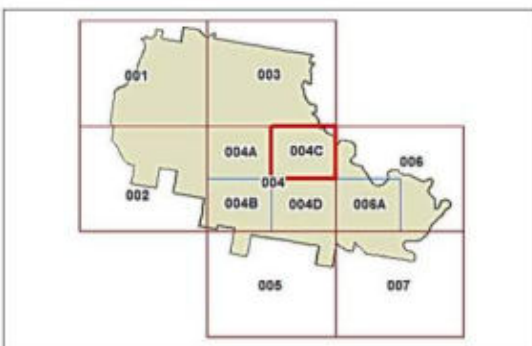
Maitland Citywide Development Control Plan 2011

Floodplain Management DCP -
Flood Hazard_Sheet 004C

- Low Hazard
- High Hazard
- Subject to Further Investigation

Cadastre

Base data 03/03/1997 © NSW LPMA
Addendum data 01/04/2011 © Maitland City Council



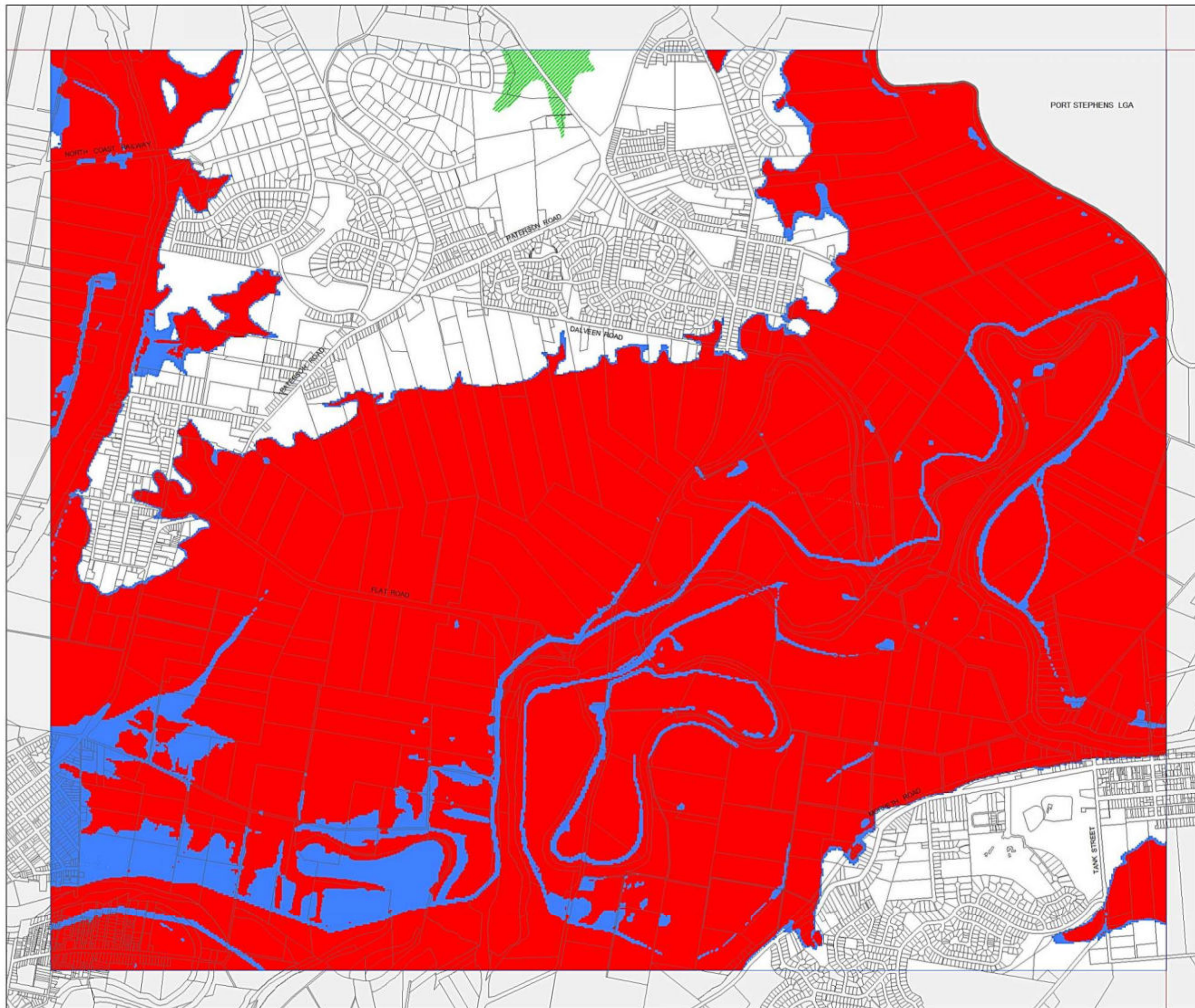
0 400 800
metres

Scale: 1:20,000 @ A3

Projection: GDA 1994
Zone 56

Map identification number:

Floodplain Management DCP (Hazard)_FLD_004C_020_20140611





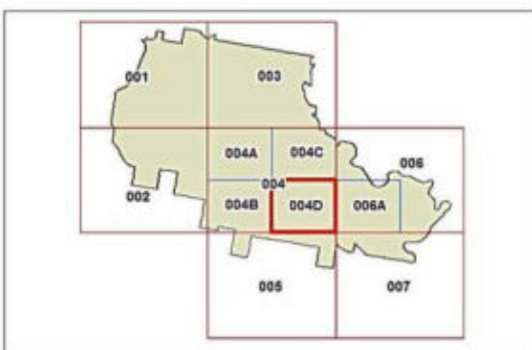
Maitland Citywide Development Control Plan 2011

Floodplain Management DCP -
Flood Hazard_Sheet 004D

- Low Hazard
- High Hazard
- Subject to Further Investigation

Cadastre

Base data 03/03/1997 © NSW LPMA
Addendum data 01/04/2011 © Maitland City Council



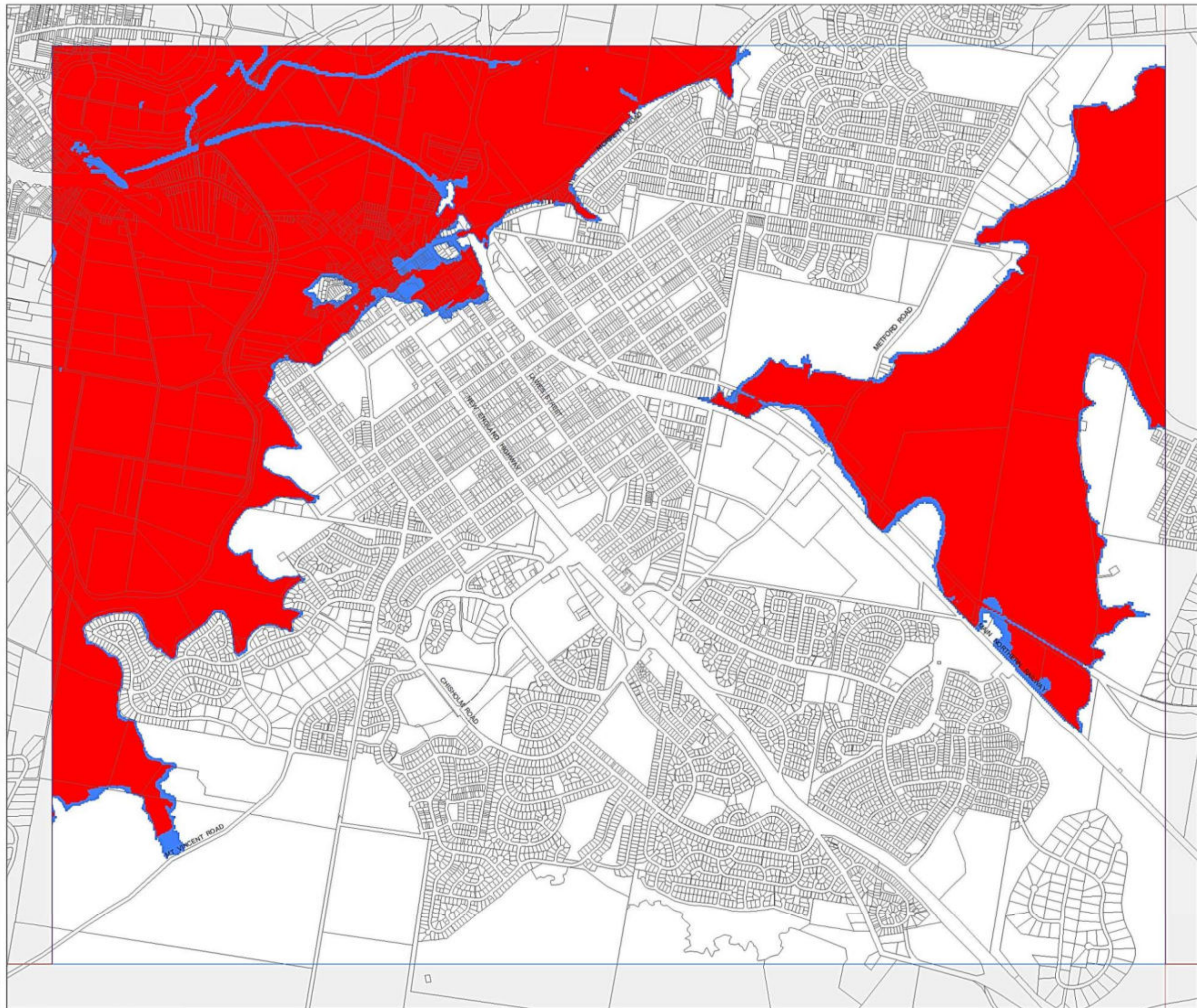
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Scale: 1:20,000 @ A3

Projection: GDA 1994
Zone 56

Map identification number:

Floodplain Management DCP (Hazard)_FLD_004D_020_20140611





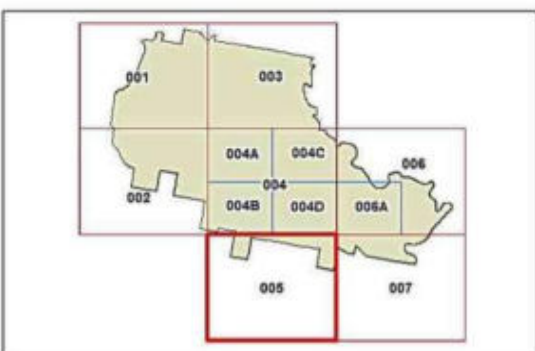
Maitland Citywide Development Control Plan 2011

Floodplain Management DCP - Flood Hazard_Sheet 005

-  Low Hazard
-  High Hazard
-  Subject to Further Investigation

Cadastre

-  Base data 03/03/1997 © NSW LPMA
-  Addendum data 01/04/2011 © Maitland City Council

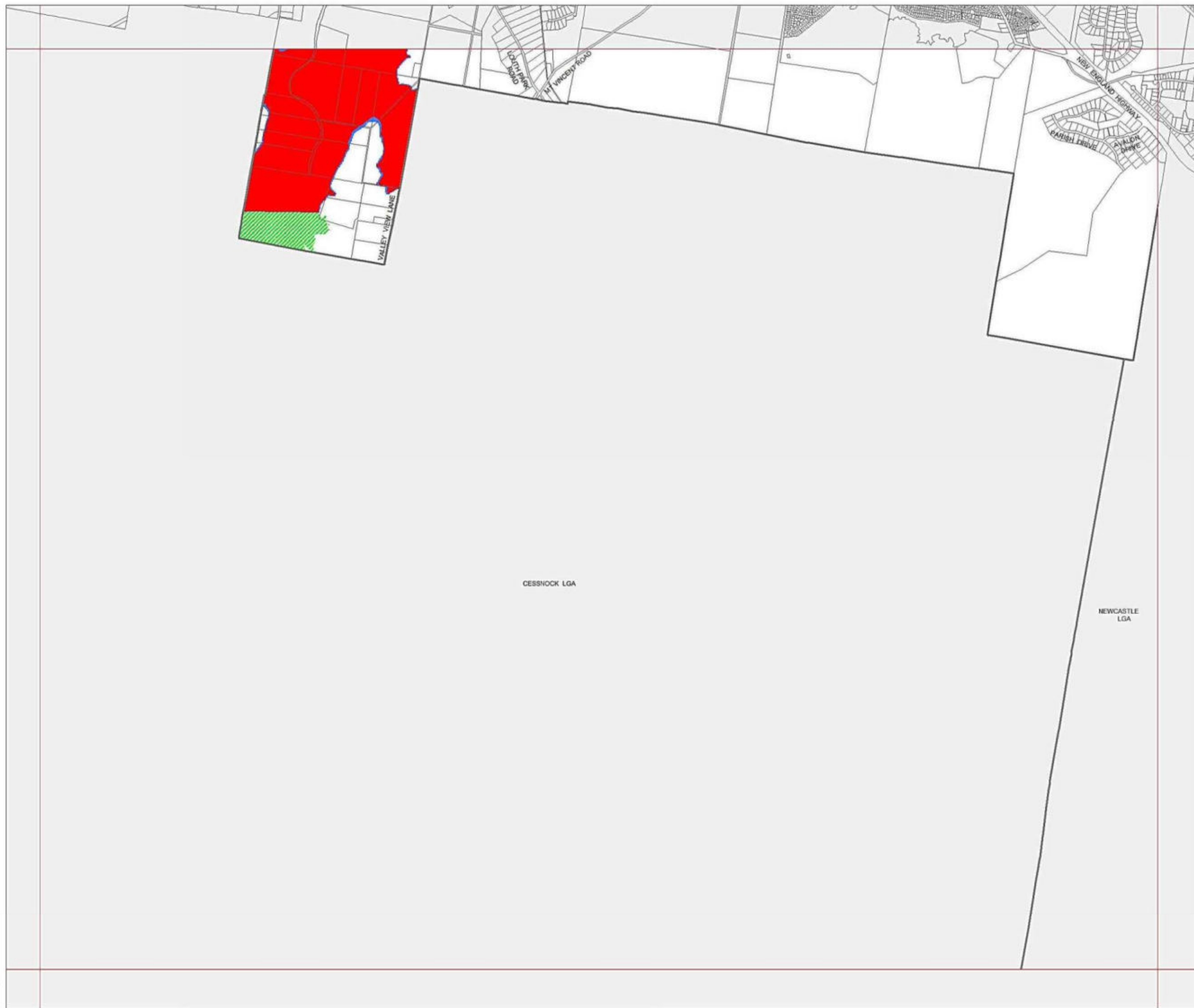


Scale: 1:40,000 @ A3

Projection: GDA 1994
Zone 56

Map identification number:

Floodplain Management DCP (Hazard)_FLD_005_040_20140611





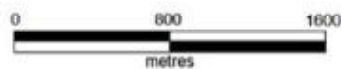
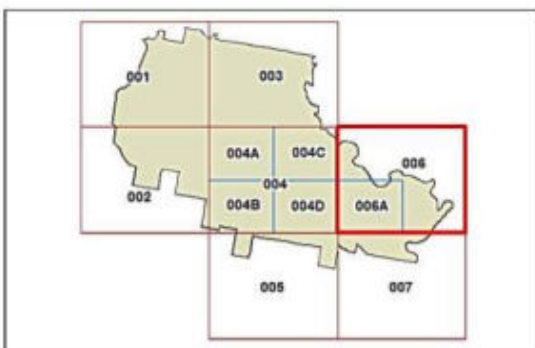
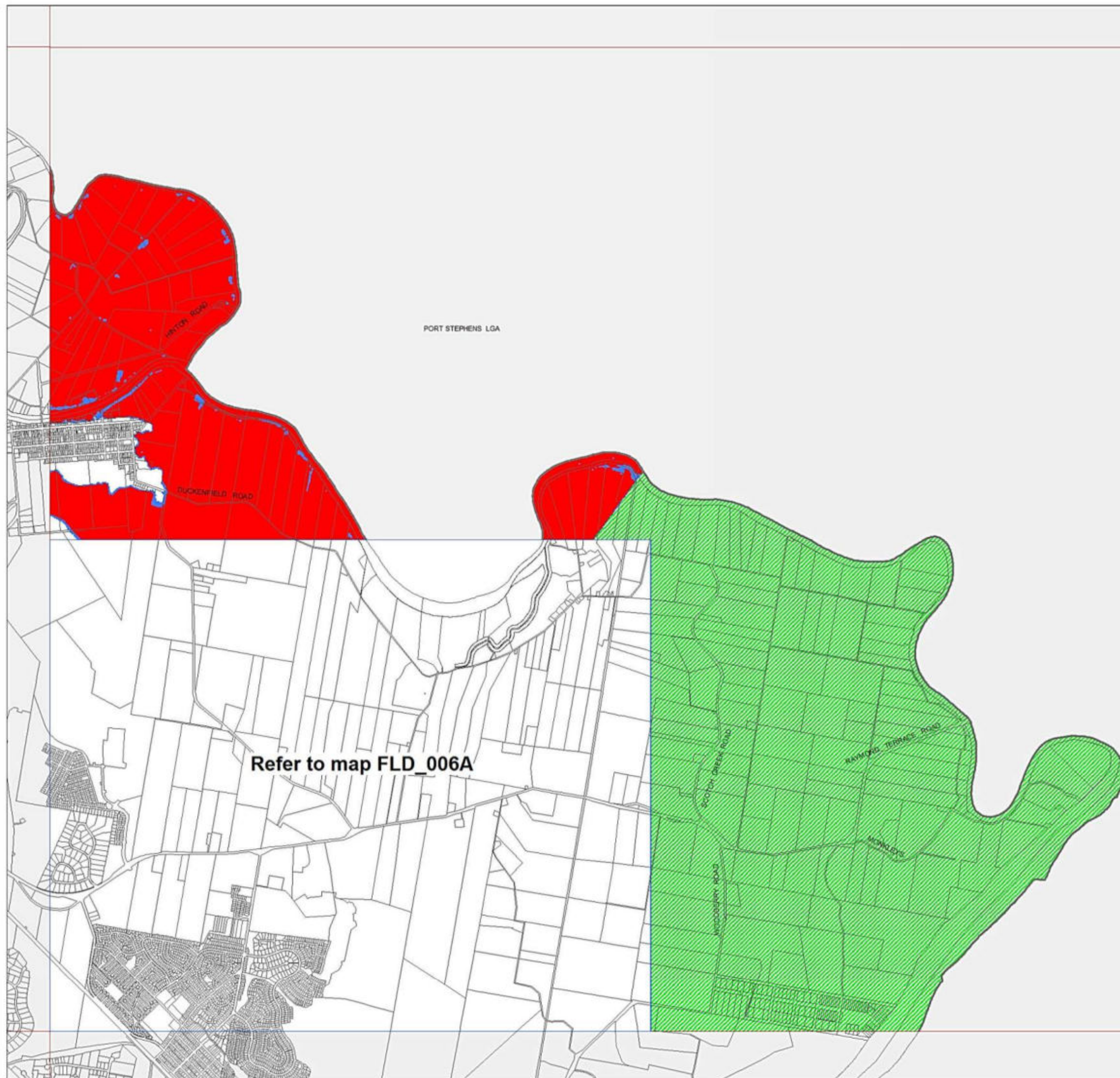
Maitland Citywide Development Control Plan 2011

Floodplain Management DCP -
Flood Hazard_Sheet 006

- Low Hazard
- High Hazard
- Subject to Further Investigation

Cadastre

Base data 03/03/1997 © NSW LPMA
Addendum data 01/04/2011 © Maitland City Council



Scale: 1:40,000 @ A3

Projection: GDA 1994
Zone 56

Map identification number:

Floodplain Management DCP (Hazard)_FLD_006_040_20140611



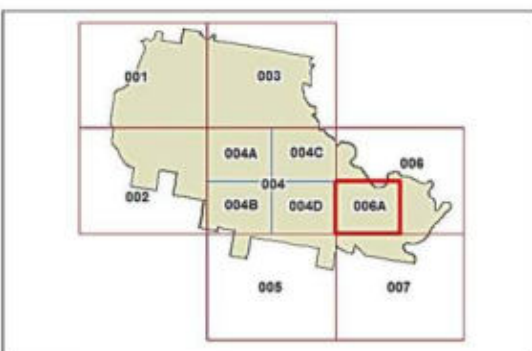
Maitland Citywide Development Control Plan 2011

Floodplain Management DCP -
Flood Hazard_Sheet 006A

- Low Hazard
- High Hazard
- Subject to Further Investigation

Cadastre

Base data 03/03/1997 © NSW LPMA
Addendum data 01/04/2011 © Maitland City Council



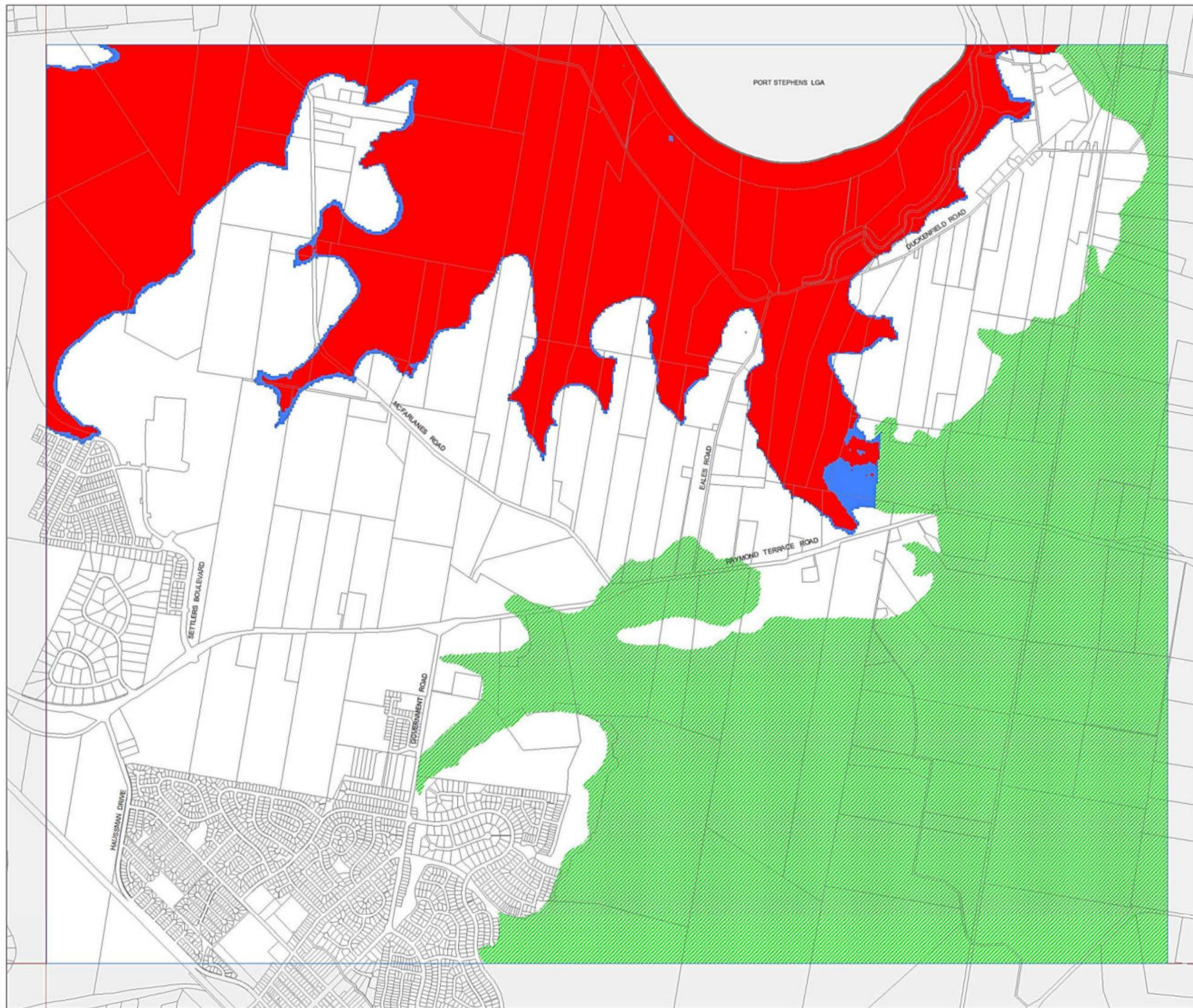
0 400 800
metres

Scale: 1:20,000 @ A3

Projection: GDA 1994
Zone 56

Map identification number:

Floodplain Management DCP (Hazard)_FLD_006A_020_20140611





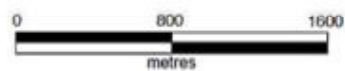
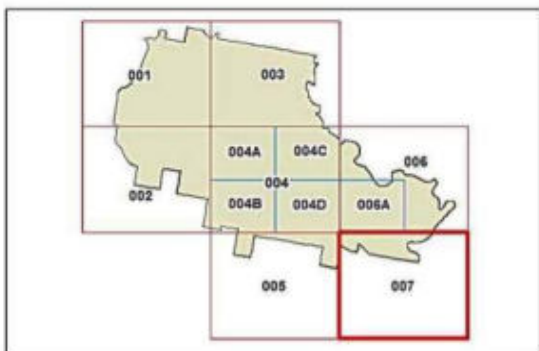
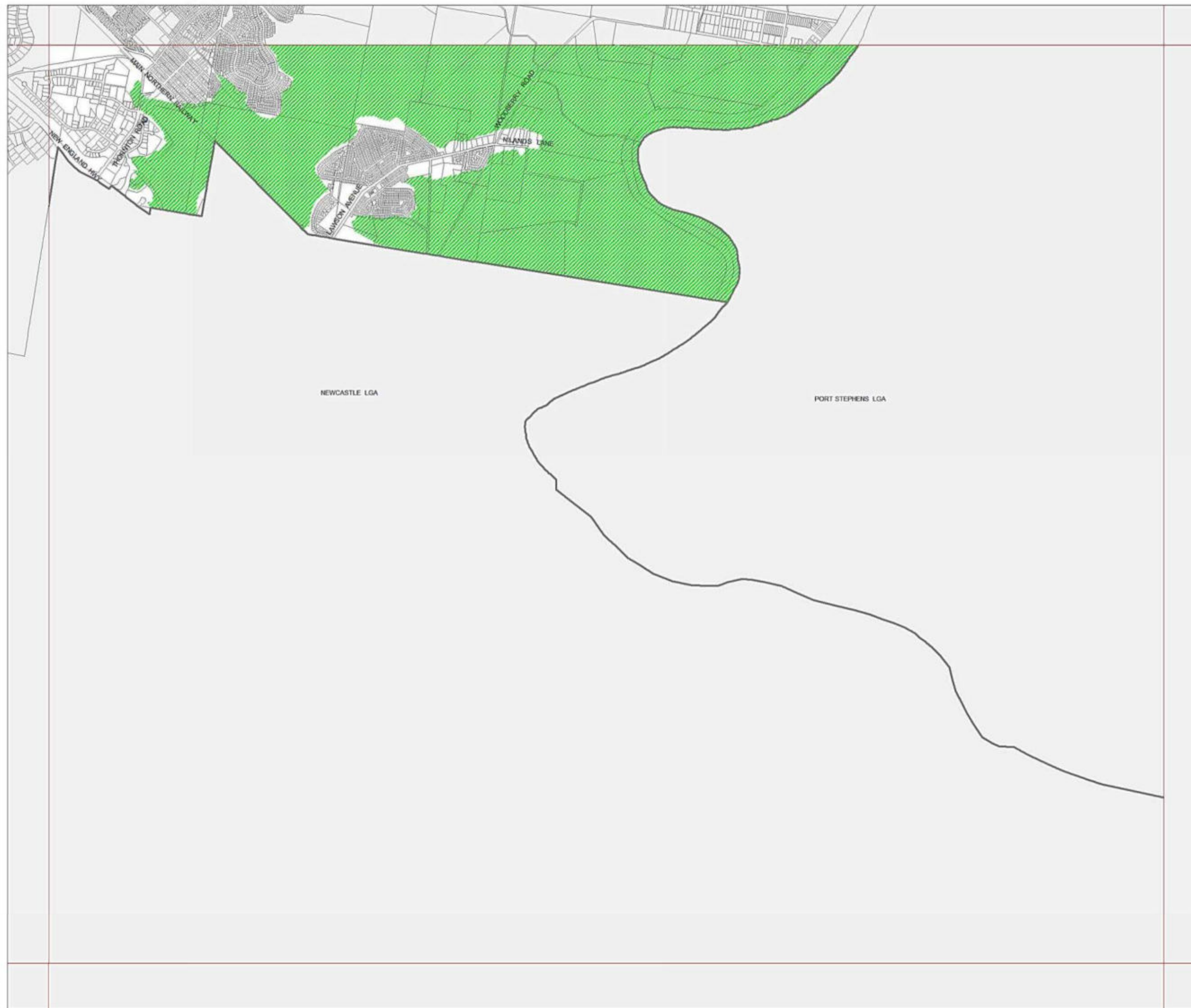
Maitland Citywide Development Control Plan 2011

Floodplain Management DCP - Flood Hazard_Sheet 007

- Low Hazard
- High Hazard
- Subject to Further Investigation

Cadastre

Base data 03/03/1997 © NSW LPMA
Addendum data 01/04/2011 © Maitland City Council



Scale: 1:40,000 @ A3

Projection: GDA 1994
Zone 56

Map identification number:

Floodplain Management DCP (Hazard)_FLD_007_040_20140611