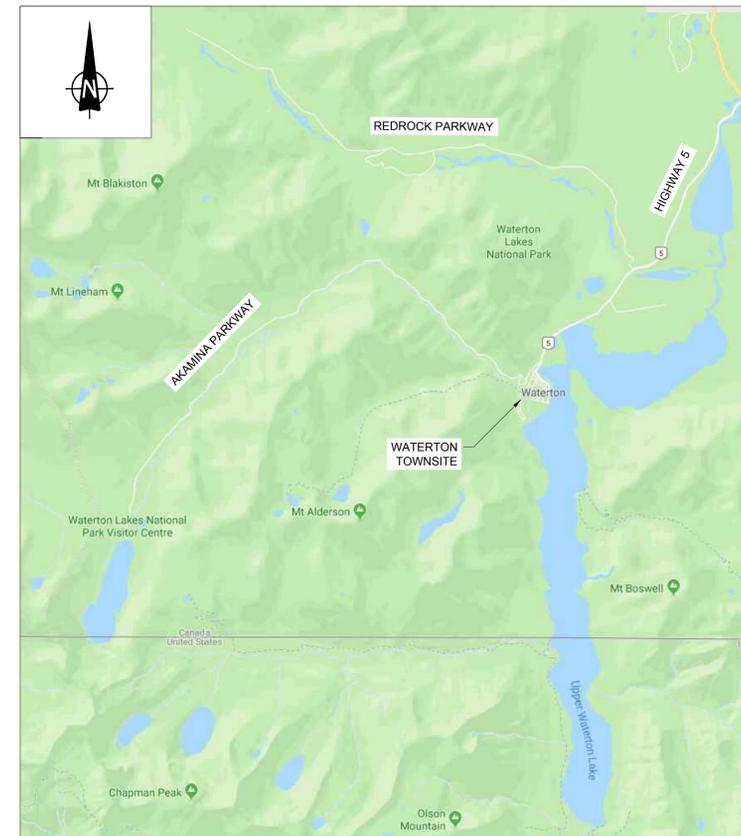


ANSI D 84mm x 56mm  
File Name: I:\pww\3\parks\Canada Civil Eng Services\AB&EC\_2019\2019 PROJECTS\SLT194506 - WLNUP Assessment\1 Deliverables\Drawings\Drawings for Tender\Red Rock Parkway Sign Assessment.dwg Saved By: Wilson, Tony Plot Date: 19/03/2019 3:43 PM

# PARKS CANADA AGENCY

## WILDFIRE HAZARD ASSESSMENT WATERTON LAKES NATIONAL PARK REDROCK PARKWAY SIGNAGE AND GUARDRAIL UPGRADES

SHEET LIST TABLE	
Drawing Number	Sheet Title
C-00	COVER PAGE
C-01	SITE PLAN KM 0.00 TO KM 3.90
C-02	SITE PLAN KM 3.90 TO KM 7.56
C-03	SITE PLAN KM 7.56 TO KM 11.40
C-04	SITE PLAN KM 11.40 TO KM 14.07
C-05	SIGNS INVENTORY
C-06	GUARDRAILS INVENTORY
C-07	TYPICAL DETAILS



**ISSUED FOR TENDER**

ISSUE DATE: 2019-03-07



Set No.: \_\_\_\_\_

PROJECT NUMBER DRAWING NUMBER ISSUE/REVISION  
**R.095522.001 C-00 0**

**PRELIMINARY  
NOT FOR CONSTRUCTION**

**NOTES:**

- THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH DRAWINGS C-05, C-06 AND C-07.
- ALL SIGNING AND MARKING DETAILS SHALL FOLLOW PARKS CANADA AND M.U.T.C.D.C. GUIDELINES.
- ALL NEW OR REPLACED INFORMATION/GUIDANCE SIGNS TO BE DESIGNED, SUPPLIED AND INSTALLED BY OTHERS.
- THE CONTRACTOR SHOULD COORDINATE THE EXACT LOCATION OF THE NEW SIGNS AND POSTS WITH THE DEPARTMENTAL REPRESENTATIVE BASED ON THE SITE CONDITIONS. THE CONTRACTOR SHOULD REFER TO PARKS CANADA AND ALBERTA TRANSPORTATION GUIDELINES FOR THE SIGN POST INSTALLATION.
- FALLEN ROCK AND AVALANCHE ZONES ARE DEFINED BASED ON STUDIES DONE BY OTHERS AND PROVIDED BY PARKS CANADA.
- THE SOIL IS VERY ROCKY AND THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE APPROPRIATE METHODS AND MEANS OF CONSTRUCTION TO INSTALL THE SIGNS AND GUARDRAILS.
- FOR DELINEATORS INSTALLATION BEFORE AND AFTER THE GUARDRAIL END TREATMENT, REFER TO STANDARD DETAIL TEB\_3.51.
- ALL TRAFFIC SIGNS SHALL BE INSTALLED WITH BREAKAWAY WOOD POST AS PER DETAIL 2 IN DRAWING C-07.

<p>Consultant's Name Nom de l'expert-conseil</p> <p>Wood Environment &amp; Infrastructure Solutions, a Division of Wood Canada Ltd.</p> <p>#401, 1925 - 18th Avenue NE Calgary, Alberta CANADA T2E 7T8 Tel: (403) 248-4331 Fax: (403) 248-2188</p>	<p>Eng. Stamp Sceau de l'ingénieur</p> 
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**DO NOT SCALE DRAWINGS**

revisions	description	date
0	ISSUED FOR TENDER	19/03/07

Client: **PARKS CANADA AGENCY**

**PARKS CANADA AGENCY**

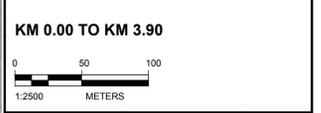
WATERTON LAKES NATIONAL PARK, AB

**WILDFIRE HAZARD ASSESSMENT  
WATERTON LAKES NATIONAL PARK  
REDROCK PARKWAY  
SIGNAGE AND GUARDRAIL  
UPGRADES**

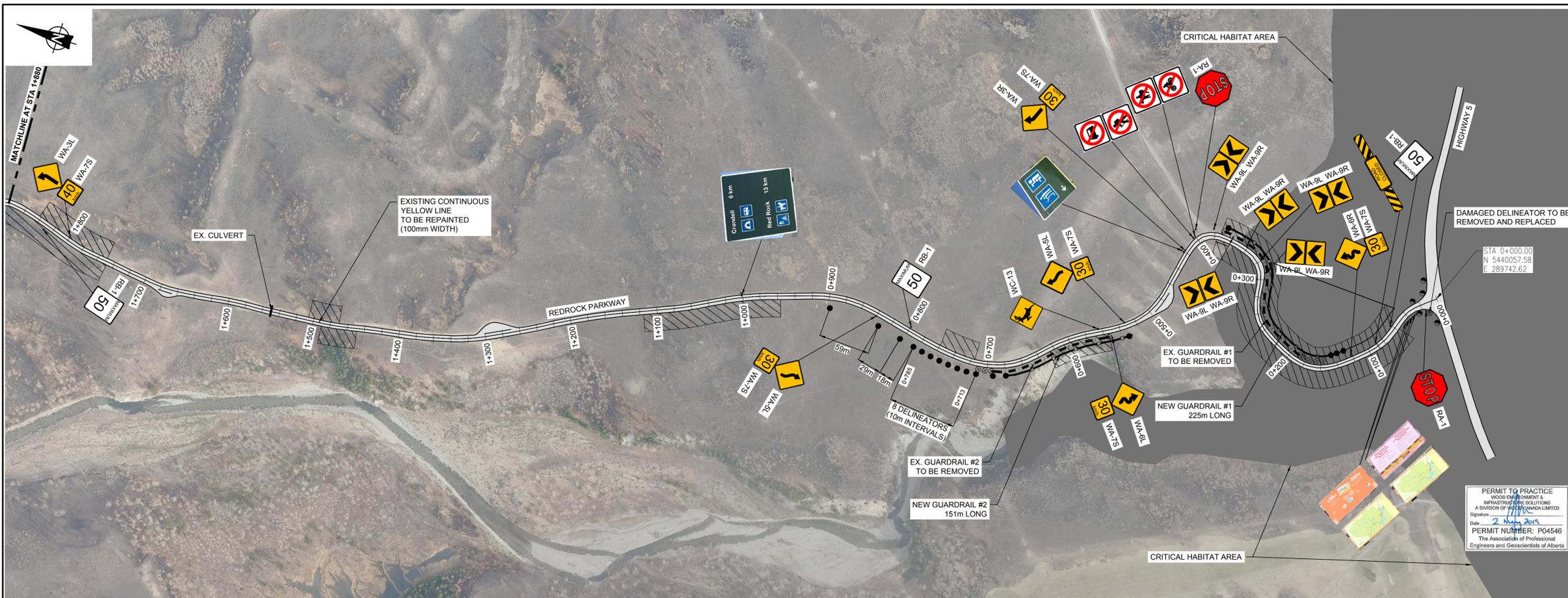
approved by: JL  
designed by: MA  
drawn by: TW  
PWSSC Project Manager: MB  
PWSSC, Architectural and Engineering Resources Manager

Client: **PARKS CANADA AGENCY**

**SITE PLAN**



project no.	sheet	revision no.
R.095522.001	C-01	0



- NOTES CONTINUED:**
- ALL DAMAGED DELINEATORS TO BE REMOVED AND DISPOSED. UNDAAGED DELINEATORS TO BE MAINTAINED UNLESS OTHERWISE INDICATED ON THE DESIGN DRAWINGS AND/OR AS DIRECTED BY THE DEPARTMENTAL REPRESENTATIVE. FOR DELINEATOR DETAIL, REFER TO DETAIL 1 ON DRAWING C-07.
  - FOR GUARDRAIL AND POST DETAILS, REFER TO DRAWING C-07.
  - SELECTED TREES TO BE CUT AS DIRECTED BY THE DEPARTMENTAL REPRESENTATIVE ON SITE.

**LEGEND**

NEW GUARDRAIL	—
EXISTING GUARDRAIL	- - -
EXISTING RETAINING WALL	— · — · — ·
FIRE KILLED TREES TO BE CUT (20m OFFSET FROM PAVEMENT EDGE); SEE NOTE 11	▨
NEW FLEXIBLE GUIDE POST (DELINEATOR)	●
EXISTING FLEXIBLE GUIDE POST (DELINEATOR) TO BE REMOVED	⊙
EXISTING FLEXIBLE GUIDE POST (DELINEATOR) TO BE MAINTAINED	○



**PRELIMINARY NOT FOR CONSTRUCTION**

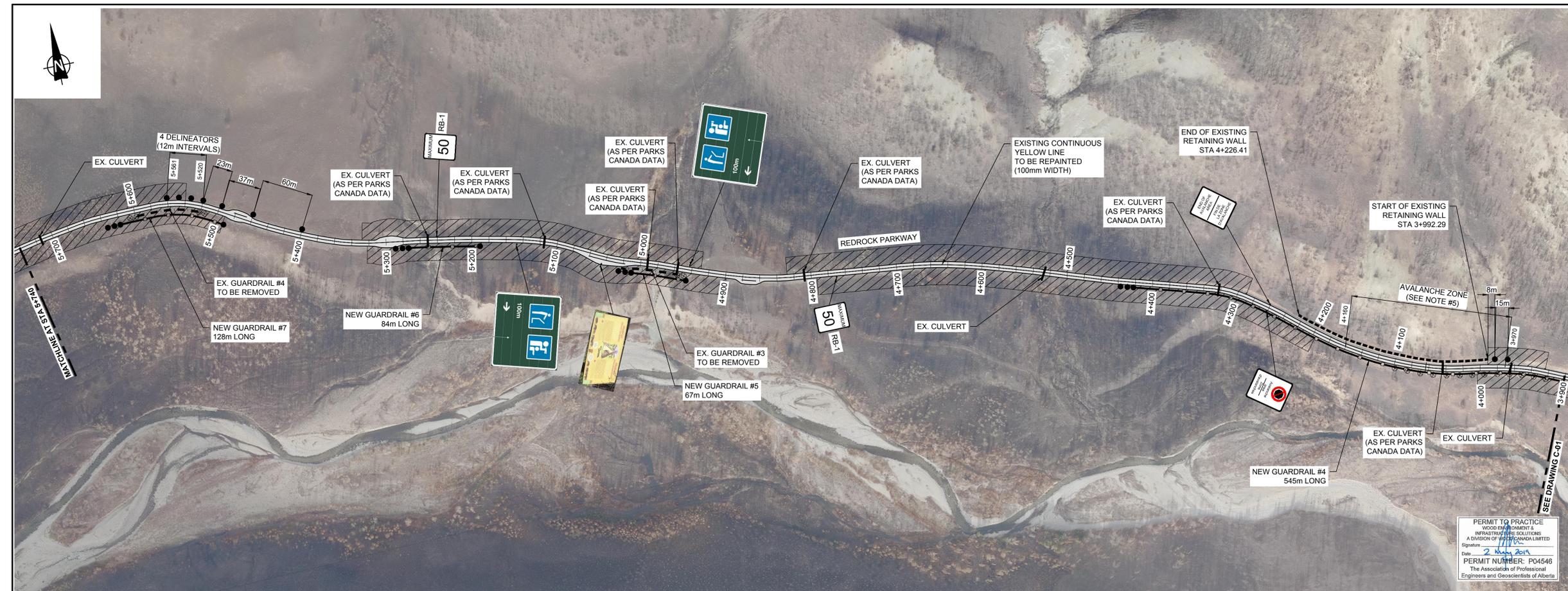
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Consultant's Name / Nom de l'expert-conseil: Wood Environment & Infrastructure Solutions, a Division of Wood Canada Ltd.

Eng. Stamp / Sceau de l'ingénieur: [Professional Engineer Stamp]

Permit to Practice / Autorisation de pratiquer: P04546

Date: 2 July 2019



PERMIT TO PRACTICE  
WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS  
A DIVISION OF WOOD CANADA LIMITED  
Date: 2 July 2019  
PERMIT NUMBER: P04546  
The Association of Professional Engineers and Geoscientists of Alberta

**DO NOT SCALE DRAWINGS**

revisions	description	date
0	ISSUED FOR TENDER	19/03/07

**PARKS CANADA AGENCY**

WATERTON LAKES NATIONAL PARK, AB

project title  
**WILDFIRE HAZARD ASSESSMENT  
WATERTON LAKES NATIONAL PARK  
REDROCK PARKWAY  
SIGNAGE AND GUARDRAIL  
UPGRADES**

approved by JL
designed by MA
drawn by TW
PWSSC Project Manager MB
PWSSC, Architectural and Engineering Resources Manager
Client PARKS CANADA AGENCY
drawing title <b>SITE PLAN</b>
<b>KM 3.90 TO KM 7.56</b>
0 50 100 1:2500 METERS
project no. R.095522.001
sheet C-02
revision no. 0



- NOTES CONTINUED:**
- ALL DAMAGED DELINEATORS TO BE REMOVED AND DISPOSED. UNDAMAGED DELINEATORS TO BE MAINTAINED UNLESS OTHERWISE INDICATED ON THE DESIGN DRAWINGS AND/OR AS DIRECTED BY THE DEPARTMENTAL REPRESENTATIVE. FOR DELINEATOR DETAIL, REFER TO DETAIL 1 ON DRAWING C-07.
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**LEGEND**

NEW GUARDRAIL	—
EXISTING GUARDRAIL	- - -
EXISTING RETAINING WALL	—
FIRE KILLED TREES TO BE CUT (20m OFFSET FROM PAVEMENT EDGE), SEE NOTE 11	▨
NEW FLEXIBLE GUIDE POST (DELINEATOR)	●
EXISTING FLEXIBLE GUIDE POST (DELINEATOR) TO BE REMOVED	⊙
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Consultant's Name  
Nom de l'expert-conseil

Wood Environment & Infrastructure Solutions,  
a Division of Wood Canada Ltd.

Eng. Stamp  
Sceau de l'ingénieur

PERMIT TO PRACTICE  
WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS  
A DIVISION OF WOOD CANADA LIMITED  
Signature: [Signature]  
Date: 2 July 2019  
PERMIT NUMBER: P04546  
The Association of Professional Engineers and Geoscientists of Alberta

DO NOT SCALE DRAWINGS

revisions	description	date
0	ISSUED FOR TENDER	19/03/07

Client  
**PARKS CANADA AGENCY**

project title  
**WATERTON LAKES NATIONAL PARK, AB**

project title  
**WILDFIRE HAZARD ASSESSMENT  
WATERTON LAKES NATIONAL PARK  
REDROCK PARKWAY  
SIGNAGE AND GUARDRAIL  
UPGRADES**

approved by JL
designed by MA
drawn by TW
PWSSC Project Manager MB
PWSSC, Architectural and Engineering Resources Manager

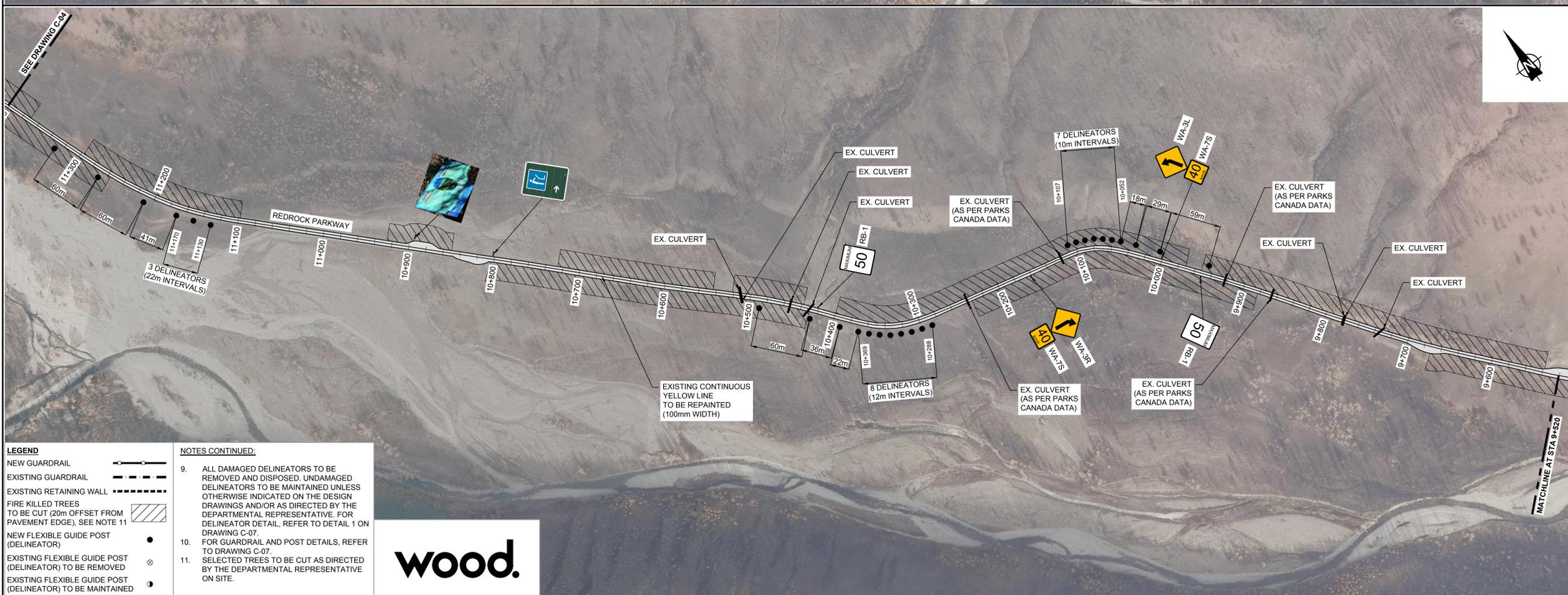
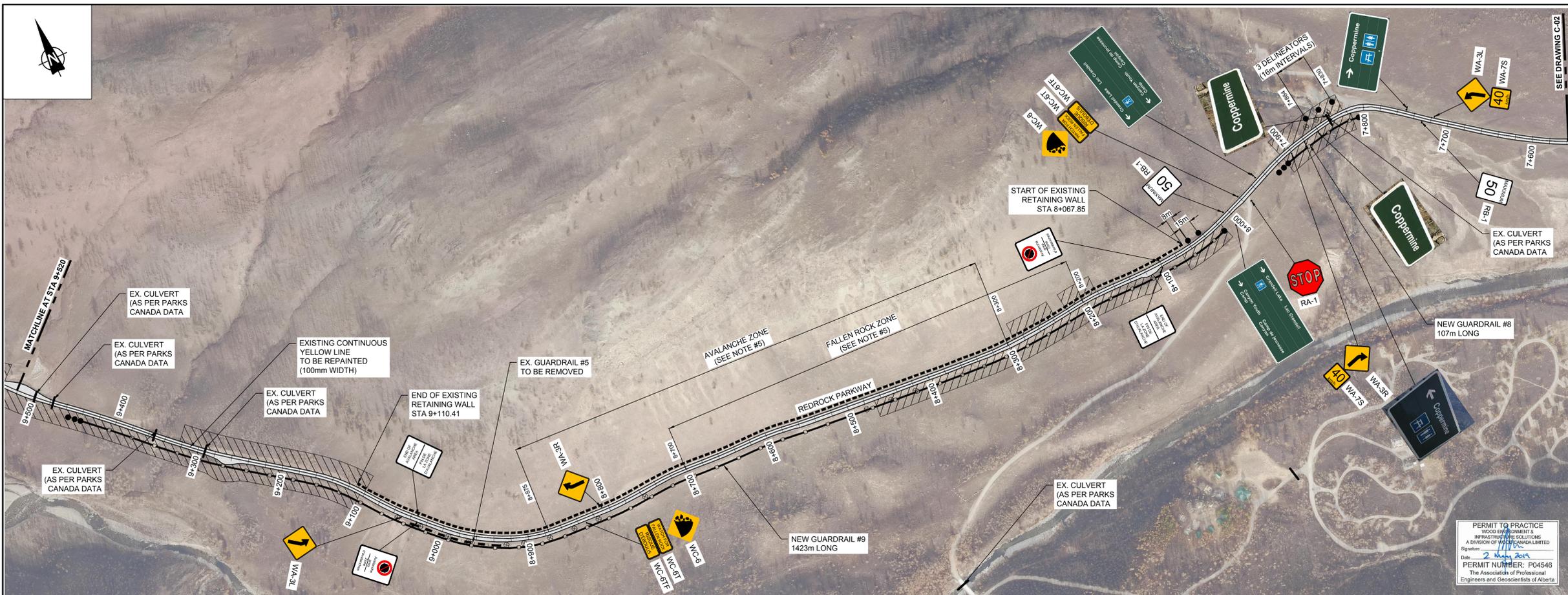
Client  
**PARKS CANADA AGENCY**

drawing title  
**SITE PLAN**

**KM 7.56 TO KM 11.40**



project no. <b>R.095522.001</b>	sheet <b>C-03</b>	revision no. <b>0</b>
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**LEGEND**

- NEW GUARDRAIL
- EXISTING GUARDRAIL
- EXISTING RETAINING WALL
- FIRE KILLED TREES TO BE CUT (20m OFFSET FROM PAVEMENT EDGE), SEE NOTE 11
- NEW FLEXIBLE GUIDE POST (DELINEATOR)
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**PRELIMINARY NOT FOR CONSTRUCTION**

**NOTES:**

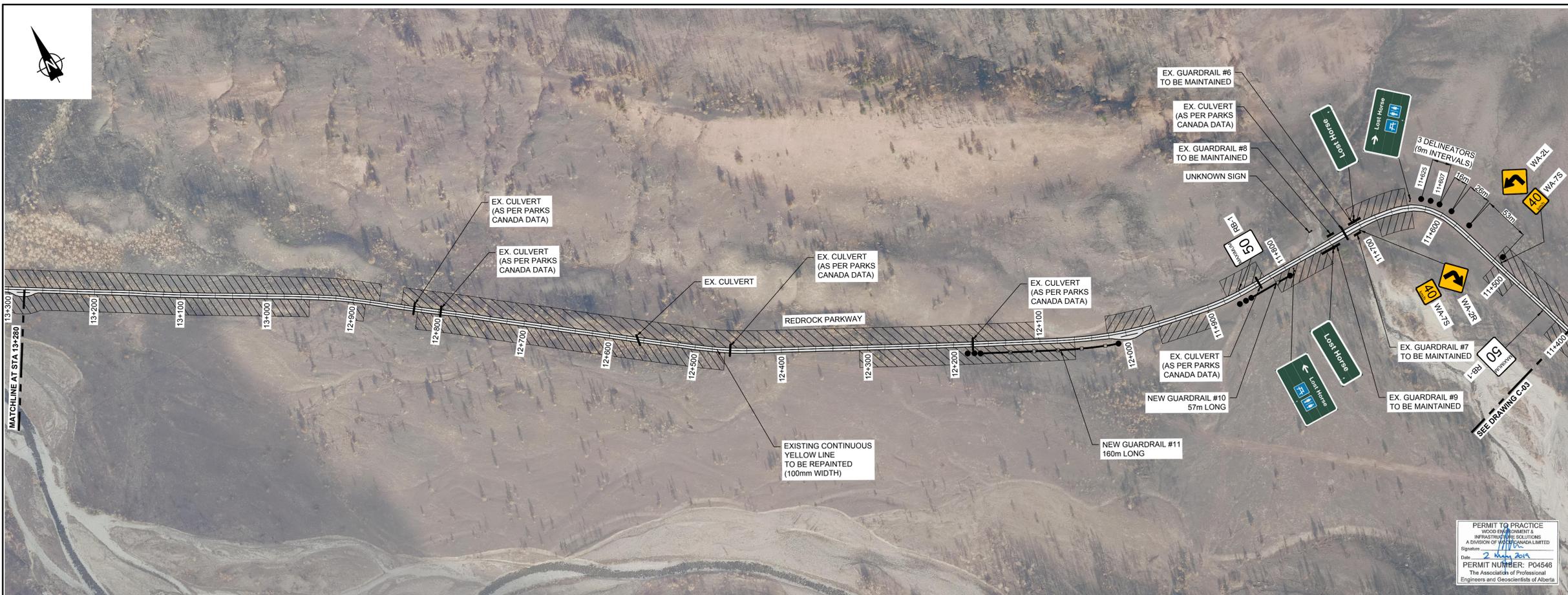
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Consultant's Name  
Norm de l'expert-conseil

Eng. Stamp  
Sceau de l'ingénieur

Wood Environment & Infrastructure Solutions, a Division of Wood Canada Ltd.

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Calgary, Alberta CANADA T2E 7T8  
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Fax (403) 248-2188



PERMIT TO PRACTICE  
WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS  
A DIVISION OF WOOD CANADA LIMITED  
Signature: [Signature]  
Date: 2 May 2019  
PERMIT NUMBER: P04546  
The Association of Professional Engineers and Geoscientists of Alberta

SURVEY CONTROL DATA				
CONTROL POINT NUMBER	NORTHING (m)	EASTING (m)	ELEVATION (m)	DESCRIPTION
1	5440852.442	289440.370	1348.132	FCP
2	5440506.169	289594.409	1337.315	FCP
4	5440852.442	289440.370	1348.132	FCP
5	5440506.169	289594.409	1337.315	FCP
6	5439703.745	289270.499	1313.361	FIP
7	5445558.435	280271.747	1461.549	FCP
8	5445769.838	279955.250	1465.144	FCP
9	5439786.032	289351.557	1315.756	FIP
10	5439876.626	289449.419	1315.461	FIP
11	5440112.567	289480.580	1322.181	FIP
12	5441582.949	289348.997	1348.003	FCP
12_GNSS	5441582.949	289348.997	1348.003	Base Setup
13	5440449.514	289368.027	1328.484	FIP
14	5439668.975	289987.157	1295.964	FIP
15	5440473.053	290022.731	1333.952	FIP
16	5441277.044	290058.903	1337.495	FIP
17	5440037.968	289773.936	1299.625	FIP
2001	5446073.393	291878.931	1344.963	FCP
2002	5439703.745	289270.499	1313.361	FIP
2003	5439786.032	289351.557	1315.756	FIP
2004	5439876.626	289449.419	1315.461	FIP
2005	5440112.567	289480.580	1322.181	FIP
2006	5440449.514	289368.027	1328.484	FIP
2008	5439668.975	289987.157	1295.964	FIP
2009	5440473.053	290022.731	1333.952	FIP
2010	5441277.044	290058.903	1337.495	FIP
3001	5440852.445	289440.361	1348.094	4 CK
3002	5440506.175	289594.409	1337.397	2 CK
3003	5445769.827	279955.247	1465.108	8 CK
3004	5444528.745	281611.867	1433.142	CP 3004 SPIKE
10003	5440852.443	289440.367	1348.131	FCP
10080	5440037.968	289773.936	1299.625	FIP

**LEGEND**

- NEW GUARDRAIL
- EXISTING GUARDRAIL
- EXISTING RETAINING WALL
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  10. SELECTED TREES TO BE CUT AS DIRECTED BY THE DEPARTMENTAL REPRESENTATIVE ON SITE.
  11. THE NEW WHEEL STOP SHOULD MATCH EXISTING. FOR WHEEL STOP DETAIL, REFER TO STANDARD DETAIL FOR PRECAST CONCRETE CURB TYPE A OR EQUIVALENT.



**DO NOT SCALE DRAWINGS**

revisions	description	date
0	ISSUED FOR TENDER	19/03/07

**PARKS CANADA AGENCY**

WATERTON LAKES NATIONAL PARK, AB

**WILDFIRE HAZARD ASSESSMENT  
WATERTON LAKES NATIONAL PARK  
REDROCK PARKWAY  
SIGNAGE AND GUARDRAIL  
UPGRADES**

approved by  
JL

designed by  
MA

drawn by  
TW

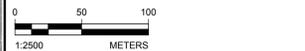
PWSSC Project Manager  
MB

PWSSC, Architectural and Engineering Resources Manager

Client  
**PARKS CANADA AGENCY**

**SITE PLAN**

KM 11.40 TO KM 14.07



project no.	sheet	revision no.
R.095522.001	C-04	0



**SIGNS INVENTORY**

STATION	SIDE	SIGN							POST				NOTES	
		Description	Name	Size			Ex. Condition	Replace	No. to replace/new	Material	Ex. Condition	Replace		No. to replace or New
				W(mm)	H(mm)	Area(m2)								
0+015	Left	Stop	RA-1*	600	600	0.36	Good	YES**	1	wood	Good	YES**	1	REPLACE SIGN & POST
0+040	Left	4 Info signs	-	-	-	-	Good	BY OTHERS	-	wood-double	Good	BY OTHERS	-	NOT PART OF THIS CONTRACT
0+061	Right	Max speed 50	RB-1	600	750	0.45	Good	YES**	1	wood	Good	YES**	1	REPLACE SIGN & POST
0+090	center	Road Closed	-	600	300	0.18	Good	YES**	1	on barricade	-	-	-	REPLACE SIGN
0+090	center	Object Marker	WA-36R*	900	300	0.27	Good	YES**	1	on barricade	-	-	-	REPLACE SIGN
0+090	center	Object Marker	WA-36L*	900	300	0.27	Good	YES**	1	on barricade	-	-	-	REPLACE SIGN
0+122	Right	Winding Road Right	WA-6R*	600	600	0.36	Good	YES**	1	wood-single	Good	YES**	1	REPLACE SIGN & POST
0+122	Right	Advisory speed tab 30km/h	WA-75*	450	450	0.20	Good	YES**	1	wood-single	Good	YES**	1	REPLACE SIGN & POST
0+315	Right	Chevron Alignment	WA-9L*	450	600	0.27	Good	YES**	1	wood-single	Good	YES**	1	REPLACE SIGN & POST
0+315	Right	Chevron Alignment	WA-9R*	450	600	0.27	Good	YES**	1	wood-single	Good	YES**	1	REPLACE SIGN & POST
0+335	Right	Chevron Alignment	WA-9L*	450	600	0.27	Good	YES**	1	wood-single	Good	YES**	1	REPLACE SIGN & POST
0+335	Right	Chevron Alignment	WA-9R*	450	600	0.27	Good	YES**	1	wood-single	Good	YES**	1	REPLACE SIGN & POST
0+350	Right	Chevron Alignment	WA-9L*	450	600	0.27	Good	YES**	1	wood-single	Good	YES**	1	REPLACE SIGN & POST
0+350	Right	Chevron Alignment	WA-9R*	450	600	0.27	Good	YES**	1	wood-single	Good	YES**	1	REPLACE SIGN & POST
0+365	Right	Chevron Alignment	WA-9L*	450	600	0.27	Good	YES**	1	wood-single	Good	YES**	1	REPLACE SIGN & POST
0+365	Right	Chevron Alignment	WA-9R*	450	600	0.27	Good	YES**	1	wood-single	Good	YES**	1	REPLACE SIGN & POST
0+380	Right	Chevron Alignment	WA-9L*	450	600	0.27	Good	YES**	1	wood-single	Good	YES**	1	REPLACE SIGN & POST
0+380	Right	Chevron Alignment	WA-9R*	450	600	0.27	Good	YES**	1	wood-single	Good	YES**	1	REPLACE SIGN & POST
0+400	Right	Automobiles Prohibited	RB-88	600	600	0.36	Good	YES**	1	wood-double	Good	YES**	1	REPLACE SIGN & POST
0+400	Right	No Backpacking/Hiking	1-1-054	600	600	0.36	Good	YES**	1	metal-double to be replaced by 2 wood posts	Good	YES**	2	REPLACE SIGN & POST
0+400	Right	No Horseback Riding	1-1-075	600	600	0.36	Good	YES**	1	wood-double	Good	YES**	1	REPLACE SIGN & POST
0+400	Right	Cycling Prohibited	RB-67	600	600	0.36	Good	YES**	1	wood-double	Good	YES**	1	REPLACE SIGN & POST
0+400	Right	Stop	RA-1*	600	600	0.36	Good	YES**	1	wood	Good	YES**	1	REPLACE SIGN & POST
0+418	Right	Single curve right	WA-3R*	600	600	0.36	Replace	YES	1	wood-single	Good	YES**	1	REPLACE EXISTING SIGN WA-3R with WA-3L & REPLACE POST
0+418	Right	Advisory speed tab 30km/h	WA-75*	450	450	0.20	New	-	1	wood-single	Good	YES**	1	NEW SIGN
0+420	Right	Guidance (direction of exhibit & viewpoint signs)	-	-	-	-	Good	BY OTHERS	-	wood-double	Good	BY OTHERS	-	NOT PART OF THIS CONTRACT
0+532	Right	Reverse curve Left	WA-5L*	600	600	0.36	Good	YES**	1	wood-single	Good	YES	1	REPLACE EXISTING SIGN WA-6L with WA-5L and REPLACE POST. RELOCATE FROM 0+525 TO 0+532
0+532	Right	Advisory speed tab 30km/h	WA-75*	450	450	0.20	Good	YES**	1	wood-single	Good	YES**	1	REPLACE & RELOCATE SIGN & POST FROM 0+525 TO 0+532
0+540	Right	Deer crossing	WC-13	600	600	0.36	Good	YES**	1	wood	burnt	YES	1	REPLACE SIGN & POST
0+550	Left	Winding Road Left	WA-6L*	600	600	0.36	Missing	YES	1	wood-single	Missing	YES	1	REPLACE SIGN & POST
0+550	Left	Advisory speed tab 30km/h	WA-75*	450	450	0.20	Missing	YES	1	wood-single	Missing	YES	1	REPLACE SIGN & POST
0+800	Right	Max speed 50	RB-1	600	750	0.45	Good	YES**	1	wood	Good	YES**	1	REPLACE SIGN & POST
0+840	Left	Reverse curve left	WA-5L*	600	600	0.36	Missing	YES	1	wood-single	burnt	Yes	1	REPLACE & RELOCATE SIGN & POST FROM 0+820 TO 0+840
0+840	Left	Advisory speed tab 30km/h	WA-75*	450	450	0.20	Missing	Yes	1	wood-single	burnt	Yes	1	REPLACE & RELOCATE SIGN & POST FROM 0+820 TO 0+840
1+000	Right	Guidance (Crandell campground&RedRock canyon)	-	-	-	-	Good	BY OTHERS	-	wood-double	Good	BY OTHERS	-	NOT PART OF THIS CONTRACT
1+800	Right	Single curve left	WA-3L*	600	600	0.36	Good	YES**	1	wood-single	burnt	YES	1	REPLACE SIGN & POST
1+800	Right	Advisory speed tab 40km/h	WA-75*	450	450	0.20	New	-	1	wood-single	burnt	YES	1	NEW SIGN
1+830	Left	Max speed 50	RB-1	600	750	0.45	New	-	1	wood	New	-	1	NEW SIGN & POST
1+950	Left	Single curve right	WA-3R*	600	600	0.36	Good	YES**	1	wood-single	Good	YES**	1	REPLACE SIGN & POST
1+950	Left	Advisory speed tab 40km/h	WA-75*	450	450	0.20	New	-	1	wood-single	Good	YES**	1	NEW SIGN
1+981	Right	Max speed 50	RB-1	600	750	0.45	New	-	1	wood	New	-	1	NEW SIGN & POST
2+845	Left	Max speed 50	RB-1	600	750	0.45	Missing	YES	1	wood	burnt	YES	1	REPLACE SIGN & POST
2+900	Right	Guidance (Bellevue)	-	-	-	-	Good	BY OTHERS	-	wood-double	Good	BY OTHERS	-	NOT PART OF THIS CONTRACT
3+000	Right	Bear	-	-	-	-	Good	BY OTHERS	-	wood-double	Good	BY OTHERS	-	NOT PART OF THIS CONTRACT
3+000	Right	Info (Wild Meetings)	-	-	-	-	Good	BY OTHERS	-	wood-double	burnt	BY OTHERS	-	NOT PART OF THIS CONTRACT
3+100	Left	Guidance (Bellevue)	-	-	-	-	Good	BY OTHERS	-	wood-double	burnt	BY OTHERS	-	NOT PART OF THIS CONTRACT
3+100	Right	Max speed 50	RB-1	600	750	0.45	Missing	YES	1	wood	burnt	YES	1	REPLACE & RELOCATE SIGN & POST FROM 2+845 TO 3+100
3+630	Right	Reverse curve left	WA-5L*	600	600	0.36	Damaged	YES	1	wood-single	burnt	YES	1	REPLACE & RELOCATE SIGN & POST FROM 3+640 TO 3+630
3+630	Right	Advisory speed tab 40km/h	WA-75*	450	450	0.20	New	-	1	wood-single	burnt	YES	1	NEW SIGN
3+840	Left	End of Avalanche Area	-	600	1200	0.72	New	-	1	wood	New	-	1	NEW SIGN & POST
3+850	Right	No Stopping-Avalanche Area	-	600	1200	0.72	New	-	1	wood	New	-	1	NEW SIGN & POST
3+870	Left	Reverse curve left	WA-5L*	600	600	0.36	Missing	YES	1	wood-single	Missing	YES	1	REPLACE & RELOCATE SIGN & POST FROM 3+892 TO 3+870
3+870	Left	Advisory speed tab 40km/h	WA-75*	450	450	0.20	New	-	1	wood-single	Missing	YES	1	NEW SIGN
4+260	Right	End of Avalanche Area	-	600	1200	0.72	New	-	1	wood	New	-	1	NEW SIGN & POST
4+260	Left	No Stopping-Avalanche Area	-	600	1200	0.72	New	-	1	wood	New	-	1	NEW SIGN & POST
4+770	Left	Max speed 50	RB-1	600	750	0.45	Damaged	YES	1	wood	burnt	YES	1	REPLACE SIGN & POST
4+942	Right	Guidance (direction of exhibit & viewpoint signs)	-	-	-	-	Good	BY OTHERS	-	wood-double	Good	BY OTHERS	-	NOT PART OF THIS CONTRACT
5+050	Left	Info (Aikapii campsite)	-	-	-	-	Good	BY OTHERS	-	wood-double	Good	BY OTHERS	-	NOT PART OF THIS CONTRACT
5+147	Left	Guidance (direction of exhibit & viewpoint signs)	-	-	-	-	Damaged	BY OTHERS	-	wood-double	burnt	BY OTHERS	-	NOT PART OF THIS CONTRACT
5+240	Right	Max speed 50	RB-1	600	750	0.45	Damaged	YES	1	wood	burnt	YES	1	REPLACE & RELOCATE SIGN & POST FROM 5+800 TO 5+240
6+670	Left	Max speed 50	RB-1	600	750	0.45	Missing	YES	1	wood	burnt	YES	1	REPLACE SIGN & POST
6+752	Right	Guidance (Crandell campground)	-	-	-	-	Damaged	BY OTHERS	-	wood-double	burnt	BY OTHERS	-	NOT PART OF THIS CONTRACT
6+782	Left	Stop	RA-1*	600	600	0.36	Good	YES**	1	wood	burnt	YES	1	REPLACE SIGN & POST
6+800	Right	checkerboard	WA-88	750	750	0.56	Good	YES**	1	wood	Good	YES**	1	REPLACE SIGN & POST
6+820	Right	Max speed 50	RB-1	600	750	0.45	Damaged	YES	1	wood-single	Good	YES	1	REPLACE & RELOCATE SIGN & POST FROM 6+880 TO 6+820
6+820	Right	Road narrows	WA-23	750	750	0.56	Damaged	YES	1	wood-single	Good	YES	1	REPLACE & RELOCATE SIGN & POST FROM 6+880 TO 6+820

STATION	SIDE	SIGN							POST				NOTES	
		Description	Name	Size			Ex. Condition	Replace	No. to replace/new	Material	Ex. Condition	Replace		No. to replace or New
				W(mm)	H(mm)	Area(m2)								
6+858	Left	Guidance (Crandell campground)	-	-	-	-	Good	BY OTHERS	-	wood-double	Good	BY OTHERS	-	NOT PART OF THIS CONTRACT
7+080	Left	Traffic counter pole	-	-	-	-	DAMAGED	-	-	metal	-	-	-	BURNT POST & CABLES (NOT PART OF THIS CONTRACT)
7+717	Right	Single curve left	WA-3L*	600	600	0.36	Good	YES**	1	wood-single	burnt	YES	1	REPLACE SIGN & POST
7+717	Right	Advisory speed tab 40km/h	WA-75*	450	450	0.20	New	-	1	wood-single	burnt	YES	1	NEW SIGN
7+730	Left	Max speed 50	RB-1	600	750	0.45	Good	YES**	1	wood	burnt	YES	1	REPLACE & RELOCATE SIGN & POST FROM 7+946 TO 7+730
7+750	Right	Guidance (Coppermine picnic)	-	-	-	-	Good	BY OTHERS	-	wood-double	Good	BY OTHERS	-	NOT PART OF THIS CONTRACT
7+840	Right	Guidance (Coppermine)	-	-	-	-	Good	BY OTHERS	-	wood-double	burnt	BY OTHERS	-	NOT PART OF THIS CONTRACT
7+860	Left	Guidance (Coppermine)	-	-	-	-	Good	BY OTHERS	-	wood-double	Good	BY OTHERS	-	NOT PART OF THIS CONTRACT
7+880	Left	Guidance (Coppermine picnic)	-	-	-	-	Good	BY OTHERS	-	wood-double	Good	BY OTHERS	-	NOT PART OF THIS CONTRACT
7+900	Left	Single curve right	WA-3R*	600	600	0.36	Missing	YES	1	wood-single	Missing	YES	1	REPLACE & RELOCATE SIGN & POST FROM 7+867 TO 7+900
7+900	Left	Advisory speed tab 40km/h	WA-75*	450	450	0.20	New	-	1	wood-single	Missing	YES	1	NEW SIGN
7+950	Right	Guidance (Crandell Lake & Canyon Youth Camp)	-	-	-	-	Good	BY OTHERS	-	wood-triple	Good	BY OTHERS	-	NOT PART OF THIS CONTRACT
7+973	Left	Stop	RA-1*	600	600	0.36	Good	YES**	1	wood	burnt	YES	1	REPLACE SIGN & POST
7+980	Right	Fallen Rock	WC-6	750	750	0.56	New	-	1	wood-single	New	-	1	NEW SIGN & POST
7+980	Right	Watch for Fallen Rock	WC-6T	600	300	0.18	New	-	1	wood-single	New	-	1	NEW SIGN & POST
7+980	Right	Risque D'ebouls	WC-6TF	600	300	0.18	New	-	1	wood-single	New	-	1	NEW SIGN & POST
8+000	Left	Guidance (Crandell Lake & Canyon Youth Camp)	-	-	-	-	Good	BY OTHERS	-	wood-triple	burnt	BY OTHERS	-	NOT PART OF THIS CONTRACT
8+006	Right	Max speed 50	RB-1	600	750	0.45	Damaged	YES	1	wood	burnt	YES	1	REPLACE SIGN & POST
8+100	Right	No Stopping-Avalanche Area	-	600	1200	0.72	New	-	1	wood	New	-	1	NEW SIGN & POST
8+100	Left	End of Avalanche Area	-	600	1200	0.72	New	-	1	wood	New	-	1	NEW SIGN & POST
8+809	Right	Single curve right	WA-3R*	600	600	0.36	New	-	1	wood	New			

**EXISTING GUARDRAILS ASSESSMENT**

EX. GUARDRAIL #	SIDE	STATION	SECTION	TYPE	LENGTH (m)	EXISTING CONDITION			NOTES	
						W-BEAM GUARDRAIL	TOTAL # WOOD POSTS	BURNT POSTS		% BURNT WOOD POSTS
1	RIGHT	00+190.4	END TREATMENT	TURN DOWN	0.75	NOT BURNT	65	18	28%	1-W-BEAM & POSTS TO BE REMOVED AND REPLACED BY STRONG POST W-BEAM WITH STEEL POSTS 2-START AND END STATIONS TO BE RELOCATED
		00+191.1	W-BEAM	WEAK	102.69					
		00+293.8	W-BEAM	STRONG	68.73					
		00+362.5	W-BEAM	WEAK	7.80					
		00+369.6	END TREATMENT	TURN DOWN	0.58					
2	LEFT	00+554.3	END TREATMENT	TURN DOWN	0.46	NOT BURNT	49	31	63%	1-W-BEAM & POSTS TO BE REMOVED AND REPLACED BY STRONG POST W-BEAM WITH STEEL POSTS 2-START AND END STATIONS TO BE RELOCATED
		00+554.8	W-BEAM	STRONG	45.89					
		00+600.7	W-BEAM	WEAK	38.37					
		00+639.0	W-BEAM	STRONG	14.93					
		00+654.0	W-BEAM	WEAK	3.80					
		00+657.5	W-BEAM	STRONG	16.90					
		00+673.9	W-BEAM	WEAK	20.10					
		00+694.0	END TREATMENT	TURN DOWN	0.65					
3	LEFT	04+956.5	END TREATMENT	TURN DOWN	0.58	BURNT	17	17	100%	1-W-BEAM & POSTS TO BE REMOVED AND REPLACED BY STRONG POST W-BEAM WITH STEEL POSTS 2-START AND END STATIONS TO BE RELOCATED
		04+957.0	W-BEAM	WEAK	64.07					
		05+021.1	END TREATMENT	TURN DOWN	0.61					
4	LEFT	05+523.4	END TREATMENT	TURN DOWN	0.52	LEANING	20	20	100%	1-W-BEAM & POSTS TO BE REMOVED AND REPLACED BY STRONG POST W-BEAM WITH STEEL POSTS 2-START AND END STATIONS TO BE RELOCATED
		05+523.9	W-BEAM	WEAK	73.34					
		05+597.2	END TREATMENT	TURN DOWN	0.52					
5	LEFT	08+931.7	END TREATMENT	WING END	0.70	NOT BURNT	56	56	100%	1-W-BEAM & POSTS TO BE REMOVED AND REPLACED BY STRONG POST W-BEAM WITH STEEL POSTS 2-START AND END STATIONS TO BE RELOCATED
		08+932.4	W-BEAM	STRONG	104.32					
		09+036.7	END TREATMENT	CRASHWORTHY	1.53					
6	RIGHT	11+695.8	END TREATMENT	CRASHWORTHY	1.53	NOT BURNT	9	0	0%	
		11+697.3	W-BEAM	STRONG	14.46					
		11+711.8	END TREATMENT	-	-					
7	LEFT	11+703.3	END TREATMENT	WING END	0.70	NOT BURNT	5	0	0%	
		11+704.0	W-BEAM	STRONG	7.31					
		11+711.3	END TREATMENT	WING END	0.66					
8	RIGHT	11+730.9	END TREATMENT	WING END	0.82	NOT BURNT	5	0	0%	
		11+731.7	W-BEAM	STRONG	7.27					
		11+738.9	END TREATMENT	WING END	0.77					
9	LEFT	11+730.8	END TREATMENT	WING END	0.69	NOT BURNT	13	0	0%	
		11+731.5	W-BEAM	STRONG	23.10					
		11+753.3	END TREATMENT	CRASHWORTHY	1.63					
<b>TOTAL</b>						<b>239</b>	<b>142</b>	<b>59%</b>		

**NEW GUARDRAILS INVENTORY**

NEW GUARDRAIL #	SIDE	START STATION	END STATION	SECTION	TYPE	GUARDRAIL LENGTH (m)	WARRANT	NOTES
1	RIGHT	-	00+144	CRASHWORTHY END TREATMENT	SKT SYSTEM WITH DEEP STEEL POST		STEEP EMBANKMENT	REPLACE EXISTING*
		00+144	00+368	W-BEAM GUARDRAIL	W-BEAM STRONG POST WITH DEEP STEEL POST	224.79		
		00+368	-	CRASHWORTHY END TREATMENT	SKT SYSTEM WITH DEEP STEEL POST			
2	LEFT	-	00+531	CRASHWORTHY END TREATMENT	SKT SYSTEM WITH DEEP STEEL POST		STEEP EMBANKMENT	REPLACE EXISTING*
		00+531	00+679	W-BEAM GUARDRAIL	W-BEAM STRONG POST WITH DEEP STEEL POST	150.50		
3	LEFT	-	01+962	CRASHWORTHY END TREATMENT	SKT SYSTEM WITH DEEP STEEL POST		STEEP EMBANKMENT	NEW
		01+962	02+318	W-BEAM GUARDRAIL	W-BEAM STRONG POST WITH DEEP STEEL POST	356.24		
4	LEFT	-	03+880	CRASHWORTHY END TREATMENT	SKT SYSTEM WITH DEEP STEEL POST		STEEP EMBANKMENT	NEW
		03+880	04+423	W-BEAM GUARDRAIL	W-BEAM STRONG POST WITH DEEP STEEL POST	544.83		
5	LEFT	-	04+945	CRASHWORTHY END TREATMENT	SKT SYSTEM WITH DEEP STEEL POST		STEEP EMBANKMENT	REPLACE EXISTING*
		04+945	05+011	W-BEAM GUARDRAIL	W-BEAM STRONG POST WITH DEEP STEEL POST	66.68		
6	LEFT	-	05+192	CRASHWORTHY END TREATMENT	SKT SYSTEM WITH DEEP STEEL POST		STEEP EMBANKMENT	NEW
		05+192	05+274	W-BEAM GUARDRAIL	W-BEAM STRONG POST WITH DEEP STEEL POST	83.82		
		05+274	-	CRASHWORTHY END TREATMENT	SKT SYSTEM WITH DEEP STEEL POST			
7	LEFT	-	05+492	CRASHWORTHY END TREATMENT	SKT SYSTEM WITH DEEP STEEL POST		STEEP EMBANKMENT	REPLACE EXISTING*
		05+492	05+619	W-BEAM GUARDRAIL	W-BEAM STRONG POST WITH DEEP STEEL POST	127.64		
		05+619	-	CRASHWORTHY END TREATMENT	SKT SYSTEM WITH DEEP STEEL POST			
8	LEFT	-	07+808	CRASHWORTHY END TREATMENT	SKT SYSTEM WITH DEEP STEEL POST		STEEP EMBANKMENT	NEW
		07+808	07+913	W-BEAM GUARDRAIL	W-BEAM STRONG POST WITH DEEP STEEL POST	106.68		
		07+913	-	CRASHWORTHY END TREATMENT	SKT SYSTEM WITH DEEP STEEL POST			
9	LEFT	-	08+019	CRASHWORTHY END TREATMENT	SKT SYSTEM WITH DEEP STEEL POST		STEEP EMBANKMENT**	REPLACE EXISTING* (LONGER THAN EXISTING)
		08+019	09+440	W-BEAM GUARDRAIL	W-BEAM STRONG POST WITH DEEP STEEL POST	1423.04		
10	LEFT	-	11+798	CRASHWORTHY END TREATMENT	SKT SYSTEM WITH DEEP STEEL POST		STEEP EMBANKMENT	NEW
		11+798	11+853	W-BEAM GUARDRAIL	W-BEAM STRONG POST WITH DEEP STEEL POST	57.15		
11	LEFT	-	12+011	CRASHWORTHY END TREATMENT	SKT SYSTEM WITH DEEP STEEL POST		STEEP EMBANKMENT	NEW
		12+011	12+169	W-BEAM GUARDRAIL	W-BEAM STRONG POST WITH DEEP STEEL POST	160.02		
12	LEFT	-	13+820	CRASHWORTHY END TREATMENT	SKT SYSTEM WITH DEEP STEEL POST		TO PROHIBIT PARKING AS PER PARKS CANADA REQUEST	NEW
		13+820	14+070	W-BEAM GUARDRAIL	W-BEAM STRONG POST WITH DEEP STEEL POST	251.46		
		14+070	-	CRASHWORTHY END TREATMENT	SKT SYSTEM WITH DEEP STEEL POST			
<b>TOTAL</b>						<b>3552.83</b>		

\* START AND END STATIONS ARE DIFFERENT THAN EXISTING  
\*\* AS PER LIDAR DATA

**PRELIMINARY**  
NOT FOR CONSTRUCTION

- NOTES:**
- GUARDRAILS DETAILS/ INSTALLATION SHALL FOLLOW DRAWING C-07 AND ALBERTA TRANSPORTATION ROADSIDE DESIGN GUIDELINES.
  - THE START AND END STATION OF THE W-BEAM GUARDRAILS COULD SLIGHTLY VARY BASED ON THE ACTUAL SITE CONDITIONS IN COORDINATION WITH AND AS DIRECTED BY THE DEPARTMENTAL REPRESENTATIVE.
  - THE SOIL IS VERY ROCKY AND THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE APPROPRIATE METHODS AND MEANS OF CONSTRUCTION TO INSTALL THE GUARDRAILS AND POSTS.



Consultant's Name  
Nom de l'expert-conseil  
**Wood Environment & Infrastructure Solutions, a Division of Wood Canada Ltd.**

Eng. Stimp  
Sceau de l'ingénieur

PERMIT TO PRACTICE  
WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS  
A DIVISION OF WOOD CANADA LIMITED  
Signed: [Signature]  
Date: 2 May 2014  
PERMIT NUMBER: P04546  
The Association of Professional Engineers and Geoscientists of Alberta

#401, 1925 - 18th Avenue NE  
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**DO NOT SCALE DRAWINGS**

0	ISSUED FOR TENDER	19/03/07
revisions	description	date

Client  
**PARKS CANADA AGENCY**

WATERLON LAKES NATIONAL PARK, AB

project title  
**WILDFIRE HAZARD ASSESSMENT  
WATERLON LAKES NATIONAL PARK  
REDROCK PARKWAY  
SIGNAGE AND GUARDRAIL  
UPGRADES**

approved by  
**JL**

designed by  
**MA**

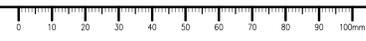
drawn by  
**TW**

PWGSC Project Manager  
**MB**

PWGSC, Architectural and Engineering Resources Manager

Client  
**PARKS CANADA AGENCY**

drawing title  
**GUARDRAILS INVENTORY**



**PRELIMINARY  
NOT FOR CONSTRUCTION**

**NOTES:**  
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE INDICATED.



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**PROFESSIONAL ENGINEER**

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0	ISSUED FOR TENDER	19/03/07

**PARKS CANADA AGENCY**

**WATERTON LAKES NATIONAL PARK, AB**

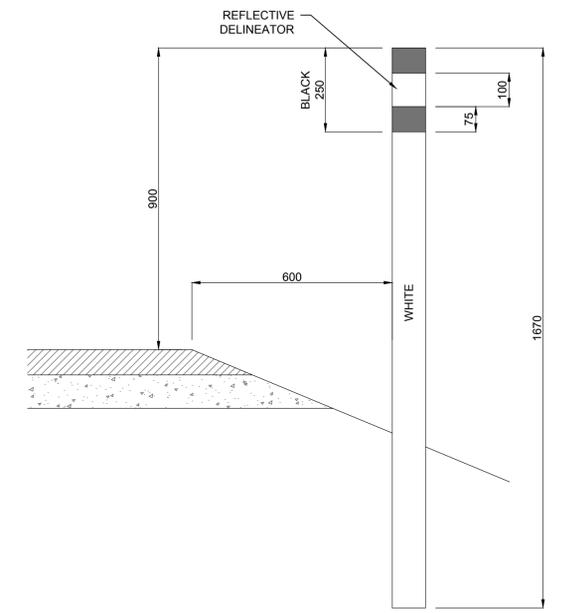
**WILDFIRE HAZARD ASSESSMENT  
WATERTON LAKES NATIONAL PARK  
RED ROCK PARKWAY  
SIGNAGE AND GUARDRAIL  
UPGRADES**

approved by  
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MA  
drawn by  
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MB  
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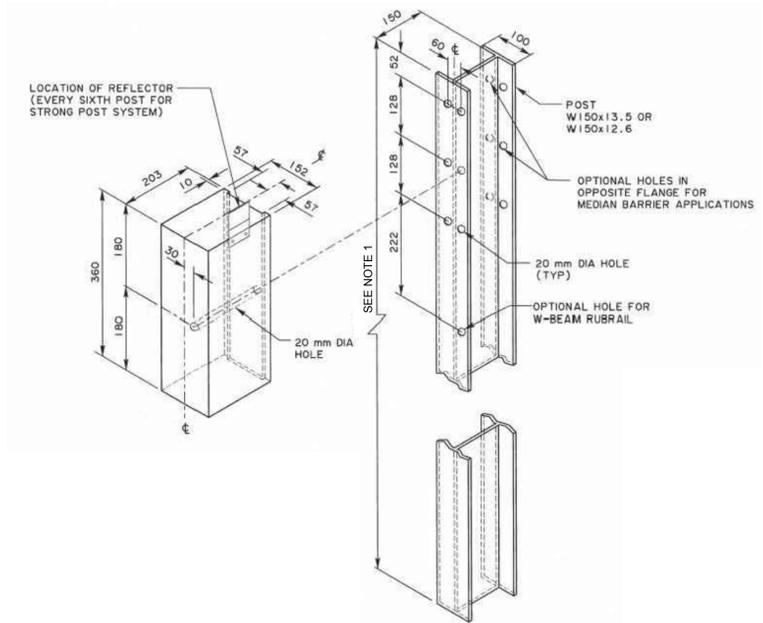
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**TYPICAL DETAILS**

project no.	sheet	revision no.
R.095522.001	C-07	0

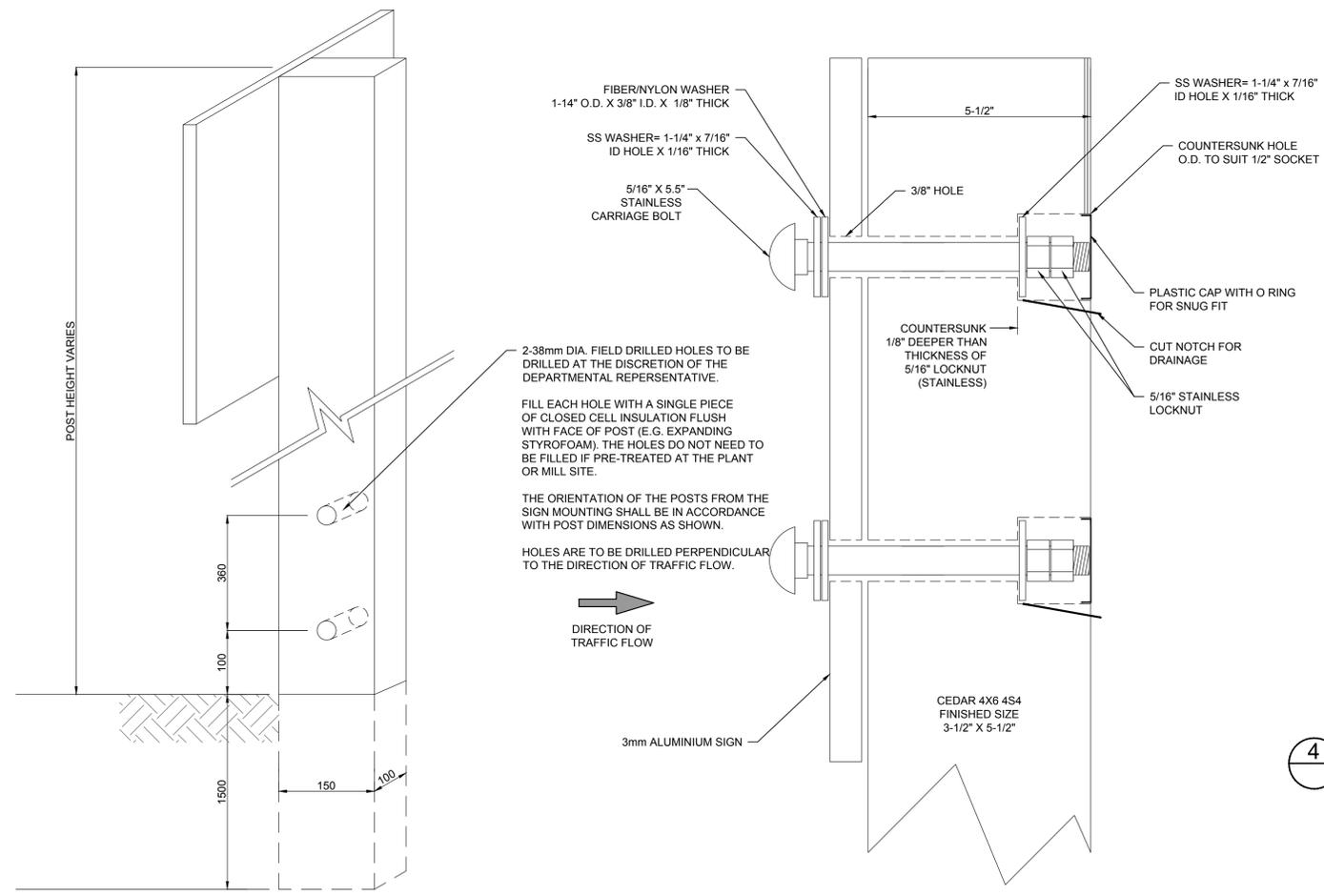


**1 FLEXIBLE GUIDE POST (DELINEATOR) DETAIL**  
NOT TO SCALE

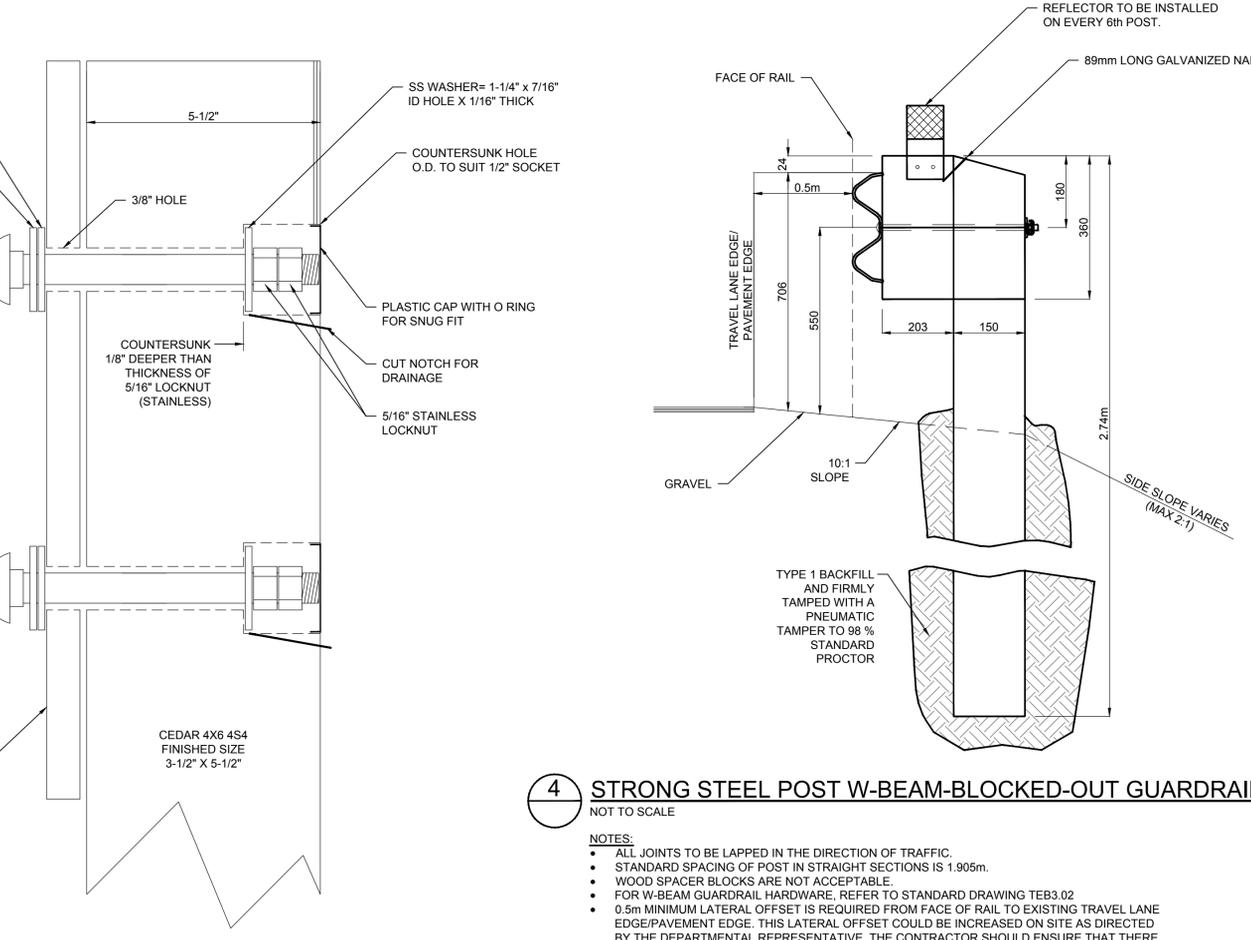


**3 STEEL POST DETAIL WITH ROUTED SPACER BLOCK**  
NOT TO SCALE

**NOTE:**  
1. DEEP STEEL POST IS REQUIRED WITH A LENGTH OF 2.74m (9 FEET)

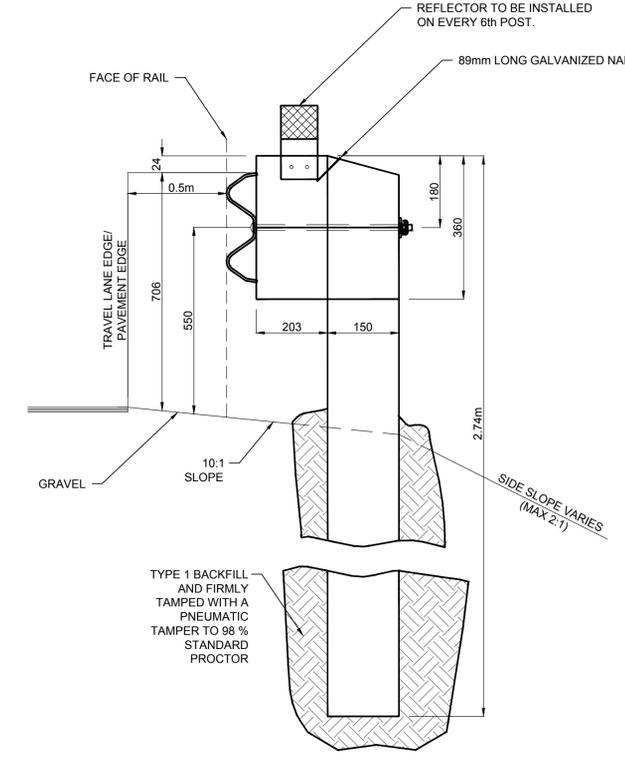


**2A BREAKAWAY WOOD POST DETAIL**  
NOT TO SCALE



**2B SIGN ASSEMBLY DETAIL**  
NOT TO SCALE

**NOTE:**  
• THE BACK OF SIGNS SHOULD BE POWDER COATED PARKS CANADA HERITAGE GREEN.



**4 STRONG STEEL POST W-BEAM-BLOCKED-OUT GUARDRAIL SECTION**  
NOT TO SCALE

**NOTES:**

- ALL JOINTS TO BE LAPPED IN THE DIRECTION OF TRAFFIC.
- STANDARD SPACING OF POST IN STRAIGHT SECTIONS IS 1.905m.
- WOOD SPACER BLOCKS ARE NOT ACCEPTABLE.
- FOR W-BEAM GUARDRAIL HARDWARE, REFER TO STANDARD DRAWING TEB3.02
- 0.5m MINIMUM LATERAL OFFSET IS REQUIRED FROM FACE OF RAIL TO EXISTING TRAVEL LANE EDGE/PAVEMENT EDGE. THIS LATERAL OFFSET COULD BE INCREASED ON SITE AS DIRECTED BY THE DEPARTMENTAL REPRESENTATIVE. THE CONTRACTOR SHOULD ENSURE THAT THERE IS NO DROP IN ELEVATION BETWEEN EXISTING PAVEMENT EDGE AND ADJACENT GRAVEL SURFACE.
- SKT CRASHWORTHY END TREATMENT TO BE INSTALLED WITH REASONABLE FLARING IN COORDINATION WITH THE DEPARTMENTAL REPRESENTATIVE ON SITE TO ENSURE AT LEAST 0.8m LATERAL OFFSET FROM OUTER SIDE OF THE TERMINAL END TO EXISTING TRAVEL LANE EDGE/PAVEMENT EDGE. GROUND SLOPE 10:1 (GRAVEL) IS REQUIRED ALONG THE END TREATMENT SIMILAR TO W-BEAM GUARDRAIL.

