

2.3 Pre-Field Investigation

2.3.1 Road Layout

Allocate adequate time and resources to road layout. The road layout stage begins with the collecting and analyzing of all available information for the development area, focusing on the route corridor resulting from any approved access plan.

The first step in determining a road location is the pre-field investigation, which includes:

- carrying out a thorough map and air photo review; and
- preparing a working map of the area that shows study area boundaries, existing access, major drainages, land alienations, and other key planning elements.

2.3.2 Maps & Air Photos

Maps and air photos are a major source of information for examining terrain features and collecting information about the study area. Use the following types of maps at 1:5,000 or 1:10,000 scale for pre-field preparation, particularly for difficult or broken terrain:

- contour maps;
- Terrain Resource Information Management (TRIM) maps;
- forest cover maps; and
- soil and landform maps, terrain and stability maps, and ortho imagery.

Use the most recent series of air photos in conjunction with the available maps, to interpret physical features, drainage, and forest cover. Photo scales at 1:15,000 and 1:20,000 enable detail to be examined, although 1:60,000 photos are helpful for general landform orientation.

Complete an in-depth review of the maps and air photos to identify features and control points along potential route (“recce”) locations, including:

- stream crossings where location is critical;
- rock bluffs, benches, passes, saddles, and other dominant terrain features;
- potential switchback locations;
- harvesting systems and potential location of landings;

- potential disposal sites for excavation spoil or debris;
- alienated lands, including powerline, gas pipeline, or railway crossings;
- current access to and junction with existing roads;
- log dumps, mill yards, or other destinations;
- avalanche chutes;
- talus slides;
- swamps and wet areas;
- forest cover and stand condition; and
- potential environmentally sensitive areas.

2.3.3 Visual Impact

Consider the visual impacts of the road and the road corridor on the surrounding landscape. Where visual quality objectives (VQOs) have been established or visual impact issues can be foreseen, consider alternate route locations to lessen the visual impact of road. However, consider the impact of any increased costs to do so in evaluating the route alternatives. The Visual Impact Assessment Guidebook provides details for consideration in the layout of forest roads.

2.3.4 The Working Map

The working map provides a visual summary of all information gathered during the pre-field investigation. Once assembled, it provides a picture of:

- an outline of the study boundaries;
- the location, volume, and species of timber to be accessed;
- alienations that may apply to the access development, such as Indian Reserves or private property and utilities;
- location of administrative, environmental, special interest, and land status concerns, including Visual Quality Objectives (VQOs); and
- specifications that may affect the access itself, such as grade, alignment, haul requirements, or the needs of other users.

In developing working maps, carry out the following steps:

- Establish control points (including those to be used as photo ties) that may affect physical access or define where the road recce needs to be.
- Establish a minimum of one photo tie per kilometer.
- Use the maps and air photos to locate the recce routes that most effectively and economically connect the control points and meet the general specifications for road grade and travel speed.

- Mark the control points and proposed route locations on the air photos for verification during field reconnaissance.
- If 1:5,000 or 1:10,000 topographic mapping is available, check the grades along the proposed route options. Position roads away from water bodies and wetlands. Avoid areas of potential open-slope instability, potential surface soil erosion, and gully instability. Locate roads on benches, ridge tops, and flatter slopes to minimize erosion. Avoid erosion hazards such as:
 - heavy groundwater seepage;
 - soft clay or sensitive silt soil strata;
 - concave slopes;
 - steeply dipping rock layers; and
 - areas where there is a hazard of high mass wasting or erosion, including downslope sensitive areas.
- Select stream crossings at locations where channel and bank disturbance will be minimized. Keep the number of stream crossings to a minimum.

2.3.5 Land Alienations

The CM **must** ensure that a proposed road is free of any potential land alienations. Check the land status of an area as a prerequisite for road layout, to identify alienated lands and other potential conflicts that may require right-of-way (R/W) acquisition.

Alienations and interests or conflicts that may require R/W acquisition generally fall into one of the following categories:

- fee simple land;
- provincial government leasehold/tenure/interest;
- reserve by Ministerial Order/OIC; or
- federal reserve.

Where applicable, notify land owners of the intent to enter. However, avoid any discussion concerning possible land acquisition (and, in particular, expropriation). Limit discussions to the topic of access being required for reconnaissance purposes only. Also, advise a landowner that, should the ministry require legal access across the property, then a Forest Land Acquisitions Project Manager would contact the landowner to begin negotiations. If a landowner refuses ministry staff entry onto the property, contact FLNR Forest Land Acquisitions for further advice on how to proceed or how to negotiate the short-term access.

Do not assume that the occupant of a site is the landowner. Obtain information on the name of current landowners from the FLNR Forest Land Acquisitions in Victoria.

2.3.6 Government Interests

Based on potential conflicts that become evident during the road layout process, consider any concerns from the following government agencies, both provincial and federal, about the area and information to be included in plans for development of access for the timber resource:

- Ministry of Environment & Climate Change Strategy (provincial);
- Environment and Climate Change Canada (federal);
- Ministry of Transportation and Infrastructure (provincial)
- Transport Canada (federal; *Navigation Protection Act*);
- Ministry of Energy, Mines & Petroleum Resources (provincial; placer leases and mining claims);
- BC Oil and Gas Commission (provincial); and
- Ministry of Agriculture (provincial; Agricultural Land Reserve).