DEVELOPMENT DESIGN SPECIFICATION

DQS

QUALITY ASSURANCE REQUIREMENTS FOR DESIGN

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
1	IPWEA Mid North Coast Working Party Review, incorporation of additional checklist	DQS	A,O,M	HC	Jan 2001

QUALITY ASSURANCE REQUIREMENTS FOR ENGINEERING DESIGN

DQS.01 SCOPE

1. This design specification sets out the process for quality assurance of Designs required by Council for community assets. The requirements are applicable to all design work whether undertaken by the Council, Council's representative, Developer, his Project Manager, Consultant or a sub-consultant. ***Quality Assurance***

2. The specification refers to Engineering Design processes. Requirements which refer to the Concept Design of developments are generally covered in Council's Subdivision Code. The requirements of the Subdivision Code are a prerequisite to the quality requirements for Engineering Design provided in this specification (DQS). ***Prerequisite***

3. The specification refers also to engineering design processes for Council works and developments.

DQS.02 OBJECTIVES

1. This specification aims to set standards and document requirements for the execution and recording of design processes in order that the infrastructure associated with any development is designed to be fit for service and of a standard reasonably maintainable when it is accepted by Council as a community asset. ***Maintenance***

2. It is also an objective that these qualities be readily demonstrable by clear records of key design processes and that data relevant to the upkeep of the assets is available to Council's management. ***Records***

DQS.03 REFERENCE AND SOURCE DOCUMENTS

(a) Council Specifications

All Specifications for Design and Construction
Council's Codes and Policies

(b) Australian Standards

AS/NZS 3905.2	Guide to quality system Standards AS/NZS 9001, AS/NZS 9002 and AS/NZS 9003 for construction.
AS/NZS 3913	Quality manuals - Guide to preparation.
AS/NZS ISO 8402	Quality management and quality assurance - Vocabulary.
AS/NZS ISO 9001	Quality systems - Model for quality assurance in design, development, production, installation and servicing.
AS/NZS ISO 9004.1	Quality management and quality system elements - Guidelines.
AS 1100	Engineering Drawings

AUSTROADS

(c) Other

Section 79C (EP&A ACT)
Local Government Act (1993)

Technical Publications used as Engineering Standards eg (AR&R 1998)
Interim Policies and Guidelines

DQS.04 CERTIFICATION

1. The Developer shall present all engineering plans to Council's General Manager for acceptance. Each set of plans shall be accompanied by a Certification Report which will be signed by the Developer's Engineer or Quantity Surveyor. The Certification Report will comprise the certificate and check lists set out in Annexure DQS-A. ***Certification Report***

2. Certification Reports shall be required with preliminary plans and shall require resubmission with updates when final plans are submitted. Certification is not required with sketch plans or concept plans. ***Certification of Preliminary Plans***

3. The Certification Report shall indicate on check lists any aspects of design which do not meet requirements or tolerances set out in Council's Design and Construction Specifications and Subdivision Codes.

DQS.05 MINIMUM DRAFTING REQUIREMENTS

1. Design plans shall be definitive and clearly set out so as to present the design concepts in such a way that the project can be understood, specified for construction and satisfactorily built.

2. All design plans shall have a standard title block and should be clearly numbered by the designer with separate sheets numbered as part of a set. All drawing sheets shall have an allocated space in the bottom right hand corner for an assigned number provided by Council (18 characters). ***Plan Numbers***

3. The information shown on the drawings shall be logically collected on discrete sheets to avoid illogical and onerous effort in cross referencing between sheets in order to find information. Sheets of drawings should not be overcrowded with information and should not rely on colour printing or colour wash to impart information. Drawings should be on A1 or A2 size sheets and be suitable for black and white copying and photo reduction to A3 paper size without loss of clarity. ***Logical Drawing Sheets***

4. Annexure DQS-B provides guidelines for grouping information in design drawings.

5. Standard Drawings shall be provided and utilised as applicable to each element of the design. ***Standard Drawings***

DQS.06 DESIGNER'S QUALIFICATIONS

1. A Civil Engineer suitably experienced and qualified so as to be accepted as a member of the Institution of Engineers, Australia or a suitably experienced Registered Surveyor shall be accepted as qualified to prepare plans for roadworks, drainage works, water supply and sewerage works. ***Engineer Surveyor***

2. A Civil Engineer qualified as detailed above shall be accepted as qualified only to prepare plans for bridges, retaining walls, miscellaneous structures, buildings, pumping stations and flood control structures. ***Structural Design by Engineer***

DQS.07 RECORDS

1. The Designer shall retain appropriate design records in a format such that they can be understood readily by design staff with no prior knowledge of the particular design.

2. Calculations which can readily be re-done need not be kept once the construction maintenance period of the project has expired.

Calculation Record Retention

3. A design file shall be maintained by Council's design representative, the Subdivider or his consultant containing records of calculations, approvals and decisions, geotechnical data and other design data which could be relevant in reviewing aspects of the design or planning future maintenance responsibilities.

Design File to be kept

4. Particular requirements apply to hydrological and hydraulic design data. (Refer to Council's Stormwater Drainage Design Specification).

Hydrologic Design

5. Copies of records will be made available to Council on request and without charge.

Hydraulic Design

DQS.08 RESERVED

CONTENTS

ANNEXURES

ANNEXURE DQS-A

KEMPSEY SHIRE COUNCIL
DESIGN CERTIFICATION REPORT

Project Title: _____

DA/BA No: _____

Consultant's Drawing No: _____

Name of Consultant: _____

Name and Address of Developer: _____

_____

I certify that the subject drawings represent a design for which the attached design check lists provide a valid record.

I certify that this design has been carried out in accordance with current standards of good industry practice and in accordance with Kempsey Shire Council's Design Specifications, Subdivision Code and specific instructions received with the exception of departures cited in the attached design check lists for Council's advice.

I certify that this Design is in strict compliance with the development consent conditions and where a variance to the consent is found, written confirmation has been received from Council approving of the variance prior to the lodgement of Design Plans (this includes designs for staged construction).

I certify the design has been assessed pursuant to the provisions of part V of the EPA Act and has been determined by Council to have no significant impact on the environment.

I certify that all structural elements of the Design have been designed by a competent qualified practicing Civil or Structural Engineer.

Contact Phone: _____

_____
Design Engineer/Surveyor Date

Contact Postal Address: _____

_____
Qualifications

_____

_____

_____

ANNEXURE DQS-B

MINIMUM DRAFTING GUIDELINES

A. ROADWORKS PLANS

An example* of the sequence of drawing sheets acceptable to Council in the compilation of a full set of Roadworks Plans is set out as follows.

Sheet N^{o}	**TOPIC**
1	Development Consent Number/Council Plan Number Locality Sketch and Index of Sheets.
2	General Subdivision Plan with contour details and a clear indication of the extent of work.
3	Typical Road Cross Sections showing road widths, pavement configuration, batter slopes, kerb and gutter types.
4.	Plan views showing particular roads, services, landscaping, walkways, traffic devices and open space facilities.
5.	Longitudinal Sections of Roads.
6.	Drainage Plan and Schedule of Drainage elements.
7.	Drainage, Water and Sewer Profiles.
8.	Street Cross Sections.
9.	Intersection Layout Details including linemarking, pavement marking and signposting.
10.	Erosion and Sedimentation Control Plans (short term and long term treatment).

NOTE * Any one set of Roadworks Plans may require more than 1 sheet for each of the topics listed and may also require supplementary sheets for site specific details.
Scales are required to be nominated on all drawings.

ANNEXURE C

DESIGN CHECKLISTS

DESIGN CHECKLIST 1 – PRE-DESIGN REQUIREMENTS

		Check Completed By (initials)	Date	Not Applicable
1.1	Review of Environmental Factors or DA Completed to requirements of EPA Act.		/ /	☐
1.2	Environmental & Planning requirements of Council obtained.		/ /	☐
1.3	Design Brief received and consulted with client/customer.		/ /	☐
1.4	Utility Authority requirements/quotes			
	Electricity (street lighting)		/ /	☐
1.5	Government Authority requirements assessed and obtained from;			
	DLWC		/ /	☐
	NSW Fisheries		/ /	☐
	NPWS		/ /	☐
	DPWS		/ /	☐
	EPA		/ /	☐
	RTA		/ /	☐
1.6	Concept Plan prepared and approved by client/customer.		/ /	☐
1.7	Property acquisitions/easements right of entry identified and suitable arrangements made with landowners, (owner's consent) legal representatives etc.		/ /	☐
1.8	Scope of works clearly defined in Design Brief and confirmed with client/customer.		/ /	☐

Design Check List 2 BASE PLOT OF EXISTING FEATURES

		Check Completed By *(initials)*	Date	Not Applicable *(tick)*
2.1	Initial Plot verified by site inspection for existing drainage.		/ /	☐
2.2	Initial Plot verified by site inspection for existing property descriptions, boundaries and accesses.		/ /	☐
2.3	Initial Plot of contours verified as representative of site terrain.		/ /	☐
2.4	Trees and significant environmental features affected by development are clearly indicated and annotated.		/ /	☐
2.5	Features significant to heritage considerations within the development boundaries are clearly indicated and annotated.		/ /	☐
2.6	Existing public and private property likely to be affected by these Designs are clearly indicated and annotated.		/ /	☐
2.7	Existing public utility services likely affected are clearly indicated and annotated.		/ /	☐

DEPARTURES FROM COUNCIL OR STATE ROAD AUTHORITY NORMAL REQUIREMENTS OR SPECIAL FEATURES TO BE NOTED:

Design Check List 3 HORIZONTAL ROAD ALIGNMENT

		Check Completed By *(initials)*	Date	Not Applicable *(tick)*
3.1	Alignment compatible with design speed, and topography of site.		/ /	☐
3.2	Alignment is adequate in relation to clearance of roadside hazards.		/ /	☐
3.3	Driver and Pedestrian sight distance is adequate.		/ /	☐
3.4	Conflict with existing services is minimised.		/ /	☐
3.5	Road widths and lanes meet Councils requirements and design traffic requirements.		/ /	☐
3.6	Alignment of bridges suits road alignment.		/ /	☐
3.7	Pedestrian, bicycle and parking requirements are met.		/ /	☐
3.8	Provision for large vehicles such as buses, garbage trucks and emergency vehicles is adequate.		/ /	☐
3.9	Intersection Layouts meet turning requirements of design traffic including emergency vehicles.		/ /	☐
3.10	Pavement width tapers and merges are adequate.		/ /	☐
3.11	Pedestrians and prams are catered for.		/ /	☐
3.12	Conflict with existing Public Utility services has been identified and resolved.		/ /	☐
3.13	Horizontal road alignment has been provided in accordance with any Conditions of Development Consent.		/ /	☐
3.14	Horizontal alignment has been provided to minimise cuts and fills, earthworks and to blend with the terrain.		/ /	☐

DEPARTURES FROM COUNCIL OR STATE ROAD AUTHORITY NORMAL REQUIREMENTS OR SPECIAL FEATURES TO BE NOTED:

Design Check List 4 VERTICAL ROAD ALIGNMENT

		Check Completed By *(initials)*	Date	Not Applicable *(tick)*
4.1	Grades meet maximum and minimum requirements and minimise earthworks.		/ /	☐
4.2	Vertical clearances to bridges and services meet standards.		/ /	☐
4.3	Vertical sight distance is adequate for drivers and pedestrians.		/ /	☐
4.4	Cover to drainage structures or services is adequate.		/ /	☐
4.5	Vertical alignment is adequate for disposal of surface drainage from properties and from road.		/ /	☐
4.6	Vertical alignment is compatible with property access, topography and visually acceptable.		/ /	☐
4.7	The gradient on an intersecting road is not significantly greater than the cross slope of the through pavement and no greater than 3% at give way and stop signs.		/ /	☐
4.8	Sight distance is acceptable for all accesses to roundabouts.		/ /	☐
4.9	Alignment coordination with horizontal alignment is in accordance with the AUSTROADS Guide for Design of Rural Roads or other guidelines accepted by Council for urban roads eg. AMCORD, QUEENSLAND STREETS AHBAD.		/ /	☐
4.10	Conflict with existing Public Utility services has been identified and resolved.		/ /	☐

DEPARTURES FROM COUNCIL OR STATE ROAD AUTHORITY NORMAL REQUIREMENTS OR SPECIAL FEATURES TO BE NOTED:

Design Check List 5 ROAD CROSS SECTIONS

		Check Completed By *(initials)*	Date	Not Applicable *(tick)*
5.1	Typical Cross Sections have complete dimensions.		/ /	☐
5.2	Typical Cross Sections have kerb & gutter, guardrail, public utilities and surface and subsoil drainage indicated.		/ /	☐
5.3	Batter slopes are indicated and batter treatment is indicated where appropriate.		/ /	☐
5.4	Pavement description and surface treatment is indicated.		/ /	☐
5.5	Property boundaries, service allocations and footpath treatments are indicated.		/ /	☐
5.6	Sufficient Cross Sections are shown to define all variations and width transitions.		/ /	☐
5.7	Cross sections are of sufficient width to fully assess impact of road level on adjoining property.		/ /	☐

DEPARTURES FROM COUNCIL OR STATE ROAD AUTHORITY NORMAL REQUIREMENTS OR SPECIAL FEATURES TO BE NOTED:

Design Check List 6 ROAD AND INTERALLOTMENT DRAINAGE

		Check Completed By *(initials)*	Date	Not Applicable *(tick)*
6.1	Drawings indicate existing surface drainage.		/ /	☐
6.2	Hydrological data is the most current available.		/ /	☐
6.3	Hydrologic and Hydraulic design calculations are complete and fully recorded and appended.		/ /	☐
6.4	Underground drainage and structures do not conflict with services.		/ /	☐
6.5	The designed drainage lines are compatible with existing incoming lines and outgoing lines.		/ /	☐
6.6	The type of pipe, size, gradient and class are indicated for each drainage line as well as the bedding requirements.		/ /	☐
6.7	Height of fill over drainage lines is within allowable limits.		/ /	☐
6.8	Drainage is provided for local depressions eg median areas or areas adjacent to fills.		/ /	☐
6.9	The effect of headwater and back-up water on private property has been assessed and adequate surcharge paths have been provided.		/ /	☐
6.10	Subsurface drainage has been provided when required.		/ /	☐
6.11	The need for batter drains has been considered for fills.		/ /	☐
6.12	The height and energy level of downstream drainage has been allowed for in the design.		/ /	☐
6.13	Drainage structures and flowpaths are located so as to ensure safe vehicular and pedestrian transit.		/ /	☐

		Check Completed By *(initials)*	Date	Not Applicable *(tick)*
6.14	Emergency flowpaths are located so as to minimise impact on private property.		/ /	☐
6.15	Road drainage has been provided in accordance with any Conditions of Development Consent.		/ /	☐
6.16	Interallotment drains have been designed in accordance with Council's Specification and/or Australian Rainfall and Runoff (Edition 1987).		/ /	☐
6.17	Appropriate land stabilisation and velocity controls have been implemented to pipe systems, open channels and embankments.		/ /	☐
6.18	Drainage easements on rural residential lots to be taken to the natural water course or boundary if water course is located within adjoining property. Easement to be piped 40 metre minimum into property.		/ /	☐
6.19	Easements shown on plan to dimensions as per Council's Subdivision Code.		/ /	☐

DEPARTURES FROM COUNCIL OR STATE ROAD AUTHORITY NORMAL REQUIREMENTS OR SPECIAL FEATURES TO BE NOTED:

Design Check List 7 SIGNS AND MARKINGS

		Check Completed By *(initials)*	Date	Not Applicable *(tick)*
7.1	Signs are shown on the drawings in accordance with AS 1743.		/ /	☐
7.2	Pavement linemarking and pavement marking is indicated on the drawings to meet the requirements of AS 1742.2.		/ /	☐
7.3	Signs and linemarking have been designed in accordance with any Conditions of Development Consent.		/ /	☐
7.4	Street name signs location shown on Plans.		/ /	☐

DEPARTURES FROM COUNCIL OR STATE ROAD AUTHORITY NORMAL REQUIREMENTS OR SPECIAL FEATURES TO BE NOTED:

Design Check List 8 PAVEMENT DESIGN

		Check Completed By *(initials)*	Date	Not Applicable *(tick)*
8.1	The pavement design is shown clearly on the drawings and any variations are indicated on appropriate cross sections.	_____	/ /	☐
8.2	The pavement design complies with Council's Pavement Design Specification where available or AUSTROADS, APRG Report 21.	_____	/ /	☐
8.3	Pavement Design is in accordance with any Conditions of Development Consent.	_____	/ /	☐
8.4	Geotechnical Data has been obtained and appended.		/ /	☐

DEPARTURES FROM COUNCIL OR STATE ROAD AUTHORITY NORMAL REQUIREMENTS OR SPECIAL FEATURES TO BE NOTED:

Design Check List 9 BRIDGE AND MAJOR CULVERT DESIGN

		Check Completed By *(initials)*	Date	Not Applicable *(tick)*
9.1	The design has been performed by a competent practicing Civil or Structural Engineer.		/ /	☐
9.2	Geotechnical Data is appended.		/ /	☐
9.3	The type and functional dimensions of the bridges meet AUSTROADS Bridge Design Codes 1992, AS 3600 (1988), AS 1684 (1992), AS 1170 (1989), AS 4100 (1990).		/ /	☐
9.4	The type and class of all materials are indicated on the drawings.		/ /	☐
9.5	All design calculations are appended.		/ /	☐
9.6	The design complies with any Conditions of Development Consent.		/ /	☐
9.7	Hydrological and Hydraulic design calculations are complete, fully recorded and appended.		/ /	☐
9.8	The type of culvert, pipe, size, gradient and class are indicated for each drainage structure as well as bedding requirements.		/ /	☐
9.9	Height of fill over drainage structures is within allowable limits.		/ /	☐
9.10	The height of energy of downstream drainage		/ /	☐
9.11	Appropriate land stabilisation and velocity controls have been implemented for bridges, culverts, open channels and embankments.		/ /	☐

DEPARTURES FROM COUNCIL OR STATE ROAD AUTHORITY NORMAL REQUIREMENTS OR SPECIAL FEATURES TO BE NOTED:

Design Check List 10 EROSION/SILTATION CONTROL PLANS

		Check Completed By *(initials)*	Date	Not Applicable *(tick)*
10.1	Both short term and long term erosion control plans have been prepared using the guidelines within Council's Design Specification D7 and Construction Specification C211.		/ /	☐
10.2	Erosion and Sedimentation Control has been designed in accordance with any Conditions of Development Consent.		/ /	☐
10.3	Erosion and Sedimentation Control facilities where practical utilise existing and proposed drainage facilities.		/ /	☐

DEPARTURES FROM COUNCIL OR STATE ROAD AUTHORITY NORMAL REQUIREMENTS OR SPECIAL FEATURES TO BE NOTED:

Design Check List 11 STORMWATER QUALITY CONTROL

		Check Completed By *(initials)*	Date	Not Applicable *(tick)*
11.1	Stormwater Quality Control facilities have been designed to;		/ /	☐
	• Meet the requirements of EPA Guidelines		/ /	☐
	• In accordance with any conditions of Development Consent/Part V Assessment		/ /	☐
	• Interface with stormwater piped network and detention facilities			
11.2	Safety aspects of the design have been addressed in terms of;			
	• Adequate batter slopes		/ /	☐
	• Minimum depth of treatment points		/ /	☐
	• Access to enclosed structures		/ /	☐
	• Fencing		/ /	☐
	• Stagnant waters/mosquito breading		/ /	☐
11.3	Stormwater Quality Control plans have been prepared using guidelines of AUSPEC Design Specification D8 & Construction Specification C211.		/ /	☐

DEPARTURES FROM COUNCIL OR STATE ROAD AUTHORITY NORMAL REQUIREMENTS OR SPECIAL FEATURES TO BE NOTED:

Design Check List 12 STORMWATER DRAINAGE DESIGN

		Check Completed By *(initials)*	Date	Not Applicable *(tick)*
12.1	Recurrence intervals verified with Council for major and minor events.		/ /	☐
12.2	Catchment areas provided on plans and checked for future development potential.		/ /	☐
12.3	Intensity Frequency Duration (IFD) relationships derived in accordance with ARR 1987.		/ /	☐
12.4	Design coefficient of runoff, frequency, friction coefficient and velocities have been verified.		/ /	☐
12.5	All drainage easements are shown in accordance with Council's subdivision Code.		/ /	☐
12.6	Discharge points are legal and approved by Council.		/ /	☐
12.7	Surcharge flow paths conform with ARR 1987 major/minor philosophy and verified with Council.		/ /	☐
12.8	Gutter flow widths and pit spacing verified to conform to AUSPEC D5 – Stormwater Drainage Design		/ /	☐
12.9	Hydraulic calculations provided and make suitable allowances for head, pit and tail water losses.		/ /	☐
12.10	Velocity/depth relationships checked to ensure safety of all pedestrians and vehicles.		/ /	☐
12.11	Retarding basins critical storm duration to conform to AUSPEC, D5 – Stormwater Drainage Design.		/ /	☐

12.12 Retarding basin design conforms with requirements of AUSPEC D5.15 _____ / / ☐

12.13 Onsite detention conforms with requirements of Council criteria. _____ / / ☐

12.14 Interallotment drainage provided to all allotments to requirements of AUSPEC D5.17. _____ / / ☐

12.15 Plan information provided to requirements of AUSPEC D5.22. _____ / / ☐

DEPARTURES FROM COUNCIL OR STATE ROAD AUTHORITY NORMAL REQUIREMENTS OR SPECIAL FEATURES TO BE NOTED:

Design Check List 13 WATERFRONT DEVELOPMENT

		Check Completed By *(initials)*	Date	Not Applicable *(tick)*
13.1	Relevant approvals obtained from State agencies (eg DLWC, Fisheries, NPWS).	_____	/ /	☐
13.2	Agency requirements incorporated in or addressed by the design.	_____	/ /	☐
13.3	Land reclamations/ fill based on a detailed geotechnical assessment.	_____	/ /	☐
13.4	Certification of landfill/reclamations provided.	_____	/ /	☐
13.5	Waterway beach/deep water frontage zones conform with AUSPEC D8.	_____	/ /	☐
13.6	All structures (eg relevant walls, bridges and marina facilities certified to comply with appropriate design guides and standards.	_____	/ /	☐
13.7	The effect of all structures on the hydraulic performance of the waterway verified to have no significant impact.	_____	/ /	☐

DEPARTURES FROM COUNCIL OR STATE ROAD AUTHORITY NORMAL REQUIREMENTS OR SPECIAL FEATURES TO BE NOTED:

Design Check List 14 CYCLEWAY PATHWAY DESIGN

		Check Completed By *(initials)*	Date	Not Applicable *(tick)*
14.1	Cycleway/pathways conform to Council approved strategies/plans.		/ /	☐
14.2	The type of cycleway (ie on-road, off-road confirmed with Council).		/ /	☐
14.3	The cycleway/pathway verified to conform with AUSTROADS and AUSPED D9 in respect of;			
	• Bridge crossings		/ /	☐
	• Width and alignment		/ /	☐
	• Signage		/ /	☐
	• Material types		/ /	☐
	• Facilities		/ /	☐
	• Disability/access		/ /	☐

DEPARTURES FROM COUNCIL OR STATE ROAD AUTHORITY NORMAL REQUIREMENTS OR SPECIAL FEATURES TO BE NOTED:

Design Check List 15 BUSHFIRE PROTECTION

		Check Completed By *(initials)*	Date	Not Applicable *(tick)*
15.1	The Bushfire requirements conform with the provision of Council's consent.	_____	/ /	☐
15.2	Perimeter tracks have been provided to conform with AUSPEC D10.	_____	/ /	☐
15.3	Fire protection zones have been provided to conform with AUSPEC D10.	_____	/ /	☐
15.4	Fuel reduced and free zones have been provided to conform with AUSPEC D10.	_____	/ /	☐
15.5	Design makes suitable provision for staged developments to conform with AUSPEC D10.	_____	/ /	☐

\ DEPARTURES FROM COUNCIL OR STATE ROAD AUTHORITY NORMAL REQUIREMENTS OR SPECIAL FEATURES TO BE NOTED:

Design Check List 16 WATER RETICULATION

		Check Completed By *(initials)*	Date	Not Applicable *(tick)*
16.1	The design has been performed by a practicing registered Civil Engineer in accordance with AUSPEC D11 – Water Reticulation.		/ /	☐
16.2	The survey has been performed by a practicing registered Surveyor.		/ /	☐
16.3	Geotechnical data is assessed as adequate and is held on the design file.		/ /	☐
16.4	The type and functional dimensions of the reticulation meet NSW Department of Public Works and Services guidelines, the appropriate Australian Standards and is compatible with the Water Reticulation Code of Australia WSA 03-1999.		/ /	☐
16.5	The type and class of all materials, fittings, joints, and special requirements for crossings and protection are indicated on the drawings.		/ /	☐
16.6	A design calculations are appended.		/ /	☐
16.7	The design meets the requirements of all Statutory Authorities.		/ /	☐
16.8	The design complies with any conditions of development consent.		/ /	☐

DEPARTURES FROM COUNCIL OR STATE ROAD AUTHORITY NORMAL REQUIREMENTS OR SPECIAL FEATURES TO BE NOTED:

Design Check List 17 SEWERAGE SYSTEM

		Check Completed By *(initials)*	Date	Not Applicable *(tick)*
17.1	The design has been performed by a practicing registered Civil Engineer in accordance with AUSPEC,D12 – Sewerage System		/ /	☐
17.2	The survey has been performed by a practicing registered Surveyor.		/ /	☐
17.3	Geotechnical data is assessed as adequate and is appended.		/ /	☐
17.4	The type and functional dimensions of the reticulation meet NSW Department of Public Works and Services guidelines, the appropriate Australian Standards and is compatible with the Sewerage Code of Australia WSA 02-1999.		/ /	☐
17.5	The type and class of all materials, fittings, joints, and special requirements for crossings and protection are indicated on the drawings.		/ /	☐
17.6	All design calculations are appended.		/ /	☐
17.7	The design meets the requirements of all Statutory Authorities.		/ /	☐
17.8	The design complies with any conditions of development consent.		/ /	☐

DEPARTURES FROM COUNCIL OR STATE ROAD AUTHORITY NORMAL REQUIREMENTS OR SPECIAL FEATURES TO BE NOTED:

Design Check List 18 LAND & STREET SCAPE DESIGN

		Check Completed By *(initials)*	Date	Not Applicable *(tick)*
18.1	The design has been completed by an appropriately qualified horticulturalist and the plans conform to section D13.01		/ /	☐
18.2	Garden bed plantings have the minimum depths of material.		/ /	☐
18.3	The soil and mulch is suitably retained by a low maintenance border.		/ /	☐
18.4	Tree plantings of suitable species conform to the requirements of sections D13.03 & D13.11		/ /	☐
18.5	Adequate drainage has been provided to ensure that the integrity of any asset in the vicinity is not compromised		/ /	☐
18.6	The drainage of the landscaping conforms to the requirements of D13.04 and specifications D4 & D5.		/ /	☐
18.7	Earthworks near existing trees have been assessed according to D13.12.		/ /	☐
18.8	The type and location of all furniture, signage, fencing and structures has been specified on the plans in accordance with D13.05, D13.06, D13.09 & D13.10.		/ /	☐
18.9	Suitable species have been selected to enhance the existing and surrounding vegetation as per sections D13.11, D13.07 and South West Rocks Master Plan.		/ /	☐
18.10	The design has specified suitable and durable materials for all elements (D13.13).		/ /	☐
18.11	The provision of landscaping on slopes and batters has considered the potential for scour and erosion of the materials (D13.15)		/ /	☐
18.12	Landscaping of verges medians and footways is suitable and ensures satisfactory safety for road users as per section D13.16.		/ /	☐
18.13	Landscaping on verges, medians, and footways specifies plants with a suitable low maintenance requirement and drainage.		/ /	☐

		Check Completed By *(initials)*	Date	Not Applicable *(tick)*
18.14	The use of Crime Prevention Through Environmental Design (CPTED) principles has been maximised in order to limit the crime potential resulting from the new development.		/ /	☐
18.15	Adequate pedestrian access and safety has been provided, including measures to minimise the trip hazard potential.		/ /	☐
18.16	Lighting (if required) conforms to the Aust. Standard for Public Lighting (AS1158)		/ /	☐
18.17	The landscaping of drainage flowpaths will not interfere with the hydraulic capacity of the flowpath (D13.14).		/ /	☐
18.18	The design complies with any conditions of development consent.		/ /	☐

DEPARTURES FROM NORMAL COUNCIL REQUIREMENTS OR SPECIAL FEATURES TO BE NOTED: