

Position Description

Ministry of Transportation

Position Title:	Assistant Avalanche Technician	Positions Number(s):	40913
Division:	Highways Department , Construction and Maintenance Services Branch		41031
			41100
			41395
			55437
			64279
			77059
Unit (e.g. Region):	Avalanche and Weather Programs	Location:	various
Supervisor's Title:	Avalanche Technician	Position Number:	various
Supervisor's Classification:	STO-N24	Phone Number:	
For Agency Use Only		NOC Code:	
Approved Classification:		Class Code:	
Entered By:		Phone number:	

PROGRAM (OPTIONAL)

The Avalanche and Weather Program establishes operational policies for Ministry and Maintenance Contractor operations in order to ensure safety to provincial highway users, particularly in snow avalanche areas. This program provides technical direction and support for all provincial avalanche crews. The program coordinates resources that obtain and distribute weather, road condition and seasonal strength loss information in support of avalanche, maintenance contractor and Ministry requirements.

PURPOSE OF THE POSITION

For a designated area of the Province, the *Assistant Avalanche Technician* conducts site snow observation and evaluation, and avalanche forecasting and control, and gathers safety, weather and road information.

NATURE OF WORK AND POSITION LINKS

The *Assistant Avalanche Technician* works in a regional, often remote, setting carrying out responsibilities with a high degree of independence and using considerable discretion and judgement in hazardous situations. Responds to snow avalanche hazards, which requires communication and coordination with Ministry staff and contractors. During peak avalanche times, the position is in regular contact with a wide variety of public and private sector employees and representatives, as well as members of the public. Position links include:

- *Snow Avalanche Technician* – Reports directly to this position and assumes accountability for the functions of this role as required.
- *Headquarters Avalanche Section Manager and staff* – to provide daily observation information and obtain a variety of meteorological, climatological, and snow avalanche related data, statistics and information, in order to analyze snow stability and forecast avalanche hazards.
- *Ministry technology staff* – to communicate on issues concerning the production and input of reliable data.
- *Avalanche section co-workers in regional locales* – liaison to maintain contact and, when necessary, respond to emergency situations
- *Other ministry representatives (e.g., Ministry of Transportation contracted road maintenance crews)* – to inform and advise on changing avalanche hazards that may impact their work progress; advising of planned avalanche control missions; and ensure their safety through regular and accurate communication
- *Representatives of other government jurisdictions and public sector agencies (e.g., Parks Canada, the RCMP, and the Canadian Avalanche Association)* – to disseminate current snow avalanche hazard information and forecasts, advise on road closures; and to train staff in avalanche awareness, safety, and search and rescue
- *Snow avalanche work crews* – to assist with, or supervise, searches and implement avalanche control work in order to ensure the safety of highway operations.

SPECIFIC ACCOUNTABILITIES/DELIVERABLES

1. **(35%)** Conducts meteorological, snow-pack, terrain and avalanche occurrence observations; conducts analyses and stability tests at various locations and times of the day. Analyzes weather and snow pack reports and data in order to formulate and determine reliable avalanche forecast levels.
2. **(45%)** Depending on the forecast level, acts in accordance with defined policy and operational procedures in order to implement avalanche controls. This may include controlling public and commercial traffic movement; determining restrictions and conditions of safety for emergency vehicles, and construction and road-clearing crews; recommending, initiating and performing highway closure and opening; implementing avalanche control measures (including employing the use of explosives) in accordance with Provincial and Federal standards and procedures; and organizing and conducting search and rescue operations.
3. **(10%)** Conducts snow avalanche, safety and search and rescue training programs for Ministry and contracted personnel. Trains staff in meteorological observations, snow stability analysis, avalanche evaluation, daily avalanche forecasting, and avalanche control methods and techniques.
4. **(10%)** Participates in development and testing of computerized avalanche systems; and collects and maintains all related data. Assists with the development of maps; and maintains manual records of snow, weather and terrain observations; completes reports and maintains data using a computerized snow, road and weather information systems. Assists in maintenance of electronic weather stations. Drafts technical reports on local snow avalanche programs, research projects and activities. Evaluates snow avalanche program operational procedures and recommends potential efficiencies and improvements.

Note: For up to 35% of the time during avalanche season, the Assistant Avalanche Technician performs the above functions, while acting in the role of the Avalanche Technician. See **Comments** below.

FINANCIAL RESPONSIBILITIES

- Responsible for economic use of consumable explosives and field equipment, materials, and goods.
- Spending authority for supplies (explosives, helicopters) up to \$20,000

DIRECT SUPERVISION

Role	# of Regular FTE's	# of Auxiliary FTE's
Directly supervises staff		
Supervises Staff through subordinate supervisors		

PROJECT/TEAM LEADERSHIP OR TRAINING (Check the appropriate boxes)

Role	# of FTE's	Role	# of FTE's
Supervises students or volunteers		Provides formal training to other staff	12 to 24
Leads Project Teams		Assigns, monitors and examines work of staff	Up to 2

SPECIAL REQUIREMENTS

- Valid Workers' Compensation Board Blaster's Certificate with avalanche control endorsements
- Wilderness First Aid Certification (40 hours); or equivalent (Occupational First Aid Certification Level 3 would be an advantage)
- Valid Class 5 BC Driver's Licence
- Level 2 Certification from the Canadian Avalanche Association; and eligibility for professional membership with the CAA
- Physically fit to regularly lift in excess of 20 Kg. and to climb towers in excess of 4 meters high

TOOLS/EQUIPMENT

Artillery, explosives, and site-specific avalanche control equipment; snow-mobiles, backcountry ski/board

equipment, 4 x 4 trucks; wilderness medical supplies and equipment; computer and keyboard, computerized telecommunications equipment.

WORKING CONDITIONS

Outdoors in all kinds of weather (often in adverse conditions) approximately 20% of the time, in order to gather snow samples, conduct tests, analyze terrain and meteorological dynamics, coordinate snow avalanche crews to control snow-pack within known avalanche zones. Must travel safely by foot, ski/board through mountainous terrain; and drive or travel in helicopters in variable conditions. Thorough and complete understanding of safety issues in and around helicopters including transportation and deployment of explosives from them is required. Additionally, the position is responsible for transporting explosive materials from storage locations to staging and deployment areas.

WORK EXAMPLES

Example #1 – Forecast Evaluation:

Conduct road patrol of forecast area. Observe and record new avalanche events since most recent patrol. Review weather forecast from various sources. Review snow stability assessments from recent tests and observations. Review weather, snowpack and avalanche occurrence information from around the province. Consider, analyze, evaluate and consolidate all relevant weather, snowpack, terrain, occurrence information from the past and present to determine current avalanche forecast level. Issue forecast to Ministry and Maintenance Contractor personnel. Continue to monitor and assess weather and snowpack conditions in order to maintain or revise avalanche forecast levels.

Example #2 - Conduct Avalanche Control Mission:

Determine avalanche forecast level that requires implementation of avalanche control. Issue forecast notice to Ministry and Maintenance Contractor. Coordinate sweep and closure of highway section where avalanche control will be performed. Travel to explosive magazine and obtain explosives required for mission. Fill out necessary Transport Canada Dangerous Goods Documents. Be prepared to initiate and participate in Explosive Spill on a Highway Plan as necessary. Coordinate flight with helicopter company. Issue Notice to Airman (Notam) that explosives will be deployed and that commercial and private aircraft should avoid the area. Perform explosive control mission as per Ministry procedures. Observe and record results. Coordinate avalanche deposit removal as required. Determine avalanche forecast level in consideration of avalanche control results. Coordinate opening of highway when safety permits.

COMMENTS

The responsibilities of the Avalanche and Weather Program are required 24 hours per day, 7 days per week throughout the winter months (October – May). The severity of weather and snowpack conditions determine requirements for avalanche staff to work extended shifts or on scheduled days off. During the avalanche season, the Assistant Avalanche Technicians are at times, expected to be on standby and are often called to work on days off. The position acts as Avalanche Technician up to 35% of the time during avalanche season, and then, periodically throughout the remainder of the year. While in the acting role of Avalanche Technician, the *Assistant Technician* is fully engaged in the complex decision making process associated with avalanche forecasting, as well as assuming on-site authority in problem situations, and directing and supervising staff.

PREPARED BY

Name	Date	Phone #:
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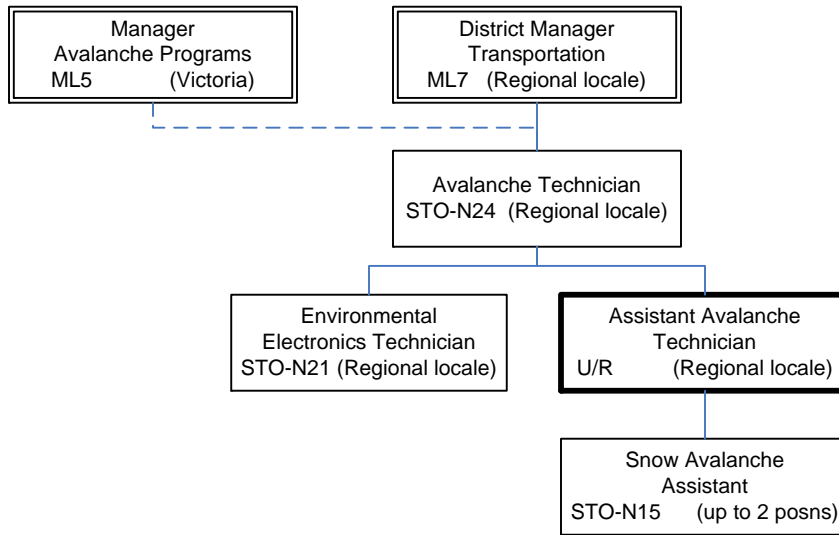
EXCLUDED MANAGER AUTHORIZATION

I confirm that:

1. The accountabilities/deliverables were assigned to this position effective June 28, 2004
2. The information in this position description reflects the actual work performed.
3. A copy has/will be provided to the incumbent(s).

Name	Signature:	Date:
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ORGANIZATION CHART



SELECTION CRITERIA

Education and Training

Post secondary technical diploma in forestry, geography, engineering or meteorology with emphasis on avalanche phenomenon and snow science research preferred Grade 12 (or equivalent) with a combination of snow avalanche related training and practical experience acceptable. Must be registered as a professional member in good standing with the Canadian Avalanche Association.

Experience

- At least five years' experience conducting meteorological observations, snow stability tests and analyses
- Experience conducting avalanche hazard evaluations and control activities including working with explosives
- Experience with rescues and conducting related rescue training
- Experience preparing and maintaining a variety of manual and computerized administrative and technical records, reports and documents
- Experience formally supervising work crews

Knowledge

- Principles and methods associated with the analysis and synthesis of stability, snow-pack and wind factors, including current activity and tests, depth, structure, temperature, penetration, past avalanche activity, air temperature, precipitation and intensity, surface condition, solar radiation, terrain analysis, mass, velocity, and a variety of threshold effects under various constraints
- Road, weather and snow avalanche standards, policies, and procedures
- Search and rescue practices and procedures
- In the use of explosives for avalanche control
- Various provincial and federal regulations including Transportation of Dangerous Good Act, Federal and Provincial explosives and blasting regulations, WCB regulations and guidelines, Workplace Hazard Information Management Systems (WHMIS)

Abilities/Skills

Ability to:

- synthesize and evaluate weather, snow terrain, historical data, and forecast snow avalanche hazards
- analyze and evaluate information and data to recommend highway openings and closures
- react quickly and efficiently to urgencies or crisis situations
- travel on foot, on skis or snowboards over mountainous terrain in all weather and avalanche conditions
- prioritize work assignments according to level of urgency and work in deadline situations
- direct/supervise crews, site personnel and the general public in clearance and search and rescue activities
- conduct adult training in snow avalanche phenomena, local occurrences, control, and search and rescue
- use computers and access information from computerized databases

Skills:

- Sound judgment and excellent problem solving skills
- Effective oral, written and inter-personal communications skills
- Physical fitness with back country skier/snow boarder and mountaineering skills

COMPETENCIES