CONSULTANT SERVICES MANAGEMENT PLAN

(MINIMUM REQUIREMENTS)

Revision List

Rev	Prepared by	Date (mm/dd/yy)	Reviewed by	Date	Approved by	Date	Agreed by	Date
1.1	B. Willemsen	10/12/12	PhB	10/23/12				
2	--	--	PBI	12/21/12	NH	12/21/12	N/A	N/A

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1. INTRODUCTION

1.1. Application and Purpose

Upon assignment award the Consultant shall prepare a comprehensive Consultant Services Management Plan (CSMP) detailing the processes that will be applied during the provision of the assigned Services.

The initial Consultant Services Management Plan shall be supplied for approval within one (1) month of assignment award unless specified otherwise in the RFP documents.

As refined planning for some Services may require preceding Services to be underway or completed, a phased submission for those plan components may be acceptable, however, the initial Consultant Services Management Plan submission is expected to cover the complete assignment awarded to a level of detail acceptable by the City that allows a reasonable vision of the assignment delivery.

The Consultant shall update the CSMP to further levels of detail at least two (2) weeks prior to the start of a new Service to ensure that the CSMP is always detailed enough to allow for the minimum controls required in this document.

This Plan should build on the overview of the CSMP that the Consultant shall provide during the proposal stage

1.2. Objectives

The Consultant Services Management Plan objective is to provide a detailed plan to identify and track the processes used by the Consultant during the provision of the assigned Services in order to ensure the delivery of Consultant Services as per City requirements. It will be used by the Consultant and the City as a management and control tool.

The present document is not intended to detail exhaustively all project management techniques and aspects, but rather it lists the minimum requirements that the Consultant has to incorporate in the CMSP

1.3. Consultant Services Management Plan (CSMP) Scope

The Consultant Services Management Plan shall encompass the assignment as detailed in the RFP / Bid Opportunity, including, as applicable the following Services:

- Advisory Services
- Project Definition Design
- Preliminary Design
- Detailed Design
- Contract Administration Services (required and optional)
- Commissioning Services

- Additional Services

2. PROCESS MANAGEMENT

The Consultant Services Management Plan shall identify and detail the following processes for the complete assignment as well as for each of the assigned Services:

- Initiating

- Planning

- Executing

- Controlling and Monitoring

- Closing

2.1. Planning Processes

The plan must be specific to the project being worked on and it must include the project controls required by the City.

Planning forms the basis for the Consultants development of the CSMP which will identify the Work Breakdown Structure (WBS) of the assignment deliverables and detail manpower requirements, manpower costs and provide the critical path schedule for the development and issuance of the deliverables.

The CSMP shall, as a minimum, identify for the Services of Section 1.3 the following:

- A WBS that identifies major elements relative to how the assignment will be managed and in terms of tangible and verifiable results (including milestones, critical triggers, deliverables, % completion of design, posting to Materials Management site, etc.)

- The number of the work packages required and description of each;

- List of Drawings/documents planned for each discipline and work package

- Resource requirements, responsibilities, effort, duration, manpower costs and associated disbursements by work package;

- All information required to support the scope of work for each work package

- Schedule requirements for Services relative to each work package;

- Progress meetings

- Presentation/review meeting/ workshops, identifying anticipated City personnel and/or resources required

- Required information inputs, third party inputs

- Reviewers/Verifiers; including constructability aspects

- Reviews and approval

- The type and format of documentation for each work package;

- the timing and sequence in which procurement documentation is to be produced;
- Quality Management elements
- A Risk Management Plan
- Communication management elements

The Consultant shall prepare a detailed schedule for the Services, identifying the critical path using critical path method (CPM) and utilizing MS Project 2003 or compatible software, as the presentation tool. Once approved by the Project Manager the schedule shall be frozen as a baseline for the Services' duration. The schedule shall be updated weekly and submitted to the Project Manager monthly in MS Project native format. Review of the schedule with the Consultant will occur during the designated Consultant Services monthly status review meetings. Should slippage to the baseline occur, the Consultant shall provide the Project Manager with a mitigation strategy to bring the schedule back to baseline.

2.2. Executing Processes

The Consultant shall have detailed in the planning stage how each of the executing processes will be undertaken, taking into account the following City requirements.

2.2.1.   Risk Management

Risk Management Plan issued by the Consultant shall be consistent with the Risk Management Process identified by ISO 31000, including distinct activities for risk identification and analysis, evaluation, response planning, and control through monitoring and review processes using the risk register as a key management tool.

Criteria for using the risk register are delineated in Use of the Project Risk Register (see Appendix A2).

2.2.2.   Quality Management

The Winnipeg Sewage Treatment Program requires for the delivery of Services a quality management approach based on the standards of the ISO 9004 model. Quality Management includes the processes required to ensure that the Services will satisfy the needs for which they are undertaken. It includes all activities that determine the quality policy, objectives and responsibilities. The Consultant shall submit a plan detailing how the following quality components will be achieved:

- Quality Planning
- Quality Assurance
- Quality Control

2.2.3.   Cost Management

Cost Management for Services includes the processes required to ensure the assignment is completed within the value of award and includes the following aspects:

- Resource Planning
- Resource Costing

- Cost Monitoring

The Plan shall also detail (when applicable) how to achieve and control the cost for the overall project and propose methodology with regard to procurement delivery strategy.

2.2.4.   Records Management

To assist in facilitating Records Management the City is developing a Document Management System (DMS) utilizing the performance capabilities of Share Point in a Microsoft 365 environment. It is anticipated that this system will not be available for use until Q3 of 2013. The Consultant shall plan and implement a system acceptable to the City for managing documentation that includes the following bullets. Once the City DMS is operational, the Consultant will be required to transfer all prior assignment Project records into the City DMS and utilize the City DMS for the remainder of the project.

- Issue of documents for review, action or record;

- Reports, Technical Memorandum and other like submissions

- Receipt of Reviewer's comments;

- Issue of "Bid Opportunity" documents;

- Issue of Contract Administration documentation;

- Transmittal of documents to third parties,

- Transmittal of letters and memos;

- Change Management documents, and tracking of their status/history;

- Contractor Submittals for review and response

- Design review and approval process

- Release of documents for use

- Meeting Minutes

- Inspection and QC records

- Verifications and Certifications

- Issuance of Project Turnover Records

The use of the DMS is to be considered in developing the Plan and its detailed document management processes. In particular, for contractors and suppliers' documentation, submittals such as Shop Drawings, Temporary Works drawings, Manufacturers Data sheets, Material test reports, Factory Inspection Tests shall be submitted via DMS c/w a copy of the transmittal sent to the Administrator of the specific Contract. The Consultant shall review for acceptability and conformance to all applicable design documents and respond at Contract Administrator level within the defined time frame of 10 business days unless otherwise specified. All submittals shall be accompanied by a transmittal identifying the sender, recipient, date of transmission, expected date of return as well as the content description.

2.3. Controlling and Monitoring Processes

Processes must be measured regularly to identify variances from plan. The CSMP shall include high level details of the following processes:

- Scope Change Management

- Design Review and Approval

- Release of Documents for Use

- Design Control

- Performance Reporting

- Cost Control

- Consultant Invoicing.

The CSMP shall be updated to capture changing conditions as the Project evolves.

2.3.1.   Scope Change Management

A Change Control System defines the procedures by which the assignment's scope may be changed. It includes the documents, tracking system and approval processes necessary to authorize change to the assignment.

The Consultant's scope change management processes proposed by the Consultant in his CSMP shall take into account all the requirements of the General Conditions.

The Consultant shall issue and use different standardized forms including Consultant Services Change Request (CSCR), Request for Information (RFI), Technical Deviation Notice (TDN), Non Conformance Report (NCR), Construction review record (CRR) etc. The forms will address the minimum requirements of the City templates that will be available.

The change management processes and forms should similarly be developed by the Consultant as required for Contract Administration.

2.3.2.   Design Review and Approval

All design deliverable documents require review and approval. The Design Review and Approval Process shall be defined in the Consultant's quality management plan and shall address the following:

- Engineering Practice Reviews

- Inter-discipline coordination (IDC)

- Design Verification / Peer review

- Operability and Maintainability review

- Constructability and cost reviews

- Design Certification

- City of Winnipeg reviews

All documents must undergo the Consultant's planned internal review processes before issuance to the City (note: approval of any document by the City does not limit the liability of the Consultant).

The CSMP's schedule shall detail the applicable review and approval elements. Unless noted otherwise, Design submissions shall be made to the Project Manager at:
- 30% design completion or Preliminary Design;
- 60% design completion; and
- 95% design completion.

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Documents to be presented or reviewed in a meeting or workshop shall be issued a minimum of ten working days prior to the presentation. Comments and/or decisions made reached and recorded at the applicable meeting shall be incorporated into the documents and shall be re-issued for approval.

For any document, the City requires a minimum of ten working days for review or approval.

2.3.3. Release of Documents for Use

There are a number of milestone stages where the Consultant's documents are required to be released for use. As documents move through the creation, checking, review, comment, verification, certification and approval processes for each stage, the Consultant shall provide for tracking and monitoring the document movement through these processes. These processes shall be defined in the Consultant's quality management plan and shall anticipate the future use of the City DMS (Microsoft SharePoint Online). The process of releasing documents for use shall be managed through the DMS. City approval is required prior to releasing any documents for use.

2.3.4. Design Control

The Consultant is required to use the P&ID(s) as the primary and sole interface document(s) to generate and automatically update equipment/instruments and piping line lists.

The Consultant must provide a strategy and the tools for the control of the documentation, including the change management control requirements, for process and instrumentation/electrical equipment during the complete design and construction cycle, from the beginning of design phase to start of operation and maintenance.

2.3.5. Performance Reporting

Performance reporting involves collecting and disseminating performance information in order to provide stakeholders with information about how the resources are being used to achieve assignment objectives. This process includes status reporting which identifies where the assignment is at, progress reporting which describes what has been accomplished and forecast reporting which predicts when the assignment is expected to complete. Work progress and costs have to be measured in parallel.

For the assigned Services, the Consultant shall submit monthly performance reports to the Project Manager so that it may be reviewed at monthly status review meetings. Should deviation to the baseline occur the Consultant shall provide the Project Manager with a mitigation strategy to bring the performance in line with baseline plan.

This obligation will be expanded to contractor performance reporting if the consultant services assignment includes contract administration services.

Monthly construction status reports shall be issued and include at minimum the following sections:

- Executive summary
- Safety and security
- Cost reporting
- Construction progress
- Quality assurance

2.3.6. Cost Control

Cost control includes monitoring cost performance to detect variances from plan and ensuring changes are recorded accurately.

When the assignment scope includes Contract Administration, cost control includes the measurement of the performance of Contract Administration where applicable.

The Consultant shall continually control cost and shall use Earned Value Analysis (EVA) reporting and Estimate at Completion (EAC) forecasting measured against baseline cost. Consultant Services are further detailed in the following section.

2.3.7. Consultant Services Invoicing

Consultant Services monthly progress invoicing documents shall be presented in order to allow close control of the works performed and those forecasted.

The minimum information to be presented on the monthly summary of fees is based on the detailed task structure of the proposal. The proposal must be filled with horizontal indication of assignments referred to as phases and their respective sub assignments, and with vertical information related to Previous values at month N-1, current values achieved during the month N, Total value at the end of month N, base line value and percentage of Total value over baseline.

For the purpose of control and validation of work performed, the Consultant shall develop a further level of details with indication of the components of work within each sub assignment as identified in WBS. A matrix format with indication of personnel, discipline, rates and time assigned and provision for time spent up to and within the current month and forecast total time and costs for each work component will be developed by the Consultant. This development is to be submitted to the City Project Manager for approval with the issue of the CSMP.

Once all monthly detailed sheets are approved by the City Project Manager, the monthly summary of fees will be validated and will support the invoices to be issued by the Consultant in accordance with the Invoice Template that the City will transmit at award.

In order to reduce the time for review, the documents shall be prepared and submitted in both paper and electronic versions in native format.

Invoicing for Services which exceeds individual fee amounts at task level will not be approved or payable without the prior written approval of the Project Manager.

2.4. Services Closeout and Turnover Packages

Closeout processes consist of verifying and documenting the results of the services for their entire assignment to formalize their acceptance. This includes the collection and turnover of all records generated and described in detail in the CSMP.

When establishing the closeout processes, the Consultant must, in coordination with the Project Manager, take into account the general requirements for the overall project and all other contracts contributing to the project delivery.

Note: In regard to the Project closeout, Turnover documentation shall include as a minimum the following:

- As-built Drawings
- O&M manuals c/w associated warranty documentation

- Area Manuals

- Standard Operating Procedures

- Operational Data including Asset Data schedules (Active and Decommissioned)

- Commissioning turn over documentation including Training Documentation and Records (Refer to Consultant Services Project Commissioning Requirements for extent of Commissioning turn over documentation).

3. PROJECT MANAGEMENT REQUIREMENTS

3.1. Communication Management

Communication management provides the critical links among people, ideas and information that are necessary for success.

The Consultant will include a communication plan, as part of the CSMP. The plan shall identify all interfaces (organizational, technical and interpersonal) and the roles and responsibilities of each stakeholder. It will identify who needs what information, when it will be needed and how it will be given. The Plan should use forms and templates developed by the City of Winnipeg for facilitating communication and will integrate the use of the City DMS.

3.1.1. Consultant Services Monthly Status Review Meetings

The Consultant shall conduct monthly status review meetings and present monthly status reports. The meeting will include key management personnel from both the Consultant and City of Winnipeg. The Consultant shall record minutes.

The monthly status report shall contain as minimum:

- Assignment Status

- Cost performance

- Schedule performance

- Quality performance

- Risk review

3.1.2. Weekly Meetings

The Consultant shall conduct weekly design team meetings and record minutes. The weekly meetings will be attended by at least one City of Winnipeg representative unless otherwise agreed by the Project Manager. As a minimum, the weekly meeting will review the following:

- Recap of past week progress (including man hours and cost)

- Two week look ahead of planned activities (including man hours and forecast)

- Review of issues

- Decisions required and made

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During construction and commissioning phases similar types of meetings shall be conducted and the Consultant shall be required to attend either as lead or as participant. Optimization of the project meetings may be proposed by the Project Manager.

3.1.3. Workshops

The Consultant shall provide outlines and methods including participants and projected costs for each workshop and shall be approved by the Project Manager prior to undertaking arrangement of the workshops.

When applicable, the following workshops must be included and follow the City procedures, HAZOP (Hazard and Operability Study), CHAIR (Construction Hazard Assessment Implication Review) and Value Engineering. City procedure formats will be provided to the Consultant at the beginning of the Project Definition Phase.

3.2. Documentation Submission Requirements

The Consultant shall base submittals on the following requirements;

3.2.1. Documentation for review or final

Technical Memorandums, design notes, reports, plans, etc. for review or final - 10 hard copies Cerlox bound

Bid Opportunity documents/specifications etc. for review or final - 10 hard copies collated

Drawings for review or final – 6 hard copies ANSI B size collated and 4 hard copies full size collated

For each submittal an unrestricted searchable electronic Adobe .pdf file of each individual submittal document or drawing shall be uploaded to the DMS. Drawing submission status codes shall be as defined in the DMS. The hard copy sets shall be delivered as directed by the City Project Manager. Official submission control will be the electronic upload only. Hard copy submissions without a corresponding electronic DMS submission will not be recognized as an official submission.

3.2.2. O&M and As-built documents

O&M manuals shall be bound in 3 ring binders. Electronic copies shall be uploaded to DMS in searchable pdf format.

As-Built drawings

For review 6 hard copies collated, ANSI B size, electronic one each .pdf and AutoCAD

Final 6 hard copies collated, ANSI B size, electronic one each .pdf and AutoCAD (b) electronic copies of the drawings in both AutoCAD and PDF

3.2.3. Miscellaneous

Schedules, Area Manuals, SOP's, Training records, Commissioning Reports, Asset schedules etc. shall be submitted in the native electronic file formats in addition to the hard copies and electronic .pdf.

Native electronic files for other project related documents may be requested by the City Project Manager and shall be provided by the Consultant upon request.

Prior to any submission the Consultant shall confirm with the City Project Manager the required format(s) and quantities of the submission.

4. APPENDICES

The versions of the documents listed in the appendices are representative of the type of documentation to be used for the Project. They allow the Consultant to assess with sufficient accuracy the principles and the magnitude of any work associated with their use for the purpose of quotation.

Applicable revisions of the documents will be transmitted to the Consultant for use at award stage.

4.1. Appendix A: Relevant Management Documents

- Appendix A1: Procedure PG-RC-PC-05 DMS File Structure
- Appendix A2:Procedure PG-RM-PC-01 Use of the Project Risk Register and associated parts 1/ 4 to 4/4

What:	Procedure describing where to store and locate files in the WSTP Document Management System	Resources Required:
When:	Ongoing during contract period	•
Who:	All personnel	

1.0 Overview

The following procedure outlines where to store/file official project correspondence/documents related to Capital Projects within the WSTP. There are many documents generated throughout the course of a project, each document type is unique and may occur only once whereas some document types will be created numerous times. Some documents will be support/background documents for other project documents and will be linked accordingly. The file system will be controlled through the use of Metadata tags (see Procedure 1B-14-Metadata for WSTP Records (In development)). The DMS file Structure will reside within SharePoint, in various sites configured by WWD IT resources. A Vendor site shall be established containing the following libraries. Access to the libraries will be secure and controlled by the DMS Administrator via user name and password control, access permissions will be determined by the Project Manager or his/her delegate.

2.0 SharePoint

The following libraries will be established within the SharePoint site for each of the planned capital projects. Metadata will be attached to each document by Project Document Control.

- Project Development and Management
- Project Financials
- Project Technical Development
- Procurement
- Contract Administration
- Contract Closeout
- Public Information
- Safety Management

2.1 Project Development and Management

This library will include records and documents created during the initial stages of the project and include items such as Business Case, Project Plan, Project Schedule, Background Information, Regulatory information, Advisory Committee and Risk Management.

2.2 Project Financials

Capital Budget Estimates, Operating Budget Estimates, Project cost Reports, Payment Transactions, Over Expenditure Reports will be filed within this library.

2.3 Project Technical Development

This library will contain project technical documents such as studies and Assessments, Advisory Services, Technical Memorandums, Conceptual/Preliminary/Detailed Design documents, Value Engineering and Specialty Consultant Services.

2.4 Procurement

Bid Opportunity Documents, Addenda, Bid Evaluation and Bid Award Recommendations will be contained within this library.

References:	
Keywords:	
Last Updated:	March 28 2012
Author:	B. Willemsen

What:	Procedure describing where to store and locate files in the WSTP Document Management System	Resources Required:
When:	Ongoing during contract period	•
Who:	All personnel	

2.5   Contract Administration

This library will be configured to store information by Bid Opportunity. Within each Bid Opportunity the same set of documents will be stored, this includes, insurance and bonds, shop drawings, contract work schedules, progress billings, Change Record, RFI's, Contemplated Change Notices, Authorized Contract Changes, Field Work Authorizations, Claims, Over Expenditure Report Analysis, Contractor Progress Meeting Minutes, Field Instructions, Daily Construction Reports, Daily Inspection Reports, Nonconformance Reports, Material testing reports, Factory Acceptance Tests, Third Party Test Reports, Progress Photos, Contractor Safety Records (Near Miss, Incident, Infraction, CS/HW/CL Permits, JHA's, PSI's) and contract legal.

2.6   Contract Closeout

As with Contract Administration in 2.5 above, contract closeout will follow the same parameters such that all close out documents must be tagged to the bid opportunity number. Contract Close out documents will include certificates of Substantial Completion, Total Performance, Final Acceptance, Deficiency lists, Performance Verification Tests, Operation and Maintenance Manuals, Warranties, Training Materials, As-built Records and Commissioning documents.

2.7   Public Information

In this library documents such as Public Communications, Press Releases, Public Consultations and Briefing notes will be contained.

2.8   Project Safety and Security

Safety Management Plan, Daily Safety reports, site orientations, worker registry, Safety Statistics, Site safety procedures, access control, emergency response plan, training and other safety or security related documents will be contained within this library.

References:	
Keywords:	
Last Updated:	March 28 2012
Author:	B. Willemsen

Use of the Project Risk Register

What:	How to use the Risk Register
When:	Each time you identify a risk
Who:	All program staff

Resources Required:
- R&O Register

Project Risk Register

Each project will have its own Risk Register. Each Risk on the Risk Register is assigned a sequential Risk ID number. The combination of the project reference and Risk ID identifies the individual risk. Risk IDs once assigned will not be re-used.

The mandatory fields for completion in the Risk Register are as follows:

Risk Register Field	
Risk ID; Sequential ID	Mandatory
Last Reviewed Date	Mandatory
Status Change Date	Mandatory
Identification Date	Mandatory
Project	Mandatory
Phase	Mandatory
Task Group	Mandatory
Contract (Bid Op)	
Operational or Capital	Mandatory
Facility	
Process Area	
Discipline	
Risk Type; Program or Project Level Risk	Mandatory
Category of Risk; Design, Construction, HR, Procurement etc	Mandatory
Threat or Opportunity (T / O)	Mandatory
Due to (Cause Event)	Mandatory
this could occur (Result Event)	Mandatory
Resulting in (this Effect)	Mandatory
Risk / Opp Owner (per Agreement); CofW or Shared	Mandatory
Risk / Opp owner (Individual responsible)	Mandatory
Status (Identified / In Development / Defined / Closed)	Mandatory
Magnitude of Risk Event(1-5)	Mandatory
Likelihood (1-5)	Mandatory
Assessed Score C X L	Calculated
Estimated Impact ($,000) what is cost if risk occurred)	Mandatory
Financial Impact (% Target Cost)	Calculated

References:			
Keywords:	risk register, project		
Last Updated:	20 Dec 2011	Version:	v1.0
Author:	B.Minaker (MNP)	Status:	DRAFT

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What:	How to use the Risk Register	**Resources Required:**
When:	Each time you identify a risk	• R&O Register
Who:	All program staff	

Contingency (Est. Impact X likelihood)	**Calculated**
Risk Response Type (Avoidance, Transference, Mitigation, Acceptance)	**Mandatory**
Risk Response Plan - Actions	
Residual Magnitude occur (1-5)	**Mandatory**
Residual Likelihood (1-5)	**Mandatory**
Assessed Residual Score	**Calculated**
Cost of Mitigation ($,000)	
Adopted	
Contingency (cost after action)	
Trigger date (mandatory review date)	
Date for each action	
Mitigation Evaluation	
Action Log Reference	
Comments	

Risk Identification

The purpose of this stage of the process is to produce a common understanding of threats and opportunities facing the Project.

Identifying risks and responses involves two specific tasks:

1. Search for sources of risk and responses
2. Classify to provide a suitable structure for defining the risks and responses aggregating / disaggregating as appropriate

The tools of identification include the collective experience of past events, foresight of possible project outcomes and a step-by-step analysis of the project activities being reviewed. The simplest way to begin identification of risks when faced with a blank sheet of paper is to start with considering uncertainties associated with the project key criterion these are often known as level one or primary risks. Following on from these, the next step would be to consider associated uncertainties. Multi-disciplined teams are most effective at searching for risks and responses which can be achieved through formal and informal processes for risk identification, including:

- Formal risk workshops;
- Engineering and value management reviews; and
- Identification by project team members at any stage.

References:	
Keywords:	risk register, project

Last Updated:	20 Dec 2011	Version:	v1.0	
Author:	B.Minaker (MNP)	Status:	DRAFT	Page 2

Use of the Project Risk Register

What:	How to use the Risk Register
When:	Each time you identify a risk
Who:	All program staff

Resources Required:
- R&O Register

The following questions need to be considered when searching for risks:

- What can happen;
- How and why it can happen; and
- Where it can happen?

Where an identified risk is managed by an existing process, then that risk does not need to be entered into the Risk Register unless it is for the purpose of contingency calculation or management.

Inputs into the Risk Identification will be: design, project schedule, contractors or consultants program, procurement strategy, Site information and environmental studies. This is not a comprehensive list and any and all pertinent information should be presented to aid risk identification.

Risk Meta Language

To aid in the identification of true risks rather than a list of statements or confused risk causes and separate effects which have no bearing to the project, a structured approach to risk and risk descriptions will be used in the Program. Sometimes called risk metalanguage, it provides a 3 part statement which separates the risks statements into component causes and effects, as follows:

> "As a result of < definite CAUSE> , < uncertain EVENT> may occur, which would lead to
> < EFFECT on objective(s)> ".

E.g. As a result of outsourcing production (cause), we may be able to learn new practices from our selected partner (opportunity), leading to increased productivity and profitability (effect).

These statements are captured in the appropriate column in the Risk Register. Only enter risks on the register that could have an impact on the projects objectives.

Causes
Definite events or sets of circumstances which exist in the project or environment which give rise to uncertainty (Facts), for example:

- Requirement to implement a new process
- The need to use unproven technology
- A lack of staff with a necessary experience
- The fact that the organization has never done a particular operation before

References:	
Keywords:	risk register, project

Last Updated:	20 Dec 2011	Version:	v1.0	
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Use of the Project Risk Register

What:	How to use the Risk Register	**Resources Required:**
When:	Each time you identify a risk	• R&O Register
Who:	All program staff	

Risks
Uncertainty that Matters (impacts objectives), for example:

- Possibility that planned milestone dates will not be met
- Possibility that planned production rates will not be met
- Interest or inflation rates might fluctuate
- Cost of materials might fluctuate beyond general inflation
- Chance that customer expectations may be misunderstood
- Chance that a contractor might deliver earlier than planned
- Possibility of colder / wetter / drier / hotter weather

Effects
Unplanned variations from objectives (+ / -), arising from risk occurring, for example:

- Being early for a milestone
- Exceeding the authorized budget
- Failing to meet agreed performance levels

In order that risks are managed throughout the project life cycle, the risk register should be reviewed at regular intervals between each workshop, reviews of the project risks should not be restricted to defined stages in the project and the Project Manager should encourage open debate of risk by including this on every meeting agenda alongside risk.

The Risk Management Process is about insight, understanding and asking the right questions. If we identify the right questions and understand what they mean, getting the right answers is relatively straightforward.

Risk Analysis

The purpose of this stage of the process is to assess the potential impacts of the identified risks and the likelihood of those impacts occurring. It establishes the exposure of the Project, or Program component, to an individual risk and uncertainty

Each risk is evaluated in terms of the likelihood that the risk will occur and consideration of the subsequent consequences of the risk event using the Likelihood Scoring table and the Magnitude Scoring table in the Risk Register template. Quantitative tools can be important in risk assessment however, experience and intuition of the Program Team will be the most appropriate starting point when assessing likelihood and impact and in many cases will be the only tools required. If necessary quantitative Risk Analysis maybe conducted to better understand the cost and or time exposure of risk on the project.

Use of the Project Risk Register

What:	How to use the Risk Register
When:	Each time you identify a risk
Who:	All program staff

Resources Required:
- R&O Register

The most accurate available sources of information should be used when analyzing risks to eliminate subjective biases, including:

- Past records and experience in similar conditions;
- Industry best practice;
- Relevant published literature;
- Prototype performance;
- Engineering models; and
- Specialist and expert judgments.

The magnitude of the risk must also be assessed in terms of its financial impact (in $ terms) and included in the Risk Register.

The risk score is calculated by multiplying the magnitude and likelihood scores. A contingency value is calculated by multiplying the financial impact of the Risk against it's likelihood score. For the purposes of this calculation the mid point of the likelihood score range is used, this can be changed if the Risk Analysist has better information.

Risk analysis is an iterative process in which the identified risks may be revised, combined, separated or removed as the risk becomes clearer, this is a normal part of the process.

References:			
Keywords:	risk register, project		
Last Updated:	20 Dec 2011	Version:	v1.0
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Use of the Project Risk Register

What:	How to use the Risk Register	**Resources Required:**
When:	Each time you identify a risk	• R&O Register
Who:	All program staff	

Risk Mitigation Planning

Ownership

As risk management requires action on the part of the members of the Project Team, the first part in managing the risk is to determine who owns the risk. Risk Owners have responsibility for managing the risks which have the potential to impact on the objectives of the job by developing and implementing responses that will deliver the opportunity or deal with threats.

The Risk Owners need not be responsible for the day to day implementation of the actions in the mitigation strategy, however they should be in a position where they have the authority and expertise to devise an appropriate risk response strategy. It is vitally important that opportunities are allocated to those who have the authority and competence to develop the necessary responses.

Every risk should have an owner. The starting point is whether the risks are owned by the City, the Program or a Contractor / Consultant. Program risks should be allocated to a role and preferably a named individual. It is important for the Project Manager to ensure ownership of the risk has been acknowledged.

Risk Mitigations

The risk and its associated Risk Ranking are reviewed at the end of the risk evaluation process to assess if the risk and its consequences may be accepted without treatment.

If the Risk Ranking of a risk can't be accepted without treatment, then a risk management action to mitigate either the likelihood or consequence of the risk event is required to reduce the subsequent Risk Ranking. Risk mitigation strategies may include some or a combination of the following:

- Risk Avoidance – avoid the activity;
- Risk Control – reduce the likelihood or consequence to an acceptable level;
- Risk Transfer to another party; and
- Risk Retention – accept the risk and carry on.

If the Risk Ranking of a residual risk is not reduced to an acceptable level after a risk management action has been applied, then further risk management action is required to reduce the Risk Ranking of the residual risk to an acceptable level. In these situations it may be necessary to loop back to carryout risk identification, analysis and evaluation to understand the risk further

Having chosen separate response strategies for each individual risk, the Risk Owner should then develop specific actions to put these strategies into practice, each with an agreed Action Owner. The selected response strategy and associated actions are recorded in the Risk Register.

The Risk Owner retains responsibility for each identified risk until the risk treatment for that particular threat and/or opportunity is completed and the risk closed out.

Risk Transfer

Certain risks may be better managed by specialist subcontractors. In such instances, the risk responses will be included in the Procurement Program. Risks can also be transferred through insurance.

References:			
Keywords:	risk register, project		
Last Updated:	20 Dec 2011	Version:	v1.0
Author:	B.Minaker (MNP)	Status:	DRAFT

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Use of the Project Risk Register

What:	How to use the Risk Register	**Resources Required:**
When:	Each time you identify a risk	• R&O Register
Who:	All program staff	

Risk Retention

Any residual risk that has not been controlled in the design process or transferred in some way is therefore retained by the Program for management in design, construction and possibly for eventual transfer into Operations.

The risks which are to be eventually transferred into Operation are to be agreed with the Operations Manager and an operational risk management processes will be completed at commissioning Completion.

For residual threats where proactive action is either not possible or not cost effective, an acceptance is the last resort, taking risk without special action.

Risk Action Plans

The purpose of an action plan is to document how the chosen risk treatment option will be implemented. The action plan includes:

- Proposed action;
- Resources required;
- Responsibility;
- Timing;
- Triggers; and
- Reporting and monitoring.

A 'Risk Action Plan will be developed for each open item identified in the 'Risk Register' categorized as Extreme, High or Medium.

PG-RM-TO-01 Risk Register part 1/4 (Draft)

Project Risk & Opportunity Register

System / Information about the Risk Event / Risk Event Identification

Risk ID; Sequential ID (system)	Last Reviewed Date (System)	Status Change Date (system)	Identification Date	Project	Phase	Task Group	Contract (Bid Op)	Operational or Capital	Facility	Process Area (optional)	Discipline (Optional)	Risk Type; Program or Project Level Risk	Category of Risk; Design, Construction, HR, Procurement etc	Threat or Opportunity (T / O)
1								example						T
2								example						O
3														

Risk Event Identification / Risk Event Assessment

Risk ID; Sequential ID (system)	Threat or Opportunity (T / O)	Due to (Cause Event)	this could occur (Result Event)	Resulting in (this Effect)	Risk / Opp Owner	Risk / Opp owner (Individual responsible)	Status (Identified / In Development / Defined / Closed)	Magnitude of Risk Event(1-5)	Likelihood (1-5)	Assessed Score C X L	Estimated Impact ($,000) what is cost if risk occurred)	Financial Impact (% Target Cost)	Financial risk prior to Mitigation	
1	T						Identified	3	4	12	80			
2	O						In Development	5	1	5	60			
3								1	4	4				
										0				
										0				

Risk Response Assessment (based on an Implemented Risk Management Plan - future state) / Risk Response Plan - Execution Log / Contingency Plan

Risk ID; Sequential ID (system)	Risk Response Type (Avoidance, Transferance, Mitigation, Acceptance)	Risk Response Plan - Actions	Residual Magnitude occur (1-5)	Residual Likelihood (1-5)	Assessed Residual Score	Cost of Mitigation ($,000)	Adopted	Financial risk after mitigation	Trigger date (mandatory review date)	Date for each action	Mitigation Evaluation	Action Log Reference	Comments	Contingency plan
1			3	4	12	20								
2			1	5	5	20								
3					0									
					0									
					0									

Assessing Liklihood/probability of Risk Occurrence

Descriptor	Rating	Frequency	Probability
Almost certain	5	Is expected to occur during projects of this type	> 95%
Likely	4	More likely as not, regularly occurs during projects of this type	60% < x < 95%
Moderate	3	As likely as not, might occur at some time during a project of this type	30% < x < 60%
Unlikely	2	Could occur at some time during the project, rarely occurs on projects of this type	5% < x < 30%
Rare	1	Only occur in exceptional circumstances on projects of this type	< 5%

Note on the use of Specific Probability Data and Distributions:

The first step in assessing the likelihood / probability of a risk should always be to apply the project teams engineering judgement and experience, in most cases this approach is all that is required. Specific probability data is available from a variety of sources, however unless the assumptions underpinning such distributions and data hold, the results can be misleading and introduce greater risk. Such data should be checked carefully before it is used.

PG-RM-TO-01 Risk Register Part 3/4 (Draft)

RISK ASSESSMENT OF MAGNITUDE

Assessment of the Magnitude of Opportunity

	Insignificant Savings 1	Minor Savings 2	Moderate Savings 3	Major Savings 4	Significant Savings 5
Cost					
Time	Time savings <½ day	Time savings ½ – 1 day	Time savings >1 day, < 1 week	Time savings >1 week, < 1 month	Time savings >1 month
Other??					

Assessment of the Magnitude of Risk

Descriptor	Negligible	Moderate	Substantial	Severe	Disastrous
	Small effect on costs	Moderately effects costs	Considerably affects cost	Serious threat to the organization, public etc.	The impact is totally unacceptable to the organization
	1	2	3	4	5
Safety *	Negligible – No injury, near miss	Minor – minor cuts, bruises, muscle strain	Serious – broken bones, muscle and ligament injuries	Serious / permanent injury / illness	Catastrophic – Single or Multiple fatalities
Financial Impact upto a maximun value (re-work / loss etc..)					
Financial Impact % of Target Cost	Do not use at the moment				
Schedule, impact on critical path*	Not likely to impact dates	Likely to absorb float between planned dates and target dates	≤ 1 month	≤ 2 month	> 2 month
Environment *	Negligible Environmental effect	Nuisance / minor but reversible Environmental harm	Moderate but short term Environmental harm	Localised, long term Environmental harm	Extensive long term Environmental harm
Regulatory *	negligable, near miss	report required to regulatory body	Inspection by Manitoba Env safety officer etc..	CEC review	Clean Environment Commission (CEC) Hearing
Image / Reputation *	Single Public Enquiry	Multiple Public Enquiries and / or informal Councillor and / or MP Request	Moderate Media Political – Formal Council and / or MP Request / Moderate Public Impact	Provincial Government, Major Political & Media Scrutiny / Major Public Impact	Federal Investigation
Moral	No Impact	Grumblings at wter cooler	Moderate / Increasing Absenteeism	Major Negative / Loss of Staff / "Go Slow"	Catastrophic Negative / walk out
Legal	No Liability	Written Claim Damages < $	Damages > $< $	Damages >$< $	Damages >$
Other *					

SEVERITY RESPONSE (Draft)

Total Severity	Category	Response
20-25	Critical	Expected cost to the project is unacceptably high. This risk must be eliminated or transferred before proceeding with the project. Attempt to avoid or transfer risk
10-20	Serious	Expected cost is high compared to total project cost. It probably is cost effective to eliminate or transfer this risk.
5-10	Important	Consider eliminating or transferring. If accept then manage proactively.
0-5	Acceptable	Accept and manage