

PINE RIVERS SHIRE COUNCIL

DESIGN MANUAL

CIVIL INFRASTRUCTURE DESIGN



DESIGN STANDARDS

Part 1 Design Standards for Roadworks

Part 2 Design Standards for Stormwater Drainage Works

Part 3 Design Standards for Water Supply Works

Part 4 Design Standards for Sewerage Works

PINE RIVERS SHIRE COUNCIL

DESIGN STANDARDS



PART 4

DESIGN STANDARDS FOR SEWERAGE WORKS

Section 1 Introduction

Section 2 Design Procedure

PINE RIVERS SHIRE COUNCIL

PART 4 - DESIGN STANDARDS FOR SEWERAGE WORKS



SECTION 1 INTRODUCTION

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1.1.0 GENERAL

1.1.1 BACKGROUND

Pine Rivers Shire is experiencing strong growth in urban, industrial and commercial areas. The impact of this development on the Pine Rivers Shire Council sewerage systems is significant and the need to document existing design and construction requirements for the Pine Rivers Shire Council sewerage infrastructure has led to the development of these design standards.

1.1.2 PURPOSE

The purpose of this part of the Design Standards is to set out the Pine Rivers Shire Council requirements for the investigation, design, construction, operation and maintenance of sewerage infrastructure in the Pine Rivers Shire. It is intended that this information will be used by experienced sewerage designers to ensure that the completed works meet with the Pine Rivers Shire Council requirements.

1.1.3 SCOPE

These design standards cover all works associated with sewers, manholes, house connection branches, pumping stations, pressure mains and associated works. They apply to such works whether they are constructed in association with new or existing developments. They also apply to such works constructed in privately or publicly owned land.

The Pine Rivers Shire Council is prepared to consider, on their merits, alternative or innovative design approaches for unusual circumstances. These design standards thus form the “deemed to comply” criteria for the design of sewerage systems.

These design standards cannot, of necessity, cover all possible requirements by the Pine Rivers Shire Council for every project. The Pine Rivers Shire Council may issue special requirements for particular projects as the need arises.

The Pine Rivers Shire Council Design Manual is a living document which is periodically reviewed and, accordingly, any comment or constructive criticism is invited. Any comments should be made in writing to the General Manager Pine Water, Pine Rivers Shire Council.

These design standards are supported by the Pine Rivers Shire Council specifications for non-pressure and pressure pipelines, submersible sewage pumping stations and submersible sewage pumping and ancillary equipment together with a range of standard drawings.

1.1.4 FORMAT OF THE DESIGN STANDARDS FOR SEWERAGE WORKS

The components of this part of the design standards are therefore:-

- | | | |
|-----------|---|------------------|
| Section 1 | - | Introduction |
| Section 2 | - | Design Procedure |

For convenient reference, the relevant topics covered in the above sections are:-

Section 1 - Introduction

- ❖ General
- ❖ Responsibility of the Consultant
- ❖ References
- ❖ Definitions
- ❖ Documentation

Section 2 - Design Procedure

- ❖ Preamble
- ❖ Headworks or Priority Infrastructure Plans
- ❖ Design of Sewers
- ❖ Connection of Unsewered Dwellings
- ❖ Types of Sewer Pipes
- ❖ Manholes
- ❖ House Drains
- ❖ Location of Sewers, Manholes and house Connections
- ❖ Special Developments
- ❖ Existing Sewers
- ❖ Sewage Pumping Stations
- ❖ Sewage Pumps and Ancillary Equipment
- ❖ Control of Sewerage Overflows
- ❖ Pressure Mains
- ❖ Vehicular Access to Sewage Pumping Stations
- ❖ Operation and Maintenance Manuals
- ❖ Environmental Protection
- ❖ Approval of Drawings
- ❖ As Constructed Information
- ❖ Inspection and Maintenance
- ❖ Testing of Sewers, Manholes, Pumping Equipment and Pressure Mains

These standards are supported by associated design guidelines, standard drawings, and standard specifications.

❖ **STANDARD SPECIFICATIONS**

- ❖ Pine Rivers Shire Specifications - Series 500 and other referenced Specifications

❖ **STANDARD DRAWINGS**

- ❖ 8-50000 Series Drawings and other referenced standard drawings

1.2.0 RESPONSIBILITY OF THE CONSULTANT

1.2.1 NATURE AND EXTENT OF WORK

It shall be the responsibility of the consulting engineer to accurately and fully determine the nature and extent of work necessary to provide an effective sewerage service to any development. The “nature and extent” of any works shall be to the satisfaction of a Pine Rivers Shire Council engineer and in accordance with these design standards.

1.2.2 COMPLIANCE WITH STANDARDS

All sewerage works shall comply with the Sewerage and Water Supply Act, The Department of Natural Resources (Water Resources) - Guidelines for Planning and Design of Sewerage Schemes, relevant Australian standards, and these design standards. Where discrepancies exist between design documents, the Pine Rivers Shire Council design standards shall take precedence.

These design standards do not limit the designer's obligations to comply with relevant legislation e.g. Sewerage and Water Supply Act, Environmental Protection Act and Workplace Health and Safety Act.

1.2.3 PROTECTION OF THE ENVIRONMENT

It is Pine Rivers Shire Council's intention that the environmental aspects of any site or project are given close consideration.

The consultant's and contractors attention is drawn to the requirements of relevant Environmental Protection Legislation.

Where works are undertaken adjacent to water courses or other environmentally significant sites, priority is given to maintaining the existing vegetation and the environmental characteristics of the site.

All works are to be carried out and reinstatement completed to the satisfaction of a Pine Rivers Shire Council engineer.

Where sewerage works are carried out as part of a subdivision or other development, erosion and sediment control plans are to be prepared as part of the development plans.

Where sewerage works are carried out externally to or separately from development sites, separate erosion and sediment control plans are to be prepared to the satisfaction of a Pine Rivers Shire Council engineer.

1.2.4 APPROVALS AND LICENCES

Where sewerage works require an approval or licence from any government department or other statutory authority, such approval or licence shall be obtained by the consulting engineer, copies of such approval or license shall be provided to the Pine Rivers Shire Council's General Manager, Pine Water.

Any costs associated with obtaining approval or licence shall be borne by the developer.

1.2.5 COMPLETION OF WORKS

It shall be the responsibility of the consulting engineer to ensure the timely completion of all sewerage works associated with a particular development.

Such works shall include, but are not limited to, the design, construction, maintenance and provision of “as constructed” drawings of the completed works.

All sewerage works shall be completed in a manner and time frame which is satisfactory to a Pine Rivers Shire Council engineer.

Where a construction period is likely to exceed twelve weeks, a formal construction programme is to be supplied to a Pine Rivers Shire Council engineer for approval.

Sewerage works will not be considered as having reached practical completion and accepted “on-maintenance” by the Pine Rivers Shire Council until all relevant “as constructed” plans and information is supplied.

1.3.0 REFERENCES

1.3.1 REFERENCE DOCUMENTS

- ❖ Guidelines for Planning and Design of Sewerage Schemes - Department of Natural Resources (Water Resources), 1991
- ❖ Sewerage and Water Supply Act, 1949-1982
- ❖ Environmental Protection Act, 1994
- ❖ Workplace Health and Safety Act, 1995
- ❖ The Integrated Planning Act 1997
- ❖ Pine Rivers Shire Council Local Law 22 - Subdivision Control
- ❖ ANZECC Water Quality Guidelines
- ❖ Aboriginal Cultural Heritage Act 2003
- ❖ The Pine Rivers Shire Council Local Planning Policy LP10 - Water Supply and Sewerage Headworks Contributions

1.4.0 DEFINITIONS

1.4.1 TERMS USED IN DESIGN STANDARDS

- ❖ Council - The Pine Rivers Shire Council
- ❖ Director, Assets and Infrastructure Services Division - the person occupying that position or their nominated representative
- ❖ Manager, Development Services Department - the person occupying that position within the Pine Rivers Shire Council or their nominated representative.
- ❖ General Manager Pine Water - the person occupying that position or their nominated representative
- ❖ Manager Electrical Mechanical Services - the person occupying that position or their nominated representative
- ❖ Pine Rivers Shire Council engineer - the Engineer employed by Council to approve, supervise or inspect sewerage works, or their nominated representative.
- ❖ Developer - the company, organisation or person to whom approval has been given to carry out the works, relating to a particular development, and who acts as principal for the purpose of works executed by contract.
- ❖ Consulting Engineer - the registered professional engineering company or registered professional engineer engaged by the developer to carry out the investigation and design of the sewerage works to be constructed by the developer. When engaged for the construction phase, the company or engineer shall act as the superintendent for the purpose of works carried out by contract.
- ❖ Contractor - the company, organisation or person engaged to carry out sewerage construction works.
- ❖ E.P. - Equivalent Persons
- ❖ ADWF - Average Dry Weather Flow
- ❖ MDF - Maximum Design Flow (5 x ADWF)
- ❖ Private Sewer - any section of sewer construction within a development or property which does not form part of the Pine Rivers Shire Council sewerage reticulation

1.5.0 DOCUMENTATION

1.5.1 GENERAL

In order to promote a standard approach to the design and construction of sewerage infrastructure within the Pine Rivers Shire, a number of Design Guidelines, Standard Drawings and Standards Specifications have been produced. These are suitable for, and encouraged to be used for inclusion with subdivisional or other development contract documentation.