

SCHEDULE 2
DESIGN AND CONSTRUCTION REQUIREMENTS

1. INTERPRETATION	1
1.1 Interpretation.....	1
1.2 Introduction	1
2. GENERAL	1
2.1 Cooperation.....	1
2.2 Units of Measure	1
3. INDEPENDENT ENGINEER.....	1
3.1 IE Construction Monitoring Agreement.....	1
3.2 Selection of Independent Engineer.....	1
3.3 Scope of Services of Independent Engineer.....	2
3.4 Cooperation and Assistance with the Independent Engineer.....	2
3.5 Access to the Work	3
3.6 No Responsibility for Design or Construction or Contract Administration.....	3
4. CONTRACT ADMINISTRATION	3
4.1 Parties' Representatives.....	3
4.2 Review and Approval by RAVCO's Representative	3
4.3 RAVCO's Representative's Permitted Access to Work Site	4
4.4 Work Site Offices.....	4
4.5 RAVCO Not Responsible for Design or Construction	4
4.6 Contract Interpretation - Initial Decisions	4
5. COST CENTRES.....	4
5.1 Administration by Cost Centre	4
6. CONCESSIONAIRE'S RESPONSIBILITIES	5
6.1 Undertake the Design and Construction	5
6.2 Responsibility and Control for the Work.....	5
6.3 Site Investigation.....	6
6.4 General Standard of Design and Construction	6
6.5 Compliance with Building Codes	7
6.6 Airport Codes and Standards	7
6.7 Changes in the Building Codes	8
6.8 Permits and Regulatory Approvals for the Work	9
6.9 Variations from Building Code Requirements	9
6.10 Inspections	9
6.11 Compliance with Laws.....	9
6.12 Operating Certificate	9
6.13 RAVCO's Assistance.....	10
6.14 Professional Services	10

6.15	Additional Responsibility of Concessionaire	10
7.	PROJECT SCHEDULE AND SCHEDULING.....	10
7.1	Service Commencement	10
7.2	Initial Project Schedule	10
7.3	Detailed Project Schedule	10
7.4	Approval of Project Schedule	12
7.5	Cost Centre Schedules	13
7.6	Review and Approval for RAVCO Benefit	13
7.7	Compliance with Approved Project Schedule	13
7.8	Direction to Accelerate Work for Concessionaire Delays	13
7.9	Direction to Accelerate	14
7.10	Olympics Interruption Plan	14
7.11	Project Schedule Updates	15
7.12	Failure to Provide or Update Project Schedule	16
7.13	Daily Work Records	16
7.14	Concessionaire's Monthly Reports on Progress	16
7.15	Meetings	16
8.	DESIGN - GENERAL.....	16
8.1	Design Cooperation	16
8.2	Design Based on Proposal Extracts	17
8.3	Design Complies with Specifications and Requirements	17
8.4	Community Consultation	17
8.5	Consultation with Relevant Authorities	18
8.6	Design Compatibility with Regional Transit.....	18
9.	REVIEW OF DOCUMENTS.....	18
9.1	Review by RAVCO	18
9.2	Submittal Schedule	18
9.3	Concessionaire's Pre-Review and Consultation	19
9.4	No Deemed Approval	19
9.5	Design Review Procedure	19
9.6	Drawings and Specifications	21
10.	ENVIRONMENTAL REQUIREMENTS	21
10.1	General	21
10.2	Permits	22
10.3	Environmental Management Plan (Construction)	23
10.4	RAVCO's Right to Audit	25
10.5	Environmental Event	25
11.	ARCHAEOLOGICAL REQUIREMENTS	26
11.1	<i>Heritage Conservation Act.....</i>	26
11.2	Archaeological Requirements	26

12. CONSTRUCTION	28
12.1 Construction of the Project	28
12.2 Condition of Work Site	28
12.3 Construction Safety	29
12.4 Protection of Property and the Public	29
12.5 Location of Utilities	29
12.6 Temporary Works	29
12.7 Skilled Workers	29
12.8 Project Meetings	29
12.9 Minutes Do Not Constitute Notice	30
12.10 Traffic Management Requirements	30
12.11 Construction Documents and Project Records	34
12.12 As-Built Drawings and Specifications	34
12.13 Construction Documentation	35
13. SUBSURFACE CONDITIONS	35
13.1 Geotechnical Risk	35
14. UTILITIES	35
14.1 Cost and Schedule Risk	35
14.2 Utility Relocation Costs	36
14.3 Utility Relocation Costs Target Price	36
14.4 Excluded Utility Works	37
15. TESTING AND COMMISSIONING	38
16. DEFECTS AND DEFICIENCIES	38
16.1 Defects	38
16.2 Preliminary Deficiency List	38
16.3 Final Deficiency List	38
16.4 System Acceptance	38
17. BUILDERS LIEN ACT	39
17.1 Payment Certifier	39
17.2 Builders Lien Holdback	39
17.3 Builders Liens	39
17.4 Applicable Laws	39
18. WORKERS COMPENSATION	40
18.1 Evidence of WCB Compliance	40
18.2 Indemnity for WCB Non-Compliance	40
18.3 Principal Contractor	40
18.4 Failure to Comply with WCB Requirements	41
19. QUALITY CONTROL	41
19.1 Quality of the Work	41

19.2	Comprehensive Quality System	41
19.3	Quality Plan.....	41
19.4	Audit of Concessionaire's Quality System Compliance	41
19.5	Quality Management	41

APPENDIX 1 CONCESSIONAIRE'S PROJECT SCHEDULE**APPENDIX 2 E1 – 30 ENVIRONMENTAL REQUIREMENTS**

SCHEDULE 2
DESIGN AND CONSTRUCTION REQUIREMENTS

1. INTERPRETATION

1.1 Interpretation

Words and abbreviations which have well-known technical or trade meanings in the construction or transportation industries in Vancouver are used in this Schedule in accordance with such recognized meanings.

1.2 Introduction

This Schedule relates to the Design and Construction of the Project.

2. GENERAL

2.1 Cooperation

Without limiting the provisions of Section 2.2 of this Agreement, if requested by RAVCO, the Concessionaire will participate in a partnering process to establish any Design and Construction protocols or procedures that the parties identify as being necessary or advantageous to improve communication between the parties for the benefit of the parties and the Project.

2.2 Units of Measure

Unless otherwise expressly specified by RAVCO's Representative, acting reasonably, all units of measure in any document submitted by the Concessionaire relating to the System will be in accordance with and comply with the SI system of units as required by the latest version of CSA CAN-3-Z234.1 "Canadian Metric Practice Guide" and CSA CAN-3-Z234.2 "The International System of Units".

3. INDEPENDENT ENGINEER

3.1 IE Construction Monitoring Agreement

The parties will enter into a separate agreement with an independent qualified Professional Engineering firm that is experienced in acting as an independent engineer on projects similar to the Project.

3.2 Selection of Independent Engineer

The parties will cooperate to select as the Independent Engineer an engineering firm that is without bias or conflict of interest and that is acceptable to the Senior Lenders as well as to both parties, and if at any time during the Term, the selected firm is for any reason no longer able to continue to provide the services of the Independent Engineer, the parties will cooperate with each other and the Senior Lenders in the same manner to appoint a replacement in a timely

way. If the parties cannot agree on the replacement Independent Engineer within 30 calendar days from the date of the Independent Engineer's inability to continue providing the services of the Independent Engineer, the Senior Lenders will appoint said replacement. If at any time before the replacement Independent Engineer is appointed a payment to the Concessionaire becomes due under Schedule 11 (Payments) then the RAVCO Representative may, at its election, provide the certification as described in Section 3.3(a) of this Schedule and otherwise perform the functions and powers of the Independent Engineer under this Agreement as required to facilitate such payment.

3.3 Scope of Services of Independent Engineer

The Independent Engineer will within 5 calendar days of the end of each calendar month of the Term provide to both parties a written report containing the following:

- (a) certification of any Milestones, including Service Commencement, that were achieved by the Concessionaire in the previous calendar month;
- (b) an opinion that the Work is proceeding in general compliance with the requirements of the Concession Agreement, including particularly the Design and Construction Requirements and the Design and Construction Specifications, and that:
 - (1) defects and deficiencies, if any, are of the extent and nature as reasonably expected on projects similar to the Project that are undertaken by qualified and experienced project teams, and
 - (2) any such defects and deficiencies, or other unforeseen conditions are being administered in accordance with the requirements of the Concession Agreement and good industry practice; and
- (c) an opinion that the Work is proceeding in general compliance with the Approved Project Schedule, and that, subject to unforeseen events, the Service Commencement Deadline is reasonably likely to be achieved.

3.4 Cooperation and Assistance with the Independent Engineer

The Concessionaire and RAVCO will provide the Independent Engineer with any information the Independent Engineer reasonably requests for the purpose of providing the services described in Section 3.3 of this Schedule including:

- (a) the Concessionaire will provide the Independent Engineer with copies of all reports and Work records, including any monthly reports on progress of the Work; and
- (b) RAVCO will provide the Independent Engineer with the Deficiency List and updates to the Deficiency List as RAVCO's Representative prepares pursuant to Section 16.2 of this Schedule.

3.5 Access to the Work

RAVCO and the Concessionaire will permit the Independent Engineer to have access to the Work Site, and to all documents and records relating to the Design and Construction, as the Independent Engineer reasonably requires to prepare the information described in Section 3.3 of this Schedule.

3.6 No Responsibility for Design or Construction or Contract Administration

Except as expressly described in Section 3 of this Schedule, and without limiting agreements that may be reached under other agreements, such as the separate IE Construction Monitoring Agreement, the Independent Engineer will have no responsibility, under this Agreement, for any aspect of Design or Construction, or the administration of this Agreement.

4. CONTRACT ADMINISTRATION

4.1 Parties' Representatives

The parties will each appoint a representative to be the single points of contact for RAVCO and the Concessionaire with respect to the Design and Construction of the Project, as follows:

- (a) RAVCO's Representative: RAVCO's Representative will provide contract administration on behalf of RAVCO for the Design and Construction as described under this Schedule. The capacity and authority of RAVCO's Representative is as set out in Section 10.1 of this Agreement. Without limiting other provisions of this Agreement, RAVCO's Representative will:
 - (1) provide any additional information reasonably required by the Concessionaire from RAVCO in order to undertake the Design and Construction; and
 - (2) receive all Project documentation to be provided to RAVCO by the Concessionaire under this Agreement related to the Design, Construction, and Operation and Maintenance.
- (b) Concessionaire's Representative: The Concessionaire's Representative will provide contract administration on behalf of the Concessionaire for the Design and Construction as described under this Schedule. The capacity and authority of the Concessionaire's Representative is as set out in Section 10.2 of this Agreement.

4.2 Review and Approval by RAVCO's Representative

Any reviews or approvals required to be given by RAVCO under this Schedule relating to the Design or Construction may be given by RAVCO's Representative. The Concessionaire will submit items for review or approval according to Section 9.2 of this Schedule or otherwise in a timely manner so as to permit RAVCO's Representative a reasonable time to consider the submission and to consult with other representatives of RAVCO as required.

4.3 RAVCO's Representative's Permitted Access to Work Site

The Concessionaire will at all reasonable times permit RAVCO's Representative to have reasonable access to all Work Sites including any place where any Construction, or any fabrication, assembly, testing, erection or other such Work is being undertaken by or on behalf of the Concessionaire relating to the Design or Construction of the System as RAVCO's Representative may reasonably require for the purpose of undertaking inspections of such Work so that RAVCO's Representative is able to be satisfied that the Work is proceeding in accordance with the requirements of this Agreement. RAVCO will give the Concessionaire reasonable advance notice of a request for access to a Work Site that is not on the Alignment ROW.

4.4 Work Site Offices

At each of the Concessionaire's major Work Site offices, the Concessionaire will provide for the use of RAVCO a secure furnished office which is capable of accommodating four RAVCO people and is equipped with electricity, telephone and data connections.

4.5 RAVCO Not Responsible for Design or Construction

RAVCO's rights of review and approval will be for RAVCO's benefit only, and no review or objection by RAVCO's Representative or other representative of RAVCO will in any way relieve the Concessionaire of its obligation for all aspects of the Design and Construction of the Project. Nothing in this Agreement will be interpreted as making RAVCO liable or responsible for any aspect of the Design or Construction, and the Concessionaire will not be entitled to rely on any advice or approvals that RAVCO or RAVCO's Representative may give with respect to the Work or any aspect of the Work.

4.6 Contract Interpretation - Initial Decisions

Any Dispute between RAVCO and the Concessionaire relating to or arising out of the Design or the Construction, including interpretation of a party's obligations under this Agreement relating to Design or Construction, or any failure of the parties to reach agreement relating to Design or Construction as called for by this Agreement, will be decided in accordance with the Dispute Resolution Procedure.

At all times, notwithstanding the existence of any Dispute relating to or arising out of the Design and Construction, both parties will continue to perform their respective obligations in accordance with the provisions of this Agreement without prejudice however to each party's rights under the Dispute Resolution Procedure and this Agreement.

5. COST CENTRES

5.1 Administration by Cost Centre

The Design and Construction Requirements as described in this Agreement vary for various segments of the System, both in nature and extent. For ease and convenience of administration the Design and Construction will be broken down by Cost Centre.

The Concessionaire will plan and undertake the Work with reference to the Cost Centres such that, as the Work progresses, all aspects of the Work are monitored with reference to a Cost Centre, including recording of costs of all of the components of the Project within each Cost Centre, the total aggregate Project costs relating to each Cost Centre and the progress of the Work within each Cost Centre.

Certain general costs have been allocated to the Concessionaire Cost Centre. Other general costs that do not relate directly to a specific Cost Centre will be allocated pro rata to all the Cost Centres in the same ratios as the direct costs are allocated to the Cost Centres for the period when the general costs are incurred.

6. CONCESSIONAIRE'S RESPONSIBILITIES

6.1 Undertake the Design and Construction

The Concessionaire will undertake the Design and Construction, based on Schedule 6 (Proposal Extracts), such that the System is complete, operational, safe and reliable all in accordance with this Agreement at the System Acceptance Date, and performs thereafter as intended. The Concessionaire will provide all materials, construction equipment and labour necessary to complete the Work, subject to the terms and conditions of this Agreement.

6.2 Responsibility and Control for the Work

The Concessionaire will perform the Work in accordance with this Agreement. The Concessionaire will have complete control and responsibility for all aspects of the Work. Subject to RAVCO's rights and obligations as specifically and expressly set out in this Agreement, the Concessionaire will be solely responsible for the means, methods, techniques, sequences and procedures relating to the Design and Construction, and for coordinating the various parts of the Work. The Design and Construction includes:

- (a) community consultation;
- (b) system planning;
- (c) urban planning;
- (d) engineering design;
- (e) architectural design;
- (f) landscaping design;
- (g) streetworks, including traffic control systems, traffic management, signing, sewers, fencing, lighting and all ancillary works;
- (h) utility diversions, relocations and removals;
- (i) demolition and site clearance;
- (j) building protection, temporary works, and ground improvement works;
- (k) Stations;
- (l) fixed facilities, including Guideways (elevated, at-grade and underground);
- (m) trackwork;
- (n) Vehicle Control Systems;
- (o) E&M Systems;
- (p) Tunnel ventilation;

- (q) Vehicle design and fabrication;
- (r) OMC;
- (s) management plans and reports;
- (t) surveying and mapping beyond that supplied by RAVCO;
- (u) geotechnical investigations beyond that provided by RAVCO;
- (v) Permits (other than obtaining the EAC);
- (w) landscaping;
- (x) service planning;
- (y) restoration;
- (z) power supply and distribution;
- (aa) regulatory approvals;
- (bb) insurance (in accordance with Schedule 12 (Insurance));
- (cc) project management and controls;
- (dd) procurement;
- (ee) ROW requirement definition;
- (ff) contract administration;
- (gg) construction safety;
- (hh) system safety certification;
- (ii) quality management including application of the Construction Approval Process;
- (jj) training;
- (kk) testing and commissioning;
- (ll) user and maintenance manuals and project records;
- (mm) other transportation interface facilities in accordance with Section 9.5 of Schedule 3 (Design and Construction Specifications);
- (nn) fare collection systems to the extend required pursuant to Schedule 3 (Design & Construction Specifications); and
- (oo) all works ancillary to the foregoing that are reasonably necessary to complete Design and Construction.

6.3 Site Investigation

The Concessionaire confirms that before entering into this Agreement, the Concessionaire investigated the Alignment, has reviewed the geotechnical information made available by RAVCO and has familiarized itself with the other parts of the Project in general and with all conditions, local or otherwise, affecting the carrying out of the Work and, subject to RAVCO's representations and warranties and obligations in this Agreement, is satisfied as to the adequacy and sufficiency of the description of the Project as contained in this Agreement. Each party acknowledges that further geotechnical investigations will be required to complete the Design and Construction and that such further investigations will be undertaken by the Concessionaire. The Concessionaire will make the results of any additional geotechnical investigation information available to RAVCO.

6.4 General Standard of Design and Construction

In addition to the requirements of this Schedule, the Design and Construction Specifications, the Proposal Extracts and other provisions of this Agreement, the Concessionaire will undertake and perform the Design and Construction to comply with all of the following:

(a) Design Standards

The Design will:

- (1) be undertaken by a design team exercising such degree of care, skill and diligence as would reasonably be expected from consultants qualified to perform services similar in scope, nature and complexity to the Design, as of the date of this Agreement, and the Concessionaire warrants and represents that its design team is qualified and has sufficient expertise and experience to expeditiously and efficiently perform all of the Design in a proper and professional manner to the standard set out in this Agreement;
- (2) include specific consideration of "buildability" and "life cycle" cost issues at all stages of Design, as appropriate;
- (3) include consideration of efficient Operation and Maintenance; and
- (4) be undertaken in a manner that a prudent owner would undertake the Design, having due regard for budget and schedule.

(b) Construction Standards

The Construction will be performed to meet:

- (1) the standards followed by professionals, manufacturers, contractors and trades who are experienced in work on rapid transit systems that are comparable to the System.

6.5 Compliance with Building Codes

Unless otherwise specified in Schedule 3, all elements of the Work, including the Design and Construction, workmanship, Equipment and materials, will meet or exceed the requirements of the applicable Building Codes.

6.6 Airport Codes and Standards

In addition to the requirements of Section 6.5 of this Schedule, the Concessionaire will comply with the following codes, standards and Laws to the extent that they apply to the Airport Connector:

- (a) Plumbing Code, 1998 (Part 7 of BC Building Code 1998);
- (b) Gas Safety Act (British Columbia);
- (c) National Fire Code, 1995;
- (d) applicable NFPA codes and standards;

- (e) applicable CSA and ASTM standards;
- (f) *Workers Compensation Act* (British Columbia), Industrial Health and Safety Regulations;
- (g) *Power Engineers and Boiler and Pressure Vessel Safety Act* (British Columbia);
- (h) ASME and ANSO Codes;
- (i) ASHRAE design standards;
- (j) ASPE design standards;
- (k) SMACNA design standards;
- (l) Canadian Electrical Code, 1998 with BC amendments;
- (m) Airport Authority Barrier Free Design Guidelines;
- (n) Airport Authority Development Rules and Construction Bylaws;
- (o) Canadian Council of Ministers of the Environment (CCME) Environmental Code of Practice;
- (p) *Health Act* (British Columbia) and Regulations;
- (q) *Non-Smokers Health Act* (Canada) and Regulations;
- (r) YVR Environmental Standards;
- (s) Aerodrome Security Regulations;
- (t) YVR Zoning Regulations;
- (u) Procedures for Certification of Aerodromes as Airports;
- (v) Aerodrome Standards and Recommended Practices;
- (w) Fire Department Regulations; and
- (x) Transport Canada publications applicable to construction at airports.

6.7 Changes in the Building Codes

Any change in the Building Codes that occurs during the Design or Construction will be treated as either a Change of Law or Discriminatory Change in Law, having regard for the circumstances.

6.8 Permits and Regulatory Approvals for the Work

Without limiting the Concessionaire's obligations under other provisions of this Agreement, the Concessionaire will obtain all Permits required for the Work unless the contrary is expressly provided in this Agreement. The Concessionaire will keep RAVCO's Representative fully informed of the details of all discussions and negotiations with Relevant Authorities with respect to all Permits. Except as otherwise expressly provided in this Agreement, the Concessionaire will assume the risk of and all costs of schedule delays arising from delays in obtaining Permits.

6.9 Variations from Building Code Requirements

With the exception of Building Code deviations specified in Schedule 3, the Concessionaire will notify and obtain the prior written consent of RAVCO's Representative for any request to either City or other Relevant Authorities for approval of a deviation from the requirements of the Building Codes, including any substitutions or equivalencies, which consent will not be unreasonably withheld, it being acknowledged by the parties that such deviations may assist in the objective of achieving an innovative and cost-effective Design.

6.10 Inspections

The Concessionaire will be responsible for arranging, scheduling, coordinating and obtaining all inspections and approvals of the Work during and upon completion of the Work as required from the Relevant Authorities with jurisdiction over the Work; and the Concessionaire will pay for any inspections, approvals and certificates of inspection required to be issued by such authorities. RAVCO, at its own expense, will fully cooperate with the Concessionaire in the Concessionaire's efforts to obtain all such approvals and certificates of inspection. The Concessionaire will on request from RAVCO provide RAVCO with copies of all such approvals or certificates of inspection.

6.11 Compliance with Laws

If at any time the Concessionaire discovers that any part of the Work is at variance with any requirements of any Law in any material respect, the Concessionaire will promptly notify RAVCO's Representative, and subject to Section 17 of this Agreement, all necessary changes required to comply with any Law will be made at the sole cost and expense of the Concessionaire.

6.12 Operating Certificate

The Concessionaire acknowledges that the System will be under the regulatory jurisdiction of the *Railway Act* (British Columbia) and the *Railway Safety Act* (British Columbia) and that the System will be classified as a Commuter Urban Passenger Rail Operation for the purposes of such legislation. The Concessionaire will consult with the Registrar of Railways and the BCSA in the Design, Construction, Testing and Commissioning of the System such that all applicable requirements under all applicable Laws are satisfied and the System is ready for Service Commencement by the Service Commencement Deadline. The Concessionaire will obtain any ministerial designations or consents required under the *Railway Act* (British Columbia) and the *Railway Safety Act* (British Columbia) to construct and operate the System.

6.13 RAVCO's Assistance

Without limiting Section 6.8 of this Schedule, RAVCO will at its cost use reasonable efforts to cooperate with and assist the Concessionaire in obtaining all Permits, including those from Relevant Authorities as the Concessionaire may reasonably request with respect to the performance of the Work.

6.14 Professional Services

The Concessionaire will:

- (a) retain registered professionals, including Professional Engineers and architects, registered with their respective professional associations, to assume responsibility for portions of the Design and Construction as required by Law, and will require such registered professionals to sign or seal drawings, reports and other documentation indicating that the appropriate and qualified professional has supervised such Design and Construction; and
- (b) require that those registered professionals who design components of the System certify that those components have in fact been constructed or built in accordance with their designs.

6.15 Additional Responsibility of Concessionaire

Subject to the provisions of this Agreement (including those with respect to Relevant Events), anything not specifically described or specified in this Agreement but nevertheless required to provide the System in accordance with the terms of this Agreement will be deemed included in the Work.

7. PROJECT SCHEDULE AND SCHEDULING

7.1 Service Commencement

The Concessionaire will undertake all Project scheduling so as to achieve Service Commencement by the Service Commencement Deadline.

7.2 Initial Project Schedule

Attached as Appendix 1 to this Schedule is the Concessionaire's preliminary Project schedule.

7.3 Detailed Project Schedule

Within 30 days of the Closing Date, the Concessionaire will deliver to RAVCO's Representative, in both paper copy and in computer readable form in a format compatible with the Primavera Project Planner software, a proposed detailed Project schedule for review and approval by RAVCO's Representative that conforms to the initial Project schedule attached as Appendix 1, and that shows at a minimum the following additional information:

- (a) a detailed breakdown of the Work into details of Design and Construction activities, for each of the Cost Centres and for the Project as a whole, indicating:
 - (1) the sequence of activities, including the schedule for public consultation where required by this Agreement or any Relevant Authority;
 - (2) a breakdown of the Design schedule into the main components of the System including the following:
 - (A) Station design;
 - (B) Vehicle design;
 - (C) E&M Systems design;
 - (D) Civil design including Bridges, track work and Guideways;
 - (E) Tunnel design; and
 - (F) OMC;
 - (3) a breakdown of the Construction schedule into the main components of the System including the following:
 - (A) Stations;
 - (B) Vehicle fabrication and delivery;
 - (C) E&M Systems installation;
 - (D) the Construction of Civil Works including Bridges, track work and Guideways;
 - (E) Construction of the Tunnel; and
 - (F) Construction of the OMC;
 - (4) the early and late start and completion date for each activity;
 - (5) the proposed durations in working days for each activity;
 - (6) free float and total float time for each activity, including reasonable allowances for the occurrence of events which may delay the Work;
 - (7) the dependency of each activity on other activities; and
 - (8) the critical path;
- (b) a breakdown into sub-activities such that the duration of any sub-activity is not more than the amount which, based on the nature of the activity, RAVCO's

Representative reasonably requires to readily monitor the status and progress of such sub-activity and the Work;

- (c) the number of working days and hours, with identification of days when Construction will not proceed, such as statutory holidays and weekends;
- (d) a schedule of Permits detailing when each Permit will be required and when application will be made for each Permit;
- (e) testing and commissioning of all systems and sub-systems required for the System;
- (f) all specified Milestone Dates, including the System Acceptance Date and Service Commencement Date;
- (g) a proposed schedule of submittals for approval by RAVCO's Representative;
- (h) the dates on which the Concessionaire requires access to and use of specified Real Property Interests and temporary access thereto, which access dates will be as indicated on the Right of Way Drawings in Schedule 6 (Proposal Extracts);
- (i) all information otherwise required by this Agreement; and
- (j) all additional information reasonably requested by RAVCO's Representative to enable RAVCO to monitor the progress of the Work.

7.4 Approval of Project Schedule

Within 15 Business Days of RAVCO's receipt of the Concessionaire's proposed detailed Project schedule pursuant to Section 7.3 of this Schedule, RAVCO's Representative will review the schedule and as reasonably necessary, (having regard for the requirements of this Agreement including Section 6.2 of this Schedule) return it to the Concessionaire requesting in writing that the Concessionaire make adjustments to the schedule or provide further detail based on the criteria in Section 7.3 of this Schedule. If RAVCO's Representative does not respond within 15 Business Days, the schedule will be deemed to be approved by RAVCO. If RAVCO's Representative responds and requests adjustments or further details, the Concessionaire will, within 15 Business Days of receipt of request from RAVCO's Representative, incorporate all adjustments acceptable to the Concessionaire and provide the additional details requested by RAVCO's Representative and re-submit the proposed detailed schedule to RAVCO's Representative. The process referred to above in this Section 7.4 will be repeated (except in the event of a re-submittal by the Concessionaire, RAVCO's Representative will have 5 Business Days to respond) until RAVCO's Representative notifies the Concessionaire that no further changes to the schedule are required, or RAVCO's Representative does not respond within the time for response. At that time, the schedule will become the approved schedule (as updated and amended pursuant to this Schedule, the "Approved Project Schedule") for performance of the Work.

7.5 Cost Centre Schedules

In addition to the Approved Project Schedule, if a Cost Centre has specific design requirements with respect to a particular System component, the Concessionaire will provide a separate detailed schedule for the design of that System component within the particular Cost Centre.

7.6 Review and Approval for RAVCO Benefit

Delivery to RAVCO's Representative of a schedule pursuant to Section 7.3 of this Schedule, or updates as required under Section 7.11 of this Schedule, will be for information purposes only and will not constitute compliance with any notice requirements under this Agreement, including any notice of Claim or notice of circumstances giving rise to a Compensation Event, Relief Event, event of Force Majeure, Change or any other Claim under this Agreement, nor will delivery of a schedule be construed as an agreement by RAVCO to any extension of any Milestone Dates.

7.7 Compliance with Approved Project Schedule

The Concessionaire will undertake the Design and Construction of the Project in compliance with the Approved Project Schedule, as may be amended by the Concessionaire in accordance with Section 7.12 of this Schedule, so as to achieve Service Commencement and the other Milestone Dates by the dates indicated on the Approved Project Schedule. The Concessionaire will monitor the progress of the Work relative to the Approved Project Schedule and will promptly advise RAVCO's Representative upon becoming aware of any material delays to the progress of the Work, howsoever caused, as well as the remedial steps the Concessionaire is taking to ensure that the Work progresses according to the Approved Project Schedule.

7.8 Direction to Accelerate Work for Concessionaire Delays

Provided that the Concessionaire is not entitled to an extension of time under this Agreement, if RAVCO reasonably determines, based on a critical path analysis, that the progress of any relevant aspect of the Work is not sufficient to meet the corresponding Milestone Date and that missing such Milestone Date would likely result in failure to meet the Service Commencement Deadline, then at the direction of RAVCO's Representative:

- (a) the Concessionaire will within 10 Business Days of such direction prepare and submit to RAVCO's Representative for review and approval a recovery plan, for such aspect of the Work. The recovery plan may include working overtime or extra shifts or providing additional labour, equipment, materials or other items; and
- (b) within 5 Business Days of such submittal the Concessionaire and RAVCO's Representative will meet to review and, as necessary modify, the recovery plan.

Upon approval of the recovery plan by RAVCO's Representative and the Concessionaire then the Concessionaire will immediately implement the recovery plan. If elements of the recovery plan as submitted by the Concessionaire are not approved by RAVCO's Representative, acting reasonably, then:

- (c) the Concessionaire will immediately implement those elements with which RAVCO's Representative and the Concessionaire agree; and
- (d) RAVCO's Representative may give the Concessionaire written directions to implement other acceleration measures as specified by RAVCO's Representative, without prejudice to the Concessionaire's rights to submit the reasonableness of such directions to the Dispute Resolution Procedure, on the basis that such directions were unnecessary in order to accelerate that aspect of the Work.

Any acceleration measures taken by the Concessionaire at RAVCO's direction under this Section 7.8 will be at the Concessionaire's sole expense unless such measures are found under Section 7.8(d) of this Schedule to have been unnecessary, in which case such measures will be at RAVCO's expense.

7.9 Direction to Accelerate

In accordance with Section 18 of this Agreement, if at any time RAVCO determines that it requires the Work to proceed in advance of the Approved Project Schedule then RAVCO may give written notice to the Concessionaire to provide RAVCO with a written proposal to accelerate the Work, including cost estimates and an estimate of the time saved. If RAVCO accepts said proposal, then the Concessionaire will on written direction from RAVCO's Representative implement the directed acceleration at RAVCO's cost pursuant to the provisions of Section 18 of this Agreement.

7.10 Olympics Interruption Plan

Notwithstanding any other provision of this Agreement, if at any time after May 31, 2009 RAVCO reasonably determines that Service Commencement will not be achieved by January 15, 2010 then, in addition to any other rights of RAVCO under this Agreement, at the direction of RAVCO the Concessionaire will within 30 days of such direction prepare and submit to RAVCO's Representative for review and approval a plan (the "Olympics Interruption Plan") which includes:

- (a) provision for:
 - (1) the interruption of the Work to the degree reasonably necessary to allow all streets and worksites to be returned to normal condition to the extent possible, and in any event to a clean, safe and attractive condition by January 15, 2010;
 - (2) the undertaking of required temporary remedial work at the Work Site,
 - (3) maintenance of the Work Site; and
 - (4) the provision of security and safety for the Work Site;

through until no earlier than March 15, 2010; and

- (b) the amount of Direct Losses which the Concessionaire estimates it will incur in connection with the implementation of the Olympics Interruption Plan, including all costs of labour, materials, maintenance, security, temporary works, equipment, storage, demurrage, debt service and other costs that might reasonably be incurred.

Within 5 Business Days of submittal of the Olympics Interruption Plan to RAVCO, the Concessionaire and RAVCO's Representative will meet to review and, as may be agreed, modify the Olympics Interruption Plan and thereafter, as and when directed by RAVCO's Representative acting reasonably, and without invalidating this Agreement, the Concessionaire will immediately implement the Olympics Interruption Plan. At the completion of the interruption period the Concessionaire will, without delay, resume and complete the Work.

7.11 Project Schedule Updates

The Concessionaire will, as required from time to time until the Service Commencement Date, but no less than once per calendar month, update and deliver to RAVCO's Representative an updated Approved Project Schedule which complies with the requirements of this Agreement, and which includes the following:

- (a) progress of the Work;
- (b) excusable delays, if any, as permitted by this Agreement;
- (c) as the Design progresses, best estimates of the Commencement of Construction; and
- (d) the planned start and completion dates of the major activities of Construction, the Service Commencement Date and the System Acceptance Date.

If the updates to the schedule include changes to any Milestone Date or critical path item then the approval procedure in Section 7.4 of this Schedule will apply to updates to the Approved Project Schedule. The updated schedule will be the Approved Project Schedule under this Agreement:

- (e) if the updates do not include changes to any Milestone Date or critical path item, then upon submission to RAVCO's Representative; or
- (f) if the updates do include changes to any Milestone Date or critical path item, then upon approval by RAVCO's Representative, acting reasonably.

The Approved Project Schedule will at all times be an accurate, reasonable and realistic representation of the Concessionaire's plans for the completion of the Design and Construction of the Project in accordance with the requirements of this Agreement. Any permitted or agreed to adjustment to the Milestone Dates will be included in the updated Approved Project Schedule and Appendices J and K of Schedule 11 (Payments) will be amended accordingly.

7.12 Failure to Provide or Update Project Schedule

If the Concessionaire fails or refuses to provide the schedule as required under Section 7.3 of this Schedule, or to update the Approved Project Schedule as required under Section 7.12 of this Schedule, and if the Concessionaire fails or refuses to provide such schedule or update within 30 days of a written notice from RAVCO, then the failure or refusal to provide the schedule or update within the 30 day period will be deemed to be a material breach of the Concessionaire's obligations to which the provisions of Section 23.1(a) of this Agreement will apply.

7.13 Daily Work Records

The Concessionaire will keep a daily record of the progress of the Work available for inspection by RAVCO's Representative. The daily record will include particulars of weather conditions, numbers of workers and major equipment on the Work Site, deliveries of products and materials, amount and location of materials delivered and all other information requested by RAVCO's Representative acting reasonably.

7.14 Concessionaire's Monthly Reports on Progress

The Concessionaire will prepare and submit to RAVCO, with a copy to the Independent Engineer, no later than 10 Business Days after the last day of each calendar month a written monthly progress report (a "Progress Report"). The form and content of the Progress Report will be agreed upon by RAVCO and the Concessionaire within 30 days after the date of this Agreement or, failing agreement, the Progress Report will be in the form and with content acceptable to RAVCO, acting reasonably. The Progress Report will identify any known variations from the Approved Project Schedule and outline the justification for such variations and the remedial measures that the Concessionaire is taking to ensure that the Work progresses according to the Approved Project Schedule. If for any reason the Concessionaire fails or refuses to deliver a Progress Report as required under this Section then on 20 days written notice from RAVCO to the Concessionaire RAVCO will be entitled to withhold payment of any monies owing to the Concessionaire under this Agreement until such Progress Report is delivered as required. In that event RAVCO will pay the holdback within 5 Business Days of receipt of the Progress Report.

7.15 Meetings

The Concessionaire and RAVCO will meet on or around the 15th day of each month to discuss the Progress Report relating to the previous calendar month. The Independent Engineer will be invited to attend all such meetings. The meetings will be held in Vancouver, unless otherwise agreed by the parties, and each party will bear its own costs of attendance.

8. DESIGN - GENERAL

8.1 Design Cooperation

Without expanding or modifying their obligations as set out in this Agreement or creating new obligations not expressly set forth herein, RAVCO and the Concessionaire each expressly

acknowledge the objective set out in Section 2.2 of this Agreement and agree to use all reasonable commercial efforts to approach their respective responsibilities relating to the Design under this Agreement to achieve that objective.

8.2 Design Based on Proposal Extracts

The Concessionaire will undertake the development and completion of the Design based on the design set out and described in Schedule 6 (Proposal Extracts) as may be adjusted as described under Section 6.1 of this Schedule. The Design will not materially vary from or change the elements of Schedule 6 (Proposal Extracts) without the prior express written approval of RAVCO's Representative in accordance with Section 18 or Section 19 of this Agreement, as the case may be.

8.3 Design Complies with Specifications and Requirements

In addition to the requirements of Section 8.2 of this Schedule, the Concessionaire will carry out the Design of the Project:

- (a) so as to meet and comply with the Design and Construction Specifications;
- (b) so that the System is capable of satisfying the Operation and Maintenance Requirements and Specifications; and
- (c) in accordance with the terms of this Agreement.

The obligations above are independent obligations. In particular:

- (d) the fact that the Concessionaire has satisfied the Design and Construction Specifications will not be a defence to an allegation that the Concessionaire has failed to comply with the Proposal Extracts or other terms of this Agreement; and
- (e) the fact that the Concessionaire has complied with the Proposal Extracts will not be a defence to an allegation that the Concessionaire has not satisfied the Design and Construction Specifications or complied with the terms of this Agreement.

If there are any conflicts or inconsistencies between the Requirements and Specifications on the one hand, and the Proposal Extracts on the other then the former will govern.

8.4 Community Consultation

The Concessionaire will carry out the community consultation relating to the development and finalization of the Design as described in the Proposal Extracts, and prior to completion of each major element of the Design, provide RAVCO with a written report summarizing the community consultation work undertaken, and indicating how the reasonable feedback from all related and relevant community consultation will be taken into account in the Design.

8.5 Consultation with Relevant Authorities

During the Design stage, the Concessionaire will consult with applicable Relevant Authorities and incorporate the reasonable requirements of the Relevant Authorities into the Design, provided the Concessionaire will not be required to incur material additional cost or delay to the Approved Project Schedule. RAVCO reserves the right to reject any designs that do not, in RAVCO's opinion acting reasonably, incorporate the reasonable requirements of the Relevant Authorities.

8.6 Design Compatibility with Regional Transit

The System will form an integral part of the Greater Vancouver Region's public transit system, which operates on a zone fare arrangement that permits free transfer between all modes of transit. The Design must accommodate passenger interface facilities including TVMs, Validators and customer information, that are compatible with those on the existing SkyTrain lines.

9. REVIEW OF DOCUMENTS

9.1 Review by RAVCO

The Concessionaire will make available for review at the request of RAVCO during the Construction Period such documents as RAVCO may reasonably require to review and be satisfied that the Concessionaire is undertaking the Work in general conformance with the requirements of this Agreement.

9.2 Submittal Schedule

Prior to the Commencement of Construction on any particular component of the System, RAVCO's Representative and the Concessionaire's Representative will establish a schedule for submittals that RAVCO is to review as a requirement of this Agreement, or as RAVCO's Representative, and Concessionaire's Representative may agree. The schedule of submittals will comply with any time limits specified in this Agreement and will establish an orderly and progressive schedule for submittals by the Concessionaire and review of such submittals by RAVCO, taking into consideration:

- (a) the Approved Project Schedule;
- (b) the orderly and even flow of submittals requiring review; and
- (c) the reasonable time required by RAVCO's Representative to undertake a review. Except where a review time period is specifically specified or agreed to by the Concessionaire and RAVCO's Representative, RAVCO's Representative will review all submittals and provide a written response within 15 Business Days of receipt, except for a re-submittal, in which case the written response will be within 5 Business Days of receipt.

9.3 Concessionaire's Pre-Review and Consultation

If the Concessionaire is required under this Agreement, or elects, to submit a document for review by RAVCO which has been prepared by a Project Contractor or consultant to the Concessionaire, then prior to submitting the document the Concessionaire will, directly or through an authorized delegate:

- (a) review and authorize the submittal of the document, and
- (b) confirm that, in respect of such document, any consultation, input or approval required under this Agreement, from the City of Richmond, the City of Vancouver, YVR, GVTA or other Relevant Authority has taken place or been obtained;

and include with the submitted document a written notification of such authorization and confirmation.

9.4 No Deemed Approval

Except as may be expressly provided under this Schedule or in this Agreement:

- (a) RAVCO will not be deemed to have approved or accepted responsibility for any document or information submitted to it by the Concessionaire by virtue of RAVCO failing or refusing to comment on the document or information either at all or within the time periods as may be specified in this Agreement or requested by the Concessionaire; but
- (b) in circumstances where such submittal is delivered so as to provide RAVCO with the opportunity to comment or make suggestions then in the event of such failure or refusal RAVCO will be deemed to have waived its right to make comment or suggestion.

9.5 Design Review Procedure

RAVCO's Design review will be governed by the following procedure:

- (a) the Concessionaire will submit the required documents (drawings, specifications or related design documentation) to RAVCO's Representative for review in accordance with Section 9.2 of this Schedule;
- (b) each document submitted to RAVCO's Representative by the Concessionaire will contain sufficient detail and will be accompanied by sufficient information to enable RAVCO's Representative to reasonably assess whether the Design as indicated on the documents complies with the requirements of this Agreement;
- (c) if a revised document is submitted, the Concessionaire will ensure that the revision is clearly identified;

- (d) if RAVCO, acting reasonably, concludes that the Design represented in any document submitted by the Concessionaire in accordance with this Section, or a document that RAVCO has reviewed on its initiative under Section 9.1 of this Schedule, does not meet the requirements of this Agreement, then RAVCO will be entitled to object to such Design within 15 Business Days of receipt thereof by delivering to the Concessionaire a design objection setting out sufficient details of the grounds of objection to enable the Concessionaire to assess the validity of the objection;
- (e) if RAVCO issues a design objection, the Concessionaire will either:
 - (1) re-submit the document to RAVCO's Representative revised to address the design objection; or
 - (2) issue a notice to RAVCO's Representative setting out why, in the reasonable opinion of the Concessionaire, the design does meet the requirements of this Agreement;
- (f) within 5 Business Days of receipt by RAVCO's Representative of a revised document pursuant to Section 9.5(e)(1) of this Schedule, RAVCO will be entitled to issue a design objection if it reasonably considers that the revised document does not meet the requirements of this Agreement;
- (g) within 5 Business Days of the receipt by RAVCO's Representative of a notice referred to in Section 9.5(e)(2) of this Schedule, RAVCO will be entitled to refer the matter to the Dispute Resolution Procedure;
- (h) if RAVCO fails to take one of the relevant steps within the time periods specified in this Section 9.5 then RAVCO will be deemed to have no objection to such design as at the expiration of the relevant time period;
- (i) upon RAVCO being deemed to have no objection to a design, or upon the determination pursuant to the Dispute Resolution Procedure that the design meets the requirements of this Agreement, the Concessionaire will be entitled to carry out the relevant portion of the Work in accordance with the relevant document; and
- (j) any purchase of materials and Equipment, manufacture of Equipment, and Construction which commences:
 - (1) during the period within which RAVCO is entitled to issue a design objection; or
 - (2) during the period within which RAVCO is entitled to refer the matter to the Dispute Resolution Procedure; or
 - (3) while the matter is being determined pursuant to the Dispute Resolution Procedure,

will be at the Concessionaire's sole risk.

9.6 Drawings and Specifications

The Concessionaire will design and prepare all necessary plans, specifications and drawings for the Work, including without limitation all required design drawings, working drawings, shop drawings, vendor drawings and As-Built Drawings and Specifications.

10. ENVIRONMENTAL REQUIREMENTS

10.1 General

Subject to the provisions of this Agreement, the Concessionaire will be responsible:

- (a) subject to Section 10.1(b), for the performance of the Work in compliance with all Environmental Laws and in accordance with the Environmental Management Plan (Construction) and the terms and conditions of the Permits; and
- (b) for the performance of the Owner's Commitments and Assurances set out in Appendix E ("Appendix E") to the Assessment Report dated April 2005 prepared by the British Columbia Environmental Assessment Office ("BCEAO") and in Scott Hanna's letter (the "Additional Commitment Letter") dated May 26, 2005 to Jody Shimkus, Project Assessment Director of the BCEAO (collectively, the "EAC Commitments") other than the following which will be performed as follows:
 - (1) RAVCO will be responsible for all direct reporting to, and liaison with, the BCEAO as required or desirable in connection with the EAC Commitments;
 - (2) RAVCO will be responsible for, and will perform, all of the obligations described in Sections 5 of Appendix E, provided that the Concessionaire will participate and assist RAVCO to the extent provided in the First Nations Consultation Plan contained in Schedule 6 (Proposal Extracts);
 - (3) RAVCO and the Concessionaire will perform the obligations described in Section 11.1 of Appendix E in accordance with the Communications Protocol and the First Nations Consultation Plan contained in Schedule 6 (Proposal Extracts);
 - (4) RAVCO will be responsible for performing all of the obligations described in the Additional Commitment Letter;
 - (5) RAVCO will be responsible for performing the obligations described in Section 7.3 of Appendix E with respect to the design and construction of park and ride and bus exchange facilities to the extent the Concessionaire is not responsible for the design and construction of such facilities under this Agreement;

- (6) RAVCO will be responsible for performing the obligations described in Sections 8.1, 8.3 and 8.4 of Appendix E;
- (7) RAVCO will be responsible for performing the obligations described in Sections 9.3 and 10.3 of Appendix E with respect to the requirements of the City of Richmond to the extent the Concessionaire is not responsible for restoration and landscaping work under this Agreement; and
- (8) with respect to the obligations described in Section 12.2 of Appendix E, the Concessionaire will be responsible for performing such obligations to the extent required in Schedule 2 (Design and Construction Requirements);
- (9) with respect to the obligations described in Sections 15.2 and 15.4 of Appendix E, the Concessionaire will be responsible for performing such obligations to the extent required in Schedule 2 (Design and Construction Requirements) and Schedule 3 (Design and Construction Specifications);
- (10) with respect to the obligations described in Section 15.3 of Appendix E, the Concessionaire will be responsible for performing such obligations to the extent required in Sections 9.11 and 14.11 of Schedule 3 (Design and Construction Specifications);
- (11) with respect to the requirements described in Section 24 of Appendix E, as between:
 - (A) RAVCO and the Concessionaire, RAVCO will be responsible for complying with such requirements; and
 - (B) the Concessionaire and any Subcontractor, the Concessionaire will be responsible for complying with such requirements; and
- (12) each of RAVCO and the Concessionaire will provide to the other party in a timely manner all information regarding the Project in the control of such party (and, in the case of the Concessionaire, any Subcontractor) that is reasonably required by the other party to fulfil its obligations in respect of the EAC Commitments.

10.2 Permits

- (a) RAVCO will be responsible for acquiring the EA Approval and will provide a copy to the Concessionaire in accordance with Schedule 1 (Completion Documents).
- (b) The Concessionaire will be responsible for acquiring all environmental Permits necessary for the Work, except for the EA Approval, including the following Permits:
 - (1) MWLAP, Section 9 Water Act (British Columbia) approval;

- (2) *Fisheries Act Section 35(2) authorization;*
- (3) *Navigable Waters Protection Act approval;*
- (4) City Permits and approvals;
- (5) *Heritage Conservation Act (British Columbia) approvals;*
- (6) Environment Canada ocean disposal approval (if required); and
- (7) all other Permits issued by the Relevant Authorities, other than Part 1 of the Heritage Alteration Permit issued under City of Vancouver Bylaw #4837 which will be obtained by RAVCO.

- (c) The Concessionaire will be responsible for preparing and providing to the Relevant Authorities, in a timeframe sufficient to allow for their review and approval in advance of the Commencement of Construction, such design plans and construction methods as are required to support the acquisition of Permits by the Concessionaire within the requirements of the Approved Project Schedule.
- (d) The Concessionaire will provide to RAVCO's Representative, at its request, a full and complete copy of all Permits and Permit applications and will keep RAVCO informed concerning the status of its Permit applications.
- (e) The Concessionaire will be responsible for providing and maintaining in good standing all financial security, bonds, letters of credit and other financial instruments, if any, that may be required by any Relevant Authority in connection with the issuance of the Permits other than the EA Approval.
- (f) Except as otherwise provided in this Agreement, the Concessionaire will be solely responsible for obtaining any required changes or amendments to the Permits, and except where such changes are required or caused by RAVCO (including any changes or amendments to the EA Approval required as a result of the implementation of Change Nos. YVR#1, YVR#2 and YVR#5 each as described in the Agreement on Approved Changes dated March 29, 2005 between the Concessionaire and RAVCO), the Concessionaire will be responsible for all costs and delays as a result of any required changes or amendments.

10.3 Environmental Management Plan (Construction)

- (a) Prior to commencement of the Work, the Concessionaire will complete the Environmental Management Plan (Construction) as set out in Schedule 6 (Proposal Extracts), including all ancillary plans, in sufficient detail to be able to be implemented and will provide the Environmental Management Plan (Construction) to RAVCO's Representative for review. The Environmental Management Plan (Construction) will include a description of how the Concessionaire will comply with RAVCO's commitments under the EA Approval,

including a work plan and timetable and will include, but may not be limited to, the following plans:

- (1) environmental quality assurance and quality control plan;
- (2) air quality and dust control;
- (3) noise management;
- (4) stormwater drainage and sediment control;
- (5) landscape vegetation and restoration;
- (6) habitat compensation/mitigation;
- (7) imported soil sampling;
- (8) excavated soil sampling;
- (9) spoils disposal;
- (10) solid waste management and recycling;
- (11) hazardous materials management;
- (12) spill prevention and emergency response;
- (13) training and orientation;
- (14) archaeology management; and
- (15) construction environmental management program.

(b) The Concessionaire will refer to and incorporate the requirements of the RAVCO report entitled: "Reference Document Environmental Requirements 18 September 2003" attached as Appendix 2 to this Schedule in the preparation of the Environmental Management Plan (Construction).

(c) The Concessionaire will be required to develop a habitat mitigation and compensation plan in accordance with the requirements of a Section 35(2) authorization under the *Fisheries Act* and Section 9 approval under the *Water Act*.

(d) The Concessionaire will submit all plans to RAVCO's Representative for review. Review comments as directed by the RAVCO Representative, having regard for the requirements of the EA Approval, will be incorporated into the plans and such plans will, as required, be submitted to the applicable Relevant Authority.

(e) The Concessionaire will develop additional plans as may be required from time to time to meet requirements of the Relevant Authorities.

(f) The Concessionaire will not commence any part of the Construction until the Environmental Management Plan (Construction) pertaining to such part is complete and has been reviewed by RAVCO.

10.4 RAVCO's Right to Audit

- (a) The Concessionaire will provide RAVCO's Representative with regular status reports on the Concessionaire's progress in complying with the Environmental Management Plan (Construction).
- (b) RAVCO may audit the status reports and make recommendations to the Concessionaire for improvements. The Concessionaire will make all reasonable efforts to comply with RAVCO's reasonable recommendations.
- (c) The Concessionaire will provide all monitoring and compliance reports required by Relevant Authorities to RAVCO's Representative.

10.5 Environmental Event

- (a) If an activity or event arising out of the performance of the Work occurs which contravenes the Environmental Requirements or Environmental Laws or Permits, (an "Environmental Event"), the Concessionaire's Representative will immediately notify RAVCO's Representative and the appropriate Relevant Authorities and will take all reasonable courses of action, including issuing a stop work order directing the immediate suspension of all or a portion of the activities that are likely to cause such damage or degradation. Except in respect of Undisclosed Environmental Liabilities the Concessionaire will undertake remedial measures necessary to restore the Environmental Resources, and the costs and schedule delays as a result of any work stoppages, and remedial works if necessary, will be the responsibility of the Concessionaire.
- (b) If the Environmental Event is in respect of Undisclosed Environmental Liabilities, the provisions of the Agreement will apply, including those set out in Section 14 of this Agreement.
- (c) If an Environmental Event occurs, and if the Concessionaire does not comply with the requirements of Section 10.5(a) of this Schedule, then RAVCO's Representative may issue a stop work order directing the immediate suspension of all or a portion of any Concessionaire activities that are in material contravention of the Environmental Requirements or the Environmental Laws, and may undertake or order remedial measures to be conducted necessary to restore the Environmental Resources. Except for costs in respect of matters for which RAVCO is responsible under this Agreement, the Concessionaire will be responsible for the costs of any remedial works undertaken in responding to such Environmental Event.
- (d) The Concessionaire will notify RAVCO's Representative in writing, immediately upon its discovery of the existence of any Hazardous Substances within or

immediately adjacent to construction activities and Work Sites. The Concessionaire will take all necessary precautions against environmental damage, or damage to persons and property as a result of environmental incidents or hazards until such incidents or hazards have been corrected.

11. ARCHAEOLOGICAL REQUIREMENTS

11.1 *Heritage Conservation Act*

The Concessionaire will comply with the British Columbia *Heritage Conservation Act*. The Concessionaire is prohibited from removing archaeological or historic artifacts or materials from the Work Site.

11.2 Archaeological Requirements

(a) Pre-Construction Planning

- (1) The Concessionaire will identify archaeologically sensitive locations relevant to the Project before the Commencement of Construction.
- (2) The Concessionaire will hire a qualified Archaeological Consultant who will advise the Concessionaire and the Project Contractors and Sub-Contractors concerning protection of archaeologically sensitive locations. Notwithstanding the references to the responsibilities of the Archaeological Consultant discussed in this Schedule, the Concessionaire will remain responsible for ensuring compliance with this Agreement and all Laws. The Concessionaire will provide the Archaeological Consultant with the preliminary archaeological impact assessment and with maps, plans, and schedules for all route clearing and grubbing work. These documents are to be made available to the Archaeological Consultant as early as possible and prior to the Commencement of Construction. The Archaeological Consultant will then schedule and undertake site inspections as necessary.

(b) Archaeological Assessment and Archaeological Monitoring

- (1) Archaeologically sensitive locations will be inspected and monitored by the Concessionaire and the Archaeological Consultant while the Concessionaire is performing the Work. If the Concessionaire, its agents or staff, Project Contractors or Sub-Contractors encounter actual or suspected archaeological remains, the Concessionaire will immediately cease work in that location and notify the Archaeological Consultant. The Archaeological Consultant will assess such archaeological remains and identify appropriate protection procedures.
- (2) If at any time the Archaeological Consultant determines that genuine archaeological remains are present, the Archaeological Consultant will notify RAVCO's Representative and the Concessionaire immediately and

appropriate management requirements will be determined. The Concessionaire will immediately cease work in a particular location upon instruction from the Archaeological Consultant until the Archaeological Consultant advises the Concessionaire that work may resume in such location.

- (3) The Concessionaire will require supervisory personnel, employees, agents, Project Contractors and Sub-Contractors to be aware that archaeological remains may be encountered, and that in such event, work in a specific location suspected to contain such remains will immediately cease, and that the Archaeological Consultant is to be notified.
- (4) The Concessionaire will instruct supervisory personnel, employees, agents, Project Contractors and Sub-Contractors not to collect archaeological remains, including artifacts of traditional (First Nations) or industrial (Euro-Canadian) manufacture, and that the Archaeological Consultant must be immediately notified of any such finds. The Concessionaire will accurately record the original location of any archaeological finds. In addition, locations of actual or suspected archaeological finds will be secured against trespass by unauthorized persons until such time as they have been inspected by the Archaeological Consultant.

(c) Impact Management Requirements

- (1) Upon identification of suspected archaeological remains, the affected location must not be disturbed until it has been inspected by the Archaeological Consultant. In the event that genuine archaeological remains are encountered, the procedures to be adopted are described below.
- (2) The Archaeological Consultant will work with, and immediately inform, RAVCO's Representative and the Concessionaire's Representative and the Relevant Authorities if and when archaeological resources are located.
- (3) Human remains must be accorded full dignity and respect. The Concessionaire will use reasonable commercial efforts not to disturb First Nations burial places. However, it may not always be feasible to protect a burial site from construction activities. As required, the Archaeological Consultant will devise a recovery protocol, which meets with the approval of the appropriate First Nations communities.
- (4) The following requirements must be followed if archaeological deposits, historical artifacts or human remains are found by the Concessionaire:
 - (A) immediately cease work in the affected location, subject to reasonable safety considerations;

- (B) if the affected location is busy or has high public visibility, assign an employee to:
 - (i) stake or flag off the affected location to prevent additional disturbance; and
 - (ii) in case of human remains:
 - a. cover any exposed bones with plastic sheeting, a garbage bin liner, blanket, or other clean covering (not back fill); and
 - b. stand watch until the Archaeological Consultant arrives;
- (C) whenever possible, leave the artifact on the ground where it was found; and
- (D) if excavated fill has been loaded into a truck, it must be emptied at a nearby secure location for inspection by the Archaeological Consultant.

(d) If archaeological or human remains are discovered, the provisions of this Agreement will apply, including those set out in Section 14 of this Agreement.

12. CONSTRUCTION

12.1 Construction of the Project

The Concessionaire will construct the Project and perform all the Work in conformity with:

- (a) the Approved Project Schedule, as may be updated from time to time;
- (b) the drawings, specifications and other design documentation prepared as required by this Schedule and this Agreement;
- (c) the drawings, specifications or other submittals, if any, reviewed by RAVCO's Representative under the terms of this Schedule;
- (d) the Design and Construction Specifications; and
- (e) the Proposal Extracts,

as may be modified and amended from time to time in accordance with the terms of this Agreement, and this obligation will be in addition to all other obligations of the Concessionaire under this Agreement.

12.2 Condition of Work Site

The Concessionaire will maintain all Work Sites in a reasonably tidy condition and free from the accumulation of waste, debris and waste products.

12.3 Construction Safety

The Concessionaire will be solely responsible for safety at the Work Site, including the safety of all persons on the Work Site (whether on the Work Site lawfully or not) and members of the public, and will comply with the requirements of applicable Laws, applicable construction safety legislation, regulations and codes and good construction practice.

12.4 Protection of Property and the Public

In undertaking the Construction, the Concessionaire will perform the Work in a manner so as not to damage adjacent property, Adjacent Structures and the property of third parties, and so as not to injure the public. Subject to the provisions of this Agreement, the Concessionaire will make good any such damage which arises as the result of Construction. The Concessionaire will, as part of the Work, provide all necessary safety devices and supervision at the Work Site so as to protect against damage to property or injury to the public as a result of the performance of the Work.

12.5 Location of Utilities

Before commencing Construction in areas in which utilities are located, the Concessionaire will pre-locate all utilities and structures that may be interfered with by Construction, and consult with all Public Utilities and all Regulated and Other Utilities to pre-locate any utilities of which they have records. The Concessionaire will also pre-locate any other utilities or structures that are reasonably apparent from an inspection of the Real Property Interests. The Concessionaire will make good or pay the costs to repair any utility or structure that the Concessionaire damages during Construction.

12.6 Temporary Works

The Concessionaire will have the sole responsibility for the design, erection, operation, maintenance and removal of temporary structures and other temporary facilities and the design and execution of construction methods required in their use.

12.7 Skilled Workers

The Concessionaire will employ or procure the employment of sufficient and sufficiently skilled workers to perform the Work in compliance with the Approved Project Schedule and this Agreement.

12.8 Project Meetings

At RAVCO's request, the Concessionaire will attend meetings to update RAVCO on the progress of Construction and to discuss any issues that have arisen. RAVCO may keep minutes of the meetings and circulate such minutes to Concessionaire. The timing and regularity of such meetings will be determined by RAVCO, acting reasonably.

12.9 Minutes Do Not Constitute Notice

A note or record in circulated minutes will not be accepted as notice as may be required to be given under this Agreement. Any notice required will be delivered in a separate written document in accordance with this Agreement.

12.10 Traffic Management Requirements

The Concessionaire will manage the traffic impacts of the Project and will develop traffic management plans and work to meet the following:

(a) Traffic Management Strategy

An acceptable traffic management strategy and traffic management plan will be agreed with the Cities, in respect of the Construction of the Mainline, and YVR, in respect of Construction of the Airport Connector, at least 20 Business Days before the start of any major part of the Construction.

(b) General Requirements

- (1) The traffic management strategy will be consistent with a Category 5 Traffic Management Plan as set out by the Ministry of Transportation's *Traffic Management Guidelines Manual* and be to the satisfaction of the Relevant Authority. The requirements set out for the Ministry of Transportation will be deemed identical to the Relevant Authority unless otherwise indicated. Additional requirement may be set by the Relevant Authority based on local requirements and practice.
- (2) The Concessionaire will work closely with GVTA, Bus Service Provider, other GVTA service contractors and the Relevant Authorities so that, to the extent reasonably practicable, transit service is maintained during the performance of the Construction in terms of travel time and frequency.
- (3) If road capacity will be significantly reduced, the Concessionaire will undertake a traffic management study to determine the impact of the Construction on other routes and to determine appropriate mitigation measures. The traffic management study will involve area wide traffic modeling to determine impacts to all modes of transportation including adjacent corridors impacted by the Construction. The Concessionaire will be responsible for all costs incurred as a result of any reasonable mitigation measures required.
- (4) The traffic management strategy will include requirements for preserving bicycle routes, access to business and reasonable pedestrian access through the Work Site.

- (5) The traffic management strategy will address the impact on residential streets of any diverted traffic through both temporary and permanent appropriate traffic calming measures.
- (6) All traffic plans will be sealed and monitored by a Professional Engineer, with a minimum of five years of relevant construction-related traffic engineering experience in urban areas.
- (7) The Concessionaire will cooperate with City and YVR staff with respect to the development of the traffic management strategy.
- (8) If the Concessionaire fails to meet the requirements of this Section or the requirements of a Relevant Authority for construction safety to provide a safe Work Site for both workers and the public, either RAVCO or the Relevant Authority, may order Work to stop and any impediments to safety and the public to be removed immediately. Work may only resume when RAVCO and the Relevant Authority are satisfied that the situation has been rectified and is safe for workers and the public.
- (9) The Concessionaire will coordinate all Work with that of any other contractors and City or YVR staff who are working in the vicinity of the Project and on routes impacted by the Project.

(c) Traffic Management Plan

- (1) The traffic management plan will include a traffic control plan, public information plan, incident management plan and implementation plan.
- (2) The traffic management plan will consider all impacts relating to the Construction both direct and indirect.
- (3) Construction will be scheduled so that the duration and extent of the proposed work and traffic control measures minimize the impact on the traveling public, and will not prohibit any part of the traveling public prior to receiving the required authorization to do so.
- (4) The Concessionaire is responsible for all parking issues related to the Design and Construction which will be in accordance with existing City or YVR parking regulations unless prior approved permits or exemptions are obtained.
- (5) The Concessionaire will be responsible for ensuring that all roadways utilized for haul routes are kept clean and free of construction dust and debris.

(d) Traffic Control Plan

- (1) Detailed traffic control plans complete with traffic control layout drawings and fully integrated with the Approved Project Schedule, will be prepared outlining the provision of all forms of traffic control required throughout the duration of the Project. The plans will be approved by the Relevant Authority.
- (2) For each stage of the Work that affects traffic, the Concessionaire will prepare drawings that address stage-specific activities and requirements.
- (3) Any lane closure must be approved in writing by the Relevant Authority. The Concessionaire will not work without a current approved traffic control plan.
- (4) In addition other requirements under this Agreement, the Concessionaire will indicate bicycle, pedestrian and business access requirements. The custom traffic control scale drawings will also follow symbol conventions for identifying control devices as per the Ministry of Transportation's *Traffic Control Manual for Work on Roadways*.
- (5) The traffic control plan will provide a detailed drawing of the designated truck access and egress points, the applicable routes through the Cities and the Airport, and applicable staging areas.
- (6) Longer term traffic control measures will be to a higher standard similar to a permanent measure at the discretion of the Relevant Authorities.
- (7) All vehicles will be used in the Work travelling to and from the Work Site are in compliance with relevant laws including, but not limited to, designated truck routes, load limits, load securement, engine brake use and special permitting for oversize or overweight vehicles.
- (8) The Concessionaire will be responsible for providing, installing and maintaining all traffic control and protective devices as outlined in the Ministry of Transportation's *Traffic Control Manual for Work on Roadways*.

(e) Public Information Plan

- (1) The Concessionaire will consult with the Cities and YVR to identify the major user groups affected by the Project. Major user groups may include, but are not limited to, the following:
 - (A) emergency services;
 - (B) transit operating companies;
 - (C) motorists;
 - (D) cyclists;

- (E) pedestrians;
- (F) transport and tour bus companies;
- (G) Ministry of Transportation;
- (H) GVTA;
- (I) property owners and businesses; and
- (J) special events.

(2) The Concessionaire will develop a process to keep major user groups informed of planned traffic pattern changes, including, but not limited to, the following: hauling and truck routes, detours, lane shifts, lane closures, sidewalk closures, access restrictions, schedule changes, and other traffic control procedures. Procedures for disseminating information related to unplanned traffic pattern changes (e.g. due to incidents such as emergency repairs, motor vehicle accidents) will be addressed in the incident management plan. The Concessionaire will ensure that this process is acceptable to the Relevant Authority.

(3) The Concessionaire will conform to the requirements of the Cities and YVR for all warning signs required for the Project. The Concessionaire will supply both Construction warning (4' x 8', 4' x 6' and 3' x 5') and job site identification (3' x 5') signage to be installed by the Concessionaire within the Work Site and by the Cities and YVR outside of the Work Site. All costs of supply, installation, maintenance and removal will be the responsibility of the Concessionaire.

(4) The Concessionaire identification sign will display the Concessionaire's name, brief description and a telephone number that directly connects any caller to the Concessionaire's personnel who are familiar with and are currently active on the Project.

(5) All public inquiries or complaints that the Concessionaire receives are to be handled immediately in the field or forwarded to a communications representative 24-hours a day, seven days a week.

(f) Incident Management Plan

The Concessionaire will organize and implement an incident management plan. The primary objectives of an incident management plan are to facilitate incident response and move traffic safely and expeditiously around the incident. The plan will specify how the Concessionaire will provide access for emergency vehicles and assistance to emergency personnel. An incident includes, but is not limited to, motor vehicle accidents, emergency road repairs, disabled vehicles, and

debris on the road. The Concessionaire's response to an emergency will, by necessity, make use of the Concessionaire's available devices and equipment.

(g) **Implementation Plan**

The Concessionaire will submit an implementation plan that outlines the procedures which ensures that the traffic control plan, public information plan, and incident management plan are developed and implemented efficiently and appropriately.

12.11 Construction Documents and Project Records

The Concessionaire will at all times keep and maintain one current copy, in both hard copy and electronic format, a complete set of all documents relating to the Construction at the Work Site, in good order and available for review by RAVCO's Representative including:

- (a) all revised and supplementary drawings;
- (b) specifications approved under this Agreement;
- (c) As-Built Drawings and Specifications;
- (d) inspection reports and tests results of all inspections and tests which were undertaken as part of the Construction;
- (e) utility plans for the Project and the Work Site;
- (f) copies of all Permits for the Construction and occupation of the Project;
- (g) signed quality control and assurance reports for the Construction;
- (h) traffic management plans; and
- (i) Environmental Management Plan (Construction).

12.12 As-Built Drawings and Specifications

The Concessionaire will:

- (a) throughout the Construction update the drawings and specifications (with respect to the drawings, such update will be in "CAD" or other electronic form reasonably acceptable to RAVCO's Representative), including approved shop drawings, so as to produce accurate as-built records ("**As-Built Drawings and Specifications**") for the Project;
- (b) as requested from time to time during the Construction, make available such As-Built Drawings and Specifications to RAVCO's Representative for review to permit RAVCO's Representative to monitor the Concessionaire's compliance with the requirements of this Agreement. The Concessionaire's Representative

will include the results of such review in the monthly Progress Report under Section 7.13 of this Schedule;

- (c) as a condition of System Acceptance deliver to RAVCO's Representative a copy of the completed As-Built Drawings and Specifications in both hard copy and electronic format; and
- (d) maintain up to date As-Built Drawings and Specifications throughout the Operating Period which reflect any changes that are made to the System in accordance with this Agreement. The Concessionaire will provide RAVCO with a copy of all updated As-Built Drawings and Specifications in both hard copy and electronic format such that at all times during the Operating Period, RAVCO has the most recent version of the As-Built Drawings and Specifications.

If at any time RAVCO's Representative determines that Construction is proceeding without adequate retention of as-built records and the Concessionaire does not accept such determination and amend its procedures within 5 Business Days of receipt of notice from RAVCO's Representative, the matter will be referred to the Dispute Resolution Procedure. In such event RAVCO may retain a separate consultant to retain such information and if the Dispute is settled in favour of RAVCO, the costs of such separate consultant will be borne by the Concessionaire.

12.13 Construction Documentation

The Concessionaire will maintain and compile all documentation regarding the Equipment supplies and materials used in the Construction of and comprising the System as reasonably required to operate and maintain the System, including all user manuals, maintenance manuals, supplier and manufacturer's specifications and documentation and warranties.

13. SUBSURFACE CONDITIONS

13.1 Geotechnical Risk

The Concessionaire assumes all the risk related to unanticipated geotechnical conditions encountered during Design and Construction.

14. UTILITIES

14.1 Cost and Schedule Risk

Subject to the terms of this Agreement, the Concessionaire will assume all risks and costs associated with or arising from the relocation and protection of Public Utilities and Regulated and Other Utilities.

14.2 Utility Relocation Costs

For the purposes of Section 14.3(b), and subject to Section 14.4, the Concessionaire shall record all costs associated with the relocation, temporary support and protection of Public Utilities and Regulated and Other Utilities including related design and construction costs (collectively "Utility Relocation Costs") as follows:

- (a) direct Utility Relocation Costs incurred by the Concessionaire (which for greater certainty includes indirect costs and profit charged by third parties but excludes Concessionaire or Project Contractor mark-up for overhead or profit on the invoices submitted by third parties or Sub-Contractors or the owners of the Public Utilities or Regulated and Other Utilities engaged by the Project Contractor to perform the relocation Work);
- (b) indirect costs incurred by the Concessionaire associated with the relocation of Public Utilities and Regulated and Other Utilities, including liaison with utility owners and authorities, scheduling, providing access and project management, will not be part of the Utility Relocation Costs;
- (c) subject to Section 14.3(a), the quantum of direct Utility Relocation Costs will be calculated as the sum of invoices in respect of Utility Relocation Costs from any Sub-Contractors and the owners of the Public Utilities or Regulated and Other Utilities engaged to perform the relocation Work plus, for relocation Work carried out by the Concessionaire or Project Contractor using its own forces rather than through Subcontracts, the direct costs incurred by the Project Contractor as defined in Section 18.8(e)(1) - (5) of this Agreement with mark-up as defined in Section 18.8(g)(2) of this agreement. For clarity no other provisions of Section 18.8 of this Agreement will apply, except in the event of RAVCO Changes that affect utility Works;
- (d) each monthly Progress Report shall include a statement of Utility Relocation Costs incurred in the previous month, identification of the Public Utilities and Regulated and Other Utilities works in progress or planned, and an estimate of the overall Utility Relocation Costs.

14.3 Utility Relocation Costs Target Price

- (a) The Concessionaire will take all commercially reasonable steps and efforts to minimize the Utility Relocation Costs, including the multiple use and sharing of excavations and the use of temporary supports. As soon as practicable as Work proceeds the Concessionaire will deliver to RAVCO written notice and description of required Public Utilities and Regulated and Other Utilities relocations, in sufficient design and procurement detail to permit RAVCO to make an independent assessment of the proposed relocation costs. If RAVCO provides evidence to the Concessionaire of a more economical and reasonable alternative relocation solution that will not have any impact on the Approved Project Schedule, the Concessionaire will make all efforts to implement such

solution at no additional cost to RAVCO. If the Concessionaire does not implement such an alternative relocation solution that is proven to be reasonable, more economical and to have no impact on the Approved Project Schedule, the more economical Utility Relocation Cost as reasonably estimated by RAVCO will, and the difference between such reasonable estimate and the actual relocation cost will not, form part of the Utility Relocation Costs calculated for the purposes of Section 14.3, subject to the Concessionaire's right to dispute such alternative solution and RAVCO's estimate pursuant to the Dispute Resolution:

5.17(1)(c)

(b) The parties have agreed upon a target price for all Utility Relocation Costs, and to share equally in any excess or savings that occur in respect of that target price. The Concessionaire will pay the actual costs of such Work (but excluding relocation of trolley bus wires, which will be relocated by others at no cost to the Concessionaire). If the aggregate of all Utility Relocation Costs exceeds *s.17(1)(e)* then RAVCO will, in addition to other payments owing under this Agreement pay the Concessionaire one half the excess amount. If the aggregate of all Utility Relocation Costs calculated as of Service Commencement is less than *s.17(1)(e)* then the Concessionaire will pay to RAVCO one half of the savings. Such payment from the Concessionaire in respect of any savings, will become due in the month following Service Commencement.

14.4 Excluded Utility Works

The following shall not be considered in calculating Utility Relocation Costs under Section 14.3:

(a) Costs incurred in relation to Public Utilities and Regulated and Other Utilities, including traffic signalling, street lighting and any road drainage works, which are to be performed pursuant to the "roadworks scope split" agreements between RAVCO and each of the Cities as described in:

- (1) Drawings 865704 CONF-41DK-1501 rev 0 to 1511 rev 0 inclusive, and
- (2) Drawings 1521 rev 0 to 1524 rev 0 inclusive

as included in Schedule 6 (Proposal Extracts) . All such costs will be allocated in accordance with the apportionment described on Drawing 865704 CONF-41DK-1501 rev 0 to either the applicable City or to the Concessionaire, and will not form part of the Utility Relocation Costs. For the avoidance of doubt, RAVCO will pursuant to Section 15.1 of Schedule 3 cause others to perform at no cost to the Concessionaire work indicated as "WORK BY OTHERS" on Drawing 865704 CONF-41DK-1501 rev 0, and such work does not form part of the Work.

(b) RAVCO will arrange for others to relocate trolley bus wires, and such work does not form part of the Work and the costs thereof will not be paid by the Contractor and will not form part of the Utility Relocation Costs.

15. TESTING AND COMMISSIONING

The Concessionaire will perform all testing and commissioning activities that are required to achieve System Acceptance and which are described in Section 18 of Schedule 3, the Design and Construction Specifications.

16. DEFECTS AND DEFICIENCIES

16.1 Defects

If at any time during Construction prior to Service Commencement, RAVCO's Representative determines that there are Defects or that the Concessionaire has failed to comply with requirements of this Agreement, then RAVCO's Representative may give written directions to the Concessionaire to remedy the Defect. If the Concessionaire disagrees with such written directions, it will comply with the direction without prejudice to its right to have the matter settled in accordance with the Dispute Resolution Procedure.

16.2 Preliminary Deficiency List

No later than 90 days prior to RAVCO's Representative's estimate of the actual Service Commencement Date RAVCO's Representative will prepare and deliver to the Concessionaire a list of the Defects that the Concessionaire must remedy to achieve System Acceptance (the "Deficiency List"). RAVCO's Representative will thereafter update this preliminary Deficiency List by deleting Defects that are corrected by the Concessionaire and by adding Defects that are newly noted. RAVCO's Representative will deliver an updated Deficiency List to the Concessionaire at the beginning of each calendar month until Service Commencement is achieved. RAVCO's Representative will distinguish between Defects that in the opinion of RAVCO's Representative will be required to be corrected as a condition of achieving Service Commencement, and those Defects that will not affect the achievement of Service Commencement.

16.3 Final Deficiency List

The final Deficiency List will list all the Defects identified and remaining as of the Service Commencement Date. RAVCO's Representative will prepare and deliver a final Deficiency List to the Concessionaire within 5 Business Days following the Service Commencement Date. RAVCO may hold back from payments owing to the Concessionaire, or the Concessionaire will pay to RAVCO as the case may be, an amount as described in Section 6.5 of Appendix I to Schedule 11 on account of such deficiencies.

16.4 System Acceptance

Upon correction of all the Defects listed on the final Deficiency List:

- (a) the RAVCO Representative will issue a certificate of System Acceptance, and
- (b) RAVCO will pay any surplus holdback funds to the Concessionaire. If there is a shortfall in the holdback funds to cover the cost of the Work the Concessionaire

will forthwith pay to RAVCO the amount of such shortfall. If the Concessionaire disagrees with RAVCO's determination, the matter will be settled in accordance with the Dispute Resolution Procedure. RAVCO will refund any amounts that are determined to have been wrongly withheld from Concessionaire and compensate Concessionaire for any detrimental effects of Work done by others.

The issuance of the certificate of System Acceptance will not be interpreted to indicate RAVCO's acceptance of any Defect, whether identified before or after the Service Commencement Date or the System Acceptance Date, and will not be interpreted as a waiver by RAVCO of any of its rights under this Agreement, including with respect to Operation and Maintenance, Correction or Repair.

17. BUILDERS LIEN ACT

17.1 Payment Certifier

RAVCO will not have any responsibility to be the payment certifier under any contract related to Construction, and the Concessionaire will, to the extent permitted by law, undertake all responsibilities that RAVCO may have with respect to such duties.

17.2 Builders Lien Holdback

RAVCO will not retain any holdback pursuant to the *Builders Lien Act* with respect to the Construction of the System, and the Concessionaire will indemnify RAVCO from any damages, costs, claims and expenses of any kind, including actual solicitors' costs, arising from the failure of RAVCO to retain a builders lien holdback.

17.3 Builders Liens

If at any time a builders lien is filed against any lands with respect to the Construction then the Concessionaire will forthwith take steps as required to discharge the lien; and if the Concessionaire fails or refuses to obtain the discharge of a filed lien then RAVCO may, at its election, upon 20 Business Days written notice to the Concessionaire, take all reasonable steps to obtain the discharge, including paying the amount of the lien into court, and in such event all of the costs reasonably incurred by RAVCO are due and payable forthwith by the Concessionaire. If the Concessionaire fails to pay such costs then RAVCO may set off the amount of such costs plus interest at the Default Interest Rate against any amounts owing by RAVCO to the Concessionaire.

17.4 Applicable Laws

Provided the Concessionaire complies with the provisions of Section 18 of this Schedule, any representation and warranty given, or any covenant made, in this Agreement, or in any certificate or ancillary agreement delivered to RAVCO in connection herewith, by the Concessionaire with respect to the Concessionaire or the Project being in compliance with applicable Laws will be deemed to exclude compliance with the provisions of the *Builders Lien Act*.

18. WORKERS COMPENSATION

18.1 Evidence of WCB Compliance

The Concessionaire will provide evidence, satisfactory to RAVCO's Representative, of compliance by the Concessionaire and all Project Contractors with the requirements of the *Workers Compensation Act*, as amended, and all regulations and successor legislation thereto, including payments due thereunder at the following times:

- (a) prior to commencing any Construction;
- (b) as a condition of achieving System Acceptance; and
- (c) at any time during Construction, upon request of RAVCO's Representative acting reasonably.

18.2 Indemnity for WCB Non-Compliance

If the Concessionaire or anyone employed by or through the Concessionaire in the performance of any Construction does not comply with the requirements of the *Workers Compensation Act*, as amended, and all regulations and successor legislation thereto, including payment and deduction and remittance of any and all contributions, fees, assessments and charges required to be made pursuant to the above, the Concessionaire will indemnify RAVCO from any cost, loss, liability or obligation which RAVCO may incur as a result.

18.3 Principal Contractor

For the purposes of applicable legislation and regulations, the Concessionaire agrees to be, or will cause the EPC Contractor to be, as of the date of commencement of any Construction of the System, the principal contractor as defined in the *Workers Compensation Act* and accordingly will comply, or will cause to be complied, with all resulting requirements and obligations including:

- (a) ensuring continuing coordination of the occupational health and safety activities of all employers on the site of the Construction, including RAVCO, RAVCO's Representative, any other contractors and everyone engaged by or through any of them;
- (b) delivering any notices of the Project as required by applicable regulations; and
- (c) complying with the obligations of a principal contractor for a multi-employer workplace as prescribed by the applicable regulations.

If for any reason the Workers Compensation Board of British Columbia refuses to recognize the Concessionaire or EPC Contractor as the principal contractor then, to the extent permitted by law, the Concessionaire will cooperate with RAVCO and perform on behalf of RAVCO the obligations which RAVCO is required to undertake as principal contractor or as owner of a workplace in connection with the Construction by virtue of the *Workers Compensation Act* and Regulations, or other statutes.

18.4 Failure to Comply with WCB Requirements

If at any time the Construction is stopped because the Concessionaire, or any contractor or person providing services or work on the Project, unreasonably fails or refuses to comply with an order issued pursuant to the *Workers Compensation Act*, then such failure or refusal will be considered a material breach to which the provision of Section 23.1 of this Agreement will apply.

19. QUALITY CONTROL

19.1 Quality of the Work

The Concessionaire is solely responsible for the quality of the Work.

19.2 Comprehensive Quality System

The Concessionaire acknowledges that a comprehensive Quality System is critical for the proper and timely completion of the Work and the Project.

19.3 Quality Plan

The Concessionaire will provide a Quality System that complies fully with the requirements of ISO 9001 and this Agreement. Within 3 months after the date of this Agreement, the Concessionaire will prepare and make available to RAVCO for review a draft Quality Plan. RAVCO may review the draft Quality Plan and, if necessary, return it to the Concessionaire requesting the Concessionaire to make changes. Concessionaire will implement and strictly comply with the Quality Plan in undertaking the Design and Construction.

19.4 Audit of Concessionaire's Quality System Compliance

RAVCO is entitled at any time and from time to time to conduct an audit of the Concessionaire's Quality System compliance, and to request and obtain copies of any and all Quality System records. The Concessionaire will schedule and undertake internal semi-annual audits of its Quality Plan and Quality System during the course of the Work and provide a copy of the results of this audit to RAVCO. If there is a dispute over the Concessionaire's compliance with its Quality Plan, RAVCO may require an independent audit of quality compliance. If the independent audit confirms quality compliance by the Concessionaire in accordance with the Quality Plan, RAVCO will pay for the cost of the independent audit. If the independent audit confirms material non-compliance by the Concessionaire with the Quality Plan, the Concessionaire will pay for the cost of the independent auditor.

19.5 Quality Management

Nothing done or omitted to be done by RAVCO relieves the Concessionaire of its sole responsibility for Quality Management. Without limiting the foregoing or the Concessionaire's obligations under this Section 19, RAVCO reserves the right to perform quality inspections in accordance with its own quality management plan and the Concessionaire will cooperate with any quality assurance and quality control programs of RAVCO relating to the Work, including

providing copies of such inspection reports and documentations RAVCO may reasonably require for RAVCO's quality assurance program.

Phase / Area / Notes	2005	2006	2007	2008	2009
MILESTONES: ADVANCE WORKS ETC					
- EAC and Access Agreements prior to Financial Closure.					
- Significant amount of early work prior to Financial Closure.					
RICHMOND TO MARINE DRIVE					
- North Arm Bridge - start in water November 2005	LAUNCHING TRUSS FABRICATE/RENT & DELIVER	STATION DESIGN	ROADWORK & UTILITY RELOCATION	FRASER RIVER NORTH ARM CROSSING	
- Kent St Precast Yard operational in January 2006				ELEVATED GURDWEY	
MARINE DRIVE TO 2ND AVE				OMC DEPOT	STATION 1E RC ALD, CAMB BPT
	STATION DESIGN	RIGHT OF WAY	ROADWORK & UTILITY RELOCATION		
DOWNTOWN				LITTLE MOUNTAIN GYMPS	CAMBINE CUT & COVER - PRECAST
	STATION DESIGN	ROADWORK & UTILITY RELOCATION	TBMs ENTRY FIT		12TH TO 2ND AVENUE - CAST IN PLACE
		BIDDED TUNNEL CONTRACT PROCUREMENT	TBMs EXIT PAT		TBMs REMOVAL & EXIT PIT COMPLETION
		STATION DESIGN	TBMs TUNNEL 1		DOWNTOWN CUL & COVER
					STATIONS - DAY, ROS, WFS
AIRPORT CONNECTOR				ROADWORK & UTILITY RELOCATION	ELEVATED GURDWEY
	STATION DESIGN			FRASER RIVER MODULE ARM CROSSING	STATIONS - YVR 2, 3 & 4
TRACKWORK, SYSTEMS & VEHICLES			TRACK & SYSTEMS DESIGN & PROCUREMENT	GUIDEWAY SUBSTRUCTURE	
		VEHICLE PROCUREMENT	VEHICLE DESIGN	ELEVATED GURDWEY	
			SYSTEM TESTING & INTEGRATION	FULL COMMISSION	TRAIL RUNNING
					CANADA LINE
					1-4 YEAR TRANSIT
					TRAIL RUNNING

RAV INITIAL PROJECT SUMMARY SCHEDULE

REVISED 14 JULY 2005

APPENDIX 2 TO SCHEDULE 2
Reference Document

E1 - 30 Environmental Requirements

18 September 2003

Notice to Proponents:

Request for Proposals

Appendix 5 Concession Agreement

Schedule 2: Design and Construction Requirements

pp 23, 11.3 Environmental Management Plan, part (b) directs the Concessionaire to refer to this Reference Document.

TABLE OF CONTENTS

PART A ENVIRONMENTAL DESIGN CRITERIA

1.0	GENERAL	1
2.0	ENVIRONMENTAL DESIGN CRITERIA	1

PART B ENVIRONMENTAL PRACTICES 10

1.0	AIR QUALITY AND DUST CONTROL	10
2.0	WATER QUALITY AND AQUATIC HABITAT PROTECTION: SEDIMENT AND EROSION CONTROL	10
3.0	WATER QUALITY AND AQUATIC HABITAT PROTECTION: INSTREAM WORKS	12
4.0	WATER QUALITY AND AQUATIC HABITAT PROTECTION: CONCRETE WASH WATER	13
5.0	HAZARDOUS MATERIALS HANDLING AND STORAGE	13
6.0	UNDERGROUND AND ABOVE GROUND STORAGE TANKS	14
7.0	NOISE AND VEGETATION	15
8.0	LANDSCAPE REVEGETATION AND SITE RESTORATION	15
9.0	IMPORTED MATERIAL SAMPLING AND CONTAMINANT ANALYSIS TESTING	15
10.0	EXCAVATED SOILS SAMPLING AND CONTAMINANT ANALYSIS TESTING	16
11.0	SOLID NON-HAZARDOUS WASTE MATERIALS	16
12.0	HAZARDOUS WASTE MATERIALS	17
13.0	SPILL PREVENTION AND EMERGENCY RESPONSE PLANNING	18
14.0	ENVIRONMENTAL MANAGEMENT, COORDINATION AND SUPERVISION	18
15.0	TRAINING AND ORIENTATION	19

PART A

ENVIRONMENTAL DESIGN CRITERIA

1.0 GENERAL

- 1.1 The Environmental Design Criteria (EDC) will focus on the specific physical components of the project, and provide the Concessionaire with general criteria for the minimization and/ or avoidance of environmental impacts at the locations of these components and for compliance with RAVCO's requirements in the EAC and all Permits.
- 1.2 Many of these potentially negative effects can be avoided or mitigated by applying correct environmental criteria to project design and it is anticipated that the EDC will assist the project design engineering team as well as the Concessionaire.
- 1.3 The provision of the EDC does not preclude the Concessionaire from the responsibility of addressing additional applicable criteria as required, or necessary, to fulfill RAVCO and Governmental Authority requirements and RAVCO is not responsible for identifying those additional criteria.

2.0 ENVIRONMENTAL DESIGN CRITERIA

2.1 Richmond # 3 Road

2.1.1 Component Description

The track system will be constructed from Cook Road/ City Hall along # 3 Road to Bridgeport Station and to the east side of the Moray Channel Bridge Crossing

2.1.2 Key Objectives

- (a) minimize construction disruption
- (b) control surface water and concrete wastewater runoff
- (c) control the use of Hazardous Substances
- (d) minimize riparian vegetation disruption at east side of Moray Channel bridge
- (e) control the use of track de icing and/ or glycol materials
- (f) control guideway water runoff

2.1.3 Design Criteria

- (a) Obtain all necessary Municipal Noise Bylaw Permits and any associated variances
- (b) Adhere to any Municipal Tree Bylaws
- (c) Conduct all traffic management operations in accordance with Municipal requirements
- (d) Provide all necessary control, containment and disposal measures for wastewater, surface water runoff and groundwater.
- (e) Provide hazardous materials inventories and containment as required by Environmental Laws
- (f) Identify and remove all contaminated and/ or DLC waste materials according to Provincial and/ or Municipal requirements
- (g) Obtain required permission for the use of de icing materials
- (h) Provide accepted catchment and disposal for guideway runoff

2.2 Sea Island - YVRAA

2.2.1 Component Description

The Airport (YVRAA) lands encompass the area from the west side of the RAV Moray Channel Bridge Crossing – Fraser River Middle Arm - along the north side of Grant McConachie Way to the International Terminal Building on Sea Island. Along this section of the corridor are YVRAA stations 1, 2, 3, and 4. One is a future station.

2.2.2 Key Objectives

- (a) Minimization of disruption to riparian vegetation and fish habitat
- (b) Control surface water runoff from construction activities to prevent entry into Sea Island ditch system
- (c) Prevent disturbance of archaeological resources
- (d) Control of Hazardous Substances
- (e) Prevent any disturbances to Sea Island Conservation Area

2.2.3 Design Criteria

- (a) Obtain any necessary YVRAA FAP EA permits
- (b) Obtain any necessary archaeological permits
- (c) Obtain any necessary permits from Canadian Wildlife Service (Environment Canada)
- (d) Provide all necessary wastewater settling ponds, runoff control measures, containment and disposal
- (e) Provide hazardous materials inventories and containment as required by YVRAA and/ or Environmental Laws
- (f) Remove all waste according to YVRAA, Municipal and/ or Provincial requirements

2.3 RAV Moray Channel Bridge – Fraser River Middle Arm

2.3.1 Component Description

This bridge will span the Moray Channel – Middle Arm to the north of the new and old Moray Channel Middle Arm Bridges. It will include the riparian shoreline of the east side of the Fraser River, and the west side of the Fraser River on Sea Island. It is expected that the crossing envelope area for consideration will be approximately 100 meters up and downstream of the crossing.

2.3.2 Key Objectives

- (a) Avoidance and/ or minimization of disruption to riparian vegetation and fisheries/ aquatic habitat and resources
- (b) Control surface water and/ or concrete waste water runoff
- (c) Control the use of Hazardous Substances

2.3.3 Design Criteria

- (a) Obtain all necessary Federal/ Provincial, DFO, NWPA, FREMP, MWLAP, YVRAA, City of Richmond and NFHC permits, licenses and approvals for work at the Moray Channel Bridge

- (b) Adhere to any Federal or Provincial habitat mitigation or compensation requirements
- (c) Adhere to Fisheries and Oceans Canada designated windows for work in the Fraser River
- (d) Provide all necessary wastewater settling ponds, runoff control measures, containment and disposal
- (e) Provide hazardous materials inventories and containment as required by Environmental Laws
- (f) Remove all waste according to Provincial and/ or Municipal requirements

2.4 RAV North Arm Bridge

2.4.1 Component Description

This bridge will span the North Arm of the Fraser River from the south end of Ash Street in Vancouver, at the north side of the Fraser River, to the south side of the Fraser River in Richmond. It will include the riparian shoreline on the north and south sides of the North Arm. It is expected that the crossing envelope area for consideration will be approximately 100 meters up and downstream of the crossing.

2.4.2 Key Objectives

- (a) Avoidance and/ or minimization of disruption to riparian vegetation and fisheries/ aquatic resources.
- (b) Control surface water and/ or concrete wastewater runoff
- (c) Control the use of Hazardous Substances

2.4.3 Design Criteria

- (a) minimize bridge footing numbers, locations and impact zones
- (b) Obtain all necessary Federal/ Provincial, DFO, FREMP, NWPA, MWLAP City of Richmond, City of Vancouver and NFHC permits, licenses and approvals for work at the North Arm Bridge
- (c) Adhere to any Federal and/ or Provincial habitat compensation and/ or mitigation requirements
- (d) Adhere to Fisheries and Oceans Canada windows for work in the Fraser River

- (e) Provide all necessary wastewater settling ponds, runoff control measures, containment and disposal
- (f) Provide hazardous materials inventories and containment as required by Environmental Laws
- (g) Remove all waste according to Provincial and/ or Municipal requirements

2.5 Tunnel System – Bored/ Cut and Cover/ Trench

2.5.1 Component Description

The underground twin bored tunnel will extend south from Waterfront Station to approximately 37th Avenue and Cambie Street. From 37th Avenue to 46th Avenue and Cambie Street the tunnel will be cut and cover. From 46th Avenue to 63rd Avenue and Cambie Street, the tunnel will be in trench.

It will daylight at 63rd Avenue to accommodate the at grade and elevated requirement for the spanning of the Fraser River.

2.5.2 Key Objectives

- (a) minimize construction disruption to surrounding neighbourhoods
- (b) minimize disruption to Cambie Heritage Boulevard
- (c) proper disposal of tunnel muck and waste materials
- (d) proper identification and disposal of contaminated materials
- (e) control surface water, groundwater and/ or concrete wastewater runoff
- (f) control the use of Hazardous Substances

2.5.3 Design Criteria

- (a) minimize bridge footing numbers, locations and impact zones
- (b) Obtain all necessary Provincial, GVRD and/ or Municipal Bylaw permits and associated variances
- (c) Adhere to Municipal Tree Bylaws
- (d) Design, restore and/ or mitigate any disturbances to Cambie Heritage Boulevard according to Municipal and/ or Provincial requirements

- (e) Conduct all traffic management operations in accordance with Municipal Bylaws
- (f) Provide all necessary setting ponds and/ or disposal mechanisms for the control, containment and disposal of wastewater, surface runoff water, groundwater and concrete wastewater.
- (g) Provide hazardous materials inventories and containment as required by Provincial and/ or Municipal law
- (h) Remove all waste according to Provincial and/ or Municipal requirements

2.6 System At Grade/ Elevated

2.6.1 Component Description

The system will run at grade or elevated from 63rd Avenue and Cambie Street to the south side of the Fraser River, Bridgeport, 3 Road and Sea Island.

2.6.2 Key Objectives

- (a) Refer to Item 2.2.1 above

2.6.3 Design Criteria

- (a) Refer to Item 2.2.1 above

2.7 Stations

2.7.1 Component Description

Stations will be constructed at Waterfront, Robson/ Granville, Davie/ Pacific, Broadway/ Cambie, King Edward, 49th Street, Marine Drive, Bridgeport, YVR 1, 2, 3 and 4, Capstan Way (future), Cambie Road, Alderbridge Way, Westminster Highway and Cook Road at City hall

2.7.2 Key Objectives

- (a) Refer to item 2.2.1 above

2.7.3 Design Criteria

- (a) Refer to Item 2.2.1 above

2.8 Cambie Street Heritage Boulevard

2.8.1 Component Description

This has been designated as a Heritage Boulevard by Vancouver City Council. It is in the center median, or boulevard, of Cambie Street and runs in a north/ south direction.

2.8.2 Key Objectives

- (a) minimize, avoid or mitigate temporary or permanent impacts and/ or alterations to the Cambie Street Heritage Boulevard
- (b) minimize construction disruption to surrounding neighbourhoods
- (c) proper identification and removal of contaminated materials
- (d) control surface water runoff, groundwater and/ or concrete wastewater
- (e) control the use of hazardous and/ or dangerous materials

2.8.3 Design Criteria

- (a) Obtain all necessary Provincial, GVRD and/ or Municipal Bylaw permits, licenses, approvals, amendments and variances
- (b) Adhere to Municipal Tree Bylaw requirements, Provincial BCEAA EAC and/ or Owner's requirements for the removal/ restoration and or/ replacement of trees and vegetation
- (c) Conduct technical landscape architecture designs required to fulfill the above
- (d) Conduct all traffic management operations in accordance with Municipal Bylaws
- (e) Provide all necessary settling ponds and/ or disposal mechanisms for the control, containment and disposal of wastewater, surface runoff water, groundwater and/ or concrete wastewater
- (f) Identify and remove any contaminated soils and/ or other materials according to Provincial and/ or Municipal requirements. Provide hazardous materials inventories and containment s required by Provincial and/ or Municipal requirements
- (g) Remove all DLC waste according to Provincial and/ or Municipal requirements

2.9 False Creek

2.9.1 Component Description

False Creek is generally defined, for the purposes of these EDC, as the inlet within 100 meters east and west of Cambie Street Bridge from the north and south ends of Cambie Street Bridge.

2.9.2 Key Objectives

- (a) Refer to Items 2.2.3 and/ or 2.2.4 above
- (b) Refer to Item 2.2.8 above regarding Contaminated Materials

2.9.3 Design Criteria

- (a) Refer to Items 2.2.3 and/ or 2.2.4 above
- (b) Refer to Item 2.2.8 regarding Contaminated Materials

2.10 Vancouver Downtown

2.10.1 Component Description

This section of the project comprises underground twin bored tunnels and stations. It includes the area from the northwest side of Cambie Bridge to Davie Street (westward) and turns north at Granville Street to Waterfront Station.

2.10.2 Key Objectives

- (a) Refer to Item 2.2.5 above (exception – Cambie Heritage Boulevard)

2.10.3 Design Criteria

- (a) Refer to Item 2.2.5 above (exception Cambie Heritage Boulevard)

2.11 Waterfront – Inner Harbour

2.11.1 Component Description

This is the inner harbour directly north of Waterfront Station that may be effected by construction activities.

2.11.2 Key Objectives

- (a) Refer to Items 2.2.3 and/ or 2.2.4 above
- (b) Refer to Item 2.2.8 above regarding Contaminated Materials

2.11.3 Design Criteria

- (a) Refer to Items 2.2.3 and/ or 2.2.4 above
- (b) Refer to Item 2.2.8 above regarding Contaminated Materials

PART B

ENVIRONMENTAL PRACTICES

1.0 AIR QUALITY AND DUST CONTROL

- 1.1 Control fugitive dust and other airborne emissions from all construction activities, including, but not limited to, vehicular and machinery movement, building, demolition and decommissioning of existing structures, road, laydown area, Work Site construction and decommissioning, soil stockpiles and other construction materials.
- 1.2 Install appropriate indoor air quality control measures to ensure that workers on sections of the Work Site within enclosed spaces such as underground or Tunnel sections are not adversely affected by exhaust gases, fugitive dust or other air emissions.
- 1.3 Make available all required air quality monitoring and compliance reports for review and provide all such reports, if requested, to the Relevant Authorities.

2.0 WATER QUALITY AND AQUATIC HABITAT PROTECTION: SEDIMENT AND EROSION CONTROL

- 2.1 Comply with the guidelines for sediment and erosion control outlined in the jointly published *Land Development Guidelines For the Protection of Aquatic Habitat* (DFO and Ministry of Environment Lands and Parks, 1993) and any other guidelines for sediment and erosion control.
- 2.2 Exercise care during all phases of the construction work to minimize sedimentation of waterways, ditches, and storm sewers in the vicinity of Work Sites and to eliminate the release of raw concrete, concrete leachate and any other debris or deleterious substances and to prevent it from entering any watercourse.
- 2.3 Handle all construction and excavation wastes, overburden, soil, or other substances deleterious to aquatic life in such a manner so as to prevent their entry into any watercourse including any river, creek, stream, ditch, trench, or storm sewer system which leads to any watercourse.
- 2.4 Do not place or stockpile fill material on marsh or marsh fringe areas within the riparian zone of any watercourse, unless otherwise authorized by the applicable Relevant Authorities.
- 2.5 Ensure runoff water from any part of the Work Site must complies with the *Canadian Council of Ministers of the Environment Canadian Water Quality Guidelines for Freshwater Aquatic Life*. [Specifically, total suspended solids in runoff water will not exceed 10 mg/litre when background suspended solid concentrations (as measured at representative locations upstream of the discharge source) are equal to or less than 100

mg/litre. Suspended solids should not exceed 10 percent of background concentrations when background concentrations are greater than 100 mg/litre.]

- 2.6 Utilize a certified turbidity meter to facilitate on-site scientifically based decisions regarding runoff water quality and to assess the effectiveness of the sediment control measures. These instruments should be calibrated in accordance with the manufacturer's specifications, and based on comparative relationships of recorded levels of turbidity and total suspended solids (mg/L) with those obtained from water quality samples submitted to an independent laboratory.
- 2.7 Where fish spawning areas are situated in receiving waters, storm runoff discharged must not at any time increase total suspended solids levels above background suspended solids levels in the receiving waters. Background suspended solids levels are defined as the natural in-stream suspended solids or non-filterable residue levels measured upstream of the point of discharge in the watercourse (*Land Development Guidelines for the Protection of Aquatic Habitat*, DFO and Ministry of Environment Lands and Parks 1993).
- 2.8 As part of the Environmental Management Plan, prepare a storm water drainage and sediment control plan for review by the Relevant Authorities prior to Commencement of Construction, indicating how discharges from the Work Site and related work areas (including access roads, excavations, soil fill areas) will be managed to comply with the provisions of the *Land Development Guidelines for the Protection of Aquatic Habitat* (DFO and Ministry of Environment Lands and Parks 1993) and the *Fisheries Act*, and in accordance with industry-accepted practices consistent with applicable Relevant Authority regulations.
- 2.9 Inspect, maintain and undertake repairs to improve components of the stormwater drainage and sediment control system as necessary to ensure they are working effectively to control discharges from the Work Site. This includes monitoring, maintenance, and repairs to any sediment ponds, filter systems, silt fences, coca matting, gravel filter berms, haybales, geotextile fabric, and any other control structures employed. Maintain these structures throughout the duration of the Work until the affected areas are sufficiently stabilized and until there is no longer a risk of sedimentation from the Work Site. Dismantle these systems upon completion of the Work in compliance with any requirements of Relevant Authorities and deposit any sediment material at a facility approved by the Relevant Authority.
- 2.10 Suspend operations if the quality of the discharge leaving the Work Site exceeds, or has the potential to exceed, levels prescribed in the *Canadian Water Quality Guidelines for Freshwater Aquatic Life*, or with the levels prescribed by the MWLAP Water Quality Criteria, or with any levels that may be prescribed by a Permit. Make the necessary modifications to its sediment and erosion control system to ensure compliance with the above-referenced criteria, guidelines, and terms and conditions of any applicable Permits and in accordance with industry-accepted practices consistent with applicable Relevant Authority regulations. In the event these actions are not taken, applicable

Relevant Authorities may suspend all, or any portion of, activities, which may or may not result in discharges, which exceed levels prescribed.

- 2.11 Notify Relevant Authorities immediately when, and if, discharges from the Work Site exceed authorized levels and immediately prepare a plan for resolving such non-compliance.
- 2.12 Appoint an Environmental Representative to monitor the quality of water discharges from the Work Site, and maintain records of water quality monitoring results to be submitted to the Relevant Authority as required.

3.0 WATER QUALITY AND AQUATIC HABITAT PROTECTION: INSTREAM WORKS

- 3.1 Obtain all necessary environmental approvals from MWLAP and DFO for instream work including approvals under Section 9 of the *Water Act*, *Notifications for Environmental Review* under the *Water Act*, approvals issued by FREMP and authorizations under the *Fisheries Act* based on detailed designs and other data to be supplied by the Concessionaire. A *Fisheries Act* habitat compensation agreement, including financial security, may be required if compensation is needed to replace lost habitat as part of the Project.
- 3.2 Undertake and complete in-stream work according to the provisions of any Permit, and determine the requirements of any fisheries windows for in stream works.
- 3.3 Construct temporary diversion works in a manner which prevents sedimentation and channel erosion and in compliance with any Permit issued under the *Water Act*.
- 3.4 Unless otherwise authorized by MWLAP or DFO, do not place concrete Bridge and Guideway support footings and piers within areas prescribed as riparian zones, including within the wetted perimeter of any watercourse along the corridor of the Project. Any variation to this requirement, such as placing footings or piers within the riparian zone, will be undertaken in compliance with the Permits to be issued based on the detailed designs of these crossings or structures.
- 3.5 Ensure that all machinery used on the Work Site is new or in good repair, free of external oil and grease and that any spills or leaks from machinery are immediately cleaned up and the clean up materials are removed off site to an acceptable facility. Vehicles must be equipped with spill kits and the personnel trained in the use of these materials.

4.0 WATER QUALITY AND AQUATIC HABITAT PROTECTION: CONCRETE WASH WATER

4.1 Do not discharge of wash water to the ground, to surface watercourses including ditches or to storm drains from trucks and equipment related to concrete supply, pumping or placing equipment. This includes concrete truck chutes and hoppers and pump line hoses. Clean up and dispose of any excess concrete off-site at an acceptable facility and make all disposal slips available to Relevant Authorities for review upon request.

5.0 HAZARDOUS MATERIALS HANDLING AND STORAGE

5.1 Store hazardous materials, including, but not limited to, fuels, bitumen, cement, paints, solvents, cleaners, used fuel and oil filters and other construction materials, in a secure manner and handle so as to minimize loss and to allow containment and recovery in the event of a spill in accordance with the *British Columbia Fire Code*, the *National Fire Code of Canada*, the *Transportation of Dangerous Goods Act*, and other applicable Environmental Laws.

5.2 Ensure that applicable personnel are adequately trained in the handling and transportation of dangerous goods as defined under the *Transportation of Dangerous Goods Act* and of controlled substances as defined under the *Occupational Health & Safety Regulation*.

5.3 Maintain a current inventory of all controlled substances, as defined by the *Controlled Products Regulations* pursuant to the *Hazardous Products Act*, used for the Project.

5.4 Ensure that current material safety data sheets are obtained from suppliers and stored in the appropriate locations at the Work Site, for all controlled substances used, stored, and handled onsite associated with activities in accordance with the *Occupational Health & Safety Regulation*.

5.5 Develop plans that define proposed locations and types of facilities where temporary construction equipment, maintenance and repair operations will be located and make such plans available to the Relevant Authorities for review upon request. Such facilities will be confined to specific areas of the Work Site that do not pose a risk of contamination to soils and that are a safe distance from the nearest watercourse, ditch, or storm sewer. Include in the plan, details of containment facilities for fuels, oils, antifreeze and other liquid forms of hazardous materials such that spills can be contained and collected before contaminants enter the soils or reach any watercourse or storm sewer. Any Work Site remediation works required as a result of activities, including those of the Project Contractors and Sub-Contractors or other responsible parties, must be conducted in accordance with applicable Environmental Laws.

5.6 Apply wood preservatives, paints or stains, or other chemicals upland in a dry area for a sufficient time period prior to installation to allow complete absorption or drying, thus

preventing spraying, spilling, dripping or leaching into any watercourse, ditch, wetland or storm sewer.

- 5.7 Designate areas required for the transfer and limited temporary storage of hazardous materials and wastes. The designated areas will be used as controlled transfer and temporary storage areas for potentially hazardous materials and wastes. Clearly demarcate with signs and control access in accordance with the *Workplace Hazardous Material Information System* and the *Transportation of Dangerous Goods Regulation*.
- 5.8 Remove hazardous materials not in active use and hazardous wastes promptly to an approved facility using a licensed hazardous materials handler. Retain copies of shipping and disposal manifests for inspection by the Relevant Authorities.
- 5.9 Provide suitable, functioning equipment and facilities required to prevent the discharge of contaminants and the conduct of actions which may pollute or degrade the atmosphere, any body of water, or land areas, or which may harm fish, wildlife and their habitats, in accordance with any applicable Relevant Authority requirements.

6.0 UNDERGROUND AND ABOVE GROUND STORAGE TANKS

- 6.1 Design, construct, operate, and decommission all underground and above ground storage tanks systems in accordance with the *National Fire Code*, *British Columbia Fire Code*, applicable City bylaws, the *Canadian Council of Ministers of the Environment Environmental Code of Practice for Underground Storage Tank Systems Containing Petroleum Products and Allied Petroleum Products* (March 1993), and the *Canadian Council of Ministers of the Environment Environmental Code of Practice for Aboveground Storage Tank Systems Containing Petroleum Products* (August 1994).
- 6.2 Submit underground and aboveground tank decommissioning procedures to the Relevant Authorities for review and assessment. Submit a tank decommissioning plan to the MWLAP and other Relevant Authorities confirming that the decommissioning procedures comply with the above-listed standards.
- 6.3 Provide secondary containment capable of holding at least 110% of the volume of the largest above ground storage tank, or 25% of the total volume of all containers in the same area, whichever is greater. Fully berm above ground storage tank areas and line with impermeable barriers and have in place appropriate drainage systems for removing accumulated rainwater without discharging any spilled content of the tanks. Maintain a spill clean-up kit on site.
- 6.4 Perform daily inventory reconciliation if applicable and as required under the *National Fire Code* and *British Columbia Fire Code*, for underground storage tanks, and at least weekly for aboveground storage tanks.

7.0 NOISE AND VIBRATION

- 7.1 Obtain any required City noise bylaw Permits, and any amendments or variances to those Permits and act reasonably to minimize noise and vibration by maintaining noise control equipment on construction machinery and complying with standards for noise levels established by the Relevant Authorities where applicable.
- 7.2 Install noise attenuation barriers and measures where, and if, specified by Relevant Authorities.
- 7.3 Comply with noise level regulations and worker noise protection guidelines established by the Workers Compensation Board.
- 7.4 Comply with all restrictions on hours of work, where applicable, or negotiate, extensions on hours of work for the Work Site with the Relevant Authorities.
- 7.5 Apply for and procure any Permits to operate machinery at noise levels which may exceed those established by City Noise Bylaws and for undertaking operations outside normal working hours.

8.0 LANDSCAPE REVEGETATION AND SITE RESTORATION

- 8.1 Prepare and submit a landscape revegetation and restoration plan for the Real Property Interests to the Relevant Authority. Conduct all landscape revegetation and restoration works on the Project in accordance with the plan.
- 8.2 For planting and hydroseeding efforts, achieve a guaranteed 85% success rate within one year of planting. Commission a report prepared by a certified landscape architect confirming the success rate following one year of planting. If the success rate is less than 85%, continue to replant until an 85% success rate is confirmed.
- 8.3 Remove any remaining sand and soil stockpiles from the Work Site. Cover any temporary stockpiled materials with tarpaulins and plastic sheeting to prevent runoff or erosion.

9.0 IMPORTED MATERIAL SAMPLING AND CONTAMINANT ANALYSIS TESTING

- 9.1 Fill materials including soils and sand imported onto the Work Site or moved between locations on the Work Site, must meet the standards required by the applicable Relevant Authorities. Testing and verify that these materials meet Relevant Authority standards. Dispose of such materials at an approved facility if materials have been imported to the Work Site, moved within the immediate Work Site, or disposed or moved within any of the other Project Work Sites which do not meet the Relevant Authority standards.

- 9.2 Prepare a sampling plan for the fill materials to be brought to the Work Site for the Work. Indicate in the plan the proposed sources of fill materials, types of fill materials (sand, gravel, pit run, topsoil), estimated volumes of fill materials, chemical parameters for which the fill materials will be tested, frequency of testing, and name of the analytical laboratory that will be conducting the testing.
- 9.3 Comply with the sampling plan. Obtain representative samples of imported fill materials, and undertake chemical analysis to certify that the fill materials brought on the Work Site meet Relevant Authority standards.

10.0 EXCAVATED SOILS SAMPLING AND CONTAMINANT ANALYSIS TESTING

- 10.1 Identify the chemical composition of soils and other materials that are excavated and removed from the Work Site.
- 10.2 Prepare a sampling plan for the excavated soils materials, including those soils to be removed from the Work Site. The sampling plan should include information such as the sources of soils, adjoining land uses, presence or absence of any above-ground or underground storage tanks, visible staining of soils, estimated volumes of soils to be excavated and removed, chemical parameters for which the excavated soils will be tested, frequency of testing, and name of the analytical laboratory that will be conducting the testing.
- 10.3 Obtain representative samples of excavated soils materials and undertake chemical analyses to properly characterize and manage the soils in accordance with the *Contaminated Sites Regulations* and the *Special Waste Regulations*.
- 10.4 Provide notification immediately if soils exceeding Relevant Authority standards are encountered. A decision will be made regarding whether to treat the soils on the Work Site or to transport them to an approved facility.
- 10.5 Identify an approved location for the excavated soils once the initial chemical analyses are available including obtaining a cost estimate for the transportation and disposal of the soils. Obtain all necessary Permits to transport and dispose of the soils or to treat the soils on the Work Site.

11.0 SOLID NON-HAZARDOUS WASTE MATERIALS

- 11.1 Prior to the Commencement of Construction, prepare a written site-specific solid waste management plan appropriate to the scale of the proposed construction activities and in accordance with industry-accepted practices consistent with applicable Relevant Authority regulations.

- 11.2 The solid waste management plan should include a list of locations that are approved by the Relevant Authority to receive the anticipated solid wastes and demolition, land clearing and construction wastes to be generated during Construction. The solid waste management plan should describe the types and quantities of materials requiring disposal, waste material haulers, and destinations approved by the Relevant Authority to receive the various types of solid waste.
- 11.3 Handle all non-hazardous solid wastes in compliance with the approved solid waste management plan.
- 11.4 Do not dump, burn, or allow others to dump or burn garbage, including demolition, land clearing and construction wastes, associated with the Work. Should garbage or such wastes related to the work be dumped, immediately clean up and remove the waste material to a location approved by the Relevant Authority.
- 11.5 Establish a regular clean up and disposal program and schedule to enable the prevention of unnecessary accumulation of excessive solid wastes.
- 11.6 Make every effort to reduce the amount of material disposed of by reduction, reuse and recycling in accordance with industry-accepted practices consistent with Relevant Authority regulations. Implement a recycling and waste management program on the Work Site, including making available clearly labelled garbage bins with lids and recycling containers for lunchroom food waste and recyclable office waste.

12.0 HAZARDOUS WASTE MATERIALS

- 12.1 Prior to the Commencement of Construction, prepare a written site-specific hazardous materials management plan appropriate to the scale of the proposed construction activities and in accordance with industry-accepted practices consistent with Relevant Authority regulations.
- 12.2 The hazardous materials management plan should describe the types and quantities of hazardous materials, which will include special wastes as defined by the *Special Waste Regulation*, dangerous goods as defined by the *Transportation of Dangerous Goods Regulation*, and controlled substances as defined by the *Workplace Hazardous Materials Information System*.
- 12.3 Handle and dispose of all hazardous materials in compliance with the approved hazardous materials management plan.
- 12.4 Where Construction activities involve the handling, storage, and removal of special wastes, maintain the following records:
 - 12.4.1 inventories of types and quantities of special wastes generated, stored, or removed;
 - 12.4.2 manifests identifying special waste haulers and disposal destinations; and
 - 12.4.3 disposal certification documents.

13.0 SPILL PREVENTION AND EMERGENCY RESPONSE PLANNING

- 13.1 Prior to the Commencement of Construction, prepare a written site-specific spill prevention and emergency response plan appropriate to the scale of the proposed Construction activities and in accordance with industry-accepted practices consistent with Relevant Authority.
- 13.2 Undertake the Construction in compliance with the approved spill prevention and emergency response plan.
- 13.3 Undertake regularly scheduled inspections of all hazardous materials storage equipment for signs of degradation and or leakage. Regularly scheduled visual inspections should include, among other things, ensuring that all personal protective equipment and other emergency response equipment is in place.
- 13.4 The spill prevention and emergency response plan should be posted at conspicuous locations throughout the Work Site.
- 13.5 In the event of an environmental emergency, immediately notify the appropriate project personnel and all Relevant Authorities. If the environmental emergency is a spill to land of a hazardous product in quantities equal to or greater than those listed in the *Spill Reporting Regulation* under the *Waste Management Act*, the immediately notify the Provincial Emergency Response Program at 1-800-663-3456. Spills of any hazardous material, chemical, or any other material, which could be harmful to fish, or the aquatic environment will be reported to Environment Canada at (604) 666-6100.
- 13.6 Submit a written incident report to the Relevant Authority within 24 hours of any environmental incident, spill or release. The incident report should identify the reporting organization, date, time, location, hazardous materials involved, source and persons or organizations notified. In addition, the report will describe how the spill or release occurred, remedial action taken or planned, and actions necessary to prevent recurrence.

14.0 ENVIRONMENTAL MANAGEMENT, COORDINATION AND SUPERVISION

- 14.1 Provide environmental management, coordination and supervision of the Work. Perform environmental inspections during all construction activities that have the potential to cause detrimental environmental effects, in accordance with environmental obligations and the requirements of Relevant Authorities.
- 14.2 Facilitate audits of activities and procedures to ensure that the Environmental Management Plan requirements and requirements of the Relevant Authorities are being met.

14.3 Contravention of the Environmental Management Plan could result in immediate suspension of all construction operations, without additional compensation or payment for schedule delays, and immediate suspension of all construction operations. In such an event, the cause, extent, and the relevant details of the contravention and the potential risks should be reviewed. Work may not be allowed to resume until it is demonstrated to Relevant Authorities that appropriate steps have been taken and appropriate and sufficient safeguards implemented to ensure the incident has been fully rectified and that such incidents will not be repeated.

15.0 TRAINING AND ORIENTATION

15.1 Environmental orientation and environmental education training sessions will be conducted for Work Site staff, including the Project Contractors, Sub-Contractors and their staff prior to the Commencement of Construction. Training will be held on a regular basis after the Commencement of Construction and for each new worker.

15.2 Maintain a record of training and environmental orientation conducted. This record should include the names of those trained, dates of training, subjects covered and trainers used.