6.0 SUMMARY: INTEGRATED VISUAL DESIGN PROCESS

This chapter pulls together the processes and products described in previous chapters and shows what a finished product will look like. So far the manual has covered mainly visual issues as part of the VLM process. Any forest planner or manager reading the manual will wonder how all of the considerations fit alongside the many other factors he has to cover. These will include a number of practical issues such as timber availability, possible road access, and the many rules about maximum clear cut sizes, green up times and equivalent clear cut areas. Increasingly, ecological or biodiversity considerations need to be taken into account, such as riparian protection, ungulate winter range, the shape and size of openings as they affect animals' use of the forest, the degree of fragmentations of the forest and its effect on the ecosystem. Add costs and other economic aspects into the equation and the task looks very formidable.

The visual design component must be developed in an integrated fashion. It is inadequate to plan a series of harvest units from a timber engineering viewpoint and then modify them to suit the visual quality objective or a wildlife concern. It is much more efficient to follow a process which considers all aspects together and allows various options to be tried out until a balanced solution is found. The basic process which will be described in this section can be used to ensure that one harvesting unit will fit into the landscape or be extended to carry out a comprehensive design of a landscape unit. It can be carried out by one skilled individual or by a team of people expert in a wide range of resource values. Appendix 1 deals with the fully developed Total Resource Design process aimed at the level of a Total Resource Plan, taking it beyond the realm of visual landscape design. This section presents the basic application of the process which could be undertaken by one skilled, trained person and with visual landscape management the primary focus.

6.1 STEPS OF THE INTEGRATED VISUAL DESIGN PROCESS

The steps of the design process are as follows:

1. **Set management objectives**
2. **Assemble resource inventory information**
3. **Resource analysis and interpretation**
4. **Design Concept**
5. **Sketching the design**
6. **Documentation and Approval**
7. **Implementation**
8. **Monitoring and Revision**

6.2 MANAGEMENT OBJECTIVES

Objectives give the designer targets for the outcome of the design. They may be quantities of resources such as timber, or qualities of values, such as visual quality objectives or water quality. Some will be given to the designer by higher authority, others may be developed from site knowledge. The more clearly they are presented the easier it will be to create and evaluate the design.

6.3 ASSEMBLE RESOURCE INVENTORY INFORMATION

Information needs to be made available or collected on the relevant aspects relating to the site. Much will be available already, some may have to be specially collected. It is not the job to the designer to collect this - other people should provide it, ideally already analysed. The categories of information at this stage include:

- visual factors: landform, viewpoints, visual inventory.
- site factors: soils, forest types, operability and access, water, slope stability, archaeology and cultural sites.
- ecological factors: wildlife use, plant ecology, rare species, fire and disturbance history.
- management factors: silvicultural operations and systems, pests and diseases, recreational uses, previous logging.

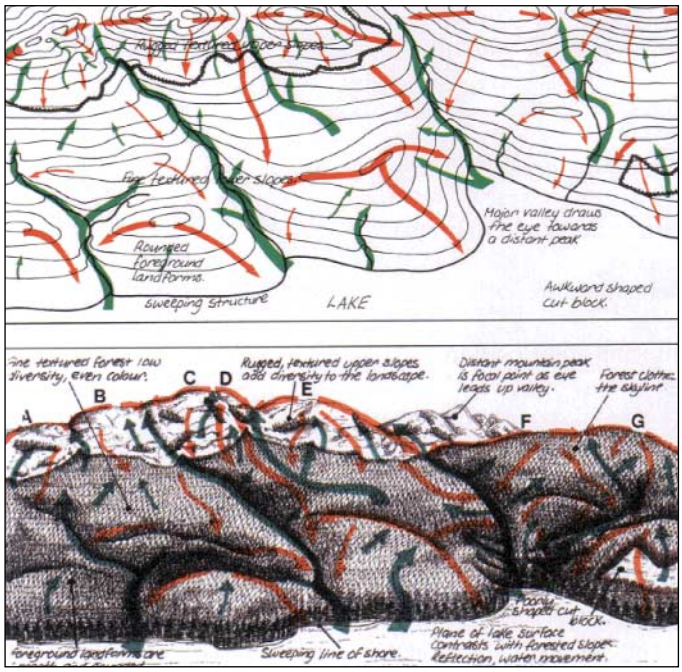
Some sites might have many factors to contend with, others only a few. Maps should be available of each factor or set of factors.

6.4 RESOURCE ANALYSIS AND INTERPRETATION

Resource inventory information should be analysed and interpreted in order that the visual designer has as full an understanding as possible of the landscape and the way it works. There are two analyses which should be used by the designer:

- **The first (landscape character) is completed by the designer.** This comprises the landform analysis (visual forces) and the land feature analysis. They are prepared for each relevant viewpoint in plan and perspective. (see **Section 3.1 and 3.2**).

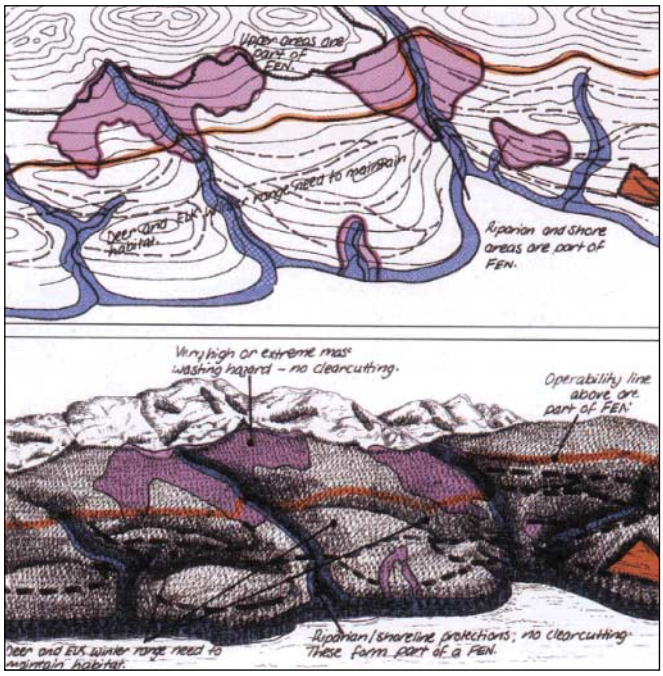
This sequence of sketches shows the main steps of the design process and the best ways of communicating design intentions.



Plan and perspective views of landscape character analysis.

SUMMARY

- **The second (constraints and opportunities) is derived from information collected in the inventory.** This analysis may be added up from components supplied by other specialists, or worked up as a team. The analysis aims to bring out the interactions of the major site and management factors which have an influence on what can or cannot be done where. The operability limits, riparian zones, forest ecosystem networks, existing and potential road lines, areas prone to mass wastage, existing cutblocks, are all typical factors which constrain the possibilities for action or provide opportunities to do things to protect or maintain various values. The timber engineers, silviculturalists, recreation, wildlife and other specialists will be able to supply the information. The analysis should be prepared in plan and perspective. Annotations and comments will help the designer understand what exactly the constraints and opportunities mean in practice.



Operability line

Existing Road

Potential road routes

Very high/extreme mass wasting hazard. Partial cutting only to retain soil stability.

Riparian/shoreline zones. No clear cutting. Opportunities to helicopter log some trees.

Existing cutblock does not meet PR VQO. Limit on new openings nearby until VEG is reached.

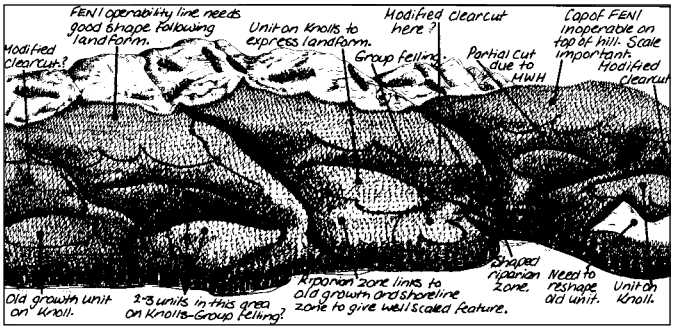
VQO is PR. Limits on percentage alteration. Opportunities for partial cutting on larger scale to meet VQO.

Ungulate winter range also limits degree of clear cutting but favours partial cutting.

Plan and perspective views of constraints and opportunities analysis.

6.5 INTEGRATED VISUAL DESIGN CONCEPT

Once the analysis stage is complete design can begin. It is advisable to start by contemplating the landscape trying to understand both the interactions of the various analysis and what the landscape itself suggests in terms of shapes, locations, scale and amount of different units. A number of possible units can be sketched in over the landscape photographs and tried out to see how they relate to the analysis. Eventually this will settle down into one or a number of conceptual options. Rough annotated sketches are all that are required at this stage. Most work should be carried out in perspective.

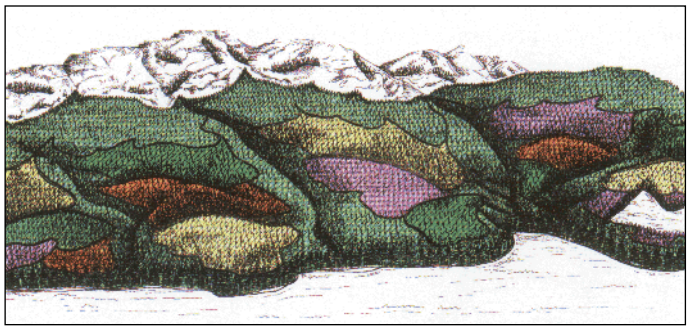


A rough design concept which helps to break down the landscape into potential units.

SUMMARY

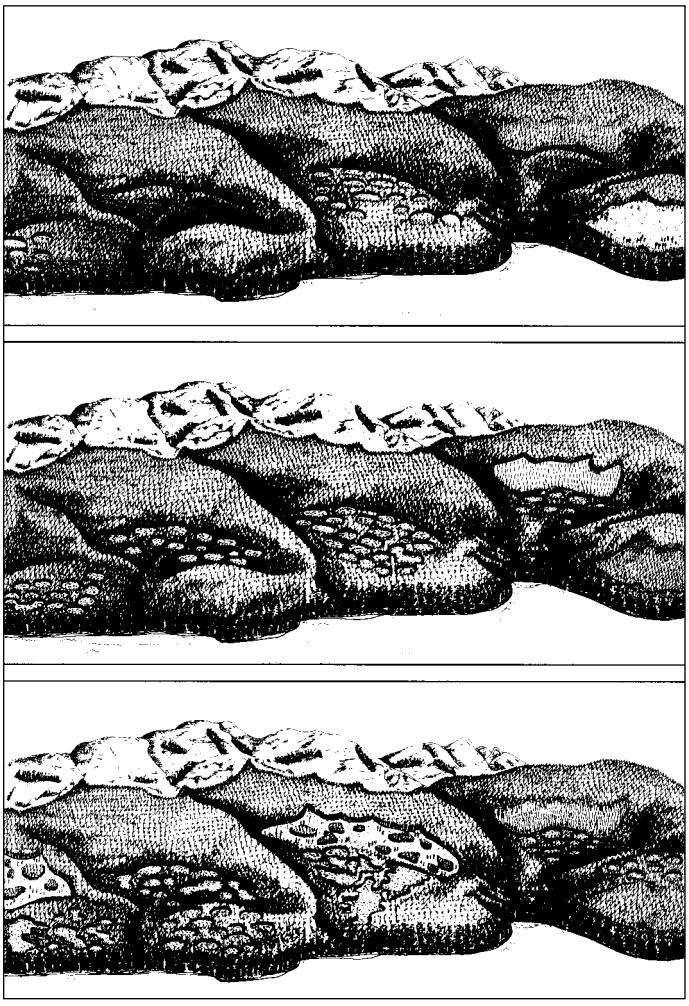
6.6 SKETCHING THE DESIGN

The loose ideas and rough sketches prepared at the concept stage become refined. The shapes are fitted to landform and their scale determined. Phasing of passes for harvesting units are considered together with possible silvicultural systems. A set of sketches showing the pattern of unit shapes, timings of activity as far ahead for an entire rotation and the projected appearance at each phase is usually produced. The design is also mapped.



Pass 1: Partial group felling
Pass 1: Clearcut with reserves
Pass 2: Clearcut with reserves
Pass 3: Group felling
Pass 3: Clearcut with reserves
Pass 4: Group felling
Pass 4: Clearcut with reserves
F.E.N. Select thin only

The concept worked up further into a sketch design of unit shapes each given a phase for action and a treatment type.

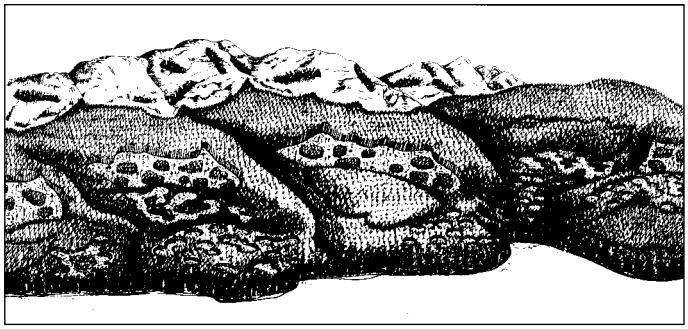


Pass one: the existing clear cut is redesigned, one unit is partial cut (shelterwood) and two have some groups felled.

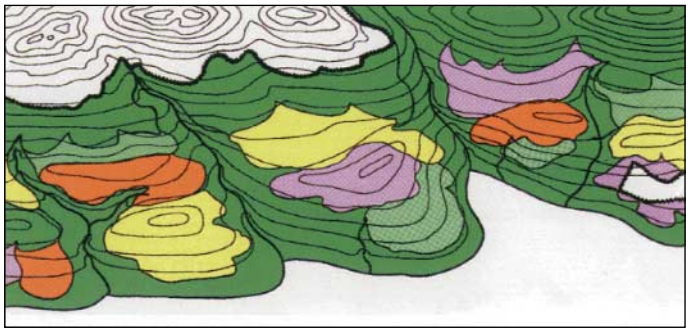
Pass two: the redesigned clearcut has greened up, the three first units are given a second selective cut or more groups felled. Two more units have groups felled.

Pass three: the last cut is made in the first partial cut and group felled units, the second pass in the second two and more units are given first pass group felling.

SUMMARY



Pass four: the earliest units have blended back into the forest, the rest progress to another pass and a further unit is given its first group felling.



Plan of the units, their phases and treatment types.

6.7 DOCUMENTATION AND APPROVAL

Once the sketch design is complete and fairly well refined, its documentation should be considered. The recording and presentation of the design is important so that those who are involved in its approval and implementation can understand it. Approval may involve public participation and other agencies as well as Ministry staff, so the clarity of the drawings, their accuracy and the ease of understanding the logic behind the design are paramount considerations. Once approved, the maps become significant documents so they must be accurate and unambiguous. Note: The design process will also be done by licensees and consultants, not just MOF staff.

It is well worth preparing the design drawings with their eventual documentation in mind. For instance, the analyses can be drawn tidily and used directly with no need to recopy them later. Photographs can either be mounted as they are or reduced by photocopy to fit a suitable format.

Since large sized drawings, useful though they are for presentations, are cumbersome to store, easily damaged and difficult to transfer or use in the field, a more compact size is required. A ring binder of 11"x17" landscape format is ideal. An 8"x11" binder is too small to take panoramic photographs. Each binder, one per design unit, should contain the following information:

1. A description of the project, its context and the various objectives it set out to meet together with a summary of any particular circumstances, public involvement, etc.

2. A location map showing the viewpoints for the photographs and an outline of the plan area.

3. A series of analysis maps:

   Landscape character: Landform
   Land feature

   Constraints and opportunities

4. A map showing the design units and action to take place on them.

5. Photographs or a colour photocopy of each view together with:

Landscape character: Landform analysis
Land feature analysis

Constraints and opportunities analysis

Landscape ecological analysis

Design units and action

Time sequences (major selected views only)

As time goes on, progress can be monitored using photos taken from the same viewpoints after each phase of activity. A record of amendments should be kept, and all design maps dated to ensure that the correct, up to date version is implemented.

6.8 IMPLEMENTATION

Once approved, the design can be implemented. It becomes, in effect, an integral part of a Land and Resources Management Plan (LRMP) or Tree Farm License (TFL) Management Plan. The first phase of implementation will normally cover the next 5 years or so. This leads naturally to the preparation of a forest development plan using some of the first pass units. From there pre-harvest silvicultural prescriptions can be prepared. Units then have to be laid out on the ground. As the designed shapes are likely to be somewhat more complex than previously geometric or 'rounded off' variants, some extra care and skills are needed.

In landscapes where there is plenty of detail such as rock outcrops, areas of broadleaves or distinct species patterns the job tends to be easier, but no one should underestimate the problems of walking through a dense stand of trees on steep terrain even when helpful features present themselves.

Methods which can be used to locate designed blocks in the field may be found in Chapter 5.

6.9 MONITORING AND REVISION

The design should be monitored over time. Logged units should be checked to ensure they turn out as planned and that VQO's and other objectives have been met. Unforeseen problems such as wind damage or fire may force revisions. New information or understanding may come to light which enables improvements to be carried out. Flexibility is the key, although the framework of the design, based as it is on the relatively unchanging factors of soil, landform and forest types should be robust over time.

6.10 CONCLUSION

The approach to forest visual landscape design set out and explained in this manual is new to British Columbia. It presents quite a few challenges to these people who wish to implement it. Before changing any system all concerned must be convinced that it represents an improvement on what has gone before. There must be distinct advantages in using this process over the current one, especially if, as many people will fear, there are increased costs to be accounted for.

The advantages of adopting the visual landscape design process are as follows:

- There is now a structured, rational method of evaluating the characteristics of a landscape and using that understanding in designing alterations which blend naturally into it.
- The practicalities of implementing the design are accounted for during the process, not afterwards.
- The design techniques of using perspective provide an instant environmental impact assessment and also permit far easier understanding of the visual design to the public than maps and plans ever do.
- The design is based on a deep understanding of the long term and permanent features of the landscape. This ensures that the plan is less likely to date.
- The design method of using landform as the basis for shaping alterations is viewpoint independent. This means that new viewpoints which may arise are already catered for, while avoiding hiding activities is made a virtue.
- The process of design also enables a wide range of values beyond visual issues to be accommodated. This resolves many conflicts and helps greatly in implementing the wide range of guidelines and standards currently required.
- Design produces a unique solution for each landscape. This preserves the distinctive qualities important to scenic values.
- By following a process there is every chance of varying the factors taken into account as time goes by. The flexibility of the plans produced this way is of paramount importance in ensuring that improvements can be made over time.

The challenges of adopting visual landscape design are:

- The landscape is perceived from a different perspective: from the large scale down to the site. This takes some getting used to and takes some practice.
- Some of the methods of doing things on the ground: logging systems, setting units out, alternative silvicultural systems, for example, need to be reviewed and developed with the layout and management of more irregular units in mind.
- Long term thinking is needed: to consider activities and the forest structure over 40, 50 or even 100 years, rather than the 5 year period concentrated on at present.
- Familiarity with new tools is needed: perspective sketches, panoramic photographs, looking at the real landscape instead of just a map.

The costs of carrying out design are as follows:

- More planning is needed early on in the process or rotation. More people will be working together. This costs money for the plans but saves money on implementation, public processes, loss of flexibility etc down the line.
- More technology: GIS, computer aided design, camera equipment will be needed. This is coming anyway and if thought about properly can save money by making design easy.
- Loss of timber production. This may be a cost if smaller units are needed or timber netted out of the AAC. However, with design either the same size unit or larger ones can be accommodated with no loss to visual or other values. Less timber should be locked up in netted out reserves.

- Setting out units on the ground: with global positioning systems the cost may be less than for manually setting out older rectangular units. As each unit fits with the next, mutual boundaries progressively reduce the amount of setting out as passes proceed.

Costs can be avoided by design - costs of rehabilitation, of restoration and of delays, reduced AAC and public conflict. Costs of lost sales through perceived environmental mismanagement affecting customers' demand are difficult to calculate, but design will enable managers to avoid much of that perception in the future as trust builds up and good practice becomes the norm.