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SOLICITATION AMENDMENT

MODIFICATION DE L'INVITATION

The referenced document is hereby revised; unless otherwise indicated, all other terms and conditions of the Solicitation remain the same.

Ce document est par la présente révisé; sauf indication contraire, les modalités de l'invitation demeurent les mêmes.

Comments - Commentaires

All enquiries are to be submitted in writing to the Contracting Officer, Janine Donovan: Email - janine.donovan@pwgsc.gc.ca.

Vendor/Firm Name and Address
Raison sociale et adresse du
fournisseur/de l'entrepreneur

Issuing Office - Bureau de distribution
Public Works Government Services Canada- Bid
Receiving / Réception des soumissions
189 Prince William Street
Room 405
Saint John
New Bruns
E2L 2B9

Title - Sujet Construction Mgr Svc-Province House	
Solicitation No. - N° de l'invitation ED001-180516/A	Amendment No. - N° modif. 001
Client Reference No. - N° de référence du client ED001-180516	Date 2017-07-26
GETS Reference No. - N° de référence de SEAG PW-\$PWB-020-4163	
File No. - N° de dossier PWB-7-40028 (020)	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2017-09-06	
Time Zone Fuseau horaire Atlantic Daylight Saving Time ADT	
F.O.B. - F.A.B. Plant-Usine: <input type="checkbox"/> Destination: <input checked="" type="checkbox"/> Other-Autre: <input type="checkbox"/>	
Address Enquiries to: - Adresser toutes questions à: Donovan, Janine PWB	Buyer Id - Id de l'acheteur pwb020
Telephone No. - N° de téléphone (506) 636-5347 ()	FAX No. - N° de FAX (506) 636-4376
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction:	

Instructions: See Herein

Instructions: Voir aux présentes

Delivery Required - Livraison exigée	Delivery Offered - Livraison proposée
Vendor/Firm Name and Address Raison sociale et adresse du fournisseur/de l'entrepreneur	
Telephone No. - N° de téléphone Facsimile No. - N° de télécopieur	
Name and title of person authorized to sign on behalf of Vendor/Firm (type or print) Nom et titre de la personne autorisée à signer au nom du fournisseur/ de l'entrepreneur (taper ou écrire en caractères d'imprimerie)	
Signature	Date

Solicitation No. - N° de l'invitation
ED001-180516/A
Client Ref. No. - N° de réf. du client
R.073771.011

Amd. No. - N° de la modif.
001
File No. - N° du dossier
PWB-7-40028

Buyer ID - Id de l'acheteur
pwb020
CCC No./N° CCC - FMS No./N° VME

This Solicitation Amendment No. 1 is raised to include the following Addendum No. 1.

The following addendum to the Request for Proposal documents is effective immediately. This addendum shall form part of the contract documents.

All other terms and conditions remain the same.

Addendum No. 1

ADD the following documents as referenced in the Terms of Reference to the RFP Package:

- Terms of Reference Definitions
- Division 1 – General Requirements
- General Procedures & Standards



Construction Management Services

TERMS OF REFERENCE DEFINITIONS

Province House Conservation

For:

**Parks Canada Agency
Charlottetown, Prince Edward Island**

July 19, 2017



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1 DEFINITIONS

1.1 GENERAL

1.1.1 PURPOSE

- .1 Document Definitions:
 - .1 Definition of words and phrases in the Terms of Reference (TOR), Definitions, Division 01 – General Requirements, and General Procedures and Standards (GP&S) Documents to:
 - .1 Expand the detail associated with services and deliverables addressed in the above Documents; and
 - .2 Ensure a clear understanding of the project scope, procedures, and Quality performance requirements.

1.1.2 DEFINITIONS

- .1 Acceptance:
 - .1 A formal action taken by an assigned person with authority (contractual or otherwise) to declare that some aspect of the project is permitted to proceed.
- .2 Accepts (as per TOR Roles and Responsibilities Matrix):
 - .1 The acceptance authority signs off on the documentation for Deliverable/Work results provided by Lead.
- .3 Activity Identifiers vs. Activity Codes
 - .1 Activity Identifiers are unique codes assigned to each of the project activities to differentiate activities from each other as well as for referencing purposes.
 - .2 Activity Codes are not unique. The same code may be applied to a group of multiple similar project activities so that
 - .1 They may be filtered-out of the project plan for further analysis; or
 - .2 Grouped for project costing and planning purposes, such as;
 - .1 Reimbursable costs, or;
 - .2 Cost/schedule reporting.
- .4 Basis of Design (BOD):
 - .1 Refers to CSA Z320 Article 3, Definitions.
 - .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 Performance Requirements (OPR) - OPR see Definition;
 - .3 In the Owner Performance Requirements (OPR) - OPR see Definition;
 - .1 As the Design Consultant BOD also outlines the intended systems for the project, in the case of a CM project delivery, the CM Cx Process Manager using a CM compliance evaluation/tracking matrix confirms BOD's compliance to the OPR.
 - .4 Documents the primary thought processes and assumptions behind design and implementation decisions.



- .5 Text and graphics are organized to facilitate future use as a building reference document;
 - .1 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 detail.
 - .6 Includes:
 - .1 Summary;
 - .1 Project's conceptual framework;
 - .2 Compliance with OPR statement;
 - .1 New Owner directives; and
 - .3 Decisions rationale 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;
 - .3 A narrative description of and statement of purpose for the selected components, assemblies, systems and methods, including:
 - .1 Areas served by respective components, assemblies and systems; and
 - .1 Illustrations of system configurations, including single line and plan drawings of each system;
 - .4 Design options and analysis considered during;
 - .1 Life cycle costing and value engineering workshops; and
 - .2 Development of sustainable features and strategies;
 - .5 Calculations and option analysis matrixes, included by discipline;
 - .1 Connected or related loads and system capacities; and
 - .2 Design criteria and the applicable codes/standards used, in calculations;
 - .6 Special features or unique supply items/sources, general control strategies, sequences, and reset schedules, such as:
 - .1 Building Components and Connectivity (BCC) requirements;
 - .1 BCC – refer to Definition for further reference;
 - .2 Seasonal switch-over procedures;
 - .3 Emergency procedures during a fire condition, power or equipment failure, including:
 - .1 Reference to Standard Operating Procedures (SOP) requirements; and
 - .1 SOP– refer to Definition for further reference,
 - .7 Interfaces with existing systems; and
 - .8 Maintenance issues.
- .5 Basis of Estimate (BOE):



- .1 A "living" document throughout the project design, construction process and project life cycle.
- .2 Prepared and updated to facilitate the understanding, assessment and validation of the estimated value breakdowns, independent of any other supporting documentation.
- .3 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, and
 - .10 Significant market events that may have an effect on the costs.
 - .11 Estimate reconciliation;
 - .1 With last submission;
 - .2 Variance related to:
 - .1 Change Orders;
 - .2 Work Package estimate and;
 - .3 Estimate Construction Cost and;
 - .3 Any other relevant information.
- .6 Biddability:
 - .1 Collaborative development of strategies to facilitate clear and competitive bids to avoid construction claims and extra contract administrative service costs.
 - .2 Includes reviews to analyze the completeness, correctness, compatibility (to project requirements), clarity, and consistency of the collection of plans, specifications, clauses, forms, schedules, and other documents and references comprising the total solicitation package and the planned contract; also
 - .1 See QA Review Definition - Design Quality Indicators (DQI).
- .7 Budget:
 - .1 Built 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 ensure funding availability/appropriation.
 - .5 Also refer to, Estimated Construction Cost definition.
- .8 Building Components and Connectivity (BCC);
 - .1 Also refer to Sub-Project Definition.
 - .2 BCC cost is not included in the Estimated Construction Cost.



- .3 Includes Information Technology (IT), Multi-Media (MM), Integrated Security Systems (ISS), furniture, systems furniture, selected built-in furniture and equipment procured by PWGSC.
- .4 PWGSC is responsible for the purchase and installation of any new Building Components as and when required.
- .5 Under typical building construction conditions, using a General Contractor (GC) or Construction Manager (CM), the PWGSC procured installers and suppliers at the construction site are subject to the coordination and safety overview of the GC/CM.
- .6 Shared Services Canada (SSC) is responsible for the supply, installation and commissioning of IT and related systems.
- .9 "Canada", "Crown"/"Her Majesty":
 - .1 Her Majesty the Queen in right of Canada.
- .10 Collaborative Project Delivery (CPD):
 - .1 The CPD approach promotes and facilitates knowledge collaboration between design and construction professionals and subject matter experts to create optimal design and construction solutions and methodologies and achieve an appropriate, timely and fiscally responsible Quality project delivery;
 - .1 Recognizing that project success is tied to all Project Team members' success in the integrated process;
 - .1 CPD process starts at Pre-Design Departmental Representative as Lead Partnering Session and the Design Consultant, as Lead, project start-up meeting early in Schematic Design;
 - .1 CPD as an interactive process continues throughout the project life cycle
 - .2 CPD objectives are for an early formation of an integrated Project Team;
 - .1 Design Consultant and Construction Manager are selected through separate processes, but in close succession.
 - .3 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 Stewardship Excellence Protocol Principles,
 - .3 Mutual support for the Project Procedures and Quality Management Plans,
 - .4 Leveraging Value Engineering, Life Cycle Costing and commissioning skills,
 - .5 Potential for early starts in the construction sequence, as the design proceeds, and
 - .6 Creation of an innovative learning environment.
- .11 Commissioning Advisor (PWGSC):
 - .1 PWGSC Commissioning Advisor, on behalf of the Departmental Representative and as part of the project contract administration, is responsible for the oversight of the development, implementation and evaluation of the Commissioning Process.



- .2 Completes the final Commissioning (Cx) Evaluation Report.
- .12 Commissioning Evaluation Report:
 - .1 A Cx Manual component.
 - .2 Prepared by the PWGSC Commissioning Advisor at end of Project Delivery stage, close-out phase.
 - .3 A debriefing report, including 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, and
 - .5 Recommended follow-up actions including Re-commissioning.
- .13 Commissioning (Cx) Manual:
 - .1 Refer to CSA Z320 Article 4.9.2, Commissioning manual.
 - .2 Includes recommendations for Re-commissioning frequency by equipment type and system,
 - .3 Requires Cx Process Manager sign-off at a Construction Contract Substantial Performance and Completion (final) milestones.
- .14 Commissioning (Cx) Plan:
 - .1 Refer to CSA Z320 Article 4.2.3 Commissioning Plan.
 - .2 A dynamic document throughout the project life cycle.
 - .1 As early as Pre-Design the Cx scope, associated risks and budget are defined and accepted.
 - .2 The CM Cx Process Manager, in collaboration with the Design Consultant, outline a plan to execute the scope.
 - .1 Initially, the Plan addresses the selection of Cx Team, activities, roles and responsibilities, schedule, and deliverables for the remainder of Pre-Design milestone.
 - .2 Ongoing Plan development is carried out through iterative reviews and as part of the CPD process, interactive workshop and meetings to ultimately become the complete plan including construction and occupancy phases of the project.
 - .3 CM project specific Cx plan, to also be included in the Division 01 of the specifications; specific to Subcontractors and Work by Own Forces.
- .15 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 designs expected performance;



- .1 Other supporting Project Team members such as the Cx Process Manager, unless otherwise stated, will only make recommendations, and observations during the design review.
- .16 Commissioning Process Manager (CPM):
 - .1 The CPM's overall responsibilities include managing the Commissioning Activities to demonstrate that the installed components, systems and overall facility meet the requirements of the OPR and the facility design. Includes Cx;
 - .1 Sequencing,
 - .2 Means and methods,
 - .3 Documentation and related sign-offs; and
 - .4 Manuals.
 - .2 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.
 - .3 Assumes the role of "Commissioning authority/commissioning provider" identified in CAN/CSA Z320-11.
 - .4 Assumes the role of an "independent Commissioning Authority" and "Commissioning Authority" as per the LEED for New Construction and Major Renovations Rating System specific to the project.
- .17 Commissioning Record Checklist:
 - .1 Outlines the deliverables to be assembled and updated over the course of the Design, Construction and Delivery Close Out.
 - .2 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,
 - .6 Design QA Review compiled reports,
 - .7 Project Issues/Resolutions Logs,
 - .8 Cx Issues/Resolutions Logs,
 - .9 Commissioning meeting minutes,
 - .10 Commissioning specifications,
 - .11 Coordination drawings,
 - .12 Testing and inspection procedures,
 - .13 System start-up plans,
 - .14 Construction checklists,
 - .15 Inspection reports,
 - .16 Test reports,
 - .17 Commissioning test certifications,
 - .18 Training plans,
 - .19 Training documentation – electronic and hard copy,
 - .20 Deferred testing documentation,
 - .21 Post-construction review/re-inspection report,
 - .22 Systems Manual,



- .23 Operations and Maintenance Manual, and
 - .24 Re-commissioning Manual.
- .18 Commissioning Report:
 - .1 A Cx Manual Component (at Construction Contract Substantial Performance and Completion – final/post Warranty) milestones;
 - .1 Requires CPM sign-off and Design Consultant verification at Substantial Performance and Completion.
 - .2 Cx Report (at Substantial Performance) based on;
 - .1 Final BOD and OPR,
 - .2 Final performance spreadsheets – OPR values to actuals,
 - .3 Final performance spreadsheets: component, systems and integrated systems - design values to actuals,
 - .4 Final training sessions,
 - .5 Post occupancy changes,
 - .6 Deferred commissioning, and
 - .7 Current information not available or incomplete at Interim Acceptance/Substantial Performance.
 - .3 Final Commissioning Report (prior to end of Warranty Period) includes:
 - .1 Final Cx Evaluation Report – produced by PWGSC Cx Advisor,
 - .2 Updated Cx Report from Substantial Performance,
 - .3 Post-Occupancy test results and evaluations, and
 - .4 Updated Issues/Resolutions Log – highlighting documented Cx resolutions.
 - .4 All progressive/interim acceptance require all Project Team members to sign-off.
- .19 Commissioning Risk Assessment:
 - .1 Cx Risk Assessment aligns the rigor of the Commissioning Process with the following 2 risk items associated with Architectural and Engineering systems:
 - .1 Building: function and performance as outlined in PWGSC Stewardship Excellence Protocols Principles, and
 - .2 Deliverables: deficiencies, such as, inaccurate as-built documentation, ineffective owner/occupant training, lack of documented system performance testing, and lack of comprehensive systems manuals
 - .2 Cx Risk Assessment is often summarized in a matrix and accompanied by a basis of assessment narrative;
 - .3 Premise of 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 have a negative impact on function and operational confidence.
- .20 Commissioning Scope:
 - .1 Conducted by a Cx Team.
 - .2 An integrated developmental process of determining the level of Cx effort based on scope, rigor, OPR, building operation and function, including:



- .1 Cx prioritization; and
 - .2 Cx Risk Assessment.
- .21 Commissioning Team (Cx Team):
 - .1 Live document throughout project life cycle.
 - .2 Objective is for interdisciplinary collaboration to ensure the Cx Process is completed and the facility criteria has been achieved.
 - .3 Cx Team composition is first identified and defined at Pre-Design followed by an integrated development of a Cx Process and the assignment of Cx roles and responsibilities and corresponding services and deliverables;
 - .1 Refer to Roles and Responsibilities Matrix Definition;
 - .1 Offers expanded roles and responsibilities to address project delivery and commissioning tasks;
 - .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,
 - .2 User Department Operating Personnel,
 - .3 Design Consultant(s) (dependant on TOR, including Consultant's Cx Process Manager),
 - .4 CMa/c Cx Process Manager), and
 - .5 Subcontractor(s) (and related sub-trades and suppliers).
- .22 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 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.
- .23 Construction Checklist:
 - .1 Also known as Contractor's Cx "systems readiness checklist".
 - .2 Ensures specified equipment is provided, undergone Static Verification, properly installed, initially Started-up and checked out in preparation for full operation and Functional Performance testing.
- .24 Construction Cost Estimate:
 - .1 Refer to the GP&S Document, Cost Management article, for further Construction Cost Estimate detail.
 - .2 Construction Cost Estimate as compared to Budget – see Definition.
 - .3 Estimates cost of the work associated with the overall project at each Project Milestone, Subcontractor tender packages, Work by CM Own Forces, Division 01 General Requirements and other supporting activities within the project lifecycle.
 - .4 Cost breakdown estimating format as per CIQS best practice;



- .1 During Design, CSC/CSI ASTM UniFormat II – to 4th/5th level of definition.
 - .2 During Construction Documentation, CSC/CSI MasterFormat - Divisional and Sectional detail using CIQS best practice.
 - .5 In all cases, include Basis of Estimate (BOE) – see Definition.
 - .6 Refer to GP&S Cost Management for further detail.
- .25 Construction Manager (CM):
 - .1 Under separate contracts the Departmental Representative retains a Design Consultant and a Construction Manager simultaneously.
 - .2 CM is a subject matter expert in construction implementation, closeout services and delivery all the while, throughout the project lifecycle providing multi-disciplinary advisory, project oversight and reporting services.
 - .3 Remuneration for CM services may have one or more 'fixed price' components (CMa) and one or more 'cost reimbursement' components (CMc).
 - .4 The CM contract, notwithstanding being specified otherwise, includes two (2) functional service types under one contract:
 - .1 CM, in an Advisory consulting capacity (CMa),
 - .1 Is not held responsible for technical design defects and does not assume any contractual responsibilities or duties of the Design Consultant(s),
 - .2 Works alongside the Design Consultant as a team member, sharing experience (for example, constructability and sequencing) as the design evolves, taking responsibility for the budget and schedule within the limits as established by the Departmental Representative, and
 - .3 Tenders construction trade packages,
 - .1 In the case of PWGSC requirement to use mandatory Departmental Procurement Instruments (to procure, for example, furniture and equipment) CM provides procurement [and installation] support.
 - .2 CM, Semi-at-Risk in a General Contractor capacity (CMc),
 - .1 Notwithstanding the limited Work by Own Forces, CM engages Subcontractors to perform the Work however, the Departmental Representative retains full control of the project scope and budget.
- .26 Construction Manager as Advisor (CMa):
 - .1 CM as Advisor is a form of Construction Management under which the CM acts as an advisor and support to the Departmental Representative during Pre-Design, Design, Construction and Closeout by maintaining a working relationship with the Departmental Representative, User Department, the Design Consultant(s), construction subcontractors, and other consultants supporting the Departmental Representative.
 - .1 CMa and CMc roles remain interrelated during Construction/ Implementation and Delivery/Closeout Phases.
- .27 Construction Manager as Contractor (CMc):
 - .1 See Semi-At-Risk;



- .1 CMc and CMa roles remain interrelated during Construction/ Implementation and Delivery/Closeout Phases.
- .28 Construction Management (CM) "Plan":
 - .1 Refer to Project Procedures Manual (PPM)) Definition;
 - .1 CM collaboratively as Lead, develops and maintains the PPM.
- .29 Constant dollar estimate:
 - .1 This is an estimate expressed in terms of the dollars of a particular base fiscal year;
 - .1 It includes no provisions for inflation.
 - .2 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 Current Dollar Estimate – see Definitions;
- .30 Construction Manager Project Manager (CM/PM):
 - .1 CM designated CM/PM to coordinate interface with Departmental Representative, Design Consultant and CM own disciplines.
 - .2 Includes direct management of and/or provision of assistance in all key actions required to deliver the project, from advising on forms of contract, procurement options, managing risk, monitoring and reporting on the Work progress throughout the project life cycle.
- .31 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.
- .32 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 Form in which financial data is usually available,
 - .2 Tax adjustments are accurately and easily made in budget year dollars, and
 - .3 Enables during analysis the construction a realistic picture over time, taking into account changes in relative prices.
 - .5 Constant Dollar Estimate – see Definitions.
- .33 Departmental Representative (D/R):
 - .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.
- .34 Design Development (DD):
 - .1 Specific to Design Consultant and Construction Management (CM) project contracts.
 - .2 Subsequent to the Design Consultant's Schematic Design (SD), Design Development continues to further enhance SD deliverable details to DD levels of accuracy and acceptance and is a process and method to include:



- .1 Design coordination and resolution of all major components associated with disciplines such as, architectural, civil, structural, mechanical, and electrical;
- .2 Preparation of outline project specifications including an initial Cx focused testing procedures and check sheets/forms document related to (as per CAN/CSA Z320);
 - .1 Static Verification,
 - .2 Start-up, and
 - .3 Functional Performance Testing.
- .3 Preliminary modeling and simulations (such as energy analysis and daylight simulation); and
- .4 Updating construction and commissioning cost estimates.
- .3 The Design Consultants Design Report is of sufficient detail to assist Cx Process Manager with the ongoing development of the initial Cx Plan that also updates:
 - .1 Commissioning activities based on risk and complexity, and;
 - .2 Construction Cx cost.
- .4 Design Consultant DD Report must be signed-off by the Departmental Representative prior to proceeding with Construction Documentation.
- .35 Division 00, Procurement and Contracting Requirements:
 - .1 Instructions to bidders prepared by CMA in collaboration with the Departmental Representative and Design Consultant for each Subcontractor Tender Package.
 - .2 Prepared using the PWGSC/NRC, National Master Specifications (NMS) latest data base version.
 - .1 NMS Division 00 compliments Canadian Construction Documents (CCDC).
 - .2 Modified as required for other forms of Sub-Contract agreements.
 - .3 Includes Articles such as:
 - .1 Site Assessment;
 - .2 Bid Enclosure Requirements;
 - .3 Security Deposits;
 - .4 Performance Assurances; and
 - .5 Insurances.
- .36 Division 01, General Requirements – Sub-Contracts:
 - .1 Prepared by CMA in collaboration with the Departmental Representative and Design Consultant for each Subcontractor Tender Package.
 - .2 Prepared using the PWGSC/NRC, National Master Specifications (NMS) latest data base version.
 - .3 Sub-Contract Division 01 is aligned with the Work results associated with "PWGSC/CM Division 01".
- .37 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".



- .38 Facility Turnover:
 - .1 Refer to CSA Z320 Article 4.7, Facility Turnover Activities.
- .39 Functional Space Program:
 - .1 May be included in the RFP or may be a Pre-Design deliverable stating the end state functional and operational goals.
 - .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: HAVC, 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;
 - .2 Level 2 Program is used for larger projects with some degree of complexity; and
 - .3 Level 3 Program is used for major projects and projects with a high degree of complexity.
 - .4 Program Level selection and the associated level of detail is also determined by Cx complexity and risk, providing further supporting information to the OPR development.
- .40 Informed (as per Roles and Responsibilities Matrix):
 - .1 Being informed by the Lead of Work progress.
- .41 Interim acceptance:
 - .1 Refer to CSA Z320 Article 4.6, Interim Acceptance;
 - .2 Interim Acceptance will be synonymous with Substantial Completion as GC's of the Construction and Consultant Contract.
- .42 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 status of current/ongoing and resolved issues; and
 - .2 CM Cx I/R Log provides integral information to the Design Consultant project I/R Log.
 - .2 Issues are identified and tracked as encountered during all design phases, construction and operations of the facility;
 - .3 The 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.
 - .4 For more information on what needs to be documented refer to ASHRAE Guideline, The Commissioning Process.
- .43 Leads (as per Roles and Responsibilities Matrix):



- .1 Facilitates activity and is accountable for the resulting final documentation Delivery/Work results.
- .44 Life Cycle Costing (LCC)
 - .1 Life Cycle Costing methodology, used during investment analysis and planning, design, construction and procurement, employs a comprehensive economic comparison of competing options.
 - .1 Comparison of competing options is be made between ideas similar in nature defined to satisfy the same basic function or set of functions.
 - .2 LCC interpretation, as related to competing options assessment;
 - .1 The sum of the present values of associated with investment costs, capital costs, installation costs, energy costs, operating costs, maintenance costs, and disposal costs, over the lifetime of the project.
 - .3 Refer to industry standard practices for measuring life cycle costs of building and building systems such as, ASTM Standards.
 - .4 Also refer to Value Engineering (Assessment) definition.
- .45 Master Cost and Cash Flows Plan:
 - .1 Component of each updated Project Procedures Manual;
 - .1 Integral to the Cost Plan is a follow-up development of Cash Flows.
 - .2 An authoritative Master to which all Cost Estimates and Cost Plan/Flows roll up and are coordinated;
 - .3 In the case of the CM project delivery method, the CM is Lead on the Master Cost and Cash Flow Plan, which is collaboratively produced and updated, based on input by respective service category providers such as the Design Consultants and Construction Managers (CM) own project specific cost and projects.
 - .1 Mutually substantiates CM's and Departmental Representative's Budget.
 - .4 The Cost Plan itemizes a breakdown of major components such as:
 - .1 Construction Work, including:
 - .1 CM Subcontractor Tender/Own Forces packages including:
 - .1 Cx cost breakdowns
 - .2 Service category provider fees for disciplines such as Design Consultant and Construction Management;
 - .3 Risk Allowances, as may be identified in the Departmental Representative's Risk Management Plan;
 - .4 User Department's costs;
 - .5 Ancillary costs;
 - .6 Taxes; and
 - .7 Escalation.
 - .5 Cash Flows;
 - .1 Reflects the expected expenditure schedule for each major Cost Plan component in relation to the project Master Schedule encompassing the Design and Construction schedules.
 - .1 Enables Earned Value Analysis.



- .2 For projects with a multiple year duration, the Cost Plan and Cash Flow are presented in both constant dollars (without escalation) and in current dollars (escalated for inflation, i.e. constant dollars x appropriate cost indices for the year that the expected expenditures/spending will occur).
 - .1 See Definitions for Constant and Current Dollars.
- .46 Master Schedule (Master Project Schedule):
 - .1 Component of each updated Project Procedures Manual;
 - .2 An authoritative project schedule to which all other schedules roll up and are coordinated;
 - .3 In the case of CM project delivery, the CM is Lead on the Master Schedule, which is collaboratively produced and updated based on input by service category providers such as the Design Consultant and Construction Manager (CM) using their own project specific Schedules.
 - .1 Mutually substantiates CM's and Departmental Representative's Schedule as agreed upon through an integrated collaborative process.
 - .4 Prepared and tracked using Microsoft Project:
 - .1 Detailed network diagrams, with work breakdown structures and Key milestones listings;
 - .2 Critical Paths for all key activities, with key milestone dates and lead times for each activity;
 - .1 Gantt Charts require Departmental Representative's agreement;
 - .3 An anticipated start and completion dates for all design and construction activities, linked by interdependent activities that must be completed prior to the start of a subsequent activity; and
 - .4 Separate schedules for each tender package.
- .47 Move Plan:
 - .1 Identifies move tasks, dependencies, and task duration;
 - .2 Explores potential move optimization and risk minimization; and
 - .3 Includes phasing, specific timeline/Gantt chart, order and process for relocations, hoteling (office) and final moves.
- .48 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 CMc/Contractor site specific safety plan.
- .49 National Project Management System (NPMS)
 - .1 NPMS is Public Works and Government Services Canada's (PWGSC) project management framework for Real Property projects.
 - .1 It defines key principles and provides the directives, roadmaps, deliverables and tools needed to successfully deliver projects on scope, on time and on budget.
 - .2 The website provides guidance, tools, templates and supporting documents for PWGSC management teams, project teams, consultants and other governmental clients in Real Property.
 - .1 <http://www.tpsgc-pwgsc.gc.ca/biens-property/sngp-npms/index-eng.html>
- .50 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 CPD 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 Division 01 General Requirements document for further detail.
- .51 Owner Project Requirements (OPR):
 - .1 Refer to CSA Z320 Article 3, Definitions.
 - .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; and
 - .1 BOD and OPR are components of the Cx Manual;
 - .1 BOD, refer to Definition for further detail.
 - .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, CO₂ monitoring, 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 hours accommodation, 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, and;
- .7 CM 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.
 - .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.
- .52 Own Forces (Work by Own Forces):
 - .1 Referenced in the Supplementary Conditions (SC to the GCs) of the Bid Solicitation Documents (RFP) and establishes limits to the value of individual construction work packages for which the CM is allowed to submit tenders:
 - .1 Intent is to limit Own Forces to Construction/Implementation and Delivery Closeout; advisory, coordination and services as a CMc - "general contractor".
 - .2 CMc Own Work Force are not subject to competitive bidding and often include conducting limited amounts of construction not included in the Subcontractor's Work, such as temporary facilities and services (e.g. hoarding, temporary heat, site office, power, water, security, hoisting, etc.) clean-up, miscellaneous cutting, patching, blocking, and other similar work when permitted by the Departmental Representative.
- .53 Participate (as per Roles and Responsibilities Matrix):
 - .1 Take part in activities/deliverables such as, meetings and workshops.
- .54 Partnering Session Workshop(s):
 - .1 Workshop(s), which includes the Project Team and other stakeholders;



- .1 Within the Workshop various members will be required to lead specific Deliverables of the Workshop.
- .2 Within the Workshop various members will be required to Lead specific Workshop deliverables as agreed upon by consensus, concluding with a review of the Project Procedures Manual – see Definitions.
- .3 Other topics include:
 - .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 Departmental Representative) project and milestone meetings, and
 - .11 Communication and document control plan.
- .55 Permits and Fees:
 - .1 Refer to Contract Documents: General Conditions (GCs).
- .56 Preliminary Project Description (PPD/PPDFormat™):
 - .1 Refer to GP&S Document for further detail.
 - .2 During Design, is the framework for supporting the development of Outline Specifications and corresponding Elemental Cost Breakdowns;
 - .1 Required levels of detail dependant of minimum required cost estimate accuracies per Project Milestone deliverables;
 - .1 Refer to GP&S Document, article Cost Management for further detail.
 - .3 A live document during Schematic Design (SD) and Design Development (DD) Project Milestones;
 - .1 Integral content to the SD and DD Reports, and
 - .2 Facilitates an audit trail through to Construction Documentation (CD).
 - .4 The Uniformat II structure on which the PPD narrative and corresponding elemental/component cost estimate is based on – PPDFormat, is an opportunity for early interdisciplinary conceptualization of baseline building systems, construction systems, assemblies and components organized in an industry standard sequence;
 - .1 PPD narratives based in on respectively specified UniFormat Level of Detail for SD and DD Project Milestones satisfy the requirements for Outline Specifications Deliverables, including;
 - .1 Commissioning Specifications.



- .2 PPDFormat also coordinates with MasterFormat thereby, a link to CD specifications and MasterFormat Divisional/Sectional cost estimate breakdowns.
- .57 Project Execution Plan (PEP):
 - .1 Component of Project Procedures Manual (PPM) – refer to Definition.
 - .2 Live document throughout the project life cycle.
 - .3 Plan is structured to reflect project phases and respective Project Team members' required service category – service categories such as: Design Consultant or Construction Manager.
 - .4 Tracks project progress, to Post Occupancy, and is assessed against the PEP.
 - .5 Establishes how the work will be executed, monitored, and controlled based on the remaining performance monitoring PPM Sections.
 - .6 PEP may include:
 - .1 Staffing and the related management plan;
 - .2 Roles, Responsibilities and Authorities;
 - .1 Developed as part of a Partnering Workshop Session and concluded in a summary matrix.
 - .3 Document control systems and distribution matrix – also refer to project QMP and QC Plan Definitions;
 - .4 Change management;
 - .5 Mentoring and reporting strategies;
 - .6 Cost plan, management and tracking procedures and alternative cost evaluation strategies;
 - .7 Risk analysis and procedures for inputs into the Departmental Representative's Risk Management Plan;
 - .8 Project schedule including:
 - .1 Master schedules and milestone deliverables;
 - .2 Work Breakdown Structure (WBS);
 - .3 Phase/sequencing of construction;
 - .4 Design Consultant required services and performance;
 - .5 Div. 01 Work – from start of Construction/Implementation to Close Out;
 - .6 Site mobilization, site facilities, and site work verification;
 - .7 Subcontractors' Work and Work by Own Forces including:
 - .1 Submission and final Close Out procedures and deliverables.
 - .8 Contracting, procurement, and delivery methods including:
 - .1 Subcontractors Tender Packages, including project manual/specifications Div. 00 and Div. 01 (multiple contracts/fast-track construction);
 - .2 Specialty Subcontractors;
 - .3 RFI, C/O Issues and Resolutions tracking;
 - .4 Advance procurement; and
 - .5 LEED Certification



- .9 Working within Government and outside governance and approval agencies;
- .10 Administrative systems and procedures (on and off site);
- .11 PWGSC/Departmental Representative accounting practices;
- .12 Health and Safety preparedness and management;
- .13 Environmental Policies;
- .14 Quality Assurance strategies
 - .1 Refer to project QMP/QA Plan and QA Review Definitions;
- .15 Commissioning (Cx) Plan
 - .1 Refer to Cx Plan Definition;
- .16 Partial/Total Substantial Performance (Occupancy) project evaluation strategy including compliance with updated Owner Project Requirements (OPR), and;
- .17 Meeting information.
- .58 Project Management Plan (PMP):
 - .1 Component of the Project Procedures Manual (PPM) – refer to Definition.
 - .2 Live project interface document throughout the project life cycle.
 - .1 In the case of a CM project, the CM designates a CM own Project Manager (CM/PM) to interface with the Departmental Representative Design Team and CM own disciplines.
 - .2 Project Management progress is assessed against the PMP;
 - .3 PMP is structured to reflect project phases and respective Project Team's service category required Deliverables – actual or virtual.
 - .1 Service categories such as: Design Consultant or Construction Manager (CMa/c).
 - .4 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.
 - .5 Creates an opportunity to monitor other Project Team members' management processes and procedures including:
 - .1 Departmental Representative's PMP.
 - .6 PMP may include:
 - .1 As part of Project Oversight service, Periodic Project Review Documentation (PPRD) – 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: co-ordination, 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.
- .7 For further detail, refer to - QC Methodologies and Tools and QC Processes and Metrics definitions.
- .59 Project Milestones:
 - .1 Refer to General Procedures and Standards (GP&S) Document(s);
 - .1 Section 2: Project Administration;
 - .1 For CM – Article, Project Management and;
 - .2 For Design Consultant – Article, Project Milestones.
- .60 Project Oversight (PO):
 - .1 A Quality Assurance reporting program of partnering relationships, monitoring, evaluating and communicating the overall project performance on a scheduled basis to provide confidence in the project Quality delivery to meet the Owner Project Requirements (OPR) and be completed on time and on budget;
 - .1 Primary Deliverable - Project Oversight Reports (POR);
 - .2 Refer to GP&S Document for further report related detail.
 - .2 Stands separate from other management functions with no direct, front line responsibility for successful delivery.
 - .3 Acts in a check-and-balance or feedback for typical project management services such as Cost Management, Schedule Management, Quality Management, Risk Management, Contract Management and specialty Services such as Procurement Management and Cx Management.
 - .1 Point of view - Project Management versus, Project Overview;
 - .1 Project Management – detailed task level view;
 - .1 Active management of task actions and interactions
 - .2 Project Overview – product deliverable and process view;



- .1 Ensuring interactions are managed towards an effective and efficient delivery.
- .4 Determining levels of Design Consultant and CM respective Oversight is a collaborative Project Team effort, including:
 - .1 Reporting/Review structure, including;
 - .1 Requirement for validation;
 - .2 Informational demands, including;
 - .1 Required tools to perform Oversight, and;
 - .2 Dependent on cost, schedule risk and complexity;
 - .3 Reporting frequency;
 - .5 Governed by defined roles and responsibilities and management services and processes.
 - .1 Design Consultant, as Lead, first Oversight deliverable is the Roles and Responsibilities Matrix, followed by;
 - .1 POR's;
 - .2 CM, as Lead, first Oversight deliverable is the Project Procedures Manual (PPM), followed by;
 - .1 POR's.
- .61 Project Procedures Manual (PPM):
 - .1 Critical to a Collaborative Project Delivery (CPD) – see Definitions.
 - .2 Live document throughout the project life cycle;
 - .1 Mutually enforced, collaboratively monitored and amended by the Project Team as required for an effective project delivery, which includes:
 - .1 Procedures for continuous process monitoring and Quality improvement;
 - .2 Initial and amended PPMs requires Departmental Representative's Acceptance.
 - .1 Supports Departmental Representative's project governance associated with the Project Charter and Project Plan – see NPMS Definitions.
 - .3 Initial PPM is an output of a Partnering Session:
 - .1 Departmental Representative is the Partnering Session Lead;
 - .2 Sections of the PPM are collaboratively produced with the Project Team based on respective service category provider's own internal corporate PPMs and initially proposed project and discipline specific PPMs.
 - .4 In the case of a CM project, the CM Leads PPM development and is responsible for updates;
 - .5 Automates day to day interactions throughout the project life cycle involving project management, advisory and construction services;
 - .1 Sets Project Team terms of reference and realm of operations;
 - .2 Ensures planning and execution are carried out to achieve a Quality project;
 - .3 General focus includes, policies, legislation, procedures, standards of practice and basic systems and measures for evaluating performances, linked to various task elements of the Plans and Deliverables.



- .6 An authoritative project specific manual to which all other management process, respective discipline procedures, practices, tools and deliverables roll up and are coordinated to ensure an integrated project specific delivery process.
- .7 PPM Sections:
 - .1 Project Management Plan (PMP) (see Definitions);
 - .1 Contains topics used in the PEP
 - .1 Establishes project control, and set up with, procedures, systems, monitoring and reporting for early identification and registration of deviations and/or trends.
 - .2 Project Execution Plan (PEP) (see Definitions);
 - .1 Deals with the day to day activities and schedule in an effort to execute the PMP.
 - .1 Establishes how the Work (Design and Construction) will be executed, monitored and controlled.
 - .3 Quality Management Plan (see Definitions);
 - .1 Approach to Quality measurement and control.
 - .4 Risk Management Program (see Definitions);
 - .1 Collaborative project team effort with the (D/R) to develop the D/R Risk Management Plan.
- .62 Project Team:
 - .1 Typically includes:
 - .1 Departmental Representative; and
 - .2 Project Delivery Stage services category Team entities such as, Design Consultant and Construction Manager who may be separately but concurrently in contract with Departmental Representative to be part of an integrated delivery process.
 - .2 Team may also include:
 - .1 Independent third parties also in contract with PWGSC; and
 - .2 User Department and Operational personnel.
- .63 Purpose and Need:
 - .1 TOR article.
 - .2 Project's Purpose and Need is defined to enable consultant / contractor to set the framework and understand expected evaluation standards during the exploration and development of design alternatives.
- .64 PWGSC Cx Advisor:
 - .1 Government commissioning liaison amongst all project stakeholders and reports to the Departmental Representative;
 - .2 A Cx Team member;
 - .3 Provides due diligence overview; and
 - .4 Responsible for delivering the Final Cx Evaluation Report.
- .65 Quality:
 - .1 The degree to which the Work meets or exceeds the Project requirements and expectations.
- .66 Quality Assurance (QA) Reviews:



- .1 QA Reviews of Project Milestone submissions are scope and activities associated with the QA Plan – see QMP Definition;
 - .1 Design Consultant remains professionally accountable for Consultant required milestone submissions during the project life cycle; and
 - .2 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.
- .2 QA Reviews, supported by commentary, conclude with a risk assessment associated with design and documentation Quality, and include:
 - .1 Verification parameters to confirm at the onset of a review whether deliverables are appropriately scoped and detailed with respect to current milestones or phase submissions.
- .3 QA Reviews focus on Quality Indicators (QI) associated with Design (DQI) and Delivery (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
 - .2 Context impact on project.
 - .2 Each DQI aspect is applied to each of the PWGSC 7 Stewardship Excellence Protocols Principles (see Definitions)
 - .1 As each DQI Aspect is applied to the Protocol Principles, each Aspect is also assessed against the same 6 characteristics:
 - .1 Conceptual Integrity;
 - .2 Functionality;
 - .3 Operability;
 - .4 Constructability;
 - .5 Biddability; and
 - .6 Claims Prevention.
- .5 Quality Delivery 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 Traceability.



.67 Quality Management Plan (QMP):

- .1 Component of the Project Procedures Manual (PPM) – refer to Definition;
 - .1 The Plan is structured to reflect project phases and respective Project Team's required service categories such as, Design Consultant or Construction Manager.
- .2 Project progress, to Post Occupancy, is assessed against the QMP;
- .3 Live document throughout the project life cycle;
- .4 Integral to Project Oversight services.
- .5 Establishes how quality is to be managed and gauged and how the process will be improved throughout the project life cycle;
 - .1 Includes procedures for continuous process monitoring and quality improvement, and;
 - .2 As part of the QP process/activity, Consultants and Contractors may develop their respective disciplinary PMPs and QMPs in mutual support of each other processes and in support of the Departmental Representative's PMP.
- .6 Identifies/confirms, quantifiable and measureable quality related performance requirements to be achieved for both the management of the project/process and the management of the product, outcome, or deliverable;
- .7 Determines acceptance methods for:
 - .1 Deliverables being produced to quality/performance levels and
 - .2 Design, procurement, and construction processes being managed and delivered in an effective and appropriate manner.
- .8 Consists of four (4) continuously interrelated processes that are applicable to respective service categories supporting plans and their accompanying details to be linked to the respective tasks/deliverables;
 - .1 Quality Planning (QP):
 - .1 Process of identifying/confirming quality requirements and/or standards for the project and deliverables, and documenting how the project will demonstrate compliance;
 - .2 Process of reviewing project processes and supporting deliverables and detailing their corresponding quality standards in the Quality Assurance (QA) and Quality Control (QC) of the QMP;
 - .3 Process of establishing, for example, Quality related standards, metrics, checklists and problem remediation strategies, and;
 - .4 Deliverables, such as: Quality Metrics and Scope, Cost, Schedule, Risk Management Plan(s), and baseline performance narratives.
 - .1 Refer to TOR for project specific related Deliverables.
 - .2 Quality Assurance (QA) Plan:
 - .1 Procedures for conducting all Design and Construction reviews.
 - .2 Process of identifying, assessing, responding to, monitoring and controlling project Quality;



- .3 Process of iterative reviews, providing confidence that quality requirements are being fulfilled and confirming the Quality Control (QC) programs effectiveness;
- .4 Process of establishing, for example, data collection, distribution and response structure for planning data collection, and;
- .5 Deliverables, such as: Design and Construction QA Review commentaries and risk to Quality assessment, Site Reviews/Inspections and Issues/Resolution Logs.
 - .1 QA Review – see Definitions.
 - .2 Refer to TOR for project specific related Deliverables.
- .3 Quality Control (QC) Plan:
 - .1 Process of developing procedures, systems, and controls to address and mitigate negative impacts due to unexpected conditions internal and external to the project;
 - .2 Process of monitoring project deliverables to verify that the deliverables are of acceptable quality, completeness and correctness;
 - .3 Process for records maintenance and retrieval, and;
 - .4 Deliverables, such as schedules, QC Tools and Methodologies, QC Metrics, Guidelines (for routine technical activities - reviews, testing, inspections and action) and QC Reporting.
 - .1 Refer to TOR for project specific related Deliverables.
- .4 Independent Verification and Validation Plan (IV&VP);
 - .1 Process of evaluating project and deliverables by an independent third party, to confirm they meet specified requirements (verification), and meet the needs of the intended target performance/audience (validation);
 - .2 Process for high risk and complex projects, and;
 - .3 For deliverables, refer to TOR if project is determined to be high risk and complex.
- .68 Quality Control (QC) Methodologies and Tools:
 - .1 QC Tools and Methodologies involves the consideration of:
 - .1 Availability of construction materials and cost comparisons;
 - .2 Project costs and expenditures;
 - .3 Project schedule and progress;
 - .4 Construction and constructability methods and available skill levels;
 - .5 Scope and quality of design, construction materials and systems overview;
 - .6 Alternative approaches to completing the work;
 - .7 Issues/Resolution logs;
 - .8 Risk Assessment/Impact on Quality Matrixes;
 - .9 Change and Change Order control;
 - .10 Life Cycle Cost analysis;
 - .11 Sustainability strategies;
 - .12 Commissioning strategies;



- .13 Value Engineering;
- .14 Risk Management, and;
- .15 Claims Avoidance.
- .69 Quality Control (QC) Processes and Metrics document:
 - .1 QC Processes and Metrics forecast and evaluate management process and deliverable quality;
 - .2 QC Processes and Metrics application involve:
 - .1 Development of project activities to be executed;
 - .2 Description of procedures, roles and responsibilities, and levels of authority;
 - .3 Documentation: Type, outline formats and corresponding reporting schedules.
 - .3 QC Processes, and Metrics are applied to:
 - .1 Project Management program;
 - .2 Monitoring project and reporting (as per a schedule);
 - .3 Records management: Collection, maintenance, storage, tracking and retrieval;
 - .4 Implementation of a Quality Assurance program;
 - .5 Preparation, updating, monitoring and maintenance of the Master documents:
 - .1 Schedules, Cost Plans, Cash Flow Progress Payment and Change Orders.
 - .6 Update, monitor and maintain the Cost Plan, Progress Payments, Change Orders and Cash Flow;
 - .7 Communication management as directed by the Departmental Representative between project delivery team participants based upon the documented roles, responsibilities and authority of team members, and a listing of meetings, frequency and type;
 - .8 Correspondence, reports and performance records management;
 - .9 Electronic correspondence distribution;
 - .10 Shop Drawings distribution and review processes;
 - .11 The Tender Package/Own Forces Contracts and Change Orders review and approval processes; and
 - .12 Maintenance of the Issues/Resolution log throughout the project life cycle recording participants, and the date and location of all decisions affecting schedule, budget, scope, or quality.
- .70 Risk Management (RM) Program/Plan:
 - .1 A component of the Project Procedures Manual (PPM);
 - .2 Departmental Representative (D/R) as Lead, initiates and maintains a RM Program to be in compliance with PWGSC National Project Management System (NPMS) requirement for a D/R RM Plan.
 - .3 The objective of the Plan is to develop a methodology to improve risk management by:
 - .1 Establishing risk policies to ensure acceptable levels of non-compliance as per D/R RM 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.
- .4 Program and Plans are collaboratively monitored and amendments are proposed to the D/R by the Project Team as required for an effective project delivery.
- .71 Roles and Responsibility Matrix (R&R Matrix):
 - .1 A Partnering Session output which is incorporated in the Project Procedures Manual (PPM);
 - .1 Design Consultant acts as Lead on the development and is responsible for completing updates throughout the Project life cycle.
 - .1 Every version requires the Departmental Representative's acceptance.
 - .2 Mutually enforced, collaboratively monitored, and amended by the Project Team as required for an effective project delivery.
 - .2 Establishes pre-construction, construction and project delivery closeout roles and responsibilities. Requires an understanding of:
 - .1 Contractual and functional links, lines of communication and related activities, project team consensus building, review processes, data gathering, documentation of deliverables, and methods for identifying responsible parties in conditions of overlapping/parallel activities.
 - .3 Includes assignment specific matrixes such as a Commissioning Responsibility Assignment Matrix.
 - .4 The R&R Matrix, a summary of services and deliverables is not at the exclusion of overall contractually Required Services.
- .72 Schematic Design (SD):
 - .1 Specific to Design Consultant and Construction Management (CM) project contracts;
 - .2 Subsequent to the Pre-Design development of the Functional Program (FP) and Owner's Project Requirements (OPR), SD provides an opportunity for Project Team QA Reviews, and a method to fully investigate and fine tune the design before beginning Design Development (DD);
 - .3 SD detail includes preliminary selection of assemblies, systems and load calculations;
 - .4 Consultant's SD Report is completed with sufficient detail to facilitate the Project Team with further Project Procedures Manual development.
- .73 Semi-at-Risk (CMa/c Contracts)¹ :
 - .1 Common and unique PWGSC/NPMS term for CM Contracts involving CMc Required Services;
 - .2 CMc safely facilitates and coordinates project:
 - .1 Implementation/Construction, Delivery Close Out Work, Subcontractors and Own Forces Work to maximize quality, limit the schedule, and prioritize costs;



- .3 CMc, in contract with multiple Subcontractors and Suppliers is:
 - .1 Responsible for the Project Execution Plan (related to, Implementation, Delivery and Close Out phases) including construction means, methods, sequences and procedures to ensure quality performance and delivery, and;
 - .2 Accountable for contracting risks inherent in each of the sub-contracts and assumes responsibility for the respective performance, much as a general contractor would under the traditional methods of design/bid/build;
 - .1 Basis of payment associated with Sub-Contracts or Own Forces Work is as a cost reimbursement.
- .4 The CMA provides oversight on CMc Work including:
 - .1 Project management and planning, cost management, time management, risk management, quality management, contract administration, safety management and claims prevention.
- .74 Standard Operating Procedures (SOP);
 - .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 safe 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.
- .75 Stewardship Excellence Protocol Principles:
 - .1 PWGSC Real Property Branch oversight tool to:
 - .1 Define Quality of its real property solutions; and
 - .2 Guide the design, delivery and management of its assets.
 - .2 Seven (7) Protocol Principles:
 - .1 Creativity and Technical Competence;
 - .1 Create solutions in accordance with good design principles with an ingenious and productive team.
 - .2 Functional Suitability;
 - .1 Appropriate for use and place. Fit-for-purpose solutions.
 - .3 Whole-of-Life Performance;
 - .1 Enhanced long-term economic advantage and value.
 - .4 Health, Safety and Security;
 - .1 Healthy, safe and comfortable workplace.
 - .5 Inspiring and Attractive;



- .1 Expression of civic significance, cultural values and sense of place.
 - .6 Appropriate Innovation; and
 - .1 Ingenious solutions in response to current and future needs and changing uses.
 - .7 Sustainable and Enduring;
 - .1 Environmentally responsive, timeless and durable solutions.
- .76 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;
 - .1 Refer to Building Components and Connectivity (BCC) in Definitions.
 - .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.
- .77 Supports (as per Roles and Responsibilities Matrix):
 - .1 Provides subject matter expertise and resources to complete the required services and deliverables to achieve the Work results.
- .78 Systems:
 - .1 Refer to CSA Z320 Article, 5 Specific systems.
- .79 Systems Operations Manual (SOM) (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 CPD 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 (SOP) document is a component of (SOM) – see SOP Definition.
- .80 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 on 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 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.
- .81 Verify (as per Roles and Responsibilities Matrix):



- .1 Confirm the accuracy or completeness of Work and the results.
- .82 Work:
 - .1 Refer to Contract Documents: General Conditions (GCs).
- .83 Work Breakdown Structure (WBS):
 - .1 Integral to the Master Schedule and Project Execution Plan – see Definitions.

----- END -----



Construction Management (CM) Services

- CMa (Advisory Services)
- CMc (Construction Services)

DIVISION 01

GENERAL REQUIREMENTS

Province House Conservation

For:
Parks Canada Agency
Charlottetown, Prince Edward Island

July 19, 2017



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1. DIVISION 01 – GENERAL REQUIREMENTS

1.1 GENERAL

1.1.1 MASTERFORMAT

- .1 Division 01, General Requirements are structured using MasterFormat 2010 Section title numbering system.

1.1.2 DIVISION 01 – CM AS “GENERAL” CONTRACTOR (CMc)

- .1 Perform the Work in accordance with contract documents including, Division 01 requirements below.

1.1.3 DIVISION 01 – CM AS CMc, TENDERING FOR SUB-CONTRACTORS

- .1 Division 01 directed at Sub-Contractor(s)/Sub-Trade(s);
 - .1 Lead and prepare, in collaboration with the Departmental Representative and Design Consultant, Sub-Contractor Tender Package specific Division 01.
 - .2 Prepare Division 01 requirements using the PWGSC/NRC, National Master Specifications (NMS) latest data base version.

1.2 01 11 00 – SUMMARY OF WORK

1.2.1 WORK SEQUENCE

- .1 Construct Work in stages to accommodate the schedule and existing surrounding premises during construction.
- .2 Maintain fire access/control.

1.2.2 WORK BY OTHERS

- .1 Co-operate with other Contractors in carrying out their respective works and carry out instructions from the Departmental Representative.
- .2 Co-ordinate work with that of other Contractors. If any part of work under this Contract depends for its proper execution or result upon work of another Contractor report promptly to The Departmental Representative in writing any defects which may interfere with proper execution of Work.
- .3 Contractors within the construction site will also be subject to the coordination and safety overview of the CMc.

1.2.3 CONSTRUCTION MANAGER USE OF PREMISES

- .1 Restricted use of site and premises as directed by the Departmental Representative until Substantial Performance.
- .2 Limit use of premises for Work, and for storage.
- .3 Plan construction site. Utilize laydown area for all storage, all vehicle and equipment parking, and all site offices and trailers.
- .4 Maintain Laydown Area to prevent dusting and mud.
- .5 Make good Laydown Area to original condition, composition, nature and character upon completion of Work.
- .6 Obtain and pay for use of additional storage or work areas needed for operations under this Contract.



1.2.4 CONSTRUCTION MANAGER RESPONSIBILITIES

- .1 Disassemble, ship and reassemble all items being relocated;
- .2 Arrange for replacement of damaged, defective or missing items;
- .3 Designate submittals and delivery date for each product in progress schedule;
- .4 Review shop drawings, product data, samples, and other submittals. Submit to the Departmental Representative notification of observed discrepancies or problems anticipated due to non-conformance with Contract Documents;
- .5 Receive and unload products at site;
- .6 Inspect deliveries jointly with the Departmental Representative; record shortages, and damaged or defective items;
- .7 Handle products at site, including uncrating and storage;
- .8 Protect products from damage, and from exposure to elements;
- .9 Assemble, install, connect, adjust, and finish products;
- .10 Provide installation inspections required by public authorities; and
- .11 Repair or replace items damaged by the Construction Manager or subcontractor on site.

1.2.5 EXISTING SERVICES

- .1 Notify the Departmental Representative and utility companies of intended interruption of services and obtain required permission.
- .2 Where Work involves breaking into or connecting to existing services, give the Departmental Representative 7 days' notice for necessary interruption of mechanical or electrical service throughout course of work. Minimize duration of interruptions. Carry out work at times as directed by governing authorities with minimum disturbance to pedestrian and vehicular traffic and the Departmental Representative's operations.
- .3 Provide alternative routes for personnel, pedestrian and vehicular traffic.
- .4 Establish location and extent of service lines in area of work before starting Work. Notify the Departmental Representative of findings.
- .5 Submit schedule to and obtain approval from the Departmental Representative for any shut-down or closure of active service or facility including power and communications services. Adhere to approved schedule and provide notice to affected parties.
- .6 Provide temporary services to maintain existing buildings' systems.
- .7 Provide adequate bridging over trenches which cross sidewalks or roads to permit normal traffic.
- .8 Provide traffic control in the event of one lane access.
- .9 Where unknown services are encountered, immediately advise the Departmental Representative and confirm findings in writing. Make recommendations on resolution.



- .10 Protect, relocate or maintain existing active services. When inactive services are encountered, cap off in manner approved by authorities having jurisdiction.
- .11 Record locations of maintained, re-routed and abandoned service lines.
- .12 Construct barriers in accordance with Section 01 56 00.
- .13 Provide and maintain for purposes of the Work access road within construction area for the Construction Manager's own construction vehicles, equipment and material access.

1.2.6 SITE CONDITIONS AND PREPARATIONS

- .1 Part of Phase 1 construction activities is site preparatory work, including engineered construction systems. For a complete understanding of the Phase 1 scope, refer to the Phase 1 Issued for Construction documents in Appendix B. Temporary facilities within the Phase 1 documents will be transferred to the Phase 2/3 Construction Manager. The CM shall assume responsibility for temporary facilities and systems. Below is a summary list of the items completed during Phase 1 that the Construction Manager will take ownership of and full responsibility for; including engineering, structural stability, safety, implementation of modifications, coordination and maintenance. Engineered drawings, where applicable, will be provided to the successful proponent.
 - .1 Engineered Structural Scaffolding temporary work platform. Modifications to the platform and structure will be required to execute the work. Coordination of requirements and modifications for efficient use will be provided by the CM.
 - .2 Components/systems associated with Engineered Structural Scaffolding. Enclosure, heating, ventilation, lighting, power, water supply, dewatering systems, temporary roofs and membranes, gutters, downspouts, stairs, etc.
 - .3 Interior shoring systems and all related components.
 - .4 Retaining wall system at the excavated area periphery.
 - .5 All drainage systems.
 - .6 Site construction fence and related components.
 - .7 Temporary reinforcing/shoring systems for interior/exterior masonry.
 - .8 Rental contract for the off-site storage facility and contents of the facility. Monthly control report of the physical conditions of the heritage components with photographs and observations must be carried on.
 - .9 Other temporary facilities as outlined in Section 01 50 00 of Appendix B, Phase 1 Specifications.

1.2.7 DOCUMENTS REQUIRED

- .1 Maintain at job site one copy of each of the following documents:



- .1 Contract Drawings;
- .2 Specifications;
- .3 Addenda;
- .4 Shop Drawings;
 - .1 Schedule and log, complete with commentary, of shop drawing submissions/re-submissions for each Own Forces/Tender Package,
 - .2 Reviewed shop drawing,
 - .3 List of Outstanding shop drawings,
- .5 Change Orders;
- .6 Other Modifications to Contract;
- .7 Field Test Reports;
- .8 Copy of Approved Work Schedule;
- .9 Health and Safety Plan and other safety related documents including daily documentation of health and safety matters;
- .10 Material and Safety Data Sheets;
- .11 Labour conditions and Wage Schedules;
- .12 Material and Labour Bonds;
- .13 Manufacturers' applicable instructions;
- .14 Municipal and Provincial Permits;
- .15 Other documents as specified.

1.3 01 14 00 – WORK RESTRICTIONS

1.3.1 ACCESS AND EGRESS

- .1 Design, construct and maintain temporary "access to" and "egress from" work areas, including stairs, ramps or ladders and scaffolding, independent of finished surfaces and in accordance with relevant municipal, provincial and other regulations.

1.3.2 SPECIAL REQUIREMENTS

- .1 No advertising will be permitted on this project.
- .2 The Contractor is not allowed to proceed with noisy work (80 decibels and more) from 11:30 am to 1:00 pm between June 15th and August 30th.
- .3 Excessive noise is to be restricted on the East side of the building during legislative assemblies taking place in adjacent building during the following periods and hours:
From April 11th to June 6th, and from November 14th to January 9th.
Tuesdays, 2-5 pm & 7-9 pm; Wednesdays 2-5 pm; Thursdays, 2-5 pm & 7-9 pm; and Fridays, 10 am-1 pm.
- .4 The acceptable level of noise will be reviewed on site by the Departmental Representative. For bidding purpose assume excessive noise to be 80 decibels and above at 2 meters from the West façade of the Coles building.
- .5 The Contractor is to submit a plan that respects City Bylaws and details the measures to be implemented to mitigate noises, vibrations, impacts, dust and fumes for the Departmental Representative's review at least 2 weeks prior to the start of the Work.



- .6 The Contractor is to obtain approval from Departmental Representative 72 hours in advance for all disruptive work. Disruptive work is defined as work creating excessive vibrations, impacts, noise, dust and fumes, affecting adjacent areas.
- .7 The Departmental Representative reserves the right to temporarily stop noisy activities and generation of fumes that are considered disruptive to adjacent site areas.
- .8 Ensure that all trades are familiar with and obey applicable health and safety regulations. In the event that the Departmental Representative deems it necessary to order a temporary stop work due to a health and safety concern, work shall cease immediately.
- .9 Ensure that all trades are aware of the work restrictions of this Contract and that any extra costs incurred as a result is included in the Contractor's bid price for the Work.
- .10 Limited Manoeuvring Space on Site:
 - .1 The Contractor is not allowed to circulate and use the site beyond the construction fence on the west side of the building (Confederation Building side) between June 15th and August 30th.
 - .2 No construction machinery/vehicle is allowed to stand or drive above the underground tunnels.
- .11 Facility circulation maintained:
 - .1 Ensure that entrances, corridors, stairwells, fire exits and other circulation routes are maintained free and clear at all times during the Work.
 - .2 Maintain fire escape routes accessible and firefighting access open all times for the duration of the project.
 - .3 Do not under any circumstances block fire exit doors. Do not leave construction materials or debris in corridors, stairwells building entrances and exits.
- .12 Dust and Dirt Control:



- .1 Effectively plan and implement dust control measures and cleaning activities as an integral part of all construction activities. Review all measures with the Departmental Representative before undertaking work, especially for major dust generating activities.
- .2 Do not allow demolition debris and construction waste to accumulate on site and contribute to the propagation of dust.
- .3 As work progresses, maintain construction areas in a tidy condition at all times. Remove gross dust accumulations by cleaning and vacuuming immediately following the completion of any major dust generating activity.
- .4 Immediately remove all debris and dust from within occupied areas as generated by work therein during a given work shift.
- .5 Disconnect and seal-off ductwork of HVAC servicing the construction area to stop spread of dust into other areas of facility.
- .6 Avoid situations and practices which results in dust and dirt being brought from the construction areas or from the exterior and tracked inside the building.
- .7 Stop workers with soiled footwear from entering building. This includes roofing mechanics and heavy civil workers.
- .8 Inform workers and make them sensitive to the need for dust and dirt control. Stringently enforce rules and regulations, immediately address non-compliance.
- .9 Keep access doors to work areas closed at all times. Use only designated doors for entry or egress.
- .13 Ensure that all sub-trades are made aware of and abide by the contents of this section, particularly for the work restrictions specified herein.
- .14 No work shall be performed on Remembrance Day.

1.3.3 SECURITY

- .1 Ensure site security is maintained at all times. A commissionaire must be stationed on site during off hours. Utilize site lighting to ensure good sight lines.

1.3.4 BUILDING SMOKING RESTRICTIONS

- .1 Comply with smoking restrictions. Smoking is not permitted.

1.3.5 SITE VISITS, TOURS AND CAMERAS

- .1 The Departmental Representative will arrange site tours for project stakeholders during the Work. Plan for one (1) site tour of 1 hour each on a bi-weekly basis. Arrangements will be made with the Contractor 24 hours in advance. The Contractor is to provide a safety orientation meeting prior every visit and guide the tours.
- .2 The Departmental Representative will be installing cameras around and on the site for live feeds that can be viewed online by the public. Videos may be taken for media, news, documentary,



promotional, or other purposes.

1.4 01 29 00 – PAYMENT PROCEDURES

1.4.1 APPLICATION FOR PROGRESS PAYMENT

- .1 Submit to Department Representative, at least 14 days before first application for payment a Cost Breakdown in detail as directed by the Department Representative for parts of Work, aggregating total amount of each Contract Amount, so as to facilitate evaluation of applications for payment. After approval by the Department Representative the Cost Breakdown will be used as basis for progress payments.
- .2 Support claims for products delivered to Place of Work but not yet incorporated into Work by such evidence as the Department Representative may reasonably require to establish value and delivery of products.

1.5 01 29 83 – PAYMENT PROCEDURES: TESTING LABORATORY SERVICES

1.5.1 APPOINTMENT AND PAYMENT

- .1 Obtain and pay for services of an accredited inspection/testing laboratory for:
 - .1 Inspection and testing required by laws, ordinances, rules, regulations or orders of public authorities;
 - .2 Inspection and testing performed exclusively for the Construction Manager's convenience;
 - .3 Testing, adjustment and balancing of conveying systems, mechanical and electrical equipment and systems;
 - .4 Commissioning performance testing and verification;
 - .5 Mill tests and certificates of compliance;
 - .6 Tests specified to be carried out by the Construction Manager.
- .2 Where tests or inspections by an accredited testing laboratory reveal Work not in accordance with contract requirements pay costs for additional tests or inspections as required by the Departmental Representative to verify acceptability of corrected work.
- .3 Inspection/testing agencies engaged by the Construction Manager shall be reviewed by and be acceptable to the Departmental Representative.
- .4 The Departmental Representative, at the Departmental Representative's expense may also engage inspection/testing agencies as may be deemed required.

1.5.2 CONSTRUCTION MANAGER'S RESPONSIBILITIES

- .1 Provide, for the Construction Manager's and the Departmental Representative's inspection/testing agencies, labour, equipment and facilities to:
 - .1 Provide access to Work to be inspected and tested;
 - .2 Facilitate inspections and tests;



- .3 Make good Work disturbed by inspection and test;
- .4 Provide storage on site for laboratory's exclusive use to store equipment and cure test samples;
- .5 Notify the Departmental Representative sufficiently in advance of operations to allow for assignment of laboratory personnel and scheduling of tests;
- .6 Where materials are specified to be tested, deliver representative samples in required quantity to testing laboratory;
- .7 Pay costs for uncovering and making good Work that is covered before required inspection or testing is completed and approved by the Departmental Representative.

1.6 01 31 19 – PROJECT MEETINGS

1.6.1 ADMINISTRATIVE

- .1 Schedule and administer project meetings throughout the progress of the work.
 - .1 Schedule separate and/or combined Own Forces and Sub-Contractor meetings as required. Meetings to be bi-weekly as a minimum.
- .2 Prepare agenda for meetings.
- .3 Distribute written notice of each meeting four days in advance of meeting date to the Departmental Representative.
- .4 Provide physical space and make arrangements for meetings.
- .5 Preside at meetings.
- .6 Record the meeting minutes. Include significant proceedings and decisions. Identify actions by parties.
- .7 Reproduce and distribute copies of minutes within three days after meetings and transmit to meeting participants and, affected parties not in attendance and the Departmental Representative.
- .8 Representative of the Construction Manager, Subcontractor and suppliers attending meetings will be qualified and authorized to act on behalf of party each represents.

1.6.2 PRECONSTRUCTION MEETING

- .1 Within 7 days after each Contract award, request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.
- .2 The Departmental Representative, the Construction Manager, major Subcontractors, field inspectors and supervisors will be in attendance.
- .3 Establish time and location of meeting and notify parties concerned minimum 5 days before meeting.
- .4 Incorporate mutually agreed variations to Contract Documents into Agreement, prior to signing.
- .5 Agenda to include:
 - .1 Appointment of official representative of participants in the



Work;

- .2 Schedule of Work: in accordance with Section 01 32 15;
- .3 On-site organization, lines of authority and communication;
- .4 Shop Drawing Log, schedule of submission of samples, colour chips, product data. Submit submittals in accordance with Section 01 33 00;
- .5 Commissioning;
- .6 Requirements for temporary facilities, site sign, offices, storage sheds, utilities, fences in accordance with Section 01 52 00;
- .7 Delivery schedule of specified equipment in accordance with the applicable Section;
- .8 Site security in accordance with Section 01 56 00.
- .9 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, administrative requirements;
- .10 The Departmental Representative provided products;
- .11 Record drawings in accordance with Section 01 33 00;
- .12 Maintenance manuals in accordance with Section 01 78 00;
- .13 Take-over procedures, acceptance, warranties in accordance with Section 01 78 00;
- .14 Monthly progress claims, administrative procedures, photographs, hold backs;
- .15 Appointment of inspection and testing agencies or firms;
- .16 Insurances, transcript of policies.

1.6.3 PROGRESS MEETINGS

- .1 During course of Work schedule separate construction and commissioning progress meetings every two weeks.
- .2 The Construction Manager, major Subcontractors involved in Work and the Departmental Representative are to be in attendance.
- .3 Notify parties minimum 5 days prior to meetings.
- .4 Record minutes of meetings and circulate to attending parties and affected parties not in attendance within 2 days after meeting.
- .5 Agenda to include the following items such as:
 - .1 Review, approval of minutes of previous meeting;
 - .2 Review of Work progress since previous meeting;
 - .3 Field observations, problems, conflicts;
 - .4 Problems which impede construction schedule;
 - .5 Review of off-site fabrication delivery schedules;
 - .6 Corrective measures and procedures to regain projected schedule;
 - .7 Revision to construction schedule;
 - .8 Progress schedule, during succeeding work period;



- .9 Review submittal schedules: expedite as required;
- .10 Commissioning;
- .11 Maintenance of quality standards;
- .12 Review proposed changes for effect on construction schedule and on completion date;
- .13 Review of Health and Safety matters including daily log updates;
- .14 Other business.

1.7 01 32 15 – CONSTRUCTION PROGRESS SCHEDULES

1.7.1 GENERAL

- .1 Use a project management control system based on Critical Path Method (CPM) and Bar (GANTT) Chart techniques as may be required and agreed upon by the Departmental Representative to achieve project Work demands.
- .2 Scheduled reviews by the Departmental Representative shall not mean approval of detail inherent in the schedule. This responsibility lies with the Construction Manager.

1.7.2 DEFINITIONS

- .1 Master Plan: summary-level schedule that identifies major activities and key milestones.
- .2 Project Plan: formal, approved document used to guide both Project execution and Project control. Primary uses of Project plan are to document planning assumptions and decisions, facilitate communication among stakeholders, and document approved scope, cost, and schedule baselines. Project plan may be summary or detailed.
- .3 Project Schedule: planned dates for performing activities and planned dates for meeting milestones.
- .4 Risk: uncertain event or condition that, if it occurs, has positive or negative effect on Project's objectives.
- .5 Work Breakdown Structure (WBS): deliverable-oriented grouping of project elements that organizes and defines total Work scope of Project. Each descending level represents increasingly detailed definition of Project Work.

1.7.3 SYSTEM DESCRIPTION

- .1 Construction Progress Schedule (Project Time Management): describes processes required to ensure timely completion of Project. These processes ensure that various elements of Project are properly coordinated. It consists of planning, time estimating, scheduling, progress monitoring and control.
- .2 Project monitoring and reporting: as Project progresses, keep team aware of changes to schedule, and possible consequences. In addition to Bar Charts and CPM networks, use narrative reports to provide advice on seriousness of difficulties and measures to overcome them.
- .3 Narrative reporting begins with statement on general status of



Project followed by summarization of delays, potential problems, corrective measures and Project status criticality.

1.7.4 SCHEDULE REQUIREMENTS

- .1 Ensure Master Plan and Detail Schedule are practical and remain within specified Contract duration.
- .2 Acceptance of Master Plan and Detail Schedule showing scheduled Contract duration shorter than specified Contract duration does not constitute change to Contract. Duration of Contract may only be changed through bilateral Agreement.
- .3 Consider Master Plan and Detail Schedule showing Work completed in less than specified Contract duration, to have float.
- .4 Calculate dates for completion milestones from Plan and Schedule.
- .5 Delays to non-critical activities, those with float may not be basis for time extension.
- .6 Allow for and show Master Plan and Detail Schedule adverse weather conditions normally anticipated. Specified Contract duration has been predicated assuming normal amount of adverse weather conditions.
- .7 Provide necessary crews and manpower to meet schedule requirements for performing Work within specified Contract duration. Simultaneous use of multiple crews on multiple fronts on multiple critical paths may be required.
- .8 Arrange participation on and off site of Construction Manager's Contractors, Own Forces and suppliers, as required by the Departmental Representative for purpose of network planning, scheduling, updating and progress monitoring. Approvals by the Departmental Representative of original networks and revisions do not relieve Construction Manager from duties and responsibilities required by Contract.
- .9 Substantial Performance Certificate and Completion Certificate as defined times of completion are of essence of this contract.
 - .1 In advance certifying Own Forces and Sub-Contractors' respective contracts, prepare lists of incomplete and deficient items, "punch list";
 - .1 Schedule completion of items; and
 - .2 Provide the Departmental Representative with respective lists.
 - .2 In advance of project Work, Substantial Performance and Completion Certifications prepare "punch lists";
 - .1 Schedule completion of items; and
 - .2 Provide the Departmental Representative with respective lists.

1.7.5 SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00.
- .2 Submit preliminary construction progress schedule and Commissioning Schedule within 14 days of contract award to the



Departmental Representative for review.

- .3 Coordinate with the Departmental Representative's project schedule.
- .4 After review, revise and resubmit schedule to comply with revised project schedule.
- .5 During progress of Work revise and resubmit as directed by the Departmental Representative.
- .6 Submit to the Departmental Representative Project Control System for planning, scheduling, monitoring and reporting of project progress.
- .7 Submit Project Control System to the Departmental Representative for approval; failure to comply with each required submission, may result in progress payment being withheld in accordance with Federal Government's Terms of Payment.
 - .1 Refer to article "Progress monitoring and reporting" of this specification Section for frequency of Project control system submittals.
- .8 Submit Project planning, monitoring and control system data as required by the Departmental Representative in the following form:
 - .1 CD files as specified here in original scheduling software containing schedule and cash flow information, labelled with data date, specific update, and person responsible for update;
 - .2 Master Plan Bar Chart;
 - .3 Construction Detail schedule Bar Chart;
 - .4 Listing of project activities and tender packages including milestones and logical connectors, networks from Project start to end. Sort activities by activity identifier and accompany with descriptions. List early and late start and finish dates together with durations, codes and float time;
 - .5 Criticality report listing activities and milestones with days total float;
 - .6 Progress report in early start sequence, listing for each trade or tender package, activities due to start, underway, or finished within two months from monthly update date. List activity identifiers, description and duration.

1.7.6 QUALITY ASSURANCE

- .1 Use experienced personnel, fully qualified in planning and scheduling to provide services from start of construction to Final Certificate, including Commissioning.

1.7.7 PROJECT MEETING

- .1 Meet with the Departmental Representative within 5 working days of each Award of Sub-Contract or Own Forces date, to establish Work requirements and approach to project construction operations.

1.7.8 WORK BREAKDOWN STRUCTURE (WBS)



- .1 Prepare construction Work Breakdown Structure (WBS) within 5 working days of Award of Sub-Contract or Own Forces date.

1.7.9 PROJECT MILESTONES

- .1 Project milestones include, but are not limited to:
 - .1 Award;
 - .2 Submissions such as shop drawings and samples;
 - .3 Mock-ups;
 - .4 Permits;
 - .5 Mobilization and demobilization;
 - .6 Demolition;
 - .7 Tender Packages/Own Forces Work;
 - .8 Excavation;
 - .9 Backfill;
 - .10 Substructure;
 - .11 Superstructure such as steel/wood;
 - .12 Concrete Work;
 - .13 Building closed-in;
 - .14 Interior finishing including fitting and millwork;
 - .15 Fire Suppression;
 - .16 Plumbing;
 - .17 HVAC;
 - .18 Electrical;
 - .19 Communications;
 - .20 Electronic safety and security;
 - .21 Earthwork;
 - .22 Exterior improvements;
 - .23 Commissioning;
 - .1 Components,
 - .2 Systems,
 - .3 Integrated Systems,
 - .4 Final Commissioning Report,
 - .24 Training;
 - .25 Partial Interim and Interim Certificate(s) of Completion;
 - .26 Final Certificate Completion.

1.7.10 MASTER PLAN

- .1 Structure and base construction progress / networks system on WBS coding.
- .2 Prepare comprehensive construction Master Plan and dependent Cash Flow. Projection within 5 working days of finalizing agreement proceed with construction.
 - .1 Master Plan will be used as baseline;



- .1 The Departmental Representative will review and return revised baseline within 10 working days.
- .3 Reconcile revisions to Master Plan and Cash Flow Projections with previous baseline to provide continuous audit trail.
- .4 Initial and subsequent Master Plans will include:
 - .1 CD containing schedule and cash flow information, clearly labeled with data date, specific update, and Construction Manager's person responsible for update;
 - .2 Bar chart identifying coding, activity durations, early/late and start/finish dates, total float, completion as percentile, current status and budget amounts;
 - .3 Network diagram showing, activity sequencing (logic), total float, early/late dates, current status and durations;
 - .4 Actual/projected monthly cash flow: expressed annually and monthly and shown in both graphical and numerical form. Provide additional cash flow detail as required to evaluate schedule progress using Earned Value Management.

1.7.11 DETAIL SCHEDULE

- .1 Provide detailed project schedules within 5 working days of agreement to proceed with construction, showing activity sequencing, interdependencies and duration estimates. Include listed activities as follows:
 - .1 Shop drawings;
 - .2 Samples;
 - .3 Approvals;
 - .4 Procurement;
 - .5 Construction;
 - .6 Installation;
 - .7 Site works;
 - .8 Testing;
 - .9 Commissioning and acceptance.
- .2 Relate Detail Schedule activities to basic activities and milestones developed and approved in Master Plan.
- .3 Insert Change Orders in appropriate and logical location of Detail Schedule. After analysis, clearly state and report to the Departmental Representative for review effects created by insertion of new Change Order.

1.7.12 REVIEW OF THE CONSTRUCTION DETAIL SCHEDULE

- .1 Allow 10 workdays for review by the Departmental Representative of proposed construction Detail Schedule.
- .2 Upon receipt of reviewed Detail Schedule make necessary revisions and resubmit to the Departmental Representative for review within 5 workdays.
- .3 Promptly provide additional information to validate practicability of Detail Schedule as required by the Departmental Representative.



- .4 Submittal of Detail Schedule indicates that it meets Contract requirements and will be executed generally in sequence.

1.7.13 COMPLIANCE WITH DETAIL SCHEDULE

- .1 Comply with reviewed Detail Schedule.
- .2 Proceed with significant changes and deviations from scheduled sequence of activities that cause delay, when agreed by the Departmental Representative.
- .3 Identify activities that are behind schedule and causing delay. Provide measures to regain slippage.
 - .1 Construction delays affecting project schedule will not constitute justification for extension of contract completion date.
- .4 In the event of a request for Contract extension, submit as per a pre-agreed upon scheduled review periods to the Departmental Representative, justification, project schedule data and supporting evidence for extension to Construction Manager's Contract or Construction Manager's Contractors' completion date, or partial or interim acceptance milestone date when required. Include as part of supporting evidence:
 - .1 Written submission of proof of delay based on revised activity logic, duration and costs, showing time impact analysis illustrating influence of each change or delay relative to approved contract schedule;
 - .2 Prepared schedule indicating how change will be incorporated. Demonstrate perceived impact based on date of occurrence of change and include status of construction at that time;.
 - .3 Other supporting evidence requested by the Departmental Representative.

1.7.14 CONSTRUCTION PROGRESS MONITORING AND REPORTING

- .1 On ongoing basis, Detail Schedule on job site must show "Progress to Date". Arrange participation on and off site of Construction Manager's Own Forces, Contractors and suppliers, as, and when necessary, for purpose of network planning, scheduling, updating and progress monitoring. Inspect Work with the Departmental Representative at least once monthly to establish progress on each current activity shown on applicable networks.
- .2 Update and reissue project Work Breakdown Structure and relevant coding structures as project develops and changes.



- .3 Perform Detail Schedule update monthly with status dated (Data Date) on last working day of month. Update to reflect activities completed to date, activities in progress, logic and duration changes, [Also include Work progress regarding:
 - .1 Construction;
 - .1 Own Forces Work,
 - .2 Sub-Contractors' Works,
 - .2 Moving;
 - .1 Sub-Contractors' Works;
 - .3 Building Components and Connectivity (BCC);
 - .1 Departmental Representative Work,
 - .2 Sub-Contractors' Works.
- .4 Submit to the Departmental Representative copies of updated Detail Schedule.
- .5 Requirements for monthly progress monitoring and reporting are basis for progress payment request.
- .6 Submit monthly written report based on Detail Schedule, showing Work to date performed, comparing Work progress to planned, and presenting current forecasts. Report must summarize progress, defining problem areas and anticipated delays with respect to Work schedule, and critical paths. Explain alternatives for possible schedule recovery to mitigate any potential delay. Include in report:
 - .1 Invoicing Summary;
 - .1 Billing section broken down by tender package and itemized by trade,
 - .2 Expenditures to date (including all change orders) in a format that compares the original budgets for each trade with the expected costs, including contingencies,
 - .2 Description of progress and review of status of critical activities;
 - .3 Cost Section – refer to TOR Section 2;
 - .4 Schedule – refer to TOR Section 2;
 - .5 Risk – refer to TOR Section 2;
 - .6 Quality – refer to TOR Section 2;
 - .7 Health and Safety;
 - .8 Issues/Resolutions Log related to Construction/Implementation and Commissioning activities.
 - .9 Daily Log, including site and documentation activities, quantities of materials received verification and record of Work progress through daily photographs and narrative reports. Record the following:
 - .1 Unusual weather conditions relative to Work progress;
 - .2 Materials and equipment deliveries;
 - .3 Daily activities and major Work done through all shifts of Work;



- .4 Start, stop or completion of activities through all shifts of Work;
- .5 Presence of inspection and testing firms, tests taken, results;
- .6 Unusual Site conditions experienced;
- .7 Significant developments, remarks, email or other correspondence, etc.
- .8 Reports, instructions from appropriate authorities response actions;
- .9 Strength on-Site by each Sub-Contractor and the;
- .10 Status of Contractors' completion date and milestones;
- .11 Safety inspections and reports;
- .12 If work is based on unit prices, measure and record the quantities for verification of monthly progress claims and the Final Certificate of Measurement;
- .13 Pending items and status of: permits, shop drawings, Change Orders, possible time extensions.

1.8 01 33 00 – SUBMITTAL PROCEDURES

1.8.1 ADMINISTRATIVE

- .1 Submit to the Departmental Representative submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .2 Do not proceed with Work affected by submittal until review is complete.
- .3 Present shop drawings, product data, samples and mock-ups in SI Metric units.
- .4 Where items or information is not produced in SI Metric units converted values are acceptable.
- .5 Review submittals prior to submission to the Departmental Representative. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and coordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.
- .6 Notify the Departmental Representative in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .7 Verify field measurements and affected adjacent Work are coordinated.
- .8 Construction Manager's responsibility for errors and omissions in submission is not relieved by the Departmental Representative's review of submittals.
- .9 Construction Manager's responsibility for deviations in submission from requirements of Contract Documents is not relieved by the



Departmental Representative review.

- .10 Keep one reviewed copy of each submission on site.
- .11 Unless otherwise stated, ensure 4 reviewed copies of all submissions are available to be retained by the Departmental Representative.

1.8.2 SHOP DRAWINGS AND PRODUCT DATA

- .1 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other product data which are to be provided by Construction Manager to illustrate details of a portion of Work.
- .2 Submit shop drawings bearing stamp and signature of qualified professional registered or licensed in Prince Edward Island certifying as checked correct for construction.
 - .1 Submit in electronic pdf version. Provide hard copies if requested by Departmental Representative.
 - .2 Verify shop drawings include PWGSC Project Number and are recorded in sequence of O&M and Systems Manuals.
- .3 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been co-ordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.
- .4 Allow 10 working days for the Departmental Representative's review of each submission.
- .5 Adjustments made on shop drawings by the Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to the Departmental Representative prior to proceeding with Work.
- .6 Make changes in shop drawings as the Departmental Representative may require, consistent with Contract Documents. When resubmitting, notify the Departmental Representative in writing of revisions other than those requested.
- .7 Accompany submissions with transmittal letter, containing:
 - .1 Date;
 - .2 Project title and number;
 - .3 Construction Manager's name and address;
 - .4 Identification and quantity of each shop drawing, product data and sample;
 - .5 Other pertinent data.
- .8 Submissions include:
 - .1 Date and revision dates;
 - .2 Project title and number;
 - .3 Name and address of;



- .1 Construction Manager,
- .2 Supplier,
- .3 Manufacturer.
- .4 Construction Manager's stamp, signed by Construction Manager's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents;
- .5 Details of appropriate portions of Work as applicable;
 - .1 Fabrication,
 - .2 Layout, showing dimensions, including identified field dimensions, and clearances,
 - .3 Setting or erection details,
 - .4 Capacities,
 - .5 Performance characteristics,
 - .6 Standards,
 - .7 Operating weight,
 - .8 Wiring diagrams,
 - .9 Single line and schematic diagrams,
 - .10 Relationship to adjacent work.
- .9 After the Departmental Representative's review, distribute copies.
- .10 Submit shop drawings for each requirement requested in specification Sections and as the Departmental Representative may reasonably request.
- .11 Submit product data sheets or brochures for requirements requested in specification Sections and as requested by the Departmental Representative where shop drawings will not be prepared due to standardized manufacture of product.
- .12 Submit test reports for requirements requested in specification Sections and as the Departmental Representative may reasonably request.
 - .1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accord with specified requirements.
- .13 Submit certificates for requirements requested in specification Sections and as the Departmental Representative may reasonably request.
 - .1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.
 - .2 Certificates must be dated after award of project contract complete with project name.
- .14 Submit manufacturer's instructions for requirements requested in specification Sections and as the Departmental Representative may reasonably request.
 - .1 Pre-printed material describing installation of product, system



or material, including special notices and Material Safety Data Sheets concerning impedances, hazards and safety precautions.

- .15 Submit Manufacturer's Field Reports for requirements requested in specification Sections and as the Departmental Representative may reasonably request.
 - .1 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.
- .16 Submit 6 hard copies and electronic copies of Operation and Maintenance Data for requirements requested in specification Sections and as the Departmental Representative may reasonably request.
- .17 Delete information not applicable to project.
- .18 Supplement standard information to provide details applicable to project.
- .19 If upon review by the Departmental Representative, no errors or omissions are discovered or if only minor corrections are made, copies will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.
- .20 The review of shop drawings by the Departmental Representative is for sole purpose of ascertaining conformance with general concept.
 - .1 This review shall not mean that the Departmental Representative approves detail design inherent in shop drawings, responsibility for which shall remain with Construction Manager submitting same, and such review shall not relieve Construction Manager of responsibility for errors or omissions in shop drawings or of responsibility for meeting requirements of construction and Contract Documents.
 - .2 Without restricting generality of foregoing, Construction Manager is responsible for dimensions to be confirmed and correlated at job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of Work of sub-trades.

1.8.3 SAMPLES

- .1 Submit for review samples in triplicate as requested in respective specification Sections. Label samples with origin and intended use.
- .2 Deliver samples prepaid to the Departmental Representative's site office.
- .3 Notify the Departmental Representative in writing, at time of submission of deviations in samples from requirements of the Construction Manager's specifications.
- .4 Where colour, pattern or texture is criterion, submit



manufacturer's full range of samples.

- .5 Adjustments made on samples by the Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to the Departmental Representative prior to proceeding with Work.
- .6 Make changes in samples which the Departmental Representative may require, consistent with Construction Manager's drawings and specifications.
- .7 Reviewed and accepted samples will become standard of workmanship and material against which installed Work will be verified.

1.8.4 Mock-Ups

- .1 Erect mock-ups in accordance with 01 45 00.

1.8.5 PROGRESS PHOTOGRAPHS

- .1 Submit labeled progress photographs.
- .2 Each submission:
 - .1 Prints sizes from electronic format, 200 x 300 mm;
 - .2 Electronic format on CD.
- .3 Print Type: semi-matt colour with binding margin at one end.
- .4 Paper: single weight, not mounted.
- .5 Number of prints required: 3 sets.
- .6 Identification, print copy and electronic format: name and project number, viewpoint and date of photograph.
- .7 Viewpoints: interior and exterior locations: viewpoints determined by the Departmental Representative.
- .8 Frequency: twice monthly and with each progress statement.

1.9 01 35 43 – ENVIRONMENTAL PROCEDURES

1.9.1 DEFINITIONS

- .1 Environmental Pollution and Damage: presence of chemical, physical, biological elements or agents which adversely affect human health and welfare; unfavourably alter ecological balances of importance to human life; affect other species of importance to humankind; or degrade environment aesthetically, culturally and/or historically.
- .2 Environmental Protection: prevention/control of pollution and habitat or environment disruption during construction. Control of environmental pollution and damage requires consideration of land, water, and air; biological and cultural resources; and includes management of visual aesthetics; noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive material as well as other pollutants.

1.9.2 SUBMITTALS

- .1 Submittals: in accordance with Section 01 33 00.
- .2 Prior to commencing construction activities or delivery of materials



to site, submit Environmental Protection Plan for review and approval by the Departmental Representative. Environmental Protection Plan is to present comprehensive overview of known or potential environmental issues which must be addressed during construction.

- .3 Address topics at level of detail commensurate with environmental issue and required construction tasks.
- .4 Reference environmental considerations in Basic Impact Assessment in Appendix H and tailor plan according to contents and requirements of this document.
- .5 Environmental protection plan, include:
 - .1 Name of person responsible for ensuring adherence to Environmental Protection Plan;
 - .2 Name and qualifications of person responsible for manifesting hazardous waste to be removed from site;
 - .3 Name and qualifications of person responsible for training site personnel;
 - .4 Descriptions of environmental protection personnel training program;
 - .5 Erosion control plan which identifies type and location of erosion controls to be provided including monitoring and reporting requirements to assure that control measures are in compliance with erosion control plan, Federal, Provincial, and Municipal laws and regulations;
 - .6 Drawings showing locations of proposed temporary excavations or embankments for haul roads, material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials including methods to control runoff and to contain materials on site;
 - .7 Traffic control plans including measures to reduce erosion of temporary roadbeds by construction traffic, especially during wet weather. Plans include measures to minimize amount of mud transported onto paved public roads by vehicles or runoff;
 - .8 Work area plan showing proposed activity in each portion of area and identifying areas of limited use or non-use. Plan to include measures for marking limits of use areas including methods for protection of features to be preserved within authorized work areas;
 - .9 Spill Control Plan: including procedures, instructions, and reports to be used in event of unforeseen spill of regulated substance;
 - .10 Non-Hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris;
 - .11 Air pollution control plan detailing provisions to assure that dust, debris, materials, and trash, do not become air borne and travel off project site;



- .12 Contaminant prevention plan that: identifies potentially hazardous substances to be used on job site; identifies intended actions to prevent introduction of such materials into air, water, or ground; and details provisions for compliance with Federal, Provincial, and Municipal laws and regulations for storage and handling of these materials;
- .13 Waste water management plan that identifies methods and procedures for management and/or discharge of waste waters which are directly derived from construction activities, such as concrete curing water, clean-up water, dewatering of ground water, disinfection water, hydrostatic test water, and water used in flushing of lines;
- .14 Historical, archaeological, cultural resources biological resources and wetlands plan that defines procedures for identifying and protecting historical, archaeological, cultural resources, biological resources and wetlands;
- .15 Pesticide treatment plan: to be included and updated, as required.

1.9.3 FIRES

- .1 Fires and burning of rubbish on site is not permitted.

1.9.4 DISPOSAL OF WASTES

- .1 Do not bury rubbish and waste materials on site.
- .2 Do not dispose of waste or volatile materials, such as mineral spirits, oil or paint thinner into waterways, storm or sanitary sewers.

1.9.5 DRAINAGE

- .1 Provide Dewatering plan for excavated areas. Include monitoring and reporting requirements to assure that control measures are in compliance with erosion and sediment control plan, Federal, Provincial, and Municipal laws and regulations.
- .2 Provide erosion and sediment control plan that identifies type and location of erosion and sediment controls to be provided. Include monitoring and reporting requirements to assure that control measures are in compliance with erosion and sediment control plan, Federal, Provincial, and Municipal laws and regulations.
- .3 Storm Water Pollution Prevention Plan (SWPPP) to be substituted for erosion and sedimentations control plan.
- .4 Provide temporary drainage and pumping as necessary to keep excavations and site free from water.
- .5 Do not pump water containing suspended materials into waterways, sewer or drainage systems.
- .6 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.

1.9.6 SITE CLEARING AND PLANT PROTECTION

- .1 Protect trees and plants on site and adjacent properties.



- .2 Wrap in burlap, trees and shrubs adjacent to construction work, storage areas and trucking lanes, and encase with protective wood framework from grade level to height of 2 m.
- .3 Protect roots of designated trees to drip line during excavation and site grading to prevent disturbance or damage. Avoid unnecessary traffic, dumping and storage of materials over root zones.
- .4 Minimize stripping of topsoil and vegetation.
- .5 Restrict tree removal to areas indicated or designated by the Departmental Representative.

1.9.7 POLLUTION CONTROL

- .1 Maintain temporary erosion and pollution control features.
- .2 Control emissions from equipment and plant to local authorities' emission requirements.
- .3 Prevent sandblasting and other extraneous materials from contaminating air and waterways beyond application area, by providing temporary enclosures.
- .4 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.

1.9.8 HISTORICAL/ARCHAEOLOGICAL CONTROL

- .1 The Phase 1 contractor has developed a protection plan for heritage elements. The plan can be found in Appendix I. This plan can be used as a reference and must be elaborated on by the CM to prepare a plan with procedures/measures for control over and protection of the work to take place. The CM must maintain the protection that is in place and work with the Departmental Representative to identify other areas in need of protection.
- .2 Provide historical archaeological protection plan that defines procedures for identifying and protecting historical, archaeological, and cultural resources known to be on project site and identify procedures to be followed if historical, archaeological, or cultural resources not previously known to be onsite or in area are discovered during construction.
- .3 Plan: include methods to assure protection of known or discovered resources and identify lines of communication between Construction Manager and the Departmental Representative.

1.9.9 NOTIFICATION

- .1 The Departmental Representative will notify Construction Manager in writing of observed noncompliance with Federal, Provincial or Municipal environmental laws or regulations, permits, and other elements of Construction Manager's Environmental Protection plan.
- .2 Construction Manager: after receipt of such notice, inform The Departmental Representative of proposed corrective action and take such action for approval by The Departmental Representative.



- .3 The Departmental Representative will issue stop order of work until satisfactory corrective action has been taken.
- .4 No time extensions granted or equitable adjustments allowed to Construction Manager for such suspensions.

1.10 01 41 00 – REGULATORY REQUIREMENTS

1.10.1 REFERENCES AND CODES

- .1 Perform Work in accordance with National Building Code of Canada (NBC) including amendments up to tender closing date and other codes of provincial or local application provided that in case of conflict or discrepancy, more stringent requirements apply.
- .2 Meet or exceed requirements of:
 - .1 Contract documents;
 - .2 Specified standards, codes and referenced documents.

1.10.2 HAZARDOUS MATERIAL DISCOVERY

- .1 Hazardous materials are known to be present in the building. See Appendix J for reports prepared by PWGSC. Anticipate discovery of additional hazardous materials that may need to be removed.
- .2 Asbestos: demolition of spray or trowel-applied asbestos is hazardous to health. Stop work immediately when material resembling spray or trowel-applied asbestos is encountered during demolition work. Notify the Departmental Representative.
- .3 PCB: Polychlorinated Biphenyl: stop work immediately when material resembling Polychlorinated Biphenyl is encountered during demolition work. Notify the Departmental Representative.
- .4 Mould: stop work immediately when material resembling mould is encountered during demolition work. Notify the Departmental Representative.

1.10.3 BUILDING SMOKING ENVIRONMENT

- .1 Comply with smoking restrictions and municipal by-laws.

1.11 01 45 00 – QUALITY CONTROL

1.11.1 INSPECTION

- .1 Provide Daily inspection documentation of all aspects of the Sub-Contractors' related Work.
 - .1 Document matters for action, follow-up or referral to the Departmental Representative.
 - .2 Include photographs to document issues and associated corrections.
- .2 Allow the Departmental Representative access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.
- .3 Give at minimum, 3 working days' notice requesting inspection if Work is designated for special tests, inspections or approvals by the Departmental Representative instructions, or law of Place of Work.



- .4 If Construction Manager covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.
- .5 The Departmental Representative will order part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination such work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction. If such Work is found in accordance with Contract Documents, the Departmental Representative shall pay cost of examination and replacement.

1.11.2 INDEPENDENT INSPECTION AGENCIES

- .1 Notwithstanding the testing responsibilities of the Construction Manager, the Departmental Representative will conduct re-testing where deemed necessary.
 - .1 Independent Inspection/Testing Agencies will be engaged by the Departmental Representative for purpose of inspecting and/or testing portions of Work.
 - .2 Cost of such services will be borne by the Departmental Representative.
- .2 Provide equipment required for executing inspection and testing by appointed agencies.
- .3 Employment of inspection/testing agencies does not relax responsibility to perform Work in accordance with Contract Documents.
- .4 If defects are revealed during inspection and/or testing, appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by the Departmental Representative at no cost to the Departmental Representative. Pay costs for retesting and re-inspection.

1.11.3 ACCESS TO WORK

- .1 Allow inspection/testing agencies access to Work, off site manufacturing and fabrication plants.
- .2 Co-operate to provide reasonable facilities for such access.

1.11.4 PROCEDURES

- .1 Notify appropriate agency and the Departmental Representative in advance of requirement for tests, in order that attendance arrangements can be made.
- .2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in orderly sequence to not cause delays in Work.
- .3 Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

1.11.5 REJECTED WORK



- .1 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by the Departmental Representative as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.
- .2 Make good other Work damaged by such removals or replacements promptly.
- .3 If in opinion of the Departmental Representative it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, the Departmental Representative will deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which will be determined by the Departmental Representative.

1.11.6 REPORTS

- .1 Submit 4 copies of inspection and test reports to the Departmental Representative.
- .2 Provide copies to subcontractor of work being inspected or tested and manufacturer or fabricator of material being inspected or tested.

1.11.7 TEST AND MIX DESIGNS

- .1 Furnish test results and mix designs as requested by the Departmental Representative.
- .2 Include for tests and mix designs as specified.
- .3 Cost of tests and mix designs beyond those called for in Contract Documents or beyond those required by law of Place of Work will be appraised by the Departmental Representative and may be authorized as recoverable.

1.11.8 MOCK-UPS

- .1 Prepare mock-ups for Work specifically requested in specifications.
- .2 Construct in locations acceptable to the Departmental Representative.
- .3 Prepare mock-ups for the Departmental Representative review with reasonable promptness and in orderly sequence, to not cause delays in Work.
- .4 Failure to prepare mock-ups in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .5 If requested, the Departmental Representative will assist in preparing schedule fixing dates for preparation.
- .6 Mock-ups may remain as part of Work.

1.11.9 MILL TESTS

- .1 Submit mill test certificates as requested by the Departmental Representative.

1.11.10 EQUIPMENT AND SYSTEMS

- .1 Submit adjustment and balancing reports for mechanical,



electrical and building equipment and systems.

1.12 01 51 00 – TEMPORARY UTILITIES

1.12.1 INSTALLATION AND REMOVAL

- .1 Provide temporary utilities controls in order to execute work expeditiously.
- .2 Remove from site all such work after use.

1.12.2 DEWATERING

- .1 Provide and maintain temporary drainage and pumping facilities to keep excavations and site free from standing water.

1.12.3 WATER SUPPLY

- .1 Arrange for connection from adjacent building and pay costs for installation, maintenance and removal.

1.12.4 TEMPORARY HEATING AND VENTILATION

- .1 Provide temporary heating required during construction period, including attendance, maintenance and fuel.
- .2 Maintain heating and ventilation systems installed in previous contracts and modify as necessary to facilitate the progress of work.
- .3 Provide temporary heat and ventilation in enclosed areas as required to:
 - .1 Facilitate progress of Work.
 - .2 Protect Work and products against dampness and cold.
 - .3 Prevent moisture condensation on surfaces.
 - .4 Provide ambient temperatures and humidity levels for storage, installation and curing of materials.
 - .5 Provide adequate ventilation to meet health regulations for safe working environment.
 - .6 Maintain temperatures of minimum 15 degrees C in areas where construction is in progress.
 - .7 Ventilating:
 - .1 Prevent accumulations of dust, fumes, mists, vapours or gases in areas occupied during construction;
 - .2 Provide local exhaust ventilation to prevent harmful accumulation of hazardous substances into atmosphere of occupied areas;
 - .3 Dispose of exhaust materials in manner that will not result in harmful exposure to persons;
 - .4 Ventilate storage spaces containing hazardous or volatile materials;
 - .5 Ventilate temporary sanitary facilities;
 - .6 Continue operation of ventilation and exhaust system for time after cessation of work process to assure removal of harmful contaminants.
- .4 Maintain strict supervision of operation of temporary heating and ventilating equipment to:



- .1 Conform to applicable codes and standards;
- .2 Enforce safe practices;
- .3 Prevent abuse of services;
- .4 Prevent damage to finishes;
- .5 Vent direct-fired combustion units to outside.
- .5 Be responsible for damage to Work due to failure in providing adequate heat and protection during construction.

1.12.5 TEMPORARY POWER AND LIGHT

- .1 Maintain electrical systems installed in previous contracts. Expand and modify temporary electrical system to facilitate the progress of work
- .2 Arrange for connection with appropriate utility company and assume billing. Pay costs for installation, maintenance and removal.
- .3 Provide temporary power for electric cranes and other equipment as required.
- .4 Provide and maintain temporary lighting throughout project. Ensure level of illumination on all floors and stairs is not less than 162 lux.
- .5 Electrical power and lighting systems installed under this Contract may be used for construction requirements only with prior approval of the Departmental Representative provided that guarantees are not affected. Make good damage to electrical system caused by use under this Contract. Replace lamps which have been used for more than 3 months.

1.12.6 TEMPORARY COMMUNICATION FACILITIES

- .1 Provide and pay for temporary telephone, fax, data, e-mail, internet access hook up, lines, equipment necessary for own use.

1.12.7 FIRE PROTECTION

- .1 Provide and maintain temporary fire protection equipment during performance of Work required by insurance companies having jurisdiction and governing codes, regulations and bylaws.
- .2 Reference Fire Safety Requirements and System Impairment Procedures document in Appendix K. The requirements contained in this document shall be enforced.
- .3 Burning rubbish and construction waste materials is not permitted on site.

1.13 01 52 00 – CONSTRUCTION FACILITIES

1.13.1 REFERENCES

- .1 Canadian Standards Association (CSA International):
 - .1 CSA-A23.1/A23.2-04, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete;
 - .2 CSA-0121-M1978 (R2003), Douglas Fir Plywood;



.3 CAN/CSA-S269.2-M1987 (R2003), Access Scaffolding for Construction Purposes;

.4 CAN/CSA-Z321-96(R2001), Signs and Symbols for the Occupational Environment.

.2 Master Painters Institute (MPI)

1.13.2 SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00.

1.13.3 INSTALLATION AND REMOVAL

.1 Prepare site plan indicating proposed area used by Construction Manager, number of trailers to be used, avenues of ingress/egress and additional details.

.2 Refer to site conditions for fence location and constraints.

.3 Identify areas which have to be graveled to prevent tracking of mud.

.4 Indicate use of supplemental or other staging area.

.5 Provide construction facilities in order to execute work expeditiously.

.6 Remove from site all such work after use.

1.13.4 SCAFFOLDING

.1 Scaffolding in accordance with CAN/CSA-S269.2.

.2 Provide and maintain scaffolding, ramps, ladders, swing staging, platforms, and temporary stairs.

1.13.5 HOISTING

.1 Provide, operate and maintain hoists and cranes required for moving of workers, materials and equipment. Make financial arrangements with Subcontractors for their use of hoists.

.2 Hoists cranes to be operated by qualified operator.

1.13.6 ELEVATORS

.1 Permanent elevators not to be used by construction personnel and transporting of materials.

1.13.7 SITE STORAGE/LOADING

.1 Confine work and operations of employees by Contract Documents. Do not unreasonably encumber premises with products.

.2 Do not load or permit to load any part of Work with weight or force that will endanger Work.

1.13.8 CONSTRUCTION PARKING

.1 Parking is restricted to indicated Laydown Area.

.2 Make good damage to roads used for project site access.

.3 Provide and maintain adequate access to project site.

.4 Clean site access areas/routes where used by Construction Manager's equipment.

1.13.9 OFFICES



- .1 Provide a separate site office for the Departmental Representative's use, lockable, complete with keys, wi-fi connection, furnishings (desk, chair, table), power, lighting, heat, air-conditioning, and equipment.
- .2 Provide site office heated to 22 degrees C, lighted 750 lux and ventilated and air conditioned:
 - .1 Site office, 24/7/365 occupancy, of sufficient size to at the minimum accommodate site meetings for 12 people, a furnished drawing laydown table and a serviced kitchenette;
 - .2 Provide at the minimum 3 serviced and operational voice/data outlets;
 - .3 One outlet in each enclosed office;
 - .4 One outlet in the meeting area;
 - .5 Provide data line speed as best locally available;
 - .6 Provide and maintain operational a site office scanner/fax machine;
 - .7 Scanner capacity/bed to accommodate at the minimum a 279mm x 430mm page size.
- .3 Provide additional site offices as required to accommodate Construction Manager's operation.
- .4 Subcontractors to provide their own offices as necessary. Direct location of these offices.
- .5 Provide in each site office facility, marked and fully stocked first-aid cases in readily available locations.
- .6 Locate all site office facilities in indicated Laydown Area.
- .7 Make site good after decommissioning facilities.

1.13.10 EQUIPMENT, TOOL AND MATERIALS STORAGE

- .1 Provide and maintain, in clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials.
- .2 Locate materials not required to be stored in weatherproof sheds on site in manner to cause least interference with work activities.

1.13.11 SANITARY FACILITIES

- .1 Provide sanitary facilities for work force and the Departmental Representative in accordance with governing regulations and ordinances.
- .2 Post notices and take precautions as required by local health authorities. Keep area and premises in sanitary condition.

1.13.12 CONSTRUCTION SIGNAGE

- .1 No construction advertisement signs, other than health and safety, warning and instructional signs, are permitted on site.
- .2 Maintain approved signs and notices in good condition for duration of project, make bilingual, and dispose of offsite on completion of project or earlier if directed by the Departmental Representative.

1.13.13 PROTECTION AND MAINTENANCE OF TRAFFIC

- .1 Provide access and temporary relocated roads as necessary to



maintain traffic.

- .2 Maintain and protect traffic on affected roads during construction period except as otherwise specifically directed by the Departmental Representative.
- .3 Provide measures for protection and diversion of traffic, including provision of watch-persons and flag-persons, erection of barricades, placing of lights around and in front of equipment and work, and erection and maintenance of adequate warning, danger, and direction signs
- .4 Protect traveling public from damage to person and property.
- .5 Contractor's traffic on roads selected for hauling material to and from site to interfere as little as possible with public traffic.
- .6 Verify adequacy of existing roads and allowable load limit on these roads. Construction Manager: responsible for repair of damage to roads caused by construction operations.
- .7 Construct access and haul roads necessary.
- .8 Haul roads: constructed with suitable grades and widths; sharp curves, blind corners, and dangerous cross traffic shall be avoided.
- .9 Provide necessary lighting, signs, barricades, and distinctive markings for safe movement of traffic.
- .10 Dust control: adequate to ensure safe operation at all times.
- .11 Location, grade, width, and alignment of construction and hauling roads: subject to approval by the Departmental Representative.
- .12 Lighting: to assure full and clear visibility for full width of haul road and work areas during night work operations.
- .13 Provide snow removal during period of Work.
- .14 Remove, upon completion of work, haul roads designated by the Departmental Representative.

1.13.14 CLEAN-UP

- .1 Remove construction debris, waste materials, packaging material from work site daily.
- .2 Clean dirt or mud tracked onto paved or surfaced roadways.
- .3 Store materials resulting from demolition activities that are salvageable.
- .4 Stack stored new or salvaged material not in construction facilities.

1.13.15 MATERIAL STORAGE

- .1 Storage trailers, if used, must remain within the fenced construction area.
- .2 Material storage space on site is limited. Coordinate delivery to minimize storage period on site before being needed for incorporation into work.
- .3 Make arrangements elsewhere in the city as deemed required and pay all costs for storage of materials not ready for incorporation into work.



- .4 Responsibility and costs for storage facility for wood windows, wood doors, woodwork and all other components removed in Phase 1 work will be transferred to the CM per Section 01 11 00.
- .5 The off-site storage facility is to accommodate the proper storage of all the building elements identified in the Contract Documents to be removed and stored. The facility is to be maintained at the following minimum requirements:
 - .1 Shelving ready to receive the materials. The required area is to be evaluated and confirmed by the Contractor.
 - .2 Maintain stable environmental conditions.
 - .3 Indoor storage space to be heated and maintained at a minimum of 15 degrees C and maximum of 25 degrees C.
 - .4 Relative humidity to be at minimum 24% and at maximum 55%. Avoid excessive humidity and moisture build up.
 - .5 Data loggers to be placed to monitor temperature and humidity levels in the storage area. Readings to be done a minimum of twice daily. Data to be sent once a week to Departmental Representative in an excel spread sheet format indicating the dates and hours of all readings.
 - .6 Access to the storage facility to be secured and provided to the Departmental Representative upon request. Allow circulation around the stored elements for the Departmental Representative's inspections.
- .6 The Contractor is responsible to organize facility, produce and keep up to date an inventory of the building components that are stored in the storage facility for review by the Departmental Representative.

1.14 01 56 00 – TEMPORARY BARRIERS AND ENCLOSURES

1.14.1 INSTALLATION AND REMOVAL

- .1 Provide temporary controls in order to execute Work expeditiously.
- .2 Refer to Section 01 11 00 for information on temporary controls already in place.
- .3 Remove from site all such work after use.

1.14.2 HOARDING FENCE

- .1 Erect or modify temporary site enclosures as required.
- .2 Provide lockable truck entrance gate(s) and pedestrian door(s) as required and conforming to applicable traffic restrictions on adjacent streets and sites roadways. Equip gates with locks and keys.
- .3 Erect and maintain pedestrian walkways including roof and side covers, complete with signs and electrical lighting as required by law and directed by the Departmental Representative.
- .4 Maintain enclosure in clean condition.



- .5 Provide barriers around trees and plants designated to remain. Protect from damage by equipment and construction procedures.
- .6 Fence and secure separately the Lay down and Work site areas.

1.14.3 GUARD RAILS AND BARRICADES

- .1 Provide secure, rigid guard rails and barricades around deep excavations, open shafts, open stair wells, open edges of floors and roofs.
- .2 Provide as required by governing authorities.

1.14.4 WEATHER ENCLOSURES

- .1 Provide weather tight closures to unfinished door and window openings, tops of shafts and other openings in floors and roofs.
- .2 Close off floor areas where walls are not finished; seal off other openings; enclose building interior work for temporary heat.
- .3 Design enclosures to withstand wind pressure and snow loading.

1.14.5 DUST TIGHT SCREENS

- .1 Provide dust tight screens or insulated partitions to localize dust generating activities, and for protection of workers, finished areas of Work and public.
- .2 Maintain and relocate protection until such work is complete.

1.14.6 ACCESS TO SITE

- .1 Provide and maintain access roads, sidewalk crossings, ramps and construction runways as may be required for access to Work.
- .2 Maintain access in broom clean condition.

1.14.7 PUBLIC TRAFFIC FLOW

- .1 Provide and maintain competent signal flag operators, traffic signals, barricades and flares, lights, or lanterns as required to perform Work and protect public.

1.14.8 FIRE ROUTES

- .1 Maintain access to property including overhead clearances for use by emergency response vehicles.

1.14.9 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY

- .1 Protect surrounding private and public property including laydown, site office facilities and parking areas from damage during performance of Work.
- .2 Be responsible for damage incurred.

1.14.10 PROTECTION OF BUILDING FINISHES

- .1 Provide protection for finished and partially finished building finishes and equipment during performance of Work.
- .2 Maintain and modify as required, finish protection systems installed under previous contracts.
- .3 Provide necessary screens, covers, and hoardings.
- .4 Confirm with the Departmental Representative locations and installation schedule 3 working days prior to installation.
- .5 Be responsible for damage incurred due to lack of or improper



protection.

1.15 01 61 00 – COMMON PRODUCT REQUIREMENTS

1.15.1 QUALITY

- .1 Products, materials, equipment and articles incorporated in Work shall be new, not damaged or defective, and of best quality for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.
- .2 Procurement policy is to acquire, in cost effective manner, items containing highest percentage of recycled and recovered materials practicable consistent with maintaining satisfactory levels of competition.
- .3 Defective products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is precaution against oversight or error. Remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.
- .4 Should disputes arise as to quality or fitness of products, decision rests strictly with the Departmental Representative based upon requirements of Contract Documents.
- .5 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.
- .6 Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

1.15.2 AVAILABILITY

- .1 Immediately upon signing Contract(s), review product delivery requirements and anticipate foreseeable supply delays for items. If delays in supply of products are foreseeable, notify the Departmental Representative of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.
- .2 In event of failure to notify the Departmental Representative at commencement of Work and should it subsequently appear that Work may be delayed for such reason, the Departmental Representative reserves right to substitute more readily available products of similar character, at no increase in Contract Price or Contract Time.

1.15.3 STORAGE HANDLING AND PROTECTION

- .1 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.
- .2 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work.
- .3 Store products subject to damage from weather in weatherproof



enclosures.

- .4 Store cementitious products clear of earth or concrete floors, and away from walls.
- .5 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.
- .6 Store sheet materials, lumber and on flat, solid supports and keep clear of ground. Slope to shed moisture.
- .7 Store and mix paints in heated and ventilated room. Remove oily rags and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.
- .8 Remove and replace damaged products at own expense and to satisfaction of the Departmental Representative.
- .9 Touch-up damaged factory finished surfaces to the Departmental Representative's satisfaction. Use touch-up materials to match original. Do not paint over name plates.

1.15.4 TRANSPORTATION

- .1 Pay costs of transportation of products required in performance of Work.
- .2 The Departmental Representative will pay for transportation cost of products supplied by the Departmental Representative. Unload, handle and store such products.

1.15.5 MANUFACTURER'S INSTRUCTIONS

- .1 Unless otherwise indicated in specifications, install or erect products in accordance with manufacturer's instructions. Do not rely on labels or enclosures provided with products. Obtain written instructions directly from manufacturers.
- .2 Notify the Departmental Representative in writing, of conflicts between specifications and manufacturer's instructions, to allow for the Departmental Representative's review of the next course of action.
- .3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes the Departmental Representative to require removal and re-installation at no increase in Contract Price or Contract Time.

1.15.6 QUALITY OF WORK

- .1 Ensure Quality of Work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. Immediately notify the Departmental Representative if required Work is such as to make it impractical to produce required results.
- .2 Do not employ anyone unskilled in their required duties. The Departmental Representative reserves the right to require dismissal from site, workers deemed incompetent or careless.
- .3 Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with the Departmental Representative whose



decision is final.

1.15.7 CO-ORDINATION

- .1 Ensure co-operation of workers in laying out Work. Maintain efficient and continuous supervision.
- .2 Be responsible for coordination and placement of openings, sleeves and accessories.

1.15.8 CONCEALMENT

- .1 In finished areas conceal pipes, ducts and wiring in floors, walls and ceilings, except where indicated otherwise.
- .2 Before installation inform the Departmental Representative if there is interference. Install as directed by the Departmental Representative.

1.15.9 REMEDIAL WORK

- .1 Perform remedial work required to repair or replace parts or portions of Work identified as defective or unacceptable. Co-ordinate adjacent affected Work as required.
- .2 Perform remedial work by specialists familiar with materials affected. Perform in a manner to neither damage nor put at risk any portion of Work.

1.15.10 LOCATION OF FIXTURES

- .1 Consider location of fixtures, outlets, and mechanical and electrical items indicated as approximate.
- .2 Inform the Departmental Representative of conflicting installation. Install as directed.

1.15.11 FASTENINGS

- .1 Provide metal fastenings and accessories in same texture, colour and finish as adjacent materials, unless indicated otherwise.
- .2 Prevent electrolytic action between dissimilar metals and materials.
- .3 Use non-corrosive hot dip galvanized steel fasteners and anchors for securing exterior work, unless stainless steel or other material is specifically requested in affected specification Section.
- .4 Space anchors within individual load limit or shear capacity and ensure they provide positive permanent anchorage. Wood, or any other organic material plugs are not acceptable.
- .5 Keep exposed fastenings to a minimum, space evenly and install neatly.
- .6 Fastenings which cause spalling or cracking of material to which anchorage is made are not acceptable.

1.15.12 FASTENINGS – EQUIPMENT

- .1 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.
- .2 Use heavy hexagon heads, semi-finished unless otherwise specified. Use No. 304 stainless steel for exterior areas.
- .3 Bolts may not project more than one diameter beyond nuts.



- .4 Use plain type washers on equipment, sheet metal and soft gasket lock type washers where vibrations occur. Use resilient washers with stainless steel.

1.15.13 PROTECTION OF WORK IN PROGRESS

- .1 Prevent overloading of parts of building. Do not cut, drill or sleeve load bearing structural member, unless specifically indicated without written approval of the Departmental Representative.

1.15.14 EXISTING UTILITIES

- .1 When breaking into or connecting to existing services or utilities, execute Work at times directed by local governing authorities, with minimum of disturbance to Work, and/or building occupants and pedestrian and vehicular traffic.
- .2 Protect, relocate or maintain existing active services. When services are encountered, cap off in manner approved by authority having jurisdiction. Stake and record location of capped service.

1.16 01 71 00 – EXAMINATION AND PREPARATION

1.16.1 QUALIFICATIONS OF SURVEYOR

- .1 Qualified registered land surveyor, licensed to practice in Place of Work, acceptable to the Departmental Representative.

1.16.2 SURVEY REFERENCE POINTS

- .1 Existing base horizontal and vertical control points are designated on drawings.
- .2 Locate, confirm and protect control points prior to starting site work. Preserve permanent reference points during construction.
- .3 Make no changes or relocations without prior written notice to The Departmental Representative.
- .4 Report to the Departmental Representative when reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.
- .5 Require surveyor to replace control points in accordance with original survey control.

1.16.3 SURVEY REQUIREMENTS

- .1 Establish two permanent bench marks on site, referenced to established bench marks by survey control points. Record locations, with horizontal and vertical data in Project Record Documents.
- .2 Establish lines and levels, locate and lay out, by instrumentation.
- .3 Stake for grading, fill, topsoil placement and landscaping features.
- .4 Stake slopes and berms.
- .5 Establish pipe invert elevations.
- .6 Stake batter boards for foundations.
- .7 Establish foundation column locations and floor elevations.
- .8 Establish lines and levels for mechanical and electrical work.

1.16.4 EXISTING SERVICES



- .1 Before commencing work, establish location and extent of service lines in area of Work and notify The Departmental Representative of findings.
- .2 Remove abandoned service lines within 2 m of structures. Cap or otherwise seal lines at cut-off points as directed by the Departmental Representative.

1.16.5 LOCATION OF EQUIPMENT AND FIXTURES

- .1 Location of equipment, fixtures and outlets indicated or specified are to be considered as approximate.
- .2 Locate equipment, fixtures and distribution systems to provide minimum interference and maximum usable space and in accordance with manufacturer's recommendations for safety, access and maintenance.
- .3 Inform the Departmental Representative of impending installation and obtain approval for actual location.
- .4 Submit field drawings to indicate relative position of various services and equipment when required by The Departmental Representative.

1.16.6 RECORDS

- .1 Maintain a complete, accurate log of control and survey work as it progresses.
- .2 On completion of foundations and major site improvements, prepare a certified survey showing dimensions, locations, angles and elevations of Work.
- .3 Record locations of maintained, re-routed and abandoned service lines.

1.16.7 SUBMITTALS

- .1 Submit name and address of Surveyor to the Departmental Representative.
- .2 On request of the Departmental Representative, submit documentation to verify accuracy of field engineering work.
- .3 Submit certificate signed by surveyor certifying those elevations and locations of completed Work that conform and do not conform to Contract Documents.

1.17 01 73 03 – EXECUTION REQUIREMENTS

1.17.1 SUBMITTALS

- .1 Submittals: in accordance with Section 01 33 00.
- .2 Submit written request in advance of cutting or alteration which affects:
 - .1 Structural integrity of elements of project;
 - .2 Integrity of weather-exposed or moisture-resistant elements;
 - .3 Efficiency, maintenance, or safety of operational elements;
 - .4 Visual qualities of sight-exposed elements;
 - .5 Work of the Departmental Representative or separate



Construction Manager.

- .3 Include in request:
 - .1 Identification of project;
 - .2 Location and description of affected Work;
 - .3 Statement on necessity for cutting or alteration;
 - .4 Description of proposed Work, and products to be used;
 - .5 Alternatives to cutting and patching;
 - .6 Effect on Work of Owner or separate Construction Manager;
 - .7 Written permission of affected separate Construction Manager;
 - .8 Date and time work will be executed.

1.17.2 MATERIALS

- .1 Required for original installation.
- .2 Change in Materials: Submit request for substitution in accordance with Section 01 33 00.

1.17.3 PREPARATION

- .1 Inspect existing conditions, including elements subject to damage or movement during cutting and patching.
- .2 After uncovering, inspect conditions affecting performance of Work.
- .3 Beginning of cutting or patching means acceptance of existing conditions.
- .4 Provide supports to assure structural integrity of surroundings; provide devices and methods to protect other portions of project from damage.
- .5 Provide protection from elements for areas which are to be exposed by uncovering work; maintain excavations free of water.

1.17.4 EXECUTION

- .1 Execute cutting, fitting, and patching including excavation and fill to complete Work.
- .2 Fit several parts together, to integrate with other Work.
- .3 Uncover Work to install ill-timed Work.
- .4 Remove and replace defective and non-conforming Work.
- .5 Remove samples of installed Work for testing.
- .6 Provide openings in non-structural elements of Work for penetrations of mechanical and electrical Work.
- .7 Execute Work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.
- .8 Employ original installer to perform cutting and patching for weather-exposed and moisture-resistant elements, and sight-exposed surfaces.
- .9 Cut rigid materials using masonry saw or core drill. Pneumatic or impact tools not allowed on masonry work without prior approval.



- .10 Restore work with new products in accordance with requirements of Contract Documents.
- .11 Fit Work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- .12 At penetration of fire rated wall, ceiling, or floor construction, completely seal voids with firestopping material, full thickness of the construction element.
- .13 Refinish surfaces to match adjacent finishes: Refinish continuous surfaces to nearest intersection. Refinish assemblies by refinishing entire unit.
- .14 Conceal pipes, ducts and wiring in floor, wall and ceiling construction of finished areas except where indicated otherwise.
 - .1 Remove all excess excavation and fill and all other material to off-site.

1.18 01 74 11 – CLEANING

1.18.1 PROJECT CLEANLINESS

- .1 Maintain Work in tidy condition, free from accumulation of waste products and debris. Manage the subtrades efforts and enforce their contractual requirements for housekeeping, cleanup, and disposal of waste products.
- .2 Remove waste materials from site at regularly scheduled times or dispose of as directed by the Departmental Representative. Do not burn waste materials on site.
- .3 Clear snow and ice from access to building, bank/pile snow in designated areas only.
- .4 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .5 Provide on-site containers for collection of waste materials and debris.
- .6 Provide and use marked separate bins for recycling. Refer to Section 01 74 21.
- .7 Dispose of waste materials and debris off site.
- .8 Clean interior areas prior to start of finishing work, and maintain areas free of dust and other contaminants during finishing operations.
- .9 Store volatile waste in covered metal containers, and remove from premises at end of each working day.
- .10 Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.
- .11 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.
- .12 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.



1.18.2 FINAL CLEANING

- .1 Final cleaning to be subcontracted to cleaning service company.
- .2 When Work is Substantially Performed remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.
- .3 Remove waste products and debris, and leave Work clean and suitable for occupancy.
- .4 Prior to final review remove surplus products, tools, construction machinery and equipment.
- .5 Remove waste materials from site at regularly scheduled times or dispose of as directed by The Departmental Representative. Do not burn waste materials on site.
- .6 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .7 Clean and polish glass, mirrors, hardware, wall tile, stainless steel, chrome, porcelain enamel, baked enamel, plastic laminate, and mechanical and electrical fixtures. Replace broken, scratched or disfigured glass.
- .8 Remove stains, spots, marks and dirt from decorative work, electrical and mechanical fixtures, furniture fitments, walls and floors.
- .9 Clean lighting reflectors, lenses, and other lighting surfaces.
- .10 Vacuum clean and dust building interiors, behind grilles, louvers and screens.
- .11 Wax, seal, shampoo or prepare floor finishes, as recommended by manufacturer.
- .12 Inspect finishes, fitments and equipment and ensure specified workmanship and operation.
- .13 Broom clean and wash exterior walks, steps and surfaces; rake clean other surfaces of grounds.
- .14 Remove dirt and other disfiguration from exterior surfaces.
- .15 Clean and sweep roofs, gutters, areaways, and sunken wells.
- .16 Sweep and wash clean paved areas.
- .17 Clean equipment and fixtures to sanitary condition; clean or replace filters of mechanical equipment.
- .18 Clean roofs, downspouts, and drainage systems.
- .19 Remove debris and surplus materials from crawl areas and other accessible concealed spaces.
- .20 Remove snow and ice from access to building.
- .21 Complete cleaning prior to start-up and commissioning of systems and integrated systems.

1.19 01 74 21 – CONSTRUCTION DEMOLITION WASTE MANAGEMENT AND DISPOSAL

1.19.1 WASTE MANAGEMENT GOALS



- .1 Prior to start of Work conduct meeting with the Departmental Representative to review and discuss PWGSC's waste management goals.
- .2 Accomplish maximum control of solid construction waste.
- .3 Preserve environment and prevent pollution and environment damage.

1.19.2 DOCUMENTS

- .1 Maintain at job site, one copy of following documents:
 - .1 Waste Audit.
 - .2 Waste Reduction Workplan.
 - .3 Material Source Separation Plan.
 - .4 Schedules completed for project.

1.19.3 SUBMITTALS

- .1 Submittals in accordance with Section 01 33 00.
- .2 Submit before final payment summary of waste materials salvaged for reuse, recycling or disposal by project using deconstruction/disassembly material audit form.
 - .1 Provide receipts, scale tickets, waybills, and show quantities and types of materials reused, recycled or disposed of.
 - .2 For each material reused, sold or recycled from project, include amount in tones or quantities by number, type and size of items and the destination.
 - .3 For each material land filled or incinerated from project, include amount of material and identity of landfill, incinerator or transfer station.

1.19.4 STORAGE HANDLING AND PROTECTION

- .1 Store, materials to be reused, recycled and salvaged in locations as directed by the Departmental Representative.
- .2 Unless specified otherwise, materials for removal become Construction Manager's property.
- .3 Separate non-salvageable materials from salvaged items. Transport and deliver non-salvageable items to licensed disposal facility.
- .4 Protect structural components not removed for demolition from movement or damage.
- .5 Support affected structures. If safety of building is endangered, cease operations and immediately notify the Departmental Representative.
- .6 Protect surface drainage, mechanical and electrical from damage and blockage.
- .7 Separate and store materials produced during dismantling of structures in designated areas.
- .8 Prevent contamination of materials to be salvaged and recycled and handle materials in accordance with requirements for acceptance by designated facilities.



- .1 On-site source separation is recommended.
- .2 Remove co-mingled materials to off-site processing facility for separation.
- .3 Provide waybills for separated materials.

1.19.5 DISPOSAL OF WASTES

- .1 Do not bury rubbish or waste materials.
- .2 Do not dispose of waste, volatile materials, mineral spirits, oil, paint thinner into waterways, storm, or sanitary sewers.
- .3 Keep records of construction waste including:
 - .1 Number and size of bins.
 - .2 Waste type of each bin.
 - .3 Total tonnage generated.
 - .4 Tonnage reused or recycled.
 - .5 Reused or recycled waste destination.
- .4 Remove materials from deconstruction as deconstruction/disassembly Work progresses.
- .5 Prepare project summary to verify destination and quantities on a material-by-material basis as identified in pre-demolition material audit.

1.19.6 USE OF SITE AND FACILITIES

- .1 Execute work with least possible interference or disturbance to normal use of premises.

1.19.7 SCHEDULING

- .1 Co-ordinate Work with other activities at site to ensure timely and orderly progress of Work.

1.19.8 APPLICATION

- .1 Do Work in compliance with local requirements.
- .2 Handle waste materials not reused, salvaged, or recycled in accordance with appropriate regulations and codes.

1.19.9 CLEANING

- .1 Remove tools and waste materials on completion of Work, and leave work area in clean and orderly condition.
- .2 Clean-up work area as work progresses.
- .3 Source separate materials to be reused/recycled into specified sort areas.

1.19.10 DIVERSION OF MATERIALS

- .1 Separate materials from general waste stream and stockpile in separate piles or containers, as reviewed by the Departmental Representative and consistent with applicable regulations.
 - .1 Mark containers or stockpile areas.
 - .2 Provide instruction on disposal practices.
- .2 On-site sale of salvaged, recovered, reusable, recyclable materials is not permitted.



1.20 01 77 00 – CLOSEOUT PROCEDURES

1.20.1 INSPECTION AND DECLARATION

- .1 Construction Manager's Inspection: Construction Manager and Sub Contractor: conduct inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.
 - .1 Notify the Departmental Representative in writing of satisfactory completion of Construction Manager's Inspection and that corrections have been made.
 - .2 Request the Departmental Representative Inspection.
- .2 Completion: submit written certificate that following have been performed:
 - .1 Work has been completed and inspected for compliance with
 - .1 Contract Documents.
 - .2 Local authorities having jurisdiction.
 - .3 Local services/utility providers.
 - .2 Defects have been corrected and deficiencies have been completed.
 - .3 Equipment and systems have been tested, adjusted and balanced and are fully operational.
 - .4 Certificates required by Authorities Having Jurisdiction and by Utilities have been submitted.
 - .5 Operation of systems have been demonstrated to the Departmental Representative's operational personnel.
 - .6 Work is complete and ready for final inspection.
- .3 Final Inspection: when items noted above are completed, request final inspection of Work by the Departmental Representative and Construction Manager. If Work is deemed incomplete by the Departmental Representative, complete outstanding items and request re-inspection.

1.20.2 WARRANTY INSPECTION

- .1 In the case of one year warranty, conduct joint inspections six (6) and ten (10) months after Interim Certificate of Completion. In the case of each extended warranty, conduct joint inspections in four (4) periods as agreed by the Departmental Representative.
- .2 Immediately prior to end of warranty period(s) the Departmental Representative and Construction Manager shall make a joint final inspection of the remedial Work noted two (2) months prior to end of warranty(s) and reported within the two (2) months during remedial work.

1.21 01 78 00 – CLOSEOUT SUBMITTALS

1.21.1 SUBMITTALS

- .1 Submittals: in accordance with Section 01 33 00.
- .2 Prepare instructions and data using personnel experienced in maintenance and operation of described products.
- .3 Copy will be returned after final inspection, with the Departmental



Representative's comments.

- .4 Revise content of documents as required prior to final submittal.
- .5 Two weeks prior to Substantial Performance of the Work, submit to the Departmental Representative;
 - .1 Four final copies plus electronic copies of operating and maintenance manuals in English.
 - .2 Four copies plus electronic copies of final Commissioning Report.
- .6 Ensure spare parts, maintenance materials and special tools provided are new, undamaged or defective, and of same quality and manufacture as products provided in Work.
- .7 Furnish evidence, if requested, for type, source and quality of products provided.
- .8 Defective products will be rejected, regardless of previous inspections. Replace products at own expense.
- .9 Pay costs of transportation.

1.21.2 ELECTRONIC SUBMITTALS

- .1 Submit number of hard copies specified for each type and format of submittal and in also submit in electronic format as pdf files and also in MS Word, Excel, Project as may be appropriate and in AutoCAD dwg files all on CD R/W or USB.
- .2 The Departmental Representative will provide one electronic set of drawings, schedules and specifications for as-built drawing and specification purposes.
 - .1 Drawings are in AutoCAD.
 - .2 Specifications are in MS Word
 - .3 Amendments are in MS Word.
- .3 Transfer as-built information from marked up set of documents to electronic format.
 - .1 Provide plotted or printed as specified.
- .4 As-built topographical and site surveys in AutoCAD and pdf format.

1.21.3 FORMAT

- .1 Organize data as instructional manual.
- .2 Binders: vinyl, hard covered, 3 'D' ring, loose leaf 219 x 279 mm with spine and face pockets.
- .3 When multiple binders are used correlate data into related consistent groupings. Identify contents of each binder on spine.
- .4 Cover: identify each binder with type or printed title 'Project Record Documents'; list title of project and identify subject matter of contents.
- .5 Arrange content by components, systems, integrated systems, process flow, under Section numbers and sequence of Table of Contents.
- .6 Provide tabbed fly leaf for each separate product and system, with



typed description of product and major component parts of equipment.

- .7 Text: manufacturer's printed data, or typewritten data.
- .8 Drawings: provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.
- .9 Provide 1:1 scaled CAD files in pdf and dwg format.
- .10 On project completion submit to the Departmental Representative 4 electronic pdf copies on CD R/W and 4 paper copies in binders of Operations and Maintenance and Systems Descriptions Manual.
 - .1 Organize manuals into industry standard maintenance manual tabs with links in index to each descriptive section describing the component or maintenance procedure.
 - .2 Organize files into MasterFormat 2016 numbering system.
 - .3 Label disk "Operational and Maintenance Data", project name, date, names of Construction Manager, subcontractors, consultants and sub consultants.
 - .4 Include scanned guarantees, bonds, diagrams and drawings.
 - .5 Organize contents into applicable sections of work to parallel specification break-down. Mark each section by labeled tabs (navigation buttons).
 - .6 Ensure all content is legible.

1.21.4 CONTENTS – EACH VOLUME

- .1 Table of Contents: provide title of project;
 - .1 Date of submission; names.
 - .2 Addresses, and telephone numbers of the Department Representative and Construction Manager with name of responsible parties.
 - .3 Schedule of products and systems, indexed to content of volume.
- .2 For each product or system:
 - .1 List names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.
- .3 Product Data: mark each sheet to identify specific products and component parts, and data applicable to installation; delete inapplicable information.
- .4 Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.
- .5 Typewritten Text: as required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 01 45 00.
- .6 Demonstration and Training: refer to Section 01 79 00.
 - .1 Submit to the Departmental Representative 4 electronic copies on DVD R/W of demonstration and training sessions.



1.21.5 AS-BUILT SPECIFICATIONS AND SAMPLES

- .1 Maintain, in addition to requirements in General Conditions, at site for the Departmental Representative one record copy of:
 - .1 Contract Drawings;
 - .2 Specifications;
 - .3 Addenda;
 - .4 Change Orders and other modifications to Contract;
 - .5 Reviewed shop drawings, product data, and samples;
 - .6 Field test records;
 - .7 Inspection certificates;
 - .8 Manufacturer's certificates.
- .2 Store record documents and samples in field office apart from documents used for construction. Provide files, racks, and secure storage.
- .3 Label record documents and file in accordance with Section number listings in List of Contents of this Project Manual. Label each document "PROJECT RECORD" in neat, large, printed letters.
- .4 Maintain record documents in clean, dry and legible condition. Do not use record documents for construction purposes.
- .5 Keep record documents and samples available for inspection by the Departmental Representative.
- .6 The Departmental Representative may furnish additional drawings and specifications to clarify Work.
 - .1 Such documents become part of Contract Document.
 - .2 Include such documents in As-Built submission.
- .7 Turn over, at completion, with all as-built information:
 - .1 Drawings;
 - .1 4 electronic copies of drawings in AutoCAD file format 2013,
 - .2 4 sets of printed as-built drawings,
 - .3 1 pdf copy.
 - .2 Specifications in Master format 2016;
 - .1 4 electronic copies of specifications in MS Word 2013,
 - .2 4 sets of printed as-built specifications,
 - .3 1 pdf copy.
- .8 Submit to the Departmental Representative one copy of drawings and specifications for review prior to final submission.

1.21.6 RECORDING ACTUAL SITE CONDITIONS

- .1 Record information on set of black line opaque drawings, and in copy of Specifications Documents.
- .2 Provide felt tip marking pens, maintaining separate colours for each major system, for recording information.
- .3 Record information concurrently with construction progress. Do not conceal Work until required information is recorded.



- .4 Contract Drawings and shop drawings: mark each item to record actual construction, including:
 - .1 Measured depths of elements of foundation in relation to finish first floor datum;
 - .2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements;
 - .3 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction;
 - .4 Field changes of dimension and detail;
 - .5 Changes made by change orders;
 - .6 Details not on original Contract Drawings;
 - .7 References to related shop drawings and modifications.
- .5 Specifications: mark each item to record actual construction, including:
 - .1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items;
 - .2 Changes made by Addenda and change orders.
- .6 Other Documents: maintain manufacturer's certifications, guarantees, inspection certifications, field test records, required by individual specifications sections.

1.21.7 FINAL SURVEY

- .1 Submit final site survey certificate in accordance with Section 01 71 00 certifying that elevations and locations of completed Work are in conformance, or non-conformance with Contract Documents.

1.21.8 EQUIPMENT AND SYSTEMS

- .1 Each Item of Equipment and Each System: include description of unit or system, and component parts. Give function, normal operation characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.
- .2 Panel board circuit directories: provide electrical service characteristics, controls, and communications.
- .3 Include installed colour coded wiring diagrams.
- .4 Operating Procedures: include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.
- .5 Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- .6 Provide servicing and lubrication schedule, and list of lubricants



required.

- .7 Include manufacturer's printed operation and maintenance instructions.
- .8 Include sequence of operation by controls manufacturer.
- .9 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- .10 Provide installed control diagrams by controls manufacturer.
- .11 Provide Construction Manager's co-ordination drawings, with installed colour coded piping diagrams.
- .12 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
- .13 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
- .14 Include test and balancing reports as specified in Section 01 45 00 and 01 91 13.
- .15 Additional requirements: as specified in individual specification sections and Terms of Reference (TOR).

1.21.9 MATERIALS AND FINISHES

- .1 Building Products, Applied Materials, and Finishes: include product data, with catalogue number, size, composition, and colour and texture designations. Provide information for re-ordering custom manufactured products.
- .2 Instructions for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- .3 Moisture-Protection and Weather-Exposed Products: include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- .4 Additional Requirements: as specified in individual specifications sections.

1.21.10 SPARE PARTS

- .1 Provide spare parts.
- .2 Provide items of same manufacture and quality as items in Work.
- .3 Deliver to site as directed; place and store.
- .4 Receive and catalogue items. Submit inventory listing to the Departmental Representative. Include approved listings in Maintenance Manual.
- .5 Obtain receipt for delivered products and submit prior to final payment.

1.21.11 MAINTENANCE MATERIALS

- .1 Provide maintenance and extra materials.
- .2 Provide items of same manufacture and quality as items in Work.
- .3 Deliver to site as directed; place and store.
- .4 Receive and catalogue items. Submit inventory listing to the



Departmental Representative. Include approved listings in Maintenance Manual.

- .5 Obtain receipt for delivered products and submit prior to final payment.

1.21.12 SPECIAL TOOLS

- .1 Provide special tools.
- .2 Provide items with tags identifying their associated function and equipment.
- .3 Deliver to site as directed; place and store.
- .4 Receive and catalogue items. Submit inventory listing to the Departmental Representative. Include approved listings in Maintenance Manual.

1.21.13 STORAGE, HANDLING AND PROTECTION

- .1 Store spare parts, maintenance materials, and special tools in manner to prevent damage or deterioration.
- .2 Store in original and undamaged condition with manufacturer's seal and labels intact.
- .3 Store components subject to damage from weather in weatherproof enclosures.
- .4 Store paints and freezable materials in a heated and ventilated room.
- .5 Remove and replace damaged products at own expense and to satisfaction of the Departmental Representative.

1.21.14 WARRANTIES AND BONDS

- .1 Develop warranty management plan to contain information relevant to Warranties.
- .2 Submit warranty management plan, 60 days before planned pre-warranty conference, to the Departmental Representative approval.
- .3 Warranty management plan to include required actions and documents to assure that the Departmental Representative receives warranties to which it is entitled.
- .4 Provide plan in narrative form and contain sufficient detail to make it suitable for use by future maintenance and repair personnel.
- .5 Submit, warranty information made available during construction phase, to the Departmental Representative for approval prior to each monthly pay estimate.
- .6 Assemble approved information in binder and submit upon acceptance of work. Organize binder as follows:
 - .1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.
 - .2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.
 - .3 Obtain warranties, manufacturers' guarantees and bonds, executed in duplicate by subcontractors, suppliers, and



manufacturers, within ten days after completion of applicable item of work.

- .4 Verify that documents are in proper form, contain full information, and are notarized.
- .5 Co-execute submittals when required.
- .6 Retain warranties and bonds until time specified for submittal.
- .7 Except for items put into use with the Departmental Representative permission, leave date of beginning of time of warranty until Date of Substantial Performance is determined.
- .8 Include information contained in warranty management plan as follows:
 - .1 Roles and responsibilities of personnel associated with warranty process, including points of contact and telephone numbers within the organizations of Construction Managers, subcontractors, manufacturers or suppliers involved.
 - .2 Listing and status of delivery of Certificates of Warranty for extended warranty items, to include roofs, HVAC balancing, pumps, motors, transformers, and commissioned systems and integrated systems.
 - .3 Provide list for each warranted equipment, item and feature of construction or system indicating:
 - .1 Name of item;
 - .2 Model and serial numbers;
 - .3 Location where installed;
 - .4 Name and phone numbers of manufacturers or suppliers;
 - .5 Names, addresses and telephone numbers of sources of spare parts;
 - .6 Warranties and terms of warranty: include one-year overall warranty of construction. Indicate items that have extended warranties and show separate warranty expiration dates;
 - .7 Cross-reference to warranty certificates as applicable;
 - .8 Starting point and duration of warranty period;
 - .9 Summary of maintenance procedures required to continue warranty in force;
 - .10 Cross-Reference to specific pertinent Operation and Maintenance manuals;
 - .11 Organization, names and phone numbers of persons to call for warranty service;
 - .12 Typical response time and repair time expected for various warranted equipment.
 - .4 Construction Manager's plans for attendance of the various required post-construction warranty inspections.
 - .5 Procedure and status of tagging of equipment covered by extended warranties.
 - .6 Post copies of instructions near selected pieces of equipment where operation is critical for warranty and/or safety reasons.



- .9 Respond in a timely manner to oral or written notification of required construction warranty repair work.
- .10 Written verification will follow oral instructions. Failure to respond will be cause for the Departmental Representative to proceed with action against Construction Manager.

1.21.15 PRE-WARRANTY CONFERENCE

- .1 Meet with the Departmental Representative, to develop understanding of requirements of this section. Schedule meeting prior to contract completion, and at time designated by the Departmental Representative.
- .2 The Departmental Representative will establish communication procedures for:
 - .1 Notification of construction warranty defects.
 - .2 Determine priorities for type of defect.
 - .3 Determine reasonable time for response.
- .3 Provide name, telephone number and address of licensed and bonded company that is authorized to initiate and pursue construction warranty work action.
- .4 Ensure contact is located within local service area of warranted construction, is continuously available, and is responsive to inquiries for warranty work action.

1.21.16 WARRANTY TAGS

- .1 Tag, at time of installation, each warranted item. Provide durable, oil and water resistant tag approved by the Departmental Representative.
- .2 Attach tags with copper wire and spray with waterproof silicone coating.
- .3 Leave date of acceptance until project is accepted for occupancy.
- .4 Indicate following information on tag:
 - .1 Type of product/material;
 - .2 Model number;
 - .3 Serial number;
 - .4 Contract number;
 - .5 Warranty period;
 - .6 Inspector's signature;
 - .7 Construction Manager.

1.22 01 91 13 – GENERAL COMMISSIONING (CX) REQUIREMENTS

1.22.1 GENERAL

- .1 Refer to TOR Part 1 for Commissioning Requirements

1.23 01 91 41 – DEMONSTRATION AND TRAINING

1.23.1 GENERAL

- .1 Refer to TOR Section 3 for Demonstration and Training



Requirements.

----- END -----



Construction Management Services

- CMa (Advisory Services)
- CMc (Construction Services)

GENERAL PROCEDURES & STANDARDS

Province House Conservation

For:

**Parks Canada Agency
Charlottetown, Prince Edward Island**

July 19, 2017



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1. INTRODUCTION

1.1 GENERAL PROCEDURES AND STANDARDS (GP&S)

1.1.1 GENERAL

- .1 GP&S have been developed to:
 - .1 Facilitate a consistent, well-documented CM process reflecting industry best practices and performance standards; and
 - .2 Ensure compliance with federal government standards, PWGSC Policies and Treasury Board directives.

1.1.2 DOCUMENT HARMONIZATION AND ORDER OF PRECEDENCE

- .1 GP&S, TOR, Division 01-General Requirements and Definitions documents are complementary and are equally integral to project delivery.
 - .1 TOR takes precedence.
- .2 TOR describes project-specific requirements, services and deliverables while the GP&S outlines with minimum standards, procedures and performance common to all projects.

1.1.3 KEY LINKS

- .1 National Project Management System (NMPS)
 - .1 <http://www.tpsgc-pwgsc.gc.ca/biens-property/sngp-npms/index-eng.html>
 - .2 PWGSC project delivery and terminology is defined in the NPMS.
- .2 National Master Specifications (NMS)
 - .1 http://www.nrc-cnrc.gc.ca/eng/publications/nrc_pubs/nms/nms_index.html
 - .2 Develop specifications to the latest version of the NMS data base.
- .3 Code of Conduct for Procurement - Context and purpose of the Code
 - .1 <http://www.tpsgc-pwgsc.gc.ca/app-acq/cndt-cndct/contexte-context-eng.html>
 - .2 Provide Work in an honest, fair and comprehensive manner.

1.2 PROJECT DELIVERY

1.2.1 GENERAL REQUIREMENTS

- .1 Obtain written authorization from the Departmental Representative before proceeding to the next milestone or phase of work.
- .2 Coordinate all services with the Departmental Representative.
- .3 Deliver project utilizing best practices in support of User Department needs, respecting the approved financial budget, schedule, scope and quality.
- .4 Provide continuous and comprehensive documentation of the project at all stages of the project implementation.
- .5 Ensure continuity of key personnel and team with an in-depth understanding and collective "buy-in" of the project requirements for the life of the project.

1.2.2 SERVICE DELIVERY

- .1 Submittals
 - .1 Submit various Reports, Sketches, Drawings, Specifications and Progress Schedules and Payment and Manuals at key project milestones.
 - .1 Content and level of detail shall be specific to the expectations relative



- to a milestone and not in advance of a milestone.
- .2 Construction budget/estimate level of accuracy shall reflect the scope and accuracy consistent with the expectations relative to a milestone and not in advance of a milestone.
- .3 All work submitted to the Departmental Representative will be reviewed for;
 - .1 Design and documentation performance quality;
 - .2 Conformance to Owner Project Requirements (OPR), and
 - .3 Constructability, biddability and claims avoidance.
- .2 Provide written responses to review comments.
- .2 Computer Aided Design (CAD)
 - .1 Develop project drawings on a CAD drawing system acceptable to PWGSC standards:
 - .1 Web site, <http://www.tpsgc-pwgsc.gc.ca/biens-property/cdao-cadd/index-eng.html>;
 - .2 Furnish digital files in addition to multiple sets of prints for all submissions. Additional prints and/or mylars are required when submitting Final Compliance Documents;
 - .3 Make provision for automatic take-offs to be derived directly from the CAD drawing files. These shall be used to prepare final estimates.
 - .3 Specifications and Cost Estimates
 - .1 During the Schematic Design and Design Development milestones, development of outline specification and cost estimates are to be structured to Uniformat II detail Level 4.
 - .2 During Construction Documentation, Tender and Close Out milestones, development of specifications and cost estimate are to be structured to National Research Council/ PWGSC/ National Master Specifications, MasterFormat.
 - .3 National Master Specification (NMS)
 - .1 The National Research Council of Canada (NRC) has assumed ownership of the National Master Specification (NMS) from Public Works and Government Services Canada (PWGSC).
 - .2 NMS is intended for use by the federal government, other public organizations and the private sector in the preparation of construction and renovation contract documents.
 - .3 Contact NRC for the re-branded latest version of PWGSC NMS User Guide and specification development framework.
 - .1 The Guide reflects honest, fair and comprehensive conduct for both public and private sectors.

1.2.3 PROCUREMENT OF GOODS AND SERVICES

- .1 PWGSC contracting requirements
 - .1 Code of Conduct for Procurement applies to all goods and services tenders issued by the CM in compliance to the TOR.

1.2.4 INDUSTRY STANDARD PRACTICES

- .1 Review the tender work packages to confirm completeness and that the procurement method will achieve value for money and meet the schedule.



- .2 Use standard Construction Association practices for tendering for the project area. Include the use of:
 - .1 PWGSC Contract Documents, General Conditions and Standard Acquisitions Clauses and Conditions (SACC).
 - .2 CCDC standard contracting documents, where approved by the Departmental Representative;
 - .3 Public advertisement to the industry using provincially/territorially acceptable advertisement methods or where;
 - .1 Justified for value for money, an invitation to three to five bidders experienced in the work,
 - .2 Limited trades or suppliers are proven, the Departmental Representative with the approval of the Contracting Authority, may authorize pre-qualified or sole source tenders.



2. PROJECT ADMINISTRATION

2.1 GENERAL

- .1 Project Administration provides background information and expectations associated with the design process and deliverables.

2.1.2 PROJECT MANAGEMENT

- .1 PWGSC administers the project on behalf of Canada and exercises control over the Design, Implementation and Close Out phases of Project Delivery.
- .2 This project is to be organized, managed and delivered in a collaborative manner.
- .3 The PWGSC Project Team, the Consultant, the CM and the User Department teams will be required to work together during the Design, Implementation and Close Out phases of Project Delivery.

2.2 LANGUAGE

- .1 Construction documents must be prepared in English.

2.3 MEDIA

- .1 The CM shall not respond to any media inquiry.
- .2 Direct all media requests to the Departmental Representative.

2.4 PROJECT MANAGEMENT

2.4.1 NATIONAL PROJECT MANAGEMENT SYSTEM

- .1 PWGSC uses the National Project Management System (NPMS) for management and delivery of its real property projects to align with the Federal Government review and approvals processes. Refer to the PWGSC NPMS web site for more details:
 - .1 Web site, <http://www.tpsgc-pwgsc.gc.ca/biens-property/sngp-npms/index-eng.html>.

2.4.2 DESIGN STAGE – PROJECT MILESTONES

- .1 Pre-design Process:
 - .1 The purpose of this process is to analyze project requirements including codes, regulations, programming, sustainability, cost, time management and risk to demonstrate a full understanding of the project;
 - .2 The Pre-Design documents become guiding documents utilized throughout the project to guide the delivery.
- .2 Schematic Design Process:
 - .1 The purpose of this process is to explore different design options and to analyze them against the project requirements;
 - .2 Typically, the Schematic Design will be in sufficient detail to illustrate and communicate the project characteristics, and would provide a detailed review and analysis of the project requirements including all updates and amendments to ensure all requirements are fully integrated into the Schematic Design;
 - .3 Out of this process the Schematic Design is accepted and authorization to proceed to Design Development is based on the accepted Schematic Design;



- .4 The Departmental Representative, in concert with others choose a preferred option to be further developed;
- .5 The approved Schematic Design become guiding documents and will be utilized throughout the project to guide the delivery.
- .3 Design Development Process:
 - .1 The purpose of this process is to further develop the design option selected for refinement during the Schematic Design process;
 - .2 Typically, the Design Development documents consist of drawings and other documents to describe the scope, quality and cost of the project in sufficient detail to facilitate design approval, confirmation of code compliance, detailed planning of construction and project approval;
 - .3 This design is used as the basis for preparation of construction documents;
 - .4 The approved Design Development documents become guiding documents and are utilized throughout the project to guide the delivery.
- .4 Construction Document Process:
 - .1 The purpose of this process is to translate design development documents into construction drawings and specifications, for use by the contractor to determine a cost for the work;
 - .2 Refer to TOR for Construction Documents QA Review submission milestones.

2.4.3 IMPLEMENTATION PHASE – PROJECT MILESTONES

- .1 Commissioning Process:
 - .1 Commissioning Process: refer to CAN/CSA Z320-11;
 - .2 Commissioning is a quality assurance process, in which the functional requirements and the operational requirements (Owner Project Requirements – OPR) of the project are tested, verified and proven to function as intended;
 - .3 Commissioning Process deliverables occur progressively throughout the project life cycle as per milestones detailed in TOR Part 2 Required Services.
- .2 Construction Contract Procurement Process:
 - .1 The purpose of this process is to obtain and evaluate bids/proposals from qualified contractors to construct the work, as per the Construction Contract Documents and to award the construction contract according to government regulations.
- .3 Construction Contract Administration Process:
 - .1 The purpose of this process is to construct the work in compliance with the Construction Contract Documents and to direct and monitor all necessary or requested changes to the scope of work during construction, commissioning and closeout.

2.4.4 DELIVERY CLOSEOUT PHASE – PROJECT MILESTONES

- .1 Post Construction Process:
 - .1 Ensure the orderly completion and recording of project and contract required documents and deliverables; and
 - .2 Liaise with Public Works and Government Services Canada and other agencies as appropriate to close out the project.



2.5 COST MANAGEMENT

2.5.1 GENERAL

- .1 Construction cost estimates are prepared and submitted to PWGSC by the Design Consultant Team Quantity Surveyor at various times throughout the project lifecycle milestones. For project milestones refer to Section 2 Project Administration, article Project Management.
 - .1 Typically, PWGSC Pre-Design Estimated Construction Costs are Class D, +/- 20%:
 - .1 No more than a 20% design contingency allowance.
 - .2 Prior to proceeding with a Consulting/Construction project delivery contract, as part of the Pre-Design Report process, confirm that the PWGSC Estimate is acceptable to proceed with the Work.
- .2 Provide directly corresponding estimate comparisons to that of the Design Consultant using the same format structure and trade division/work results breakdowns.
- .3 Include with each Elemental cost estimate breakdown a Basis of Estimate (BOE), complete with back-up showing items of work, quantities, unit prices and amounts during:
 - .1 Schematic Design, Class C, +/- 15% – UniFormat II Elemental breakdown to Level 4 detail;
 - .2 Design Development, Class B +/- 10% – UniFormat II Elemental breakdown to Level 5 detail; and
 - .3 Construction Documentations (at 50% complete documentation) Class B to A +/- 10% to 5% – Master Format, NMS Divisional/Sectional break down for;
 - .1 Overall project estimate; and
 - .2 Each Sub-Contractor Tender Package or Own Forces Work Package;
 - .1 Pre-Tender (99%-100% complete documentation, (Class A, +/- 5%) – Master Format, NMS Divisional/Sectional break down for;
 - .2 Overall project estimate; and
 - .3 Each Sub-Contractor Tender Package or Own Forces Work Package;
 - .4 Request for Information (RFI) Contemplated Change Notice (CCN and Change Orders C/O) events.
- .4 In addition to Design Consultant and/or Construction Manager cost estimates, PWGSC may have independent cost estimates performed to compare cost estimates.

2.6 ROLES AND RESPONSIBILITIES

2.6.1 CONSTRUCTION MANAGER (CM)

- .1 The CM shall:
 - .1 Assign staff or engage the services of Specialist Consultants to provide the required services outlined in TOR Part 2, Advisory and Support Services;
 - .2 Complete the Work outlined in TOR Part 2 General Contractor Work using the CM's Own Forces and the CM's contracted Sub-Trades;
 - .3 Ensure continuity of key personnel and dedicate a working team for the life of this project;



- .4 Submit in writing, to the Departmental Representative for review and acceptance;
 - .1 The respective names, addresses and confirmation of qualifications of individuals and/or firms engaged to provide Services for this Project, who were not identified in the CM's response to the RFP, and
 - .2 Proposed changes to the roles of persons to be employed by the CM or firms to be contracted by the CM to provide the Services and Work for the Project and shall include the names, addresses, qualifications and experience of the proposed individual(s) or firm(s).

2.6.2 THE CM TEAM

- .1 The CM's Key Personnel shall be located in the immediate surrounding area of the project site for the period of their involvement in the Project.
- .2 The CM team shall:
 - .1 Have complete and collective understanding of the project requirements, including scope, budget and scheduling objectives; and
 - .2 Work to ensure a collaborative and cooperative team approach with knowledgeable and timely input and contribution by all project team members.

2.6.3 PWGSC

- .1 PWGSC will:
 - .1 Be responsible to deliver the project;
 - .2 Manage the internal stakeholders of PWGSC and the User Department;
 - .3 Manage internal resources to Quality Assure the project deliverables;
 - .4 Provide authorizations to the CM and Consultant on various tasking;
 - .5 Ensure Integrated Design Review Sessions are organized at various stages of the project, as required;
 - .1 Smaller sub-projects may only require reviews at 50%/66% and 100%.
 - .6 Manage the project and contracts with the Consultant and the CM.

2.6.4 THE PWGSC TEAM

- .1 The PWGSC Departmental Representative:
 - .1 Is the PWGSC Project Manager or delegated Deputy Project Manager assigned to administer the Project;
 - .2 Is responsible for the day-to-day management of the project and for overseeing its progress and delivery, on behalf of PWGSC;
 - .3 Is the representative for all project contract services and, as such, will be the CM's single point of contact for all project direction;
 - .4 Is the liaison amongst and between the Construction Manager, the Consultant, Public Works and Government Services Canada and the User Departments; and
 - .5 Is responsible for conveying all requirements of the User Department to the CM and Consultant Team.
- .2 The PWGSC Architecture and Engineering Centre of Expertise (AECoE) Team:
 - .1 Provides expert advice and quality assurance for architectural and engineering disciplines and specialities in all phases of the project;



- .2 Attends construction meetings and conduct field reviews on behalf of the Departmental Representative, as required;
- .3 Uses a PWGSC Design Manager to coordinate its services;
- .4 Offers technical advice, risk advice, reviews CM deliverables and tracks compliance and recommends design approaches;
- .5 The PWGSC Architecture and Engineering Centre of Expertise (AECoe) Team will be represented by the following disciplines:
 - .1 Architecture & Interior Design,
 - .2 Structural Engineering,
 - .3 Civil Engineering,
 - .4 Mechanical Engineering,
 - .5 Electrical Engineering,
 - .6 Commissioning Advisor.
- .3 The PWGSC Commissioning Advisor:
 - .1 Represents the Crown's interests in the commissioning process;
 - .2 Provides technical advice and quality assurance on the commissioning process throughout delivery;
 - .3 Reviews documentation and reported results throughout the project delivery;
 - .4 Witnesses verification of Systems and Integrated Systems Testing as demonstrated by CM; and
 - .5 Participates in warranty reviews.

2.6.5 USER DEPARTMENT

- .1 The User Department Project Leader:
 - .1 Is accountable for the expenditure of public funds and delivery of the project in accordance with terms accepted by the Treasury Board;
 - .2 Reports to User Department senior executive management;
 - .3 Will play several roles in the delivery of the project, as follows:
 - .1 Coordinate the quality, timing and completeness of information and decisions related to the functional performance of the facility,
 - .2 Ensure User Department program requirements are understood by all, and
 - .3 Facilitate and provide User Department sign-offs and approvals, as required.

2.6.6 THE CONSULTANT TEAM

- .1 The Consultant Team includes the prime consultant, qualified professionals, sub-consultants and specialists with relevant experience, capable of providing required professional services for the Project.
- .2 The Consultant Team is responsible for:
 - .1 Completing the design for the built works and for coordinating and directing the work of sub-consultants and specialists;
 - .2 Preparing and assembling the tender documents for each identified tender package;
 - .3 Providing input into the Departmental Representative's Risk Management Plan; and



- .4 Providing to the Departmental Representative contract administration services during design and construction.

2.6.7 PROVINCIAL AND MUNICIPAL AUTHORITIES

- .1 The federal government generally defers to provincial/territorial and municipal authorities for specific regulations, standards and inspections but in areas of conflict, the more stringent authority prevails.
- .2 Municipal authority review.
 - .1 Submissions will be reviewed as required by the authority.
- .3 Permits:
 - .1 The Consultant will support the Contractor in applying for permits by providing documentation;
 - .1 The Consultant will negotiate and resolve building permit related issues.
 - .2 The Consultant shall support the Contractor in its application for an occupancy permit and coordinate the resolution of all outstanding issues relating to the permit;
 - .3 The CM Contractor shall pay for the permits on behalf of PWGSC.

2.7 COMMUNICATIONS AND MEETINGS

2.7.1 COMMUNICATION

- .1 Unless otherwise directed by the Departmental Representative, the CM shall conduct all project communication through the Departmental Representative only.
- .2 If any communication with the User Departments results in the need for change to the Project scope of work, quality, cost or schedule, the CM shall inform the Departmental Representative, and seek direction, before taking any action.
- .3 The Departmental Representative will arrange for the CM to obtain access to the PWGSC secure shared document management site (Buzzsaw).
- .4 Correspondence:
 - .1 All correspondence from the CM shall be distributed as directed by the Departmental Representative;
 - .2 There shall be no correspondence between occupants or users of the facility and the CM unless directed by the Departmental Representative;
 - .3 All correspondence must carry the Contract name/number, PWGSC Project title, PWGSC Project number and File number and a date (i.e. Year/Month/Day).
 - .4 Automatic date fields shall not be used except when preceded by the text "Printed on".
- .5 The CM shall:
 - .1 Develop a communication and correspondence protocol, submit to the Departmental Representative for review and acceptance prior to undertaking the work and incorporate it into the Project Procedures Manual:
 - .1 Account for the involvement of all Stakeholders in this protocol.
 - .2 Direct communication and correspondence between members of the PWGSC Project Team, the Consultant and the User Departments on routine matters as may be required to enable the project to proceed in a timely and efficient manner however;



- .1 No communication shall alter the terms of the project scope, budget or schedules unless directed in writing by the Departmental Representative.

2.7.2 SUBMISSIONS TO PWGSC

- .1 Where submissions to PWGSC include summaries, monitoring outcomes, reports, network diagrams, drawings, plans, specifications or finish schedules, submit one (1) original to the Departmental Representative in electronic format, unless otherwise directed in writing.
- .2 Electronic format.
 - .1 The electronic deliverables shall be provided using Microsoft applications.
 - .2 Alternatively, as agreed upon by the Departmental representative, submit all work in Electronic *.pdf format, electronic (PDF – searchable OCR, indexed and bookmarked) and hard copies.
 - .1 Network Diagrams which shall be submitted in their original electronic format.

2.7.3 PROJECT RESPONSE TIME

- .1 It is a requirement of this project that the Project Team key personnel are personally available to attend meetings or respond to inquiries.
- .2 During the project, the key personnel shall be:
 - .1 Available to attend meetings and respond to inquiries within one (1) working day notice;
 - .2 Able to respond to emergencies within four (4) hours, including those occurring during off-hours and on weekends/ holidays.
- .3 On occasion, there may be urgent, problem-solving meetings.
 - .1 The CM shall be available to attend such meetings in location agreed upon within four (4) business hours.

2.7.4 MEETINGS DURING THE PRE-DESIGN, SCHEMATIC DESIGN, DESIGN DEVELOPMENT AND CONSTRUCTION DOCUMENTATION PROCESSES

- .1 Meetings with PWGSC, the CM, the Consultant and User Department will be held in agreed upon location.
- .2 The Departmental Representative will arrange meetings bi-weekly with representatives from:
 - .1 PWGSC;
 - .2 Consultant team;
 - .3 Construction Management Team; and
 - .4 User Department representatives.
- .3 The Consultant Team will be responsible for:
 - .1 Preparing minutes of meetings;
 - .2 Forwarding minutes to the Departmental Representative and CM;



- .1 These meetings are for the accurate exchange of information; and
- .2 Requests and decisions taken shall follow the formal lines of communications.
- .3 Establishing a list of standing agenda items, including (as a minimum);
 - .1 Schedule and progress including;
 - .1 Master Schedule;
 - .2 Cost estimates and issues and amendments including;
 - .1 Master Cost Plan
 - .3 Risk issue assessments;
 - .4 Quality issues including;
 - .1 PPM progress review;
 - .2 QA Review Project Team feedback log.
 - .5 Commissioning;
 - .1 Cx Plan progress
 - .6 Issues/Resolutions Log associated with;
 - .1 Overall Project; and
 - .2 Commissioning;
 - .7 Scope of work; and
 - .8 Sustainable development.
- .4 The CM shall:
 - .1 Attend meetings, prior to construction start;
 - .1 Respond to meeting minute action items as required prior to the next meeting.

2.7.5 MEETINGS DURING CONSTRUCTION PERIOD

- .1 The CM shall:
 - .1 Arrange and coordinate construction meetings on site;
 - .1 Regular meetings to be held bi-weekly through the duration of the project,
 - .2 Prepare and distribute minutes within two (2) working days of the meeting, and
 - .3 Endeavour to hold meetings as Green Meetings (i.e. Electronic copies of documents where possible or double sided hard copies).
 - .2 Establish a list of standing agenda items, including (as a minimum):
 - .1 Schedule and progress including;
 - .1 Change Order log and associated impact; and
 - .2 Master Schedule;
 - .2 Cost estimates and issues and amendments including, including;
 - .1 Change Order log and associated impact; and
 - .2 Master Cost Plan
 - .3 Risk issue assessments including;
 - .1 Change Order log and associated impact;
 - .4 Quality issues;
 - .1 PPM progress review; and
 - .2 Change Order log and associated impact;
 - .5 Commissioning;
 - .1 Cx Issues/Resolutions Log;



- .2 OPR and BOD QA reviews and update progress;
 - .3 Change Order log and associated impact; and
 - .4 Cx Plan progress including;
 - .1 CX Report;
 - .2 Training; and
 - .3 Manuals;
 - .6 Scope of work including;
 - .1 Change Order log and associated impact;
 - .7 Site safety implantation and management including;
 - .1 Site Safety Report progress; and
 - .2 Regulatory agency requirements; and
 - .8 Sustainable development.
- .2 The Design Consultant shall:
- .1 Attend implementation/construction and delivery closeout meetings;
 - .1 Respond to meeting minute action items as required prior to the next meeting

2.8 REGULATORY REQUIREMENTS

2.8.1 FEDERAL GOVERNMENT

- .1 The PWGSC Departmental Representative will review work in progress on a continuing basis.
- .2 The following are authorities having Federal Government jurisdiction over the project:
 - .1 Treasury Board of Canada;
 - .1 Project funding and contract approvals,
 - .2 Fire Prevention Co-coordinator/ Fire Protection Engineer
 - .2 Public Works and Government Services Canada;
 - .1 Contracting authority and project delivery.
 - .3 National Research Council Canada;
 - .1 Building Codes and Standards;
 - .1 National Building Code, and
 - .2 National Fire Code.

2.8.2 PROVINCIAL, MUNICIPAL AND OTHER AUTHORITIES HAVING JURISDICTION

- .1 Although the Federal Government is not subject to jurisdictions at other levels of government, voluntary compliance with the Departmental Policy of these other Authorities is a requirement unless otherwise directed by the Departmental Representative:
 - .1 Codes, regulations, by-laws and decisions of authorities identified herein as having jurisdiction shall be observed;
 - .2 In areas of conflict between codes, standards and regulations, the most rigid requirements shall be adhered to;
 - .3 The CM shall identify other jurisdictions appropriate to the project.
- .2 Provincial Acts, Regulations, Standards and Inspections:
 - .1 Unless directed otherwise by the Departmental Representative, the CM will;
 - .1 Adhere to all applicable provincial Construction Health and Safety Acts



- and regulations, in addition to the related Canada Occupational Safety and Health Regulations,
- .2 Adhere to the requirements of the Province/Territory appropriate to the project for,
 - .1 Employment Standards,
 - .2 Construction Safety,
 - .3 Designated Substance Management, and
 - .4 Workers Compensation.
 - .3 Adhere to the requirements of the Provincial/Territorial Department of the Environment appropriate to the project for,
 - .1 Building Discharges into the air, water and ground, and
 - .2 Disposal of Designated Substances including Asbestos.
 - .4 Adhere to the requirements of the Province/Territory as per project location for,
 - .1 Construction Hoists, and
 - .2 Elevators, Escalators and Dumb Waiters.
- .3 Municipal By-laws, Regulations, Standards and Inspections:
- .1 Unless directed otherwise by the Departmental Representative, the CM will;
 - .1 Make preliminary municipal submissions at stages required by the AHJ,
 - .2 Provide all required supporting documentation for permit applications,
 - .3 Apply for and obtain all permits and approvals necessary for the work, including, but not limited to Building, Electrical and Plumbing Permits,
 - .4 Resolve all Building Permit related issues, with support from the Consultant as may be required,
 - .5 Provide fire safety equipment and access for fire-fighting services, as required by the city, and
 - .6 If required by the AHJ, apply for an Occupancy Permit and co-ordinate the resolution of all outstanding issues related to obtaining the permit.
 - .4 Provide Municipal authorities with access to the site as required and arrange for inspections of the construction work by the AHJ or governing utility officials.

2.9 ACCEPTANCE OF PROJECT DELIVERABLES

2.9.1 ACCEPTANCE OF PROJECT DELIVERABLES

- .1 While PWGSC acknowledges the CM's obligations to meet project requirements, the project delivery process entitles PWGSC to review all work.
- .2 PWGSC reserves the right to reject undesirable or unsatisfactory work.
- .3 The CM must obtain Departmental Representative acceptance of all required deliverables for the Project:
 - .1 Acceptance indicates that based on a general review of material for specific issues, the material is considered to comply with governmental and departmental objectives and practices and those overall project objectives appear to be satisfied;
 - .2 Acceptance does not relieve the CM of responsibility for the work and compliance with the contract;
 - .3 Acceptance does not prohibit rejection of work, which is determined to be unsatisfactory at later stages of review.



3. PROJECT MONITORING AND REPORTING

3.1 GENERAL

- .1 Use industry recognized and readily available software for project monitoring and reporting.
 - .1 Make available all deliverables electronically (in original software format and PDF) and hard copy.
- .2 Notwithstanding more detailed Project Monitoring and Reporting requirements in the TOR, Definitions and Division 01 documents, provide a system for documentation and project monitoring and reporting through each milestone of project delivery, for review and acceptance by the Departmental Representative prior to proceeding with the next milestone.
 - .1 The actual report outline shall be acceptable to the Departmental Representative.
- .3 As a component of the Project Procedures Manual (PPM), prepare and submit, at the start of the project, sample outlines/formats for all reports, for review and acceptance by the Departmental Representative.
 - .1 Resubmit as may be required.
 - .2 Date(s) of issue of the CM Monthly Report shall be established.
 - .3 The Monthly Report formats shall be used for all subsequent project milestones.
- .4 During the Design and Construction Documentation milestones, prepare and submit monthly progress reports.
 - .1 The purpose of the report shall be to review and monitor the progress of the Services by the CM. Reports shall provide:
 - .1 An executive summary of key points;
 - .2 Progress of Advisory Support and Construction Support Services;
 - .3 Progress Claims and Payments to date (including change orders) in a form that compares the original budgets for each Tender Package with the expected costs;
 - .4 Instances where the schedule is not being met and identify impact on scheduled completion date;
 - .5 Outline of remedial measures being taken or planned to be undertaken to ensure the scheduled completion date; and
 - .6 Anticipated or potential problems to be addressed.
 - .7 Progress in Commissioning Process development.
- .5 During the Construction/Implementation milestone, notwithstanding Division 01 General Requirements document (specifying reporting requirements), prepare and submit monthly reports to address status and variances with respect to schedule, budget, quality, and scope.
 - .1 The actual report outline shall be acceptable to the Departmental Representative, and shall provide:
 - .1 An executive summary of key points;
 - .2 General progress of the Work and modifications to reflect changes in project parameters as may be identified throughout the project life;
 - .3 Construction Cost Plan Report including an overview of cost issues as outlined in this TOR;



- .4 Master Schedule Update and narrative report including an overview of schedule issues as outlined in this TOR;
 - .1 Monitor changes to the Master Schedule at least once a month and submit written reports to the Departmental Representative on any deviations or delays from the master schedule, and identify possible remediation measures required to maintain the Master Schedule Completion date.
 - .2 Monthly reports must identify not only reasons for delay but also offer suggestions, where possible, on how to bring the project back on track.
- .5 Identification of risks and proposed strategies for mitigation, including scope creep as well as quality control outlined in this TOR,
- .6 Health and Safety status Report, and
- .7 Progress in Commissioning Plan updates and Commissioning Manual development.

3.2 EXECUTIVE SUMMARY ON KEY POINTS

- .1 Per Report, provide general commentary/narrative on where the project is at, milestones achieved, upcoming milestones and estimation on how the project is progressing at a high level including:
 - .1 Assumptions, exclusions, risk assessments, opportunities and deviation from standards, major changes relative to previous report including market events.

3.3 GENERAL PROGRESS OF WORK

- .1 Per report describe:
 - .1 Work completed in the last reporting period;
 - .2 Upcoming work that is anticipated to be completed in the next reporting period;
 - .3 Issues requiring resolutions.



4. MONTHLY REPORTING OUTLINE

4.1 GENERAL PROGRESS OF WORK

- .1 Invoicing Summary:
 - .1 Billing section broken down by CMa (Fixed Fee), CMc (Percentage Fee) and per Work Package (Own Forces and Sub-Contractor);
 - .2 Expenditures to date in a format that compares the original budgets and expected costs, including contingencies.
- .2 Description of work completed in the last reporting period.
- .3 Description of upcoming work that is anticipated to be completed in the next reporting period.
- .4 Issues that need to be resolved

4.2 CONSTRUCTION PROGRESS MONITORING AND REPORTING

- .1 Refer to Division 01, General Requirements, Section 01 32 15, Construction Progress Monitoring Report.

4.3 COMMISSIONING PLAN PROGRESS REPORT

- .1 Component of Project Procedures Manual.
- .2 Update on Progress of Commissioning Plan.
 - .1 Commentary on:
 - .1 Schedule;
 - .2 Cx Cost Breakdown and Earned Value;
 - .3 Risk to Cx Assessment.
- .3 Update Cx Issues/Resolutions Log complete with – highlighted - pending resolutions and associated narratives.
- .4 Commissioning Design/Construction Documentation Reviews to include up-dates on:
 - .1 Cx Team meetings;
 - .2 Design and Construction documentation submittals and review;
 - .1 Drawings,
 - .2 Specifications,
 - .3 Cx cost estimate breakdowns, and
 - .4 Cx risk.
- .5 Implementation/Construction and Project Close-Out, MS Project generated Cx Schedule of commissioning activities, to include up-dated:
 - .1 Cx Team meetings;
 - .2 Start and substantial/interim completion of each construction phase;
 - .3 Systems and related assembly completion and testing;
 - .4 Static Verification, Start-Up and Functional Performance Testing;
 - .5 Training sessions;
 - .6 Deferred Cx testing;
 - .7 Warranty start date(s);
 - .8 Occupancy dates for each construction phase;



- .9 Schedule, planned vs. actual; and
- .10 Final Acceptance.

4.4 HEALTH & SAFETY REPORT

- .1 Narrative on the application or adjustment to the CM's Health and Safety Plans.
- .2 Safety incidents identified and resulting actions.
- .3 Confirmation that Safety Tailgate Meetings are Occurring.
- .4 On site activities that warrant special safety consideration or awareness.

4.5 MASTER COST PLAN REPORT

- .1 Component of Project Procedures Manual.
- .2 Narrative.
- .3 Basis of Design (BOD) estimate:
 - .1 Elemental or other format Estimate Summary; and
 - .2 Back-up detail.
- .4 Reconciliation against previous submissions.
- .5 Budgeted dollars per month.
- .6 Forecasted Expenditures and Cash Flow per month.
- .7 Actual Expenditures per month.
- .8 Authorized Plan Deviations.
 - .1 Variances between actual costs and Estimated Construction Cost limits.
 - .9 Earned value of work done to end of reporting period, per fiscal year and project overall including Progress Claims per Tender Package.
- .10 Actions to Maintain Estimated Construction Costs limit, if required.

4.6 MASTER SCHEDULE UPDATE

- .1 Component of Project Procedures Manual.
 - .2 Updated Schedule including progress to date coordinated with Division 01 General Requirements:
 - .1 Section 01 32 15 Construction Progress Schedules, Article, Construction Progress Monitoring and Reporting.
- .3 Identification of Critical Path tasks completed and Critical Path tasks upcoming.
- .4 Progress on Schedule.
- .5 Authorized Deviations to Schedule to date:
 - .1 Detail variances between actual and estimated dates for milestone deliverables.
- .6 Work Packages:
 - .1 Design, Construction Documentation Tender, Award Construction/Implantation and Close-Out



- .7 Moving:
 - .1 Planning;
 - .2 Implementation.
- .8 Building Components and Connectivity (BCC):
 - .1 Planning;
 - .2 Implementation.
- .9 Actions Required to Maintain Schedule, if required.

4.7 MOVE PROGRESS REPORT

- .1 Continued roles and responsibilities, critical milestones, estimate of move scope cost, logistics and coordination with the overall delivery.
- .2 Move Plan and Move Process Protocols Narrative updates.
- .3 Tender Package cost estimate updates and actual contract costs.

4.8 RISK MANAGEMENT REPORT

- .1 Component of Project Procedures Manual.
- .2 Identified risk; stating new, ongoing risk and risk no longer relevant..
- .3 Identified risk mitigation strategy.
- .4 Report on the outcome of the mitigation strategy.



5. QUARTERLY UP-DATE REPORTING OUTLINE

5.1 GENERAL MILESTONE REPORTING

- .1 Quarterly Up-Date Reporting Outline:
 - .1 Milestone Activity Summary;
 - .2 Master Cost Plan Report including;
 - .1 Cost Estimating breakdowns and associated narratives, such as;
 - .1 Basis of Estimate (BOE), and
 - .2 Cost Estimate alignment with project team and stakeholder estimates.
 - .3 Master Schedule;
- .2 Quality Management Plan (QMP) – QM planned/actual actions and results including:
 - .1 Risk to Quality assessment.
- .3 Project Procedures Manual (PPM).
- .4 Design and Construction documentation review summaries.
- .5 Shop Drawings, per each tender package, schedule, log and issues/resolution log.

5.2 QUALITY MANAGEMENT REPORT

- .1 Summary:
 - .1 Current project progress and status;
 - .2 Schedule forward of significant deadlines, decisions and milestones;
 - .3 Trends and recommendations;
 - .1 Prior recommendations status.
 - .4 Activities undertaken, non-compliances identified, and corrective measures taken.
- .2 Detailed assessment of processes and deliverables including documentation associated with:
 - .1 Design and design process;
 - .2 Construction procurement and construction process.
- .3 QA Review documentation per Deliverable:
 - .1 Established baselines and progress of the quality metrics;
 - .2 Commentary documents;
 - .3 Risk assessment.



6. POST IMPLEMENTATION REPORTING OUTLINE

6.1 QUALITY MANAGEMENT PLAN REPORT

- .1 CM provision of oversight reasonably commits that applying best practices and quality management, the delivery of the project meets the investment and technical requirements.
- .2 Summary Assessment Review of:
 - .1 PPM and its component 4 Sections progress – see PPM Definitions;
 - .2 Risk Assessment;
 - .3 Deliverables verification;
 - .4 Overall assessment of;
 - .1 Project management,
 - .2 Project delivery – method and management/means of coordinating.

6.2 DIVISION 01 (DIV. 01) GENERAL REQUIREMENTS REPORT

- .1 Delivery Closeout Status Report associated with Div. 01 actions and deliverables:
 - .1 Compilation of Project Meetings;
 - .2 Compilation of Construction Progress Schedules;
 - .3 Submittal Procedures compliance;
 - .4 Environmental Procedures compliance;
 - .1 Environment protection plan.
 - .5 Regulatory Requirements compliance;
 - .1 Stop work log.
 - .6 Quality Control;
 - .1 Rejected work log; and
 - .2 Test results.
 - .7 Examination (of existing conditions) and Preparation;
 - .1 Survey;
 - .1 Control; and survey work log;
 - .2 Foundations and major site improvement;
 - .3 Maintained, re-routed and abandoned service lines;
 - .2 Services;
 - .3 Equipment and Fixture;
 - .8 Waste Diversion;
 - .9 Closeout;
 - .1 Procedures;
 - .2 Submittals.