

DEVELOPMENT DESIGN SPECIFICATION

D14

WORK-AS-EXECUTED PLANS

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Amendment Record for this Specification Part

This Specification is Council's edition of the AUS-SPEC generic specification part and includes Council's primary amendments.

Details are provided below outlining the clauses amended from the Council edition of this AUS-SPEC Specification Part. The clause numbering and context of each clause are preserved. New clauses are added towards the rear of the specification part as special requirements clauses. Project specific additional script is shown in the specification as italic font.

The amendment code indicated below is 'A' for additional script 'M' for modification to script and 'O' for omission of script. An additional code 'P' is included when the amendment is project specific.

Amendment Sequence No.	Key Topic addressed in amendment	Clause No.	Amendment Code	Author Initials	Amendment Date
0	Customisation for Hastings Council Local Government Area	All	OAM	HC	01/09/04

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DEVELOPMENT DESIGN SPECIFICATION D14**WORK-AS-EXECUTED PLANS****GENERAL****D14.01 SCOPE**

1. This specification sets out the requirements for the preparation and submission of Works-as-Executed (WAE) plans to Hastings Council for construction works creating new assets or altering or reconstructing existing assets for which Hastings Council will be or is currently responsible.

Council Assets

2. Work-as-Executed plans for construction works associated with land subdivision and developments are to be prepared and submitted by the Design Consultant for the Developer upon practical completion of the works. The plans should demonstrate how all Development Approval (DA) conditions requiring engineering works have been satisfied.

***Developer
Contributed
Assets***

3. Work-as-executed plans shall be submitted to Council for ALL construction works associated with DA conditions. Particularly infrastructure that is to be registered as an asset of Council. The detail should include but is not limited to: water supply; sewer; road pavements; kerbing and guttering; footpaths and cycle-ways; stormwater drainage; roadside furniture; road markings and signage; landscaping; parks; and reserve improvements.

WAE**D14.02 OBJECTIVES**

1. The intent of this specification is to enable the maintenance of accurate accounting and location of Councils assets and required infrastructure that may be owned by others.

Accurate

2. To ensure consistency, quality and accuracy in the preparation of these Work-as-Executed plans, references are made to the drawing and presentation requirements described in the "Aus-Spec D15 – CAD Specifications".

***Other Relevant
Specifications*****D14.03 SUBMISSIONS**

1. Plans shall be accepted in an electronic format using a graphical data representation of the asset. The plans shall be prepared using the most current version of AutoCAD or an AutoCAD compatible program and supplied in a "DXF" (Data Exchange Format) formatted file.

Plans

2. Council shall only accept non-graphical data by way of a spreadsheet upon application. Spreadsheet submission applications will only be considered where it can be justified that the works are of a minor nature and limited extent. Microsoft Excel or compatible spreadsheets that can be linked to the plan only may be accepted.

Spreadsheets

3. All work-as-executed plan information is to be MGA (Map Grid of Australia) co-ordinated. Where works are remote from the MGA, Council may upon application accept non co-ordinated plans, or plans co-ordinated to other references.

MGA

4. Plans are to be accompanied by a completed "Certification Report" in accordance with Quality Assurance provisions.

***Certification
Report*****D14.04 THE PROCESS**

A summary of the process to be followed for the preparation, submission, downloading of WAE plans into Councils Geographical Information System (GIS) and final acceptance of the WAE plans and Certification Report is shown in **Figure 1**.

GIS

The process aims to ensure that the information will be imported successfully into Council's GIS and the relevant Asset Owner has the opportunity to check the files and documentation, prior to the updating of the respective Asset Register/s. On completion of the process the information will then be available for querying and/or retrieval by Council staff, private consultants, government agencies and the Public through Council's GIS.

Asset owner

WORK-AS-EXECUTED PROCESS

NOTE: Refer to next page for an explanation of the process.

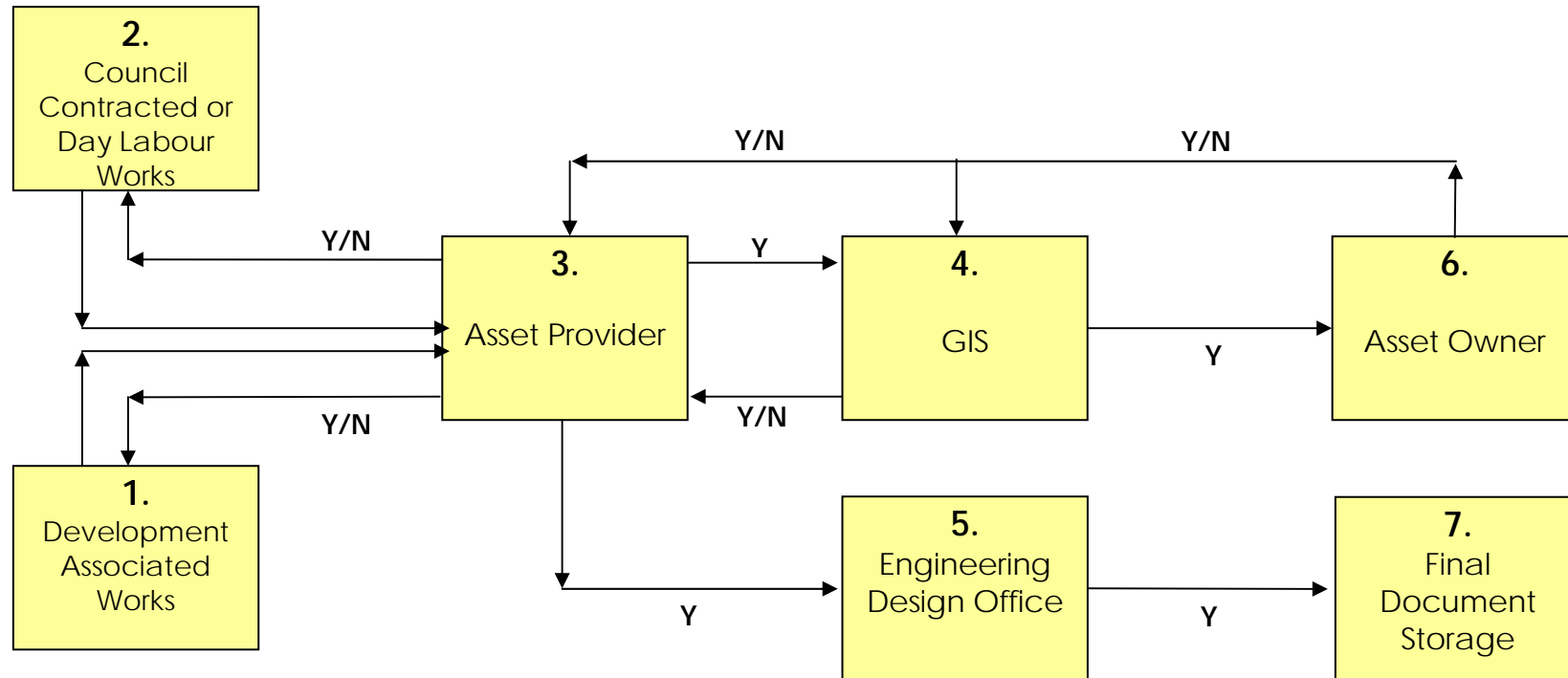


Figure 1

D14.04 THE PROCESS CONTINUED

1. For development associated works the Consultant certifying the works on behalf of the Developer shall arrange for the preparation of the WAE plans and Certification Report. Without limiting the way Developers carry out their business, it is Council's view that this process needs to start with the commencement of the works. The constructor and/or quality checker will need to provide records, measurements and survey information right through out the construction period to facilitate the preparation of accurate WAE plans.

**Development
Associated
Works**

The Consultant certifying the works shall submit to Council the WAE plans in the required format and sign the Certification Report.

2. For Council contracted or Council day labour constructed works the responsible Council Officer certifying the works shall submit the WAE plans in the required format and sign the Certification Report. Without limiting the way Council Section Managers carry out their business, this process will require the constructor and/or quality checker to provide records, measurements and survey information right through out the construction period to facilitate the preparation of accurate WAE plans.

**Council
Contracted or
Day Labour
Works**

3. Asset Provider.

Asset Provider

- In the case of Developer contributed assets, the WAE plans and Certification Report shall be submitted to Council's Engineering Development Coordinator. ALL communications regarding acceptance or otherwise of the plans and documentation shall be through Council's Engineering Development Coordinator
- In the case of Council's Capital Works Program, the WAE plans and Certification Report shall be submitted, and all communications shall be through the responsible Section Manager deemed to be the asset provider.
- The asset provider is custodian of the plans and documentation whilst they are processed and checked. The asset provider is responsible for all referrals and communications within Council until their final acceptance

4. Council's Geographical Information System.

GIS

- The WAE plans will be tested and undergo a validation process and down loaded into the appropriate layers within the GIS.
- The success or otherwise of these validation checks will be communicated, at the earliest opportunity back to the Asset Provider (as illustrated by the bottom connecting arrowed line in figure 1). This will allow any other processes (e.g. the release of a linen plan of subdivision or payment of a contract progress payment), that may be at a 'holding point' and reliant on the acceptance of the WAE plans, to proceed or otherwise.
- Data from the validated plans will be forwarded onto the various asset owners.

5. Engineering Design Office.

**Engineering
Design Office**

- The Principal Design Engineer managing the Engineering Design Office is responsible for engineering design document control/CADD management. The issuing/checking of drawing registration numbers and cataloguing will be undertaken within the Engineering Design Office.
- When notified that the WAE plans have been finally accepted, a "pdf" file copy of the plans will be produced and together with the CADD version will be stored in Council's records system. Refer also to Annexure D14-A of these specifications.

6. Asset Owner.

Asset owner

- The various asset layers within the WAE plans will be distributed to the appropriate asset owners and will undergo the final validation processes and will be entered into the appropriate asset registers.
- The success or otherwise of these final validation checks will be communicated, at the earliest opportunity back to all the preceding participants in the process (as illustrated by the top connecting arrowed line in figure 1).
- The success of the validation checks and entry of the data into the asset registers, will

signal to any other processes, the final acceptance of the WAE plans by Council.

7. Final document storage will be in accordance with Council's Records Management Policy and will ensure Council meets its obligations under the State Records Act 1998.

**Final
Document
Storage**

D14.05 REFERENCE AND SOURCE DOCUMENTS

(a) Council Specifications

**Other Council
Specifications**

Construction Specifications

- CQS - Quality System Requirements
- CQC - Quality Control Requirements
- C101 - General
- C211 - Control of Erosion and Sedimentation
- C220 - Stormwater Drainage - General
- C221 - Pipe Drainage
- C222 - Precast Box Culvert
- C223 - Drainage Structures
- C224 - Open Drains including Kerb & Gutter
- C230 - Subsurface Drainage - General
- C231 - Subsoil and Foundation Drains
- C232 - Pavement Drains
- C233 - Drainage Mats
- C242 - Flexible Pavements
- C244 - Sprayed Bituminous Surfacing
- C245 - Asphaltic Concrete
- C247 - Mass Concrete Sub-base
- C248 - Plain or Reinforced Concrete Base
- C254 - Segmental Paving
- C262 - Signposting
- C263 - Guide Posts
- C264 - Guard fence
- C273 - Landscaping
- C401 - Water Reticulation
- C402 - Sewerage System

Design Specifications

- DQS - Quality Assurance Requirements for Design
- D1 - Geometric Road Design
- D2 - Pavement Design
- D3 - Civil Structures, Temporary Works and Bridge Design
- D4 - Subsurface Drainage Design
- D5 - Stormwater Drainage Design
- D6 - Site Regrading
- D7 - Stormwater Management
- D8 - Waterfront Development
- D9 - Cycleway and Pathway Design
- D10 - Bushfire Protection
- D11 - Water Reticulation
- D12 - Sewerage System
- D13 - Land and Streetscape Design
- D14 - Work as Executed Plans
- D15 - CAD Specifications

(b) Australian Standards

Australian Standards

- AS 1100 - Technical Drawing - General Principles
- AS 1101 - Graphic Symbols For General Engineering

(c) Statutes and Regulations

Statutes and Regulations

- Sections 412,413 & 428 - NSW Local Government Act – 1993
- AAS27 - Australian Accounting Standard
- The local government (financial management) regulation 1993

(d) Other

Use Help files

For AutoCAD commands such as “Blocks, Attributes, External References and ATTDEF command”, refer to the Help file or AutoCAD manual for an explanation of their specific use.

D14.06 CAD PRESENTATION

Use Aus Spec D15

(a) Plan Presentation

The WAE plan presentation shall be in compliance with Aus-Spec D15-CAD specification.

(i) Layer Control

Layers

Layer control shall be used in WAE plan preparation. The designated layers and line types to be adopted are specified in Aus-Spec D15 – CAD Specification.

(ii) Colour and Line Thickness

Lines

Colour, line thicknesses, pen and type adopted on WAE plans shall be in compliance with Aus-Spec D15 CAD Specification.

(iii) File Naming

File names

Consultants and/or Council Section Managers shall request drawing numbers and a CAD filename through Council’s Engineering Design Office.

(iv) Text

Text

In accordance with Aus-Spec D15 – CAD. Non-standard fonts will not be accepted without written approval from Council.

(v) 3D Information

Height data

Where data has a height component, the data shall be included in the drawing. The data shall be supplied in 3D form in the DXF file (points and/or contours shall have a Z-coordinate value), AND in the form of an ASCII dump of points and join information from the software package used.

(vi) WAE Plan Summary Sheet

Summary sheet

The Consultant shall provide an electronic and hard copy of a WAE plans summary sheet. The summary sheet shall include the following information as a minimum:

- Drawing file names submitted;
- Council Employee and Department files submitted to;
- Revision number;
- Revision date;
- Drawn by;
- Designed by;
- Authorised by; and
- Drawing layer names and descriptions.

(vii) WAE Template

Templates

Council shall provide an electronic WAE template upon written request. The Contractor as a minimum shall provide all the asset information contained within this WAE template.

(b) Spreadsheet Presentation (Microsoft Excel or Compatible)

The Developer, responsible Council Officer or Contract Supervisor shall provide the required Work-as-Executed information on the Microsoft Excel Spreadsheet Pro-forma that can be obtained from Council. See Figure 4 below which shows one example of a spreadsheet pro-forma.

Spreadsheet Pro-forma

**SWAM1 -
NODE
DETAIL**

Zone No.	office use	Town/Sub	Port Macquarie	Rater	office use
Cat. No.	office use	Sub-Cat.	office use	Node	010
Hse. No.	office use	Street	Lord Street	Line No.	A
Node Detail					
Location		Asset Type	(List No.2)	Surface Detail	List No.2)
Council(C)	office use	(List No.2)	PIT		KI1.8M
Private(P)					
Unknown(U)					
	Pit Dimen.	Pit (R.L.)	5.650		
		Length 1	0.95	Length 2	0.85
		(m)		(m)	
Condition Rating (refer to list No.3)		Outlet 1	3.150	Outlet 2	if required
Alignment	office use	R.L.		R.L.	
1 2 3 4 5		Outlet 3	if required		
Obstruction	office use	R.L.			
1 2 3 4 5		Inlet 1	3.300	Inlet 2	3.350
Defects	office use	R.L.		R.L.	
1 2 3 4 5		Inlet 3	if required	Inlet 4	
Rated	office use	Constr.	COUNCIL	R.L.	

Figure 4 Example of Microsoft Excel Spreadsheet for Stormwater Pit (Node) Information

Explanation of terms used in Spreadsheet required to be filled in by Provider

Explanation of terms

<i>Town/Sub</i>	Area Location of work (eg. Port Macquarie)
<i>Street</i>	Street Name (eg. Lord Street)
<i>Node</i>	Number Identifier for Drainage Pit (Node) (eg. 010) (to be assigned by the provider. Working from downstream end of each drainage line to the upstream end of each drainage line)
<i>Line No.</i>	Line Number of Drainage Line (eg. A) (to be assigned by the provider. Starting with the main branch line and working through the drainage system)
<i>Asset Type</i>	Type of Drainage Structure (eg. Pit)
<i>Surface Detail</i>	Pit Opening, Structure Detail, etc. (eg. KI1.8M)
<i>Pit (R.L.)</i>	Reduced Level of Pit Lid or Top of Structure (AHD) (eg. 5.650)
<i>Length 1 & 2</i>	Internal Dimensions of Pit or Structure Dimensions

<i>Outlet 1,2 & 3</i>	Reduced Level of Outlet Pipe/s if required (AHD) (eg. 3.150)
<i>Inlet 1,2,3 & 4</i>	Reduced Level of Inlet Pipe/s if required (AHD) (eg. 3.300 & 3.350)
<i>Constructed By</i>	Organisation and/or Contractor's name responsible for construction (eg. Civil Constructions under contract to Council)

D14.07 MINIMUM DRAFTING REQUIREMENTS

Refer to Quality Assurance Requirements For Design (DQS) Part DQS.05 of the AUS-SPEC#1 Design Specifications and Aus-Spec D15 – CAD Specification.

Quality Assurance**D14.08 DESIGNERS QUALIFICATIONS**

Refer to Quality Assurance Requirements For Design (DQS) Part DQS.06 of the AUS-SPEC#1 Design Specifications.

D14.09 RECORDS

Refer to Quality Assurance Requirements For Design (DQS) Part DQS.07 of the AUS-SPEC#1 Design Specifications.

D14.10 CERTIFICATION AND CHECKLISTS

1. The Developer, responsible Council Officer or Contract Supervisor shall submit all Work-as-Executed plans to Council's General Manager for acceptance. Each set of plans shall be accompanied by a Certification Report that will be signed by the Developers Consultant, responsible Council Officer or Contract Supervisor. The Certification Report will comprise the certificate and check lists set out in Annexure DQS-A of the Quality Assurance Requirements For Design (DQS) of the AUS-SPEC#1 Design Specification.

Check List

2. The Certification Report shall indicate on the check lists any aspects of the Work-as-Executed plans which do not meet the requirements or tolerances set out in Councils Design Specifications and Subdivision Codes.

D14.11 NON CONFORMING WORKS

1. Council may on submission of a non-conforming report accept certain WAE information not located or presented in accordance with Development Design Specifications, provided the non-conformance is such that it will not affect the operation of the works and the integrity of the asset data to be provided.

Non Conforming Works

2. Council's acceptance of non-conformance reports shall not be taken to override the Developer's, Responsible Council Officer or Contract Supervisor's responsibilities under the conditions of the contract for the works or Council's construction supervision requirements.

SPECIAL REQUIREMENTS

At this stage there are no special requirements other than those already detailed in these specifications.

PROCEDURAL DETAILS FOR PROCESSING WAE PLAN DOCUMENTS

D14-A.01 SCOPE

This annexure has been provided to ensure Council meets its obligations with regards to the State Records Act 1998. Without limiting and restricting the form of delivery and submission of Works-as-Executed (WAE) plans to Hastings Council, it is necessary to have in place clear procedures for staff to follow when processing the WAE plans. These procedures aim to detail the initial cataloguing requirements, custodianship responsibilities, notifying responsibilities, the production and destruction of "ghost" copies that may be necessary to allow simultaneous checking by various sections of Council, the final storage of the AUTOCAD plans and the production of an electronic "pdf" file for registration and storage in Council's record system. This annexure reflects the procedures provided in the Technical Services Quality Systems Manual.

Meet Statutory Requirements

D14-A.02 OBJECTIVES

The intent of this annexure is to reflect the procedures provided in the Technical Services Quality Systems Manual which enables Council staff to clearly identify: -

Clear procedures to follow

- Who is responsible for the initial cataloguing of the WAE plans
- Who has custodianship of the WAE plans as they are processed
- Who is responsible for notifying the various sections within Council, required to process the WAE plans
- Who is responsible for producing "ghost" copies and who is responsible for their disposal
- Who is responsible for archiving and where the AUTOCAD plans are finally stored
- Who is responsible for the production of an electronic "pdf" file copy of the AUTOCAD plans for registration and storage in Council's record system.

On completion of the process an objective is to ensure that WAE information, that can not be edited or altered, will be stored in Council's record system and is readily available and easily accessed and/or retrieved in accordance with Council's Records Management Policy.

Other Relevant Council Policy

D14-A.03 SUBMISSIONS

Submission of WAE plans and the Council Officer used as the sole point of contact for all communications shall be as outlined in clauses D14.03, D14.04 and as summarised and shown in **Figure 1** of these specifications.

Refer back to earlier clauses in these specs

To ensure that there is no confusion introduced with multiple versions of plans being circulated within Council and to aid tracking of any amendments carried out, Council insists that ALL communications shall be through the one nominated Council Officer referred to as the Asset Provider.

Single point of contact

D14-A.04 THE PROCEDURAL PROCESS**(a) Cataloguing Of The CAD Plans****Cataloguing**

The Principal Design Engineer managing the Engineering Design Office is responsible for engineering design document control and computer aided design drawings (CADD) management. The issuing and checking of drawing registration numbers and cataloguing of both plans submitted with applications for *Construction Certificates* (CC plans) and WAE plans will be undertaken within the Engineering Design Office.

Consultants and/or Council Section Managers will request **drawing numbers** and a **CAD filename** through Council's Engineering Design Office. Cataloguing and indexes will include cross-referencing to the development approval (DA) numbers or Council's Works Program, to assist with tracking the CC plans during the construction phases and the WAE plans through the checking process.

The issued drawing number will be displayed on all sheets of the plans.

(b) Custodianship Of The WAE Plans**Custodianship**

The Asset Provider is the custodian of the WAE plans through out the validation, checking and approval process.

In the case of Developer contributed assets, the Area Development Engineer is responsible for custodianship and overseeing of the checking process.

In the case of Council's Capital Works Program, the Council Section Manager is responsible for custodianship and overseeing of the checking process.

(c) Temporary Storage/Ghost Copying Of The WAE Plans**Temporary storage/ghost copying**

The Asset Provider on receipt of the plans is responsible for temporary storage of the plans on Council's computer network server on the "I drive" in the subfolder "WAX Plans Submitted" within the folder "Electronic Plans" (i.e. path "I:\Electronic Plans\WAX Plans Submitted*.**").

This will enable the various sections within Council, required to undertake any checks, to access the plans and make ghost copies if required for processing. On completion of checks and notification back to the Asset Provider, all ghost copies should be **deleted**. Removal of all ghost copies is important to avoid confusion where amendments are necessary and to ensure that only the final approved and accepted plans remain in Council's records. The disposal of ghost copies is the responsibility of the officer who produced them and gave notification back to the Asset Provider

The only exception to the above will be the plan copies that pass validation and checking and are uploaded into the GIS.

Amended plans resubmitted to Council will follow the exact same process, until finally passing all checks and validations and being accepted by Council. Filenames will not be altered, with the new file replacing the old failed version. There is no reason to retain the versions containing errors.

The Asset Provider is responsible for naming the temporary file. The issued filename or DA number or Council's Works Program reference or any combination may be used, provided that the plans can be identified within the cataloguing and plan index.

(d) Notification Responsibilities**Notifications**

The Asset Provider after completing temporary storage of the plans is responsible for advising the GIS section of the temporary file name within the "WAX Plans Submitted" folder, and requesting that the plans be processed.

The validation process will involve using software to apply the rules setup in the electronic WAE template, checking that all appropriate asset layers have been provided, testing the mapping orientations and checking that all required attributes have been provided. The GIS section will notify the Asset Provider of the outcome of the validation checks whether successful or otherwise and provide a copy of any error report.

In the case where the plans have failed the validation process, the Asset Provider is responsible for advising the applicant, who submitted the plans, that amendments are required and providing the applicant with a copy of the error report. When the amended plans are resubmitted the process recommences at the starting point.

In the case where the plans have successfully passed the validation process, the GIS

section is responsible for advising the various Asset Owners, developing and providing them with the appropriate data tables for up loading into the asset registers.

The Asset Owners now have access to the temporary WAE CAD file and the asset data tables. They are responsible for advising both GIS and the Asset Provider when they are satisfied with the information.

Without limiting Asset Owners in the way they carry out their business, they should have in place a process to advise their maintenance staff of the new, upgraded, altered or disposed assets.

Finally when the Asset Provider has all notifications that the WAE information is satisfactory, the Engineering Design Office is notified and the custodianship of the temporary file is handed on to that Office.

(e) Final Archiving Of The WAE CADD

Reiterating the earlier advice, the Principal Design Engineer managing the Engineering Design Office is responsible for engineering design document control and computer aided design drawings (CADD) management.

Final Archiving

As final custodian of the temporary file the Engineering Design Office is responsible for renaming the file to the issued CAD filename and transferring storage to the permanent subfolder "WAX Plans Accepted" on Council's computer network server on the "I drive" within the folder "Electronic Plans" (i.e. path "I:\Electronic Plans\WAX Plans Accepted*.***").

To assist and support any future engineering design requirements and investigations it is important to retain the CADD versions of the plans.

(f) Copy Of WAE Plans Held In Council's Records

At this stage in the process it is necessary to produce a copy of the WAE information, that cannot be edited or altered and store it in Council's records system. The copy must be readily available and easily accessed and/or retrieved in accordance with Council's Records Management Policy. Not all users of the WAE information will have the ability to access the CADD versions. Therefore the production of an electronic "pdf" file copy (a commonly used document file type) is required.

Records copy

It is the responsibility of the Engineering Design Office to produce this "pdf" document and forward it on to Records for registration and storage in the "DOM DOC" system.