

Engineering Construction Specification C01 General Requirements (Construction)

Print version is uncontrolled. Current version is maintained on Wingecarribee Shire Council Website in searchable PDF format.

This document is a modified version of AUS-SPEC 0136
General Requirements (Construction) October 2018 version

Working with you

WSC.NSW.GOV.AU



Table of Contents

1	General	3
1.1	Responsibilities	3
1.2	Precedence	5
1.3	Cross references	5
1.4	Referenced documents	5
1.5	Interpretation	5
1.6	Contract documents	7
1.7	Inspections and testing	8
1.8	Submissions	9
1.9	Inspection	10
2	Materials	11
2.1	General	11
2.2	Items to be supplied (TBS) by the principal	12
3	Execution	12
3.1	The site	12
3.2	Existing utility services	14
3.3	Construction plant	15
3.4	Building the works	16
3.5	Survey control	18
3.6	Samples	19
3.7	Shop drawings	19
3.8	Warranties	19
3.9	Work-as-executed drawings	19
3.10	Operation and maintenance manuals	20
3.11	Testing	21
3.12	Construction Completion	22
4	Annexure	27
4.1	Annexure – Summary of hold and witness points – needs to be discussed	27
4.2	Annexure - Referenced documents	28

1 General

1.1 Responsibilities

1.1.1 General

It is the Applicants responsibility to ensure that all works are completed in accordance with sound engineering practices and principles and are completed in line with Council's Engineering Design and Construction Specifications, drawings and Standards.

Final approval of the works is Councils responsibility and will only be issued following satisfactory completion of works and assurance that the works have been completed in accordance with Council's Engineering Design and Construction Specifications, drawings and Standards.

If defects of irregularities are identified and are not rectified by the developer/applicant to the satisfaction of Council, or if works are covered before an inspection is made, there is no guarantee that approval of works will be granted on application.

Contractors undertaking works for the development are contracting to the Developer/Applicant not Council.

Where the work is for the Council's Capital Works Programme, the contract is between the Contractor and Council.

1.1.2 Project Manager

For developments involving complex engineering issues it is recommended that the Applicant engages the services of an experienced Project Manager. It is the Project Manager's responsibility to ensure the works are carried out in accordance with the development consent and to co-ordinate the delivery of the works.

Once the Project Manager has been engaged, Council's officers will have only one contact that is coordinating the progress of the development. Time delays often arise where inexperienced Applicants try to share the project management role.

The Project Manager must be readily available and have sufficient authority and ability to discuss and resolve problems and act as the principal contact with Council.

A Developer who chooses to adopt this role must be aware that Council does not become involved in coordinating activities or giving advice beyond Council responsibilities.

1.1.3 Principal Certifier

The Applicant must appoint a Principal Certifier (PC) for each development project. The PC must be appointed a minimum of 2 days before the commencement of works.

Council or a registered private certifier may be appointed as the Principal Certifier for subdivisions and developments. An application form to nominate Council as the Principal Certifier can be located on Council's website.

1.1.4 Certifying Authority

Council or a registered private certifier must be appointed as the PC to issue a Construction Certificate or Subdivision Works Certificate' for proposed subdivision and development works.

The PC for mandatory inspections will inspect the work to ensure the contractor carries out the work in accordance with the approved Engineering Drawings and Council's Design and Construction Specifications and Drawings.

PC's other than Council do not have authority to carry out inspections for works on Public Roads where approval for the works is granted pursuant to the Roads Act, unless authorised by the Roads Authority.

1.1.5 Superintendent/Supervisor

The Project Manager is to nominate a person to supervise all works on site. It is not the PC's role to supervise construction. The Superintendent/Supervisor is to liaise with the Project Manager regarding any instruction by the PC. It is the Superintendent/Supervisor's role to ensure that all works are carried out in accordance with the contract, approved Engineering Drawings, Council's Design and Construction Specifications and Drawings, relevant legislation and engineering best practice.

1.1.6 Principal Contractor

The Project Manager must appoint a Principal Contractor for the works who must be the holder of a contractor licence (if any residential building work is involved) and notify the Principal Certifier of any such appointment.

It is the Principal Contractor's role to ensure that all works are carried out in accordance with the contract, approved Engineering Drawings, Council's Design and Construction Specification and Drawings, relevant legislative requirements and engineering best practice.

The Principal Contractor is responsible for the actions of any sub-contractors on the site. Any instruction issued by Council's Engineer to a sub-contractor is considered to be an instruction issued to the Principal Contractor. It is the Principal Contractor's responsibility to ensure that procedures are in place on site to ensure that instructions to the sub-contractor are directed through appropriate channels.

The Principal Contractor must ensure that they comply with their responsibilities under the Work Health and Safety Act. All contractors must have a current Workers Compensation Insurance Policy for all employees as required by Statute.

1.2 Precedence

1.2.1 General

Worksections and referenced documents:

- The requirements of other worksections of the specification override conflicting requirements of this worksection.
- The requirements of the worksections override conflicting requirements of their referenced documents.
- The requirements of referenced documents are minimum requirements.

1.3 Cross references

1.3.1 General

Requirement: This worksection is not a self-contained specification. In addition to the requirements of this worksection, conform to the following:

- *C02 Quality management (Construction).*
- *C03 Control of Traffic.*

1.3.2 Hold and witness points

General: **SUBMISSIONS** and/or **INPECTIONS** align with **ANNEXURE - SUMMARY OF HOLD AND WITNESS POINTS**.

1.4 Referenced documents

1.4.1 Contractual relationships

General: Responsibilities and duties of the principal, contractor and superintendent are not altered by requirements in the documents referenced in this specification.

1.4.2 Current editions

General: Use referenced documents (including test methods) which are the editions, with amendments, current 3 months before the closing date for tenders, except where other editions or amendments are required by statutory authorities.

1.5 Interpretation

1.5.1 Abbreviations

General: For the purposes of this worksection the following abbreviations apply:

- AS: Australian Standard.
- BIM: Building Information Modelling.
- CAD: Computer Aided Design.
- ESD: Ecologically sustainable development.
- ICSM: Intergovernmental Committee on Surveying and Mapping.
- NATA: National Association of Testing Authorities.
- NZS: New Zealand Standard.
- TBS: To Be Supplied.
- WHS: Work Health and Safety.

1.5.2 Definitions

General: For the purposes of this contract the definitions given in Austroads AP-C087 and the following apply:

- **Authorities:** Includes service agencies and Road Authorities.
- **Documented:** Documented, as documented and similar terms mean contained in the contract documents.
- **Geotechnical site investigation:** The process of evaluating the geotechnical characteristics of the site in the context of existing or proposed construction.
- **Give notice:** Give notice, submit, advise, inform and similar expressions mean give notice (submit, advise, inform) in writing to the contract administrator.
- **Hold point:** A mandatory verification position in the contract beyond which work cannot proceed without the designated authorisation.
- **Local (government) authority:** A body established for the purposes of local government by or under a law applying in a state or territory.
- **Manufacturers' and suppliers' recommendations:** Recommendations, instructions, requirements, specifications (and similar expressions) provided in written or other form by the manufacturer relating to the suitability, use, installation, storage and/or handling of a product.
- **Obtain:** Obtain, seek and similar expressions mean obtain (seek) in writing from the contract administrator.
- **Permanent marks:** Survey control marks that are permanent by nature and are uniquely defined in the state control survey. Also known as State survey marks (SSM) or Bench marks (BM).
- **Principal:** Principal has the same meaning as owner, client and proprietor and is the party to whom the contractor is legally bound to construct the works.
- **Principal Certifier (PC):** The PC is the authority appointed by 'the Client' (being the person having the benefit of the development consent or complying development certificate) under section 6.5 of the EP&A Act. A PC may either be Council or an registered private certifier (except in certain circumstances).
- **Professional engineer:** A person who meets the criteria for registration on the National Engineering Register (NER) and has appropriate experience and competence in the relevant registered area of practice.
- **Progressive inspections:** Inspections that are required progressively on a component during the course of the project.
- **Proprietary:** Identifiable by naming the manufacturer, supplier, installer, trade name, brand name, catalogue or reference number.
- **Provide:** Provide and similar expressions mean supply and install and include development of the design beyond that documented.
- **Registered Certifier:** means a person who is registered under the Building and Development Certifiers Act 2018 and whose registration is in force.
- **Registered Surveyor:** A member of the Institution of Surveyors. The registered surveyor would need to attain acceptable accreditation for civil design in the relevant area of practice.
- **Registered testing authority:**
NATA accredited laboratory: An organisation accredited by the National Association of Testing Authorities (NATA) to test in the relevant field; or

An organisation outside of Australia registered by an authority recognised by NATA through a mutual recognition agreement; or

An organisation recognised as being a Registered Testing Authority under legislation at the time the test was undertaken.

- Required: Required by the contract documents, the local council or statutory authorities.
- If required: A conditional specification term for work which may be shown in the documents or is a legislative requirement.
- Road authority: As defined by the Roads Act in the state where the road is located.
- Statutory authority: A public sector entity created by legislation, that is, a specific law of the Commonwealth, State or Territory.
- Superintendent: Superintendent has the same meaning as contract administrator or principal's representative unless the contract requires otherwise.
- Supply: Supply, furnish and similar expressions mean supply only.
- Survey mark: A survey peg, bench mark, reference mark, signal, alignment, level mark or any other mark used or intended to be used for the purpose of setting out, checking or measuring the work.
- Tests – completion: Tests carried out on completed installations or systems and fully resolved before the date for practical completion, to demonstrate that the installation or system, including components, controls and equipment, operates correctly, safely and efficiently, and meets performance and other requirements. The superintendent may direct that completion tests be carried out after the date for practical completion.
- Tests – pre-completion: Tests carried out before completion tests, including:
 - Production: Tests carried out on a purchased item, before delivery to the site.
 - Progressive: Tests carried out during installation to demonstrate performance in conformance with this specification.
 - Site: Tests carried out on site.
 - Type: Tests carried out on an item identical with a production item, before delivery to the site.
- Tolerance: The permitted difference between the upper limit and the lower limit of dimension, value or quantity.
- Verification: Provision of evidence or proof that a performance requirement has been met or a default exists.
- Witness point: A nominated position, in the different stages of the Contract, where the option of attendance may be exercised by the Superintendent, after notification of the requirement.

1.6 Contract documents

1.6.1 Services diagrammatic layouts

General: Layouts of service lines, plant and equipment shown on the drawings are diagrammatic only, except where figured dimensions are provided or calculable.

Before commencing work:

- Obtain Dial Before You Dig information
- Obtain measurements and other necessary information.
- Coordinate the design and installation in conjunction with all trades.

1.6.2 Levels

General: Spot levels take precedence over contour lines and ground profile lines.

1.7 Inspections and testing

1.7.1 General

Requirement: Submit test results to verify the materials supplied and the work carried out conform to the approved documentation and inspections.

Hold and Witness Points are comprehensively detailed throughout Councils Engineering Construction Specifications.

Each construction specification provides a summary of Hold points and Witness points required during certain stages of construction activity. Hold points prevent work proceeding without mandatory verification and acceptance from the Principal Certifier (Council or a registered private certifier).

All construction specification hold points specifying inspection details and documentation details with distinct notification time requirements are summarised in the Councils Engineering Construction Specification C32 – *Summary of mandatory Hold and Witness Points for civil construction works*.

Additional inspections, tests and documentation may be required from time to time, and as required on the approved plans and notes.

Attendance to verify Witness points may be exercised by the Principal Certifier after notification of the requirement.

Failure to comply with hold point requirements detailed in council's Engineering Construction Specifications will lead to application refusals for subdivision certificates, occupation certificates, final Section 138 and Section 68 certificates and non-acceptance of asset ownership by council.

1.7.2 Inspections

Key stages:

Book for Civil Works Inspections through MyInspect - Councils Building and Civil Works Inspection Booking System, before 3pm on the day before the inspection is required.

Booking contact details - 1300 842 361 or alternatively My.Inspect@wsc.nsw.gov.au

Bookings are to be made at key stages of construction nominated as HOLD POINTS in the appropriate construction specification. The specific hold point reference number must be provided at the time of booking.

1.7.3 Testing and Documentation Records

Procedures: Submit records of all test results to the principal certifier promptly. Testing by organisations to conform to relevant standard documented test procedures.

All documentation relating to testing and submission requirements should be submitted to council either by mail/person addressed to the General Manager or by email to mail@wsc.nsw.gov.au for council document registration purposes.

The documentation must reference the development application reference number, the specific hold point reference number and the sender's details. Documentation must be received in accordance with the notification time requirements.

Access: Allow uninterrupted access at all times for audit inspections or testing.

1.8 Submissions

1.8.1 Requirement

General: Submit the following, as documented:

- Authority approvals: Notes of meetings with authorities whose requirements apply to the work and evidence that notices, fees and permits have been sought and paid, that authority connections are complete and that statutory approvals by the authorities whose requirements apply to the work have been received.
- Certification: Certification of conformance to documented requirements.
- Design: Design data and certification of proposed work, if required and as documented.
- Materials : Products and materials data, including manufacturer's technical specifications and drawing, evidence of conformance to product certification schemes, performance and rating tables and installation and maintenance recommendations.
- Work-as-executed drawings: To EXECUTION, WORK-AS-EXECUTED DRAWINGS.
- Samples: Representative of proposed products and materials and including proposals to incorporate samples into the Works, if any to EXECUTION, SAMPLES.
- Shop drawings: To EXECUTION, SHOP DRAWINGS.
- Substitutions: To MATERIALS, GENERAL, Substitutions.
- Tests:

Inspection and testing plan consistent with the construction program including details of test stages and procedures.

Certificates for type tests.

Test reports for testing performed under the contract to EXECUTION, **TESTS**.

Work Health and Safety documentation in accordance with legislative requirements.

Evidence of insurances.

Contractor review: Before submissions, review each submission item and check for coordination with other work of the contract and conformance to contract documents.

Submission: To the superintendent.

1.8.2 Execution details

Working area and site facilities:

- Site facilities: Submit a proposal for positioning of all units, services including septic or sewer, rubbish collection, storage areas and security fencing.
- Alternative site facilities: Submit proposal with full details for the use of alternative site facilities in existing buildings.

Adjoining property: Submit one endorsed copy of a dilapidation report for each adjoining property inspection.

Signage: Submit all safety and project signs for approval before sign manufacture or purchase.

Alternative construction: Submit detailed working drawings, design calculations and specifications and certification by a Professional Engineer experienced in the alternative construction design, verifying conformance of the design.

1.8.3 Submission times

Default timing: Make submissions at least 5 working days before ordering products or starting installation of the respective portion of the Works.

1.8.4 Identification

Requirement: Identify the project, contractor, subcontractor or supplier, manufacturer, applicable product, model number and options, as appropriate and include relevant contract document references. Include service connection requirements and product certification.

Non-conformance: Identify proposals that do not conform with project requirements, and characteristics which may be detrimental to successful performance of the completed work.

1.8.5 Errors

Errors: If a submission contains errors, make a new or amended submission as appropriate, indicating changes made since the previous submission.

1.8.6 Electronic submissions

Electronic submissions are to align with

www.wsc.nsw.gov.au/uploads/634/assets-work-as-executed-data-submission-standard-2018_v3.pdf

1.8.7 Hard copy submissions

- Loose documents up to and including A3: One copy.

1.9 Inspection

1.9.1 Notice

General: Give notice so that inspection may be made of the following:

- Items to be supplied by the principal: Delivery to site.
- Existing utility services: Discrepancies from documented location.
- Relocation and alterations to existing utility services: Proposed removal, diversion or cutting into existing service.
- Supplied survey setting out information: Transfer of survey marks.

1.9.2 Attendance

General: Provide attendance for documented inspections and tests.

Underground works: If notice of inspection is required for parts of the works that are to be concealed, advise when the inspection can be made before concealment/backfilling.

1.9.3 Public Liability Insurance Policy

Contractors or sub-contractors engaged on Development or Subdivisional Works or when working in or connecting to public roads shall obtain Public Liability Insurance for a minimum cover value of minimum \$20 million before commencing construction. The policy shall specifically indemnify Council from all claims arising from the execution of works.

A copy of the Public Liability Insurance policy shall be forwarded to Council prior to commencement of works noting the policy expiration date. The period of the policy must be sufficient to complete the subject works.

2 Materials

2.1 General

2.1.1 Manufacturers' or suppliers' recommendations

General: Provide and select, if no selection is given, transport, deliver, store, handle, protect, finish, adjust and prepare for use the manufactured items in conformance with the recommendations of the manufacturer or supplier.

Proprietary items/systems/assemblies: Assemble, install or fix in conformance with the recommendations of the manufacturer or supplier.

Project modifications: Advise of activities that supplement, or are contrary to the recommendations of the manufacturers or supplier.

2.1.2 Sealed containers

General: If materials or products are supplied by the manufacturer in closed or sealed containers or packages, bring the materials or products to point of use in the original containers or packages.

2.1.3 Sources policy

Council has a preference for suppliers with an address within Wingecarribee Shire Council

2.1.4 Prohibited materials

General: Do not provide the following:

- Materials, exceeding the limits of those listed, in the Safe Work Australia Hazardous Chemical Information System (HCIS), including but not limited to materials potentially contaminated with asbestos.

2.1.5 Substitutions

Identified proprietary items: Identification of a proprietary item does not necessarily imply exclusive preference for the identified item, but indicates the necessary properties of the item.

Alternatives: If alternatives to the documented products and materials, methods or systems are proposed, submit sufficient information to permit evaluation of the proposed alternatives, including the following:

Evidence that the performance is equal to or greater than that specified.

- Evidence of conformity to a cited standard.
- Samples.
- Essential technical information, in English.
- Reasons for the proposed substitutions.
- Statement of the extent of revisions to the contract documents.
- Statement of the extent of revisions to the construction program.
- Statement of cost implications including costs outside the contract.
- Statement of consequent alterations to other parts of the Works.

Availability: If the documented products or systems are unavailable within the time constraints of the construction program, submit evidence.

Criteria: If the substitution is for any reason other than unavailability, submit evidence that the substitution:

- Is of net enhanced value to the principal.

- Is consistent with the contract documents and is as effective as the identified item, detail or method.

Costs: Pay the cost of submissions and of evaluations and tests of proposed alternatives, whether subsequently adopted or not. The costs will be calculated at the current charge-out rates of the relevant consultant(s).

2.2 Items to be supplied (TBS) by the principal

2.2.1 General

Supply of items: Items listed in the **Items to be supplied by principal schedule** will be supplied free of charge to the contractor for installation in the Works.

Requirement: Unload and take delivery, inspect for defects and take care of the TBS items. Return unused items to the principal.

Time of delivery: Give notice of the required time of delivery for TBS items.

Damaged or defective: Give notice of any TBS item found damaged or defective within 2 days of taking delivery. If the contractor does not report damage or defect it is deemed that the TBS item was free from damage or defect when received and the contractor is responsible for any replacement or making good.

Storage: Store, protect and insure of all TBS Items received.

2.2.2 Pipe culverts supplied by the principal

Time of delivery: Give 30 days' notice of the required time of delivery.

Supplied: Pipe culverts are supplied by the principal at no cost to the contractor for the actual length laid of pipe culvert required under the contract.

Additional pipe culverts: If any pipe culverts are required in addition to those supplied, it is the responsibility of the contractor to supply at no cost to the principal.

3 Execution

3.1 The site

3.1.1 Protection of the environment

Environmental assessment and planning: In accordance with the Review of Environmental Factors and relevant legislative requirements.

3.1.2 Site access

General: In accordance with job specific requirements.

3.1.3 Working hours

Working hours: Operational hours of plant, including the entry and/or departure of heavy vehicles, is restricted to 7 am to 6 pm Monday to Friday and 8 am to 1 pm on Saturdays and not permitted on Sundays or Public Holidays. Work outside of these hours is not permitted without approval.

3.1.4 Working area and site facilities

Designated areas: In accordance with Construction Environmental Management Plan

Working areas: Restrict construction working areas and areas for temporary site facilities, including the storing of materials, use of plant and erection of sheds, to areas documented on the drawings. Do not work or occupy areas outside of the designated areas.

Alternative site facilities: If proposing to use existing buildings adjacent to, or in close proximity to, the Works as alternative site facilities, obtain approval.

Security: Take security measures for the safe-keeping of any plant, equipment, tools, materials or other property.

Temporary fencing: Provide and maintain temporary fencing and warning signage during the contract to prevent unauthorised entry into the work area.

Existing fencing: Reinstate the existing fencing and remove temporary fencing before the date of practical completion.

Possession of the site: As per contractual requirements

3.1.5 Site restrictions

Special site conditions: As per contractual requirements

Reports supplied for information only:

- Status: Reports supplied for information only are not contract documents.

3.1.6 Protection of persons and property

Temporary works: Provide and maintain required hoardings, barricades, guards, fencing, shoring, temporary roadways, footpaths, signs, lighting, watching and traffic control.

Accessways, services: Do not obstruct or damage roadways and footpaths, drains and watercourses and other existing services in use on or adjacent to the site. Determine the location of the services.

Property: Do not interfere with or damage property which is to remain on or adjacent to the site, including adjoining property encroaching onto the site, and trees/ vegetation.

3.1.7 Rectification

Accessways, services: Rectify immediately any obstruction or damage to roadways and footpaths, drains and watercourses and other existing services in use on or adjacent to the site. Provide temporary services whilst repairs are carried out.

Property: Rectify immediately any interference or damage to property which is to remain on or adjacent to the site, including adjoining property encroaching onto the site, and trees.

3.1.8 Adjoining property

Notice: At least 10 working days before commencing work, submit to owners and occupants of adjoining property written notice of intention to commence work and an outline description of the type and extent of work.

Revealed encroachments: If the works reveal unknown encroachments of adjoining property on to the site or of existing site structures on to adjoining property, immediately seek instructions.

Records: For properties described in the **Adjoining properties to be recorded schedule**:

- Inspect the properties with the superintendent and owners and occupants of the properties, before commencement of work.
- Make detailed records of conditions existing within the properties, especially structural defects and other damage or defacement.
- Arrange for at least 2 copies of each record, including drawings, written descriptions, and photographs, to be endorsed by the owners and occupants, or their representatives, as evidence of conditions existing before commencement of work.

Endorsed copies: Submit one endorsed copy of each record. Keep the other endorsed copy on site.

- Purpose of submission: Information only.

3.1.9 Site investigation

Geotechnical information: For information only. The geotechnical information, including information on contaminants, provides information on the nature of the ground at each tested part and is not a complete description of conditions existing at or below ground level.

Contractor's responsibility: Examine and assess the following:

- Familiarisation with the site and all available information
- Geotechnical information and the site to determine the impact on the construction of the Works.
- Compliance with the Review of Environmental Factors
- The in situ moisture content likely at the actual time the work is carried out.

3.2 Existing utility services

3.2.1 Existing services

Subsurface utilities: Information shown on the drawings relating to underground or submerged utilities is accurate to the following quality level, to AS 5488:

Location: Before starting earthworks, locate and mark existing underground services in the areas which will be affected by the earthworks operations including clearing, excavating and trenching.

Utility services: Contact DIAL BEFORE YOU DIG to identify location of underground utility services pipes and cables.

Services verification: Contact the persons listed in the **Utility authority contacts schedule** to verify the location of utility services.

Discrepancies: If there is any conflict between the actual location or elevation of any service and the location or elevation of any service shown on the drawings, give notice.

Sensitivity of utilities: Identify those utilities such as optical fibre cables and high pressure gas, which are sensitive to the vibration from heavy duty compaction rollers.

Excavation adjacent to utility services: Use only utility authority approved methods of excavation. Some utilities such as gas utilities require their supervision of works when working in the vicinity.

Limitations to work methods:

- Include in work method procedures, any restrictions required by the relevant authority, such as vibrations in the vicinity of underground and overhead facilities.
- Existing asbestos structures, water main or Telstra pits: Give notice to principle or relevant authority for direction
- Extension of time for unknown services or deviations of known services that could not have been reasonable assumed after some investigation.

3.2.2 Protection of services

Precautions: Secure and protect existing gas, water, drainage pipes, sewers, electric conduits and other existing services both underground and overhead to the approval of the relevant Authority.

Repair to existing: Repair any damage caused to existing gas, water, drainage pipes, sewers, electric conduit and other existing services to the approval of the relevant authority.

3.2.3 Relocation and alterations to existing utility services

Alterations: Give notice and obtain approval, if removal, diversion or cutting into existing utility services is required.

Redesign of works: If vibration of road building equipment is a problem then consider a change to the works design to consider different pavement materials such as reinforced concrete subbase and asphalt base and wearing course.

Liaison with utility authority: Include the following:

- Allowance in the program for coordination.
- Allowances in the program for installation by utility authority contractor during the Works.
- Allowance for adjustments to site plant and equipment.

- Allow utility authority contractor to work on or near the site and do not interfere with the operations.
- Reinstatement and backfilling of service trenches to the requirements of the utility authority.

Restrictions: Obtain approval before proceeding with the following:

- Stop work due to utility authority operations.
- Relocation of utility services due to equipment or methods of operation.

Relocations of services by the contractor: Arrange all relocations or alterations to the **Relocation/alteration to services (by contractor) schedule**.

Relocations of services by the principal: Relocations and expected program to **Relocation/alteration to services (by principal) schedule**. Do not commence the Works before completion of the relocation/alteration of the services.

Maintenance responsibility: The contractor is not responsible for the maintenance of any facilities or structures installed or constructed by the utility authorities.

Programming and duration of utility alterations and relocations:

- Give notice of the expected date of completion of each part of the Works required to be completed before the utility services listed in this worksection can be relocated.
- Do not proceed with final trimming or subsequent parts of the work until work on the utility services within that area is complete.
- Delays due to work by authorities: If required, allow utility authorities to remove, relocate, or work on their facilities before continuing the Works.
- Allowance for utility adjustments: Program the utility alterations and relocations

Extension of time: The Contractor is entitled to extensions of time if the utilities have not been relocated by these dates and this causes delay to the Contract.

3.3 Construction plant

3.3.1 Office for superintendent

Requirement: Not required.

3.3.2 Temporary services

Sewer: Make a temporary connection to an existing sewer where one is available. Provide a portable toilet as an alternative. Cap temporary sewer connection at completion.

Water supply: Provide temporary water supply for site facilities. Remove on completion.

Electricity supply: Provide any temporary electricity supply required for site facilities. Remove on completion.

3.3.3 Temporary fencing

Requirement: Provide temporary fencing to site facilities as documented,

Type: 1.83 m high galvanized chain fabric mesh fence.

- Gate: Galvanized tubular steel vehicular access gate.
- Covering to fencing: Full height hessian or shade cloth screen.

Removal: Remove temporary fencing at practical completion.

3.3.4 Advertising signs

Requirement: No advertising is permitted on the site except for the following:

- Approved project signs that nominate the contact details of the companies working on site.

- Manufacturer's name or names of owner on items of construction plant.
- Contractor's mail box.

3.3.5 Project work signs

Requirement: Provide project-specific warning and safety signs and as follows:

- Locate where directed.
- Maintain in good condition for duration of the work.
- Obtain permission for removal.
- Remove on completion.

Project works signs: Advise the contact details of the companies working on site

Timing:

- Installation: No later than one week from receiving the notice of possession of site.
- Remove signs after Completion:

3.4 Building the works

3.4.1 Program of work

Construction program: Show the following:

- Sequence of work.
- Critical paths of activities related to the work.
- Allowance for holidays and wet weather, if required under the contract.
- Allowance for relocation of utility services alterations and relocation.
- Activity inter-relationships.
- External dependencies including provision of access, document approvals and work by others.
- Periods within which various stages or parts of the work are to be executed.

Time scale: Working days.

Updated program: Identify changes since the previous issue, and show the estimated percentage of completion for each item of work.

Program chart: Display in the contractor's site office an up-to-date bar chart and network diagram based on the construction program.

3.4.2 Provision for Traffic

Where applicable, the Applicant shall provide a Traffic Management Plan and/or any Traffic Control Plans to Council prior to commencement of works. The Traffic Management Plan shall consider site access and the route in which construction traffic will travel to and from the site.

In respect of construction work adjoining existing streets or pavements, the Applicant shall provide proper fencing, barriers, signs, lighting and supervision of all work and such temporary roadwork and footways, as may be necessary for the accommodation and protection of pedestrians, vehicles, the public and animals.

Appropriate traffic warning signs shall be erected in accordance with the requirements of AS1742 (2014) – "Manual of Uniform Traffic Control Devices" and/or RMS Work Near Traffic "Traffic Control at Work Sites Version 4".

If necessary, the Applicant shall provide for traffic by its diversion to an alternative route approved by Council's Engineer, or by the formation of side tracks alongside the work, or by the construction of one-half of the road at a time, leaving the other half available for traffic.

The temporary closing of a road and/or the provision of a temporary road shall be undertaken in accordance with the provisions of the Local Government Act and Roads Act. All costs involved shall be borne by the Applicant. It is recommended that early contact be made with Council's Engineer for any road closure proposal to ensure all necessary approvals are obtained, including that of the Local Traffic Committee where necessary.

All Traffic Control Plans must be prepared by a suitably qualified person with the appropriate training and certification from the RMS.

3.4.3 Site meetings

General: Attend site meetings throughout the contract and arrange attendance of appropriate subcontractors.

Meeting agenda: Include performance measures, coordination of program and work under the contract and resolution of any questions regarding the intent or interpretation of the documents. Discuss any potential variations.

Minutes: Site meetings will be chaired and minuted by the superintendent. Copies of the minutes will be issued to all present at the meeting and others concerned with the matters discussed.

3.4.4 Work by others

Requirement: Coordinate the Works with simultaneous and/or adjacent work by others and liaise with other contractors and authorities to avoid disruption, delays and possible conflict.

Access: If required, allow free access for completion of any work by others.

3.4.5 Public Utility Conduits

Prior to the commencement of the works, the Applicant shall obtain details from the various Public Utility Authorities, of their requirements for service conduits in the work area. Service conduits shall be provided at locations specified by the relevant Authority and in accordance with their requirements.

Conduits within the road reserve shall be laid normal to the road centre line and be of sufficient length to extend minimum 300mm beyond the back edge of the kerb. The conduits shall be laid prior to the construction of the pavement sub-base, backfilled in accordance with Council's Specifications. The location and type of conduit shall be clearly and permanently marked on the kerb and gutter. Water conduits shall be marked "W", electricity conduits marked "E", telecommunications conduits marked "T" and gas conduits marked "G".

Services are to be laid concurrently with the construction works where possible and are to be in place prior to final acceptance by Council. Service trench excavation shall be no closer than 300mm from the back of kerb.

Where service conduits are laid in existing sealed roads all restoration works shall be carried out in accordance with Council's Specifications and Standard Drawings.

3.4.6 Alternative construction

Requirement: If the use of alternative materials, design or methods of construction is permitted, prepare detailed working drawings, design calculations and specifications for the alternative.

Documentation: Provide 2 sets of CAD working drawings and any supporting calculations.

Revisions: Attend to any required revisions to drawings or calculations and resubmit 2 sets of the revised drawings and calculations.

Certification: Provide certification by a Professional Engineer experienced in the alternative construction design, verifying conformance of the design.

Submission timing: At least four weeks before construction of the relevant part of the work is scheduled to commence.

Approval to proceed: Do not commence the Works until an endorsed set of working drawings has been returned.

3.5 Survey control

3.5.1 General

Road construction survey: To ICSM QA Specification G71.

Permanent and cadastral survey marks: Provide verification by a registered surveyor that a search has been carried out before starting the Works and all permanent and cadastral survey marks have been identified and recovered, if required.

3.5.2 Supplied survey setting out information

Certification: Before starting the Works, check the digital design model provided for discrepancies between the model and the drawings.

Provision of marks: The superintendent will provide permanent marks shown on the drawings and establish bench marks related to the level datum.

Transfer of marks: Transfer permanent survey marks clear of the operations before any of the survey marks on base lines or various control lines are affected by the Works.

Relocation of survey control: Obtain approval for the relocation of survey control, establishment of recovery pegs, or setting out or levelling.

Protection: Protect all supplied survey marks. If survey marks are damaged or destroyed, re-establish the survey marks.

3.5.3 Set out pegs

Recovery pegs: Provide and fix adequate recovery pegs in suitable locations adjacent to the elements of work.

Removal: Remove all pegs and profiles at practical completion.

3.5.4 Survey equipment

Requirement: Use electronic total stations and ancillary equipment for survey tasks in conformance with the following:

- Electromagnetic distance measuring device (EDM): Standard deviation for error < 5 mm + 5 ppm.
- Horizontal and vertical circles: Angular measurement standard deviation for error < 3 seconds of arc.
- One second of arc minimum count.
- Diametrical vertical circle reading and automatic tilt compensator.

- Capability to electronically record and store field data such as horizontal and vertical angles, distances, point notation, target and instrument heights.
- The calibration procedure and calibrated at all times.
- Calibrated immediately after any repairs.

3.5.5 Laser and global positioning construction control systems

Horizontal and longitudinal alignment control requirements:

- Offset pegs 500 mm from the surface design edge of subgrade.
- Clearly mark chainages on the pegs.
- Spacing between pegs:
 - < 50 m on the straights.
 - < 20 m on curves including all curve tangent points.
- Place pegs vertically.
- Tolerance: ± 25 mm to the exact horizontal location.
- Protect from disturbance.

Removal: Remove all pegs at practical completion.

3.6 Samples

3.6.1 General

Incorporation of samples: Only incorporate samples in the Works which have been endorsed for inclusion. Do not incorporate other samples.

Retention of samples: Keep endorsed samples in good condition on site, until the date of practical completion.

Unincorporated samples: Remove on completion.

3.7 Shop drawings

3.7.1 General

Documentation: Include dimensioned drawings showing details of the fabrication and installation of structural elements, building components, services and equipment, including relationship to building structure and other services, cable type and size, and marking details.

Diagrammatic layouts: Coordinate work shown diagrammatically in the contract documents, and prepare dimensioned set-out drawings.

Record drawings: Amend all documented shop drawings to include changes made during the progress of the work and up to the end of the defects liability period.

3.8 Warranties

3.8.1 General

Requirement: Name the principal as warrantee. Register with manufacturers as necessary. Retain copies delivered with components and equipment.

Warranty period: Start warranty periods at acceptance of installation.

3.9 Work-as-executed drawings

3.9.1 General

Conform with Council's requirements for Work as Executed Drawings, which can be downloaded from www.wsc.nsw.gov.au.

3.9.2 Recording, format and submission

Progress recording: Keep one set of drawings, CAD or BIM files on site at all times, expressly for the purpose of marking changes made during the progress of the Works.

Drawing layout: Use the same borders and title block as the contract drawings.

Quantity and format: Conform to **SUBMISSIONS**.

Endorsement: Certify and date all record drawings.

Accuracy: If errors in, or omissions from, the record drawings are found, amend the drawings and re-issue in the quantity and format documented for **SUBMISSIONS**.

Date for submission:

- Draft submission: 2 weeks before the date for practical completion.
- Final submission: Before issue of final certificate.

Roadworks: Certify all changes to the contract drawings and actual values of all levels, endorsed by a registered surveyor.

3.9.3 Public utilities

Public utilities: Record as required by the worksections.

Surface utilities: Record information on background or submerged utilities to the documented quality level, conforming to AS 5488.

3.10 Operation and maintenance manuals

3.10.1 General

Authors and compilers: Personnel experienced in the maintenance and operation of equipment and systems installed, and with editorial ability.

Referenced documents: If referenced documents or worksections require that manuals be submitted, include corresponding material in the operation and maintenance manuals.

Contents

Requirement: Include the following:

- Table of contents: For each volume. Title to match cover.
- Directory: Names and contact details of principal consultant, subconsultants, contractor, subcontractors and name of main contact.
- Work-as-executed drawings: Complete set of record drawings, full size.
- Drawings and technical data: As necessary for the efficient operation and maintenance of the Works.
- Project description: General description of the Works.
- Product descriptions:

Name and contact details of the manufacturer and supplier of products installed.

Schedules of products, stating locations, and dates of manufacture. Provide a unique code number cross-referenced to the record and diagrammatic drawings and schedules for each product installed.

Manufacturers' technical literature for products installed, assembled specifically for the project, excluding irrelevant matter. Mark each product data sheet to clearly identify specific products used in the Works.

- Certificates:
Certificates from authorities.
Copies of manufacturers' warranties.

Product certification.

Test certificates for each service installation and all equipment.

Test reports.

Commissioning reports.

- Operation procedures.
- Maintenance procedures:

Detailed recommendations for periodic maintenance and procedures, including schedule of maintenance work including frequency and recommended tests.

Emergency procedures, including telephone numbers for emergency services, and procedures for fault finding.

Safety data sheets (SDS).

3.10.2 Format – electronic copies

Printing: Except for drawings required in the **WORK-AS-EXECUTED DRAWINGS** clause, provide material that can be legibly printed on A4 size paper.

Scope: Provide the same material as documented for hardcopy in electronic format.

Quantity and format: Conform to **SUBMISSIONS – electronic copies**.

3.10.3 Format – hard copy

General: A4 size loose leaf, in commercial quality, 4 ring binders with hard covers, each indexed, divided and titled. Include the following features:

- Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE MANUAL, to spine. Identify title of project, volume number, volume subject matter, and date of issue.
- Dividers: Durable divider for each separate element, with typed description of system and major equipment components. Clearly print short titles under laminated plastic tabs.
- Drawings: Fold drawings to A4 size with title visible, insert in plastic sleeves (one per drawing) and accommodate them in the binders.
- Pagination: Number pages.
- Ring size: 50 mm maximum, with compressor bars.
- Text: Manufacturers' printed data, including associated diagrams, or typewritten, single-sided on bond paper, in clear concise English.

Number of copies: 3.

3.10.4 Date for submission

Draft submission: 2 weeks before the date for practical completion.

Final submission: Before issue of final certificate.

3.11 Testing

3.11.1 Attendance

General: Provide attendance on tests.

3.11.2 Testing authorities

General: Except for site tests, have tests carried out by a Registered testing authority.

Test instruments: Use instruments calibrated by a Registered testing authority.

3.11.3 Test reports

General: Indicate observations and results of tests and conformance or non-conformance with requirements.

3.11.4 Notice

Inspection: Give sufficient notice for inspection to be made of the testing as documented.

3.11.5 Controls

General: Calibrate, set and adjust control instruments, control systems and safety controls.

3.11.6 Certification

General: On satisfactory completion of the installation and before the date of practical completion, certify that each installation is operating correctly.

3.12 Construction Completion

3.12.1 General

3.12.2 Final certification and inspection of completed works

Requirement: Council requires the designer or its representative to carry out sufficient site inspections to validate the final certification of the proposed works.

Completed works: On completion of construction works, the supervising consultant is to advise the PC to that effect in writing. The Designer to provide evidence to the PC that the site inspections were undertaken during construction works and provide final certification that the completed work is consistent with the approved design.

Final Subdivision Works Certificate, Section 68 and Section 138 site inspections will be carried out on notification of the works being completed respectively.

Documentation

Final survey (original) plan: Provide the final survey plan to the PC, prepared by a Registered Surveyor upon completion of all conditions of development consent and any other certificate approvals, together with the appropriate fee, for the PC's endorsement of the Subdivision Certificate.

Subdivision certificate: Submit the following for endorsement of the subdivision certificate:

- The final survey plan and administration sheets.
- Number of copies: 3 copies
- Size of final survey plan: A1 or A3
- Street name and street numbering; approval from Council is required to approve all street naming and street numbering for inclusion on the final survey plan and administration sheet.
- Asset register information
- WAE plans
- Certification of completed internal civil works
- Technical data and test results
- Any Section 88 Instrument under the Conveyancing Act (easements, restrictions, etc)
- Title issue: Developer to submit plans to the Land and Property Information NSW to effect plan registration and the issue of new titles for the subdivision lots who will then advise Council of a Deposited Plan (DP) number so that sale of allotments of land may proceed.

3.12.3 Defects Liability period

Commencement defects liability period: In accordance with Council's Bonds Policy. The **defects liability** period will commence from the date of issue of the subdivision certificate or approval of occupation of the development.

3.12.4 Sewerage and water system commissioning

Commencement of defects liability period for pumping stations and associated facilities: At the completion of pump performance tests and commissioning.

Defects liability period for pumping stations and associated facilities: will be in accordance with Council's bonds policy.

3.12.5 Reinstatement

General: Before the date for practical completion, clean and repair damage caused by installation or use of temporary work and restore existing facilities used during construction to original condition.

3.12.6 Completion of Works

When the Project Manager considers that the works have been completed, they will arrange for the lodgement of all necessary compliance documentation for the review of the PC and make arrangements for a final inspection.

3.12.7 Compliance documentation

The following documentation must be reviewed by the PC prior to the issue of a Subdivision or Occupation Certificate attesting to the satisfactory completion of the works. If the review of this documentation identifies any non-compliances, then these matters shall be brought to the attention of the Principal Certifier for further action. One hard copy and one electronic copy of all compliance documentation must be submitted to Council.

3.12.8 Geotechnical Report

The final submission requires lodgement of a geotechnical report prepared by a professional geotechnical engineer.

The report is to detail the matters relating to road pavement compaction, lot filling, earthworks and lot classification and compliance with Council's Specification. The report is to be accompanied by the professional Geotechnical Engineer Certificate certifying that the required compactions were achieved in accordance with Council's Specification and/or relevant Australian Standards.

A lot fill diagram must be provided where lots have been filled. The diagram will show fill areas in different colours or hatching for depths of fill in 300mm increments. The diagram will apply to all lots that have been filled in excess of 300mm.

3.12.9 Material Compliance Certificates

Material Compliance Certificates for all road pavement materials will be required to be submitted prior to issue of the Subdivision Certificate or upon completion of the works.

All materials shall comply strictly with Council's Specification or Council's written approval of alternate materials.

3.12.10 Engineer's Certificates

Where structural work has been undertaken on a project, a certificate from a Professional Engineer must be lodged, certifying the adequacy of the structure.

3.12.11 Slope Junction Plan (Inter-allotment Drainage)

A slope junction plan indicating location, depth and offsets from boundaries of all slope junctions shall be prepared by the project engineer/surveyor in conjunction with WAE Drawings and submitted to Council.

3.12.12 Street/Public Lighting and Utility Installations

Utility Authority Compliance Certificate/Notifications are to be provided demonstrating that all necessary services have been installed to the standards and requirements of the respective authority.

3.12.13 Adjoining property

Evaluation: At practical completion, for properties described in the **Adjoining properties to be recorded schedule** inspect the properties with the superintendent and owners and occupants of the properties, recording any damage that has occurred since the pre-commencement inspection.

3.12.14 Final Inspection

Following review of the compliance documentation including the "Final Inspection" checklist, the Principal Certifier shall undertake a final inspection of the works. Any defects or non-compliances identified in the review of compliance documentation or during the inspection are to be rectified prior to the issue of a Compliance Certificate certifying that the works have been satisfactorily completed.

Where Council is not the Principal Certifier it is recommended that Council is invited to participate in the final inspection so that any issues are identified at the same time as those raised by an independent Principal Certifier. It is advised that where Council is the Principal Certifier for subdivisions and other development a final inspection shall be undertaken prior to the issue of any Subdivision/Occupation Certificate.

Note: The Final Inspection Certificate issued by the Certifier at the time of inspection of s68 (EP&A Act) or s138 Roads Act) works is not the final sign-off. Final sign-off does not occur until a formal letter from Council's Development Engineering Unit is issued to the Applicant.

3.12.15 Subdivision Certificate

Prior to the issue of a Subdivision/Occupation Certificate the Principal Certifier shall be satisfied that all matters specified in the EP&A Act and the development consent have been met. In this regard any application for a Subdivision/Occupation Certificate shall be accompanied by the following documentation:

3.12.16 Statement of compliance with the development consent

The development consent needs to be reviewed regularly during the works. The application for a Subdivision/Occupation Certificate shall be accompanied by a Statement of Compliance detailing how each condition of the development consent has been met.

3.12.17 Compliance certificate

Prior to the issue of a Subdivision/Occupation Certificate, Council will require the submission of a final Part 4A Compliance Certificate, with one hard copy and one electronic copy of supporting compliance documentation, including WAE plans, as required by Council's Specification.

Where Council is not the Principal Certifier the same documentation shall accompany the prescribed notice of issue of the Subdivision/Occupation Certificate.

It is the responsibility of the Certifying Authority to ensure that all works have been carried out in accordance with the development consent, approved Engineering Drawings and Council's Specification. The final Compliance Certificate shall clearly certify that these requirements have been met. The final Compliance Certificate shall not be issued if any works, other than works that are to be bonded, are outstanding.

3.12.18 Acceptance of works by the principle certifying authority

The Principal Certifier must undertake a final inspection of the subdivision or development works. Prior to the issue of a Subdivision Certificate / Occupation Certificate any deficiencies identified with the works must be rectified to the satisfaction of the Principal Certifier.

3.12.19 Subdivision plan and 88B instrument

Any subdivision plan and/or 88B Instrument must be consistent with the plan and conditions approved with the development consent. The subdivision plans and 88B shall indicate:

- Road Names in accordance with Council's "Road Naming Policy" and street numbering. A copy of the policy can be found on Council's website.
- All necessary legal instruments required to affect the development consent

3.12.20 Section 68 Final Approval and other utility authorities' certificate

All subdivision applications must be accompanied by a S68 application to carry out water supply works, sewerage works and other stormwater works in the Wingecarribee Local Government Area as required by the LG Act.

Compliance Certificates from other Utility Authorities may be required by conditions of the development consent.

3.12.21 Bond

Prior to the issue of Construction and/or Subdivision Works Certificates or Subdivision Certificates/Occupation Certificates Council may require to ensure Council's existing assets are protected or new assets are delivered to a satisfactory standard. The various security bonds are detailed in Council's Bond Policy.


Council will not accept Outstanding Works Bonds for works on private lands or land not in Council's future ownership. All bond amounts must be in accordance with Council's Bonds Policy.

Bond amounts must be verified by Council. Confirmation of bond amounts will be undertaken by Council upon written request.

BONDED WORKS: The Developer's obligations will be complete when the defects liability period has elapsed, an application for release/refund of the bond is received and all bonds have been returned.

3.12.22 Subdivisions

Upon the issue of a Subdivision Certificate the works will enter the Defects Liability Period. During this period any defects which become evident will be the responsibility of the Applicant to rectify. The Defects Liability Period is a minimum of 24 months from the issue of the Subdivision Certificate. The Defects Liability Period may be extended by the Council subject to consideration of the development status and for the purposes of further monitoring any matters that become evident during this period. An inspection shall be undertaken by Council at the end of the Defects Liability



Period, with any defects identified to be rectified to the satisfaction of Council's Engineer and a satisfactory inspection by Council. At the end of the Defects Liability Period, following the rectification of any defects, receipt of an application by Council for the release of the bond and a satisfactory inspection by Council, bonds will be released, and Council will issue a formal acceptance of the works.

3.12.23 Contributions for outstanding works

In limited circumstances Council may accept a monetary payment for outstanding works, in lieu of a bond, to discharge the developer of their obligations. An application to make a monetary payment in lieu of providing a bond shall be made in writing. If agreed to, any such payment will be subject to a quotation by Council. The quotation shall allow for relevant administration costs and a surcharge allowing for indexation where works will be delayed.

3.12.24 Contributions for outstanding works

Additional CCTV may be required at the end of defects inspection as directed by Council.

4 Annexure

4.1 Annexure – Summary of hold and witness points – needs to be discussed

Reference No:	Clause and description	Type*	Submission/Inspection details	Submission/Notice times	Process held
C01-HP01	SUBMISSIONS Execution details Working area and site facilities	H	Positioning of all units and services for site facilities	2 weeks before installation	Installation of site facilities
C01-HP02	SUBMISSIONS Execution details Working area and site facilities	H	Alternative site facilities in existing buildings	3 weeks before installation	Installation of site facilities
C01-WP03	INSPECTIONS, Notice Items to be supplied by the principal	W	Delivery to site	2 days	-
C01-WP04	INSPECTIONS, Notice Existing utility services	W	Discrepancies from documented location	1 week	-
C01-WP05	INSPECTIONS, Notice Relocation and alterations to existing utility services	W	Relocation and alterations to existing utility services	1 week	-
C01-WP06	INSPECTIONS, Notice Supplied survey setting out information	W	Transfer of survey marks	2 days	-
*H = Hold Point, W = Witness Point					

4.2 Annexure - Referenced documents

The following documents are incorporated into this worksection by reference:

AS 5488	2013	Classification of Subsurface Utility Information (SUI)
ASMM	1998	ASSM - Civil engineering measurement
Austrroads AGPD		Guide to project delivery
Austrroads AGPD03	2014	Contract management
Austrroads AP-C087	2015	Austrroads glossary of terms. 2015 edition.
ICSM QA Specification G71	2009	Intergovernmental Committee on surveying and mapping -
Road construction surveys		
Safe Work Australia		Hazardous chemical information system