



Audit of Visual Resource Management

Headwaters Forest District

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Table of Contents

Executive Summary.....1

Introduction.....3

 The Visual Resource Management Framework 3

 The Audit Area..... 5

 Legal Framework 5

Audit Scope and Approach.....7

 The Auditees..... 7

 Criteria Development 7

 Compliance with the Visual Requirements of FRPA 8

 Effectiveness of Managing Visual Quality 8

Audit Findings.....9

 Compliance..... 9

 Effectiveness..... 12

Appendix 1: Key Concepts and Terms19

Executive Summary

In August 2009, the Forest Practices Board conducted an audit of visual resource management in the Kamloops Timber Supply Area portion of the Headwaters Forest District (see map on page 2). Visual resource management is the process of identifying and classifying scenic landscapes, and managing forestry activities on the landscape to meet the visual needs of the public, visitors and other resource users.

The audit area contains major highway corridors, which pass through areas of exceptional natural scenery and provide access to national and provincial parks, making it an ideal location for a visual audit. The maintenance of visually sensitive areas in the corridors is a priority for recreation and tourism management.

The activities of five forest licensees were audited: International Forest Products Ltd. (Interfor), Wells Gray Community Forest Corporation (WGCF), Gilbert Smith Forest Products Ltd. (Gilbert Smith), Ainsworth Lumber Company Ltd. (Ainsworth) and Canadian Forest Products Ltd. (Canfor). Also audited was BC Timber Sales (BCTS), Kamloops Business Area, Clearwater Field Unit, who volunteered to be included.

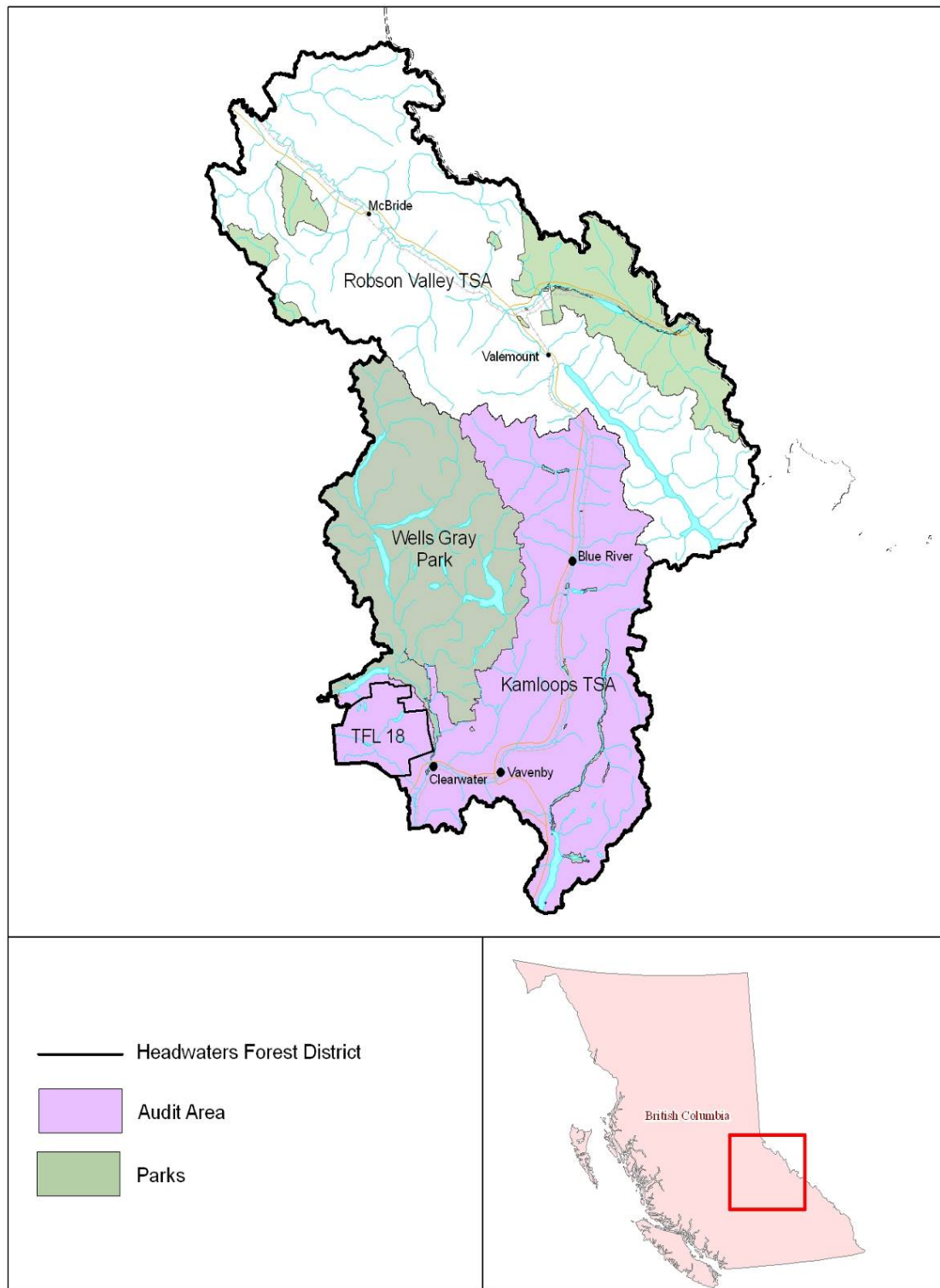
The audit examined activities and related operational planning on 73 cutblocks harvested within designated scenic areas along the Highway 5 corridor, Adams Lake and smaller lakes within the audit area, between August 2007 and August 2009. In assessing these cutblocks, the audit examined 42 visual landscape inventory polygons, 38 viewpoints and 73 site plans.

Overall, the audit found that all six auditees were both compliant and effective in their management of visual objectives within the southern portion of the Headwaters Forest District.

Most of the audit area was managed according to the visual objectives specified in the *Forest Planning and Practices Regulation* (FPPR) section 9.2. Visuals were managed diligently, with evident care in ensuring visual goals were met. The audit results clearly show that most areas examined not only met the visual objectives but also exceeded them, with the exception of mountain pine beetle (MPB) infested areas, where visual objectives were often not achieved.

However, where MPB was a consideration, auditees demonstrated that a substantial amount of effort was devoted to managing visual impacts by incorporating irregular boundaries, edge treatments and natural landscape features into cutblock design. The auditees are commended for reducing visual impacts in beetle-infested areas by using mitigative visual design practices where possible.

Audit of Visual Resource Management Headwaters Forest District



Introduction

In August 2009, the Forest Practices Board conducted an audit of visual resource management in the Kamloops Timber Supply Area portion of the Headwaters Forest District (see map on page 2). Visual resource management is the process of identifying and classifying scenic landscapes, and managing forestry activities on the landscape to meet the visual needs of the public, visitors and other resource users.

The audit area contains major highway corridors, which pass through areas of exceptional natural scenery and provide access to national and provincial parks, making it an ideal location for a visual audit. The maintenance of visually sensitive areas in the corridors is a priority for recreation and tourism management.

The activities of five forest licensees were audited: International Forest Products Ltd. (Interfor), Wells Gray Community Forest Corporation (WGCF), Gilbert Smith Forest Products Ltd. (Gilbert Smith), Ainsworth Lumber Company Ltd. (Ainsworth) and Canadian Forest Products Ltd. (Canfor). Also audited was BC Timber Sales (BCTS), Kamloops Business Area, Clearwater Field Unit, who volunteered to be included.

The audit examined activities and related operational planning on 73 cutblocks harvested within designated scenic areas along the Highway 5 corridor, Adams Lake and smaller lakes within the audit area, between August 2007 and August 2009. In assessing these cutblocks, the audit examined 42 visual landscape inventory polygons, 38 viewpoints and 73 site plans.

Objectives for visual quality are set by government under the *Forest and Range Practices Act* (FRPA). Forest licensees operating on Crown land must ensure their forestry planning and practices are consistent with these objectives, for which there are categories for 'visually altered landscapes' (see Table 1).

Within the audit area, legal requirements for the management of visuals came from two main sources: the Kamloops Landscape Resource Management Plan (KLRMP) and objectives established under section 9.2 of the *Forest Planning and Practices Regulation*.

Legal requirements are incorporated into a visual resource management framework, which was designed to deal with visual interests.

The Visual Resource Management Framework

Visual resource management is the process of identifying and classifying scenic landscapes, and managing forestry activities on the landscape, to meet the visual needs of the public, visitors and other resource users. It recognizes scenic landscapes as an integral part of the forest resource.

The visual resource management framework was developed to address the subjectivity associated with the human perception of visual quality. It classifies forest alteration according to levels of acceptability of alteration in scenic areas. Key components of the visual management framework are:

- The identification of an area of land as visually sensitive from chosen viewpoints through a visual landscape inventory (VLI). Visually sensitive areas may be designated as scenic areas for management purposes.
- Categories of visually altered forest landscape (see Table 1), based on studies of public perception of the acceptability of differing levels of timber harvesting activity in scenic areas.
- The assignment of a recommended visual quality class, visual quality objective (VQO) or objective set by government for visual quality to scenic areas to define how much alteration is deemed acceptable for each scenic area.
- The design of timber harvesting cutblocks, involving visual impact assessments (VIA),¹ for assessment against the recommended visual quality class or established VQO.
- Conducting the timber harvesting activity, causing the alteration to the scenic area.
- Assessment of performance.

TABLE 1. Definitions of categories of visually altered forest landscape

CATEGORIES OF VISUALLY ALTERED FOREST LANDSCAPE	BASIC DEFINITION
	An altered forest landscape in which the alteration, when assessed from a significant public viewpoint, is:
Preservation (P)	• very small in scale; and • not easily distinguishable from the pre-harvest landscape.
Retention (R)	• difficult to see; • small in scale; and • natural in appearance.
Partial Retention (PR)	• easy to see; • small to medium in scale; and • natural and not rectilinear or geometric in shape.
Modification (M)	• very easy to see and is: - large in scale, but natural in its appearance; or - small to moderate in scale, but with a design that has some angular characteristics.
Maximum Modification (MM)	• very easy to see and is: - very large in scale, - rectilinear or geometric in shape, or - both.

Source: Adapted from Protocol for Visual Quality Effectiveness Evaluation Procedures and Standards, Version 3.0, October 2008.

The definitions in Table 1 apply to objectives set by government for visual quality.

¹ A visual impact assessment is an evaluation carried out to demonstrate that timber harvesting or road operations are consistent with the established visual quality objective for a scenic area. The assessment simulates the visual effects of the planned operation on the landscape from one or more viewpoints.

The Audit Area

As part of the Forest Practices Board's 2009 audit program, the Board randomly selected the former Clearwater Forest District as the site of this, the Board's second, visual quality audit. This area is now referred to as the Kamloops Timber Supply Area (TSA) portion of the Headwaters Forest District and is located in the southern portion of the district (see map on page 2). It is characterized by two main visually significant components:

- The lakeshore-based areas are dispersed within the operating area and are viewed by many pleasure craft and sport fishing boats. They are separate from the main Highway 5 corridor, located around lakes and recreation areas including Mahood Lake, Adams Lake and smaller lakes. Most of the areas visible from the water are first-growth forests, with partial retention and retention objectives.
- The Highway 5 corridor is the main travel corridor from Clearwater to Valemount and carries a significant volume of tourist traffic, primarily in the summer period, but it also services heli-skiing areas in the winter. Most of the highway passes through mountainous forest, with a mixture of retention, partial retention and modification objectives. Most of the land surrounding the highway corridor in populated areas is privately owned.

Activities along the Highway 5 corridor include forestry, hydro projects, heli-skiing and those associated with private land. Visual design consideration for hydro, heli-skiing and private land activities tends to be limited. Some of these past activities have resulted in significant alterations to the scenic landscape. Because the audit focused on more recent activities, the visual impacts of these activities were not examined during the audit.

Legal Framework

The audit area contains a unique set of legal requirements that form the basis for how compliance was assessed for this audit. The legal framework is described below.

Legal requirements for the management of visuals came from two main sources. First, there are two general objectives established by a 2006 amendment to the Kamloops Higher Level Plan Order. Second, there are objectives "set by government in relation to visual quality" established under section 9.2 of the *Forest Planning and Practices Regulation*. The two general objectives established in the order for visual quality are:

Visually sensitive areas

"The primary objective in visually sensitive areas is to ensure that the levels of visual quality expected by society are achieved on Crown land in keeping with the concepts and principles of integrated resource management."

Outside visually sensitive areas

“Areas outside the identified visually sensitive areas in the Kamloops LRMP are managed for landscape objectives as follows: alterations may dominate the characteristic landscape but must borrow from natural line and form to such an extent and on such a scale that they are compatible to natural occurrences.”

These objectives apply under the *Land Act* and the FRPA definition of “objectives set by government.”

Under FRPA, forest stewardship plans² (FSPs) must include results or strategies in relation to objectives for visuals. The results or strategies must be consistent, to the extent practicable, with the objectives. When carrying out forestry operations, the holder of the FSP must ensure that the results are achieved and strategies carried out. In this way, practices are expected to be consistent with visual objectives.

Specifically, licensees must ensure they meet:

- the requirements of FRPA section 5, to include results and strategies consistent with FRPA objectives for visuals in FSPs. A result is a description of a measurable or verifiable outcome in respect of a particular objective. A strategy is a description of measurable or verifiable steps or practices that will be carried out in respect of a particular objective.
- the requirements of FRPA section 21, to ensure that the intended results set out in FSPs were achieved, and that the strategies described in the FSPs were carried out.

Except for the general objectives in the Kamloops Higher Level Plan Order, the objectives in relation to visual quality are determined by reference to the Land and Resources Data Warehouse (LRDW). The LRDW contains relevant scenic area polygons and the visual sensitivity classes from which the visual objectives are derived.

Scenic areas were described in a visuals inventory in 1999. These scenic areas, as they existed on October 24, 2002, have visual sensitivity classes assigned to them in the LRDW. The objectives in section 9.2 are based on these visual sensitivity classes.

² A forest stewardship plan (FSP) is a key planning element in the FRPA framework and the only plan subject to public review and comment and government approval. In FSPs, licensees are required to identify results and/or strategies consistent with government objectives for values such as water, wildlife and soils. These results and strategies must be measurable and once approved are subject to government enforcement. FSPs identify areas within which road construction and harvesting will occur but are not required to show the specific locations of future roads and cutblocks. FSPs can have a term of up to five years.

While not legal requirements, the Lakes Local Resource Use Plan (LLRUP) and the 1996 visual inventory for TFL 18, contain visual objectives for lakeshore management zones³ (LMZ) and other visually sensitive areas within TFL 18. Because they serve as guidelines for visual practices, they were only used as a standard for assessing the effectiveness of visual practices during this audit.

Audit Scope and Approach

The Auditees

Five major licensees operating in the area were subject to audit: International Forest Products Ltd. (Interfor); Wells Gray Community Forest Corporation (WGCF); Gilbert Smith Forest Products Ltd. (Gilbert Smith); Ainsworth Lumber Company Ltd. (Ainsworth); and Canadian Forest Products Ltd. (Canfor), including Canfor's TFL 18, which lies within the audit area. BC Timber Sales (BCTS), Kamloops Business Area, was also subject to this audit. The Board notes that, though BCTS was in an audit exemption period,⁴ they volunteered to participate in this audit. Their participation provided a more comprehensive view of visual management practices in the audit area. Table 2 summarizes the forest licences and cutblocks that were subject to the audit.

TABLE 2. Operators and cutblocks audited

Auditee	Applicable licences	Number of cutblocks subject to audit*	Number of cutblocks audited
Ainsworth	FL A82234	4	4
BCTS	Various TSLs	24	19
Canfor	FL A18688, TFL 18	26	22
Gilbert Smith	FL A56291	5	5
Interfor	FL A18693	12	12
WGCF	CFA K2A	11	11
Total		82	73

* Number of blocks with harvest activity between August 2007 and August 2009, within the audit area and within a scenic area.

³ **Lakeshore management zone** is the zone around a lake established by the district manager where specific guidelines will apply. A **visual quality objective** is set for each lake management zone based on its classification. This zone lies outside of any **riparian reserve zone** and adjacent to the lake if there is no riparian reserve zone. It is considered to be approximately 200 metres, yet can be significantly larger or smaller depending upon the topography, aesthetics, and site-specific concerns.

⁴ When a licensee is audited by the Board, they are exempt from the random audit selection process for a period of three years, after which they may again be subject to a Board audit.

Criteria Development

This is the second visual quality audit the Board has conducted, and criteria developed from the initial audit (Campbell River Forest District⁵) continue to be used. The two principal objectives of this visual resource management audit were to assess and conclude on:

1. compliance with the visual requirements of FRPA; and
2. the effectiveness of managing visual quality where forest practices have occurred.

Compliance with the Visual Requirements of FRPA

Visual management activities and associated planning were assessed for compliance with FRPA and related regulations in effect as of August 2009. In determining compliance with FRPA requirements, the audit examined whether operators complied with sections 5 and 21 of FRPA. This included whether they achieved the objectives described above in the legal framework section.

The audit was conducted in accordance with: the Board's *Compliance Audit Reference Manual, Version 6.0, May 2003*; the addendum to the manual for the 2009 audit season; the Board's Visual Quality Audit Methodology – July 2004; and, a method designed by the Forest and Range Evaluation Program (FREP) for assessing visual quality management. All together these documents set out the standards and procedures that were used to carry out this audit.

Effectiveness of Managing Visual Quality

In 2004, the Board worked in cooperation with the FRPA Resource Evaluation Working Group (a joint project of the Ministry of Forests and Range⁶ and the Ministry of Water, Land and Air Protection⁷) to develop effectiveness criteria and indicators for each of the forest values identified in FRPA. For visual quality, this meant developing procedures for evaluating effectiveness of visual management practices. These procedures provide a basis for consistent assessment of achievement of visual objectives on landforms from a specific viewpoint.

⁵ The Audit of Visual Resource Management – Campbell River Forest District report is found on the Board's website at <http://www.fpb.gov.bc.ca/publications.aspx?id=2604>

⁶ The Ministry of Forest and Range is now the Ministry of Forests, Mines and Lands, as of November 2010.

⁷ The Ministry of Water, Land and Air Protection is now the Ministry of Environment.

The Board used the following effectiveness criteria, which are necessary attributes of an effective overall system of visual resource management.

1. Documented public input relating to visual quality has been fully addressed by operators through operational planning and forest practices.
2. Scenic areas⁸ are designated over areas of visual sensitivity.
3. Visual objectives⁹ within scenic areas are appropriate to manage visual quality.
4. Within designated scenic areas, visual management meets or exceeds established visual objectives.
5. Within designated scenic areas, good landscape design is fully utilized to reduce visual impacts.
6. Auditees have management systems in place to achieve visual objectives and they are working effectively.

The Board developed the effectiveness criteria during the pilot audit in 2004 and used them again for this audit. Before the audit began, MFR visual specialists were consulted and any changes to effectiveness evaluations since 2004 were incorporated in this audit.

Audit Findings

Compliance

The fieldwork assessed compliance with FRPA provisions as of August 2009. All activities subject to audit were conducted under FRPA (FSPs) and amendments.

In determining compliance with FRPA requirements, the audit examined whether auditees complied with legal objectives, including:

- planning requirements in scenic areas; and
- commitments to achieve visual objectives that may have been made in FSPs.

⁸ A scenic area is a visually sensitive area or scenic landscape identified through a visual landscape inventory or planning process approved or established by government. It is more precisely defined by regulation.

⁹ A visual objective is a legally established resource management objective established by government, or contained in a higher level plan, that reflects the desired level of visual quality based on the physical characteristics and social concern for the area. It is more precisely defined by regulation.

The audit assessed compliance with FRPA requirements based on the following objectives:

- the objective for visually sensitive areas set out in the 2006 amendment to the Kamloops Higher Level Plan;
- the objective for areas outside the visually sensitive areas, also set out in the 2006 amendment to the Kamloops Higher Level Plan, which includes TFL 18; and
- The objectives established by FPPR section 9.2, based on the scenic areas and visual sensitivity classes set out in the LRDW.

The assessments consisted primarily of examination of documents and field sampling. Table 3 summarizes the items audited.

TABLE 3. Plans audited for visual resource management

Auditee	Applicable Licences	FSPs Audited	VLI polygons Audited	Landforms Audited	Site plans¹⁰ Audited
Ainsworth	NRFL A82234	1	2	2	4
BCTS	Various TSLs	1	4	7	19
Canfor	TFL 18, FL A18688	2	18*	15	22
Gilbert Smith	FL A56291	1	4	3	5
Interfor	FL A18693	1	10	5	12
WGCF	CFA K2A	1	4	6	11
Totals		7	42	38	73

*Within TFL 18, VLI polygons are considered to be synonymous with lakeshore management zones.

Compliance with Planning Requirements

FRPA requires that FSPs specify results and strategies that address legal objectives for visual resources. Site plans must be consistent with the FSP and identify how the intended results or strategies described in the FSP apply to the site.

Conclusion

The audit found that, in all significant respects, auditees met planning requirements for visual resource management for all 7 FSPs and 73 site plans audited. The audit found that all FSPs contained results and strategies that addressed legal objectives for visual resources, and that all site plans were consistent with FSPs and identified how the intended results and strategies applied to the site.

¹⁰ A site plan is a site-specific plan that is required in place of a silviculture prescription as of December 17, 2002, except where there is already an existing silviculture prescription. Site-specific plans are required to be consistent with the forest stewardship plan. The site plan contains many of the same elements as a silviculture prescription and is designed to identify resource values and define what a free-growing stand will be on that site. However, it is not an operational plan under the *Forest Practices Code of British Columbia* and does not require review or approval by government to be implemented.

Compliance with Planning Commitments (FRPA s.21)

The audit found that all FSPs and site plans prepared by all auditees contained clear commitments to meet visual objectives and that forest practices achieved these commitments. Operators substantially complied with FRPA section 21 for all 38 landforms audited.

Still, the audit found 10 instances where visual objectives were borderline or not met (Table 4). However, auditees made provisions in their FSPs for the influence of other circumstances on their ability to achieve visual objectives, including salvaging or managing pest outbreaks. Operators clearly demonstrated to Board auditors that, for these 10 instances, MPB infestations affected their ability to achieve visual objectives and, therefore, visual management practices in these areas were compliant with FRPA, section 21.

TABLE 4. Effectiveness evaluation (EE) for landforms audited

Licensee	Landforms Audited	Effectiveness Evaluation (EE) for the Landform				
		<i>Clearly Not Met</i>	<i>Not Met</i>	<i>Borderline</i>	<i>Met</i>	<i>Well Met</i>
Ainsworth	2	0	0	0	0	2
BCTS	11	1	3	0	5	2
Canfor	13	1	0	3	1	8
Gilbert Smith	2	0	0	0	0	2
Interfor	4	0	0	0	0	4
WGCF	6	0	1	1	1	3
Totals	38	2	4	4	7	21

Note: Effectiveness Evaluation categories are defined in Protocol for Visual Quality Effectiveness Evaluation Procedures and Standards, Version 3.0, October 2008 and on the Visual Quality Effectiveness Evaluation Form.

Conclusion

The audit found that operations audited either met visual commitments made in FSPs or site plans, or were substantiated where they did not.

Overall Conclusion Regarding Compliance

The audit found that the auditees' forest planning and practices complied in all significant respects with the FRPA requirements for visual resource management. In reference to compliance, the term "in all significant respects" recognizes that there may be minor instances of non-compliance, which either may not be detected by the audit, or that are detected but not considered a significant non-compliance.

Effectiveness

In considering the effectiveness of forest practices for the purpose of this audit, it was necessary to define what constitutes effective practices for visual resource management. At present, effectiveness criteria have been developed, or are under development, for the 11 key resource subjects, identified in FRPA legislation,¹¹ by FREP. For visual quality, work mainly consists of the previously described procedures for effectiveness evaluation, which are limited to evaluating the achievement of visual quality objectives at the site level.

For the purpose of this audit, the Board adopted the 2004 pilot audit effectiveness criteria described in section 2.3 of this report.

The audit examined operators' performance during the audit period, in the audit area, in relation to these effectiveness criteria.

Effectiveness Criterion 1: Documented public input relating to visual quality has been fully addressed by operators through operational planning and forest practices

The primary test for this criterion was to collect and assess written public input to FSPs, related to visual quality. The audit found a very low number of written public submissions on FSPs and no written submissions regarding visual interests.

Conclusion

The criterion is of limited value as an indicator of effectiveness because there was no documented public input. Neither the criterion nor the audit findings address the broader question of whether public expectations for visual quality are being met in the audit area.

Effectiveness Criterion 2: Scenic areas are designated over areas of visual sensitivity

Auditors sampled extensively in primary travel corridors and lakeshores within the audit area, and made general comparisons between scenic area maps and what was actually visible. Mapped scenic areas appear to adequately include the visible land area adjacent to the highway corridors, as well as the perimeter of lakes visible from the lake surface, or lakeshore viewpoints identified in the Lakes LRUP. No concerns were noted for the designation of scenic areas in these portions of the audit area. In a few instances there were areas designated as visually sensitive that were not visible from significant viewing areas, which may indicate that a conservative approach was taken when identifying scenic areas. The audit found six cutblocks located in mapped scenic areas that were not visible from significant viewpoints.

¹¹ FRPA Section 149.

Visual inventories were conducted as if trees had been removed from the landscape so areas that would become visible, should the trees be removed in the future, were included in the ‘visually sensitive’ designation. This approach had the benefit of maintaining a static scenic area for consistent visual management planning, regardless of the size of the trees or other vegetation in the viewscape, which are addressed in each visual impact assessment (VIA).

Conclusion

The criterion is well met. Scenic areas appear to be well, if not conservatively, designated for highway corridors and lakeshore areas within the audit area.

Effectiveness Criterion 3: Visual objectives within scenic areas are appropriate to manage visual quality

This criterion was assessed within the confines of the existing visual quality classification system. No assessment work was done regarding the appropriateness of the classification system itself. Auditors considered the appropriateness of the assigned visual quality designations in various scenic areas within the audit area.

Scenic and visually sensitive areas were mapped and assigned visual objectives of modification, partial retention or retention. For the purposes of meeting the KLRMP and FPPR section 9.2 visual objectives, in 2006, visual sensitivity classes were assigned to scenic and sensitive areas. Table 5 summarizes the visual sensitivity classes, their associated visual objectives and relative proportions in the audit area.

TABLE 5. Visual quality classes within the audit area

Visual Inventory	Visual Sensitivity Class (VSC)		
	2 (High)	3 (Mod)	4 (Low)
Visual objective for Visually Sensitive/Scenic Area	R or PR	PR or M	PR or M
VSC Percentage of Scenic Areas	35	55	10

Note: See Table 1 for visual objective definitions, which corresponds to the categories of visually altered forest landscape.

Auditees within the Headwaters Forest District committed, in their FSPs, to manage for the visual objectives contained in FPPR section 9.2 for KLRMP VSAs, and 1999 visual inventory scenic areas. The visual objectives and scenic areas contained in the MFR visual landscape inventory (LRDW) were compared with district manager directives and found to be consistent, providing clear direction to operators.

Visual objectives on the highway corridor are a mix of partial retention (PR) and modification (M) (see Table 1 for visual objective definitions). The PR designations are associated with concentrated-use areas, such as towns or resort sites, as well as landforms that are viewed for long periods, or from many different viewpoints. In other parts of the main travel corridors, and in the more remote areas, the designations are M.

The Lakes LRUP designates PR or retention (R) for lakeshore management zones. The KLRMP designates areas outside VSAs to be managed to the equivalent of an M visual objective, to ensure visual interests are addressed in areas where potential visual impacts are not as obvious.

Conclusion

The designations generally appeared reasonable in consideration of other resource interests. Areas with higher levels of traffic or recreational use were managed for higher levels of retention. However, the audit cannot conclude on the absolute appropriateness of the visual objective designations.

Effectiveness Criterion 4: Within designated scenic areas, visual management meets or exceeds visual objectives

The assessment of forest landscapes to determine whether visual objectives have been met raises several issues that require consideration in the interpretation of audit results, including:

- landform versus landscape as the basis of assessing visual management,
- selection of viewpoints,
- roadside and foreground areas,
- visual design versus percent alteration, and
- visual impacts on private land.

Assessment Results

The audit found that operators used a consistent approach to visual management. Landforms, preferred over the FRPA requirement to use landscapes, were used as the basis to assess visual management practices and the landforms audited were well defined. All operators considered the most significant viewpoints when completing visual impact assessments and used both numerical and design elements as decision-making tools to predict the anticipated results of planned operations.

There were no roadside areas encountered during the audit.

When designing cutblocks in visually sensitive areas, operators considered and accommodated potential visual impacts caused by operations on private land.

Of the 38 landforms sampled, 11 had special consideration because they were located in areas where addressing MPB infestation was a priority, rather than achieving visual objectives. The audit found that operators substantially met the visual objectives for 28 (74 percent) of the total samples. However, the 10 samples that did not meet assigned targets were consistent with FSP results and strategies that made provision for the effect of forest health considerations on achieving visual objectives.

TABLE 6. Summary of visual quality objective (VQO) achievement

Auditee	Total # of Samples	Beetle Samples	Total # of Samples That	
			<u>Met</u> VQOs	Did <u>Not Meet</u> VQOs
Ainsworth	2	0	2	0
BCTS	11	5	7	4
Canfor	13	4	9	4
Gilbert Smith	2	0	2	0
Interfor	4	0	4	0
WGCF	6	2	4	2
Totals	38	11	28 (74%)	10 (26%)

Conclusion

Operators met the assigned visual objectives for all 27 non-beetle samples and 1 of the beetle samples. Therefore, the audit found that, with the exception of managing some harvesting areas to address MPB infestations, operators were effective in meeting or exceeding visual objectives. Where MPB was a factor, operators used design principles where possible to minimize visual impacts (see criterion 5).

Effectiveness Criterion 5: Within designated scenic areas, good landscape design is fully utilized to reduce visual impacts

Design elements are very important in visual resource management. The public may respond more positively to a forest view that looks well-managed, even if it does not look “natural.” Well-designed alterations also have a higher likelihood of meeting a given visual objective definition than poorly designed ones with the same percentage of alteration.

The importance of landscape design is clear when considering the cost of visual management. The requirement to manage a landscape to meet a given visual quality objective constrains the rate at which the visible area can be harvested. The more stringent the visual objective, the greater the downward pressure on the timber supply. Good visual design can allow the forest manager to harvest more timber from a landscape than if poor design is used. Consequently, consistent use of good design will lower the timber supply impact of managing for visual resource values.

The assessment methodology considers seven design elements. Auditors rated each sample good, moderate or poor for each of the seven elements, asking, does cutblock design:

- respond to lines of force (topographic shape of the landscape)?
- borrow from the natural character of the landscape (shape and vegetation patterns)?
- incorporate edge treatments (feathered or wavy and irregular edges)?
- consider the distance from the viewpoint to the alteration (farther is better)?
- appropriately position the alteration on the landform (away from the center is better)?

- account for visual impact of roads and side-cast?
- designate an appropriate amount of within-block tree retention?

Overall, the audit found good design practices were used, particularly when comparing audit blocks to areas harvested prior to the audit period. Design practices were consistent between operators. In some cases, operators harvested additional areas around older openings to enhance their visual design. The total sample base of 38 was assessed, although 10 samples did not meet visual objective definitions due to forest health reasons. In these instances, the visual objective definition was not met because percent alteration limits were exceeded while design practices were used to limit visual impacts. Overall, the audit found the average design score fell between good and moderate, while the results for each design element were variable. Table 7 summarizes design scores for each element.

TABLE 7. Summary of design element scores

Element Rating	DESIGN ELEMENT							OVERALL
	Lines of Force	Natural Character	Edge Treatments	Viewpoint Distance	Landform Position	Impact of Roads	Tree Retention	
G	8	12	9	4	15	17	3	68
M	27	24	25	34	19	17	12	158
P	3	2	4	0	4	4	23	40

While there were some instances where each design element received a poor score, overall scores were consistently good to moderate for all auditees and all visual objectives. One exception was tree retention, which accounted for 57 percent of the poor scores. In many of these instances, auditees chose to remove timber susceptible to MPB, rather than retain residual stems to buffer visual impacts.

The area has been subject to MPB infestations in previous years. In the audit, 11 of 38 samples were associated with cutblocks harvested to address MPB-infected timber. This indicates that recently, auditees chose to harvest beetle-killed and -infested timber, even though visual objectives would not be achieved. Non-symmetric block boundaries and partial cutting are treatments that can help reduce visual impacts in beetle-infested areas, but sometimes they cannot fully alleviate the amount of forest cover removal required to address beetle concerns.

Conclusion

For the most part, auditees used good landscape design to mitigate visual impacts, with 85 percent of the design elements receiving a moderate or better score, though forest health factors sometimes took priority over visual design in the audit area.

Effectiveness Criterion 6: Auditees have management systems in place to achieve visual objectives and they are working effectively

All auditees had systems in place to help manage visual resources. The audit examined these systems to ensure they were working effectively, and used the auditees' ability to meet expected outcomes as an indication of each system's effectiveness.

All auditees incorporated visual impact assessments (VIAs) into their management systems to assure visual objectives were being achieved. The audit found that VIAs were completed in all cases where harvesting was planned in scenic areas. Operators took a risk-based, three-tiered approach when considering the level of detail they would apply to VIAs, as follows:

1. Low level – used when proposed forest cover alterations are expected to easily meet visual objective definitions and where alterations are barely perceptible on the landform. An informal field assessment is made from significant viewpoints to confirm visibility and minimal design considerations are made. Operators sometimes conduct a follow-up, post-harvest site visit to monitor results.
2. Mid level – used when alterations are expected to be more dominant on the landform but still meet visual objective definitions. An informal field assessment is made where photos may be taken from viewpoints and design elements will be employed during planning to reduce visual impacts. Operators sometimes use mid-level VIAs in cases where overriding factors, such as forest health, may prevent them from achieving visual objective definitions. Operators usually conduct a follow-up, post-harvest site visit to monitor results.
3. High level – used when alterations are expected to be clearly visible on the landform and more careful planning is required to assure visual objective definitions are met. In this case, modelling techniques are used to simulate design practices and calculate percent alterations when viewed from predetermined significant viewpoints. Operators most often conduct a follow-up, post-harvest site visit to monitor results.

The audit found that operators used an appropriate VIA level when planning harvest operations in scenic areas and that the expected outcomes were achieved.

Conclusion

All auditees had a visual resource component included in their management systems. Because expected outcomes were achieved, the auditors concluded that their systems are working effectively. However, there was a weakness in some licensee systems, because they did not always monitor results of harvesting activities to ensure that the intended outcomes were achieved.

Overall Conclusions Regarding Effectiveness

The audit found that visual resource management practices examined in the audit area were generally effective, with the exception of areas infected by MPB.

One aspect of operations that appears strong is that intended results were achieved all the time, even though FPPR objectives were used rather than visual objectives established through the *Government Actions Regulation* or the Forest Practices Code. Auditees clearly demonstrated that they had devoted a substantial amount of effort to managing the visual impact of harvesting in the audit area.

Appendix 1: Key Concepts and Terms

Visual resource management – visual resource management identifies and classifies scenic landscapes and manages forestry activities on the landscape to meet the visual needs of the public, visitors and other resource users.

Scenic area – A scenic area is a visually sensitive area or scenic landscape identified through a visual landscape inventory or planning process approved by a district manager. It is more precisely defined by regulation.

Visual Quality Objective (VQO) – a visual quality objective is a legally binding resource management objective established by government, or contained in a higher level plan, that reflects the desired level of visual quality based on the physical characteristics and social concern for the area. It is more precisely defined by regulation.

Recommended Visual Quality Class (RVQC) – a recommended visual quality class is a planning designation describing the level of alteration that would be appropriate for a scenic area, considering visual and other values. It is not legally binding.

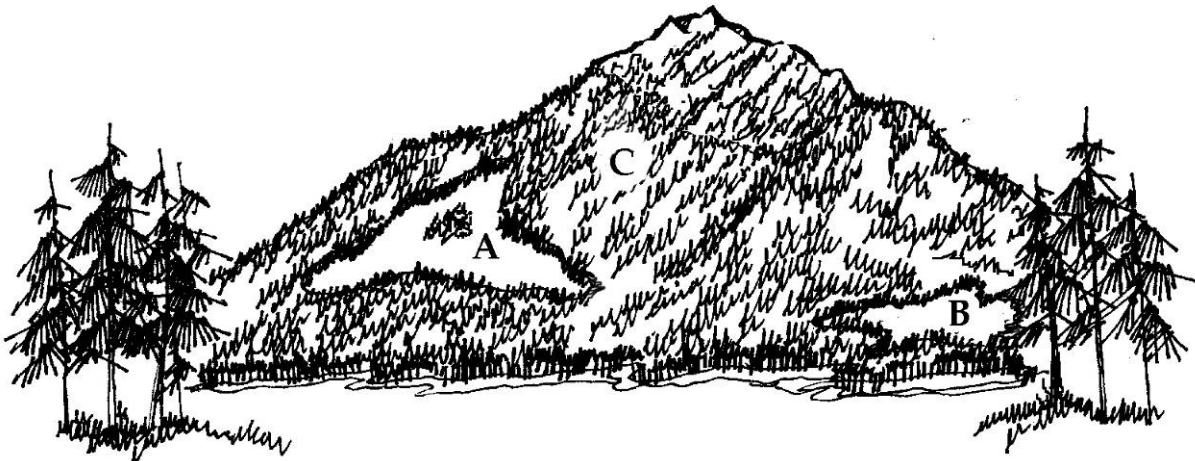
Visual impact assessment – a visual impact assessment is an assessment carried out to demonstrate that timber harvesting or road operations are consistent with the established visual quality objective for a scenic area. The assessment evaluates the visual effects of the planned operation on the landscape from one or more viewpoints.

Polygon – a polygon is an area, delineated on a map, with associated attributes, such as a visual quality objective or recommended visual quality class.

Landform – a landform is a natural feature of the earth's surface, such as a mountain or a valley, and is the logical land area covered by a visual impact assessment. In the diagram below, the landform is the entire visible mountain (A+B+C, where A and B are cutblocks)

Percent alteration – the proportion of a landform that is visually altered by roads or cutblocks as seen from a viewpoint, expressed as a percentage. In the diagram below, percent alteration is calculated as:

$$\% \text{ alteration} = \frac{\text{Cutblock area (A + B)}}{\text{Landform area (A + B + C)}} \times 100\%$$



Adapted from BC Ministry of Forests, January 2001, Visual Impact Assessment Guidebook.



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For Immediate Release

Jan. 25, 2011

Scenic views protected in Highway 5 Corridor

VICTORIA – A Forest Practices Board audit found that forest companies and BC Timber Sales (BCTS) did a good job of protecting important scenic areas between Clearwater and Valemount from the visual impacts of forestry activities, according to a report released today.

“Licensees did a good job preserving visual quality,” said Al Gorley, board chair. “The only exception was in mountain pine beetle-infested areas, where it was sometimes challenging to reduce the visual impact of salvage logging. Even so, it was apparent that substantial effort was made to keep the landscape looking as natural as possible, and the board commends the auditees for this.”

The audit examined activities and planning on 73 cutblocks within designated scenic areas along the Highway 5 corridor, which took place between August 2007 and August 2009. Highway 5 passes through areas of exceptional natural scenery and provides access to national and provincial parks.

The five auditees were: International Forest Products Ltd. (Interfor), Wells Gray Community Forest Corporation (WGCF), Gilbert Smith Forest Products Ltd. (Gilbert Smith), Ainsworth Lumber Company Ltd. (Ainsworth) and Canadian Forest Products Ltd. (Canfor). BCTS, Kamloops Business Area, Clearwater Field Unit also volunteered to be included in the audit.

Objectives for scenic areas are created in legislation and through government land use orders, and must be met by forestry licensees during their operations.

To minimize visual impacts, licensees took steps such as incorporating irregular boundaries, edge treatments and natural landscape features into cutblock design.

The Forest Practices Board is B.C.’s independent watchdog for sound forest and range practices, reporting its findings and recommendations directly to the public and government. The board audits forest and range practices on public lands and appropriateness of government enforcement. It can also make recommendations for improvement to practices and legislation.

-30-

More information can be obtained by contacting:

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Phone: 250 213-4708 / 1 800 994-5899

Protocol for Visual Quality Effectiveness Evaluation Procedures and Standards

For the most current version of this document, please consult the
FREP web site [Indicators-VisualQuality-Protocol-2008.pdf](#)

For other FREP information, please go to
<http://www.for.gov.bc.ca/hfp/frep/>

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Table of Contents

Acknowledgements	iii
1.0 Introduction	1
1.1 Forest and Range Practices Act replaces the Forest Practices Code	1
1.2 Visual quality objectives and designated scenic areas	2
1.3 The purposes of Effectiveness Evaluations	2
2.0 Procedures for Conducting Visual Quality Effectiveness Evaluations	3
2.1 Office Visit (Phase 2)	5
2.1.1 Gather maps.....	5
2.1.2 Complete the Effectiveness Evaluation form header information.....	6
2.1.3 Record VLI and VQO data on the Effectiveness Evaluation form.....	6
2.1.4 Select viewpoints	6
2.2 Field visit (Phase 3)	7
2.2.1 Fill in the field section of the Effectiveness Evaluation form.....	7
2.2.2 Photograph the scene	8
2.2.3 Determine the Basic VQC definition	9
2.2.4 Assess and record visual design elements	11
2.3 Office compilation of the results (Phase 4)	12
2.3.1 Confirm the visual design.....	12
2.3.2 Assess the Initial VQC rating.....	12
2.3.3 Assess the Adjusted VQC rating	15
2.3.4 Procedures for partial cut alterations	16
2.3.5 Partial and clear cuts on the same landform	18
2.3.6 Determine the visual quality effectiveness evaluation rating for the landform	18
2.3.7 Allowance for over-ride.....	19
3.0 Assembling a Visual Effectiveness Evaluation Package (Phase 5)	19
4.0 Summarizing the Effectiveness Evaluation Ratings for a Sample Area (Phase 6)	20
References	21
Appendix 1: Visual Quality Effectiveness Evaluation Form.....	24
Appendix 2: Field Notes to Accompany the Effectiveness Evaluation Form.....	25
Appendix 3: Photo Samples of Partial Cut Alterations.....	26
Appendix 4: Calculating Percent Alteration in Perspective View.....	27

List of Figures

1. Recommended procedure for conducting a visual quality effectiveness evaluation.... 4

List of Tables

1. Basic definitions of visual quality classes 10
2. Design observations..... 12
3. Percent alteration ranges for Visual Quality Classes (VQCs)..... 14
4. “Visual equivalent to clearcut” percent alteration numbers for partial cut 17

1.0 Introduction

This document explains procedures and standards for evaluating whether forestry operations are meeting established visual quality objectives in designated scenic areas.

The main focus of these procedures is on measuring viewing conditions for clearcut, patch-retention and partial cut alterations in mid-distance view, i.e. 1–8 km from the viewpoint, which account for the majority of current alterations in scenic areas in British Columbia. These procedures may be used in several ways:

- at the operational level to monitor individual openings;
- at the TSA or TFL level to audit particular licensees; and
- rolled up, at the regional or provincial level to give a broad indication of recent success in managing and conserving visual quality.

Note: The quantitative measurements described in this document have not been calibrated to assess foreground views of alterations immediately adjacent to the viewpoint. The latter type of alterations (e.g., those located adjacent to a highway) must instead be assessed on a case-by-case basis using professional judgment and recognized design techniques, such as the ones described in the Visual Landscape Design Training Manual (BC Ministry of Forests 1994b).

1.1 Forest and Range Practices Act replaces the Forest Practices Code

The Forest and Range Practices Act (FRPA) became law in British Columbia in 2004. It replaced the Forest Practices Code of British Columbia Act (“the Code”) over a two-year transition period. During the transition, FRPA eased planning requirements and put greater reliance on forest professionals. Forest practices must now be assessed based on results rather than on adherence to prescriptions.

The transition from the Code to FRPA has not changed existing land use designations or existing management objectives within designated areas.

The Ministry of Forests and Range, the Ministry of Environment, and the Forest Practices Board are now responsible for evaluating the effectiveness of recent forest management activities. Effectiveness in achieving goals is to be evaluated for the 11 resource values listed in FRPA (Section 149). One of those legislated resource values is visual quality.

1.2 Visual quality objectives and designated scenic areas

Visual quality is a resource value that is managed in designated scenic areas. All scenic area designations and visual quality objectives (VQOs) in effect on December 31, 2004 were grandparented into the new legislative framework and are continued under FRPA (Sections 180-181).

The three types of pre-FRPA scenic area designations are:

- Scenic areas with Recommended Visual Quality Classes assumed to be “current management” by district managers;
- Scenic areas with VQOs established by the district manager under the Code; and
- Scenic areas with VQOs designated as part of higher level plans, such as Land and Resource Management Plans.

New scenic areas are established under authority of FRPA, through the Government Actions Regulation (GAR). The Minister responsible for the Land Act is responsible for the designation of scenic areas. However, where the establishment (including amendment and repealing) of scenic area polygons is part of an update, refinement or revision of an existing visual landscape inventory, the Ministry of Forests and Range has the authority to do that. The ministry can also establish scenic areas outside a visual landscape inventory up to a maximum of 1000 hectares in each forest district.

Responsibility for setting the VQOs within designated scenic areas rests with the Minister of Forests and Range.

1.3 The purposes of Effectiveness Evaluations

Effectiveness evaluations are performed in order to determine whether:

1. forest practices are meeting desired objectives; and
2. existing policies and guidelines are resulting in desired objectives being met.

Effectiveness evaluations are meant to be broad in scope. Ocular estimates are the preferred method for assessing visual quality, although field measurements may also be necessary in some situations.

Focus group studies have shown that although people’s perceptions of the landscape often vary because of differences in their background, experiences and occupation, positive and negative impressions overall are well correlated. Thus, according to research, among all groups surveyed there is:

- less preference for larger alterations and alterations with visible roads or sidecast; and
- greater preference for alterations with significant tree retention and alterations designed to fit well with the landscape.

The Effectiveness Evaluation for visual quality seeks to answer the general question “How well are we managing and conserving views in designated scenic areas?” and also the more specific question “Did recently harvested units achieve the established visual quality objective?” The evaluation is not intended to answer questions such as “Were the pre-harvest visual impact assessments accurate?” or “Were the planned and approved prescriptions carried out?” The latter two are compliance and enforcement questions.

Evaluators must visit viewpoints to inspect the visual impact of a post-harvest forest alteration. They must also take photographs and site notes at each viewpoint. There is normally no need for the evaluator to visit the harvested unit.

2.0 Procedures for Conducting Visual Quality Effectiveness Evaluations

Figure 1 illustrates the recommended step-by-step procedure for conducting a visual quality Effectiveness Evaluation.

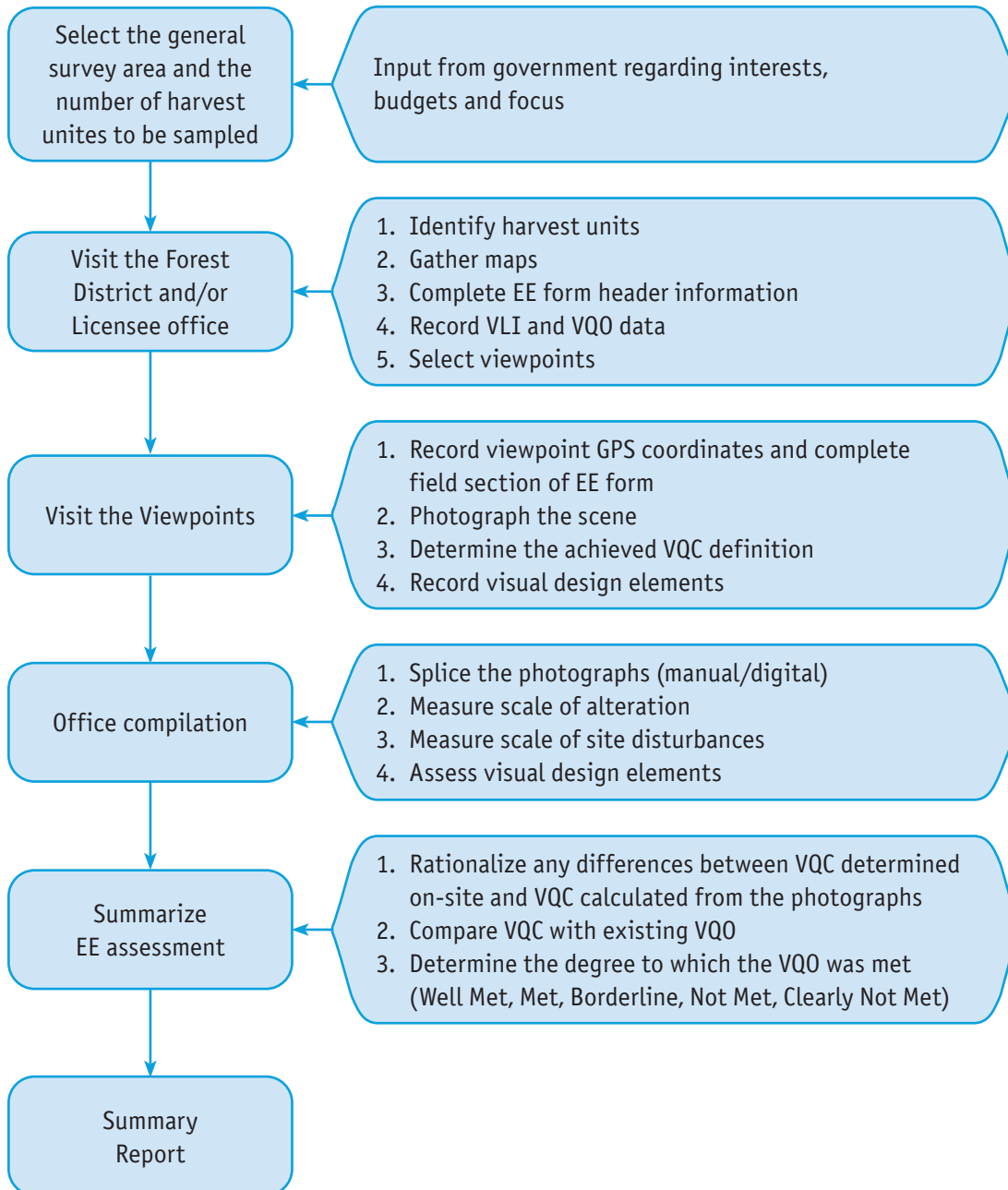
Phase 1 is the responsibility of the Ministry of Forests and Range or the Forest Practices Board: to specify the area to be evaluated and the number of samples to be collected, after consulting with district staff.

The focus in this section is on phases 2 to 4. These involve:

- Phase 2:** Visiting the Forest District office, the licensee office, or both;
- Phase 3:** Visiting locations (viewpoints) from which the harvested units may be best viewed; and
- Phase 4:** Compiling the findings.

Phase 5 (assembling a visual Effectiveness Evaluation package) and Phase 6 (summarizing the effectiveness evaluation ratings for a sample area) are discussed below in sections 3.0 and 4.0.

Figure 1. Recommended procedure for conducting a visual quality Effectiveness Evaluation



Points to keep in mind:

- Visual quality effectiveness is generally evaluated at the landscape level and may involve multiple cutblocks, viewpoints and licensees. Examples of evaluation areas: a long stretch of highway corridor, an entire valley, a lakeshore, a coastal inlet or channel.
- The evaluation must be conducted at all important viewpoints. New and older alterations not yet greened-up in the subject landscape must be included in the evaluation. Alterations are considered “greened-up” when the public would perceive what they see to be a regenerating forest and when the new forest cover is sufficiently tall to obscure stumps, logging debris and bare ground. For more information, see *A First Look at Visually Effective Green-up in British Columbia* (BC Ministry of Forests 1994a).
- Each view must be assessed according to whether it meets:
 - (1) the basic visual quality class (VQC) definition (discussed below in section 2.2.3); and
 - (2) the percent perspective landform alteration criteria (discussed below in section 2.3.2), which include consideration of the quality of visual landscape design.
- The final Effectiveness Evaluation rating combines the result of the above two independent measures. The achieved VQC under the basic definition is compared with the VQC determined using perspective measurement and adjustment for the scene attributes. The final rating for each landform is determined by reconciling any differences between the two assessments from each viewpoint in a brief written rationale.

2.1 Office Visit (Phase 2)

The evaluator’s role begins with a visit to the Forest District office, the licensee office, or both, where records for the area of interest are maintained.

Point to keep in mind:

- If you notify the district or licensee contact ahead of time, the contact can have the following materials ready before your arrival at the office.

2.1.1 *Gather maps*

- For each alteration of interest, acquire a copy of:
 - 1. the silviculture prescription map (pre-FRPA) or the site plan map available from licensees once they prepare a Forest Stewardship Plan;
 - 2. a topographic map of the landform, showing the location of the harvested unit;
 - 3. an area overview map showing highways, waterways, and viewpoints; and
 - 4. the visual landscape inventory (VLI) map for the area at an appropriate scale (typically 1:50,000 or larger).

The VLI map will show the base data considered in the establishment of VQOs. It will also show key viewpoints, screening type and location, and viewing opportunities that a licensee would have considered in planning the alteration.

2.1.2 Complete the Effectiveness Evaluation form header information

- Complete one evaluation form for each of the viewpoints selected.

(See Appendix 1 for the form to use.)

- In the first section of the form, record the general information about the alterations selected for evaluation while you are still at the office. Remember to record the licence number, cutting permit number, and cutblock number to identify the opening. If you have used the RESULTS application to identify an opening, enter the RESULTS opening ID in this section of the form as well.

2.1.3 Record VLI and VQO data on the Effectiveness Evaluation form

- Determine for each alteration and then record on the Effectiveness Evaluation form the:
 - base VLI data,
 - update date of the VLI,
 - established VQO, and
 - date of VQO establishment.
- Confirm the established VQO and date of establishment by checking the source documents – for example, the VLI database, a district manager letter, a higher level plan, or the Forest Development Plan or Forest Stewardship Plan in effect.
- In the absence of established VQOs, record the recommended visual quality class (RVQC) considered current management.

Important Note:

- Ensure that you record the VLI and RVQC or established VQO information that would have been in effect at the time the opening was approved.

2.1.4 Select viewpoints

- You will confirm the final selection of the viewpoints to be used for the evaluation in the next phase by traveling through the areas of interest to photograph and assess the visual impact of the harvested units. However, the office visit gives you an opportunity to tentatively select the location (or locations) from which each harvested unit is most visible. The viewpoints you choose can be those indicated on the VLI map or they can reflect other view locations that were chosen by the licensee at the pre-harvest design phase. District staff familiar with the areas of interest may recommend additional or better viewpoints.

Examples of viewpoints selected for evaluation (those with significant public use):

- a long stretch of highway leading toward the harvest unit
- a rest stop
- a recreation site
- a group of homes
- a settlement
- a tourist-related commercial enterprise

Points to keep in mind:

- Visual Impact Assessment (VIA) packages were a pre-harvest requirement for operations in scenic areas with established VQOs since 1995. These documents, accessible from licensees, may assist you in selecting key viewpoints. The packages contain maps showing important viewpoint locations. They also show the output from computer or manual simulations of the proposed alteration, overlaid on a perspective view of the landform, from each viewpoint location.
- The intent of the visual quality Effectiveness Evaluation is to efficiently obtain a general answer to the question of whether VQOs are being met in a scenic area. To that end, it is not necessary to select every viewpoint that may be shown on a VLI map or chosen in the VIA package for the pre-harvest design phase. Most alterations are assessed from primary and representative key viewpoints. This is often the location offering the best view or most direct view of the alteration.

2.2 Field visit (Phase 3)

Following the assembly of information at the office, the next step of the evaluation procedure is to visit each key viewpoint in the field to observe the alteration, take photographs and conduct the assessment.

Points to keep in mind:

- Weather should be clear (90% cloud free) and the scene well illuminated for optimal photography. Illumination is strongest in the summer months. East-facing units are best viewed in the morning and west-facing units are best viewed in the afternoon.
- Evaluators should wear bright safety vests and use traffic cones when stopped and working along busy highways.
- District staff who assisted in information assembly may benefit by participating in the field visit.

2.2.1 Fill in the field section of the Effectiveness Evaluation form

- On the Effectiveness Evaluation form (Appendix 1), record information about the viewpoint location, including GPS co-ordinates, elevation, viewing direction, and distance to the alteration (or alterations).

Viewpoint number – It may be necessary to complete an evaluation form from several viewpoints. If this is the case, record the viewpoint number out of the total number of viewpoint used for the evaluation – 1 of 4, 2 of 4, etc.

Viewpoint coordinates – Identify the viewpoint location using a GPS unit and record the position using longitude and latitude coordinates (i.e., record degrees, minutes, and decimal seconds).

Viewing direction – Record viewing direction using a compass bearing (0–360°) from the viewpoint to the centre of landscape being assessed.

Viewing distance – Measure the distance from each viewpoint to the centre of the landscape that contains the cutblock (or cutblocks). The best way to do this is to use a scale ruler on a hardcopy map. This can also be done within the GIS environment or by going online and using the Mapview measuring tool to determine a distance.

2.2.2 Photograph the scene

- Record the perspective view of the alteration from the viewpoint. Use high-resolution digital photography (e.g., TIFF or Fine JPEG format), 35 mm print film, or video imaging. Mount cameras on a stable tripod to ensure the clearest possible image of the landscape.
- Use a 50- to 55-mm lens or equivalent to photograph the setting and landform of the alteration (human eye equivalency is 57 mm). This may necessitate a series of overlapping photographs (25% overlap minimum) to capture the entire scene. The photographs will later be spliced or stitched together to provide a broad panorama.
- As well, photograph the alteration at a zoomed-in scale to show any within-block visual influences such as roads, tree retention, or feathered edges.

Viewpoint importance – Record the importance of the viewpoint on the evaluation form using a five-point scale calibrated to the viewing duration:

- (1) glimpse view, less than 10 seconds;
- (2) sustained side view;
- (3) sustained focal view or traveling toward the alteration for more than 1 minute;
- (4) viewpoint at a rest stop, campsite, or other static short-term view location;
- (5) viewpoint at the location of a community, commercial tourist-related enterprise, or other static long-term view site.

Viewpoint importance is used to weight the Effectiveness Evaluation ratings obtained from multiple viewpoints in the event that individual evaluation ratings differ. Viewpoint importance may also be used to weight the aggregated Effectiveness Evaluation survey results for a complete scenic area or travel corridor.

Viewpoint description – Record what the viewpoint is (i.e., rest stop, boat launch, highway pullout, etc.).

Field of view (width) – Take a compass bearing to the right side of the landform being assessed and then to the left side of the landform. Record the difference between the two angles. (Example: If the two bearings were 100° and 180°, the width of view would be 80 (180 – 100)).

Field of view (height) – Take a clinometer reading, using the degree scale, to the base of the landscape and to the top of the landscape. Where both numbers are positive, subtract the low number from the higher number to determine the field of view height. If the base number is negative, add this to the top measure to get the total field of view height. (Example: If the two readings were $+5^\circ$ and -2° , the height of view would be 7° ($5 + 2$)).

2.2.3 Determine the Basic VQC definition

- Use the written definitions of visual quality classes (Table 1) to determine the visual quality class achieved on the landform.
- Refine the determination as being toward the low, mid, or upper range for the class. For example, if an alteration is rated as Partial Retention (PR), decide whether it is closer to Retention (R), Modification (M), or somewhere in between.
- Circle the location along the scale line on the evaluation form that best represents what is seen.
- Record on the form aspects of the scale and/or design of the alteration and its surroundings that caused it to meet the low or high end of a particular VQC.

Note that any other existing non-green alterations on the landform must also be considered in this determination.

Point to keep in mind:

- The definitions in Table 1 come directly from the Forest and Range Practices Regulation (section 1.1) and must be used as is. There is no legal tolerance for personal judgments or interpretations.

Table 1. *Basic definitions of Visual Quality Classes (VQCs)*

Visual Quality Class	Symbol	Basic Definition
Preservation	P	“preservation” means an alteration of a forest landscape resulting from the presence of cutblocks or roads, such that when assessed from a viewpoint that is representative of significant public viewing opportunities, the alteration is (a) very small in scale, and (b) designed to be indistinguishable from the pre-harvest landscape;
Retention	R	“retention” means an alteration of a forest landscape resulting from the presence of cutblocks or roads, such that when assessed from a viewpoint that is representative of significant public viewing opportunities, the alteration (a) is difficult to see, (b) is small in scale, and (c) has a design that mimics natural occurrences;
Partial Retention	PR	“partial retention” means an alteration of a forest landscape resulting from the presence of cutblocks or roads, such that, when assessed from a viewpoint that is representative of significant public viewing opportunities, the alteration (a) is easy to see, (b) is small to moderate in scale, and (c) has a design that appears natural and is not angular or geometric;
Modification	M	“modification” means an alteration of a forest landscape resulting from the presence of cutblocks or roads, such that, when assessed from a viewpoint that is representative of significant public viewing opportunities, the alteration is very easy to see and is either (a) large in scale with a design that is natural in its appearance, or (b) small to moderate in scale but with a design that has some angular characteristics;
Maximum Modification	MM	“maximum modification” means an alteration of a forest landscape resulting from the presence of cutblocks or roads, such that, when assessed from a viewpoint that is representative of significant public viewing opportunities, the alteration is extremely easy to see and one or both of the following apply: (a) the alteration is very large in scale; (b) the alteration is angular and geometric.

2.2.4 Assess and record visual design elements

The viewpoint visit provides an opportunity to assess the visual design of the alteration.

- Answer the following questions by providing a Good, Moderate, or Poor rating on the Effectiveness Evaluation form. For reference, see the description of key design concepts and principles in the Visual Landscape Design Training Manual (BC Ministry of Forests, 1994b, pp. 49–63) and the Visual Impact Assessment Guidebook (BC Ministry of Forests 2001). Table 2 provides a summary of the design elements to assess.
- 1. Does the alteration respond to the major lines of force?** Opening boundaries should respond to topography by pushing up in hollows and dropping down on ridges. Lines of force should be rated Good if there is a strong response or Poor if there is little or no response. If visual force lines are not apparent on the landform (i.e., because of a lack of undulation or the topography is being obscured by residual trees), the rating should be neutral, or Moderate. To answer this question, complete a lines of force analysis.
 - 2. Does the alteration borrow from the natural character of the landscape?** Does the shape of the alteration reflect the quality of shapes found in the natural landscape (rounded curvilinear shapes on rounded landforms; spiky more jagged shapes in more rugged terrain), and does the opening respond to natural vegetation patterns and openings in both in scale and shape? For example, if the landscape is forested with small discrete rock outcrops, do the harvest operations mimic this pattern?
 - 3. Have edge treatments been incorporated?** Edge treatments include two aspects: use of feathering to soften the transition between the alteration and the unaltered forest, and the use of irregular or wavy boundaries. If both aspects are present, the rating is Good; if one aspect is present, the rating is Moderate; and if neither aspect is present, the rating is Poor.
 - 4. How far is the alteration from the viewpoint?** The distance from the viewpoint can significantly influence public perception of an opening. Foreground openings are difficult to integrate because all the detail is visible. Distant openings are much easier to integrate because less detail is visible. The distance factor is rated Poor if it is less than 1 km, Moderate if 1–8 km, and Good if more than 8 km distant.
 - 5. What position does the alteration occupy on the landform?** If an opening occupies the centre of a landscape in direct view, it should be rated Poor for position. Openings located lower down and to one side of a landform are often less conspicuous and are rated Good. Larger openings low down or small openings higher up are more comfortable to the eye and should be rated Moderate or Good. Large openings high on the landscape should be rated Poor.
- Each design component should then be assigned a score of –1 if Good; 0 if Moderate; or +1 if Poor (see Table 2). Enter the sum of the five components in section 2.3.3(f) on the evaluation form.

Point to keep in mind:

- The assessment of design elements considers five primary attributes. Other design elements include factors such as the visibility of tree boles, texture and colour contrast, and the presence of water bodies. These factors are addressed largely by the inclusion of “distance from the viewpoint” as a modifying attribute.

Table 2. Design observations

Design Elements	Good (-1)	Moderate (0)	Poor (+1)
1. Response to major lines of force	Strong	Force lines not apparent	Weak or no response
2. Borrowing from natural character	Fully	Partially	Isolated or not at all
3. Incorporating edge treatment	Feathering AND irregular boundaries present	Either feathering OR irregular boundaries present	Neither aspect present
4. Distance between alteration and viewpoint	> 8 km	>1 and <8 km	<1 km
5. Position of opening on the landform	Lower down and to one side	Small opening near centre	High on the landscape or large near centre

2.3 Office compilation of the results (Phase 4)

Following the field visit, the photographs taken from each viewpoint are further analyzed to confirm the field ratings and used to measure the percent alteration of the visual unit. This measurement is necessary to confirm the decision about the VQC achieved using the basic definitions in Table 1.

If multiple overlapping shots were taken to capture the entire scene from a given viewpoint, the prints (at least 8 in. X 10 in.) need to be spliced together. In the case of digital photographs, they can be stitched together and printed on a colour printer to provide the broad panorama and landscape context necessary to carry out the following steps.

2.3.1 Confirm the visual design

- Having assessed the five components of the design of the alteration during the viewpoint visit, make adjustments to the initial ratings by analyzing the panoramic and zoomed-in photographs.

2.3.2 Assess the Initial VQC rating

Assessing the Initial VQC rating involves first mapping the landform and alterations on the photographs, second measuring the scale of alteration on the landform and then comparing the result with the percent alteration ranges in Table 3.

Appendix 4 provides a synopsis of mapping, measuring and calculating percent alteration in perspective view.

Mapping landform and alteration(s)

- On the panoramic print, define and outline the visual unit or landform.
 - When mapping landforms adjacent to water bodies, map to the top of the foreground trees if you are 1 km or less from the landform. If you are greater than 1 km from the landform, map to the shoreline.
- Define and outline on the photographs the recent alteration(s) and also any older alterations that have not met visually effective green-up.
 - When outlining alterations, map only the visible portions of the ground disturbed. Portions of the alterations screened by vegetation are excluded from the measurement.
 - As well, map the extent of site disturbance such as roads, landings, sidecast, and mass wasting outside the alteration(s).
- Finally outline any natural non-green areas such as mountain tops, ice, and rock outcrops.

Measuring percent alteration – *The goal is to compare the amount of visible alterations without visually effective green-up to the “total green” portion of the landform. This means that natural non-green areas such as mountain tops, ice, rock outcrops, and portions of the landscape screened by vegetation, are excluded from the landform measurement.*

Scale of alteration is expressed as the percentage of the visual unit or the landform occupied by the alteration(s) (as assessed on the photographs showing the perspective view from the viewpoint). Percent perspective alteration is calculated relative to an identifiable visual unit of distinct topographical landform as defined in the preceding steps.

Points to keep in mind:

- Scale of alteration is not to be assessed relative to a broad scene or entire viewscape.
- There are three vegetation components in an alteration in perspective view: the green forest canopy, tree trunks, and bare ground. The current definition of “altered area” only considers bare ground. Exposed tree trunks are excluded from the alteration measurement.

Using a computer GIS system or a planimeter (manual method), determine the relative area of:

- landform or visual unit (remember to exclude the “non-green” portions of the landform);
- recent alteration(s) on the landform;
- site disturbances outside the alteration(s).

Note: The use of a digital planimeter or computer-GIS functionality is the preferred method. Dot grid estimates are not accurate and should not be used for Effectiveness Evaluation.

- Measure other existing alterations on the landform that have not achieved visually effective green-up and add them to the subject alteration area to assess the overall visual condition of the view.
- In some cases, older openings on the landform will have achieved only partial visual green-up because some roads, site disturbances, and patches of bare ground may be visible within the opening). As these opening still contribute significantly to the visual impact on the landscape they have to be accounted for in the percent alteration calculation. A “suspect block” (partially greened-up) should be measured like any other opening and a percent alteration proportion calculated. Following this, an ocular assessment would be made in terms of the level of recovery achieved.

Example: If an older block was a 10% alteration initially and it is estimated that on average 60% of the block is visually greened-up, this would mean that 40% has not greened-up yet. The 10% would then be multiplied by the 40%, indicating that the block still contributes 4% of alteration to the overall landform. Adding this partial green-up figure to the new alterations would increase the measured scale of alteration and make it more in line with the initial ocular assessment of the basic definition.

- Calculate the percent alterations from the photographs and enter the measurements in section 2.3.2 on the Effectiveness Evaluation form, including:
 - a) percent of the landform altered by recent openings and any older openings without visually effective green-up in place;
 - b) percent of the landform showing site disturbances outside the openings; and
 - c) percent of non visual green-up contribution of old openings.
- Add the percentages together. This total will be used in the next step to determine an Initial VQC rating.

Comparing percent alteration with that in Table 3

Table 3 lists the scale of alteration that generally achieves a specified VQC (according to past experience and visual quality studies done in British Columbia).

- Compare the percent alteration figure obtained in the step above (“Measuring percent alteration”) with the figures in Table 3. Then enter the resulting “Initial VQC” on the evaluation form (section 2.3.2).

Table 3. Percent alteration ranges for Visual Quality Classes (VQCs)

Visual Quality Class	Alteration percent of landform in perspective view (clearcut)
P - Preservation	0
R - Retention	0–1.5
PR - Partial Retention	1.6–7.0
M - Modification	7.1–18.0
MM - Maximum Modification	18.1–30.0

2.3.3 Assess the Adjusted VQC rating

The numbers in Table 3 provide average results from public perception studies and do not explicitly account for site disturbance, tree retention, or design features. These other attributes of the scene also contribute to the overall visual impact, either negatively or positively.

Negative visual influences include visible roads and sidecast. Positive visual influences include good design and tree retention. If an alteration has good design and tree retention of up to 25%, it may occupy as much as 10–11% of a landform and yet still achieve Partial Retention in a public perception survey. On the other hand, if an alteration has visible roads, landings, sidecast, or mass wasting, even though it may occupy only 4–5% of the landform, it may still be given a Modification rating by the public.

The “Adjusted VQC” calculated on the evaluation form accounts for these influences. Making this calculation involves adjusting the initial percent alteration value, as measured from the photographs, up or down depending on the degree of positive and negative visual influences. The steps are as follows.

- Assess the following three aspects of the visual scene on a qualitative scale and assign “adjustment factor” points:

To account for roads, landings, and site disturbance within the opening:	
	Adjustment Factor
If no roads or sidecast are visible	0
If roads or sidecast are visible, but subordinate in the scene	+1
If roads or sidecast are significantly visible, but small in scale	+2
If roads are sidecast dominate the scene	+3

To account for tree retention:	
	Adjustment Factor
Less than 15% tree retention (rated Poor)	0
Tree retention levels between 15 and 22% (rated Moderate)	+1
Greater than 22% tree retention (rated Good)	+3

To account for design:	
The sum of the scores for the five components of design (rated in section 2.2.4 of the form and assigned a score of -1, 0, or +1 for Good, Moderate, and Poor, respectively) is used as the Adjustment Factor for design.	

- Sum the “Adj. Factors” on the form to derive a total adjustment point score. This sum is referred to as Y on the form. The percent alteration measured from the photographs (section 2.3.2) is referred to as X.
- Insert the two figures in the formula: $X \cdot (1 + 0.14 \cdot Y)$ to determine an “adjusted” percent alteration figure.
- Refer to the average percent alteration values shown in Table 3 to obtain the Adjusted VQC.
- Record the Adjusted VQC by circling on the VQC scale line (in section 2.3.3 of the evaluation form) the location of the adjusted percent alteration value. The result will usually be close to that determined using the Basic VQC definition in section 2.2.3.

Note: The purpose of the formula is to scale the adjustment across the range of alteration percents. The adjustment factors are calibrated to adjust correctly (according to recent studies) for site disturbance, tree retention, and visual design influences at an alteration level of approximately 7% of the landform (the transition between partial retention and modification VQCs, as shown in Table 2). The formula uses the number 0.14, the reciprocal of 7, to increase the adjustment at higher alteration levels and decrease the adjustment at lesser levels of alteration.

2.3.4 Procedures for partial cut alterations

Partial cut alterations are those with a distributed residual forest canopy that has less density than the unaltered forest does. The visual impact of the alteration is dependent on the volume or number of trees retained on site, the size of residual tree crowns, and the height of the residual trees. The procedure for evaluating partial cut alterations is similar to that used for clearcut or variable retention alterations.

- To determine the Basic VQC for partial cut alterations, use the written definitions in Table 1. Record your visual impression on the scale line in section 2.2.3 of the form, as described in the standard procedure above.
- To determine the Adjusted VQC for partial cut alterations, follow the two-step “visual equivalent to clearcut” procedure below:

Step 1: Determining visual percent volume removal

- Using the set of calibrated colour photographs from Appendix 3, make an ocular estimate of the percentage of volume that was removed during harvesting by comparing texture and permeability of the residual canopy with what the photographs show (to the nearest 10%). This estimate will sometimes vary from the data in a post-harvest timber cruise because of the visual effects of slope, canopy conditions, species, and other factors. Record this figure on the evaluation form.
- Estimate residual tree height, to the nearest 5 m, and record this figure on the form.

Step 2: Determining the “visual equivalent to clearcut” percent alteration number

– Table 4 provides a grid of percent alteration numbers that are based on research regarding the likelihood of achieving a target VQO using a partial retention harvesting system. The table represents a 50% confidence level that the alteration will be visually equivalent to a clearcut with the specified level of alteration.

The shading in Table 4 highlights VQCs. The un-shaded portion represents expected achievement of Retention, the mid-shade represents expected achievement of Partial Retention, and darkest shade represents expected achievement of Modification.

- Using the values obtained from step 1 and Table 4, determine the “visual equivalent to clearcut” percent alteration and enter this value in section 2.3.4 and 2.3.2a of the evaluation form.

Table 4. “Visual equivalent to clearcut” percent alteration numbers for partial cut alterations

		Mean height (m) of residual trees									
		5	10	15	20	25	30	35	40	45	50
Volume removed (%)	10	0.1	0.2	0.4	0.6	0.7	0.8	1.0	1.2	1.8	2.2
	20	0.3	0.4	0.7	1.0	1.2	1.4	1.8	2.2	3.3	4.4
	30	0.7	0.9	1.2	1.4	2.0	2.4	3.3	4.2	5.0	6.5
	40	1.2	1.4	2.0	2.4	3.4	4.3	5.2	6.1	6.7	7.8
	50	1.8	2.3	3.4	4.3	5.2	6.2	6.8	7.7	8.4	9.0
	60	3.5	4.3	5.0	6.2	6.7	7.7	8.4	9.2	10.0	11.5
	70	4.9	5.5	6.5	7.7	8.4	9.2	10.0	11.4	12.7	14.0
	80	6.0	6.6	8.3	9.2	10.0	11.0	12.0	13.2	14.4	15.5
	90	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0

Retention

Partial Retention

Modification

2.3.5 Partial and clear cuts on the same landform

In some circumstances, evaluators will be faced with hillsides on which both clear cutting and partial cutting activities are present. The procedures described so far address one or the other system on a hillside, but not the two together used on the same hillside. For these cases, the following procedures apply:

- For the clearcut openings, determine the clearcut percent alteration as described above.
- For the partial cuts, determine whether the partial cut opening is visible. If the answer is no, simply use the clearcut percent alteration values. If the answer is yes, estimate the percent volume removed and residual tree height and use the partial cutting/clearcut equivalency table (Table 4) to determine the percent alteration impact that the partial cutting contributes to the landscape. At very low retention levels (<15%), also consider the scale of the alteration.
- Add the number generated from the equivalency table to the clearcut percent alteration to get a total percent alteration impact and enter the value in section 2.3.2a of the evaluation form.
- Continue with the remaining assessments in section 2.3.2 to come up with the Initial VQC;
- Adjust the Initial VQC using the factors described in section 2.3.3 of this guide.
- Record the resulting Adjusted VQC using the numeric position on the scale line, as described above in the procedure for clearcut alterations.

2.3.6 Determine the visual quality effectiveness evaluation rating for the landform

Compare the Basic VQC (determined using the VQC definitions) with the Adjusted VQC (derived using percent alteration measurements and adjustment factors). The two evaluation methods will usually result in similar ratings, although they may lie on either side of a class boundary.

- Use the following five-point scale to rate the effectiveness of achieving the visual quality objective for the subject landform:
 - 5 = well met
 - 4 = met
 - 3 = borderline
 - 2 = not met
 - 1 = clearly not met
- Select the rating as follows:
 - If both evaluation methods indicate achievement of the VQO, then the evaluation rating is 5 (if both scores in the middle to lower end of the alteration range for the class) or 4 (if one or both methods score in the upper end of the range for the class).
 - If results using the two methods straddle a class boundary (e.g., one method achieves the high end of PR the other the low end of M, then the evaluation rating is 3, borderline.

- If both methods indicate non-achievement of the VQO, then the evaluation rating is 2 or 1, depending on how far outside the objective class the percent alteration is rated.

2.3.7 Allowance for over-ride

In cases of significant conflict between results from the two evaluation methods, the Basic VQC should take precedence. For example, an alteration that occupies only 4–5% of a landform (mid- PR Initial VQC) may be so angular or geometric that it is rated high M or even MM for the Basic VQC. In this case, if the VQO were Partial Retention, the result would indicate that the objective was clearly not met – yet, with the ratings straddling a class boundary, the procedures would indicate borderline.

- If you feel it is necessary to over-ride the evaluation rating determined by the procedures, do so in the final section of the evaluation form and provide a rationale.

3.0 Assembling a Visual Effectiveness Evaluation Package (Phase 5)

The recommended visual quality effectiveness evaluation package format and content is described below. Using this format will ensure that there is consistency in the way that packages are submitted and will accelerate the quality assurance process. It will also provide district managers and the public with consistent sets of information in a standard format.

Ensure that each evaluation package is self-contained by including the following basic information:

- a topographic map (1:50 000 or larger scale) showing the evaluation viewpoint (or viewpoints), the viewing directions, and the landscape being evaluated. (A Mapview product with contours, water features, roads, and VQO layer and tenure layers turned on is sufficient);
- a post-operation photograph (or photographs) showing the complete landscape being assessed. As well, the landform, non-contributing rock, snow, and ice, and alterations should be identified;
- a lines-of-force analysis; and
- a visual quality Effectiveness Evaluation form completed in its entirety.

4.0 Summarizing the Effectiveness Evaluation Ratings for a Sample Area (Phase 6)

Phases 2-5 described the procedure for assessing the degree to which VQOs have been met on a specific landform and from individual viewpoints. In those procedures, alterations that have been assessed from multiple viewpoints are reconciled, based on viewpoint importance, to derive an overall Effectiveness Evaluation rating for each landform. Once this is done and each landform in a scenic area has been individually rated, the final step in the evaluation process is to aggregate results across the sample area (e.g. District, Timber Supply Area, Tree Farm Licence or other unit) to determine the degree to which objectives are being achieved/not achieved.

The simplest accounting to determine success is to determine how many samples within the sample area have achieved the VQO versus those that did not.

This may be accomplished by combining the number of met/well met samples and comparing this total against all samples. For example, let say we have a total of 22 samples in a district of which, 15 samples are rated “met/well met”, 2 are “borderline” and 5 are “not met/clearly not met”. The overall rate of success for that district would be 68% (15 divided by 22 X 100).

The resulting score is like a report card providing an indication of how well we are doing at meeting VQOs generally. Scores can also be summarized by licensees, forest districts, forest regions, or for the province as a whole.

Over time we can monitor the scores achieved to determine whether visual management is improving or slipping within a given work unit. In those situations where improvement is required, actions can be taken to correct the problem(s) which is the ultimate goal of the Effectiveness Evaluation program.

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Appendix 1: Visual Quality Effectiveness Evaluation Form



**BRITISH
COLUMBIA**

Forest and Range
Evaluation Program

Visual Quality Effectiveness Evaluation
Resource Stewardship Monitoring

Page 1

2.1.2 Site Information (Office)																															
Forest District _____		Sample Code _____																													
Licensee _____		Date of Field Evaluation M M / D D / Y Y Y Y																													
Licence No. _____ CP No. _____		Block _____																													
General Location _____		Results Opening ID _____																													
2.1.3 VLI Information (Office)																															
Date of Update M M / D D / Y Y Y Y		VAC _____ Established VQO _____																													
Polygon No. _____ VSC _____		Date of Establishment M M / D D / Y Y Y Y																													
EVC _____ Recommended VQC _____		Source Document _____																													
2.2.1 Viewpoint (Field)																															
Viewpoint No. _____		GPS Latitude _____	Viewing Direction _____																												
GPS Longitude _____		Elevation (m) _____	Viewing Distance _____																												
2.2.2 Photography (Field)																															
Roll No. _____	ID Nos. _____	Viewpoint Importance (low) 1 2 3 4 5 (high)	Field of View Width(degrees) _____																												
Digital Photo ID Nos _____		Viewpoint Description _____	Field of View Height(degrees) _____																												
2.2.3 Assess Basic VQC (Field)																															
Alterations meet with Basic VQC definition? Circle where in the range for that VQC. Notes:																															
Basic VQC P R PR M MM ++> 																															
2.2.4 Design Observations (Field)		2.3.4 Partial Cut Alterations																													
<table border="0" style="width: 100%;"> <tr> <td style="width: 30%;">Design Elements</td> <td style="width: 10%;">G (-1)</td> <td style="width: 10%;">M (0)</td> <td style="width: 10%;">P (+1)</td> </tr> <tr> <td>Response to visual force lines</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>Borrows from natural character</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>Edge treatments incorporated</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>Distance from the viewpoint</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>Position on the landform</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>Total Design</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> </table>		Design Elements	G (-1)	M (0)	P (+1)	Response to visual force lines	_____	_____	_____	Borrows from natural character	_____	_____	_____	Edge treatments incorporated	_____	_____	_____	Distance from the viewpoint	_____	_____	_____	Position on the landform	_____	_____	_____	Total Design	_____	_____	_____	Partial cutting % removed _____ Average tree height (m) _____ Clearcut equivalent _____% alteration as read from Table 4. Record this value on line 2.3.2 a.	
Design Elements	G (-1)	M (0)	P (+1)																												
Response to visual force lines	_____	_____	_____																												
Borrows from natural character	_____	_____	_____																												
Edge treatments incorporated	_____	_____	_____																												
Distance from the viewpoint	_____	_____	_____																												
Position on the landform	_____	_____	_____																												
Total Design	_____	_____	_____																												
2.3.2 Assess Initial VQC (Office)		2.3.6 Determining EE Rating for the Landform by Comparing Basic VQC with Adjusted VQC (Office)																													
a) % of landform altered by recent openings _____ b) % of landform with site disturbance outside openings _____ c) % non veg contribution of old openings _____ X = (a+b+c) = _____ % alteration Initial VQC _____		1 ☐ Clearly not met (Neither method indicates VQO achievement, both are far from class boundary) 2 ☐ Not met (Neither method indicates VQO achievement, but both are close to class boundary) 3 ☐ Borderline (One method indicates VQO achievement, one does not) 4 ☐ Met (Both methods indicate VQO achievement, but one or both are close to the high end "maximum % alteration limit.") 5 ☐ Well met (Both methods indicate VQO achievement and are on the lower % alteration limit or mid-range for the class)																													
2.3.3 Assess Adjusted VQC (Office)		2.3.7 Allowance for Over-ride																													
d) Impact of roads, side cast, etc. (within openings) _____ ☐ None ☐ Subordinate ☐ Significant ☐ Dominant Adj. Factor _____ e) Tree retention ☐ Good ☐ Moderate ☐ Poor Adj. Factor _____ f) Design (enter total from 2.2.4 above) Adj. Factor _____ Total adjustment Y = (d+e+f) Adj. Total _____ Calculate adjusted % alteration $X * (1 + 0.14 * Y) =$ _____ Adjusted VQC P R PR M MM ++> Adjusted % alt _____		Over-ride EE _____ Rationale for over-ride _____ _____ _____ _____																													
Evaluated by _____ Signature _____																															

FS1252 2008/04

Appendix 2: Field Notes to Accompany the Effectiveness Evaluation Form



BRITISH COLUMBIA

Forest and Range
Evaluation Program

Visual Quality Effectiveness Evaluation
Resource Stewardship Monitoring

Page 2

2.2.2 Viewpoint Importance																																																																																																																																		
(1) glimpse view, less than 10 seconds (2) sustained side view (3) sustained focal view, travelling toward the alteration for more than one minute (4) viewpoint is at a rest stop, campsite, or other static short-term view location (5) viewpoint is the location of a community, commercial tourist-related enterprise, or other static long-term view location																																																																																																																																		
2.2.3 Table 1 – Definitions of Visual Quality Classes																																																																																																																																		
Visual Quality (Class Symbol)	Basic Definition																																																																																																																																	
Preservation (P)	"preservation" means an alteration of a forest landscape resulting from the presence of cutblocks or roads, such that when assessed from a viewpoint that is representative of significant public viewing opportunities, the alteration (a) is very small in scale, and (b) is designed to be indistinguishable from the pre-harvest landscape.																																																																																																																																	
Retention (R)	"retention" means an alteration of a forest landscape resulting from the presence of cutblocks or roads, such that when assessed from a viewpoint that is representative of significant public viewing opportunities, the alteration (a) is difficult to see, (b) is small in scale, and (c) has a design that mimics natural occurrences.																																																																																																																																	
Partial Retention (PR)	"partial retention" means an alteration of a forest landscape resulting from the presence of cutblocks or roads, such that, when assessed from a viewpoint that is representative of significant public viewing opportunities, the alteration (a) is easy to see, (b) is small to moderate in scale, and (c) has a design that appears natural and is not angular or geometric.																																																																																																																																	
Modification (M)	"modification" means an alteration of a forest landscape resulting from the presence of cutblocks or roads, such that, when assessed from a viewpoint that is representative of significant public viewing opportunities, the alteration is very easy to see and is either (a) large in scale with a design that is natural in its appearance, or (b) small to moderate in scale but with a design that has some angular characteristics.																																																																																																																																	
Maximum Modification (MM)	"maximum modification" means an alteration of a forest landscape resulting from the presence of cutblocks or roads, such that, when assessed from a viewpoint that is representative of significant public viewing opportunities, the alteration is extremely easy to see and one or both of the following apply (a) the alteration is very large in scale, or (b) the alteration is angular and geometric.																																																																																																																																	
2.2.4 Table 2 – Design Observations (Field)		2.3.2 Table 3 – Percent Alteration Ranges for Visual Quality Classes																																																																																																																																
Design Elements	Good (-1)	Moderate (0)	Poor (+1)																																																																																																																															
1. Response to Major Lines of Force	Strong	Force Lines Not Apparent	Weak or No Response																																																																																																																															
2. Borrowing from Natural Character	Fully	Partially	Isolated or Not at All																																																																																																																															
3. Incorporating Edge Treatment	Feathering and Irregular Boundaries Present	Either Feathering or Irregular Boundaries Present	Neither Aspect Present																																																																																																																															
4. Distance between Alteration and Viewpoint	> 8 km	> 1 and < 8 km	< 1 km																																																																																																																															
5. Position of Opening on the Landform	Lower Down & To One Side	Small Opening near Center	High on the Landscape or Large near Center																																																																																																																															
2.3.4 Table 4 – Visual Equivalent to Clearcut Percent Alteration Factors for Partial Cut Alterations		2.3.3 Adjustment Factors																																																																																																																																
<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td colspan="2"></td> <td colspan="10">Mean height (m) of residual trees</td> </tr> <tr> <td colspan="2"></td> <td>5</td><td>10</td><td>15</td><td>20</td><td>25</td><td>30</td><td>35</td><td>40</td><td>45</td><td>50</td> </tr> <tr> <td rowspan="6" style="writing-mode: vertical-rl; transform: rotate(180deg);">Volume removed (%)</td> <td>10</td> <td>0.1</td><td>0.2</td><td>0.4</td><td>0.6</td><td>0.7</td><td>0.8</td><td>1.0</td><td>1.2</td><td>1.8</td><td>2.2</td> </tr> <tr> <td>20</td> <td>0.3</td><td>0.4</td><td>0.7</td><td>1.0</td><td>1.2</td><td>1.4</td><td>1.8</td><td>2.2</td><td>3.3</td><td>4.4</td> </tr> <tr> <td>30</td> <td>0.7</td><td>0.9</td><td>1.2</td><td>1.4</td><td>2.0</td><td>2.4</td><td>3.3</td><td>4.2</td><td>5.0</td><td>6.5</td> </tr> <tr> <td>40</td> <td>1.2</td><td>1.4</td><td>2.0</td><td>2.4</td><td>3.4</td><td>4.3</td><td>5.2</td><td>6.1</td><td>6.7</td><td>7.8</td> </tr> <tr> <td>50</td> <td>1.8</td><td>2.3</td><td>3.4</td><td>4.3</td><td>5.2</td><td>6.2</td><td>6.8</td><td>7.7</td><td>8.4</td><td>9.0</td> </tr> <tr> <td>60</td> <td>3.5</td><td>4.3</td><td>5.0</td><td>6.2</td><td>6.7</td><td>7.7</td><td>8.4</td><td>9.2</td><td>10.0</td><td>11.5</td> </tr> <tr> <td></td> <td>70</td> <td>4.9</td><td>5.5</td><td>6.5</td><td>7.7</td><td>8.4</td><td>9.2</td><td>10.0</td><td>11.4</td><td>12.7</td><td>14.0</td> </tr> <tr> <td></td> <td>80</td> <td>6.0</td><td>6.6</td><td>8.3</td><td>9.2</td><td>10.0</td><td>11.0</td><td>12.0</td><td>13.2</td><td>14.4</td><td>15.5</td> </tr> <tr> <td></td> <td>90</td> <td>8.0</td><td>9.0</td><td>10.0</td><td>11.0</td><td>12.0</td><td>13.0</td><td>14.0</td><td>15.0</td><td>16.0</td><td>17.0</td> </tr> </table> Retention Partial Retention Modification				Mean height (m) of residual trees												5	10	15	20	25	30	35	40	45	50	Volume removed (%)	10	0.1	0.2	0.4	0.6	0.7	0.8	1.0	1.2	1.8	2.2	20	0.3	0.4	0.7	1.0	1.2	1.4	1.8	2.2	3.3	4.4	30	0.7	0.9	1.2	1.4	2.0	2.4	3.3	4.2	5.0	6.5	40	1.2	1.4	2.0	2.4	3.4	4.3	5.2	6.1	6.7	7.8	50	1.8	2.3	3.4	4.3	5.2	6.2	6.8	7.7	8.4	9.0	60	3.5	4.3	5.0	6.2	6.7	7.7	8.4	9.2	10.0	11.5		70	4.9	5.5	6.5	7.7	8.4	9.2	10.0	11.4	12.7	14.0		80	6.0	6.6	8.3	9.2	10.0	11.0	12.0	13.2	14.4	15.5		90	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0	c) Roads: 0 = None 1 = Subordinate 2 = Significant 3 = Dominant d) Tree Retention: -2 = Good > 22% -1 = Moderate 15 - 22% 0 = Poor < 15% e) Design: Record Total from 2.2.4	
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Appendix 3: Photo Samples of Partial Cut Alterations



**BRITISH
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Forest and Range
Evaluation Program

Visual Quality Effectiveness Evaluation
Resource Stewardship Monitoring
Page 3

Partial Cutting Photos Showing Removal Levels and Resulting Texture



Tree Ht 20M Vol Rem 44% Stems 45%



Tree Ht 34M Vol Rem 64% Stems 71%



Tree Ht 25M Vol Rem 73% Stems 7%



Tree Ht 27M Vol Rem 46% Stems 7%



Tree Ht 24M Vol Rem 64% Stems 86%



Tree Ht 21M Vol Rem 80% Stems 81%



Tree Ht 23M Vol Rem 50% Stems 53%



Tree Ht 30M Vol Rem 65% Stems 91%



Tree Ht 23M Vol Rem 88% Stems 91%



Tree Ht 28M Vol Rem 56% Stems 67%



Tree Ht 31M Vol Rem 72% Stems 77%



Tree Ht 20M Vol Rem 88% Stems 96%



Tree Ht 28M Vol Rem 60% Stems 80%



Tree Ht 28M Vol Rem 72% Stems 85%



Tree Ht 29M Vol Rem 88% Stems 96%

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Appendix 4: Calculating Percent Alteration in Perspective View



**BRITISH
COLUMBIA**

Forest and Range
Evaluation Program

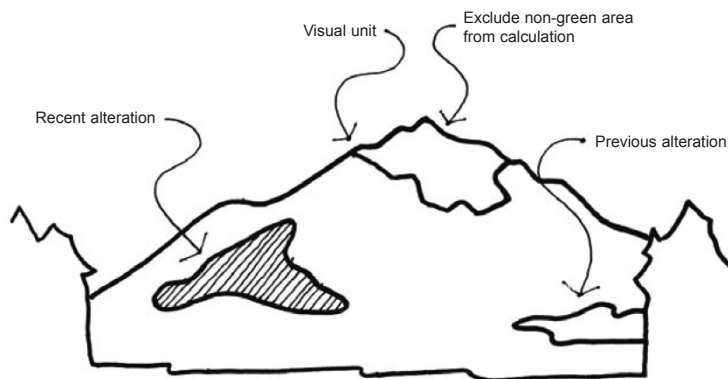
Visual Quality Effectiveness Evaluation
Resource Stewardship Monitoring
Page 4

Calculating Percent Alteration in Perspective View

Example of site photograph showing altered landscape



- Step 1** On an enlarged version of the site photograph, define and outline the visual unit or landform. Exclude those portions of the landform screened by vegetation and non-green areas, such as mountain tops, rock, snow, and ice.
- Step 2** Measure the visible unit or landform using a manual or electronic planimeter or a GIS application (e.g., middle ground visual unit = 37.5 cm²).
- Step 3** Measure visible ground area of previous alteration that have not yet achieved visually effective green-up (e.g., current alteration = 1.8 cm²).



- Step 4** Measure visible ground area of recent alteration (e.g., = 4.7 cm²)
- Step 5** Add previous non-VEG alteration and recent alteration figures together to get total area altered. Divide this figure by the visual unit figure to get percentage of unit altered (e.g., [(1.8 + 4.7) ÷ 37.5] x 100 = 17.3%).
- Note:** Repeat the above calculation for each of the viewpoints selected for evaluation. Enter the percent alteration figure derived from each viewpoint on the Visual Quality Effectiveness Evaluation form (Page 2).

FS1252 2008/04



2.1.2 Site Information (Office)																															
Forest District _____		Sample Code _____																													
Licensee _____		Date of Field Evaluation M M / D D / Y Y Y Y																													
Licence No. _____ CP No. _____		Block _____																													
General Location _____		Results Opening ID _____																													
2.1.3 VLI Information (Office)																															
Date of Update M M / D D / Y Y Y Y		VAC _____																													
Polygon No. _____		VSC _____																													
EVC _____		Recommended VQC _____																													
		Established VQO _____																													
		Date of Establishment M M / D D / Y Y Y Y																													
		Source Document _____																													
2.2.1 Viewpoint (Field)																															
Viewpoint No. _____		GPS Latitude _____																													
GPS Longitude _____		Elevation (m) _____																													
		Viewing Direction _____																													
		Viewing Distance _____																													
2.2.2 Photography (Field)																															
Roll No. _____	ID Nos. _____	Viewpoint Importance (low) 1 2 3 4 5 (high)	Field of View Width(degrees) _____																												
Digital Photo ID Nos _____	Viewpoint Description _____		Field of View Height(degrees) _____																												
2.2.3 Assess Basic VQC (Field)																															
Alterations meet with Basic VQC definition? Circle where in the range for that VQC. Notes:																															
Basic VQC P R PR M MM →																															
2.2.4 Design Observations (Field)		2.3.4 Partial Cut Alterations																													
<table style="width:100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">Design Elements</td> <td style="width: 10%;">G (-1)</td> <td style="width: 10%;">M (0)</td> <td style="width: 10%;">P (+1)</td> </tr> <tr> <td>Response to visual force lines</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>Borrows from natural character</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>Edge treatments incorporated</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>Distance from the viewpoint</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>Position on the landform</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>Total Design</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> </table>		Design Elements	G (-1)	M (0)	P (+1)	Response to visual force lines	_____	_____	_____	Borrows from natural character	_____	_____	_____	Edge treatments incorporated	_____	_____	_____	Distance from the viewpoint	_____	_____	_____	Position on the landform	_____	_____	_____	Total Design	_____	_____	_____	Partial cutting % removed _____ Average tree height (m) _____ Clearcut equivalent _____ % alteration as read from Table 4. Record this value on line 2.3.2 a.	
Design Elements	G (-1)	M (0)	P (+1)																												
Response to visual force lines	_____	_____	_____																												
Borrows from natural character	_____	_____	_____																												
Edge treatments incorporated	_____	_____	_____																												
Distance from the viewpoint	_____	_____	_____																												
Position on the landform	_____	_____	_____																												
Total Design	_____	_____	_____																												
2.3.2 Assess Initial VQC (Office)		2.3.6 Determining EE Rating for the Landform by Comparing Basic VQC with Adjusted VQC (Office)																													
a) % of landform altered by recent openings _____ b) % of landform with site disturbance outside openings _____ c) % non veg contribution of old openings _____ X = (a+b+c) = _____ % alteration Initial VQC _____		1 ☐ Clearly not met (Neither method indicates VQO achievement, both are far from class boundary) 2 ☐ Not met (Neither method indicates VQO achievement, but both are close to class boundary) 3 ☐ Borderline (One method indicates VQO achievement, one does not) 4 ☐ Met (Both methods indicate VQO achievement, but one or both are close to the high end "maximum % alteration limit.") 5 ☐ Well met (Both methods indicate VQO achievement and are on the lower % alteration limit or mid-range for the class)																													
2.3.3 Assess Adjusted VQC (Office)		2.3.7 Allowance for Over-ride																													
d) Impact of roads, side cast, etc. (within openings) _____ ☐ None ☐ Subordinate ☐ Significant ☐ Dominant Adj. Factor _____ e) Tree retention _____ ☐ Good ☐ Moderate ☐ Poor Adj. Factor _____ f) Design (enter total from 2.2.4 above) Adj. Factor _____ Total adjustment Y = (d+e+f) Adj. Total _____ Calculate adjusted % alteration $X \times (1 + 0.14 \times Y) =$ _____ Adjusted VQC P R PR M MM → Adjusted % alt 0 1.5 4 7 12 18 24 30 ++>		Over-ride EE _____ Rationale for over-ride _____ _____ _____ _____																													
Evaluated by _____ Signature _____																															



2.2.2 Viewpoint Importance

- (1) glimpse view, less than 10 seconds
- (2) sustained side view
- (3) sustained focal view, travelling toward the alteration for more than one minute
- (4) viewpoint is at a rest stop, campsite, or other static short-term view location
- (5) viewpoint is the location of a community, commercial tourist-related enterprise, or other static long-term view location

2.2.3 Table 1 – Definitions of Visual Quality Classes

Visual Quality (Class Symbol)	Basic Definition
Preservation (P)	"preservation" means an alteration of a forest landscape resulting from the presence of cutblocks or roads, such that when assessed from a viewpoint that is representative of significant public viewing opportunities, the alteration (a) is very small in scale, and (b) is designed to be indistinguishable from the pre-harvest landscape.
Retention (R)	"retention" means an alteration of a forest landscape resulting from the presence of cutblocks or roads, such that when assessed from a viewpoint that is representative of significant public viewing opportunities, the alteration (a) is difficult to see, (b) is small in scale, and (c) has a design that mimics natural occurrences.
Partial Retention (PR)	"partial retention" means an alteration of a forest landscape resulting from the presence of cutblocks or roads, such that, when assessed from a viewpoint that is representative of significant public viewing opportunities, the alteration (a) is easy to see, (b) is small to moderate in scale, and (c) has a design that appears natural and is not angular or geometric.
Modification (M)	"modification" means an alteration of a forest landscape resulting from the presence of cutblocks or roads, such that, when assessed from a viewpoint that is representative of significant public viewing opportunities, the alteration is very easy to see and is either (a) large in scale with a design that is natural in its appearance, or (b) small to moderate in scale but with a design that has some angular characteristics.
Maximum Modification (MM)	"maximum modification" means an alteration of a forest landscape resulting from the presence of cutblocks or roads, such that, when assessed from a viewpoint that is representative of significant public viewing opportunities, the alteration is extremely easy to see and one or both of the following apply (a) the alteration is very large in scale, or (b) the alteration is angular and geometric.

2.2.4 Table 2 – Design Observations (Field)

Design Elements	Good (-1)	Moderate (0)	Poor (+1)
1. Response to Major Lines of Force	Strong	Force Lines Not Apparent	Weak or No Response
2. Borrowing from Natural Character	Fully	Partially	Isolated or Not at All
3. Incorporating Edge Treatment	Feathering and Irregular Boundaries Present	Either Feathering or Irregular Boundaries Present	Neither Aspect Present
4. Distance between Alteration and Viewpoint	> 8 km	> 1 and < 8 km	< 1 km
5. Position of Opening on the Landform	Lower Down & To One Side	Small Opening near Center	High on the Landscape or Large near Center

2.3.2 Table 3 – Percent Alteration Ranges for Visual Quality Classes

Visual Quality Class	Alteration percent of landform in perspective view
P – Preservation	0
R – Retention	0 – 1.5
PR – Partial Retention	1.6 – 7.0
M – Modification	7.1 – 18.0
MM – Maximum Modification	18.1 – 30.0

2.3.4 Table 4 – Visual Equivalent to Clearcut Percent Alteration Factors for Partial Cut Alterations

		Mean height (m) of residual trees									
		5	10	15	20	25	30	35	40	45	50
Volume removed (%)	10	0.1	0.2	0.4	0.6	0.7	0.8	1.0	1.2	1.8	2.2
	20	0.3	0.4	0.7	1.0	1.2	1.4	1.8	2.2	3.3	4.4
	30	0.7	0.9	1.2	1.4	2.0	2.4	3.3	4.2	5.0	6.5
	40	1.2	1.4	2.0	2.4	3.4	4.3	5.2	6.1	6.7	7.8
	50	1.8	2.3	3.4	4.3	5.2	6.2	6.8	7.7	8.4	9.0
	60	3.5	4.3	5.0	6.2	6.7	7.7	8.4	9.2	10.0	11.5
	70	4.9	5.5	6.5	7.7	8.4	9.2	10.0	11.4	12.7	14.0
	80	6.0	6.6	8.3	9.2	10.0	11.0	12.0	13.2	14.4	15.5
	90	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
		Retention Partial Retention Modification									

2.3.3 Adjustment Factors

- c) Roads: 0 = None
1 = Subordinate
2 = Significant
3 = Dominant
- d) Tree Retention: -2 = Good > 22%
-1 = Moderate 15 - 22%
0 = Poor < 15%
- e) Design: Record Total from 2.2.4



Partial Cutting Photos Showing Removal Levels and Resulting Texture



Tree Ht 20M Vol Rem 44% Stems 45%



Tree Ht 34M Vol Rem 64% Stems 71%



Tree Ht 25M Vol Rem 73% Stems ?%



Tree Ht 27M Vol Rem 46% Stems ?%



Tree Ht 24M Vol Rem 64% Stems 86%



Tree Ht 21M Vol Rem 80% Stems 81%



Tree Ht 23M Vol Rem 50% Stems 53%



Tree Ht 30M Vol Rem 65% Stems 91%



Tree Ht 23M Vol Rem 88% Stems 91%



Tree Ht 28M Vol Rem 56% Stems 67%



Tree Ht 31M Vol Rem 72% Stems 77%



Tree Ht 20M Vol Rem 88% Stems 96%



Tree Ht 28M Vol Rem 60% Stems 80%



Tree Ht 28M Vol Rem 72% Stems 85%

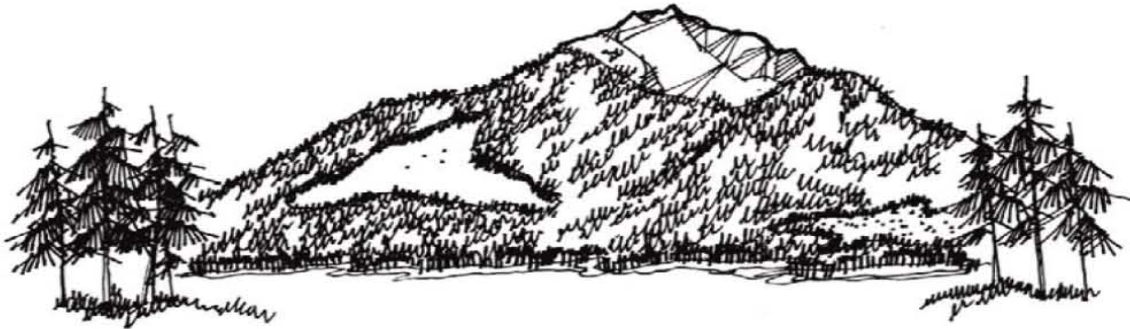


Tree Ht 29M Vol Rem 88% Stems 96%

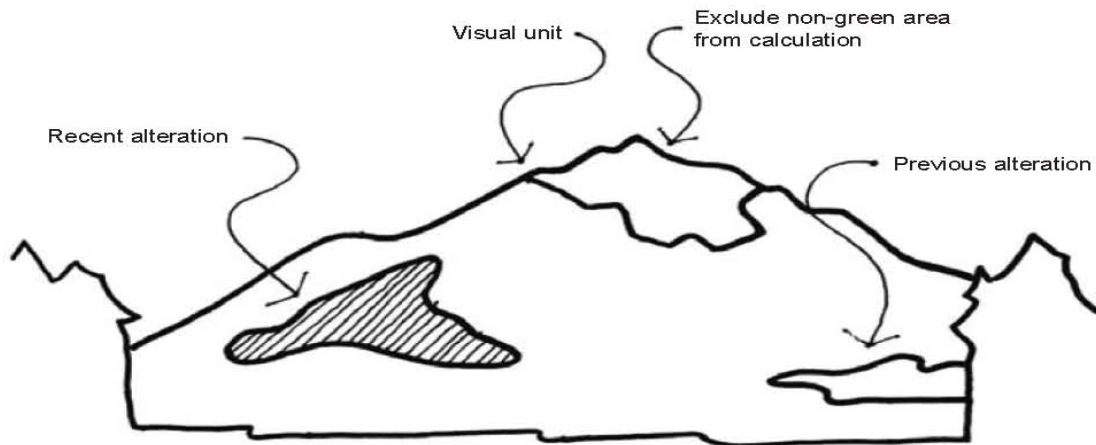


Calculating Percent Alteration in Perspective View

Example of site photograph showing altered landscape



- Step 1** On an enlarged version of the site photograph, define and outline the visual unit or landform. Exclude those portions of the landform screened by vegetation and non-green areas, such as mountain tops, rock, snow, and ice.
- Step 2** Measure the visible unit or landform using a manual or electronic planimeter or a GIS application (e.g., middle ground visual unit = 37.5 cm²).
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- Step 4** Measure visible ground area of recent alteration (e.g., = 4.7 cm²)
- Step 5** Add previous non-VEG alteration and recent alteration figures together to get total area altered. Divide this figure by the visual unit figure to get percentage of unit altered (e.g., $[(1.8 + 4.7) \div 37.5] \times 100 = 17.3\%$).
- Note:** Repeat the above calculation for each of the viewpoints selected for evaluation. Enter the percent alteration figure derived from each viewpoint on the Visual Quality Effectiveness Evaluation form (Page 2).

Visual Quality Audit Methodology – July 2009

Introduction

This document presents the Board's approach and methodology for auditing visual quality management. Visual quality is one of the 11 key values referenced in FRPA legislation.

The Board's authority to undertake this audit is set out in Section 122(1)(a) of the *Forest and Range Practices Act* (FRPA). Comparable provisions are set out in section 214 (with respect to the transitional period under FRPA) and section 11 of the *Forest Practices Board Regulation* (with respect to activities before January 31, 2004).

The approach and methodology described in this document is scheduled for testing through the conduct of a pilot audit.

Part A of this document provides an overview of the conceptual and technical approach to auditing visual quality management. Included in this part is discussion of the audit objectives and significant scope and design issues. Part B of this document sets out for an audit as a whole the key audit stages.

The approach and methodology contained in this document reflects the Board's transitional audit approach which is intended to be consistent with the results-based approach of FRPA. Key aspects of this approach include:

- the use of criteria and indicators to assess and report on licensees' forest planning and practices in relation to the achievement of government objectives and
- the examination of licensees' systems to gain assurance related to the achievement of government objectives.

The Board recognizes that conducting a pilot audit of visual quality management during the transition period from the Code to FRPA may result in limited opportunity to assess forest planning and practices that reflect FRPA requirements. Many licensees may choose to operate under approved operational plans until they are required to prepare a Forest Stewardship Plan (by December 31, 2005). In addition, to assess whether visual quality practices have been effective, in most cases more than one year's harvesting and road construction activity will be assessed. Therefore, the majority of planning and practices subject to audit will have been conducted under the Code.

The Board has determined that it will be more meaningful to the public, and to the success of FRPA and improvement of management of visual quality, for the Board to examine the results of forest practices and the management systems used to achieve those results. The examination of effectiveness criteria in the pilot visual quality management audit will enable the assessment of key aspects of visual quality management.

A. Overview of Conceptual and Technical Approach

Audit Objectives

There are two objectives of this visual quality management audit:

1. to reach a conclusion regarding the level of compliance with the visual quality requirements of FRPA within the audit unit; and
2. to assess and conclude on the effectiveness of managing visual quality where forest practices have occurred.

In determining compliance with FRPA requirements, the audit will examine two primary aspects; whether appropriate planning (visual impact assessments) have been completed and followed in scenic areas; and whether higher level plan requirements for visual quality management have been met.

In considering the effectiveness of forest practices, it is necessary to define, for the purpose of this audit, what constitutes effective practices. To date, effectiveness criteria have been developed for a number of the key values identified in FRPA legislation by the FRPA Resource Evaluation Working Group (FREP Group). For visual quality, the work undertaken to date primarily consists of draft procedures for effectiveness evaluation of visual quality. These procedures have undergone field testing and revision in June and July of this year, and are designed to assist evaluation of whether forest practices are meeting visual quality objectives (VQOs) or visual quality classes (VQCs), where objectives have not been established. The procedures do not in themselves establish effectiveness criteria for visual quality management. However, they provide a framework to enable a consistent assessment of achievement of objectives in an inherently subjective realm.

Over time, the Board anticipates continued development and refinement of visual quality effectiveness criteria. In the interim, the following general effectiveness criteria warrant consideration and therefore the audit will assess them where possible:

- Documented public input relating to visual quality has been fully addressed by operators through operational planning and forest practices in audit units.
- Within audit units, scenic areas are designated over areas of visual sensitivity.
- Within audit units, VQOs (or VQCs) within scenic areas are appropriate to manage visual quality.
- Within designated scenic areas, visual management meets or exceeds established VQOs or VQCs.
- Within designated scenic areas, good landscape design is fully utilized to reduce visual impacts.
- Auditees have management systems in place to achieve VQOs and VQCs and they are working effectively.

More broadly defined criteria, such as “Visual impacts in scenic areas are acceptable to the public” are outside the scope of this audit.

Audit Unit & Auditees

Expressing an opinion regarding the level of compliance by an individual tenure holder may not provide an adequate level of information to the public about visual quality management. For example, in scenic areas where VQOs have not been formally established, there is no legal requirement to achieve a given visual quality. It is possible for a licensee to comply with legal requirements for visual management without achieving effective visual management. Audit examination and reporting on practices relating to the previously listed effectiveness criteria will provide the public a more complete accounting of visual management in the audit area.

It is important that the audit unit in a visual quality management audit is of sufficient size to assess the impacts of forest management for key visual values. The audit unit will include operations of several licensees in the area to enable a more comprehensive assessment of visual quality management.

Given the interrelated roles of licensees and district staff, the audit unit may include activities of both licensees and of the district manager. For example, the district manager may have specific responsibilities to ensure that VQOs are met in scenic areas with more than one operator. The district manager has also had responsibility for identifying key visual quality values. The district manager’s activities related to these responsibilities will be assessed as part of the pilot visual quality management audit.

Audit Approach

A key focus of both compliance and effectiveness evaluations will be on the results of forest practices on visual quality. The audit population will consist of the scenic areas within the audit unit, each with an associated VQO or VQC. Samples will be assessed on whether an objective or class has been met considering the visual effects of harvesting, road construction and other forest practices on applicable landforms.

In addition, compliance evaluations will examine adherence of applicable approved operational plans to FRPA and related regulations, and to the visual quality components of any higher-level plans or objectives relevant to the audit area.

Effectiveness evaluations will focus on the indicators previously stated.

Audit assurance will be obtained through:

- detailed examinations of auditee systems used to manage visual quality
- examination of visual inventory information, operational plans and associated visual impact assessments and relevant public input

- examination of a sample of scenic areas containing visual effects from forest practices, through photography, measurement of change and consideration of other aspects of the change, including design
- evaluation of the appropriateness of the VQO or VQC of scenic areas, including those with or without change.

The sampling methodology will be risk-based, taking into consideration these and potentially additional risk criteria:

- preliminary assessment of auditees' visual management systems strengths and weaknesses
- general level of exposure of the site to the public
- level of harvest activity
- visual absorption capacity of the site
- sites of elevated public interest or concern

Audit Period

The Board's compliance audits completed to date have generally included a period of activity of approximately one year. This enabled the audits to examine the full spectrum of an auditee's forestry activities in its normal course of business – operational planning through harvesting and silviculture activities. This was desirable in that the objective of the compliance audits is to express an opinion as to the auditee's level of compliance.

To enable meaningful assessments about the effectiveness of forest practices in relation to visual quality values, a longer audit period is required. Activities from January 1, 2002, onwards will be examined. Further, approved cutblocks that have not yet been harvested will be considered as well. This will enable a full assessment of the achievement of current forest practices in meeting visual quality objectives.

Audit Reporting

Under the Code, the Board utilized a two-report model for audits—a Report from the Auditor and a Report from the Board.

Under FRPA, the Board will utilize a one-report model comprising three main sections—Board commentary, audit findings and conclusions, and auditee commentary. This longer-form reporting model is designed to provide more comprehensive information about the results of forest practices and examination of management systems.

In the Board commentary section, Board members' comments about the results of the audit are reported, including recommendations. For example, the Board may wish to comment on the results of an audit in relation to other audits conducted or developing trends.

In the audit findings and conclusions section, findings and conclusions about licensees' compliance with FRPA as well as performance related to effectiveness criteria are reported. Audit findings may include the impact of forest practices on forest resources, findings in relation to criteria, findings in relation to government's objectives and comments on licensee management systems. This section will include a description of any non-compliance observations that are considered significant.

It is intended that in the auditee commentary section, a summary of the auditee's response to the audit be reported. Before releasing its audit reports, the Board will provide auditees an opportunity to review and make comments about the results of the audit. A summary of these comments may be included in the Board's audit report.

Similar to existing process, the Board will provide for representations by third parties who may be adversely affected by the content of a Board audit report.

Audit reports will continue to be publicly reported.

B. Summary of Key Audit Stages

This section provides an overview of the stages of an audit visible to auditees. The technical design of the audit develops, generally from the scoping visit through to completion.

1. Selection of the Forest District (*Timing: June 2004*)

- o A District is randomly selected from the population of Districts.

2. Audit Notification (*Timing: week of July 5, 2004*)

- o The District is notified in writing by the Director of Audits that it has been selected as the audit unit for a pilot visual quality management audit.
- o All licence holders in the District (except those subject to audit during the past five years or those with an AAC < 10,000m³) are notified in writing that the District has been selected as the audit unit for a pilot visual quality management audit and that they may be audited.

3. Scoping visit (*Timing: week of July 19, 2004*)

- o Audit team members attend a meeting with District staff to discuss the audit and answer any questions related to the audit.
- o Auditors collect scenic area, licensee operating area and recent forest practices information to assist in identifying potential audit units in the district.

4. Selection of Audit Unit (*Timing: by July 23*)

- o An area within the district is selected by the auditors as the audit unit.

5. **Notification of Forest Licence Holders** *(Timing: week of July 26, 2004)*
 - o Licensees within the audit unit are notified of the location(s) and planned examination dates of the activities.
6. **Pre-Site Visit Audit Procedures** *(Timing: week of August 3, 2004)*
 - o Auditors gather preliminary information at the licence holders' offices, or information to be sent to the FPB office and interviews are held with licensee staff over the phone.
7. **Audit Field Work** *(Timing: week of August 16, 2004)*
 - o The audit team carries out the Board's audit procedures
8. **Wrap-up Meeting** *(Timing: immediately following completion of audit field work)*
 - o The audit team meets with auditees to discuss the audit steps completed and remaining.
9. **Analysis** *(following audit fieldwork)*
 - o The audit team analyses photographic record of visual disturbance etc , develops findings and conclusions etc
10. **Exit meeting(s)**
 - o Auditors attend a meeting with auditees to discuss the results of the audit
(Note: consideration will be given to holding individual exit meetings where circumstances warrant).
11. **Draft Audit Report**
 - o The Lead Auditor and audit team prepares the draft audit report and distributes it to the auditees for review and comment.
12. **Final Audit Report**
 - o The Lead Auditor and audit team finalizes the audit report.

FRPA General Bulletin, Visual Resource Management Interpretations



FRPA GENERAL BULLETIN

Draft 4.1

Number _____

November 6, 2009

Visual Resource Management Interpretations

This bulletin has been prepared to provide advice aimed at promoting consistency of interpretation and application of Visual Resource Management.

Introduction

Over the past 30 years much research has been carried out, and policy work completed to guide the Visual Resource Management activity. Not all of this work appears in legislation, much remains in the policy realm as supporting information. In addition, some concepts promoted during Land Use Plan discussions are being misinterpreted as current policy. While not legal, this bulletin provides advice aimed at promoting consistency of interpretation regarding Visual Resource Management.

Significant Public Viewpoint

This term is used extensively in the *Forest Planning and Practices Regulation* (FPPR) section 1.1 but is not defined. Field staff has requested guidance as to what constitutes a significant public viewpoint.

For the purpose of providing clarity: “A significant public viewpoint means: a place or location on the water or land that is accessible to the public, provides a viewing opportunity and has relevance to the landscape being assessed”.

Examples of significant public viewpoints that might be considered when completing a visual impact assessment would be: a stretch of highway or waterway leading toward a harvest unit, a highway rest stop, a recreation site or park, marine anchorage, a group of homes, a settlement/community/town or a tourist-related commercial enterprise. It is important to review the location(s) offering the best or most direct view of the alteration. This may not necessarily be a viewpoint that provides a stationary or stopping location.

Caution: Visual Landscape Inventory viewpoints are used to derive visual sensitivity unit boundaries and for rating the sensitivity of the landform. They were not established for the purposes of completing Visual Impact Assessments so may or may not be appropriate for this purpose.

Landform vs. Landscape

The term landform was used under the Forest Practices Code to define the unit against which to measure and evaluate forest alterations. Ref: *Visual Impact Assessment Guidebook 2nd Edition January 2001* and *Clear-cutting and Visual Quality: A Public Perception Study, BC Ministry of Forests, November 1996*.

The word landscape appears in the Categories of Alteration definitions in the *Forest Planning and Practices Regulation* section 1.1. All Ministry of Forest and Range research is based on landform so this is the most appropriate unit against which to measure VQO accomplishment. Landform may be defined as: "A distinct topographic feature on the surface of the earth that is three dimensional in form i.e. has a length, height and width." Landforms are generally defined by ridgelines, shorelines and skylines. Recognized examples include; hills, mountains and ridges. Landforms often occur in different distance zones (foreground, mid-ground and back ground). These distance zones are usually distinct landforms because they are usually separated by incised valleys, creek draws or topographic breaks.

Measuring perspective scale of alteration for the purposes of visual impact assessments is done relative to individual landforms as opposed to broader landscape scenes or panoramic views composed of multiple landforms.

Size and scale

Guidance has been requested as to what small, medium and large scale mean in the context of the categories of visually altered forest landscapes as defined in FPPR section 1.1.

Reference to scale serves two purposes in visual resource management. They provide a tool for practitioners to estimate the levels of alteration on a landform (in perspective view) and provide the means by which to model current management in Timber Supply Analyses (planimetric view).

While the intent in FRPA is to focus on the qualitative definitions, scale cannot be ignored, as it is a strong predictor of both public preference and visual quality. (77.8% reliable for Retention and 85% reliable for Partial Retention) Ref: *Clear-cutting and Visual Quality: A Public Perception Study, BC Ministry of Forests, November 1996*.

The Visual Impact Assessment Guidebook, (Second Edition January 2001) table 3, contains numerical ranges by Visual Quality Class that have been used operationally since 1996 to guide the scale of alteration for clear-cutting on landforms. The numbers in the Guidebook were derived through multiple research projects. In the absence of direct guidance in FPPR 1.1, the percent landform alteration ranges from the guidebook (see below) may describe appropriate levels of scale by VQO.

<u>VQO</u>	<u>Scale</u>	<u>Most Probable % Alteration</u>
Preservation	very small	0%
Retention	small	0-1.5%
Partial Retention	medium	1.6-7.0%
Modification	large	7.1-18%
Maximum Modification	very large	18.1-30%

The decision as to whether a VQO has been achieved will not rest solely on numbers. The goal is to achieve the spirit and intent of the definition and to practice good visual design. Numbers are used in support of these practices. Caution is urged in interpreting numerical ranges too literally. It assumes that good visual design is being practiced. It is also important that scale is measured relative to an appropriately defined landform.

Training and Competency

Given the discussion above, one of the most practical ways to ensure more consistent interpretation and application of visual resource management concepts and definitions is through on-going training. This bulletin is not a substitute for training or experience in visual resource management. All forest professionals working in the area of visual resource management have an obligation to take available training and to develop their competencies in that subject in order to meet their scope of practice requirements. In addition, most forest certification programs (e.g., SFI and FSC) require that licensees provide staff with the education and training sufficient to their roles and responsibilities. Field staff may contact regional or provincial visual staff to determine when the next available government sponsored training will occur or visit <http://www.for.gov.bc.ca/hfp/values/visual/index.htm>

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District Manager Guidance

Clarification Regarding KLRMP VSA (visually sensitive area) and Scenic Area Interpretation Within the Headwaters Forest District

March 8, 2007

On November 10, 2006, licensees within the Kamloops TSA received direction regarding visual management within the Headwaters Forest District. It essentially describes that to manage visuals within the Headwaters Forest District, a licensee is required to address both KLRMP and scenic area objectives. This has caused some confusion in application. Based on the legal direction, the Headwaters Forest District is providing clarification in the form of an interpretation of that direction.

Terms Used

- Visually Sensitive Area (VSA) – as defined by the KLRMP and the HLP order in effect.
- Scenic Area – a construct used in relation to FPC and FRPA.

Interpretation

1. Managing the scenic area, using FPPR 9.2, will meet the objective of the KLRMP for areas identified as visually sensitive area.
2. Given that the KLRMP objective for areas outside of the visually sensitive area are to be managed to a level considered equivalent to a 'modification VQO,' it is appropriate to manage all 'not-visually-sensitive' (NVS) areas to a level equivalent to a modification VQO. NVS areas are those areas that lie outside the scenic area, but may lie within or outside of the KLRMP VSA.

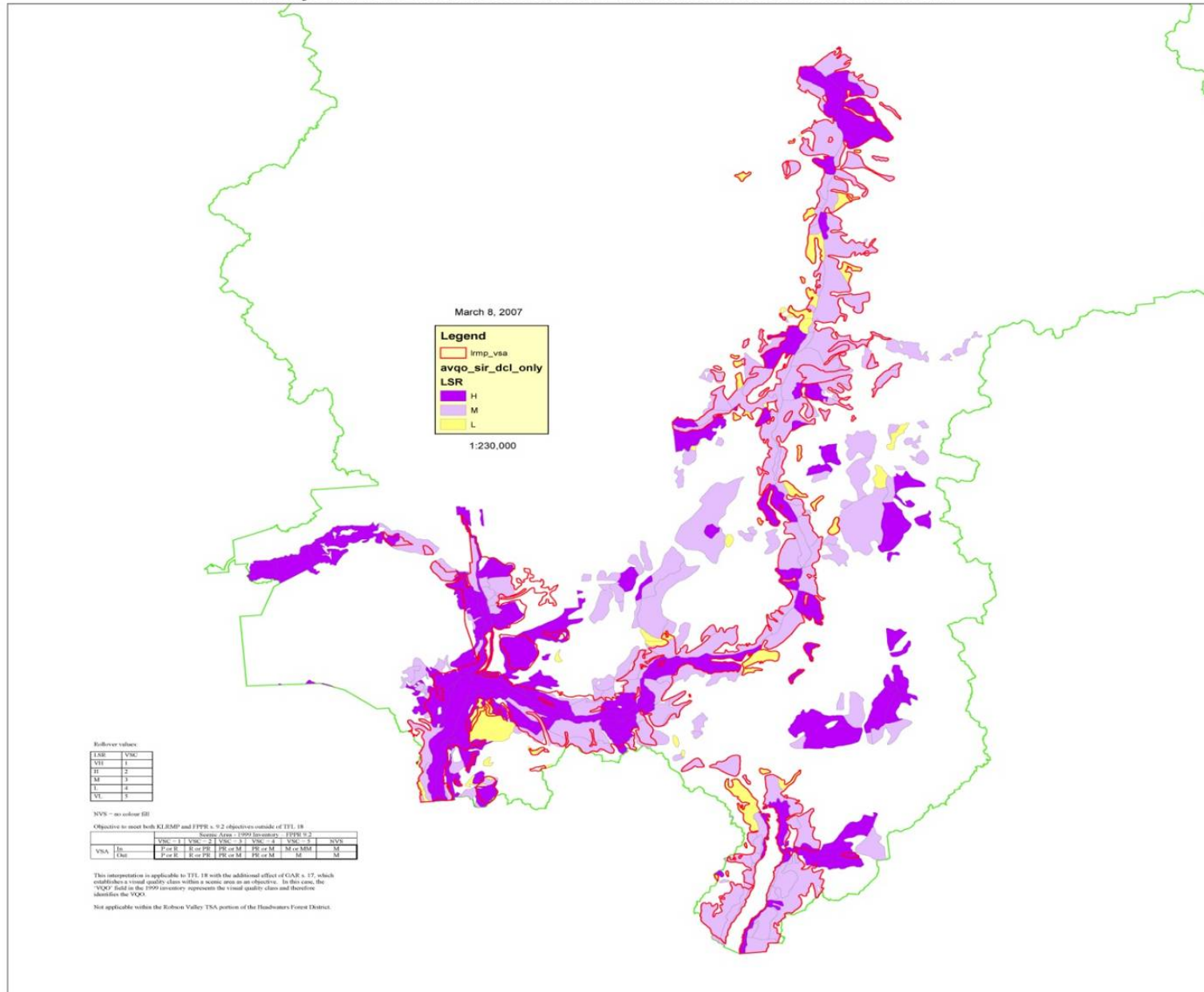
The accompanying map entitled, VSA_ScenicArea_DHW.pdf, shows the location and overlay of the KLRMP VSA and scenic area (as represented by the colour-filled areas).

The spatial file for the KLRMP VSA within the Headwaters Forest District (lrmp_vsa_DHW.zip) can be found at: http://www.for.gov.bc.ca/ftp/DHW/external/!publish/KLRMP_VSA_DHW/

The spatial file for the scenic area (avqo_sir.zip) can be found at: ftp://kamftp.env.gov.bc.ca/pub/outgoing/dist/sir_overview/arc_data/arcinfo_e00/ Use the Headwaters Forest District portion of this coverage, also known as the '1999 inventory'.

The spatial file for the scenic area within the Headwaters Forest District only (avqo_sir_dcl_only.zip) can be found at: http://www.for.gov.bc.ca/ftp/DHW/external/!publish/Scenic_Area_DHW/

Overlay of KLRMP VSA and Scenic Area within the Headwaters Forest District



VQO Assessment Considerations

Landform versus Landscape

The FPPR establishes the landscape as the basis for assessing visual management. However, it does not define landscape and does not provide a sound basis to assess visual management, which can lead to uncertainty as to whether visual quality objectives (VQOs) have been achieved. Alternatively, the Visual Landscape Design Training Manual recommends that a landform be used to assess visual management.

The MOFR drafted a FRPA General Bulletin in November 2009 (Appendix E) aimed at promoting consistency of interpretation and application of FRPA. It clarifies some key visual management terms, including landform, and emphasizes that measuring alteration for the purposes of visual impact assessments is done relative to individual landforms as opposed to broader landscape scenes or panoramic views composed of multiple landforms.

A landform is a distinct feature of the earth's surface, such as a ridgeline, shoreline or skyline, and is the most appropriate unit against which to measure VQO achievement. Where landforms are well defined (Figure 1), such as a well formed mountain within a normal field of view, the assessment is more straightforward.



FIGURE 1. A landform on the eastern side of Adams Lake as viewed from a popular recreation site. The VQO for this area is M and has been achieved through good visual design.

Where there is an unbroken line of a hill for several kilometres along a highway corridor, the landform that forms the base of the assessment is much more difficult to define (Figure 2). This presents a challenge for visual impact assessments prior to harvesting as well as post harvest assessments, such as those done in the audit.

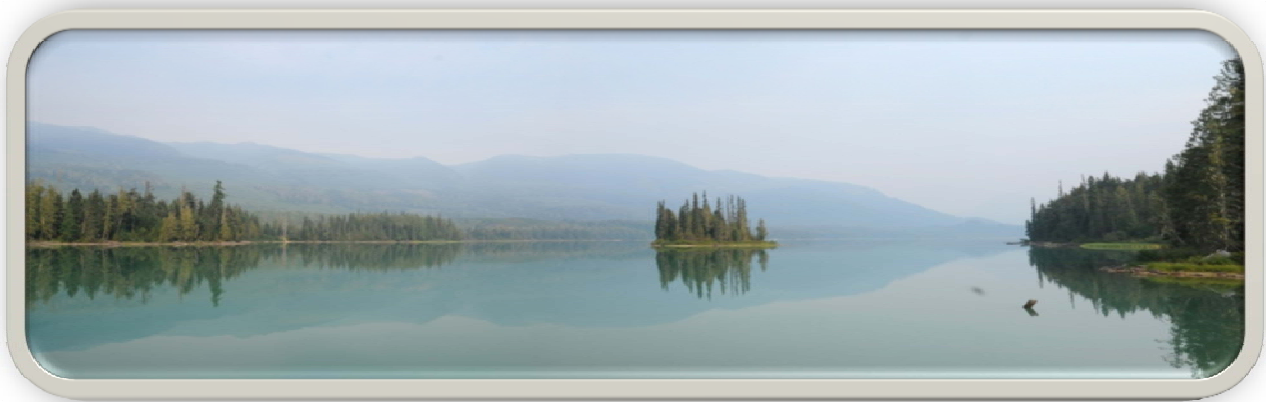


FIGURE 2. A less distinct landform on the western side of Tumtum Lake as viewed from a popular recreation site. The VQO for this area is M and has been achieved through good visual design.

The audit found that operators used landforms, regardless of the FRPA requirement to use landscapes, to assess visual management practices and that the landforms audited were well defined.

Viewpoints

A viewpoint is an accessible location on water or land which provides a viewing opportunity relevant to the landform being assessed. For planning purposes, viewpoints are sometimes identified in the visual landscape inventory (VLI), as are scenic areas. However, VLI viewpoints were primarily used to determine visual sensitivity and were not established for the intent of assessing visual impacts. Therefore, the audit considered the location of other significant viewpoints during the audit.

Viewpoint importance is a major consideration in assessing visual management practices. The following factors were considered when assessing viewpoint significance:

- viewing duration,
- viewing angle and
- frequency of viewpoint usage

Some viewpoints are easily determined, such as a highway rest stop or a recreation site at a lakeshore. Sometimes viewpoints are quite difficult to assign, such as along a highway corridor, where there may be a number of potential viewpoints as one travels along that corridor.

The distance of the viewpoint from a landform is a complicating factor. For example, in the marine or lake environments, it is possible to view an alteration on a landform from a long distance and move directly toward it so that eventually the view becomes a foreground view. As one moves, the alteration can change from a minor factor to a dominant one, and the visual impact steadily increases as distance decreases. For this reason, it is common practice to simulate the regular public viewing experience as a basis to select viewpoints. The audit took the same approach.

Where multiple viewpoints are possible along a highway or on large lakes, the audit took the view that the intended results (VQO) should be met at any given point because the selection of such viewpoints can be essentially arbitrary. As auditors travelled these areas, they also sampled at points other than the viewpoints established in the inventory or examined in visual impact assessments if it appeared that visual impacts were greater at that point.

Viewpoint elevation is also a consideration as it can affect the portions of alterations on landforms that are visible. Viewing opportunities were all found to be at surface level within the audit area. Considerations for elevated viewpoints were not necessary. Audit samples were taken at ground, or lake level.

The assessment considered viewpoint importance as well. In general, a viewpoint from a commercial tourism site is more important than a highway rest stop, which is more important than a sustained side view along a highway corridor. A failure to meet a given VQO from an important viewpoint is more significant than a failure from a relatively unimportant one. The audit recorded both viewpoint type and importance for each sample.

Roadside and Foreground Areas

The audit assessment methodology was not designed for foreground views. The definitions are designed for middle distance and background views rather than foreground views. In the audit, this applied to highway roadside harvesting where cutblocks are situated immediately adjacent to the highway corridor. However, there were no samples in the audit with foreground views, and therefore this item could not be examined in more detail in this audit.

The audit found that operators could benefit from improved guidance for managing visuals for roadside harvesting. The MOFR Visual Landscape Design Training Manual¹ contains general guidance on roadside design. However, at present there is no policy or procedure to assist the adaptation of VQOs to roadside locations. Consequently, operators may have a difficult time designing roadside harvesting to meet a given VQO and they, as well as enforcement agencies, have a difficult time comparing results with the VQO. At present the MOFR is developing roadside assessment procedures which are expected to provide guidance to practitioners and enforcement officials.

In the audit area, the audit found that the highway corridor did not have a roadside development strategy. Harvest planning and practices along the corridor are limited due to the prevalence of private land surrounding the highway. As a result there was no overall plan of how much of the corridor should be opened up at any given time.

In response to the Board's 2005 Visual Audit Report, the MOFR is currently developing guidelines for foreground visual management. To date they have conducted a provincial public perception study to:

- establish public response to different harvesting approaches along roadsides;
- to determine whether there is a single variable or combination of variables that can be used to predict public acceptance; and
- to determine whether one or more site and stand variables can be used to predict visual quality class.

The public perception study report is expected to be released in June 2010 with guidelines to follow shortly after.

¹ BC Ministry of Forests, *Visual Landscape Design Training Manual*, 1994.

Visual Design versus Percent Alteration

The definition of a given visual quality objective is the measure against which results are assessed. For clearcut areas, studies have found that each VQO corresponds to a range of visible alteration when measured from a specific viewpoint. The percent alteration of a landform is measured by dividing the area of visible logging and roads by the total area of the landform. The numerical assessment provides a reasonable predictor of the outcome and has historically been used by practitioners as the sole basis for determining whether a VQO has been achieved. However, elements of good design must also be considered, including:

- response to visual force lines (blending shape)
- use of natural character (blending texture)
- use of edge treatments (screening and blending borders)
- distance from the viewpoint (prominence)
- position on the landform (locating alterations)
- road location and construction methods

In some cases, a focus solely on percent alteration can result in failure to meet the definition of the VQO, as illustrated in Figure 3.

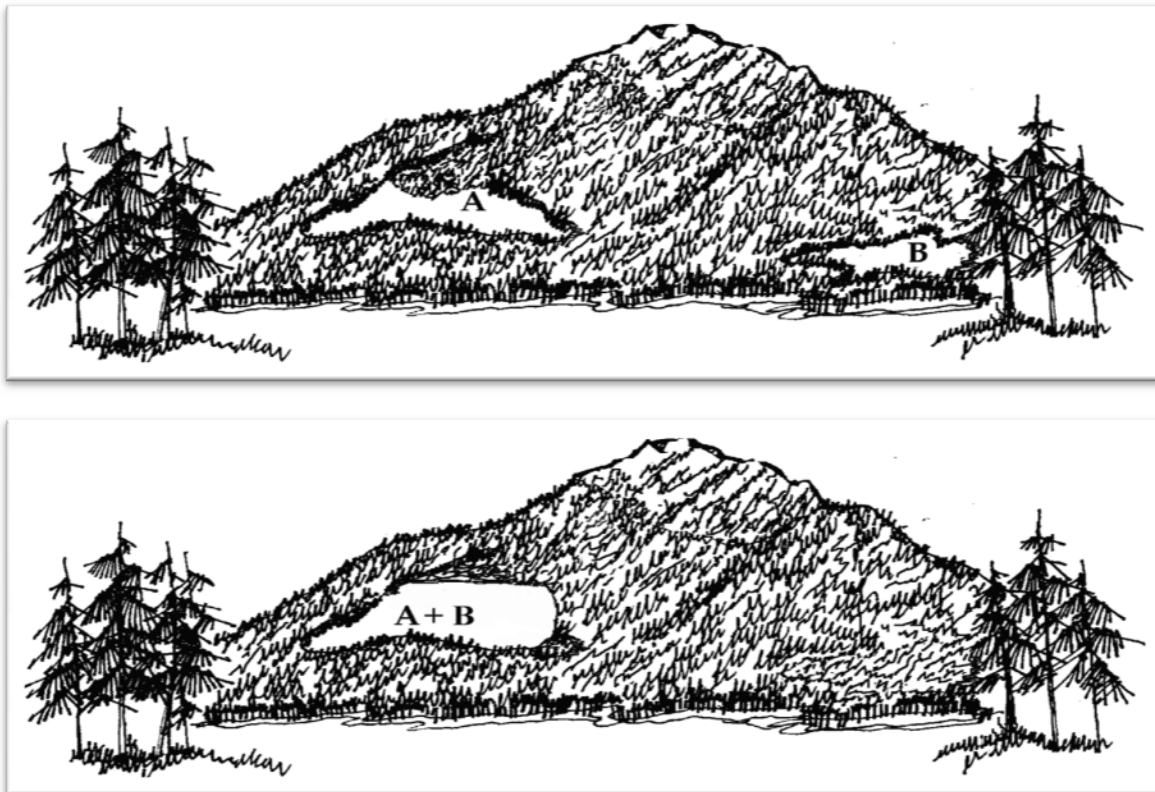


FIGURE 3. Example of Design vs. Percent Alteration

Both drawings have 7% alteration visible, which is the upper “limit” for partial retention. In this example, the top figure meets a partial retention definition because the openings are small or moderate in scale, irregular in shape, dispersed and decentralized. The lower figure meets a modification definition because the opening is large in scale, prominently located and is somewhat angular in shape.

The audit found that all operators used both numerical and design elements as decision making tools to predict the anticipated results of the planned operation. Operators commonly adopted a multi-level approach in regards to the rigor of visual impact assessment applied to a proposed operation as described in Section 4.6. For instances where a proposed operation was perceived to be well below or well above percent alterations, due to over-riding factors such as forest health, that are defined by the VQO, operators would focus more on design elements. For those proposed operations that are near maximum percent alteration for a VQO and where there are no over-riding factors, detailed visual impact assessments were conducted, incorporating both percent alteration and visual design factors (see Figure 4).



FIGURE 4. An example of a modelling technique where operators simulate proposed forest cover alterations to measure percent alteration and assess design techniques in visually sensitive areas.

Private Land

A challenge for managing visual impacts is the influence of harvesting on private forest land. The Highway 5 corridor passes predominantly through private land between Little Fort and Avola. Harvesting on private land outside tree farm licenses or woodlot licenses falls outside the jurisdiction of the FRPA. The audit found no recent examples of private land logging where the visual impact exceeded VQOs. However, past land clearing has increased the viewability of surrounding landforms on Crown land, which has affected visual design considerations there (Figure 5).

Large scale private land logging can significantly influence harvesting options in the adjacent Crown forests as well as create a negative impression of forest resource activity to the travelling public. For the most part, the public does not know whether a particular parcel of land is privately or publicly owned. If planners were able to discount the visual impact of private land harvesting, then Crown land harvesting options would not be constrained by that factor.

However, current policy in the audit area, as expressed by the district manager, is that operators must consider the visual impact of private land when planning harvest operations in visually sensitive areas. This consideration also applies to forested First Nations reserve lands.



FIGURE 5. An example where foreground land clearing on private land near Vavenby has increased the viewability of landforms on adjacent crown land.