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List of N	Aitigations/	for Cosh	Creek Blocks ¹

Block	Mitigative Measures
Block C1	Block C1 was removed from the plans because of First Nation elders concerns.
Block C2	Block C2 was removed from the plans because of First Nation elders concerns.
Block C3	Block C3 was removed from the plans because of First Nation elders concerns.
Block C4	Dispersed Retention Regarding dispersed retention, the following mitigative measures will be taken: 1) leave all aspen and birch regardless of condition; 2) leave large diameter standing snags unless they are a worker safety hazard, in which case then leave a 3 m stub; 3) Leave 10-20 conifers per hectare uniformly across the entire opening using the following parameters a) all trees will be dominant or co- dominant; b) species preference will be sub alpine fir, then white spruce, then lodgepole pine; c) all trees will be single or in small aggregates of 2-3 trees; d) all trees will be above average diameter for the stand and some preferably some of the largest diameter trees will be included (low height to diameter ratio for wind firmness); e) spacing will vary to allow operational flexibility but will be roughly 20-30 m between trees or aggregates; f) most of the trees will be of good form and vigor (straight and healthy crowns). In addition, the following non-merchantable trees will be left in all V17, V21 and V22 types: 1) leave any scattered white spruce or fir (<7m, >40% live crown and 13.5 cm DBH) of good form and vigor where it is operationally feasible to do so. Refer to Appendix 11 (IFS 2003b).
	Temporary Access Rehabilitation of temporary access roads: 1) removal of culverts, cleaning of ditches and restoration of natural drainage; 2) ripping of excessively compacted areas; 3) re-spreading of overburden and replanting. All construction and harvesting debris away will be scattered away from seasonal draws and natural drainage patterns will be
	 maintained immediately after harvesting. Rehabilitate all roads and landings that have been designated as temporary access and included within the net area to be reforested. Refer to Appendix 11 (IFS 2003b). <u>Riparian Reserve and Riparian Management Zones</u> Stream A is considered fish-bearing; therefore a Riparian Reserve Zone and Riparian Management Zone has been established.

¹ This is a synopsis of the mitigative measures that will be undertaken. More detail is provided in Appendix 1 (IFS 2003a) and Appendix 11 (IFS 2003b).

	<u>Wildlife Values</u> The Forest Ecosystem Network and dispersed on-block retention will provide habitat for late seral species. Refer to Appendix 1 (IFS 2003a, pages 21-23), Appendix 11 (IFS 2003b) Connectivity corridors have been established to the north and south of Block C4. Refer to Appendix 11 (IFS 2003b)
	Marten will be managed based on a simulated risk assessment (which is discussed in Kiemele et al. 2003, KFRSC 2004). Between two-five coarse woody debris piles (3 m x 3m x 3m) will be placed randomly on blocks for furbearer habitat.
	There will be 10-20 conifers/hectare retained uniformly throughout the harvested area of the block. All aspen and birch and all large diameter snags (that are not considered unsafe to workers) will be left. If a snag is considered unsafe, a 3 m tall stub will be left. Deciduous trees and snags are considered beneficial to wildlife.
	Proposed harvesting activities are not within close proximity to key moose calving areas or caribou calving/ wintering areas or significant lichen areas.
	The black tern colony at Blind Lake is approximately 22 km from blocks C4, C6, C8, C10 and C11.
	A 50 m buffer zone will be placed around each goshawk nest that is located within the proposed harvesting area or adjacent to harvesting area.
	Visual Quality
	Variable retention harvesting using dispersed and aggregated retention will minimize the visual impact of this block. Block C4 will not be visible from the Alaska Highway. Refer to Appendix 8 (Visual Simulations) and Appendix 11 (IFS 2003b).
	Season of Harvest
	The preferred season of harvest is winter; although harvesting can be conducted in the summer if the following mitigative
	conditions are met: 1) all access routes must be upgraded for summer haul; 2) harvesting must be completed during dry soil
	conditions to minimize site degradation; 3) minimize duff disturbance to reduce aspen suckering (i.e. use a dispersed skidding
	pattern, do not blade skid trails and if available use rubber tired skidders.
	Reforestation
	Prompt reforestation with minimal soil disturbance will assist re-establishment. The plantation will be monitored annually and
D1 1 07	remedial action will be provided if brush or aspen prevents achievement of free-growing status.
Block C5	Deferral; will be returned to the Interim Wood Supply Committee for further technical review.

Block C6	Dispersed Retention
	Regarding dispersed retention, the following mitigative measures will be taken: 1) leave all aspen and birch regardless of condition;
	2) leave large diameter standing snags unless they are a worker safety hazard, in which case then leave a 3 m stub; 3) Leave 30
	conifers per hectare uniformly across the entire opening using the following parameters a) all trees will be dominant or co-
	dominant; b) species preference will be sub alpine fir, then white spruce, then lodgepole pine; c) all trees will be single or in small
	aggregates of 2-3 trees; d) all trees will be above average diameter for the stand and some preferably some of the largest diameter
	trees will be included (low height to diameter ratio for windfirmness); e) spacing will vary to allow operational flexibility but will
	be roughly 18 to 20 m between trees or aggregates; f) most of the trees will be of good form and vigor (straight and healthy
	crowns). To supplement this mature tree retention the following non-merchantable trees will be left in all V9 and V16 types: 1)
	leave random clumps of sub alpine fir advanced regeneration ($< 7 \text{ m}$ tall and $< 13.6 \text{ cm}$ DBH), where operationally feasible. These
	clumps will be associated with the mature leave trees or aggregates for maximum effect and ease of harvesting.
	Also the following non-merchantable trees will be left in all V17, V21 and V22 types: 1) leave any scattered white spruce or fir
	(<7m, >40% live crown and 13.5 cm DBH) of good form and vigor where it is operationally feasible to do so (preferably in
	association with the mature trees or aggregates for maximum structural effect).
	Temporary Access
	Rehabilitation of temporary access roads: 1) removal of culverts, cleaning of ditches and restoration of natural drainage; 2) ripping
	of excessively compacted areas; 3) re-spreading of overburden and replanting.
	All construction and harvesting debris away will be scattered away from seasonal draws and natural drainage patterns will be
	maintained immediately after harvesting.
	Rehabilitate all roads and landings that have been designated as temporary access and included within the net area to be reforested.
	Refer to Appendix 11 (IFS 2003b).
	Riparian Reserve and Riparian Management Zones
	Stream G is considered fish-bearing; therefore a Riparian Reserve Zone and Riparian Management Zone has been established.
	Wildlife Values
	The Forest Ecosystem Network and dispersed on-block retention will provide habitat for late seral species. Refer to Appendix 1
	(IFS 2003a, pages 21-23), Appendix 11 (IFS 2003b). Connectivity corridors and a wildlife tree patch have been established to the
	north and south of Block C6. Refer to Appendix 11 (IFS 2003b).
	Marten will be managed based on a simulated risk assessment (which is discussed in Kiemele et al. 2003, KFRSC 2004). Between
	two-five coarse woody debris piles (3 m x 3m) will be placed randomly on blocks for furbearer habitat.
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	There will be 30 conifers/hectare retained throughout the harvested area of the block. All aspen and birch and all large diameter snags (that are not considered unsafe to workers) will be left. If a snag is considered unsafe, a 3 m tall stub will be left. Deciduous trees and snags are considered beneficial to wildlife.
	Proposed harvesting activities are not within close proximity to key moose calving areas or caribou calving/wintering areas or significant lichen areas.
	The black tern colony at Blind Lake is approximately 22 km from blocks C4, C6, C8, C10 and C11.
	A 50 m buffer zone will be placed around each goshawk nest that is located within the proposed harvesting area or adjacent to harvesting area.
	Visual Quality Variable retention harvesting using dispersed and aggregated retention will minimize the visual impact of this block. A digital terrain model has been completed for this block to assist with determining the level of variable retention that will be required. From the digital terrain model, it has been found that this block has is highly visible from the Alaska Highway; however, dispersed retention of 30 trees/hectare will assist with visual quality concerns. Refer to Appendix 8 (Visual Simulations) and Appendix 11 (IFS 2003b).
	Season of Harvest The preferred season of harvest is winter; although harvesting can be conducted in the summer if the following mitigative conditions are met: 1) all access routes must be upgraded for summer haul; 2) harvesting must be completed during dry soil conditions to minimize site degradation; 3) minimize duff disturbance to reduce aspen suckering (i.e. use a dispersed skidding pattern, do not blade skid trails and if available use rubber tired skidders. Refer to Appendix 11 (IFS 2003b).
	Reforestation Prompt reforestation with minimal soil disturbance will assist re-establishment. The plantation will be monitored annually and remedial action will be provided if brush or aspen prevents achievement of free-growing status.
Block C7	Block C7 was removed from the plans for connectivity reasons and because if was considered a technically difficult block to harvest.

Dispersed Retention
Regarding dispersed retention, the following mitigative measures will be taken: 1) leave all aspen and birch regardless of condition; 2) leave large diameter standing snags unless they are a worker safety hazard, in which case then leave a 3 m stub; 3) Leave 10-20 conifers per hectare uniformly across the entire opening using the following parameters a) all trees will be dominant or co- dominant; b) species preference will be sub alpine fir, then white spruce, then lodgepole pine; c) all trees will be single or in small aggregates of 2-3 trees; d) all trees will be above average diameter for the stand and some preferably some of the largest diameter trees will be included (low height to diameter ratio for wind firmness); e) spacing will vary to allow operational flexibility but will be roughly 20 to 30 m between trees or aggregates; f) most of the trees will be of good form and vigor (straight and healthy crowns).
To supplement this mature tree retention the following non-merchantable trees will be left in all V9 and V16 types: 1) leave random clumps of sub alpine fir advanced regeneration ($< 7 \text{ m}$ tall and $< 13.6 \text{ cm}$ DBH), where operationally feasible. These clumps will be associated with the mature leave trees or aggregates for maximum effect and ease of harvesting.
Also the following non-merchantable trees will be left in all V17, V21 and V22 types: 1) leave any scattered white spruce or fir (<7m, >40% live crown and 13.5 cm DBH) of good form and vigor where it is operationally feasible to do so (preferably in association with the mature trees or aggregates for maximum structural effect).
<u>Temporary Access</u> Rehabilitation of temporary access roads: 1) removal of culverts, cleaning of ditches and restoration of natural drainage; 2) ripping of excessively compacted areas; 3) re-spreading of overburden and replanting.
All construction and harvesting debris away will be scattered away from seasonal draws and natural drainage patterns will be maintained immediately after harvesting.
Rehabilitate all roads and landings that have been designated as Temporary access and included within the net area to be reforested. Refer to Appendix 11 (IFS 2003b).
Riparian Reserve and Riparian Management Zones Streams H and I are considered fish-bearing; Riparian Reserve Zones and Riparian Management Zones have been established for the streams.
Wildlife Values The Forest Ecosystem Network and dispersed on-block retention will provide habitat for late seral species. Refer to Appendix 1 (IFS 2003a, pages 21-23), Appendix 11 (IFS 2003b). Connectivity corridors have been established to the north and south of Block C9. Refer to Appendix 11 (IFS 2003b).

	Marten will be managed based on a simulated risk assessment (which is discussed in Kiemele et al. 2003, KFRSC 2004). Between two-five coarse woody debris piles (3 m x 3m x 3m) will be placed randomly on blocks for furbearer habitat.
	There will be 10-20 conifer trees/hectare retained uniformly throughout the harvested area. All aspen and birch and all large diameter snags (that are not considered unsafe to workers) will be left. If snags are considered unsafe, a 3 m tall stub will be left. Deciduous trees and snags are considered beneficial to wildlife.
	Proposed harvesting activities are not within close proximity to key moose calving areas and caribou calving,/wintering areas or significant lichen areas.
	The black tern colony at Blind Lake is approximately 22 km from blocks C4, C6, C8, C10 and C11.
	A 50 m buffer zone will be placed around each goshawk nest that is located within the proposed harvesting area or adjacent to harvesting area.
	Visual Quality
	Variable retention harvesting using dispersed and aggregated retention will minimize the visual impact of this block. A digital terrain model has been completed for this block to assist with determining the level of variable retention that will be required. From the digital terrain model, it has been found that this block has low visual concerns as it is naturally screened by adjacent stands and land formations. Refer to Appendix 8 (Visual Simulations) and Appendix 11 (IFS 2003b).
	Season of Harvest The preferred season of harvest is winter; although harvesting can be conducted in the summer if the following mitigative conditions are met: 1) all access routes must be upgraded for summer haul; 2) harvesting must be completed during dry soil conditions to minimize site degradation; 3) minimize duff disturbance to reduce aspen suckering (i.e. use a dispersed skidding pattern, do not blade skid trails and if available use rubber tired skidders Refer to Appendix 11 (IFS 2003b).
	<u>Reforestation</u> Prompt reforestation with minimal soil disturbance will assist re-establishment. A post-harvest survey will determine appropriateness of burning slash.
Block C9	Dispersed Retention Regarding dispersed retention, the following mitigative measures will be taken: 1) leave all aspen and birch regardless of condition; 2) leave large diameter standing snags unless they are a worker safety hazard, in which case then leave a 3 m stub; 3) Leave 10-20 conifers per hectare uniformly across the entire opening using the following parameters a) all trees will be dominant or co-
	dominant; b) species preference will be sub alpine fir, then white spruce, then lodgepole pine; c) all trees will be single or in small

aggregates of 2-3 trees; d) all trees will be above average diameter for the stand and some preferably some of the largest diameter trees will be included (low height to diameter ratio for wind firmness); e) spacing will vary to allow operational flexibility but will be roughly 20 to 30 m between trees or aggregates; f) most of the trees will be of good form and vigor (straight and healthy crowns).

To supplement this mature tree retention the following non-merchantable trees will be left in all V9 and V16 types: 1) leave random clumps of sub alpine fir advanced regeneration (< 7 m tall and < 13.6 cm DBH), where operationally feasible. These clumps will be associated with the mature leave trees or aggregates for maximum effect and ease of harvesting.

Also the following non-merchantable trees will be left in all V17, V21 and V22 types: 1) leave any scattered white spruce or fir (<7m, >40% live crown and 13.5 cm DBH) of good form and vigor where it is operationally feasible to do so (preferably in association with the mature trees or aggregates for maximum structural effect).

Temporary Access

All construction and harvesting debris away will be scattered away from seasonal draws and natural drainage patterns will be maintained immediately after harvesting.

Rehabilitate all roads and landings that have been designated as Temporary access and included within the net area to be reforested. Refer to Appendix 11 (IFS 2003b).

Riparian Reserve and Riparian Management Zones

Stream J is considered fish-bearing; a Riparian Reserve Zone and Riparian Management Zone has been established for Stream J.

Wildlife Values

The Forest Ecosystem Network and dispersed on-block retention will provide habitat for late seral species. Refer to Appendix 1 (IFS 2003a, pages 21-23), Appendix 11 (IFS 2003b). Wildlife tree patches have been established in Block C9, as well as a connectivity corridor to the north of Block C9. Refer to Appendix 11 (IFS 2003b).

Marten will be managed based on a simulated risk assessment (which is discussed in Kiemele et al. 2003, KFRSC 2004). Between two-five coarse woody debris piles (3 m x 3m x 3m) will be placed randomly on blocks for furbearer habitat.

There will be 10-20 trees/hectare retained throughout the harvested area of the block. All aspen and birch and all large diameter snags (that are not considered unsafe to workers) will be left. If a snag is considered unsafe, a 3 m tall stub will be left. Deciduous trees and snags are considered beneficial to wildlife.

Proposed harvesting activities are not within close proximity to key moose calving areas and caribou calving, wintering areas or

	significant lichen areas.
	The black tern colony at Blind Lake is approximately 22 km from blocks C4, C6, C8, C10 and C11.
	A 50 m buffer zone will be placed around each goshawk nest that is located within the proposed harvesting area or adjacent to harvesting area.
	Visual Quality Variable retention harvesting using dispersed and aggregated retention will minimize the visual impact of this block. A digital terrain model has been completed for this block to assist with determining the level of variable retention that will be required. From the digital terrain model, it has been found that this block has low visual concerns as it is naturally screened by adjacent stands and land formations. Refer to Appendix 8 (Visual Simulations) and Appendix 11 (IFS 2003b).
	<u>Season of Harvest</u> The preferred season of harvest is winter; although harvesting can be conducted in the summer if the following mitigative conditions are met: 1) all access routes must be upgraded for summer haul; 2) harvesting must be completed during dry soil conditions to minimize site degradation; 3) minimize duff disturbance to reduce aspen suckering (i.e. use a dispersed skidding pattern, do not blade skid trails and if available use rubber tired skidders. Refer to Appendix 11 (IFS 2003b).
	Reforestation Prompt reforestation with minimal soil disturbance will assist re-establishment.
Block C10	Dispersed Retention Regarding dispersed retention, the following mitigative measures will be taken: 1) leave all aspen and birch regardless of condition; 2) leave large diameter standing snags unless they are a worker safety hazard, in which case then leave a 3 m stub; 3) Leave 10-20 conifers per hectare uniformly across the entire opening using the following parameters a) all trees will be dominant or co- dominant; b) species preference will be sub alpine fir, then white spruce, then lodgepole pine; c) all trees will be single or in small aggregates of 2-3 trees; d) all trees will be above average diameter for the stand and some preferably some of the largest diameter trees will be included (low height to diameter ratio for wind firmness); e) spacing will vary to allow operational flexibility but will be roughly 20 to 30 m between trees or aggregates; f) most of the trees will be of good form and vigor (straight and healthy crowns).
	To supplement this mature tree retention the following non-merchantable trees will be left in all V9 and V16 types: 1) leave random clumps of sub alpine fir advanced regeneration (< 7 m tall and < 13.6 cm DBH), where operationally feasible. These clumps will be associated with the mature leave trees or aggregates for maximum effect and ease of harvesting.
	Also the following non-merchantable trees will be left in all V17, V21 and V22 types: 1) leave any scattered white spruce or fir

(<7m, >40% live crown and 13.5 cm DBH) of good form and vigor where it is operationally feasible to do so (preferably in association with the mature trees or aggregates for maximum structural effect).

Temporary Access

All construction and harvesting debris away will be scattered away from seasonal draws and natural drainage patterns will be maintained immediately after harvesting.

Rehabilitate all roads and landings that have been designated as Temporary access and included within the net area to be reforested. Refer to Appendix 11 (IFS 2003b).

Riparian Reserve and Riparian Management Zones

Streams F and K are considered fish-bearing and Riparian Reserve Zones and Riparian Management Zones have been established for all streams within or adjacent to the harvesting areas.

Wildlife Values

The Forest Ecosystem Network and dispersed on-block retention will provide habitat for late seral species. Refer to Appendix 1 (IFS 2003a, pages 21-23), Appendix 11 (IFS 2003b). Wildlife tree patches have been established in Block C10 and a connectivity corridor has been established to the north of Block C10. Refer to Appendix 11 (IFS 2003b).

Marten will be managed based on a simulated risk assessment (which is discussed in Kiemele et al. 2003, KFRSC 2004). Between two-five coarse woody debris piles (3 m x 3m x 3m) will be placed randomly on blocks for furbearer habitat.

There will be 10-20 conifer trees/hectare retained for the harvesting area. All aspen and birch and all large diameter snags (that are not considered unsafe to workers) will be left. If a snag is considered unsafe, a 3 m stub will be left. Deciduous trees and snags are considered beneficial to wildlife.

Proposed harvesting activities are not within close proximity to key moose calving areas and caribou calving, wintering or significant lichen areas.

The black tern colony at Blind Lake is approximately 22 km from blocks C4, C6, C8, C10 and C11.

A 50 m buffer zone will be placed around each goshawk nest that is located within the proposed harvesting area or adjacent to harvesting area.

	Visual Quality Variable retention harvesting using dispersed and aggregated retention will minimize the visual impact of this block. A digital terrain model has been completed for this block to assist with determining the level of variable retention that will be required. From the digital terrain model, it has been found that this block has low visual concerns as it is naturally screened by adjacent stands and land formations and is a significant distance from all viewpoints. Refer to Appendix 8 (Visual Simulations) and Appendix 11 (IFS 2003b). Season of Harvest The preferred season of harvest is winter; although harvesting can be conducted in the summer if the following mitigative conditions are met: 1) all access routes must be upgraded for summer haul; 2) harvesting must be completed during dry soil conditions to minimize site degradation; 3) minimize duff disturbance to reduce aspen suckering (i.e. use a dispersed skidding
	pattern, do not blade skid trails and if available use rubber tired skidders. Refer to Appendix 11 (IFS 2003b). <u>Reforestation</u> Prompt reforestation with minimal soil disturbance will assist re-establishment.
Block C11	Dispersed Retention Regarding dispersed retention, the following mitigative measures will be taken: 1) leave all aspen and birch regardless of condition; 2) leave large diameter standing snags unless they are a worker safety hazard, in which case then leave a 3 m stub; 3) Leave 10-20 conifers per hectare uniformly across the entire opening using the following parameters a) all trees will be dominant or co- dominant; b) species preference will be sub alpine fir, then white spruce, then lodgepole pine; c) all trees will be single or in small aggregates of 2-3 trees; d) all trees will be above average diameter for the stand and some preferably some of the largest diameter trees will be included (low height to diameter ratio for wind firmness); e) spacing will vary to allow operational flexibility but will be roughly 20 to 30 m between trees or aggregates; f) most of the trees will be of good form and vigor (straight and healthy crowns).
	Also the following non-merchantable trees will be left in all V17, V21 and V22 types: 1) leave any scattered white spruce or fir (<7m, >40% live crown and 13.5 cm DBH) of good form and vigor where it is operationally feasible to do so (preferably in association with the mature trees or aggregates for maximum structural effect).
	Temporary Access Rehabilitation of temporary access roads: 1) removal of culverts, cleaning of ditches and restoration of natural drainage; 2) ripping of excessively compacted areas; 3) re-spreading of overburden and replanting.
	Riparian Reserve and Riparian Management Zones Stream D is considered fish-bearing and a Riparian Reserve Zone and Riparian Management Zone has been established.
	<u>Wildlife Values</u> The Forest Ecosystem Network and dispersed on-block retention will provide habitat for late seral species. Refer to Appendix 1

	(IFS 2003a, pages 21-23), Appendix 11 (IFS 2003b). Connectivity corridors have been established to the north and south of Block C11. Refer to Appendix 11 (IFS 2003b).
	Marten will be managed based on a simulated risk assessment (which is discussed in Kiemele et al. 2003, KFRSC 2004). Between two-five coarse woody debris piles (3 m x 3m x 3m) will be placed randomly on blocks for furbearer habitat.
	There will be 10-20 conifer trees/hectare retained for the harvesting area. All aspen and birch and all large diameter snags (that are not considered unsafe to workers) will be left. If a snag is considered unsafe, a 3 m stub will be left. Deciduous trees and snags are considered beneficial to wildlife.
	Proposed harvesting activities are not within close proximity to key moose calving areas and caribou calving, wintering areas or significant lichen areas.
	The black tern colony at Blind Lake is approximately 22 km from blocks C4, C6, C8, C10 and C11.
	A 50 m buffer zone will be placed around each goshawk nest that is located within the proposed harvesting area or adjacent to harvesting area.
	<u>Visual Quality</u> Variable retention harvesting using dispersed and aggregated retention will minimize the visual impact of this block. A digital terrain model has been completed for this block to confirm an adequate level of dispersed and aggregated retention. Results of the digital terrain model show that this block is naturally screened by surrounding land formations, therefore no portions of this block are visible from the viewpoints along the Alaska Highway. Refer to Appendix 8 (Visual Simulations) and Appendix 11 (IFS 2003b).
	<u>Season of Harvest</u> The preferred season of harvest is winter; although harvesting can be conducted in the summer if the following mitigative conditions are met: 1) all access routes must be upgraded for summer haul; 2) harvesting must be completed during dry soil conditions to minimize site degradation; 3) minimize duff disturbance to reduce aspen suckering (i.e. use a dispersed skidding pattern, do not blade skid trails and if available use rubber tired skidders. Refer to Appendix 11 (IFS 2003b).
	Reforestation Prompt reforestation with minimal soil disturbance will assist re-establishment. The plantation will be monitored annually and remedial action will be provided if brush or aspen prevents the establishment of free-growing status.
Block C12	Deferral; will be returned to the Interim Wood Supply Committee for further technical review.