

SCHEDULE "D"

DESCRIPTION OF INFRARED SCANNING SERVICES

The Contractor shall perform and deliver the Infrared (IR) Scanning services according to the following description terms, conditions, standards, requirements and provisions as and if requested by the Department:

1.0 Definitions:

- a) "hotspot" means an area of burning organic material ≥ 300 degrees C.
- b) "fire perimeter" means the maximum extent of fire destroyed vegetation or identification of charred area.
- c) "IR" means Infrared and is part of the electromagnetic spectrum, which is longer than that of visible light, but shorter than that of radio waves. It is used for remote temperature sensing such as hotspots.
- d) "GPS" means Global Positioning System and is a satellite-based navigation system made up of a network of 24 satellites placed into orbit by the U.S. Department of Defence.
- e) "GIS" means Geographic Information Systems and is an integrated system of computer hardware, software, and trained personnel linking topographic, demographic, utility, facility, image and other resource data that is geographically referenced.
- f) "ICS" means Incident Command System and is the combination of facilities, equipment, personnel, procedures and communications operating within a common organizational structure designed to aid in the management of resources on wildfires.
- g) "breadcrumb trail" means GPS tracking

2.0 Mobilization:

The Contractor shall be fully mobilized within 12 hours of acceptance of a request for Infrared services from the Department.

3.0 Level of Service:

Contractors providing IR services will be asked to provide the following ICS IR Level of Service based on GIS services and preferred education, experience and evaluation results.

The following IR, GPS and GIS services are to be provided:

- Spatial data will be required for a **bread crumb trail of the helicopter path, perimeter and hotspots** in shapefile format
- Where the perimeter is captured, a shapefile will be properly attributed with the Fire Export ArcGIS 9.x Extension as per **Fire Perimeter Standards**
<http://srd.alberta.ca/wildfires/pdf/gisstd20.pdf>
- Where the hotspot locations are captured, a shapefile will be properly attributed with the Fire Export ArcGIS 9.x Extension as per **Hot Spot Data Standards**
<http://srd.alberta.ca/wildfires/pdf/gisstd22.pdf>
- GPS shapefile format with Latitude and Longitude (Geographic) coordinates in decimal degrees to 4 decimal places, NAD 83.
- Where a breadcrumb trail is captured, the shapefile created from DNRGarmin will be provided. Naming of the shapefile should be easily identifiable with fire number and date

- Map products will include the following items
 - **S**- Scale
 - **T** – Title
 - **A** – Author
 - **N** – North Arrow
 - **D** – Date
 - Inserted table showing the location of hotspots
 - Grid graticule
 - Base mapping information sufficient to navigate with
 - Legend depicting hotspot and perimeter symbolization

In lieu of placing hotspot locations on the map, a separate listing will be accepted.
- The map shall be delivered as a print ready digital image (JPEG or PDF) via e-mail to pffc.gis@gov.ab.ca.
- Immediate delivery of hardcopy map (8.5x11) which includes labeled GPS hotspots and perimeter shapefiles, to the scanned fire line or sector staff upon completion, and to the ICP thereafter.
- Bread crumb trail, perimeter/hotspot shapefiles, print ready digital map and mission report will be sent via e-mail to pffc.gis@gov.ab.ca and forwarded to the SRD Area within **4 hours** of mission completion.
- A mission report (FP60) must be submitted as a separate deliverable.
- IR Operator and may also include one GIS Operator/ Logistics crew
- Hotspots identified with ground marking material (toilet paper, flagging tape, spikes, etc.) maybe requested at the discretion of the ICS staff.

4.0 Preferred Requirements of IR Operator (to be reviewed yearly):

- Education – training from a recognized IR training institution
- Experience – 1 year/ 50 hours minimum
- Evaluation – passed grid and/or field operational testing

5.0 ICS IR Product/Services Summary

	Ground Marking	Sketch Map	GPS Digital Files	Map Product
ICS IR Level	O	N/R	R	R

R = Required, must be completed
 O = Optional, at digression of IC staff
 N/R = Not Required

6.0 Information Supplied to Contractor:

The Department will supply, at no cost, the following data, ArcGIS 9.x extensions and DNRGarmin software to each IR provider:

6.1 Data

- Alberta Base features data will be supplied upon signing of an end-user license agreement for digital data from Resource Information Management Branch.
- Most recent static provincial datasets used in Garmin GPS units.
- IRS imagery in various formats.

6.2 DNRGarmin software version 5.1.1

- Used to upload/download waypoints or tracks in Garmin GPS units.
- Creates shapefiles of hotspots/tracks ready for Fire Export Extension.

6.3 Fire Export Extension

- Used to properly attribute hotspots and fire perimeters for submission to the Provincial Forest Fire Centre and Area offices.

7.0 Rates:

IR services will include the date and point of hire, up to and including date of release. These rates are not to include the helicopter tariff.

One Daily ICS IR rate for each operational level shall include:

- IR Operator *
- Ground support crew *
- IR Equipment
- Laptop
- Software
- GPS

The Contractor shall be guaranteed the Daily ICS IR Rate.

RATES (PLEASE COMPLETE THE FOLLOWING SECTION)

LEVEL OF SERVICE	DAILY ICS IR RATE
ICS IR Scanning	\$ per day

DAILY ICS IR SCANNING RATE includes ALL COSTS, with the exception of flying costs in accordance with the current Alberta Rotor-Wing Rate Schedule described in Schedule "A" of the Casual Rotor Wing Contract.