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4.0 URD Process and Documentation Requirements

4.1 Process Steps

The process of developing underground distribution facilities in a residential area consists of 10 major steps, which are summarized below. Refer to Appendix A for a Process Flowchart, which illustrates the Developer-ATCO Electric interface, and to the following sections for more detailed information.

Step 1 Initial Contact, Application and Decision to Proceed With URD

The Developer initiates the project by contacting ATCO Electric's CSR (Customer Service Representative). ATCO Electric's CSR will arrange to meet with the Developer to discuss the preliminary information required to initiate ATCO Electric's process. The CSR will:

- Provide the list of preliminary information
- Have the Developer sign the Notice of Disclaimer; and
- Provide the developer with an electronic copy of this Specifications.

Step 2 Preliminary Information

After deciding to proceed with the project, the Developer must provide the following to ATCO Electric's CSR:

- a) Area Structure Plan (see Section 4.2)
- b) compiled survey legal plan (i.e. Single, Multiple Family Dwelling and Apartments)
- c) Apartment building plan
- d) number of lots
- e) loading of lots (100A and 200A service)
- f) proposed project schedule
- g) proposed locations of apartment and/ or commercial services, recreation centers, schools, etc.

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h) proposed lighting requirements

ATCO Electric's CSR will:

- Review the information and, if acceptable, forward a copy to ATCO Electric's Engineering Representative; and
- Arrange a follow-up meeting with the Developer to negotiate and confirm a preliminary project schedule.

ATCO Electric's CSR will initiate a cost estimate for the ATCO Electric provided services and develop an Underground Electrical Distribution Subdivision Service Agreement; this process is beyond the scope of this document.

Once the cost estimate and Underground Electrical Distribution Subdivision Service Agreement are completed, ATCO Electric's CSR will provide to the Developer:

- a) a Service Agreement Cover Letter;
- b) a copy of the Underground Electrical Distribution Subdivision Services Agreement, including the agreed upon preliminary project schedule;
- c) paper or electronic documentation of ATCO Electric's existing distribution facilities in the surrounding area; and
- d) a proposal for additional offsite requirements outside of the tie-in scope (if required).

The Developer must provide to ATCO Electric's CSR:

- a) both signed copies of the Underground Electrical Distribution Subdivision Service Agreement;
- b) proof of insurance; and
- c) acceptance of additional offsite requirements outside of the tie-in scope (if required).



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The Developer is also required to identify its agent(s), (i.e., Consulting Engineer and Contractors) for ATCO Electric's acceptance.

After receiving all the required documents and information from the developer, ATCO Electric's CSR will:

- a) have the Underground Electrical Distribution Subdivision Service Agreement executed by ATCO Electric and return a copy to the Developer;
- b) invoice the developer for the estimated costs to provide ATCO Electric's services as per the Underground Electrical Distribution Subdivision Service Agreement; and
- c) provide the System Planning Study for the development area to the Developer.

Note 1: ATCO Electric will not release Issued For Construction (IFC) drawings to the developer until payment is received for ATCO Electric's services.

Note 2: Subsequent changes to the scope of the project (e.g., design/alignment changes, changes to the number of lots, etc.) may change costs, which will require a re-quote and re-execution of the agreement to reflect changes.

Step 3 Design

Prior to design submission, the Consulting Engineer must contact ATCO Electric's CSR and the Engineering Representative to discuss items including, but not limited to:

- a) the overall planning study for the subdivision;
- b) the number of phases required;

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- c) the normal direction of feed and proposed location of ATCO Electric's switch cubicle requirements
- d) the timelines required for the installation of facilities that are ATCO Electric's responsibility (i.e., source primary feeders, express feeders and switch cubicles); and
- e) the extension of primary facilities outside the developer's boundary to connect to the existing ATCO Electric primary system (within 1.0m).

The Developer and/or its agent(s) can then begin the design process, which involves:

- a) coordinating with other utilities (i.e., gas, communications, cable TV) and/or other affected entities such as pipelines and railways;
- b) obtaining all necessary URWs, crossing agreements, acceptances and permits to allow construction in the appropriate name (see Section 4.3.1): and
- c) requesting switch numbers and Asset IDs for the equipment the Developer will be providing within the subdivision.

Once this is complete, the Developer and/or its agent(s) shall submit the Design Transmittal Form (see Appendix F, Form F.22), along with any supporting documents outlined in Section 4.2.

ATCO Electric's Engineering Representative will either accept the design submission or return it to the Developer and/or its agent(s) with any concerns, deficiencies and/or non-conformances for correction.

The Developer will be responsible for all design review costs.

Note: ATCO Electric will not release IFC drawings to the developer until payment is received for ATCO Electric's services.



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Step 4 Municipal Approval (if required)

Once the final design is accepted and signed off by ATCO Electric's Engineering Representative, ATCO Electric will submit the plans for approval by the Municipal Authority. See Section 4.4.

Upon receipt of Municipal approval, ATCO Electric's CSR will contact the Developer and/or its agent(s) to confirm receipt of Municipal approval.

Step 5 Pre-Construction

The Developer and/or its agent(s) are responsible to arrange a pre-construction meeting prior to any construction activity taking place. With at least ten (10) business days' notice, the Developer must contact the ATCO Electric Construction Representative and Operation Representative to:

- agree upon a time, date and place for the meeting; and
- provide one 1) paper copies and one (1) electronic copy (in DWG or DGN format) of the approved electrical IFC drawings to ATCO Electric's CSR for distribution (see Sections 4.3.2.1)

The Developer and/or its agent(s) are responsible to ensure that the consulting engineer, contractor and the designated representatives from the other shallow utilities are present at the meeting. The proposed site must also be staked as per the approved ATCO Electric design prior to the pre-construction meeting.

During the pre-construction meeting, the consulting engineer, contractor and ATCO Electric's Representatives will:

- a) exchange contact information;
- b) complete a walkthrough of the proposed site to confirm all proposed

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- facility locations and alignments as per the approved design;
- c) discuss and resolve any questions or comments that arise during the meeting;
 - d) agree upon a preliminary construction inspection schedule (to be adjusted as necessary);
 - e) inspect the electrical materials for approval by ATCO Electric's Representative; and
 - f) have the copy of Bill of Sale submitted to ATCO Electric's Representatives

ATCO Electric will make arrangements to deliver to the Developer and/or its agents the cable tags, SLD schematic plates, switch numbers, danger/warning signs, padlocks, ground test tags and asset tags required for installation (see Appendix B, H9).

Step 6 Construction/ Inspection

It is the Developer's responsibility to liaise with ATCO Electric's Representative throughout the construction period for the purpose of coordinating inspections. See Section 7.0 for detailed inspection and testing requirements. Sample forms are provided in Appendix F.

Step 7 Final Inspection after Construction

Once construction is completed, the Developer and/or its agent(s) are responsible to contact ATCO Electric's CSR to schedule a final inspection. Prior to the final inspection, ATCO Electric's CSR will require, at minimum:

- a) a Construction Completion Certification (CCC), authenticated by the Consulting Engineer;
- b) all completed and signed inspection forms and test reports;
- c) a completed Site Cleared of Personnel form and any other applicable forms (see Appendix F, Form F.14); and

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- d) one (1) paper copies of the “red-line” as-built IFC drawings with recorded notes and description of all as-built details of the Developed Distribution Facilities, including Universal Transverse Mercator (UTM) coordinates (see Sections 4.5).

The ATCO Electric Representative and the Developer and/or its agent(s) will conduct a detailed field inspection to either identify any defects, deficiencies and/or non-conformances, or to indicate the project can proceed to acceptance and energization.

Note: Any incomplete, incorrect or revised drawings or documents must be corrected and resubmitted before proceeding to Step 8: Acceptance/Energization.

Step 8 Acceptance/ Energization

Upon satisfactory completion of the Final inspection, all parties are required to sign two (2) copies of the final as-built drawings provided by the Developer and authenticated by the Consulting Engineer (see Section 4.2.9). One (1) copy will be retained by ATCO Electric, and one (1) copy will be returned to the Developer.

Prior to energization, the Developer and/or its agent(s) must provide ATCO Electric’s CSR:

- a) a request for energization (see Appendix F, Form F.13);
- b) one (1) copy of all required URW; easements and pipeline; and roadway and railway crossing agreements transferred to ATCO Electric's name (see Section 4.3.1.1); and
- c) completed asset documentation forms, submitted electronically (see Section 4.3.1.5).



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Once all requirements are met, ATCO Electric's CSR will arrange offsite connection requirements and energization. Additional information may be requested from the Developer and/or its agent(s) before proceeding to energization.

Following successful energization of the system, the ATCO Electric Representative will sign the CCC, indicating acceptance of the Developed Distribution Facilities, and ownership of the assets will be transferred to ATCO Electric (see the Contract for Transfer of Ownership). ATCO Electric is thereafter responsible for all service connections; this is beyond the scope of this document.

Note: If energization fails, the Developer and/or its agent(s) are responsible to correct the deficiency (ies) and to re-submit the necessary documentation before another attempt to energize the system will be made.

See Section 8.0 for further details related to final inspection, acceptance and energization of the Developed Distribution Facilities.

Step 9 Final Record Drawings and Documents

Within thirty (30) days of energization, the Developer and/or its agent(s) must provide ATCO Electric's CSR with a complete package of **final record** documents for ATCO Electric's records. This includes:

- a) two (2) paper copies and one (1) electronic copy (DWG or DGN format) of the final, signed and authenticated as-built drawings, including Universal Transverse Mercator (UTM) coordinates ;
- b) the final, accepted CCC, authenticated by the Consulting Engineer and signed by ATCO Electric's Representative;
- c) the final asset documentation forms;

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- d) all legal documents, including all easements and crossing agreements, registered in ATCO Electric's name; and
- e) the return of the provisional copy of this Specifications Manual.

Step 10 Warranty Period

See the Agreement for warranty details.

Prior to the end of the warranty period, the Developer and/or its agent(s) must submit a Final Acceptance Certificate (FAC) to ATCO Electric. On receipt of the FAC, ATCO Electric will conduct a final acceptance inspection and either accepts the Developed Distribution Facilities as is, releasing the Developer from all warranty obligations, or reject the FAC until the Developer corrects any identified defects, deficiencies or non-conformances (see Section 8.4).

4.2 Documentation Requirements**4.2.1 Electronic Data Submission**

Electronic data submitted to ATCO Electric must be in MicroStation, AutoCAD, PDF or MS Office format (e.g., Excel), unless otherwise specified.

4.2.2 Area Structure Plan

The Developer and/or its agent(s) must supply ATCO Electric's Engineering Representative with a Municipal approved Area Structure Plan or concept plan which outlines all subdivisions, phases and zoning designations within the development area.

This plan provides the basis for designing the primary distribution system, including phase balancing, padmount transformer locations and non-residential loads (i.e., municipal reserves and parks). It also allows integration of the subdivision plans and the overall electrical infrastructure, both within and beyond the development area, and identification of offsite construction requirements, including any necessary system upgrades, loop-feeds, temporary lines, etc.

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4.2.3 Required Design Documents and Drawings

This section provides a detailed description of the files outlined in the Design Transmittal and their requirements. For AutoCAD/MicroStation drawings, a standard Design Drawing Template in DWG format can be found on ATCO Electric's website or downloaded by clicking [HERE](#). The Developer and/or its agent(s) must download the template and use the same symbols and conventions for all AutoCAD/MicroStation drawings. Whichever revision of the ATCO Electric URD specifications are being used for the project must be listed on each and every drawing when they are submitted for review or construction.

4.2.3.1 Issued for Construction (IFC) Drawings

IFC drawings consist of facility maps that are plan view drawings depicting the geographic locations of ATCO Electric facilities within a subdivision and the alignments of electrical facilities and trench in relation to property lines.

Facility maps must be prepared according to the following guidelines:

- a) The standard template must be downloaded from ATCO Electric's website as outlined in Section 4.3.2.
- b) The location of the secondary service drop boxes must be shown in relation to the nearest property line.
- c) The locations of all power cable road crossings must be shown in relation to the property lines on both sides of the roadway.
- d) The locations of all proposed padmount transformers, switch cubicles, street lights, secondary pedestals and ducts must be shown.
- e) Any aerial equipment within or near the proposed subdivision must be shown.

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- f) The owners of other utilities (i.e. cable TV and/or communications) whose facilities occupy joint-use pedestals must be named on the drawings.
- g) All other shallow utility alignments must be noted and include, where applicable, standard trench details; URW cross-sections; detailed drawings road cross-sections; road crossings and any other detail as required; for ATCO Electric's review of the design and construction and to ensure compliance with ATCO Electric's standard alignments and separations.
- h) All driveway locations, water lines, water valves and fire hydrants must be shown.
- i) All roadways (closes, ways, crescents, streets, avenues, trails, etc.) must be identified with the name or number shown on the subdivision's registered plan. If a roadway is not identified by name, it must be identified in relation to a named road (i.e., as the lane, road, etc. east, west, north or south of a named road).
- j) All street light locations must be shown and include the following: all pole and/or standard heights; davit lengths; wattages; luminaire types and manufacturer's information.
- k) See Appendix C, Drawing C.1.2A for an example.

IFC drawings must be authenticated and stamped "Issued for Construction (IFC)". Originals are to be plotted in ink on a 3-mil (0.076mm) vellum base or other high quality paper. IFC drawings must also include a signing block or stamp for ATCO Electric, indicating ATCO Electric's review and acceptance.

Once accepted, the IFC drawings are deemed "final" and essentially "frozen".

4.2.3.2 Single Line Diagrams (SLDs)



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An SLD must be prepared for the development area and included with the design drawings.

ATCO Electric SLDs are primary voltage schematic diagrams indicating the connection of electrical equipment and the phase information within the design area. The SLD must show all padmount transformers, switch cubicles and laterals with an ATCO Electric-designated switch number. Padmount transformers must indicate the kVA rating. Switch cubicles must show the correct configuration as provided by ATCO Electric. The scale of the drawing must be in the range of 1:500 to 1:2000 metric, depending on the size of the subdivision development. The Developer and/or its agent(s) are required to ensure the assigned device numbers are correctly transferred from the SLD to the IFC drawing and equipment.

See Appendix C, Drawing C.1.3 for an example

4.2.3.3 Voltage Drop Calculations

The Developer and/or its agent(s) must submit a copy of the Voltage Drop Calculations using the voltage calculator provided by ATCO Electric. The calculator can be found on ATCO Electric's website or downloaded by clicking [HERE](#).

4.2.3.4 Street Light Study File

An original study file shall be sent to ATCO Electric's Engineering Representative. The files should be in AGI format for AGI-32 users and PDF format for non AGI-32 users.

4.2.3.5 Street Light Study Results

In the Street Light Study Results, tables for Luminaire Schedule and Calculation Summary, including each calculation grid, shall be clearly documented and authenticated. An example is shown in Appendix C, Document C.1.5.

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4.2.3.6 URWs, Easements and Crossing Agreements

Within the Municipality, all distribution equipment (with the possible exception of switch cubicles) is located within the Municipality's URW on Municipal land. As such, properly-executed URW agreements/plans are required to locate facilities on these properties. Additionally, separate agreements are required to cross oil or gas pipelines and railway lines or roadways, and to locate switch cubicles on private property: These agreements should be registered as follows:

- a) Unregistered crossings (e.g., crossings located in the field via Alberta One-Call): the agreement shall be administered in the Developer's name during construction and transferred to ATCO Electric's name prior to acceptance.
- b) Pipeline crossings: the agreement shall be registered in the Developer's name during construction and transferred to ATCO Electric's name prior to acceptance.
- c) Railway crossings: the agreement shall be registered in ATCO Electric's name.
- d) Switch cubicle easements: the agreement shall be registered in ATCO Electric's name. See Appendix F, Form F.1 for a blank ATCO Electric Utility Right-of-Way form.
- e) Transformer URW: the agreement shall be registered in ATCO Electric's name. The following easements are required if the transformer is not in ATCO Electric's URW: 3m x 3m easement for single phase transformer and 5m x 5m for three phase transformer. (ATCO Electric reserves the right to ask for larger easements in unique circumstances)

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- f) For additional transformer URW outside of ATCO Electric's 2.5m URW in Bare Land Development, extend the URW 1.5m x 3.0m to accommodate the transformer. See Appendix F, Form F1 for a blank URW form.

When an agreement is initially administered in the Developer's name, the Developer and/or its agent(s) are responsible for obtaining written approval from the grantor stating that the agreement can be transferred to ATCO Electric.

The Developer bears full responsibility for meeting the conditions of all crossing agreements, including any extra costs, damage claims or insurance costs related to the installation.

All agreements must be executed and submitted to ATCO Electric's CSR:

- a) with the design documents (Step 3);
- b) prior to energization (Step 8); and
- c) within thirty (30) days post-energization with the final record drawings and documents (Step 9). At this point, all crossing agreements and easements must be registered in ATCO Electric's name and complete with any attachments, conditions or schedules and engineering drawings or construction details.

4.2.3.7 Asset Documentation Form

The Developer and/or its agent(s) are responsible to request switch numbers and Asset IDs from ATCO Electric for all the padmount transformers, pedestal boxes, etc. that are identified in the Asset Documentation Form (See Appendix F. Form F.2). The Developer and/or its agent(s) must download and fill in the Asset Documentation Form and ensure the assigned device numbers are correctly transferred to the IFC

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drawing and equipment. The Asset Documentation Form can be found on ATCO Electric's website or downloaded by clicking [HERE](#).

Note: Asset IDs refer to individual location rather than individual equipment. For example, a pedestal box tied to a streetlight should only have one Asset ID.

4.2.4 Municipal Approval (If Required)

A copy of the design package will be sent for municipal approval after it has been accepted by ATCO Electric's Engineering Representative. On receipt of municipal approval, ATCO Electric's CSR will contact the Developer and/or its agent(s) to confirm the receipt of Municipal approval (Step 4)

4.2.5 As-Built Drawings and Documents

The Developer and/or its agent(s) must submit to ATCO Electric's CSR as-built drawings, including schematics, indicating in **red** all changes and the dimensioning of all alignments and/or offsets in accordance with Section 3.0 design guidelines and the timing requirements identified in Steps 7, 8 and 9.

The drawings must be on vellum or other high quality paper and authenticated by a Registered Professional Engineer (i.e., the Consulting Engineer).

The as-built documents **must** contain the following information, as surveyed by a Registered Surveyor and certified by the Consulting Engineer:

- a) alignment of all trenches, in relation to property lines "boxed", and deviations from design;
- b) location of all switch cubicles, transformer pads, street light bases and service stubs in relation to property lines and/or found iron pins,



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- complete with Universal Transverse Mercator (UTM) coordinates (longitudinal and lateral dimensions);
- c) location of all road crossings in relation to property lines and/or found iron pins (lateral dimensions only) for both sides of the roadway;
 - d) service cable and/or stub locations at each individual serviced lot in relation to property lines (lateral dimensions only); and
 - e) Special service stub locations, where applicable, in relation to property lines, complete with Universal Transverse Mercator (UTM) coordinates (longitudinal and lateral dimensions).

4.2.6 Civic Addresses and Site IDs

The Developer and/or its agent(s) must provide ATCO Electric's CSR with a list of all the approved civic addresses and corresponding lots within the subdivision at least four (4) weeks before energization. Each pre-serviced lot requiring electrical service must have an address to be assigned a Site ID.

As a "Wires Service Provider" (WSP), ATCO Electric has a regulatory obligation to issue and maintain a Site ID number for each lot and/or site requiring electrical service. This Site ID number must be tied to an approved civic address which the customer is required to provide to their "Retailer" of choice when enrolling their site for connection.

Note: No subdivision will be energized prior to the receipt of civic addresses.