URBAN SYSTEMS.

[redacted]

BC Hydro – Site C Project
333 Dunsmuir St., 8th Floor
Vancouver, BC, V6B 5R3

June 22, 2010

Attention: [redacted]

RE: Site C Project, Highway 29 Options

Urban Systems has undertaken a high level review of proposed new Highway 29 re-alignments based on a request dated May 31, 2010. Four alignments, proposed during landowner consultations, were reviewed and comments on each are provided below.

Option 1 - Highway re-alignment options D1 and E at Bear Flat/Cache Creek - It was suggested that another realignment option be considered to the north of the two options presented. This proposed realignment location would run in the vicinity of the existing transmission line route along the top of the bluff.

This alignment option is approximately 6 km in length. Approximately 1 km east of the west tie to existing Highway 29 it crosses a gully that would require an approximate 90 m fill. The alignment follows along the edge of the bluff for approximately 3 km and then crosses the Cache Creek area at a location that would require significant fills of up to 100m for approximately 1.5 km. Due to the limited design provided for this review, quantities and costs have not been calculated for this option. It is expected that the very high extended fills, alignment along relatively unstable slopes to reach the bluff and Cache Creek crossing 100m above existing grade would result in prohibitively high costs.

Option 2 - Highway re-alignment options A, B, C at Halfway River - It was suggested that a highway re-alignment on top of the bench be considered.

This alignment option is approximately 6 km in length. Approximately 500 m east of the west tie to existing Highway 29, this alignment crosses Halfway River and the proposed reservoir level requiring 40 m fills for approximately 1.7 km. West of the proposed reservoir crossing the alignment climbs the slope for approximately 2 km with an 8% road grade to reach the top of the bluff and tie back to existing Highway 29 at the east end of the alignment. This option has significant fills over the proposed reservoir as well as on the relatively unstable slopes to reach the bluff. The long climb along the bluff slope and extended water crossing would likely make this a very expensive option with greater risk of long term road instability.

Option 3 - Suggestion to use the "Mile 95 Road" which is paved from Mile 95 on the Alaska Highway to the Halfway River.

The aerial photo and Lidar survey used for the earlier alignment study was not available for this alignment review. As a result, defined alignments and profiles for this option were not prepared. An alignment along the existing road system has been shown on the attached Mile 95 Road/Alaska Highway sketch and is approximately 55 km long. It is expected complete highway reconstruction would be required to bring this road to the highway standard required for the function design alignments. The existing Highway 29 corridor would still need to be maintained as it is an active highway system. The sections impacted by the proposed reservoir levels would need to be provided with alternate alignments similar to those identified in the earlier work. This option does not provide a suitable alternate alignment for the highway. Access to the properties that would be isolated with the removal of sections of Highway 29 due to the proposed reservoir are not addressed with this option.

Option 4 - Suggestion that highway should be relocated to Mile 68 on the Alaska Highway and across the top of Halfway River – using the Upper and Lower Cache road system.

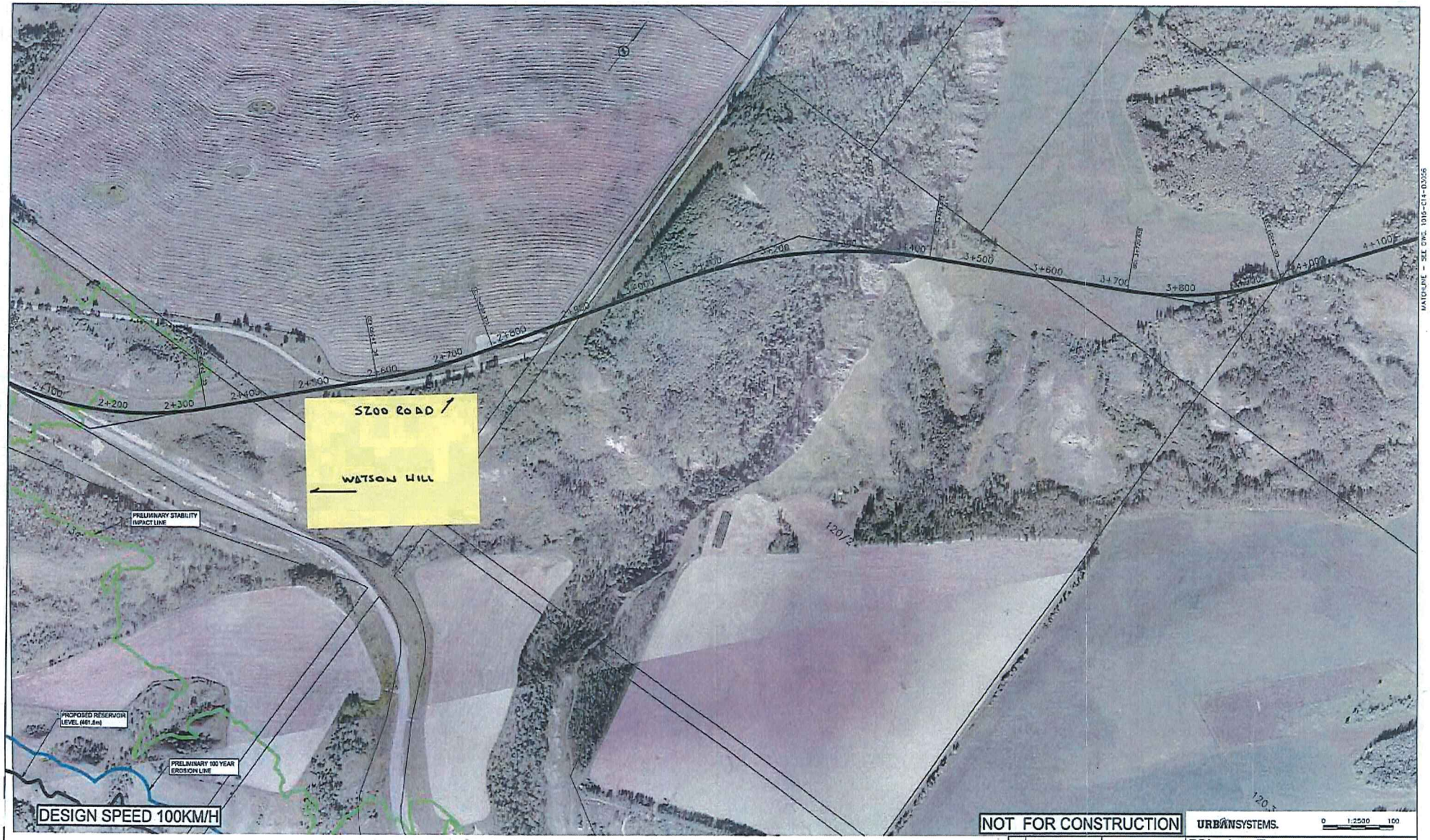
The aerial photo and Lidar survey used for the earlier alignment study was not available for this alignment review. As a result, defined alignments and profiles for this option were not prepared. An alignment along the existing road system has been shown on the attached Upper and Lower Cache Road sketch and is approximately 50 km long. It is expected complete highway reconstruction would be required to bring this road to the highway standard required for the function design alignments. Similar to Option 3, this option does not provide a suitable alternate alignment for the highway.

Drawings showing the approximate alignment and possible profiles for Options 1 and 2 have been prepared using the existing topographic mapping and Lidar survey. These drawings are attached for reference. The sketches for Options 3 and 4 were prepared using Google Maps.

Please contact me if you have any questions or require further information regarding this review.

Sincerely,

URBAN SYSTEMS LTD.



NOT FOR CONSTRUCTION

URBANSYSTEMS. 0 1:2500 100

TYPICAL SECTION

DSGN	R. HUNT
RDDP CHK	R. FRIESEN
DFTG	D. ANDERSON
DFTG CHK	-
RDP	-
DES	-
ACPT	-

BChydro ENGINEERING

PEACE RIVER SITE C HYDRO PROJECT

HIGHWAY 29 - BEAR FLAT
PLAN VIEW
TOP OF BLUFF
STA. 2+100 TO STA. 4+000

DWG NO: 1016-C14-D3055

MATCHLINE - SEE DWG. 1016-C14-D3056

DRAWING NUMBER | TITLE | PERFORMANCE DRAWINGS

NO	REMARKS	DATE	DESIGNED	RDDP CHK	DFTG	DFTG CHK	RDP	RDY	ACPT
	REVISIONS								

NO	REMARKS	DATE	DESIGNED	RDDP CHK	DFTG	DFTG CHK	RDP	RDY	ACPT
	REVISIONS								

DESIGN SPEED 100KM/H

NOT FOR CONSTRUCTION

URBANSYSTEMS.

0 1:2500 100

DSGN	R. HUNT
DRWN	R. FREDSEN
CHKD	D. ANDERSON
APVD	-
REV	-
ACPT	-

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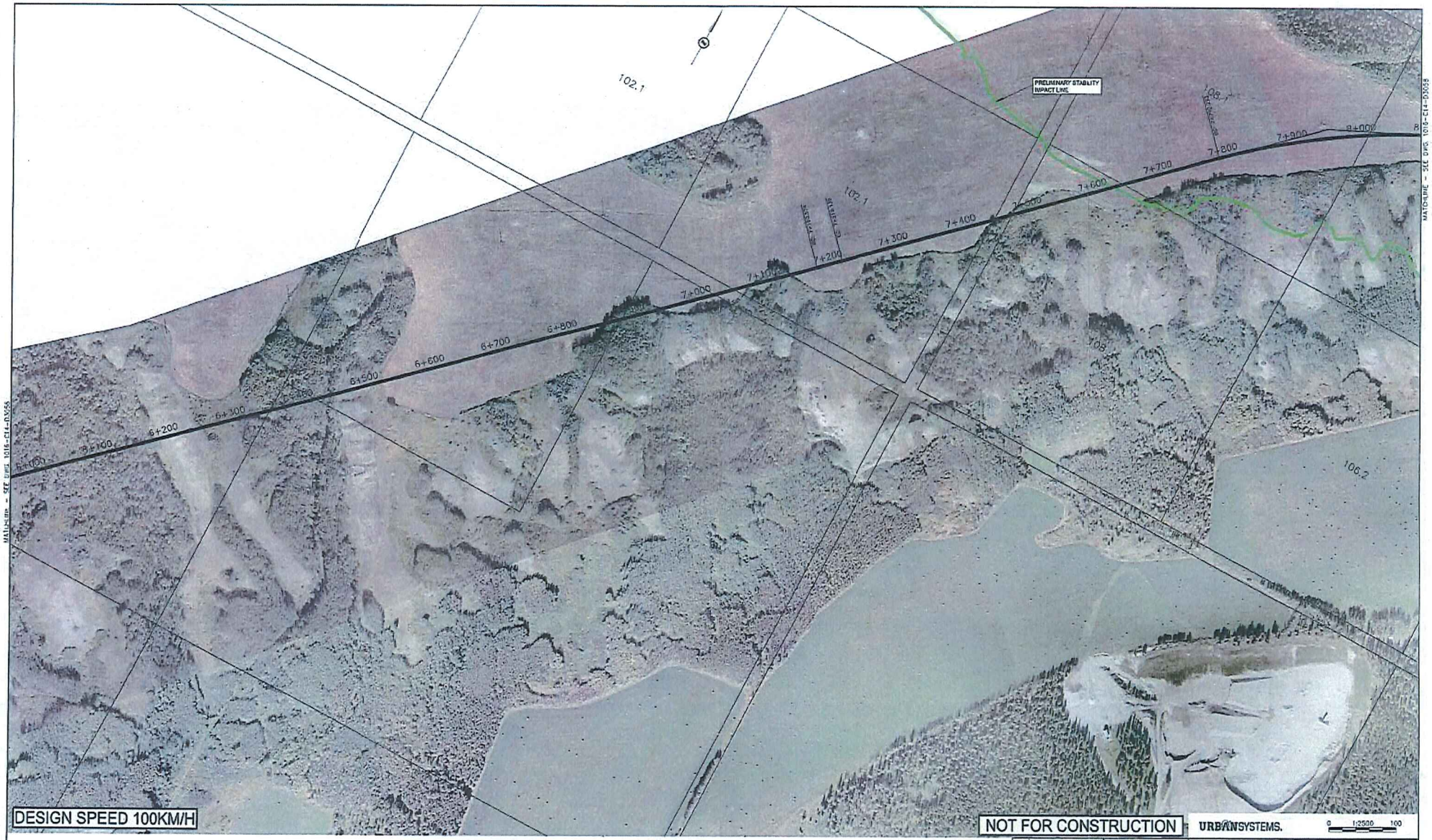
PEACE RIVER SITE C HYDRO PROJECT

HIGHWAY 29 - BEAR FLAT
PLAN VIEW
TOP OF BLUFF
STA. 4+000 TO STA. 6+000

DWG NO 1016-C14-D3056

REFERENCE DRAWINGS | REVISIONS | REVISIONS



DESIGN SPEED 100KM/H

NOT FOR CONSTRUCTION

URBANSYSTEMS.

0 1:2500 100

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PEACE RIVER SITE C HYDRO PROJECT

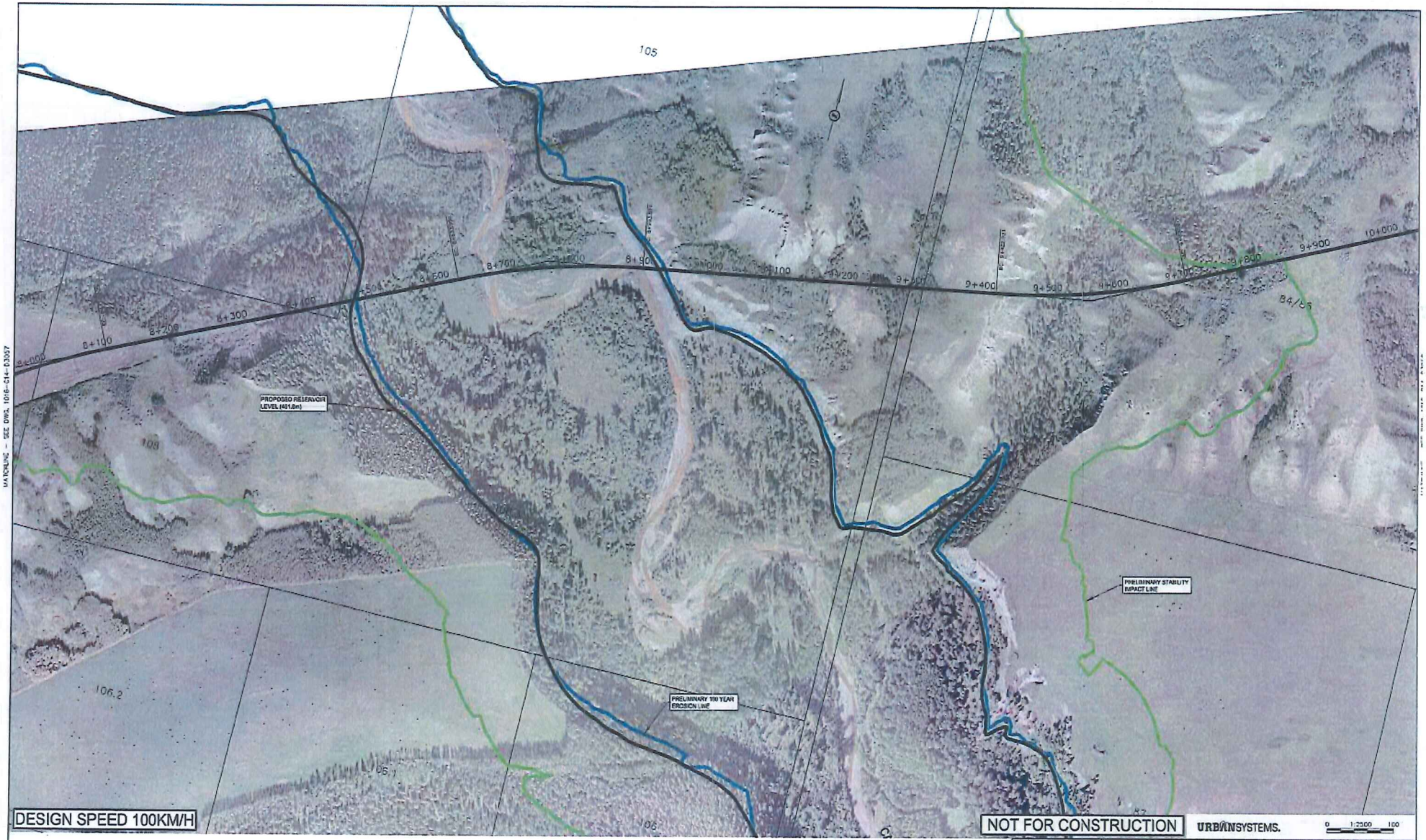
HIGHWAY 29 - BEAR FLAT
PLAN VIEW
TOP OF BLUFF
STA. 6+000 TO STA. 8+000

DSGN	R. HUNT
DRFT CHK	R. FRIESEN
DRFT	D. ANDERSON
SPEC CHK	-
HOSP	-
REV	-
ACPT	-

DWG NO 1016-C14-D3057

REFERENCE DRAWINGS

REVISIONS



MATCHLINE – SEE DWG. 1016-C14-D3057

URBAN SYSTEMS.

0 1:2500 100

DESIGN	R. HUNT
AUTOCAD	R. FRIESEN
DRAFTING	D. ANDERSON
DRAFTING CHK	-
DESIGN	-
REVIEW	-
ACCEPT	-

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PEACE RIVER SITE C HYDRO PROJECT

HIGHWAY 29 - BEAR FLAT
PLAN VIEW
TOP OF BLUFF
STA. 8+000 TO STA. 10+000

DRAWING NUMBER | TITLE | REFERENCE DRAWINGS | REVISIONS

DATE

DWG NO. 1016-C14-D3058

DESIGN SPEED 100KM/H

NOT FOR CONSTRUCTION

URBANSYSTEMS.

0 1:2500 100

DSGN	R. HUNT
DSGN CHK	R. FRIESEN
DFTG	D. ANDERSON
DFTG CHK	-
DSP	-
REV	-
ACPT	-

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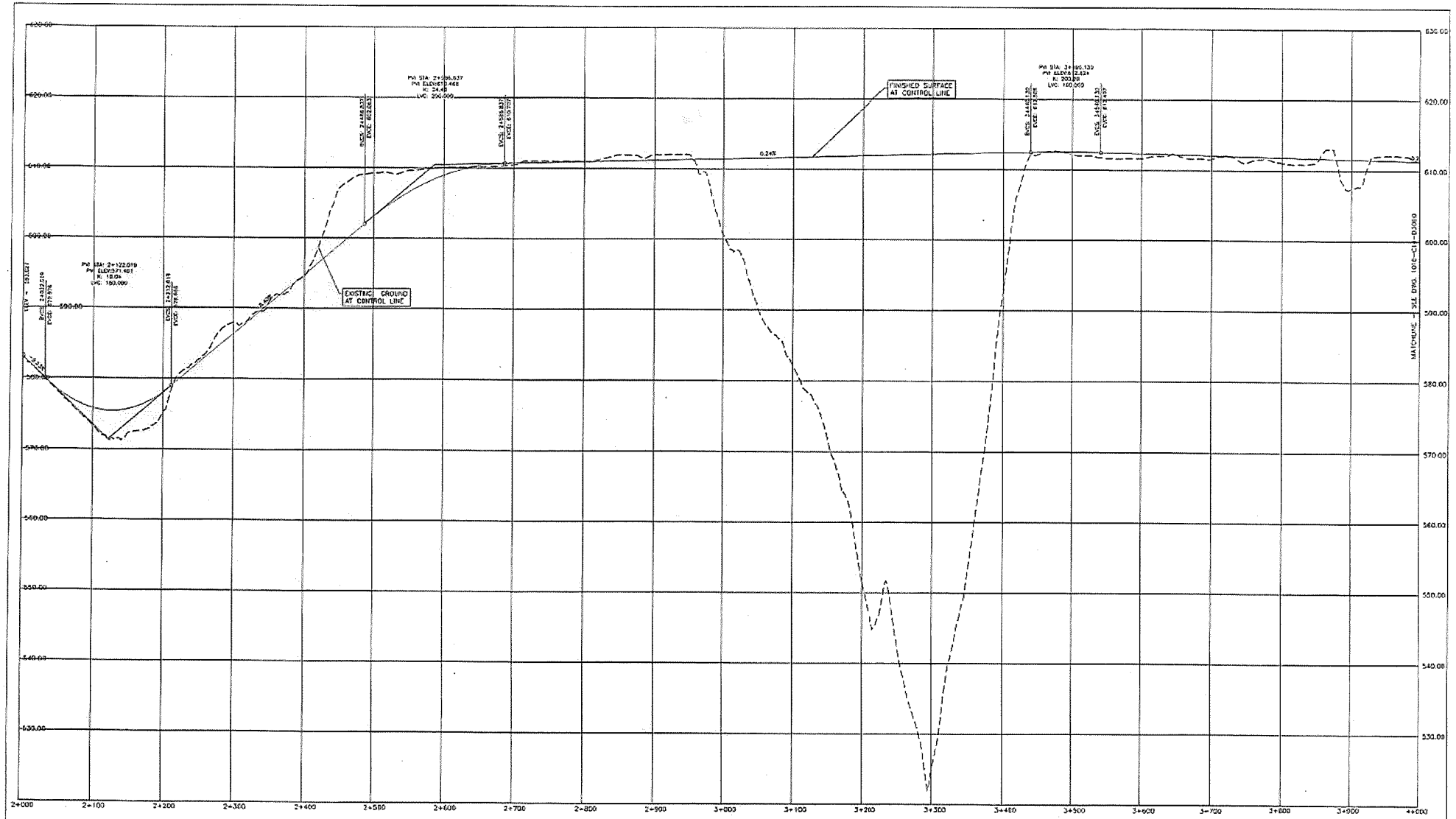
PEACE RIVER SITE C HYDRO PROJECT

HIGHWAY 29 - BEAR FLAT
PLAN VIEW
TOP OF BLUFF
STA. 10+000 TO STA. 10+868.99

DWG NO 1016-C14-D3059

DRAWING MANAGER | TITLE | REFERENCE DRAWINGS | NO | REMARKS | DATE | DESIGNED | DSGN CHK | DFTG | DFTG CHK | DSP | REV | ACPT | REVISIONS | NO | REMARKS | DATE | DESIGNED | DSGN CHK | DFTG | DFTG CHK | DSP | REV | ACPT | REVISIONS



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0 1:250 10
VERTICAL
0 1:2500 100
HORIZONTAL

DRAWN	R. HUNT
DESIGN	R. FRIESEN
CHKD	D. ANDERSON
APVD	-
REV	-
ACPT	-

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PEACE RIVER SITE C HYDRO PROJECT

HIGHWAY 29 - BEAR FLAT
PROFILE
TOP OF BLUFF
STA. 2+100 TO STA. 4+000

DWG NO. 1016-C14-D3059

REFERENCE DRAWINGS | REVISIONS