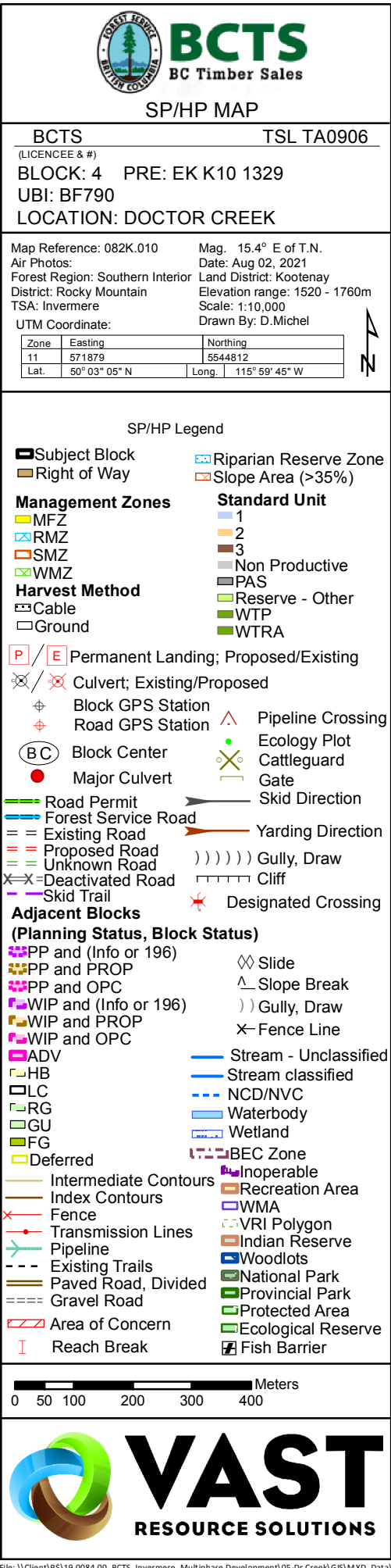
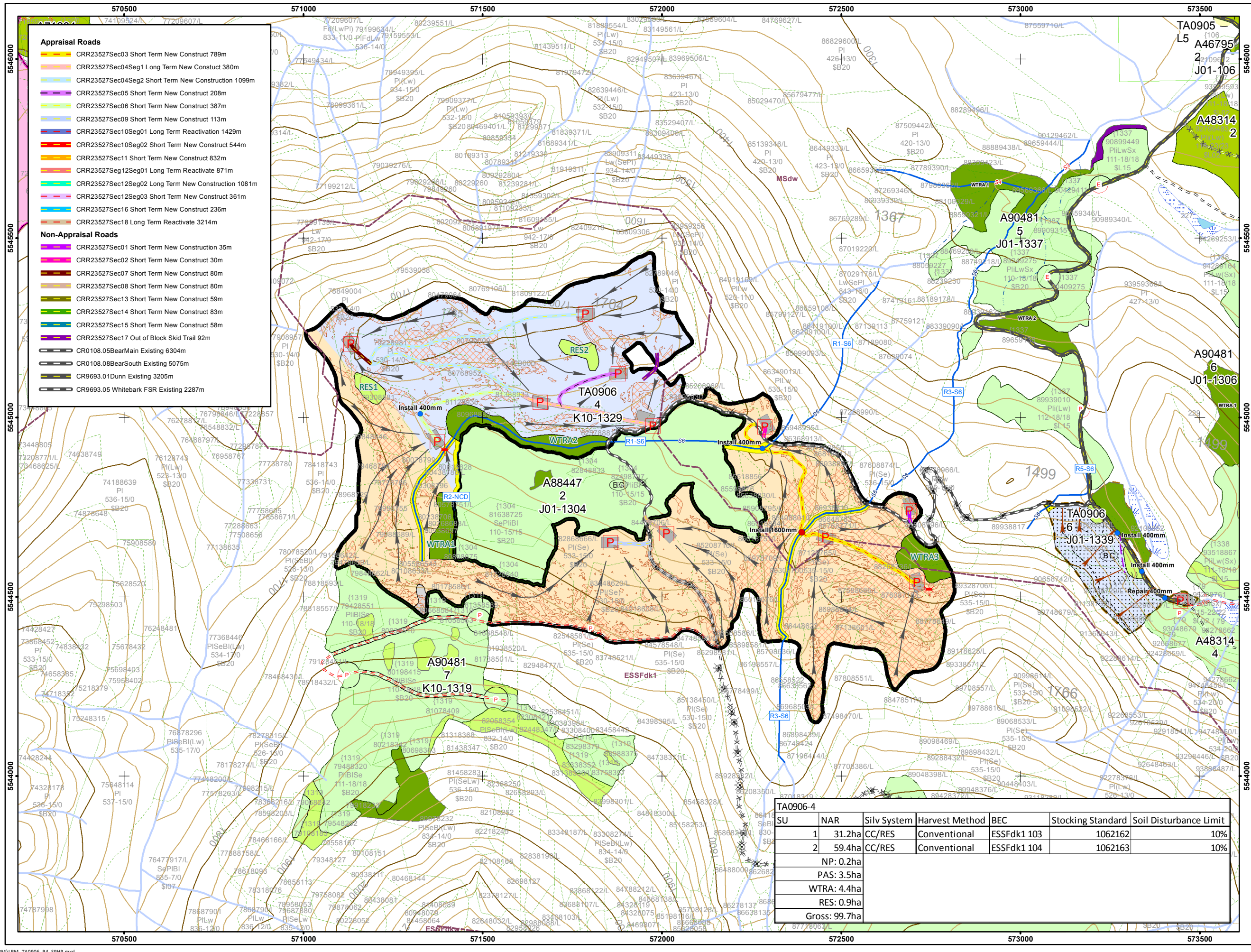




RIPARIAN ASSESSMENT

Block	Riparian I.D. and Class	RMA	SU	Width (m)	BA or SPH Retained	Comments (Indicate if in a Community Watershed)
4	R1 (S6)	20m RMZ Required. Variable width MFZ Much of reach is within WTRA	1	-	Minimal	Much of R1 has been placed in WTRA as result of high windfall and wide wetted width. Where R1 is outside of the WTRA, minimal retention is to be left within the RMZ as trees are fire damaged, prone to windthrow and present a hazard to workers. Most of the trees within the RMZ are dead or expected to succumb to mortality. Therefore retention may be below the minimum 1% of pre-harvest stems required by the FSP. All structurally damaged overstory trees within the RMZ are to be removed. Where roots are embedded into the stream channel, trees are to be stubbed to reduce the risk of windthrow.
	R2 (NCD)	Mostly within WTRA				The majority of R2 is within designated WTRA.
	R3- S6	20m RMZ Required, >5m MFZ				Similar to the RMZ of R1, the majority of trees in the RMZ of R3 have experienced some fire damage. Minimal retention is to be left within the RMZ. All structurally damaged overstory trees within the RMZ are to be removed. Where roots are embedded into the stream channel, trees are to be stubbed to reduce the risk of windthrow.
						Within 20m of R1 (where outside of WTRA) and R3, retain all green-topped Lw and/or Fd that are structurally sound and have >50% of the root system intact and that do not present a hazard to crews. Retain any trees that do not meet utilization standards for pulp or sawlogs due to large defect where structurally intact and roots are >50% intact and do not pose a hazard to field crews. Retain as much green understory vegetation as possible adjacent to streams.

Management Strategies:

Designated Crossings

In all cases, the crossing of streams are to be only at designated locations as marked on the SP/HP map. Harvesting supervisors are to verify that mapped crossing locations remain suitable at time of harvest and if not, choose an alternative suitable location. The number of crossing locations is to be minimized with random crossing locations prohibited. Skid crossings acceptable to BCTS must be used at all designated crossing locations.

Drainage Structures

Culverts of the sizes indicated in the Road site plan are to be installed at specified locations to ensure maintenance of drainage patterns. Additional cross drains are to be installed where necessary following guidance provided in the FLNRO Engineering manual.

Culverts installed on any temporary road or permanent road prescribed for deactivation after completion of operations are to be removed and cross ditches installed to ensure maintenance of natural drainage patterns. Deactivation must be in accordance with a deactivation plan prepared by a QRP.

Trail Management

All bladed skid trails are to be rehabilitated at completion of operations where soil conditions permit. To mitigate possible erosion, roughing of the soil surface and mixing of organic debris with soil is desirable to assist in water infiltration and faster reestablishment of natural vegetation. Rehabbed trails are to be seeded as per the site plan.

Stream Clean Out

Any slash or debris introduced into a stream channel must be carefully removed concurrent (prior to freshet or demobilization of equipment, whichever is earlier) with harvesting. Remove all introduced debris >1m in length. Remove all introduced segments of tree stems or log ends of any length resulting from processing that enters a stream channel. Place removed debris where it will not re-enter the stream as result of downslope movement or stream peak flows. Do not remove pre-harvest embedded debris or large natural woody debris. All fine debris is to be hand cleaned. Do not use machinery where streambanks or natural large woody debris will be disturbed.

Safety Highlights:

Fire Damaged Stands: Block has been damaged by wildfire. Trees have been structurally compromised. Fire damaged trees pose high risk of tree-fall due to damaged root systems. Increasing wind speeds elevate the risk of sudden tree fall posing a danger to workers and machinery. In areas of greater fire severity, trees may suddenly break due to burnt out boles, damaged branches creating widowmakers/overhead hazards. Dangers trees must be removed a safe distance from all landings/decking areas where they cannot strike workers.

Steep Slopes: Harvesting on slopes >35% will be required in limited areas of the block. Prior to machinery working on steep slopes, a steep slope hazard assessment is to be completed and documented in accordance with WCB regulations and requirements. Areas >35% slope are identified on the harvest plan map.

Boulders/ Rolling hazard: On steeper ground, boulders may present a rolling hazard to field workers and equipment downslope.

Heavy Windthrow: Windthrow may be present and create an obstacle for machinery.

Avalanche: Avalanche terrain along access route on Whitebark. If operations occur during snowpack, complete a avalanche hazard assessment and mitigation plan as per WCB requirements.

Road Hazards: Fire damaged trees may be across roads at commencement of operations. Ensure all fallen trees have been cleared from roadways.

Leave Tree Specifications:

Table 1 – Layer 1 Reserve Timber ¹										
SU	Selection Priority	Species	Size	Stems per Hectare to Retain			Distribution ²			
				Target	Min	Max	S	G	I	R
1	1	Lw	≥30cm dbh	5	0	10	X	X	X	
	2	Fd								
2	1	Lw	≥30cm dbh	5	0	15	X	X	X	
	2	Fd								
1 & 2	1	Lw	≥45cm dbh	All Existing		5	X	X	X	
	2	Fd								
1 & 2	1	At/Ep	≥17.5cm dbh	All Existing			X	X	X	
	2									

Additional Requirements/ Comments:

1.

Minimum is to be left only where leave-trees of identified species, size class, and structural integrity do not exist within areas of the SU. Leave as many trees meeting the retention requirements as available up to maximum amount

2.

Lw/Fd ≥45cm dbh that are retained will contribute to the targets of the other Lw/Fd leave objectives.

3.

Leave all Lw/Fd ≥45cm dbh where encountered, live or dead provided the trees are structurally sound and safe to do so. It is anticipated that there will be minimal retention of trees in this diameter class due to the lack of presence in the preharvest stand.

4.

The above cut specs include trees that are dead or alive, with selection preference to be given to live trees (green tops/ minor bark char).

5.

Trees that do not meet utilization standards for sawlog or pulp due to large defect are to be retained onsite where safe to leave and not posing a safety hazard. If felled as result of presenting a safety hazard, retain onsite as large woody debris.

6.

All stems retained must be structurally sound, have >50% of the root system intact and not present a hazard to crews on the ground.

7.

VOIDS >1ha may exist post-harvest dependent on pre-existing stand structure and available leave-trees.

¹ Refer to Appendix 1 for Table of Reserve timber Abbreviations and Definitions

² Distribution types: S: Single Tree, G: Group of trees, I: Irregularly distributed, R: Regularly distributed

Note: Safety is a priority when conducting operations near reserved timber. Refer to TSL Schedule "A", Section 2.00 regarding Dangerous trees.

Table 2- Other Reserved Timber

Non Merch						
SU	Location	Species	Size	Stems/ha		
1,2	Where possible, retain clusters of green advanced regen	Fd, Lw, Sx, Bl	>1.3m height	- up to 3 clusters/ha		

Coarse Woody Debris

SU	Size	# per Hectare	Distribution				• This is the minimum required as per the 2017-2022 FSP for MSdw
1,2,	Min 2m length (≥5m m if available) Min 20cm diameter at one end Target larger logs where they occur and are not suited as sawtimber.	Min 4 logs/ha 1.24m3/ha	S	G	I	R	
			x	x	x		
Dead Trees to be stubbed (where Mechanical Falling is utilized)							
1,2	Stub trees embedded into stream banks where it is safe to do so (ie within MFZ's) and will not pose a hazard to the integrity of the stream channel)	all	x	x	x		• 2 – 5 m stubbing Height • No target.

Harvest / Operational Constraints:

➤

Operate during conditions that prevent excessive soil disturbance. Avoid harvesting during periods of excessive soil moisture such as spring freshet and after heavy rainfall.

➤

Maintain natural drainage patterns during and at completion of harvest. At completion of operations all road sections must be left in a hydrologically stable state.

➤

This block is sensitive to encroachment by invasive species. Ensure that all equipment entering the site is inspected for invasive plant material and washed if material is found. Document inspections and actions taken.

➤

Exposed cutbanks of permanent constructed roads, new landings and deactivated/rehabbed areas are to be re-seeded with a suitable seed mix (as directed by a qualified professional otherwise Canada #1 Forage Mix or better) within 1 year of soil exposure to mitigate the spread of invasive plants and to limit soil erosion.

➤

Crossing of streams by equipment must only occur at designated crossings indicated on the SP/HP map or alternatives specified by the harvest supervisor if mapped crossing locations are no longer suitable. The number of stream crossing locations must be minimized.

➤

During operations, supervisors and workers must monitor for obvious sedimentation and erosion resulting from operations. Mitigative actions are to be taken to ensure sediment entering streams is minimized.

➤

Where available, leave green alder and/or surviving advanced regen along the edges of roads to provide screening for wildlife. Avoid roadside decking where such screening exists.

Kootenay Business Area Field Marking Standards

	Ribbon	Paint
Harvest Boundary	BCTS Block Boundary	FC#
Falling Corners		
WTRA Boundary	Reserve	
Reserve Boundary	Reserve	
Riparian Reserve Zone	Reserve	
Riparian Management Zone	Riparian Mgmt. Zone	
Management Zone	Management Zone	
Treatment Unit Boundary	Treatment Unit Boundary	
Reserve Trees		
Machine Free Zone	//// Machine Free Zone ////	
Cruising	Cruise Line	Plot Trees
Traverse Stations		
SP Plot Location		

	Ribbon	Paint
NCD & Stream Centers	Water Course	
Road P-Line		
Road Center Line	Road Centerline	
Landings	Landing	
Road Right of Way	R/W Boundary	
Road RP		
Culverts	Culvert	
Designated Crossing	Crossing	
Culvert RP Outside Right of Way		
Tail Holds / Guyline / Intermediate Supports		
Skid Trail / Back Spar Trail / Forwarding Trail	///// Trail /////	
Recce Ribbon / D-Line / Skyline Roads	//////////	

I certify that the work described herein fulfills standards expected of a member of the Association of British Columbia Forest Professionals, and that I did personally supervise the work.

Chris Lovesey, RPF # 4803

RPF PRINTED NAME

August 6, 2021

DATE SIGNED

RPF'S SIGNATURE and SEAL



Chris Lovesey