

4.3 CONSTRUCTION AND PROJECT MANAGEMENT GUIDELINES

Construction procedures require careful planning in the river valley so that impact is minimized. Access routes, size of equipment and material staging areas will be chosen to lessen hazards during construction, limit disruption to the existing environment, and limit the need for reclamation measures. A major criterion in the selection of a contractor(s) will be the appropriateness of the construction methods proposed.

As individual site plans are developed at the detailed design stage, the most feasible and economical construction procedures causing the fewest short term and long term impacts will be used. Options will be evaluated using the following criteria to weigh positive and negative attributes of each method:

1. **Community Impact** - a review of the impact of equipment, vehicles, materials and construction crews, including:

Construction traffic: Noise, dust and mud generated from truck traffic are anticipated to be concerns to adjacent residents. Careful planning at the detailed design and tender stage will reduce the impact to adjacent communities. These impacts will be relatively short term.

Noise/Odour impacts: The major bridges will be built in the winter and noise will travel through the valley. Most trail construction should occur in late summer or early fall to avoid nesting/mating season. Duration of the construction period will be as short as possible. Daylight hours are reduced during winter, therefore the length of construction day is limited. Notices will be advertised to adjacent communities.

Parking: Some construction related traffic can be expected at entrance points to construction sites. Parking will not be permitted, except for construction vehicles at designated valley parking areas. Residents will be notified of proposed access areas.

Mud: Construction vehicles may create some mud on residential and park roads. This will largely depend on construction timing. Proper and timely cleanup of the area will be coordinated with maintenance staff.

Hazard potential: Construction sites can be dangerous if not properly fenced and signed. The contractor will be required to properly sign and secure all construction sites. Notices will be sent to adjacent communities.

2. **Environmental Impact** - physical impact on the immediate construction area such as rutting of existing trails from construction traffic, or impacts on the river edge from bridge construction. The number of trips into a site with equipment must be minimized.

Vegetation disturbance: Access routes for construction equipment, material stockpile areas, bridge construction and trail surface upgrading will impact the natural vegetation of the area. In the long term, the majority of recreational users will confine their travel to the upgraded trails, resulting in less overall damage or positive impacts. Bridge sites will be rehabilitated using existing compatible soils and native plant materials, such as wild seed mixes and native shrubs. Bridge embankments will be stabilized with rip rap and plant materials. Stockpile sites will be scarified to remove all materials, seeded with wild seed mixes and planted with trees and shrubs. Trail excavation will be done by "lift and place" where removed material will regenerate at the side of the trail.

Wildlife impacts: No major impacts are anticipated as a result of the projects in the Master Plan. Construction will be primarily on existing trails; bridge construction will occur in the winter, mostly within areas of minimal sensitivity. There is potential for damage to subnivian habitat critical for small mammals due to snow compaction during construction. Only a few bridge sites and trail areas will be active at one time, therefore animals will move to other areas of the river valley. Construction areas will be fenced, and contractors will be expected to limit activities to those areas. Materials will be removed from construction areas as soon as work is complete. Timing and location of work will be sequential to avoid trapping ungulates and other winter dwellers between construction sites. Construction will be scheduled and located to avoid conflicting with critical breeding and rearing times of identified species. For example, to avoid impacts to the majority of avian wildlife, trail construction should occur in late summer and fall. Identification of beaver winter food storage sites will be undertaken and these sites avoided during construction. Attempts will be made to minimize the damage to existing beaver dams. Construction access will be limited to existing roads, parking areas, trails or frozen creeks. Upon completion, designated trails and bridges will limit human intrusion into habitat areas off the main trail system.

3. **Temporary Impacts on Recreational Use** - construction activities may restrict use of some areas of the river valley and quick turnaround time is desirable. Construction sites and storage areas will require additional security fencing.
4. **Rehabilitation of Access Routes** - Existing trails, creek areas or any embankments which are used as construction access routes will require a rehabilitation plan. The greater the impact of access (particularly in undisturbed areas) the larger the scope of rehabilitation work.
5. **Vertical Grades/Choices of Construction Equipment** - Grades in excess of 20-25% place restrictions on safe access and should be avoided.

6. **Construction Efficiency** - Access options and timing/seasonality will directly affect choices of equipment, methods of material delivery and the ability to prefabricate components off-site. An example is the use of helicopters which provide increased efficiency in the delivery of concrete and bridge superstructures. Timely delivery and accurate placement will reduce environmental impact, however, additional costs would be incurred.

Construction methods and equipment will be outlined in the Scope of Work of each contract.