



WARRINGAH
COUNCIL

**Building Over or Adjacent to Constructed Council
Drainage Systems and Easements Technical
Specification**

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1 General

When a Development application or application for a Complying Development Certificate is lodged on land that is burdened by or adjacent to a Council stormwater drainage system and/or easement, the requirements outlined below are to be implemented.

This is to ensure that Council's drainage infrastructure is not damaged and that costs and liabilities are minimised when constructing, replacing, maintaining or obtaining emergency access to constructed public drainage systems located within private property.

Where the drainage system is a natural (unconstructed) drainage system or watercourse, refer to Council's Water Management Policy and Protection of Waterways and Riparian Lands Policy for further detail.

2 Easements Requirements for Council Drainage Systems

Council will acquire drainage easements over constructed public drainage systems within private property, wherever possible.

When a development application is submitted and the property contains a Council drainage system not burdened by a drainage easement, development consent shall be conditional upon the property owner agreeing to grant Council a drainage easement in accordance with Council's standard terms. All costs including legal and surveying associated with the creation of the easement are to be borne by the applicant.

3 Reconstruction/Relocation of Public Drainage System

Where a developer/property owner obtains Council approval to reconstruct and/or relocate any existing constructed public drainage system within the subject site, the developer/property owner shall create drainage easements in favour of Council, to suit the relocated/reconstructed drainage system.

All costs associated with the reconstruction and/or relocation of Council's drainage system are to be borne by the applicant. Hydrological and hydraulic studies and design plans are to be prepared by a Civil Engineer registered on the National Professionals Engineers Register (NPER).

4 Hydraulic Design Requirements

Council's piped or underground drainage system is to cater for all storms up to and including the 1 in 20 year Annual Exceedance Probability (AEP). If the existing drainage system is not designed for the 1 in 20 year AEP then the drainage system will need to be upgraded by the applicant/developer to the 1 in 20 year AEP capacity. The upgrading of Council's drainage system will be required prior to commencement of building works or during the building construction. The required upgrading of Council drainage system may be within the site and or along the street frontage(s) located within the road reserve.

An overland flowpath through the property is to be provided for all storms in excess of the 1 in 20 year AEP, up to and including the 1 in 100 year AEP. The width of any drainage easement shall be governed by the extent of the predicted 1 in 100 year AEP flowpath and also minimum easement width requirements listed below.

Hydraulic design plans and an accompanying report detailing the Council drainage system upgrade are to be prepared by a Civil Engineer registered on the NPER. The Hydraulic design plans are to be submitted with the Development Application. Hydrological and Hydraulic technical guidelines as specified in Council’s Engineering Design Specification - AUSPEC ONE are to be used in the preparation of the Hydraulic design plans and report.

Upstream and downstream impacts are to be addressed to prevent increases in hydraulic flows and water surface levels. All habitable floor areas are to have a 500mm freeboard above the 1 in 100 year AEP water surface level. Basement entry levels, garages, ventilation openings and other potential water entry points are to have a minimum of 500mm freeboard above the 1 in 100 year AEP water surface level.

5 Minimum Easement Width Requirements

The width of any drainage easement is controlled by the minimum practical width necessary for standard machinery to carry out reconstruction of the public drainage system to current standards and Work Health and Safety requirements. For this reason, the minimum width of any drainage easement must be 3.0 metres. For pipes/channels having a width greater than 1.0 metre, the drainage easement must have a minimum width equal to the external width of the pipe/channel plus 2 metres, rounded to the next 0.1 metre (See Figure 1 below).

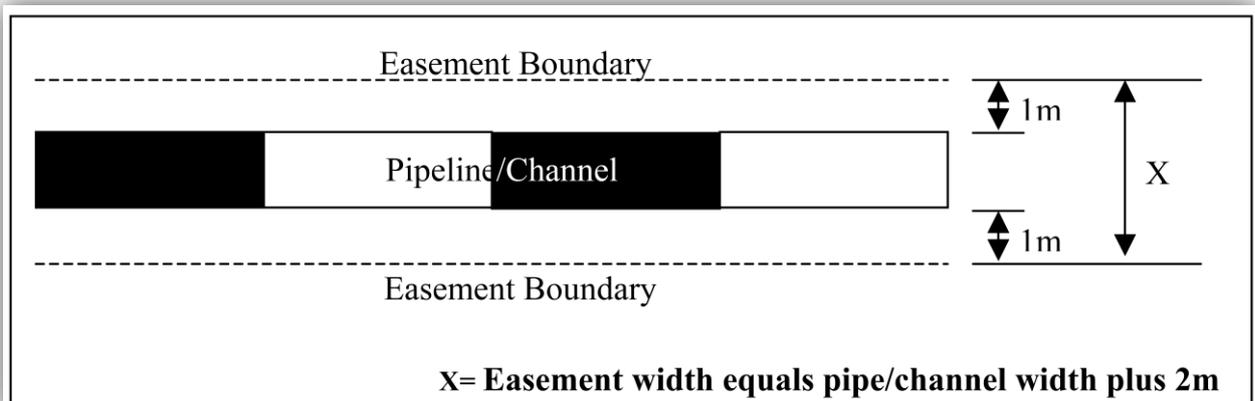


Figure 1 - Drainage Easement Width (Straight)

If bends occur in the Council drainage system then the minimum easement width shall be increased as detailed in Figure 2 below.

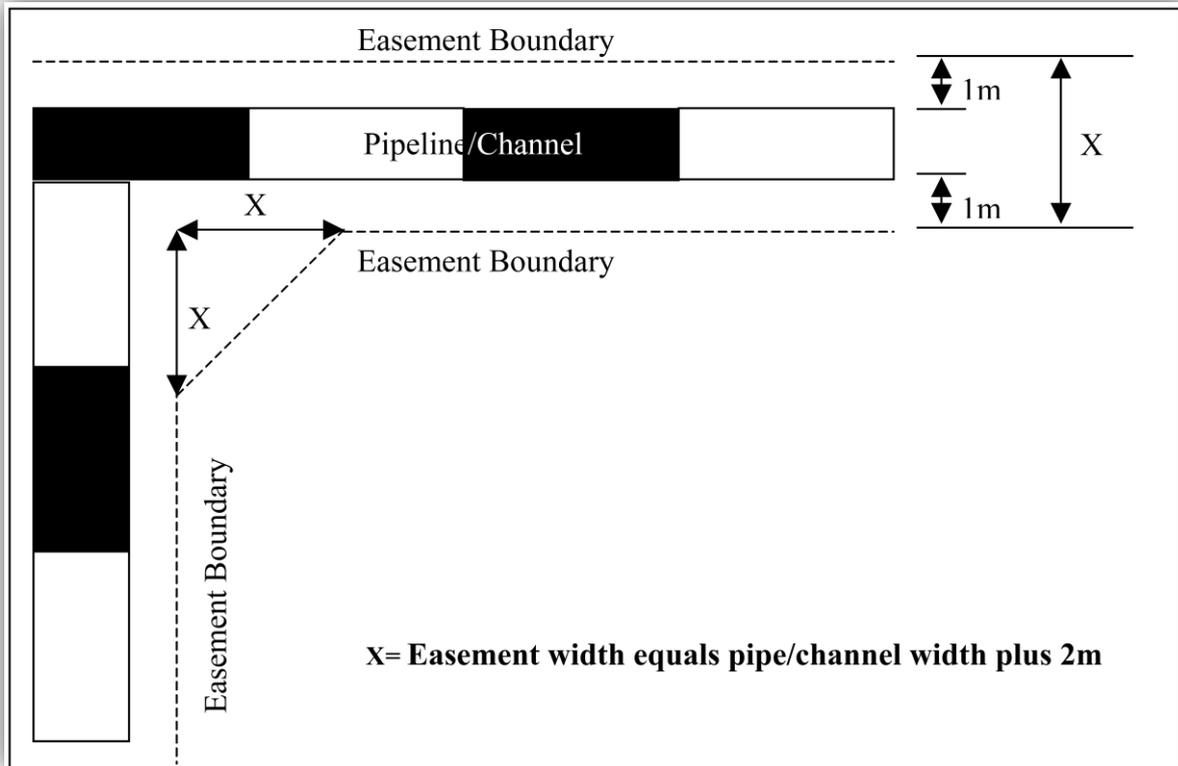


Figure 2 - Drainage Easement Width (Bend)

6 Permanent Structures over Council's Drainage system

The construction of buildings or other permanent structures over constructed public drainage systems is not favoured, and will generally not be approved by Council. However, in certain cases consideration may be given to a development proposal which can satisfy the minimum requirements for construction and maintenance access and also comprehensively demonstrate that objectives of this policy will be met. In these cases it will also be necessary to demonstrate that the site cannot be reasonably developed without building over, or by relocating Council's drainage system.

Filling over Council's drainage systems may be permitted, subject to the approval of Council's technical staff with supporting hydraulic studies prepared by a Civil Engineer registered on the NPER.

The hydraulic study is to demonstrate that there are no adverse effects including diversion of overland flow paths and flooding of upstream and downstream properties.

Note:

Construction of buildings or other permanent structures under constructed public drainage systems is not permitted.

Council may permit structures over constructed public drainage systems which are lightweight and easily demountable or removable such as carports and car stand areas. A Positive Covenant in favour of Council will need be created on the title, requiring any costs related to dismantling, removal, and subsequent re-assembling, re-installation, re-instatement of the above structures to be borne by the property owner.

Fences are to be not to be built over Councils drainage system as they impede the overland flow path, unless it can be demonstrated that there are sufficient openings to cater for the overland flow and also prevent the potential for debris blockages. Fences must be designed to be able to be readily dismantled. All costs associated with the removal and re-erection of the fences is to be borne by the applicant.

6.1 Minimum Requirements for Construction and Maintenance Access

Council may give a property owner approval to build a permanent structure over an existing Council drainage system where the structure provides adequate access for Council to reconstruct and maintain the drainage system. Council will not approve a structure over a public drainage system which will result in Council incurring additional costs by having to use specialised equipment or construction techniques.

6.1.1 Dimensional Requirements

Council's dimensional requirements for access are governed by the minimum horizontal and vertical clearances necessary for standard machinery to gain access to, and undertake construction and maintenance of public drainage systems. These clearances include:

- i. The vertical height from the surface level over the public drainage system to the underside of the overlying structure. This is generally governed by the vertical swept path of backhoes, excavators and cranes and must take into account clearances necessary to load and unload standard trucks. The minimum vertical height shall be 5.0 metres.
- ii. The horizontal distance between permanent obstructions along the line of the public drainage system. This is generally governed by turning circles and horizontal swept paths of backhoes, excavators and cranes and must take into account the limited maneuverability capabilities of these standard machines. The horizontal clearance shall be the minimum of 3.0 metres or the pipe /channel diameter plus 2 metres.

The vertical and horizontal clearances through the structure for access to the Council drainage system is governed by the travelling height, width and turning radius of standard construction machinery, and must take into account the size of loaded vehicles required to deliver construction materials or equipment. The minimum vertical clearance shall be 3.5 metres and the horizontal clearance shall be 3.5 metres on straight section with increases provided as necessary on vertical and horizontal curves. A right of carriageway in favour of Council will need to be created over the access way prior to occupation of the building.

Note:

The above dimensional values are minimums only. The required clearances will vary according to the size of the Council drainage system and are subject to the discretion of Council's technical staff.

6.1.2 Structural Provisions

The pavement over which Council will obtain access to the public drainage system shall be designed and constructed in accordance with relevant Australian standards so as to sustain the loadings which would be imposed by Council's construction vehicles. Any pavement constructed on the surface over the Council drainage system shall include construction joints along each longitudinal edge of the easement over the drainage system, in order to facilitate Council's access to the drainage system.

Minimum cover over Council's pipelines / culverts to be 600mm. Where this cannot be achieved a proposal to modify this will need to be submitted to Council's technical staff for approval.

Footings of any building located adjacent to an easement or constructed public drainage system are to be a minimum of 300mm below the invert of the public drainage system and may rise at 1:1 from the edge of the easement or from 1.0m horizontal clearance if no easement is in place (refer Figure 3 below). A minimum horizontal clearance of 1.5 metres between the footings and the constructed drainage system is also required.

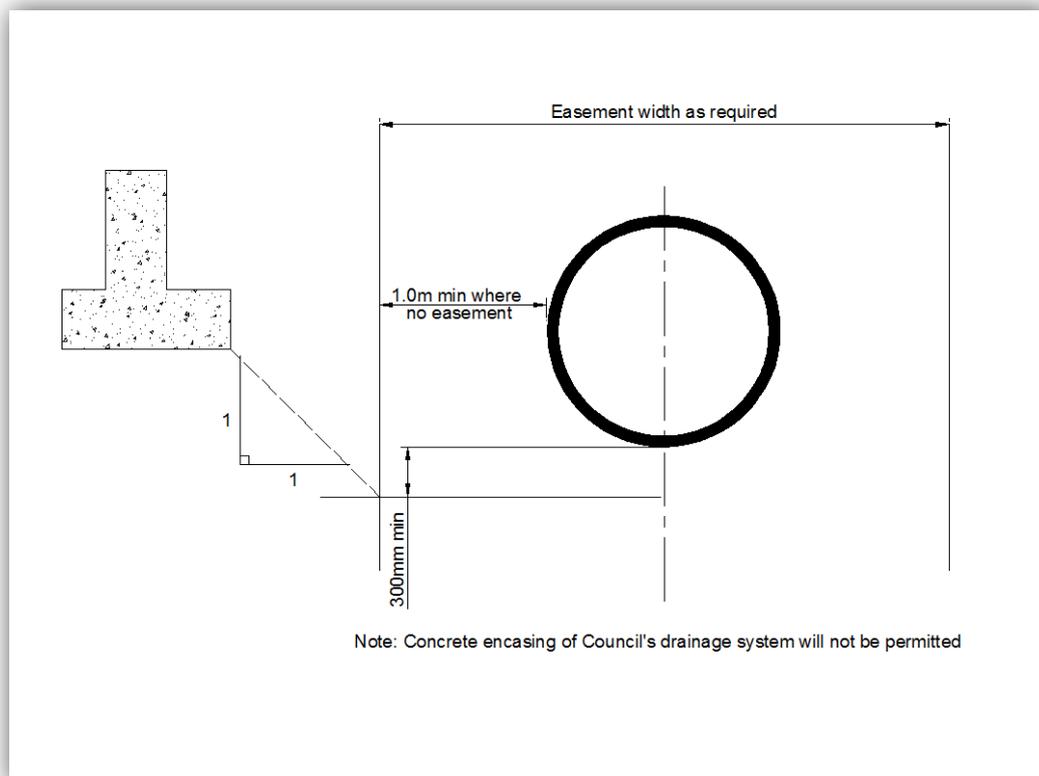


Figure 3 - Footing Placement in Relation to Pipe

7 Right of Access by Council

Provision is to be made to ensure that Council has uninhibited legal right of access through the overlying structure to the Council drainage system.

To ensure that Council has uninhibited access through the overlying structure, for emergency purposes, gates or doors cannot be installed along the path of access, between the public road and the Council drainage system.

To ensure that Council has legal right of access through the overlying structure, a Right of Carriageway is required to be granted to Council over the full length and width of the access, between the public road and the public drainage system. The Right of Carriageway shall be created to facilitate the minimum dimensions required by sections 5 and 6.1.

8 Submission of Information

To demonstrate compliance with this technical specification and the Water Management Policy, the following information may be required to be submitted at the following stages of the development application process:

8.1 Submission with Development Application

8.1.1 Location and Dimension Details

Accurately locate, confirm dimensions including depth and plot to scale Council's stormwater pipelines and associated infrastructure on the DA site plans that outline the proposal. This should be carried out by a service locating contractor and registered surveyor. (Evidence of methodology used for locating stormwater system should be provided). It is recommended that a Closed Circuit Television Pre construction Dilapidation Survey be undertaken at the same time. Refer to section 9.2 for further information.

8.1.2 Hydraulic Design & Construction Plans

Where the reconstruction or relocation of Public Drainage System is proposed, hydraulic design, construction plans and an accompanying report detailing the Council drainage system upgrade are to be prepared by a Civil Engineer registered on the NPER. Hydrological and Hydraulic technical guidelines as specified in Council's Engineering Design Specification – Auspec 1 are to be used in the preparation of the Hydraulic design plans and report.

8.2 Submission as Required by Conditions of Consent

The following information may be required to be submitted as part of the conditions of the consent:-

8.2.1 Closed Circuit Television (CCTV) Survey and Report

A CCTV Survey and Report for Council's Stormwater Asset prepared in accordance with [Guidelines for CCTV Investigations of Council Stormwater Assets](#) (refer Appendix A) is required for:

- i. Any development works located within the vicinity of a Council Stormwater Asset on public or private land and may be required as a condition of development consent; and
- ii. Any new stormwater infrastructure that has been constructed as part of a development and will be handed over to Council's care and control.

8.2.2 Dilapidation Survey

A Dilapidation Survey for Council Stormwater Assets prepared in accordance with Council's [Guideline for Preparing a Dilapidation Survey of Council Stormwater Assets](#) (refer Appendix 2) is required for:

- i. Any development works located within the vicinity of a Council Stormwater Asset on public or private land and may be required as a condition of development consent.
- ii. Any development where a bond amount has been lodged for:
 - a) security against any damage to Council's existing stormwater assets or
 - b) failure to complete the construction of stormwater drainage works to be handed over to Council's care and control.

This bond will be released based on a review and approval of the pre and post construction dilapidation surveys, engineering certification and Works As Executed data.

8.2.3 Works as Executed Data

Works as Executed Data for Council Stormwater Assets prepared in accordance with Council's [Guideline for Preparing Works as Executed Data for Council Stormwater Assets](#) (refer Appendix 3) is required following for:

- i. Development works which modify Council's stormwater assets or create new stormwater assets that will be handed over to Council's care and control. Generally this is imposed as a condition of development consent.

8.2.4 Structural Details

All structures are to be located clear of any Warringah Council pipeline or easement. Footings of any structure adjacent to an easement or pipeline are to be designed in accordance with this technical specification. Structural details prepared by a suitably qualified Civil Engineer demonstrating compliance with this technical specification are to be submitted.

Appendix 1 - Guidelines for CCTV Investigations of Council Stormwater Assets

This guideline is intended to provide advice to applicants on Closed Circuit Television (CCTV) Investigation of Council Stormwater Assets.

What is a CCTV Report for a Council Stormwater Asset?

A Closed Circuit Television (CCTV) Report for a Council Stormwater Asset consists of internal video footage of the infrastructure (provided on a DVD) and a hard copy report which is prepared to enable Council to assess the impacts of development upon Council Stormwater Assets, such as stormwater drainage pipelines. Council uses a CCTV Report for Council's Stormwater Assets to adequately assess potential damage that may have occurred to Council owned and maintained stormwater infrastructure and to assess the construction / condition of any new stormwater infrastructure that will be handed over to Council's care and control as part of a development.

When is a CCTV Report for Council Stormwater Asset Required?

A CCTV Report for Council Stormwater Asset is required for:

1. Any development works located within the vicinity of a Council Stormwater Asset on public or private land and may be required as a condition of development consent. Generally, a CCTV report is required for stormwater lines longer than 10m in length and
2. Any new stormwater infrastructure that has been constructed as part of a development and will be handed over to Council's care and control.

Technical Requirements of a CCTV Report for Council Stormwater Asset

CCTV reports are to be as follows:

- The survey is to be undertaken using a suitably sized tractor mounted CCTV camera for the pipe size to ensure the camera is close to the centre of the pipe.
- 360 degree panning is required at every pipe joint with inspections also required at lifting holes
- The video footage is to be in focus.
- Each pipe reach report is to have a cover page outlining the "from pit" and "to pit" numbers, pipe diameter, direction of survey, location, and date (Pit numbers to be obtained from Council's Natural Environment Unit or available on Council's webpage – Stormwater Maps)
- A new survey is required for each pipe reach
- File format to be **mpeg**
- DVD disk to have DVD number & date shown
- DVD disk cover to contain a clearly labelled index of surveys on disk including pit numbers to and from and job location.
- The Electronic file name for each pipe reach report should be labelled using the following naming convention:
 - 'Pit number' to 'Pit number'_Date.

Example: A survey from Pit no. SPP00001 to SPP00002 carried out on 1 August 2009

Should be named as follows: SPP00001_SPP00002_010809.mpg

NOTE: Warringah Council has its own pit numbering system. Pits labelled A or B etc. will not be accepted. Pit numbers to be obtain from Council prior to undertaking works.

- A paper copy of the report is also required.

Other General Requirements of Reporting

All reports are to meet the following standards:

- Be professionally prepared
- Provide details of author

For further information contact Natural Environment Unit on 9942 2111 or via email council@warringah.nsw.gov.au

Appendix 2 - Guideline for Preparing a Dilapidation Survey of Council Stormwater Assets

This guideline is intended to provide advice to applicants on preparing a Dilapidation Survey for Council Stormwater Assets.

What is a Dilapidation Survey for Council Stormwater Assets?

A Dilapidation Survey for Council Stormwater Assets is a document which is to be prepared to determine the condition of Council's Stormwater Asset both before and after construction. A Closed Circuit Television (CCTV) inspection maybe required to determine this condition. This allows Council to determine if there is any damage to Council's stormwater infrastructure caused by development works.

When is a Dilapidation Survey for Council Stormwater Assets Required?

A Dilapidation Survey for Council Stormwater Assets is required for any development works located within the vicinity of a Council Stormwater Asset on public or private land and may be required as a condition of development consent.

The pre-construction Dilapidation Survey of Council's Stormwater Asset must be submitted to Council prior to Construction, or as required by conditions of consent for any stormwater infrastructure that may be impacted upon during construction. This is to clearly identify to Council any existing damage to Council stormwater infrastructure before commencement of the development.

Copies of pre-construction Dilapidation Surveys are to be available on site for inspection until practical completion is reached.

Final post-construction Dilapidation Surveys are to be submitted to Council prior to the release of any bonds. All costs incurred in achieving compliance with these requirements shall be borne by the person entitled to act on a development consent.

Requirements of a Dilapidation Survey for Council Stormwater Assets

Dilapidation Surveys for Council Stormwater Assets are to include the following:

- Photographs and written records identifying any damage to Councils stormwater infrastructure prior to construction
- Photographs and written records identifying any damage to Councils stormwater infrastructure post construction
- Closed Circuit Television (CCTV) footage - DVD and hard copy report (pre and post construction) in accordance with Council's guidelines for CCTV requirements.

Other General Requirements of Reporting

All reports are to must meet the following standards:

- Include an executive summary
- Be professionally prepared
- Provide details of author

For further information contact Natural Environment Unit on 9942 2111 or via email council@warringah.nsw.gov.au

Appendix 3 - Guideline for Preparing Works as Executed Data for Council Stormwater Assets

This guideline is intended to provide advice to applicants on Preparing Works As Executed Data for Council Stormwater Assets.

What are Works As Executed Data for Council Stormwater Assets?

Works As Executed Data Requirements for Council Stormwater Assets consists of a Works As Executed (WAE) plan (dwg file), a spreadsheet and a Closed Circuit Television (CCTV) Report (refer to Guideline for CCTV investigations of Council stormwater assets) which is to be prepared to enable Council to update records and note variations to Council Stormwater Assets.

When is Works As Executed Data for Council Stormwater Assets Required?

Works As Executed Data for Council Stormwater Assets is required following development works which modify Council's stormwater assets or create new stormwater assets that will be handed over to Council's care and control. Generally this is imposed as a condition of development consent.

Technical Requirements for Works As Executed Data for Council Stormwater Assets

The Works As Executed Data is to be provided by a Registered Surveyor and should comply with the following:

1. Level of accuracy:

- X, Y coordinates (Easting; Northing) shall be +/- 0.05m
- X, Y (Easting; Northing) to GDA 94 Map Grid of Australia Zone 56 (MGA94)
- reduced level heights shall be +/- 0.01m
- reduced levels shall be in terms of Australian Height Datum (AHD)

2. Appropriate formats:

- Spreadsheet (.XLS);
- WAE electronic plan – Drawing (**.DWG AutoCAD 2009 or earlier version**)
- CCTV Report / footage DVD – (.MPEG)

3. Deliverables:

One (1) soft copy of both the spreadsheet and plan on CD, one (1) scaled A1 paper copy plan of the Drawing, one (1) soft copy of the CCTV footage on DVD and one (1) paper copy of the CCTV report is to be provided to Council.

The detailed information required within these formats is detailed below:

Spreadsheet Schedule

An Excel Spreadsheet template with drop down menus to enter all the drainage asset information under the following headings is available from Council's Natural Environment section or Council's webpage. This is to be completed and returned to Council.

Pits

- Council Pit Numbers
- Y Coordinate (Northing)
- X Coordinate (Easting)
- Installation Date
- Pit Type
- Pit Material
- Grate RL
- Pit Depth
- Lintel
- Pit Inflow Type

Pipes

- From (upstream) Pit No.
- To (downstream) Pit No.
- Upstream Invert Level
- Downstream Invert Level
- Installation Date
- Pipe Type
- Pipe Material
- Pipe Length
- Pipe Diameter
- Construction Type
- Joint Type
- Length

WAE Plan

A Registered Surveyor is to electronically amend and sign the approved 'design plan' to reflect the 'Works As Executed' information. In this respect the electronic copy of the Drawing file should contain the 'Works As Executed' information on a separate drawing layer in RED.

The WAE plan is to provide the following information:

- The reduced levels (AHD) of all pit and pipe attributes should be listed in the following order:
 - Pit lid level (Road gully pit levels to be taken at centre of grate in the gutter, Junction pits in centre of lid).
 - Reduced level of the invert of the outlet pipe
 - Thereafter each inlet pipe invert in a clockwise direction from the outlet.
 - Longsection(s) outlining any changes to the approved plans
- Co-ordinates of all surface features and changes of horizontal alignment (bends) must be shown (refer Datum heading for co-ordinate system).
- All pipe sizes, classes, material and grades.

In relation to formalised Overland flow paths

- The position (coordinates for start and finish points and changes in direction) of formalised Overland flow paths;
- The reduced levels at appropriate intervals over the length of any formalised Overland flow paths including top and bottom of any retaining structures.

Other General Requirements of Reporting

All reports are to meet the following standards:

- Include an executive summary;



- Be professionally prepared;
- Provide details of author.

For further information contact Natural Environment Unit on 9942 2111 or via email council@warringah.nsw.gov.au