

Master Specification

Part PC-US1

Utility Services

September 2024



Government of South Australia
Department for Infrastructure
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PC-US1 Utility Services

1 General

- a) This Master Specification Part sets out the requirements for the identification and protection of Utility Services and the undertaking of Utility Service works, including:
- i) the documentation requirements, as set out in section 2;
 - ii) the requirements for existing Utility Services, as set out in section 3;
 - iii) the requirements for Utility Service works, as set out in section 4;
 - iv) the design requirements, as set out in section 5;
 - v) the construction requirements, as set out in section 6;
 - vi) the Completion and Handover requirements, as set out in section 7; and
 - vii) the Hold Point requirements, as set out in section 8.
- b) The identification and protection of Utility Services and the undertaking of Utility Service works must comply with:
- i) the Reference Documents, including:
 - A. 400-STD-AM-0001 Guidelines for working near existing gas assets (available upon request);
 - B. AS 4799 Installation of underground utility services and pipelines within railway boundaries;
 - C. AS 5488 Classification of subsurface utility information;
 - D. C524:2013 External Telecommunication Cable Networks, (available from <https://www.commsalliance.com.au/Documents/all/codes/c524>);
 - E. SAPN's Network Information for Contractors and Customers (available from <https://www.sapowernetworks.com.au/resource-library>);
 - F. SAPN's Technical Standards (available from <https://www.sapowernetworks.com.au/resource-library>); and
 - G. SA Water's Engineering Standards and Guidelines (available from <https://www.sawater.com.au/developers-and-builders/engineering-standards-and-guidelines-introduction>); and
 - H. SA Water's Technical Standard TS 0136 Pipework access and protection (available from: https://www.sawater.com.au/data/assets/pdf_file/0017/612242/SAWS-ENG-0136.pdf); and
 - ii) all applicable Laws, including:
 - A. the *Electricity Act 1995* (SA); and
 - B. the *Electricity (General) Regulations 2012* (SA).

2 Documentation

2.1 Utility Services Management Plan

- a) The Contractor must prepare a Utility Services Management Plan, which includes as a minimum:

- i) the site management structure for managing the Utility Service works;
 - ii) the name and responsibilities of the Utility Works Coordinator, and where agreed with the Principal that a full-time Utility Works Coordinator is not required, the name(s) of the person(s) undertaking the duties of the Utility Works Coordinator;
 - iii) procedures for interfacing with concurrent works carried out directly by Utility Service Authorities;
 - iv) measures to locate, identify if necessary, and protect any existing or newly installed Utility Services from damage;
 - v) procedures for the procurement and management of accredited constructors;
 - vi) procedures for generating internal site-specific permits to work near Utility Services;
 - vii) safe work method statements for working on, or near, Utility Services;
 - viii) interface management details for Utility Service Authorities working within or adjacent to the Site; and
 - ix) construction work method statements for the various Utility Service works.
- b) The Utility Services Management Plan must be prepared, submitted and updated in accordance with the requirements of PC-PM1 "Project Management and Reporting".
 - c) The Utility Services Management Plan may form a sub-plan to the Contractor's Project Management Plan.

2.2 Contract Program

- a) In addition to the requirements of PC-PM2 "Contract Program", the Contract Program must include a detailed section for Utility Service works, which includes as a minimum:
 - i) any activities and constraints associated with new and existing Utility Services, including any Temporary Works; and
 - ii) construction times required by each Utility Service Authority, including procurement lead times, design review and Approvals, delivery of components, shutdown notification periods, scheduled cutover periods, installation activities, and the Utility Service Authorities' float.
- b) The Utility Service works section of the Contract Program, as referenced in section 2.2a), must be structured such that it can be viewed, and exported:
 - i) in isolation from the rest of the Contract Program; and
 - ii) to contain only the tasks specific to an individual Utility Service Authority, such that a copy can be distributed to a specific Utility Service Authority, which only contains information relevant to their Utility Service assets.

2.3 Design Documentation

2.3.1 General

In addition to the requirements of PC-EDM1 "Design Management", the Design Documentation must include:

- a) as part of the Detailed Design submission, service proving results for all existing Utility Services, including, the type, location, condition, and size of each existing Utility Service;
- b) except where the Principal has agreed otherwise, a 3D Utility Services model, which as a minimum:
 - i) accurately displays the results of the service proving as referenced in section 2.3.1a);
 - ii) accurately displays the planned new, and relocated Utility Services;

- iii) is used for the purposes of demonstrating clearance envelopes and clash detection; and
- iv) is in its native file format or a format as otherwise defined in the Contract Documents;
- c) the Utility Services register, as required by section 4.1e); and
- d) any designs provided by the Utility Service Authorities.

2.3.2 Design Drawings

In addition to the requirements of PC-EDM1 “Design Management”, the Design Drawings must include:

- a) details of the existing Utility Services, including the service proving as referenced in section 2.3.1a);
- b) details of the planned new, and relocated, Utility Services; and
- c) long section and cross section drawings for all Utility Service trenches.

2.3.3 Design Departures and Non-Conformances

All non-compliances related to Utility Service Authorities assets must have written agreements from the relevant Utility Service Authority included as part of either:

- a) for design related Non-Conformances, the relevant Design Departure Application in accordance with PC-EDM1 “Design Management”; or
- b) for construction related Non-Conformances, the relevant Non-Conformance Report in accordance with PC-QA1 “Quality Management Requirements” or PC-QA2 “Quality Management Requirements for Major Projects” (as applicable).

2.4 Construction Documentation

In addition to the requirements of PC-CN3 “Construction Management”, the Construction Documentation must include:

- a) the justification for the necessity for any temporary relocation of a Utility Service, in accordance with section 5.1o);
- b) relevant documentation to demonstrate that the performance of the Works and Temporary Works will not impact on the physical security of existing Utility Service infrastructure; and
- c) any agreements and correspondence with the Utility Service Authorities regarding the relocation or protective measures required for Utility Services.

2.5 As-Built Records

In addition to the requirements of PC-QA1 “Quality Management Requirements” or PC-QA2 “Quality Management Requirements for Major Projects” (as applicable), the As-Built Records must include:

- a) field records, including sketches, diagrams, and survey data showing the location of relocated Utility Services;
- b) as-constructed drawings showing all relocated Utility Services as per the requirements of PC-SI1 “Site Surveys”;
- c) except where the Principal has agreed otherwise, an as-constructed version of the 3D Utility Services model, as required in section 2.3.1b);
- d) a copy of any written Approvals from property owners regarding the locations of reconnection points, poles or other infrastructure, and any adjustments to gardens or pathways within their property, which are required as a consequence of the Works or Temporary Works;
- e) a copy of the completion and handover documentation as required by the relevant Utility Service Authorities for the completed Utility Service works; and

- f) a copy of the written acceptance of the completed Utility Service works from the relevant Utility Service Authorities.

3 Existing Utility Services

3.1 Information provided by the Principal

The location of Utility Services (either existing or proposed) shown on any drawings or other documentation provided by the Principal:

- a) is approximate only; and
- b) cannot be relied upon as being sufficiently accurate to carry out the Contractor's Activities without further steps to determine the accurate location.

3.2 Location of existing Utility Services

- a) Prior to commencement of construction work, the Contractor must contact 'Before You Dig Australia' (BYDA) to obtain the plan locations of all existing Utility Services.
- b) The Contractor must comply with all requirements stated in the BYDA documentation obtained in accordance with section 3.2a).
- c) The Contractor must liaise with the relevant Utility Service Authorities to confirm the location of existing Utility Services.
- d) The Contractor must undertake all investigations, including potholing or other non-destructive digging in accordance with the requirements of PC-SI1 "Site Surveys", as may be necessary to locate and identify all existing Utility Services.
- e) The Contractor must regularly inspect the Site to verify that Utility Services that have been identified are correctly located and check for any Utility Services, not previously identified.

3.3 Identified Utility Services

- a) Costs incurred by the Contractor as a result of any of following pursuant to this clause must be borne by the Contractor, unless otherwise stated in the Contract Documents:
 - i) liaison and negotiation with Utility Service Authorities;
 - ii) locating Utility Services;
 - iii) changes in work methodology or the implementation of temporary protective measures or restrictions reasonably required by the Utility Service Authorities during construction;
 - iv) damage to the Utility Service due to the Contractor's negligent work practices; and
 - v) staging, interruption, loss of productivity, rework, inefficiency, or delay of the Contractor's work resulting from the presence of Utility Services.
- b) The Principal will not make separate payment for costs incurred under section 3.3a), unless otherwise stated in the Contract Documents.
- c) Compliance with the requirements of section 3.3a) will not entitle the Contractor to an extension of time, unless otherwise stated in the Contract Documents.
- d) The Contractor is deemed to be fully informed as to the nature and extent of the work necessary to accommodate the requirements of the Utility Service Authorities and is deemed to be aware of the policies of the Utility Service Authorities in regard to:
 - i) locating of Utility Services and the costs thereof; and
 - ii) using appropriately trained and accredited personnel to perform work which affects the Utility Services.

3.4 Unidentified Utility Services

The Contractor must immediately inform the Principal and the relevant Utility Service Authority and comply with the requirements of this Master Specification Part if the Contractor identifies a Utility Service that:

- a) will affect the Works or the Temporary Works;
- b) is located within or intersects the footprint of any design provided by the Principal; and
- c) prior to the Commencement Date, had not been identified.

3.5 Conflicts with existing Utility Services

- a) Where any Utility Service has been identified which may conflict with the Works or Temporary Works, the Contractor must confirm with the Utility Service Authority whether the identified Utility Service is in-service or has been decommissioned.
- b) Where any Utility Service has been identified which may conflict with the Works or Temporary Works, and has been confirmed as in-service in accordance with section 3.5a), the Contractor must:
 - i) determine the extent of the conflict and advise the Principal immediately;
 - ii) prior to commencement of work on Site, arrange a site meeting to be attended by the Contractor, the Principal, and representatives from the relevant Utility Service Authorities;
 - iii) liaise with the relevant Utility Service Authorities to confirm the location of the Utility Service and take all reasonable steps to determine the accurate location of the Utility Service;
 - iv) liaise with the relevant Utility Service Authorities and any industry regulator regarding their requirements for clearance, cover, and temporary protection;
 - v) submit details of the conflict including any associated survey results and the proposals for resolving the conflict, to the Principal, for the Principal's direction, which will constitute a **Hold Point**;
 - vi) allow Utility Service Authorities or their authorised representatives reasonable access to the Site for the purpose of identifying, relocating, modifying, or installing Utility Services;
 - vii) comply with any requirement of a Utility Service Authority regarding the protection of the Utility Service; and
 - viii) keep the Principal fully informed of the progress and status of its liaison or negotiations with Utility Service Authorities and works associated with the Utility Services.
- c) Where any Utility Service that has been identified, which may conflict with the Works or Temporary Works, and has been confirmed as decommissioned in accordance with section 3.5a), the Contractor must:
 - i) determine the extent of the conflict and advise the Principal immediately;
 - ii) submit details of the conflict including any associated survey results and the proposals for resolving the conflict, to the Principal, for the Principal's direction, which will constitute a **Hold Point**; and
 - iii) comply with any requirement of a Utility Service Authority regarding the protection or removal of the Utility Service.

3.6 Protection of existing Utility Services

- a) The Contractor must undertake all measures necessary to protect or prevent damage to any existing Utility Services, including complying with the requirements of the Utility Service Authority regarding the protection of its existing Utility Services.
- b) The Contractor must comply with any vibration limits or other requirements specified in the Contract Documents or set out by the Utility Service Authorities, which are necessary for preventing damage to the existing Utility Services as a result of the Contractor's Activities.
- c) If the Contractor causes any damage to an existing Utility Service, the Contractor must notify the relevant Utility Service Authority immediately and arrange for repairs to be carried out as soon as practicable.
- d) The Contractor must obtain Approval from the relevant Utility Service Authority in relation to the installation of protection, or relocation works of existing Utility Services to be undertaken by the Contractor, prior to undertaking the work and must provide a copy of the Approval to the Principal as part of the Construction Documentation.
- e) The full cost of any repairs, including the cost of any additional reinstatement necessary and any charges or penalties imposed by the Utility Service Authority of the damaged Utility Service will be borne by the Contractor, unless otherwise stated in the Contract Documents.

4 Utility Service works

4.1 General

- a) The Contractor must undertake the following as a minimum with regard to Utility Service works:
 - i) conduct regular site meetings to be attended by the Contractor and the relevant Utility Service Authorities' representatives;
 - ii) allow the Utility Service Authorities or their authorised representatives access to the site for any reasonable purpose, including identifying, relocating, modifying, installing, maintaining, salvaging, or testing Utility Services;
 - iii) liaise with the Utility Service Authorities or any industry regulator regarding requirements for permanent and temporary clearance, cover, and protection;
 - iv) incorporate applicable Utility Service Authority requirements into the Works and Temporary Works (as applicable);
 - v) keep the Principal fully informed of the progress and status of its liaison or negotiations with Utility Service Authorities and works associated with Utility Services;
 - vi) liaise with the Utility Service Authority with respect to program constraints and ensure that the Contract Program identifies any activities, preferred staging of relocation works, and constraints associated with Utility Services; and
 - vii) update the Contract Program regularly to reflect the progress of relocated Utility Service works and provide updates to the Utility Service Authority.
- b) All Utility Services must be considered to be live until the Contractor, in liaison with the Utility Service Authority, confirms otherwise.
- c) Any damage or identification of existing faults must be notified immediately by telephone to the Utility Service Authority through the relevant faults contact number.
- d) Any works undertaken by the Contractor must:
 - i) ensure that Utility Service Authority surveillance personnel are in attendance at all times during the work, or as otherwise agreed with the Utility Service Authority;
 - ii) be undertaken in accordance with the relevant specifications and the Construction Documentation;

- iii) include the supply of all materials required to undertake the works, unless otherwise indicated by the Principal; and
- iv) include the management and completion of all quality requirements as specified by the Utility Service Authority.
- e) The Contractor must maintain a Utility Services register which reflects the current status of Utility Service installations, adjustments, relocations, removals and decommissioning.
- f) The Contractor must survey all new and adjusted Utility Services, in situ, prior to any backfilling, and when bored, provide bore logs with surveyed entry and exit points in accordance with PC-SI1 "Site Surveys".

4.2 Program

- a) The Contractor must plan and coordinate Utility Service works with any such concurrent works carried out directly by the various Utility Service Authorities, and with the Works and Temporary Works.
- b) The Contractor must notify the Principal immediately of any issues related to the Utility Service works which may impact on the Contract Program.

4.3 Utility Works Coordinator

- a) The Contractor must provide a suitably qualified and experienced Utility Works Coordinator for the duration of the Utility Service works.
- b) The Utility Works Coordinator must have at least 5 years relevant experience in Utility Service works and have experience in the management of Utility Service contractors.
- c) The Utility Works Coordinator's duties include:
 - i) liaising with the Principal and the Utility Service Authorities, including convening regular meetings as required;
 - ii) checking for potential conflicts between the proposed Utility Services and existing Utility Services and structures;
 - iii) engaging and managing Subcontractors undertaking the Utility Service works;
 - iv) coordinating the various Utility Service works (including Utility Service works carried out directly by the Utility Service Authorities) with the rest of the Works and Temporary Works;
 - v) managing any temporary Utility Service works required, whether as part of construction staging or otherwise, in accordance with the requirements of PC-CN4 "Temporary Works";
 - vi) notifying and obtaining any required Approvals from the relevant Utility Service Authorities for shutdowns and cutovers; and
 - vii) negotiating with other stakeholders, including owners of affected properties, regarding Utility Service works matters.

4.4 Coordination and communication with Utility Service Authorities

- a) Within 15 Business Days after the Commencement Date, the Contractor must organise start-up meetings with each Utility Service Authority to:
 - i) confirm the Utility Service Authority's requirements;
 - ii) obtain the Utility Service Authority's agreement to the Utility Service works; and
 - iii) coordinate the Utility Service works, including those carried out directly by the Utility Service Authority, with the rest of the Works and Temporary Works.

- b) The Contractor must convene regular meetings with each Utility Service Authority to coordinate and assess the progress of the Works and Temporary Works in relation to Utility Service works on their assets, and:
 - i) invite the Principal to these meetings; and
 - ii) record the minutes of these meetings and distribute them to all attendees and the Principal within 3 Business Days after the meeting.
- c) The Contractor must keep records of all communications with each Utility Service Authority.

4.5 Notices to Utility Service Authorities

- a) All notices to Utility Service Authorities must be in writing and be specific to a particular component of the Utility Services infrastructure which is being worked on or near which work will be undertaken.
- b) The Contractor must provide a copy of all notices to the Utility Service Authorities to the Principal.

4.6 Variation work requested by Utility Service Authorities

- a) Where a Utility Service Authority requests work to be completed that is considered to be a Variation to the Contractor's scope of works, the Contractor must notify the Principal in writing of that request in accordance with the Contract Documents.
- b) The Contractor must not undertake any work it considers may be subject to a Variation to the Contractor's scope of works without first obtaining the Principal's Approval in accordance with the Contract Documents.

4.7 Works to suit the Contractor's construction method

- a) If the Contractor proposes to undertake temporary Utility Service works to suit their construction method, the Contractor must comply with PC-CN4 "Temporary Works" and the requirements of the Utility Service Authority for the design and installation of the temporary Utility Service works, including engagement of a designer and constructor acceptable to the Utility Service Authority.
- b) Any Utility Service works undertaken as per section 4.7a) are deemed to be included within the Contractor's Activities and as such the Contractor is not entitled to any extensions of time for these Utility Service works, including any delays in Approvals by the Utility Service Authority, unless otherwise stated in the Contract Documents.

4.8 Existing penetrants

- a) Where work is carried out adjacent to, or around a penetrant, including an inspection pit, top stone or sewer lid, and the penetrant is located within a road, pavement, footpath, median, or driveway, the Contractor must:
 - i) adjust the surface levels of the penetrant, if necessary, to ensure that its final level is flush with the final pavement surface;
 - ii) when measured with a 3 m straight edge centred over the penetrant, ensure the maximum deviation in all directions between the straight edge and the surface does not exceed 5 mm; and
 - iii) except for plane and reinstatement of asphalt pavements, ensure that the final adjustments to the penetrant are completed prior to the application of the surface course.
- b) Where a penetrant protrudes through a temporary surface which is subject to traffic, the Contractor must:
 - i) ensure it does not protrude by more than 60 mm;

- ii) ensure it is not hazardous to traffic; and
- iii) form a ramp to the penetrant at the end of each working day, with slopes not steeper than 1:10 in any direction.
- c) Where a penetrant is covered with asphalt, the Contractor must mark its location with paint, followed by centrally exposing it to a minimum diameter of 150 mm.
- d) The Contractor must ensure that any penetrants requiring adjustment are adjusted by appropriately qualified personnel.
- e) The Contractor must ensure that access to fire hydrants is maintained at all times.

4.9 Shutdowns

- a) The Contractor must plan and carry out Utility Service works in such a manner that disruption to the community, Utility Service Authorities and road users is minimised.
- b) The Contractor must provide the required notices to the community in accordance with PC-CS1 "Community Engagement and Media Engagement", in circumstances where such notices are not provided by the Utility Service Authority.
- c) Where times for shutdowns and cutovers of the Utility Services are restricted by the Utility Service Authority (e.g., for seasonal or demand reasons), the Contractor must program all works to suit the Utility Service Authority's permitted shutdown times.

4.10 Reconnections

- a) After cutover to a new Utility Service asset, the Contractor must promptly reconnect services to the premises supplied by that asset.
- b) The Contractor must consult with and obtain a written Approval from property owners regarding the locations of the reconnection points, poles and other infrastructure, and any adjustments to gardens or pathways within the property, which are required as a consequence of the reconnection. The Contractor must provide a copy of any written Approval to the Principal, as part of the As-Built Records.

4.11 Management of trench spoil

The Contractor must manage risks associated with potentially contaminated trench spoil in accordance with all applicable Laws and PC-SC1 "Site Contamination".

4.12 Removal of redundant Utility Services

- a) The Contractor must not remove any Utility Service until it has been confirmed by the Utility Service Authority that the Utility Service is redundant and has been decommissioned.
- b) The Contractor must advise and obtain any necessary Approvals from the relevant Utility Service Authority prior to the removal or demolition of any of their redundant Utility Services.
- c) The Contractor must confirm with the Utility Service Authority as to whether they want to salvage any part of their infrastructure prior to the removal or demolition of any of their redundant Utility Service.
- d) Subject to the requirements of section 4.12c), where the Utility Service Authority proposes not to undertake salvage, the removal, disposal and reinstatement of the Utility Service and associated infrastructure is the responsibility of the Contractor.
- e) If the Contractor obtains the agreement from the Utility Service Authority that a redundant Utility Service may remain in situ, and that the Utility Service may be decommissioned, the Contractor must decommission the Utility Service in accordance with the relevant Utility Service Authority requirements.
- f) Where asbestos containing materials are identified for removal, or discovered during removal, the Contractor must notify the Utility Service Authority, and adhere to any additional level of

authorisation that the Utility Service Authority imposes, over that which is required in PC-SI6 “Hazardous Materials Survey and Assessment”, PC-SC1 “Site Contamination”, and PC-ENV1 “Environmental Management”.

5 Design requirements

5.1 General

- a) The Contractor must undertake all design works associated with Utility Services in accordance with the requirements set out in any agreements with the relevant Utility Service Authority.
- b) The Contractor must undertake Utility Service proving prior to undertaking the Detailed Design of the respective Utility Services, associated infrastructure, and structures that are impacted by the Utility Service works, in order to determine the type, location, depth, condition and size of all existing Utility Services.
- c) The Contractor must submit designs for review and Approval, in accordance with PC-EDM1 “Design Management” and PC-CN4 “Temporary Works” (where applicable).
- d) If the Utility Services register referenced in section 4.1e), is provided by the Principal, the Contractor must maintain any pre-existing unique ID system for the identification of Utility Services.
- e) The Contractor must assess the impact on all Utility Services due to the Works and Temporary Works.
- f) The Contractor must incorporate the requirements of the Utility Service Authorities, including the requirements of section 5.7, into the Design Documentation.
- g) The Contractor must provide all the relevant information, and in the appropriate format, as requested by the Utility Service Authorities to allow the Utility Service Authorities to undertake their own designs (where relevant).
- h) The Contractor must forward any Utility Service Authority designs to the Principal for review whenever a new design is provided to the Contractor, and include a copy in the Design Documentation.
- i) The Contractor must supply updated designs via the IMS (within 5 Business Days) to Utility Service Authorities when a modification to the design is proposed and:
 - i) that changes the impact to a Utility Service; or
 - ii) where the Utility Service Authority has provided or is undertaking a design for that Utility Service.
- j) The Contractor must minimise or eliminate impacts, including outages, to existing Utility Services through innovative design practices and work methodologies.
- k) The Contractor must minimise the length of conduit routes where possible.
- l) The Contractor must make every effort to retain and reuse existing Utility Services, in place of new or replacement Utility Services, where possible.
- m) The Contractor must align Utility Services in roadways so that any associated top-stones and inspection point covers are located outside of the vehicular wheel paths, where possible.
- n) The Contractor must consider in their design to firstly avoid, and then where not possible, minimise, any Utility Service temporary relocations that would need to occur during the performance of the Works or Temporary Works.
- o) The Contractor must demonstrate to the Principal in the Construction Documentation, the necessity for all temporary relocations.
- p) The Contractor must consider constructability through design so that appropriate staging during construction can be undertaken to ensure that all Utility Services can be maintained until final cutover of the new Utility Service takes place.

- q) Safety in Design must be considered in accordance with PC-EDM2 "Safety Management in Design".
- r) The Contractor must provide ongoing technical feedback to the Utility Service Authorities relating to the placement of Utility Services within the Project footprint, so that relocations, designs, and commencement of the procurement of critical long lead-time items can continue in parallel with design development.

5.2 Coordinate system

- a) Whenever Design Documentation is provided to a Utility Service Authority, the Contractor must provide the Design Documentation in both:
 - i) the Project's local project coordinate system; and
 - ii) either:
 - A. GDA 2020 / SA Lambert (EPSG: 8059); or
 - B. GDA 2020 / MGA zone 'XX', where 'XX' is the zone appropriate to the site location (e.g., GDA 2020 / MGA zone 54 (EPSG: 7854)).
- b) The Contractor must transform the Design Documentation into the relevant co-ordinate system as required by the Contract Documents.
- c) Where Design Documentation or As-Built Records include the physical attributes of a Utility Service, such as the condition, material, diameter, or type, the attribution must be provided in a format suitable for import into GIS and should not be in the form of annotation on design linework.

5.3 Common service trenches

- a) The Contractor must include common service trenches where possible, and only as approved by the relevant Utility Service Authorities.
- b) The Contractor must manage the development of the design for any common service trenches in accordance with the requirements of the Contract Documents, and the respective Utility Service Authorities' usual requirements.
- c) The Contractor must allow for additional, spare conduits to be provided as required by the Utility Service Authorities.

5.4 Bridges

- a) Where Utility Services are to be suspended from a bridge:
 - i) materials used for the conduits, pipes and supports must be as per the respective Utility Service Authority usual requirements;
 - ii) the Utility Services must be provided with mechanical protection to protect against impacts;
 - iii) the minimum structural clearances as set out in the Contract Documents must be maintained;
 - iv) adequate clearance around the Utility Services must be provided for the purpose of inspection and maintenance;
 - v) urban design must be considered in accordance with the Contract Documents; and
 - vi) envelopers must have appropriate durability to meet the required Design Life.
- b) Where Utility Services are to be located beneath approach slabs:
 - i) envelopers must extend a minimum of 2 m beyond the outer edge of the approach slabs;

- ii) envelopers must have appropriate durability to meet the required Design Life; and
 - iii) lengths of pipe must contain no manufactured fittings.
- c) The Contractor must ensure that any bridge abutments requiring penetrations are made so that the penetrants are of a suitable size to accept installation of the Utility Services, possibly on an angle, without the need for further widening of the penetration.

5.5 Separation, cover and access

- a) The Contractor must ensure that all necessary vertical and horizontal separation and clearances, as required by the applicable Utility Service Authorities, are met, including Utility Services that run adjacent to one another or cross over.
- b) Stacking of services, owned by different Utility Service Authorities is not permitted unless a written Approval is provided by the relevant Utility Service Authorities.
- c) Where the required separation or clearances cannot be met, the Contractor must seek a dispensation by providing adequate evidence to the relevant Utility Service Authorities for the reasons behind the dispensation, and obtain a written Approval from the relevant Utility Service Authorities.
- d) Where Utility Services are to be located within the Department's roads, the Contractor must ensure a minimum of 1 m of clear cover from the finished surface level to the top of the Utility Service is provided.
- e) Where Utility Services are to be located within a road Authority's roads, other than the Department's roads, the Contractor must ensure that the minimum clear cover from the finished surface level to the top of the Utility Service is as per the relevant road Authority's requirements.
- f) The Contractor must ensure that the minimum clear cover from the finished surface level to the top of the Utility Service is as per the relevant Utility Service Authority's requirements.
- g) The Contractor must ensure that Utility Services do not intrude into the pavement layers.
- h) The Design Documentation must have regard for any protective treatments that the Utility Service Authorities require.
- i) The location of Utility Services, their associated final and working cover and clearance, and the requirements of the Utility Service Authorities and the Office of the Technical Regulator, where relevant, must be considered when designing both permanent and temporary pavements, including piling pads, haul roads and temporary rail or traffic diversions.
- j) Clear and sufficient access must be provided to existing and relocated Utility Services for both maintenance and installation, through consideration of the placement of infrastructure such as other services, soil nails, piles, and footings.
- k) Where directional boring is to be utilised for the installation of conduits, the Contractor must obtain the minimum permissible bend radii from the relevant Utility Service Authority and incorporate this into the Design Documentation.

5.6 Trench cross section drawings

The Design Documentation must incorporate the requirements of the Principal and all relevant Authorities, including councils, with respect to Utility Service trenches, as follows:

- a) the Utility Service Authority requirements must be adhered to for work directly associated with the relevant physical Utility Service, such as conduits, pipes, pit works, backfill requirements, and warning tapes;
- b) on roads controlled by the Department, the backfill and surround must be in accordance with RD-EW-C2 "Trench Excavation and Backfill", where the requirements are greater than the requirements of the relevant Utility Service Authority; and

- c) on roads controlled by any other Authority, the backfill and surround must be in accordance with the requirements of the relevant Authority, where the requirements are greater than the requirements of the relevant Utility Service Authority.

5.7 Authority specific requirements

5.7.1 APA

The Contractor must undertake all aspects of their design which interface with APA infrastructure in accordance with APA's Recoverable Works Agreement (available upon request), and the requirements set out in 400-STD-AM-0001 Guidelines for works near existing gas assets (available upon request).

5.7.2 South Australian Power Networks (SAPN)

- a) The Contractor must undertake all aspects of their design which interface with SAPN infrastructure in accordance with the SAPN's Network Information for Contractors and Customers, and SAPN's Technical Standards (both available from <https://www.sapowernetworks.com.au/resource-library/>).
- b) The Contractor must provide SAPN with nominated locations and the anticipated loading of all electrical connection points so that SAPN can incorporate them into their final design.
- c) The Contractor must minimise the number of new transformers and connection points by considering the use of existing transformers and connection points.

5.7.3 SA Water

- a) The Contractor must undertake all aspects of their design which interface with SA Water's infrastructure, in accordance with SA Water's Engineering Standards and Guidelines (available from <https://www.sawater.com.au/developers-and-builders/engineering-standards-and-guidelines-introduction>).
- b) MSCL pipe must be used where relocated water and sewer mains are to be incorporated into bridge structures, unless otherwise approved by SA Water.
- c) Where non-standard angle bends are to be incorporated into new works, new Utility Services must have the pipe runs surveyed and bends fabricated to suit.
- d) The Contractor must ensure there is a minimum of 1 m of horizontal separation and 300 mm of vertical separation between SA Water's and adjacent Utility Services. Any relaxation of this requirement requires submission of details and supporting information to SA Water and the Utility Service Authority for the adjacent Utility Service, for their Approvals.
- e) For the design of any alterations to SA Water assets, the Contractor must either:
 - i) engage SA Water to undertake the design; or
 - ii) engage an SA Water qualified design consultant, and then submit the designs to SA Water for Approval in accordance with the requirements of PC-EDM1 "Design Management".

5.7.4 Telstra

The Contractor must undertake all aspects of their design which interfaces with Telstra infrastructure in accordance with C524:2013 External Telecommunication Cable Networks, (available from <https://www.commsalliance.com.au/Documents/all/codes/c524>).

5.7.5 Other telecommunications

The Contractor must undertake all aspects of their design which interfaces with telecommunications assets other than those described in section 5.7.4, in accordance with the respective Utility Service Authority's requirements or the Reference Documents, where the respective Utility Service Authority has no specific requirement.

5.8 Installation of new Utility Services

Where a Utility Service Authority wishes to install a new Utility Service within the Site, prior to Completion, that is not a relocation of an existing service, the Contractor must:

- a) negotiate in good faith with the Utility Service Authority to agree on the terms on which the Utility Service Authority may install the Utility Service; and
- b) act reasonably in all their dealings with the Utility Service Authority to identify the period in which the Utility Service can be installed, and any other conditions required.

6 Construction requirements

6.1 General

- a) The Contractor must consult with and provide the relevant Utility Service Authorities or their authorised representatives with access to Site for the purposes of undertaking, supervising, witnessing, and inspecting any works, as agreed.
- b) Utility Service Authority access to new and existing Utility Services, both above ground and underground, must be maintained and facilitated at all times throughout the duration and following completion of the Works and Temporary Works.
- c) Except where the Principal has agreed otherwise, the Contractor must maintain an up-to-date version of the 3D Utility Services model, as referenced in section 2.3.1b), during construction, such that it reflects the current status and as-constructed information of all new and relocated Utility Services, as well as any other existing Utility Services discovered, beyond those already identified.

6.2 Authority specific requirements

6.2.1 APA

- a) The Contractor must familiarise themselves with APA's Recoverable Works Agreement (available upon request) and 400-STD-AM-0001 Guidelines for works near existing gas assets (available upon request).
- b) The Contractor must engage APA to undertake all works on APA infrastructure, in accordance with APA's Recoverable Works Agreement (available upon request), and 400-STD-AM-0001 Guidelines for works near existing gas assets (available upon request).
- c) The Contractor must arrange for APA to self-perform all disconnections of redundant services at the main.
- d) The Contractor must arrange for the attendance of an APA representative for any work within 3 m of a gas transmission main or trunk main that is classified as high or medium pressure, and must only undertake these works whilst an APA representative is in attendance.
- e) Excavations carried out within 1 m of a gas transmission main which is in service must be hand-dug only and in accordance with the requirements set out in 400-STD-AM-0001 Guidelines for works near existing gas assets (available upon request).
- f) The Contractor must report any damage to gas assets to APA via the emergency hotline on 1800 427 532.
- g) The Contractor must consult with APA as to whether there are any seasonal or other demand factors that may restrict disruptions to gas distribution mains, and accommodate these restrictions.
- h) Prior to the removal of any gas infrastructure, the Contractor must confirm with APA the extents of the decommissioned assets and the completion of purging pipes as per the requirements of APA.

6.2.2 SAPN - general

- a) Any works undertaken on SAPN infrastructure must be performed in accordance with the *Electricity Act 1995* (SA), the *Electricity (General) Regulations 2012* (SA), and SAPN's Network Information for Contractors and Customers, and SAPN's Technical Standards (both available from: <https://www.sapowernetworks.com.au/resource-library/>).
- b) The Contractor must engage SAPN to undertake any Non-Contestable works on SAPN infrastructure, except where the Contractor has obtained the Approval of SAPN to directly engage SAPN approved subcontractors to undertake the civil components of electrical works, including excavation, bedding, conduiting, backfill, reinstatement, installation of footing for pad-mount transformers and switching cabinets.
- c) Where the Contractor directly engages SAPN approved subcontractors to undertake the civil components of electrical works in accordance with section 6.2.2b), the Contractor must coordinate with SAPN to arrange a SAPN representative to be present during these works and must only undertake these works whilst a SAPN representative is in attendance.
- d) The Contractor must coordinate with SAPN to arrange a SAPN representative to be present for any work performed under a network access permit in accordance with NICC 404:Working in the Vicinity of SA Power Networks Infrastructure - Network Access Permit Process (available from: <https://www.sapowernetworks.com.au/data/2970/network-information-for-contractors-and-customers-nicc-404-working-in-the-vicinity-of-sa-power-networks-infrastructure-network-access-permit-access/>) and must only undertake these works whilst a SAPN representative is in attendance.
- e) The Contractor must consult with SAPN to understand and allow sufficient time for the SAPN relocation works (including temporary), and decommissioning of existing infrastructure, and must accommodate SAPN's resourcing and network constraints into the Contract Program, including the staggering of cutovers associated with relocation work packages.
- f) The Contractor must ensure that, prior to the removal of Stobie mounted public lighting, road lighting is provided according to minimum standards set out in RD-EL-D1 "Design of Road Lighting".
- g) The Contractor must consult with SAPN and remove and dispose of, as agreed, all redundant SAPN infrastructure in relation to the Works and Temporary Works, unless otherwise agreed to be removed by SAPN.
- h) The Contractor must adhere to all directions as provided by SAPN.

6.2.3 SAPN - 66kV

- a) The Contractor must not plan for interruptions to a 66kV supply between 1 November to 31 March, as these are not permitted due to seasonal demands, unless otherwise approved by SAPN.
- b) The Contractor must consult early with SAPN to understand whether there are any other external demands to 66kV infrastructure that would restrict when interruptions to the 66kV supply can be made outside of the timeframes detailed in section 6.2.3a), and must plan the Works accordingly.

6.2.4 SAPN 11kV and other

- a) Any new high demand sites (e.g. pump stations) are not "Asset Relocation" and must be treated as "Customer Connection" (as defined by SAPN). The Contractor must submit a request for a new connection to SAPN for these connections.
- b) The Contractor must undertake the works in relation to the installation and connection to all required connection points.
- c) The Contractor must undertake all civil works including conduit installation for all telecommunication related works relating to SAPN pilot cable and fibre.
- d) The Contractor must arrange for the removal and reconnection of any third-party equipment (e.g. Telstra, Foxtel) from SAPN poles, as required.

6.2.5 SA Water - general

- a) Any works undertaken on SA Water infrastructure must be performed in accordance with SA Water's Engineering Standards and Guidelines (available from: <https://www.sawater.com.au/developers-and-builders/engineering-standards-and-guidelines-introduction>).
- b) Permanent and temporary (construction) cover to water and sewer infrastructure must be in accordance with SA Water's Technical Standard TS 0136 Pipework access and protection (available from: https://www.sawater.com.au/data/assets/pdf_file/0017/612242/SAWS-ENG-0136.pdf), unless otherwise approved by SA Water.
- c) For each asset, the Contractor must negotiate with SA Water the preferred delivery method for the alteration of the asset and abide by SA Water's decision; the methods being:
 - i) delivery method 1 - SA Water self-performs / subcontracts the works; or
 - ii) delivery method 2 - the Contractor self-performs / subcontracts the works.
- d) If delivery method 1 is selected as per section 6.2.5c)i), the Contractor must liaise closely with SA Water to ensure alterations to that asset are completed by SA Water in line with the Contract Program and the requirements of the Contract Documents.
- e) If delivery method 2 is selected as per section 6.2.5c)ii), the Contractor must:
 - i) engage SA Water approved contractors, as available and confirmed by SA Water, to undertake all components of the installation and commissioning of SA Water assets;
 - ii) submit construction staging plans and methodology statements for Approval by SA Water; and
 - iii) accommodate any auditing and hold points as required by SA Water.
- f) All materials for SA Water asset alteration works must be sourced from SA Water approved suppliers.
- g) Unless otherwise approved by SA Water, the Contractor must:
 - i) remove all redundant water or sewer mains affected by construction activities; and
 - ii) relocate all SA Water assets that are located within 1 m of a structural element.
- h) The Contractor must make arrangements with SA Water to witness any hydrostatic pressure testing.
- i) Redundant mains must be removed in accordance with section 4.12, and to a minimum of 1 m past the extent of the works or where the main is 300 mm in diameter or greater, it may be fully grouted and left in situ.
- j) The sequence of decommissioning for any SA Water asset must be developed and submitted by the Contractor to SA Water for Approval prior to any decommissioning works being undertaken.
- k) Any redundant connections must be disconnected at:
 - i) the water main for water services; or
 - ii) within 1 m of the sewer main for sewer services.
- l) Unless otherwise agreed with SAPN, all mechanical equipment, including valves, remains the property of SA Water and must be dismantled in such a way that ensures no damage.
- m) The Contractor must liaise with SA Water to determine which items are required to be salvaged from demolition of redundant water infrastructure and must return all salvaged equipment to a location as agreed with SA Water.

6.2.6 SA Water - water

- a) The Contractor must negotiate and get Approval from SA Water for the staging of any water main relocation or cut over.
- b) The Contractor must not plan for shutdowns on large diameter water mains during seasonal high demand times, as these will not be permitted, except as approved by SA Water.
- c) When live network shutdowns are required to facilitate cut-ins or connections, the Contractor must assume that all existing isolation valves will pass water (skeet) and the Contractor must make suitable provisions to capture and dispose of, or divert, the excess water appropriately.
- d) The Contractor must undertake hydrostatic pressure testing of any new or altered water main prior to disinfection and commissioning.
- e) The Contractor must engage SA Water's maintenance contractor to undertake the disinfection of any new or altered water main prior to commissioning.
- f) The Contractor must consult with SA Water and incorporate any requirements for cathodic protection as per SA Water's direction.

6.2.7 SA Water - sewer

- a) Sewer mains must remain operational at all times, unless agreed otherwise by SA Water.
- b) The Contractor must not use directional boring for the installation of gravity sewer mains.
- c) The Contractor must use CCTV to prove the gradients have been achieved when pipe jacking is utilised and must provide a copy of the results to SA Water for their review.
- d) The Contractor must undertake the removal of existing sewer connections from acquired properties.
- e) The Contractor must undertake the decommissioning, and removal where appropriate, of existing sewer mains.
- f) The Contractor must undertake any reconnections of services as necessary.
- g) The Contractor must undertake hydrostatic pressure testing for any newly installed or altered sewer pressure mains prior to commissioning.

6.2.8 Telstra

- a) Any works undertaken on Telstra infrastructure must be performed in accordance with C524:2013 External Telecommunication Cable Networks, (available from: <https://www.commsalliance.com.au/Documents/all/codes/c524>).
- b) The Contractor must engage Telstra directly or, with Telstra's Approval, Telstra approved contractors to undertake the installation of conduiting, manholes and pits for any Telstra works.
- c) Subject to the requirements of section 6.2.8b), the Contractor must undertake all civil components, including excavation, bedding, backfill, placement of marker tape, and installation of conduits, up to 1.5 m from all new, existing, and re-built manholes and pits.
- d) The Contractor must coordinate with Telstra with regards to Telstra's responsibilities for excavations and conduits within 1.5 m of all new, existing, and re-built manholes and pits, and ensure the works are undertaken appropriately.
- e) Subject to the requirements of section 6.2.8d), the Contractor must place marker tape and backfill around all manholes and pits.
- f) The Contractor must consult with Telstra on the use of Telstra branded conduits and utilise such branded conduits as required by Telstra.
- g) The Contractor must engage all relevant telecommunications Utility Service Authorities directly to install any required sub-ducting in new or existing Telstra conduit.

- h) The Contractor must engage Telstra directly to undertake all cable and optical fibre hauling and jointing works, and coordinate with Telstra as required to ensure the works are undertaken.
- i) The Contractor must remove any redundant Telstra infrastructure exposed during the Works or Temporary Works, or known to exist within one metre of a structural component (e.g. drainage pipe, footings, piles, and light pole bases) to a minimum of 1 m past the extent of the Site.
- j) The Contractor must coordinate with Telstra with regards to the removal and salvaging of manhole lid sets and frames, and cabling from within conduits, and then remove any redundant assets, including cabling, that is not otherwise removed by Telstra, as required to complete the Works or Temporary Works.
- k) The Contractor must consult with Telstra with regards to the notice they require to attend site and salvage their assets and accommodate such notice period.
- l) The Contractor must obtain the necessary Approvals from Telstra prior to the removal of asbestos containing material, and on completion of each discrete removal, provide a notice of completion and a copy of all necessary documentation to Telstra.
- m) Unless otherwise agreed with Telstra, the Contractor must undertake the removal and backfilling of all redundant Telstra manholes and pits, including underlying cavities. Redundant voids must be backfilled as soon as possible.
- n) Where the Contractor is required to work around live Telstra cabling and manholes, the Contractor must develop a work method statement, to be approved by Telstra prior to commencement of the associated works.

6.2.9 Other telecommunications

Subject to the requirements of sections 6.2.8, 6.2.10, and 6.2.11, the Contractor must, for all other telecommunications works engage the relevant Utility Service Authority directly, or another contractor as approved by the relevant Utility Service Authority, to undertake all works associated with their assets.

6.2.10 Optus

- a) The Contractor must obtain Approval from Optus to undertake any works in relation to Optus infrastructure.
- b) All works undertaken on Optus infrastructure must be performed in accordance with Optus' current standards and by Optus accredited contractors.
- c) Where the Contractor has received Approval from Optus in accordance with the requirements of section 6.2.10a), the Contractor must undertake the installation of conduits and pits including any work outside of the Site that may be required to connect to existing telecommunication services.
- d) Where the Contractor has not received Approval from Optus in accordance with the requirements of section 6.2.10a), the Contractor must engage Optus directly to self-perform the installation of conduits and pits including any work outside of the Site that may be required to connect to existing telecommunication services.
- e) The Contractor must coordinate with Optus for the supply of pits.
- f) The Contractor must engage with Optus directly to undertake all cable hauling and cutovers, and coordinate with Optus as required to ensure the works are undertaken.
- g) The Contractor must coordinate with Optus with regards to the removal and salvaging of any redundant assets, including connection joints, fibre cables and aerial strands, and then remove any redundant assets, that are not otherwise removed by Optus, as required to complete the Works and Temporary Works.

6.2.11 SABRENet

- a) All works undertaken on SABRENet infrastructure must be performed in accordance with the relevant SABRENet specifications.
- b) The Contractor must obtain Approval from SABRENet to undertake any works in relation to SABRENet infrastructure.
- c) When the Contractor has been approved by SABRENet in accordance with the requirements of section 6.2.11b), the Contractor must undertake the installation of conduits and pits including any work outside of the Site that may be required to connect to existing telecommunication services.

7 Completion and Handover

- a) The Contractor must comply with AS 5488 Classification of subsurface utility information, and the respective Utility Service Authority's requirements when preparing the as-constructed drawings.
- b) Where the Utility Service work is not carried out directly by the Utility Service Authority, the Contractor must submit the necessary completion and handover documentation to the respective Utility Service Authority, as required by the Utility Service Authority and include a copy as part of the As-Built Records.
- c) The Contractor must obtain the relevant Utility Service Authority's written acceptance of the completed Utility Service works and include a copy as part of the As-Built Records.

8 Hold Points

Table PC-US1 8-1 details the review period or notification period, and type (documentation or construction quality) for each Hold Point referred to in this Master Specification Part.

Table PC-US1 8-1 Hold Points

Section reference	Hold Point	Documentation or construction quality	Review period or notification period
3.5b)v)	Submission of Contractor's proposal for resolving a conflict between any part of the Works or Temporary Works and an existing in-service Utility Service	Documentation	10 Business Days review
3.5c)ii)	Submission of Contractor's proposal for resolving a conflict between any part of the Works or Temporary Works and an existing decommissioned Utility Service	Documentation	10 Business Days review