

Position Title:	Environmental Sensor Installation Technician/ Assistant Avalanche Technician	Positions Number:	64271
Branch:	Highways Department, Construction and Maintenance Services Branch		
Unit (e.g. Section):	Avalanche and Weather Programs	Location:	Penticton
Supervisor's Title:	Weather Network Program Manager/Snow Avalanche Technician	Position Number:	51591
Supervisor's Classif:	STO-N24 (Under Review)	Phone Number:	
For Agency Use Only		NOC Code:	
Approved Classif:		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

This position has a duo-focus: (a) providing a key role as an *Assistant Avalanche Technician*, conducting site snow observation and evaluation, avalanche forecasting and control, and gathering safety, weather and road information; and (b) providing a secondary role as *Environmental Sensor Installation Technician*, responsible for installing environmental sensing equipment at designated Roadside Weather Stations (RWS), Remote Avalanche Weather Stations (RAWS), repeaters, and frost probe stations throughout the Province.

NATURE OF WORK AND POSITION LINKS

The position is located in Penticton and works with relative independence, particularly in the specialist role of *Environmental Sensor Installation Technician*. The nature of this work has a variety of different installation techniques depending upon the type of sensor needed for the roadside weather station. Electronic sensing equipment must be installed and operated as per the manufacturer's specifications in order for the sensor to perform accurately in conjunction with other electronic sensing equipment. While working in the capacity of an *Assistant Avalanche Technician*, the position 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. Effective performance in both roles requires integration of activities with other program specialists; and the percentage of time allocated to one or the other set of accountabilities is dependent on time of year, field operation workload; and other weather or program-specific variables.

Position links include:

- **Weather Network Program Manager/Snow Avalanche Technician (Penticton)** – Direct reporting relationship; receives operational, technical and performance-related direction and guidance
- **Other section staff (i.e. Environmental Electronics Technician, Weather/Avalanche Specialist)** – to receive or provide technical direction, discuss electronic sensor installation issues and resolve operational and logistical problems, and to provide daily observation information, statistics and data in order to analyze road weather hazards.
- **Ministry Technology Staff** – to communicate on issues concerning the production, input and output of reliable data.
- **District Managers and Other Staff** – to identify project timelines and related needs and to train staff in Road Weather awareness.
- **Representatives of Other Organizations (i.e. Ministries, Municipalities, etc.)** – to identify projects (e.g., sensor installation projects) that may impede their work and to ensure their safety through proper signage and communications; and also to inform and advise on changing avalanche hazards that may impact their work progress; to advise of planned avalanche control missions and to 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
- **Ministry of Transportation Maintenance Contractors** – to define hazard levels and determine the scope of activity required in specific circumstances; to ensure contractors are trained in avalanche-related services and issues, and capable of providing the level of service required.
- **General Public** – to ensure the travelling public are informed of projects and to and to ensure their safety through proper signage and communications.

SPECIFIC ACCOUNTABILITIES/DELIVERABLES

In this duo-focus role, the position is expected to undertake the full scope of specific accountabilities of both the *Assistant Avalanche Technician* AND the *Environmental Sensor Installation Technician*. Percentages of time allocated to each of the key roles are determined by the business and program priorities of Department and Ministry and the time of the year and weather conditions.

- A. Approximately 50% of the position's time is focused on activities associated with the role of an Assistant Avalanche Technician. These responsibilities are consistent with the Purpose of Position, Nature of Work, and Key Accountabilities/Deliverables described for that position.**
- See attached job description for the Key Accountabilities of an Assistant Avalanche Technician*
- B. Approximately 50% of the position's time is focused on activities associated with the role of an Environmental Sensor Installation Technician, and the position's exclusive accountability for the installation of electronic sensory equipment, as follows:**
1. Draw equipment plans for the modification and mounting of existing or prototype equipment, brackets and braces; organize tools and equipment for roadside work, ensuring safe and efficient work practices.
 2. Conduct the installation and maintenance of the Road and Weather Network Program sensor equipment, under the guidance of the Weather Network Program Manager/Snow Avalanche Technician or other technical Section staff. Determine location requirements and define sensor requirements. Install, replace or repair specific electronic equipment and implement specific upgrades at roadside weather stations, and run diagnostic testing on newly installed components.
 3. Identify and recommend improvements, alternatives and modifications to resolve installation and maintenance issues.
 4. Operate computer software to consolidate, gather, analyze and dissemination of current information and data, and ensure compliance with ministry standards. Provide quality control of data input and output. Produce reports for manager.
 5. Procure weather sensing equipment parts and supplies, track expenditures, and maintain related inventories.
 6. Conduct electronics installation and weather station related training for ministry staff and others.
 7. Determine, allocate and evaluate the work of contractors, suppliers, students and others.

FINANCIAL RESPONSIBILITIES

- Contribute toward the development of annual budget requirements for environmental sensor equipment and supplies.
- Order and procure weather sensing installation equipment parts and supplies and track expenditures.
- Prepare costs estimates for project work and assists in the preparation and management of Local Minor Work contracts
- Responsible for economic use of consumable explosives and field equipment, materials, and goods.
- Purchasing responsibility for supplies (explosives, helicopters) up to \$20,000

DIRECT SUPERVISION (i.e. responsibility for signing the employee appraisal form)

Role	# of Regular FTE's	# of Auxiliary FTE's
Directly supervises staff	0	0
Supervises Staff through subordinate supervisors	0	0

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

Role	# of FTE's	Role	# of FTE's
Supervises students/volunteers/contractors	.25	Provides formal training to other staff	Up to 24
Leads Project Teams	1-3	Assigns, monitors & examines work of staff	Up to 2

SPECIAL REQUIREMENTS

- Certification with road sensing equipment (i.e. Vaisala)
- Certification in the Transportation of Dangerous Goods (TDG Ticket)
- Valid Workers' Compensation Board Blaster's Certificate with avalanche control endorsements
- Wilderness First Aid Certification (40 hours); or equivalent
- 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, back-country ski-board equipment, 4x4 trucks; wilderness medical supplies and equipment; computer, keyboard and standard office equipment; computerized telecommunications equipment; and remote sensors; industrial excavating equipment (such as a truck mounted hydraulic boom and small tracked backhoes; and hand tools (manual and electronic).

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; and to install and maintain electronic sensors (often for extended periods of time).
- Must travel safely by foot, ski/board through mountainous terrain; and drive vehicles 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

- The position has unique and specialized training and certification in the installation of sensor equipment and hence (as at December, 2004) is the only authorized Ministry/Government employee to perform this function, Province-wide. Activities associated with the installation function are complex and highly technical and the impact of error is significant (i.e., errors made in the installation of sensor equipment could lead to work downtime and unsafe road conditions).

(Examples of work associated with the role of Assistant Avalanche Technician are consistent with those described in that job description – copy attached).

COMMENTS

Diminished Ministry resources have required the blending of two unique jobs into one. The incumbent is acknowledged as the Ministry/Government expert and specialist *Environmental Sensor Installation Technician*; however, is also expected to be fully functional and competent in the role of *Assistant Avalanche Technician*. From an FTE perspective, this blended role is viable because the *Environmental Sensor Installation Technician* job does not consume 100% of an FTE throughout the course of the year. From a staffing perspective the blended role is viable because an incumbent with training and certification as an *Environmental Sensor Installation Technician* would generally have experience and skills comparable to those required of an *Assistant Avalanche Technician*. Accordingly, the strategy that blends these roles creates a solution to accommodate the Unit's reduced FTE complement; recognizes the requirement for both the expert *Environmental Sensor Installation Technician* role as well as an additional *Assistant Avalanche Technician* resource; and creates a full-time employment opportunity for a qualified individual.

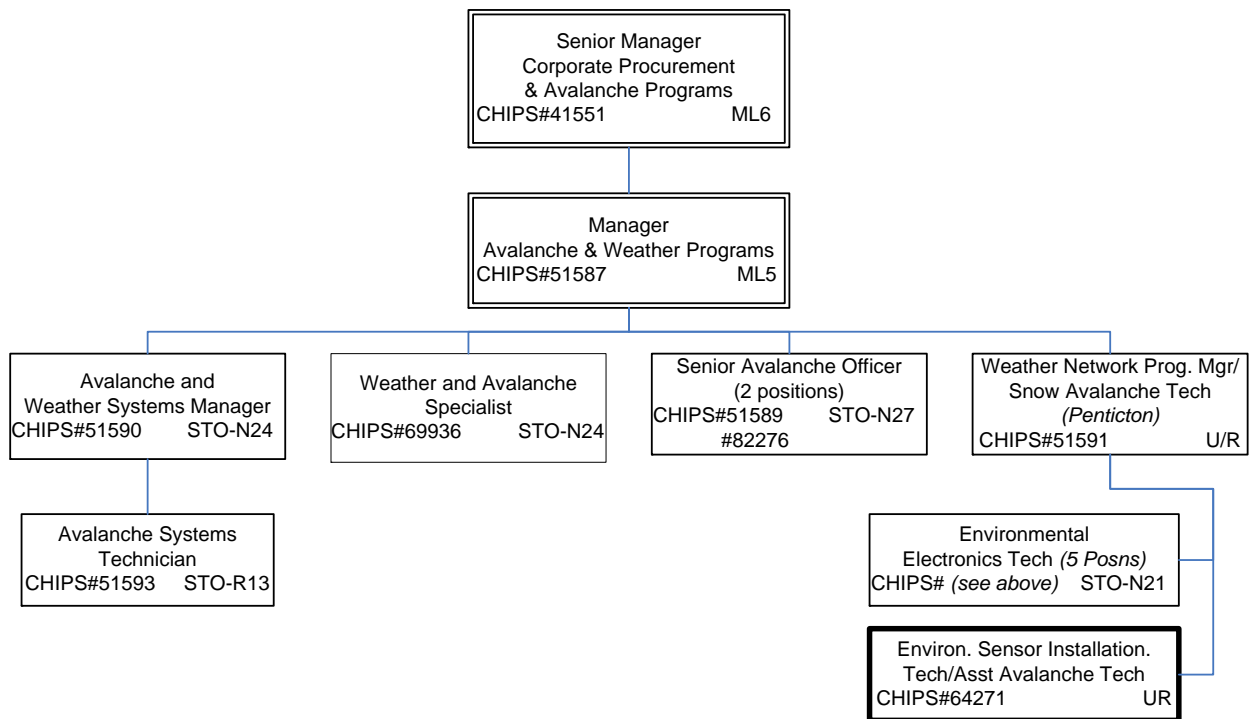
PREPARED BY

Name	Date	Phone #:
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EXCLUDED MANAGER AUTHORIZATION

I confirm that:		
1. The accountabilities/deliverables were assigned to this position effective December, 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:
Mike Boissonneault		

ORGANIZATION CHART



SELECTION CRITERIA

Education and Certification:

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. Preferred Vaisala pavement sensor installation certification (**Note:** this specialized training and certification can be provided during the orientation period if otherwise qualified applicants do not possess the certification).

Experience

- A minimum of 5 years' experience conducting meteorological observations, snow stability tests and analyses
- Experience conducting avalanche hazard evaluations and control activities including working with explosives
- Three to five years' experience in electronic sensor installation plus testing and analysis of related data and information
- Experience preparing and maintaining a variety of manual and computerized administrative and technical records, reports and documents
- Experience with rescues and conducting related rescue training

Knowledge of:

- 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)
- road weather electronic sensor installation and maintenance; testing and repair
- project planning and costing

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
- travel on foot, on skis or snowboards over mountainous terrain in all weather and avalanche conditions
- direct, train, and/or supervise crews, site personnel and the general public in clearance and search and rescue activities
- operate a variety of road sensors and related tools and equipment
- work independently; as well as develop effective working relationships with staff and contractors
- use computers and access and analyze information from computerized databases

Skills:

- Sound judgment and excellent problem solving skills
- Mechanical aptitude and capability
- Effective oral, written and inter-personal communications skills and the ability to compose technical reports
- Physical fitness with back country skier/snow boarder and mountaineering skills
- Time and workload management skills and the ability to prioritize assignments according to deadlines and the level of urgency; as well as react quickly and efficiently to crisis situations

COMPETENCIES