Public Works and Government Services Canada | Travaux publics et Services gouvernementaux Canada

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Architectural & Engineering Services

TERMS OF REFERENCE

Willow Cree Healing Lodge - B04 Healthcare Redevelopment

For:

Correctional Service Canada (CSC)

Willow Cree Healing Lodge (WCHL)

Duck Lake, Saskatchewan

October 29, 2019

www.pwgsc-tpsgc.gc.ca

TABLE OF CONTENTS:

1 PROJECT DESCRIPTION

1.1 GENERAL

1.1.1 PURPOSE OF THE TERMS OF REFERENCE (TOR)

.1 Public Works & Government Services Canada (PWGSC) requires the services of an architectural firm, acting as the prime consultant with a multi-disciplinary team of sub-consultants for the delivery of services required for this project.

1.1.2 THE TOR AND THE DOING BUSINESS WITH PWGSC DOCUMENTATION AND DELIVERABLES MANUAL

.1 The TOR describes the project specific requirements, services and deliverables while the *Doing Business with PWGSC Documentation and Deliverables Manual* outlines the standards and procedures for construction documents, cost estimating and project scheduling.

.2 Document precedence:

.1 In the event of a document conflict the TOR takes precedence.

1.1.3 PROJECT INFORMATION

Project Information	
Project Title:	Willow Cree Healing Lodge - B04 Healthcare Redevelopment
Project Address:	Willow Cree Healing Lodge (WCHL) Duck Lake, Saskatchewan
PWGSC Project Number:	R.105756
PWGSC Departmental Representative:	Jean Philippe Blouin

1.2 BACKGROUND INFORMATION

1.2.1 USER DEPARTMENT

.1 The User Department referred to throughout the TOR is Correctional Services of Canada (CSC)

.2 CSC, as part of the criminal justice system and respecting the rule of law, contributes to public safety by actively encouraging and assisting offenders to become law-abiding citizens, while exercising reasonable, safe, secure and humane control.

.3 CSC is the federal government agency responsible for administering sentences of a term of two years or more, as imposed by the courts. CSC is responsible for managing institutions of various security levels and supervising offenders under conditional release in the community. The Prairie Region of Correctional Service Canada operates sites ranging from community correctional centers, healing lodges, and minimum, medium and maximum security facilities across Alberta, Saskatchewan and Manitoba.

1.2.2 USER DEPARTMENT'S NEED

.1 The building B04 HealthCare Centre requires improvements to address:
  .1 Interior and exterior barrier-free accessibility;
  .2 Healthcare and Pharmacy areas such as;
    .1 Privacy within the clinical advising area;
    .2 Inadequate waiting area;
    .3 Poor functionality in areas for the storage / dispensing of pharmaceuticals and minor (clean, not sterile) medical procedures/treatments.

1.2.3 EXISTING CONDITIONS

.1 Willow Cree Healing Lodge (WCHL):
  .1 Opened in 2002;
  .2 The plan and design respects First Nation's principles and symbols;
  .3 Comprised of five main buildings, ten houses (each house has beds for eight inmates), a Healing Lodge, Elder's Lodge, a family visit unit, several utility structures and a temporary garage;
  .4 Minimum Security Institution;
    .1 Inmates housed at WCHL are at the end of their sentences and are preparing to be released back into society;
  .5 Focus on the healing process and personal development of the inmates;
  .6 No perimeter fence and does not impose physical restrictions to movement on its grounds and from buildings.
.2 WCHL Building B04:
  .1 The proposed renovation is within a single storey wood frame building;
  .2 The proposed expansion/re-allocation is to space previously used as a classroom instruction, relocating offices for two parole officers.
  .3 Directly inside the entrance is the proposed waiting area, adjacent to an existing housekeeping closet.

1.2.4 CHALLENGES AND CONSTRAINTS

.1 All site visits must be arranged through the Departmental Representative.
  .1 All access throughout the institution will be escorted by CSC.
  .2 Clearances will be provided through application to the Willow Cree Healing Lodge using forms provided for local security clearance. Forms will be provided by the Departmental Representative.
.2 Construction on the project site will be performed during the full operation of the facilities.
  .1 Project phasing must be planned for minimal disruptions to the daily operation of the facilities.
  .2 Swing space planning will be required.
.3 Work will be carried out during normal working hours during full operation of the Institution.

.4 Incorporating security requirements for the control of movement and access to the services by the inmates.

1.3 OUTLINE OF WORK

1.3.1 GENERAL

.1 The project requires design consulting to complete the interior renovation involving approximately 135 m² of Healthcare and Corrections personnel offices facilities, to be undertaken in Building B04 of Willow Cree Healing Lodge in Duck Lake, Saskatchewan.

.1 Areas affected by the renovation are outlined in the existing floor plan in Appendix A.

1.3.2 RENOVATION WORK

.1 Expand health centre functions using two (adjacent) Parole Officer offices and redevelop the expanded floor area to improve mobility/accessibility (e.g. in the event of stretcher use).

.1 Relocate the Parole Officer offices and an office for the Program Supervisor to adjacent spaces within the building, previously used for classroom instruction.

.2 Redevelop the medical advising area, to address improved confidentiality of patient communication and documentation.

.1 Includes 2-workstations.

.3 Improve the management, storage and dispensing of medication and medical supplies.

.4 Redevelop functional procedures for improved separation with an additional sink / wet area to provide distinct clean and dirty procedures.

.5 Redevelop the entrance area to provide a patient waiting area.

.6 Redevelop/expand the exterior access pathway (currently constricted by the location of a column relative to the entrance door) to improve accessibility.

1.4 OBJECTIVES

1.4.1 GENERAL GOALS

.1 Fully integrate and optimize the performance of components and systems.

.2 Provide an integrated design and construction process involving:

.1 Interdisciplinary collaboration, including all stakeholders as identified, design professionals, contractors and authorities having jurisdiction;

.2 Agreed upon design principles and decision making protocols.

.3 Consider the User Department’s changing needs and future uses to create solutions that are flexible and that are able to evolve over time.

.4 Integrate innovative universal design and accessibility.

.5 Provide a design that is efficient and cost effective considering both initial cost and operation & maintenance costs over a life cycle of 25 years.

1.4.2 ENVIRONMENTAL/SUSTAINABLE DEVELOPMENT

.1 Apply sustainable design principles for the Work. Consider, as part of "green construction" building materials, methods and practices, the following:
  .1 Low toxicity including low Volatile Organic Compound (VOC) materials:
  .2 Energy efficient materials;
  .3 Durable materials capable of being reused to the greatest extent possible.

1.4.3 PROJECT DELIVERY

.1 Project delivery will be Design Bid Build.
.2 Provide fully integrated and coordinated professional and design services for the delivery of a project in accordance with the requirements in the TOR and as contained herein.
.3 Obtain written authorization from the Departmental Representative before proceeding from one project milestone to another.
.4 Coordinate all services with the Departmental Representative.
.5 Establish and maintain a Project Management Plan.
.6 Maintain continuity of key personnel and a dedicated working team for the life of the project.
.7 Deliver the project to be within:
  .1 The construction Budget established during preliminary project approval, and;
  .2 The Project Milestones in this TOR.

1.5 SUMMARY OF SERVICES AND SPECIALTIES

1.5.1 GENERAL SERVICES

.1 The Consultant is to provide a **fixed fee** proposal to complete the scope.
.2 Provide a full consulting team including the following consultant services and specialties:
  .1 Professional/Registered Architectural Services;
  .2 Professional/Registered Engineering Services:
    .1 Mechanical Engineering;
    .2 Electrical Engineering;
      .1 Witnessing fire alarm testing as required by Authorities Having Jurisdiction, and;
      .2 Security System specialist;
  .3 Commissioning specialist;
    .1 Consulting team members may function as the Commissioning Authority;
  .4 Cost Estimating specialist;
    .1 Certified by the Canadian Institute of Quantity Surveyors.

1.6 SCHEDULE

1.6.1 GENERAL

.1 Deliver the project to be ready for occupancy in accordance with the project milestone listing identified below.

.2 Prepare a Project Schedule in accordance with the milestone list.

1.6.2 ANTICIPATED MILESTONE DATES

Project Phase	Milestone Completion Date	Number of Weeks
Consultant Contract Award	TBD	
Pre-Design	TBD	3 weeks
PWGSC Quality Assurance Review	TBD	2 weeks
Schematic Design	TBD	4 weeks
PWGSC Quality Assurance Review	TBD	2 weeks
Design Development	TBD	4 weeks
PWGSC Quality Assurance Review	TBD	2 weeks
99% Construction Documents	TBD	4 weeks
PWGSC Quality Assurance Review	TBD	2 weeks
Tender Documents	TBD	2 weeks
Construction Tender Award	TBD	12 weeks
Substantial Performance (including: Commissioning Completion and Interim Commissioning Report)	TBD	24 weeks
Final Completion (including: Standard Operating Procedures; Final Inspection and Acceptance)	TBD	2 weeks
In-Service (i.e. occupancy by the User Departments)	TBD	
Post Construction (including: Final Certificate of Completion; Record Documents; O&M Manual; Commissioning Manual and Standard Operating Manual; Warranty Deficiency List)	TBD	4 weeks
Post Construction (including: Final Warranty Review Report; Final Commissioning Manual and Standard Operating Manual)	TBD	36 weeks

1.7 COST

1.7.1 ESTIMATED CONSTRUCTION COST

.1 The Estimated Construction Cost is anticipated at this time to be $180,000.

.1 The Estimated Construction Cost does not include project management fees, administrative costs, consultant fees, risk allowance, escalation or GST and is in 'Budget-Year (Current)' dollars.

1.8 EXISTING DOCUMENTATION

1.8.1 AVAILABLE FOR THE CONSULTANT

.1 Limited as-built drawings and Operation & Maintenance Manuals will be available at the start of the Pre-Design phase. The Consultant will be responsible for verifying the accuracy of the information incorporated into the design.

.2 Building drawings are in AutoCAD (dwg) format.

.1 The drawings will require modifications by the Consultant.

.2 The drawings will require the Consultant's verification of all critical dimensions and features pertaining to the renovation.

1.8.2 DISCLAIMER

.1 Reference information will be available in the language in which it is written.

.2 The documentation may be unreliable and is offered, "as is" for the information of the Consultant.

1.9 CODES, ACTS, STANDARDS, REGULATIONS

1.9.1 GENERAL

.1 In addition to Provincial/Territorial and Municipal Acts, Codes, By-laws and Regulations appropriate to the area of concern, the following Codes, Acts, Standards and Guidelines are applicable to this project (in the event of a conflict between codes, the more stringent shall take precedence):

.1 NRC National Building Code of Canada 2015;

.2 NRC National Fire Code of Canada 2015;

.3 NRC National Plumbing Code of Canada 2015;

.4 CSA/B561-18, Accessible Design for the Built Environment;

.5 The Canada Labour Code (CLC);

.6 The Canada Occupational Health and Safety Regulations;

.7 CSC Technical Criteria for Correctional Institutions, 2015;

.8 CSC Accommodation Guidelines, 2014;

.1 Includes CSA Z8000, Canadian Health Facilities, Section 9.1, Ambulatory Care;

.9 CSA-Z317.13-17, Infection control during construction, renovation, and maintenance of health care facilities.

.2 At the start-up meeting the Departmental Representative will provide additional codes and standards unique and not published by the Federal Government.

.3 The Authority Having Jurisdiction (AHJ) on this project is the CSC Departmental Fire Protection Coordinator as identified in the Treasury Board of Canada Secretariat Fire Protection Standard.

.4 Identify, analyse and design the project in accordance with the requirements of all AHJs and all applicable Codes, Acts, Standards and Guidelines and Legislation.

2 REQUIRED SERVICES

2.1 GENERAL REQUIREMENTS

2.1.1 SERVICES

.1 Commissioning.
.2 Cost Management.
.3 Pre-Design.
.4 Schematic Design.
.5 Construction Documents.
.6 Tendering (to assist the Departmental Representative).
.7 Construction Support.
.8 Post Construction.

2.2 PROJECT REVIEW AND ACCEPTANCE

2.2.1 GENERAL

.1 Comply with all applicable laws and regulatory requirements as required by the General Conditions of the Contract.

2.2.2 QUALITY ASSURANCE REVIEWS, ACCEPTANCE AND PRESENTATIONS

.1 Each submission at each Project Milestone is subject to reviews by the Departmental Representative and other project stakeholders.
.2 The federal government generally defers to provincial and municipal authorities for specific regulations, standards and inspections but in areas of conflict, the more stringent authority prevails.
.3 At each stage:
  .1 Review submissions to be posted on FTP site (e.g. AutoDesk BIM 360 Docs) in searchable PDF format;
  .2 Expected turnaround time for each review is ten (10) working days;
  .3 The Consultant Team will receive review comments in the form of an editable MS Word document or MS Excel document;
    .1 Provide a single coordinated written response within five (5) working days of receiving review comments;
    .2 The purpose of this review is information and awareness for PWGSC and not quality control for the Consultants. The Consultant Team must employ their own quality control program and remain fully responsible for the design and services provided.

2.3 COMMISSIONING SERVICE

2.3.1 GENERAL

.1 The purpose of the Commissioning Service is to certify that a fully functioning project, meeting the Owner's Project Requirements (OPR), is delivered to the User Department through appropriate design and construction verifications.

.2 The Commissioning Service commences with the Pre-Design Service through the Construction Document Service and into the Post Construction Service.

.3 Participation in commissioning is based on the project scope, complexity and risk.

.4 Provide commissioning service on the basis of CAN/CSA Z320-11.

2.3.2 SCOPE AND ACTIVITIES

.1 Refer to Pre-Design to Post-Construction Services for Commissioning scope and activities.

2.3.3 DELIVERABLES

.1 Refer to Pre-Design to Post-Construction Services for commissioning deliverables.

2.4 COST MANAGEMENT SERVICE

2.4.1 GENERAL

.1 Include the following cost management services in addition to the cost estimating requirements of the *Doing Business with PWGSC Manual*:

.1 Cost estimates and consultant billing are also required to be broken down by fiscal year (i.e. April 1 - March 31);

.2 Include a cost breakdown for commissioning activities in Class A, B and C cost estimates.

2.5 PRE-DESIGN SERVICE

2.5.1 GENERAL

.1 The Pre-Design Report demonstrates the Consultant readiness to commence the Work and consolidate the scope of the design.

.2 The Pre-Design Report will be utilized as the benchmark project control document to monitor progress of the project.

.3 Pre-Design is comprised of the following activities:

.1 Assess existing site and conditions;

.2 Review all existing documents and reports;

.3 Confirm and document the Owner Project Requirements (OPR);

.4 Conduct a building code analysis to support the design requirements;

.5 Identify commissioning requirements;

.6 Confirm and document functional requirements.

2.5.2 SCOPE AND ACTIVITIES

.1 Participate in meetings, prepare minutes and decision logs.

.2 Visit the project site, analyse site conditions and document any conditions that will impact project delivery and design.

.3 Review:

.1 Existing reports, documents and material related to the project;

.2 Information available on the existing building and site conditions in the area of the main entrance (including relevant subsurface and above grade services);

.1 Document any variance between provided documents and existing site conditions;

.1 Revise record drawings as required.

.4 Confirm:

.1 Project specific goals and objectives;

.2 All the program information and project requirements to identify any conflicts or potential additional Work and indicate the impact on project scope, schedule and costs;

.3 Requirements for Information Services and security requirements to confirm design standards;

.1 Specifications for requirements will be provided by CSC;

.4 All additional information that will be required to deliver the project;

.5 Preliminary summaries of regulatory and statutory requirements, AHJ, codes, regulations and standards; and

.6 Proposed strategy for the project to minimize environmental impacts consistent with the project objectives and economic constraints.

.5 Report on adjustments required to the Budget and schedule, including allowances for reviews and approvals for each stage of the project life cycle.

.6 Develop the Owner Project Requirements (OPR). Refer to Definition.

.7 Initiate the Commissioning (Cx) Process;

.1 Confirm the extent of Cx requirements;

.2 Develop a project specific design phase Commissioning Plan. Refer to Definition.

.8 On the basis of the Departmental Representative's information, meet with the User Department to develop the functional requirements.

.1 Prepare a Level 2 Program. Refer to the Functional Program Definition.

.1 Due to limited existing space, identify functional requirements/areas with the highest priority.

2.5.3 DELIVERABLES

.1 Pre-Design Report documenting the Pre-Design Scope and Activities.

.1 Revise as required.

.2 Provide one (1) electronic PDF copy on FTP site.

2.6 SCHEMATIC DESIGN SERVICE

2.6.1 GENERAL

.1 Schematic Design process:

.1 Explore, develop and compare design options for increased program and space efficiencies, operational effectiveness, and potential areas of optimization, performance verification, preliminary cost analysis and alternatives.

.2 Provide and maintain an interdisciplinary documentation format and narrative level of detail consist with the Basis of Design (BOD) – refer to Definitions for further detail.

.3 Present a Schematic Design Report for:

.1 PWGSC Quality Assurance (QA) review, and;

.2 Departmental Representative sign-off and approval to proceed to Design Development Services.

2.6.2 SCOPE & ACTIVITIES

.1 Participate in meetings, prepare agenda, minutes and decision logs.

.2 Prepare a Schematic Design Report documenting the review and analysis of a minimum of two viable and distinct architectural options.

.1 Develop, for the Departmental Representative's Acceptance, the evaluation parameters.

.2 Conduct design option feasibility studies exploring possible technical and environmental strategies which are viable and have potential for development.

.3 Analyse each option for compliance with the project functional and technical requirements in the approved Pre-Design report.

.1 Include all items identified with the highest priority in the Functional Program in each schematic design option.

.4 Develop a Basis of Design (BOD) narrative for each option to demonstrate how the option meets the Owner Project Requirements (OPR) documented in the Pre-Design report.

.3 Recommend one option to proceed to Design Development (DD).

.4 Obtain the Departmental Representative's Acceptance of the recommended option.

.5 Architectural:

.1 Design synopsis;

.2 Plan drawings;

.1 Include all areas affected by the scope of this project;

.2 Develop furniture, millwork and equipment plans to support each Schematic Design option;

.3 Include clearance dimensions demonstrating barrier-free access and conformance to the building and fire codes.

.3 Identify fire resistance ratings and STC ratings.

.6 Mechanical Engineering:

.1 Mechanical Design synopsis;

.2 Proposed mechanical systems Work;

.3 Use of oxygen, proper storage of cylinders;

.4 Project impact on building systems.

.7 Electrical Engineering:

.1 Electrical Design synopsis;

.2 Impact on building systems;

.3 Floor plans indicating location of all devices, with consideration for specialized equipment requirements and loads;

.4 Typical lighting concepts and specialized lighting for examination/procedure requirements;

.5 Telecommunications, audio visual concepts and teleconferencing requirements;

.6 Fire alarm and security systems concepts.

.8 Commissioning:

.1 Update the OPR and Commissioning Plan.

.9 For each of the respective design options and the fully developed final selected design submission milestones, provide a BOD narrative and a Preliminary Project Description (PPD) using PPDFormat™, latest version – refer to the Definitions for further detail.

.1 Submit Cost Estimates based on respective PPDFormat™ Level of Detail.

.10 Confirm compliance with applicable codes, acts and regulations for each option. If applicable, present alternate solutions for consideration by both the Departmental Representative and the AHJ.

.11 Identify and document risks for each option and recommend corrective measures.

.12 Review, validate and update the details of the Functional Program requirements, including space data sheets.

.13 Update the Budget, schedule and risk analysis and identify any conflicts that will need to be addressed with respect to scope, quality, schedule, and cost:

.1 Prepare a Class 'C' Cost Estimate for each option.

.14 Anticipate minor revisions to the schematic designs prior to sign-off by the Departmental Representative and User Department.

2.6.3 DELIVERABLES

.1 Schematic Design Report documenting the Schematic Design Scope and Activities.

.1 One (1) electronic PDF copy on FTP site.

2.7 DESIGN DEVELOPMENT SERVICE

2.7.1 GENERAL

.1 Refine and develop the selected design option prepared and approved in Schematic Design.

.2 Finalize all major design components, technical criteria and performance objectives, cost estimates schedule and codes/standards regulatory compliance prior to advancing to Construction Document Services.

.1 Confirm that the design continues to support the project specific objectives documented in the Pre-Design phase.

.3 Integrate all components and systems, including architectural, structural, mechanical, electrical, information technology (IT), security and furniture design.

.4 Prepare the Design Development Report, which consist of drawings and other documents to describe the scope, quality and cost of the project in sufficient detail to facilitate design approval, confirm code compliance and obtain authorization to prepare the construction documents.

2.7.2 SCOPE AND ACTIVITIES

.1 Participate in meetings, presentations, prepare agenda, minutes and decision logs.

.2 Prepare a Design Development Report to further develop the selected Schematic Design option and expand the intent for each discipline to complete the design for this project.

.3 Present/submit the design for review by the authority having jurisdiction, if required.

.4 Architectural:

.1 Provide floor plans showing all program requirements, including all necessary circulation areas and ancillary spaces anticipated for service use;

.2 Indicate building grids, modules, and key dimensions;

.3 Include detailed layouts where appropriate.

.4 Include clearance dimensions demonstrating barrier-free access and conformance to the building and fire codes;

.5 Provide reflected ceiling plans of ceilings with special features;

.6 Provide plans and preliminary details for millwork;

.7 Provide detail sections of walls with special design features requiring illustration and explanation at this stage, such as acoustical barriers, security partitions and isolation/separation/special features of clinical spaces;

.8 Provide details for the proposed front entrance modifications.

.5 Mechanical:

.1 Update the mechanical design synopsis (BOD) for the selected option.

.2 Provide preliminary layout drawings showing locations and sizing of all major components and systems.

.6 Electrical:

.1 Update the electrical design synopsis (BOD) for the selected option.

.2 Indicate metering locations on a distribution diagram;

.3 Provide typical lighting, power and telecommunication system details for all workspaces;

.4 Include lighting design and control schemes for typical lighting arrangements;

.5 Provide typical security system details, and;

.6 Provide lighting design calculations including outputs from computerized analysis.

.7 Continue to review all applicable statutes, regulations and by-laws in relation to the design of the project and conduct a detailed code analysis to demonstrate compliance.

.1 If there are non-compliance issues, develop alternative solutions to support the design and submit for approval to the AHJ.

.8 Analyse the Constructability of the project and advise on the construction phasing process and duration;

.9 Develop a Preliminary Project Description to Uniformat Level of Detail 5 – refer to Preliminary Project Description PPDFormat™ definition for further detail;

.10 Update the Budget, schedule, risk analysis and identify any conflicts that will need to be addressed with respect to the scope, quality, schedule and cost.

.11 Corresponding directly to the Preliminary Project Description PPDFormat™, prepare a Class 'B' cost estimate;

.12 Identify proposed architectural/interior design materials, finishes and colours:

.1 Submit three (3) finish and colour scheme options on three (3) finish sample boards.

.13 Update the OPR and BOD.

.1 Confirm BOD and Commissioning Plan conformance to the OPR.

.14 Develop system component lists including equipment, components, systems and different levels of integration between systems to be commissioned.

.15 Develop Commissioning forms and verification check sheets specific to pre-functional (static installation and start-up) and functional performance verification tests (dynamic operation and integrated operation) for all components, systems and integrated systems specific to the project.

.16 Facilitate a presentation of the Design Development report involving the Departmental Representative and User Department representatives.

.1 Anticipate minor revisions prior to Acceptance by the Departmental Representative and User Department.

2.7.3 DELIVERABLES

.1 Design Development Report documenting the Design Development Scope and Activities.

.1 One (1) electronic PDF copy on FTP site.

2.8 CONSTRUCTION DOCUMENTS SERVICE

2.8.1 GENERAL

.1 Develop the necessary construction documents required to tender the approved design.

2.8.2 SCOPE AND ACTIVITIES

.1 Coordinate, chair, prepare minutes and report on project meetings.

.1 Present the updates and supporting analysis within project meetings.

.2 Prepare one (1) tender package coordinated with all disciplines.

.1 Tender Package #1

.2 Include phasing plans coordinated with the project schedule.

.3 Prepare space planning (swing space) drawings to assist with the temporary relocation of building occupants during construction.

.4 Create construction documents in accordance with the *Doing Business with PWGSC Manual*.

.1 Finalize designs according to the Budget and schedule;

.1 Coordinate the Work, including scope changes required to remain within Budget,

.2 Non-compliances may require revisions to the contract documents at the Consultants cost,

.2 Apply a process of continuing cost control, with increasing levels of detail during the production of construction documents and update the cost estimates as the Work progresses.

.5 Provide a cost breakdown by unit rate and/or trade for review of bids and comparison with the successful Contractor's cost breakdown.

.6 Update the project schedule.

.7 Establish a quality control process for the construction and contract administration stage.

.8 Participate in stakeholder coordination and Value Engineering sessions.

.9 Update the BOD and OPR.

.10 Develop commissioning construction documentation complete with verification forms using National Master Specifications (NMS) Division 01 specifications including:

.1 An updated Cx Plan with detailed commissioning strategies, Cx forms/check sheets and training requirements;

.2 Cx forms and verification check sheets ready for commissioning of specific components, equipment, systems and integrated systems specific to the project;

.1 Component verification (Static Verification),

.2 Installation verification,

.3 Start-up,

.4 Systems verification test,

.5 Integrated system functional performance verification for dynamic operation, and;

.6 Cx issue log.

.3 Expected design performance parameters;

.1 Observed performance including any indication of whether or not this performance is acceptable, and;

.2 Design Engineer of Record date and signatures along with those performing and witnessing the test.

.11 Provide a written response to PWGSC comments at the 99% completion review stage and integrate comments into the final construction documents.

.12 Include in the contract documents, a requirement for the contractor to develop a waste reduction and management plan during the construction of this project.

.13 Update the Project Log tracking with approved major decisions.

.14 Establish a quality control process for the construction and contract administration phase.

2.8.3 DELIVERABLES

.1 Include items listed in the "Scope and Activities" section above, the *Doing Business with PWGSC Manual* and items listed below.

.2 Update the report at each submission noting any deviations from earlier BOD submissions and, as necessary, reconfirming key OPR goals and objectives, along with:

- .1 An updated estimate demonstrating compliance with the Construction Cost Plan, and;
- .2 An updated project log with tracking on approved major decisions.

.3 99% complete Construction Documents, fully coordinated as if ready for tender:

- .1 This submission incorporates all revisions required by the review of the previous submission and a written response to the PWGSC 66% review;
- .2 The Consultant shall submit documents to the Departmental Representative, local municipality, or any other Authority Having Jurisdiction;
- .3 Class "A" estimate;
- .4 Updated project schedule;
- .5 Construction Drawings;
  - .1 Drawings should reflect 99% completeness as a complete design without any incomplete drawings (as if ready for tendering).
- .6 Complete Specifications;
  - .1 Including all required sections coordinated with the drawings;
  - .2 Division 01 CSC security requirements for the WCHL (provided by CSC);
  - .3 Bidders' price breakdown form (for submission at tender closing), and;
  - .4 Commissioning specifications, including forms applicable to Pre-Functional verification (Static Verification, installation & start-up) and Functional Performance Verification Testing (operational and dynamic).
- .7 Updated Commissioning Plan, and;
- .8 One (1) electronic PDF copy on FTP site.

.4 Final (100%) Construction Documents ready for tendering:

- .1 Incorporate all revisions required by the review of the previous submission and a written response for the PWGSC 99% review;
- .2 Advise the Departmental Representative of all issues raised by other officials;

.3 The submittal includes:
  .1 Signed and sealed documents:
    .1 Three (3) – hard copies;
    .2 One (1) electronic PDF copy on FTP site.
  .2 Updated Class 'A' cost estimate,
  .3 Updated project schedule, and;
  .4 Construction Drawings & Specifications as per the *Doing Business with PWGSC Manual*.
.4 The Consultant must confirm in writing that:
  .1 The documents are ready to be issued for tender,
  .2 The checklist in the *Doing Business with PWGSC Manual* has been reviewed in concert with the requirements of the Consultant Agreement, and;
    .1 A full review and coordination of the Contract Documents are complete and in accordance with professional standard of care.

2.9 TENDER SERVICE

2.9.1 GENERAL

.1 Support the Departmental Representative with the tender.
.2 The Contract Authority for this project is the PWGSC Real Property Contracting (RPC) branch.
.3 Tendering will use the Public Works and Government Services internet procurement system (https://buyandsell.gc.ca).

2.9.2 SCOPE AND ACTIVITIES

.1 When requested, the Consultant will be required to:
  .1 Provide the Departmental Representative with information required by bidders to interpret construction documents;
  .2 Prepare addenda in response to all questions within two (2) business days during the bidding period and submit to the Departmental Representative;
  .3 Attend pre-tender site visits;
  .4 If PWGSC decides to re-tender the project, or any specific tender package, provide full services to the Departmental Representative, and;
  .5 During Bid Review and Analysis assist the Departmental Representative as required by analysing and reconciling any differences between pre-tender estimates and submitted bids.

2.9.3 DELIVERABLES

.1 Addenda.
.2 Written responses to all questions.
.3 Bid analysis and/or recommendations.

2.10 CONSTRUCTION SUPPORT SERVICE

2.10.1 GENERAL

.1 Support the Departmental Representative with the construction phase and confirm that the quality, Budget and schedule meet the project requirements.

2.10.2 SCOPE AND ACTIVITIES

.1 The Consultant shall share all project information with PWGSC:
  .1 All material specifications, mixes and test results shall be turned over to the Departmental Representative for future maintenance by PWGSC and others.

.2 General Services:
  .1 Prepare minutes and reports on project and construction site meetings;
  .2 Review shop drawings, test reports and other submissions;
  .3 Update the project log tracking with approved major decisions, including those impacting project scope, Budget and schedule;
  .4 Prepare and issue a communications protocol and a shop drawing review protocol in consultation with the Departmental Representative;

.3 Construction & Contract Administration:
  .1 Provide monthly field reviews and as required to fulfill the Consultant's professional obligations to monitor the construction activities throughout the construction period and keep the Departmental Representative informed of Work progress;
    .1 Reject unsatisfactory Work;
    .2 Provide written reports on field reviews;
  .2 Provide construction progress reports based on Contractor's submissions and on-site performance;
  .3 Furnish supplemental instructions to the Contractor with reasonable promptness or in accordance with a schedule for such instructions agreed to by PWGSC and the Contractor;
  .4 Provide additional drawings to clarify, interpret or supplement the contract documents;
  .5 Review and comment on various documents such as the Contractor's Progress Claims and all information impacting schedules;
  .6 Offer timely technical advice on all disputes and claims between PWGSC and the Contractor;
  .7 Authorize special tests, inspections and minor Work that does not impact the project cost and schedule;
  .8 Assist the Departmental Representative to prepare the Certificate of Substantial Performance and provide sign-off, and;
  .9 Provide a Post-Construction report.

.4 Cost Services:

.1 After the issuance of the contract, provide details for evaluating the project's cost performance;
.2 Assist the construction team with cost management advice, if requested;
.3 Evaluate change orders, claims, Work completed and cash flow;
.4 Determine the amounts owing to the Contractor based on Work progress and certify payments to the Contractor.

.5 Changes to the Work:
.1 Assist the Departmental Representative in preparing Contemplated Change Notices (CCNs) and Change Orders (COs) to be issued by the Departmental Representative.

.6 Review, witness, verify test, approve and sign off all commissioning submittals for performance parameters before test and after test and for adherence to OPR and BOD.

.7 Update the Cx Plan, BOD and OPR.

.8 Coordinate with the CSC Fire Protection Engineer for a Fire and Life Safety Inspection.

2.10.3 DELIVERABLES

.1 Meeting minutes.
.2 Field review and work progress reports (including construction photographs).
.3 Approved shop drawings, test reports/certificates and other submissions.
.4 Clarifications, Supplemental Instructions, Contemplated Change Notices and Change Order Recommendations.
.5 Reviewed Contractor Progress Claims.
.6 Comments to Contractor Schedule, and Change Orders.
.7 Completed Certificate of Substantial Performance.
.8 Standard Operating Procedures - refer to the Definition.
.9 Interim Commissioning Report - refer to the Commissioning Report Definition.
.10 Certified Substantial Completion.

2.11 POST CONSTRUCTION SERVICE

2.11.1 GENERAL

.1 Support the Departmental Representative in obtaining all final documents required for project Close-out (refer to the "Project Milestones" definition).

2.11.2 SCOPE AND ACTIVITIES

.1 Project Close-out Services:
.1 Revise documentation to reflect all changes, revisions and adjustments after completion of commissioning;
.2 Prepare record drawings (AutoCAD format as per the *Doing Business with PWGSC Manual* requirements) and specifications based on Contractor's as-builts;

.3 Prepare and submit final Certificate of Completion and records;
.4 Review the Operations and Maintenance manual;
.5 Finalize the Commissioning Manual;
.6 Participate in a Lessons Learned workshop, if requested.

.2 Warranty Services:
.1 Participate in warranty inspections with the Departmental Representative and Contractor;
.2 Provide a warranty deficiency list;
.1 Monitor and certify correction of deficiencies before expiry of warranties;
.3 Monitor environmental and life safety system checks to be carried out by the Contractor/O&M staff before expiration of warranties.

2.11.3 DELIVERABLES

.1 Warranty Deficiency List.
.2 Final Certificate of Completion.
.3 Record Documents:
.1 One (1) hard copy – Full size sets, and 1 electronic PDF copy of each record document on FTP site;
.2 One (1) copy of each record drawing in AutoCAD - DWG file format.
.1 Refer to the *Doing Business with PWGSC Manual* for AutoCAD drawing requirements and standards.
.4 Operations and Maintenance Manual(s):
.1 Three (3) hard copies.
.2 One (1) electronic PDF copy on FTP site.
.5 Final Commissioning Manual (signed) - refer to the Definition.
.6 Final Systems Operation Manual (signed) - refer to the Definition.
.7 Final Warranty Review Report.
.1 Final certification of installation and warranty from manufacturers.
.2 Sign-off on Warranty.

3 PROJECT ADMINISTRATION

3.1 GENERAL REQUIREMENTS

.1 The administration requirements outlined in this section are applicable to all PWGSC projects in the Western Region, unless otherwise indicated in the TOR.

3.2 LANGUAGE

.1 Construction documents must be prepared in English.

3.3 MEDIA

.1 The Consultant shall not respond to any media inquiry.

.2 Direct all media requests to the Departmental Representative.

3.4 PROJECT MANAGEMENT

3.4.1 GENERAL

.1 PWGSC administers the project on behalf of Canada and exercises continual control over the project during all phases of development.

.2 The PWGSC project management team, the Consultant, the Contractor and the User Department teams are to work cooperatively at every stage of the design and construction process in order to assure the creation of a successful project.

3.5 LINES OF COMMUNICATION

.1 All communications will be through the Departmental Representative, unless directed otherwise.

.1 This includes formal contact between the Consultant, the Contractor, the PWGSC Project Team and the User Department.

.2 Direct communication between members of the PWGSC Project Team on routine matters may be required for resolution of technical issues.

.1 However, this shall not alter project scope, Budget or schedules, unless confirmed in writing by the Departmental Representative.

.3 During construction tender call, PWGSC will conduct all correspondence with bidders and award the contract.

3.6 MEETINGS

3.6.1 GENERAL

.1 The Departmental Representative will arrange meetings throughout the project, with representatives from:

.1 The User Department;

.2 PWGSC;

.3 The Consultant Team, and;

.4 The Contractor (during the construction phase).

.2 Standing agenda items shall include:

.1 Project Schedule;

.2 Cost;

.3 Risk;

.4 Quality, and;

.5 Health and Safety.

.3 Project Start-up Meeting:

.1 Shall be arranged and facilitated by the Departmental Representative, and;

.2 Includes the PWGSC AECOE Design Manager, User Department Representatives and the Consultant's Project Team.

3.6.2 DESIGN PHASE:

.1 Bi-weekly meetings with PWGSC, the User Department and the Consultant Project Team will normally be held via teleconference.

.2 The Pre-Design/Start-up meeting (including functional program and OPR) with PWGSC, the User Department and the Consultant Team will be held at the Willow Cree Healing Lodge.

3.6.3 CONSTRUCTION PHASE:

.1 Bi-weekly meetings with PWGSC, the User Department, the Consultant Project Team and the Contractor will be normally be held via teleconference except for the following:

.1 Monthly meetings with PWGSC, the User Department, the Consultant Team and the Contractor will be held at the construction site for the duration of the project;

.2 Additional meetings will be held at the construction site for the following activities:

.1 Commissioning & Verification, including an inspection by the CSC Fire Protection Engineer;

.2 Substantial Performance;

.3 Final Completion;

.4 Post Construction Warranty.

3.7 CONSULTANT RESPONSIBILITIES

.1 The Consultant Team includes the Consultant's staff, sub-consultants and specialists.

.1 This team must maintain the same, or better, level of expertise, as presented in their proposal, for the duration of the project;

.2 The team must include qualified registered architectural and engineering professionals with extensive relevant experience and who are capable of providing all required services;

.1 Professional Registrations / certifications must remain current.

.3 Team members may be qualified to provide services in more than one discipline, and;

.4 The Consultant may expand the team to include additional disciplines.

.2 The Consultant is responsible for:

.1 Obtaining Departmental Representative Acceptance for each project phase before proceeding to the next phase;

.2 Accurately communicating design, Budget, and scheduling issues to staff, sub-consultants and specialists;

.3 Coordinating input for the Departmental Representative's Risk Management Plan, and;

.4 Developing and coordinating a comprehensive quality assurance process to ensure that submissions are accurate, complete and meet TOR requirements.

3.7.2 DESIGN PROJECT MILESTONES

.1 Attend meetings.

.2 Record the issues and decisions.

.3 Prepare and distribute minutes within two (2) working days of the meeting.

.4 Ensure sub-consultants attend all required meetings.

3.7.3 CONSTRUCTION PROJECT MILESTONE

.1 Record the meeting issues and decisions.

.2 Prepare and distribute minutes within two (2) working days of the meeting.

.3 Attend meetings and provide site inspection services;

.4 Ensure sub-consultants provide site inspection services and attend all required meetings.

.5 The Consultant is responsible for:

.1 Coordinating and directing the Work of all team activities, sub-consultants and specialists;

.2 Preparing a design that meets project requirements, and;

.3 Obtaining approvals on behalf of the Departmental Representative from the User Department and other levels of government such as provincial and municipal governments.

.1 The Consultant shall adjust the documentation to meet the requirements of these authorities.

3.8 PWGSC RESPONSIBILITIES

3.8.1 ADMINISTRATION

.1 PWGSC administers the project and exercises continual control over the project during all phases of development.

.2 The following administrative requirements apply during all phases of the project delivery.

3.8.2 REVIEWS

.1 PWGSC will review the Work at various stages and reserves the right to reject unsatisfactory Work at any stage.

.2 If later reviews show that earlier Acceptances must be withdrawn, the Consultant shall re-design and re-submit at no extra cost.

3.8.3 ACCEPTANCE

.1 PWGSC Acceptance of submissions from the Consultant simply indicates that - based on a general review - the material complies with

governmental objectives and practices, and meets overall project objectives.

.2 Acceptance does not relieve the Consultant of professional responsibility for the Work or compliance with the contract.

3.8.4 PWGSC PROJECT MANAGEMENT

.1 The Project Manager assigned to the project is the Departmental Representative.

.2 The Departmental Representative is directly responsible for:

.1 The progress and administration of the project, on behalf of PWGSC;

.2 Day-to-day project management and is the Consultant's single point of contact for project direction, and;

.3 Providing authorizations to the Consultant on various tasks throughout the project.

.3 Unless directed otherwise by the Departmental Representative, the Consultant obtains all Federal approvals necessary for the Work.

3.8.5 PWGSC ARCHITECTURE AND ENGINEERING CENTRE OF EXPERTISE (AECOE)

.1 Provides advisory services and Quality Assurance Reviews of consultant deliverables.

.2 Participates regularly in design and construction Project Milestones and may attend meetings as and when required.

.3 Provides a Design Manager for the project who will coordinate the services of AECOE.

3.9 USER DEPARTMENT RESPONSIBILITIES

3.9.1 USER DEPARTMENT PROJECT LEADER

.1 Is accountable for the expenditure of public funds and delivery of the project in accordance with the terms accepted by the Treasury Board.

.2 Reports to the senior User Department executive management.

.3 Will play several critical roles for the successful implementation of the project, including:

.1 Coordination of the quality, timing and completeness of information and decisions relating to issues related to the functional performance of the facility.

3.10 REVIEW AND APPROVAL BY AUTHORITY HAVING JURISDICTION

.1 The CSC-NHQ Fire Protection Department will conduct reviews and approvals in place of provincial and municipal authorities.

.2 CSC-NHQ authority review:

.1 The purpose of this review is for information and awareness;

.2 Submissions will be reviewed at the completion of specific phases as outlined in Part 2 of this TOR.

3.11 TECHNICAL REPORTS

.1 Technical Reports are official government documents, which are used to support an application for approval or to obtain authorization or Acceptance. Technical Reports must:

.1 Be complete, clear and professional in appearance and organization, with proper reference to related parts and contents in the report;

.2 Clearly outline the intent, objectives, process, results and recommendations;

.3 Present the flow of information and conclusions in a logical, easy to follow sequence;

.4 Be in written narrative, graphic, model (traditional and/or computer generated), and photographic format, which can be web enabled;

.5 Have all pages are numbered in sequence, and;

.6 Be printed double-sided, if hard copies are produced.

.2 Standard practice for the organization of technical reports include:

.1 A cover page, clearly indicating the nature of the report, the date, the PWGSC project number and who prepared the report;

.2 A Table of Contents;

.3 An Executive Summary;

.1 A true condensed version of the report following the identical structure, including only key points and results/recommendations requiring review and/or approval;

.4 The body of the report is to be structured such that the reader can easily review the document and locate, respond to and/or reference related information contained elsewhere in the report easily;

.5 Appendices are to be used for lengthy segments of the report, supplementary and supporting information and/or for separate related documents.

.3 The report content must:

.1 Use a proper numbering system (preferably legal numbering), for ease of reference and cross-reference;

.1 The use of 'bullet points' are to be avoided.

.2 Use proper grammar, including using complete sentences, for clarity, to avoid ambiguity and facilitate easy translation into French, if required;

.1 The use of undefined technical terms, industry jargon and cryptic phrases are to be avoided.

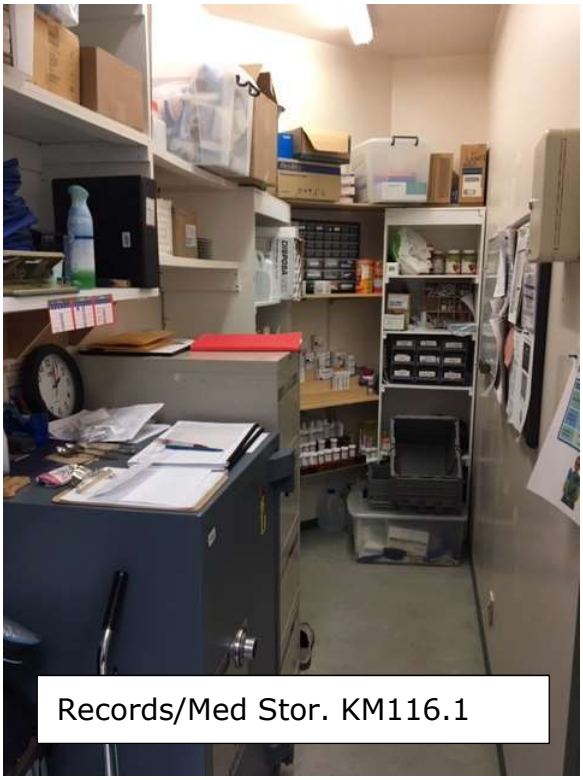
.3 Be written as efficiently as possible, with only essential information included in the body of the report and supporting information in an appendix if needed.

4 APPENDIX A

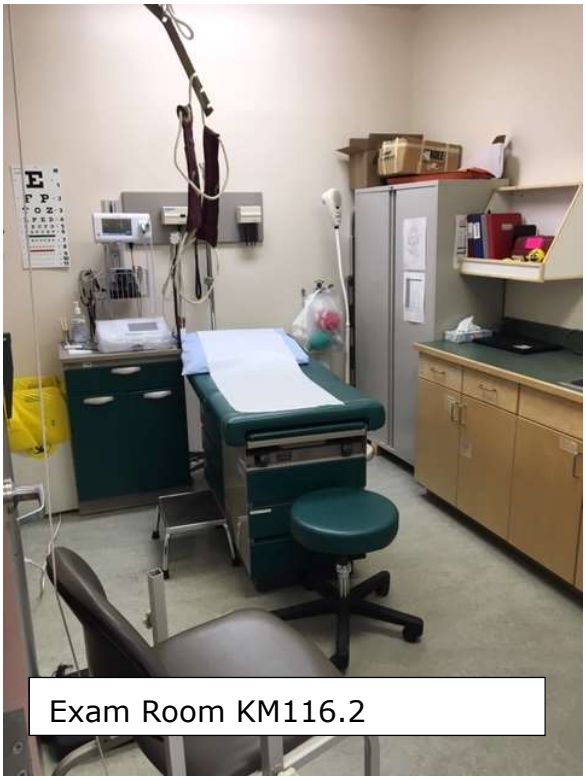
4.1 PHOTOS

Front entrance – looking N/W

Exam. Room KM116.2



Records/Med Stor. KM116.1



Exam Room KM116.2

HealthCare Office KM 116

Corridor KM 100.3

Front entrance KM100

Corridor - Entrance KM100

4.2 FLOOR PLAN

5 DEFINITIONS

5.1 PURPOSE

5.1.1 DOCUMENT DEFINITIONS:

.1 Definition of words and phrases in the Terms of Reference (TOR), and *Doing Business with PWGSC – Documentation and Deliverables Manual* to:

.1 Expand the detail associated with the services and deliverables addressed in the above Documents, and;

.2 Provide a clear understanding of the project scope, procedures, and quality performance requirements.

5.2 DEFINITIONS

5.2.1 ACCEPTANCE

.1 A formal action taken by an assigned person with authority (contractual or otherwise) to declare some aspect of the project is permitted to proceed.

5.2.2 BASE BUILDING

.1 As per Government of Canada Workplace Fit-Up standards.

5.2.3 BASIS OF DESIGN (BOD)

.1 Refer to CSA Z320 Article 3, Definitions.

.1 For further detail refer to ASHRAE 202, Article 8 – Basis of Design, Article 8.2 – Requirements.

.2 A dynamic narrative document throughout the Project Milestones, recording the rationale for decisions and confirming to the Project Team design conformance to the ideas, concepts and criteria considered important to the owner as contained in the Owner Project Requirements (OPR) - for OPR see Definition;

.1 As the Design Consultant BOD also outlines the intended systems for the project, the Design Consultant's Cx Process Manager/Cx Authority, using a compliance evaluation/tracking matrix, confirms the BOD's compliance to the OPR.

.3 Documents the primary thought processes and assumptions behind design and implementation decisions.

.4 Text and graphics are organized to facilitate future use as a building reference document.

.1 The O&M Manual describes "what" components/systems have been selected, the BOD describes "why" and "how" the design achieves the performance requirements of the OPR, and;

.2 BOD and OPR are components of the Cx Manual.

.1 OPR - refer to Definition for further information.

.5 Includes:

.1 A Summary:

.1 Project's conceptual framework;

.2 Compliance with OPR statement (including new Owner directives);
.3 Compliance with the Functional Program, and;
.4 Rationale for decisions made throughout the specific Project Milestone.

.2 Design assumptions, such as:
.1 Anticipated future changes not included in the project, and;
.2 Selected assembly and system performance requirements.

.3 A Uniformat™ Level 4 narrative description and statement on the purpose of the selected components, assemblies, systems and methods – see PPDFormat™ Definition, including:
.1 Areas served by the respective components, assemblies and systems, and;
.2 Illustrations of system configurations, including single line and plan drawings of each system.

.4 Design options and analysis considered during the:
.1 Life Cycle Costing and Value Engineering workshops, and;
.2 Development of sustainable features and strategies.

.5 Calculations and option analysis matrixes, organized by discipline, including:
.1 Connected or related loads and system capacities, and;
.2 Design criteria and the applicable codes/standards used in the calculations.

.6 Special features or unique supply items/sources, general control strategies, sequences, and reset schedules, such as:
.1 Building Components and Connectivity (BCC – see Definitions for further details);
.2 Seasonal switch-over procedures, and;
.3 Emergency procedures during a fire condition, power or equipment failure, including:
.1 Reference to Standard Operating Procedures requirements and definition.

.7 Interfaces with existing systems, and;
.8 Maintenance issues.

5.2.4 BASIS OF ESTIMATE (BOE)

.1 A "living" document throughout the project design, construction process and project life cycle.
.2 Provides a framework for progress monitoring and reporting.
.3 Prepared and updated to facilitate the understanding, assessment and validation of the estimated value breakdowns, independent of any other supporting documentation.
.4 Includes:
.1 Level of consensus between concurrent/third party estimates;
.2 Estimate methodology;

.3 Basis of pricing - cost data sources, and allowances;
.4 Description of information obtained and used in the estimate including the date received;
.5 Notable assumptions, exclusions and inclusions;
.6 Listing of items/issues carrying notable risks;
.7 Opportunities, and any deviations from standard practices;
.8 Record of pertinent communications and agreements that have been made between the estimator and other project stakeholders;
.9 Major changes relative to previous estimates;
.10 Significant market events that may have an effect on the costs, and;
.11 Estimate reconciliation.

.5 With the last submission include:
.1 Variances related to:
.1 Change Orders;
.2 Work Package estimate, and;
.3 Estimate Construction Cost.
.2 And, any additional relevant information.

5.2.5 BUDGET

.1 Developed using Cost Estimates and the Project Schedule.
.2 Provides a view of how much the project is estimated to cost both in total and periodic terms.
.3 Determines the cost performance baseline for use in cost management variance analysis such as, determining earned performance value.
.4 Is aligned with funding limits to confirm funding availability/appropriation.
.5 Also refer to - Estimated Construction Cost definition.

5.2.6 "CANADA", "CROWN"/"HER MAJESTY"

.1 Her Majesty the Queen in right of Canada.

5.2.7 COLLABORATIVE PROJECT DELIVERY

.1 The Collaborative Project Delivery approach promotes and facilitates knowledge collaboration between design and construction professionals and subject matter experts to create optimal design and construction solutions and methodologies in order to achieve an appropriate, timely and fiscally responsible Quality project delivery.
.1 Recognizes that project success is tied to all Project Team members' success in the integrated process.
.1 The Collaborative Project Delivery process starts at the Pre-Design with Departmental Representative as Lead Partnering Session and the Design Consultant, as Lead, project start-up meeting early in Schematic Design.
.1 Collaborative Project Delivery is an interactive process which continues throughout the project life cycle.
.2 Joint Project Team goals include:

.1 Ownership and focus on Quality including, Owner Project Requirements (OPR), Basis of Design (BOD) as well as Budget and schedule performance;
.2 Focus on optimizing the design and construction as a whole to fulfill the PWGSC Quality expectations;
.3 Mutual support for the project procedures and management;
.4 Leveraging Value Engineering, Life Cycle Costing and commissioning skills, and;
.5 Creation of an innovative learning environment.

5.2.8 COMMISSIONING AUTHORITY

.1 Refer to the:
.1 Commissioning Process Manager (CPM) Definition for description of Cx Authority and part of the Design Consultant's Team;
.2 CSA Z 320, Article 3 Definitions for Third Party description;
.3 TOR for the requirement of a Cx Authority as a part of the Design Consultant's team membership or of an independent third party Cx Authority to be separately engaged by PWGSC.

5.2.9 COMMISSIONING EVALUATION REPORT

.1 A Cx Manual component.
.2 Includes a debriefing report, with aspects such as:
.1 A complete assessment of the project;
.2 Lessons learned;
.3 Variances between the actual and planned levels of performance;
.4 A listing of components and systems not commissioned and the reasons;
.5 Recommended follow-up actions including Re-commissioning.

5.2.10 COMMISSIONING (CX) MANUAL

.1 Deliverable by Design Consultant's Cx Process Manager/Cx Authority.
.2 Contains the following:
.1 Updated Owner Project Requirements (OPR);
.2 Updated Basis of Design (BOD);
.3 Updated Commissioning Plan;
.4 Static Verification, start-up and Functional Performance Testing reports;
.5 Commissioning Report;
.6 User and operator training reports;
.7 Occupancy and operations evaluation reports;
.8 All relevant project reports and correspondence, and;
.9 Recommendations for Re-commissioning and frequency by equipment type and system.
.3 Requires Cx Process Manager sign-off at a Construction Contract Substantial Performance and Completion (final) milestones.

5.2.11 COMMISSIONING (CX) PLAN

.1 Deliverable by Design Consultant's Cx Process Manager/Cx Authority.

.2 Refer to CSA Z320 Article 4.2.3 Commissioning Plan.

.1 For further detail refer to the following ASHRAE 202 Articles:

.1 Article 7 – Commissioning Plan, Article 7.2 – Requirements;

.2 Article 10 – Design Review, Article 10.2 – Requirements;

.3 Article 11 – Commissioning Submittal Review – Article 11.2 Requirements;

.4 Article 15 – Training, Article 15.2 Requirements.

.3 A dynamic document throughout the project life cycle.

.4 Outlines a Plan to execute the scope of Work.

.1 The ongoing Plan development is carried out through iterative reviews, workshops, and meetings to ultimately become the complete plan including construction and occupancy milestones of the project.

.5 "Design Phase" (Pre-Design) Cx Plan:

.1 Cx Plan is based on the Programming, OPR and Acceptance of risk and Budget;

.1 Outlines a preliminary execution plan including activities, Cx Team roles and responsibilities, schedules and deliverables for pre design and subsequent design and BOD ultimately be updated and completed during the construction and occupancy milestones.

.6 "Design Phase" (Schematic Design, Design Development and Construction Documents) Cx Plan:

.1 Cx Plan is updated to address the remaining Project Milestones including construction documentation, construction and occupancy. The Cx Plan includes;

.1 Detailed tasks, roles and responsibilities, schedule, work flow processes and a list of the systems to be commissioned, and;

.2 Coincides with the design documents such as the specifications so that the Commissioning Team is clear on the goals and process.

.3 Refer to CSA Z320 Article 4.3. – Design Phase, Article 4.3.1, General.

.1 For further detail refer to ASHRAE 202, Article 10 Design Review – Article 10.2 Requirements.

.7 "Construction Phase" Cx Plan:

.1 During the Construction milestone, the updated Cx Plan continues to outline the Cx Team's roles and responsibilities, implementation of issues resolution protocol, the procedures and forms for documenting commissioning activities and the schedules for commissioning activities, reporting and deliverables.

.2 Refer to CSA Z320 Article 4.4 – Construction Phase, Article 4.4.1, General.

.1 Add the following requirements:
  .1 Cx schedule, and Installation start-up lists.
.2 For further detail refer to ASHRAE 202, Article 11 Commissioning Submittal Review –Article 11.2 Requirements.

5.2.12 COMMISSIONING (CX) PROCESS

.1 Refer to CSA Z320 Article 4, Commissioning Process.
.2 A dynamic document throughout the project life cycle.
.3 The process by which the design and construction documents (plans, sections, specifications, BOD, etc.) are confirmed to be consistent with each other; includes the commissioning requirements and the OPR.
.4 During the Cx design reviews the Design Consultant is ultimately responsible for the project design and final decisions regarding the design expected performance.
  .1 Supporting the Cx Process may also be the Design Consultant's Commissioning Process Manager/Cx Authority to lead the Cx Team in the design and implementation of the Process that may involve, for example either;
    .1 A third party Cx Provider company, procured by PWGSC) or,
    .2 A Contractor's Cx Agent.

5.2.13 COMMISSIONING PROCESS MANAGER (CPM)

.1 Cx functional entity:
  .1 May also be identified as Cx Authority entity.
.2 Member of the Design Consultant Team.
.3 Overall functional responsibilities is to lead the Commissioning Team in the:
  .1 Design of the Commissioning Process so that it begins with commissioning of individual components and progresses to commissioning the complete integrated building system as a whole, and;
  .2 Update of the BOD and OPR during design and construction.
.4 Dependent the requirement for independence from the design and construction management, the CPM may include the functional role and be identified as a functional Commissioning Authority entity in, for example, the Cx Plan Specification, article - Roles and Responsibilities of the Cx Team:
  .1 Regarding "independent Commissioning Authority" requirements, refer to Canada Green Building Council (CGBC).
.5 Requires a unique combination of engineering, design fundamentals and building operations knowledge including: energy systems design, installation and operation, commissioning planning and process management, hands-on field experience with energy systems performance, interaction, start-up, balancing, testing, troubleshooting, operation and maintenance procedures, and energy systems automation and controls.
.6 Responsible for Cx deliverables, such as:

.1 Sequencing;
.2 Means and methods;
.3 Verification of installation and performance to BOD and OPR;
.4 Documentation and related sign-offs, and;
.5 Manuals.

.7 Cx Process Manager, unless otherwise stated, will only make recommendations, and observations during the design review.

5.2.14 COMMISSIONING RECORD CHECKLIST

.1 Refer to CSA Z320 Article 4.9, Final Documentation.
  .1 Add to Article 4.9.3, Additional Commissioning Documentation, the following requirements:
    .1 Certificate of Interim Acceptance;
    .2 Final Certificate of Completion;
    .3 Deferred Cx Test Report;
    .4 System and Environmental Check Reports e.g. Storage Tanks;
    .5 Final Cx Report;
    .6 PWGSC Cx Manager Cx Evaluation Report, and;
    .7 Final Standard Operation Procedures.
.2 Cx Record Checklist outlines the deliverables to be assembled and updated over the course of the Design, Construction and Delivery Close Out.
.3 Cx Record Checklist may include sections such as:
  .1 Commissioning Plan;
  .2 Commissioning Schedule;
  .3 Owner's Project Requirements (OPR);
  .4 Basis of Design (BOD);
  .5 Project Team, complete with functional entity titles;
  .6 Design QA Review compiled reports;
  .7 Project Issues/Resolutions Logs;
  .8 Cx Issues/Resolutions Logs;
  .9 Commissioning meeting minutes;
  .10 Commissioning specifications;
  .11 Commissioning forms and check sheets;
  .12 Commissioning site reports;
  .13 Coordination drawings;
  .14 Testing and inspection procedures;
  .15 System start-up plans;
  .16 Construction Checklists;
  .17 Inspection reports;
  .18 Test reports;
  .19 Commissioning test certifications;
  .20 Training plans;
  .21 Training documentation – electronic and hard copy;

.22 Deferred testing documentation;
.23 Post-construction review/re-inspection report;
.24 Systems Manual;
.25 Operations and Maintenance Manual; and
.26 Re-commissioning Manual.

5.2.15 COMMISSIONING REPORT

.1 Deliverable by Design Consultant's Cx Process Manager/Cx Authority.
.2 A Cx Manual Component (at Construction Contract Substantial Performance and Completion – final/post Warranty) milestone.
  .1 Requires CPM/Cx Authority sign-off and Design Consultant verification at Substantial Performance and Completion.
.3 The Cx Report (at Substantial Performance) is based on:
  .1 Final BOD and OPR;
  .2 System components list requiring commissioning;
  .3 Final performance verification forms and check sheets: component, systems and integrated systems - design values to actuals;
    .1 Static, installation, start-up, functional performance and integrated system verification;
  .4 All commissioning site review reports;
  .5 Commissioning issue logs and progress reports;
  .6 Final training sessions;
  .7 Post occupancy changes;
  .8 Deferred commissioning; and
  .9 Current information not available or incomplete at Interim Acceptance/Substantial Performance.
.4 A Final Commissioning Report (prior to end of Warranty Period), which includes:
  .1 Final Cx Evaluation Report;
  .2 Updated Cx Report from Substantial Performance;
  .3 Post-Occupancy test results and evaluations; and
  .4 Updated Issues/Resolutions Log – highlighting documented Cx resolutions.
.5 All progressive/interim Acceptances requiring all Project Team members to sign-off.

5.2.16 COMMISSIONING RISK ASSESSMENT

.1 Deliverable by Design Consultant's Cx Process Manager/Cx Authority.
.2 The Cx Risk Assessment aligns the rigor of the Commissioning Process with the following 2 risk items associated with Architectural and Engineering systems:
  .1 Building: The function and performance; and
  .2 Deliverables: The deficiencies, such as, inaccurate as-built documentation, ineffective owner/occupant training, lack of documented system performance testing, and lack of comprehensive systems manuals.

.3 The Cx Risk Assessment is often summarized in a matrix and accompanied by a basis of assessment narrative.

.4 The premise of the Cx Risk Assessment is to identify:

.1 Building type and the intended use as a guide for Cx risk associated with the intended building systems; and

.2 How the performance of each system will affect the performance of all other systems, and how non-performance in the building may have a negative impact on function and operational confidence.

5.2.17 COMMISSIONING SCOPE

.1 Facilitated deliverable by Design Consultant's Cx Process Manager/Cx Authority.

.2 Conducted by a Cx Team.

.3 An integrated developmental process for determining the level of Cx effort based on the scope, rigor, OPR, building operation and function, including:

.1 Cx prioritization; and

.2 Cx Risk Assessment.

5.2.18 COMMISSIONING TEAM (CX TEAM)

.1 A live documented Team throughout the project life cycle.

.2 The objective of the team is to encourage interdisciplinary collaboration to confirm the Cx Process is completed and the facility criteria has been achieved.

.3 Cx Team composition is first identified and defined at the Pre-Design milestone, followed by an integrated development of a Cx Process and the assignment of the Cx roles and responsibilities and corresponding services and deliverables.

.4 Size and membership varies depending on the project size, complexity and phase of design and construction.

.5 Team make-up may consist of a:

.1 Departmental Representative – including PWGSC Cx Manager;

.2 User Department – O&M Personnel;

.3 Design Consultant(s) (dependant on the TOR, including Consultant's Cx Authority);

.4 Contractor's Agent; and

.5 Contractor's Agencies.

5.2.19 CONTRACTOR'S COMMISSIONING AGENCIES

.1 To be identified as the in the specifications as the "Contractor's Sub-Contractor Commissioning Agency/Agencies" (CS-CCxA) functional entity/entities, in the Cx Plan Specifications, article - Roles and Responsibilities of the Cx Team. Includes Agencies, such as:

.1 Installing contractor/sub-contractor;

.2 Equipment manufacturers, such as, elevators, emergency generators;

.3 Specialist Cx Agency, Cx Work outside the scope or expertise of other Cx Agencies, Work such, as environmental space condition, air quality; and

.4 TAB Agency, such as adjusting flow rated and pressure related to ducted air and hydronic systems, fans and pumps.

.2 Available for emergency and troubleshooting service during the first year of occupancy and modification outside the responsibilities of the O&M personal.

5.2.20 CONTRACTOR'S COMMISSIONING AGENT

.1 Responsibilities are distinct from the Contractor's site supervisor.

.2 To be identified in the specifications (Cx Plan Section, article – Roles and Responsibilities of the Cx Team,) as the "Contractor's Commissioning Agent" (CCxA) functional entity.

.3 Responsible for the implementation of all commissioning actives required by the specifications, including demonstrations, training, testing, preparation and submission of testing reports.

.4 Available for emergency and troubleshooting service during the first year of occupancy and modification outside the responsibilities of the O&M personal.

5.2.21 CONSTRUCTABILITY

.1 The extent to which the design of the building facilitates the ease of construction, which is subject to the overall requirements for the completed building project.

.2 The effective and timely integration of construction knowledge into the conceptual planning, design, construction, and field operations of a project to achieve project goals and building performance at the optimal level by:

.1 Implementing a Quality project delivery process which also meets the project objectives in the best possible time and accuracy at the most cost-effective levels; and

.2 A balance of various project, environmental and market constraints.

5.2.22 CONSTRUCTION CHECKLIST – CHECKS AND TESTS

.1 Also known as Contractor's Cx "systems readiness checklist".

.2 Confirms specified equipment is provided, undergone Static Verification, properly installed, initially Started-up and checked out in preparation for full operation and Functional Performance Testing.

.3 Refer to CSA Z320 Article 4.4 – Construction Phase.

.1 Add to Article 4.4.2 – Pre-construction the following requirements:

.1 Cx schedule, and Installation start-up lists.

5.2.23 CONSTRUCTION COST ESTIMATE

.1 Refer to the *Doing Business with PWGSC Manual*, Section 3 - Cost Estimates for further Construction Cost Estimate details.

.2 Construction Cost Estimate as compared to the Budget – see Definition.

.3 Estimates cost of the Work associated with the overall project at each Project Milestone, and tender packages, Division 01 General Requirements and other supporting activities within the project lifecycle.

.4 Cost breakdown estimating is formatted as per CIQS general best practices including the following formats associated with PPDFormat™ and MasterFormat™ (MF) National Master Specifications:

.1 During Schematic Design (SD) – Uniformat™ Level(s) of Detail as mutually agreed upon by the Departmental Representative and Consultant;

.1 For further detail refer to Preliminary Project Description (PPD/PPDFormat™) Definition.

.2 During Design Development (DD) – as per Uniformat™ Level of Detail 5;

.1 For further detail refer to Preliminary Project Description (PPD/PPDFormat™) Definition, and;

.3 During Construction Documentation (CD) – as per MasterFormat™ - Divisional and Sectional details;

.1 National Master Specifications (NMS) is the basis for construction specifications.

.5 In all cases, include Basis of Estimate (BOE) – see Definition.

5.2.24 CONSTANT DOLLAR ESTIMATE

.1 This is an estimate expressed in terms of the dollars of a particular base fiscal year.

.2 It includes no provisions for inflation.

.3 Cash Flow over a number of fiscal years may also be expressed in constant dollars of the base year including no allowance for inflation in the calculation of costs.

.1 For Current Dollar Estimates – see Definitions;

5.2.25 CONSULTANT TEAM

.1 An architectural or engineering firm and their sub-consultants (the Design Consultant), professionals and advisors with whom PWGSC has contracted to provide other services on this project.

5.2.26 CURRENT DOLLAR ESTIMATE

.1 Budget Year Dollars is also to be referred to as Nominal dollars.

.2 An estimate based on costs arising in each Fiscal Year (FY - ending March 31) of the project schedule.

.3 Escalated to account for inflation and other economic factors affecting the period covered by the estimate.

.4 Costs and benefits across all periods should initially be tabulated in Budget Year Dollars for the following reasons:

.1 It is the form in which financial data is usually available;

.2 Tax adjustments are accurately and easily made in Budget year dollars; and

.3 It enables during analysis, the construction a realistic picture which takes into account changes in relative prices.

.5 Constant Dollar Estimate – see Definitions.

5.2.27 DEPARTMENTAL REPRESENTATIVE (DR)

.1 The person designated in the Contract, or by written notice to the Contractor/Consultant, to act as the Departmental Representative for the purposes of being a Contract entity.

5.2.28 ESTIMATED CONSTRUCTION COST

.1 The Budget identified in the TOR or subsequently in writing by the Departmental Representative:

.1 Also stated as "Construction Cost Estimate" or "Construction Cost Limit".

5.2.29 FACILITY TURNOVER

.1 Refer to CSA Z320 Article 4.7, Facility Turnover Activities.

.1 Add to Article 4.7 the following review requirements:

.1 Review signatories, client/stakeholder, of a document agreeing to accept project outcomes and/or on the condition that all recorded deficiencies are to be addressed as appended;

.1 Facility Turnover Activities are required where the project or part of the project ("partial interim occupancy") is being turned over.

5.2.30 FUNCTIONAL PERFORMANCE TESTING

.1 Refer to CSA Z320 Article 4.5, Functional Performance Testing.

.1 For further detail refer to ASHRAE 202, Article 13 Issues and Resolution Documentation – Article 13.2 Requirements.

.1 Review Functional Performance Testing data entry in the Issues and Resolutions log according to ASHRAE 202, Section 13, including:

.1 Tests at peak load conditions as identified in the Cx Plan.

5.2.31 FUNCTIONAL PROGRAM

.1 May be included in the RFP or may be a Pre-Design deliverable stating the end state functional and operational goals.

.1 The term "Functional Programming" is only one component of a "Programming" service which may also include technical programming, Master Schedules and program requirement cost estimates.

.2 Defines the design problem by determining the details for achieving the goals. Goals may include, but are not limited to, design considerations regarding:

.1 Architecture: Area needs, adjacencies, circulation, acoustics, health and safety, personal forecasts, user characteristics, organizational structure, Budget and costs and project schedule;

.2 Engineering: HVAC, plumbing, electrical, security, and communications.

.3 One of Three Program Levels of effort are use based on complexity and risk:

.1 Level 1 Program is used for small, relatively simple or repetitive types of projects where the standard requirements are well understood, includes;
  .1 A summary of required useable spaces, along with net areas and general notes outlining specific space requirements;
  .2 The approximate gross useable area required to accommodate the program;
  .3 A description, in general terms, of the relationships between spaces and groups of spaces, in sufficient detail to commence the Schematic Design Stage;
.2 Level 2 Program is used for larger projects with some degree of complexity, includes;
  .1 A summary of required useable spaces, along with net areas;
  .2 An outline of specific technical and functional requirements for each space;
  .3 The approximate gross area required to accommodate the programme, determined by developing component diagrams;
  .4 Relationship diagrams indicating adjacencies and flow patterns between spaces and groups of spaces, and;
.3 Level 3 Program is used for major projects and projects with a high degree of complexity, includes;
  .1 A qualitative (functional) and quantitative (net area and gross area) description of all required spaces;
  .2 Detailed Programme Areas including;
    .1 Net useable area requirements for each space;
    .2 Component Gross area requirements for all component groups, and;
    .3 Gross Area Summary needed to accommodate the programme;
  .3 An outline of specific Technical Requirements, indicating general Architectural, Structural, Mechanical, Electrical and Security systems applicable to the entire building and/or to each similar space types;
  .4 Room / Space Data Sheets, indicating specific requirements for each space type not covered in the technical requirements;
  .5 Space Concept Plans, associated with each Space Data Sheet, indicating all fixed equipment and any special features;
  .6 Component (Group or Department) concept planning diagrams indicating required relationships between all spaces in each component group;
  .7 Component Relationship Diagrams, indicating relationships between all component groups;
  .8 A Demonstration plan (to scale) to confirm that:
    .1 Net to gross area ratios are reasonable; and

.2 Component group relationships can reasonably be achieved either within the established gross building area for new buildings or within the limitations of the building floor plate(s) for existing buildings.

.9 Mechanical Schematic Zoning and Directional Air Flow Diagrams for laboratory projects.

.4 Program Level selection and the associated level of detail is also determined by the Cx complexity and risk, providing further supporting information to the OPR development.

5.2.32 INTERIM ACCEPTANCE

.1 Refer to CSA Z320 Article 4.6, Interim Acceptance.

.1 Add to Article 4.6 (i) the following requirements:

.1 System Operations Manual and Standard Operating Procedures, including;

.1 Normal and emergency mode of operations, and;

.2 Life and Safety Compliance Report.

.2 Interim Acceptance will be synonymous with Substantial Completion as per GC's of the Construction and Consultant Contract.

5.2.33 ISSUES/RESOLUTION (I/R) LOG

.1 The I/R Log contains description of project issues and/or variances ranging from specifics such as with the Owner Project Requirements (OPRs) to general design and construction and related processes and deliverables.

.1 On an ongoing basis the log maintains the status of current/ongoing and resolved issues;

.2 Issues are identified and tracked as encountered during all design phases, construction and operations of the facility.

.2 I/R Log is also included as an item in:

.1 The meeting Design and Construction agenda; and

.2 The monthly construction phase report on the Cx Plan.

.3 For more information on what needs to be documented also refer to ASHRAE Guideline, The Commissioning Process.

5.2.34 LIFE CYCLE COSTING (LCC)

.1 LCC methodology, used during investment analysis and planning, design, construction and procurement, employs a comprehensive economic comparison of competing options.

.2 Comparison of competing options is to be made between ideas similar in nature that are designed to satisfy the same basic function or set of functions.

.3 LCC interpretation, as related to competing options assessment.

.1 The sum of the present values that are associated with investment costs, capital costs, installation costs, energy costs, operating costs, maintenance costs, and disposal costs, over the lifetime of the project.

.4 Refer to industry standard practices for measuring life cycle costs of the building and building systems such as, ASTM Standards.

.5 Also refer to Value Engineering (Assessment) definition.

5.2.35 MASTER SCHEDULE (MASTER PROJECT SCHEDULE)

.1 Refer to the *Doing Business with PWGSC Manual*.

5.2.36 MOVE PLAN

.1 Identifies move tasks, dependencies, and task duration.

.2 Explores potential move optimization and risk minimization.

.3 Includes:

.1 Phasing, specific timeline/Gantt chart, order and process for relocations, hoteling (office) and final moves;

.2 Security protocols for interim and final moves;

.3 Drawings showing;

.1 All project furniture including new and reused, loose furniture, filing systems, equipment and appliances,

.2 Electrical and data services connections to furniture and interconnected panels (separate from electrical construction drawings).

.4 Swing space and interim storage requirements.

5.2.37 MOVE PROCESS

.1 Requires coordination with the User Department's processes and protocols, including:

.1 Move specific resources and a Roles and Responsibilities matrix;

.2 Move activities and logistics associated with;

.1 Pre-Move - supply of boxes, packing, data labeling requirements, etc.

.2 Move Day - preventative operational downtime logistics,

.3 Post Move – unpacking and walkthroughs, and

.4 IT Moves – equipment/infrastructure disconnect/reconnect.

.3 Meeting Schedule;

.4 Checklists;

.5 Occupational Health and Safety as per the Canada Labour Code; and

.6 Compliance with the Contractor's site specific safety plan.

5.2.38 OPERATION AND MAINTENANCE MANUAL(S) (O&M)

.1 Developed throughout the project lifecycle.

.2 Produced by the Construction Manager/Contractor and is part of the Collaborative Project Delivery integrated process and is supported by the Design Consultant and Departmental Representative.

.3 Requires Cx Process Manager sign-off at contract Substantial Performance.

.4 Prepared using product information report forms/data provided by Subcontractors, Own Forces and information from other sources as required.

.5 Refer to NMS Division 01 General Requirements document for further detail.

5.2.39 OWNER PROJECT REQUIREMENTS (OPR)

.1 Refer to CSA Z320 Article 3, Definitions.

.1 For further detail refer to ASHRAE 202, Article 6 - Owner's Project Requirements, Article 6.2 – Requirements.

.2 Developed by "the Owner" - PWGSC/User Department prior to Design or by Design Consultant during the Pre-Design Project Milestone.

.3 Text and graphics are organized to facilitate future use as a building reference document.

.1 BOD and OPR are components of the Cx Manual.

.4 A dynamic document throughout the project lifecycle that defines the Owner's values and end goals; their ideas, concepts and end state quantifiable and measurable performance benchmarks/criteria by usage, by systems and/or by occupancy classification associated with topics such as:

.1 Project Program – pertinent Functional (Space) Program extracts, such as;

.1 Basic facility data (such as, area, number of stories Occupancy and construction type(s)), user/area usage schedules, restrictions and limitations, expandability, flexibility and durability (life span).

.2 Environmental and Sustainability Goals including;

.1 LEED® certification, CO_2 monitoring, and resource reuse.

.3 Energy Efficiency Goals including;

.1 Measures affecting lighting and HVAC energy efficiency such as orientation shading, ventilation and renewable power.

.4 Indoor Environmental Quality Requirements regarding;

.1 Lighting, temperature and humidity, acoustics, air quality, ventilation and filtration, controls adjustability, after hour's accommodations, natural daylighting, ventilation and views.

.5 Equipment and system Expectations, such as;

.1 Levels of quality, reliability, flexibility, maintenance, complexity and target efficiencies, building system technologies regarding manufactures, acoustics, vibration, degree of integration, automation and functionality for controls load shedding and demand and response energy management.

.6 Building Occupant and O&M Personal Expectations;

.1 Building operation description and by whom and at what capability, level of training and orientation for occupants and O&M staff.

.7 Cx Process Manager Information;

.1 Name of Agency/Firm and contact person(s) and address name, address and personal contact.

.5 Starting with the Pre-Design project milestone the OPR is the foundation of the Commissioning Process - an integral part of Commissioning and future Re-Commissioning.

.1 Working through the various other Project Milestones is supported by the BOD documenting that the various decisions, concepts, designs, calculations, and product selections to meet the OPR.

5.2.40 PARTNERING SESSION WORKSHOP(S)

.1 Partnering is used in the architecture, engineering and construction industry and is intended to assist Project Teams with setting goals, resolving disputes and improving project outcomes.

.2 Workshop(s) are facilitated by the Prime Consultant or designate. Participants include the Owner/User Department, Project Team and other stakeholders. Initial workshops establish relationships and ground rules, and then draw out essential client needs and design requirements.

.3 Topics include, but are not limited to:

.1 Role and responsibilities matrix;

.2 Rules of engagement;

.3 Communication plan;

.4 Project status, goals, objectives, elements, scope, funding, and preliminary schedule;

.5 Deliverables plan;

.6 Measures of percentage complete and delivered;

.7 Issues tracking and documentation systems;

.8 Project risks and the initial Risk Management Plan;

.9 Review of existing available documentation and project site conditions;

.10 Schedule of biweekly (or as otherwise determined by the Departmental Representative) project and milestone meetings; and

.11 Communication and document control plan.

5.2.41 PERMITS AND FEES

.1 Refer to the Contract Documents, General Conditions (GCs).

5.2.42 PRELIMINARY PROJECT DESCRIPTION (PPD/PPDFORMAT™)

.1 PPDFormat™ is a guideline document published by the Construction Specification Institute (CSI).

.1 A tool to evaluate the design practicality during the design phase.

.2 The guide assists with an appropriate level of documenting qualitative and quantitative descriptions of "functional elements" – Elements and their respective Elemental Components, systems and assemblies comprising the project during the Schematic Design (SD) and Design Development (DD) Project Milestones.

.1 Associated deliverables are integral documents of the SD and DD Reports.

.3 PPD is organized using the Uniformat™ hierarchical structure and corresponding Level of Detail (LoD) - levels 1–5.

.1 Elemental and Elemental Components LoD breakdowns parallel preliminary project cost estimating formats, providing corresponding quantitative cost estimates per functional element, elemental component and related qualitative descriptions.

.2 The Consultant and Departmental Representative are to agree on the LoD based on the required accuracy of the Construction Cost Estimate to secure funding, manage cash flow or address risk.

.4 LoD may also be dependent on factors such as:

.1 How PPD may be used to throughout the design and documentation process to provide for opportunities, such as;

.1 Tracking decision progressions during design options development and final selection of preferred/optimum solution;

.2 Function elements complexities, and;

.3 Design decisions progression, such as, designing from the exterior into the interior.

.2 Preferred delivery format during the SD and DD Project Milestones is the "Outline Format Full Page Example" on page number 25 of the PPDFormat™ Guide.

.1 The Outline Format facilitates design progression tracking throughout the design phase Project Milestones.

.3 With reference to the "Outline Format Full Page Example" and the outlined Element Levels, the LoD during the SD and DD Project Milestones is as follows:

.1 SD, LoD – 4, complete with a "Description" article providing a generic description of the Level 4 functional element supported by a Basis of Design narrative may also be substantiated by the OPR;

.1 Corresponding, per Level 4 Element, Construction Cost Estimate – Class 'C', +/- 15%.

.2 DD, Level 5;

.1 While Levels 1-4 may be defined in PPDFormat™ for Levels 5 and beyond, UniFormat™ 2010 considers these Levels discretionary requiring user definition;

.1 LoD 5 is, therefore, considered defined in the following article.

.2 LoD 5 includes, as per "Outline Format Full Page Example", the following articles:

.1 Functional Requirements addressing Element overall requisite including;

.1 Performance Requirements of the assembly that are quantifiable, measurable and,
.2 Design Requirements that, for example, may affect cost or be related to design quality regarding aesthetic, utility, performance or impact, but are not directly component attributes.

.2 Components, a parts listing making up the functional element, complete with attributes that are prescriptive and/or performance based;
.1 Each Component is accompanied by a corresponding MasterFormat™ Section number to be the basis for Construction Documentation (CD) specifications.

.3 Additional outline headings to be considered include;
.1 Alternates, for consideration of their effect on cost or schedule,
.2 Material/equipment Location Schedules,
.3 Workmanship and Fabrication requirements affecting cost,
.4 Reports associated with Codes, fire and zoning searches.

.3 Corresponding, per Level 5 Elemental Component, Construction Cost Estimate – Class 'B', +/- 10%.

5.2.43 PROJECT MANAGEMENT PLAN (PMP)

.1 Live project interface document throughout the project life cycle.
.1 The Design Consultant designates a Project Manager from the Consultant Team to interface with the Departmental Representative, stakeholder and Design Team.
.2 Project Management progress is assessed against the PMP.

.2 The PMP is structured to reflect project phases and respective Project Team's interdisciplinary service category required Deliverables – actual or virtual.

.3 Establishes project Quality Control, set up with:
.1 Task management, processes, and procedures;
.2 Monitoring systems and reporting for early identification and registration of deviations and/or trends related to Quality Matrixes.

.4 Creates an opportunity to monitor other Project Team members' management processes and procedures including:
.1 Departmental Representative's PMP.

.5 PMP may include:
.1 High level, total project depiction/documentation including;
.1 Project quality and current performance status in comparison to the start of project including major changes;
.2 Risk Management: risks mitigated and risks remaining towards project completion;
.3 Issues/resolution log management: issues resolved and issues remaining towards forecasted project completion.

.2 Resource management: people, tools and others;
.3 Communication protocol: coordination, leadership, communication lines/channels, communication type, and reporting approach;
.4 Claims management: towards equitable resolutions and minimal disruptions;
.5 Scope and change management: achieving project delivery and facility feature requirements;
.6 Time management: master and detailed design/construction activities milestone deliverable schedules – updated to include slippage, recovery and claims avoidance;
.7 Budget and cost management: monitoring, tracking and projecting;
.8 Risk Management: methods of identifying and evaluating risk including risk indexes (probability/consequence), mitigation actions, progress tracking and contingency planning;
.9 Quality management: quality design and delivery;
.10 Procurement management: means of delivery;
.11 Issues/resolution management: log development and maintenance;
.12 Construction Delivery Close Out (as per Division 01) Project Management Control System; and
.13 Meetings: preconstruction, progress and special meetings.

5.2.44 PROJECT MILESTONES

.1 Pre-Design (PD)
  .1 The Design Consultant Required Service includes activities such as:
    .1 Analyse the Departmental Representative's information as may be presented at the time of Solicitation and the Project Start-up meeting; and
    .2 Confirm, that based on the provided information, the Design Consultant is prepared to proceed with the Design Contract with regards to schedule, construction cost estimate, scope of Work and quality;
      .1 Prior to proceeding with the design, the Design Consultant and the Departmental Representative may discuss additional services from the Consultant or Specialty Consultants,
      .2 The TOR may pre-establish additional services, such as providing,
        .1 OPR, and,
        .2 Programming,
      .3 Pre-Design documentation become the project delivery guiding documents, utilized throughout the project life cycle.
  .2 Final Deliverable:
    .1 Pre-Design Report.
  .3 Progressive Deliverables, such as:
    .1 OPR;
    .2 Functional Program; and

.3 Response to PWGSC QA reviews.

.2 Schematic Design (SD)

.1 The Design Consultant Required Service includes activities such as:

.1 Based on the project criteria established during PD, facilitate and provide conceptual design related documents, as per the pre-established number of required distinction options, to facilitate a decision on the preferred and/or optimum solution to proceed to Design Development;

.1 Submit the analysis the different design options against the Owner's Project Requirements (OPR) and Functional Program (FP).

.2 Provide SD documents such as drawings, reports, and other documentation or media to illustrate general scope, scale and relationships of project components, including;

.1 Preliminary selection of assemblies, systems and load calculations;

.2 Approach to mechanical and electrical systems, and

.3 Elemental and Elemental Component descriptions and Construction Cost Estimates to PPDFormat™, Uniformat™ respective Levels of Detail as agreed upon with the Departmental Representative for the development the Preliminary Project Description PPD);

.1 Preliminary Project Description (PPD/PPDFormat™) – refer to Definition for further detail.

.2 Final Deliverable:

.1 Schematic Design Report.

.3 Progressive Deliverables, such as:

.1 Updated BOD and OPR;

.2 Cx Plan; and

.3 Response to PWGSC QA reviews.

.3 Design Development (DD)

.1 The Design Consultant Required Service includes activities such as:

.1 Based on the SD design option selected, facilitate and provide documentation to define and describe all aspects of the project, with the purpose that all that remains is the formal Construction Documentation;

.2 Resolve any issues/coordination carried over from SD, refine design and coordinate all discipline details and finalize spatial, functional and operational performance requirements to minimize risk of modifications during Construction Documentation;

.3 Provide DD documents such as drawings, reports, and other documentation or media to illustrate and define the design concept in terms of, such as;

.1 Siting;

.2 Plan form and massing;
.3 Character and materials;
.4 Structural, mechanical and electrical systems, and;
.5 Elemental and Elemental Component descriptions and Construction Cost Estimates to Uniformat™ Level of Detail 5;
.1 Refer to Preliminary Project Description (PPD/PPDFormat™) Definition for further detail;
.6 Preliminary modeling and simulations (such as energy analysis and daylight simulation), and;
.7 Cx Plan and Cx construction cost including testing procedures and check sheets/forms (as per CAN/CSA Z320) associated with;
.1 Static Verification;
.2 Start-up, and;
.3 Functional Performance Testing.

.2 Final Deliverable:
.1 Design Development Report.
.3 Progressive Deliverables, such as:
.1 Updated BOD and OPR;
.2 Cx Plan, and;
.3 Response to PWGSC QA reviews.

.4 Construction Documentation:
.1 Refer to Doing Business with PWGSC Manual.

.5 Tender:
.1 The Design Consultant Required Service includes activities such as;
.1 Provide assistance and advisory services as may be necessary to the Departmental Representative in, obtaining a competitive bid and in awarding a construction contract.
.2 Deliverables, such as;
.1 Addenda;
.2 Written responses to questions, and
.3 Bid analysis and/or recommendations.

.6 Construction:
.1 The Design Consultant Required Services includes activities such as;
.1 Provide assistance and advisory contract administration services to the Departmental Representative to administer the construction contract as set out in the general conditions of the contract for construction;
.1 The Design Consultant is not an “Agent” of the Crown nor responsible for Contractor’s performance.
.2 Act as Departmental Representative’s professional advisor in interpreting the contract documents;
.3 Consult on the Contractor’s performance, and;

.4 Review the construction.

.2 Deliverables;

.1 Multiple deliverables as per;

.1 Consultant's contract general conditions, and;

.2 TOR specified Deliverables.

.7 Close Out:

.1 The Design Consultant Required Service includes activities such as;

.1 Provide assistance in the use and occupancy of the facility.

.2 Assist and advise Departmental Representative with;

.1 The Contractor's performance and guarantees documentation;

.2 Prior to the 12 month warranty period, review defects or deficiencies observed by the Departmental Representative;

.1 Compile items that require the Contractor's attention to complete the terms of the Contract.

.2 Final Deliverable;

.1 Year End Warranty Review – defect status.

.3 Progressive Deliverables, such as;

.1 Lessons learned.

5.2.45 Project Team

.1 Typically includes entities, such as:

.1 Departmental Representative,

.2 Consultant;

.3 Independent third parties also in contract with PWGSC, and;

.4 User Department and Operational personnel.

5.2.46 PWGSC Commissioning Manager (PWGSC Cx Mgr)

.1 Government commissioning liaison amongst all project stakeholders and reports to the Departmental Representative.

.2 Undertakes Quality Assurance Reviews of Cx submissions.

5.2.47 Quality

.1 The degree to which the Work meets or exceeds the Project requirements and expectations.

5.2.48 Quality Assurance (QA) Reviews

.1 PWGSC QA Reviews are an advisory service to the Project Team and stakeholders where respective submission/deliverable accountabilities remain in effect as per contractual conditions or other forms of commitment.

.1 Design Consultant remains professionally accountable for the design validation and verification required of the Project Milestone submissions during the project life cycle.

.2 QA Reviews, supported by commentary, conclude with a risk assessment associated with Quality of design and documentation deliverables, and include:

.1 Parameters to confirm at the onset of a review whether deliverables are appropriately scoped and detailed with respect to current Project Milestones or phase/progressive submissions.

.3 QA Reviews focus on Quality Indicators (QI) parameters associated with Design Quality Indicators (DQI) and Quality Deliverable Indicators (QDI).

.4 Design Quality Indicators (DQI):

.1 3 Aspects of DQI:

.1 Functionality – design utility;

.2 Build Quality – design performance, and;

.3 Impact – project contextual interactivity (such as cultural, market, environmental conditions/factors):

.1 Project impact on context, and vice versa;

.2 Context impact on project.

.2 Each DQI Aspect is considered against Good Design Protocols, such as;

.1 Creativity and Technical Competence;

.2 Functional Suitability;

.3 Whole-of-Life Performance;

.4 Health, Safety and Security;

.5 Inspiring and Attractive;

.6 Appropriate Innovation, and;

.7 Sustainable and Enduring.

.3 As each DQI Aspect is considered against Good Design Protocols, each Aspect is also assessed against the same Characteristics such as:

.1 Conceptual Integrity;

.2 Functionality;

.3 Operability;

.4 Constructability, and;

.5 Claims Prevention.

.5 Quality Deliverable Indicators (QDI):

.1 Focus on documentation delivery.

.1 Submitted documentation is assessed against 6 characteristics:

.1 Clarity;

.2 Completeness;

.3 Compliance;

.4 Consistency;

.5 Correctness, and;

.6 Decision Traceability.

5.2.49 RECOMMISSIONING MANUAL

.1 Deliverable by Design Consultant's Cx Process Manager/Cx Authority.

.2 Refer to CSA Z320 Article 4.9.4, Recommissioning manual.

5.2.50 Risk Management Plan

.1 Departmental Representative (DR) initiates and maintains a PWGSC RM Program.

.2 The objective of the Plan is to develop a methodology to improve risk management by:

.1 Establishing risk policies to confirm acceptable levels of non-compliance as per DR Risk Management Plan;

.2 Focusing on external and internal risk parameters, and;

.3 Articulating an approach/framework to identifying risk and its impact in advance and managing the risk with the goal of reducing, transferring or avoiding risk where appropriate.

.3 Program and Plans are collaboratively monitored and amendments are proposed to the DR by the Project Team as required for an effective project delivery.

5.2.51 Standard Operating Procedures

.1 Systems Operations Manual component.

.2 Procedures are to meet the Canada Labour Code requirement of "every employer" (User Department) by way of "a qualified person to set out, in writing, instructions for operations, inspections, testing, clearing and maintenance" of various components, systems and integrated systems.

.1 Updated throughout the building lifecycle for continued safety and consistent Work practices.

.2 Capable of being the basis for the development of Departmental policies.

.3 Includes site specific:

.1 Equipment, chemicals and other concerns such as life safety compliance, emergency provisions/procedures, security, access, sustainability and the environment.

.2 Series of flow charts designed to model the actions, activities and network of interconnected activities associated with systems and related operations and maintenance.

5.2.52 Static Verification

.1 Refer to CSA Z320 Article 4.4.4, Static Verification.

.1 Add to Article 4.4.4 the following review requirements:

.1 Review select equipment certificated of authenticity (such as, circuit breakers).

5.2.53 Sub-Project

.1 User Department/Departmental Representative project Work completed by a Departmental Service Provider requiring a coordinated delivery in a main capital Works project, for example:

.1 IT Works, Furniture delivery and installation;

.2 If Work takes place in the same space and time as capital Works then capital Work's health and safety plan governs Sub-Project Work.

5.2.54 SYSTEMS

.1 Refer to CSA Z320 Article 5, Specific systems.

.1 Require confirmation of other systems, such as those that may relate to, for example:

.1 Civil Engineering;

.1 CSA Z320 currently considers related systems outside the building foot print and therefore not included in the Standard;

.2 Sound Masking;

.1 As part of CSA Article, 5.1.3.4, Interior Space, Functional Performance Testing;

.3 Duct Pressure Tests and Indoor Air Quality (IAQ) Tests;

.1 As part of CSA Article, 5.4.3.4, Mechanical Systems, Functional Performance Testing.

5.2.55 SYSTEMS OPERATIONS MANUAL (SYSTEMS DESCRIPTIONS/SYSTEMS MANUAL)

.1 Developed throughout the project lifecycle.

.2 Refer to CSA Z320 Article 3, Definitions.

.3 Extend the CSA Definition to include in emergency conditions as a mode of operation.

.4 Normally produced by the Construction Manager/Contractor and as part of the Collaborative Project Delivery integrated process with Support by the Design Consultant and Departmental Representative.

.1 Requires Cx Process Manager sign-off at contract Substantial Performance.

.5 Standard Operating Procedures document is a component of the Systems Operations Manual – see Definition.

5.2.56 UNIFORMAT™

.1 A uniform, hierarchical classification structure of construction systems and assemblies.

.1 Current version – CSI/CSC Uniformat™, 2010 edition.

.2 UniFormat™ organizational structure also guides the development and delivery of:

.1 Construction Cost estimates – refer to Definition for further detail and;

.2 PPDFormat™, Preliminary Project Descriptions during the design phase – refer to Definition for further detail.

5.2.57 VALUE ENGINEERING (VE)

.1 Value Engineering (Assessment) methodology, as related to competing options assessment, emphasizes the return-on-investment aspect of decision making in terms of LCC to maintain or improve the desired levels of capability and performance during planning, design, construction and procurement.

.1 When the options satisfy the required function, then the best value option is to be identified by comparing the first costs and life-cycle costs of each alternative.

.2 Refer to industry standard practices for value methodologies associated with buildings and building systems such as, SAVE and ASTM Standards.

.3 Also refer to Life-Cycle Costs definition.

5.2.58 WORK

.1 Refer to Contract Documents: General Conditions (GCs).

5.2.59 WORK BREAKDOWN STRUCTURE (WBS)

.1 Integral to schedules and project execution plans.

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