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Project No. R.066167.001

RESOLUTE BAY, NUNAVUT
NATURAL RESOURCES CANADA (NRCAN)
BUILDING CONDITION REPORT





Date: August 9th, 2013

Project Requirements - PR

PR 1 Project Description:

PR 1.1 Project Information

PR 1.1.1 PWGSC Project Title: BCR Process for NRCan buildings, Martin Bergman Complex, in Resolute, Nunavut (Building #'s, XR-15, XR-12 (2 bldgs),

PR 1.1.2 Location of Project: Resolute, Nunavut, PCSP site.

PR 1.1.3 PWGSC Project Number: R. 066167.001

PR 1.1.4 Real Property Team NCA Owner Investor Group

PR 1.1.5 Client / User: Natural Resources Canada (NRCan)

PR 1.2 PWGSC Project Team

PR 1.2.1 Project Manager: Jordan Cook Phone:

PR 1.2.2 Property Manager: Brian Sacho (PCSP) Phone:
Margaret Craige (PWGSC) Phone:

PR 1.2.3 Portfolio Manager/OI: T.B.D. Phone:

PR 1.2.4 Project Leader: T.B.D. Phone:

PR 1.2.5 BCR Manager/P&TS Dexter Edwards Phone:
Review Co-ordinator:

PR 1.3.1 Client Mandate

The client would like to establish the current status of their assets in Resolute, Nunavut by means of a level 2 general BCR which may also include specifically detailed level 3 investigations which are a sub-set of the same process to create the report. Once the requirements of the Building Condition Reports for their assets are established jointly by the Project Team, the responses to found events will be defined in detail and used to inform the next stage of planning for the projected future of strategic planning for the Asset. The strategic planning for these Assets includes the following items in the short term:

1. Preparation for the implementation of a PWGSC Facility Management Plan for NRCan.
2. Preparation of a Budget summary and Cash Flow document to be used in synchronicity with the PWGSC-National Project Management System of approvals: (Planning Initiation, Preliminary Project Approval, Effective Project Approval spending Authorities).
3. Preparation of a Risk Management Plan associated with each of the Spending Approval Authorities itemized above.
4. Preparation of a composite volume of swing space requirement to allow for the accommodation of the tenants at the appropriate periods of the schedule.



PR 1.3.2 Background

The Martin Bergman Complex at the Resolute site are primarily one and two storied, winterized pre-engineered wood framed, metal clad buildings that were constructed in the 1970's, 80's. The Bergman complex buildings are utilized for accommodations, including kitchens and living quarters. They are leased by NRCan to personnel with the Polar Continental Shelf Program, (PCSP), the Canadian Forces Training Centre (CFATC) and the Arctic Research Infrastructure Fund (ARIF). The buildings are XR-15, CFATC accommodations, XR-12 (2 buildings-ARIF Accommodations and Kitchen/Dining complex) and XR-02 (Old living accommodations, recently renovated to include a gym, exercise rooms, recreation centre that does not need a BCR to done at this time).

These buildings are to be reviewed for a Building Condition Assessment so that the future decisions can be taken with an understanding of the full impact relative to all events planned in the Life Cycle.

PR 1.4 Project Outline

PR 1.4.1 Required Work:

PWGSC has a requirement for the implementation of a Level 2 Building Condition Report for three buildings in the complex. Upon contract award, the consultant shall develop a complete and comprehensive building & equipment condition report for each building.

The work shall be carried out based on the terms, conditions and requirements stipulated within the BCR Standing Offer, as adjusted by this Call-up Terms of Reference. The final reports for the assets shall act to reasonably articulate component condition, events, and other relevant information pertaining to the site, base buildings and the fit-up spaces.

Based on the required package of work and a visual review of the site, the consultant shall submit to PWGSC any findings for the need to implement additional studies (level 3), and all associated costs. PWGSC will review the findings in consultation with the service provider and the P&TS Centre of Expertise in order to select the most cost effective & prudent decision as it relates to the critical assessment of the Asset. Once PWGSC has concurred with the need to pursue additional studies (level 3), the Consultant will be formally instructed to implement and deliver the BCR document inclusive of all level 3 studies identified.

As part of the assessment, the Consultant shall obtain relevant asset information by attending the initial meetings planned with the Project Manager, Operational staff, P&TS Centre of Expertise specialists and other PWGSC stakeholders to provide relevant input. Discussions should be limited to information related to technical deficiencies and areas of perceived improvement to the building performance. This technical input is imperative to the success of this BCR assessment.

The objective of a **level 2** Building Condition Report as stipulated in the Standing Offer Agreement document is to investigate the identified various buildings and related site improvement factors including:

- Component condition and assessment of remaining life,
- Equipment obsolescence,
- Design problems and deficiencies that adversely affect operation and maintenance activities,



- Impact of compliance with Treasury Board Secretariat temperature, humidity and ventilation standards,
- Workstation density maximums imposed by design limitations of the applicable fit-up standard. (currently Workplace 2.0).
- Compliance with the latest edition / revision of all applicable standards & codes (including, but not limited to: Health, Fire, Life Safety Codes, National Building Code, Electrical Safety Program)
- Compliance with local by-laws,
- Effective age and remaining economic life of building components,
- Confirmation of regulatory testing,
- Functionality/Serviceability Assessment

In satisfying the deliverables listed in this document, it is also imperative that the Consultant ensures implementation of the following services:

- The strict adherence to the implementation and scheduling plan as provided under PR 1.4.5 in consultation with the assigned Departmental Representative
- The strict adherence to the project objectives & deliverables, project implementation plans, schedule, network diagrams and critical milestones, and work breakdown structure.
- Assistance to the Departmental Representative in Risk identification and Mitigation.
- Support to the Departmental Representative who shall be responsible for leading, monitoring, controlling the timely provision of final project deliverables to the Stakeholders of the Asset.

Terms of Reference for the Preparation of Building Condition Reports (BCR) as per the Standing Offer Section IV - Statement of Work. Standard level – 2 study.

	<u>✓</u> (Serv) Indicates a consultant service requirement. <u>✓</u> (Note) Indicates (noted) consultant service adjustment below. <u>N/A</u> indicates (not applicable) no consultant service requirement.	<u>Serv</u>	<u>See Note</u>
1.	Building Condition Report (BCR level 2) Terms of Reference	<u>✓</u>	
1.1	Background	<u>✓</u>	
1.2	Building Condition Report - The New Approach	<u>✓</u>	
1.3	Asset Validation Survey (AVS) Tool	<u>✓</u>	<u>✓1</u>
1.4	General Requirements	<u>✓</u>	<u>✓2</u>



1.4.1	• Thirty Year Window of Capital and Repair Events	✓	
1.4.2	• Component (or Element) list	✓	
1.4.3	• Events	✓	
1.5	Component Related Requirements	✓	
1.5.1	• Validation of the Component List	✓	
1.5.2	• Component Name	✓	
1.5.3	• Component Inspection and the Component Evaluation Criteria List	✓	✓3
1.5.4	• Establishing Component Condition	✓	✓4
1.5.5	• Required Component Photographs	✓	✓5
1.5.6	• Component Details	✓	
1.5.6.1	• Expected life span	✓	
1.5.6.2	• Component Cost	✓	
1.5.6.3	• Quantity (of the component)	✓	
1.5.6.4	• Measurement Units	✓	
1.5.6.5	• Last Major Action Year	✓	
1.5.7	• Component Narratives	✓	
1.5.7.1	• Component Description	✓	
1.5.7.2	• Component Condition and Anticipated Replacement Date	✓	✓5
1.5.7.3	• BPR Condition Narrative	✓	
1.6	Event Related Requirements	✓	
1.6.1	• Event Classification	✓	
1.6.2	• Required Event Photographs	✓	✓6
1.6.3	• Event Details	✓	
1.6.3.1	• Brief Event Description	✓	
1.6.3.2	• Current Event Year	✓	
1.6.3.3	• Estimated Event Cost	✓	
1.6.4	Event Narratives	✓	
	• Event Description	✓	
	• Event Justification and Strategy	✓	
	• Implication of Event Deferral (Risks)	✓	
1.7	Asset Data Requirements	✓	
1.7.1	• Asset Details	✓	
1.7.2	• Asset Photographs	✓	
1.7.3	• Asset Narratives	✓	
1.7.3.1	• BCR Project Team and <u>Documents</u>	✓	



1.7.3.2	• Building History	✓	
1.7.3.3	• BCR Executive Summary	✓	
1.7.3.4	• Design Parameters & Deficiencies – Current and Future	✓	
1.7.3.5	• Overview of Architectural and Structural Condition	✓	
1.7.3.6	• Overview of Site Condition	✓	
1.7.3.7	• Overview of Vertical and Horizontal Transportation Condition	✓	
1.7.3.8	• Overview of Mechanical Systems Condition	✓	
1.7.3.9	• Overview of Electrical Systems Condition	✓	
1.7.3.10	• Compliance with TBS Temperature and Humidity Targets	✓	
1.7.3.11	• Regulatory Testing Confirmation	✓	
1.7.3.12	• Compliance with Accessibility Standards	✓	
1.7.3.13	• Overview of Environmental Issues	✓	
1.7.3.14	• Overview of Project Grouping Recommendations	✓	
1.7.3.15	• Code Compliance Summary	✓	
1.7.3.16	• Building Performance Review	✓	
1.8	Inspection Process	✓	
1.8.1	• Asset Validation Survey Tool Reports	✓	
1.8.2	• AVS Files	✓	
1.8.3	• Interview with the Asset management Team	✓	
App. I	Capital Versus Repair	✓	
App. II	Event Classification	✓	
App. III	Costing Tool	✓	
App. IV	Accessibility Audit Template	✓	

Notes and/or Adjustment to Service

1. In addition to information being entered into the AVS tool, the consultant shall provide 2 hard copy final drafts, 4 hard copies of the final approved BCR and soft copies in MS word & excel on a CD.
2. Regarding the Lines of communications clause, the consultant is requested to communicate with the client department through the Project Manager.
3. Regarding component inspection the consultant shall ensure that deficiencies found to be present are clearly identified and/or the narrative field is used for further explanation.
4. Regarding service agreements summarize all asset components that have preventative or corrective maintenance or service contracts using the following format; component serviced, company, description of service, frequency of service, date of last inspection or services, typical cost. Also identify components that should have service agreements put in place that currently do not and provide an estimated cost.
5. Establishing the component condition and remaining useful life is one of the most



challenging aspects of this report. Therefore the consultant shall utilize the full spectrum of sec 1.5.4 and sec 1.5.7.2 for the analysis of the component. Additionally, the consultant shall make recommendation for in-depth level 3 studies (L3) where necessary, and provide the evaluation matrix provided in the appendix and a summary table listing the components that are recommended for L3 inspections.

6. Required photographs, all listed components and events within the report shall require a photograph. Thus sec 1.5.5 and sec 1.6.2 is not limited to the following. Photographs add value to the document and are worth a thousand words.

The objective of a **Stand Alone Task** or (**level 3 investigation**) is to investigate specific issues identified prior to the creation and completion of the Building Condition Report. The following requirements are to be investigated subject to the same contract terms as the main BCR. The series of building and site improvement factors shall include but not be limited to:

Stand Alone Level 3 Study:

	<u>✓</u> (Serv) Indicates a consultant service requirement. <u>✓</u> (Note) Indicates (noted) consultant service adjustment below. <u>N/A</u> indicates (not applicable) no consultant service requirement.	<u>Serv</u>	<u>See Note</u>
1.	<u>Assessment of specific building systems in any building category.</u>		
1.1	Building envelopes to include all types of cladding and roof assemblies.		
1.2	Seismic screenings and assessments		
1.3	Thermography and Energy Audits		
1.4	Fire Alarms Systems		
1.5	Fire Protection to include suppression, emergency lighting and extinguishers.		
1.6	Mould Inspections		
1.7	Asbestos verifications		
1.8	Accessibility under Federal Barrier Free standards		
2.	<u>Assessment of Specialty Areas in any building category</u>		
2.1	Generator Rooms		
2.2	Major Mechanical equipment rooms (heating)		
2.3	Elevator Machine Rooms		
2.4	Boiler Rooms		
2.5	Pump and Sprinkler Rooms		
2.6	Transformer Vaults		
2.7	Ventilation & Air Conditioning Equipment Rooms		
3.	<u>Assessment of Specialty Structures</u>		



3.1	Air Supported Structures		
3.2	Parking Structures		
3.3	Retaining Wall Structures		
3.4	Structures covering Public Spaces		
3.5	Anchor Systems on Bldg. exteriors		
3.6	Storage Tanks (excluding fuel)		
4.	<u>Assessment of Landscape Features</u>		
4.1	Fences and Gates		
4.2	Sculpture		
4.3	Outdoor Paving		
5.	<u>Assessment of Environmental Features</u>		
5.1	Fuel tank storage assessed in conjunction with a Federal protocol by the PWGSC Environmental Services.		
5.2	Storm drainage solutions		
5.3	Retention ponds & cooling structures		
5.4	Sub-surface drainage, culverts and ditches		
<u>Notes and/or Adjustment to Service</u>			
<ol style="list-style-type: none"> 1. This information cannot be entered into the AVS tool at this time, the consultant shall provide 2 hard copy final drafts, 4 hard copies of the final approved level 3 study and soft copies in MS Word & Excel on a CD. 2. Regarding the Lines of communications clause, the consultant is requested to communicate with the client department through the Project Manager. 3. Specific Building Envelope field review for the studies shall conform to the following: <ul style="list-style-type: none"> • The field review shall include the use of an infrared thermographic camera in accordance with National Master Specifications (NMS) section 02 27 13 Thermographic Assessment – Building Envelope. • Where destructive test openings are not possible, the use of fiber-optic scopes for minor cladding intrusions to determine condition of structural connectors or interstitial enclosure conditions is mandatory where minor openings can be easily sealed and repaired as part of the inspection procedure. Fiber-optic scopes shall be used to inspect interstitial cavity spaces and structural connectors in all “high risk” locations where exposure to pedestrian and building occupant activity is high and where visual inspections give cause for concern or where history, design and shop drawings and building management interviews give cause for concern. The emphasis for fiber-optic inspections are to assess the condition of structural connectors on precast panels, metal or porcelain panels, and masonry assemblies as well as to determine if interstitial stress indicators exist within materials within the wall assembly. Such interstitial inspections should be accompanied with photo and video documentation from the exterior inspection 			



and from the fiber-optic scope inspection.

- It should be noted that the on-site work will be performed in an occupied building. Work at the site is to be coordinated so as to minimize disruption and without compromising the health and safety of the tenants and building services.
- 4. The Parking Structure field review for the studies shall include visual assessments and diagnostic testing where deemed necessary. (see suggested checklist summary)
- 5. The Anchor Systems on the Building Exterior shall include visual assessments and full operation of the mechanisms to confirm maintenance protocols.

PR 1.4.2 Purpose of the project:

To develop a level 2 (L2) building condition report that sets a good baseline document with detailed technical and financial information.

PR 1.4.3 Project History Synopsis:

The last condition assessments (Building Condition Reports) for only two buildings (XR02, XR03) were done in 2008. Since that time, over the last two years, the buildings have undergone renovations and are presently under PWGSC ownership until the deficiencies for the renovated buildings are complete. Once complete, which is planned for September, 2013, the buildings will be turned back to NRCan. NRCan then wishes to contract PWGSC to provide full operation and maintenance of the buildings on the site. Prior to the PWGSC contract, NRCan wishes full building condition reports (base) in order to understand the proposed PWGSC Facility Maintenance Plan that will be undertaken for the operation and maintenance requirements (and costing) of their facilities.

PR 1.4.4 Site Conditions:

Site conditions, which may influence this project, include:

- The consultant shall at all times comply with the applicable Provincial/Federal Electrical, Construction, Fire Codes, Acts, Standards and Guidelines. Additionally, at all times comply with Provincial Health & Safety Acts, and Regulations, in addition to the requirements of Canada Occupational Safety and Health Regulations, and Canada Labour Code.
- The focus of the BCR summary shall address the costs of work to be undertaken for the operations and maintenance requirements of their buildings and grounds.



PR 1.4.5 Implementation Strategy:

	Activity identified for Implementation		Milestone	Time Frame	STATUS
3	Interface with the PM who has co-ordinated the initial site briefing with PFM, COE, and main stakeholders.	Phase 2		2 days	
4	Interface with the PM who has secured all existing documentation from the stakeholders and the PFM.	Phase 2		6 days	
5	Interface with the PM who has tracked the needs of the Consultant and matched the required resource to facilitate the actions for access to the site.	Phase 2		12 days	Partial payment possible at 25% with submission of raw gathered data to the assigned PM.
6	Consultant undertakes site visit to Resolute			5 days	
7	Submit to PM the First Draft of the BCR who circulates to the P&TS/COE team for comment.	Phase 2	FIRST DRAFT Week 8	5 days	Deliverable PR 1.5.5
8	Interface with the PM who compiles comments from all stakeholders and advises of needed revisions.	Phase 2		10 days	
9	Submit to PM the Final Draft of the BCR who circulates to the P&TS/COE team for comment.	Phase 2	PRE-FINAL DRAFT Week 11	5 days	Deliverable PR 1.5.7 Additional payment possible at 25% with submission of the 2 nd Draft BCR to the assigned PM.
10	Interface with the PM who compiles comments from all stakeholders and advises of needed revisions.	Phase 2		5 days	
11	Submit to PM the Final submission who presents it to the PFM, Asset Manager and Owner/Investor for use.	Phase 2	FINAL SUBMISSION Week 13	5 days	Deliverable PR 1.5.8 Balance of payment possible at 50% with submission of the Final BCR to the assigned PM.
12	Minor corrections as requested by PFM, Asset Manager, client and submission/circulation for sign-off.	Phase 2	FINAL DRAFT SUBMISSION SIGN-OFF Week 14	5 days	

PR 1.4.6 Access to the Site and Security Requirements:

- For general access the consultant will be required to conduct site related work Monday to



Friday between 8am and 4:30pm. All other access times will be determined by consultation with the departmental representative. The consultant shall pre-arrange dates & times for site access at least 72 hours in advance.

PR 1.4.7 Issues / Constraints / Challenges / Opportunities:

- Available as-built drawings are mostly available given the recent work. The drawings of the original structure may not be available electronically.
- Previous reports or studies are available and will be provided by the PM but may take some time to be gathered together.

PR 1.5 Work Breakdown Structure and Schedule

PR 1.5.1 RS 2.1.1

Completion (Architectural)	2	Weeks	
PWGSC Review:	N/A		

PR 1.5.2 RS 2.1.2

Completion (Structural)	1	Week	
PWGSC Review:	N/A		

PR 1.5.3 RS 2.1.3

Completion: (Mechanical)	2	Weeks	
PWGSC Review:	N/A		

PR 1.5.4 RS 2.1.4

Completion: (Electrical)	2	Weeks	Complete rough data
PWGSC Review:	N/A		

PR 1.5.5 RS 2.1.5

Completion:	2	Weeks	1 st DRAFT
PWGSC Review:	1	Week	

PR 1.5.6 RS 2.1.6

Completion	2	Weeks	
PWGSC Review:	1	Week	

PR 1.5.7 RS 2.1.7

Completion	1	Week	PRE-FINAL
PWGSC Review:	1	Week	

PR 1.5.8 RS 2.1.8

Completion (Final report combined)	1	Week	
PWGSC Review:	1	Week	



PR 1.6 Existing Documentation

PWGSC will transfer all available drawings and studies as requested by the consultant.
See issues and constraints PR 1.4.7

PR 2 Required Services - RS

Full services are required from the following members of consultants standing offer team:

- Mechanical Engineering: **Required**
- Electrical Engineering: **Required**
- Structural Engineering: **Required**
- Architectural Engineering: **Required**
- Cost Consulting: **Required**

RS 2.1 Required Services

The preparation of the building condition report requires an objective & subjective analysis of the asset under consideration. Therefore in order to produce the final reports the forgoing engineering services shall be applied to the following five key areas.

1. Analysis Phase
2. Research Phase
3. Survey Phase
4. Report Development Phase
5. Data Base Phase

RS 2.1.1	Mechanical survey, report development, costing and data base entry	Required
RS 2.1.2	Electrical survey, report development, costing and data base entry	Required
RS 2.1.3	Structural survey, report development, costing and data base entry	Required
RS 2.1.4	Architectural survey, report development, costing and data base entry	Required
RS 2.1.5	Re-Capitalization Asset Management Plan information data base entry and costing against market conditions	Not Required
RS 2.1.6	NPMS Milestones data base entry	Not Required
RS 2.1.7	Risk Management Plan recommendations data base entry	Not Required
RS 2.1.8	Final Report Hard Copies and Electronic Copies in MS Word & Excel	Required