



**ALICE SPRINGS TOWN COUNCIL**

**SUBDIVISION AND DEVELOPMENT REQUIREMENTS**

***Version 2 - August 2018***

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# 1. INTRODUCTION

## 1.1 Preamble

The ASTC Sub-division Development Requirements have been created to ensure minimum and consistent standards are implemented across all new ASTC infrastructure. These standards are in line with accepted industry standards e.g. Australian Standards, Austroads etc. although certain elements are in keeping with Federal/Territory legislative requirements.

These Requirements are not intended to stifle innovation or economic growth. Where specific situations require deviation from these Requirements, approvals are required from the Director of Technical Services.

*It is acknowledged that the NT Government is in the process of introducing a Uniform Subdivision Guideline that is intended to apply across all developments in the Northern Territory. However, recognising that there are limitations to the achievability of a uniform design for subdivision related infrastructure such as stormwater inlets, road thickness, etc. and constraints placed by regional specific differences such as climate, soil type, flora, etc.; this document provides a technical framework to reflect Alice Springs Town Council's requirements imposed by its geographical location in Central Australia.*

## 1.2 The Planning and Development Process

The NT *Planning Act* establishes the Development Consent Authority (DCA) as the Relevant Authority for the consideration and determination of ordinary applications for development consent (i.e. planning approval) in Alice Springs.

The Minister for Lands and Planning is the Relevant Authority for Exceptional Development Permits and Planning Scheme Amendments (e.g. rezoning applications), which include any and all proposed changes to the NT Planning Scheme, which is the primary reference document for planning and development in Alice Springs.

Where the DCA has considered an ordinary application for development consent, which includes subdivision applications, and has determined that a development permit is to be issued with conditions dealing with a matter or matters that are to be undertaken to the requirements of the Local Authority, then the *Alice Springs Town Council Subdivision and Development Requirements* ("these Requirements") are the reference document setting out the general principles and specific requirements of the Alice Springs Town Council (ASTC).

As a Local Authority, referred to in the NT *Planning Act*, the areas of responsibility, for which ASTC is generally responsible, relate to the provision and maintenance of public roads, stormwater drainage (as it relates to the local road network), and the level of amenity provided in road reserves and public open space that is presently, or is potentially to be placed, under the care and control of Council. It is recognised that these Requirements will not necessarily provide guidance on all aspects of each particular development. Where the Requirements do not provide sufficient clarity in respect of a particular matter, then that matter will need to be referred to the Director of Technical Services for clarification of ASTC's requirements.

Most public roads within the Municipality of Alice Springs are under the care and control of ASTC, except for NT Government roads. A link to the map showing those roads that are currently under the care and control of the NT Government is available for download from the NT Government website.

As a Local Authority, ASTC seeks to work co-operatively with other Service providers and other government agencies to streamline Development and avoid conflicting advice. Developers are advised to contact the appropriate authorities and other government agencies to determine their general and specific requirements (some are listed below):

- Development Consent Authority (DCA) – Relevant Authority e.g. ordinary development permits and certificates of compliance.
- Department of Infrastructure, Planning and Logistics (DIPL) – Lands Administration, Development Assessment Services, Building Assessment Services and Road Networks Division e.g. requirements in relation to Crown Lands or NT Government roads, Construction Division e.g. engineering specifications for public works in areas under the care and control of NT Government.
- Power and Water Corporation (PWC) – electrical, sewer and water connections
- Department of Environment and Natural Resources (DENR) e.g. erosion and sediment control, noise control, pollution, water bores etc.
- Aboriginal Areas Protection Authority (AAPA) - Sacred Sites e.g. significant trees.
- Department of Health (DoH) e.g. septic systems, mosquito control.

### **1.3 Local Authority Requirements**

An Authorised Officer of ASTC shall have regard to his or her role and responsibility under the NT *Local Government Act* when discharging his or her duties under the NT *Planning Act*.

These Requirements provide an easy reference guide for an Authorised Officer of ASTC, as well as any person or business undertaking development in Alice Springs, or likely to affect in any way, a public road or any other public land or public infrastructure that is under the care and control of ASTC.

These Requirements provide “Deemed-to-Comply” standards for most Development Works within the Municipality. Where particular circumstances require solutions that are beyond the scope of these Requirements, then approval from the Director of Technical Services, or delegate, must be obtained prior to the design being implemented.

### **1.4 Design Philosophy**

The philosophy underpinning these Requirements is that public safety should have priority in any decisions made by an Authorised Officer of ASTC. These Requirements incorporate that philosophy, with due consideration to a range of local factors, like the size of motor vehicles



commonly found in Alice Springs and traffic volumes generated within the Municipality, climate and soil types.

These Requirements contain design criteria which respond to existing arrangements for roads and stormwater infrastructure. This document seeks to provide infrastructure that will result in the least Whole-of-Life Costs to current and future ratepayers in the design and construction of future roads, paths, public open space, lighting and stormwater infrastructure.

While these Requirements set out conventional standards for Development Works they are not intended to discourage the use of innovative tools and techniques to achieve sustainable development that are beyond the scope set out in these Requirements (e.g. expanding the use of solar energy or designing stormwater systems to encourage Water Sensitive Urban Design (WSUD) Principles.

In some instances, it may be necessary for the Developer to seek approval for a design solution that has significantly higher Whole-of-Life Costs than the “Deemed-to-Comply” standards set out in these Requirements and, under those circumstances, ASTC may consider a cash or non-cash contribution from the Developer to offset these additional costs in perpetuity.

Where solutions are required that are beyond the scope of these Requirements, the approval must be obtained from the Director Technical Services prior to the design being implemented.

These Requirements may be reviewed and amended from time to time by ASTC.

**Definitions:** The following table defines specific words and terms used in these Requirements.

AAPA	Aboriginal Areas Protection Authority – approval of all matters relating to Sacred Sites, including significant trees
Access	Provision of infrastructure to cater for the adequate movement of vehicles, pedestrians and cyclists
Access Road	The road that provides adequate movement for vehicles, pedestrians and cyclists to the full frontage of developed allotments. The road classification for various categories of Development is to be in accordance with these Requirements
Act	The NT <i>Planning Act</i>
AMCORD	Australian Model Code for Residential Development
Approval Documents	Formal advice from an Authorised Officer of ASTC that the Design Documentation, as submitted, is approved for construction, including but not limited to the following: <ul style="list-style-type: none"> <li>• Approval letter with or without conditions;</li> <li>• Approved drawings; and</li> <li>• Approved pavement design (where necessary)</li> </ul>
Approved Drawings	Detailed Design Drawings submitted to ASTC by the Developer and approved by an Authorised Officer of ASTC for construction.
Approved Non-standard	A non-standard fitting that complies with PWC public lighting technical

Lighting	standards (i.e. Volume 3 of PWC's Standards manual) and can be placed on the non-metered PWC network.
ARR	Australian Rainfall and Runoff published by Engineers Australia
ARRB	Australian Road Research Board
ASTC	Alice Springs Town Council
ASTC Working within a Road Reserve Permit	Permit to Work Within a Road Reserve - approval issued by an Authorised Officer of the Alice Springs Town Council to undertake works on public roads or other land under the care and control of Council
Austrroads	Austrroads are documents with agreed methods and processes, and provide information about new technologies and procedures related to road design, construction and the road transport industry.
Australian Standards	Standards are documents setting out specifications, procedures and guidelines. They are designed to ensure products, services and systems are safe, reliable and consistent.
Authorised Officer	An Officer of the ASTC authorised under the relevant section of the NT <i>Local Government Act</i>
Building Code of Australia (BCA)	Current version of the Building Code of Australia.
Municipal Plan	Alice Springs Town Council Municipal Plan (as amended) contains an annual list of fees and charges and related to development assessment, amongst other things
Construction Approval Fee (charged as Development Assessment Fee per the Municipal Plan)	Fee payable by the Developer prior to ASTC approving the Design Documentation. The fee is based on the time involved for assessment of a particular development and will include the cost incurred by Council to assess the development using Consultants if required.
Construction Certification	Un-conditional certificate of Constructed Infrastructure that is in accordance with the approved drawings and compliance with all relevant legislative/industry standards at the time of Construction handover. Certification is to be signed by a Chartered Professional Engineer and countersigned by the developer
Construction Deposit	An amount equal to 5% of the Construction Cost provided to ASTC in the form of cash or bank guarantee prior to commencing construction of the Development Works
Civil Contractor	The legal entity contracted to the Developer to construct the Development Works
Construction Cost	Estimated cost to construct the Development Works, as estimated and certified by the Superintendent, and accepted by ASTC. The advice to ASTC from the Superintendent of the cost of the Development Works is to be accompanied by a schedule showing the quantities, rates and amounts of the various components of the Development Works
Council	Alice Springs Town Council
Design Certification	Unconditional Certification by a Chartered Professional Engineer stating that the design complies to all relevant Codes/Standards and legislation. The Certificate is also to be counter signed by the Principal Developer
Design Documentation	Technical Specification, Drawings, Calculations, Reports and any other documents required by Council to satisfactorily show the intended works for the Development.

Developer	The legal entity that is issued a Development Permit from the Development Consent Authority (DCA).
Development	Any works (i.e. Development Works) that require approval from the DCA or the Minister for Lands, Planning and Environment, usually in the form of a Development Permit with conditions
Development Assessment Fee	The fee payable by the Developer to ASTC for administration and approval of the application for assessment to Council, including the detailed Design Documentation. The fee is set out in the ASTC Municipal Plan. The Development Assessment Fee is to be paid prior to the Design Documentation being approved by an Authorised Officer of ASTC. The fees outlined in the Municipal Plan include the fees for the development assessment process, the assessment of engineering details (if any), post-construction inspections and any processing of documentation during the construction and the formal acceptance by an Authorised Officer of ASTC that the Development Permit Conditions have been met (i.e. Part 5 clearance advice)
Development Consent Authority (DCA)	The Relevant Authority established under the NT <i>Planning Act</i> that determines ordinary development permit applications
Development Permit	A planning instrument that is issued by the Relevant Authority, under the NT <i>Planning Act</i> , which permits the Developer to proceed with a development in accordance with the conditions of the Permit
Development Site	The parcel(s) of land upon which Development Works that are approved by a valid Development Permit have been or are about to be undertaken
Development Works	Works that are to be undertaken on the Development Site, or adjacent to the Development Site, to complete the conditions of the Development Permit, including any conditions necessary to satisfy the requirements of the Local Authority and Service Authorities
DoH	NT Government Department of Health
DLPE	NT Government Department of Lands, Planning and Environment
DoI	NT Government Department of Infrastructure (or successor)
<i>Disability Discrimination Act</i>	Commonwealth <i>Disability Discrimination Act 1992</i> and any regulations or standards thereof
Design Life (Road Pavement)	Road pavements shall generally be designed and constructed to achieve a minimum 25 year design life, unless otherwise approved by an Authorised Officer of ASTC
External Works Bond	Where the Developer indicates an intention to delay the construction of specific works that are required as part of the Development Works, then ASTC may require the Developer to lodge a bond to cover the full cost of the outstanding works, until such time as those works have been completed
Greenfield Subdivision	Development Works, usually associated with a residential subdivision proposal, in an area where the servicing of smaller allotments requires major civil construction work (e.g. headworks)
Requirements	ASTC Subdivision and Development Requirements
HPS	High Pressure Sodium e.g. standard (orange) street light
LED	Light Emitting Diode e.g. cool white (energy efficient) light
Local Authority	In relation to roles and responsibilities in relation to the NT <i>Planning Act</i>

	refers to the Local Government Authority responsible for the Municipality of Alice Springs (i.e. Alice Springs Town Council)
Maintenance Deposit	The monetary security lodged by the Developer to ASTC for the Maintenance Period. The Maintenance Deposit may be in the form of cash, or an unconditional bank guarantee from a banking institution approved by an Authorised Officer of ASTC, or as otherwise approved by an Authorised Officer of ASTC.
Maintenance Period	A period of 24 months or sometimes longer, as specified in the Approval Documents, during which time the Development Works are accepted On-Maintenance for performance testing. The Maintenance Period will not commence until the Development Works have been constructed in accordance with the approved design and public areas are safe for public access. The Maintenance Period may be lengthened, as necessary, to allow the Developer to complete any defects or omissions identified during the Off-Maintenance inspection. Any major defects identified and repaired during the Maintenance Period may be subject to performance testing for a further 24 months before being released Off-Maintenance. The Developer is responsible for the maintenance of the Development Works during the Maintenance Period.
Minister	The Minister responsible for administering the NT <i>Planning Act</i> (i.e. Minister for Lands, Planning and the Environment).
Municipality	Municipal area administered by the Alice Springs Town Council
Non-standard Lighting	A light fitting or fixture, other than a standard light fitting or fixture, on a metered electricity supply.
NT Planning Scheme	The NT Planning Scheme is established under the NT <i>Planning Act</i> and is the primary reference document for the determination of development applications in Alice Springs
Off-Maintenance	Formal advice from an Authorised Officer of ASTC to the Developer that the Development Works are accepted Off-Maintenance. Development Works will not be accepted Off-Maintenance until the completion of all work required during the Off-Maintenance Inspection. Any Maintenance Deposit lodged will be returned with Off-Maintenance acceptance of the Development Works
On-Maintenance	Formal advice from an Authorised Officer of ASTC that the Development Works are accepted On-Maintenance, which means that the Development Works will have been constructed to the true intent and meaning of the Approval Documents and be able to be used for the designed purpose. The Development Works will not be accepted On-Maintenance until all of the Development Works have been completed and the Maintenance Deposit has been lodged
Procedural Statement and Directives (PSD)	Council endorsed operational document that accompanies Council adopted policy (e.g. Rural Road Reserve Management PSD)
Public Place	Any land owned by, or under the care and control of, or custodianship of, or trusteeship of Council by lease, licence, statutory instrument or some other form of agreement, including: <ul style="list-style-type: none"> <li>(a) any bridge, footpath, court, lane, alley, passage or thoroughfare open to, or used by, the public; or</li> <li>(b) any park, garden, reserve or other public open space that can be used for recreation or resort; or</li> </ul>

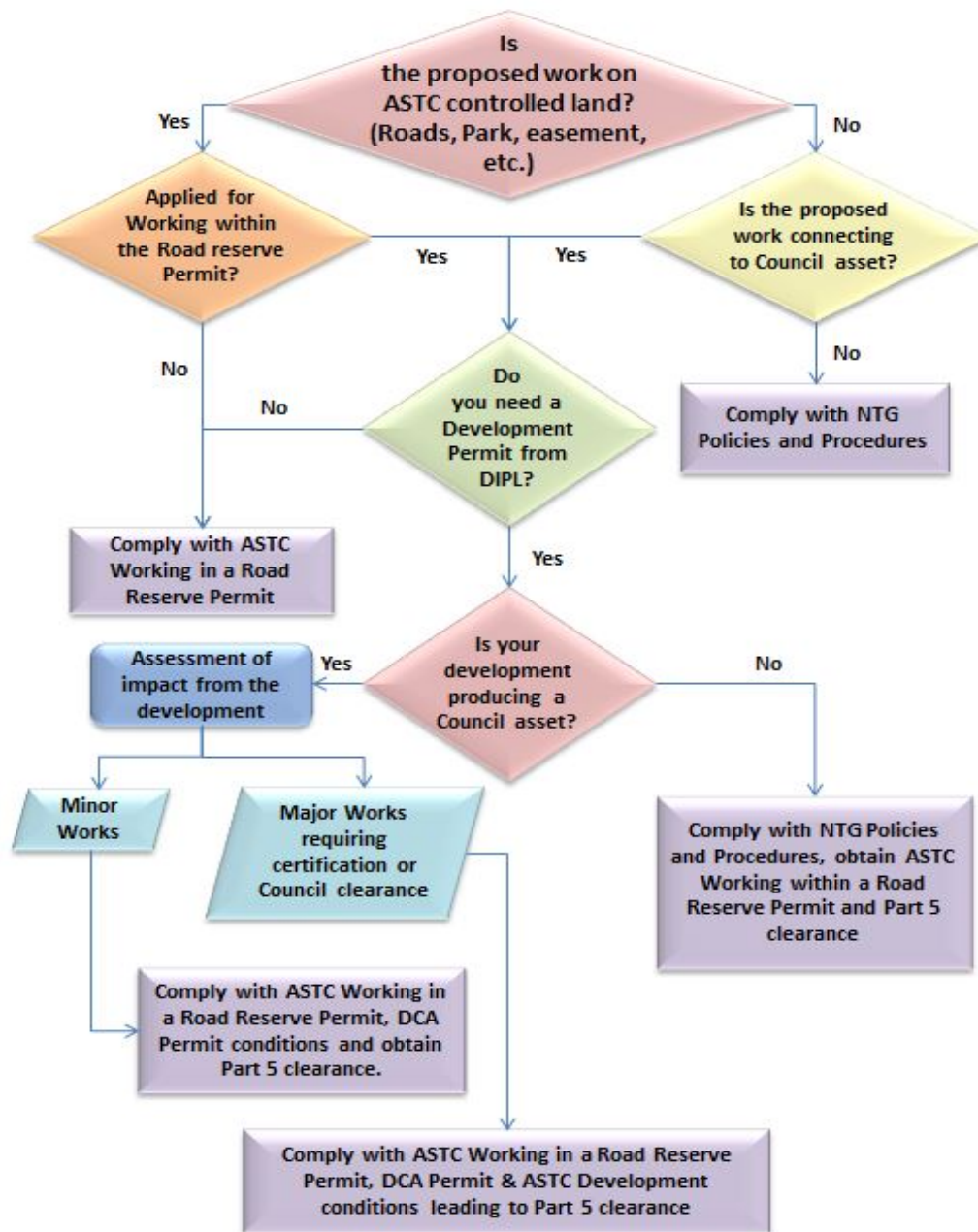
	<p>(c) any open place, in which ASTC has an interest, to which the public has, or is permitted to have access to, with or without payment for admittance; or</p> <p>(e) any drain, other than a drain that is owned and controlled by the NT Government; or</p> <p>(f) any road but does not include a highway or any other road that is owned and controlled by the NT Government; or</p> <p>(g) any public toilet and the land or premises used in connection with it.</p>
PWC	Power and Water Corporation
Road Hierarchy	The classification of roads adopted by ASTC, based on the functionality of the road network, as set out in this document.
Standard Drawings	The current set of Standard Drawings, produced in conjunction with these Requirements and administered by ASTC, as well as selected Standard Drawings of the NT Department of Infrastructure and the Power and Water Corporation, as listed in these Requirements.
Standard Lighting	A lamp, luminare, mounting bracket, public lighting pole, supply cable or control equipment normally used by, or acceptable to, PWC for connection to an electricity supply that is to be provided by PWC and generally paid for, in the first instance, by the Developer and thereafter the cost of electricity is incurred by Council. Standard lighting for street lighting is normally associated with a non-metered supply where the assets are owned and maintained by PWC and therefore subject to PWC's technical standards. ASTC is generally responsible for ensuring appropriate design of lighting levels in local streets, which may be achieved by the provision of Standard Lighting or Non-standard Lighting however Standard Lighting and Non-standard Lighting have very different cost structures and maintenance regimes that would need to be considered by Council in each case.
Street	Any public road, as prescribed by the NT <i>Local Government Act 2008</i> .
Superintendent	The Project Manager / Supervising Engineer engaged by the Developer to prepare Approval Documentation for the Development Works and supervise the construction of the Development Works.
Technical Specification	Part of the contract documents for the contracting of civil works and defines details of the Development Works. The specification shall include the general conditions of contract as well and the specific job specification for the Development Works. This specification is to be submitted to ASTC with the design documentation for approval by an Authorised Officer of ASTC.
WSUD	Water sensitive urban design
Whole-of-Life Costs	Includes life cycle costs calculated by a costing Engineer or a Quantity Surveyor.
Worksafe NT	NT Government agency responsible for implementing NT <i>Workplace Health and Safety Act</i> and the NT <i>Workplace Health and Safety Regulations</i> .

## 2 IDENTIFICATION OF DEVELOPMENT TYPES

The following Flow Chart (Figure 1) has been prepared to assist in understanding the approvals needed from ASTC in relation to any proposed works in the ASTC area.

This Flow Chart is to be read in conjunction with the descriptions set out in Part 2.1 to Part 2.9

Figure 1: Working on Council Controlled Land Flow Chart



## 2.1 Minor Works

Minor Works are works that are undertaken on land under the control of ASTC and are of a minor nature. All Minor Works on ASTC land requires a Permit to Work within an ASTC Road Reserve (i.e. ASTC Working in a Road Reserve Permit) prior to commencing construction. Minor Works may be required as a condition of a Development Permit and in that instance they still require an ASTC Working in a Road Reserve Permit. Typical works within an existing road reserve or other land that is under the care and control of Council include:

- Residential driveway crossover construction or re-construction;
- Lot drainage connection and/or repair to ASTC stormwater drainage system (e.g. kerb and gutter);
- Water connection, service or mains repair (where the water main is located within the road verge);
- Sewer connection, service or mains repair (where the sewer main is in the street or in the verge);
- Electrical connection, service or mains repair (where the mains are constructed in the verge);
- Telecommunications connection (where the cables are buried in the verge);
- Verge development (e.g. planting of trees or installation of any other landscaping treatments other than bare earth paths); or
- Other minor works (e.g. erection of a sign)

The works are to be undertaken in accordance with a valid ASTC Working in a Road Reserve Permit and the standards set out in the ASTC Working in a Road Reserve Permit guides, as appropriate. A copy of the ASTC Working in a Road Reserve Permit application form and ASTC Working in a Road Reserve Permit guides are available from the ASTC website.

Application for ASTC approval will require adherence to the process outlined in Section 3.5 of these Requirements (i.e. ASTC Working in a Road Reserve Permit process for Minor Works).

## 2.2 Single Dwelling Residential Development

This type of development typically involves constructing a dwelling on cleared land in an urban area or rural area but might also mean alterations and additions to an existing dwelling and would generally require ASTC approval in relation to the following matters:

- Construction of a new driveway crossover or upgrade of an existing driveway. The driveway will need to be located to allow safe access to and egress from a public road and not interfere with any surface of underground infrastructure;
- The floor level of the dwelling should be designed to allow a complying driveway to conform to the profile of the existing road verge, as set out in these Requirements;
- Construction of a stormwater drainage connection to the ASTC stormwater drainage system (e.g. kerb and gutter). The stormwater connection will need to be sized to accommodate runoff, as required by AS/NZS3500 and the Building Code of Australia (BCA);

ASTC approval of Working within a Road Reserve Permit will require adherence to the process outlined in Section 3.5 of these Requirements (i.e. ASTC Working in a Road Reserve Permit processes).

## **2.3 Multiple Dwelling Residential Development**

This type of Development typically involves the provision of multiple dwelling units on a single allotment and includes duplex and unit blocks on vacant land or redevelopment of an existing site, and is generally located in urban areas, on land that has been zoned for multiple dwellings, or medium density residential, or higher intensity uses and would generally require ASTC approval in relation to the following matters:

- Driveway crossover - location for sight lines, width for ease of access, shape to conform with profile of the road verge; construction materials for maintenance; and impact on existing on-street parking and on new on-street car parking requirements
- Connection to ASTC stormwater drainage system (usually kerb and gutter but sometimes requires connection to the sub-surface system of pits and pipes) is to be designed using the provisions of Australian Rainfall and Runoff (ARR) to meet the minimum requirements of these Requirements;
- The provision of any public open space resulting from the Development;
- The provision of, or upgrading of any public lighting necessary to accommodate the proposed Development; and
- The provision of, or upgrading of, a footpath / cycle path network to the frontage of the Development Site.

ASTC approval of the Development Works will require adherence to the process outlined in Section 3.5 of these Requirements (i.e. ASTC Working in a Road Reserve Permit processes).

## **2.4 Commercial Property Development**

This type of development typically involves development occurring in a Commercial or Tourist Commercial zone, as described in the NT Planning Scheme, and can be Development on vacant land or redevelopment of existing developed areas and would generally require ASTC approval in relation to the following matters:

- Driveway crossover - sight lines; width for ease of access; shape to conform with profile of the road verge; and construction materials for maintenance; impact on existing on-street parking and on new on-street car parking requirements
- Verge development - full verge paving matched with the existing colour palate is required in the Central Business zone. In other areas concrete footpath and paving is required to the full extent of the frontage. Verge development should comply with the requirements of AS1428 (i.e. provide mobility access for disabled people);
- Connection to ASTC stormwater drainage system usually requires connection to the sub-surface system of pits and pipes and is to be designed using the provisions of ARR and AS/NZS3500 in order to meet the minimum requirements of these Requirements;
- The provision of any landscaping treatments and road furniture in the road reserve;



- Alterations to existing road layout, foot path or cycle path adjacent to Development Site; and
- Upgrade of any public lighting necessary to accommodate the proposed Development.

ASTC approval will require adherence to the process outlined in Section 3.5 of these Requirements (i.e. ASTC Working in a Road Reserve Permit processes).

## 2.5 Industrial Development

This type of development generally occurs on land that is located within the General Industry or Light Industry zones, as described in the NT Planning Scheme, and can be on vacant land or redevelopment of an existing industrial development and would generally require ASTC approval in relation to the following matters:

- Driveway location, width and shape to suit the requirements of AS/NZS2890.2 and Austroads to provide for the turning movements of the types of vehicles expected to service the development. If an existing constructed carriageway in the road reserve needs to be widened to accommodate a new development, then approval for that work will form part of the approval for the entire development; impact on existing on-street parking and on new on-street car parking requirements
- Verge development - construction of a concrete foot path / cycle path, or upgrading of an existing foot path / cycle path is required to the full frontage of the Development Site;
- Connection to ASTC stormwater drainage system usually requires connection to sub-surface pits and pipes and is to be designed using the provisions of AS/NZS3500 and ARR in order to meet the minimum requirements of these Requirements;
- Provision of any plants or road furniture, including signage, in the road reserve.

ASTC approval will require adherence to the process outlined in Section 3.5 of these Requirements (i.e. ASTC Working in a Road Reserve Permit processes).

## 2.6 Exceptional Development / Specific Use Development

These types of development can be any type of development, regardless of whether it is defined in, or complies with, the NT Planning Scheme and are only permitted by the special approval of the Minister for Lands and Planning (“the Minister”), as the Relevant Authority under the NT *Planning Act*. These types of development often includes elements noted elsewhere in these Requirements and would generally require ASTC approval in relation to matters described above, as also being applicable to other types of Development.

Matters that generally require ASTC approval are as follows:

- Designing and constructing new roads and intersections and foot paths / cycle paths and/or widening or upgrading of existing constructed roads and foot paths / cycle paths, road verges, and the like. This work may include the construction of traffic lights or roundabouts, as necessary, to cater for increased traffic;
- Designing and constructing all new stormwater drainage systems needed to service the Development, as well as any alteration or upgrade to, or connection with, the

existing ASTC stormwater drainage system to ensure that the downstream capacity of the stormwater drainage system is not exceeded; and

- The lighting requirements for any future public roads that are to be under the care and control of ASTC, including foot paths / cycle paths and areas of public open space, shall be as appropriate to ensure the safety of pedestrian and/or vehicular traffic either associated with the development, or impacted by the Development, by the provision of lighting to ASTC design standards and PWC electrical standards.

ASTC approval will require adherence to the process outlined in Section 3.5 of these Requirements (i.e. ASTC Working in a Road Reserve Permit processes).

## **2.7 Greenfield Subdivisions**

This type of Development is taken to be on land that has not been previously developed, or not to any significant extent, and generally takes the form of new residential or industrial estates although it can occur as an isolated commercial or industrial development on previously undeveloped land. As this type of Development generally occurs beyond existing developed areas, it may be necessary for the Developer to provide all of the infrastructure that would be necessary to service the highest intensity use or uses that the proposed zoning would allow and would generally require ASTC approval in relation to the following matters:

- The provision of new roads, including foot paths and/or cycle paths, to the standard required by the Development Permit / ASTC Working in a Road Reserve Permit, as well as upgrading any connecting roads under the care and control of ASTC;
- The provision of stormwater drainage, as well as the connection to and upgrading of any existing ASTC stormwater drainage system to ensure that the downstream capacity of the stormwater drainage system is not exceeded;
- The lighting requirements for any future public roads that are to be under the care and control of ASTC, including foot paths and/or cycle paths and areas of public open space, shall be as appropriate to ensure the safety of pedestrian and/or vehicular traffic either associated with the development, or impacted by the development, by the provision of lighting to ASTC design standards and PWC electrical standards.
- Upgrade or provision of infrastructure may extend beyond the development boundary if there is inadequate or inappropriate infrastructure leading to the proposed development site.

ASTC approval will require adherence to the process outlined in Section 3.5 of these Requirements (i.e. ASTC Working in a Road Reserve Permit processes).

## **2.8 Other Subdivisional Developments**

This type of Development typically involves the re-subdivision of land that has already been developed and may include the subdivision or consolidation of residential, commercial or industrial land. This type of Development may require the provision new or upgraded roads, stormwater drainage, public lighting, parks, etc. Where existing infrastructure has been provided to a lesser standard than the Deemed-to-Satisfy standards set out in these Requirements, then the Developer will be required to upgrade existing infrastructure and would generally require ASTC approval in relation to the following matters:

- Road widening to the ultimate road width and provision of kerb and gutter, if necessary, on the Development Site and/or upgrading of the road and verges including the provision of foot path / cycle path and verge reshaping, as necessary;
- Construction of new stormwater drainage infrastructure and connection to the existing ASTC stormwater system. Upgrading of the adjacent stormwater may be required to accommodate additional stormwater runoff. The design of stormwater detention / retention systems may be considered an acceptable alternative to ensure that the downstream capacity of the stormwater drainage system is not exceeded; and
- Upgrading of any street lighting or lighting of any other Public Place to bring the lighting for the proposed Development up to current ASTC standards.

ASTC approval will require adherence to the process outlined in Section 3.5.2 of these Requirements (i.e. ASTC Working in a Road Reserve Permit processes).

## **2.9 Planning Scheme Amendment (e.g. spot rezoning)**

A planning scheme amendment is only permitted by the special approval of the Minister for Lands Planning (“the Minister”), as the Relevant Authority under the NT *Planning Act* because it has the potential to change the NT *Planning Scheme* zoning provisions. This is not a type of Development per se however proposed Planning Scheme Amendments are generally referred to the Local Authority for comment because higher intensity development has potential to impact on the capacity of existing infrastructure.

Applications for amendments to the NT Planning Scheme are usually to facilitate a shift from lower intensity to higher intensity land uses. Denser development usually results in increased traffic flows and/or stormwater volumes and may exceed the capacity of existing infrastructure and would generally require ASTC approval in relation to the following matters:

- Roads that provide access to the site will need to be assessed in the light of the increased traffic flows and pedestrian usage from the development and upgraded to accommodate road traffic and pedestrian volumes, as appropriate. ASTC will consider the highest density use to which newly rezoned land could be put.
- Stormwater flows will need to be assessed for the increased runoff potential. Where it can be shown that the existing ASTC stormwater drainage system is inadequate to manage increased stormwater flow, it may be necessary to upgrade the existing system and/or provide on-site detention / retention structures to limit the resulting runoff to pre-development flows;
- The Developer is responsible for providing engineering advice or engineering designs to show that the stormwater drainage resulting from the development would not create a nuisance to other landowners or a hazard to public safety. This would mean the design of sufficient capacity in the stormwater drainage infrastructure to ensure non-worsening of flooding of any existing residential allotments and emergency access in a 1 in 100 year storm event along all public roads in a new residential subdivision.
- Flooding of any residential allotments and emergency access in a 1 in 100 year storm event along all public roads in a new residential subdivision.

A Planning Scheme Amendment, in and of itself, may not require any Development Works to be undertaken but may be conditioned to require work external to the site (e.g. headworks) to be constructed as part of the future development of the Development Site.

If external works are required as part a rezoning proposal but the Developer is disinclined, for whatever reason, to construct those works until a later development stage then ASTC may require an External Works Bond to be lodged as part of any ASTC acknowledgement of the rezoning proposal.

It may also be that the Minister will consider the views of the Local Authority in the context of any future development application for civil works, which will have to address issues relating to the connection with, or impact upon, ASTC infrastructure.

## **3 GENERAL REQUIREMENTS AND APPROVALS**

### **3.1 Administrative Provisions**

#### **3.1.1 Developer Insurance**

The Developer is responsible for any and all damage to existing facilities, services and structures, whether in public or private ownership, resulting from the Development Works. Evidence of appropriate insurance must be demonstrated prior to the commencement of any Development Works. The Developer is required to maintain appropriate insurance until the Development Works are completed, prior to release of the Development Off-maintenance.

The Developer must be in a position to claim against sufficient public liability insurance to cover the perceived risk of undertaking the Development, with a minimum amount of \$20,000,000.00 (i.e. \$20 million) deemed acceptable. The insurance is to provide indemnity for the parties undertaking the development, as well as to specifically indemnify ASTC against any public liability claim that may arise from the Development.

#### **3.1.1 Developer to Engage Suitably Qualified Consultants**

For all Development, other than Minor Works (see Section 2.1) and Single Dwelling Residential Development (see Section 2.2), the Developer shall engage a Certifying Engineer who is a Chartered Professional Engineer with suitable experience to:

- design the Development and/or co-ordinate professional designers to produce a consolidated package of the Development design (i.e. Design Documentation);
- provide engineering and other certification, as required of the Design Documentation;
- manage the Development Works, including any variations that may result from the undertaking of Development Works;
- supervise the construction of the Development Works; and
- provide certification Development Works and provide certified As-constructed plans and details of the Development Works, as-constructed.

The Developer shall nominate the Certifying Engineer in writing to ASTC, together with details of public liability and/or professional indemnity insurance to indemnify ASTC against any liability arising from the Development.

### 3.1.2 Council Approval of Certifying Engineer

Where a Certifying Engineer has been appointed and engaged, ASTC may require the Developer to advise in writing that the Certifying Engineer:

- Hold membership of a professional industry organisation and be a Chartered Professional Engineer;
- hold relevant qualifications and have recent relevant professional experience in subdivision construction and/or other Development Works;
- possess professional indemnity insurance, either individually or as part of an organisation, and what amount of insurance is adequate for the perceived risk associated with the Development Works;
- have no real or perceived conflict of interest with the Development Works and have allowed adequate time to complete the Development Works to the required standards.

ASTC reserves the right to consider the criteria in relation to each individually nominated Certifying Engineer and may require the provision of additional details to indicate that an individual is suitably qualified and experienced to supervise and/or advise on the proposed Development Works. ASTC reserves the right to nominate any conditions upon which ASTC will accept advice and/or certification from a particular Certifying Engineer.

### 3.1.3 Upgrade of Existing Roads and Stormwater Drainage

Where the Development is designed to connect to existing ASTC infrastructure, the Developer shall undertake an assessment of the existing capacity of ASTC infrastructure. This assessment shall be submitted for ASTC review as part of the design review process for approval and acceptance.

If existing ASTC infrastructure is found to have inadequate capacity or require upgrade, the developer will be required to undertake the design and procurement for the construction at their cost, subject to ASTC approval.

## **3.2 Council Fees for Development Assessment**

### 3.2.1 General

The ASTC Municipal Plan, as amended from time to time, sets out the various Development Assessment Fees, which include the fees applicable for assessment and approval of plans, fees applicable for inspection and acceptance of construction works and fees applicable for significant changes to detailed design drawings under review.

### 3.2.2 Development Assessment, Approval & Inspection Costs

A Development Assessment Fee and the corresponding Inspection Fees for single dwellings, multiple dwellings, subdivisions/ units titling, commercial/ industrial developments and community facilities allows for the full cost of assessing and approving the design of proposed Development Works to be recouped from the Developer.

The fees have been averaged out within the various development categories, depending on the complexity criteria, for simplicity of use for both the Developer and ASTC.

The Development Approval Fee is listed in the ASTC Municipal Plan (as amended) and is decided by Council as part of the annual budget process and is reviewed quarterly and can be found on the ASTC website.

The fee payable in each case, is the fee that is listed in the ASTC Municipal Plan for the financial year at the date that the Development Permit is issued.

Any development requiring re-assessment of documents (e.g. Concept design detailed engineering document etc.) after assessment of original documents has commenced or completed may attract additional fees as per the hourly rate set out in the ASTC Municipal Plan (as amended). This is to ensure all costs incurred by Council for the purposes of facilitating development is recovered from the Developer.

### **3.3 ASTC Permits and Procedures**

#### **3.3.1 Permit to work within ASTC Road Reserve**

A “Permit to Work within Alice Springs Town Council Road Reserve” is required for any works that are to be undertaken within an existing road reserve that is under the care and control of ASTC. Any application for a Permit to work within ASTC Road Reserve, for work that is within a road, road reserve or other Public Place that is under the care and control of Council, must be accompanied by the payment of the standard fee, as listed in the ASTC Municipal Plan (as amended).

#### **3.3.2 Greenfield Subdivisions and Work on Future Drainage Reserves/Easements**

Any and all proposed Development Works on proposed roads, road reserves, public open space and drains, which are to become the responsibility of ASTC, will require formal approval of design drawings by an Authorised Officer of ASTC by way of written approval, with or without conditions, and formally endorsed design drawings issued “for-construction”, along with any other Design Documentation, making up the Approved Documents.

Connections to existing roads and/or road reserves / foot paths / cycle paths / road drainage systems and, where the proposed works include the provision of driveways to future allotments, footpaths / cycle paths or verge development, then this work is to be generally constructed to the standards applied in the relevant ASTC Working in a Road Reserve Permit guide(s).

### **3.4 Standard Development Conditions**

As a Local Authority, responding to a referral of a development permit application from the DCA, ASTC will generally require standard conditions to be applied to any Development Permit issued. Standard conditions can cover uncontrolled stormwater, which can lead to erosion and sedimentation issues, connections to the ASTC stormwater drainage infrastructure, linkages with footpaths and cycle paths, the construction of driveway crossovers, sight line considerations on public roads, bin placement areas on public roads, signage that is in view of a Public Place and off-street car parking etc., insofar as it relates to on-street car parking or other areas that are under the care and control of Council.

## 3.5 Plan Approval Process

All Development Works and/or Minor Works, in areas that are under the care and control of Council, require written approval by an Authorised Officer of ASTC. ASTC approval will also require adherence to the ASTC Working in a Road Reserve Permit process.

## 3.6 Approval of Works and Permitted Uses

### 3.6.1 Approval of Minor Works

Application for ASTC approval of Minor Works (see Section 2.1), and permitted uses, usually associated with Single Dwelling Residential Development (see Section 2.2), and other works associated with a Public Place, other than works carried out by Council, are to be made on the ASTC Working in a Road Reserve Permit application form, in accordance with the standards applied in the guide(s) appropriate for the relevant works at that time, which can be obtained from the Alice Springs Town Council website.

### 3.6.2 Approval of Development other than Minor Works

All applications for approval of detailed design drawings for Development Works, other than Minor Works described in 3.5.1 above, shall be made on the “Design Documentation Approval Application Form” (see Appendix C) and shall be accompanied by one hard copy and one electronic copy of the following Documentation:

- A copy of the detailed design drawings issued “for-approval” or “for-construction”, including sediment and erosion control plans for all major stages of Development, signed as checked and approved for issue by the Project Manager / Superintendent
- A copy of the relevant specifications for the Development Works;
- A copy of the current Development Permit from the DCA;
- Stormwater design reports, including drainage calculations;
- Road design reports, including pavement design calculations;
- Certificates / approvals and copies of approved plans of other service authorities (i.e. PWC approved water reticulation design, PWC approved sewerage reticulation design, PWC approved power reticulation design and proposed telecommunications service locations);
- Geotechnical engineering and soil reports and recommendations;
- Concept verge and landscape design drawings for public open space;
- Any other details listed in these Requirements and specifically requested by ASTC (e.g. Sacred Site Clearance; Traffic Generation Report; Traffic Management Plan; Safety in Design Report etc.).
- Unconditional certification by a Chartered Professional Engineer stating that the design and associated documentation complies with all relevant Australian Standards, Guidelines and legislation.

Design approval will not be given unless it includes all of the above items and is accompanied by the Design Approval Fee. ASTC will assess the detailed design drawings,

along with the specification and, either approve the Design Documentation, or request amendments to be included on the detailed design drawings that are to be issued “for-construction”.

When ASTC is satisfied with the Design Documentation, the Developer shall submit two (2) hard copy sets of detailed design drawings marked “for-construction” for an Authorised Officer of ASTC to stamp and sign with “permission to use for construction purposes” and return one (1) set of signed plans together with a letter of approval setting out any conditions of approval.

ASTC approval of detailed design drawings does not in any way verify or accept responsibility for the technical adequacy of the drawings or the veracity of the Design Documentation, this responsibility remains with the Developer and/or Design Consultant / Project Manager. For subdivisional works the approval of the Design Documentation does not, in and of itself, constitute approval for the commencement of construction, which will require a Pre-start Meeting (see Appendix E).

### 3.6.3 Design Reports and Documentation for Subdivisional Development

In addition to detailed design drawings, the Design Documentation should include a report describing the intent, criteria, assumptions and considerations involved in the design that is to be submitted for approval by an Authorised Officer of ASTC as part of the Design Documentation. Any departure from the Deemed-to-Comply standards in these Requirements should be detailed and justified.

Design Documentation is required for all subdivisional development. The requirements for the preparation of Design Documentation are set out in Appendix D (i.e. Design Documentation Approval Checklist). Design Documentation must include but may not be limited to the following design elements:

- Road works (including pavement design), drainage, erosion control and associated site preparation works and earthworks;
- Development of verges and public open spaces as required;
- Footpaths and cycle paths;
- Street lighting levels;
- General security and site control;
- Proposed Traffic Movement Plans for all Development Works within or affecting existing roads and open space areas under the care and control of Council and for the general security of and site control;
- Any other associated works required under a Development Permit and/or as required by ASTC.

Landscape, environmental, erosion and sediment control works form an integral part of any subdivision Development and are to be designed to co-ordinate and integrate with other aspects of the subdivision design.



### 3.6.4 Construction Management Plan

A construction management plan, prepared by the contractor, is required to be provided to ASTC through the Certifying Engineer/Superintendent prior to the commencement of construction for approval. It is expected that the Certifying Engineer/Superintendent reviews this document for compliance with EPA, WorkSafe NT legislation and best practice requirements.

The Construction Management Plan may include the following:

- Traffic Management Plan
- Public Consultation
- Dilapidation Report
- Erosion and sediment control plans, and
- Proposed method of dust and noise control / monitoring
- Protection of existing infrastructure
- Constructions programme / hours of works
- Contact details for the Supervising Engineer / Project Manager / Civil Contractor

### 3.6.5 Specifications for New Roads and Public Open Space for Acceptance by ASTC

The Developer shall prepare a technical specification specific to the project for all subdivisional work to fully describe the standards for the supply of materials and the methods to be used during construction of the Development Works.

All Hold Point inspections are to be joint inspections between the Superintendent/Certifying Engineer, Civil Contractor and an Authorised Officer of ASTC. Witness point inspections may be deemed to be optional after consultation with the Superintendent / Certifying Engineer / Project Manager.

ASTC will attend Hold Point and Witness Point inspections, as listed in the specification and/or the Inspection and Testing Plan (see Table 18), or as otherwise advised at the Pre-start Meeting. The following criteria are to be used in conjunction with the DoI specification.

- Miscellaneous Provisions
  - All project notice boards or advertising signs for erection on-site will require an ASTC Working in a Road Reserve Permit
- Provision for Traffic
  - For the preparation and implementation of a Traffic Management Plan the provisions of the ASTC Working in a Road Reserve Permit guide(s) will take precedence over the DoI specification.
  - “Work-in-Progress” signs may be required for work within an existing road reserve, unless otherwise approved by ASTC as part of an ASTC Working in a Road Reserve Permit.
- Clearing
  - For any trees that are to be retained in Road Reserves or any other Public Place that is, or is to be, under the care and control of ASTC, the method of

protection is to be in accordance with AS4970 – *Protection of trees on development sites*;

- For any trees that are to be pruned in all future Road Reserves and any other Public Place that is, or is to be, under the care and control of ASTC the work shall be undertaken in accordance with AS4373 – *Pruning of Amenity Trees*;
  - Where soil is to be removed, as part of the Development Works, topsoil shall be stripped and stockpiled for re-use on-site (2.0 m maximum stockpile height) in accordance with AS3798 – *Guidelines on Earthworks for commercial and residential developments*;
  - The Developer is reminded to contact the Aboriginal Areas Protection Authority (AAPA) and or Heritage before any clearing or other civil works is undertaken on a Development Site.
- Earthworks
    - Haul routes that are used to remove excess material from site will require ASTC approval for the haul route, size of vehicles where they involve roads that are under the care and control of Council. A Dilapidation report on the haul route may be required.
    - Rock fill material is not to be used in future Road Reserves and Public Open Space areas that are to be under the care and control of ASTC.
  - Conformance Testing
    - Conformance testing shall be in accordance with Australian Standards / DIPL standard specification. This will be provided in a Technical Specification for ASTC approval.
  - Pavements and Shoulders
    - All road pavements are to be constructed with an approved pavement material.
  - Miscellaneous Concrete Works
    - Kerb and channel shall be “kerb and gutter” or “layback kerb & gutter” as set out in these Requirements and is to be placed in accordance with the provisions of AS2876 using minimum N25 – 20 mm aggregate concrete.
    - Foot paths shall have a S2 type (i.e. non-slip) finish and expansion joints are to be filled with bitumen impregnated expandable foam strip or other suitable proprietary filler material.
  - Drainage Works
    - Concrete pipes with diameter of 600 mm or less shall be rubber ring jointed, minimum class 4.
  - Road Furniture
    - All sign posts in concrete paved areas shall be constructed with a proprietary quick release post base approved by an Authorised Officer of ASTC with the top of the fitting set 40 mm above the surface.
  - Ducting and Conduits

- For Single Dwelling Residential Developments only, the Developer shall provide galvanised rectangular hollow steel (RHS) conduits at one or both property boundaries extending from the kerb face to 300 mm inside the property.
- For all other Development, the stormwater discharge shall be directly to the sub-surface drainage system, where possible, with reinforced concrete pipe (RCP). ASTC would generally expect the design to be prepared by an NT-registered plumber or a suitably qualified professional stormwater engineer;
- Street Lighting
  - The Developer shall provide sufficient lighting to achieve the minimum lighting standards set out in these Requirements (Refer Table 13).
- Thrust Boring
  - Any application for approval for thrust boring is to be made at least ten (10) working days prior to the intended start date to allow time for the notice of approval to be processed.

### 3.6.6 Commencement of Construction for Subdivisional Developments

No work shall commence on the Development Works for new subdivisions until the detailed design drawings and specifications for all Development Works have been approved by an Authorised Officer of ASTC and a Pre-start Meeting has been held on-site with the Certifying Engineer, Project Manager, Civil Contractor and an Authorised Officer of ASTC.

### 3.6.7 As-Constructed Survey

A detailed engineering As-Constructed survey shall be undertaken by a licenced surveyor and shall be provided in PDF and DWG format. The survey is required to be submitted to ASTC prior to the giving of Part 5 Clearance

## 3.7 Maintenance Security Deposit and Construction Deposit

### 3.7.1 Form of Deposit

Where a deposit is required to be lodged with ASTC during the process of construction of subdivision and other Development Works that require the approval of an Authorised Officer of ASTC, the deposit shall be in the form of an Un-Conditional Bank Guarantee from a major banking organisation in Australia. Un-Conditional Bank Guarantees are required for the duration of the Development Works. They will require a written release from an Authorised Officer of ASTC before they can be cancelled.

### 3.7.2 Construction Deposits

Where the proposed Development Works have the potential to cause damage to existing ASTC infrastructure or cause hazardous situations to occur in existing ASTC infrastructure a Construction Deposit equal to 5% of the estimated value of the Development Works is to be lodged with ASTC prior to issue of the formal approval of the detailed Design Documentation for the proposed Development Works.

The Construction Deposit is required as surety against the Developer ceasing works and causing damage to ASTC owned infrastructure, the neglect of partly constructed works that will become the responsibility of ASTC or for any instances where emergency situations arise and the developer does not respond to in a timely manner.

Except for emergencies, before all or any part of the Construction Deposit is expended, ASTC will give formal advice to the developer setting out the action needed and the time period in which the matter needs correction.

In an emergency ASTC will make the situation safe for vehicular and pedestrian traffic. ASTC may claim all or part of the Construction Deposit as a result of such action and will advise the Developer of the action taken and any further works needed and provide a statement of costs. The full value of the Construction Deposit will need to be restored within 14 days of the receipt of such formal advice from ASTC.

The Construction Deposit will be maintained until the Development Works are accepted "On-Maintenance" by an Authorised Officer of ASTC, following a satisfactory "On-Maintenance" inspection. ASTC will only accept responsibility for public infrastructure "On-Maintenance" after an Authorised Officer of ASTC has given advice in respect of Part 5 considerations (i.e. advice to the DCA relating to the issuance of a Certificate of Compliance in respect of ASTC conditions on a Development Permit).

As soon as reasonably practicable after the Development Works are accepted "On-Maintenance", an Authorised Officer of ASTC may approve a reduction in the value of the Construction Deposit from 5% to 2.5% of the value of Development Works (i.e. total construction costs) and the remainder will be retained by ASTC as the Maintenance Deposit.

### 3.7.3 Maintenance Deposit

A Maintenance Deposit equal to 5% of the value of the Development Works (i.e. construction costs) will need to be lodged with ASTC prior to the works being accepted "On-Maintenance" and will be held for the entire period that the Development Works are "On-Maintenance" (i.e. defects liability period) (note: 24 months).

The purpose of the Maintenance Deposit is to ensure the rapid repair of any aspects of the Development Works for which the Developer is responsible that fail in service during the On-maintenance period. The Developer will be expected to inspect the Development Works from time to time to identify areas that need repair and to organise the repair in a timely manner.

In addition, an Authorised Officer of ASTC will undertake regular audit Inspections during the period that the Development Works are "On-Maintenance" and will advise the Developer of any matters that require repair and a timeframe for the repairs to be completed.

Where a significant component of the Development Works require repair ASTC will need to be advised and will notify the Developer of any inspection and test requirement that may be necessary during the repair to ensure the quality of the repair work. ASTC may require the repaired works to be covered by an extension of the Maintenance Deposit for a period of 24 months following the repair (i.e. extended defects liability period).

The Maintenance Deposit will be released by an Authorised Officer of ASTC at the end of the defects liability period that the Development Works are “On-Maintenance”, after a satisfactory “Off-Maintenance” inspection, at which point any Bank Guarantee can be cancelled.

### **3.8 Defects and Omissions**

If works are deemed to have reached practical completion a minor defects and omissions will be compiled prior to the issue of a Part 5 Clearance.

Entering into an agreement to bond the defects and omissions for the issuing of Part 5 Clearance is to be at the absolute discretion of ASTC. The value of the bond shall be 120% of the value of the unfinished works/defect rectification cost as agreed to by ASTC. The Bank Guarantee shall be released following acceptance by ASTC of the completed works/rectified defect.

### **3.9 Part 5 Clearance**

When all conditions on the Development Permit that are listed for completion to ASTC requirements are complete, an Authorised Officer of ASTC will write to the DCA with advice outlining the extent to which ASTC conditions have been complied with. This advice is called Part 5 Clearance because it relates to a Certificate of Compliance issued under part 5 of the *Planning Act*.

### **3.10 On-Maintenance Requirements**

Where detailed design drawings and specifications (i.e. Design Documentation) for the Development Works have been approved by an Authorised Officer of ASTC, the Development Works will need to be inspected and any defects and/or omissions corrected

The following information will need to be provided to ASTC and approved by an Authorised Officer of ASTC before the Development Works will be accepted On-Maintenance:

- A full set of job testing records for the Development Works, in accordance with these Requirements, or the approved Job Specification (if different) that includes:
  - Earthworks testing (if any);
  - Trench backfilling of stormwater drainage lines;
  - Sub-grade testing;
  - Sub-base pavement testing (if any);
  - Base course pavement;
  - AC pavement testing;
- Lodgement of a Maintenance Deposit as per section 3.6.3;
- A full set of As-Constructed Survey;
- Unconditional Certification from the Certifying Engineer (Chartered Professional Engineer Qualified) that the Development Works approved by ASTC have been constructed in accordance with the Approval Documentation; and that it complies with all Australian Standards and all respective legislative requirements.

- A joint inspection of the works between ASTC, the Project Manager / Superintendent and the Civil Contractor to list any work for correction/adjustment, and, if necessary, to confirm the completion of the Development Works (note: ASTC will issue written advice at the completion of the On-Maintenance site inspection);
- A completed copy of the On-Maintenance Process Checklist (Appendix E);
- A completed copy of the On-Maintenance Site Inspection Checklist (Appendix G);
- A formal written request that the works to be accepted On-Maintenance.
- Any other documents deemed necessary for the acceptance of works by ASTC

### **3.11 Off Maintenance Certificate**

At the end of the DLP a further inspection shall be held with the Developer, to determine satisfactory performance of Council assets. If Council is reasonably satisfied with this performance an Off-Maintenance Certificate will be issued and the Maintenance Deposit shall be returned.

## **4.0 SPECIFIC REQUIREMENTS**

### **4.1 Street and Place Names**

The Developer shall ensure that the names for all streets and roads, places and parks for the development are approved by Council and the Place Names Committee for the Northern Territory (i.e. "Place Names Committee").

The Developer is to liaise with Council and make submissions to the Place Names Committee at the planning stage of the Development. Proposed place names are submitted by the Place Names Committee to ASTC for advice / comment. After comment by ASTC, the Place Names Committee will decide the names and advise all relevant parties.

### **4.2 Roads Hierarchy**

#### **4.2.1 General**

Planning and traffic engineering practices for subdivision layouts generally involve the classification of roads into a series of categories depending upon function. A road hierarchy needs to be established for any proposed development to allow for the safe and orderly movement of vehicles, cyclists and pedestrians within, across and between roads. The road network for the Municipality of Alice Springs consists of a defined road hierarchy and is generally fixed in relation to any proposed works.

Developers are required to match into the existing road network with consideration of the proposed use and traffic patterns expected to be generated by the Development. All new roads shall be assessed by ASTC, based on its interim and future functionality, and the level of road hierarchy shall be determined by an Authorised Officer of ASTC.

ASTC generally uses the following road hierarchy:

- Urban Roads
  - Urban Residential Cul-de-sac

- Urban Residential Access Roads
- Urban Collector Roads
- Urban Arterial Roads
- Rural Roads
  - Rural Residential Cul-de-sac
  - Rural Residential Access Road
  - Rural Residential Collector
  - Rural Residential Arterial Road
  - Rural Living Cul-de-sac
  - Rural Living Access
  - Rural Living Collector
  - Rural Living Arterial Road
  - Rural Cul-de-sac
  - Rural Access
  - Rural Collector
  - Rural Arterial Road
- Industrial Roads
  - Industrial Cul de sac
  - Industrial Access Road
  - Industrial Collector Road
- Retail / Commercial Roads
  - Retail / Commercial Cul-de-sac
  - Retail / Commercial Access
  - Retail / Commercial Collector
  - Central Business Access

New roads are to be designed to conform to the road classification criteria in Table 1.

#### 4.2.2 Classification of Roads in New Subdivisions

All new roads within the Municipality of Alice Springs that are to be under the care and control of Council, shall be classified in terms of the Road Hierarchy (see Section 4.2.1) taking to account the ultimate developed capability of the land in the vicinity of the Development using existing or proposed zone(s) in the NT Planning Scheme.

Table 1: Classification of Roads

Road Type	Max Number of Lots	Max Length (m)	Parking	Concrete Foot Path	Cycle Path / Lane	Kerb to Kerb to (m)	Reserve Width (m)	Kerb/Edge	Minimum Verge Width (m)	Verge Crossover	Notes
<u>Urban Roads</u>											
Cul de sac	10	200	On Road	1.5 m on one side <sup>8</sup>	n/a	7.5	13.5	Layback K&G <sup>1</sup>	3.0	Std Drawing	Note 2, 6 & 7
Access	60	1 200	On Road	1.5 m on one side <sup>8</sup>	n/a	9.0	15.0	Layback K&G <sup>1</sup>	3.0	Std Drawing	Note 2 & 7
Collector	300	As Approved	On Road	1.5 m on one side <sup>8</sup>	3 m one side	11.0	20.0	Standard K&G <sup>1</sup>	4.5	Std Drawing	Note 2 & 7
Arterial	n/a	As Approved	On Road	1.5 m on one side <sup>8</sup>	3 m one side	13.0	22.0	Standard K&G <sup>1</sup>	4.5	Std Drawing	As Approved
<u>Rural Residential Roads</u>											
Cul de sac	5	500	On Road	1.5 m on one side	n/a	7.5	16.5	Layback K&G	4.5	Std Drawing	Note 6
Access	60	6 000	On Road	1.5 m on one side	n/a	9.0	18.0	Layback K&G	4.5	Std Drawing	
Collector	300	As Approved	On Road	1.5 m on one side	3 m one side	11.0	20.0	Standard K&G	4.5	Std Drawing	
Arterial	n/a	As Approved	Limited	1.5 m on one side	3 m one side	13.0	22.0	Standard K&G	4.5	Std Drawing	
<u>Rural Living Roads</u>											
Cul de sac	5	500	On Road	1.5 m on one side	n/a	7.5	16.5	Layback K&G	4.5	Std Drawing	Note 6
Access	60	6 000	On Road	1.5 m on one side	n/a	9.0	18.0	Layback K&G	4.5	Std Drawing	
Collector	300	As Approved	On Road	Note 3	3 m one side	11.0	23.0	Table-drain – Note 4	6.0	Std Drawing	
Arterial	n/a	As Approved	Limited	Note 3	3 m one side	13.0	25.0	Table-drain – Note 4	6.0	Std Drawing	
<u>Rural Roads</u>											
Cul de sac	5	1 000	On lot	Note 3	n/a	8.0 m - Note 5	22.0 Min	Table-drain – Note 4	5.5	Std Drawing	
Access	60	30 000	On Lot	Note 3	n/a	11.0 m - Note 5	25.0 Min	Table-drain - Note 4	5.5	Std Drawing	



Collector	300	As Approved	On Lot	Note 3	n/a	11.0 m - Note 5	25.0 Min	Table-drain – Note 4	5.5	Std Drawing	
Arterial	n/a	As Approved	Limited	Limited	Limited	11.0 m - Note 5	25.0 Min	Table-drain – Note 4	5.5	Std Drawing	

Notes

1. *Standard kerb and gutter (K&G) is required to the frontage of all Public Open Space areas*
2. *Land abutting Multi-residential, or land zoned Tourist Commercial or Commercial adjacent road is to be classified as a Collector Road*
3. *1.8 m wide corridor both sides, adjacent to the boundary, formed & compacted to 90% MMDD*
4. *Invert of Table Drain both Sides is to be not less than 300 mm below shoulder*
5. *Provide 1.5 m wide sealed shoulder both sides on rural roads*
6. *The use of cul-de-sac is to be limited and used only where there are spatial and/or topography limitations preclude the use of other layouts*
7. *Provide full verge paving, suitable for disabled access, to the full frontage of all business*
8. *In CB, C and TC zones the entire verge is to be paved suitable for disabled access with threshold ramp to be inside the property boundary*

## 4.3 Road Cross-Section Elements

### 4.3.1 General

Typical road cross-sections for urban residential, rural residential and commercial / industrial roads are set out in Standard Drawing ASTC - 100 while rural and rural living roads are set out in Standard Drawing ASTC - 101.

Standard Drawing ASTC - 102 shows the preferred location for the various services that may be installed in the standard road verge. Where other layouts of services are needed then the road verge (and total road reserve width) may need to be widened to accommodate all of the services.

### 4.3.2 Road Verges

Road verge widths, for all new roads within the Municipality of Alice Springs that are to be under the care and control of Council, are dependent upon footpath and service corridors and access requirements and the verge is to be a minimum as set out in these Requirements but may need to be widened if it is necessary to accommodate additional services.

The objects and intents of the *Disability Discrimination Act* and the requirements of mobility access standards apply.

### 4.3.3 Kerb and Gutter

Kerb and gutter profiles for all kerbed roads that are or are to be under the care and control of Council, are to be constructed in accordance with the detail shown on the Standard Drawing ASTC - 106. Kerb and gutter may be constructed of “machine placed concrete” (i.e. extruded kerbing) and shall be built to the tolerances set out as set out in Australian Standard AS2876. The kerb and gutter profile required for each road classification are set out in Table 1.

### 4.3.4 Road Surfacing

All new roads within the Municipality of Alice Springs, that are to be under the care and control of ASTC, are to be surfaced with dense graded Asphaltic Concrete (AC) to the requirements, as set out in Table 2 Any base course preparation that requires asphalt depths greater than the acceptable range, as set out in Table 2 are to be corrected with an approved asphalt corrector course prior to the laying of the final surface.

Table 2: Road Surfacing Details

Road Classification	Specification	Minimum Compacted Depth (mm)
Urban Residential Cul-de-sac and Access	DG10	30
Urban Collector and Arterial	DG14	40

Road Classification	Specification	Minimum Compacted Depth (mm)
Rural Residential Cul-de-sac and Access	DG10	30
Rural Collector and Arterial	DG14	40
Industrial Access and Collector	DG14	40
Rural Living / Rural Cul-de-sac and Access	DG10	30
Rural Living / Rural Collector and Arterial	DG14	40
<i>Note: DG = Dense Graded Asphalt</i>		

## 4.4 Road Geometry

### 4.4.1 General requirements

Roads are to be designed for traffic speeds set out in Section 4.5 of these Requirements and the Developer is expected to use the geometrical layout of the roads to help encourage traffic usage of the roads to the posted speeds. Where the Development relies on access through existing roads it may be necessary to control the speed in the existing road and retro-fitting of traffic calming devices may be required as part of the development.

### 4.4.2 Road Alignment Elements

#### 4.4.2.1 Horizontal Curves on the Road Alignment

Minimum horizontal curve radii for road alignments shall comply with the following:

- All road curves, on urban and rural roads, with adverse cross-fall shall be designed with a minimum radii that complies with the requirements of the current version of Austroads Part 3 – Geometric Design
- All urban and rural residential roads with a hierarchy status of collector or lesser are to be designed so that the curve radius on the centreline to achieve adequate Approach Sight Distance (ASD) to driveways and intersections, in accordance with the most current version of Austroads Part 4 – Intersections at Grade.

As a general requirement deflection angle between 35° and 90° are to be avoided.

#### 4.4.2.2 Intersection Turning Criteria

Intersections are to be designed and constructed in accordance with Table 3.

Table 3: Intersection Turning Criteria

<u>Intersecting Roads</u>	<u>Design Vehicle</u>	<u>Checking Vehicle</u>	<u>Minimum Radii</u> <u>(Kerb/Asphalt Seal)</u>
<b>Urban Residential &amp; Rural Residential Roads</b>			
Arterial / Arterial	Single articulated vehicle (19 m) - turn radius 15 m	B-double (25 m) – turn radius 15 m	To suit turning movements
Arterial / Collector	Single Articulated Vehicle (19 m) - turn radius 15 m.	B-double (25 m) - turn radius 15 m.	15 m
Arterial / Residential	Service Vehicle (8.8 m) - turn radius 12.5m	Single unit truck/bus (12.5 m) - turn radius 12.5 m	12.5 m
Collector / Collector	Single unit truck/bus (12.5 m) - turn radius 12.5 m	Single articulated (19 m) - turn radius 15 m	12.5 m
Collector / Residential	Service Vehicle (8.8 m) - turn radius 9 m	Single unit truck/bus (12.5 m) – turn radius 12.5 m	10 m
Residential / Residential	Service vehicle (8.8 m) - turn radius 9 m	Single unit truck/bus (12.5 m) - turn radius 12.5 m	10 m
<b>Rural Living Roads</b>			
Arterial / Arterial	Single articulated vehicle (19 m) - turn radius 15 m	B-double (25 m) - turn radius 15 m	To suit turning movements
Arterial / Collector	Single Articulated Vehicle (19 m) - turn radius 15 m	B-double (25 m) - turn radius 15 m	15 m
Arterial / Access	Single unit truck/bus (12.5 m) - turn radius 12.5 m	B-double (25 m) - turn radius 15 m	12.5 m
Collector /Collector	Single unit truck/bus (12.5 m) - turn radius 12.5 m	Single articulated (19 m) - turn radius 15 m	12.5 m
Collector / Access	Service vehicle (8.8 m) - turn radius 12.5 m	Single unit truck (12.5 m) - turn radius 12.5 m	12.5 m
Access / Access	Service vehicle (8.8 m) - turn radius 12.5 m	Single unit truck (12.5 m) - turn radius 12.5 m	12.5 m
<u>Intersecting Roads</u>	<u>Design Vehicle</u>	<u>Checking Vehicle</u>	<u>Minimum Radii</u> <u>(Kerb/ Asphalt Seal)</u>
<b>Rural Roads</b>			
Arterial / Arterial	B-double (25 m) - turn radius 15 m	Type 2 road train (53 m) - turn radius 15 m	To suit turning movements
Arterial / Collector	Single articulated vehicle (19 m) - turn radius 15 m	B-double (25 m) - turn radius 15 m	15 m
Arterial / Access	Single unit truck/bus (12.5 m) - turn radius 12.5 m	Single articulated vehicle (19 m) - turn radius 12.5 m	12.5 m

Collector / Collector	Single articulated vehicle (19 m) - turn radius 12.5 m	B-double (25 m) - turn radius 15 m	12.5 m
Collector / Access	Single unit truck/bus (12.5 m) - turn radius 12.5 m	Single articulated vehicle (19 m) - turn radius 12.5 m	12.5 m
Access / Access	Single unit truck/bus (12.5 m) - turn radius 12.5 m	Single articulated vehicle (19 m) - turn radius 12.5 m	12.5 m
<b>Commercial / Industrial Roads</b>			
Arterial / Arterial	B-double (25 m) - turn radius 15 m	Type 2 road train (53 m) - turn radius 15 m	To suit turning movements
Arterial / Collector	Single articulated (19 m) - turn radius 15 m	B-double (25 m) - turn radius 15 m	15 m
Arterial / Local	Single unit truck/bus (12.5 m) - turn radius 12.5 m	Single articulated (19 m) - turn radius 12.5 m	12.5 m
Collector / Collector	Single articulated (19 m) - turn radius 12.5 m	B-double (25 m) - turn radius 15 m	12.5 m
Collector / Local	Single unit truck/bus (12.5 m) - turn radius 12.5 m	Single articulated (19 m) - turn radius 12.5 m	12.5 m
Local / Local	Single unit truck/bus (12.5 m) - turn radius 12.5 m	Single articulated (19 m) - turn radius 12.5 m	12.5 m

Road furniture on all roads is to be located to allow for the minimum turning movement of the checking vehicle, as defined in Table 3, without causing damage to infrastructure.

#### 4.4.2.3 Minimum Cul-de-sac Radii

The minimum acceptable radius for circular turning areas at the cul-de-sac head is as follows:

- Residential Roads = 9.0 m radius
- Industrial Roads = 15.0 m radius

That part of the verge that is reserved for the location of services shall be not less than 4.0m wide at any location. Cul-de-sacs are considered undesirable in industrial areas, but where this cannot be avoided turning areas should be designed to suit the expected end use of the lots to be serviced, taking to account zoning of the land, lot sizes, property frontage and lot access needs. Reversing movements or multi-point turns may be considered for industrial cul-de-sacs.

#### 4.4.2.4 Intersections and Separation Distances

Adequate Approach Sight Distance (ASD) is to be provided at all intersections. Cross roads and “Y” intersections are not desirable and may not be approved unless signalisation, roundabout or other approved traffic control, that is warranted, has been provided. Typical separation distances based on left-turn conflict overlap are set out in Table 4.

Table 4: Typical Separation Distances

Design Speed (kph)	Separation Distance (m)
10	25
20	30
30	40
40	55
50	60
60	80
70	105

Where staggered “T” intersections are provided the stagger offset is to be provided in accordance with the requirements of Austroads Guide to Road Design Part 4A – *Unsignalised and Signalised Intersections*. For left – right staggers on two lane two way roads shall have a minimum separation in accordance with Table 5.

Table 5: Typical Left – Right Staggers

Road Classification	Cul de sac	Urban Access	Urban Collector	Urban Arterial
Cul de sac	10 m	15 m	15 m	20 m
Urban Access	15 m	15 m	15 m	20 m
Urban Collector	15 m	15 m	20 m	25 m
Arterial	NA	20 m	25 m	25 m

At all intersections, the through road having the higher road hierarchy is to maintain its cross section. The terminating road is to match its longitudinal grade and longitudinal grade on the minor road shall match the pavement cross fall of the through-road.

#### 4.4.2.5 Extent of intersection Construction

Where a through road is to be constructed by a Developer and an intersecting road location is fixed and is to be constructed by another Developer in the future, the former Developer will construct the intersection in full at its expense, including all drainage requirements. This may necessitate construction outside the boundaries of the subject land. In this case all necessary permissions are to be obtained prior to the approval of detailed design drawings (i.e. Design Documentation). All roads within a new subdivision Development are to be constructed to the full length of all frontages of all lots in the subdivision.

### 4.4.3 Road Gradient Elements

#### 4.4.3.1 Maximum and Minimum Gradients

All roads are to be designed to give the best possible grade to suit the natural/existing ground and minimise the amount of cut and fill. The maximum possible length shall be provided with longitudinal grades that comply with the provisions of AS1428. All design and construction is to comply with the object and intent of the *Disability Discrimination Act* and where longitudinal grades permit all construction is to comply with the requirements of AS1428 and any other relevant standards. Design ground levels are to be obtained from actual field survey and assumption of levels from contour plan or other types of plans is unacceptable. Maximum and minimum grades shall be generally in accordance with those shown in Table 6.

Table 6: Maximum and Minimum Longitudinal Road Grades

	Residential Cul-de-sac / Access	Urban Collectors / Urban Arterials	Industrial (All Roads)
Desirable Maximum %	10	8	6
Absolute Maximum %	12	10	8
Minimum %	0.50	0.50	0.50

The absolute maximum grades shall only be approved in special cases. Re-design in consultation with an Authorised Officer of ASTC is required where the maximum grades are contemplated and only after complete consideration of all known alternatives will they be considered. The minimum gradient for all kerb returns and cul-de-sac heads shall be 0.50 %

#### 4.4.3.2 Vertical Curves

Vertical Curves are to be designed in accordance with Austroads Part 3

## 4.5 Traffic Design (e.g. speed limits)

Traffic management design is to comply with the speed criteria set out in the table below, with due consideration given to emergency services, unless otherwise designed in accordance with these Requirements or by specific approval from an Authorised Officer of ASTC.

#### 4.5.1 Desirable Posted Speeds

Table 8: Desirable Posted Speeds Urban and Rural Residential Roads

	<u>Cul-de-sac</u>	<u>Access</u>	<u>Collector</u>	<u>Arterial</u>
Maximum desirable speed – urban residential (kph)	50	60	60	TBA
Maximum desirable speed – rural residential (kph)	60	60	60	TBA
Speed for sight distance (kph)	60	60	60	TBA

Table 9: Desirable Posted Speeds Rural and Rural Living Roads

	<u>Cul-de-sac</u>	<u>Access</u>	<u>Collector</u>	<u>Arterial</u>
Maximum desirable speed – rural living (kph)	60	60	80	TBA
Maximum desirable speed – rural (kph)	60	60	80	TBA
Speed for sight distance (kph)	60	60	100	TBA

Table 10: Desirable Posted Speeds Commercial / Industrial Roads

	<u>Cul-de-sac</u>	<u>Access</u>	<u>Collector</u>	<u>Arterial</u>
Maximum desirable speed - Commercial/Industrial (kph)	60	60	80	TBA
Speed for sight distance (kph)	60	60	100	TBA

#### 4.5.2 Traffic Islands and Roundabouts

Roundabouts are generally unacceptable in residential areas however, where traffic Islands and/or roundabouts are used as part of the traffic design, they shall be designed in accordance with the provisions in these Requirements and relevant reference publications. All traffic islands and/or roundabouts are to be finished with a maintenance-free or minimum maintenance surface. Traffic islands shall be generally concrete paved with a finished surface, as specified by an Authorised Officer of ASTC. Larger traffic islands may require landscaping to the specific approval of an Authorised Officer of ASTC.

### 4.6 Access and Egress

#### 4.6.1 Access Management Strategy

Access / egress is permitted and encouraged to various classifications of roads in accordance with the Table 15.

Table 12: Provision of Access and Egress

Road Classification	Access/Egress	Additional Comments
Arterial (Residential / Rural Living / Rural / Commercial / Industrial)	Access / egress by approval of ASTC only	Designed for through traffic – existing access permitted – new access may be allowed for some Rural Roads
Collector (Commercial / Industrial)	Access / egress by approval of ASTC only	Designed for through traffic – existing access permitted
Collector (Rural Residential / Rural Living/ Rural)	Access permitted	Egress in a forward direction only and with adequate sight visibility
Collector (Residential)	Access / egress permitted	Adequate sight visibility must be demonstrated – restricted to safe areas of intersections.
Access (Residential /	Access / egress	For Minor Works/Single Dwelling



Rural Living / Commercial / Industrial)	permitted consistent with public safety	Residential/Permitted uses under existing NT Planning Scheme Zones require Works Permit application form
Cul-de-sac (Residential / Rural Living / Commercial / Industrial	Access / egress permitted consistent with public safety	For Minor Works/Single Dwelling Residential/Permitted uses under existing NT Planning Scheme Zones require Works Permit application form

#### 4.6.2 General Design Criteria

Access / egress shall be designed in accordance with the provisions of Austroads Guide to Road Design.

#### 4.6.3 Gated Access and Egress

For developments that include gated access, the provision of sufficient queuing space for entering traffic needs to be assessed in accordance with the requirements of AS/NZS2890.

### 4.7 Sight Lines

#### 4.7.1 Safe Intersection Sight Distance (SISD)

Safe sight distances shall be provided at all driveways and road intersections in accordance with Austroads Part 4A – *Un-signalised and Signalised Intersections*.

#### 4.7.2 Street Vegetation

Where existing vegetation in the road verge restricts the proposed sight lines the vegetation will need to be adjusted at the Developer's expense. Where vegetation needs to be adjusted work will need the approval of Council and any new plantings to replace any damaged plants will need to be approved by an Authorised Officer of ASTC.

### 4.8 Car Parking

Car parks that are to be under the care and control of Council shall be designed in accordance with AS/NZS2890 for a B99 vehicle, User Class 3 (i.e. C3). The NT Planning Scheme provides a different set of dimensions for off-street parking on private land. Council has its own requirements for off-street parking where Council is the intended owner of the car park (see Figure 2).

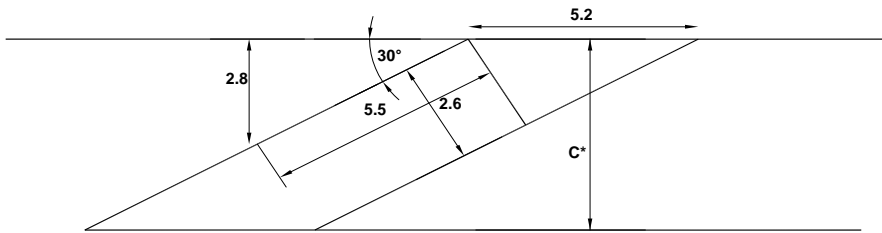
#### 4.8.1 Provision of Car Parking

Car parking for Greenfield subdivisions, in areas that are to be under the care and control of Council, shall be provided in the form of parallel parking in residential and commercial areas and 90° angle parking adjacent to public open space. The road carriage way and road reserve may need to be widened to contain the parking movements in the adjacent traffic lane. All parking bays shall be line-marked, in accordance with the provisions of AS/NZS2890.

#### 4.8.2 Reinstatement of Car Parks

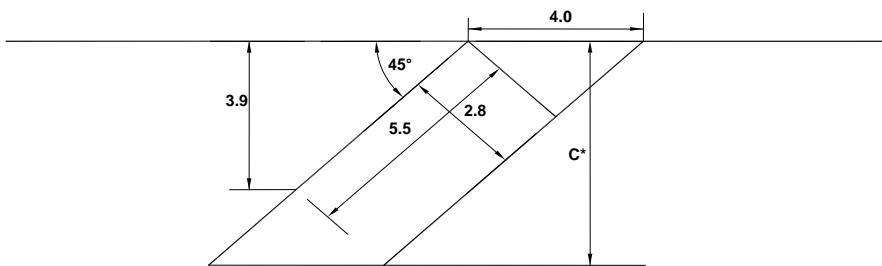
Where Development occurs in streets with existing marked parking bays and the Development Works cause changes to the existing parking bay layout the Developer is required to re-mark all of the affected parking bays. The re-marked parking bays will need to comply with Section 4.8.3 and the revised layout will require the approval of an Authorised Officer of ASTC. The preferred method of reinstatement would result in no net loss of parking places, using parallel parking, where possible, and complying with AS/NZS2890, where possible.

Figure 2: Dimensions for Off-Street Parking (i.e. in a Council Car Park)



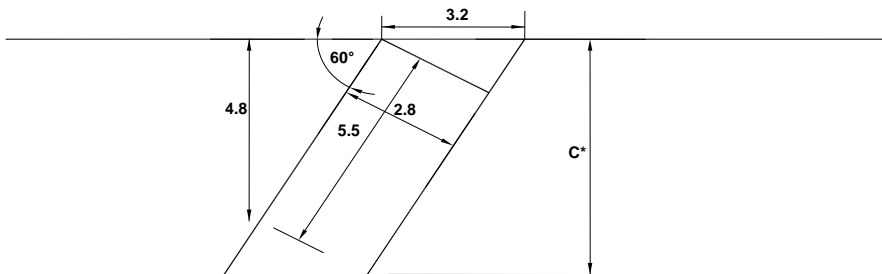
BAYS AT 30 DEGREES TO AISLE

C1	C2	C3	AISLE WIDTH
5.0	4.7	5.0	3.0



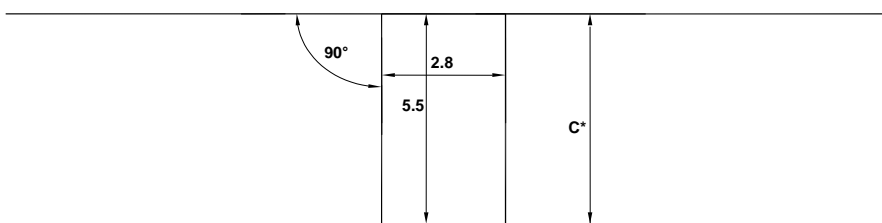
BAYS AT 45 DEGREES TO AISLE

C1	C2	C3	AISLE WIDTH
5.0	4.7	5.0	3.7



BAYS AT 60 DEGREES TO AISLE

C1	C2	C3	AISLE WIDTH
5.0	4.7	5.0	4.6



BAYS AT 90 DEGREES TO AISLE

C1	C2	C3	AISLE WIDTH
5.5	4.9	5.5	6.0

#### 4.8.3 Design of On-Street Car Parking

Development Works affecting car parking spaces that are situated within a road reserve or other public parking area that are, or are to be, under the care and control of ASTC shall be designed generally in accordance with AS/NZS2890 (note: AS/NZS2890.1 relates to off-street parking; AS/NZS2890.6 relates to off-street parking for people with disabilities), for a B99 vehicle, User Class 3, to allow for the predominance of larger vehicles in Alice Springs. Preferred layouts utilise parallel parking for on-street parking, where possible, or angle parking adjacent to public open space. The preferred dimensions for on-street parallel parking are contained in Table 2.1 of AS/NZS2890.5. The dimensions for on-street angle parking shall be designed in accordance with AS/NZS2890.5 - Table 2.2 and Figures 2.2, 2.3 & 2.4.

### 4.9 Street Furniture

The installation of any street furniture (e.g. bollards, bike handrails, rubbish bins, seating, street art or information signs) will require approval by an Authorised Officer of ASTC.

### 4.10 Street Signs and Pavement Markings

#### 4.10.1 Road and Street Signs

The Developer shall obtain approval from the Place Names Committee for the Northern Territory for all street names and place names for all new Subdivision Development. All street signs are to be provided by the Developer at each intersection in accordance with:

- The provisions of AS1742.
- Street name signs at each intersection shall be located relative to the road in the position shown on Standard Drawing ASTC - 111.
- One sign post (fitted with blades for all roads) is required at T intersections.
- Two sign posts (fitted with blades for all roads) are required at cross-road intersections.
- All other advisory and traffic control devices necessary for effective traffic control.

#### 4.10.2 Traffic Intersection Control and Movement Regulation Signs

Traffic movement at intersections shall be controlled by stop signs, give-way signs, roundabout control and/or traffic signals to the warrants set out in the Development Permit or ASTC Working in a Road Reserve Permit, or as set out in Australian Standard AS1742, or as otherwise approved or required by an Authorised Officer of ASTC.

#### 4.10.3 Road Pavement Markings

Road pavement markings, including chevrons, lane lines, stop bars, raised reflective markers and no-parking lines, shall be installed to the warrants and specification set out in AS1742 and shall be provided by the Developer.

## 4.11 Street Lighting and Lighting of Public Open Space

### 4.11.1 Introduction

The design of lighting for streets and other Public Places shall be in accordance with the lighting categories contained in AS/NZS 1158.1.1:2005 – Lighting for roads and public spaces (Part 1.1 – vehicular traffic (Category V) lighting performance and design requirements) and AS/NZS 1158.3.1:2005 – Lighting for roads and public spaces (Part 3.1 – Pedestrian area (Category P) lighting performance and design requirements). These lighting categories are:

- Category V (1 to 5) lighting applicable to roads on which the visual requirements of motorists are dominant (e.g. traffic routes);
- Category P (1 to 12) applicable to roads on which the visual requirements of pedestrians are dominant and applicable to outdoor public areas, other than roads and streets, where the visual requirements of pedestrians are dominant.

Street lights should also create ambience and character in residential projects, and many power authorities have widened the range of standard fittings available to developers. Lighting designs should consider principles and practices associated with “Crime Prevention Through Environmental Design” (CPTED).

### 4.11.2 Electrical Standards

All electrical work is to be designed and constructed to the required standards and subject to the approval of Power and Water Corporation (PWC). Lighting on roads under the control of the NT Government is to be provided to the requirements and approval of the NT Government agency responsible for the operation and maintenance of such roads.

### 4.11.3 Specifications

Lighting provided on roads controlled by ASTC is to be generally in accordance with these Requirements, or otherwise approved by an Authorised Officer of ASTC, and is to be designed to provide the lighting levels set out in AS/NZS1158. The specifications that are applicable for lighting designs for roads under the care and control of ASTC should satisfy the lighting requirements as listed below (see Table 13).

Table 13: Lighting Requirements

<u>Lighting Category</u>	<u>Road Classification</u>
V3	Commercial / Industrial Arterial (i.e. sub-arterial)
V3	Urban Residential / Rural Residential Arterial (i.e. sub-arterial)
V4	Commercial / Industrial Collector (i.e. distributor)
<u>Lighting Category</u>	<u>Road Classification</u>
P3	Urban Residential Collector (i.e. distributor)
P3	Rural Residential Collector (i.e. distributor)
P3	Commercial / Industrial Access (i.e. major local road)

P4	Urban Residential Access (i.e. major local road)
P4	Commercial / Industrial Cul-de-sac (i.e. minor local road)
P4	Urban Residential Cul-de-sac (i.e. minor local road)
P4	Rural Residential Access (i.e. major local road)
P4	Multiple Dwelling / Unit Complex (i.e. cluster housing)
P4	Rural Residential Cul-de-sac (i.e. minor local road)
P1, P2, P3 or P4*	Footpath / Bicycle Path
P1, P2, P3 or P4*	Public Open Space
P11	Car parks, Shopping Centres, Community Facilities
to be determined and agreed with ASTC	Sporting Fields (separately metered in the name of ASTC)

\* depends on level of security and amenity (see AS/NZS1158.3.1:2005 Table 2.2)

The Developer shall provide ASTC with all approvals from PWC regarding the electrical design and lighting layout, certified by a Lighting and Electrical Engineer to achieve the lighting level prior to detailed design approval and acceptance of the lighting assets On-Maintenance.

#### 4.11.4 Lighting design

### **Lighting in Parks and on Pedestrian and Cycle Paths**

- (1) Lighting requirements for parks are determined on a case-by-case basis, but generally speaking, this will be required.
- (2) Lighting is generally designed to meet minimum security lighting levels.
- (3) Street lighting is to be provided adjacent to all parks.
- (4) Pedestrian and bicycle paths may be lit using vandal resistant bollard lights to minimise obtrusive lighting where situated adjacent to residential properties;
- (5) Lights are to be located at either end of paths and at intervals along the path, in accordance with a certified design, or as approved by an Authorised Officer of ASTC.
- (6) The location of lighting shall be such that mobility access is maintained for people with a disability.
- (7) Lighting location within parks shall be placed so that it is not a nuisance to adjoining residents.

### **Lighting in Unit Title Schemes (i.e. Multiple Dwellings)**

Internal road lighting is a developer responsibility.

Where there is an impact on lighting requirements external to the development boundary an upgrade may be required to that specified in Table 13. The upgrade shall be at the full cost of the Developer.

## Alignment of Street Light Poles

- (1) Street light poles are generally to be located at common side property boundaries.
- (2) On standard width road verges street light pole and conduit alignment are in accordance with Standard Drawing ASTC located in Appendix A.

## Specific Applications

High activity areas, such as around retail outlets and at the interface with the existing road network, should be considered a "special" case and the requirements of AS/NZS1158 should be applied. The Developer should discuss the preliminary design requirements with an Authorised Officer of ASTC before submissions are made to Council. The Developer may want to design a higher standard of traffic treatments as justification for not installing road lighting that meets the criteria set out in AS/NZS1158. Any special measures proposed should be clearly described in the submission to Council, along with an assessment of risk.

### 4.11.5 Crime Prevention through Environmental Design (CPTED)

#### CPTED Lighting Principles

If the area is intended for night time use, lighting should provide adequate visibility. Pedestrian walkways, back lanes and access routes open to public spaces should be lit so that a person with normal vision is able to identify a face from a distance of about 10 m. Inset spaces, signs, entrances and exits should be adequately lit. On the other hand, lighting of different wattage, colour temperature and rendition may also be used to make certain public areas "less hospitable" to gathering for long periods

Lighting is not desirable in an isolated area or for a path leading to some obscure places. Lighting these areas may provide a false sense of security for people during night time use. Paths or other Public Places not intended for night time use could be fenced off and remained unlit to avoid giving a false sense of security or impression of being frequently used at night.

Lighting should be uniformly spread to reduce contrast between shadows and illuminated areas. More fixtures with lower wattage rather than fewer fixtures with higher wattage help reduce deep shadows and avoid excessive glare.

Design proposals should take into account the night time use of the outdoor spaces and specify the type, placement and intensity of lighting.

Lights should be designed and constructed with materials to minimise vandalism.

Lighting should also be directed on roadside pavement and possible entrapment spaces other than on roads. Lighting should take into account vegetation, such as mature trees, and other obstructions that would cause light to be blocked off.

Light colour finishes on walls and ceilings should be used for places such as car parks and isolated routes leading to it. This may be preferred to using lights of higher intensity that consume more energy and are costlier to maintain.

Lighting requires maintenance to preserve visibility. Bushes and trees that block off light should be trimmed. Lighting fixtures should be located at suitable heights for easy

maintenance and replacement. Light fixtures should be maintained in a clean condition and promptly replaced if burnt or broken. Posting information indicating who to call in case of burnout or vandalised lights is desirable.

#### Energization prior to Part 5 Clearance

All street lighting including lighting of all other Public Places shall be installed and energised to the appropriate lighting level, as shown in Table 13, prior to Part 5 clearance being issued by ASTC, unless otherwise approved in writing by an Authorised Officer of ASTC.

### **4.12 Disability Access**

All new roads and re-constructed road verges are to make adequate provision for disabled access in accordance with the requirements of the Commonwealth *Disability Discrimination Act*, in accordance with AS1428 *Design for access and mobility* and in the following manner:

#### 4.12.1 Kerb Ramps and Foot Path Grades

Disability Access is to be provided by:

- road verge cross-falls as shown on Standard Drawing ASTC - 100, Standard Drawing ASTC - 101 and Standard Drawing ASTC - 112 and by construction of a complying kerb ramp, where required, at the tangent point of the kerb returns for all intersecting roads;
- longitudinal fall and cross-fall on all constructed foot paths and cycle paths to the requirements of AS1428 where the longitudinal grade of the adjacent road allows the construction of a complying path of travel with the need for landings;
- kerb ramps to comply with AS1428 at all foot path / cycle path crossings of the road; and
- Where a foot path or cycle path to be is provided on one side of the road only it will be necessary to construct new kerb ramps on both sides of the road to provide a complying path of travel across the road.

#### 4.12.2 Construction or Reconstruction of Road Verges for Commercial Development

Typically the whole verge (except areas needed for approved plantings) will need to be paved in concrete or approved alternative and in the Central Business area construction to match the existing colour palate may be ordered. Construction will need to comply with the requirements of AS1428, where applicable, and the following:

- The whole of the verge is to comply with AS1428;
- Where the area abuts an intersection provide kerb ramps at the tangent point of the kerb returns to the requirements of AS1428. Additional kerb ramps may need to be provided to provide a complying path of travel across the road; and
- Any disability ramps for access to the buildings are to be provided in the property and not in the road reserve.

### **4.13 Public Open Space**

#### 4.13.1 Classification of Public Open Space

Public open space that is to be vested in ASTC, as the result of a new subdivision, will be classified after consideration has been given to the following matters:

- Use of CPTED principles based on Crime Prevention Through Environmental Design
- Integration with the existing development.
- Environmental protection, including the conservation of remnant vegetation and habitat;
- Consideration of the need to maintain or develop ecological and/or wildlife corridors;
- The need for open space and pedestrian movement linkages;
- The need for active and passive recreation areas to integrate with the existing recreational facilities in the area.
- The proposed use of trees, shrubs and grasses that grow naturally in the area.

The ASTC open space classification and development requirements are set out in Table 14.

Table 14: Open Space Classification – Minimum Requirements

Category	Minimum size	Distribution	Development in the park
Pocket Park	< 3 000 m <sup>2</sup>	Not in new subdivisions	n/a
Local Park	0.3 Ha (3 000 m <sup>2</sup> ) to 0.5 Ha (5 000 m <sup>2</sup> )	5 minutes walk from home	landscaped arid garden (i.e. no irrigation) CPTED layout with ordinary street lighting 1 x water fountain (i.e. bubbler) 2 x litter bins 2 x shaded seating locations <sup>^</sup> 1 x seat-table & shade structure 1 x double swing Bike racks, park signage
Neighbourhood Park	0.5 Ha (5 000m <sup>2</sup> ) to 0.8 Ha (8 000 m <sup>2</sup> )	15 minutes walk from home	% of Kikuyu grassing (with pop up sprinklers) <sup>#</sup> is dependent upon size of park, concept plan and the layout of the full park infrastructure. CPTED layout with ordinary street lighting 2 x water fountains (i.e. bubblers) 4 x litter bins 2 x seat-table & shade structure 4 x shaded seating locations <sup>^</sup> 1 x double swing 1 x playground feature Bike racks, bollards, park signage
Precinct Park	0.8 Ha (8 000 m <sup>2</sup> ) to 2.8 ha (28 000 m <sup>2</sup> )	1 per precinct or suburb	% of Kikuyu grassing (with pop up sprinklers) <sup>#</sup> is dependent upon size of park, concept plan and the layout of the full park infrastructure. Minimum 30% landscaped with drip irrigation CPTED layout with pedestrian lighting (P4) 2.5m wide gravel or concrete path 1 x water fountains (i.e. bubbler) per 4 000 m <sup>2</sup> 1 x shaded seating location <sup>^</sup> per 4 000 m <sup>2</sup> 1 x seat-table & shade structure per 4 000m <sup>2</sup> 1 x double swing per 4 000 m <sup>2</sup> 1 x playground feature per 4 000 m <sup>2</sup> 1 x litter bin per 2 000 m <sup>2</sup> 4 x dual burner gas barbecue 1 x car park per 2 000 m <sup>2</sup> Bike racks, bollards, park signage, public toilets (3F+2M+U+DA)
Pedestrian Linkage / Corridor	No minimum size	As approved	< 50% Trees 2.5m wide cycle path



			CPTED layout with pedestrian lighting (P4)
Organised Recreation	To be determined	As Approved	Minimum 60% Kikuyu with pop-up sprinklers <sup>#</sup> Minimum 10% landscaped with drip irrigation CPTED layout with pedestrian lighting plus special purpose lighting, seating locations and playground features to be determined at time of application and submitted for approval by an Authorised Officer of ASTC 1 x shaded seating location <sup>^</sup> per 2 000 m <sup>2</sup> 1 x water fountain (i.e. bubbler) per 4 000 m <sup>2</sup> 1 x car park per 500 m <sup>2</sup> 1 x litter bins per 2 000 m <sup>2</sup> Bike racks, bollards, park signage, public toilets

<sup>#</sup> Irrigation controller needs to be a Rainbird controller with flow meter linked to ASTC Central Computer (note: open space irrigation systems using potable water supply are to include appropriate backflow prevention device).

<sup>^</sup> shaded seating locations shall be planted with 6 x juvenile trees and hand watered during the establishment phase

#### 4.13.2 Park Furniture, Park Equipment and Park Signage

Park furniture, park equipment and park signage is to be developed in accordance with the following standards:

- Park signage is to be provided in a manner similar to the signage on existing parks and the details will be confirmed at the time of application for Detailed Design Approval.
- Parks are to be lit to the standards set out in Part 4.11 of these Requirements
- Litter bins are to be located where approved by ASTC and be of the size and type specified from time to time and be installed to manufacturers specification
- Park tables, seats and shade structures are to be designed and constructed in accordance with and be certified as complying to the requirements of the NT *Building Act*, where applicable. All park furniture to be approved by ASTC prior to installation
- Drinking fountains (i.e. bubblers) are to be of an approved design and be installed to the manufacturers specification.
- Car parking and landscaping are to be provided to the standard set out in these Requirements, or as otherwise approved by an Authorised Officer of ASTC.

#### 4.13.3 Preferred Names of Parks

The preferred names are the local flora and fauna and selected residents or pioneers of the Alice Springs area. Only if these sources are exhausted are Australian places and flora and fauna to be proposed. All proposed park names are to be submitted to the Alice Springs Town Council for endorsement and will be referred to NT Place Names Committee for approval, as set out in Section 4.1 of these Requirements.

#### 4.13.4 Access to Public Open Space

General vehicle access is to be prevented from all public open space areas however the developer is required to provide access for service vehicles using a locked park gate as shown on Standard Drawing ASTC - 113 and is to be installed at the location approved by

ASTC. The number of service access points required will depend on the size, shape, location and proposed use of the public open space area and the number of access points shall be advised by an Authorised Officer of ASTC, as part of the approval process.

The following minimum requirements apply to each public open space area:

- One service access point; and
- Maximum 300 m distance from access to the road frontage.

Where the open space has frontage to more than one street the preferable location of the proposed access is from the street with the lower Road Hierarchy status.

#### 4.13.5 Bollard to Park Boundaries

Bollards are to be provided to Neighbourhood Park, Precinct Park and Linkage/Pedestrian Corridor park boundaries that form the frontage to roads. Bollards will need to be spaced to prevent general vehicle access to the park and be located along the entire property boundary. Bollards are to be designed and constructed in accordance with Standard Drawing ASTC – 113, or as otherwise approved by an Authorised Officer of ASTC.

### 4.14 Verge Landscaping

All verge landscaping in roads and under the care and control of ASTC will need to comply with the requirements of the ASTC Verge Development PSD “Landscaping Verges”. Landscaping of verges on new roads, created from the subdivision of land, that will ultimately come under the care and control of ASTC, is to be detailed on plans submitted with the other development works and will generally comply with the requirements of the ASTC Verge Development PSD “Landscaping Verges”. Generally, all rubbish shall be collected and removed from the Development Site and disposed of at the landfill after which time the levels shall be corrected to comply with AS1428 in areas under the care and control of Council.

#### 4.14.1 Application for Approval of Verge Landscaping

Application for approval for verge landscaping can be made as under

- An ASTC Working in a Road Reserve Permit is required before commencing any landscaping that is within an existing road reserve.
- For landscaping on all verges of proposed new roads, and in proposed Public Places, the proposed landscaping treatment is to be shown on landscape plans lodged as part of the Design Documentation Approval Application (Appendix C)

#### 4.14.2 Plant Species and General Standards of Landscaping

All landscaping work in the verge in roads under the care and control of ASTC is to be in accordance with the ASTC Verge Development PSD “Landscaping Verges” which is available from the ASTC web site.

#### 4.14.3 Rural Road Reserve

The development and maintenance of rural roads is controlled by Council in accordance with the Rural Road Reserve Management Procedural Statement and Directives (PSD). Where proposed Development Works have the potential to impact on verges in rural roads, an Authorised Officer of ASTC will be guided by the policies and procedural statements and directives of Council. Developers wanting to develop aspects of a rural road verge should consult with an Authorised Officer of ASTC on the implications of Council policies and PSDs.

### 4.15 Service Corridors

#### 4.15.1 Location of Service Corridors

All services in the road reserve are to be provided in the space allocation shown on Standard Drawing ASTC - 102 unless approved in writing by an Authorised Officer of ASTC. Services are to be designed to avoid conflicts, to the requirements of the service providers and to provide a minimum separation with the ASTC stormwater drainage infrastructure of 150 mm.

#### 4.15.2 Conduits under the Road

All services laid under the pavement surface are to be encased in conduit provided in accordance with Standard Drawing ASTC – 103 and shall comply with the following:

- The strength of the conduit shall be adequate for the traffic loading on the road;
- The conduit shall be laid to the requirements of the service providers;
- The conduit shall be laid in such a way as to be self draining;
- The kerb on both sides of the road shall be marked with a brass marker set into the kerb concrete or standard service authority mark inscribed in the concrete of the kerb directly above the location of the conduit. Where brass markers are used the marker is to be inscribed in the following manner; Electricity marked “E”; Water marked “W”; Communications marked “C”; and Sewer marked “S”.

### 4.16 Foot Paths and Cycle Paths

#### 4.16.1 Location of Foot Paths and Cycle Paths

Foot paths and cycle paths are to be provided on roads created or reconstruction by development works in accordance with Table 1. All paths, including concrete foot paths, concrete cycle paths and other paths for general use, as well as the entire verge in the Central Business zone, Commercial and Tourist Commercial zones, are to be generally provided for pedestrian access in accordance with AS1428.

#### 4.16.2 Recycled Glass

ASTC has a stockpile of recycled glass in the form of “glass sand” and in the interests of recycling waste products and contributing to the development of a sustainable environment, Council has been using recycled glass sand in the construction and reconstruction of foot

paths and cycle paths. All new paths (including reconstructed paths within or associated with all new developments) should be constructed using glass sand from recycled glass. ASTC has a standard design mix with 10% glass sand for use in foot path and cycle path construction in all new Developments that require paths to be constructed.

#### 4.16.3 Timing of Construction

In new development, all new footpaths and cycle paths required are to be constructed as part of the Development Works. These paths are to be constructed as set out on Standard Drawing ASTC – 104 and on a sub-grade, compacted to 95% of modified maximum dry density (MMDD). All paths damaged, during the maintenance period, are to be reinstated on request from ASTC or at the Off-Maintenance inspection, if not before.

#### 4.16.4 Foot Paths

Refer to the ASTC Footpath Requirements and Standard Drawing ASTC – 104..

All concrete foot paths constructed in roads or future roads are to include kerb ramps in accordance with Standard Drawing ASTC - 112 and the provisions of AS1428. Kerb ramps are to be provided at all intersections (unless otherwise approved by an Authorised Officer of ASTC) and shall generally be located at the tangent points of the kerb returns and provide an accessible path for the shortest distance across the road.

In all cases a kerb ramp is required where the accessible path meets the opposing kerb in an existing kerbed road and if no existing complying kerb ramp is available, the kerb ramp is to be provided by the Developer in accordance with AS/NZS1428. ASTC will require the provision of tactile ground surface indicators (TGSIs) in all kerb ramps. Confirmation of ASTC's requirements in this regard must be sought from an Authorised Officer of ASTC.

#### 4.16.5 Cycle Paths

Concrete cycle paths, including any new linkages with existing cycle paths, should be constructed as part of the Development Works for any new Development that requires a cycle path to be constructed. Refer to the ASTC Footpath Requirements.

#### 4.16.6 Geometric Design for Cycle Paths

The geometric design for all cycle paths is to be in accordance with the current Austroads – Guide to Road Design Part 6A – Pedestrian and Cyclist Paths.

#### 4.16.7 Fully Paved Verges

Fully paved verges are to be provided to all new development in the Central Business Zone and to new developments in Commercial, Service Commercial and Tourist Commercial Zones and some spot rezoning where ordered by the ASTC.

Where fully paved verges are required the whole of the verge shall comply with the requirements of AS1428 unless otherwise approved by an Authorised Officer of ASTC. Any paths of travel required for access (i.e. to kerb ramps, doorways and the like) are to be marked with tactile ground surface indicators as set out in AS1428.4.1:2009).

Access ramps for access to adjacent properties are to be positioned so that they are wholly within the allotment that is to be supplied with the access (i.e. no part of the access ramp for a building is to be in a Public Place).

Refer to the ASTC Footpath Requirements as well as Driveway Crossover Requirements

#### **4.17 Driveway and Kerb Crossovers**

ASTC will assess any proposed location or re-location of all new driveways. All new driveways are to be constructed in accordance with Requirements the ASTC Driveway Crossover Requirements

- Where an allotment abuts or fronts onto more than one roadway, ASTC require that the driveway(s) shall access the road with the lower road hierarchy status (i.e. if an allotment abuts a Collector Road and a Local Road then driveway access be to the Local Road).
- The driveway is to be located to allow for the Approach Sight Distance for the through traffic for both entry and exit, in accordance with the Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections and shall generally be in accordance with AS/NZS2890 Part 1 & Part 2 and the location of the driveway shall be at least 15 m from any intersecting roadway.
- Under certain circumstances, ASTC may require deceleration or turning lanes to the allotment or the elimination of certain turning movements based on safety and traffic management issues.
- Where practical, driveways shall be located such to have minimal impact marked on road parking layout.
- Where new driveway(s) are installed as part of a development any existing driveways not needed for the development are to be removed and the kerb and gutter reinstated.
- Where the proposed location for a new driveway conflicts with an existing side entry pit (SEP), a new SEP is to be constructed at a location approved by an Authorised Officer of ASTC.

##### **4.17.1 Minor Development, Single Dwelling Residential Development and Permitted Uses**

Driveways for Minor Development (see Section 2.1) and Single Dwelling Residential Development (see Section 2.2) and Permitted Uses in existing zones, are to be constructed in accordance with an approved ASTC Working in a Road Reserve Permit and associated Requirements.

##### **4.17.2 Driveways for All Other Developments**

Driveways are to be constructed in accordance with the requirements of AS/NZS2890 and shall comply with the following:

- Driveways to commercial / industrial development are to be designed to accommodate the swept turning path of the largest vehicle proposed for use to service the property.

- ASTC may approve one-way driveways to commercial and industrial properties on a case by case basis

## **4.18 Stormwater Drainage Design**

### **4.18.1 General Requirements**

A stormwater drainage system shall be provided that drains stormwater flows generated by the development to an agreed point of discharge without damage to adjacent property or existing infrastructure.

The developer shall prepare a Stormwater Management Plan for the proposed development and submit to the ASTC for acceptance. The Stormwater Management Plan shall identify existing drainage systems and infrastructure and consider the impacts of the proposed development. The plan should consider the proposed stormwater systems required for the development taking into account appropriate standards, codes and guides. The developer is encouraged to consult with the ASTC or other authorities as may be required early in the preparation of the proposed Stormwater Management Plan and preferably at the preliminary assessment stage.

The stormwater management plan shall allow for the conveyance of fully developed upstream catchments. It shall also account for the capacity and impact of the downstream system.

### **4.18.2 Allotment Drainage and Minor Development**

Generally Minor Development (see Section 2.1) and Single Dwelling Residential Development (see Section 2.2) and Permitted Uses in existing planning zones should be able to be drained into the existing street stormwater drainage system. Allotment drainage should be designed to comply with AS/NZ3500.

### **4.18.3 All Other Development**

All other Development, including the subdivision of land, is required to provide a Stormwater Management Plan. The Stormwater Management Plan shall be prepared in consideration of and relevant to the complexity of the proposed development.

### **4.18.4 Stormwater Management Plan**

The Stormwater Management Plan for proposed development shall take into consideration the following:

- Consider the existing stormwater drainage systems, including capacity.
- Identify the catchments onsite or external, contributing to the site upstream and downstream from the proposed development,
- Consider the impacts of the proposed development on existing stormwater drainage systems and floodways,

- Include a site plan of the proposed stormwater management measures proposed for the development.
- The stormwater drainage design for urban, rural residential and industrial roads is to be based on a system of sealed roads, kerb and gutter, entry pits and underground drainage and/or open channels for all runoff including external catchments;
- Any stormwater drainage design for rural living and rural roads is to be based on a system of cross-road drainage and open drains and/or diversion drains;
- Where diversion drains (or similar) are constructed in land external to the development, the developer will need to provide the required easements for access and maintenance in favour of ASTC, or where the drain is constructed in Crown Land, the Developer shall provide approval from DLPE to maintain the drain in perpetuity;
- Public roads are to be considered as primarily for use by vehicular and pedestrian traffic and for providing access to property and public amenity and safety are to be paramount considerations in the stormwater drainage design;
- Where a proposed stormwater drainage system leads to an increase in peak runoff, then consideration is to be given to the impact of the development on existing capacity of downstream drains and the stormwater drainage design needs to include some detail regarding such matters for the consideration of the ASTC.
- The stormwater drainage system is to be designed to accommodate both minor storms and major rainfall events;
- Drainage of all allotments, apart from residential, rural living, rural residential and rural allotments, is to be collected within the allotments and conveyed by underground pipe(s) to the stormwater drainage system by means of underground drainage and open cut-off drains, as required. This includes the control of both the minor and major storm events emanating from either within the site and/or from external catchments draining to the allotment. Unless adequate overland flow paths can be incorporated in the design, all of the 100-year ARI flow may need to be contained in the underground drainage system;
- Stormwater run-off from allotments in a single dwelling residential zone, other than discharge from roof and paved areas (impervious areas), may be discharged across the surface (i.e. sheet flow) to the main drainage system. Stormwater run-off from impervious areas is to be piped to the ASTC stormwater drainage system. If stormwater run-off from an allotment in a single dwelling residential zone is to be concentrated then it may not be discharged in that form onto public land or over adjacent private property but may be discharged to the kerb and gutter in an approved pipe;
- Erosion and sediment control plans are required to be approved by ASTC prior to commencement of construction works to ensure that sediment does not enter the ASTC stormwater drainage system from the Development Works. In all instances where sediment enters the ASTC stormwater drainage system, the Developer shall be required to remove the sediment immediately or the sediment will be removed by Council and the cost charged back to the developer;

- No encumbrance of any land designed, or intended to be utilised as a floodway will be permitted;
- No drainage low points with associated ponding will be allowed within the kerb radial section of intersections. The low points are to be located before the tangent point on the side road of the intersection;
- Relief drainage from all low points in the kerb and gutter is to be provided to provide drainage to the Q100 drainage system. Where this is provided outside the road reserve an easement in the name of ASTC is to be provided; and
- To avoid mosquito breeding, all impervious drainage structures are to be designed to have no ponding of water and open earth drains and other pervious areas are to pond water for no longer than 48 hours or for a depth greater than 50 mm.
- In the absence of building design and location, post development flows for residential allotments are to be calculated using a standard 15 m x 15 m centrally placed building area and assuming a paved driveway running from the frontage road to the front of the building.

#### 4.18.5 Stormwater Design Requirements

Stormwater drainage design is to conform to the philosophy and methods described in these Requirements and the publications referenced in Part 5 of these Requirements. In addition to the above criteria, the following requirements apply to all stormwater drainage systems:

- The minimum pipe diameter for a drain that picks up surface flow within a road reserve is 375 mm and Class 4 concrete or equivalent is the minimum strength standard.
- A piped system is to have the capacity to accommodate the design rainfall run-off for the minor storm (i.e. 5-year Average Recurrence Interval (ARI) with the top water level in SEPs a minimum of 150 mm below the surface entry level and a minimum of 300 mm below the surface for junction pits and manholes and other structures.
- Energy losses must be allowed for in all drainage lines.
- Stormwater drainage lines in road reserves are generally to be aligned in accordance with the requirements of the services locations and the pit details and pipe laying details, as shown in the Standard Drawing ASTC – 102.
- Stormwater drainage manholes are not to be placed in the road pavement and side entry pits are to be located so as not to hinder the construction of driveways and other lot services.
- Sealed joints are to be used for all drainage lines (i.e. rubber ring joints for pipe sizes 600mm diameter or less and external bands for other drains).
- Stormwater drainage infrastructure is to be laid centrally in any drainage easements granted in favour of ASTC.
- The minimum easement width is to be 3.0 m for pipe diameters of 450 mm or less at depths up to 1.5 m. The easement widths are to be increased for pipe diameters and depths greater than above and ASTC will advise of the easement widths required,



- For road drainage in new subdivisions secondary protection drainage flow path is to be provided allowing a surcharge due to 50% blockage of the primary piped system.
- Existing fences and structures are to be modified as needed to minimise the obstruction of water flow in watercourses, open drains and flow paths.
- Stormwater is to be controlled so that the limit/capacity of the downstream drainage system is not exceeded and properties are not to be inundated.
- Pipe grades are to be no flatter than 0.5% gradient, unless otherwise approved.
- Design calculations shall be submitted to ASTC for approval and shall include:

Minor Storm:

- Check of pit inlet capacity
- A plot of the hydraulic grade line
- A check of flooded road widths
- A check of flows across junctions
- Inclusion of SEPs at the upstream tangent points of all junctions and immediately upstream of pedestrian crossing locations.

Major Storm:

- A check of the minimum road/bypass flow capacity.

Detailed Design Drawings and a report outlining compliance with these Requirements.

- The Developer shall provide easements in favour of ASTC for all drainage structures in land not owned by ASTC. Where the drain services one allotment only, the easement is to be in favour of the allotment which it services. In all other cases the easements shall be in the name of ASTC and shall be a minimum of 3 m wide with a minimum of 1 m clearance from the edge of the pipe to the easement boundary. All infrastructure and easements shall be supplied at no cost to ASTC by the Developer.
- Where the capacity of infrastructure downstream of a proposed development is adversely affected by the stormwater runoff from the development and detention/retardation basins are proposed to reduce peak flows to pre-development flows the whole range of flows up to and including the  $Q_{100}$  will need to be retarded to ASTC satisfaction.
- Where allotment fill directs stormwater runoff to the ASTC drainage system, the As-Constructed level of the fill needs to be confirmed before the On-Maintenance approval.
- Alice Springs rainfall intensity data is to be sought from the Bureau of Meteorology.

#### 4.18.6 Drainage Runoff Coefficients

Selection of Runoff Coefficients shall be made in accordance with the requirements of Australian Rainfall and Runoff methods. Run-off coefficients and characteristics for the ultimate development of the allotments based on zoning of the Development Site must be considered in designing the stormwater system.

#### 4.18.7 Recurrence Intervals, Time of Concentration and Rainfall Intensity

The design intensity for a calculated time of concentration is to be determined from the appropriate design rainfall intensity diagram that can be obtained from the Bureau of Meteorology. The minimum time of concentration to be used for a fully developed catchment is 5 minutes (i.e.  $t_c = 5$ ). The Civil Engineer / stormwater designer is to adopt the following minimum Average Recurrence Interval (ARI) for the minor storm and the major storm.

Table 15: Storm Intensity Recurrence Interval (ARI in Years)

<u>Catchment Zone</u>	<u>Minor Storm</u>	<u>Major Storm</u>
Central Business and Commercial	10	100
Industrial	5	100
Multiple Dwelling / Medium Density Residential	10	100
Single Dwelling Residential	5	100
Public Open Space and Drainage Reserves	5	100
Rural Residential	5	100
Rural Living and Rural Access Roads (Crossroad culverts)	10	100
Collector/Arterial Roads (Crossroad Culverts)	50	100

#### 4.18.8 Use of Roads, Public Open Space and Drainage Reserves for Stormwater Drainage

Stormwater flow from the minor storm and major storm must be managed within the limits shown in Table 16. Sufficient capacity must be created such that the major storm can be contained wholly within drainage structures and/or the road reserve.

Table 16: Road Stormwater Limits

<b>Urban Residential and Rural Residential</b>		
	<u>Minor Storm</u>	<u>Major Storm</u>
Cul-de-sac Road	Flow may spread to crown of road for two-way cross-fall or road centreline for one-way cross-fall or to flush kerbs in dished drains	Flow may spread to road reserve boundary but maximum depth in roadway is not to exceed 300 mm with $D \times V$ less than 0.4 where $D$ = depth (m) and $V$ = velocity (m/s)
Minor/ Local Access Roads	Flow shall not overtop crown of road or top of kerbs.	Flow may spread to road reserve boundary but maximum depth in roadway is not to exceed 300 mm with $D \times V$ less than 0.4 where $D$ = depth (m) and $V$ = velocity (m/s)
Collector or Arterial Roads	Flow shall not overtop kerbs and shall leave a minimum 3.0m trafficable lane width free of water.	Flow may spread to road reserve boundary but maximum depth in roadway is not to exceed 300 mm with $D \times V$ less than 0.4 where $D$ = depth (m) and $V$ = velocity (m/s)

Open Space & Drainage Reserves		Flow to be contained within boundaries of the public open space. Velocities not to exceed scour velocity (1.5 m/s in open unlined drains)
<b>Commercial / Industrial</b>		
All Roads	Flow shall not overtop kerbs and shall leave at least 3.0m width of roadway free of water.	Flow may spread to road reserve boundary but maximum depth in roadway is not to exceed 300 mm with $D \times V$ less than 0.4 where $D$ = depth (m) and $V$ = velocity (m/s)
<b>Rural Living and Rural</b>		
All Roads	Flow shall not encroach on the pavement	Flow may spread to the road reserve boundary and the road to be available for emergency vehicles (i.e. maximum depth of 300 mm) with $D \times V$ less than 0.4 where $D$ = depth (m) and $V$ = velocity (m/s)

#### 4.18.9 Drainage Catchments

The Developer shall prepare a catchment plan, showing contours with Australian Height Datum (AHD) values and showing the whole area contributing to the drainage for the Development Site. The catchment plan shall show and tabulate the areas of all the sub-catchments used in the drainage design and this plan is to be submitted, with the drainage design, to ASTC for approval.

A stormwater drainage system to service a Development Site shall be designed to carry stormwater runoff from the identified catchment when it is fully developed in accordance with the ultimate development intensity based on the zoning of the land at the time. Where the Development is to be staged a stormwater drainage management plan is required for the entire Development before detailed drainage designs for individual stages will be approved.

#### 4.18.10 Development Draining to Existing Stormwater Infrastructure

Where a new Subdivision Development drains to an existing stormwater drainage system, the Development shall be designed to:

- Contain the stormwater runoff to pre-development peak flows; or
- Not to exceed the capacity of the receiving system; or
- Design and construct upgrades to existing drainage system to provide additional capacity to accommodate increased runoff from the Development.

#### 4.18.11 Stormwater Pollution Prevention, Erosion and Sediment Control

The discharge of stormwater shall comply with the *Waste Management and Pollution Control Act* before it will be accepted to the ASTC stormwater drainage system. It is expected that the design of new stormwater systems will incorporate, where necessary, the requirements of:

- NT Government - Control Guidelines (4) and Technical Notes (15);
- CSIRO publication - WSUD Engineering Procedures (including Water Sensitive Urban Design installations suitable for Arid Lands); and/or
- Engineers Australian publications - *Australian Rainfall and Runoff* and *Australian Runoff Quality: A Guide to Water Sensitive Urban Design*.

As a design principle:

- Stormwater in impervious drainage structures is to be conveyed at self cleansing velocities to sediment collection points designed in the system;
- Areas of the Development Site that do not need to be disturbed are to be fenced off during the construction process to protect the area from construction traffic;
- Erosion is to be controlled at the work site (i.e. as high in the system as possible);
- Disturbed areas are to be finished to final level and given surface treatment as soon as the work is complete to reduce erosion of the Development Site;
- Areas of the Development Site are not to be disturbed until required for construction.

While the selection of the stormwater treatment structures is ultimately influenced by site constraints and the requirements and adherence to the reference documents, it is considered that the following Water Sensitive Urban Design (WSUD) elements could be considered necessary in many developments within the Municipality. These elements include:

- Sediment basins;
- Vegetated swales;
- Soakage pits;
- Sand filters; and
- Rainwater tanks

Plans showing construction phase treatment for sediment and erosion control, as well as permanent stormwater structures, are to be submitted for the approval of an Authorised Officer of ASTC, as part of the application for approval of the detailed Design Documentation.

#### 4.18.12 Rainwater Tanks

ASTC is generally supportive of rainwater tank usage, in both domestic and commercial settings for detention of peak runoff and for reuse. The collection and reuse of rainwater may be considered appropriate for use in or on or part of landscaping elements.

Where rainwater tank(s) are to be installed, as part of a detailed stormwater design submitted to ASTC for approval, then the capacity of the tank(s) and the maintenance of the tank(s) should be considered in relation to the following documents:

\* Department of Health and Ageing - *Requirements on Use of Rainwater Tanks*

#### 4.18.13 Open Drainage Structures

All open drains are to be designed to incorporate the following features:

- Open unlined drains are to be assessed for the capacity of the soils to resist erosion (see NTG Fact Sheet) and be designed at grades that maintain flow velocities less than the scour velocity of the soil or shall be treated to prevent erosion. Scour velocities in the order of 0.5 m/s can be expected for erodible soil in any unlined drains.
- Unlined drains shall be vegetated to provide protection from rain drop impact and to assist in the protection against damage from runoff
- Open drains shall have a maximum depth of flow of 750 mm and shall provide for a 150 mm freeboard to the flow level of the  $Q_{100}$  storm and shall have a depth by velocity product ( $d*v$ ) of 0.6 or less.
- Where public access is possible, warning devices and/or safety barriers are to be provided, particularly at road crossings of the drain (e.g. provide pedestrian handrails, etc). Where the drain runs parallel to a road it may be necessary to provide guardrails or guideposts, depending on the setback of the drain from the road shoulder.
- The top water level in the drain, at  $Q_{100}$  flows is to allow emergency access at all road crossings and shall not be allowed to enter into any building allotments.
- Where the drain changes direction the drain, base and batters, shall be lined with concrete, or other approved treatment, of sufficient length and breadth to minimise potential erosion.
- Maximum side slopes of any open drain is to be designed to resist erosion from water flows and rain drop impact and accommodate the potential of the soil to erode and in no case shall be steeper than 1 in 6 (16%).
- All drains are to be designed to convey water during the storm and during the normal runoff and there is to be no ponding of water for more than 48 hours or to greater than 50 mm deep to prevent mosquito breeding.
- Where a drain cannot accommodate safe public access during a storm event, then pedestrian barrier fencing, with locked maintenance access gates, shall be provided.

#### **4.19 Stormwater Pipes and Pits**

All drainage pipes, pits and culverts are to be supplied and installed in accordance with the detailed requirements set out in these Requirements.

##### **4.19.1 Drainage Pipes and Culverts**

All drainage pipes and culverts are to be a proprietary brand of Steel Reinforced Concrete (SRC) or Fibre Reinforced Concrete (FRC) of suitable strength and be manufactured and constructed and tested in accordance with Australian Standards. If other types of drainage pipes or culverts are proposed for use, these are to be approved by the ASTC. The referenced Australian Standards for this purpose are:

- AS1597 - Precast Reinforced Concrete Box Culverts
- AS/NZS3725 - Design for Installation of Buried Concrete Pipes
- AS/NZS4058 - Precast Concrete Pipes (Pressure and Non-pressure)
- AS/NZS4139 - Fibre reinforced Concrete Pipes and Fittings

All stormwater drainage pipes, pits and culverts are to be constructed in accordance with the ASTC Standard Drawings, the Australian Standard Codes and the DIPL Technical Specification, where appropriate.

#### 4.19.2 Manholes/Junction Pits/Inlet Pits

All manholes, junction pits and inlet pits are to be constructed in accordance with the project specification, ASTC Standard Drawings and Technical Specification and to comply with access requirements for Occupational Health and Safety requirements.

Manholes are to be constructed in accordance with these Requirements:

- be constructed at all pipe junctions and where pipes change direction, diameter or grades and where a side entry pit has not been provided;
- be provided at a maximum distance between pits is to be 90 m;
- manholes and junction pits are not to be constructed in the pavement area of roadway unless approved in writing by the ASTC;
- certified precast pits are approved for use however any cutting of the precast units for pipe entry will need to be certified by the manufacturer;
- pipes entering pits are to be finished flush with the internal wall of the pit and shall be grouted in accordance with the specification; and
- cut ends of pipes are to be treated with epoxy or similar to protect exposed steel.

The geometry of the pipe entry into the pit is critical to limit the hydraulic head losses in the manhole and the following matters need to be addressed:

- Minimise changes in velocity through the pit;
- Minimise changes in flow direction;
- Avoid “opposed lateral” inflows (i.e. all incoming flows are to be in an arc from the direction of outlet flows to 90°, or at a maximum 180°, arc centred around the inlet);
- Limit the deflection from inflow to outflow to reduce the head losses; and
- Rounding the entry to the outlet pipe.

#### 4.19.3 Side Entry Pits

Side entry pits (SEPs) are to be constructed in accordance with the details shown on the, Standard Drawing ASTC - 108, Standard Drawing ASTC - 109 and Standard Drawing ASTC - 110 and their location shall be specified in the design plans.

SEPs are to be located at all low points, immediately upstream of intersections and upstream of pedestrian crossings that are part of the constructed foot path / cycle path system and at intermediate positions to limit the depth of flow in the gutters. The location of SEPs shall avoid conflict with existing or proposed services and avoid conflict with proposed driveway locations.

SEPs are to be designed to allow reduction of performance values of 20% blockage of the side entry opening and 50% blockage of any grate used in conjunction with the side entry opening. SEP grates are to be designed and constructed in accordance with AS3996 for heavy traffic loading and are to be bicycle safe.

#### 4.19.4 Letter Box Pits

Where catch drains are to discharge to a pipe drain the catch drain is to discharge to a letterbox pit that is connected to the pipe system constructed in accordance with the DI Standard Drawing C(S) 1010/1 (as amended). Open end walls to ASTC drains or culverts will not be considered in or near residential areas. The letterbox pit and any stone pitched aprons are to be constructed in accordance with the standard drawings. The location of the letterbox pit is to be assessed in relation to child safety and where necessary the letterbox pit opening is to be limited to 125 mm maximum opening.

### 4.20 Stormwater Catch Drains

Overland flow paths may be intercepted by catch drains at the following locations:

- Sag points in the kerb and gutter to provide relief drainage to the road drainage for major stormwater flows where relief drainage is not available along the road at required ponding depths;
- At the top and bottom of substantial cuttings and embankments;
- Where required in parks or as part of Water Sensitive Urban Design (WSUD);
- At rear allotment boundaries to intercept inflow from external stormwater catchment areas; and
- At other locations, as determined by ASTC.

Catch drains are to be designed to carry 100 Year ARI stormwater flows to the constructed drainage system or to an approved natural drainage channel.

Relief overflow stormwater drainage from rear allotment catch drains draining through the Development are to be provided between the drain and the street drainage system by a stabilised, shaped open drain wholly contained within a drainage easement in favour of ASTC.

#### Gross Pollutant Traps

Gross Pollutant Traps shall be required for all commercial and Industrial Allotments to treat stormwater prior to discharging to the existing Council system. The gross pollutant trap type shall be submitted to ASTC for approval and must be situated within the allotment.

#### Inter-lot (i.e. Rear Lot) Drainage

Where reasonably practicable, allotments should be graded towards the adjacent servicing road reserve or drainage reserve. In circumstances where the natural terrain is too steep to allow suitable re-grading, rear or side of lot drainage easements shall be provided and vested to ASTC with suitable infrastructure to convey drainage underground to the public drainage system in the nearest road reserve, open space or drainage reserve. In such circumstances, justification shall be provided in the design report as to why lots could not be graded to the adjacent road reserve.

Rear or side of lot drains may include a surface catch drain and shall require an inlet pit at the low point of each allotment such that surface drainage cannot cross property boundaries in the minor storm event. The inlet pits will connect to an underground pipe system running centrally within the easement.

## 4.21 Geotechnical Report and Pavement Design

### 4.21.1 Geotechnical Investigation and Assessment

A Geotechnical Investigation shall be carried to establish the geotechnical profile of the development site. A report of the investigation with appropriate test results is to be provided with an application for approval of the detailed design drawings for a Development. The Geotechnical Report is to be prepared in accordance with the Austroads publication *Guide to Road Design – Part 7 – Geotechnical Investigation and Design* and, without limiting the scope of that document, the Geotechnical Report is to detail the following items:

- Classification of the fine-grained soils on the development site and provide particle size analysis test results
- Testing for Sub-grade strength to at least 0 – 600 mm below the proposed Sub-grade surface level;
- Determination of California Bearing Ratio (CBR) values to allow the preliminary assessment of pavement design thickness. CBR tests shall be undertaken within the location of the proposed road.

### 4.21.2 Pavement Design

A pavement design shall be undertaken using Austroads *Guide to Pavement Technology – Part 2 – Pavement Structural Design* by a qualified Civil Engineer and shall be provided to ASTC for approval.

Pavement design parameters to be used will include the following unless variations are specifically approved by ASTC: -

- Pavement Design Life is to be 40 years;

Proposals are assessed on a case-by-case basis however Table 17 can be used as a guide.

Table 17: Pavement Design Criteria

	Rural / Residential Access Road	Connector / Collector	Industrial Road
% HV in AADT	3%	4.5%	20%
ESA/HVAG	0.4	0.6	1.2
HVAG/HV	2.0	2.2	3.0

## 4.22 Inspection and Testing Protocols

### 4.22.1 General

These Requirements set out the construction requirements for subdivision Development Works within the Municipality. ASTC has adopted the DIPL standard specifications and standard drawings as the ASTC standard where a specific ASTC Standard Specification or Standard Drawing is not available. The provisions set out in these Requirements shall take



precedence in the event that there is conflict between the DIPL standards and the standards set out elsewhere in these Requirements.

#### 4.22.2 Control and Supervision of Development Works

The developer shall engage the services of Certifying Engineer (a approved consulting engineering firm) to oversee the construction of the infrastructure. The Certifying engineer shall take and maintain all records of the design, construction notes, observations and the ITP. He/she shall also engage with the ASTC representative at all times and advise on the progress of the project including seeking approval of any divergence of the construction from the approved design or the design intent. This may also include any errors and omissions from the original design.

The certifying engineer shall bear the full responsibility of the design, design intent and the construction of the infrastructure.

An unconditional certificate shall be provided prior to the issue of Part 5 clearance from ASTC. This certificate shall be signed by a Director of the certifying engineering firm as well as the developer.

The unconditional certificate is required to state:

*“The design and the construction meet or exceeds the requirement of:*

- 1. All Northern Territory and Federal legislation and regulation*
- 2. Australian Standards including Austroads*
- 3. ASTC Subdivision Requirements.”*

#### 4.22.3 Construction Program

A construction program shall be provided to Council nominated representative for information. The program is to include all major work activities, including but not limited to the following:

- Site works and implementation and maintenance of sediment and erosion controls;
- Bulk earthworks and road excavation to verge level;
- Construction of stormwater drainage and sewer within the road reserve;
- Sub-grade treatment as required;
- Road service crossings;
- Placement of sub-base course pavement if required;
- Placement of base course pavement;
- Placement of extruded concrete kerbs & gutter and foot path / cycle path construction;
- Utility services and landscape preliminaries;
- Placement of the wearing course to pavement;
- Shaping of the road verge and final landscaping; and
- maintenance period.

The Construction Program is to be updated at least every month and will need to be amended when external events (e.g. significant wet weather) result in major changes to the program. The Construction Program will be used by ASTC to allocate time for works inspections.

#### 4.22.4 Inspection and Testing Plan (ITP)

An Inspection and Testing Plan (ITP) will be prepared by the Consulting Engineer in conjunction with the contractor prior to the commencement of construction. The ITP shall be provided to ASTC for approval and shall be subject to ASTC reasonable satisfaction.

#### 4.22.5 Pre-start Meeting

Before the commencement of any construction works the Developer shall arrange a Pre-start Meeting with the developer, certifying engineer, the contractor and the Council.

### **4.23 Workplace Health and Safety**

#### 4.23.1 General

The Developer shall comply with the requirements *Workplace Health and Safety Act* and the *Workplace Health and Safety Regulations* at all times. Public safety is paramount and ASTC's exposure to public risk must be considered at all times. The Developer shall demonstrate evidence of Work Health and Safety system and management by considering the following:

- Undertake WH&S Risk Assessment;
- Develop Health and Safety Plan;
- WH&S Performance Reporting;
- WH&S Incident Notification.

The Developer shall ensure that the Contractor has a WH&S document setting out the health and safety requirements for issue to all sub-contractors working on the Development Site.

#### 4.23.2 Insurance

The Developer shall arrange for public liability insurance sufficient to cover the perceived risks associated with the works. This insured amount shall be approved by an Authorised Officer of ASTC and is to be generally not less than \$20M.

Evidence of the insurance and any provisions to indemnify ASTC against any Public Liability Claims resulting from the Development Works on the Development Site are to be provided to ASTC on request and/or at the Pre-start Meeting.

### **4.24 Traffic Management**

The Developer is to provide Traffic Management for the Development Site, in accordance with the requirements of the NT *Traffic Act* and *Traffic Regulations* and Australian Standard AS1742 – *Manual of Uniform Traffic Control Devices* and shall manage the Development Works in accordance with these Requirements.

#### 4.24.1 Work in Existing Road Reserve

Where the Development Works are undertaken in existing road reserves that are under the care and control of ASTC the Developer is required to obtain an ASTC Working in a Road Reserve Permit to work within the ASTC road reserve by making separate application on the appropriate form.

#### 4.24.2 Work in Greenfield Subdivisions and Subdivisional Redevelopment

The Developer is wholly responsible for the safety of the Development Site and shall provide adequate traffic control devices at the entrance(s) to prevent traffic from entering and/or advise any entering traffic of any traffic hazards within the property.

In all instances, where the general public is permitted to enter a Development Site, the work areas need to be signed in the same manner as would be required for Development Works in a Public Place (i.e. ASTC Working in a Road Reserve Permit with Traffic Management Plan).

### **4.25 Environmental Requirements**

#### 4.25.1 General Environmental Requirements

ASTC has a responsibility to the community to manage the environmental impacts of new Development Works within the Municipality that are within, or impact upon, areas that under the care and control of Council.

#### 4.25.2 Construction Noise

Construction Noise is controlled by the NT *Waste Management and Pollution Control Act* and it is recommended that the Developer contacts the Environment and Heritage Division of DLPEE to determine the appropriate hours for undertaking Development Works.

### **4.26 Erosion and Sediment Control**

#### 4.26.1 Responsibility

An Erosion and Sediment Control plan is to be submitted to and approved by ASTC prior to engineering approval being granted.

It is the responsibility of the developer to maintain adequate sediment and erosion control procedures during the construction process

#### 4.26.2 Clean-up Requirements

Where sediment enters the ASTC stormwater drainage system during construction or where dust from construction activity enters the road system and the Development Works have been accepted On-maintenance the ASTC stormwater road system and/or drainage system shall be kept clean by the Developer until the end of the maintenance period. Any clean-up is to be complete in the timeframe stipulated in the letter of advice from an Authorised Officer of ASTC

or the clean-up work may be undertaken by ASTC during the DLP. The cost to undertake the clean-up will be recovered from the developer. Council may use the maintenance bond for the recovery of costs.

#### **4.27 Management of Existing Vegetation**

All proposals to remove dead or damaged vegetation on land that is under the care and control of Council will need to be approved by an Authorised Officer of ASTC. Generally, all applications to ASTC that would have the effect of removing or damaging vegetation on land that is under the care and control of Council, would need to be accompanied by advice from the Aboriginal Areas Protection Authority (i.e. AAPA) to establish the significance, if any, of the vegetation under the NT *Sacred Sites Act* and whether or not the vegetation requires special protection or treatment in a particular way (e.g. Authority Certificate for Sacred Site clearance).

ASTC encourages the retention of existing vegetation on Greenfield Subdivisions to help manage erosion and sedimentation until final occupation of the Development Site.

In all Greenfield Subdivisions it will be necessary for the developer to be in possession of an AAPA certificate that identifies any significant vegetation that may potentially impact on the Development Works or will eventually be included in land under the care and control of Council before road-works and stormwater plans are approved by an Authorised Officer of ASTC. ASTC may request the modification of an approved development layout to have the significant vegetation included in lands not under the care and control of Council.

#### **4.28 Survey Marks**

The Surveyor General is the authority responsible for survey marks under the *Licensed Surveyors Act*. A person shall not wilfully remove, damage, deface or destroy a survey mark except with the explicit *a priori* permission of the Surveyor General or a nominated representative.

A Developer should contact the Surveyor General, or a nominated representative, whenever a survey mark is accidentally removed, damaged, defaced or destroyed or where proposed Development Works have the potential to remove, damage, deface or destroy a survey mark.

A delegate of the Surveyor General has been made available through the Department of Lands, Planning and Environment in Alice Springs.

#### **4.29 Site Access and Construction Signage**

##### **4.29.1 General**

Site access and construction signage is to be provided in a manner that does not cause a traffic hazard in the adjacent road(s) and does not result in damage to ASTC infrastructure.

##### **4.29.2 Site Access**

Temporary site access, in land under the care and control of Council, is to be designed in accordance with these Requirements and the Developer will need to obtain an ASTC Working in a Road Reserve Permit and other appropriate permits to manage any and all stormwater

runoff and traffic management issues associated with the Development Site prior to the commencement of construction activity. Access to the Development Site will generally be sealed to prevent erosion issues and to control dust issues.

Not all roads within the Municipality have been designed to accommodate heavier road haulage vehicles and where the access to a Development Site traverses roads that are under the care and control of Council, the size and weight of haulage vehicles able to access the Development Site through ASTC streets may be limited to that of a heavy rigid vehicle, unless otherwise approved by an Authorised Officer of ASTC.

Factors to be considered in approving larger vehicles for haulage to Development Sites are:

- Traffic congestion;
- Damage to infrastructure from inadequate turning paths;
- Safety at intersections including visibility and turning paths;
- Adequacy of the pavement design and the performance of existing pavement;
- Road signage and any additional road signage needed; and
- Time constraints for the operation of heavy vehicles.

#### 4.29.3 Construction Signage

For any signage proposed for erection on land controlled by ASTC or on private property or on land that is in full view of land that is under the care and control of Council the Developer is required to obtain an ASTC Working in a Road Reserve Permit for the Erection of a Sign. Any signage that is to be erected as part of the Development Works shall be required to list out-of-hours contact details for site personnel for the convenience of the general public and to advise of any erosion, dust and noise issues.

## 5.0 REFERENCES

### 5.1 List of Publications

- Austroads Guide to Road Design – All Parts;
- Austroads Guide to Traffic Management – All Parts;
- Austroads Guide to Traffic Engineering Practice – All Parts;
- Austroads Design Vehicles and Turning Paths Templates;
- Austroads Guide to Pavement Technology Part 2: Pavement Structural Design 2008
- Austroads Technical Report AP-T36/06 - Pavement Design for Light Traffic
- ARRB Sealed Local Roads Manual – Guidelines to Good Practice for the Construction, Maintenance and Rehabilitation of Pavements (1995);
- ARRB Report 34, Stormwater Drainage Design in Small Urban Catchments;
- CSIRO, Water Sensitive Urban Design Engineering Procedures: Stormwater
- Australian Standard AS1742 Manual of Uniform Traffic Control Devices (All Parts);
- Australian Standard AS/NZS2890: Parking Facilities (All Parts);
- Australian Standard AS/NZS3500: Plumbing and Drainage (Code of Practice);
- Australian Standard AS/NZS1158: Lighting for Roads and Public Spaces;
- Australian Standard AS3798: Guidelines on Earthworks for Developments;
- Institution of Engineers Australia, Australian Rainfall and Runoff;
- National Water Commission, Evaluating Options for Water Sensitive Urban Design;
- Resource Management for NT – Erosion and Sediment Control (Nat. Res DLPEE)
- Commonwealth *Disability Discrimination Act* and Regulations
- ASTC Guidelines for Works
- ASTC Verge Development PSD
- ASTC Rural Road Management PSD
- NT *Local Government Act* and Regulations
- NT *Planning Act* and Regulations
- NT *Building Act* and Regulations
- NT *Traffic Act* and Regulations
- NT *Public and Environmental Health Act* and Public Health Regulations
- NT *Sacred Sites Act* and Regulations
- NT *Waste Management and Pollution Control Act* and Regulations
- NT *Work Health and Safety (National Uniform Legislation) Act* and Regulations
- NT Department of Infrastructure Technical Specifications
- Power and Water Corporation Technical Requirements

## APPENDIX A

### ASTC Standard Drawings

Drawing No.	Amend	Title
ASTC - 100	D	Typical Road Cross-Sections - Urban & Commercial/Industrial
ASTC - 101	D	Typical Road Cross-Sections - Rural Residential, Rural Living & Rural
ASTC - 102	D	Typical Service Layout
ASTC - 103	C	Conduits Under the Road
ASTC - 104	C	Foot Paths and Cycle Paths
ASTC - 105	C	Kerb Crossovers
ASTC - 106	C	Typical Kerbs and Gutters
ASTC - 107	C	Stormwater Connection to Kerb and Gutter
ASTC - 108	C	Side Entry Pit - General Arrangement
ASTC - 109	C	Side Entry Pit - Precast Lintel Details
ASTC - 110	C	Side Entry Pit - Grate and Frame
ASTC - 111	C	Street and Road Name Sign
ASTC - 112	C	Standard Kerb Ramp
ASTC - 113	C	Park Furniture Details

### DOI Standard Drawings

Drawing Number	Amend	Title
C(S)1005	1	MANHOLES & INLET PITS
C(S)1010	1	CATCH DRAIN AND LETTTER BOX PIT
C(S)1100	5	STORMWATER CULVERT ENDWALLS & PIPE LAYING DETAILS
C(S)1102	3	ENDWALLS TO PIPE CULVERTS 375 mm - 675 mm DIAMETER
C(S)1103	3	HEADWALLS TO PIPE CULVERTS 750 mm - 1950 mm DIAMETER
C(S)1104	3	ENDWALLS TO PRECAST BOX CULVERTS
C(S)1206	6	RURAL RESIDENTIAL PROPERTY ACCESS - CONCRETE INVERT

## APPENDIX B

### Plan Presentation

Detailed design drawings that are to be submitted with an application for road works and stormwater drainage for approval by an Authorised Officer of ASTC are to comply with the following requirements. Standardisation of the presentation of plans and drawings is necessary for consistency of ASTC records and will allow quicker processing of applications.

Detailed design drawings shall generally include the following:

1. Cover sheet
2. Locality Plan
3. Subdivision Layout / Staging
4. Earthworks
5. Road Works and Drainage
6. Longitudinal Section for Each Road
7. Standard Cross-Sections of Each Road
8. Detail Plan of each Intersection, Cul-de-sac & Low Points
9. Details of Foot Path / Cycle Path and Disability Access Points
10. Longitudinal Section of Each Drainage Line
11. Stormwater Device Details
12. Drainage Calculations and Catchment Plan
13. Any Structural Details
14. Erosion and Sediment Control plan
15. Master Services Compilation Plan (approved by PWC)

The following general information is required to accompany all plans for Development Works:

- Estate name (if any);
- Lot number of the parent lot and any daughter lots;
- Developer's name and the Certifying Engineers name;
- Planning approval number;
- Scales and reference to AHD;
- Plan number and sheet number;
- Schedule and date of amendments;
- North sign/arrow/pointer;
- Signed certification by a Chartered Professional Engineer holding membership of the Institute of Engineers or Engineers Australia (membership type and membership number).



Scales for all plans and drawings should preferably be those recommended by Standards Australia and AUSTRROADS, namely:

- 1:1, 1:2, and 1:5 and multiples of 10 of these scales; or
- Although not preferred, 1:25 and 1:125 and their multiples of ten (10) may be approved.

The following matters are generally required for any plans lodged with ASTC for approval:

- Linear dimensions are to be in metres (to 0.01 m), except for small structures, where millimetres may be approved;
- Details of methods of dimensioning should be in accordance with AS 1155 Appendix A, Metric Units in Construction;
- Road cross-sections are to be provided at 25.0 m intervals with further section to adequately show the detail eg. on curves, pipe crossing of rural roads and driveways where level control is critical;
- All levels are to be in AHD with bench marks, reference pegs and permanent survey marks expressed to three decimal places (0.001 m);
- Reduced levels for road works and stormwater drainage may be expressed to three decimal places (0.001 m);
- Road grades are to be shown to 2 significant figures;
- Pipe grades are to be shown to three significant figures;
- Where appropriate plans are to show the following:
  - Legend;
  - Stage boundaries and stage numbers;
  - Road boundaries;
  - Existing natural surface and proposed constructed details;
  - North point;
  - Cross-sections are to extend to show the intersection with existing natural surface;
  - Diameter and class of all pipes; and
  - Limits of disturbance and vegetation retention;

# APPENDIX C

## Design Documentation Approval Application Form

New Application / Variation / Alteration / Staged Development

Development .....

Type of Works .....

Developer .....

Address .....

.....

Tel ..... Fax ..... Email .....

Project Manager .....

Supervising Engineer .....

Certifying Engineer .....

Address: .....

.....

Tel: ..... Fax: ..... Email: .....

The following design documentation is submitted herewith for approval by ASTC:

Plan No (including amendment details) .....

.....

Other information attached .....

.....

I/we request ASTC to assess the attached design documentation and approve the Development Works for construction. I/we undertake to pay the fees set out in the current ASTC Municipal Plan for this assessment. I/we confirm that the design documentation conforms to the requirements of the ASTC Subdivision and Development Guidelines and the requirements of any Development Permit.

Signed Developer: .....

Supervising Engineer / Project Manager:.....

## Attached

- Development Permit;
- Engineering Drawings and Landscape Drawings;
- Engineering and Landscape Specifications;
- Engineering Design Report;
- Approvals from other Authorities;
- Certified estimate of the cost of Development Works;
- All required test results and certification; and
- Any other documentation required to complete the Design Documentation necessary for ASTC approval of the Development Works.

# APPENDIX D

## Design Documentation Approval Checklist

For internal ASTC use as well as use by Developer / Project Manager / Superintendent.

Development..... Submission No. 1, 2, 3, 4, 5, etc...

Consultant .....Date Submitted / /

- Preliminary design discussions with ASTC? Yes / No
- Design Documentation submitted to ASTC with the following items attached:
  - Proof of Appointment of Project Manager / Superintendent to act on behalf of the Developer
  - Copy of relevant land use agreements, development leases and covenants, especially if Development Works are on Crown Land
  - Copy of the current Development Permit(s)
  - Copy of authorisation to carry our work from the owner of the land
  - Design Documentation Approval Application Form and ASTC Development Assessment Fee
  - Detailed design drawings (see Appendix B), including Engineer Certified design drawings and drainage calculations and details and calculations for Erosion and Sediment Control measures and landscaping details
  - Engineering Design Report(s)
  - Specification(s) for the Development Works, including engineering and landscaping
  - Geotechnical and Soil types report(s)
  - Pavement design calculations
  - Structural details, including Engineer Certified design drawings and calculations
  - Approvals from other Authorities
  - Estimate of cost of construction of the Development Works
  - Construction Management Plan, including hours of operation
  - Certifications and details of Public Risk Insurance

All plans must be Checked and Signed by an Authorised Officer of ASTC.

The requirements are generally as follows:

Two copies of all drawings, at A3 Size (and legible with the naked eye), are required. Drawings are to include but not be limited to the following:

- Landscape and Irrigation (concept drawings if the details are not finalised);
- Stormwater Management and Erosion and Sediment Control;
- Stormwater Hydraulic calculation and report
- Pavement investigation, design and report
- Technical Specification;
- Engineering drawings are to include as they apply to the Development;
  1. Cover sheet
  2. Locality drawing
  3. Subdivision layout / staging (if applicable)
  4. Earth works
  5. Road works and stormwater drainage
  6. Longitudinal and cross-sections for roads
  7. Detail plan of each intersection, cul-de-sac and hazard point
  8. Longitudinal section of each drainage line
  9. Drainage calculations and catchment plan
  10. Foot path layout

Payments

Design Approval Fee (relevant fee listed in the current ASTC Municipal Plan)

Checked by ..... Date        /        /

Comments .....

# APPENDIX E

## ASTC Pre-start Meeting Form

Date:	ASTC Reference No. (for all correspondence):
Development Name	
Project Manager:	Supervision By:
Contractor:	ASTC Rep:
Quality Control Coordinator:	A/H No:
Works Start Date:	Extent of Work:
Price of Works:	Sub-Contractors:
Period of Works:	Suppliers:
Work Hours	

Item No	Notes
Attendees:	<ol style="list-style-type: none"> <li>1.</li> <li>2.</li> <li>3.</li> <li>4.</li> <li>5.</li> <li>6.</li> <li>7.</li> <li>8.</li> </ol>
1 (a)	Work Place Health & Safety and Public Liability Insurance (provide evidence to ASTC)
1 (b)	Site Induction?
2	Traffic Control – On ASTC roads - approval of traffic management plan
3	Any AAPA approvals/permitted work areas
4	Filling draining to the roads?
5	Existing services affected by the works? - approvals
6	Landscaping and Parks development - Comments
7	Geotechnical Consultants:  Work Required:

8	Any retained vegetation?
9	Dust and Mud control
10	Protection of adjacent prosperities
11	Erosion and Sediment Control Plan – comments
12	Design Alterations?
13	Other Issues?
14	Inspections Required <ol style="list-style-type: none"> <li>1. Sub-grade</li> <li>2. Pre-seal</li> <li>3. On-Maintenance</li> <li>4. Off-Maintenance</li> <li>5. Final Inspection</li> <li>6. Audit inspections</li> <li>7. Hold Point Inspections</li> </ol>
General Matters	
1	SEP'S are to be constructed to Standard Drawing ASTC – 108
2	Construction of concrete foot path/cycle paths is to be undertaken in a manner that assures the maximum performance under loads. Failure from obvious substandard construction will need to be repaired by the developer
3	CBR testing is to be undertaken on the weakest material in the zone 0 mm - 600 mm below sub-grade level.
Other Comments	

# Appendix F

## On-Maintenance Process Check List

For internal Council use as well as Developer / Project Manager / Superintendent (Engineering Consultant)

Project .....

Superintendent .....

Application Date                    /           /

Inspection Date                /           /

- Application for Works to be placed On-Maintenance (completed and attached)
- On-Maintenance Inspection complete and reinspected (if necessary)
- Application to ASTC for acceptance of Maintenance Security Deposit and Uncompleted Works Bond (if applicable)
- Submission of Certification of the Works

- 1 Road Works and Drainage
- 2 Landscape / Irrigation
- 3 Structural
- 4 Other Authorities
- 5 Any other certifications required

- Submission of As-Constructed Drawings in
  - 1. Hard copy
  - 2. Digital copy (in the form specified)
- Submission of Clearances
  - 1. Private Owners
  - 2. Other Authorities
- Submission of required test results and reports
- Submission of the Cadastral Survey Plan with Final Easement Details and confirmation that the Survey Pegs are in place
- Submission a Statement of the value of the Maintenance Security Deposit base on the final cost of the works and submission of any top up of the Maintenance Security Deposit.

Checked .....

Date of On Maintenance approval                /           /

Comments .....

.....



# Appendix G

## On-Maintenance Site Inspection Checklist

The Developer/Project Manager/Supervising Engineer/Superintendent must request the On-Maintenance Inspection in writing and any application is to be accompanied by a completed and signed copy of the On-Maintenance Site Inspection Checklist. The On-Maintenance Inspection is a joint site inspection with the Developer/Project Manager /Supervising Engineer/Superintendent, Civil Contractor and an Authorised Officer representing ASTC who shall inspect the following matters:

Item	Verification (Yes/No/NA)	Comment
Stormwater Drainage System		
(a) Pipe work has been visually inspected and is satisfactory i.e. <ul style="list-style-type: none"> <li>• Free from debris and siltation</li> <li>• Pipe joints satisfactory with no deflection or movement</li> <li>• No visible sign of trench backfill subsidence</li> <li>• No exposed reinforcing in cut pipe ends</li> <li>• CCTV report provided</li> </ul>		
(b) gully pits and manholes have been visually checked and are satisfactory i.e. <ul style="list-style-type: none"> <li>• No ponding</li> <li>• No excessive cracking of reinforced concrete works</li> <li>• Clear of silt and debris</li> <li>• All mortar in place and no excessive spalling or cracking</li> <li>• No visible subsidence</li> </ul>		
Earthworks		
(a) Slopes to conform with the stormwater catchment plan  (b) Erosion and sediment control protects Council drainage structures		
Road works		

<p>(a) Road pavement has been visually inspected and is satisfactory i.e.</p> <ul style="list-style-type: none"> <li>• No damage to AC surface</li> <li>• No ponding</li> <li>• Clear of silt</li> </ul>		
<p>(b)Kerb and channel has been visually inspected and is satisfactory i.e.</p> <ul style="list-style-type: none"> <li>• No excessive cracking to concrete works</li> <li>• No ponding</li> <li>• Service conduit markings</li> <li>• AC flush or above the lip of the gutter</li> </ul>		
<p>(c) Line marking and road signage adequate</p>		
<p><u>Miscellaneous</u></p>		
<p>(a) Pathways and concrete works satisfactory</p> <p>(b) Street signage and road markings are as per approved plans and are satisfactory</p>		
<p><u>Other Matters</u></p>		
<p>(a) Specific site matters are complete and are OK</p> <p>(b) As Constructed details provided</p> <p>(c) Service Authorities certificates provided</p> <p>(d) Test results as per ITP provided</p>		
<p>Superintendent Signature _____ IEA Qualification _____</p> <p>Name: _____</p> <p>Date: _____</p>		
<p>Council Notes: _____</p>		

# Appendix H

## Off-Maintenance Site Inspection Checklist

The Developer/Project Manager/Supervising Engineer/Superintendent must request the Off-Maintenance site inspection in writing and that application is to be accompanied by a completed and signed copy of the Off-Maintenance Site Inspection Checklist.

The Off-Maintenance site inspection is a joint site inspection with the Developer/Project Manager/Supervising Engineer/Superintendent, Civil Contractor and an Authorised Officer representing ASTC and shall inspect the following matters:

Item	Verification	Comment
Stormwater Drainage System		
(a) Pipe work has been visually inspected at manholes and pits and is satisfactory i.e. <ul style="list-style-type: none"> <li>• Free from debris and siltation</li> <li>• Pipe joints with structures are stable</li> <li>• No visible sign of trench backfill subsidence</li> <li>• No exposed reinforcing in cut pipe ends</li> </ul>		
(b) SEP'S and manholes have been visually checked and are satisfactory i.e. <ul style="list-style-type: none"> <li>• No ponding</li> <li>• No excessive cracking of reinforced concrete works</li> <li>• Clear of silt and debris</li> <li>• All mortar in place</li> <li>• No visible subsidence</li> <li>• Items repaired during maintenance are OK</li> </ul>		
Earthworks		
(c) Erosion and sediment control protects Council drainage structures		
Road works		

<p>(a) Road pavement has been visually inspected and is satisfactory i.e.</p> <ul style="list-style-type: none"> <li>• No damage to AC surface</li> <li>• No ponding, subsidence or cracking</li> <li>• Clear of silt</li> <li>• No depression in the AC at the gutter</li> </ul>		
<p>(b) Kerb and channel has been visually inspected and is satisfactory i.e.</p> <ul style="list-style-type: none"> <li>• No excessive cracking to concrete works or damage to the top of kerb</li> <li>• No ponding</li> <li>• Service conduit markings are OK</li> </ul>		
<p>(c) Line marking and road signage adequate – does line marking need to be re-painted</p>		
<p>Miscellaneous</p>		
<p>(a) Pathways and concrete works satisfactory with no excessive breakages</p>		
<p>(b) No trip edges in the road verges</p>		
<p>Other Matters</p>		
<p>(e) Specific site matters are satisfactory</p> <p>(f) Significant repairs during maintenance are OK</p>		
<p>Superintendent Signature _____ IEA Qualification _____</p> <p>Name: _____</p> <p>Date: _____</p>		
<p>Council Notes: _____</p> <p>_____</p>		

# Appendix I

## Bonding Application

All applications for External Works Bonds, Construction Deposits and Maintenance Deposits shall be made on the attached form and in accordance with the conditions set out below:

### Monetary Guarantee

The Monetary Guarantee may be lodged with ASTC in either of the following formats:

- a) A Bank Guarantee from an approved Financial Institution;
- b) Cash.

### Developer's Obligations

The applicant shall, at its own costs:

- a) Provide a Monetary Guarantee to ASTC to guarantee any required action;
- b) Undertake any actions required within a prescribed period.

### ASTC Obligations

ASTC shall undertake the required action where the Developer has:

- a) Complied with the requirements of the approval of Development Works given by ASTC;
- b) Provided ASTC with a formal application and a Monetary Guarantee;
- c) Paid all costs associated with the preparation and lodgement of the Monetary Guarantee;
- d) Satisfied ASTC that the required action can be completed within the prescribed period.

### Default by the Developer

- a) Where the applicant fails to complete the required action, ASTC shall state a fair estimate of cost of completing the Required Action including all costs, charges and overheads associated with completing the required action.
- b) ASTC may recover the fair estimate of cost of completing the required action from any monies or bank guarantees lodged to guarantee the required action.

### Use of Monetary Guarantee

ASTC may apply any monies recovered following default by Developer to any of the following actions:

- a) Carry out the required action, or part thereof, within the prescribed period;
- b) Repair any incorrectly or partly completed works undertaken as part of the required action;
- c) Repair any infrastructure damaged as a result of undertaking the required action;
- d) Reimbursement for any damages that may have been suffered as a result of undertaking the required action.

### Release of Monetary Guarantee

ASTC shall:

- a) Release the Monetary Guarantee where the Developer has completed the requirements, as set out above;  
or
- b) reduce the Monetary Guarantee, where agreed during the application process, when the required action is completed, provided that the amount of the Monetary Guarantee retained is equal to 1.5 times the reasonable estimate of the cost of completing the required action, including any Maintenance Deposit.

### Application for Bonding of Development Works

If the Developer is required to lodge a Bond with ASTC then this Bond shall to comply with the provisions in the ASTC Subdivision and Development Requirements.

# ASTC Bonding of Works Application Form

Date \_\_\_\_\_

Applicant \_\_\_\_\_

Development \_\_\_\_\_

\_\_\_\_\_

Bonding for \_\_\_\_\_

\_\_\_\_\_

Monetary Amount \_\_\_\_\_

Requested Action \_\_\_\_\_

Required Action \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Prescribed Period \_\_\_\_\_

Bond Instrument \_\_\_\_\_

Applicant's Signature \_\_\_\_\_