

Exhibit X

Submittals, Reviews and Hold Points

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1. SUBMITTALS

1.1 Summary

- A. This Section includes definitions, descriptions, transmittal, and review of submittals.
- B. Related Work Specified Elsewhere:
 - 1. Project meetings, schedules, and reports: Exhibit M of the Contract.

1.2 General Information

- A. Definitions:
 - 1. Select shop drawings (meaning equipment and fabrication requirements for construction, inclusive of arrangement, sub drawings etc. provided inclusive of field requirements for Owner use regarding future operations and maintenance), product data, and Samples are Technical Submittals prepared by EPC Contractor, Subcontractor, manufacturer, or other Persons and submitted by EPC Contractor to Owner as a basis for approval or for Information Only basis of the use of Equipment and Materials proposed for incorporation in the Work or needed to describe installation, operation, maintenance, or technical properties, as specified in each Division of the Specifications.
 - a. Shop drawings include custom prepared data of all types including drawings, diagrams, performance curves, material schedules, templates, instructions, and similar information not in standard printed form applicable to other projects.
 - b. Product data includes standard printed information on materials, products, and systems; not custom prepared for this Work, other than the designation of selections from available choices.
 - c. Samples include both fabricated and un-fabricated physical examples of materials, products, and Work, as applicable; both as complete units and as smaller portions of units of Work; either for limited visual inspection or where indicated for more detailed testing and analysis. Mockups are a special form of samples which are too large to be handled in the specified manner for transmittal of sample Submittals.
 - 2. Informational submittals are those technical reports, administrative submittals, certificates and guarantees not defined as shop drawings, product data, or samples.

- a. Technical reports include laboratory reports, tests, technical procedures, technical records, and EPC Contractor's design analysis.
 - b. Administrative submittals are those nontechnical submittals required by the Contract or deemed necessary for administrative records. These submittals include maintenance agreements, bonds, project photographs, physical work records, statements of applicability, copies of industry standards, project record data, schedules, security/protection/safety data, and similar type submittals.
 - c. Certificates and guarantees are those submittals on Equipment and Materials where a written certificate or guarantee from the manufacturer or EPC Contractor is called for in the Technical Specifications.
3. Refer to Sections 1.3 and 1.4 of this Part for detailed lists of submittals and specific requirements.

B. Quality Requirements:

1. Submittals such as drawings and data submitted shall be of suitable quality for legibility and reproduction purposes. Every pertinent line, character, and letter shall be clearly legible. Drawings such as reproducibles shall be useable for further reproduction to yield legible hard copy.
2. Documents submitted that do not conform to the specified requirements shall be subject to rejection by Owner, and upon request, EPC Contractor shall resubmit conforming documents. If conforming submittals cannot be obtained, such documents shall be retraced, reduced, or photographically restored as may be necessary to meet such requirements. EPC Contractor's or its Subcontractors' failure to initially satisfy the legibility quality requirements will not relieve EPC Contractor or its Subcontractors from its obligations.

C. Language and Dimensions:

- a. All words and dimensional units shall be in the English language.
- b. Metric dimensional unit equivalents may be stated in addition to English units. However, English units of measurement shall prevail.
- c. All words shall be in the English language.

D. Submittal Completeness:

1. Submittals shall be complete with respect to dimensions, design criteria, materials of construction, and other information specified to enable Owner to review the information effectively.
2. Where standard drawings are furnished which cover a number of variations of the general class of equipment, each drawing shall be annotated to indicate exactly which parts of the drawing apply to the equipment being furnished. Use hatch marks to indicate variations which do not apply to the submittal. The use of "highlighting markers" will not be an acceptable means of annotating submittals. Such annotation shall also include proper identification of the submittal permanently attached to the drawing.
3. Reproduction or copies of Contract drawings or portions thereof will not be accepted as complete fabrication or erection drawings, but will be acceptable when used by EPC Contractor as a drawing upon which to indicate information on erection or to identify detail drawing references. Whenever the Contract drawings are revised to show additional EPC Contractor's information, the title block shall be replaced with EPC Contractor's title block, and the professional seal shall be removed from the drawing.

E. Form of Submittals:

1. Submittals and other project documents shall be transmitted in electronic format as specified.
 - a. Electronic format shall include Microsoft Office formats, Adobe *PDF format, Primavera, or AutoCAD.
 - b. Selected submittals may be provided in paper ("hardcopy") copies with advance approval of Owner, and using procedures specified herein.
 - c. Equipment instruction books and operating manuals shall be provided in paper copies in addition to specified electronic format.
2. Electronic Format using Owner's Document Management System (DMS):
 - a. Scanned submittals and documents are not acceptable. Transmit submittal and project documents in:
 - i. Adobe *PDF files created directly from native electronic format, or
 - ii. Owner approved equal.

- iii. Electronic Submittals in .TIF format are permitted only with specific Owner approval.
 - b. Each drawing shall be submitted with an electronic file name that is equivalent to the drawing number, and any resubmitted drawing shall use the same file name as the original file name each time. No spaces or periods (except in the file extension) are allowed in the file name.
 - c. EPC Contractor submittals shall be accompanied with a completed transmittal form. Submittals that are not accompanied with an approved transmittal form will not be accepted and will be returned to EPC Contractor.
 - d. All EPC Contractor transmittal forms submitted to Owner shall be in the form supplied and shall contain as a minimum the following information:
 - i. EPC Contractor's Name.
 - ii. Project number.
 - iii. Filename.
 - iv. Description of the information contained in the specific submittal.
 - v. Revision number.
 - vi. Submittal type.
 - vii. Date of submittal.
 - e. Nonconforming submittals are subject to rejection.
 3. Owner's review comments will be provided electronically in Adobe *PDF format.
 4. Digital delivery media for transmittal of electronic documents and submittals shall be through Owner's DMS in accordance with the procedures specified herein, as addressed below. See Section 3.0 below for more details.

1.3 Technical Submittals

- A. Items shall include but not be limited to, the following:
 1. Manufacturer's specifications.
 2. Catalogs, or parts thereof, of manufactured equipment.

3. Shop fabrication and erection drawings.
4. General outline drawings of equipment showing overall dimensions, location of major components, weights, and location of required building openings and floor plates.
5. Detailed equipment installation drawings, showing foundation details, anchor bolt sizes and locations, base plate sizes, location of Owner's connections, grounding pads and all clearances required for erection, operation, and disassembly for maintenance.
6. Schematic diagrams for electrical items, showing external connections, terminal block numbers, internal wiring diagrams, and one-line diagrams.
7. Bills of material and spare parts list.
8. Instruction books and operating manuals.
9. Material lists or schedules.
10. Performance tests on equipment by manufacturers.
11. Samples and color charts.
12. All drawings, catalogs, or parts thereof, manufacturer's specifications and data, samples, instructions, and other information specified or necessary:
 - a. To determine that Equipment and Materials conform to the design concept and comply with intent of the Contract.
 - b. For proper erection, installation, operation, and maintenance of Equipment and Materials which will be reviewed for general content but not for basic details.
 - c. To determine what supports, anchorages, structural details, connections, and services are required for Equipment and Materials, and effects on contiguous or related structures, Equipment and Materials.

B. Schedule of Submittals:

1. Prepare a schedule for submission of all Submittals specified or necessary for approval of the use of Equipment and Materials proposed for incorporation in the Work or needed for proper installation, operation, or maintenance. Submit the schedule with the Work progress schedule. Schedule submission of all submittals to permit review, fabrication, and delivery in time so as to not cause

delay in the Work of Owner or its Subcontractors or any other Person as described herein.

2. In establishing schedule for submittals, allow 10 business days in Owner's office for reviewing original submittals and 5 business days in Owner's office for reviewing re-submittals.
3. Submittals requiring revisions will be updated and reissued within 15 days after receipt of Owner's review notations.
4. The schedule shall indicate anticipated dates of original submission for each item.
5. Schedule all submittals (shop drawings, product data, and samples), not listed in Section 2 below, required prior to fabrication or manufacture for submission as necessary to meet Contract delivery requirements.

C. Transmittal of Submittals:

1. All submittals (shop drawings, product data, and samples) for Equipment and Materials furnished by EPC Contractor, Subcontractors, manufacturers, and other Persons shall be submitted to Owner thru the EPC Contractor.
 - a. Reports and letters shall be 8.5"x11" unless containing drawings requiring 11"x17" for legibility.
 - b. Shop drawings shall be D size and submitted in electronic form.
2. Transmit all Submittals to Owner as follows:
 - a. Mark each Submittal by project name and number, Contract title and number. Include in the transmittal the drawing number and title, sheet number (if applicable), revision letter, and electronic file name (if applicable).
 - b. Direct specific attention in writing, or on revised submittals, to changes other than the modifications called for on previous submittals. Previously approved submittals transmitted for final distribution will not be further reviewed and are not to be revised. If errors are discovered during manufacture or fabrication, correct the submittal and resubmit.
 - c. Following completion of the Work and prior to final payment, furnish record documents and approved samples and shop drawings as required by the Contract necessary to indicate "as constructed" conditions, including field modifications. Furnish additional copies for insertion in

equipment instruction books and operating manuals as required. All such copies shall be clearly marked "PROJECT RECORD."

- d. Submit a final record copy of the master field drawing list which shall indicate the final revision status of each drawing on the list.
- e. Accompany submittal with transmittal letter containing date, contract number and title, EPC Contractor's name, address and telephone number, number and title of each record document and signature of EPC Contractor's authorized representative.

3. Quantity Requirements:

- a. Except as otherwise specified, transmit all shop drawings in the following quantities for Owner's use. Additional copies shall also be provided to the Owner as required by the Owner:

- i. Initial Submittal:

- Electronic - One copy to Owner.

- ii. Re-submittals:

- Electronic - One copy to Owner.

- iii. Submittal for final distribution:

- Electronic - One copy to Owner.

- iv. As-constructed documents (as defined by the Contract):

- Electronic - One copy to Owner.

- b. Transmit Submittals of product data as follows:

- i. Initial Submittal:

- Electronic - One copy to Owner.

- ii. Re-submittals:

- Electronic - One copy to Owner.

- iii. Submittal for final distribution:

- Electronic - One copy to Owner.

- c. Transmit Submittals of material samples, color charts, and similar items as follows:
 - i. Initial Submittal - One to Owner.
 - ii. Re-submittal - One to Owner.
 - iii. Upon approval, no sample(s) will be returned to EPC Contractor.

- d. Transmit submittals of equipment instruction books and operating manuals as follows:
 - i. Initial Submittal:

Electronic - One copy to Owner.
 - ii. Re-submittals:

Electronic - One copy to Owner.
 - iii. Submittal for Final Distribution - Six paper copies and one electronic copy to Owner.

- e. When applicable submittals have been updated to "as-constructed" conditions as required in Contract, transmit to Owner in electronic format.

- f. Owner may copy and use for internal operations and staff training purposes any and all document submittals required by this Contract and approved for final distribution at no additional cost to Owner.

D. Owner's Review:

- 1. Owner may review submittals for indications of Work or material deficiencies.
- 2. Owner will respond to the EPC Contractor on submittals which indicate there may be a Work or material deficiency.
- 3. EPC Contractor shall respond promptly to Owner's comments.
- 4. Owner's review of shop drawings, product data, or samples will not relieve EPC Contractor of responsibility for any deviation from requirements of the Agreement unless EPC Contractor has in writing called Owner's attention to such deviation at the time of submission, and Owner has given written concurrence in and

approval of the specific deviation. Approval by Owner shall not relieve EPC Contractor from responsibility for errors or omissions in submittals.

E. Instruction Books and Operating Manuals

1. See Exhibit V for details.

F. Samples:

1. Office samples shall be of sufficient size and quantity to clearly illustrate the following:
 - a. Functional characteristics of the product, with integrally related parts and attachment devices.
 - b. Full range of color, texture, and pattern.
 - c. Material, manufacturer, pertinent catalog number, and intended use.

1.4 Informational Submittals

A. Informational submittals are comprised of technical reports, administrative submittals, and guarantees which relate to the Work, but do not require Owner approval prior to proceeding with the Work. Informational submittals include but are not limited to:

1. Test reports.
2. Certification on materials:
3. Steel mill tests.
4. Shipping and/or packing lists.
5. Job progress schedules.
6. Equipment and Materials delivery schedules.
7. Warranties and guarantees.

B. Transmittal of Informational Submittals:

1. All informational submittals furnished by EPC Contractor, Subcontractors, manufacturers, and other Persons shall be submitted to Owner unless otherwise specified.

- a. Identify each informational submittal by project name and number, Contract title and number, and the Technical Specification Section and Article numbers marked thereon or in the letter of transmittal. Unidentifiable submittals will be returned for proper identification.
 - b. At the time of each submission, call to attention of Owner in the transmittal any deviations from requirements of the Contract.
2. Quantity Requirements:
- a. Technical reports and administrative submittals except as otherwise specified:
 - i. Electronic: One to Owner.
3. Test Reports:
- a. The party specified responsible for testing or inspection as outlined in the Contract shall in each case, unless otherwise specified, arrange for the testing laboratory or reporting agency to distribute test reports as follows:
 - i. Owner: One copy.
 - ii. EPC Contactor: One copy.
- C. Owner's Review:
1. Owner may review informational submittals for indications of Work or material deficiencies.
 2. Owner will respond to the EPC Contractor on those informational submittals which indicate Work or material deficiency.
 3. EPC Contractors shall respond promptly to any identified deficiencies.

2. SUBMITTAL SCHEDULE & TECHNICAL DOCS

2.1 Submittal Schedule

Refer to Exhibit X, Table 1

3. OWNER ELECTRONIC SUBMITTAL SPECIFICATIONS

For LG&E / KU Specifications for Electronic Submittals, see the following documents supplied along with other reference documents in Exhibit A Appendix C – Ghent Reference Documents & Drawings:

1. LKE_DMS_03-12-Specs_for_Electronic_Submittal_Engineered_dwgs_rev_09_A-1b
2. LKE_TL_03-12-Specs_for_Electronic_Submittal_Vendor_docs_rev_09_A-1b
3. LKE_CT_03-12-Cable_Tab_Spec_Document_Rev_4_A-1b

4. HOLD POINTS

The following list of activities shall will be treated as Hold Points:

- A. Shipment of Ductwork
- B. Flow Model Review
- C. Equipment Factory Acceptance Test Prior To Shipment
- D.. Backfill Placement Compaction Testing
- E. Rebar Placement
- F. Concrete Placement
- G. Insulation Placement over Ductwork (Weld Inspections)
- H. Paint Primer and Final Coat.
- I Embedded Grounding and Conduits (Prior to Concrete Pour)
- J. Electrical Devices (Transformers, Switchgear, MCC, Controls) Prior to Energization