SPECIFICATION

This Contract uses ACT Standard Specification for Urban Infrastructure Works Edition 1 Revision 0 October 2002 (ACT Standard Specification):

The text of the ACT Standard Specification is not included in this document. The ACT Standard Specification may be obtained from:

Roads ACT
Department of Territory & Municipal Services
Level 7, Macarthur House
12 Wattle Street, Lyneham ACT 2602
Phone: 6207 6868

AND

the following Technical Exception Clauses apply.

TECHNICAL EXCEPTION CLAUSES

The following Technical Exception Clauses supplement or replace requirements specified in the Standard Specification, and shall be read in conjunction with that document.

Where there is an inconsistency between the Exception Clauses and the Standard Specification, the Exception Clauses shall prevail. Where not stated otherwise, the Exception Clause supplements the clause in the Standard Specification.

The clause number and heading of each of the Technical Exception Clauses refers to the respective clause number and heading in the Standard Specification where applicable. Additional requirements are assigned a new Clause number continuing on from the last related Clause number in the Standard Specification.

Where there is no Pay Item description in the Standard Specification and there is a Pay Item in the Bill of Quantities the intent of the Pay Item shall be deemed to be included in the description of the item in the Bill of Quantities. Allow for all work, materials, setting- out, testing and quality assurance requirements in each Pay Item.

The Contractor shall allow, in the pay items, for all costs associated with profit, financing costs, risks, legal and contractual responsibilities, effecting of insurances and providing the securities required and other costs and other obligations which are not specifically measured for payment under any other items of payment.

PRELIMINARIES

SCOPE

This section of the Specification covers all work necessary for items of a preliminary nature as specified below. All other works shall be allowed for in the pay items in the other sections of the Specification.

Site Establishment

The Contractor shall establish the site by locating the site compound area at a location shown on the drawings or as agreed with the Superintendent. The Contractor shall construct security fencing around the site compound with gate access. The Contractor shall construct temporary access roads to the site compound from the nearest public road as shown on the drawings or as directed by the Superintendent.

Within the site compound the contractor shall provide hard standing areas, site offices, amenity buildings and areas for storage, waste and recycling.

The Contractor shall arrange, connect and be responsible for all temporary services required to the site including power, water & telephone.

Upon completion of the works the Contractor shall remove the site compound and all associated temporary facilities and services connections and reinstate and restore the areas involved to original condition or as specified on the drawings.

Survey and Setting Out

The Contractor shall set out the Works to the lines, levels and dimensions shown in the Contract or directed by the Superintendent using ACT Survey Office permanent marks and bench marks in the area.

The contract drawings are based on the Canberra Metric Grid and the Australian Height Datum.

Notify the Superintendent at least two working days in advance of intention to set out a portion of the works. Provide all necessary labour, materials and equipment to assist the Superintendent in checking the set out or verifying completed works, as directed.

Co-ordination with Utility Authorities

Before commencing work, the Contractor shall check with controlling Authorities, including using the Dial Before You Dig process, concerning the locations and details of any existing or proposed services in or adjacent to the works as shown in the documents are current.

Authorities with whom contact may be necessary, but not limited to, include:

- ActewAGL - Electrical
- Actew Water - Services & Street Lighting
- ZNX - Gas Services

- Telstra - Telecommunications Services
- Optus - Telecommunications Services
- TransACT – Telecommunications Services
- ActewAGL - Water, Sewerage and Drainage
- Parks, Conservation & Lands- Irrigation Systems
- ICON – Intra Australian Government Communications Network
- InTACT –Intra ACT Government Communications Network
- National Broadband Network

Liaise with these Authorities when they carry out work which affects or is in conjunction with works of this Contract.

Project Signs

The Contractor shall erect a signboard as specified in the Contract.

Temporary Site Perimeter Security Fence

Kangaroos presently inhabit the site and are being monitored by the ACT Government. The LDA will install fencing along the southern boundary, adjacent to Ginninderra Drive, to the west of the area the subject of these construction works (ieto the west of the 11Kv electrical relocation works) to contain the kangaroos on site. Fencing of the remainder of the southern boundary and the eastern boundary of the site (encompassing Stages 1A and 1B) will be the responsibility of the Contractor. The fencing will restrict the kangaroos to the Lawson site and allow them access across the site during construction.

Where required the Contractor shall liaise with the Superintendent to arrange for the temporary relocation of this fence as required to facilitate the installation of services etc.

Any temporary internal fencing installed by the contractor, eg around landscape areas, site compound, shall not impede kangaroo movements across the site.

Site facilities and stockpiles shall not impede kangaroo movements across the site.

Work as Executed Quality Records

The Contractor shall prepare work as executed information, test results summaries and asset lists in the format specified by City Management Document Requirements for Work as Executed Quality Records, Issue 2 Revision 3, Territory & Municipal Services, August 2010(TAMS Reference Document #AA-Ref-08) and ActewAGL Water Supply and Sewerage Standards showing the "as constructed/installed" construction elements, plant, equipment and the like as required.

The information shown shall include any variation to the Contract drawings by coordinate or chainage and off-set of all constructed works including invert levels of pipes, ducts and conduits at all structures and terminations. The work as executed information shall be certified by a surveyor or engineer approved by the Superintendent. If the Contractor elects to prepare the work as executed drawings by other than the Superintendent's office, the Contractor shall be supplied with a copy of the contract drawings in digital format.

The Contractor shall modify the drawings to indicate any variation from the original Contract Drawings to the as constructed condition. The amendment issue of the drawings shall be modified by the Contractor so as to reflect the 'Work-as-Executed' status. Prior to submitting a copy of the Work-as-Executed information to the Superintendent, the Contractor shall supply an A3 copy of the modified drawings for comment. The Contractor shall make any modifications 'marked up' by the Superintendent then submit a revised A3 copy of drawings and a digital copy.

Where the Contractor elects to use the Superintendent's office to prepare the work as executed drawings, the Contractor shall provide the information required in digital format.

Existing Overhead Power Lines

Construction works on this project are required to be undertaken under live powerlines. Where construction activity passes under power lines take care to avoid damage to persons and/or property. The Contractor shall be responsible for making all arrangements with ActewAGL and ACT Work Cover. A Work Method Statement shall be submitted to the Superintendent prior to commencing work adjacent to the power lines.

The costs associated with taking precautions as a result of construction activities within the vicinity of overhead power lines shall be borne by the Contractor.

Landscape Management Protection

The Contractor shall undertake works to protect all publicly owned landscape and other assets in road verges, public open spaces and unleased Territory land immediately adjacent to the site and within the 30m metre wide grassland buffer along the northern boundary of the site and within the Reservoir Hill future public open space area. The protection measures shall be managed, protected and maintained in accordance with the approved Landscape Management and Protection Plan (LMPP) and the requirements of EPBC2010/5549. The LMPP is to be implemented before commencement of works on site including earthworks and demolition.

Reinstatement Works not Associated with the Contract

Unpaved areas disturbed by work not associated with the specified Contract works shall be reinstated by spreading topsoil to a depth of 100mm, cultivation, grassing, bitumen straw mulching and consolidation, in accordance with Section 9.0 of the Specification, other than in those grassland areas elsewhere specifically detailed in the Technical Specification "Grassland Construction" procedure Section 9.06.1 .

Additional Work

The Contractor shall undertake additional work not covered by other items in the Contract as directed by the Superintendent in writing.

Audit Testing

The Contractor shall undertake additional testing as directed by the Superintendent for the purpose of auditing the Contractors test results.

Relocation/adjustment to existing services

Where detailed, the contractor shall relocate, adjust or protect existing services. Prior to commencement the Contractor shall liaise with the Service Authorities to confirm their requirements.

Liaison and Co-ordination with adjoining works Contractors

The Contractor shall liaise and coordinate with adjoining works contractors for the duration of this Contract. This shall include any programming and coordination of works due to work being undertaken by the other contractors. The Contractor shall notify the Superintendent in a timely manner if the adjoining works contractor does not co-operate or that their adjoining works are deficient in some way.

Liaison and Co-ordination with Principal's Registered Surveyor for Block Pegging

The Contractor shall liaise and coordinate with the Principal's appointed Registered Surveyor to undertake block pegging activities.

Liaison and Co-ordination with Principal's Geotechnical Engineer for Block Classification

The Contractor shall liaise and coordinate with the Principal's appointed Geotechnical Engineer to undertake block classification activities.

Additional work required for Staging of the Works

The Contractor shall undertake all necessary additional work required associated with staging of the works into Separable Portions. This shall include any liaison and coordination with authorities.

Contaminants

- **Introduction**

Environmental investigations undertaken at the site have identified several areas where contamination poses a potential risk to human health and the environment, including uncontrolled fill within the area identified as "eastern hummocky ground", Asbestos underground pipes and Asbestos fragments in the vicinity of Reservoir Hill and in the north eastern section o the site.

On the basis of the investigation results, it has been determined that remediation is required to make the site suitable for a sensitive land use setting, including areas of residential use and 'parkland/open space'.

A specifically suitably qualified and experienced Contractor shall perform remediation works at the site, in order to meet the objectives detailed below.

The objectives of the remediation works are to:

Remediate the site to a level that does not pose an unacceptable risk to human health and the environment under a sensitive land use setting, in order to provide for appropriate future land use.

- **Scope of Works**

The scope of work required under the contract is detailed within:

- Phase 1 Environmental Site Assessment Lawson South by Coffey Environments Australia Pty Ltd, dated 15 February 2011
- Phase 2 Environmental Site Assessment Lawson South by Coffey Environments Australia Pty Ltd, dated 18 January 2013
- Remedial Action Plan, Remediation of Asbestos in Stage 1 Development Area Lawson South, by Coffey Environments Australia Pty Ltd, dated 13 March 2013.
- Remedial Action Plan, Remediation of the Eastern Hummocky Ground Stage 1 Development Area Lawson South, ACT by Coffey Environments Australia Pty Ltd, dated 19 February 2013.
- Unexpected Finds Protocol for Construction of Lawson South Estate by Coffey Environments Australia Pty Ltd dated 25 March 2013
- Cardno Young: Lawson South Residential Estate, Detailed Design – Stage 1C (110003-3003: Contamination Identification Plan)

Refer to the above Coffey reports for the detailed scope requirements, with additional specific requirements contained within this tender brief. The Contractor should carefully review the Phase 1 and 2 Environmental Site Assessment reports, the two RAPs, and the Unexpected Finds Protocol documents to gain an understanding of the works required. All works identified as being required in the two RAPs shall be the responsibility of the Contractor, including the works required by the Environmental Consultant and as discussed below.

Note; the Principal may elect to engage an independent Site Assessor if required.

Although the information in these documents should be considered in its entirety, the information in this specification shall take precedence.

In particular, the Contractor is required to:

> Review and interpret background information pertaining to the project, including the RAPs;
> Obtain all permits, approvals and licences required for the works;
> Prepare and submit safety documentation for endorsement, including an Asbestos Management Plan, prior to commencement of works. This is to be endorsed by the Environmental Consultant and the Superintendent;
> Perform the role of "Principal Contractor" with respect to safety management;
> Prepare and submit a Construction Environmental Management Plan (CEMP) for endorsement by the Environmental Consultant and ACT Environmental Protection Authority (EPA), prior to commencement of works;
> Prepare and submit a Remediation Works Plan (RWP) consistent with the two RAPs for endorsement by the Environmental Consultant, prior to commencement of works. The RWP shall clearly identify the methods and controls regarding the remediation and disposal to licensed landfill facilities;
> Identify the location of underground services prior to commencement of remediation works;
> Establish all required equipment, materials and amenities for the works;
> Perform investigation, remediation and disposal works in accordance with the RWP in order to meet the objectives of the contract, while managing and mitigating risks relating to safety, environment and heritage.

- Provide all requirements for asbestos removal, including Asbestos Management Plan, all required controls, and asbestos removalist must be supervised by an ACT licensed class A/B asbestos assessor.
- Reinstate the property to a condition that is safe and environmentally sound (particularly in relation to any impact on the 30 metre grassland buffer and the grassland on Reservoir Hill);
- Provide input into the preparation of reports for the remediation works program;
- Communicate effectively with stakeholders throughout the project;
- Manage the project in accordance with industry best practice.
- Provide all documentation identified in the RAPs, including transport certificates, disposal licences, and disposal dockets; and
- Provide survey details of the ends of the asbestos pipes.

The Contractor is required to comply with all conditions imposed as a result of permits/approvals/licences for the works. The Contractor shall also be required to provide details of all permits/approvals/licences held by their subcontractors.

The Contractor is to comply with the requirements of the Environmental Management Plans (EMP), namely,

- Phase 1 Environmental Site Assessment Lawson South by Coffey Environments Australia Pty Ltd, dated 15 February 2011
- Phase 2 Environmental Site Assessment Lawson South by Coffey Environments Australia Pty Ltd, dated 18 January 2013
- Remedial Action Plan, Remediation of the Eastern Hummocky Ground Stage 1 Development Area Lawson South, ACT by Coffey Environments Australia Pty Ltd, dated 19 February 2013.
- Remedial Action Plan, Remediation of Asbestos in Stage 1 Development Area Lawson South, by Coffey Environments Australia Pty Ltd, dated 13 March 2013
- Unexpected Finds Protocol for Construction of Lawson South Estate by Coffey Environments Australia Pty Ltd dated 25 March 2013.

- **Environmental Consultant**

It is noted that all validation sampling, analysis and reporting will be carried out by an ~~is subject to~~ Environmental Consultant nominated by the principal and ~~Contract to be~~ engaged by the Contractor. The Environmental Consultant is required to:

- Inspect and approve proposed site clearing areas, prior to the commencement of clearing works.
- Inspect investigation and remediation areas during remediation works. These inspections are required to determine the extent of excavations required.
- Complete Validation Sampling.
- Complete a Validation Report when the remedial works in the RAPs are complete.
- Inspect and confirm when natural clays are evident in accordance with the requirements of the RAP for the Lawson South Residential Estate, Stage 1 (remediation of asbestos)
- Any other action required by the Environmental Consultant as specified in the RAP
- The Environmental Consultant will prepare the Validation Report, stating that the Validation Report confirms the remedial works have been completed in accordance with the two RAPs and is to be approved by EPA.
- Provide waste classification of materials and obtain endorsement by ACT EPA and/or ACT No Waste, as required.
- Validate fill to be placed within excavated areas (in accordance with the RAP)

- **Independent Assessor ~~Site Auditor~~**

Where an Independent Site Assessor is engaged by the LDA, this will be to review the Environmental Consultant's assessment reports, remedial action plans, and validation reports for compliance with the relevant regulatory requirements and thus confirm that the site is suitable for its intended purpose. All communication with the Independent Site Assessor will occur through the appointed Superintendent and the Environmental Consultant.

- **Remedial Action Plan (RAP)**

The two RAPs set remediation goals and validation criteria, determined suitable remediation options and documented the requirements for environmental management during the remedial works. A copy of the RAPs (Coffey reports) are provided in Appendix A and Appendix B.

It is noted that the volumes of contaminants requiring remediation identified in the RAP documents and the Bill of Quantities are provisional quantity. The Contractor shall develop its work methods and prices on the basis of these volumes.

- **Approvals**

The Contractor in conjunction with the contractors Environment Consultant is responsible for determining the requirements for, and obtaining other permits, approvals and/or licences required for the works. These may include, but not be limited to permits/approvals/licences for:

> Transportation of materials and equipment;
> Transportation of waste materials, which may include Hazardous Wastes (considering the provisions of the Environment Protection Act 1997);
> Remediation of asbestos materials, including all controls, ACT licensed class A/B asbestos assessors (considering Work Cover ACT requirements);
> Excavation in the vicinity of underground services;
> Protection and/or deviation of underground services;
> Water usage and water discharge; and
> Disposal of wastes (considering the provisions of the Environment Protection Act 1997 and ACT EPA requirements).

The Contractor is required to comply with all conditions imposed as a result of permits/approvals/licences for the works. The Contractor shall also be required to provide details of all permits/approvals/licences held by their subcontractors.

- **Remediation Works Plan (RWP)**

The Contractor shall prepare a Remediation Works Plan (RWP) consistent with the two RAPs, for the approval by Environmental Consultant, prior to commencement of the remediation works. The objective of the RWP is to document the specific remediation work strategies and methodologies and other information pertaining to how the works will be performed. In particular, the RWP shall include equipment, works methods, defined truck routes, staging, scheduling and supervision.

The RWP shall consider the information contained within this brief and the RAP, as well as the conditions of any approvals (including EPBC2010/5549), permits and licences obtained for the works.

The RWP shall also provide a Communications Plan, to detail the chain of command and the method and frequency of communications to be held with the Superintendent and other stakeholders.

The RWP shall include specific contingency plans to be implemented in the event that remedial activities do not progress as planned.

- **Remedial Activities**

It is noted that the validation of excavations, validation of imported materials and waste classification sampling shall be undertaken by the Environmental Consultant. A number of hold points will result within the remediation program on the basis of the 'validation works' associated with the Environmental Consultant's role. These **hold points** include the following:

HOLD POINTS:

> Site clearing. The Environmental Consultant shall inspect and approve proposed site clearing areas, prior to the commencement of clearing works.
> Inspection of investigation and remediation areas during remediation works. These inspections are required to determine the extent of excavations required.
> Validation Sampling. Contractor to facilitate field screening of soils then collection of validation samples (by Environmental Consultant) from excavator bucket. Backfilling or further excavation will not be possible for a minimum of ten (10) working days or until the Environmental Consultant receives the validation sampling results and advises on the next action.
> Stockpiling should be avoided at all times, however where temporary stockpiling is required. The Environmental Consultant is required to classify the material in accordance with Environment ACT Waste Guidelines. Following collection of temporary stockpile samples, offsite disposal of the material will not be possible. until endorsement of waste classification/beneficial reuse assessment has been obtained by ACT EPA and/or ACT NoWaste.
> Temporary Stockpile Removal. The Environmental Consultant is required to sample the surface below the stockpiles after the stockpiled material have been removed.
> Validation Report, the Environmental Consultant is required to prepare a Validation Report when the remedial works in the RAPs are complete. Following completion of remedial works further work in the remedial areas will not be possible for a minimum of ten (10) days.
> The Validation Report is to be submitted and approved by EPA
> All Unexpected Finds are to be carried out in accordance with the Coffey Environmental Consultant report, Unexpected Find Protocol for Construction of Lawson South Estate.

It is expected that the Environmental Consultant will be on site during the remediation work to guide the general extent (both lateral and vertical) of excavations. The Contractor and Environmental Consultant will work closely with the Superintendent to ensure the requirements of the Remedial Action Plans are achieved.

MEASUREMENT AND PAYMENT

Payment shall be made for all activities associated with completing the works detailed in this Section of the Specification in accordance with Pay Items 002P1 to 016P1.

Pay Item 002P1 Site Establishment

The unit of measurement shall be a Lump Sum item.

The pay item shall include all costs relating to site establishment, the connection and installation of temporary services, construction and maintenance of temporary roads and hard standings, temporary site compound security fencing, provision and construction of site office, temporary buildings and amenities, including equipment, furniture and the like, together with cleaning, power, water and other charges and removal of the same on completion and the reinstatement and restoration of the areas involved. The item shall include for any fees or costs associated with the location of compounds or materials storage areas required for the works. The pay item shall also include all general site and office overheads. Payment of the lump sum shall be in equal time related instalments.

Pay Item 003P1 Survey Set Out and Control

The unit of measurement shall be a Lump Sum item.
The pay item shall include setting out the works and establishing and maintaining survey control for the setting out of the works, care of survey marks, verifying electronic data against the contract document drawings and the checking of dimensional tolerances of individual pavement layers.

Pay Item 004P1 Coordination with Utility Authorities

The unit of measurement shall be a Lump Sum item.
This item covers all liaison, negotiation, and programming of work schedules between the Contractor and all required service authorities associated with the construction of required service utilities for this project.

Pay Item 005P1 Project Signs

The unit of measurement shall be the number of project signs erected.

The pay item shall cover the supply, erection, maintenance and removal of each project sign.

Pay Item 006P1 Temporary Site Perimeter Security Fence (Chainwire)

The unit of measurement shall be a per linear metre.

This item includes all costs associated with the supply, erection, removal on completion of works, gates, maintenance during construction, removal/relocation of fencing on completion

Pay Item 007P1.1 Work as Executed Quality Records

The unit of measurement shall be a Lump Sum item.

This pay item shall include the provision of construction records including all work as executed associated documents required at the completion of the works including survey, CCTV camera reports, asset lists and any information that the Superintendent considers necessary for submission to authorities.

Payment of the Lump Sum shall be upon completion and submission of the work as executed quality records to the authorities.

Pay Item 007P1.2 Work as Executed Drawings

The unit of measurement shall be a Provisional Sum item.

For this Contract the Contractor is required to engage the Design Agent of the project for the purpose of undertaking the "Works as Executed" Drawings and Hydraulic Tie Book. This engagement will be via the Provisional Sum allowances included in the Contract.

The Contractor is required to furnish the "Works as Executed" information, in an agreed format, to the Design Agent. This information shall be submitted progressively throughout the course of the project.

The "Works as Executed" information shall indicate any variation from the original Contract Drawings to the as constructed condition in particular the following:

(i) Location and invert levels (i.e. upstream and downstream) of all pipes and hydraulic structures. At sumps and manholes invert levels of all pipes, at service tie terminations and surface level on covers;
(ii) Changes to line and level of roadways;
(iii) Depth of pavement for the project pavement types at 20m intervals per carriageway;
(iv) Top of headwall levels.
(v) Hydraulic Tie locations (i.e. depth, offset from block boundary, chainage along road centreline, etc)
(vi) Location of conduits.
(vii) Street light columns including locations of electrical mini pillars.

All "Work as Executed" information submitted to the Design Agent shall be accompanied with a certificate from the Contractor stating that submitted information is a true and accurate reflection of the as constructed works and that such works are within the specified construction tolerances included in the Contract. Once this certification is received the Design Agent will be able to commence the preparation of the "Works as Executed" Drawings.

Pay Item 009P1 Landscape Management and Protection Plan

The unit of measurement shall be a Lump Sum item.

This pay item shall include all works necessary to protect publicly owned landscape assets adjoining the site and other assets in road verges, public open spaces and unleased Territory land immediately adjacent to the site and within the 30m metre wide grassland buffer along the northern boundary of the site and within the Reservoir Hill future public open space area, in accordance with the approved Landscape Management and Protection Plan (LMPP) and the requirements of EPBC2010/5549.

The pay item shall also include the cost to maintain, removal upon completion of the site works and any specified restoration works.

Progress payments shall be made on a pro-rata basis of work performed as part of this pay item, having the regard for the duration of the Contract.

Pay Item 011P1 Additional Work

The unit of measurement shall be a Provisional Sum item for additional work only as directed by the Superintendent.

Payment of the sum, or part thereof, shall be on delivery of invoices and include percentage for overhead and profit as per the Annexure to the General Conditions of Contract.

If any of the Provisional Sum item or part thereof is not expended, the Contractor shall not be entitled to recovery of overhead and profit on the deducted amount.

Pay Item 012P1 Audit Testing

The unit of measurement shall be a Provisional Sum item.

Payment for testing will be paid for in accordance with the General Conditions of Contract.

Payment of the sum, or part thereof, shall be on delivery of invoices and include percentage for overhead and profit as per the Annexure to the General Conditions of Contract.

If any of the Provisional Sum item or part thereof is not expended, the Contractor shall not be entitled to overhead and profit on the deducted amount.

Pay Item 013P1 Relocation/adjustment to existing services

This pay item includes all works by the Contractor to the existing services including coordination with the Service Authorities, excavation, exposing existing services, backfilling of the work, surface restoration and the provision of any items required by the Service Authorities for performing the work. Payment of the sum, or part thereof, shall be on delivery of invoices.

A separate pay item shall be included in the contract for each type of work.

The unit of measurement for the following items shall be a Provisional Sum.

013P1.1 Works by the Service Authority to existing services.
The unit of measurement shall be a Provisional Sum item.

ADD separate Pay Items
013P1.1.1 Telstra Assets
013P1.1.2 Optus Assets
013P1.1.3 ActewAGL Assets
013P1.1.4 ZNX Assets

If any of the Provisional Sum item or part thereof is not expended, the Contractor shall not be entitled to overhead and profit on the deducted amount.013P1.2 Works by the Contractor on existing services, excluding works by the Service Authority.

ADD separate Pay Items
013P1.2.1 Telstra Assets
013P1.2.2 Optus Assets
013P1.2.3 ActewAGL Assets
013P1.2.4 ZNX Assets

If any of the Provisional Sum item or part thereof is not expended, the Contractor shall not be entitled to overhead and profit on the deducted amount.

Pay Item 014P1 Liaison and Co-ordination with adjoining works Contractors

The unit of measurement shall be a lump sum item.

This item shall cover all costs associated with liaison and coordination. Progress payment against this item shall be made in proportion to the state of completion of permanent works.

Pay Item 015P1 Liaison and Co-ordination with Principal's Registered Surveyor for Block Pegging

The unit of measurement shall be a Lump Sum item

This item shall cover all liaison and coordination.

Payment for undertaking the block pegging activities will be made directly by the ~~Principal~~ Superintendent.

Pay Item 016P1 Liaison and Co-ordination with Principal's Geotechnical Engineer for Block Classification

The unit of measurement shall be a Lump Sum item.

This item shall cover all liaison and coordination. Payment for undertaking the block classification activities will be made directly by the ~~Principal~~ Superintendent.

Pay Item 018P1 Site Contamination Remediation

The unit of measurement shall be ~~a Lump Sum~~ per unit of measurement as identified with the Bill of Quantities ~~item~~.

Note, Pay Items 018P1 is divided into sub items as specified within the Bill of Quantities, with Pay Item 018P1.1.1 being a Provisional Sum for the engagement of Coffey Environments Australia, and this item includes (deleted items) Waste Classification and obtaining NoWaste, ACT NoWaste approval, overall validation report for Lawson South Residential Estate, Air Monitoring, and supervision by ACT licenced Class A/B Asbestos Assessor.

This item shall cover the remediation of the contaminated material as identified in the Remedial Action Plan.

Reference Documents:

- Phase 1: Environmental Site Assessment Lawson South by Coffey Environmental Australia Pty Ltd, dated 15 February 2011.
- Phase 2: Environmental Site Assessment Lawson South by Coffey Environmental Australia Pty Ltd, dated 18 January 2013
- Remedial Action Plan, Remediation of Asbestos in Stage 1 Development Area Lawson South by Coffey Environmental Australia Pty Ltd dated 13 March 2013.
- EPA – Endorsement of Remedial Action Plan – Asbestos Impacts – Block 2 Section 13 Lawson Belconnen Letter
- Remedial Action Plan, Remediation of the Eastern Hummocky Ground Stage 1 Development Area Lawson South, ACT by Coffey Environments Australia Pty Ltd, dated 19 February 2013.

- EPA – Endorsement of Remedial Action Plan – Eastern Hummocky Ground Stage 1 letter dated 28 February 2013.Unexpected Finds Protocol for Construction of Lawson South Estate by Coffey Environmental Australia Pty Ltd dated 25 March 2013
- Cardno Young: Lawson South Residential Estate, Detailed Design – Stage 1C (110003-3003: Contamination Identification Plan).

SECTION 1 PROVISION FOR TRAFFIC

1.02 STANDARDS

DELETE 1st paragraph and **REPLACE** with:

Work carried out and testing performed under this Section of the Specification shall comply with the requirements of the following Standards, Legislation, References and Publications and their successors to the extent that they are relevant and not overridden by the Specification.

Legislation

DELETE

Occupational Health and Safety Act 1989

ADD

Work Health &Safety Act 2011

1.04 GENERAL

1.04.1 Construction Operations

2nd paragraph

DELETE 3rd dot point

Occupational Health and Safety Act 1989

ADD

Work Health & Safety Act 2011

1.04.2 Temporary Traffic Management Plan

DELETE the 2nd paragraph and **REPLACE** with the following:

Five (5) days prior to undertaking any work which would involve any obstruction whatsoever to traffic, the Contractor shall prepare and submit Temporary Traffic Management Plan(s) to the Superintendent for endorsement. When endorsed by the Superintendent, the Contractor shall submit plans to the Delegate of the Minister, ACT Government or other person so empowered by the relevant Legislation for written approval. Work shall not commence until three (3) copies of the approved Temporary Traffic Management plans for each road or street, car park or footpath have been provided to the Superintendent by the Contractor.

ADD a 4th dot point to Clause 1.04.2(c):

- Location of variable message electronic signs if required and messages to be displayed

ADD a new paragraph:
The Temporary Traffic Management Plans shall be prepared by a trained and knowledgeable person in the requirements of the relevant Australian Standards and shall be endorsed by the Contractor's representative as meeting these requirements (including AS 1742).

DELETE Hold Point 1.1 and **REPLACE** with Hold Points 1.1 & 1.1A:

HOLD POINT 1.1	
Process Held:	Submission of Temporary Traffic Management (TTM) plans to Delegate of the Minister for approval
Submission Details:	The Contractor shall submit all draft TTM plans to the Superintendent at least five (5) working days prior to submitting the endorsed plans to the Delegate.
Release of Hold Point:	The Superintendent will release the Hold Point after endorsing the draft TTM plans.

HOLD POINT 1.1A	
Process Held:	Installation of Temporary Traffic Management (TTM) Devices
Submission Details:	The Contractor shall submit all Delegate approved TTM plans to the Superintendent.
Release of Hold Point:	The Superintendent will release the Hold Point upon receipt of the required 3 number approved TTM plans.

1.09 MEASUREMENT & PAYMENT

Pay Item 101P 1 Provision for Traffic

ADD the following paragraph:

This pay item is to also include resolving traffic problems, complying with the legal requirements of all authorities concerned including ACT Work Cover, for providing temporary access to private property and adjacent construction sites and provision and maintenance of associated temporary drainage.

1.10 SCHEDULE OF HOLD POINTS

ADD the following Hold Point:

Hold Point 1.1A, Clause 1.04.2: Installation of Temporary Traffic Management Devices

SECTION 2 EARTHWORKS

2.02 STANDARDS

DELETE

1st paragraph

ADD

Work carried out and testing performed under this Section of the Specification shall comply with the requirements of the following Standards, Legislation and References and their successors to the extent that they are relevant and not overridden by the Specification.

Legislation

DELETE

Occupational Health and Safety Act 1989

ADD

Work Health & Safety Act 2011

ADD

AS 2870	Residential Slabs and Footings
AS 3798	Guidelines on Earthworks for Commercial and Residential Developments

2.03 PROTECTION OF THE WORKS

2.03.1 General

DELETE 8th paragraph and **REPLACE** with the following:

Refer to "Environment Protection Guidelines for Construction and Land Development in the ACT" for details.

ADD the following Hold Point:

HOLD POINT 2.1A	
Process Held:	Construction of Sediment & Erosion Control Measures
Submission Details:	At least three (3) working days prior to commencement of construction of sediment & erosion control (ESC) measures the Contractor shall provide the Superintendent with two (2) copies of the approved ESC plans
Release of Hold Point:	The Superintendent will release the hold point upon receipt of the approved plans.

2.03.5 Reinstatement

ADD after the last paragraph:

Prior to reinstatement, the Contractor shall dewater and remove silt from the erosion and sediment control measures. Silt excavated shall be stockpiled on site with appropriate pollution protection to dry it out, with works carried out in accordance with the Environment Protection Agreement or Authorisation as required under Section 2.03.

ADD the following Clause:

2.03.6 Vibration

The Contractor shall limit all vibration from impact hammering and the like, generally to a peak particle velocity (ppv) of 5mm per second with allowance for 10% not to exceed 10mm/second. The actual maximum ppv shall be determined by the Contractor and its geotechnical engineer to avoid stresses/damage to existing buildings and any adjoining services infrastructure. The Contractor must carry out a dilapidation report on adjacent buildings prior to commencing work.
Monitor vibrations using appropriate equipment. Engage all necessary specialist-monitoring services to ensure vibration does not exceed the specified limits.

2.04 CLEARING AND GRUBBING

2.04.1 General

DELETE Hold Point 2.1 and **REPLACE** with the following:

HOLD POINT 2.1	
Process Held:	Clearing operations within any given area.
Submission Details:	At least three (3) working days prior to commencement of clearing the Contractor shall give notice of intention to commence clearing operations within any given area and that all erosion and sediment control measures have been constructed in accordance with the approved plans.
Release of Hold Point:	The Superintendent will inspect the constructed erosion & sediment control measures to ensure that they conform with the approved plans, &mark or indicate to the Contractor the trees that are to be retained, prior to authorising the release of the Hold Point.

2.04.2 Care of Trees

DELETE the Clause and **REPLACE** with the following:

Trees nominated on the drawings to be retained are a valuable asset. The Contractor shall ensure that trees not scheduled for removal are protected from damage.

HOLD POINT 2.1B	
Process Held:	Commencement of Work
Submission Details:	Prior to the commencement of any work on the site, including site establishment, the Contractor shall provide a Work Method Statement (WMS) detailing; its understanding of the sensitivity of trees; methods of working adjacent to trees (laterally and vertically); and details of tree protection measures.
Release of Hold Point:	The Superintendent will check the WMS for compliance to the Specification prior to authorising release of the Hold Point.

Display a sign in a prominent position at each entrance to the site, warning that trees and plantings are to be protected during the contract. Remove on completion.

Use road sign type sans serif letters, 100mm high, in red on a white background, to AS1744.

Use 100 x 50mm zincanneal tags, painted yellow and lettered to conform with the tree number on the drawings. Secure tags to trees using loose galvanized steel wire bands.

All trees nominated to be retained shall be protected from damage as follows:

Provide an Exclusion Zone consisting of temporary protective enclosures fabricated from mesh 1800mm high with tubular frame panels to the tree drip line. Temporary fencing shall not be removed until directed by the Superintendent.

Where excavations are to be made near trees immediately outside the fenced Exclusion Zone, add continuous 900mm high corrugated galvanized steel sheeting, bedded 150mm into the ground, wired to the enclosure.

Should it be necessary to install underground services within the Exclusion Zone of a tree to be retained the services shall be installed by thrust boring techniques so as to minimize disturbance to the tree roots.

If it is proposed to perform work on trees, give notice and obtain instructions from the Contractor's nominated arboriculturist. All necessary trimming shall be carried out by the nominated aboriculturist and Superintendent's approved tree surgeon.

If a tree is damaged and repair work is considered impractical, or is attempted and fails, give notice to the Superintendent and obtain instructions.

Do not remove topsoil from, or add topsoil to, the area within the Exclusion Zone of the trees.

Protection of root systems is important. Procedures for excavation for pavements are set-out in the following clauses and must be adhered to so that impacts on tree root systems are minimized:

Use hand methods to locate, expose and cleanly remove the roots in the line of excavation. If it is necessary to excavate within the drip line, use hand methods such that root systems are preserved intact and undamaged.

Do not cut tree roots exceeding 50mm diameter. Where it is necessary to cut tree roots, use means such that the cutting does not unduly disturb the remaining root system. Immediately after cutting, apply a bituminous fungicidal sealant to the cut surface to prevent the incursion of rot or disease.

Backfill to excavations around tree roots with a mixture consisting of three parts by volume of topsoil and one part of well rotted compost with a neutral pH value, free from weed growth and harmful materials. Place the backfill layers, each of 300mm maximum depth, compacted to a density similar to that of the original or surrounding soil. Do not backfill around tree trunks to a height greater than 300mm above the original ground surface. Immediately after backfilling, thoroughly water the root zone surrounding the tree.

Do not compact the ground under trees. If compaction is proposed, give notice and obtain instructions.

During the grubbing of tree stumps care must be exercised at all times to minimize the impact of grubbing on root systems of trees to be retained.

If any tree is damaged during the course of the work, the Superintendent may direct the Contractor to effect repairs or remove and replace the tree. References to damage to trees shall also include damage to bark and root systems.

2.04.4 Chipping of Cleared Vegetation

DELETE the Clause and **REPLACE** with the following:

The Contractor shall mulch all trees to be removed with the exception of the following:

- vegetation displaying evidence of disease or weed infestation; and/or
- weed species

Superintendent's approval must be obtained if the trees nominated for removal are to be disposed of in any other manner.

Mulch from eucalyptus trees is to be kept separate from mulch from pine trees.

Obtain Superintendents approval prior to removal and mulching of existing vegetation.

Mulch particle size shall not have 2 orthogonal dimensions exceeding 75mm and 50mm.

Mulch shall be free of soil, stones, twigs and other extraneous matter.

Mulched material shall be stockpiled on site at a location directed by the Superintendent. The stockpile height shall not exceed 1.5 metres. Apply water to the stockpile as required to reduce the build up of heat within the material.

The stockpiled materials shall be used for mulched planting beds as required for the landscape components of the project. Where applicable all unused materials shall be stockpiled in Section BT for future reuse in the open space landscaping.

2.05 EXCAVATIONS

2.05.1 General

ADD the following paragraph:

Notwithstanding the requirements of the following clauses, carry out excavation work as nominated in Clause 2.05.1 exercising all care to minimise the impact on the root systems of existing trees.

DELETE the 2nd paragraph and **REPLACE** with the following:

Except as specified in Clause 2.07.2, where excavation exceeds the required depth, or deteriorates, reinstate to the correct depth, level and bearing strength as specified for filling.

2.05.2 Contaminated Material

The removal and disposal of contaminanted material shall be in accordance with the requirements of the Preliminaries Section of the Tender Specification, the two Remedial Action Plans, and the Unexpected Find Protocol reports prepared by Coffey Environments Australia Pty Ltd. No work shall be undertaken on Lawson South Stages 1A & 1B general earthwork areas until the removal of contaminants is approved as being satisfactorily completed by the Superintendent, the Site Assessor and the EPA.

In summary, material identified as "contaminated" material shall be removed of and legally disposed of off-site in accordance with the following Coffey Environmental Australia Pty Ltd reports.

Reference Documents:

- Phase 1: Environmental Site Assessment Lawson South by Coffey Environmental Australia Pty Ltd, dated 15 February 2011.
- Phase 2: Environmental Site Assessment Lawson South by Coffey Environmental Australia Pty Ltd, dated 18 January 2013
- Remedial Action Plan, Remediation of Asbestos in Stage 1 Development Area Lawson South by Coffey Environmental Australia Pty Ltd dated 13 March 2013.
- EPA – Endorsement of Remedial Action Plan – Asbestos Impacts – Block 2 Section 13 Lawson Belconnen Letter
- Remedial Action Plan, Remediation of the Eastern Hummocky Ground Stage 1 Development Area Lawson South, ACT by Coffey Environments Australia Pty Ltd, dated 19 February 2013.
- EPA – Endorsement of Remedial Action Plan – Eastern Hummocky Ground Stage 1 letter dated 28 February 2013.
- Unexpected Finds Protocol for Construction of Lawson South Estate by Coffey Environmental Australia Pty Ltd dated 25 March 2013

It shall be the Contractors responsibility to certify and establish the extent of the "material' in conjunction with the Environmental Consultant, and to subsequently manage his earthworks operations to ensure material and general earthworks material are sourced and used in the appropriate areas on site.

Specific treatment, handling and/or disposed of the various materials shall be strictly in accordance with the above mentioned Remedial Action Plan from Coffey Environmental Australia Pty Ltd.

2.05.3 Stripping & Stockpiling of Topsoil

ADD after the fourth paragraph:

The Contractor shall undertake topsoil stripping operations in accordance with the Project's Management Plan developed by the Contractor. The Contractor is to ensure that the Superintendent is notified at least five working days prior to the commencement of the stripping of topsoil. Additionally, the Contractor is to allow the ~~Consultant~~ Superintendent to inspect the area of topsoil stripping, prior to the commencement of further earthworks.

HOLD POINT 2.3A	
Process Held:	Stripping of topsoil within any given area.
Submission Details:	At least five working days prior to commencement of stripping of topsoil the Contractor shall give written notice to the Superintendent ~~and Conservation Consultant~~ of its intention to commence stripping operations within any given area.
Release of Hold Point:	The Superintendent ~~in conjunction with the Conservation Consultant~~ will inspect the area to be stripped prior to authorising the release of the Hold Point.

2.05.4 Use of Explosives

i) General

ADD the following paragraph:

The Contractor shall not, without the prior consent of the Superintendent, carry out blasting or permit blasting to occur. In the event that the Superintendent gives consent to blasting, it shall be carried out in accordance with the requirements of Work Health and Safety ACT 2011.

2.05.5 Disposal of Surplus Spoil

DELETE the second last paragraph and **REPLACE** with the following:

Where the disposal or storage of surplus spoil on site is not specified, surplus spoil shall be removed from site and disposed of in accordance with the requirements of the Environment Protection Authority. For details refer to the EPA document "Environment Protection Guidelines for Construction and Land Development in the ACT ".

2.05.6 Unsuitable Material

ADD after the 1st paragraph:

In addition, unsuitable subgrade materials shall include materials which have one of the following properties:

- CBR value less than 2% at 90% MMDD (AS1289-5.2.1), and
- High plasticity clays (i.e. liquid limit > 50%).

2.06 FILLING

ADD the following Clause:

2.06.6 Controlled Fill on Residential or Commercial Development sites

2.06.6 (i) Materials

For controlled (or engineered) fill operations, should the upper layer of soil underlying the root zone be unsuitable for engineering applications, it shall be excavated and stockpiled on the site. Subject to geotechnical engineering advice, it can then be blended with the underlying soils to produce an approved material for structural use, or used for topsoil, placed in verges, in landscaped mounds or other non-structural applications. Excess material is to be removed from site in accordance with Clause 2.05.4.

For the controlled filling operation, a site classification equivalent or better than the site classification for the natural soil profile is required to be achieved for each site following completion of the operation. Where the existing site classification is Class M (moderately reactive clay or silt site), and in order to maintain a Class M classification the controlled fill shall have the following properties listed below and shall exclude organic soils, topsoil, severely root affected subsoils and peat, excessively wet or dry soils, silts or other soils with deleterious engineering properties and wood, metal, plastics and other foreign or deleterious substances.

Particle size should generally be less than 75 mm with a maximum size of 150 mm in any dimension permissible. Approximately 15% of material between 75 – 150 mm may be considered acceptable with inspection by a suitably qualified engineer required to confirm adequacy.

Subject to the depth of the controlled fill, the material should meet with the following requirements:

- Where the maximum depth of filling is less than 1.0m:
  The liquid limit of the proposed filling material should generally be less than 50% but preferably less than 35% and suitable for use as controlled filling.
- Where the maximum depth of filling is less than 2.3m:
  The liquid limit of the proposed filling material in the upper 1m should generally be less than 50% but preferably less than 35% with the liquid limit of the basal material (i.e.: below 1m) should generally be less than 50%. All material must be suitable for use as controlled filling:
- Where the maximum depth of filling is in excess of 2.3m:
  The liquid limit of the proposed filling material in the upper 1m should generally be less than 50% but preferably less than 35%, the liquid limit of the material between 1.0 – 2.3 m should generally be less than 50% and below 2.3m depth any material type may be used as long as it is suitable for use as controlled filling. Material in the upper 2.3 m must also be suitable for use as controlled fill in:
- Where material does not meet plasticity specification, reassessment can be considered based on particle size distribution.

The above filling material specification for controlled fills is to be applied in addition to the requirements of this Specification.

Where the natural soil profile is equivalent to Class H (highly reactive clay sites) or Class P (uncontrolled filled sites), additional earthworks involving over excavation and replacement with controlled filling with the above specified material may be required. If this is the case the Contractor shall advise the Superintendent and request direction.

The fill shall be well graded, and the Contractor shall undertake grading and Atterberg Limits tests.

2.06.6(ii) Inspection & Testing

Where filling is designated by the Contract as Controlled Fill for residential and commercial developments, the Contractor shall place and test the fill to a Level 1 standard in accordance with AS 3798: 2007 Guideline on Earthworks for Commercial & Residential Developments or its successor.
The Contractor shall engage a Geotechnical Inspection & Testing Authority (GITA) to provide Level 1 inspection & testing.

The frequency of field density tests shall be not less than the following and whichever requires the most tests:

1 test per 500m3 distributed reasonably evenly throughout full depth and area;

1 test per layer of 200mm thickness; or

3 tests per visit.

The minimum compaction shall be:

90% modified maximum dry density for residential allotments

95% modified maximum dry density for commercial allotments including multi-unit sites and industrial sites.

One laboratory compaction test is to be taken with every field density test. Generally the sample used for the laboratory compaction should be the material obtained from or immediately adjacent to the relevant field density test. An Atterberg Limit and grading test shall be undertaken with every tenth field density test.

The density test locations are to be surveyed (X, Y and Z coordinates) plotted on a drawing and provided to the Superintendent in digital format.

Density test results are to be provided to both the GITA and the Superintendent as results are received. The results are to be tabulated in an Excel spread sheet showing as a minimum: date of test, coordinates, reduced level, result, pass or fail and retest. An updated tabulation is to be forwarded with each new density test result/group of results.

The Contractor shall keep comprehensive records of the exact location, depth and extent of fill. The Contractor shall employ a Surveyor to determine the surface level and profile prior to and after filling of the areas concerned. The surface models shall be provided to the Superintendent as 3D ACAD or other agreed format.

In addition, for areas of controlled fill which exceed 400mm depth, the Contractor shall submit a comprehensive report prepared by the GITA with input from the Surveyor. The report shall deal with all relevant aspects of the Controlled Fill and include a covering letter, the test result forms, a location drawing and other elements as set out in Appendix B of AS 3798.
The documents are to be provided to the Superintendent in an acceptable form as a requirement for Practical Completion.

2.07 SUBGRADE PREPARATION

2.07.1 Subgrade Levels

ADD the following Paragraphs:

The Contractor shall carry out density and CBR testing of the subgrade at its costs and submit the results to the Superintendent at the time the subgrade is presented for assessment.

Table 2.5

Clause	Characteristic Analysed	Test Method	Minimum Frequency of Testing
2.2	foundation of shallow fill		
2.06.1; 2.06.4; 2.07.2; 2.07.6; 2.09.1; Table 2.2	Compaction and moisture content of foundation for fill embankments other than shallow fill embankments	AS1289.5.4.1; AS1289.5.7.1	Not less than: One per 2000m2
2.06.2; 2.07.2; 2.07.4; 2.07.6	Material Properties (CBR and Sieve Size) of fill and cut subgrade and foundations of shallow embankments	AS 1289.6.1.1 AS Sieve	Not less than: One per 1000m2 and One per road
2.05.1; 2.06.1; 2.08; 2.09.3; Table 2.3	Level Tolerances of cut and fill batters	Level	One (1) full cross section per 50m length. Provide levels at all changes in grade and at intermediate points no more than 5m apart
2.05.1; 2.06.1; 2.08; 2.09.3; Table 2.3	Straight Edge on subdivision verges	3m Straight Edge	One (1) location on left hand side verge and one location on right hand side verge at 100m intervals
2.07.2; 2.07.4; 2.09.3; Table 2.3	Level tolerances of cut and fill subgrade	Survey (by Registered Surveyor)	One (1) survey point at left hand kerb, right hand kerb lip lines and at centreline at 20m intervals and at kerb return tangent points.
2.07.2; 2.07.4; 2.09.3; Table 2.3	Straightedge on cut and fill batters	3m Straight Edge	One (1) location to the left and right of centreline at 50m intervals. Both perpendicular and parallel to the centreline

ADD the following Clause:

2.12 Geotextiles

Geotextiles are to be installed where detailed and specified on the drawings or as directed by the Superintendent. Geotextiles shall be used as separation layers within earthworks.
Supply & construction is to be in accordance with NSW RTA Specification number R63 Geotextiles (Separation and Filtration). A copy of the abovementioned Specification is not included in this document and is available from the NSW RTA
http://www.rta.nsw.gov.au/doingbusinesswithus/specifications/roadworks.html

2.10 MEASUREMENT AND PAYMENT

ADD to the first paragraph:

plus added Pay Items 203P1, 204P2, 206P3, 207P4 & 212P1.

ADD the following Pay Item:

Pay Item 203 P1 Protection of the Works

The unit of measurement shall be a lump sum item.

This pay item covers all necessary protection of earthworks and erosion & sediment control measures including designing, obtaining approval, establishment, maintenance and removal of protection measures upon completion. All fees and charges associated with any approval process shall be included in this item.

Pay Item 204P1 Clearing and Grubbing

DELETE the first paragraph and **REPLACE** with the following:

The unit of measurement shall be ~~a Lump Sum~~ per hectare item.

ADD separate Pay Items:

204P1.1 Clearing and Grubbing (Stage 1C)
204P1.2 Clearing and Grubbing (Stage 1A)
204P1.3 Clearing and Grubbing (Stage 1B)

ADD the following Pay Item:

Pay Item 204P2 Removal of Nominated Trees

The unit of measurement shall be for each nominated retained tree requiring removal subsequent to completion of clearing and grubbing operations.

The pay item shall include all activities associated with the approval process, lopping, mulching and stump removal.

Note: To maintain LDA "Green Star" rating all mulching material is to remain on site and be reused in landscape areas where applicable.

ADD the following Pay Item:

Pay Item 205P1 Removal and Stockpiling of Topsoil

The pay item shall also include haul and recycling and disposal fees, refer pay item 205P3

ADD new separate pay items

205P1.1 Stage 1C
205P1.2 Removal and Stockpile Topsoil direct from Stage 1C to Stage 2
205P1.3 Stage 1A and 1B
205P1.4 Removal of excess topsoil from site to approved location

Pay Item 205P2 General Earthworks

DELETE the third paragraph and **REPLACE** with the following:

The unit of measurement shall the cubic metre measured as bank volume of excavation from the strip surface.

DELETE the third paragraph and **REPLACE** with the following:

The pay item shall include all activities associated with the excavation of the material, stockpiling of spoil, haulage of material, and any pre-treatment such as breaking down, blending of material or drying out material containing excess moisture, and trimming of batters.

All activities associated with the construction of embankments and or placement of controlled fill shall be covered under pay item 206P3

ADD the following Pay Item:

Pay Item 205P2.1 Extra Over 205P2 Crushing of Rock (Stage 1C)

The unit of measurement shall be per cubic metre of rock removal. This is to be determined by calculated survey.

The pay item shall include all activities associated with splitting, crushing and stockpiling of crushed material for reuse on site as directed by the superintendent.

ADD the following Pay Item:

Pay Item 205P2.11 Extra Over 205P2 Crushing of Rock (Stage 1A & 1B)

The unit of measurement shall be per cubic metre of rock removal. This is to be determined by calculated survey.

This pay item is the extra over amount above the rate for general earthworks for all activities associated with splitting of rock, crushing of removed rock and stockpiling of crushed material for reuse on site as directed by the superintendent.

Pay Item 205P3 Disposal of Spoil Material Off Site

ADD the following paragraph:

The pay item shall also include haul and recycling and disposal fees.

ADD the following Pay Item:

Pay Item 206 P3 Controlled Fill

The unit measurement shall be the cubic metre measured as bank volume of controlled fill. The volume shall be determined by calculation from survey.

This pay item is the rate for general fill for all activities associated with selection, placement and compaction of materials as controlled fill.

The pay item shall include the engagement of a Level 1 Geotechnical Supervision/Inspection & Testing Authority for inspection, survey, calculations, testing & reporting as specified.

DELETE Pay Items 207P1 and 207P2 and **REPLACE** with the following:

Pay Item 207 P4 Preparation of Subgrade

The unit of measurement shall be the square metre of cut & fill subgrade measured to the edge of the overlying pavement or select material layer unless otherwise shown on the drawings.
The pay item shall include all activities associated with ripping, trimming, compaction and conformance testing of cut and fill subgrade in accordance with Clause 2.07.

ADD the following Pay Item:

Pay Item 208 P1 Supply & Installation of Geotextile

The unit of measurement shall be the square metre.

The area of geotextile shall be based on the total area covered measured in place. Allowance for overlaps, cutting and waste shall not be paid separately.

The pay item shall include all activities associated with Clause 2.07.2.

2.11 SCHEDULE OF HOLD POINTS

ADD the following Hold Points:

Hold Point 2.1A, Clause 2.03.3:Approval of Sediment & Erosion Control Measures.
Hold Point 2.1B, Clause 2.04.2: Commencement of Work.
Hold Point 2.3A, Clause 2.05.2: Stripping of topsoil within any given area.
Hold Point 2.9, Clause 2.07.4: Embankment material in subgrade zone compacted and trimmed

SECTION 3 UNDERGROUND SERVICES

3.02 STANDARDS

DELETE the 1st paragraph and **REPLACE** with the following:

Work carried out and testing performed under this Section of the Specification shall comply with the requirements of the following Standards, Legislation, References, Testing Authorities and their successors to the extent that they are relevant and not overridden by the Specification.
Other Standards & References

ADD the following documents:

Underground Services in a Shared Trench – Agreement between Telstra, AGL, Actew Corporation, Australian Capital Territory, 1996

Typical Shared Trench Agreement Procedure – Revision 02, February 2011

Copies of these documents are available from ZNX

Legislation

DELETE reference to:

Occupational Health and Safety Act 1989

and **REPLACE** with the following:

Work Health & Safety Act 2011

3.03.2 Excavation

DELETE Hold Point 3.1 and **REPLACE** with Hold Points 3.1 & 3.1A:

Hold Point 3.1	
Process Held:	Commencement of excavation for any services trenches.
Submission Details:	At least one (1) working day prior to the commencement of each trench has been set out the Contractor shall provide notification to the Superintendent that the trench alignment has been set out.
Release of Hold Point:	The Superintendent will inspect the site and any documentation submitted prior to releasing the hold point.

Hold Point 3.1A	
Process Held:	Commencement of excavation for any services trenches crossing or connecting to existing services.
Submission Details:	At least five (5) working days prior to the commencement of trenches crossing or connecting to existing services, the Contractor shall provide verification to the Superintendent that the levels of crossover points and connection points will allow construction as specified.
Release of Hold Point:	The Superintendent will inspect the site and any documentation submitted, review and resolve any discrepancies reported prior to releasing the hold point.

ADD the following Clause:

3.03.2 (v) Trenching for Service Authorities

Trenching for service authorities within the road verge area shall be undertaken in accordance with the "Underground Services in a Shared Trench" agreement, the Typical Shared Trench Procedure document and relevant site specific details (refer Clause 3.02).

Prior to the excavation of trenches the contractor shall liaise with the Service Authorities and arrange a site meeting to confirm the servicing and co-ordination requirements of the Authorities.

3.03.3 Use of Explosives

DELETE the 2nd paragraph and **REPLACE** with the following:

The Contractor shall not, without the prior consent of the Superintendent, carry out blasting or permit blasting to occur. In the event that the Superintendent gives consent to blasting, it shall be carried out in accordance with the requirements of Work Health and Safe ACT 2013 and Clause 2.05.3.

3.03.6 Trench Dimensions

(i) Width

ADD the following paragraph:

The width of shared services trenches shall be in accordance with the "Underground Services in a Shared Trench" agreement and relevant site specific details shown on the Contract drawings.

(ii) Allowance for Bedding

ADD the following paragraphs:

The bedding depth for shared services trenches in verges shall be 50mm minimum for the lowest service within the trench and, for higher services within the trench, the depth required to provide minimum separation between each service in accordance with the shared trench agreement.

Bedding for gas pipe and telecommunication conduits within the shared services trench in verges shall be "gas sand" in accordance with Table 3.11 below.

ADD the following Table:

Table 3.11

Sieve Size	Percentage Passing
2.36 mm	100
1.18 mm	100
0.425 mm	90 - 100
0.150 mm	15 - 40

ADD the following Clause:

3.03.6 (iv) Construction Traffic

Where the Contractor proposes to move heavy construction plant and vehicles over newly installed services and conduits before the minimum cover requirements detailed in Table 3.1 have been achieved, the Contractor shall design and provide protective measures for each crossing.

Rates for the services and conduits shall include all costs associated with the provision of temporary protection for construction traffic.

3.03.8 Backfilling

(ii) Trenches Under Roads, Paths and Driveways

ADD the following paragraph:

General excavated material will be allowed as acceptable backfill material to sewer and stormwater trenches under footpaths and driveways only, provided the requirements of Table 3.2 and 3.3A below are met. The backfill material to be used shall be assessed prior to use by a geotechnical engineer. It shall have a maximum particle size of 75mm, a minimum Plasticity Index of 10% and exclude organic soils, topsoil, silts and other materials with deleterious engineering properties such as vegetation, timber, tree roots, plastic pipes or sheeting and high plasticity clays. The maximum compacted layer thickness shall be 150 mm.

ADD the following Clause:

(vii) Shared Services Trench

Backfill the gas main pipe overlay zone to the underside of the telecommunications conduit with "gas sand" bedding material conforming to Table 3.11. Backfill the telecommunications conduit haunch, side and overlay zones with select cohesive site material which is free from stones larger than 20mm and free from root zone material. Compact overlay zones in accordance with Table 3.2 below.

3.03.10 Conformance Criteria

(i) Compaction conformance

DELETE Table 3.2 and **REPLACE** with the following:

Table 3.2	
Item	**Compaction Requirement**
Overlay Zone – not under Roads, Paths & Driveways	90% MMDD
Overlay Zone – under Roads, Paths & Driveways	90% MMDD subbase material DI 70 % for bedding material
Overlay Zone of gas and telecommunications within the shared services trench	DI 70% for bedding material
Backfill – not under Roads, Paths & Driveways	90% MMDD
Backfill – under Roads, Paths & Driveways	90% MMDD – deeper than 600mm below sub-base 95% MMDD- top 600mm below sub-base
Backfill of pipes adjacent to kerbs	90% MMDD

(iii) Frequency of Testing

DELETE Table 3.3 and **REPLACE** with the following:

Table 3.3			
Clause	**Characteristic Analysed**	**Test Method**	**Minimum Frequency of Testing**
3.03.8	Compaction and moisture content for Transverse trenches less than 1200mm wide (under roads, paths and driveways)	AS1289.5.4.1; AS1289.5.7.1	One test per four layers per road crossing

Table 3.3			
Clause	**Characteristic Analysed**	**Test Method**	**Minimum Frequency of Testing**
3.03.8	Compaction and moisture content for Transverse trenches greater than 1200mm wide (under roads, paths and driveways)	AS 1289.5.4.1; AS1289.5.7.1	One test per four layers per road crossing
3.03.8	Compaction and moisture content for Longitudinal trenches (under roads, paths and driveways)	AS 1289.5.4.1; AS1289.5.7.1	One test per two layers per 50 linear metres or part thereof.
3.03.8	Compaction and moisture content for Trenches elsewhere.	AS 1289.5.4.1; AS1289.5.7.1	One test per two layers per 100 linear metres or part thereof.
Backfill Material Properties			
3.03.8	Backfill Material Grading	AS 1289.3.6.1	One test per source per 250 cubic metres or part thereof
3.03.8	Backfill Material Plasticity	AS 1289.3.3.1	One test per source per 500 cubic metres or part thereof

ADD the following paragraph:
Where general excavated material is approved as backfill material for sewer and stormwater trenches under footpaths and driveways, the requirements of Table 3.3A following shall be met.

ADD the following Table:

Table 3.3A		
Characteristic Analysed	**Test Method**	**Minimum Testing Frequency**
Compaction		
Compaction and moisture content for longitudinal sewer and stormwater trenches (under paths and driveways only)	AS 1289.5.4.1 AS1289.5.7.1	One test per two layers per 30 linear metres or part thereof.
Backfill Material Properties		
Maximum allowable particle size for trench backfill (under	AS 1289.3.6.1	One test per 150cu.m or part thereof.

paths and driveways only) 75mm		

ADD the following Clause:

3.03.12 Demolition

Redundant structures and pipes (except for the asbestos pipe) as shown on the Contract Drawings shall be demolished. Redundant materials, wherever practicable and when approved in writing by the Superintendent, shall be modified and re-used in the works. Concrete which cannot be re-used on site shall be delivered to concrete recyclers not to the waste disposal areas.

Any holes remaining after the removal of structures and pipes shall be backfilled as follows:

(i) Structures and pipes under proposed pavements

Backfill voids with an approved granular material in accordance with Specification Clause 4.03.2(ii) in layers of 150mm maximum depth. Minimum compaction requirements shall be 95% MMDD.

(ii) Structures and pipes elsewhere

Backfill voids with general fill in layers of 300mm maximum depth. Minimum compaction requirements shall be 90% MMDD.

3.04 SEWERAGE

ADD the following Clause:

3.04.2 Acceptance

(a)Testing of Concrete to Sewerage Structures

The testing for concrete shall be in accordance with Table 3.6.

(b) Pipeline and Structure Testing

The testing of pipelines and maintenance holes shall be undertaken in accordance with the procedures given in the current ACTEW Corporation Ltd Water Supply and Sewerage Standards.

A Closed Circuit Television (CCTV) survey shall be undertaken by a qualified operator as described in WSA-05-2008 Conduit Inspection Reporting Code of Australia and undertaken in accordance with the Guidelines of the Australian Conduit Condition Evaluation Manual.

Two copies of the CCTV survey are to be provided to the Superintendent on a CD or DVD and accompanied by a CCTV report. The report shall include a description and a photo of each significant defect.

The CCTV survey shall be undertaken prior to the placement of the final surface layer to roads such as asphalt, concrete and pavers, the construction of footpaths and after the completion of all sewer structures. The pipes and structures shall be clear of all debris and construction materials prior to commencement of the CCTV survey.

Any defects identified by the CCTV inspection shall be rectified and another CCTV inspection undertaken and report submitted to the Superintendent prior to requesting final inspection.

ADD the following Hold Point:

Hold Point 3.13	
Process Held:	Placement of final surface layer to roads and footpaths over Sewer mains.
Submission Details:	At least five (5) days prior to the placement of final surface layer to roads and footpaths, the Contractor shall submit to the Superintendent two (2) copies of the sewer pipe CCTV report with survey on CD or DVD.
Release of Hold Point:	The Superintendent will consider the submitted documents, including the rectification of defects, prior to authorising the release of the Hold Point.

3.05 STORMWATER DRAINAGE

3.05.1 Materials

iii) Bedding and Pipe Support Material

DELETE references to Table 3.6 in 2nd and 3rd paragraphs and **REPLACE** with Table 3.4.

3.05.4 Drainage Structures

(i) General

ADD the following paragraph:

Rendering of concrete surfaces shall not be permitted.

(iii) Covers

ADD sentence to 2nd paragraph:

Heavy duty cast iron covers and frames shall be Class D and comply with AS 3996.

3.05.5 Conformance Criteria

(i) Materials

(b) Bedding

DELETE reference to Table 3.8 in the 2nd paragraph and **REPLACE** with Table 3.6.

(c) Concrete

DELETE reference to Table 3.8 in the 2nd paragraph and **REPLACE** with Table 3.6.

iii) Tolerances

DELETE the first Paragraph and **REPLACE** with the following:

Pipelines shall be within 25mm of design line and level at all points where design grade exceeds 1% and within 10 mm of line and level for grades flatter than 1%.

(iv) Sampling and Testing

DELETE reference to Table 3.7 in the last paragraph and **REPLACE** with Table 3.5.

(v) Frequency of Testing

DELETE reference to Table 3.8 in the first paragraph and **REPLACE** with Table 3.6.

DELETE Table 3.6 and **REPLACE** with the following:

Table 3.6

Clause	Characteristic Analysed	Test Method	Minimum Frequency of Testing
3.05.1	Compaction and moisture content for side support zone	AS1289.5.4.1; AS1289.5.7.1	One test per 50 linear metres of pipeline or part thereof
Bedding Material Properties			
3.05.1	Bedding Material Grading	AS 1289.3.6.1	One test per source per 250 cubic metres or part thereof
3.05.1	Bedding Material Plasticity	AS 1289.3.3.1	One test per source per 500 cubic metres or part thereof
Concrete Compressive Strength			
3.05.1	Concrete slump	AS 1012.3	One per batch of concrete delivered for reinforced concrete works.
3.05.1	Concrete Compressive Strength	AS 1012.9	One pair of test specimens per 50m3 of concrete with a minimum of one pair per individual reinforced structure unless otherwise approved by Superintendent.
Pipe Ovality			
3.05.5	Pipe Ovality	Clause 3.05.5	One test per pipe line

3.05.6 Acceptance by Stormwater Authority

(i) Final Inspection

ADD the following paragraphs:

A Closed Circuit Television (CCTV) survey is required by the Stormwater Authority as part of the Construction Quality Records information and shall be undertaken by a qualified operator as described in WSA-05-2008 Conduit Inspection Reporting Code of Australia and in accordance with the Guidelines of the Australian Conduit Condition Evaluation Manual.

Two (2) copies of the CCTV survey are to be provided to the Superintendent on a CD or DVD and accompanied by a CCTV report. The report shall include a description and a photo of each significant defect.

The CCTV survey shall be undertaken prior to the placement of the final surface layer to roads such as asphalt, concrete and pavers, the construction of footpaths and after the completion of all stormwater structures. The pipes and structures shall be clear of all debris and construction materials prior to commencement of the CCTV survey.

Any defects identified by the CCTV inspection shall be rectified and a new CCTV inspection undertaken and report submitted to the Superintendent prior to requesting final inspection.

Repair of damaged pipes and culverts by patching is not acceptable to the Stormwater Authority.

Damaged pipes and culverts are to be exhumed and replaced.

ADD the following Hold Point:

Hold Point 3.14	
Process Held:	Placement of final surface layer to roads and footpaths over Stormwater pipes and culverts.
Submission Details:	At least five (5) days prior to the placement of final surface layer to roads and footpaths, the Contractor shall submit to the Superintendent two (2) copies of the stormwater drainage CCTV report with survey on CD or DVD.
Release of Hold Point:	The Superintendent will consider the submitted documents, including the rectification of defects, prior to authorising the release of the Hold Point.

3.06 SUBSOIL DRAINS

3.06.1 Materials

(i) Pipes

DELETE the 1st paragraph and **REPLACE** with the following:

Pipes for subsoil drains shall be Type 1 corrugated Class 1000 for 100mm dia pipes and Type 2 smooth walled Class 400 for 150mm dia pipes, complying with the requirements of AS2439. Pipe sizes and types shall be as detailed on the drawings.
Slot widths shall be in the range of 1.0 to 1.5mm.

ADD the following paragraph:

Transverse subsoil drains, where specified, shall be constructed of solid walled uPVC pipe of similar diameter and quality to the longitudinal subsoil drains.

(ii) Filter Materials

DELETE reference to Table 3.11 in the 4th paragraph and **REPLACE** with Table 3.8.

3.06.5 Conformance Criteria

(i) Materials

(c) Filter Material

DELETE reference to Table 3.8 in the 2nd paragraph and **REPLACE** with Table 3.7.

(ii) Compaction Conformance

DELETE reference to Table 3.12 in the 1st paragraph and **REPLACE** with Table 3.9.

(iv) Sampling and Testing

DELETE reference to Table 3.12 in the 5th paragraph and **REPLACE** with Table 3.9.

(v) Frequency of Testing

DELETE reference to Table 3.13 in the 1st paragraph and **REPLACE** with Table 3.10.

DELETE Table 3.10 and **REPLACE** with the following Table:

Table 3.10

Clause	Characteristic Analysed	Test Method	Minimum Frequency of Testing
Compaction			
3.06.3	Compaction and Moisture content for filter material	AS 1289.5.4.1	One test per 150 linear meters or part thereof
Filter Material Properties			
3.06.1	Filter Aggregate Material Grading	AS 1289.3.6.1	One test per source per 500 cubic metres or part thereof
Geotextile			
3.06.1	Puncture Strength	AS 3706.4	Provide copy of Manufacturer's Certificate
3.06.1	Grab Strength	AS 2001.2.3.2	Provide copy of Manufacturer's Certificate
3.06.1	Tear Strength	AS 3706.3	Provide copy of Manufacturer's Certificate
3.06.1	Filtrationand Permeability	AS 3706.9	Provide copy of Manufacturer's Certificate

ADD the following Clause:

3.06.6 Drainage Blanket

Where specified or as directed by the Superintendent, the Contractor shall construct a drainage blanket under the road pavement where fractured weathered rock forms the sub-grade. The drainage blanket shall consist of a 100mm minimum compacted thickness of drainage material contained between two layers of geotextile. Enclose the drainage material completely in the geotextile with laps of 500mm being provided at each joint in the geotextile.

The drainage material shall be a well-graded mixture of sand and gravel, having a maximum particle size of 19mm and not more than 3% of clay and silt fines. The geotextile shall be Bidim A34 or equivalent.

The blanket shall slope towards and be connected to the subsoil drainage trenches flanking the road.

3.07 CONDUITS

3.07.1 General

DELETE 1st and 2nd paragraphs and **REPLACE** with the following:

The works covered by this section of the Specification includes the installation of conduits for telecommunications, gas, electrical, street lighting and irrigation services under road pavements and road verges. Trenching for conduits shall be in accordance with the "Underground Services in a Shared Trench" agreement between the respective Service Authorities.

Prior to excavation of trenches for services conduits the Contractor shall liaise with the Services Authorities and arrange a site meeting to confirm the servicing and coordination requirements of the Authorities.

3.07.2 Materials

DELETE the 1st paragraph and **REPLACE** with the following:

Unless otherwise specified, conduits for gas shall be heavy duty uPVC pipe complying with the requirements of AS2053, smooth bore, and coloured grey and shall be of the diameter specified.

3.07.3 Trenching

ADD to second paragraph
The trench width shall also be in accordance with any relevant site specific details shown on the Contract drawings.

3.07.5 Conformance Criteria

(i) Materials

DELETE the 1st sentence of the 2nd paragraph and **REPLACE** with the following:
The Contractor shall obtain copies of test certificates for conduits from the manufacturer which are readily identifiable with the batch that they represent.

(ii) Compaction Conformance

DELETE reference to Table 3.7 in the 1st paragraph and **REPLACE** with Table 3.2.

(iv) Sampling and Testing

DELETE reference to Table 3.7 in the last paragraph and **REPLACE** with Table 3.2.

(v) Frequency of Testing

DELETE reference to Table 3.8 in the 1st paragraph and **REPLACE** with Table 3.6.

3.11 MEASUREMENT & PAYMENT

DELETE the first paragraph and **REPLACE** with the following:

Payment shall be made for all activities associated with completing the work detailed in this Specification in accordance with Pay Items 303P1-P4; 304P1-P12; 305P1-P15; 306P1-P4, 307P1-P4, 308P1-P5, and 309 P1-P3 inclusive plus Technical Exception Clauses Pay Items.

Pay Item 303P1 Backfill Under Roads, Paths and Driveways

DELETE all text and **REPLACE** with the following:

The unit of measurement shall be the compacted volume of subbase material in cubic metres.

The Pay Item is an extra over amount for backfill of trenches which are constructed under roads, paths and driveways with subbase material as specified under Clause 3.03.8(ii).

For the purpose of payment the volume of subbase material shall be calculated by multiplying the minimum trench width defined below by the depth of subbase material measured from the pavement subgrade level to the top of the overlay zone and multiplied by the length of the pipe/ conduit under roads, paths and driveways.

For pipes and conduits less than 100mm diameter the minimum trench width shall be 300mm. For pipes and conduits 100mm and greater diameter the minimum trench width shall be the outside pipe diameter plus 300mm.

No additional payment will be made for over excavation of trenches or for a greater width of trench as a result of curved trenches, benching or shoring or over break due to ground conditions or inadequate support.

General excavated material acceptable as backfill to sewer and stormwater trenches under footpaths and driveways only, shall be measured as above for subbase material.

A separate pay item shall be included in the contract for each type of backfill.

Pay Item 303P1.1 Subbase backfill to new mains (source crushed material from onsite)
Pay Item 303P1.2 General excavated material acceptable as backfill
Pay Item 303P1.3 Subbase backfill to exhumed pipes

Pay Item 303P2 Trenching for Service Authorities

DELETE the 2nd and 3rd paragraphs and **REPLACE** with the following:

This pay item shall include excavation, supply, placing and compaction of pipe bedding and backfill material of trenches for conduits and cabling for service authorities including telecommunications, gas and electricity. The trench width and depth shall be as specified on the drawings or by the service authorities and shall vary depending on the number of services in each trench.

This pay item shall include coordination with service authorities, excavation in all types of material encountered including rock, the supply and placement of warning tapes, backfilling, and removal and disposal of surplus spoil.

ADD new separate pay items
303P2.8 1200 mm Depth
303P2.9 1100 mm Depth
303P2.10900 mm Depth

303P2.11750 mm Depth

Pay Item 303P4 Existing Services Location

DELETE 1st paragraph and **REPLACE** with the following:

The unit of measurement shall be a lump sum item for each service type

ADD the following Clause:

Pay Item 303P5 Provision of Conduits in a Shared Trench

The unit of measurement shall be perlinear metre of conduit installed.

This pay item is an extra over amount for the supply and installation within the shared trench of streetlighting & electrical conduits as specified. The pay item shall include all long radius bends.

A separate pay item shall be included in the Contract for each type of pipe and diameter.

ADD the following Clause:

Pay Item 303P7 Demolition of Existing Structures

The unit of measurement shall be the number of existing sumps, manholes, headwalls or other hydraulic structures demolished.

The pay item shall include removing the existing structure, pavement and kerb cutting as required, all excavation in all materials, backfill voids remaining & disposal of removed materials. It shall also include pipe cutting, repairing or capping of pipes and making good inlet and outlet pipes damaged during the works.

Backfill under roads, paths and driveways shall be measured under Pay Item 303P1

A separate pay item shall be included in the Contract for each type of structure removed.

Pay Item 304P3 Flexible Joints

DELETE the 1st paragraph and **REPLACE** with the following:

The unit of measurement shall be per flexible jointing arrangement installed at each structure's interface.

Pay Item 304P10 Trench Stops and Scour Stops

DELETE "supply and installation of flexible pipe joint either side of scour stop" from 3rd paragraph.

Pay Item 304P12 CCTV Camera Testing

ADD the following paragraph:

The unit of measurement shall be per linear metre (5% of the Drainage network).

Pay Item 305P1 Stormwater Pipes

DELETE the first paragraph and **REPLACE** with the following:

The unit of measurement shall be linear metre of pipe installed and backfilled measured along the centreline. Length is measurement from the centre of stormwater structures.

DELETE the following from the last line of the 2nd paragraph:

"flexible joints at structures"

ADD the following paragraph:

The pay item shall also include pipe cutting, connection to existing and/or new pipes and making good pipes damaged during the works.

Pay Item 305P5 Flexible Joints

DELETE the 1st paragraph and **REPLACE** with the following:

The unit of measurement shall be per flexible jointing arrangement installed at each structure interface.

Pay Item 305P15 CCTV Camera Testing

ADD the following paragraph:

The unit of measurement shall be Lump Sum.

ADD the following Clause:

Pay Item 305P16 Connect to Existing Stormwater Structure

The unit of measurement is per pipe connection to an existing structure for all structure types.

The pay item includes all excavation, breaking out structure wall for new pipe and making good the connection, materials and structure geometry modifications at junction, and backfilling.

Pay Item 306P1 Subsoil Drains

ADD the following paragraph:

The pay item shall include the provision and placement of "no fines" concrete capping in locations specified on Standard Drawing DS6-01 including all materials and formwork if required.

Pay Item 306P3 High-end Risers

ADD the following paragraph:
This pay item shall include the length of pipe required to connect the high end riser to the interface and edge trench drains.

ADD the following Clause:

Pay Item 306P5 Remove & Relocate Existing Subsoil High End Riser

The unit of measurement shall be the number of flush points removed & relocated.

The pay item shall include all materials and labour required to remove & relocate the existing high end riser, including pipe connections, excavation, backfilling, and making good all works.

ADD the following Clause:

Pay Item 306P6 Drainage Blanket

The unit of measurement shall be the square metre of drainage blanket constructed.
The pay item shall include excavation, compaction of foundation, disposal of excavated material, cleaning of finished surface, supply and placing of geotextile, drainage material, supply and installation of all other materials and work.

Pay Item 307P3 Electrical Conduits

ADD the following paragraph:

The pay items shall include supply and installation of long radius 90 degree bends as required.

Pay Item 308P1 Water Pipe

DELETE paragraphs 6 and 7 and **REPLACE** with the following:

The pay item description is 308P1.A.B.C.D

A = Pipe Type 1 = UPVC

2 = DICL

3 = PE

Pay item 308P2 Water Pipe Fittings

ADD after 8th line in 6th paragraph:

EC = Cast Iron or DICL End cap

Pay Item 308P5 Works by Water Authority

DELETE Item 304P10.1 and description, and **REPLACE** with the following:

308P5.1 "Works by the Water Authority to existing water services"

DELETE Item 304P10.2 and description, and **REPLACE** with the following:

308P5.2 " Works by the Contactor on existing water services, excluding works by the Water Authority"

ADD the following Clause:

Pay Item 308P6 Air Valve and Chamber (refer to schedule pay item 308P2.PRV.100.F and 308P2.PRV.150.F)

The unit of measurement shall be number.

The pay item shall include supply of the air valve as specified including construction of the complete chamber, excavation, bedding, stone or gravel layer, backfill, shaping of surrounding ground, drainage pipe, cover, frame, RC pipe, grating, locking bar, bracket, complete to Actew standard drawing WSS 015.

ADD the following Clause:

Pay Item 310P1 Excavation by Boring

The unit of measurement is a lump sum for all materials and work required including the pipe or conduit to be installed.

3.12 SCHEDULE OF HOLD POINTS

DELETE Hold Point 3.1, Clause 3.03.2: Set out of trenches for all services and **REPLACE** with the following Hold Points:

Hold Point 3.1, Clause 3.03.2: Commencement of excavation for any services trenches.
Hold Point 3.1A, Clause 3.03.2: Commencement of excavation for any services trenches crossing or connecting to existing services.

ADD the following Hold Points:

Hold Point 3.13, Clause 3.04.2: Placement of final surface layer to roads and footpaths over Sewer Mains (CCTV requirement).

Hold Point 3.14, Clause 3.05.6: Placement of final surface layer to roads and footpaths over Stormwater Pipe and Culverts (CCTV requirement).

SECTION 4 FLEXIBLE PAVEMENT CONSTRUCTION

4.02 STANDARDS

DELETE 1st paragraph and **REPLACE** with the following:

Work carried out and testing performed under this Section of the Specification shall comply with the requirements of the following Standards, Test Methods, Forms and References and their successors to the extent that they are relevant and not overridden by the Specification.

4.03 BASE, SUBBASE AND SELECT MATERIAL

4.03.1 General

Table 4.2

DELETE "GMSS40" from 3rd column, 3rd row and **REPLACE** with "GMS40".

4.03.4 Conformance Criteria

(iv) Sampling and Testing
(d) Frequency of Testing

DELETE Table 4.10 Layer Properties and **REPLACE** with the following:

Table 4.10

Layer Properties

Clause	Characteristic Analysed	Test Method	Minimum Frequency of Testing
4.03.3(ii); 4.03.4(i); Table 4.7	Compaction and moisture content of base, subbase and select material	AS 1289.5.2.1; AS 1289.5.4.1; AS1289.5.7.1	Not less than: One test per 500m2 and One test per road
4.03.4(iii); Table 4.8	Surface Level and layer thickness of select material, subbase and base	Measure (Dip Sheet)	Left hand side kerb lip line, Right hand side kerb lip line and at road centrelines at 20m intervals
4.03.4(iii); Table 4.8	Surface Trim	Deviation from a straight edge	Ten (10) tests per 200m length or part thereof

Table 4.10			
Layer Properties			
Clause	**Characteristic Analysed**	**Test Method**	**Minimum Frequency of Testing**
4.03.4(iii); Table 4.8	Layer Width	Measure	One test per 200m length or part thereof

4.05.5 Manufacture of Asphalt

(iii) Temperatures of Bitumen, Aggregates and Asphalt
Table 4.38

ADD "Or Multigrade" after Class 320 in 3rd column.

4.05.10 Placing and finishing of Asphalt

(iii) Asphalt Paving Temperature

Table 4.39

ADD "Or Multigrade" after Class 170 & Class 320 Bitumen in 1st column.

4.06 MEASUREMENT AND PAYMENT

ADD to the first paragraph:

and Technical Exception Clauses pay items 403P1, 403P2, 403P3, 403P4, 405P2 to 405P6, 405P11, 405P14, 405P15, 406P1 & 406P1.2

Pay Item 403 P1 Base Material

DELETE 1st Paragraph and **REPLACE** with the following:

The unit of measurement shall be the cubic metre based on the design thickness specified multiplied by the pavement area as shown on the Contract drawings

Pay Item 403P2 Sub-base Material

DELETE 1st Paragraph and **REPLACE** with the following:

The unit of measurement shall be the cubic metre based on the design thickness specified multiplied by the pavement area as shown on the Contract drawings

Pay Item 403P3 Select Material

DELETE 1st Paragraph and **REPLACE** with the following:

The unit of measurement shall be the cubic metre based on the design thickness specified multiplied by the pavement area as shown on the Contract drawings

Pay Item 403P4 Match to Existing Pavement

ADD the following paragraph:

The unit of measurement shall be lineal metre.

The pay item shall also include all plant, equipment, labour, supervision, material, transport, milling and sawing or cutting costs and for all incidentals for milling, cutting or sawing the asphalt/pavement layers in accordance with the drawings, complete.

Payment will not distinguish between various depths of sawing or cutting work or pavement materials, irrespective of the number of separate cuts which may be required for sawing or cutting the layer to the required depth.

This pay item also includes the application at the join line between new and existing asphaltic concrete pavement of a suitable hot applied modified bituminous sealant equal to "SAMIFILLA HM"

ADD the following Pay Item

Pay Item 403P5 A64 Geotextile

The unit of measurement shall be the square metre.

The area of geotextile shall be based on the total area covered measured in place. Allowance for overlaps, cutting and waste shall not be paid separately.

Pay Items 405P2 to 405P6 Dense Graded Asphalt Courses

DELETE 1st Paragraph and **REPLACE** with the following:

The unit of measurement shall be tonnes based on the design thickness specified multiplied by the pavement area as shown on the Contract drawings multiplied by a density of 2.4 tonnes per cu m.

Pay Item 405P11 Fine Gap Graded Asphalt (FGG) in Wearing Course

DELETE 1st Paragraph and **REPLACE** with the following:

The unit of measurement shall be tonnes based on the design thickness specified multiplied by the pavement area as shown on the Contract drawings multiplied by a density of 2.4 tonnes per cu m.

Pay Item 405P15 Remove Existing Asphaltic Concrete Paving

The unit of measurement shall be the square metre of paving removed.

This pay item includes the saw cutting of the AC paving irrespective of depth, removal of paving including underlying courses irrespective of depth and disposal of waste materials off site and payment of all fees for disposal to an approved landfill or recycling facility.

Pay Item 406P1.1 Rise and Fall of Bitumen in Asphalt Pavement

This pay item includes expected costs incurred by the rise and fall in asphalt material prices as defined in the Special Conditions of Contract Part 16.

The unit of measurement shall be a Provisional Sum

Pay Item 406P1.2 Rise and Fall of Primersealing and Sealing

This pay item includes expected costs incurred by the rise and fall in primersealing and sealing material prices as defined in the Special Conditions of Contract Part 16.

The unit of measurement shall be a Provisional Sum.

SECTION 6 CONCRETE KERBS, FOOTPATHS AND MINOR WORKS

6.01 SCOPE

ADD

Construction of Buff coloured concrete paving with saw cut pattern and Dark Grey coloured concrete with saw cut pattern.

6.02 STANDARDS

DELETE the1st paragraph and **REPLACE** with the following:

Work carried out and testing performed under this Section of the Specification shall comply with the requirements of the following Standards and their successors to the extent that they are relevant and not overridden by the Specification.

6.03 MATERIALS

6.03.1 Concrete

(i) Slip formed kerb sections

DELETE 1st dot point and **REPLACE** with the following:

- Minimum characteristic strength 25Mpa

ADD

Buff coloured concrete – 100mm depth reinforced coloured broom finished concrete equal to Boral Concrete PP32-20-BS – strength grade N32, gravel 20mm, 4% CCS Drift Wood. Reinforcement to be SL72 mesh on chairs with 40mm cover.

Dark Grey coloured concrete – 100mm depth reinforced coloured broom finish concrete equal to Boral Concrete PP32-20-BS – strength grade N32, gravel 20mm, 4% CCS Blue Gum. Reinforcement to be SL72 mesh on chairs with 40mm cover.

(ii) Paving and formed concrete

DELETE 1st dot point and **REPLACE** with the following:

- Minimum characteristic strength 25Mpa

6.03.3 Joint Sealer

DELETE 1st paragraph and **REPLACE** with the following:

Joint sealers, where specified, shall be manufactured from bitumen impregnated canite or other approved material complying with the requirements of Clause 5.03.6(iii).

6.08 FINISHING

ADD

Finish shall be broom finish with decorative saw cut pattern and sealer.

Where road pavement extends under kerb, then applicable pavement layers and subgrade preparation are measured under Sections 2.0 and 4.0 respectively.

ADD the following paragraph:

Pram crossings and vehicle crossings are measured under Pay Items 603P3 and 603P4 respectively.

Pay Item 603P2 Footpaths, Driveways, and General Paving Works

DELETE the 2nd paragraph and **REPLACE** with the following:

This pay item shall include all operations involved in the forming, compaction of foundations, supply and placement of base and sub base materials, edge thickenings, concreting, finishing, jointing, curing and backfilling.

ADD the following Pay Items:

603P2.2.1	Im Thick Concrete Paving Coloured CCS Driftwood or equal (Paved Verges around MU blocks and between parking bays and footpaths) 25 MPa
2.2.2	100mm Thick Concrete Paving Coloured CCS Blue Gum or equal (Paved Verges around MU blocks and between parking bays and footpaths) 25 MPa
603P2.2.3	100mm Thick Concrete Paving (Footpaths) 25 MPa
603P2.3	150mm Thick Concrete Paving (Bus Bays) 32 MPa
603P2.4	100mm Thick Residential Driveway
603P2.4.1	i) Both 3.0m and 5.0m wide

Pay Item 603P3 Pram Crossings

The unit of measurement shall be the number constructed for each type extra over the kerb rate.

The pay item shall include the supply and all activities associated with the element of work including excavation, base course, forming, jointing, concrete, finishing, curing and disposal of materials.

A separate pay item shall be included in the contract for each pram crossing type.

603P3.2	Pram Crossing for 1.5m path width
603P3.4	Pram Crossing for 2.0m path width
603P3.5	Pram Crossing for 2.5m path width

Pay Item 603P4 Vehicular Crossings

The unit of measurement shall be the number constructed for each type extra over the kerb rate.

The pay item shall include the supply and all activities associated with the element of work including excavation, base course, forming, jointing, concrete, finishing, curing and disposal of materials.
A separate pay item shall be included in the contract for each vehicle crossing type.

603P4.1	Vehicular Crossing (VC)
603P4.2	Reinforced Vehicular Crossing (RVC)

603P4.3 Reinforced Heavy Duty Driveway Crossing

Pay Item 603P5 Pram Ramps

The unit of measurement shall be square metres of pavement area.

The pay item shall include all activities associated with the element of work including excavation, base course, forming, edge thickenings, jointing, concrete, finishing, curing and disposal of materials.

Pay Item 603P6 Remove Existing Concrete Kerbing

The unit of measurement shall be the linear metre of kerbing removed.

This pay item includes the saw cutting of the kerbing irrespective of depth, removal of kerb including vehicle crossings and pram crossings unless itemised separately and disposal of waste materials off site and payment of all fees for disposal to an approved landfill or recycling facility.

Pay Item 603P7 Remove Existing Concrete Paving

The unit of measurement shall be the square metre of paving removed.

This pay item includes the saw cutting of the concrete paving irrespective of depth, removal of paving including reinforcement and underlying courses irrespective of depth and disposal of waste materials off site and payment of all fees for disposal to an approved landfill or recycling facility.

PART 7 ROAD FURNITURE

Not Applicable under this Contract.

SECTION 8 INCIDENTAL WORKS

8.02 STANDARDS

DELETE the 1st paragraph and **REPLACE** with the following:

Work carried out and testing performed under this Section of the Specification shall comply with the requirements of the following Standards and their successors to the extent that they are relevant and not overridden by the Specification.

8.03 MORTARED STONE PITCHING

8.03.3 Bedding

DELETE the 1st paragraph and **REPLACE** with the following:
For stone pitching on slopes of 1 to 1 or greater, stones shall be embedded into a minimum 50mm thick concrete blinding layer of characteristic compressive strength of 25MPa at 28 days.

DELETE 1st sentence 2nd paragraph and **REPLACE** with the following:
Stones on slopes less than 1(V): 1.5(H) shall be firmly bedded and based on compacted crushed rock, sand or quarry dust 50mm thick over an earth base compacted to 90% MMDD.

8.04 FENCING

8.04.2 Materials

8.04.2(i)(b) Treated Timber

DELETE 5th paragraph and **REPLACE** with the following:
CCA (copper- chrome-arsenic) pressure treated timber shall not be used . Timber shall be Ecowood or similar. Contractor is to provide certification from the supplier that the product is arsenic free. The use of this product and disposal of waste material is to be in accordance with the manufacturers recommendations.

ADD the following Clause:

8.04.7 Protective Fences

Protective fences (Types PC and PD) shall be in accordance with this Specification and the drawings. All posts and rails shall be galvanised steel tube to AS1163 of the diameters shown on the drawings. All posts to be set vertical. Top rail and terminal posts shall be formed from continuous length of pipe. Intermediate posts to be spaced as shown on the drawings. Continuous fillet welds at all contact points. Concrete for footings shall be Grade N25.

ADD the following Clause:

8.04.8 Cycleway Rails

Cycleway vehicle restriction rail shall be in accordance with Standard Drawing DS13-02.
Cycle rest rails shall be in accordance with Standard Drawing DS13-04.

ADD the following Clause:

8.12A JUTE EROSION CONTROL MATTING

8.12A.1 Materials

Jute erosion control matting shall be of the thickness and type specified on the Contract drawings with the following properties:

Property	Fine Mat	Thick mat
Thickness	3mm +/- 0.5mm	6mm +/- 1mm
Mass	250 – 310 g/m2	560 – 680 g/m2
Density	93 kg/m3 nominal	103 kg/m3 nominal

Matting shall be manufactured from recycled jute and be 100% organic without synthetic contamination, untreated and bio degradable. Fastening pins shall be proprietary pre-formed, non-galvanised 'u' pins with mimimum150mm leg lengths and wire diameter minimum of 3.15mm. The Superintendent shall approve the proposed matting.

Hold Point 8.18	
Process Held	Supply of Jute Erosion Control Matting.
Submission Details:	At least three (3) working days before the proposed installation of jute matting the Contractor shall provide a sample and the manufacturer's technical specification for the jute mat.
Release of Hold Point:	The Superintendent will inspect the sample and submitted documents prior to authorising the release of the Hold Point

ADD the following Clause:

8.12A.2 Installation

Matting shall be installed after installation of topsoil and hydroseeding. Care shall be taken to minimise disturbance to topsoil and hydroseeding. Install erosion matting as detailed with edges trenched. Reinstall topsoil over matting in trenches and hand seed.

Roll the jute mesh down the slope with an overlap of 75mm - 100mm and the upstream panel overlaying the downstream panel

Pin at the rate minimum of 3 pins per square metre with pins to laps and edges at 1m centres. Establish an approved grass stand and maintain through consolidation.

ADD the following Clause:

8.12C Rip Rap

Construct rock rip rap to locations shown on the Contract drawings. Trim subgrade to remove sharp level changes and drops. Where the subgrade is rock, the Superintendent may direct the rip rap to be omitted.

The rock shall be hard sound stone in the nominal size range 100 – 300mm. However, up to 10% may be stones down to 75mm nominal size. The percentage of stones with smooth and curved faces shall not exceed 20%.

Where specified, geotextile membrane shall be placed beneath the rock. Refer to 8.12B for geotextile specification. The geotextile shall be placed on the trimmed subgrade. The stones shall then be placed, by hand if necessary, so that the rock mass is well inter-locked and there are no loose stones in the surface that could be dislodged by flood waters. Stones shall be placed to achieve maximum density by packing as closely as possible.

ADD the following Clause:

8.12D Concrete Stairs

Concrete stairs shall be constructed as shown on the Contract drawings. The construction of concrete stairs comprises elements specified elsewhere. Refer to the drawings and the following sections of this Specification for requirements:

SECTION 2 for Excavation and Backfilling Works
SECTION 8 for Stone Walls Works
SECTION 15 for Concrete Works

8.14 MEASUREMENT & PAYMENT

ADD to first paragraph

plus all Technical Exception Clauses Pay Items 804P4, 804P5, 811P.3, 812AP1, 812BP1, 812CP1 and 812DP1.

ADD the following Pay Item identified below:

Pay Item 804P4 Protective Fence

The unit of measurement for this item shall be the lineal metre of fence erected.

This pay item shall include all works associated with the supply of all material and fabrication of the protective fence, excavation of footings, supply, placement and working of concrete footings, erection of barrier, alignment of barriers and maintaining a constant line and above ground clearance of the barriers and also for all machinery, equipment, labour, supervision and other incidentals for executing the work and finishing off as specified.

A separate pay item shall be included in the contract for each type of protective fence.

804P4.1 Type PC1

804P4.2 Type PD1

804P4.3 Type PD2

ADD the following Pay Item:

Pay Item 805P3 Concrete Bollard

The unit of measurement shall be per bollard constructed.

This pay item shall include the supply and installation of concrete bollard as detailed on Landscape Drawing LD-02. Install on concrete footing to engineers specification to level shown on Landscape Drawing LD-02.

ADD the following Pay Item:

Pay Item 813P1 Jute Erosion Control Matting

The unit of measurement shall be the square metre of material determined from the top area of the completed work.

The pay item shall include supply and installation of all materials specified.

ADD the following Pay Item:

Pay Item 812CP1 Rip Rap

The unit of measurement shall be square metre of rip rap determined from the top area of the completed work.

The rate shall include the supply and placement of the rock and geotextile fabric when specified.

Excavation works associated with the rip rap shall be paid under Pay Item 2.05.1 General Earthworks.

ADD the following Pay Item:

Pay Item 816P1 Stairs

The unit of measurement shall be a Lump Sum Item.

This pay item shall include setting out, supply of all materials, construction of reinforced concrete stairs and construction of concrete transition to footpath as shown on the Project Drawings. Excavation works shall be paid under Pay Item 2.05.1 General Earthworks.

Construction of any mortared stone wall shall be included in Pay Items 811P1 and 811P2.

8.15 SCHEDULE OF HOLD POINTS

ADD the following Hold Point:

Hold Point 8.18, Clause 812A: Supply of Jute Erosion Control Matting.

SECTION 9 LANDSCAPE

9.01 SCOPE

ADD

Construction of Tree in paving, including structural soil and permeable paving surround.

9.02 STANDARDS

DELETE the 1st paragraph and **REPLACE** with the following:

Work carried out and testing performed under this Section of the Specification shall comply with the requirements of the following Standards and their successors to the extent that they are relevant and not overridden by the Specification.

9.05 TOPSOILING

9.05.1 General

Structural soil – to all trees in paving (see 9.09.8 Backfilling)

9.06 GRASSING

9.06.1 Grass Seed

Grass mix shall be dryland grass mix type A or B

After the first two paragraphs

ADD

HOLD POINT 9.1A
Process Held Commencement of Grassing

Submission Details The Contractor shall provide notification as to the seed mix type and the seed mix supplier to the Superintendent at least five working days prior to commencement.

Release of Hold Point the Superintendent will consider the documentation prior to authorising the release of the Hold Point

9.06.1 (i) Managed Native Grassland Buffer

The contractor is responsible for protecting the Managed Native Grassland Buffer during the construction phase. Any disturbance causing damage or loss of grassland vegetation within the Managed Native Grassland Buffer and any disturbance within the Reservoir Hill area as a result of the decontamination works or any unauthorised access to the hill is to be rectified by the contractor in accordance with species nominated in the EPBC2010/5549 approval.

The contractor is responsible for all requirements to re-establish the Managed Native Grassland Buffer including the seeding/planting and the maintenance of the new grassland until established.

Any excavation works undertaken within the grassland buffer for the installation of services or other infrastructure shall be undertaken in ~~consideration~~ accordance of the following procedure;

i. Remove the grass and root zone with minimum 150mm of topsoil from the area of excavation and place in an area immediately adjacent to the excavation, but not within the grassland buffer, for replacement upon reinstatement of the excavation. Care should be taken to ensure the grass is maintained in good condition.

ii. Remove further 500mm of soil strata and stockpile immediately adjacent to the excavation, but not within the grassland buffer, for replacement upon reinstatement of the excavation.

iii. Excavate to the required depth and remove the spoil for use elsewhere on the site.

iv. Install the services in accordance with relevant standards and backfill to 650mm below the existing surface level in accordance with the relevant standards.

v. Replace excavated soil in item ii) into the excavation and compact to 85%MMDD

vi. Reinstate the grass and topsoil in generally the same location and orientation as removed.

vii. Bare areas are to be reinstated with seed in accordance with the Vegetation Management Plan noted below.

The contractor is responsible for the preparation of a Vegetation Management Plan by a suitably qualified environmental restoration consultant. The contractor is to engage a specialist subcontractor for revegetation works to include but not limited to: seed collection, recommended species mix, recommended sewing/planting rate, planting.

The ~~Verge~~ Vegetation Management Plan shall also identify the installation of a temporary vermin proof fence which shall be installed, where there is an open trench at all times to be located on the northern side of the trench, and on the development side of the grassland buffer after planting has been undertaken. This fence shall not impede kangaroo movements across the site.

Note: the temporary vermin proof fence, in relation to open trenches, shall incorporate a tight weave cloth, such as shade cloth for the bottom 300mm.

The contractor must engage a suitable subcontractor that has demonstrated experience in native grassland rehabilitation to ensure revegetation works are carried out and planting is successfully established i.e. Greening Australia. These methods are to be outlined in the Vegetation Management Plan.

Local provenance seed is to be sourced and collected from the Commonwealth land or from the local area and shall be consistent with the species nominated in the EPBC2010/5549 approval.

ADD

HOLD POINT 9.6B
Process Held Prior to Construction

Submission Details The Contractor shall prepare a Vegetation Management Plan

Release of Hold Point TAMS will consider the documentation prior to authorising the release of the Hold Point

HOLD POINT 9.6C
Process Held Commencement of Grassing to Managed Grassland Buffer

Submission Details Proof of seed collection/plant production at least three weeks prior to commencement

Release of Hold Point The Superintendent will inspect seed collection/plant

HOLD POINT 9.6D
Process Held Commencement of Grassing to Managed Native Grassland Buffer

Submission Details The Contractor shall provide notification as to the seed/plant mix and the proposed sewing/planting rate to the Superintendents appointed Landscape Architect at least three weeks prior to commencement.

Release of Hold Point The Superintendent will consider the documentation prior to authorising the release of the Hold Point

HOLD POINT 9.6E
Process Held Rectification of Damaged Managed Native Grassland Buffer

Submission Details The Contractor shall rectify all damages, disturbance and loss of vegetation to the Managed Native Grassland Buffer.

Release of Hold Point The Superintendent will inspect the Managed Native Grassland Buffer, and after rectification of any deficiencies shall authorise the release of the Hold Point

9.09 PLANTING

ADD
All trees and shrubs to be planted with hydrocell in accordance with manufacturer's specifications.

Set out of tree planting to be approval by the Landscape Architect prior to excavation for planting.

Trees in paving – Excavate tree pits as per detail drawings, scarify sides and base, backfill with structural soil cover with geotextile fabric as detailed. Install 100mm dia irrigation aeration corrugated perforated subsoil pipe ring 450mm below surface. Connect subsoil pipe ring to surface with 100mm dia riser with metal grate cap. Connect kerb watering inlet to ring pipe riser with 50mm PVC pipe, ensure watertight fit to watering inlet. Permeable paver tree surround refer 12.04.2 Materials.

9.09.8 Backfilling

ADD
Trees in paving – backfill with structural soil equal to Benedict SmartMix 3.

9.12 MEASUREMENT AND PAYMENT

Pay Item 910P1 Mulching

ADD Separate Pay Items

910P1.1 Recycled vegetative mulch

Mulch type 1, recycled vegetative mulch, fine grade, spread to 75mm depth Submit a sample to the superintendent for approval prior to placement

SECTION 10 ROAD SIGNS

10.02 STANDARDS

DELETE the 1st paragraph and **REPLACE** with the following:

Work carried out and testing performed under this Section of the Specification shall comply with the requirements of the following Standards, the Territory and Municipal Services Traffic Control Device Standard Drawings and their successors to the extent that they are relevant and not overridden by the Specification.

ACT Government – Standards Traffic Control Device Drawings.

REPLACE drawing references from STD to DS9.

DELETE Std-12 'Sign Systems Endorsed for High Risk Areas' and **REPLACE** wtih 'Endorsed Sign System'.

10.04 MATERIALS

10.04.6 Posts

DELETE the reference to 'Std Drg STD-15' and **REPLACE** with 'Std Drg DS9-15'.

10.10 INSTALLATION

10.10.1 Location

DELETE the reference to 'Std Drg STD-11' and **REPLACE** with 'Std Drg DS9-11'.

10.10.2 Mounting Height

DELETE the reference to 'Std Drg STD-11' and **REPLACE** with 'Std Drg DS9-11'.

10.10.3 Supports

DELETE the reference to 'Std Drg STD-15' and **REPLACE** with 'Std Drg DS9-15'.
DELETE the reference to 'Std Drg STD-12' and **REPLACE** with 'Std Drg DS9-12'.

10.10.4 Footings

DELETE the reference to 'Std Drg STD-15' and **REPLACE** with 'Std Drg DS9-15'.

10.13 MEASUREMENT AND PAYMENT

ADD to first paragraph:

plus amended Pay Items 1005P1, 1010P1, 1010P2 & 1010P3, 1010P4 and additional Pay Items 1010P5, 1010P6, & 1010P7.

DELETE Pay Item 1005P1 – Manufacture of Guide Signs
and **REPLACE** with the following:

Pay Item 1005P1 Manufacture & Delivery of Guide Signs & Support Structures

The unit of measurement shall be the number of guide sign boards manufactured & delivered as specified.

The rate shall also include procuring, and furnishing all the materials, and for manufacturing and supplying the completed road sign blade, including amongst others the supporting framework, reinforcement, cross bracing, struts, fixing brackets, angle-irons, channel profiles, galvanizing if specified, painting, background of retro-reflective material, retro-reflective or semi matt black lettering, symbols, numbers, arrows, emblems and borders and for all materials, equipment, labour, supervision, nuts, bolts, transport, handling, etc necessary for the manufacture, completion and delivery of the road sign board complete as specified.

DELETE Pay Item 1010P1 – Manufacture & Delivery of Guide Sign Support Structures

DELETE Pay Item 1010P2 – Erection of Guide Sign Structures
and **REPLACE** with the following:

Pay Item 1010P2 Erection of Guide Sign Blade & Structures

The unit of measurement shall be the number of guide sign structures erected as specified.

The pay item shall include erection of the guide sign blade and support structure, bracing, fastening of the sign blade to the support structure, excavation for the footings in all types of material, construction of footing, erection, backfilling and compacting the backfill material, for disposal of all surplus excavated material to approved recycling or disposal sites, providing of the backfill material, tidying up, clearing, trimming and finishing the area around each sign footing.

A separate pay item shall be included in the contract for each sign structure type.

1010P1.1	Tubular Post Mounted
1010P1.2	Modular mounted (Steel Rectangular Hollow Section)
1010P1.3	Overhead Gantry Mounted
1010P1.4	Overhead Cantilever Mounted

Pay Item 1010P3 Modification to Existing Signs and Support Structures

DELETE the first sentence and **REPLACE** with the following:

The unit of measurement shall be the number of signs.

ADD the following Pay Item:

Pay Item 1010P5 Extra over item 1010P4 for the provision of LMT or approved equal sign socket system

The unit of measurement shall be the number of sign socket structures installed.

The extra over rate shall include procuring the socket systems and installation complete including all materials, transport and labour complete.

ADD the following Pay Item:

Pay Item 1010P6 Dismantling and Re-erecting Road Signs

The unit of measurement shall be the number of sign structures dismantled and re-erected.

The pay item shall include dismantling the road signs and supporting structures, re-erecting the road signs including all materials, transport and labour complete and restoring the location where they were dismantled.

No extra payment shall be made for excavations and new material required for re-erecting the road signs.

ADD the following Pay Item:

Pay Item 1010P7 Dismantling and Removal of Existing Warning/Regulatory/Parking/ Fingerboard Signs

The unit of measurement shall be the number of signs dismantled and removed.

The pay item shall include dismantling the road signs and supporting structures, transport to disposal site, recycling or disposal fees and labour complete and restoring the location where they were dismantled.

SECTION 11 PAVEMENT MARKING

11.02 STANDARDS

DELETE the 1st paragraph and **REPLACE** with the following:

Work carried out and testing performed under this Section of the Specification shall comply with the requirements of the following Standards, the Territory and Municipal Services Traffic Control Device Standard Drawings and their successors to the extent that they are relevant and not overridden by the Specification.

Traffic Asset Management Unit – Standards Traffic Control Device Drawings.

DELETE the listed drawings and **REPLACE** with the following:

DS9 – 01	Line Marking Types
DS9 – 02	Pavement Messages
DS9 – 03	Linemarking Disabled Zones
DS9 – 04	RRPM's at Traffic Islands
DS9 – 05	Miscellaneous Linemarking Details
DS9 – 06	Bus Stop Details

11.08 ERADICATION OF PAVEMENT MARKING

11.08.1 General

ADD the following paragraphs:

The Contractor shall ensure that appropriate methods are used to remove raised pavement markers and bitumen based glue pad.

The glue pad fixing shall be removed flush with the pavement surface.

Any indentations formed in the asphaltic concrete surface during the removal of raised pavement markers shall be filled with asphalt filler to finish flush with the asphalt surface.

11.16 MEASUREMENT AND PAYMENT

ADD to the first paragraph:

plus amended Pay Items 1108P1, 1111P2,

Pay Item 1108P1 Eradication of Redundant Pavement marking

ADD the following paragraph:

The Pay Item shall include eradicating existing pavement marking by bead/sand blasting as well as paint as required.

Pay Item 1111P2 Paint – Transverse Lines, Symbols, Legends, Arrows, Chevrons, Traffic Islands and Kerbs

DELETE the 1st paragraph and **REPLACE** with the following:

The unit of measurement shall be as indicated in the pay item for each type installed.

DELETE Pay Items as listed and **REPLACE** with the following:

Markings to be measured as per linear metre and or as described in the Bill of Quantities installed include:

1111P2.1	Island Nose (WG)	m
1111P2.2	ron (CHEV)	m^2
P2.3	Bicycle Pavement Marking	No.
1111P2.4	Disabled Pavement Marking	No.
1111P2.5	Slow Point Marking	No.

Markings to be measured as per square metre installed include:

1111P2.2 Chevron (CHEV)

Markings to be measured as per marking installed include:

1111P2.3 Bicycle Pavement Marking
1111P2.4 Disabled Pavement Marking

SECTION 12 SEGMENTAL PAVING

12.01 SCOPE

ADD Installation of HydroSTON permeable unit paver tree surrounds to all trees in paving.

12.04.2 Materials

HydroSTON unit pavers – HydroSTON 300mm x 300mm x 50mm unit pavers, natural colour, lay in pattern as shown on detail drawing. HydroSTON unit pavers; HydroCon Australasia Pty Ltd 53 Balfour Street, Chippendale NSW 2008, Australia Phone: +61 (0) 2 8303 2423 Fax: +61 (0) 2 9319 5754 Email: info@hydrocon.com.au

12.04.3 Granular Base and Subbase

HydroSTON unit pavers subbase– 50mm depth blue metal stabilised with terrabond or equal.

12.09 MEASUREMENT AND PAYMENT

Pay Item 1200P1 Segmental Paving

ADD Separate Pay Items

1200P1.5 Segmental Paving – Permeable pavers
HydroSTON unit pavers, 300mm x 300mm x 50mm permeable unit pavers, natural colour.

SECTION 13 TRAFFIC SIGNALS

13.01 GENERAL

DELETE the 4thparagraph and **REPLACE** with the following:

The following Standards and their successors are referred to in this Specification.

13.11 MEASUREMENT AND PAYMENT

ADD to the first paragraph:

plus added pay items 1313P1 – P3, 1307P1, 1311P1, 1312P1, 1313P1.

ADD the following Pay Item:

Pay Item 1314P1 Relocate Existing Traffic Signal Post and Lantern

The unit of measurement shall be per signal post and lantern relocated.

The pay item shall include all work and materials required for removal and re-installation of the post and lantern including removal of existing footing, backfilling, reinstatement of surface finishes, cabling; excavation, construction of footing and re-erection, connection, all related fees, commissioning and all other works required as specified complete.

ADD the following Pay Item:

Pay Item 1314P2 Relocate Existing Pedestrian Push Button Assembly

The unit of measurement shall be per post and pedestrian push button assembly relocated.

The pay item shall include all work and materials required for removal and re-installation of the post and pedestrian push button assembly including removal of existing footing, backfilling, reinstatement of existing surface finishes, cabling, excavation, construction of footing and re-erection, connection, all related fees and all other works required as specified complete.

ADD the following Pay Item:

Pay Item 1314P3 Relocate Existing JC-1 Small Conduit Junction Box

The unit of measurement shall be per JC-1 small conduit junction box relocated.

The pay item shall include all work and materials required for removal and re-installation of the junction box including removal of existing footing, backfilling, cabling, excavation, construction of footing and re-installation, connection, reinstatement and all other works required as specified complete.

Pay Item 1307P1 Control Equipment

ADD the following paragraph:

Where new controllers are specified to replace existing controllers allow for the removal and disposal of the existing controller and any reinstatement of surface finishes.

ADD the following Pay Item:

Pay Item 1311P1 Power Supply

The unit of measurement is per traffic controller installed.

The pay item shall include all costs associated with the supply of power to the controller and associated equipment including liaison with authority, conduits (if required by the service authority) and payment of service authority's connection costs.

ADD the following Pay Item:

1312P1 Telecommunication Supply

The unit of measurement is per traffic controller installed.

The pay item shall include all costs associated with the supply communications to the controller and associated equipment including liaison with the authority, conduits (if required by the service authority) and payment of service authority's connection costs.

ADD the following Pay Item:

Pay Item 1313P1 Commissioning

The unit of measurement is a lump sum item.

The pay item shall include all costs associated with commissioning of the signals including but not limited to construction, staging, AFP controls during periods of in-operation and programming and testing of the controller prior to installation.

ADD the following Clause:

13.13 COMMISSIONING

The Contractor shall deliver the traffic signal controller into ActewAGL, to program and test at least 2 weeks prior to installation at the site.

The Contractor shall give Roads ACT Traffic Signals Unit (Mike Day Ph: 6207 5223) at least one week notice for the required programming to be carried out.

Prior to activation and during the commissioning of the Traffic Signals a representative of Roads ACT Traffic Signals Unit is required to be present.

The Contractor shall give 48 hours notice of the intention to commission the Traffic Signals Unit.

SECTION 14 STREET LIGHTING

14.02 REFERENCE DOCUMENTS

DELETE the1st paragraph and **REPLACE** with the following:

The installation shall comply with the requirements and recommendations of the following standards, codes, regulations and their successors.

SCHEDULE OF DRAWINGS

Drawing Number (Stage 1A- 11kV Electrical Relocations)		Version Number	Drawing Title
110003	- 1220	2	Cover Sheet
	- 1221	2	Key Plan, Notes and Legend
	- 1225	2	General Arrangement – Sheet 1 of 5
	- 1226	2	General Arrangement – Sheet 2 of 5
	- 1227	2	General Arrangement – Sheet 3 of 5
	- 1228	1	General Arrangement – Sheet 4 of 5
	- 1229	2	General Arrangement – Sheet 5 of 5
	- 1230	2	Miscellaneous Details
	- 1235	1	HV Relocation Longitudinal Section – sheet 1 of 3
	- 1236	1	HV Relocation Longitudinal Section – sheet 2 of 3
	- 1237	1	HV Relocation Longitudinal Section – sheet 3 of 3

Drawing Number (Stage 1B - 11kV Electrical Relocations)		Version Number	Drawing Title
110003	- 2220	2	Cover Sheet
	- 2221	2	Key Plan, Notes and Legend
	- 2225	2	General Arrangement – Sheet 1 of 4
	- 2226	2	General Arrangement – Sheet 2 of 4
	- 2227	2	General Arrangement – Sheet 3 of 4
	- 2228	2	General Arrangement – Sheet 4 of 4
	- 2230	2	Miscellaneous Details – Sheet 1 of 2
	- 2231	1	Miscellaneous Details – Sheet 2 of 2
	- 2235	1	HV Relocation Longitudinal Section

Drawing Number (Stage 1C) Detail Design Stage 1C for Tender		Version Number	Drawing Title
110003	- 3000	1	Cover Sheet
	- 3001	2	Locality Plan and Drawing List
	- 3002	3	Construction Staging Plan
	- 3003	1	Contamination Identification Plan
	- 3004	1	Fencing Plan
	- 3005	2	Environmental Management Concept Plan – Sheet 1 of 2
	- 3006	1	Environmental Management Concept Plan – Sheet 2 of 2
	- 3010	3	Pavement Plan – Sheet 1 of 3
	- 3011	3	Pavement Plan – Sheet 2 of 3
	- 3012	3	Pavement Plan – Sheet 3 of 3
	- 3013	2	Pavement Details
	- 3014	2	Retaining Wall Details
	- 3020	2	Driveway Chainage Plans - Sheet 1 of 8
	- 3021	2	Driveway Chainage Plans - Sheet 2 of 8
	- 3022	2	Driveway Chainage Plans - Sheet 3 of 8