

# PART A OVERVIEW AND BACKGROUND

## 1. INTRODUCTION

### 1.1 BACKGROUND

This Manual is a product of the Victorian Growth Areas Infrastructure Engineering Standardisation Project, and delivers a set of consistent standardised, best practice documents that outline approval and supporting processes for the planning, design and construction of subdivision infrastructure.

The standards, specifications and processes have been developed by collaboration between the Growth Areas Authority and Councils in Melbourne's growth areas, in consultation with industry representatives.

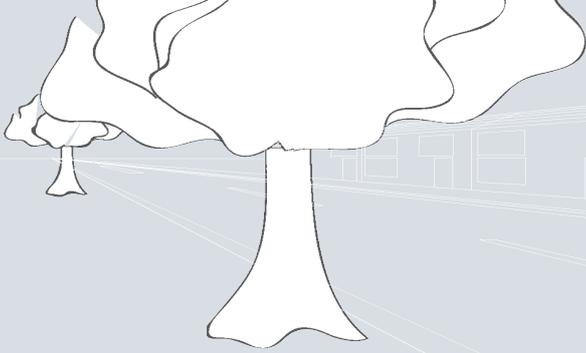
Adopted standards will generally be applied by planning permits allowing subdivision following the approval of a Precinct Structure Plan.

A consistent approach to design standards and construction specifications will ensure growth area Councils, landowners, developers and consultants clearly understand the expectations and commitments that are outlined in this manual. Clear expectations will result in a more efficient process of approval, implementation and certification, avoiding delays that can arise from interpreting and responding to different standards across the growth areas.

### 1.2 PRINCIPLES

In preparing the manual the following principles were considered:

- > Ensuring that the guidelines, standards and specifications are achievable;
- > Providing flexibility to encourage innovation and best practice, and take into account regional or localised conditions within the growth areas.
- > Current Victorian Standards for residential development contained in Precinct Structure Planning Guidelines and Clause 56 of the Victorian Planning Provisions.
- > The need to harmonise the procedures and timelines of the various infrastructure and service agencies with local government procedures and standards.



### 1.3 OBJECTIVES OF THE MANUAL

The primary objectives of the manual are:

- > To clearly document Council requirements for the planning, design and development of subdivision infrastructure;
- > To standardise development submissions as much as possible and thus to expedite Council engineering approvals;
- > To recognise and deal with the various issues currently impacting on the land development industry, in particular sustainability, integrated water management, timeliness and affordability; and
- > To ensure that minimum design criteria are met in regard to the design and construction of infrastructure within the municipalities.

Achieving these objectives requires cooperation of all relevant parties with ongoing open communication and commitment to achieving best practice.

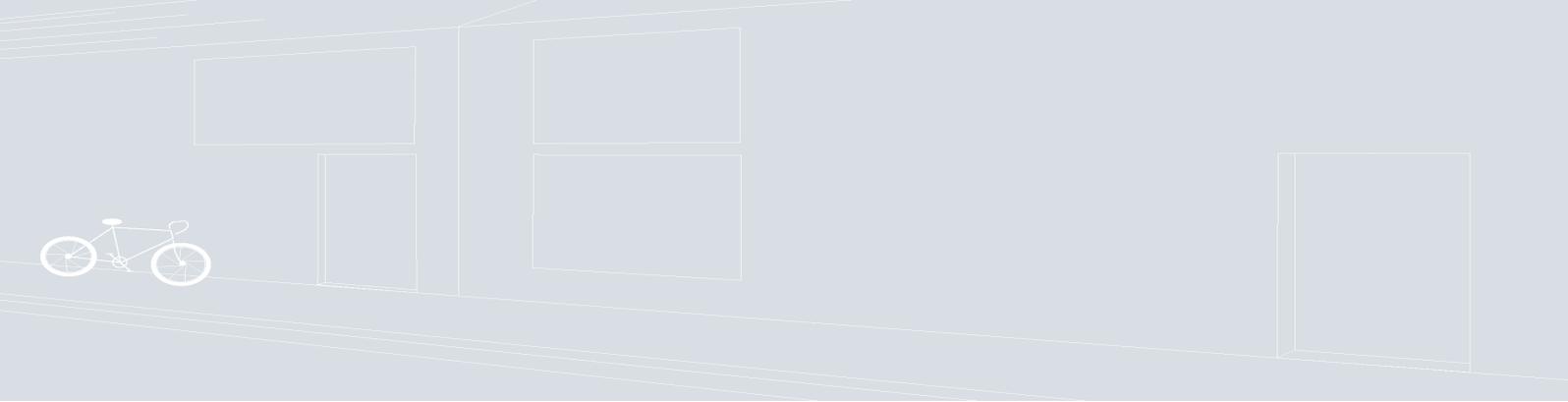
### 1.4 STRUCTURE AND CONTENT OF THE MANUAL

For clarity and reproduction purposes, the manual has been structured into the following sections to separate procedures and design issues from construction requirements.

- > **Parts A, B and C** outline the engineering design and approvals process. This will generally follow the completion of Precinct Structure Planning and issue of a Planning Permit for a development proposal.
- > **Part D** outlines a construction framework and processes that will usually follow the planning and engineering approvals stages. Preliminary specification clauses are based on Section 160 of the standard VicRoads specifications.

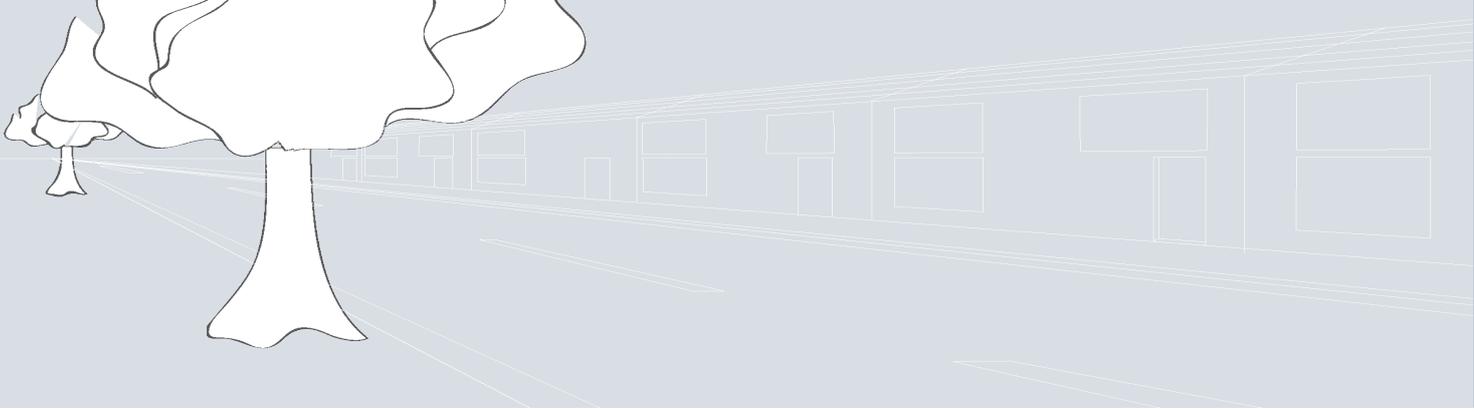
The manual contains the following elements:

- > **Charts, forms and tables** provided to assist in clarity and understanding of the written clauses.
- > **Functional Layout Plan** process preceding the detail design process. While being mandatory if it is a requirement of a planning permit, this process is highly recommended in other cases to facilitate faster documentation and approvals of engineering designs.
- > **Planning permit** submission documentation requirements in Part B are included for context.
- > Land subdivision flowchart in **Appendix A** is included for context.
- > Road pavement design charts in **Appendix B** provide consistency in



the interpretation and application of design codes in determining road pavement composition.

- > The design submission form in **Appendix C** will prompt both the designer and the council regarding the required contents of design submissions.
- > Standard Drawings in **Appendix D** cover the majority of infrastructure types required in most growth area scenarios. Each Council will have additional standard drawings that may need to be referred to where the standard drawings in this manual do not cover particular proposals.
- > **Appendix E** contains a list of relevant agencies and references that are recommended for use during the approval and construction process.
- > Detailed construction specifications in **Appendix F** are based on relevant VicRoads specifications. These will not generally need to be reproduced in hard copy form.
- > Road elements within **Section 10** indicate the basic components of road cross sections. Generally, road cross sections will be specified in the PSP for particular road types. Guidance on the determination of road cross sections is provided in the **Precinct Structure Planning Guidelines** and associated **Road Note**.



## 1.5 IMPLEMENTATION

The implementation of the manual will be supported by:

- > A communication plan that targets key stakeholders in the process;
- > Periodic updates to the standards to ensure best practice; and
- > Periodic review of the procedures to achieve continuous improvement.

The Manual has been developed specifically to address Melbourne's growth areas. A longer term goal of the State Government is to establish state wide standards and procedures. The manual may be revised and updated to achieve this goal.

The Manual is a living document, formatted to allow for revision and amendment from time to time.

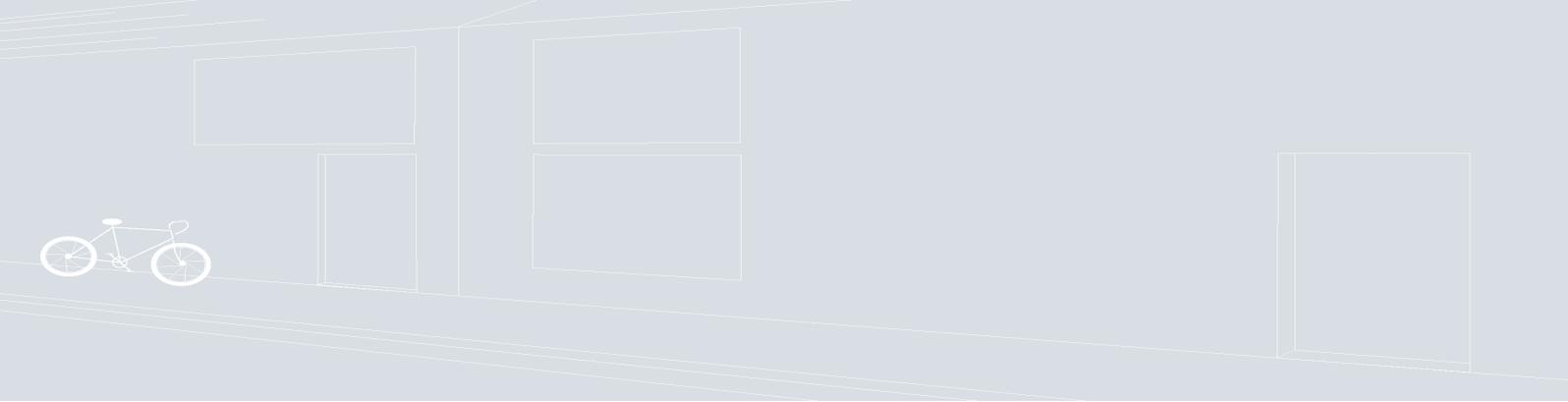
An initial review of the manual will be undertaken twelve months after its' adoption and implementation.

## 1.6 EXCEPTIONS

The Manual establishes a consistent approach to the design and approval of engineering infrastructure for subdivision in Melbourne's growth areas. Deviation from the criteria listed in this Manual may be considered in exceptional circumstances, provided that proponents can demonstrate that:

- > The objectives and requirements of the relevant PSP and planning permit are achieved.
- > The objectives and intent of the manual will be achieved.
- > A **net community benefit** is derived.

Approval of exceptions within the above framework is at the discretion of the relevant Council.



## 1.7 CONTEXT AND CHALLENGES

Key drivers in the preparation of this manual are the consideration and adoption of current best practice where applicable, and a philosophy where best practice is the norm rather than the exception.

There are many challenges which need to be considered in the planning, design and delivery of our newest suburbs. Some of these challenges are outlined below to provide context to the design and construction processes which are outlined further in this manual.

### 1.7.1 Innovation and Continuous Improvement

Standards and processes outlined in this manual have been developed based on reviewing current approaches and modifying these where necessary to address new and emerging needs and challenges.

Innovation will need to be considered and encouraged where necessary to address changing needs over time.

A continuous improvement approach will be adopted through an ongoing consultation process and modification of the standards prescribed in this manual based on experience gained through its' implementation.

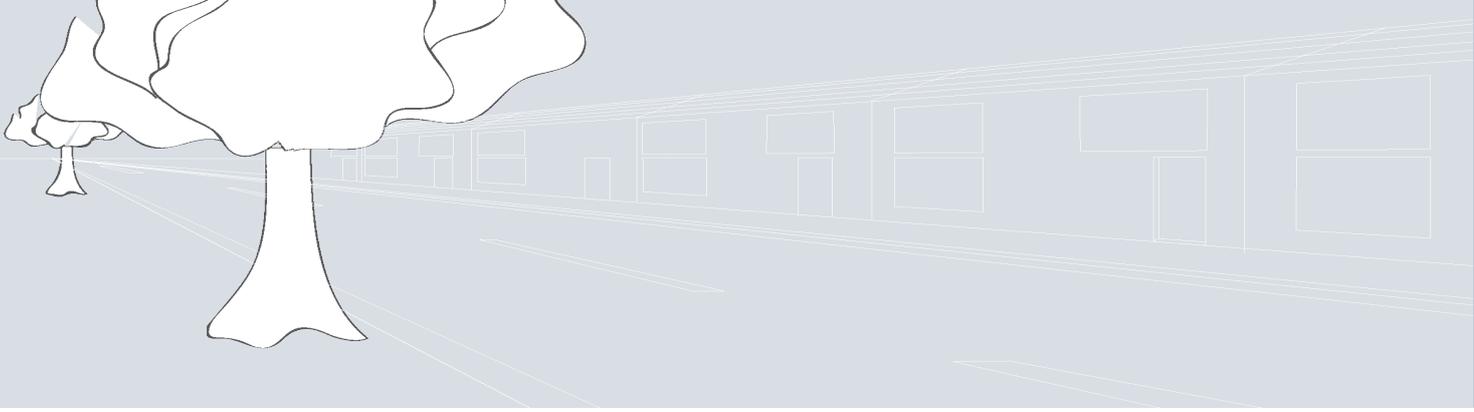
### 1.7.2 Integration and Collaboration

Sustainability and liveability objectives of the community can be achieved through the planning and delivery of infrastructure for our newest suburbs in an integrated and collaborative way, adopting a partnership approach between planners, engineers, government, non-government agencies, service authorities and land developers.

Our collective goals are:

- > Understand our impacts.
- > Favour Improvements
- > Share what is learnt.

This leads to continuous improvement, spreading awareness and advancing our understanding of critical issues while focussing on transforming short-term trade offs into longer term benefits.



### 1.7.3 Sustainability

Increasing urbanisation and economic growth provide significant community benefit but they can also present a range of challenges.

There is a growing aspiration to ensure cities reduce their ecological footprint in order to become more sustainable and to improve their structure and function to make them more liveable.

We need to recognise and act on the connections between climate, environmental quality, security, energy use, equity and prosperity.

To build sustainable communities our collective aims are:

- > Improve environmental quality
- > Build prosperous economies
- > Improve prospects for our children.

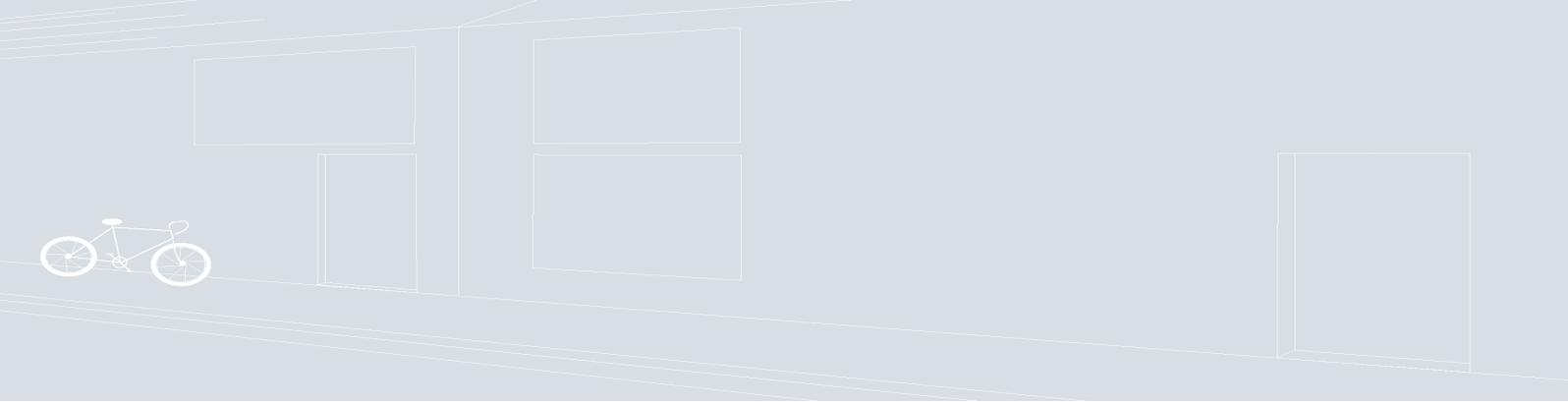
Design and construction of our newest suburbs is a critical element and, if undertaken correctly, can be a key influence in achieving sustainability and improving liveability.

### 1.7.4 Quality Assurance

Development and implementation of a quality assurance system for subdivision design and approvals is outside the scope of this version of the manual, however it is supported in principle provided this results in higher quality outcomes and a streamlining of processes to reduce time requirements.

Quality assurance will therefore be considered for inclusion in future reviews of this manual.

Due to the wider implications, quality assurance will be referred to a proposed state wide standardisation process for consideration.



### 1.7.5 Occupational Health and Safety

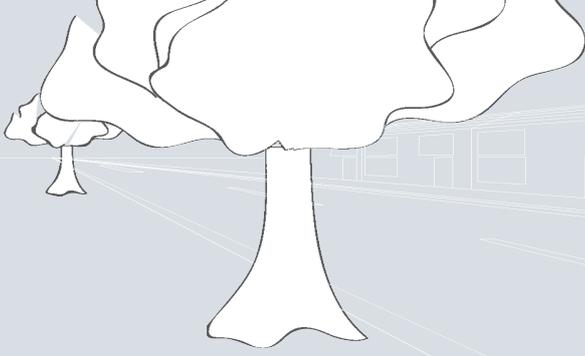
The requirements of the **Occupational Health and Safety Act** (the Act) and Regulations must be adhered to in all construction activities related to subdivision development, including the supervision and execution of the works.

A third party accredited integrated management system (CCF or similar) incorporating quality, safety and environmental aspects is a minimum requirement for all contractors.

All people who undertake construction work (including supervision) must hold the relevant qualification (construction induction card or similar) in accordance with the regulations.

In regard to occupational health and safety:

- > Contractors have a direct contractual relationship with the land developer and are bound by the relevant acts and regulations to implement appropriate occupational health and safety systems during the execution and delivery of the works.
- > Council staff have a role in assessing and approving engineering documentation including works specifications, and also in monitoring the quality of the infrastructure to be ultimately handed over to the Council. While having no direct contractual relationship with the contractor, Council staff are bound by the relevant acts and regulations and need to ensure an appropriate level of safety is implemented at all times during the construction of works.
- > Consultants who supervise the construction of works are bound by the relevant acts and regulations and need to ensure an appropriate level of safety is implemented at all times during the construction of the works.



### 1.7.6 Environmental Management

Best practice approaches are necessary in order to help protect environmental quality from degradation resulting through subdivision development.

A best practice environmental management approach can be defined as:

**“the best combination of techniques, methods, processes or technology used in an industry sector or activity that demonstrably minimizes the environmental impact of that industry sector or activity”.**

Knowledge of environmental management, implementation of effective management practices and modern advanced technology enables us to manage our activities to minimize our impact on the environment.

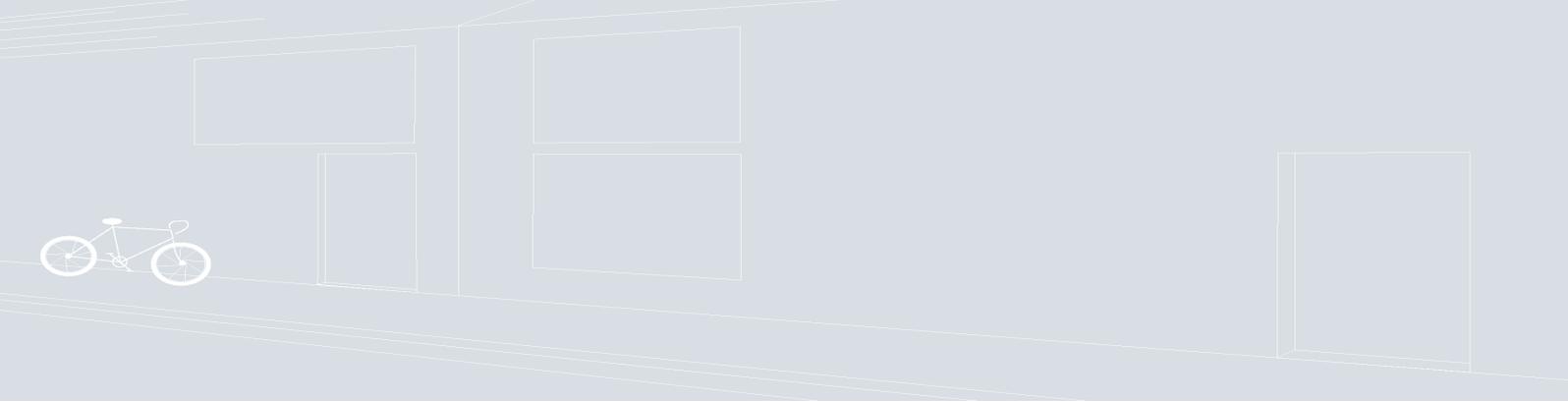
All practitioners should strive to improve their knowledge of best practice environmental management and implement this knowledge through their activities relating to subdivision development.

### 1.7.7 Practicability

Innovative or improvement measures should be assessed against measures used by others within the same industry or social sector, and the expected environmental financial and social impacts resulting from implementing these measures.

The practicability of each action needs to be assessed on a case by case basis to ensure that the unique environmental, social and financial aspects of each action are fully considered. Practicable actions are not necessarily the lowest financial cost options, but are generally considered to be what is affordable in the context of relevant industry or social sector. Implementation in a practicable manner will ensure that social and financial values are considered and sustained and environment protection maximized.

The many values and needs of our community need to be considered from a variety of contexts including the ability of communities and businesses to pay both financially and socially.



### 1.7.8 Weed Management

Management measures to prevent the spread of weeds should form an integral part of any environmental management plan prepared for a subdivision proposal. Site assessments are recommended to determine the presence of noxious weeds including those declared under the **Catchment and Land Protection Act 1994** and, if applicable, appropriate measures considered to ensure compliance with sections **70A (“Removing particular vehicles or other things onto or from a road”)** and **71 (“Spread of Noxious weeds”)** of that Act.

### 1.7.9 Protection of Waterways

Victoria’s water environments are diverse and are among the state’s most valuable assets. Victoria’s water environments:

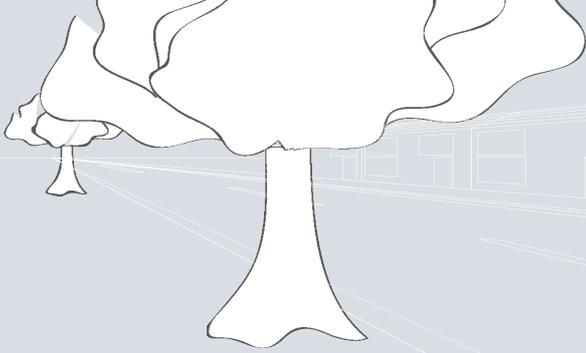
- > Support diverse marine life.
- > Sustain a way of life by providing drinking water, water for agriculture and other essential activities that support our well being and economy.
- > Are of great environmental and cultural value to all Victorians, especially indigenous people as the traditional custodians of Victoria’s land and waters.
- > Are of great value to rural communities which often see our water environments as their lifeblood.

The value of our waterways is important to present and future generations. In spite of increasing populations and levels of development in urban catchments, many streams still retain significant natural value and provide important environmental, commercial and recreational benefits.

The health of these environments is affected as land use intensifies which can then threaten the very features that make them so attractive and valuable. Adverse effects include salt, dirt or nutrients, algal blooms, aquatic pest plants and animals.

Land development has the potential to increase pollutant loads (e.g. litter, sediments, nitrogen, phosphorus, hydrocarbons and heavy metals) into the stormwater drainage system, while the magnitude of peak stormwater flows or the discharge of untreated stormwater can have adverse affects on the ecological, amenity, recreational and economic values of receiving waters.

Protection of waterways largely depends upon improved management of pollution carried by stormwater. In response to this, better management of stormwater within urban catchments has now become an essential component of land development through improved water quality management systems.



### 1.7.10 Integrated Water Management

An integrated approach to the management of our water resources (i.e. potable supply, sewage, stormwater, rainwater, ground water) is a critical element to the creation of better suburbs and it needs to be considered when planning and designing for our newest suburbs.

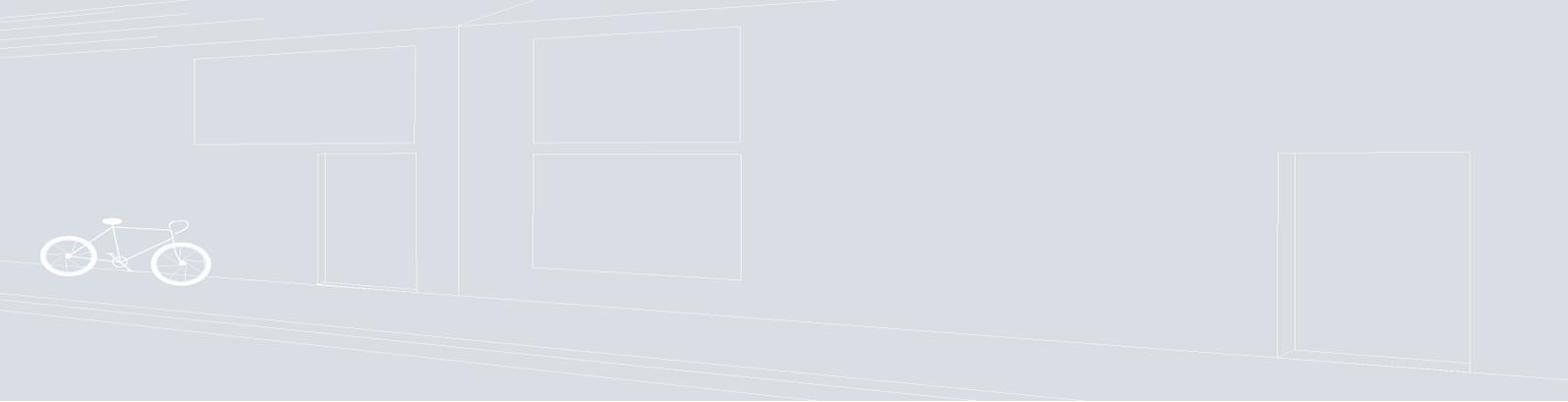
Integrated water management forms a key consideration during the Framework Planning and Precinct Structure Planning processes, and each PSP will contain an integrated water management plan which outlines the IWM requirements for the particular precinct. An integrated approach to the management of water involves a broad range of stakeholders at a regional, precinct, development and domestic scale. This approach seeks opportunities beyond “business as usual” to foster innovation and provide better environmental, health and liveability outcomes in all aspects of water management, supply and disposal.

Guidance on Integrated Water Management is provided in the **Precinct Structure Planning Guidelines** and associated Integrated **Water Management Note**.

Incorporation of IWM into subdivision designs will be influenced by what is contained in the relevant PSP and planning permit.

In general, the management and integration of stormwater will be the primary IWM element influenced by this manual, however other elements will have an indirect relationship and need to be considered. Typically, the following IWM elements relate to the design and construction of subdivision developments:

- > Water Sensitive Urban Design treatments within roads and open space.
- > Stormwater harvesting systems
- > Integration with Melbourne Water Drainage Schemes including reticulated drainage, retarding basins, wetlands and similar treatments.
- > Integration with water authority or catchment authority projects i.e. water recycling schemes, sewer mining, aquifer recharge and regional stormwater harvesting schemes.



### 1.7.11 Stormwater and Water Sensitive Urban Design

Clause 56 of the Victorian Planning Provisions (urban runoff management objectives and Standard C25) requires that stormwater run-off from residential subdivisions in an urban area comply with the **Urban Stormwater – Best Practice Environmental Management Guideline (BPEMG)**.

Management of stormwater is an important and essential component of an overall integrated water management approach for residential subdivision development.

Key principles of Water Sensitive Urban Design (WSUD) outlined in the BPEMG are:

- > Protect Natural Systems
- > Integrate stormwater treatment into the landscape
- > Protect water quality
- > Reduce runoff and peak flows
- > Add value while minimizing development costs

Current water quality objectives are:

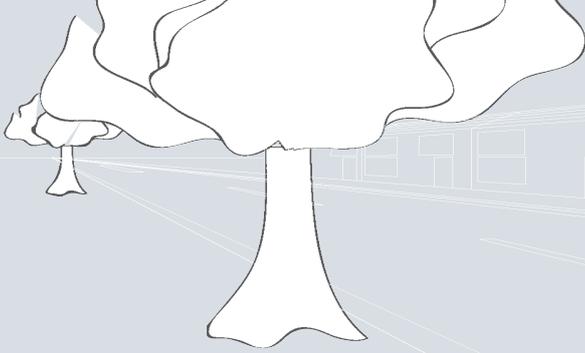
- > 80% retention of typical urban annual suspended solids load (TSS)
- > 45% retention of typical urban annual total phosphorous load (TP)
- > 45% retention of typical urban annual total nitrogen load (TN)
- > 70% retention of typical urban annual litter load (Litter)

Various WSUD treatments are outlined in the BPEMG to achieve the above objectives; including swales, rain gardens, bio-retention swales, buffer strips and wetlands.

Provision of treatments in sequence (treatment train) is recommended by the BPEMG to effectively deal with different types of pollutants.

Physical characteristics of a particular site can limit options for the location of WSUD treatments. There may also be social constraints which impact on the location of treatments including amenity, health and safety, aesthetics and impacts on recreational facilities.

Design and construction of WSUD treatments, therefore, needs to accommodate a balance of various needs including legislation, sustainability and environmental impacts, engineering best practice, physical and social impacts, and affordability and practicability. For further particulars regarding detailed WSUD applications, each Growth Area Council has produced guidelines which can be obtained from the relevant Council.



### 1.7.12 Co-ordination of Street Works

#### Code of Practice

Placement of underground services and assets within road reserves by service and utility agencies is often difficult to coordinate due to recent trends to limit road reserve widths while needing to accommodate additional services such as recycled water third pipes and also fibre optic communication conduits. In addition, utility agencies have over time, modified minimum clearance requirements to their assets.

It is therefore becoming increasingly difficult to provide cost effective road reserve widths appropriate to particular locations, both in new developments within growth areas and also in the wider metropolitan area.

The **Co-ordination of Street Works Code of Practice** was previously developed under the auspices of the Victorian Street Works Co-ordination Committee to document agreed requirements for the placement of services within road reserves. This code of practice was last updated in 1995 and the Committee is no longer in existence.

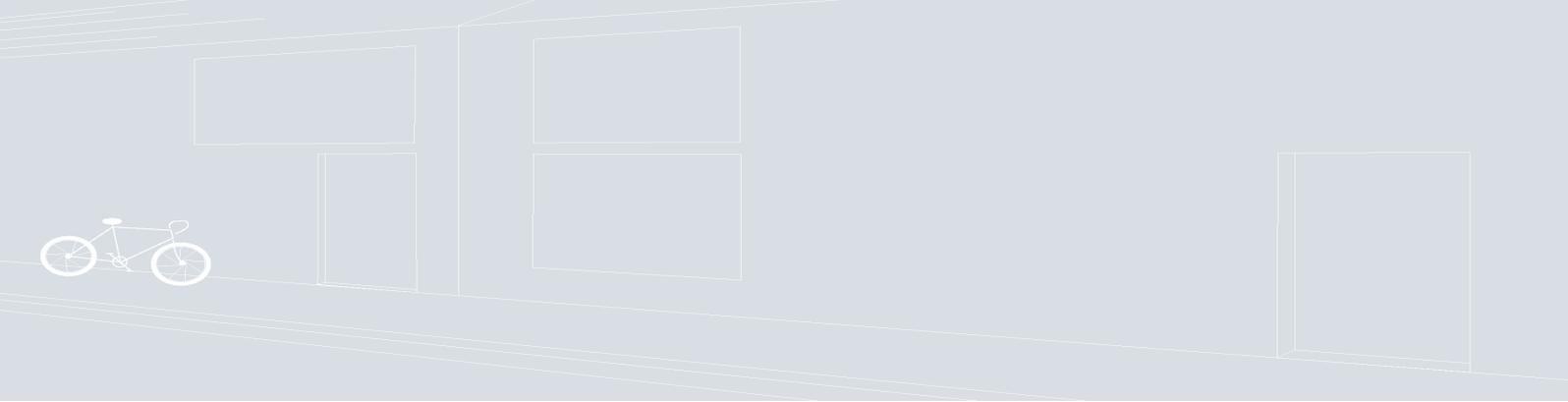
The lack of an up to date Code of Practice and a functioning Committee for the Co-ordination of street works has been identified as a matter of concern by road management authorities

Production of a new Code of Practice is outside the scope of this manual, however due to the implications for growth areas and the wider metropolitan area, a request to develop an updated Code has been referred to the Office of Local Government.

**Appendix D** of this Design and Construction manual contains a set of standard drawings including a typical services configuration cross section indicating offsets and clearances to underground services that are applicable to contemporary road reserve and nature strip widths. The nominated offsets and locations may need to be modified to accommodate situations that are not business as usual, i.e. providing for trunk or major services.

#### Dial Before You Dig

Any person or organisation that owns underground assets including pipes and cables has a responsibility or duty of care to ensure that information about the location of these services is easily available for people intending to undertake excavation activities.



People who represent a company responsible for any excavation work also have a duty of care to locate underground services or assets that are in the vicinity of the dig site, and then find and expose them before excavating near or around them. The duty of care is:

- > To protect workers and the public from serious injury due to the rupture of an underground asset such as a natural gas pipe, high voltage electricity cable, petroleum or industrial gas pipe. Any damage to these assets can cause very serious damage to structures and potential injury to many people.
- > To minimise the potential for damage and loss of service due to damage or rupture of the same assets. Extensive networks can be closed down for long periods with serious consequences of disruption and incurring penalties. The repair and replacement costs can also be very expensive.

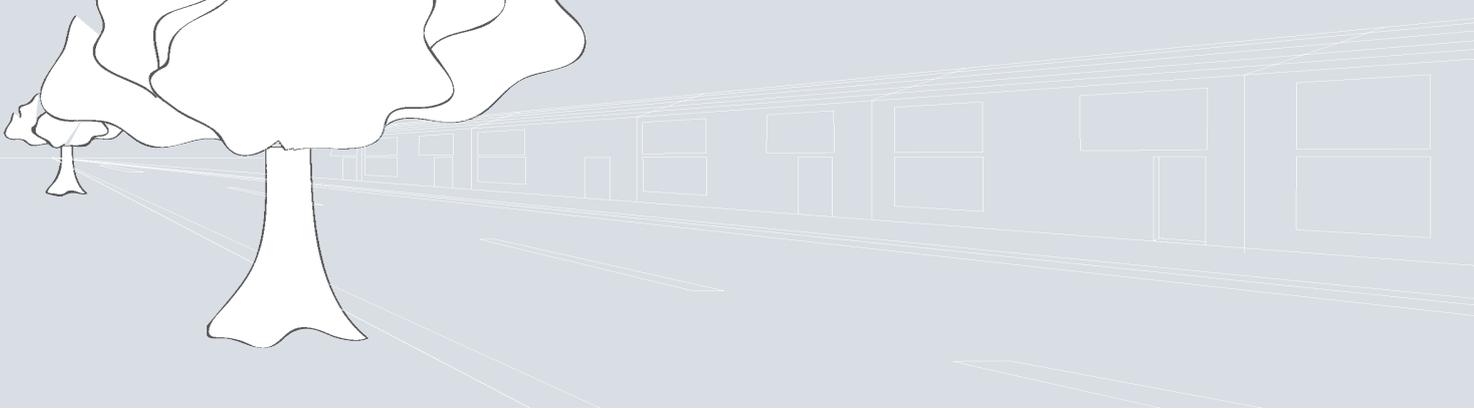
The preferred method of obtaining information about the location of underground assets is the **Dial Before You Dig** service.

Features of the Dial Before You Dig service are:

- > It is often the only method used by people intending to carry out excavation works when searching for information about the location of underground pipes and cables at a proposed dig site.
- > It is referred to in publications from **WorkSafe Victoria** and **Energy Safe Victoria** as best practice.
- > The service aims to provide all excavators with the best possible access to plans and information direct from asset owners of underground services using a national enquiry service.
- > Its overall purpose is to educate and promote the importance of safe digging practices to the excavation community and to develop its membership base to include all asset owners of underground services.
- > A request for information can be made by logging on at the web site ([www.1100.com.au](http://www.1100.com.au)) or by phoning 1100. Customer details and the proposed area of the dig site will be sent to all asset owners registered with Dial before You Dig in that area and information will be sent back directly by the asset owner within two working days for excavation works. This may take up to 10 working days for planning and design requests.

Dial Before You Dig's **Service Guidelines for Victoria** outlines the responsibilities of all underground asset owners to register assets and provide information when requested, and also the responsibilities of people intending to undertake excavation work to obtain information about underground assets in the area and follow safe work practices. The guidelines can be obtained from:

(<http://www.1100.com.au/Aboutus/ServiceGuidelinesforVictoria.aspx>)



In the growth areas it is especially important that new infrastructure is registered with the Dial Before You Dig service not just when it has been commissioned, but also at the construction stage to ensure that information about the underground infrastructure is available to protect these assets before commissioning.

### 1.7.13 Recording of Asset Information

Recording of all newly constructed asset data is a key task undertaken by councils.

Over time, individual councils have developed particular requirements in regard to the provision of asset data by developers following completion of subdivision development works. These requirements are typically included as conditions in planning permits.

Provision of digital drainage asset data under the “**D-Spec**” system has been adopted as the minimum requirement on the following basis:

- > All growth area Councils currently use this system for the recording of their drainage data;
- > Data is provided in a GIS ready format;
- > Data can be readily transferred to Asset Information systems;
- > This is a best practice approach which streamlines the provision, handling and storing of asset data;
- > Many Consultants are familiar with this system;
- > This system is now widely accepted across Australian local government agencies.

Where a planning permit requires additional digital asset information such as for roads and open space, this is mandatory and shall be provided in accordance with the requirements of the Responsible Authority.

Further information can be obtained from website [www.dspect.com.au](http://www.dspect.com.au).