

Nile Valley Landslide

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**Science and
Management Review
June 16, 2010**



Public Services

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Rattlesnake Creek

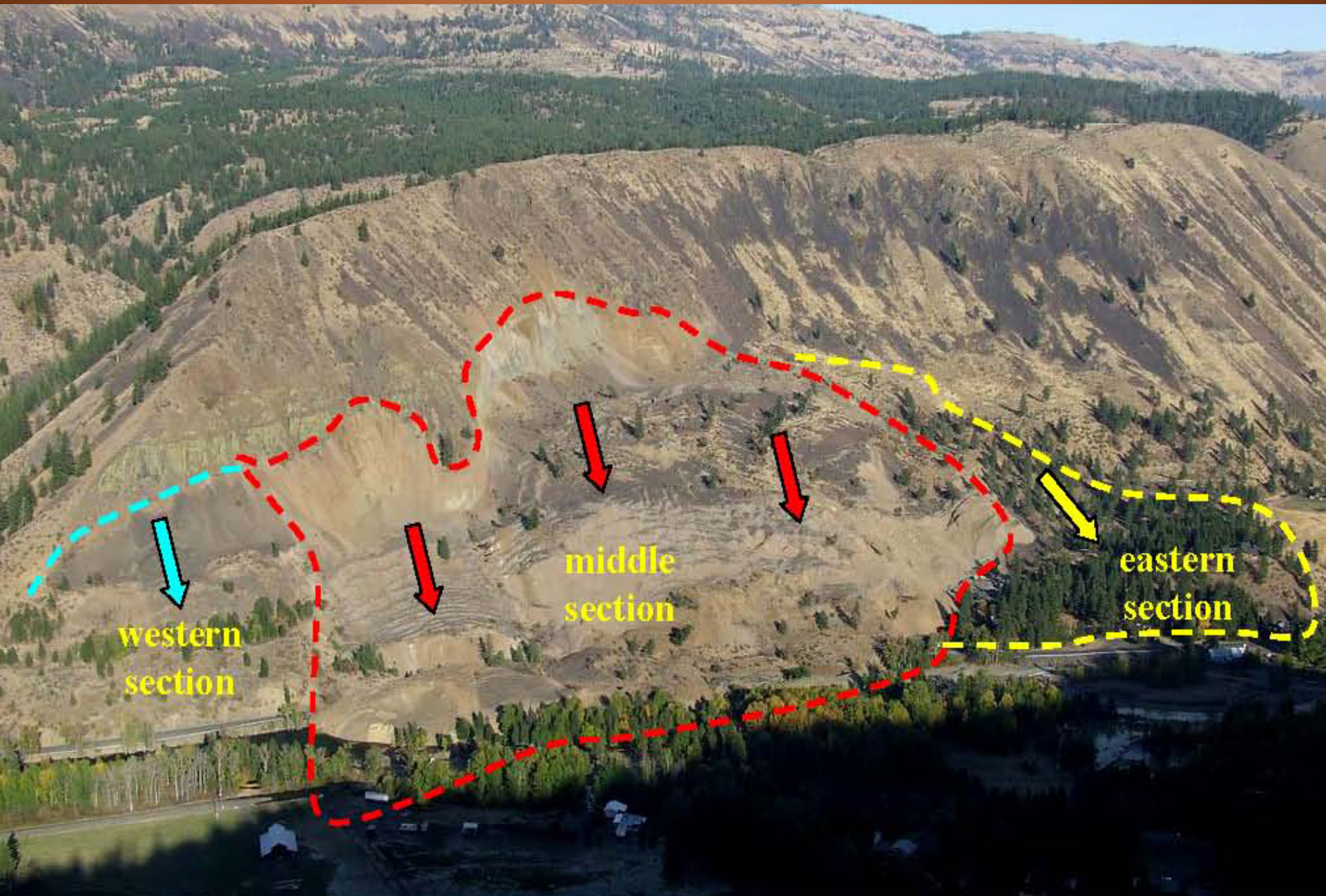
Naches River

Nile Road

410

LANDSLIDE

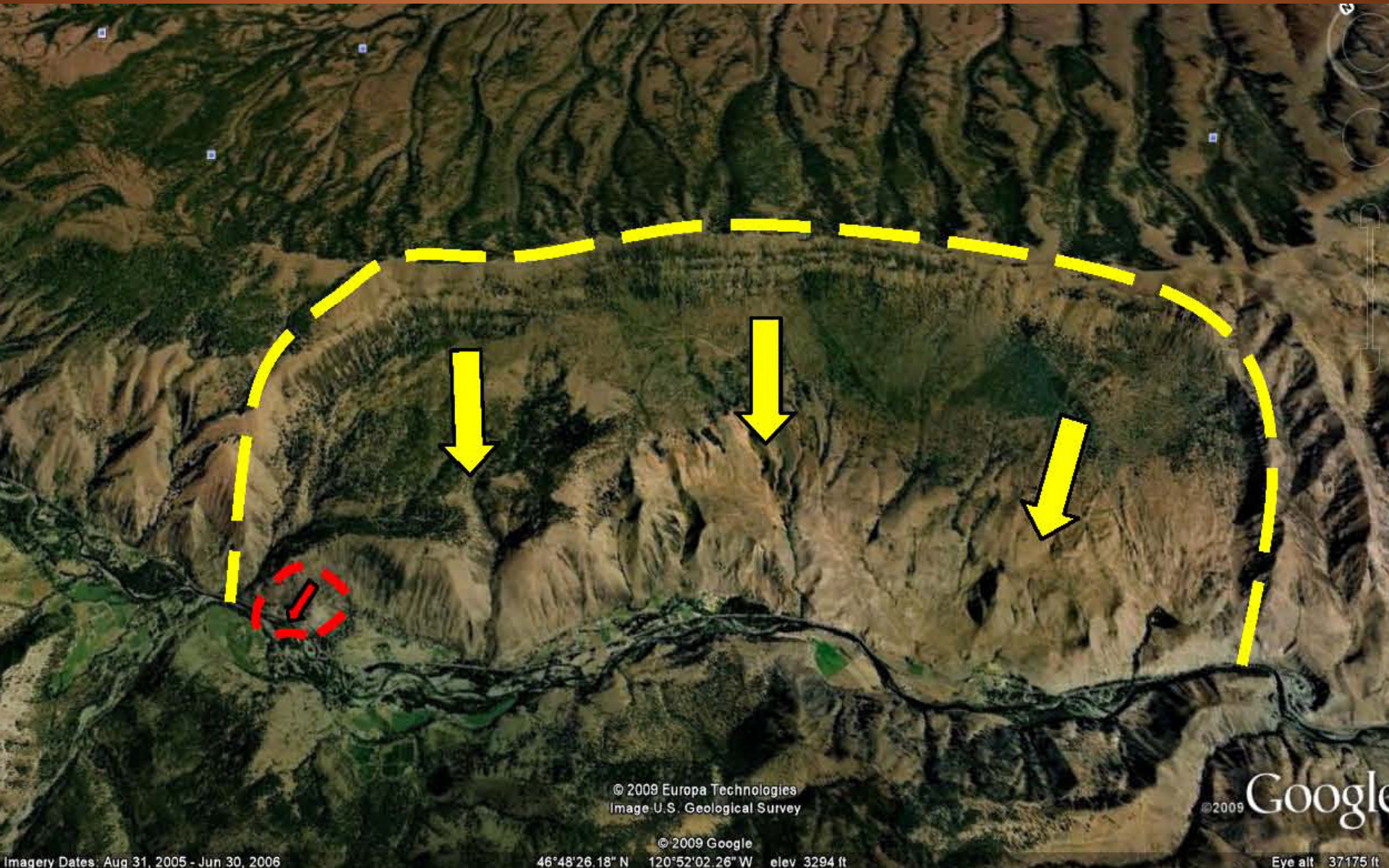




western
section

middle
section

eastern
section



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Image U.S. Geological Survey

©2009 Google

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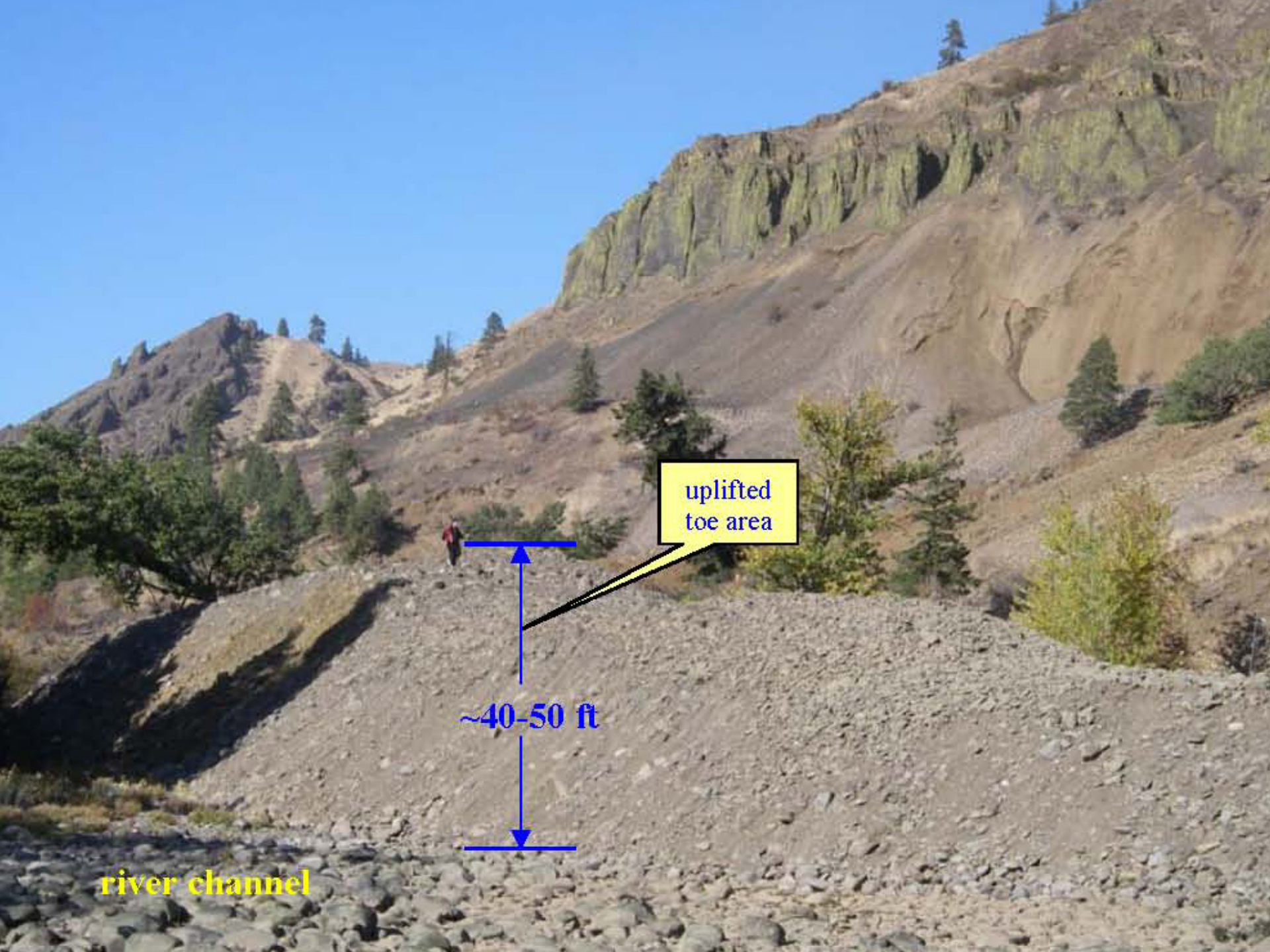
Imagery Dates: Aug 31, 2005 - Jun 30, 2006

46°48'26.18" N 120°52'02.26" W elev 3294 ft

Eye alt 37175 ft







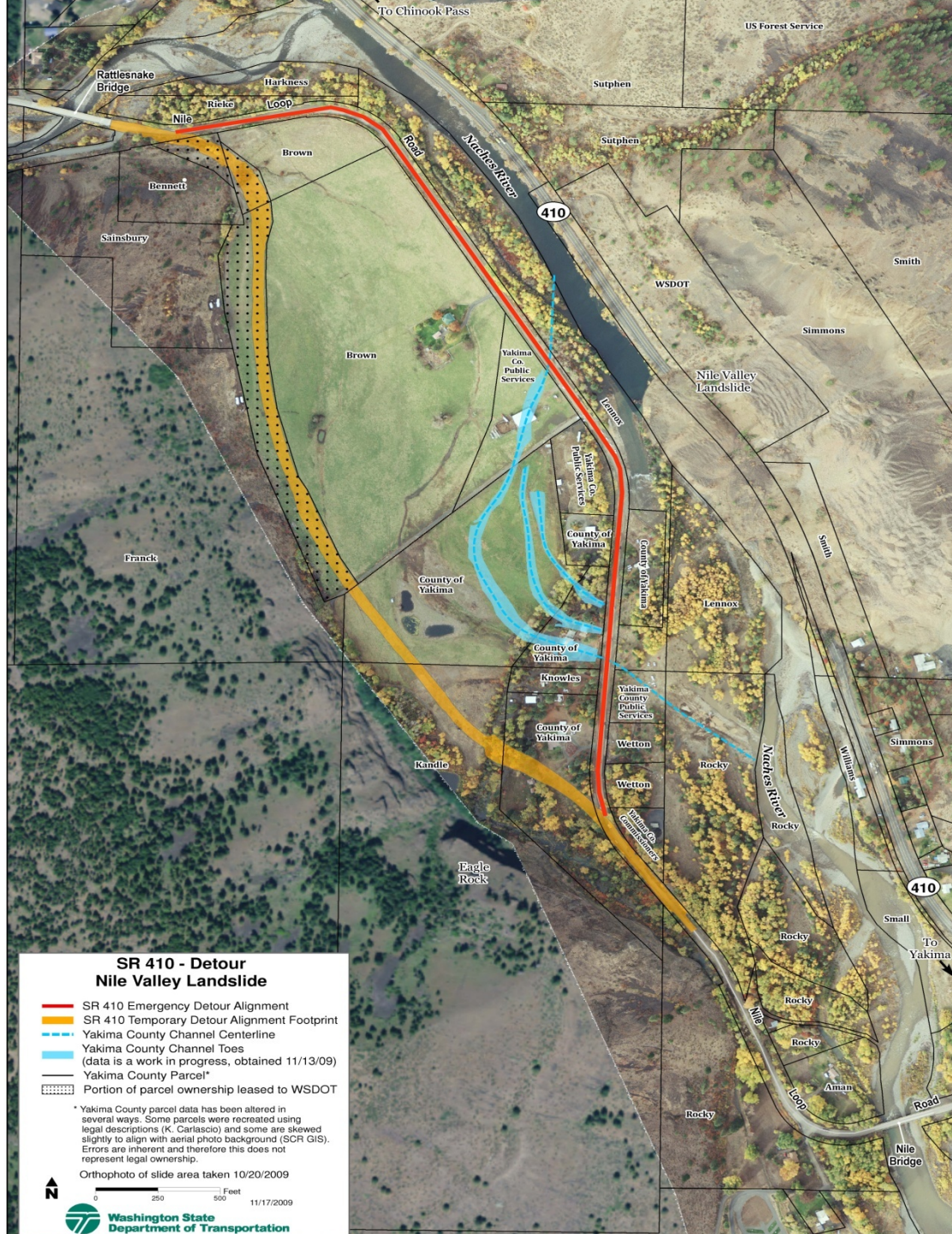
uplifted
toe area

~40-50 ft

river channel







**SR 410 - Detour
Nile Valley Landslide**

- SR 410 Emergency Detour Alignment
- SR 410 Temporary Detour Alignment Footprint
- Yakima County Channel Centerline
- Yakima County Channel Toes
(data is a work in progress, obtained 11/13/09)
- Yakima County Parcel*
- Portion of parcel ownership leased to WSDOT

* Yakima County parcel data has been altered in several ways. Some parcels were recreated using legal descriptions (K. Carlascio) and some are skewed slightly to align with aerial photo background (SCR GIS). Errors are inherent and therefore this does not represent legal ownership.

Orthophoto of slide area taken 10/20/2009

Landslide



Temporary river channel

Raised road



410

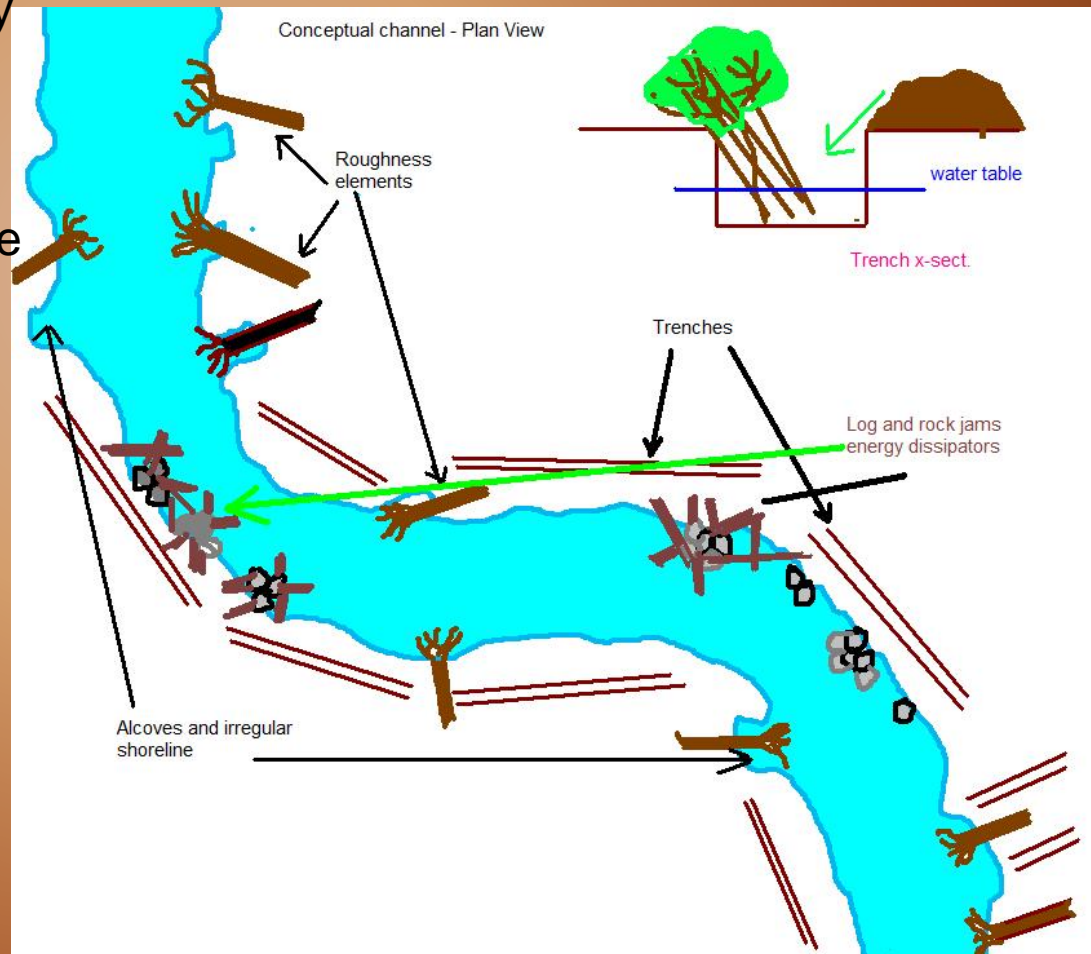
**Danger pool
of back water**





Channel configuration and Capacity

– A significant element of randomness should be incorporated into the channel configuration, particularly along the channel margins. The initial channel excavation should be very rough and without any final grading or smoothing of banks. A smooth, even shoreline and trapezoidal configuration should be avoided. Random alcoves, point bars, and anchored log jams, buried trees and root-wads, and boulder groupings, should be incorporated along the channel margins to provide additional shear resistance to scour, prevent erosion, and provide a variety of water depths, substrate, and velocity, as well as providing instream habitat.











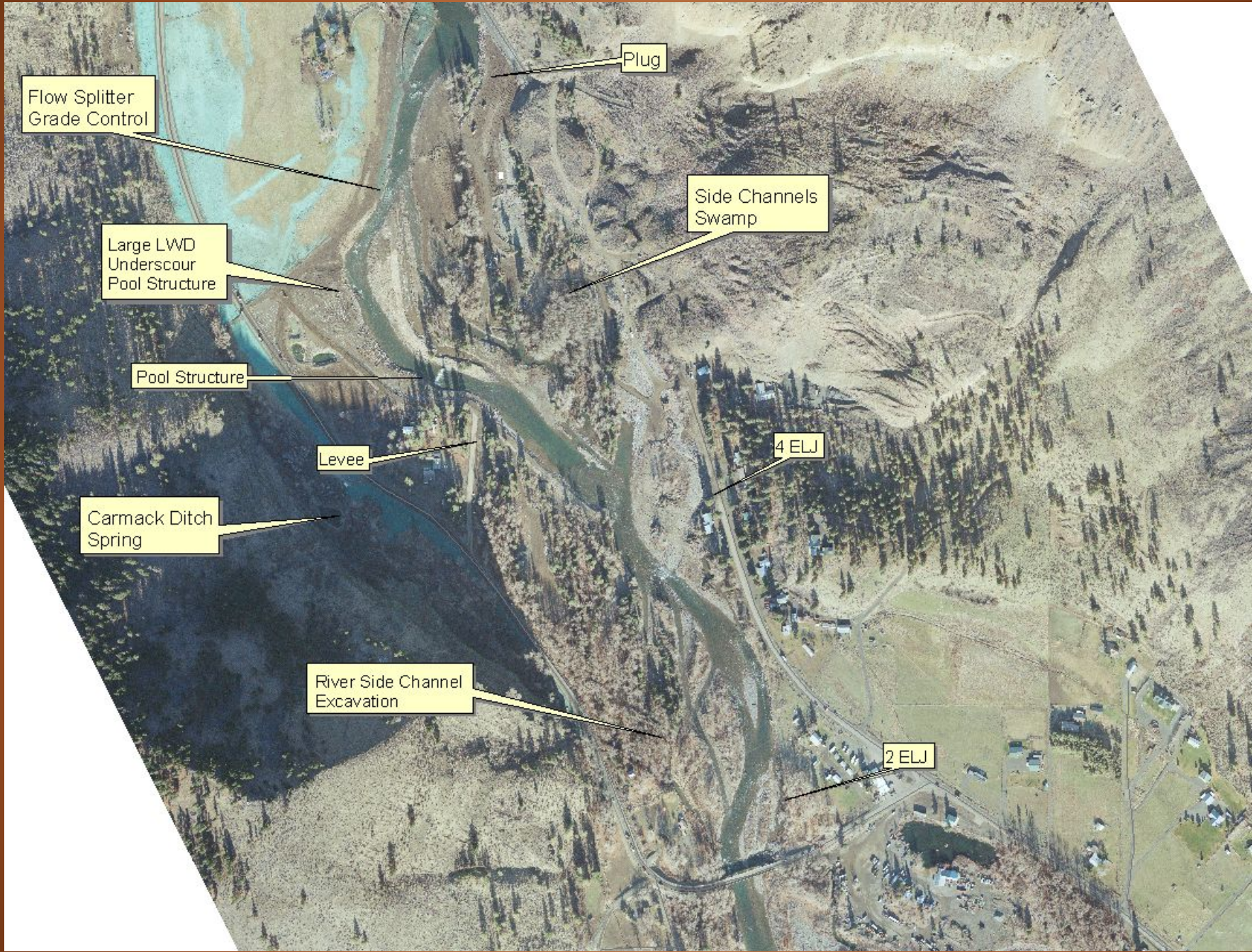






New river channel

SR 410 detour road



Plug

Flow Splitter
Grade Control

Side Channels
Swamp

Large LWD
Underscour
Pool Structure

Pool Structure

Levee

4 ELJ

Carmack Ditch
Spring

River Side Channel
Excavation

2 ELJ



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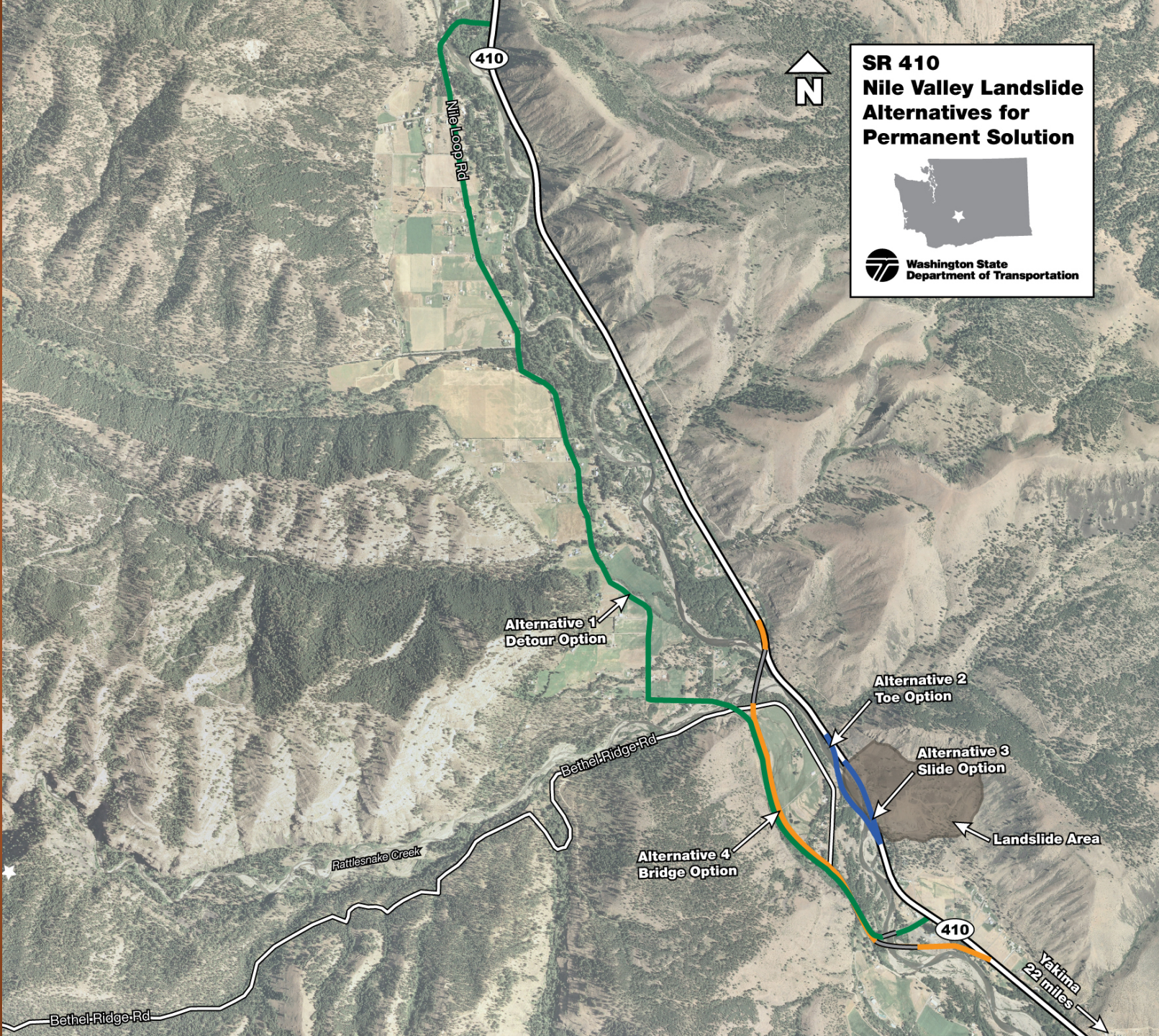


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**SR 410
Nile Valley Landslide
Alternatives for
Permanent Solution**



 Washington State
Department of Transportation





**Alternative 2
Toe Option**

**Alternative 3
Slide Option**

Landslide Area

**Alternative 4
Bridge Option**

410

**Yakima
22 miles**

ge Rd



An aerial photograph of a valley. A river flows through the center, surrounded by dense green and yellow trees. In the foreground, a road crosses a bridge over the river. The background shows rolling hills and mountains under a bright sky.

Thank you. Questions?