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PLAN OF CONSTRUCTION OPERATIONS

Public Works and Government Services Canada

Churchill Airport Runway 15-33 and Taxiway A Repairs
Churchill Manitoba
Project No. R.0988099.001

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PLAN OF CONSTRUCTION OPERATIONS

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PLAN OF CONSTRUCTION OPERATIONS

1 Introduction

Runway 15-33 and Taxiway A are experiencing pavement surface irregularities relating to permafrost degradation as well as transverse cracking. Interim repairs are planned for 2020. The purpose of this Plan of Construction Operations is to outline the coordination and procedures necessary for undertaking the airside pavement repairs safely with minimum impact on airport operations.

1.1 PURPOSE OF THE PLAN OF CONSTRUCTION OPERATIONS

1. The primary purpose of the Plan of Construction Operations (PCO) is to provide notification of deviations from the certificate standards and Airport Operations Manual (AOM) published for the Churchill Airport. The PCO is a statement of the approved alternative operational procedures to be employed in order to maintain the certification criteria of the airport during the implementation of the construction project.
2. A second purpose of the PCO is to formulate in advance, the co-ordination required to implement this construction project with minimal interruption to, and conflict with, airport operations and to ensure that airport security and flight safety are not compromised by the construction operations.
3. The third purpose of the plan is to inform all airport users, tenants and airlines of the project, such that they may appreciate its effect on their operations.

1.2 CHURCHILL AIRPORT

Churchill Airport is a Transport Canada certified facility meeting the basic requirements of the Canadian Air Regulations Series III No. 2 - Airports (TP 312 5th edition Aerodrome Standards and Recommended Practices). The airport facilities are certified for day and night operations, 7 days per week and capable of supporting aircraft operations for public use, day / night, for Visual Flight Rules (VFR) and Instrument Flight Rules (IFR) conditions down to CAT I precision approach limits for up to AGN IIIB aircraft. The Churchill Airport is owned and operated by Transport Canada.

1.3 SCOPE OF WORK

Refer to Appendix A for the proposed key plan. Work of this Contract comprises runway and taxiway pavement rehabilitation, airfield electrical and earthworks and includes but is not limited to:

1. Supply and stockpiling of paving and granular base aggregate materials by Owner.
2. Milling and paving includes, but is not limited to:
 - a. Runway 15-33 asphalt milling and resurfacing overlay at the Runway 15 threshold between Station 4+900 and Station 5+250.
 - b. Taxiway A asphalt milling and resurfacing overlay.
3. Runway 15-33 major crack repairs in localized areas between Station 5+250 and Station 7+804.
4. Runway crack routing and sealing.
5. Airfield Electrical (by other Contractor):
 - a. Temporary removal of Runway 15 threshold lights and mounting stakes to facilitate milling and paving.

- b. Re-installation of runway threshold fixtures to suit runway surface elevation.
- c. Installation of riser rings in runway threshold pullpits so that the lids match new runway surface elevation.
- d. Re-installation of runway and taxiway edge lights to match new runway elevation by others.
- 6. Airfield grading and drainage improvements including:
 - a. Abandon Taxiway A culvert and fill with unshrinkable fill.
 - b. Runway 15-33 and Taxiway A shoulder re-grading as required for tie-ins to proposed pavement elevations and to maintain uniform surface drainage and grades.
 - c. Remove shrub vegetation and re-grade drainage ditches in areas as designated in the Drawings.
- 7. Installation of ground temperature monitoring devices in Runway 15-33 and Taxiway A paved and shoulder areas.
- 8. Pavement markings.

1.4 SCHEDULE

The major anticipated project schedule milestones are provided in **Table 2-1** which is based on the proposed Runway 15-33 and Taxiway A pavement rehabilitation project scope of work.

Table 1-1
Project Schedule Summary

Task	Number of Weeks	From	To
Issued for Tender	4	June 2019	July 2019
Contract Award		August 2019	August 2019
Aggregate Supply Processing and Delivery	30	September 2019	May 2020
Construction	6	July 9, 2020	August 30, 2020
Project Closeout	4	August 30, 2020	September 30, 2020

2 Coordination

2.1 LIST OF CONTRACTS

A list of the construction work package contracts, which must be coordinated between, includes:

1. The supply and stockpiling of aggregates for the pavement repairs.
2. Runway/taxiway milling, paving, runway crack and localized pavement repairs and airfield drainage improvements.
3. Runway 15-33 airfield lighting upgrade.

3 Staging and Work Areas

Airport operations are to be maintained for the duration of the project at all times. All work will be scheduled in an effective and timely manner in order to minimize disruption to airport operations. A full closure of Runway 15-33 and Taxiway A will be permitted to facilitate the work 24 hours per day, 7 days per week. Runway 07-25 and Taxiway B must remain open at all times.

3.1 HOURS OF WORK

The normal working hours will be daily 7 a.m. to 7 p.m., seven day a week, during the proposed runway and taxiway closure.

3.2 STAGING

Refer to Drawing C-02 Construction Staging in **Appendix A** for the work areas and coordination requirements.

3.3 WORK AREAS

The following are the coordination requirements for each work area:

WORK AREA	ACTIVITY	IMPACT ON OPERATIONS	COORDINATION REQUIREMENTS
Work Area 1 Runway 15-33 Sta. 4+900 to 5+250	Asphalt milling and paving repairs, shoulder grading, temporary pavement markings, permanent pavement markings and providing temporary runway facilities	Runway 15-33 closed for the duration of construction.	Runway 15-33 closed by NOTAM for the duration of the work in this area. Runway 07-25 to remain open at all times.

WORK AREA	ACTIVITY	IMPACT ON OPERATIONS	COORDINATION REQUIREMENTS
Work Area 2 Runway 15-33 Sta. 5+250 to 7+804	Asphalt milling and paving repairs, asphalt crack sealing, permanent pavement markings and providing temporary runway facilities	Runway 15-33 closed for the duration of construction.	Runway 15-33 closed by NOTAM for the duration of the work in this area. Runway 07-25 to remain open at all times.
Work Area 3 Runway 15-33 Graded/Strip Area Sta. 4+500 to 6+000	Providing temporary runway facilities and airfield ditch excavation and grading	Runway 15-33 closed for the duration of construction.	Runway 15-33 closed by NOTAM for the duration of the work in this area. Runway 07-25 to remain open at all times.
Work Area 4 Taxiway A Sta. 4+900 to 7+804	Asphalt milling and paving repairs, shoulder grading, airfield ditch excavation and grading, temporary pavement markings, permanent pavement markings and providing temporary taxiway facilities	Taxiway A closed for the duration of construction.	Taxiway A closed by NOTAM for the duration of the work in this area.
Contractor Plant, Equipment and Stockpile Area Airside Area west of abandoned Taxiway C	Aggregate stockpiling, contractor equipment staging area, and asphalt plant	None	None

4 Airside Construction

The airport will remain in operation during the entire construction project. The entire construction area is airside and subject to security requirements and procedures.

4.1 AIRPORT OPERATIONS DURING CONSTRUCTION

Construction activities will be conducted during a planned closure of Runway 15-33 and Taxiway A. Runway 07-25 and Taxiway B must remain open at all times. In the event that a portion of the work is carried out within the existing runway strip while the Runway 15-33 or Taxiway A are in operation, the Contractor will stand down, stop work and pull back labour and equipment as directed by the Airside Escort to a designated area. Following the end of the Runway 15-33 and Taxiway A planned closure and construction activities, the runway and taxiway surfaces must be returned to operational condition.

The Contractor shall submit a work schedule to Churchill Airport Operations for approval prior to commencing any construction work activities

4.2 TYPES AND FREQUENCY OF AIR TRAFFIC

On the average day there are approximately 25 aircraft movements. This includes a daily scheduled airline arrival and departure during the morning and 1 daily airline arrival and departure during the evening.

4.3 DISRUPTION TO AIR TRAFFIC

Airport operations are to be maintained for the duration of the project at all times. All work will be scheduled in an effective and timely manner in order to minimize disruption to airport operations. NOTAMs will be issued by Churchill Airport Manager and Nav Canada as required.

4.4 LOCATION AND HEIGHT OF EQUIPMENT (RELATIVE TO RUNWAYS & TAXIWAYS)

For any construction activities where equipment is anticipated to protrude through the Obstacle Limitation Surface (OLS), a NOTAM will be issued by the Churchill Airport Manager. The following provides a summary of the proposed construction equipment to be used for this project:

EQUIPMENT	TYPICAL MAXIMUM HEIGHT
Track Excavator	(Bucket Raised) 10.5 m
Track Excavator	(Bucket raised) 10.6 m
Skid-Steer Loader	(Bucket raised) 4.5 m
Wheel Loader	(Bucket raised) 4.5 m
4000 Gallon Water Truck	3.0 m
Tandem Truck	(Box raised) 6.7 m
End Dump Truck	(Box raised) 9.8 m
Paving Machine	2.5 m
Milling Machine	4 m

For construction activities involving stockpiling of topsoil or other materials, the Contractor will restrict the stockpile height and location to ensure the maximum height remains below the Obstacle Limitation Surfaces (OLS).

4.5 WORK ADJACENT TO RUNWAY (RE: TP312E)

Work may be carried out adjacent to runway and taxiway surfaces throughout the entire construction period. All exposed material located adjacent to aircraft surfaces will be covered as required to provide suitable jet blast protection prior to the end of each work shift. Work adjacent to runway surfaces will be carried out in accordance with TP312E – Aerodrome Standards & Recommend Practices, – Strip Widths for Instrument/Non-Precision/Non-Instrument Runway Operations.

Subject to the approval by the Churchill Airport Manager, work will be carried out within the Runway 15-33 and Taxiway A strips on a pullback basis under the direction of an airside escort. NOTAMs will be issued as required to advise that labor and equipment are working within the runway strip along the side of the runway. Upon request, the Contractors men and equipment will pull back labor and equipment for aircraft beyond the runway strip width as directed by the airside escort.

4.6 UNSERVICEABILITY MARKINGS, BARRIERS AND LIGHTING

All work zone boundaries twill be clearly defined through the use of flagging, barriers and/or safety fencing. Runway or taxiway closure markers will be placed as necessary. Prior to the end of each work shift, after construction, red obstruction lights, cones, barriers and/or flagging to delineate any open excavations within airfield graded areas.

4.7 AIRSIDE ACCESS CONTROL, VEHICLE OPERATIONS AND ESCORTS

4.7.1 Airside Escorts

An airside escort is required for all airside access to operational areas of the airfield. The airport operator will provide airside escorts...

All construction equipment shall be equipped with a 360° yellow rotating or strobe light beacons.

4.7.2 Site Access

Generally, site access will be via West Airport Perimeter Road to the West Access Gate.

Personal vehicles shall not be permitted airside. Equipment staging shall be carried out within the designated area or as directed by the Churchill Airport Manager.

Contractor's personnel and equipment must be escorted at all times when in active aircraft maneuvering areas. Contractor's personnel must obey directions given by the airside escort at all times without delay.

4.7.3 Haul Routes

Existing airside service roads will be used for haul routes during construction. The use of the runway or taxiways use as haul routes should be minimized as practicable. Haul routes will be maintained throughout the project. The Contractor will be required to provide appropriate dust control measures (i.e. water, etc.) at all times during construction. All operational areas adjacent to the construction activities will be swept by the Contractor and inspected by the airside escort prior to being returned to service at the end of shift. The Contractor will take all precautions and care so as not to create Foreign Object Debris (FOD).

The airside escort shall report to the Churchill Airport Manager at the end of each work shift to confirm that all runway and taxiway surfaces have been inspected by the Contractor and Departmental Representative and are in suitable condition for aircraft operations.

4.7.4 Polar Bear Patrol

Polar bear patrol will be provided by Transport Canada daily during published operating hours, Monday to Friday only while the normal daily routine for wildlife management duties is carried out by the airport maintenance staff.. Contractors working off airport property or working outside published operating hours will be required to make arrangements and pay costs for services of a contracted independent bear patrol. Special arrangements must be made for patrols outside these hours.

5 Communications

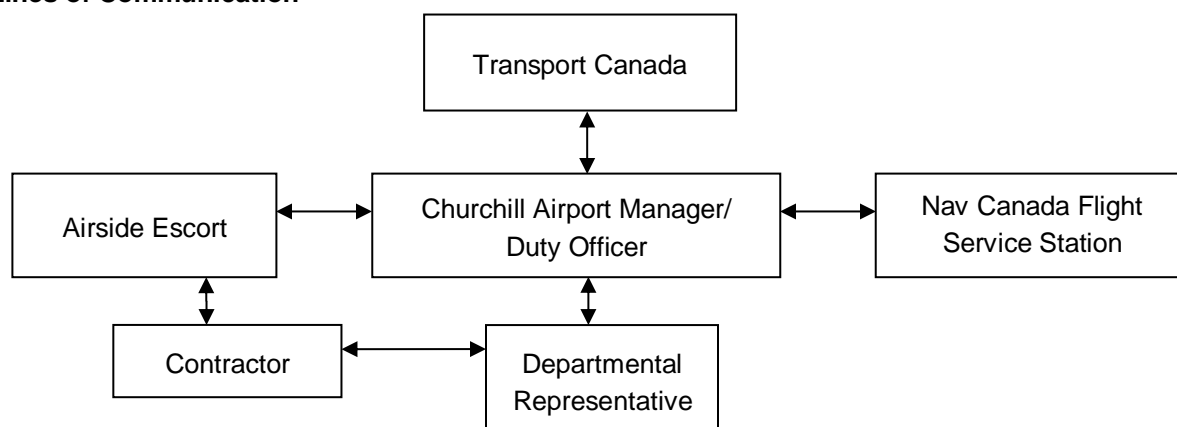
Daily coordination meetings will be held with a representative from the Contractor, Churchill Airport Operations, Airside Escort, and Departmental Representative at the Airport Manager's Office to review the contractor's daily work plan for the upcoming work 24 to 72 hours in advance. The daily work plan is subject to the Churchill Airport Operations approval. Any deviations to the agreed upon daily work plan must be approved before work can proceed.

Overall construction progress meetings will be scheduled on a weekly basis. These meetings will be used to review construction progress and quality, scheduling, changes to construction methods, and general safety and operational procedures.

Any request to deviate from this approved Plan of Construction must be reviewed by Churchill Airport Operations and Transport Canada, the approving body.

The following are the proposed lines of communication between the airport, contractor and stakeholders:

Lines of Communication



5.1 UNSCHEDULED EMERGENCIES

In the event of an unscheduled emergency condition related to safety, security or operational concerns, Churchill Airport Operations will advise the Airside Escort and Departmental Representative to immediately suspend work and remove the construction equipment from the airside work areas until advised that it is safe to resume and continue the work. If the Construction equipment removal is not possible due to field conditions then the Airport Manager, Airside Escort Departmental Representative and Contractor will hold an emergency meeting to determine the best course of action. The Airport Manager, Consultant and Contractor will prepare a series of "Contingency Plans" to address typical problems or situations that might occur over the course of the project.

5.2 NOTAMS

NOTAM's indicating operational impacts to the following systems will be issued for:

1. The closure of Runway 15-33 and Taxiway A when men and equipment are working within and/or beyond the runway or taxiway strip.
2. Men and equipment working adjacent to the runway or taxiway strip.
3. Lock out of any airfield lighting or navigational aids.

NOTAM's will be issued by Churchill Airport Operations based on the Contractor's 72 hour advance daily work plan for the upcoming work.

6 Approval Plan of Construction

We undertake to meet the obligations set out in this plan of construction; and we hereby certify that the information in this plan is complete and accurate and no relevant information has been omitted.

Jennifer Schweder
Airport Manager
Churchill Airport

Christina Kovacs
Project Manager
Public Works and Government Services
Canada


PLAN OF CONSTRUCTION OPERATIONS

Appendix A – Project Site Plan Drawing



PLAN 1:6000

RUNWAY 15-33



PLAN OF CONSTRUCTION OPERATIONS

Appendix B – Standard Airside Procedures

OPERATIONS PLAN AND PROCEDURES

Coordination procedures have been incorporated as construction contract requirements.

The necessary coordination and communication will be confirmed at a construction start-up meeting with the Contractor, Departmental Representative, airport and NavCanada.

PROCEDURES

- i. The General Contractor is to restrict his activities to the areas noted on the PCO. Contractor personnel are not to approach any runway, taxiway or navigational aid unless authorized by security staff. Any worker who wanders will be permanently removed from the site.
- ii. The General Contractor shall ensure that non-project related personnel are kept off the work site.
- iii. NO SMOKING or vaping is permitted on the airside.
- iv. The work area must be kept clean and as dust free as possible. Foreign Object Debris (FOD) barrels must be placed around the site and water trucks employed to water the haul roads, borrow and fill areas as required or directed by airport staff.
- v. The General Contractor will keep the airside work area clear of FOD such as paper, plastic, and metal debris to prevent waste materials from blowing onto aircraft operational areas.
- vi. Any debris or material remaining in an area on the apron must be secured and prevented from blowing onto or contaminating the apron area. The General Contractor will maintain a work site free of accumulation of waste and materials and provide on-site waste containers.
- vii. The General Contractor is to ensure that no emergency exits, fire hydrants, emergency fuel shut-off stations or other emergency facilities are blocked at any time by equipment or site activities.
- viii. Should an emergency situation arise during construction, the General Contractor is to ensure no emergency vehicles are impeded by any construction equipment in accessing the distressed site.
- ix. All equipment must depart the worksite if requested by Flight Service Station, security escorts, emergency response or airport staff.
- x. Vehicle operators and workers shall remain at a safe distance from areas affected by the jet blast or prop wash of maneuvering aircraft, and not pass in front of or closely behind aircraft with engines running unless the wheels of the aircraft are chocked or the marshaller waves permission.
- xi. The General Contractor is responsible for ensuring that personnel at the airport operate construction equipment and service vehicles in a safe manner and in accordance with the airport airside procedures.
- xii. The General Contractor shall be responsible for ensuring that construction personnel and airport are aware of any schedule changes.
- xiii. Flight Service Station shall be notified prior to the first vehicle entering or the last vehicle leaving the airside area.
- xiv. A “hot work” permit is required for all open flame welding or torch cutting operations. Prior to starting welding or cutting, the General Contractor must notify the Airport Manager.

- xv. All incidents and/or accidents must be reported to the Airport or Duty Manager as per the airport's Safety Management Policy.
- xvi. Materials adjacent to pavement must be well compacted and stable. Materials adjacent to edge of runway, taxiway, or apron shall be suitably stable to prevent displacement by jet blast or thrust.

PLAN OF CONSTRUCTION OPERATIONS

Appendix C – Project Contact List

Contact	Title	Phone No.	Email
Jennifer Schweder	Churchill Airport Manager	(204) 675-2464	jennifer.schweder@tc.gc.ca
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	Project Manger, Contractor		
	Superintendent, Contractor		