

Springbank Airport

Land Use & Development Guidelines

December 2014



Table of Contents

1. Definitions	5
2. Tenant Development Process	8
3. Permits from Other Jurisdictions	8
4. Compliance with Governing Authorities.....	8
5. Planning & Engineering Office	10
6. Airport Authority Responsibilities.....	10
6.1 Submission Review.....	10
6.2 Coordination	10
6.3 Additional Approvals – Transport Canada and NAV CANADA	10
7. Tenant Responsibilities	10
7.1 Permit to Practice	10
7.2 Verification of Information	11
7.3 Final Inspection	11
7.4 Security	11
7.5 Start-up Meeting.....	11
7.6 External Services Shut-downs/Locates & Airside Excavation	11
7.7 As-built Drawings	11
7.8 Drawing Standards.....	11
8. Submission Requirements	12
8.1 Construction Specifications.....	12
8.2 Construction Drawings.....	12
8.3 Copyright Assignment	13
8.4 Sample / Colour Boards	13
9. Tenant Construction Rules.....	13
9.1 Commencement of Tenant Work	14
9.2 Coordination / Start-up Meeting.....	14
9.3 Development Security Deposit	14
9.4 Public Safety.....	15

9.5 Security	15
9.6 Working Hours	15
9.7 Material Delivery.....	15
9.8 Garbage Removal.....	16
9.9 Temporary Electrical Service.....	16
9.10 Fire Ratings.....	16
9.11 Permits and Inspection Reports.....	16
9.12 Deficiencies	16
9.13 Clean-Up.....	16
10. Development Guidelines.....	18
10.1 Performance Standards	18
10.2 Utilities	18
10.3 Grading.....	18
10.4 Building Height.....	18
10.5 Landscaping.....	19
10.6 Yards.....	20
10.7 Corner Visibility Triangle	21
10.8 Vehicle Parking Facilities.....	21
10.8.1 Location.....	21
10.8.2 Handicapped Parking	21
10.8.3 Surfacing	21
10.8.4 Number of Parking Spaces	21
10.9 Loading Spaces.....	22
10.9.1 Location.....	22
10.9.2 Dimensions.....	22
10.9.3 Number of Spaces	22
10.10 Outside Storage.....	22
10.11 Refuse Areas	23
10.12 Exterior Lighting	23
10.13 Environmental Management.....	23

11. Engineering Consideration.....	23
11.1 Tenant Package.....	23
11.1.1 Geotechnical Investigation	23
11.1.2 Site Grading.....	24
11.1.3 Stormwater Management	24
11.1.4 Roads and Taxiways	24
11.1.5 Water and Sanitary Sewer	24
11.1.6 Shallow Utilities.....	25
12. Building Design Guidelines.....	25
12.1 Introduction	25
12.2 Architectural Style.....	26
12.3 Building Massing	26
12.4 Roofs	26
12.5 Street Façade	27
12.6 Exterior Materials	27
12.7 Outdoor Storage	27
13. Sign Guidelines.....	28
13.1 Approving Authority.....	28
13.2 Application Requirements	28
13.3 General Rules for Signs	29
14. Tenant Wildlife Control Guidelines.....	29
14.1 Background	29
14.2 Wildlife Feeding Policy.....	29
14.3 Land Development.....	30
14.4 Building Design.....	30
14.5 Landscaping.....	30
Appendix A – CIP Pamphlet	33
Appendix B – Vehicle Parking Minimum Dimensions.....	36
Appendix C – Acceptable Tree and Shrub Species.....	38
Appendix D – ECO Plan Sample.....	41

1. Definitions

1. “Airport Maintenance and Operational Facilities” means any facility that houses the equipment, materials, or motor vehicles necessary to maintain airport lands, buildings and facilities. This may include garages, workshops, mobile equipment yards, outdoor storage areas, as well as their associated uses such as an office, lunchroom or change room, or overnight accommodations i.e. pilots;
2. “Airport Authority” means the Calgary Airport Authority;
3. “Apron” means the part of an aerodrome, other than the maneuvering area, intended to accommodate the loading and unloading of passengers and cargo, the refueling, servicing, maintenance and parking of aircraft, and any movement of aircraft, vehicles and pedestrians necessary for such purpose;
4. “Building” includes anything constructed or placed on, in, over or under land but does not include a highway or public roadway, or bridge forming a part of a highway or public road;
5. “Building Height” means that height determined by creating a line parallel to grade along each building elevation and separated vertically from grade by the maximum allowable height for the district. Such line may be exceeded only by part of the building, on no more than one building elevation, and ancillary structures;
6. “Building Permit” means a permit issued pursuant to the Municipal District of Rocky View Permit By-Law authorizing construction;
7. “Calgary Airport Authority” means the Authority established pursuant to the “Regional Airports Authorities Act”, SA 1989, c, R-9,0S.
8. “Corner Visibility Triangle” means a triangular area formed on a corner site by the roadway edge and a straight line that intersects them 7.5 metres from the corner where they meet;
9. “Development” means; an excavation or stockpile and the creation of either of them a Building or an addition to, or replacement or repair of a Building and the construction or placing in, on, over or under land of any of them, a change of use of land or a Building or an act done in relation to land or a Building that results in or is likely to result in a change in the use of the land or Building, a change in the intensity of use of land or a Building or an act done in relation to land or a Building that results in or is likely to result in a change in the intensity of use of the land or Building;
10. “Emergency Response Services” mean development that is required for the protection of persons and property from injury, harm or damage together with incidental storage for emergency vehicles and equipment. Typical uses would include fire stations, police stations, paramedic and security services, bomb disposal facilities, and fire training facilities and other related services;
11. “Essential Airport Services” means those services provided by the Calgary Airport Authority, the government, contracted by the government (federal, provincial), Nav Canada, or regulatory

agencies required for safe and efficient operation of the airport, (e.g. fire, police, emergency medical services, hazardous materials);

12. "Fence" means a vertical physical barrier constructed to provide visual screening or to prevent unauthorized access;
13. "Final Utility Service", means water and sewer utilities that are connected to municipal utilities, or that are so connected through the airport utility system, or alternatively, a private water and sanitary treatment system within the Springbank Airport lands that has been approved by the Calgary Airport Authority as a final utility servicing. In the case of storm water, this may be in the form of a planned overland stormwater management system;
14. "Frontage" means the width of a lot or a site where it abuts a street including a lane;
15. "Grade" means the elevation of the finished ground surface, excluding an artificial embankment, at any point immediately adjacent the building;
16. "Interim Use" means a use specified as an Interim Use in a Land Use District that may be allowed in the District prior to the installation of final utility services;
17. "Land Use District" means a district as defined throughout this document;
18. "Land Use Plan" means an approved Land Use Plan (see Section 3.0);
19. "Landscaped Area" means the portion of a site that is required to be landscaped;
20. "Landscaping" means the modification and enhancement of a site through the use of any or all of the following elements soft landscaping consisting of vegetation such as trees, shrubs, hedges, grass and ground cover. Hard landscaping consisting of non-vegetation materials such as brick, stone, concrete, tile and wood, excluding monolithic concrete and asphalt, architectural elements consisting of wing walls, sculpture and the like;
21. "Lease Line" means the line that defines the boundary of a site that is being leased by the Calgary Airport Authority or its predecessors in interest to another party, or a property line, or the boundaries of the site as defined by the Calgary Airport Authority;
22. "Loading Space" means a space to accommodate a commercial vehicle while it is being loaded or unloaded;
23. "Lot Area" means the area contained within the boundaries of a lot as shown on a plan of subdivision or described in a certificate of title or the boundaries shown on a lease agreement;
24. "Lot Coverage" means that portion of the lot area covered by the principal building, accessory buildings or similar covered structures;
25. "Lot Frontage" means the shortest lot line which abuts a street, other than a bridge, lane, or walkway and in the case of a lot which has two equal lot lines each of which abut a street, other than a bridge, lane, or walkway, means the street to which the lot has the site address;

26. "Lot Width" means the distance between the side property lines of the lot and measured at right angles from the midpoint of the shortest property line;
27. "Outside Storage" means an outside area set-aside for the storage of products, goods or equipment;
28. "Parking Area" means a portion of the land or of a building set aside for parking and maneuvering of motor vehicles;
29. "Primary Access" means the principal means of vehicular entry to and exit from a site or building;
30. "Principal Use" means the main purpose for which a building or site is used;
31. "Property Line" means a legal boundary of an area of land;
32. "Rocky View County" means the land lying within the limits of the county;
33. "Screening" means the total or partial concealment of a building, structure or activity by a fence, wall, berm or soft landscaping;
34. "Signs" means any visual medium, including its structure and other component parts, which are used on a permanent or temporary basis to convey information, or to advertise or attract attention to a product, service, place, activity, person, institution, or business, excluding third party advertising;
35. "Site" means an area of land on which a Building or use exists for which a request or application for confirmation and authorization of development is made;
36. "Storey" means the space between the top of any floor and the top of the next floor above it, and if there is no floor above it, the portion between the top of the floor and the ceiling above it;
37. "Structure" means anything constructed or erected with a fixed location on the ground or attached to something having a fixed location on the ground and includes walls, light standards, fences and signs;
38. "Use" means the primary function of the site or building on a site
39. "Utilities" means any of the following:
 - a. Systems for the distribution of gas, whether artificial or natural, electricity, telephone or cable television.
 - b. Facilities for the storage, transmission, treatment, distribution or supply of water.
 - c. Facilities for the collection, treatment, movement or disposal of sanitary sewage.
 - d. Storm sewer drainage facilities.

- e. Interim or limited services as contemplated in the Land Use Districts in this document.

Note: For any references in this document for which a ‘Definition’ has not been provided, please see the Calgary Airport Authority’s Agreement on Land Use Development Guidelines and Acreage Assessment Levies or the Calgary International Airport’s Tenant Design Guidelines and Standards.

2. Tenant Development Process

A Construction & Installation Permit (CIP) application form can be completed on line at <http://cips.yyc.com>. The CIP application form must be filled out in its entirety along with detailed drawings outlining the work that is to be performed. The application will be sent to a Development Coordinator for review. Base drawings can be requested from the Development Coordinator of The Calgary Airport Authority.

Once the application has been submitted and checked for completeness, a preliminary review will begin. The project will be circulated to those parties within the Airport Authority that may be affected. A review of all disciplines affected by the work will be detailed, and comments will be forwarded to the Tenant, or their authorized representative. Submissions may require revisions if it is incomplete, or does not meet the standards as laid out in this document.

After revisions have been made to the satisfaction of the Airport Authority, a CIP may be issued to allow the tenant to begin work. It is important to note that other permits may be required from other authorities having jurisdiction (ie. Rocky View County). In these instances a Letter of Authorization from the Airport Authority is required before a Tenant may apply for any such permits.

3. Permits from Other Jurisdictions

Once the Airport Authority has given its approval to the Tenant in the form of a letter of authorization, the Tenant may apply for a Building Permit from the Rocky View County. The Rocky View County will not accept or process a Building Permit application without a letter of authorization from the Airport Authority.

Once the Tenant has obtained a Building Permit from the Rocky View County, the Airport Authority will issue the CIP to the Tenant. **Every Tenant must obtain a CIP from the Calgary Airport Authority prior to proceeding with any work.**

4. Compliance with Governing Authorities

The following codes, regulations & acts shall apply as they relate to the specific development. Although this list attempts to be complete, it is the tenant’s consultants and contractor’s responsibility to ensure

that all applicable codes and their most current regulations are adhered to, and that the appropriate permit(s) are displayed at the work site.

- Alberta Building Code
- Alberta Environmental Protection and Enhancement Act
- Alberta Fire Code
- Alberta Occupational Health and Safety and its regulations
- American Society of Mechanical Engineers Code, Boiler and Pressure Vessels
- CAN/CSA C22.2 214, Communication Cables
- CAN/CSA T527, Grounding and bonding for Telecommunications in Commercial Buildings
- CAN/CSA T529, Design Guidelines for Telecommunications in Commercial Buildings
- CAN/CSA T530, Building Facilities Design Guidelines for Telecommunications
- Canadian Electrical Code and Alberta Appendices
- Canadian Environmental Protection Act
- Canadian Heating, Ventilating and Air Conditioning Code
- Canadian Labour Code - Part II
- Canadian Occupational Safety and Health Regulations
- Canadian Plumbing Code
- Canadian Standards Association Barrier Free Design Manual; CAN/CSA B651-M90
- EIA/TIA 568A Building Telecommunications Cable Standards
- National Building Code
- National Fire Code
- Pressure Piping Code and Regulations, Boiler and Pressure Vessels Act., Government of Alberta
- Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations, CEPA 1999
- The Calgary Airport Authority CADD Manual
- Transportation of Dangerous Good Act (TDGA)
- Workplace Hazardous Materials Information System (WHMIS)

In cases where more than one regulation applies to a specific situation, the most stringent requirement shall apply.

NOTE: the review of plans, specifications, and construction details, and the issuance of a Construction & Installation Permit by The Calgary Airport Authority, in no way relieves the tenant/owner and /or their consultants and contractors from complying with all applicable by laws, codes, regulations, and the most stringent requirements of all authorities having jurisdiction.

5. Planning & Engineering Office

The Airport General Manager and/or the Tenant Development Coordinator represents the Landlord (The Calgary Airport Authority), and is the liaison between the Tenant and the Landlord for all review and approval phases from preliminary design to completion of construction.

All correspondence, questions and submissions should be forwarded to:

The Calgary Airport Authority
Calgary International Airport
2000 Airport Road N.E.
Calgary, Alberta T2E 6W5
ATTENTION: Manager, Development Services
CIP@yc.com

6. Airport Authority Responsibilities

6.1 Submission Review

The Airport Authority will review the submission within a reasonable time frame and may provide comments if changes are required to the design submission. If the Airport Authority rejects a project submission, a written reason will be provided.

6.2 Coordination

The Development Coordinator will assist the Tenant with applications, YBW permits, security escort coordination if required; and other requests in order to ensure the project runs smoothly.

6.3 Additional Approvals – Transport Canada and NAV CANADA

As part of the development review process, the Airport Authority may prepare a development area site analysis to be submitted to Transport Canada and NAV CANADA for review and approval. The site analysis identifies any potential constraints or issues arising from the proposed development (including the use of temporary construction cranes) which may impact aeronautical operations, navigation equipment or regulatory violations.

7. Tenant Responsibilities

7.1 Permit to Practice

It is the responsibility of the Tenant to hire qualified consultants and contractors, licensed to practice in the Province of Alberta.

7.2 Verification of Information

It is the tenant's responsibility to confirm on-site conditions (including ground elevations) and to verify all information provided by the Airport Authority. **Tenants must also provide coordinates of proposed building corners and verify the as-built coordinates with a site survey once the project is complete.**

7.3 Final Inspection

The Tenant must ensure that all consultants- architectural, electrical, mechanical and structural, (if applicable) who are responsible for the Tenant's construction documents, perform a final inspection and ensure that the project has been constructed as per the construction documents and that all equipment and systems are operating as specified and designed. A copy of the final inspection report and acceptance of the work by the consultants must be forwarded to the Development Coordinator. A final inspection must be arranged by the tenant with Rocky View County, once the occupancy permit is forwarded to the Development Coordinator the Airport Authority will accept the project as being complete.

7.4 Security

If the project takes place in a secure area, the Tenant is responsible for following Transport Canada regulations and providing or arranging for security escorts for the duration of the project.

7.5 Start-up Meeting

A pre-construction coordination / start-up meeting must be held prior to commencement of any work.

7.6 External Services Shut-downs/Locates & Airside Excavation

If service shutdowns within the project area are required during the construction period for any reason, the tenant or his authorized representative must make those arrangements. Forty-eight (48) hours notice will be required.

7.7 As-built Drawings

It is a condition of the Tenant's Lease Agreement that as-built drawings be submitted within 30 days of completion of the project.

7.8 Drawing Standards

In general, all drawings are to be presented on a standard B1 size format. Information is to be metric and drawing text shall be a minimum of 2.5 millimeters in height and suitable for 1/2 size printing and scanning.

Facility base information is available in AutoCAD .dwg format and it is desirable to have Tenant submissions in the same format. Calgary Airport Authority CADD Standards can be requested through the YYC Planning and Development Department.

8. Submission Requirements

A complete submission will include a completed Construction & Installation Permit application (<http://cips.yyc.com>) and detailed drawings of the proposed project.

The Tenant must check actual site conditions, verify all job dimensions against the base building information provided by the Airport Authority's Technical Data Centre and review all conditions of the Construction Schedule of the Lease Agreement, (if applicable) before proceeding with final construction drawings.

The Tenant must engage the services of licensed professionals in the design of architectural, mechanical and electrical drawings for construction and approval purposes. Drawings must bear the seal of a registered professional licensed to practice in the province of Alberta.

8.1 Construction Specifications

For all tenant projects, one digital copy of the Construction Specifications, utilizing the National Master Specification (NMS) format shall be submitted in MS Word 97 compatible format.

8.2 Construction Drawings

Construction Drawings shall be submitted in the form of one (1) set of electronic files in PDF format, unless otherwise approved or requested by the Planning and Engineering Department. One (1) set of black or blue line prints and AutoCAD files in .dwg format may also be requested for projects. Airport Authority CADD standards will be provided upon request to ensure design firms using Airport Authority CADD drawings are able to understand the information but are not required adhere it is recommended for easier sharing of information.

In general, all drawings are to be presented on a standard B1 size format, information is to be metric and drawing text shall be a minimum of 2.5 millimetres and suitable for 1/2 size printing and scanning. All Drawings are to be scale drawings with dimensions, and are to include the following:

- Key plan, showing location of project (this key plan should be at a scale large enough to show required exits/access to exits, proximity to washrooms, etc.)
- Detailed floor plans
- Exterior and interior elevations
- Sections and details, as required
- Reflected ceiling plans, as required
- All signage, including type, materials, size, and location
- Structural, mechanical, electrical, and telecommunication/data drawings as required, including details and performance characteristics of all equipment.
- Site Servicing Drawings shall show utility connection locations as well as the size of services. Where necessary, special systems or equipment drawings shall be submitted.

Standard Notes:

The following notes should appear on all drawings submitted for approval:

- “One set of Final Landlord Approved Drawings to be kept on site and available for checking at all times during construction.”
- “All materials to meet flame spread rating requirements of authorities having jurisdiction.”
- “All work to be scheduled through the Airport General Manager or the Calgary Airport Planning Coordinator so that it does not interfere with Airport operations.”

In addition to the above, the drawings should indicate:

- Leasehold location, configuration, name and leasehold reference number on a key plan.

8.3 Copyright Assignment

At the completion of the construction of the Project, the Tenant shall deliver to the Landlord, and shall ensure that any Occupant deliver to the Landlord one (1) set of electronic files in PDF format for “As-built” design, unless otherwise approved or requested by the Planning and Engineering Department. One (1) set of black or blue line prints and AutoCAD files in .dwg format may also be requested for projects. Design, construction and specification documents in PDF format with respect thereto, including copies of any other electronic data embodying such documents and any program required for the use and interpretation of such data. The Landlord acknowledges that the design, construction and specification documents, the electronic data and program, as aforesaid, are valuable to the Tenant. The Landlord shall be entitled to use such design, construction and specification documents, electronic data and program only for such purposes as contemplated by this Lease or for any purpose relating to the Project after expiration or early termination of this Lease. The Landlord shall not disclose such documents, electronic data and program to any third party other than as is reasonably necessary for the purposes, as aforesaid; PROVIDED ALWAYS, that the Landlord shall be permitted to provide such documents, electronic data and program to the Crown in order that the Landlord may comply with its obligations in respect thereof under the Head Lease.

8.4 Sample / Colour Boards

Sample/Color Boards shall be submitted when required by the Airport General Manager or the Planning & Engineering Department. Such boards shall include samples of proposed finish materials and colours, including but not limited to paint samples, floor and wall covering samples, plastic laminate samples, and illustrations of proposed lighting fixtures.

9. Tenant Construction Rules

Based on the Landlord’s experience and in order to incur the least amount of inconvenience to all concerned, the following rules and requirements are applicable to all Tenants upon starting their

construction work. These requirements will be enforced to ensure that there is no interruption to other businesses or public movement by Tenant contractor(s).

9.1 Commencement of Tenant Work

Unless otherwise expressly permitted or required by the Landlord, no Tenant Work may commence and the Tenant may not have possession of the Leased Premises until the following conditions have been satisfied:

- The Landlord has issued a Calgary Airport Authority Construction Installation Permit (CIP).
- The Landlord has approved the Tenant Design and the Tenant has submitted a construction schedule to the Landlord complete with 24-hour emergency contact list.
- All necessary approvals and permits of municipal and other governing authorities having jurisdiction over the Tenant's work have been obtained.
- The Landlord has notified the Tenant in writing of the date the Leased Premises are ready for the commencement of Tenant's Work and upon which the Tenant is to take possession.
- The Lease Agreement has been fully executed.
- The Landlord has received a development security deposit from the tenant.

9.2 Coordination / Start-up Meeting

Prior to commencing work, a site meeting shall be arranged by the Development Coordinator and attended by a representative of the Tenant, the Tenant's contractor, major subcontractors, the Tenant's consultants and the Landlord. Scheduling and coordination of all work shall be discussed including:

- all essential base building services to be maintained during construction.
- safety entry and egresses to be maintained.
- verification of construction schedule.
- verification of requirements for fire safety and construction safety to be maintained.
- noise and dust control with regard to normal building operations.
- verification of site access, storage areas and parking relative to the tenant's contractor's forces.
- scheduling of critical shut-downs and change-overs.
- Roles and responsibilities related to establishing emergency procedures.

9.3 Development Security Deposit

A refundable Development Security Deposit (up to %5 of the estimated project cost in the form of a Letter of Credit or Cheque at the discretion of the Calgary Airport Authority) is required for all land development projects. This will be returned to the tenant (with applicable interest in the case of a cheque) once all the terms and conditions of the CIP have been fulfilled. These terms and conditions include but are not limited to as-built drawings received, all deficiencies being complete, any damages cause to Airport lands repaired, any noncompliance with YBW standards complete, and all

documentation satisfied. This deposit is in addition to any lease security deposit that has been made when the lease was agreed to.

9.4 Public Safety

It is the responsibility of the Tenant to ensure that its contractors exercise all caution in matters relating to construction and public safety and to comply with the Occupational, Health and Safety standards established by authorities having jurisdiction.

Where applicable, the Tenant shall designate a member of its' contractors' forces as the Prime Contractor responsible for work site safety for the project.

From time to time, the Landlord may issue to a Tenant's contractor safety instructions, which must be strictly adhered to. All work is governed by the latest Construction Safety Act and the Tenant's contractor must abide by the Landlord's representative in these areas when required.

9.5 Security

Security of the Leased Premises during the construction and fixturing period is the sole responsibility of the Tenant. The Landlord assumes no liability for any loss or damage including the theft of building materials, equipment or supplies.

It will be necessary for all Tenants and construction personnel to comply with all applicable security legislation and regulations in effect at the Airport. Tenants and construction personnel shall adhere to security requirements such as:

- Airport Vehicle Operators Permit Policy
- Airport Security Escorts (at the Tenant's expense)

9.6 Working Hours

The Tenant's contractors and suppliers will be subject to restrictions, which may be imposed by the Landlord in regard to deliveries, hours of work, scheduling and co-ordination of work including, but not limited to night shifts and weekends.

Access to the Leased Premises for construction personnel and the delivery of material may be subject to restrictions imposed by the Landlord and the location of the Work.

Parking of vehicles by the Tenant's workforce will be confined to those specific areas set aside for them. Contractor's trailers are not permitted except by special permission of the Landlord.

9.7 Material Delivery

The Tenant and his contractor must coordinate the time, location, routing and method for all deliveries relating to the construction of the Leased Premises with the Airport General Manager or the Airport Development Coordinator.

No construction material may be stored or stockpiled in any public area.

9.8 Garbage Removal

The Tenant's contractors will be required to remove all construction debris on a regular basis. The timing for garbage removal and the location of bins should be coordinated with the Airport General Manager or the Airport Development Coordinator. In areas where the work is "airside", measures must be taken to ensure that all garbage is enclosed and does not present a danger to airside operations (F.O.D.-Foreign Object Debris). Temporary storage of garbage or debris outside of the Leased Premises will not be permitted.

9.9 Temporary Electrical Service

The Landlord, through its contractor when active on site, may provide at the Tenant's expense, temporary electrical service required during the Tenant's construction phase.

9.10 Fire Ratings

During construction and / or demolition, care must be taken by the Tenant and its contractors to maintain existing fire walls, fire proofing and fire dampers in ductwork, notwithstanding any other work that may affect the fire rating requirements of authorities having jurisdiction. If the Tenant causes any damage to the fire rating, the Landlord will advise the Tenant to perform the necessary repairs or the Landlord will repair such damage at the Tenant's expense.

9.11 Permits and Inspection Reports

The Tenant is responsible for obtaining at its own expense all approvals and / or permits pertaining to its space from all authorities having jurisdiction prior to commencement of construction.

All approvals and permits should be posted in a visible location. **Copies of all permits and inspection reports must be forwarded to the Development Coordinator.**

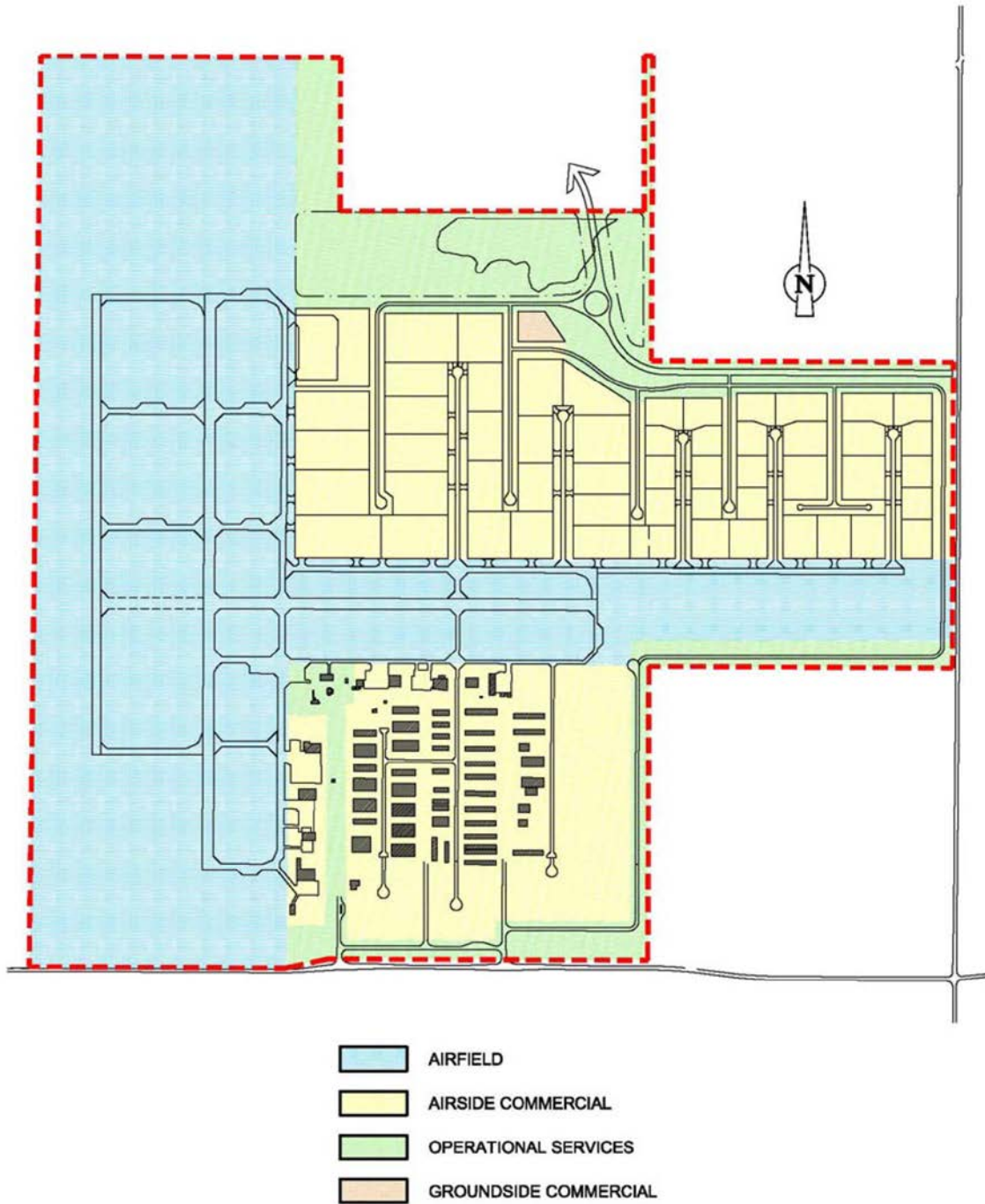
9.12 Deficiencies

The Tenant should make good any deficiencies discovered by the Landlord or by the Building Inspectors whether in his own premises or in adjacent premises affected by the Tenant's construction. Failure to comply with a written request within 30 days will cause the Landlord to correct tenant deficiencies at the Tenant's expense.

9.13 Clean-Up

The Tenant should ensure proper clean up of all areas related to its work to the satisfaction of the Landlord prior to opening for business.

Figure 1 – Springbank Airport Land Use Plan



10. Development Guidelines

10.1 Performance Standards

To ensure the safety of airport operations, no development shall cause or create any objectionable condition such as but not inclusive of the following:

- electronic interference
- air contaminants
- earthborn vibrations
- visible emissions
- heat
- particulate emissions
- odours
- toxic matter
- high brightness light sources
- attraction to birds and wildlife
- height obstructions

10.2 Utilities

To be provided to tenant on a lot specific basis, connections to existing infrastructure to be provided by the Authorities. Springbank is a fully serviced area including sanitary, storm, natural gas, telecommunication and power.

The tenant's storm water plan will be reviewed against Springbank Airport's Storm Water Management Plan.

10.3 Grading

Applicants are required to grade the Site so as to support and complement the existing drainage system throughout the airport lands.

Applicants are required to use satisfactory stormwater management techniques to ensure the stormwater runoff will not adversely affect any adjacent area.

10.4 Building Height

The height of any Building, including any Building equipment, shall not exceed an elevation that would penetrate airspace as defined by Transport Canada. Aviation Zoning Regulations have precedence over any other Building Height provisions outlined in these guidelines, where Aviation Zoning Regulations impose a lower height limit.

In general, Building height is limited to 12 metres with the exception of Aircraft Hangars where Building Heights in excess of 12 metres will be allowed as determined by The Authority. In all cases, Aviation Zoning Regulations apply.

10.5 Landscaping

To enhance the appearance of each development, all properties must be landscaped. Each applicant will provide a landscape plan for approval with their CIP application.

At a minimum the Site will be landscaped in:

- Front yards
- Side yards between the front and rear of the principal building where they are not used for vehicular circulation
- The strip adjacent to the front of the building to an average depth of 2.5 metres (using an 1:1 ratio of hard landscaping to soft landscaping)
- All adjoining boulevards

Street Tree Planting will consist of drought tolerant plant species and will emulate the wind breaks of the prairies consisting of linear plantings of poplar, ash and spruce.

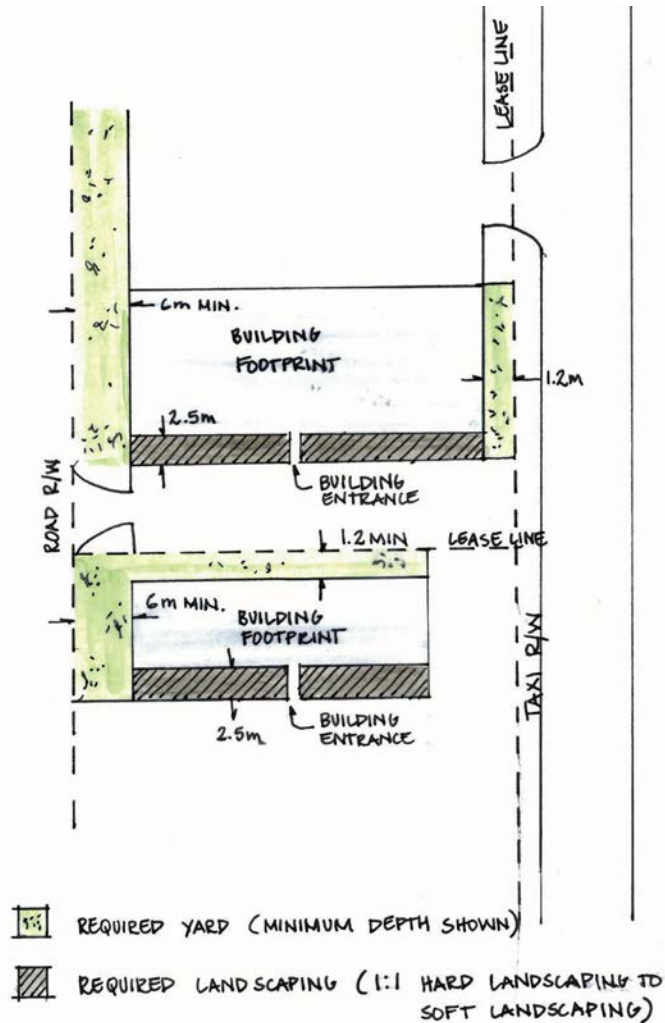
Lot landscaping should be a mixture of deciduous and coniferous trees and a variety of shrubs and planted in modules. **It is recommended that a tree species ratio of 3:2 (deciduous to coniferous) be used.**

In addition to providing screening of buildings, storage yards and tarmac areas, the landscape modules are to serve as rainwater collection sites. In effect each site is to have a trap low area which also functions as the planting bed. These trap low areas will function as mini-storage areas during storm events.

All landscape modules should be mulched with clean coniferous tree mulch to a depth of 75mm. This will reduce weeding requirements and conserve soil moisture.

For a list of acceptable and non-acceptable trees and shrubs refer to Appendix C.

Figure 2 – Landscaping and Yard Requirement Drawing



10.6 Yards

All street frontages shall be treated as front yards. If a development abuts two streets, the Springbank Airport General Manager will designate which street is the street frontage. Refer to Figure 2.

- Front yard - A minimum depth of 6 metres from the Lease Line
- Side Yard - A minimum of 1.2 metres from the Lease Line except where a side yard is used to provide vehicular access to the rear yard, in which case a side yard must be a minimum of 6 metres.
- Rear Yard - A minimum of 1.2 metres from the Lease Line except where the wall of a structure is built of a material which normally would not require maintenance.

10.7 Corner Visibility Triangle

Notwithstanding any other provisions contained in these standards, no vegetation, finished lot grade, building or structure may impede visibility within the area defined as the Corner Visibility Triangle.

10.8 Vehicle Parking Facilities

Reference Appendix 'B' for minimum dimensions.

10.8.1 Location

All parking spaces must be located on the lease.

10.8.2 Handicapped Parking

A minimum of one handicapped parking stall having a width of 4 metres, must be provided in all parking facilities, and must be clearly designated as such and located close to the Building entrances. For lots that contain 50 or more parking spaces, a minimum of two percent of the spaces must be set aside and designated for handicapped parking.

10.8.3 Surfacing

Any parking space or maneuvering area located in a front yard, side yard or main travel lane must be graveled or surface treated.

10.8.4 Number of Parking Spaces

Where the calculation of the required number of parking spaces results in a fractional number of parking spaces, the next higher number must be provided.

Developments containing or providing for more than one use must provide parking facilities that are equal to the sum of the requirements for the individual uses.

Unless otherwise allowed, the required parking facilities for any use are as follows:

Land Use	Required Number of Parking Spaces
Ancillary retail uses	Same rate as principal use
Air Traffic Control Tower	1.5 space per employee on duty at one time
Aircraft Service, aircraft specialty and paint shops	1 space per 46m ² of gross floor area
Aviation related Private clubs and organizations	1 space per 3.5m ² of net floor area.
Bed & Breakfast Homes	1 space per sleeping unit plus
Canada Customs	1 space per employee on site at one time
Emergency and Protective Services	1 space per 10m ² of gross floor area
Lounges as an ancillary use	1 space per four seats based on maximum occupancy
Maintenance Buildings	5 spaces per individual establishment, or 1 space per 3 employees on a maximum shift, or 1 space per 93m ² up to 1860m ² and 1 additional space for each subsequent 465m ² , whichever is the greatest

Museums and libraries	1 space per 46m ² of net floor area.
Offices	1 space per 46m ² of net floor area.
Participant Outdoor/Recreational Services (Soccer Pitch)	1 space per employee on duty plus 1 space per 3 users
Private General Aviation Hangers	1 space per hanger for units up to 200m ² ; 1 space per 150m ² for units greater than 200m ²
Restaurants as an ancillary use	1 space per 3.5m ² of net floor area excluding the kitchen.
Training and/or Flight schools	0.75 spaces per student plus 1 space per employee based on operating capacity.

10.9 Loading Spaces

10.9.1 Location

Loading spaces must be designed and located so that all vehicles using those spaces can be parked and maneuvered entirely within the bounds of the site before moving onto adjacent streets.

10.9.2 Dimensions

A loading space must be a minimum width of 3.1 metres and a minimum length of 9.2 metres and maintain an overhead clearance of 4.3 metres.

10.9.3 Number of Spaces

Unless otherwise allowed, the required loading facilities for any use are as follows:

Land Use	Number of Loading Facilities
Office buildings	1 space per 9300 m ² of gross floor area
Public and quasi-public buildings	1 space per 9300 m ² of gross floor area
Restaurants	1 space per 9300 m ² of gross floor area
Retail	1 space per 9300 m ² of gross floor area
Freight terminals	1 space per 1860 m ² of gross floor area
Manufacturing and industrial plants	1 space per 1860 m ² of gross floor area
Warehouses	1 space per 1860 m ² of gross floor area

10.10 Outside Storage

Outside storage may be allowed to the side or rear of Buildings provided that:

- Such Storage Areas do not include any required minimum yards, or required parking or loading spaces.
- The Storage Area is suitably shielded from the public view by an approved method of screening.
- All storage is related to business or industry located on the Site.

Outside display areas may be allowed to the front or side of a principal Building outside any required minimum yard provided that such displays are limited to examples of equipment or items related to the business or industry located on the Site.

Hazardous material storage must be compliant with applicable Federal regulations.

10.11 Refuse Areas

All proposed developments must minimize the visual impact of their refuse area.

In general, all refuse areas should be located within a principal Building, or to the side or rear of a principal Building, provided that it is not in a required minimum yard clearance or in a required parking or loading space.

Applicants are required to visually screen all refuse areas from adjacent sites and streets in a manner that is compatible with the design and external materials of the principal Building on the Site.

Refuse containers must be covered and kept cleared at all times.

10.12 Exterior Lighting

All exterior lighting must be located, oriented, and shielded so as to not adversely affect adjacent Sites, or interfere with airport operations. Specific fixture designs or shielding may be required to prevent conflict with airport operations.

10.13 Environmental Management

All development proposals within the airport boundary must comply with the environmental management guidelines established by the Airport Authority.

As part of the development process, applicants may be required to submit an Environmental Construction Operations Plan (ECO Plan, See Appendix 'D'). This is required in order for the Airport Authority to review and respond to potential environmental impacts of the proposed development on the airport lands during the planning, construction and operational phases of the development.

11. Engineering Consideration

All submissions for development and building approval must provide details consistent with the Springbank Airport – Land Use & Development Guidelines document and in accordance with the following engineering considerations.

Depending on the specific proposed development or redevelopment The Airport Authority may provide a “Tenant Package” to the applicant typically consisting of several 11 x 17 drawings detailing site specifics on dimensions, access (both airside and landside), grading and utilities.

11.1 Tenant Package

11.1.1 Geotechnical Investigation

The Airport Authority may provide geotechnical information including borehole logs and other details pertaining to existing geotechnical site conditions if they are available, depending on site location.

Regardless, proponents must undertake their own site specific investigations in order to ascertain site conditions and to gain appropriate foundation and pavement design information.

11.1.2 Site Grading

The Airport Authority will provide general site topography details. The proponent must provide verification surveys as appropriate for the proposed development. The import and export of earthworks will be the tenant's responsibility and in general must be from/to off airport locations.

11.1.3 Stormwater Management

Depending on the location of the proposed development, the proponent will need to address stormwater management as follows:

Either the site will require grading and subsequent surface treatments to direct runoff to existing drainage courses (ditches), or will be required to provide controlled release facilities. In the latter case the proponent will be required to adhere to specific detention volume and site runoff criteria which will be provided by The Airport Authority. Also in this case, the proponent's design will require catch basins and possible ICD's (inlet control devices) to provide on-site stormwater management with connection to the airport's storm trunk and pond system.

To further comply with the SWMP proponents are encouraged to utilize techniques in both their site and building design which limits runoff and recycles rainwater and snowmelt for irrigation and other uses. Green spaces should be maximized to increase water infiltration and decrease runoff. Area of green spaces should be minimum 10% of total development area.

11.1.4 Roads and Taxiways

Details of existing road and taxiways adjacent to the proposed development will be provided by The Airport Authority, including dimensions and construction cross sections. Proponents will be required to design and construct the required "approaches (road connections) and "stubs" (taxiway connections) utilizing good engineering practice. The Airport Authority can provide guidance if required.

11.1.5 Water and Sanitary Sewer

The Springbank Airport water system consists of looped pressurized water mains (typically 250mm pvc piping) on an independent water system. An underground reservoir, located west of MacLaurin Drive near the Mount Royal University hangar, maintains a volume capacity of 1,116,000 litres. The system is pressurized by two distribution pumps that maintain residual pressure between 40 and 60 psi. In addition two fire pumps driven by a diesel powered generator provide fire flow service as necessary. The design fire flow is 9,100 litres/min for two hours.

Water service generally exists adjacent to, or stubbed, into any proposed development lot. It is the developer's responsibility to connect to the stubbed line, in accordance with City of Calgary standard specifications and good engineering practice.

The Springbank Airport sanitary sewer system consists of collection lines (which generally follow the waterline alignment), two lift stations to service low lying areas, and a gravity collection system to an existing two celled lagoon located north of Runway 08-26. In order to minimize the impact on Springbank Airport's sewer system developers are encouraged to consider various forms of rainwater harvesting, and to utilize low flow washroom and related fixtures.

The Calgary Airport Authority is currently investigating several options for connecting both water and wastewater systems to nearby municipal systems.

Independent water and wastewater facilities on new development lots are not permitted, however depending on the circumstances may be reviewed on a case by case basis.

11.1.6 Shallow Utilities

Natural gas, electricity and communication infrastructure are available adjacent to most development lots and it is the tenant's responsibilities to make arrangements directly with the specific service provider (ATCO, Fortis and Telus respectively) for connections. Depending on the amount of work involved the shallow service provider may be required to submit engineering details, and obtain a CIP, separate from the developer's application.

Developers are required to submit plans and specifications as detailed in the Land Use and Development Guidelines document. In the case of site development and mechanical servicing, plans must be stamped and signed by a Professional Engineer registered in the province of Alberta.

All submissions will be reviewed for general compliance by The Calgary Airport Authority's Airport Development department.

12. Building Design Guidelines

12.1 Introduction

A key "community issue" which was identified during the preparation of the Springbank Airport 10 Year Development Plan related to the overall appearance of the airport. In general terms, area landowners felt that the Springbank Airport did not represent a high quality built environment and was visually unattractive. In addition, outdoor storage areas are in some cases very visible.

Any airport typically takes on an "industrial" character by nature. As such, simple buildings which utilize inexpensive materials (e.g. metal cladding) and outdoor storage areas are to be expected. With regard to Springbank Airport, however, there are areas which merit careful consideration prior to being developed. These areas include:

- The lands which front on to Township Road 250 and which are visible from Highway #1;
- The main access road into the airport. (MacLaurin Drive)

- Hurricane Drive

These areas are considered to be worthy of a higher degree of design control and are shown on Figure 1. If these two key corridors are developed appropriately, they will enhance – rather than detract – from the surrounding area. As such, The Calgary Airport Authority is committed to the following design guidelines for these areas.

12.2 Architectural Style

Architectural Style will not be restricted, however buildings located within the areas shown on Figure 1 will be expected to be developed to a higher design quality than those which currently exist on airport.

Prospective tenants and their designers will be required to develop buildings which will enhance these areas of the airport as well as the surrounding community.

Buildings which are in keeping with the regional architecture of the Foothills and Rocky Mountain regions will be encouraged.

12.3 Building Massing

Buildings within the Springbank Airport fall into two categories, single occupancy buildings and multi-occupancy buildings. All buildings will be considered to be comprised of two fundamental components, namely the shop/hanger portion and the office/public entrance portion.

The office component and its public entrance should face towards the front yard and the main street. In the case of corner lots, only the yards facing the main street are considered front yards.

The public entrance is to be clearly expressed architecturally to create a strong building/corporate image and sense of entrance. Massing changes, colour, material changes and entrance canopies are all examples of architectural devices which can be employed to create an appropriate sense of entrance.

The massing of the shop/hanger portion of any facility and the massing of the office/public entrance portions are to be distinct and different in profile. For example, a facility which has a large hangar structure and a protruding lower scale single storey attached office component is acceptable over a plan structural box where the office public entrance is incorporated inside the box with minimal windows and entrance doors. Architectural devices such as different roof planes and height, using different geometric shapes for the different portions of the facility, stepping walls in or out between the hangars/shops and office components are all examples of devices which will create visual interest. A two storey office component is permitted provided there is a distinct change in massing from the hangar portion of the facility.

12.4 Roofs

Variation in rooflines will be encouraged, as will be sloped roofs. Sloped roofs should have a minimum pitch of 4 in 12. Roof overhangs are encouraged.

Figure 3 – Variation in Roof Lines

12.5 Street Façade

A higher degree of architectural detail will be required on buildings within these areas. The use of more than one material on the street façade will be encouraged. The main entrance to the buildings will be located on the street façade, and will be required to be visually dominant.

Figure 4 – Visually Dominant Main Entrance

12.6 Exterior Materials

Exterior materials will not be restricted; however they will be required to be used such that they are aesthetically pleasing. The range of material colours on a building will be required to be complimentary.

12.7 Outdoor Storage

Outdoor Storage will not be permitted in the front yards of the lands in question. Outdoor storage areas will be required to be suitably screened from view through the use of fencing and/or landscaping such that they are not visible from any street, adjacent lot, or building entrance.

13. Sign Guidelines

13.1 Approving Authority

The Springbank Airport General Manager is the approving authority for sign enlargement, relocation, erection, construction or alteration. All exterior signs require authorization.

13.2 Application Requirements

An application for authorization for a sign shall be made to the The Calgary Airport Authority by the lawful owner of a sign or his authorized agent, and contain such information necessary to evaluate the application including:

A minimum of two photographs taken from different angles that adequately shows

- The proposed site
- adjoining properties
- all signs, including but not limited to signs on any building, within 30 metres of the proposed sign

Copies of a site plan to a scale of not less than 1:100, showing the following information:

- North Arrow
- Scale of plan
- Location of property
- Location of address
- Property lines or lease lines, shown and labeled
- Location of existing sidewalks
- Location of existing curbs
- Utility right-of-way or access easements, shown and labeled
- By-lawed setbacks and corner cut-offs, shown and labeled
- Outline of existing buildings on the site
- The proposed sign location, showing dimensioned distances from
 - Existing buildings on the subject site
 - Existing curb lines
 - Property line or lease line
 - Utility poles within 30 metres of the proposed sign location
 - Utility right –of-way or easements
 - By-lawed setbacks and corner cut-offs, including a dimension of any overhang or projection

Copies of detailed sign plan showing:

- The complete dimensions of the sign and its structural support
- The proposed maximum height and clearance of the sign from grade
- The position and area of any sponsor advertising where it will form part of the message to be displayed on the sign
- The message to be displayed

Copies of elevation drawings where a sign is attached to a structure or building

13.3 General Rules for Signs

- A sign shall not conflict with the general character of the surrounding streetscape or the architecture of nearby buildings.
- A sign or sign structure shall not be located or extend horizontally closer to the existing or future curb line than 750 mm back from the existing or future curb line.
- A sign shall not be attached to a light pole, public bench or in the Corner Visibility Triangle without the Springbank Airport General Manager's permission.
- If trees are removed or damaged during sign installation, new trees must be planted or landscaping improved to the Springbank Airport General Manager's satisfaction.

14. Tenant Wildlife Control Guidelines

14.1 Background

Conflicts between aircraft and wildlife are a major concern to the aviation industry. Each year, hundreds of millions of dollars are spent to repair and replace damaged aircraft parts as a result of wildlife strikes. In addition, countless delays and inconveniences result from aborted takeoffs and landings.

Birds easily adapt to human development, and make full use of the many opportunities that human activity provides. The built-up areas of airports offer these birds a variety of nesting and roosting sites, as well as sources of food.

Any bird activity that poses a threat to aviation safety should be reported to the Springbank Airport General Manager at 403.286.1494.

In an effort to assist the Airport Authority in minimizing wildlife hazards to aviation safety, the Airport Authority has developed a number of mitigation measures for tenants to guide them in their activities and operations as a part of the overall Wildlife Control Plan.

14.2 Wildlife Feeding Policy

Under no circumstances shall anyone feed wildlife, expose food wastes, or encourage wildlife to their facilities by providing nesting or other attractive forms of habitat.

14.3 Land Development

Top soil stripping of development sites should be aware that this activity will potentially attract flocks of gulls to the site to feed on worms and insects.

- If this occurs contact the Springbank Airport General Manager at 403.286.1494 who will notify the Wildlife Control staff.
- Minimize the hazard by exposing only the areas that need to be developed at that time.

Ponding on project sites will attract gulls, shorebirds and waterfowl. Ensure proper drainage on project sites. Ensure all garbage on project sites is stored in closed containers that will not allow access to wildlife.

14.4 Building Design

Consideration should be given during the design of buildings at the airport to minimize nesting, roosting, and perching habitat. It is much more cost effective to design a facility to minimize bird habitat before it is built rather than after the fact.

- Minimize ledges, holes and overhangs where pigeons and perching birds will access for nesting. (This will benefit the tenant by preventing pests, such as pigeons, from covering their windows, aircraft and walkways with droppings.)
- Slope building ledges to an angle of 45 degrees or greater

When design is not feasible or, as in most cases, the building has been standing for some time there are a number of control options:

- Screen or block holes and openings in hangars.
- Installing flexible netting across the base of rafters to exclude birds from the rafter system.
- Vertical plastic blinds installed in doors that are frequently left open will repel many birds from entering in hangars and buildings.
- Install netting, sheet metal, or other barrier materials under overhanging eaves and ledges to prevent access by swallows
- Fine parallel wires stretched across ledges or on the roof to discourage birds from perching and roosting.
- Spikes on ledges can also be effective.
- Sticky materials can be applied to ledges and perching areas but often need to be re-applied.

14.5 Landscaping

Trees and shrubs around an airport are aesthetically pleasing but can create attractive bird habitat resulting in an increased risk to aviation safety. Many common shrubs produce fruit and seeds, which in turn attract a wide variety of birds to the airport to feed. Trees can also create hazards by providing shelter, roosting and nesting sites.

In an effort to guide tenants in their landscaping decisions, the Calgary Airport Authority has developed a complete list of acceptable and unacceptable trees and shrubs. This list incorporates Transport Canada's list of Ornamental Trees and Shrubs Attractive to Birds as well as Calgary's local ornamental and native trees and shrubs. All the plants designated as unacceptable have been reviewed and a reason for the exclusion at the airport has been provided.

For a list of acceptable and non-acceptable trees and shrubs refer to Appendix C.

For more information:

Contact the Springbank Airport General Manager at 403.286.1494

Appendix A – CIP Pamphlet

The CIP process for land development projects:



THE DEVELOPMENT PROCESS FOR SPRINGBANK AIRPORT TENANTS

CONSTRUCTION & INSTALLATION PERMIT (CIP)

Questions?

General development inquiries and CIP submissions can be directed to cip@yyc.com.

Springbank Airport website: www.ybw.ca (click on About YBW Airport – YBW Airport Development) for information on development at Springbank Airport.

Calgary Airport Authority website: www.yyc.com (click on Business at YYC – Planning & Engineering – Tenant Development Services) for more information and to see a complete list of documents available for download.

SEPTEMBER 2014

PLANNING & ENGINEERING

YYC CALGARY AIRPORT AUTHORITY

What type of work requires a Construction & Installation Permit (CIP)?

- The construction or installation of any **new** building, structure or underground service (communications, utilities) on airport property.
- Any **modification to existing** buildings or structures which: changes the exterior appearance or internal floor plan; changes the use of the facility or its occupancy capacity; results in an increase or decrease in the size or elevation of a facility; or results in any increase or decrease in utilities or service connections.
- Any project which creates or modifies vehicle, aircraft or people moving facilities, including roads, parking lots, driveways, sidewalks, access/egress lanes, aircraft aprons, taxiways & runways.
- Any construction or modification of landscaping, signage, exterior lighting, gates, or fencing.
- Any demolition or removal of facilities or services.

The CIP Application Form:

The CIP application form is to be completed in its entirety and returned to the Airport Authority Development Services offices for processing. Completed CIP application forms can also be emailed to cip@yyc.com. Once the application has been submitted and checked for completeness, it will enter the preliminary review stage. The CIP Application Form is available for download at www.yyc.com (click on Business at YYC - Planning & Engineering – Tenant Development Services) or at www.ybw.ca (click on Planning Construction at YBW).

Development Security Deposit:

- A refundable Development Security Deposit (in the form of a Letter of Credit) is required for all land development projects and is returned to the Tenant once all the terms and conditions of the CIP have been fulfilled.

Development Guidelines:

- Airport land development must conform to the criteria set out in the *Springbank Airport Land Use & Development Guidelines* manual which is available for download at www.yyc.com (click on Business at YYC - Planning & Engineering – Tenant Development Services) or at www.ybw.ca (click on About YBW Airport – YWB Airport Development).
- Developments may also be subject to additional guidelines and criteria such as:
 - Environmental (ECO Plan, Erosion & Sediment Control Plan, Environmental Assessments);
 - Aeronautical & Electronic Zoning;
 - Other applicable construction and development codes & regulations.

Development Approval Checklist:

A submission for development approval requires various pieces of information to be provided to the Airport Authority. These include:

- Completed CIP application form
- Construction drawings in printed and electronic (.PDF) formats. Note: to help expedite the evaluation and approval process, the Airport Authority may request some drawings in AutoCAD (.DWG) format.
- Required environmental plans
- Development Security Deposit
- Proof of Construction Insurance
- Approved County-issued Permits
- Construction Schedule
- Project Team Contact Information

Other agencies involved and the roles they play:



- The Airport Authority will issue a Letter of Authorization for the tenant to apply to Rocky View County for a Building Permit.
- A copy of the approved permits from the County **must** be submitted to the Airport Authority prior to a CIP being issued. An approved Building Permit from the County **does not** constitute approval for a CIP application. If the project requires a Building Permit, an Occupancy Permit is issued by the County and a copy must be supplied to the Airport Authority prior to building occupancy.



Transport
Canada

Transports
Canada



- As part of the development review process, the Airport Authority may prepare a building/structure Site Analysis to be submitted to Transport Canada and NAV CANADA for review and approval. The Site Analysis identifies any potential constraints or issues arising from the proposed development (including the use of temporary construction cranes) which may impact aeronautical operations, navigation equipment or regulatory violations. **Note: major land development projects and the use of cranes require approval from Transport Canada & NAV CANADA.**

Appendix B – Vehicle Parking Minimum Dimensions

MINIMUM DIMENSIONS FOR THE DESIGN OF PARKING FACILITIES

Unless otherwise allowed, the minimum dimensions for the design of parking facilities for full sized and compact automobiles are as follows:

Stall Width (Metres)*	Parking (Angle)	Aisle Width (Metres)	Stall Width Perpendicular to Aisle (Metres)	Stall Width Parallel to Aisle (Metres)	Half Unit Parking Depth (Metres)	Full Unit Parking Depth (Metres)
FULL-SIZED AUTOMOBILES						
2.4	30°	3.2	5.0	4.8	8.2	13.2
	45°	3.6	5.8	3.4	9.4	15.2
	60°	6.0	6.2	2.7	12.2	18.4
	90°	7.9	5.8	2.4	13.7	19.5
2.6	30°	3.1	5.2	5.2	8.3	13.5
	45°	3.3	5.9	3.7	9.2	15.1
	60°	5.8	6.3	3.0	12.1	18.4
	90°	7.6	5.8	2.6	13.4	19.2
2.8	30°	3.1	5.3	5.6	8.4	13.7
	45°	3.1	6.1	4.0	9.2	15.3
	60°	5.6	6.4	3.2	12.0	18.4
	90°	7.3	5.8	2.8	13.1	18.9
2.9	30°	3.0	5.4	5.8	8.4	13.8
	45°	3.1	6.2	4.1	9.3	15.5
	60°	5.4	6.5	3.3	11.9	18.4
	90°	7.0	5.8	2.9	12.8	18.6
3.1	30°	2.9	5.6	6.2	8.5	14.1
	45°	3.0	6.3	4.4	9.3	15.6
	60°	5.1	6.6	3.6	11.7	18.3
	90°	6.7	5.8	3.1	12.5	18.3
COMPACT AUTOMOBILES						
2.3	30°	2.8	4.4	4.6	7.2	11.6
	45°	3.1	5.1	3.3	8.2	13.3
	60°	5.3	5.4	2.3	10.7	16.1
	90°	7.0	4.9	2.3	11.9	16.8

*A minimum width of 3.1 metres shall be provided wherever an end stall abuts a physical barrier.

Appendix C – Acceptable Tree and Shrub Species

TREES

Acceptable Trees			
Common Name	Latin Name	Common Name	Latin Name
Amur Maple	<i>Acer ginnala</i>	Alpine Fir	<i>Abies lasiocarpa</i>
Manitoba Maple	<i>Acer negundo</i>	Alpine Larch	<i>Larix lyallii</i>
Weeping Birch	<i>Betula pendula</i>	Bristlecone Pine	<i>Pinus aristata</i>
Green Ash	<i>Fraxinus pennsylvanica</i>	Swiss Stone Pine	<i>Pinus cembra</i>
Manchurian Ash	<i>Fraxinus mandshurica</i>	Mugo Pine	<i>Pinus mugo rostrata</i>
Black Ash	<i>Fraxinus nigra</i>	Limber Pine	<i>Pinus flexilis</i>
Butternut	<i>Juglans cinerea</i>	Scots Pine	<i>Pinus sylvestris</i>
Bur Oak	<i>Quercus macrocarpa</i>	White Spruce	<i>Picea glauca</i>
Japanese Tree Lilac	<i>Syringa reticulata</i>	Blue Spruce	<i>Picea pungens</i>
Linden	<i>Tilia cordata</i>	Colorado Spruce	<i>Picea pungens glauca</i>
Balsam Fir	<i>Abies balsamea</i>		

Unacceptable Trees		
Common Name	Latin Name	Reason
American Elm	<i>Ulmus americana</i>	Provides Nesting/Too tall
Paper Birch	<i>Betula papyrifera</i>	Provides Nesting/Too tall
Western White Birch	<i>Betula commutata</i>	Provides Nesting/Too tall
Hawthorn	<i>Crataegus Sp.</i>	Fruit bearing
Sea Buckthorn	<i>Hippophae rhamnoides</i>	Fruit bearing
Flowering Crabapple	<i>Malus X Rosybloom</i>	Fruit bearing
Siberian Flowering Crabapple	<i>Malus sibirica</i>	Fruit bearing
Amur Cherry	<i>Prunus maackii</i>	Fruit bearing
Schubert Chokecherry	<i>Prunus virginiana</i>	Fruit bearing
Bird Cherry	<i>Prunus padus</i>	Fruit bearing
Poplar	<i>Populus Sp.</i>	Provides Nesting/Too tall
Ussurian Pear	<i>Pyrus ussuriensis</i>	Fruit bearing
American Mountain Ash	<i>Sorbus americana</i>	Fruit bearing
Showy Mountain Ash	<i>Sorbus decora</i>	Fruit bearing
European Mountain Ash	<i>Sorbus aucuparia</i>	Fruit bearing
Wayfaring Tree	<i>Viburnum lantana</i>	Fruit bearing
Nannyberry	<i>Viburnum lentago</i>	Fruit bearing
Norway Spruce	<i>Picea abies</i>	Provides Nesting/Too tall
Douglas Fir	<i>Pseudotsuga menziessii</i>	Provides Nesting/Too tall
Lodgepole Pine	<i>Pinus contorta latifolia</i>	Provides Nesting/Too tall
Ponderosa Pine	<i>Pinus ponderosa</i>	Provides Nesting/Too tall
White Cedar	<i>Thuja occidentalis</i>	Provides Nesting/Too tall

SHRUBS

Acceptable Shrubs	
Common Name	Latin Name
Dwarf Balsam Fir	<i>Abies balsamea</i> 'Nana'
Hydrangea	<i>Hydrangea</i> Sp.
Mock Orange	<i>Philadelphus coronarius</i>
Golden Ninebark	<i>Physocarpus opulifolius</i>
Blue Fox Willow	<i>Salix brachycarpa</i> 'Blue Fox'
Dwarf Arctic Willow	<i>Salix purpurea</i> 'Nana'
Pussy Willow	<i>Salix discolor</i>
False Spirea	<i>Sorbaria sorbifolia</i>
Siberian Salt Tree	<i>Halimodendron halodendron</i>
Indigo	<i>Amorpha</i> Sp.
Spirea	<i>Spirea</i> Sp.
Potentilla	<i>Potentilla</i> Sp.
Rose	<i>Rosa</i> Sp.
Lilac	<i>Syringa</i> Sp.
Montgomery Blue Spruce	<i>Picea pungens</i> 'Montgomery'

Unacceptable Shrubs		
Common Name	Latin Name	Reason
Weeping Caragana	<i>Caragana aborescens</i>	Nesting/Seeds
Tidy Caragana	<i>Caragana microphylla</i>	Nesting/Seeds
Dwarf Japanese Yew	<i>Taxus cuspidata</i> 'Nana'	Fruit bearing
Dogwood	<i>Cornus</i> Sp.	Fruit bearing
Cotoneaster	<i>Cotoneaster</i> Sp.	Fruit bearing
Burning Bush	<i>Euonymus nanus</i> 'Turkestanicus'	Fruit bearing
Albol Currant	<i>Ribes aureum</i> 'Albol'	Fruit bearing
American Elderberry	<i>Sambucus canadensis</i>	Fruit bearing
Blue Elderberry	<i>Sambucus caerulea</i>	Fruit bearing
Redman Elderberry	<i>Sambucus racemosa</i> 'Redman'	Fruit bearing
Highbush Cranberry	<i>Viburnum trilobum</i>	Fruit bearing
Juniper	<i>Juniperus</i> Sp.	Fruit bearing
Broom	<i>Cytisus</i> Sp.	Fruit bearing
Silverberry	<i>Elaeagnus commutata</i>	Fruit bearing
Russian Olive	<i>Elaeagnus angustifolia</i>	Fruit bearing
Honeysuckle	<i>Lonicera</i> Sp.	Fruit bearing
Birds Nest Spruce	<i>Picea abies</i> 'Nidiformis'	Provides Nesting
Cherry Prinsepia	<i>Prinsepia sinensis</i>	Fruit bearing
Russian Almond	<i>Cherry Prinsepia</i>	Fruit bearing
Nanking Cherry	<i>Prunus tomentosa</i>	Fruit bearing
Buffaloberry	<i>Shepherdia</i> Sp.	Fruit bearing

Appendix D – ECO Plan Sample



Environmental

Construction Operations Plan

(ECO Plan) Framework

Table of Contents

ECO Plan Checklist	3
Introduction	5
Primary Responsibilities	5
ECO Plan Review Process	6
ECO Plan Framework	6
ECO Plan Process	7
STEP 1: Project Setting & Site Activities	8
1.1 Project Description	8
1.2 Policy Statement	8
The Calgary Airport Authority Environmental Policy	9
1.3 Environmental Sensitivities	9
1.4 Site Activities	10
STEP 2: Site Drawings	11
2.1 Site Drawings	11
Sample Site Drawings	12
STEP 3: Permits/Approvals & Regulatory Compliance	13
3.1 Permits, Approvals, Authorizations and Notifications	13
3.2 Regulatory Compliance	14
3.3 Environmental Issues & Impacts	15
3.4 Mitigation Strategies	16
3.5 Earthworks	18
STEP 4: Waste Management & Hazardous Materials	20
4.1 Waste Management & Hazardous Materials	20
4.2 Temporary Fuel Storage and Dispensing	22
STEP 5: Environmental Emergency Response Procedures	23
5.1 Environmental Emergency Response Procedures	23
STEP 6: Eco Plan Implementation	24
6.1 On-site Representative	24
6.2 Monitoring & Reporting	24
6.3 Training & Communication	25
6.4 Documentation	25
6.5 ECO Plan Update	26
Appendix A: Sample Mitigation Measures	28
Appendix B: Spill/Release Report	38

Environmental Construction Operations (ECO) Plan Checklist

Project Name: _____

On-Site Representative(s) (Name & Company): _____

ECO Plan submitted to (Name & Jurisdiction): _____

Note: All checklist items are expected in the ECO Plan. Explain any deficiencies in the comments section on page 4. Ensure that the checklist is signed and submitted with the ECO Plan.

ECO Plan Framework Section	Content Requirements	YES	NO	N/A
STEP 1: Project Setting & Site Activities				
1.1 Project Description	A <i>brief</i> description of the project and its location is provided.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.2 Policy Statement	Provide a policy statement that confirms the corporate commitment to the protection of the environment.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.3 Environmental Sensitivities	A scope of work and a list of all construction or related activities to be undertaken during the project are provided.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.4 Site Activities	A scope of work and a list of all construction or related activities to be undertaken during the project are provided.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STEP 2: Site Drawings				
2.1 Site Drawings	One or more site drawing(s) indicating the site location; site set-up and layout; erosion and sediment controls (as appropriate for the jurisdiction); and, environmental sensitivities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STEP 3: Permits / Approvals & Regulatory Compliance				
3.1 Permits, Approvals, Authorizations & Notifications	List of the file name, number and environmental conditions of all required project permits, approvals, authorizations and notifications.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Copies of all project permits, approvals, authorizations and notifications (and their associated applications, when referenced in the approval) are appended to the ECO Plan.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.2 Regulatory Compliance	Specific regulatory requirements (other than those listed in 3.1) that directly impact the construction project are described.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.3 Environmental Issues & Impacts	List all potential project-specific environmental issues and impacts. This includes equipment/ equipment management and landscaping, as well as that that could impact bird and wildlife, water quality and air quality.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.4 Mitigation Strategy	Procedures, controls or best management practices (BMPs) to prevent or reduce adverse impacts on the environment are provided.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.5 Earthworks	Provide a description and drawings detailing the measures that the Contractor will implement to mitigate the impacts of earthwork on the environment.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

ECO Plan Framework Section	Content Requirements	YES	NO	N/A
STEP 4: Waste Management & Hazardous Materials				
4.1 Waste Management & Hazardous Materials	Hazardous materials that will be stored on site are listed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Expected hazardous and non-hazardous waste materials along with proper handling, containment, storage, transportation and disposal methods are listed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STEP 5: Environmental Emergency Response Procedures				
5.1 Environmental Emergency Response Procedures	Potential incidents that may impact the environment are identified, and emergency response procedures to prevent and respond to incidents are provided. An environmental emergency response contact list is also provided.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STEP 6: ECO Plan Implementation				
6.1 On-Site Representative	Name(s) and contract details for the person(s) who will be the Contractor's On-Site Representative(s) are provided.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.2 Monitoring & Reporting	Project-appropriate monitoring and inspection procedures that satisfy regulatory and contractual requirements are described.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.3 Training & Communication	Training and communication details are provided.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.4 Documentation	Describe the information and/ or records that will be maintained relating to the ECO Plan and environmental matters on the project site.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.5 ECO Plan Update	ECO Plan review and update procedures are provided	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	If the ECO Plan has been updated, a table summarizing all changes is appended.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments: (Include relevant special provisions and/ or conditions for the project):

Contractor Principal-in-Charge Signature

Name (please print)

Date

INTRODUCTION

In order for the environment to be protected during construction, it is critical that all parties to Airport contracts, agreements, permits and authorizations, be aware of the environmental impact of their construction activities and provide measures and due diligence to protect the environment.

An Environmental Construction Operations Plan (ECO Plan) consists of guidelines and written procedures that address the environmental protection issues relevant to the specific project activities being performed. The Contractor must submit the ECO Plan to the Calgary Airport Authority (the Authority) prior to commencement of the work and in sufficient time to allow evaluation of the suitability of the proposed strategy. The Authority will then review the ECO Plan and address any concerns with the Contractor.

To achieve consistency in preparation of ECO Plans on Airport projects, the framework and guidelines contained in this document must always be considered when developing an ECO Plan. The framework and guidelines contain concepts and minimum submission requirements. The Contractor is encouraged to exceed the minimum submission requirements where it will enhance environmental protection. Within the framework, the Contractor will have the ability to adjust the ECO Plan based on site conditions.

It is critical that all parties are in agreement on the procedures and environmental control devices to be used for the protection of the environment. Once work has commenced, changes can be made as conditions dictate. The reasons or circumstances necessitating changes made to the ECO Plan must be documented in writing.

PRIMARY RESPONSIBILITIES

In order for the environment to be protected during construction, it is critical that all parties to Airport contracts, agreements, permits and authorizations, be aware of their respective responsibilities concerning environmental protection.

The required ECO Plan prepared by the Contractor shall be directed to the Authority. The following are the primary responsibilities of the Contractor, concerning environmental protection on Airport contracts:

- Develop an ECO Plan and submit it to the Authority for evaluation prior to commencement of the work.
- Implement environmental protection measures in accordance with the ECO Plan.
- Monitor the work zone to ensure that the ECO Plan is effective for all conditions, including inclement weather conditions and during periods of construction and shut down.
- Maintain all environmental control and protection devices.

- Take appropriate and timely action to correct any deficiencies.
- Take action (i.e. shut down work) where it is recognized that an impact to the environmental will occur.
- Plan should identify permits, approvals, authorizations, notifications, guidelines and standards applicable to the project including environmental emergency response procedures.
- Ensure that staff and subcontractors are trained and empowered to identify, address and report potential environmental problems.
- Report all environmental incidents to the Authority immediately and provide a copy of the incident report to the proper authorities.
- Attend any meetings initiated by the Authority to address any concerns regarding the performance of the ECO Plan.
- Ensure that all subcontractors comply with the ECO Plan.
- Provide a knowledgeable individual at the work site to maintain the environmental control devices and address any environmental protection issues that arise. The Contractor must identify this individual to the Authority at the construction start-up meeting.

ECO PLAN REVIEW PROCESS

For all construction and restoration projects, an ECO Plan will be prepared by the Contractor and submitted to the Authority prior to commencement of the work and in sufficient time to allow the Authority (Project Manager and Environment Group) to evaluate the suitability of the proposed plan.

Upon receipt of the ECO plan from the Contractor, the Authority's Environment Department will review it and:

- If it is to the mutual satisfaction of the Contractor and the Authority, the Environment Department will advise the Contractor or Authority Project Manager.
- If there are deficiencies or questions noted, the Environment Department will follow-up with the Contractor.
- The Contractor will make appropriate changes to the ECO Plan and resubmit it to the Authority. Once there is mutual agreement to the ECO Plan, the project may proceed.
- If, during the course of the project, it is determined that the ECO Plan is not adequate, it will be modified and accepted to the mutual satisfaction of all parties.

ECO PLAN FRAMEWORK

The purpose of the ECO Plan Framework is to provide guidance to Contractors in developing an acceptable ECO Plan for the duration of the project. The duration of the project is defined as the start of the project through to the issuance of a certificate of total performance. It is the Contractor's responsibility to prepare and determine the measures

included in an ECO Plan. This Framework describes the components and information that should be included in an ECO Plan and the steps that a Contractor will typically follow to develop and implement a Plan.

The ECO Plan details the Contractor's plan for satisfying the environmental requirements associated with the specific project. The plan must:

- Provide a statement of the Contractor's commitment for protection of the environment, compliance with environmental legislation and satisfying the Authority's contractual and policy requirements.
- Identify and address construction procedures, the environmental requirements and potential impacts associated with various construction activities.
- Provide emergency response procedures to minimize potential impacts of emergency situations on the environment.
- Describe how monitoring and reporting will be conducted to satisfy contractual and regulatory requirements.
- Describe how the ECO Plan will be implemented by establishing a plan for training, communication, documentation, auditing, management review and ECO Plan adjustments.

The ECO Plan submitted by the General Contractor must cover the activities of any subcontractors.

ECO PLAN PROCESS

The development and implementation of an ECO plan is the contractor's responsibility. The ECO Plan must include a completed ECO Plan checklist. The checklist must identify an On-Site Representative and be signed by the Contractor Principle-in-Charge. The ECO Plan checklist at the front of this document (see pages 3-4) should be used to ensure all the components of the ECO Plan are addressed. If any of the required information is not included, the ECO Plan will be considered deficient and will be returned to the Contractor for revision.

Upon receipt of the ECO Plan from the Contractor, the ECO Plan will be reviewed for completeness and:

- If accepted to the mutual satisfaction of the Contractor and the reviewer (The Calgary Airport Authority), the Contractor will be advised in writing by the relevant jurisdiction that the ECO plan is complete.
- If any deficiencies are identified or if the reviewer has any questions related to the ECO Plan, they will follow up with the contractor. If it is determined that the ECO Plan is incomplete, it must be modified and completed to the mutual satisfaction of all parties. All changes to the ECO Plan must be documented (see Section 6.5; include a revision summary table such as 6-1) and copies of the updated ECO Plan forwarded to the reviewer and other parties, as applicable. No work may begin until all parties have agreed to the ECO Plan.

Step 1 Project Setting & Site Activities

STEP 1	1.1 Project Description	A <i>brief</i> description of the project and its location is provided.
	1.2 Policy Statement	Provide a policy statement that confirms the corporate commitment to the protection of the environment.
	1.3 Environmental Sensitivities	A scope of work and a list of all construction or related activities to be undertaken during the project are provided.
	1.4 Site Activities	A scope of work and a list of all construction or related activities to be undertaken during the project are provided.

1.1 Project Description

In this section, provide a *brief* description of the project and its location.

The project should be described in sufficient detail to provide the reviewer with a basic understanding of the construction project. It should include at a minimum:

- Legal land description;
- Municipal address (if applicable); and
- Type of Project.

1.2 Policy Statement

An environmental policy statement confirms the Contractor's corporate commitment to the protection of the environment. The Contractor's policy statement must:

- Be appropriate to the nature, scale and environmental impacts of the project;
- Develop a commitment statement to the Authorities Environmental Policy that is appropriate to the project;
- State the contractor will comply with all relevant federal, provincial and municipal environmental laws; and
- Follow best management practices.

The Calgary Airport Environmental Policy

The Authority is committed to protecting the environment and will operate the Calgary International Airport and Springbank Airport to serve the community in a safe, secure and efficient manner while protecting the quality of the environment.

The Authority will:

- Ensure, as a minimum, that all practices conform to relevant federal, provincial and municipal laws
- Promote environmental awareness among Authority employees and all airport service providers
- Provide appropriate environmental training for Authority staff
- Maintain active communication regarding environmental issues
- Subject all new airport construction projects to an environmental review process
- Maintain plans and procedures to deal with environmental emergencies and take immediate corrective action in the event of an incident
- Promote sustainability in the application of our Environmental Policy through continuous improvement
- Conduct regular audits and reviews to assess the environmental condition of the Airports and facilitate preventative and corrective measures
- Be a leader of sound environmental management for airports

1.3 Environmental Sensitivities

In this section, describe site-specific sensitive or protected areas that could be impacted as a result of the contractor's activities.

The Contractor is advised to review all available environmental information and reports to pre-screen the subject site for environmental sensitivities and concerns. This section must demonstrate an understanding of the sensitive or protected areas that could be impacted as a result of the contractor's activities. Items described must be specific to the contract site.

Features that may require environmental protection should be highlighted such as:

- Wildlife and wildlife habitat;
- Waterbodies (e.g., wetlands, streams, creeks);
- Vegetation (e.g., trees, rare plants);
- Archaeological, paleontological or other historic resources; and
- Contamination.

Features described in this section must be noted and included on the site drawing(s) (see section 2.1). Detail to sensitivities are presented in section 3.

1.4 Site Activities

In this section, provide a scope of work and a list of all construction or related activities to be undertaken during the project (i.e. earthworks, surfacing, saw cutting, stream crossings). The ECO Plan will describe the Contractors specific on-site construction activities that could result in environmental impacts.

Activities and their corresponding issues and activities must be addressed for all locations related to the construction of the project. This includes (but is not limited to):

- Project site;
- Project site office location; and
- Any compounds related to materials processing and storage (batch plants, materials and waste storage compounds, maintenance compounds, parking locations, fill storage etc).

Step 2 Site Drawings

STEP 2	2.1 Site Drawings	One or more site drawing(s) indicating the site location; site set-up and layout; erosion and sediment controls (as appropriate for the jurisdiction); and, environmental sensitivities.
---------------	-------------------	--

2.1 Site Drawings

In this section, provide site drawing(s) of appropriate scale showing:

- Location of site;
- Site set-up and layout;
- Erosion and sediment controls (as appropriate for the jurisdiction; see Section 3.5 and table 3-4 for more details); and
- Environmental sensitivities (see Section 1.3 for more details).

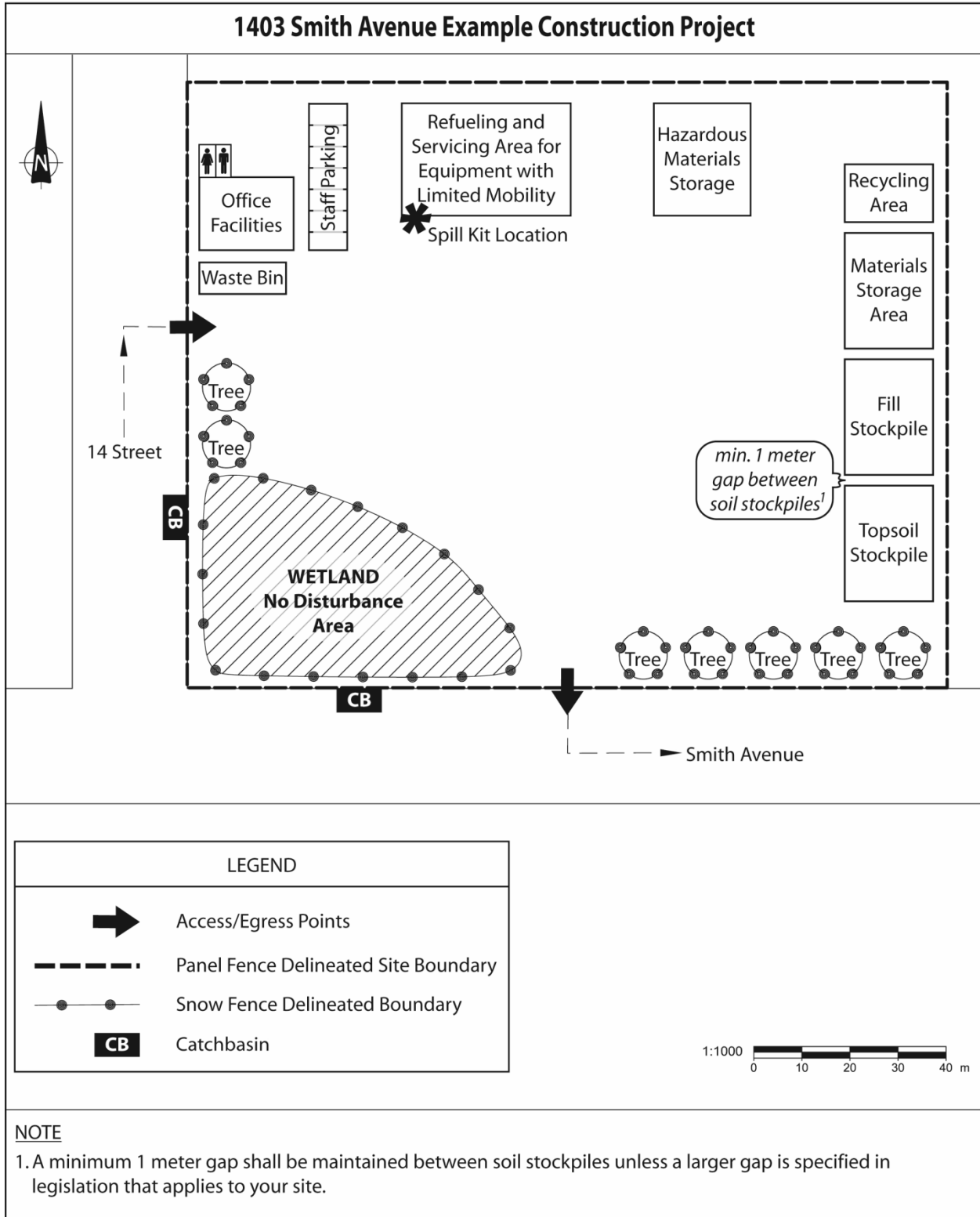
Table 2-1 provides some examples of the type of information that may be included in site drawings(s) as applicable.

Table 2-1 Information that may be included on Site Drawing(s) as applicable

Site Location	Site Set-up and Layout	Erosion and Sediment Controls	Environmental Sensitivities
<ul style="list-style-type: none"> • Site location (e.g., address) • Project boundaries 	<ul style="list-style-type: none"> • Access/egress points • Traffic routes • Temporary parking • Staging areas • Borrow areas • Stockpile locations • Refueling areas • Waste and hazardous materials storage • Offices 	<ul style="list-style-type: none"> • Project-specific erosion and sediment controls as appropriate for the jurisdiction (see Section 3.5 and Table 3-4 for more details) 	<ul style="list-style-type: none"> • Environmentally sensitive areas (e.g., wildlife and wildlife habitat; water bodies such as wetlands, streams and creeks; vegetation such as trees and rare plants) • Buffers around sensitive areas • Trees to be protected • Stormwater discharge points • Monitoring wells • Contamination

Annotated photographs can be included in this section. Super-imposing construction site set-up and operational details on aerial photographs of appropriate scale and nature is particularly informative. See the sample drawing on the following page.

Sample Site Drawing



Step 3 Permits/Approvals & Regulatory Compliance

STEP 3	3.1 Permits, Approvals, Authorizations & Notifications	List of the file name, number and environmental conditions of all required project permits, approvals, authorizations and notifications. Copies of all project permits, approvals, authorizations and notifications (and their associated applications, when referenced in the approval) are appended to the ECO Plan.
	3.2 Regulatory Compliance	Specific regulatory requirements (other than those listed in 3.1) that directly impact the construction project are described.
	3.3 Environmental Issues & Impacts	List all potential project-specific environmental issues and impacts. This includes equipment/ equipment management and landscaping, as well as that that could impact bird and wildlife, water quality and air quality.
	3.4 Mitigation Strategy	Procedures, controls or best management practices (BMPs) to prevent or reduce adverse impacts on the environment are provided.
	3.5 Earthworks	Provide a description and drawings detailing the measures that the Contractor will implement to mitigate the impacts of earthwork on the environment.

3.1 Permits, Approvals, Authorizations and Notifications

In this section, list the file name and number of all required project permits, approvals, authorizations and notifications. Describe in detail the environmental conditions prescribed by regulatory agencies in the approvals. Append copies of all project permits, approvals, authorizations and notifications (and the associated permit applications, when referenced In the approval) to the ECO Plan.

The Contractor must understand the current environmental legislation, permit conditions, approvals, authorizations and notifications applicable to the project and ensure their staff and subcontractors are familiar with these requirements. Copies of project permits, approvals, authorizations and notifications (as well as the permit applications, when relevant) should be retained on the site during all activities. Regulators may make site visits and inspections prior to, during and following construction. Many of the approvals will have been provided in the tender package. Any additional approvals that will be required to do the work must be identified in this section.

Provide the file number and the title of all required project permits, approvals, authorizations and notifications and list the environmental conditions prescribed by

regulatory agencies in those documents (i.e. Table 3-1) If the approval references the permit application, include the environmental conditions described in that application. Append copies of all project permits, approvals, authorizations and notifications (as well as the associated permit applications when relevant) to the ECO Plan.

Table 3-1 Project Permits, Approvals, Authorizations & Notifications

Project Permit, Approval, Authorization or Notification File Number and Title	Construction Activity	Example Environmental Conditions and/or Mitigation Measure(s) (as detailed in the permit, approval, authorization or notification OR its application)
Department of Fisheries & Oceans Canada Authorization CA-10-1249 Watercourse Crossings and Replacements - Tributary to Elbow River - Calgary	All Isolation and dewatering	<ul style="list-style-type: none"> No in-stream work will occur between May 1 and July 25 and Sept 16 to April 15 Operate machinery on land in a manner that minimizes disturbance to the banks and beds of the watercourse Remove fish from the work area prior to dewatering and release alive immediately into a staging area upstream or downstream
Alberta Environment & Sustainable Resource Development Authorization 37/801 to Construct the Access Road Tie-in to the Canal Pathway with the Western Headworks System Right-of-Way	All	<ul style="list-style-type: none"> Disturbance within the canal right-of-way shall be kept to a minimum. Surface disturbance within the Department's canal right-of-way is permitted only during dry and/or frozen ground conditions. No equipment is permitted within the canal right-of-way outside the work area.
Notification under the Code of Practice for Watercourse Crossings (City of Calgary file number 2013WAXP712)	Post-Construction	<ul style="list-style-type: none"> The crossing site will be inspected annually, at a minimum, during the snow free season. All monitoring will be designed and conducted by a qualified aquatic environment specialist.

3.2 Regulatory Compliance

In this section, describe specific regulatory requirements (other than permits, approvals, authorizations and notifications) that directly impact or restrict construction activities.

The contractor must understand the current environmental legislation and ensure that their staff and subcontractors are familiar with these requirements. An example of specific regulatory requirements (other than permits, approvals, authorizations and notifications) that can directly impact or restrict construction activities can be found in Table 3-2.

Table 3-2 Project regulatory requirements (other than permits, approvals, authorizations and notifications)

Name of Legislation	Construction Activity	Environmental Conditions
<i>Migratory Birds Convention Act and its regulations</i>	All	<ul style="list-style-type: none"> • Under the Act and its regulations, no disturbance to nests or nesting birds is allowed during breeding and nesting periods (generally early April to late August in most parts of Canada). To determine the requirements for a specific project, consult with Canadian Wildlife Service and provincial wildlife agencies. • Nesting and breeding are not the only periods of concern. Project plans may need to accommodate the requirements of spring and fall migration and/or overwintering migratory birds.
<i>Alberta Weed Control Act and its regulations</i>	All	<ul style="list-style-type: none"> • A person shall control noxious weeds and destroy prohibited noxious weeds that are on land the person owns or occupies. • Subject to the regulations, a person shall not use or move anything that, if used or moved, might spread a noxious weed or prohibited noxious weed. • A person shall store refuse that may contain noxious weed seeds or prohibited noxious weed seeds, including screenings from cleaning, sizing or grading seed, in a container that will prevent the scattering of the seeds.
City of Calgary Tree Protection Bylaw	All	<ul style="list-style-type: none"> • No person shall remove, move, cut, or prune a Public Tree or cause a Public Tree to be removed, moved, cut or pruned without prior written authorization from the General Manager, Parks. • No person shall use a Public Tree to secure any object.

3.3 Environmental Issues & Impacts

In this section, identify potential environmental issues and impacts that may result from construction activities. An environmental impact is a change to the environment (positive or negative) resulting from the construction activities. For the purposes of the ECO Plan, negative impacts are the primary concern.

The contractor should focus on the environmental impacts that they have reasonable control over. These potential issues and impacts resulting from the contractors activities will form the basis of the project-specific ECO Plan.

The review process for environmental issues and impacts should consider normal operating conditions as well as:

- Shut-down and start-up conditions; and
- Any reasonably foreseeable emergency or abnormal situations.

Furthermore, ensure the review addresses the following aspects of the environment:

1. Water Quality

Prevention of deleterious substances from entering sanitary, storm drainage, surface and groundwater systems.

2. Bird and Wildlife

Aviation safety is the prime concern of airport operators. All efforts should be made to minimize the attraction of birds to the site. The Environmental Group will review the ECO Plan to ensure the project is compatible with the Calgary Airport Authority Wildlife Management Program.

3. Air Quality/Ozone Depleting Substances (ODS)

Minimize the amount of emissions made to maintain a high air quality. Vehicle idling times should be minimized to reduce air pollution.

Note: Release of any ODS must be reported to the Airport General Manager at 403-735-2182

4. Equipment and Equipment Maintenance

Ensure proper procedures for containment measures (i.e. spill kits, centralized maintenance, etc.), as well as equipment storage and maintenance locations.

5. Landscaping

A timeline and process for re-vegetation should be provided, as well as a list of species to be used.

6. Noise Management

Prevent noise during evening hours to reduce the impact of noise on nearby communities.

3.4 Mitigation Strategies

Taking into account the environmental sensitivities, construction activities and regulatory requirements discussed in Sections 3.3, 3.5 and 4.1, provide a comprehensive summary description of all the procedures, controls or BMPs that will be used to prevent or reduce adverse impacts on the environment.

Mitigation measures must be developed based on the Contractor’s own site information, with reference to any relevant conditions contained within permits, approvals, authorizations and/or notifications. Mitigation measures contained in the contract must include Standard General Conditions or Standard Specifications as applicable.

An example illustrating one method of summarizing potential environmental impacts and mitigation measures is provided in Table 3-3.

Table 3-3 Potential Environmental Impacts and Mitigation Measures

Construction Activity	Potential Environmental Impact(s)	Environmental Mitigation Measure(s)
Earthworks	<ul style="list-style-type: none"> • Erosion and compaction of soils • Transport of sediment and associated contaminants by water and wind • Sedimentation in infrastructure and waterbodies • Loss of vegetation 	<ul style="list-style-type: none"> • Minimize the area of exposed soil by phasing stripping and grading work and/or ensuring timely implementation of suitable temporary or permanent soil stabilization measures • Implement, inspect and maintain erosion and sediment controls • Ensure traffic travels along pre-defined routes and within the confines of the working easements
Refueling and servicing of equipment	<ul style="list-style-type: none"> • Hydrocarbon spills 	<ul style="list-style-type: none"> • Ensure spill kits are on all vehicles and workers are trained in their use • Designate refueling areas appropriate distances from waterbodies
In stream activity	<ul style="list-style-type: none"> • Release of hydraulic fluid 	<ul style="list-style-type: none"> • Machinery for in-stream use will use vegetable-based hydraulic oil
Site Maintenance	<ul style="list-style-type: none"> • Disturbance of vegetation • Establishment of weed species 	<ul style="list-style-type: none"> • Equipment moving from areas with non-native species onto natural areas must be clean and free of weeds • Weed control will occur during active construction • The ground will be re-seeded and/or re-vegetated as soon as possible with approved species

3.5 Earthworks

The ECO Plan must contain a description and drawings detailing the measures that the Contractor will implement to mitigate the impacts of earthwork on the environment.

The following must be considered:

1. Topsoil Removal

- Removal, storage and replacement of topsoil; and
- Erosion/sedimentation control.

2. Excavation

- Removal, storage and replacement of soil horizon materials; and
- Procedures if contaminated material is encountered and how the material will be segregated and remediated.

Note: Contact the Airport General Manager at 403-735-2182 and the Environmental Services Group at 735-1407 or 735-1441 if suspected contaminated materials are encountered. Ensure the suspected contaminated material is segregated. This material cannot be used as fill until it has been remediated to Authority criteria and with approval of the Airport Authority.

3. Wetlands

- Mitigation for disruption to or replacement of wetlands

4. Site Drainage

- How the project fits within the Authority's Master Drainage Plan;
- Maintenance of drainage capability during construction;
- Temporary draining and pumping diversion locations; and
- Prevention of oil/grease and other hydrocarbons from entering storm drainage system

5. Erosion & Sedimentation Control

In this section, provide project-specific erosion and sediment controls as per the requirements of the city of Calgary (see Table 3-5)

Erosion and sedimentation are significant environmental concerns on construction projects. The Contractor must ensure erosion and sediment control measures are implemented, inspected and maintained during the term of the contract.

- Project covering an area greater than 10 acres must meet the requirements of the City of Calgary Erosion and Sediment Control Guidelines (separate plan must be submitted).
- Provide details (description, maps, etc) showing sensitive erosion areas, methods for prevention and maintenance/monitoring of erosion/sedimentation control structures.
- Dust control.
- Response to erosion events (wind and water).
- Minimization of surface disturbance.

Table 3-4 Erosion and Sediment control requirements for the City of Calgary

The City of Calgary Requirements
<p>City of Calgary projects that require an ECO Plan also require an Erosion and Sediment Control Report and/or Drawing(s). In the ECO Plan, indicate whether an Erosion and Sediment Control Report and/or Drawing was developed for the project. Please note that all Erosion and Sediment Control Reports and Drawings are to be signed and stamped by one of the following: a Certified Professional in Erosion & Sediment Control (CPESC); a Professional Engineer licensed to practice in Alberta; or, a Professional Agrologist licensed to practice in Alberta.</p> <p>The ECO Plan and the separate Erosion and Sediment Control Report and/or Drawing(s) must be submitted together to The City of Calgary Project Manager. The City of Calgary Environmental & Safety Management will review the ECO Plan, and The City of Calgary Water Resources will review the Erosion and Sediment Control Report and/or Drawing(s).</p> <p>For more information on submission requirements, refer to the current edition of <i>The City of Calgary Guidelines for Erosion and Sediment Control</i> (available at www.calgary.ca) or contact the Erosion Control Coordinator, Water Resources by phone at 3-1-1 (local Calgary calls only) or (403) 268-CITY (for callers outside Calgary).</p> <p>The ECO Plan does not replace an Erosion and Sediment Control Report and/or Drawing(s).</p>

Step 4 Waste Management and Hazardous Materials

STEP 4	<p>4.1 Waste Management & Hazardous Materials</p>	<p>Hazardous materials that will be stored on site are listed.</p> <p>Expected hazardous and non-hazardous waste materials along with proper handling, containment, storage, transportation and disposal methods are listed.</p>
---------------	---	--

4.1 Waste Management & Hazardous Materials

Materials Management

During the duration of a project, various materials are utilized for construction, rehabilitation and maintenance of equipment. The ECO Plan must identify those materials and their potential impacts.

Hazardous Materials

In order to meet contract requirements, WHMIS and Transportation of Dangerous Goods (TDG) and environmental compliance responsibilities, the ECO Plan must identify:

- Methodology to determine the presence, testing, handling and disposal of hazardous materials encountered during any demolition or re-location activities (i.e. asbestos, PCB's, lead, contamination);

Note: If a hazardous or contaminated material is encountered it must be reported to the Authority project manager and to the Environmental Services Group as soon as possible.

- Procedures to address the proper transportation, storage, containment and handling of hazardous materials;
- Locations of stored hazardous materials, spills response plan and spills response kits;
- Hazardous material inventory indicating common name, shipping name, phase, containment, Class (if applicable), availability of MSDS and quantities; and
- Site access for Emergency Response in an emergency situation.

In order to minimize the waste produced through the construction process, the following procedures are used:

- Re-use and re-cycling of demolition materials;
- Identification of waste materials generated and potential impacts on environment;
- Segregation of wastes (hazardous, non-hazardous, recyclables, etc);

- Procedures for handling, containment, storage, transportation, disposal and documentation of waste and recyclables; and
- Describe how any impacts will be mitigated (i.e. berms, liners, ponds, containers).

Table 4-1 Project Waste Materials, Estimated Quantities, and Handling and disposal procedures

Material to be Handled	Estimated Quantity of Waste	Handling Procedure	Reuse/Recycling/ Disposal Method
Non-hazardous			
Concrete	____tonnes	Break up and put in concrete bin	Recycle <i>(provide Recycling Company name)</i>
Wood	____tonnes	Stack next to supply of new form boards for reuse; recycle clean unusable forms in wood recycling bin	Scraps used for formwork, remaining recycled <i>(provide Recycling Company name)</i>
Asphalt	____tonnes	Truck directly to vendor as asphalt is stripped/removed	Recycle <i>(provide Recycling Company name)</i>
Cardboard	____tonnes	Cardboard bin	Recycle <i>(provide Recycling Company name)</i>
Metal (piping)	____tonnes	Metal bin	Recycle <i>(provide Recycling Company name)</i>
Hazardous			
Epoxy	____liters	Stockpiled separately	Container returned to distributor
Concrete washout area	____tonnes	All washout is contained in a designated lined area or is in a self-contained concrete washout system	Recycle <i>(provide Recycling Company name)</i>

4.2 Temporary Fuel Storage and Dispensing

The Calgary International Airport and associated lands are located on Federal Lands and therefore are subject to the Canadian Environmental Protection Act (CEPA) 1999 and its Regulations. The use of temporary fuel storage and dispensing facilities on Federal Lands is regulated by the *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations, CEPA 1999*. This includes but is not limited to the use of an approved petroleum storage tank, requirement for a Spills Contingency

Plan, accommodations for a third party spill recovery and remediation contractor, Emergency Spill Response Kits appropriately sized to the fueling activity, secondary containment at bulk fuel transfer sites and pending the duration the tank will be onsite, registration of the petroleum storage tank with Environment Canada's FIRSTS petroleum tank registration site.

Environment Canada Storage Tank Regulation Link:

Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations, CEPA 1999

Tank Registration Site Link:

<https://www.ec.gc.ca/rfiss-firsts/secureprotege/LoginEntree.aspx>

Step 5 Environmental Emergency Response Procedures

STEP 5	5.1 Environmental Emergency Response Procedures	Potential incidents that may impact the environment are identified, and emergency response procedures to prevent and respond to incidents are provided. An environmental emergency response contact list is also provided.
---------------	---	--

5.1 Environmental Emergency Response Procedures

The ECO Plan must identify potential incidents that, through natural causes, accidents, human error or improper work practices impact the environment. The ECO Plan must describe the emergency procedures that will be implemented to address the potential incidents.

Potential incidents may include:

- Spills and releases (land, water and air)
 - Fuels;
 - Oils and lubricants;
 - Chemicals;
 - Biological agents; and
 - Other substances that may be harmful to the environment.
- Erosion events (water and wind)

Address the following in the ECO Plan:

- Minimization of potential for spills of hazardous substances
- Resource assessment and allocation for response to spills
- On-site location of environmental emergency response plan

Note: As per Calgary Airport Authorities spills policy, all spills must be reported to the Airport General Manager at 403-735-2182 and a Spills Report (see Appendix B) is completed and faxed to the Airport General Manager at 403-288-4488

Step 6 ECO Plan Implementation

STEP 6	6.1 On-Site Representative	Name(s) and contract details for the person(s) who will be the Contractor's On-Site Representative(s) are provided.
	6.2 Monitoring & Reporting	Project-appropriate monitoring and inspection procedures that satisfy regulatory and contractual requirements are described.
	6.3 Training & Communication	Training and communication details are provided.
	6.4 Documentation	Describe the information and/ or records that will be maintained relating to the ECO Plan and environmental matters on the project site.
	6.5 ECO Plan Update	ECO Plan review and update procedures are provided If the ECO Plan has been updated, a table summarizing all changes is appended.

6.1 On-Site Representative

In this section, provide the name(s) and contact details for the person(s) who will be the Contractor's On-Site Representative(s).

The Contractor must identify an on-site individual to be the Contractor's On-Site Representative; this individual is responsible for maintaining the environmental controls and addressing any environmental issues or questions that arise. The Contractor must identify their On-Site Representative on the ECO Plan Checklist and at the pre-construction meeting.

6.2 Monitoring & Reporting

The Contractor will develop appropriate monitoring procedures consistent with the contract terms and conditions, site characteristics, work activities and potential environmental risks associated with the work to be performed. It is the Contractor's responsibility to understand and comply with the reporting requirements and to ensure all of the environmental controls are working.

In this section, include the following project-specific information:

- Locations and items to be inspected;
- Monitoring frequency;
- Monitoring during scheduled shut-downs;

- Reporting requirements related to permits, approvals, authorizations and notifications;
- Monitoring water quality;
- Monitoring solid erosion; and
- Spills reporting.

6.3 Training & Communication

In this section, provide training and awareness procedures that will be used to inform all staff and subcontractors of their ECO Plan responsibilities associated with their activities on the construction site.

The Contractor is responsible for ensuring that workers are aware of applicable environmental legislation and project-specific requirements prior to work commencing. All personnel on a construction site have the potential to create an impact on the environment. Therefore, effective communication of environmental responsibilities to all staff, including subcontractors, is essential to ensure environmental protection. Describe the communication that will be conducted through the duration of the project relating to the ECO Plan. Although each project may differ, communication with managers, staff, other Contractors and Subcontractors, the Authority and regulatory agencies may include:

- Daily, weekly or monthly meetings.
- Daily, weekly or monthly reports.

In implementing training and awareness into the ECO Plan, the plan should contain procedures such as:

- Training and awareness sessions;
- Tailgate meetings;
- A description of meeting frequency;
- A log of trained and updated staff;
- A bulletin board and memorandum circulation; and
- Encourage employee to submit ideas and suggestions.

6.4 Documentation

Describe the information that will be kept to document the significant events relating to the implementation and adjustment of the ECO Plan. A binder or file with all relevant information should be retained at the construction site. The following are some of the events that should be documented:

- Accidents, spills and releases must be reported using the Authority spills reporting policy;
- Reviews, improvements and adjustments to the ECO Plan;
- Training;

- Materials inventory;
- Waste Inventory;
- Equipment inspections and maintenance; and
- Monitoring and maintenance of erosion and sediment controls.

6.5 ECO Plan Update

ECO Plan updates are generally required in two main circumstances:

- When an ECO Plan is deficient and returned to the Contractor for revision prior to the start of construction.
- When site conditions and/or site activities change during a project or the project changes.

All changes to the ECO Plan must be documented (include a revision summary table Such as Table 6-1). Clearly summarize what changes have been made and where they are located in the document, referencing applicable sections, pages, drawings and/or note numbers. This revision summary should be located at the front of the revised ECO Plan (just after the cover page). Revised ECO Plans must be forwarded to the reviewer and other applicable parties.

If an ECO Plan is determined to be deficient at the review stage, the Contractor is required to modify and complete it to the mutual satisfaction of all parties. No work may begin until all parties have agreed to the ECO Plan.

All ECO Plans must be designed to change according to site conditions and/or site activities with a goal of continually meeting environmental requirements and providing details to proactively protect the environment. For example, in the case of unplanned winter shut-downs, the Contractor must revise the ECO Plan to include the environmental protection measures required for the shut-down period.

Once the ECO Plan is updated, the Contractor is responsible for notifying the Calgary Airport Authority of the changes prior to implementation. The Contractor shall communicate the changes to employees and relevant subcontractors, and provide the necessary training before implementing the changes. Modifications to the ECO Plan must provide an equal or better level of avoidance or mitigation. All changes to the ECO Plan must be documented.

Table 6-1 Example: ECO Plan Revision Summary Table

Date	ECO Plan Section	Specific Document Reference (Page #, Drawing # or Note #)	Description of Change
25 Jan 2013	1.3	Page 4	In paragraph 5, change the words, "investigate the release", to the words "review details of the release".
	2.2	Drawing 2-2	Add Spill Kit location to Site Drawing 2-2.
	5.3	Page 25	Modify Table 5-16 to add the Department of Fisheries and Oceans Canada to the list of regulatory agencies that are contacted.
28 Feb 2013	6.1	Page 32	Modify Step 6 to add "Environmental Site Information Database Change Request Form and Reports (i.e., Phase II ESA, remediation reports, groundwater monitoring reports.)"

APPENDIX “A”

Sample Mitigation Measures for Typical Airport Activities

Project Activity	Mitigation
Typical Construction and Decommissioning Activities	
Demolition/ Dismantling	<ul style="list-style-type: none"> Asbestos removal - Because of the potential danger to human health, any project requiring asbestos removal should be undertaken following YYC Asbestos Remediation Policy and procedures for working with Asbestos. Old wiring/electrical components to be removed should be inspected for PCB's. If present, they should be handled according to the proper guidelines. Asphalt must be disposed of at approved sites and under no circumstances should it be disposed of along roadsides etc.
Clearing/Cutting Trees/Shrubs	<ul style="list-style-type: none"> Sensitive areas should be cleared in a manner as to minimize disturbance to surface vegetation and soils. Vehicle access should be restricted in sensitive areas. The debris disposal site should be located away from water bodies and be surrounded by a natural vegetative buffer. Vegetation and topsoil should not be removed within 100 m of water bodies. Organic topsoil or debris should be stored for later site restoration. DFO (Department of Fisheries and Oceans) should be consulted if vegetation / trees have to be removed adjacent to fish bearing streams.
Vegetation Removal	<ul style="list-style-type: none"> City of Calgary Guidelines for Erosion and Sediment Control and Field Manual for Effective Erosion & Sediment Control http://www.calgary.ca/. Minimize the area affected if it provides critical food, cover or reproduction areas for aquatic fauna; or unique habitat or food for terrestrial fauna. The area affected should be minimized if it provides shade to a stream; the micro-climate for rare, unusual or interesting plant communities or shade for visitor areas. Schedules for vegetation cutting or removal should have a minimum effect on sensitive species (e.g. predators / prey use).
Topsoil Stripping	<ul style="list-style-type: none"> City of Calgary Guidelines for Erosion and Sediment Control and Field Manual for Effective Erosion & Sediment Control http://www.calgary.ca/ Sod and topsoil should be should be stored for later uses such as site restoration.
Fencing	<ul style="list-style-type: none"> Washdown material or run-off from cast in place concrete work will be trapped onsite and not allowed to enter drainage system. Build as per Transport Canada security fence specifications.
Temporary Roads	<ul style="list-style-type: none"> City of Calgary Guidelines for Erosion and Sediment Control and Field Manual for Effective Erosion & Sediment Control http://www.calgary.ca/ Construction of temporary roads should be avoided unless absolutely necessary. See Access Road Development for more mitigation.
Dewatering/Draining	<ul style="list-style-type: none"> Timing windows of allowable instream work should be confirmed with DFO. The activity should be scheduled to prevent interference with fish migration and spawning periods. Temporary drainage should be designed to minimize the run-off from precipitation and increase percolation and the recharge of groundwater. City of Calgary Guidelines for Erosion and Sediment Control and Field Manual for Effective Erosion & Sediment Control http://www.calgary.ca/

Project Activity	Mitigation
<p>Channeling/ Dredging</p>	<ul style="list-style-type: none"> • City of Calgary Guidelines for Erosion and Sediment Control and Field Manual for Effective Erosion & Sediment Control http://www.calgary.ca/ • Downstream flooding may occur if the new channel is straighter and permits higher flow velocity than the former, or if the new channel avoids the meanders and ox-bow lakes of the old bed. The impacts of flooding can be minimized by studying the capacity of the downstream area to handle the new flood conditions. • The undesirable effects of channeling can be lessened by minimizing the use of rip-rap in developed areas. Other bank stabilization techniques may be more environmentally sensitive. Consult a bio-engineer or DFO staff to discuss other options.
<p>Dredgate Disposal</p>	<ul style="list-style-type: none"> • City of Calgary Guidelines for Erosion and Sediment Control and Field Manual for Effective Erosion & Sediment Control http://www.calgary.ca/ • Dredgate shall be disposed of at approved disposal sites. • Berms should be used to prevent leaching or movement of dredgate back into the water. • Soil disposal sites should be graded and seeded as soon as practical after completion of work.
<p>Rock Blasting/ Drilling</p>	<ul style="list-style-type: none"> • No blasting within 400 m of a water body, or within 100 m of critical wildlife habitat. Blasting is prohibited underwater. • Notify appropriate regulatory bodies before blasting. • Provide retention ridges to prevent material from rolling down blasted slopes. • Avoid blasting during temperature inversions. • Avoid blasting when wind conditions blow toward populated areas. • Blasting should not occur during sensitive periods for wildlife (e.g. migratory bird staging). When wildlife are within 500 m of proposed blasting operations, blasting should not be undertaken until the animals are moved or herded from the area by provincial or federal wildlife staff. Blasting must not be undertaken within 500 m of inhabited cliff nests or where mammal calving or den activities are occurring. • Blasting should be minimal and executed as quickly as possible to reduce the temporary disruption and displacement of bird and mammal populations in the area. • Run-off from blasting or drilling should be collected and treated to reduce acidity or toxicity, before being released to surface waters. • Minimize blast energy by using low velocity charges, multiple charges and special detonation techniques. • Minimize damage to surroundings by the use of blasting mats and blast detectors.
<p>Earthworks (Cut/Fill)</p>	<ul style="list-style-type: none"> • City of Calgary Guidelines for Erosion and Sediment Control and Field Manual for Effective Erosion & Sediment Control http://www.calgary.ca/ • Cut/fill procedures should not be undertaken in environmentally sensitive areas or within 100 m of water bodies. • Slopes in cut / fill operations should not exceed 33 degrees. • Steep slopes and ditch bottoms should be blanketed for containment and protection against erosion. • See section on Clearing, Grading, or Landscape / Erosion Control for more mitigation measures.
<p>Excavation</p>	<ul style="list-style-type: none"> • City of Calgary Guidelines for Erosion and Sediment Control and Field Manual for Effective Erosion & Sediment Control http://www.calgary.ca/ • Retain as much natural vegetation cover as possible.

Project Activity	Mitigation
Excavation cont'd	<ul style="list-style-type: none"> • Avoid excavation on or near critically erodible or unstable soils, steep slopes and stream banks. • Do not disturb unstable clay areas. • Steep slopes and ditch bottoms should be blanketed for protection against erosion. • Maintain a buffer zone between sensitive areas and construction. • Install sediment trap basins or ponds to prevent escape of silted water to nearby watercourses. • Stockpile topsoil from excavated areas for subsequent re-application to other areas. • Do not dump fill in streams. • Cover temporary fills or stockpiles with polyethylene sheeting or tarps.
Excavated Earth Disposal/Fill	<ul style="list-style-type: none"> • City of Calgary Guidelines for Erosion and Sediment Control and Field Manual for Effective Erosion & Sediment Control http://www.calgary.ca/ • Earth disposal / fill sites should be located at least 100 m away from watercourses.
Grading	<ul style="list-style-type: none"> • City of Calgary Guidelines for Erosion and Sediment Control and Field Manual for Effective Erosion & Sediment Control http://www.calgary.ca/ • Graders should not operate off the road surface. • Ditches should be graded to a preferred side slope of 3 (horizontal) to 1 (vertical) or flatter. • Slopes resulting from grading should be re-vegetated for erosion control. • Smoothly graded cut and fill slopes should be avoided. Surfaces should be roughened perpendicular to the flow direction in order to retard run-off and increase filtration.
Landscaping/ Erosion Control	<ul style="list-style-type: none"> • City of Calgary Guidelines for Erosion and Sediment Control and Field Manual for Effective Erosion & Sediment Control http://www.calgary.ca/ • Refer to the YYC Wildlife Management Program for mitigation measures with respect to planting of fruit bearing trees and shrubs and bird hazards to aviation safety. • The upper 1 foot of a sloped surface must be compacted to 90% of its maximum density at optimum moisture. • A cut slope must be capped with clay or vegetation. • Grade surfaces must be roughened perpendicular to drainage flow. • Exposed soil should be re-vegetated promptly, or covered with a polyethylene tarp until re-vegetation is practical, to prevent erosion. • When landscaping at airports, planting of fruit bearing shrubs or trees which will attract herbivores, particularly birds should be avoided. Birds pose a safety hazard to aircraft. • See YYC preferred plant list.
Gravel Crushing	<ul style="list-style-type: none"> • Restrict gravel crushing and washing to favourable climatic conditions (e.g. when the wind is blowing away from residential areas). • Water used to wash concrete should not be allowed to enter directly into water bodies.
Concrete/asphalt batch production	<ul style="list-style-type: none"> • Alberta Environment Code of Practice for Asphalt Paving Plants and Code of Practice for Concrete Producing Plants.
Disposal of Rock/Aggregate	<ul style="list-style-type: none"> • Do not push or dump any type of fill in streams. Disposal sites should be located at least 100 m from streams. • Rock or aggregate should be stored at an appropriate site and re-used when possible.

Project Activity	Mitigation
<p>Disposal of Rock/Aggregate</p>	<ul style="list-style-type: none"> • If there are asphalt compounds involved, then mitigations described in Demolition /Dismantling must be referred to.
<p>Dumping Core Material</p>	<ul style="list-style-type: none"> • Material should be disposed according to applicable legislation
<p>Access Road Development</p>	<ul style="list-style-type: none"> • City of Calgary Guidelines for Erosion and Sediment Control and Field Manual for Effective Erosion & Sediment Control http://www.calgary.ca/ • Avoid constructing temporary roads. • Locate roads to minimize erosion and preserve the natural environment. • No road grade should exceed 12%, or 5% near water bodies. • Provide a buffer strip of 100 m near water bodies. • Construction should take place in the specified period only, to reduce wildlife impact.
<p>Paving/Surfacing</p>	<ul style="list-style-type: none"> • Asphalt and concrete work should be done during the summer (dry) months in order to reduce contaminated run-off from the freshly laid surfaces. • A “natural drainage” concept should be adopted involving the siting of impermeable surfaces as far as possible from ground water recharge zones. • Locate catchment facilities around the periphery of airport runways and aprons to channel runoff to one location (storage lagoon) for possible separation and recovery. • Only approved sealants should be applied to asphalt areas.
<p>Culvert Installation/ Removal</p>	<ul style="list-style-type: none"> • When installing a culvert at a stream crossing, guidelines provided by DFO must be followed. Consult with local DFO staff regarding distribution, and presence of fish in the stream or watercourse. An acceptable period of construction would be a time span in which there are no fish or fish eggs present in the water bodies. • Soil displacement and leveling of forested areas are minimized to control erosion. Temporary access to the stream should be made by fill ramps, and not excavated through banks. When use of heavy equipment is required in the stream, the same stream crossing or entrance area should be used every time. • Temporary water diversions or coffer dams may be required at stream crossings to form settling basins for the control of siltation. • Reconstruct and re-vegetate stream banks to their original condition as soon as the activity is complete. All disturbed areas should be left in a stabilized condition. • Ensure that all construction equipment used is mechanically sound to avoid leakage of oil, gasoline, hydraulic fluids and grease. • Any artificial structure or stream channel change that causes a permanent blockage to migration of fish should incorporate a permanent fish passage structure.
<p>Placing Concrete</p>	<ul style="list-style-type: none"> • Asphalt and concrete work should only be done during the summer (dry) months in order to reduce contaminated runoff from freshly laid surfaces from entering watercourses. • Wash-down material or run-off from exposed cast-in-place concrete and concrete trucks should be trapped on-site by interceptor dikes, settling ponds, storage lagoons or other facilities. The sediment must be allowed to settle out and reach neutral pH before the clarified water is released to the drain system or allowed to percolate into the ground (48 hours). Failure to do this could lead to serious water quality and fisheries impacts. • Suitable materials that have a smaller environmental impact than concrete should be considered.

Project Activity	Mitigation
<p>Building/Erecting</p>	<ul style="list-style-type: none"> • Alberta Building Code and Alberta Fire Code for proper building and siting procedures. • Proper building and sitting procedures should be followed to minimize the visual and environmental impacts.
<p>Removal of Temporary Structures</p>	<ul style="list-style-type: none"> • Ensure that any materials to be disposed are done so according to applicable legislation. • Ensure that site of former structure is returned to as natural a state as possible (e.g. re-vegetation of area).
<p>Structure Abandonment</p>	<ul style="list-style-type: none"> • Any structure to be abandoned should be inspected for contamination. In particular, inspections should look for asbestos, PCBs' (often found in old wiring), abandoned underground / aboveground storage tanks and soil contamination from petroleum products. • If any of these materials are found they should be dealt with according to the proper guidelines (e.g. <i>The Environmental Code of Practice for Aboveground and Underground Tank Systems Containing Petroleum</i>) See sections on Asbestos, Asphalt and Pesticides for mitigations involving these substances.
<p>Laying Topsoil</p>	<ul style="list-style-type: none"> • Newly laid topsoil should be re-vegetated promptly to prevent erosion. • City of Calgary Guidelines for Erosion and Sediment Control and Field Manual for Effective Erosion & Sediment Control http://www.calgary.ca/
<p>Planting/Seeding</p>	<ul style="list-style-type: none"> • YYC Wildlife Management Program for mitigation measures with respect to planting of fruit bearing trees and shrubs and bird hazards to aviation safety. • Save and transplant species from within the property, rather than planting from areas outside the property to ensure they adapt to local conditions. • If transplanting within the site is not practical, then plants native to the region should be planted.
<p>UST Installation/ Removal</p>	<ul style="list-style-type: none"> • All tanks on Federal lands that are bigger than 250 liters must comply with the "Storage Tank Systems for Petroleum Products and Allied Petroleum Products" regulation. • All tanks must be ULC certified and inspected by the City of Calgary Fire Prevention Bureau. • Canadian Standards Association (CSA) B836 Storage, Handling, and Dispensing of Aviation Fuels at Aerodromes. • Tenant will develop a site specific Spills Response Plan in association with the YYC Environmental Emergency Contingency Plan to mitigate possible spills and conduct regular monitoring. • All fuel storage tanks, 250 Litres or greater must be installed accordance with the <i>Environmental Code of Practice for Aboveground and Underground Tank System Containing Petroleum Products</i>, and the <i>National Fire Code of Canada</i>. • Both aboveground and underground fuel storage tanks must be removed in accordance with <i>The Canadian Council of Ministers of the Environment (CCME) Environmental Code of Practice for Aboveground and Underground Tanks Systems Containing Petroleum Products (Publication CCME EPC-LST-61E)</i>.
<p>AST Installation/ Removal</p>	<ul style="list-style-type: none"> • All tanks on Federal lands that are bigger than 250 liters must comply with the "Storage Tank Systems for Petroleum Products and Allied Petroleum Products" regulation. • All tanks must be ULC certified and inspected by the City of Calgary Fire Prevention Bureau. • Canadian Standards Association (CSA) B836 Storage, Handling, and Dispensing of Aviation Fuels at Aerodromes.

Project Activity	Mitigation
AST Installation/ Removal cont'd	<ul style="list-style-type: none"> • Tenant will develop a site specific Spills Response Plan in association with the YYC Environmental Emergency Contingency Plan to mitigate possible spills and conduct regular monitoring. • All fuel storage tanks, 250 Liters or greater must be installed in accordance with the <i>Environmental Code of Practice for Aboveground and Underground Tank System Containing Petroleum Products, and the National Fire Code of Canada.</i> • Both aboveground and underground fuel storage tanks must be removed in accordance with <i>The Canadian Council of Ministers of the Environment (CCME) Environmental Code of Practice for Aboveground and Underground Tanks Systems Containing Petroleum Products (Publication CCME EPC-LST-61E).</i>
OPERATIONAL (Airport and Tenant) Activities	
Aircraft Movement	<ul style="list-style-type: none"> • Follow all applicable Noise Abatement Procedures (NAPS). • The impact of noise resulting from the operation of helicopters, airplanes and/ or vessels can be minimized by avoiding particular areas such as farms, wildlife areas and areas in which citizens have lodged prior complaints regarding noise nuisance.
Aircraft De-icing	<ul style="list-style-type: none"> • Only Aprons I, II, VII and IX permit aircraft de-icing operations and must follow the current Glycol Mitigation Plans for those areas. • All run-off which is a result of de-icing activities should be collected and treated before being released to the storm drain system.
Aircraft Washing	<ul style="list-style-type: none"> • Washdown water from the vessel or aircraft which contains cleaning agents, as well as other contaminants such as grease, oil or rust remover should not be allowed to enter nearby water bodies through drainage systems. Instead, the water should be directed to a facility with proper treatment such as a sanitary sewer system and/or oil water separator. • Aquifer recharge areas or areas with shallow water tables should be avoided for this activity.
Aircraft Re-fuelling	<ul style="list-style-type: none"> • <i>Canadian Standards Association (CSA) B836 Storage, Handling, and Dispensing of Aviation Fuels at Aerodromes.</i> • Tenant will develop a site specific Spills Response Plan in association with the YYC Environmental Emergency Contingency Plan to mitigate possible spills and conduct regular monitoring.
Fuel Storage	<ul style="list-style-type: none"> • See UST and AST Installation/Removal for information on proper installation of tanks for fuel storage.
Fuel Dumping	<ul style="list-style-type: none"> • Disposal of all hazardous waste materials should be made in conformance with all applicable legislation. (eg. TDG Regulations, WHMIS, Alberta Fire Code)
Vehicle Movement	<ul style="list-style-type: none"> • The impact of noise resulting from the operation of helicopters, airplanes and/ or vessels can be minimized by avoiding particular areas such as farms, wildlife areas and areas in which citizens have lodged prior complaints regarding noise nuisance. • Development of an idling policy for equipment.
Noise Generation	<ul style="list-style-type: none"> • See discussion of noise generation under Blasting and Drilling.
Firefighting	<ul style="list-style-type: none"> • Restrict fire fighting training to favorable climatic conditions (e.g. wind blowing away from an urban area). Also restrict fire fighting exercises to periods of low cloud overhang in combination with high humidity and minimal wind conditions.
Aircraft	<ul style="list-style-type: none"> • Tenant will develop a site specific Spills Response Plan in association with

Project Activity	Mitigation
Maintenance	<p>the YYC Environmental Emergency Contingency Plan to mitigate possible spills and conduct regular monitoring.</p> <ul style="list-style-type: none"> • A centralized area should be used for maintenance which is removed from or is buffered from sensitive areas, shallow aquifers or water bodies. • All wastes associated with maintenance should be disposed of in conformance with applicable regulations. (eg. TDG Regulations, WHMIS, Alberta Fire Code)
Equipment Maintenance	<ul style="list-style-type: none"> • See Aircraft Maintenance for mitigations
Use of Controlled Products or other Hazardous Materials	<ul style="list-style-type: none"> • Ensure all proper precautions are taken. • Ensure materials are disposed according to applicable legislation. (eg. TDG Regulations, WHMIS, Alberta Fire Code)
Use of Degreasers, Fuel, Oil, Grease, Solvents, Cleaner, Antifreeze	<ul style="list-style-type: none"> • Canadian Standards Association (CSA) B836 Storage, Handling, and Dispensing of Aviation Fuels at Aerodromes. • Tenant will develop a site specific Spills Response Plan in association with the YYC Environmental Emergency Contingency Plan to mitigate possible spills and conduct regular monitoring. • Rinsing, cleaning water or solvents for glues, paints, wood preservatives and other potentially harmful or toxic substance on the site should be controlled to prevent leakage, loss or discharge into the storm drain system. • Fueling and oil changes for construction equipment should only take place in specified areas and under controlled conditions (i.e. in diked areas). • Fueling or maintenance should not take place within 100 m of any water body. • Areas having shallow aquifer systems or low permeability solids should also be avoided for such activities. • Ensure materials are disposed according to applicable legislation. (eg. TDG Regulations, WHMIS, Alberta Fire Code)
Hazardous Material Storage	<ul style="list-style-type: none"> • See Fuel storage and Use of Degreasers, Fuel, Solvents, Cleaners and Antifreeze for additional mitigations.
Hazardous Material Disposal	<ul style="list-style-type: none"> • Disposal of all hazardous waste materials should be made in conformance with applicable legislation. (eg. TDG Regulations, WHMIS, Alberta Fire Code) • See additional details of disposal of the following wastes: Asbestos, Asphalt, Pesticides.
Paint Removal/ Sandblasting	<ul style="list-style-type: none"> • Paint is considered a deleterious substance by DFO and therefore it must not be released in any form into fish habitat. • Sandblasting should be done when favourable wind conditions exist • Storage of paint must meet Alberta Fire Code.
Painting	<ul style="list-style-type: none"> • See Paint Removal / Sandblasting for mitigations.
Aircraft/Vehicle Storage	<ul style="list-style-type: none"> • Tenant will develop a site specific Spills Response Plan in association with the YYC Environmental Emergency Contingency Plan to mitigate possible spills and conduct regular monitoring. • If vehicle / vessel / craft may leak fuel / oil or other toxic substances, ensure they are stored away from areas with shallow water tables, ground water re-charge areas, storm drains etc.
Material/Equipment Storage	<ul style="list-style-type: none"> • Tenant will develop a site specific Spills Response Plan in association with the YYC Environmental Emergency Contingency Plan to mitigate possible spills and conduct regular monitoring. • Ensure that if materials are toxic they are stored according to applicable legislation.

Project Activity	Mitigation
Material/Equipment Storage cont'd	<ul style="list-style-type: none"> If equipment may leak fuel / oil or other toxic substances, ensure they are stored away from areas with shallow water tables, ground water re-charge areas, storm drains etc.
Facility Maintenance	<ul style="list-style-type: none"> Rinsing, cleaning water and other potentially harmful or toxic substance on the site should be controlled to prevent leakage, loss or discharge into the storm drain system.
Cleaning	<ul style="list-style-type: none"> See Aircraft Washing for mitigations. Rinsing, cleaning water and other potentially harmful or toxic substance on the site should be controlled to prevent leakage, loss or discharge into the storm drain system.
Salting/Sanding	<ul style="list-style-type: none"> Excessive use of road salts as a chemical de-icing agent should be avoided to prevent the contamination of surface and groundwater regimes, soil and vegetation. Their use should be limited to main travel routes. To reduce the amount of salt required, consider pre-wetting the salt, combining the use of abrasives (sand/gravel) and/or early snow removal from the road surface. The use of urea based de-ice fluids should be avoided due to the impacts on local streams and water bodies. Salt and other road chemicals should be properly stored in designated areas only, preferably in dry sheds to prevent infiltration of leachate to the water table, and surface runoff. Accumulated snow that may be contaminated with salt should be disposed of only at approved dump sites or designated areas. Snow containing salt or sand should never be dumped in, or allowed to melt and run off into watercourses. Storage areas and road surfaces where salt and sand has accumulated must be cleaned up immediately following the spring melting period.
Stockpiling Sand/Soil/Salt	<ul style="list-style-type: none"> See Salting / Sanding for mitigations
De-Icing/rubber removal	<ul style="list-style-type: none"> See Aircraft De-Icing for mitigations
Water Storage	<ul style="list-style-type: none"> If chlorinated water tanks are onsite routine check for leakages from the system should be implemented. Chlorinated water leaks can lead to serious water quality and fisheries impacts.
Solid Waste Generation and Storage	<ul style="list-style-type: none"> Airport Authorities should implement waste reduction and diversion plans for all operations. Waste storage should be conducted in approved containers and is designated buildings or structures approved for such purposes. Waste materials should not be stored for excessive periods of time and should be transported off-site for disposal as soon as possible.
Solid Waste Landfilling/Disposal	<ul style="list-style-type: none"> Waste material should be disposed of only in a designated landfill site, not on the project site. No burn areas are allowed within 200 m of water bodies. Burning will be carried out under controlled conditions in consultation with local forestry officials re: permits, forest fire risk, risk to nearby inhabitants and desirable weather conditions.
Industrial Liquid Disposal	<ul style="list-style-type: none"> All liquid waste materials (including hazardous wastes) should be disposed of in conformance with applicable legislation. Liquid wastes generated from maintenance, cleaning etc. that could potentially pollute the storm drainage system and receiving waters should be directed to an area where it can be properly treated such as the municipal sewage treatment facility.

Project Activity	Mitigation
Sewage Disposal	<ul style="list-style-type: none"> • Proper treatment complying with federal and provincial standards must be undertaken prior to discharge. Alternately, municipal treatment facilities can be used. • Ensure no hazardous materials enter the underground septic tank and ensure tank does not leak into the groundwater. • Lagoons should be designed to include bird - deterrent measures.
Animal Species Introduction	<ul style="list-style-type: none"> • Consult DFO, and/or local wildlife or fisheries officers.
Wildlife Viewing	<ul style="list-style-type: none"> • Take steps to ensure timing, duration, or nature of activities do not interfere with wildlife viewing, and that wildlife viewing does not interfere with safe airport operations.
Bird control	<ul style="list-style-type: none"> • YYC Wildlife Management Program. • Water bodies such as sewage lagoons, retention ponds etc. will attract birds. Bird deterrents should be employed if constructing or maintaining these structures. • Garbage disposal areas will attract birds. Bird deterrents should be employed. • Landscaping using fruiting herbs, bushes or trees which are attractive to birds should be avoided.
Wildlife Control	<ul style="list-style-type: none"> • YYC Wildlife Management Program. • Any wildlife removal or trapping which is required should be done by wildlife or fisheries officers or other qualified personnel after appropriate permits have been obtained.
Plant Species Introduction	<ul style="list-style-type: none"> • See Planting / Seeding for mitigations.
Vegetation Control/ Disposal	<ul style="list-style-type: none"> • Alberta Environment Pesticide Sales, handling, Use and Application Regulation. • Alberta Environment Code of Practice for Pesticides. • See: Vegetation Removal for mitigation measures related to burning. • Burning organic materials such as plants can lead to methane production which negatively effects nearby plant-life.
Irrigation	<ul style="list-style-type: none"> • City of Calgary Guidelines for Erosion and Sediment Control and Field Manual for Effective Erosion & Sediment Control http://www.calgary.ca/ • All irrigation activities should include careful consideration of nearby watercourses and/or environmentally sensitive areas.
Pesticide Use	<ul style="list-style-type: none"> • Alberta Environment Pesticide Sales, handling, Use and Application Regulation. • Alberta Environment Code of Practice for Pesticides. • Certified pesticide application license required. • Leftover waste pesticides must be returned to the manufacturer. • Leftover containers will be disposed of by high temperature incineration. • No pesticide application can occur within 25 m of a water body, or 100 m of a well. • If pesticides use is required, the smallest effective dosage shall be used. • If pesticides are widely used, each shall be assessed for possible side-effects and bio-degradability.
Culvert/Ditch Maintenance	<ul style="list-style-type: none"> • City of Calgary Guidelines for Erosion and Sediment Control and Field Manual for Effective Erosion & Sediment Control http://www.calgary.ca/ • Repair and replacement of culverts should include consideration of environmental concerns such as erosion and stream siltation, stabilization of

Project Activity	Mitigation
<p>Culvert/Ditch Maintenance cont'd</p>	<p>disturbed or exposed slopes or embankments and blockage of fish passage. Guidelines provided by DFO should be followed.</p> <ul style="list-style-type: none"> • All excavated debris and soil materials cleared from a culvert should be removed from the stream channel and disposed of at an appropriate site, to prevent it from washing downstream. • During the removal of rocks that have accumulated at the entry / approach to culverts, some rocks / boulders can be retained to provide resting places for migrating fish. Rocks should be placed 1 to 10 m apart alternating from one side of the channel to the other to avoid long runs of fast flowing water along either side. • See Dewatering / Draining and Culvert Installation for additional mitigations.
<p>Prescribed Burning</p>	<ul style="list-style-type: none"> • See Solid Waste Burning and Vegetation Removal for mitigations.

APPENDIX “B”

Spills and Releases Reporting Policy

Date Issued: March, 2006

Effective Date: May, 2013

Prepared By: Terry Thompson
Director, Environmental Services
(403) 735-1405

Introduction

The effective initial response and timely reporting of spills and releases minimizes the risk to human health, property and/or the environment. While the first line of defense is preventing spills and releases through best management practices, spills and releases of materials harmful or potentially harmful to human health, property or the environment do occur. The majority of spills and releases on airport property stem from refueling and maintenance operations, however, various other harmful materials have been or have the potential to be spilled or released.

Reporting requirements come from federal, provincial and municipal government jurisdictions and the following list is a sample of legislation referencing the reporting of spills/releases of harmful or potentially harmful substances into the environment:

- Canadian Environmental Protection Act
- Fisheries Act
- Alberta Environmental Protection and Enhancement Act
- Transportation of Dangerous Goods Act and Regulations (Clear Language)
- Federal Halocarbon Regulations
- City of Calgary Sewer Bylaw

These procedures apply to all airport Authority employees, tenants and contractors. Ensure personnel have appropriate training in safety, spills prevention and response; and spills/releases reporting requirements. Personnel handling or potentially exposed to hazardous products must have site/job specific WHMIS training. Specific training in the Transportation of Dangerous Goods may also be required.

The Hazardous Material Spills Reporting Procedures supplements the Calgary International Airport Environmental Emergency Contingency Plan that addresses the response requirements for potential spills.

Scope

- **REPORT ALL SPILLS** and releases or potential spills and releases to the Airport Authority Duty Manager.
- **TAKE ACTION TO CONTAIN** spills as quickly as possible.
- **CLEAN UP and REMEDIATE** the spill and any contaminated materials as thoroughly as possible.

Procedures:

Note: In the event of a spill or release, do not enter the area unless safe to do so. Where there is an immediate danger to personal property or the environment, or where a hazardous chemical has entered a sanitary drain, contact 911. Refer to MSDS for hazards, protective equipment requirements, and emergency response measures.

In the event of a chemical, biohazard or fuel spill/release or imminent spill/release:

1. **IMMEDIATELY notify the Airport General Manager at (403) 735-2182** with the following information:
 - Location
 - Material type (i.e. hydraulic oil, jet fuel, Skydrol – be specific)
 - Material quantity (litres, lbs, or describe by size)
 - Cause
 - Safety or other concerns (i.e. operational)
 - Your name and phone number

Note: after consideration of the above, Airport Duty Manager may call ERS (911) for assistance. The Airport Duty Manager will notify ERS (911) for all fuel spills on Apron I or Apron II.

2. **Contain the spill and prevent the material from spreading or entering the environment (Note: this step may precede Step 1 depending upon the situation).**
3. **Report the spill to the appropriate regulatory agency or agencies (if applicable) and notify the Airport General Manager at 403-735-2182 and the Director of Environmental Services at (403) 735-1405.** Forward related documentation (i.e. photos, company spills/release forms or incident reports). Note: you may be required to submit a written follow-up report to the appropriate agency. When in doubt, REPORT. It is much easier to follow-up and show that the spill had no adverse impact rather than waiting for

information only to find out that there was an impact.

4. **Clean-up and prevention** as per your company’s spills/releases response plan or the Calgary Airport Authority Environmental Emergency Contingency Plan and dispose of the waste according to regulations. Document root cause analysis and prevention action.
5. **Complete the attached Spills/Releases Reporting Form and fax to the Airport General Manager** at (403) 288-4488 within 24 hours of the initial spill containment and clean-up. The Airport General Manager will enter all spills/releases into the Calgary Airport Incident Reporting System (CAIRS).

Regulatory reporting requirements

Tenants and contractors on airport property are responsible for ensuring compliance to applicable regulations and guidelines. While the tables in this document may provide direction, it does not relieve tenants and contractors from understanding and complying with applicable legislation and guidelines.

Releases of Ozone Depleting Substances

All employees, tenants and contractors on airport lands are required to comply with the Federal Halocarbon Regulation, 2003. All releases must be immediately reported to the Airport General Manager at (403) 735-2182. An entry in the service log is required whenever a system is installed, serviced, leak tested, charged or if any other work is done that may cause a halocarbon release. If the work may cause a release, the halocarbon must first be recovered into appropriate containers.

Condition or Material	Report to:	Initial Report Requirements (upon discovery)	Follow-up Report Requirements	Comments:
Any spill/release or imminent spill/release of harmful or potentially harmful substance on airport property	Airport General Manager	(403) 735-2182	Written report - faxed to (403) 288-4488 as soon as reasonably possible	Recommend using the Authority Spills/Releases Reporting Form

Condition or Material	Report to:	Initial Report Requirements (upon discovery)	Follow-up Report Requirements	Comments:
Spill or release involves dangerous good (any quantity)	Regional Aviation Regulations Office of the Aviation Group of the Department of Transport	Duty Officer (204) 932-2751	Written – 30 calendar days	Does not include fuel spilled during the process of refuelling an aircraft The Transportation of Dangerous Goods Directorate 330 Sparks Street, 9 th Floor, Tower C, Ottawa, Ontario – K1A 0N5
Release of substances to the environment that have caused, are causing or may cause and adverse effect <i>(Release Reporting Guideline, AB Env)</i>	Environment Canada and Alberta Environment	1-800-222-6514 (Fax: 780-427-3178)	Written – 7 calendar days	Includes spills or releases that get off hard surface or enters storm sewer system Ensure the call center personnel are aware that the spill occurred on federal land

Condition or Material	Report to:	Initial Report Requirements (upon discovery)	Follow-up Report Requirements	Comments:
<p>Releases of toxic substances to land (CEPA Section 201) Or Spill involves PCBs, lead or mercury Or Spill of deleterious substance in any water frequented by fish (Fisheries Act)</p>	<p>Environment Canada</p>	<p>(403) 499-2432</p>	<p>Written – 7 days</p>	<p>Refer to CEPA 1999 for definition of toxic substance</p>
<p>Spill/release has impacted or has potential to impact areas off airport property, stormwater or sanitary systems</p>	<p>Calgary Fire Department</p>	<p>911</p>		
<p>Halocarbon (ozone depleting substance ODS) release between 10 – 100 kg</p>	<p>Environment Canada</p>		<p>Written – 7 days</p>	

Condition or Material	Report to:	Initial Report Requirements (upon discovery)	Follow-up Report Requirements	Comments:
Halocarbon (ozone depleting substance ODS) release over 100 kg	Environment Canada	(780) 499-2432 within 24 hrs	Written – 14 days	

For more information

Contact the Calgary Airport Authority Environmental Services Department:

Terry Thompson

Director, Environmental Services

Ph: (403) 735-1405

Fax: (403) 735-1418

Email: terryt@yyc.com

Steve Ward

Environmental Services Specialist

Ph: (403) 735-1407

Fax: (403) 735-1418

Email: SteveW@yyc.com

Gary Kindrat

Environmental Services Specialist

Ph: (403) 735-1441

Fax: (403) 735-1418

Email: garyki@yyc.com

Sarah Nelson

Environmental Services Specialist

Ph: (403) 735-1357

Fax: (403) 735-1418

Email: SarahN@yyc.com

SPILL/RELEASE REPORT

REPORT ALL SPILLS/RELEASES TO THE AIRPORT GENERAL MANAGER (403) 735-2182

FAX COMPLETED SPILL REPORT FORM TO THE AIRPORT GENERAL MANAGER (403) 288-4488

Note: Dial 911 for Airport Emergency Response Services (ERS) if required

Occurrence Date:	Time:	MSDS Available? Yes No
-------------------------	--------------	---

Reported Date:	Time:	UN PIN No:
-----------------------	--------------	-------------------

Spill Location:	Vehicle/Aircraft Identifier:
------------------------	-------------------------------------

Spill Type:	Quantity: L ga lb kg
--------------------	---

Company Responsible:	Contact Name:	Ph:
-----------------------------	----------------------	------------

Cause (include underlying factors and root causes):

Spill Contained: Yes No	Describe containment method:
--	-------------------------------------

Spill Entered Environment?	No	Yes ▶	Soil	Groundwater	Waterbody	Sewer
	Air					

Describe Pathway/Environmental Impact:

Clean Up Material:	Quantity: L ga lb kg
---------------------------	---

Clean Up Done? Yes No	Disposal Method:
--	-------------------------

Clean Up Details (people, equipment, contractors)?

Comments:

Follow Up Action (details, who's responsible, when, root cause):

Print Name:		
Position/Company:		
Phone/fax/email:	Signed: _____	Date: _____

FAX COMPLETED REPORT TO AIRPORT DUTY MANAGER AT (403) 735-1285.

WHAT TO DO in the event of a spill or release:

- 1. Immediately report the spill** to the Airport General Manager at (403) 735-2182 with the following information:
 - a. Location of spill
 - b. Type of material spilled
 - c. Quantity
 - d. Any immediate safety or environment dangers
 - e. Your name and phone number
- 2. Contain the spill** (drain covers, turn off valves, etc)
- 3. Clean the spill and dispose of the waste according to current legislation.**

Note: In the event of a spill or release, do not enter the area unless safe to do so. Where there is an immediate danger to personnel, the environment or property, DIAL 911 (OR 9-911).

USE PROTECTIVE EQUIPMENT WHERE

Contact Larry Stock (403) 735-2182, Steve Ward (403) 735-1407, Gary Kindrat (403) 735-1441 or Terry Thompson (403) 735-1405 for more info

Map or diagram of spill/situation:



Additional Comments/Information:

For Calgary Airport Authority Use Only:

CAIRS #		Photos?	Follow-Up?	
Check	External Reporting Required?		Initial Report	Follow-up Report
	Regional Aviation Regulations Office, Aviation Group Department of Transport (all dangerous goods spills)		Duty Officer (204) 932-2751	Written – 30 days
	Environment Canada (immediate threat to fish or involves lead, mercury or PCBs)		(780) 499-2432	Written – 7 days
	Alberta Environmental Protection (spill/release enters the environment, which means soil, water or air)		1-800-222-6514	Written – 7 days
	City of Calgary (spill/release has impacted or has the potential to impact areas off of the airport property, stormwater or sanitary systems)		911	
	Environment Canada Halocarbon or ODS Release (10 – 100 kg)		(780) 499-2432	Written within 7days
	Environment Canada Halocarbon or ODS Release (100 kg or more)		(780) 499-2432	Written - 14 days