



FNQROC DEVELOPMENT MANUAL

CP1

CONSTRUCTION PROCEDURES

Version No. 05/23

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GENERAL

CP1.01 INTRODUCTION

1. This section of these Operational Works Manual details the minimum requirements acceptable to the Council associated with developments involving Operational Works defined as any works to be constructed that are subject to Council Approval. Typically, this involves the construction of Water Supply, Sewerage, Stormwater, Roadworks and Public Open Space associated with Development, Reconfiguration or other approvals.
2. This manual does not apply to works or services under the control of other authorities (i.e. works within State controlled road corridor). Separate approvals may be required from the other relevant authorities.
3. The section has been divided into four subsections as follows:
 - a. Requirements Prior to Construction
 - b. Requirements During Construction
 - c. Acceptance of Works
 - d. Final Acceptance of Works
4. Surveyor is defined as an appropriately qualified surveyor in accordance with the Surveyors Act
5. For clarity, landscapers are responsible for 'soft scope' and RPEQs are responsible for structural components i.e. footpaths, buffer mounds etc.
6. RPEQs are required to verify that the works have been completed or otherwise in the Works Acceptance Inspection Checklist and final acceptance checklist.

REQUIREMENTS PRIOR TO CONSTRUCTION

CP1.02 GENERAL REQUIREMENTS

1. Prior to the construction of any works associated with a development approval which requires operational works approval by Council the Designer responsible for the design of the works must first obtain an approval of the design, construction drawings and specifications from Council. The procedures to be undertaken in order to achieve approvals are outlined in detail in Section AP1 of this Manual.

CP1.03 CONSTRUCTION INSPECTIONS

1. Prior to construction of the works the Consulting Engineer who is a Registered Professional Engineer Queensland (RPEQ) is to be engaged to be responsible for the provision of inspection services in accordance with a Council approved Inspection and Test Plan (ITP) and to exercise reasonable skill and diligence in order to ensure that the operational works requiring approval are executed in accordance with:
 - a. Council's development permit conditions;
 - b. Council's relevant policies and local laws;
 - c. This Manual, Council approved drawings, specifications and relevant Australian Standards;
 - d. Good engineering practice; and
2. Inspections may be carried out by the Consulting Engineer or a delegate who shall be a suitably qualified/experienced person approved by the consulting engineer.
3. The Consulting Engineer is required to certify that all works have been carried out in accordance with the development approval and to the FNQROC minimum Standards prior to Works Acceptance.

CP1.04 INSPECTION AND TEST PLAN

1. The Contractor is to prepare an ITP (endorsed by the RPEQ) identifying the following items:
 - a. Element of work
 - b. Tests and checks required
 - c. Standard required to meet
 - d. Frequency of testing
 - e. Contractor's responsibility
 - f. Consulting Engineer's responsibility
 - g. Council's responsibility
 - h. Asset data recording requirements

Refer to CP1.16 for the requirements of the Inspection and Test Plan.

2. The Consulting Engineer in undertaking Construction Inspections shall:
 - a. Allocate competent and experienced staff to site inspection and testing;

- b. Provide sufficient site presence, dependent on the contractor's progress and workmanship, and in accordance with the ITP, to be reasonably satisfied that the works meet the design, specification and performance requirements.
- c. Inspect and confirm acceptability of works as complying with the design intent and in accordance with the Council's requirements prior to requesting a Council inspection.

CP1.05 CONTRACTOR'S EROSION & SEDIMENT CONTROL PLAN

1. Prior to construction commencing the contractor shall prepare an Erosion and Sediment Control Plan (ESCP) to manage the site during construction and the defect liability period.
2. The plan shall be consistent with the approved Erosion and Sediment Control Strategy (ESCS) and shall take into consideration the Contractor's proposed construction methodology and program.
3. The Contractor may propose an alternate construction methodology that differs from the approved ESCS. In this instance the Contractor shall discuss and obtain approval from the Consulting Engineer for the alternate strategy prior to submitting to Council.
4. The Contractor's ESCP shall be prepared by person or persons meeting the following criteria:
 - a. Six years or more field experience in civil engineering construction practices;
 - b. Educated in erosion and sediment control practice through regular industry sponsored seminars, publications, etc.;
 - c. An understanding of Rainfall Hydrology and an ability to calculate rainfall runoff; and
 - d. An understanding and ability to calculate open channel flows and velocities.
5. A copy of the Contractor's current approved ESCP is to be retained on site by the Contractor's Representative.
6. The Contractor's ESCP shall be submitted to the Consulting Engineer for review and approval prior to the pre-start meeting.
7. The Consulting Engineer is to review the ESCP for compliance with the approved ESCS. Any amendments required to ensure ESCS compliance are to be incorporated by the Contractor prior to approval. The Consulting Engineer will issue a copy of the approved ESCP to the Council prior to the pre-start meeting.
8. It is the Contractor's responsibility to ensure that the ESCP is updated and amended to reflect any changes in the construction methodology and programme.
9. All amendments to the Contractor's ESCP shall be approved by the Consulting Engineer and a copy of the revised approved ESCP issued to Council.
10. The Contractor's ESCP shall consist of the following:
 - a. A layout plan detailing the measures to be employed during construction. On larger sites where works are to be progressively constructed a plan shall be provided for each stage of works;
 - b. A layout plan detailing the measure(s) to remain in place from the commencement of the defects liability period;
 - c. A written description of the sequencing of works or construction program;

- d. An inspection and test plan for monitoring erosion and sediment control measures during the construction and the defects liability period;
- e. Details of all Erosion and Sediment Control measures to be used. The Contractor may adopt standard details developed by other, e.g. IEAust (Qld) "Soil Erosion and Sediment Control – Engineering Guidelines of Queensland Construction Sites"; and
- f. The name of the person within the Contractor's organization who has the authority and responsibility for implementing, monitoring, updating or amending the Plan.

11. The Contractor's ESCP shall address the following issues:

Minimising Disturbance

- a. Limiting the exposure time and size of disturbed areas to a minimum
- b. Allow for the use of existing vegetation as buffer zones

Control of Runoff

- c. Sizing of structures, channels, catch drain and diversion drains for appropriate storm events.

	Design Life	AEP
Non-erosive design capacity	0-6 months	0.632
	6-12 months	0.393
	12-24months	0.181
	24months +	0.095
Structural Stability	0-6 months	0.181
	6-12 months	0.095
Temporary culvert crossing		0.632

- d. Diverting clean water runoff around disturbed areas
- e. Dividing the site into smaller more manageable drainage areas
- f. Early installation of temporary drainage works
- g. Early installation of permanent drainage system and protection works.

Erosion Control

- h. Protecting service trenches and hard engineering structures (eg. driveways, kerbs, etc.) from erosion caused by runoff
- i. Prompt revegetation of disturbed areas
- j. Installing structures in drainage channels to slow flow velocity and encourage settlement of soil particles
- k. Protection of disturbed areas from wind erosion (dust suppression)

Sediment Control

- l. Locating stockpiles clear of drainage paths and protecting stockpiles from traffic, runoff and wind erosion
- m. Minimising number of site access points
- n. Stabilising site access points to prevent vehicles transporting materials off site

- o. Intercepting drainage from disturbed areas and installing sediment barriers to slow the velocity of flow and allow fine particles to settle.
- p. Diverting larger contaminated flows to sediment traps to allow soil particles to settle or be treated prior to release into receiving waters
- q. Protecting partially constructed drainage structures from sediment infiltration

Revegetation

- r. Progressive stabilisation and rehabilitation of completed works.
- s. Providing protection to revegetation works on steep batters during establishment period.

Inspection, Clean out and Maintenance

- t. The inspection, clean out and maintenance regime is to take into account the duration that the site will be disturbed and the timing of construction. If the site is disturbed (i.e. rehabilitation works are not complete) during the period December to May (wet season) a more rigorous inspection, clean out and maintenance regime will be required than for a site, which is disturbed during the period June to November.

CP1.06 CONSTRUCTION SECURITY BOND

1. Prior to construction of the works commencing the developer is required to lodge a security bond in cash or unconditional Bank Guarantee to the value of 5% of the estimated cost of the construction of the works prepared and certified by the Consulting Engineer.
2. A bank guarantee should include:
 - a. A binding contractual relationship between Council and the guaranteeing bank.
 - b. Specific requirements for renunciation of the guarantee.
 - c. Require adequate notice of renunciation.
3. The bond is to be accompanied by Council's Security Lodgement Form (**Appendix E**) clearly identifying the purpose of the bond together with the Consulting Engineer's certification of the value of the works.
4. The bond is required to provide security to Council in the event that costs are incurred as a result of the following:
 - a. Protection of on-street works from damage by contractors, sub-contractors and suppliers.
 - b. Repairs to on-street works resulting from damage caused by contractors, subcontractors and suppliers.
 - c. Protection and repair of existing Council services (i.e. sewerage connections, water connections etc).
 - d. Non-compliance with the approved Erosion and Sediment Control Plan during construction.
 - e. Failure to provide adequately for traffic.
 - f. Urgent action required by Council to resolve unsafe construction or emergency repairs required to protect persons and/or property from consequential damages.

5. Any costs incurred by Council in responding to the above circumstances will be recovered from the Security Bond.
6. At the completion of the works and the commencement of the Defects Liability period, the construction security bond shall be returned to the developer or may be substituted for the defects liability bond.

CP1.07 COMMENCEMENT OF WORK

1. A Notice of Intention to Commence Works is to be issued to Council email seven (7) days prior to the intended date for commencement of the works. No works will be permitted to commence until the following information is provided:
 - a. Name, address and telephone number (including after hours contact) of the Consulting Engineer for the works;
 - b. Name, address and telephone number (including after hours contact) of the Contractor(s) and major sub-contractor(s) for the works;
 - c. Name and telephone number of the person to be contacted in regard to any matter arising from the construction of the works;
 - d. Intended date of commencement of works, and contract period;
 - e. An invitation to the relevant Council Representative to attend the pre-start meeting and confirmed by phone or email a minimum of 24 hours prior;
 - f. A request to Council to confirm that environmentally significant areas and/or trees which are to be preserved in accordance with any Tree Preservation Declaration, have been identified and adequately protected;
 - g. Location of Project Sign (if required); and
 - h. Inspection and Test Plan (refer CP1.16).

This submission will form notification of the date of the "Pre-Start" meeting.

CP1.08 DOCUMENTATION TO BE PROVIDED PRIOR TO PRE-START MEETING

1. The following documents (to a standard acceptable to Council) are required to be submitted and accepted by Council prior to pre-start meeting:
 - a. Evidence of Public Liability Insurance
 - b. Proof of payment of Portable Long Service Leave Levy (PLSL)
 - c. Contractors Erosion and Sediment Control Plan
 - d. Traffic Management Plan
 - e. Construction Security Bond
 - f. Safety Plan
 - g. Evidence that all fees and charges have been paid
 - h. Cultural Heritage Management Plan (if applicable)
2. A Site Safety Induction is to be undertaken for each Council representative at initial attendance on-site (prior to initial inspection)

3. Evidence of Concurrence Agency, Service Authority or adjoining landowner consents/approvals is to be provided to Council prior to commencing. any elements of works affecting/involving those parties
4. The project specific inspection and Test Plans endorsed by the RPEQ.
5. Any engineering plans or reports required to be supplied prior to the pre-start meeting as set out in the Operational Works Approval.
6. A copy of the 'For Construction' drawings inclusive of any amendments required by the Operational Works approval (pdf & electronic e-transmit AutoCAD files)
7. A Pavement Design (if not supplied at Operational Works including records of geotechnical tests indicating subgrade CBR's, adopted traffic load, requirements for subsoil drainage and subsoil drainage design. Design to be certified by a RPEQ geotechnical engineer.

CP1.09 PRE-START MEETING

1. A pre-start meeting is to be held prior to the commencement of works. The meeting is to be attended by Consulting Engineer, the Contractor's Representative, any relevant Specialist Consultants and Councils representative.
2. Items to be considered at this meeting will include but not be limited to the following:
 - a. Review of relevant conditions of development approval and discussion of any issues including conditions of the Development Permit and Operational Works approvals that are considered important and relevant to the attending parties.
 - b. Review of Council's construction requirements;
 - c. Discuss the Contractor's Erosion and Sediment Control Plan approved by the Consulting Engineer;
 - d. A review of the processes for, monitoring, compliance assessment and auditing of the ESCP;
 - e. Inspection and identification of parks and environmentally significant areas and/or trees for preservation;
 - f. Site access conditions;
 - g. Identification of areas to be left undisturbed;
 - h. Evidence of compliance with the Workplace Health and Safety Act; including site safety inductions, site safety plans, notifications;
 - i. Review of Inspection and Test Plan including a notice of nominated Hold / Witness points;
 - j. Relevant provisions of any other Acts;
 - k. Traffic Management Plan;
 - l. Location of Project Sign (if required); and
 - m. Issued plans for construction are the latest approved plans
3. The pre-start meeting is a Hold Point and works may not proceed until the meeting is held and any further requirements identified during the conduct of the meeting are satisfied

4. Council may require that subdivisions in difficult terrain or environmentally sensitive areas to have all road centrelines pegged prior to the pre-start meeting. This is to occur at least two weeks prior to any construction activity taking place so Council can visit the site with Engineers and Contractors representatives to view first hand ramifications of such construction activities as stormwater drainage points, proposed earthworks areas, clearing etc. Council reserves the right to amend the design in consultation with Engineers should any problems arise as a result of the inspection. This preliminary site visit should be arranged prior to or in conjunction with the pre-start meeting.

REQUIREMENTS DURING CONSTRUCTION

CP1.10 GENERAL REQUIREMENTS TRC, MSC

1. The general requirements during the construction of the project are as follows:
 - a. Work may only proceed subsequent to Council being issued with all the relevant documentation set out in CP 1.09.
 - b. No work shall commence on any existing road open to the public unless specifically approved by Council.
 - c. No work may be carried out on nor machinery driven above or near existing water and sewerage pipes without a Work Method Statement being submitted by the Contractor and approved by Council.
 - d. Any damage to existing services under the control of Council or another Authority must be notified immediately and made good by the relevant Authority at the Contractor/Developer's expense prior to acceptance of the works.
 - e. Use of Council services, (eg water from existing mains), is subject to approval by Council and payment of appropriate fees.
 - f. Work involving the use of machinery of any description shall only be carried out on the site 7.00 am to 6.00 pm, Monday to Friday and 7.00 am to 1.00 pm Saturdays, with no work to be carried out on Sundays or Public holidays. (In certain circumstances Council may approve works outside these hours. All applications for changes to working hours must be in writing). For emergent or complaint response issues, dust suppression and sedimentation control may occur outside these hours. Council is to be notified as soon as possible in this instance.
 - g. Pumping stations, electrical switchboards, access covers, compounds and associated equipment installed during construction shall be padlocked when left unattended.
2. The Developer, Contractor and Consulting Engineer shall take all necessary steps, in accordance with the provisions of the Workplace Health and Safety Act, to ensure safety of the public in regard to construction activities. In particular, work on roadways shall be signed in accordance with Queensland Department of Main Roads "Manual of Uniform Traffic Control Devices". Council will require submission of plans indicating traffic control proposals and a program of work for sites involving the travelling public.
3. No public road may be closed, traffic diverted from public roads, or traffic diverted elsewhere without the prior approval of the Council, the District Superintendent of Traffic (if required) and public advertising of the proposed diversion must be carried out. Proposals to divert traffic shall include full details of the alternative route and proposed signing.
4. Works shall not be undertaken on any adjoining private properties without the prior written consent of the relevant registered proprietor. A written acceptance (by the registered proprietor) of the completed works shall be submitted to Council upon finalisation of the works.
5. If connections or alterations to Council mains are required, the Council Engineer shall be given a minimum of twenty (20) working days notice of the Contractor's requirements. (Council's notification requirements are to be noted on the Project Drawings / Specification).

CP1.11 PUBLIC NOTICES / PROJECT SIGNAGE

1. Where as a condition of approval, Council requires the posting of a public notice prior to the commencement of works, the developer is required to post a notice in the Public Notices section of the local newspaper advising of the following:
 - a. Name of developer
 - b. Name of the project
 - c. Street address of the site
 - d. Project managers name and contact detail
 - e. Consulting engineers name and contact number
 - f. Contractors name and contact number
 - g. Other specialist consultant contact numbers (e.g. geotechnical, landscaping, architects, hydraulic etc)

2. Where as a condition of approval, Council requires a project sign(s) to be erected on the sites' frontages to constructed roads and any other location as required. The sign shall contain the following information:
 - a. An overall concept plan of the development showing the stage or works about to commence construction.
 - b. Name of Developer.
 - c. Name of the Project.
 - d. Street address of the site.
 - e. Project Manager's name and contact number.
 - f. Consulting Engineer's name and contact number.
 - g. Contractor's name and contact number.
 - h. Other Specialist Consultants (geotechnical, landscaping, architects, hydraulics etc) names and contact numbers.

3. Material and size of the sign shall be as follows:
 - a. Made of a weatherproof material.
 - b. Not less than 1200mm x 900mm.

4. Position of the sign on the land:
 - a. The sign must be place on, or within 1.5m of, the road frontage of the land.
 - b. The sign must be mounted at least 300mm above ground level.
 - c. The sign must be positioned so that it is visible from the road.

5. The lettering on the sign:
 - a. Each item listed above must start on a new line.
 - b. The minimum lettering height shall be 50mm in height.

CP1.12 DOCUMENT CONTROL

1. A copy of the approved Project Drawings, Specification and Operational Works Approval shall be kept on the job site at all times during construction.
2. Should amendments be required to Engineering Plans and/or Specifications during construction, the Consulting Engineer shall ensure that Council and any other person or organisation who has previously been issued a set of plans that maybe affected by this amendment e.g. Surveyor, public service authority. . is in receipt of two (2) copies of all amended drawings and/or specifications. When approved, Council shall stamp these plans for approval as operational works plans. Any amended drawings and/or specifications shall be submitted with an accompanying letter outlining the amendment together with any supporting information.
3. Submissions with a full complement of supporting documentation will expedite Council's approval time frame.
4. All amendments shall be issued to Council for approval prior to the works being undertaken.

CP1.13 EROSION AND SEDIMENT CONTROL

1. The Consulting Engineer shall ensure that the construction contract contains provisions requiring the Contractor to implement the approved Erosion and Sediment Control Strategy and to prepare and implement an Erosion and Sediment Control Plan complying with the approved Strategy.
2. The Contractor shall ensure that all reasonable measures are taken to protect nearby properties from dust pollution erosion, siltation or sediment transport.
3. Council reserves the right to order whatever action deemed necessary and appropriate at the time to prevent environmental harm, including ordering temporary cessation of work in extreme cases.
4. As Erosion and Sediment Control is also an issue of public amenity and safety, the developer shall be responsible for any costs arising from dust or water pollution generated by its development.

CP1.14 NOISE

1. The requirements of the Council's local laws regarding Noise Nuisances (if applicable) shall apply to the development works.

CP1.15 PARKS & ENVIRONMENTALLY SIGNIFICANT AREAS

1. In cases where the subject land or the adjacent land is an existing or proposed Park, Bushland Reserve, declared Tree Preservation area, or area otherwise declared by Council as environmentally significant, the following general precautions shall be mandatory.
 - a. The areas shall be clearly pegged, flagged, (and fenced if ordered by Council) inspected and approved by Council Officers.
 - b. The approved design, or Certificate of Approval for tree clearing issued pursuant to Tree Preservation By-laws (if applicable) shall have identified any unavoidable intrusion into such areas and nominated work practices such as maximum widths of disturbance, nominated access routes, methods and timing of rehabilitation, which shall be strictly adhered to.
2. Council shall be notified immediately the Consulting Engineer is aware of any damage or disturbance beyond the approved limits. Rehabilitation of this damage or disturbance shall be to the satisfaction of Council.

CP1.16 INSPECTION AND TESTING

1. During the construction phase, the Consulting Engineer shall be responsible for undertaking the minimum number of required inspections and tests in accordance with the approved Inspection Test Plan (ITP).
2. There are a number of major inspections that are mandatory Hold Points (H) for the Consulting Engineer and Hold Points or Witness Points for Council. These will be included in the ITP and can be found in **Appendix A**. Appendix B, C and D contain Inspection and Test Plan Templates. The contractor's ITP is to be based on these templates and updated with project specific testing requirements.
3. Any proposed changes to the ITP must be notified to and accepted by Council prior to the affected works commencing.
4. The submitted Inspection and Test Plan is to be implemented by the Consulting Engineer. The test results and the certification that the plan has been followed are to be submitted with the "As Constructed" documentation.
5. Council will, on a random basis, call upon the Consulting Engineer to provide evidence of conformance with the approved ITP in the form of diary records, site visit reports etc.
6. During construction, Council reserves the right to conduct audit inspections of any or all of the works without prior notification. These inspections do not release the Consulting Engineer from his responsibility to check the Contractor's work.
7. For the RPEQ's test inspections and Hold/Witness points, a "Certificate of Inspection" will record the inspections. If requested, a copy is to be provided to Council for each Hold Point / witness point inspection.
8. For Council Hold/Witness points, the RPEQ's information will include as a minimum the details contained within **Appendix F**.

CP1.17 APPLICATION FOR COUNCIL TO COMPLETE PRIVATE WORKS^{CRC}

1. Unless otherwise approved, Council requires any connections and alterations to Council's live sewer or water mains associated with developments to be completed by Council workforce at

the Developer's expense. This is termed Private Works and the connection will not be made until payment is received.

2. Sewer and water mains are considered to be live once the Defects Liability period has been commenced. All work on live sewers and water mains must be carried out by Council workforce or by the Contractor with Council approval and subsequent supervision.
3. Alterations and connections to existing Council sewer and water mains, resulting from the development (including cutting in of new sewer property connections) are to be completed prior to commencement of the Defects Liability period. In these cases separate applications should be made for the alterations and the connections.

The procedure is as follows:

- a. Application should first be made in writing five business days prior to work commencing to enable Council to provide staff to operate valves and isolate pump stations as necessary and to supervise the Contractor's work. The nature and extent of works shall be clearly identified on copies of the approved plans submitted with the application.
 - b. An estimated cost of the supervision shall be agreed prior to notice being given. The estimated cost and a signed undertaking to pay the actual cost of the work when completed shall accompany the notice.
 - c. Council will require a deposit in line with Council's adopted Fees and Charges Register before the work commences.
 - d. When the Contractor has been approved by Council to make an alteration or connection, the Consulting Engineer is to co-ordinate the work and the process for inspection and payment.
4. **Contractors are not permitted to operate Council's infrastructure unless written approval has been obtained from Council.** The placement and removal of plugs within live sewers must be done under direct supervision of Council's Inspector.
 5. All works completed by Council's workforce at the Developer's expense is to form part of the Contractor's As-Constructed submission.(Refer CP 1.21)
 6. Council reserves the right, on the advice of its Inspector, to stop, or take over a connection being undertaken by a Contractor, if in the Inspector's opinion the Contractor is incapable of completing the connection work in a reasonable time without causing damage to Council's infrastructure or undue inconvenience to the public. Any work carried out by council will be at the contractors cost.

CP1.18 APPLICATION FOR APPROVAL TO DRAW WATER FROM COUNCIL MAINS

1. The drawing of construction water from Council's mains must be approved and the relevant fees paid in advance. Application for approval should be made, on the prescribed form. The attached form shall include Council's endorsements on the form that the relevant fee has been paid.
2. Permission to draw water shall be subject to the following conditions:
 - a. Backflow prevention
 - b. Water may only be taken between the hours of 8.00am and 4.30pm.
 - c. Must be through a metered connection or metered standpipe.

- d. The approval shall be limited to the days and dates nominated in Council's notice of approval.
- e. Water may only be taken from the approved hydrant point.
- f. A copy of this approval is to be held by the driver of any vehicle taking water covered by this approval.
- g. Council may withdraw this approval at any time, such notice shall be in writing and will become effective immediately.
- h. The applicant is responsible for the cost of the reinstatement of damages to Council property caused by the taking of water covered by this permit.

ACCEPTANCE OF WORKS

CP1.19 INTRODUCTION

1. For works requiring Council approval a "Defects Liability" period is a period of twelve months minimum after the works have been accepted as complete by Council. During the Defects Liability Period, it is the responsibility of the Developer to rectify any works found to be defective due to design faults or found to exhibit faults attributed to the performance of the construction activities in terms of quality and conformance with the design and specifications.
2. The following are required to be completed prior to Council acceptance of works:
 - a. Completed "As Constructed" submission lodged with Council a minimum five (5) days prior to the "Works Acceptance" Inspection or early plan sealing inspection for bonding of uncompleted works and being to Council satisfaction.
 - b. Satisfactory "Works Acceptance" Inspection.
 - c. All documentation outlined in section CP1.25(2) submitted to and accepted by Council.
 - d. All appropriate documentation to be completed by the Consulting Engineer and retained for records purposes. This consists of the "Works Acceptance Inspection Checklist" (**Appendix G**), the certified "Inspection and Testing Plan" and all test results and records for the works.
 - e. Compliance Certification has been issued by Council or private certifier for construction of any buildings or building works forming part of the operational works approval.
 - f. Satisfactory commissioning and acceptance of any water pump station, reservoir or sewerage pump station.
3. Following the satisfactory completion of all of the above matters, the Consulting Engineer shall make a written request for acceptance of the works and commencement of the "Defects Liability" period and release of any uncompleted works bond held.
4. The date of the works acceptance shall be the date of issue of the Works Acceptance Certificate and shall be taken as the date all documentation outlined in CP1.25 has been approved and conditions of the operational works and development approval have been met. Works acceptance will not be backdated to the date of the works acceptance inspection. The assets will become Council's at the date on the works acceptance certificate
5. Prior to making application for works acceptance the Consulting Engineer must confirm that all non-compliant work is rectified by the Contractor. Any non-compliances found by Council must be rectified prior to Council's issue of a Works Acceptance Certificate. It is the responsibility of the consultant to monitor the contractors work to the extent necessary such that any deviations from the design are approved prior to making application for works acceptance, alternatively the consultant instruct the Contractor to rectify the work.

CP1.20 DEFECTS LIABILITY BOND

1. Council requires a bond, in an amount of 5% of the value of the works, which is kept for the period of twelve months or until the works are finally accepted.
2. The bond is to be submitted with Council's Security Lodgement Form (**Appendix E**) clearly identifying the purpose of the bond together with the Consulting Engineer's certification of the value of the works.

3. The Construction Security Bond lodged prior to construction may be used for the purposes of the Defects Liability bond subject to Council's approval.

CP1.21 "AS CONSTRUCTED" SUBMISSION

1. "As Constructed" documentation serves two distinct functions:
 - a. Evidence that "As Constructed" works have been checked against the approved design, to support certification by the Consulting Engineer responsible for the design that design philosophies and criteria have been achieved.
 - b. Recording: To provide an accurate record of the "As Constructed" services.
2. Information required for the checking function must be presented in a form which allows ready comparison between design and "As Constructed" data by experienced engineering staff, whereas information required for the recording function must be presented in a form which allows ready and unambiguous interpretation and understanding by a wide range of users including engineers, maintenance and tradespersons, and the general public.
3. "As Constructed" documentation in accordance with these requirements is essential in order to achieve acceptance of development works and commencement of the "Defects Liability" period and is required to be forwarded to Council a minimum of five (5) days prior to the "Works Acceptance" inspection or early plan sealing inspection for bonding of uncompleted works.
4. The following items must be submitted as part of the "As Constructed" submission:
 - a. Electronic copy of the updated Management Plans, Operation and Maintenance Manuals, and Environmental Management Plans where these have been amended or not previously provided to Council (where applicable).
 - b. Asset valuation report in a format acceptable to council and certified by an RPEQ.
 - c. An electronic copy of the Council Approved Final Engineering Drawings in the same electronic format as the As Constructed data – PDF and DWG file.
 - d. Where applicable, Pump Station RTU number and pump station identifier to be obtained from Council
 - e. Electronic copy of the Council Approved Landscaping and Parks embellishments drawings.
 - f. Electronic copy of park / landscaping irrigation system drawings.
 - g. Electronic copy of design plans for building/structure and copy of Structural Certificate.
 - h. "As Constructed" digital data and drawings of services and infrastructure including works completed by Council for the Contractor under a Private Works Agreement
 - i. Digital Ground Model data to the requirements of council in an appropriate format (e.g. DWG or as nominated by the Council).
 - j. Any necessary information required for Council's asset management records (As identified in Appendix P).
 - k. Certification of installed playground equipment to relevant Australian Standards.
 - l. Works carried out on mains, whether or not they are a part of the original project design or for a future stage.

CP1.22 COMPLIANCE CERTIFICATIONS

1. With the implementation of these minimum standards, it is Council's intention to expedite the approval and checking process by reducing the level of checking from rigorous detailed checking to checking on an audit basis. In doing so, Council requires that the "As Constructed" documentation be supported by appropriate certifications in accordance with the requirements noted herein.
2. All "As Constructed" works including the Sewerage Property Connection branches, must be surveyed by a Surveyor, who shall certify the details upon completion of the project. The certification must note that the "As Constructed" survey data represents the true and accurate location of the relevant construction element presented in the data, relative to all appropriate survey datums. (i.e. the exact location in space of each construction element/entity). The Surveyor's certification must accompany the "As Constructed" submission to Council. An example of an acceptable Surveyor's Certification is attached. **(Appendix K)**
3. All "As Constructed" works must also be certified by the Consulting Engineer responsible for the works. The certification must note that the design intent and function of the proposed works have not been compromised by the constructed works. To this extent, the Consulting Engineer will be responsible for determining whether the "As Constructed" details that exceed the tolerances for construction does not compromise the design intent and/or operational effectiveness of the infrastructure.
4. It is recognised that in some circumstances, the tolerances for construction are exceeded. In these instances, the Consulting Engineer will be responsible for performing confirmation design calculations to ensure that the original design intent and function are not compromised.
5. Further, should the "As Constructed" details indicate a change to the design intent or function of the works, revised design calculations shall be provided by the Consulting Engineer to indicate the acceptability of the proposed change relative to Council's requirements. Council's approval of the change is required prior to the formal acceptance of the works.
6. The Consulting Engineer shall be responsible for the completion of the "Statement of Compliance - As Constructed works, which satisfies the requirements for Certification. **(Appendix J)**

CP1.23 MANAGEMENT PLANS, OPERATION AND MAINTENANCE MANUALS

1. Where works comprise pump stations, reservoirs, treatment plants etc., Operations and Maintenance Manuals for all components of the works shall be provided. Operating and Maintenance Manuals shall include spare parts lists, Process and Instrumentation diagram, electrical documentation and any other relevant information. Maintenance Manuals and procedures are also required for drainage structures which incorporate Gross Pollutant Traps, interceptor devices etc. The Maintenance procedures should indicate recommended frequencies for maintenance/cleaning functions in wet and dry seasons.
2. Management plans are necessary for where there is any future maintenance required to ensure sustainability of that feature, i.e. waterways, bio retention basins etc.
3. The developer shall submit a commissioning plan (water and sewer pump stations) at least four weeks prior to the commencement of any commissioning activities.
 - a. The commissioning plan shall contain but not be limited to:
 - Clear accountability and responsibility for aspects of the commissioning

- Installation checks (direction of motor rotation, interlock checks, opening/closing direction of valves and penstocks)
- A process for recording and documenting the results of commissioning (actual flow vs. predicted flow, actual current/voltage vs. design current/voltage, etc.).
- Pre-commissioning checks (factory acceptance testing, bench testing of software)
- Testing of individual items of plant against performance specifications
- Process testing to demonstrate compliance with functional requirements.
- Running-in trial
- Testing of abnormal operating modes.

4.

CP1.24 “AS CONSTRUCTED” DIGITAL DATA AND DRAWINGS

1. This section of the manual covers the four main elements that will comprise the total submission of the “Digital Data and Drawings” component of the “As Constructed” submission for the “Acceptance of Works”. The four main components are:-
 - a. Survey Datum.
 - b. “As Constructed” Digital Ground Survey.
 - c. “As Constructed” Drawings.
 - d. “As Constructed” Attribute Information.

The submission will also be accompanied with the relevant Consulting Engineer’s Certification or Surveyor’s Certification and the As Constructed Data Submission Form.

Requirements for Digital Data and Drawings are contained within Appendix P

CP1.25 PROJECT DOCUMENTATION

1. Development works will not be accepted until construction records have been certified as being completed by the Consulting Engineer and accepted by Council.
2. A complete copy of the following documents shall be provided to Council for acceptance prior to the “Works Acceptance”
 - a. Inspection and Test Plan certified by the Consulting Engineer
 - b. “Works Acceptance” Inspection Checklist
 - c. “As Constructed” Submission in accordance with 1.21
 - d. Compliance Certifications in accordance with 1.22
 - e. Management Plans, Operation & Maintenance Manuals in accordance with 1.23

- f. "As Constructed" Digital Data And Drawings in accordance with 1.24
 - g. Water and sewerage inspection certificates including pump station and reservoir commissioning certificate.
 - h. Digital copy of CCTV survey for Sewer and Stormwater with Engineering Report and Certification (note S4.26 exception for Tablelands Regional Council)
3. Copies of all test results required to confirm compliance with Council's Standard Specifications shall be assembled and retained as a part of the project documentation within the Consulting Engineer's record storage facilities. While not a complete listing, the following details some major records to be included:
- a. Fill compaction test results
 - b. Subgrade CBRs
 - c. Subgrade replacement material quality, thickness and locations *
 - d. Subgrade replacement material compaction test results *
 - e. Subsoil drain filter media quality statements (or gradings where required)
 - f. Subbase course and base course material quality statements and thicknesses
 - g. Subbase course and base course compaction test results
 - h. Prime or primer seal spray and application rates
 - i. AC core test results
 - j. Sewer pressure test records
 - k. Grading to sewer bedding quality statements
 - l. Grading to water main bedding quality statements
 - m. Water main pressure test records
 - n. Pump Station commissioning and test certification by Council (sewer and water) including wet-well, pumps and switchboard*
 - o. Any concrete testing required by the technical specifications
 - p. Pipework material quality statements for all pipework material (water, sewer, stormwater, etc.)
 - q. Geofabric material quality statements
 - r. Digital copy of CCTV survey for Sewer and Stormwater with Engineering Report and Certification
 - s. Any other testing results or statements required to conform with this manual.
 - t. Any other job specific testing carried out or ordered by the Consulting Engineer, if used
- * *Where required to be used.*
4. The Consultant should prepare a letter to Council requesting acceptance of a pump station for the purpose of achieving "Works Acceptance" for the subdivision. The letter should include/enclose:
- a. The pump station allotment number, as it appears on the survey plan

- b. The name of the pump station identifier and RTU number.
- c. Copy of approved design drawings.
- d. Copy of as-constructed drawings (can be preliminary).
- e. Copy of completed pre-commissioning checklist.
- f. Details of any non-conformances and uncompleted works.
- g. Rectification plan if required.
- h. Copy of Inspection and Test Plan.
- i. Copy of Process and Instrumentation Diagram (P&ID)
- j. Certification by the Consultant for structural design, buoyancy and compliance with design drawings and FNQROC Development Manual.
- k. Request that Council make application to Ergon for connection of power accompanied with a locality plan with street names showing the PS location to attach to the application.
- l. Evidence that an application for commissioning a sewerage pump station has been lodged

The information to be provided to Council shall include as a minimum the requirements of the Pump Station Pre-Commissioning Checklist (CP1 Appendix I). The following pump information shall also be provided to Council:-

- Pump Manufacturer, Model, Type, and Impeller diameter (as a cut sheet)
 - Rating of the motor;
 - Weight of the pump and motor;
 - Manufacturer's Performance curve as a cut sheet;
 - Curves with at least four points plotted of the actual performance established in the field, or similar supervised works certificate plotted with the manufacturer's pump curve;
 - KWH/1000 litres pumped;
 - Complete wiring diagrams and details (if not Council standard);
 - Mechanical details and parts list of pump and motor;
 - Maintenance catalogue showing also daily, weekly, monthly and annual maintenance requirements;
 - A complete set of the manufacturers recommended spares delivered to Council.
5. Should any of the above test results fail to meet specification the Consulting Engineer shall include in the record, details of retesting/rectification carried out.
 6. The construction record should be retained in a logically assembled and bound document including a table of contents confirming completeness and presented to Council on completion of the works.

7. Site specific as-constructed drawings for pump stations and reservoirs must be prepared and included with the works acceptance documentation. The drawings must be prepared in accordance with the requirements set out in Appendix P

CP1.26 "WORKS ACCEPTANCE" INSPECTION

1. The "Works Acceptance " inspection requires attendance by:
 - a. The Consulting Engineer for the project.
 - b. The Contractor.
 - c. Council's nominee/s.
2. It is the responsibility of the Contractor and the Consulting Engineer to ensure the necessary requirements of the works are to an acceptable standard (as defined in approved design and construction documentation) prior to the conduct of a "Works Acceptance" inspection.
3. The general requirements to be met prior to Council's "Works Acceptance" inspection of the works are as follows:
 - a. The site is clean, tidy, free of rubbish, rocks, sticks, unauthorised stockpiles, etc;
 - b. Allotment earthworks and site grading to be free draining and in accordance with the approved Design
 - c. Relevant Erosion and Sediment Control measures are in place
 - d. Integrity of environmentally significant areas is maintained
 - e. All Sewers flushed and gravity sewers inspected by CCTV
 - f. Valve boxes and manhole tops visually located and not covered
4. Prior to requesting a "Works Acceptance" inspection, the Consulting Engineer is responsible for confirming:
 - a. that the approved works have been completed
 - b. Any non-compliant issues or defects noted during the construction process, have been rectified to Council satisfaction
 - c. the above listed items are in accordance with the approved drawings, Council's technical specifications and accepted engineering and landscaping works.
 - d. Project documentation listed in CP1.25 has been submitted.

Failure to do so may result in cancellation of the inspection and/or the incurring of a reinspection fee.

5. Further to the above, and prior to the "Works Acceptance" inspection, the Consulting Engineer shall be responsible for the completion of the "Works Acceptance" Inspection Checklist (**Appendix G**) as appropriate to the works being constructed.
6. The completed checklist shall be presented to the relevant Council Officer prior to the "Works Acceptance" inspection. Council Officer will not undertake a detailed check of all items raised in the checklist, but will examine some aspects of the works on an audit basis. The original of the completed checklist shall be retained with the records for the project upon completion of the works.

CP1.27 EARLY PLAN APPROVAL AND BONDING OF UNCOMPLETED WORKS ^{Cook}

1. For subdivision works Council may, at its discretion, approve the bonding of uncompleted works to enable early approval of survey plans. Council may consent to the early approval of survey plans provided the following conditions have been met:
 - a. Early plan sealing requests will only be considered for those stages of development nominated in the development plan. Parts of a stage will not be considered for early plan approval.
 - b. There are no significant external infrastructure works to be undertaken as part of that stage of development, which are required to service the proposed lots to achieve works acceptance. For example early plan approval may be suitable for internal stages, as part of a larger multi-stage development. The first stage of such a development is likely to **not** be suitable as most initial stages of a larger development are contingent upon being serviced with significant external infrastructure. Notwithstanding there may be circumstances where even internal stages of a larger development are not suitable for early plan approval because significant external infrastructure requirements can be triggered at various stage milestones of the development.
 - c. The developer must disclose to the purchaser of any lot proposed for early plan approval that the lot they are purchasing is subject of an early plan approval and therefore all services may not be available until the outstanding works are complete.
2. Council will only consider early plan approval requests for those stages of development nominated in the development plan. Parts of a stage will not be considered for early plan approval
3. Prior to the submission of any early plan approval request, the following matters must be completed to the satisfaction of Council:
 - a. Engineering plans have been approved
 - b. All survey pegs placed
 - c. All lot preparation work and earthworks on lots have been completed in accordance with the requirements of these Guidelines, with finished surface levels, the degree of compaction achieved and geotechnical assessments required on any of the lots submitted and approved by Council.
 - d. Roads have been constructed up to subgrade.
 - e. All lot stormwater systems constructed.
 - f. All sewerage reticulation, within allotments shall be completed by the Developer and accepted by Council Officers.
 - g. Satisfactory evidence is to be provided to Council of a negotiated agreement with Service providers for telecommunications cabling, reticulation of electricity and the provision of street lighting and gas service providers for provision of gas (if applicable).
 - h. All outstanding rates are paid.
 - i. All works within lots must be fully completed and no further disturbance required on the lots.
 - j. Appropriate erosion and sediment control measures are in place for all disturbed areas.
 - k. All other works including external water, external sewer, water reticulation, landscaping etc are included in a bonafide contract between the developer and a contractor to be completed within 90 days.

- I. All contributions required by the conditions of approval shall be paid prior to approval of survey plans (Headworks, Drainage and Traffic Contributions to Council, Contributions to service providers, Department of Main Roads Contributions, etc).
 - m. "As Constructed" information provided for all services located within lots (i.e. sewer, water and stormwater)
 - n. Building approval for all buildings/structures which form part of the approved operational works, e.g. Pump Stations.
 - o. Provision of evidence of public liability cover with interest of Council noted.
4. Upon confirmation that the above matters have been completed, the Applicant or Engineer shall submit the following information to Council:
 - a. Development/Subdivision Permit
 - b. Security Lodgement Form (**Appendix B**) to be completed clearly indicating that the purpose of the bond is for uncompleted works.
 - c. Fully priced schedule of outstanding works including the cost of preparation of the "As Constructed" submission.
 - d. Unconditional Bank Guarantee to the value of 1.5 times the estimated value of the uncompleted works as certified by the Engineer. A bank guarantee must contain a binding and unconditional contractual relationship between Council and the guaranteeing bank.
 - e. Certification from the Engineer, that the works on each lot have reached a stage acceptable to Council and that the outstanding works are programmed for completion within 90 days.
 - f. All bonds submitted shall be clearly identified as to the particulars of the site and, the purpose of the bond.
 - g. "Contribution Payment" Form to be completed clearly noting all required contributions associated with the Development.
5. Council will require an Uncompleted Works inspection to ensure that the on-lot works and all associated documentation have been completed to Council's satisfaction. Council will require five (5) days' notice and payment of the required inspection fee in advance of any inspection.

CP1.28 APPROVAL OF PLAN OF SUBDIVISION

1. Where operational works are associated with the reconfiguration of land or creation of new titles the Applicant is required to submit plan of subdivision which accords with the proposal plan approved by Council, suitable for deposit in the office of the Registrar of Titles and duly certified by a Surveyor (, together with legible electronic plan, and a completed application form for approval of survey plans, building units, or group titles plan within 2 years from the date of approval of engineering drawings and specifications for subdivisions involving works.
2. Where the subdivision plans differ from the approved proposed plan, details of any changes are to be provided with the application.

3. The application form and plans, certificate(s) of compliance for any water, sewer reticulation and stormwater drainage system (including CCTV survey), together with the relevant fee are to be lodged with Council.
4. Upon being satisfied that the plan of subdivision conforms with the approval granted, and all required works have been carried out, or adequate security in accordance with Council's policy for bonding of uncompleted works is provided and all outstanding rates, contributions and charges have been paid, Council will note its approval on the plan of subdivision and return the plan of subdivision to the Applicant for lodgement in the Titles Office.
5. The Applicant is required to submit the plan of subdivision to the Titles Office within 6 months of Council approval of the plan. Failure to do so will require the plan of subdivision to be resubmitted to Council for re-approval.

FINAL ACCEPTANCE OF WORKS

CP1.29 "FINAL ACCEPTANCE" INSPECTION

1. The "Final Acceptance" inspection will generally confirm the matters raised in the "Final Acceptance" Inspection checklist (**Appendix H**) and any other matters outstanding relevant to the works. The Checklist is to be completed by the Consulting Engineer prior to the conduct of the "Final Acceptance" Inspection. Failure to do so may result in cancellation of the inspection and/or the incurring of a reinspection fee.

CP1.30 GENERAL REQUIREMENTS

1. During the defects liability period, it is the responsibility of the Developer to rectify any works found to be defective or found to exhibit faults attributed to the design of the works and/or the performance of the construction activities in terms of quality and conformance with the design and specifications.

Once a period of twelve months minimum has elapsed from Council's acceptance of the works "Works Acceptance", a "Final Acceptance" inspection is to be arranged with Council. Payment of an appropriate Inspection Fee may be required.

2. The "Final Acceptance " inspection is to be attended by:
 - a. Council's nominee/s.
 - b. The Consulting Engineer for the project.
 - c. The Contractor.
3. The Consulting Engineer for the works shall be responsible for ensuring that Council's requirements for acceptance of the works are satisfied prior to requesting a Final Acceptance inspection.
4. Council's requirements for final acceptance of the works comprise the following:-
 - a. No outstanding payments are due to Council or other Authorities from the development
 - b. Completion of the "Final Acceptance " Inspection Checklist (**Appendix H**)
 - c. Satisfactory "Final Acceptance" Inspection by relevant Council Officers.
 - d. All conditions of the approvals for as constructed drawings, works acceptance and plan sealing have been completed to the satisfaction of Council.
5. Following a satisfactory Final Acceptance inspection, the Consulting Engineer shall submit a written request to Council for Final Acceptance of the works and release of the Defects Liability bond. Council will, upon confirmation that no outstanding payments arising from the development are due to Council, confirm acceptance of the works, and arrange for the release of the Defects Liability bond.