Appendix C

Project Opportunities and Prioritization

Upper Methow River Reach Assessment

December 2015

This table describes project opportunities by project area. Locator maps of the project opportunities are included below the table.

Reach	Project RM	Project Name	Project Description	Considerations
9	No Projects Identified			Well-functioning reach with high instream and off-channel complexity. Recent disturbance contributing abundant large wood.
8		Ballard Project	**Narrative** This project would remove push up levees and bank armoring (much of it naturally sourced) and activate river-left side-channels and floodplain adjacent to the US Forest Service campground. This is a fairly small project, and there are potential impacts to the campground (e.g. erosion potential) that would need to be further evaluated. **Project Elements** • RM 76.7 – 76.85 river-left: Remove push-up levees and bank armoring at campground • RM 76.6 – 76.85 river-left: Enhance side-channel connectivity and habitat at Ballard Campground. Add log jam in mainstem to enhance flow in side-channel. Add wood to side-channel complex. Riparian revegetation in campground area.	Erosion risk at campground would need to be evaluated and addressed (if necessary) as part of this project. Wood placements need to account for potential river recreational uses.
7		Robinson Project	**Narrative** The Robinson Project includes primarily the use of apex jams and debris capture structures designed to build stable log jams, encourage the establishment of vegetated islands, and enhance lateral channel complexity and split flow conditions. Apex jams could be constructed in select areas and combined with targeted excavation to activate specific side-channels and floodplain areas. Debris capture jams, which consist of partially buried logs angled upstream, would have high effectiveness here given the large amount of woody material that is expected to be transported into this reach from upstream over the next decade. They could be located in areas where mid-channel bars are currently forming but where the lack of structure results in these features being very transient and not able to support vegetation establishment. This project would address the lack of large channel structure in this reach. Although total instream large wood frequency is high, much of the wood is small and incapable of providing the key pieces necessary to form large stable jams. In addition, much of the riparian forest is relatively young and will not be able to provide effective key pieces for many decades. On the south side of the channel at the downstream end of the reach, there is a need for riparian planting in a cleared floodplain area and the opportunity to enhance channel margin complexity using large wood complexes along the unvegetated eroding bank at this location. **Project Elements** • RM 76.3: Large key pieces to capture upstream wood • RM 76.3: Mainstem log jams to help activate river-left floodplain surface • RM 76 – 76.5: Jams or large key pieces to initiate jams and capture upstream large wood that will be coming down. Use jams to help initiate broad river-left surface and side-channels in several locations. • RM 76.1: Apex jam to initiate river-right side channel • RM 75.9 – 76.0 river-right: Jams to capture wood and increase lateral channel dynamic, particularly to increase erosion toward the south. • RM 75.7 – 75.8 river-left: Apex jam and river-right LW catchers to activate river-left side-channel complex. • RM 75.75 river-right: Riparian revegetation and addition of margin complexity along eroding unvegetated bank. • RM 75.7 river-left: Add jams in mainstem to activate river-left side-channel at lower flows	Very little infrastructure at risk. Wood placements need to account for potential river recreational uses.

Reach	Project RM	Project Name	Project Description	Considerations
7		Two Rivers Project	**Narrative** The Two Rivers Project includes the reconnection of side-channels in the river-right floodplain via removal of a push-up levee, construction of apex log jams, and potentially select excavation within the side-channel alignment. The push-up levee is approximately 130 feet long and three feet tall and could be graded back into the floodplain. The primary side-channel to be reconnected is 2,400 feet long and joins back to the Methow River just downstream of the Lost River confluence in Reach 6. There is another side-channel upstream that could potentially connect into the main side-channel. This upstream side-channel is approximately 1,000 feet long. The connectivity of this side-channel would also be enhanced by removal of the levee, which is at the downstream end. Construction of an apex log jam and select excavation at the entrance would further enhance connectivity. **Project Elements** • RM 75.6 river-right: add apex jam and mainstem LW capture jam to initiate river-right side-channel • RM 75.4 river-right: remove push-up levee to reconnect 2,400-ft long river-right side-channel • Entire project area: Main channel jams including LW capture jams to capture LW and form stable, vegetated, mid-channel islands and split flow. Place jams strategically to encourage erosion into banks with mature forests and to discourage erosion into banks with young forest.	Very little infrastructure at risk. Wood placements need to account for potential river recreational uses.
6		Lost River Project	**Narrative** The Lost River Project includes several interrelated components. At the upstream end of the reach, there is the opportunity to re-activate a side-channel that begins on the river-left side of lower Lost River and that empties into the mainstem Methow below the confluence. This would be accomplished by construction of an apex jam and select excavation within the side-channel. The project also includes addressing the effects of riprap and levees at the Lost River community. Assuming these features will need to remain in place, enhancement could include the placement of meander jams along the bank to improve margin habitat and encourage flow away from these feature and toward valley-right. This could be paired with apex jams and select excavation to increase the activation of the river-right side-channel complexes across from the Lost River community. The main area for this work is at the upstream end of the reach from RM 74.7 to 74.95, with an additional area at RM 74.4. At RM 74.25, there is left-bank riprap that could possibly be removed, and margin jams placed to provide habitat and stability until newly planted riparian vegetation can become established. A floodplain canal that empties back into the river at this location could be improved as a connected alcove or groundwater-fed channel. Downstream of this (RM 73.65 to 74.2), treatments include mainstem jams to capture large wood, build stable vegetated islands, and enhance overall lateral complexity; similar to what was identified and discussed as part of the Robinson Project in Reach 7. There is also a river-right side-channel complex that could be enhanced using apex jams and select excavation to increase flow connectivity. **Project Elements** • RM 74.9: Side-channel reconnection and enhancement on river-left of Lost River. Use apex jam at upstream end and select excavation. • RM 74.7 – 74.9: Margin jams along riprap to enhance margin habitat and encourage flow to valley-right away from riprap. • RM 74.7 – 74.9: Address levee through here if possible • RM 74.9 – 75.0: Apex jams on river-right to activate right bank side channels • RM 74.65 – 75.0: Apex jams listed above, and select excavation can be used to increate the connectivity of the river-right side-channel complexes. At the downstream end, near RM 74.65, this could also be enhanced as a connected backwater/wall-based channel. • RM 74.35: Margin jams on river-left along existing riprap and existing large pool for cover and to enhance margin habitat. Apex jam on river-right to enhance split-flow condition and protect young forest stand on island • RM 74.25: Replace riprap on river-left with margin jams. Convert existing floodplain canal into a connected alcove or groundwater-fed channel feature. • RM 74.0 – 74.2 river-left: Margin complexity jams on river-left to enhance pools and margin habitat • RM 73.75 – 74.15: Apex jams and select excavation on river-right to activate river-right side-channel complex. • RM 73.65 river-right: Create alcove or groundwater-fed (wall-based) channel. • RM 73.7 – 74.0: Main channel LW capture jams to capture wood and form apex log jams to encourage split flow and development of stable vegetated island features. • Riparian restoration is identified over a broad area encompassing much of the Lost River Community where there has been clearing of riparian and floodplain vegetation. Look for opportunities to work with landowners to improve vegetation and floodplain hydraulic roughness conditions through this area.	Lost River Community including houses and other private infrastructure needs to be evaluated for erosion and flooding risk associated with restoration measures. Working near the Lost River alluvial fan could be challenging given high degree of dynamic delta conditions (i.e. high sediment loads, shifting channel positions). Portions of this project area go dry at low flows. This potentially makes construction easy but may impact the benefits accrued by certain project elements. Wood placements need to account for potential river recreational uses.

Reach	Project RM	Project Name	Project Description	Considerations
6		Cedarosa Project	**Narrative** The primary element of the Cedarosa Project is addressing the floodplain disconnection created by the floodplain drainage canal in the river-left floodplain near RM 73.5. Removing or selectively breaching this feature could help re-establish surface flow into several floodplain side-channels; however, flood risk to houses in this area would need to be addressed. There is also the potential for placement of log jams and LW capture structures in the main channel to increase the frequency of large stable jam features. There are a few opportunities for reconnection or enhancement of side-channels and off-channels through jam placement and select excavation, and one area where riprap removal could enhance connectivity to alcove habitat. **Project Elements** • RM 73.5 valley-left: Address floodplain and side-channel disconnection created by floodplain canal that diverts flow from floodplain back to river. Evaluate the potential for removing or altering this feature to improve surface flow connection to the side-channels. Potentially remove canal and levee feature, enhance flow through the side-channel network, and provide structure protection more local to individual residences. • RM 73.4 river-left: Potentially create a connected alcove or groundwater-fed off-channel feature in canal close to where it connects with the mainstem. Remove levees at downstream end of canal and other push-up levee parallel to channel in this area. • RM 73.0 – 73.4: Main channel jams including LW capture jams to capture LW and form stable, vegetated, mid-channel islands and split flow; margin complexity jams to increase cover and complexity in existing pools; and a meander jam to divert flow off of riprap bank and improve channel margin, pool scour, and complexity. • RM 73.0 – 73.2 river-left: Remove upstream extent of riprap bank and open up backwater channel or even flow-through side-channel. • RM 73.0 river-left: Look for opportunities to address channel migration and floodplain disconnection created by riprap bank and levee. • RM 72.3 – 72.9: Main channel jams including LW capture jams to capture LW and form stable, vegetated, mid-channel islands and split flow; targeted apex jams and select excavation to increase the degree of activation of side-channel complex on river-right. • RM 72.4 river-left: There is good groundwater return flow here. Perhaps develop into a groundwater-fed channel. Or at the least, enhance the surface water connectivity to the existing off-channel pond. • RM 72.3 river-left: Enhance off-channel areas at downstream end of where long valley-left side-channels re-enter. Excavate to enhance surface water connectivity, access, and extent of available habitat. • Riparian restoration is identified at a few locations along river-left where there has been clearing of riparian and floodplain areas.	Houses and private lands in the Cedarosa area. Houses on river-left near RM 73.0. Portions of this project area go dry at low flows. This potentially makes construction easy but may impact the benefits accrued by certain project elements. Wood placements need to account for potential river recreational uses.
6		Gate Creek Project	**Narrative** The Gate Creek Project includes in-channel jam structures as described above for the other projects. Jams could be strategically placed to encourage erosion into banks with mature forests and to discourage erosion into banks with young forest. This project also includes structures to deflect flow away from the Lost River Road embankment at two locations where the river runs along the road. There are also some opportunities to enhance existing backwater alcove habitat and tributary confluence habitat around the confluence of Gate Creek. **Project Elements** • RM 72.2 river-right: Side-channel enhancement; backwater alcove or groundwater-fed channel reconnection. • RM 71.9 to 71.2 river-left: Meander jams along road embankment to enhance margin and allow for the creation of a riparian buffer. Add wood to existing backwater habitat and to lower Gate Creek. Add margin complexity on bank upstream of backwater complex to enhance margin complexity and cover in existing pool. • RM 71.45 – 71.55 river-left: Meander jams along road embankment to enhance margin and allow for the creation of a riparian buffer. • Entire project area: Main channel jams including LW capture jams to capture LW and form stable, vegetated, mid-channel islands and split flow; margin complexity jams to increase cover and complexity in existing pools. Place jams strategically to encourage erosion into banks with mature forests and to discourage erosion into banks with young forest.	Lost River Road abuts the channel on river-left. Erosion and flooding risk to the road will need to be considered. Portions of this project area go dry at low flows. This potentially makes construction easy but may impact the benefits accrued by certain project elements. Wood placements need to account for potential river recreational uses.

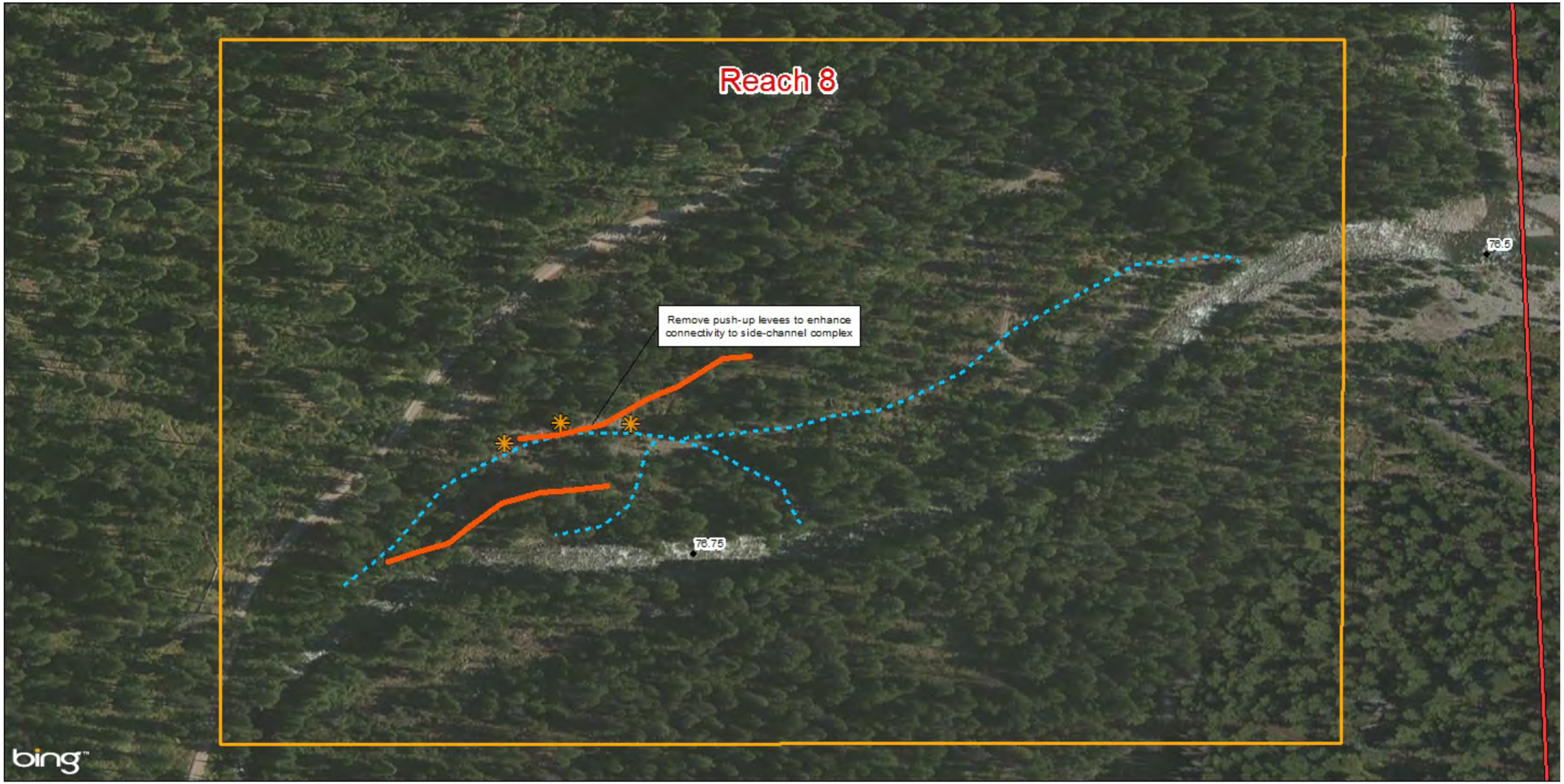
Reach	Project RM	Project Name	Project Description	Considerations
5		Goat Wall Project	**Narrative** There are two primary components of the Goat Wall Project. One is to improve the connectivity and habitat of the existing side-channel network in the river-right floodplain. There are a few push-up levees that could be removed to improve connectivity, as well as placement of apex log jams and select excavation at numerous potential inlet locations. Large wood for habitat complexity could be added throughout the length of the side-channel and could potentially be combined with pool creation. The other component of this project is addressing impairment to floodplain and riparian function on river-left at the downstream end of the reach. This area has cleared agricultural land and poor, rapidly eroding channel margin habitat. Work here would include channel margin jams to curtail the rapid erosion until planted riparian vegetation can mature and provide long-term natural stability. There is also some potential off-channel work in this area and an abundant amount of riparian revegetation potential. **Project Elements** • RM 70.5 – 71.3 river-right: Increase the activation and connectivity of the river-right side-channel complex. Use apex jams and select excavation to increase flow into side-channel complex. Remove existing push-up levees, some of which obstruct flow into side-channels. Enhance existing side-channel using large wood placements and exacavation of pools. • RM 70.25 – 70.75 river-left: Address impairments associated with ag and residential development on river-left. Use combinations of apex jams and bank margin jams to shift flow toward valley-right. Use smaller complexity jams to enhance channel margin complexity in numerous areas where there are currently bare eroding banks. Perform riparian vegetation enhancement along river-left. • RM 70.55 – 70.85 river-left: There are 2 opportunities for off-channel enhancement, including potential alcove and/or groundwater-fed channels. • RM 70.5 river-right: LW capture jams in primary side-channel in order to encourage more erosion into river-right bank that is composed of mature forest where beneficial recruitment would occur. • Riparian restoration is identified throughout the reach where there has been clearing of riparian or floodplain areas. For high bank areas on glacial terraces, the recommended riparian buffer width is narrower than on lower bank riparian areas in well-connected floodplains.	Houses and other infrastructure along banks and in floodplain/CMZ Lost River Road abuts the channel on river-left. Erosion risk to the road will need to be considered. Portions of this project area go dry at low flows. This potentially makes construction easy but may impact the benefits accrued by certain project elements. Wood placements need to account for potential river recreational uses.
5		A-Wall Project	**Narrative** The A-Wall Project includes in-channel wood work throughout, mostly debris capture jams that would be designed to capture the fluvial-transported wood that is expected to enter this reach from upstream over the next couple of decades. There is also some select side-channel work, including enhancing existing oxbow wetland habitat and enhancing connectivity to side-channels and wall-based channels. **Project Elements** • RM 69.85 river-right: Enhance existing floodplain depression as a wall-based groundwater-fed channel. • RM 69.65 river-left: Enhance existing abandoned oxbow and connector channel by adding large wood and potentially using select excavation to enhance fish passage. Possibly could extend backwater complex into other floodplain channel scars that connect to existing oxbow. Perform riparian restoration where land has been cleared near the outlet of the oxbow channel. • RM 69.55 – 69.75 river-right: Enhance connecitivity of river-right side-channel through select excavation and possibly through enhancing the existing apex jam at the upstream end. • Entire project area: Main channel jams including LW capture jams to capture LW and form stable, vegetated, mid-channel islands and split flow; margin complexity jams to increase cover and complexity in existing pools. Place jams strategically to encourage erosion into banks with mature forests and to discourage erosion into banks with young forest.	Houses and other infrastructure along banks and in floodplain/CMZ Wood placements need to account for potential river recreational uses.

Reach	Project RM	Project Name	Project Description	Considerations
4		Upper Mazama Project	**Narrative** The Upper Mazama Project includes primarily in-channel large wood work, both apex jams to increase lateral channel dynamics/floodplain connectivity as well as complexity jams along the channel margin to increase local pool scour and cover. There is one location near the upstream end on the left bank where larger channel margin jams could be used to address poor margin habitat and rapid erosion into a high unvegeted bank with a house on top. There are also a few locations where there may be potential for enhancing side-channel connectivity through placement of apex jams and select excavation. There are numerous opportunities for riparian revegetation. **Project Elements** • RM 68.75 river-left: Large meander bend jams to shift flow energy away from glacial terrace with house on top and toward the more well-connected floodplain surface on river-right. • RM 68.25 (river-right), 68.8 (river-left), and 67.5 (river-left): These are potential side-channel, wall-based channel, or alcove enhancement areas that warrant further evaluation for enhancement. They may require select excavation and/or placement of apex jams to re-connect them at lower flow levels. • Entire project area: Main channel jams including bar apex jams to form stable, vegetated, mid-channel islands and to capture LW; and margin complexity jams to increase cover and complexity in existing pools. Place jams strategically to encourage erosion into banks with mature forests and to discourage erosion into banks with young forest. Complexity jams should be designed to enhance local cover and complexity, not to limit bank erosion. Larger meander jams will limit erosion for the near-term and will shift flow energy away from the bank. These are used where infrastructure is at risk or where it is desired to shift flow away from the bank to improve habitat or channel processes. • Riparian restoration is identified throughout the reach where there has been clearing of riparian or floodplain areas. For high bank areas on glacial terraces, the recommended riparian buffer width is narrower than on lower bank riparian areas in well-connected floodplains.	Downstream bridge (Mazama Bridge) Houses and other infrastructure along banks and in floodplain/CMZ Wood placements need to account for potential river recreational uses.
4		Lower Mazama Project	**Narrative** The Lower Mazama Project includes in-channel wood work throughout, except at the upstream end where there are already two large bar apex jams. There is also work proposed within the existing high flow channel on river-left midway through the project area. This side-channel is affected by riparian clearing and push-up levees. Where possible, these levees could be removed, riparian areas replanted, and complexity jams placed along channel margins. At the downstream end in the river-left floodplain, there is a gravel pit and cleared floodplain. This site should be evaluated for potential reconnection and enhancement. There are numerous opportunities for riparian revegetation throughout the project area. **Project Elements** • RM 66.35 – 66.75 river-left: Enhance existing high-flow side-channel. Apex jam at upstream end to encourage split flow into side-channel. Remove push-up levees where possible within side-channel. Add channel margin complexity jams to areas where levees removed and other areas to enhance local pool scour, cover, and complexity in an otherwise uniform non-complex channel. • RM 66.25 river-left: Look for opportunities to reconnect and restore the area of the floodplain gravel pit. This may be challening given the mining history here and current uses, but would nevertheless be worth investigating further as it represents a considerable amount of former floodplain and potential off-channel habitat that is currently disconnected from the river. • Entire project area: Main channel jams including bar apex jams to form stable, vegetated, mid-channel islands and to capture LW; and margin complexity jams to increase cover and complexity in existing pools. Place jams strategically to encourage erosion into banks with mature forests and to discourage erosion into banks with young forest. Complexity jams should be designed to enhance local cover and complexity, not to limit bank erosion. • Riparian restoration is identified throughout the reach where there has been clearing of riparian or floodplain areas. For high bank areas on glacial terraces, the recommended riparian buffer width is narrower than on lower bank riparian areas in well-connected floodplains.	Upstream bridge (Mazama Bridge) Houses and other infrastructure along banks and in floodplain/CMZ Wood placements need to account for potential river recreational uses.

Reach	Project RM	Project Name	Project Description	Considerations
3		Goat Creek Project	**Narrative** The Goat Creek Project spans an area of stark contrasts with respect to channel complexity and structure. The upper portion is highly uniform and impacted by human infrastructure, whereas the lower portion, where the channel is working through bedload material contributed by the Goat Creek and Little Boulder Creek fans, is highly complex, full of wood, and very dynamic. No significant work in this lower section is recommended, as it is mainly an area that should be targeted for protection, including a highly-functioning side-channel in the river-right floodplain (RM 64.4 – 65). The river-left floodplain could also be targeted for protection through acquisitions or easements in order to prevent any future development or clearing. At the upstream portion of the project area, there is the opportunity to remove push-up levees, install mid-channel apex jams, install bank complexity jams, and conduct riparian restoration in cleared areas. The proximity of the road in this location will need to be considered. **Project Elements** • RM 65.85 – 66.2 river-right: Reconnect right-bank side-channel either as flow-through (with apex jam at top end) or as wall-based groundwater-fed channel at downstream end. Use select excavation and wood placements in channel. • RM 65.85 – 66.1 river-left: Great opportunity to remove two locations of levees and bank armoring. Replace with channel margin jams. • RM 65.35 – 65.6: Remove left-bank push-up levees (although there are mature trees on usptream levee that may not be worth disturbing), add margin complexity jams along bank where levees removed, add apex jams for mid-channel complexity and to develop split-flow, and riparian restoration. • Entire project area: Use of bar apex jams are described above as part of those elements. There are also many locations for potential channel margin complexity jams to create local pool scour and to increase cover and complexity in existing pools. Complexity jams should be designed to enhance local cover and complexity, not to limit bank erosion. • Riparian restoration is identified throughout the reach where there has been clearing of riparian or floodplain areas. • Protection is identified for the lower 1/3 of the reach where there are active lateral channel dynamics and abundant large wood. The river-left floodplain should be protected from development and clearing. The downstream river-right floodplain has high quality side-channel habitat that should be protected.	Hwy 20 is close to the river in a few locations and needs to be taken into consideration with respect to potential impacts from restoration treatments. Houses and other infrastructure along banks and in floodplain/CMZ Wood placements need to account for potential river recreational uses.
2		Trail Bridge Project	**Narrative** The Trail Bridge Project encompasses the area above and below the community trail bridge. This is a long segment of uniform planebed channel (slightly incised) that would benefit from apex jams and bank complexity jams to capture wood, create mid-channel vegetated islands, and promote lateral channel dynamics. For the most part, there is great opportunity to increase channel conditions and floodplain connectivity using log jams without much infrastructure or property at risk. There is also some off-channel reconnection and enhancement potential on river-left at the downstream end of the project area. **Project Elements** • RM 63.85 – 64.6: Apex jams to build off of existing processes of mid-channel bar formation to protect vegetation growth on bars and promote the development of vegetated islands and split flow. Also to trap fluvial-transported wood from upstream. This is an otherwise highly uniform, moderately incised segment with very scarce large wood. Also add bank margin jams to increase margin habitat and roughness. • RM 63.85 river-left: Enhance connectivity to existing oxbow wetland and beaver pond habitat. Sediment deposits are currently filling in channel and likely obstruct passage at low flows. Excavate to improve access to beaver pond habitat. Add wood for cover and complexity in oxbow wetlands. • Entire project area: Use of bar apex jams are described above as part of those elements. There are also many locations for potential channel margin complexity jams to create local pool scour and to increase cover and complexity in existing pools. Complexity jams are designed to enhance local cover and complexity, not to limit bank erosion.	The ski trail and trail bridge need to be taken into consideration with respect to potential impacts from restoration treatments. Wood placements need to account for potential river recreational uses.

Reach	Project RM	Project Name	Project Description	Considerations
2		Fawn Creek Project	**Narrative** The Fawn Creek Project likely represents the greatest restoration opportunity in the study area. There is an extensive disconnected side-channel complex in the river-right floodplain. The primary human feature obstructing connectivity is the complex of levees and bank armoring from RM 63.35 – 63.7, including the 1,600 foot long engineered levee that makes up a portion of the community trail. There are also numerous other earthern berms cutting off side-channels at various locations. The main levee obstructs the entrance to a 4,700-ft long disconnected side-channel, which easily constitutes the greatest off-channel habitat impairment in the entire Reach Assessment study area. This area has been the target of past restoration planning, but nothing has yet been implemented. The entire area warrants further site evaluation to determine how to reconnect and enhance critical side-channel habitat while continuing to support other human uses and infrastructure including the trail network. In addition to the main disconnected side-channel area, there are a few other side-channel reconnection and enhancement opportunities as well as the potential to enhance main channel lateral channel dynamics and complexity using apex log jams and bank complexity jams. There are also numerous opportunities for riparian revegetation throughout the project area. **Project Elements** • RM 62.45 – 64.0 river-right: There is an extensive disconnected side-channel complex in the river-right floodplain. The primary human feature obstructing connectivity is the complex of levees and bank armoring from RM 63.35 – 63.7, including the 1,600 foot long engineered levee that makes up a portion of the cross-country ski trail. There are also numerous other earthern berms cutting off side-channels at various locations. The main levee obstructs the entrance to a 4,700-ft long disconnected side-channel, which easily constitutes the greatest off-channel habitat impairment in the entire Reach Assessment study area. This area has been the target of past restoration planning, but nothing has yet been implemented. The entire area warrants further site evaluation to determine how to reconnect and enhance critical side-channel habitat while continuing to support other human uses and infrastructure including the trail network. • RM 63.0 river-left: Excavate accumulated sediment and remove check dams to reconnect oxbow wetland habitat. Remove downstream portion of riprap bank (does not appear necessary). Remove existing bank barbs and replace with a series (~3) channel margin log jams to enhance channel margin complexity and to create pool scour for habitat and to maintain connectivity to oxbow. • RM 62.5 river-right: If connection to this channel is not possible from the upstream end (best) then enhance existing backwater habitat here at the outlet using large wood and pool excavation. It may also be possible to reconnect and bring flow in from just upstream using existing floodplain channel scars. • Entire project area: Main channel jams including bar apex jams to form stable, vegetated, mid-channel islands and to capture LW; and margin complexity jams to increase cover and complexity in existing pools. Place jams strategically to encourage erosion into banks with mature forests and to discourage erosion into banks with young forest. Complexity jams should be designed to enhance local cover and complexity, not to limit bank erosion. • Riparian restoration is identified throughout the reach where there has been clearing of riparian or floodplain areas.	Cross-country ski trail lies atop levee system near RM 63.5. Levee may also provide protection to land to the south. There are several houses near the river that are protected with riprap. Potential effects of restoration treatments near these locations need to be considered. Wood placements need to account for potential river recreational uses.

Reach	Project RM	Project Name	Project Description	Considerations
1-2		Weeman Project	**Narrative** The Weeman Project spans Reach 1 and a portion of Reach 2. The portion in Reach 2 includes some good opportunities to enhance habitat within, and connectivity to, existing side-channel and oxbow wetland habitat. A couple of instances of cleared and rapidly eroding banks could be revegetated and enhanced with wood placed along the channel margin. At the downstream end of the reach, there is the opportunity to remove some failing riprap and push-up levees that appear to no longer be serving any protective purpose. In-channel log jam work is identified throughout to enhance lateral channel dynamics and the establishment of vegetated mid-channel island features. **Project Elements** • RM 62.25 river-left: Enhance connectivity to and habitat within existing oxbow wetland. Remove check dams, use select excavation, and add wood. • RM 62.1 river-right: Reconnect side-channel and education. This is a well-functioning side-channel that contains groundwater inputs and hyporheic flow but has small human-built check-dams that disconnect the channel during low flow (chin spawning). Remove check-dams and install educational sign for the campground (Rolling huts campground). • RM 61.75 river-right: Remove intermittent riprap and push-up levee that has partially failed. Add bank margin jams for complexity. • RM 61.7 river-left: Reconnect groundwater-fed wall-based alcove channel by modifying riprap at outlet, select excavation, and adding wood for habitat and to maintain scour at the outlet. • RM 61.25 river-right: Place channel margin jams on right bank upstream of bridge and river access to halt erosion toward highway and enhance channel margin habitat prior to this bank becoming armored by Dept of Transportation. • Entire project area: Main channel jams including bar apex jams to form stable, vegetated, mid-channel islands and to capture LW; and margin complexity jams to increase cover and complexity in existing pools. Place jams strategically to encourage erosion into banks with mature forests and to discourage erosion into banks with young forest. Complexity jams should be designed to enhance local cover and complexity, not to limit bank erosion. • Riparian restoration is identified throughout the reach where there has been clearing of riparian or floodplain areas.	Goat Creek Road, which is close to the river in two locations, and Weeman Bridge/Hwy 20 (downstream end) need to be taken into consideration with respect to potential impacts from restoration treatments. Houses and other infrastructure along banks and in floodplain/CMZ Wood placements need to account for potential river recreational uses.



Upper Methow Reach Assessment
Project Opportunities
Ballard Project

These drawings should be viewed only as very preliminary concepts intended to describe the type of potential restoration work that could be performed. Additional site investigations and analysis will be necessary to determine specific treatment types and locations

Project elements

- Large wood margin complexity
- Enhance side-channel connectivity
- Riparian revegetation
- Bridge
- Riprap
- Levee
- Dam
- Canal

Recent Bing Aerial Image

0 100 200 400 Feet

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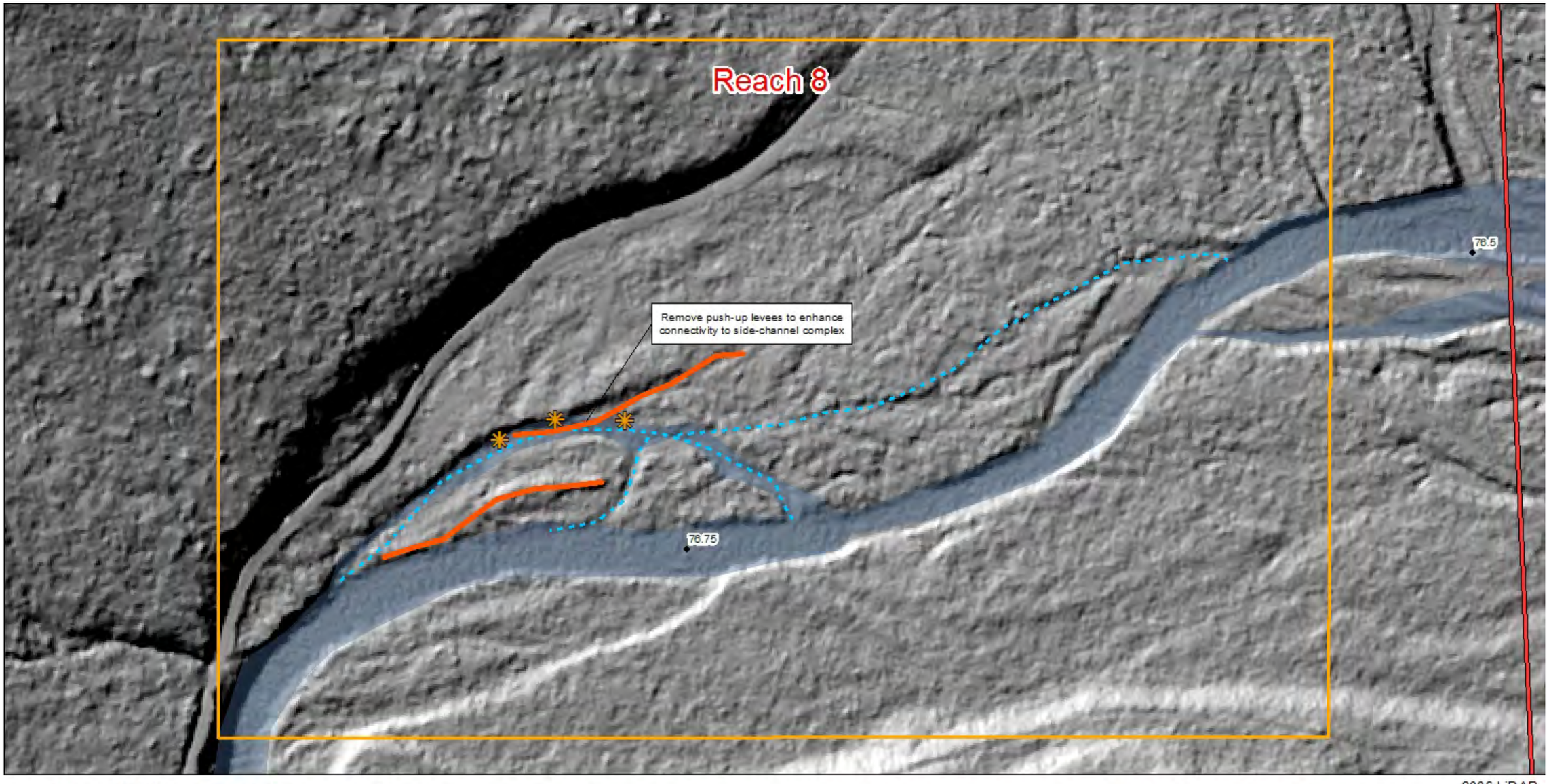

2006 LiDAR

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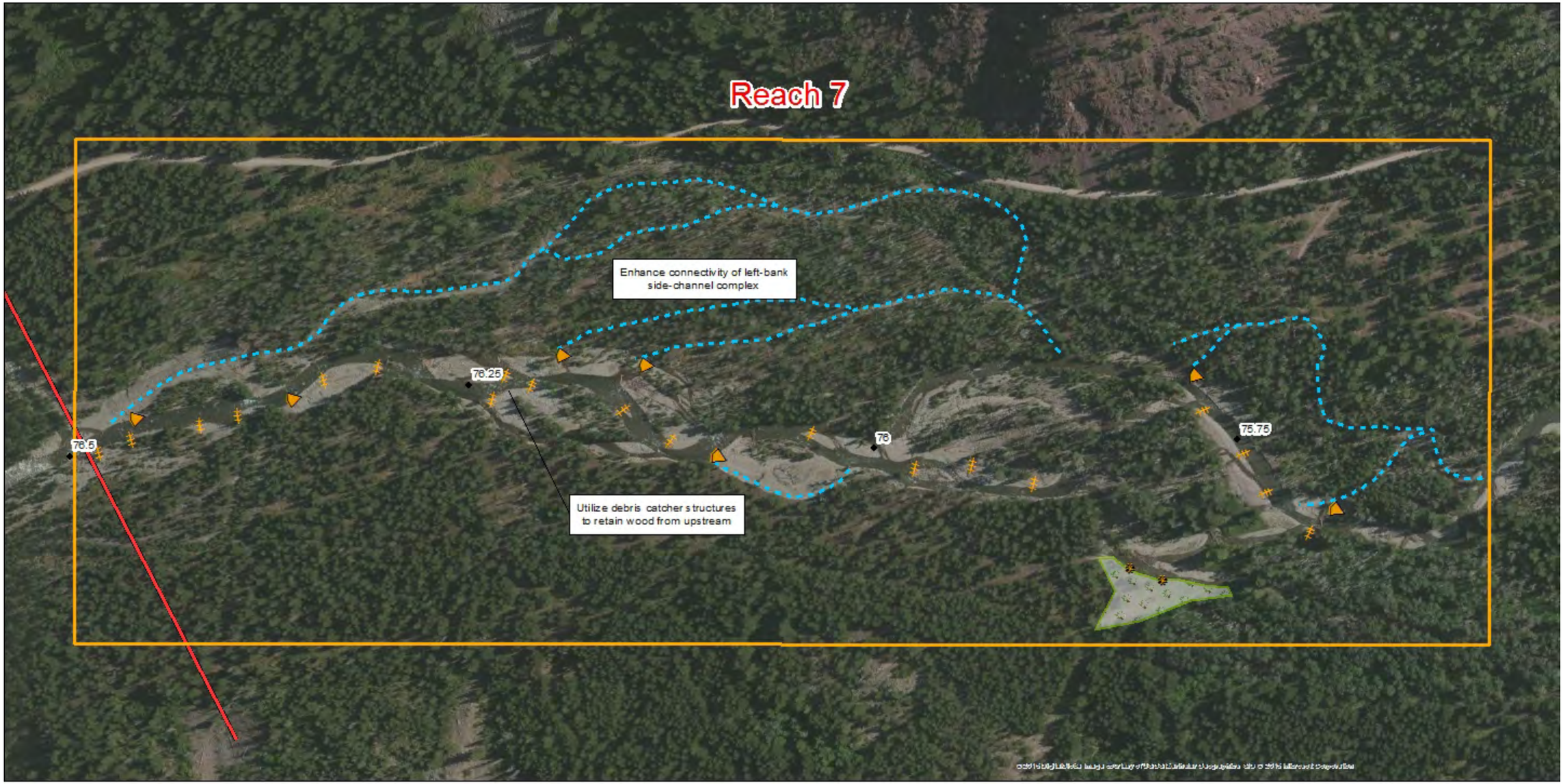
Project elements

- Large wood margin complexity
- Enhance side-channel connectivity
- Riparian revegetation

- Bridge
- Riprap
- Levee
- Dam
- Canal
- Active channel

0 100 200 400 Feet

N



Upper Methow Reach Assessment
Project Opportunities

Robinson Project

These drawings should be viewed only as very preliminary concepts intended to describe the type of potential restoration work that could be performed. Additional site investigations and analysis will be necessary to determine specific treatment types and locations

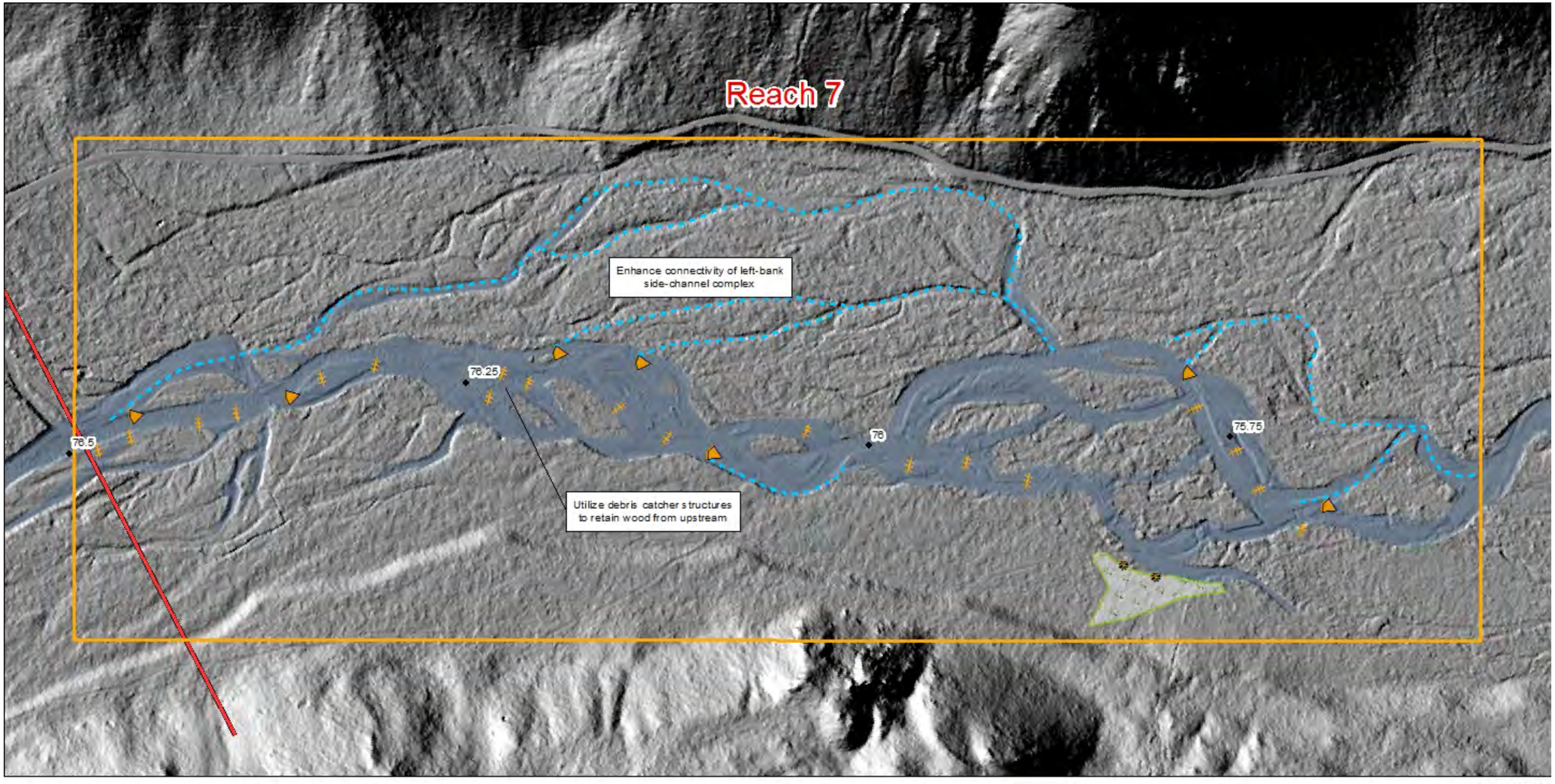
Project elements

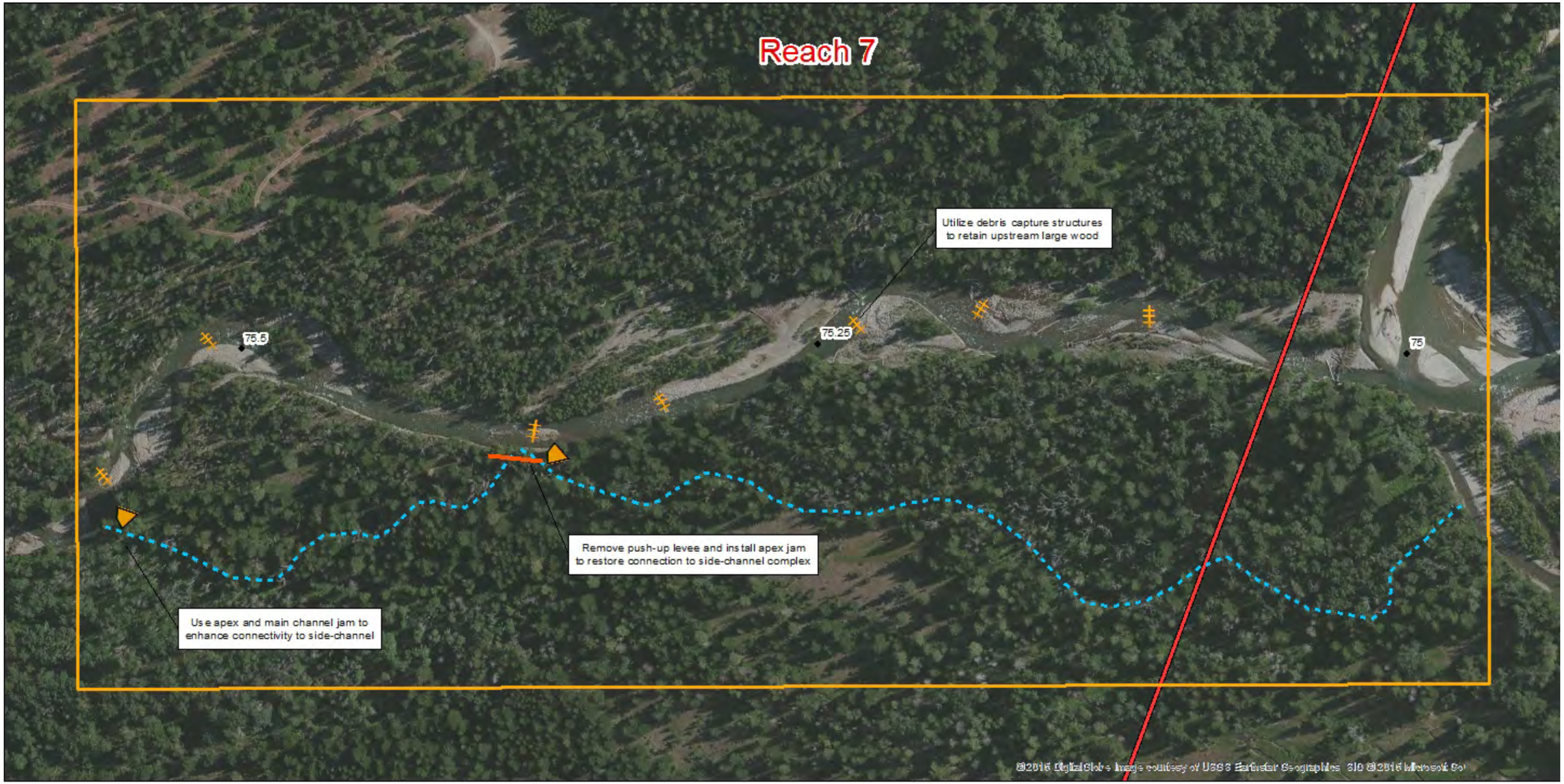
- Bar apex log jam
- Large wood capture structure
- Large wood margin complexity
- Enhance side-channel connectivity
- Riparian revegetation
- Bridge
- Riprap
- Levee
- Dam
- Canal

Recent Bing Aerial Image

0 200 400 800 Feet

N


Reach 7
Enhance connectivity of left-bank side-channel complex
Utilize debris catcher structures to retain wood from upstream
76.5
76.25
76
75.75
Upper Methow Reach Assessment
Project Opportunities
Robinson Project
These drawings should be viewed only as very preliminary concepts intended to describe the type of potential restoration work that could be performed. Additional site investigations and analysis will be necessary to determine specific treatment types and locations
Project elements
Bar apex log jam
Large wood capture structure
Large wood margin complexity
Enhance side-channel connectivity
Riparian revegetation
Bridge
Riprap
Levee
Dam
Canal
Active channel
2006 LiDAR
0
200
400
800 Feet
N



Upper Methow Reach Assessment

Project Opportunities

Two Rivers Project

These drawings should be viewed only as very preliminary concepts intended to describe the type of potential restoration work that could be performed. Additional site investigations and analysis will be necessary to determine specific treatment types and locations

Project elements

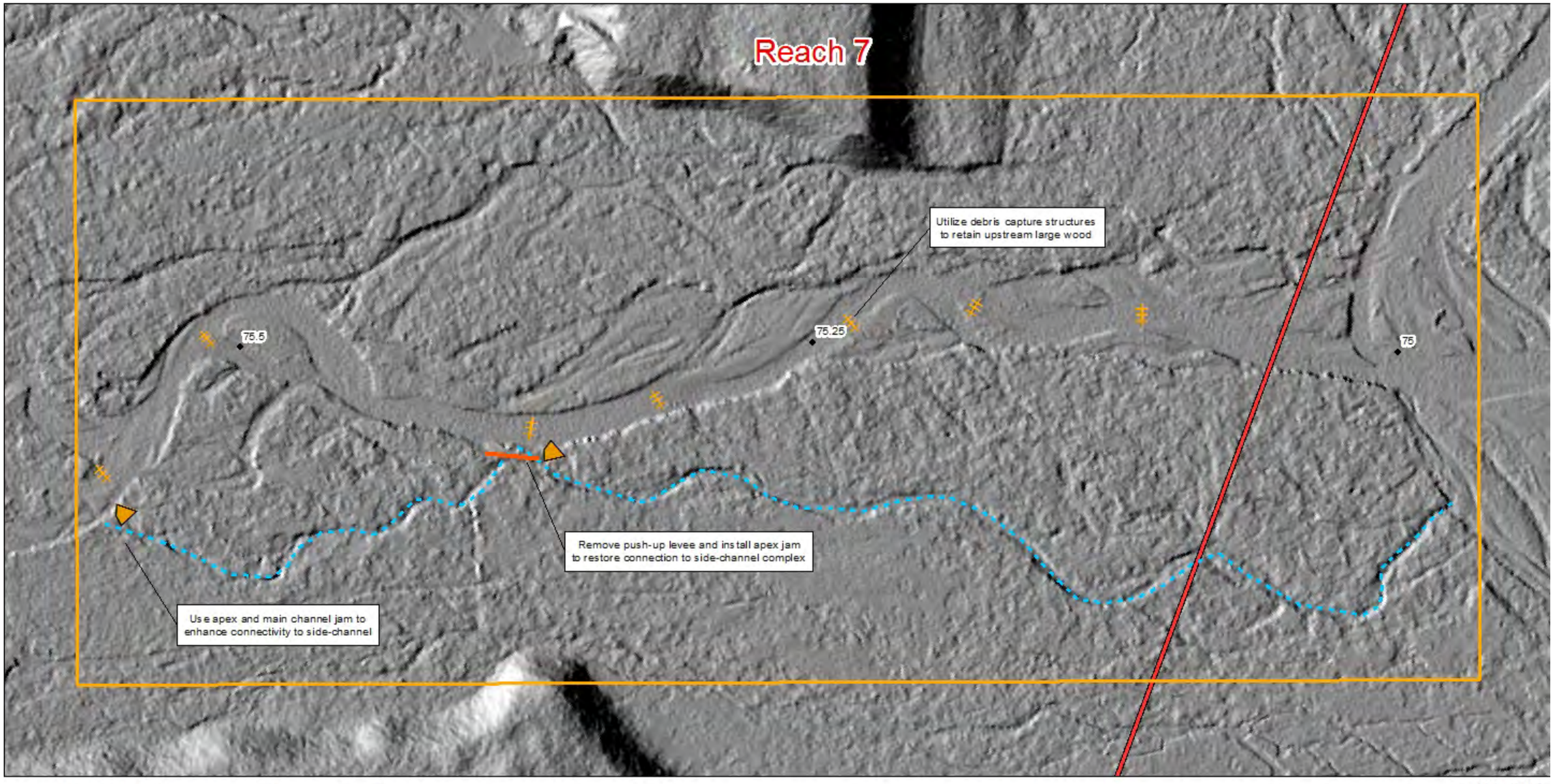
- Bar apex log jam
- Large wood capture structure
- Enhance side-channel connectivity
- Riparian revegetation

- Bridge
- Riprap
- Levee
- Dam
- Canal

Recent Bing Aerial Image

0 125 250 500 Feet

N



Upper Methow Reach Assessment
Project Opportunities

Two Rivers Project

These drawings should be viewed only as very preliminary concepts intended to describe the type of potential restoration work that could be performed. Additional site investigations and analysis will be necessary to determine specific treatment types and locations

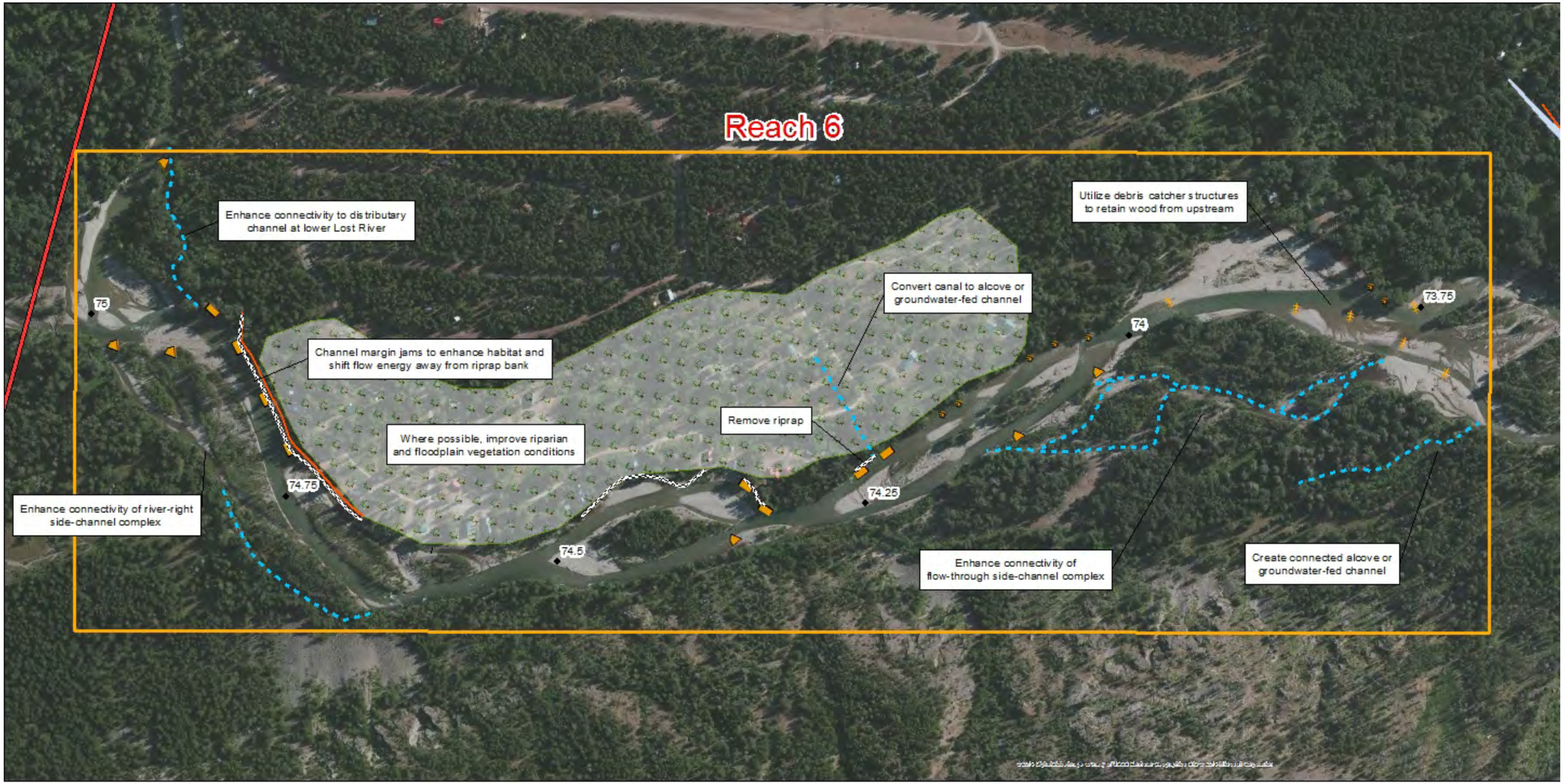
Project elements

- Bar apex log jam
- Large wood capture structure
- Enhance side-channel connectivity
- Riparian revegetation

- Bridge
- Riprap
- Levee
- Dam
- Canal

2006 LiDAR

0 125 250 500 Feet



Upper Methow Reach Assessment

Project Opportunities

Lost River Project

These drawings should be viewed only as very preliminary concepts intended to describe the type of potential restoration work that could be performed. Additional site investigations and analysis will be necessary to determine specific treatment types and locations

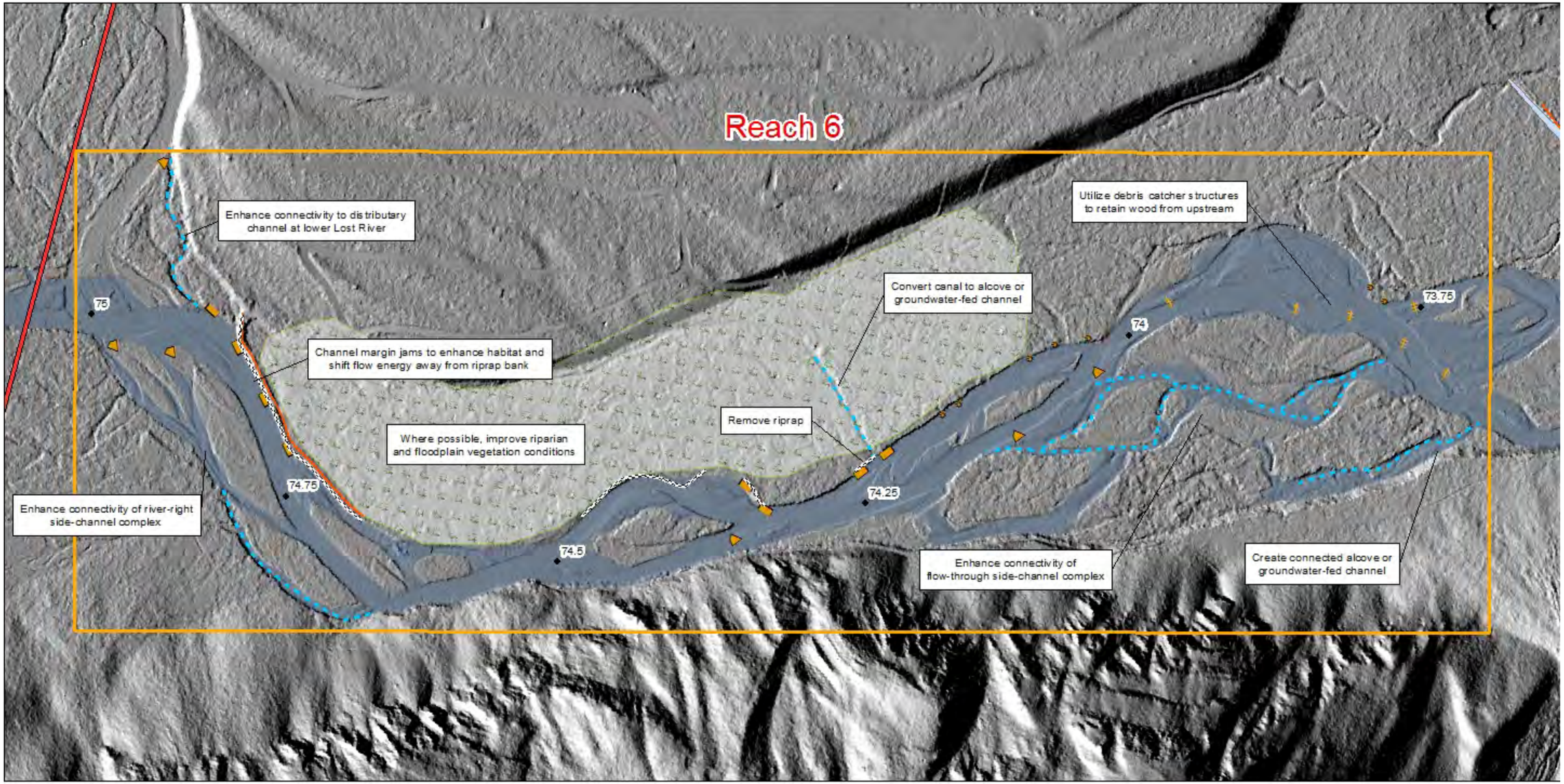
Project elements

- Bar apex log jam
- Large wood capture structure
- Large wood margin complexity
- Channel margin log jam
- Enhance side-channel connectivity
- Riparian revegetation
- Bridge
- Riprap
- Levee
- Dam
- Canal

Recent Bing Aerial Imagery

0 200 400 800 Feet

N



Upper Methow Reach Assessment

Project Opportunities

Lost River Project

These drawings should be viewed only as very preliminary concepts intended to describe the type of potential restoration work that could be performed. Additional site investigations and analysis will be necessary to determine specific treatment types and locations

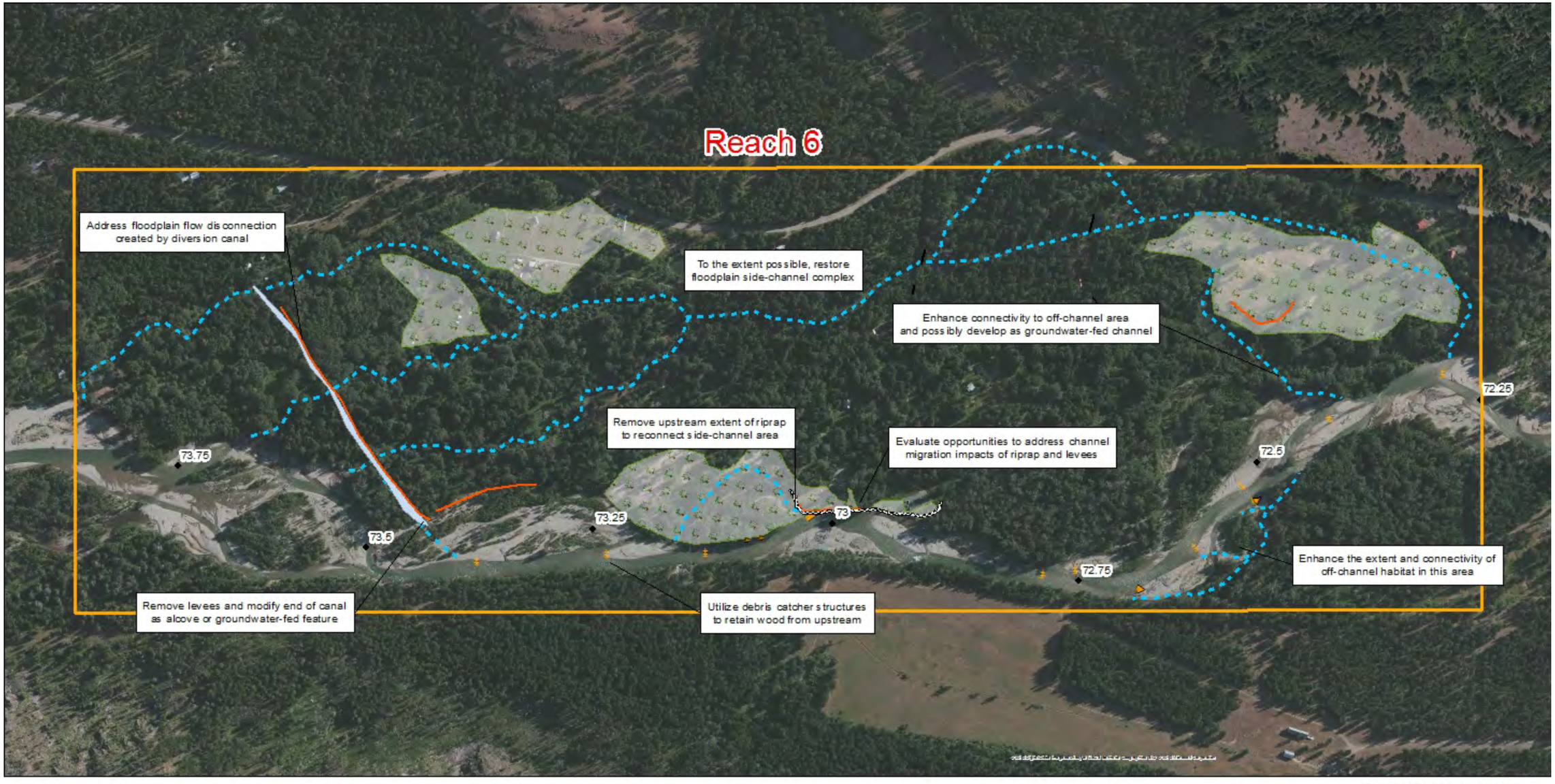
Project elements

- Bar apex log jam
- Large wood capture structure
- Large wood margin complexity
- Channel margin log jam
- Enhance side-channel connectivity
- Riparian revegetation
- Bridge
- Riprap
- Levee
- Dam
- Canal
- Active channel

2006 LiDAR

0 200 400 800 Feet

N



Upper Methow Reach Assessment

Project Opportunities

Cedarosa Project

These drawings should be viewed only as very preliminary concepts intended to describe the type of potential restoration work that could be performed. Additional site investigations and analysis will be necessary to determine specific treatment types and locations

Project elements

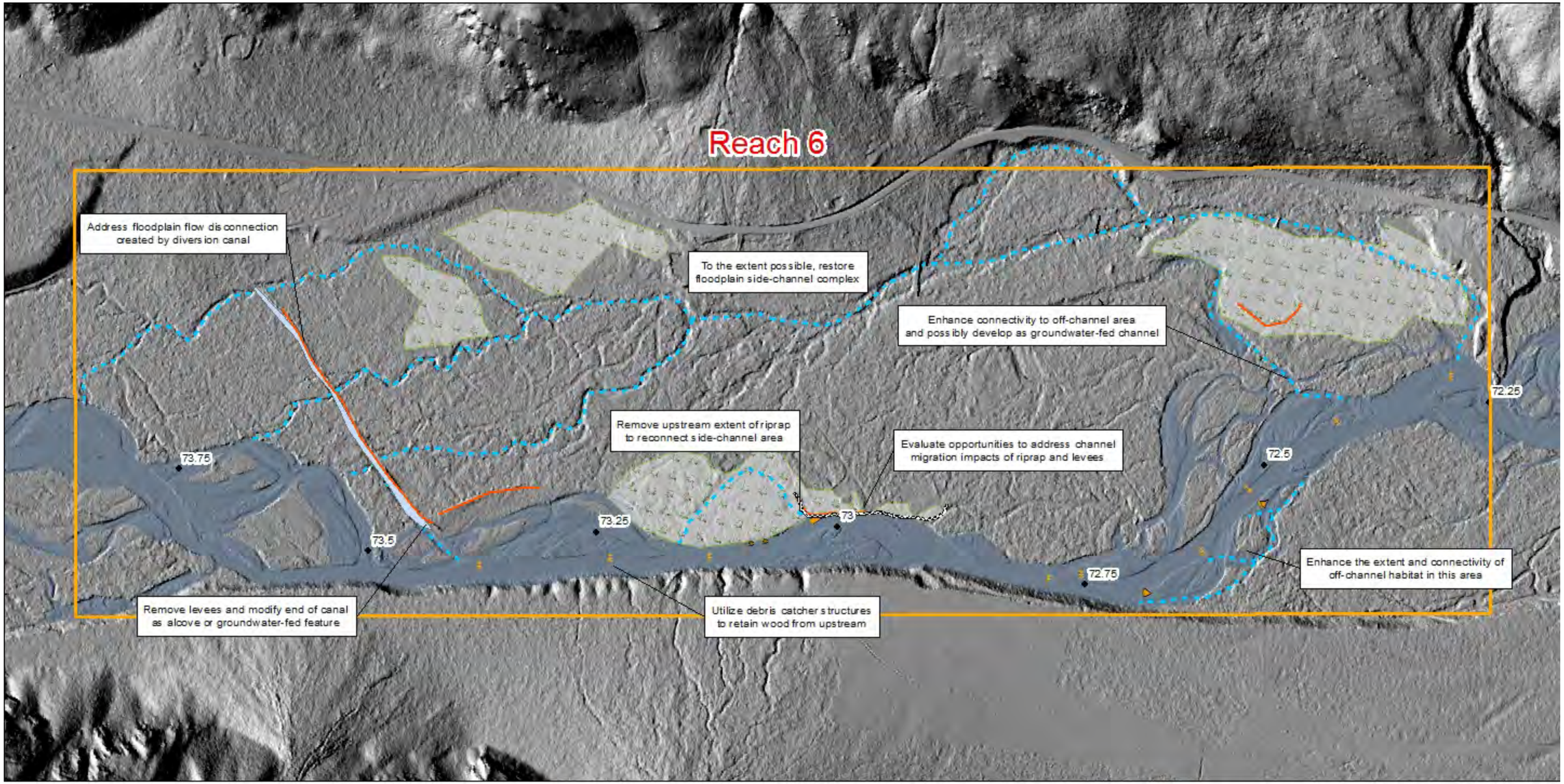
- Bar apex log jam
- Large wood capture structure
- Large wood margin complexity
- Channel margin log jam
- Enhance side-channel connectivity
- Riparian revegetation

- Bridge
- Riprap
- Levee
- Dam
- Canal

Recent Bing Aerial Imagery

0 250 500 1,000 Feet

N



Upper Methow Reach Assessment

Project Opportunities

Cedarosa Project

These drawings should be viewed only as very preliminary concepts intended to describe the type of potential restoration work that could be performed. Additional site investigations and analysis will be necessary to determine specific treatment types and locations

Project elements

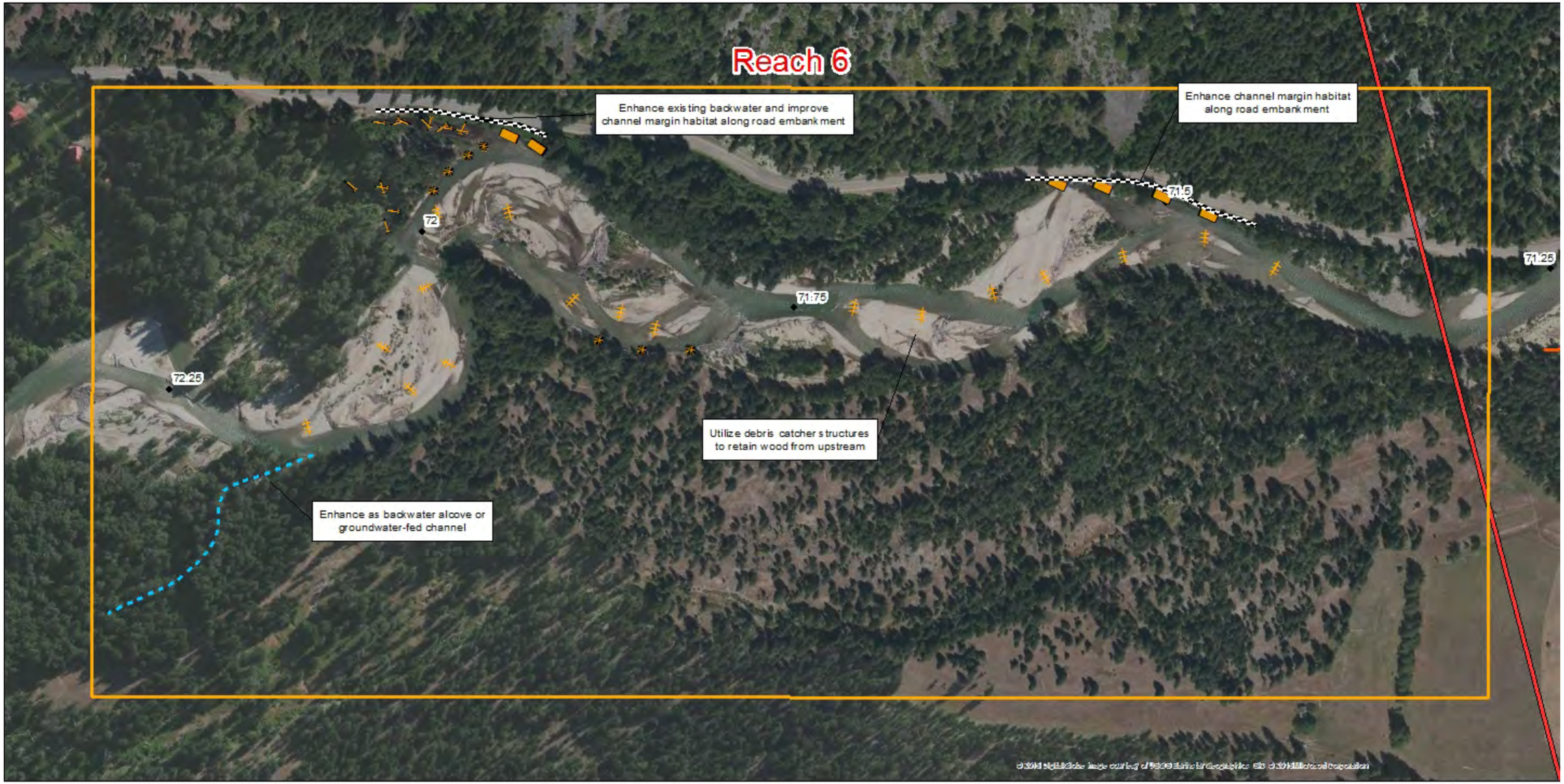
- Bar apex log jam
- Large wood capture structure
- Large wood margin complexity
- Channel margin log jam
- Enhance side-channel connectivity
- Riparian revegetation

- Bridge
- Riprap
- Levee
- Dam
- Canal
- Active channel

2006 LiDAR

0 250 500 1,000 Feet

N



Upper Methow Reach Assessment

Project Opportunities

Gate Creek Project

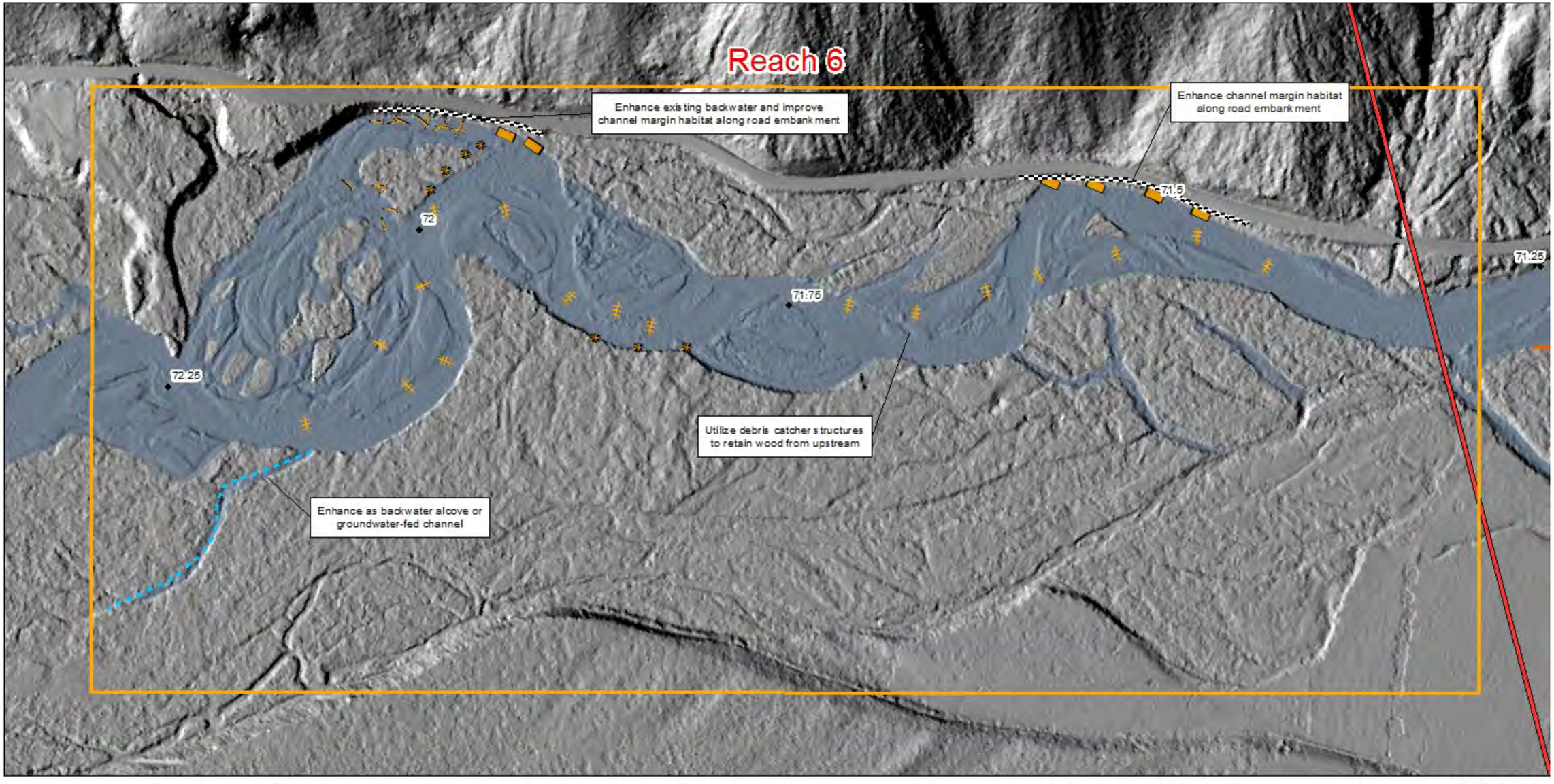
These drawings should be viewed only as very preliminary concepts intended to describe the type of potential restoration work that could be performed. Additional site investigations and analysis will be necessary to determine specific treatment types and locations

Project elements

- Large wood capture structure
- Individual log placement
- Large wood margin complexity
- Channel margin log jam
- Enhance side-channel connectivity
- Riparian revegetation
- Bridge
- Riprap
- Levee
- Dam
- Canal

Recent Bing Aerial Imagery

0 150 300 600 Feet



Upper Methow Reach Assessment

Project Opportunities

Gate Creek Project

These drawings should be viewed only as very preliminary concepts intended to describe the type of potential restoration work that could be performed. Additional site investigations and analysis will be necessary to determine specific treatment types and locations

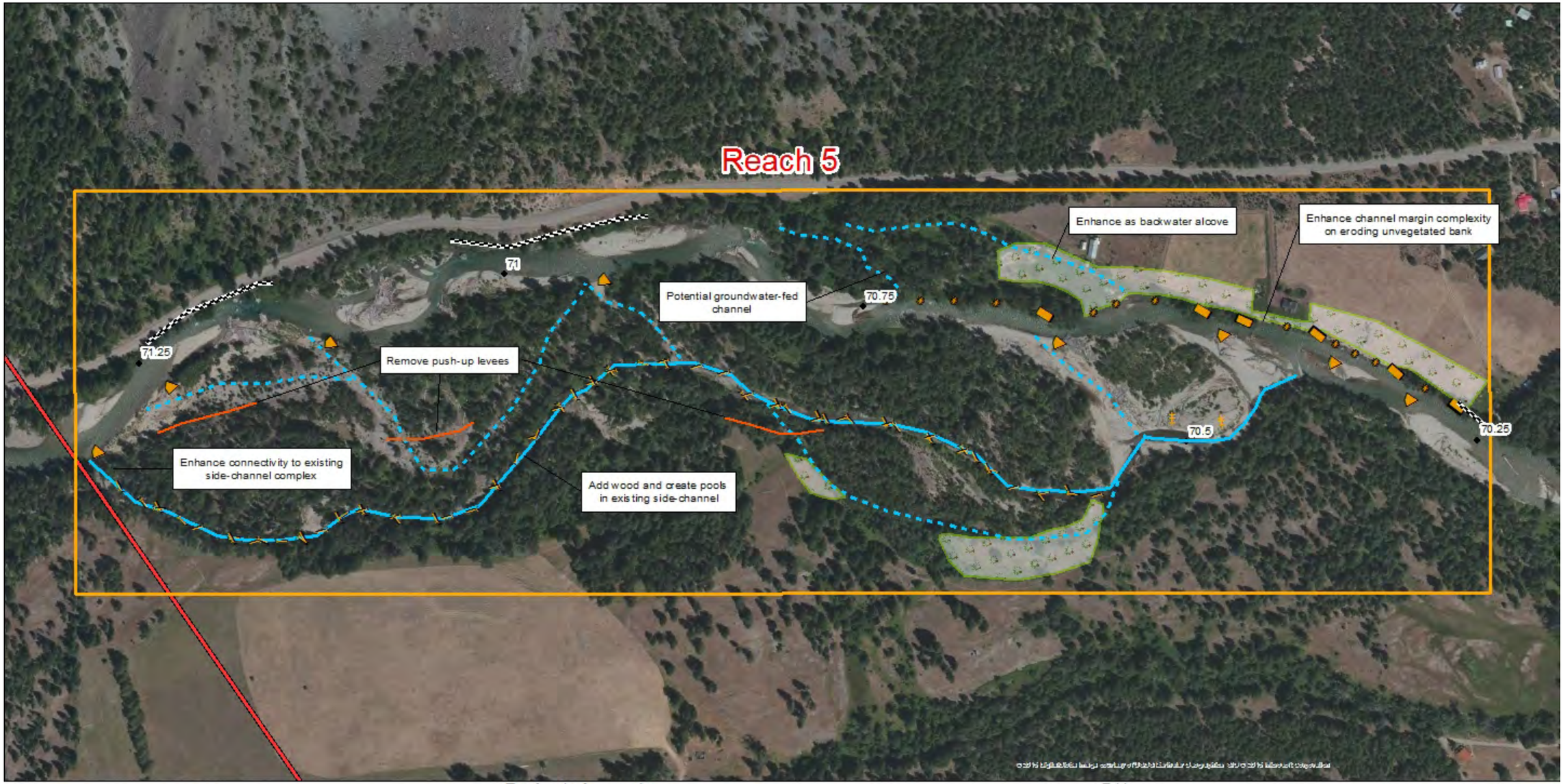
Project elements

- Large wood capture structure
- Individual log placement
- Large wood margin complexity
- Channel margin log jam
- Enhance side-channel connectivity
- Riparian revegetation

- Bridge
- Riprap
- Levee
- Dam
- Canal
- Active channel

2006 LiDAR

0 150 300 600 Feet



Upper Methow Reach Assessment

Project Opportunities

Goat Wall Project

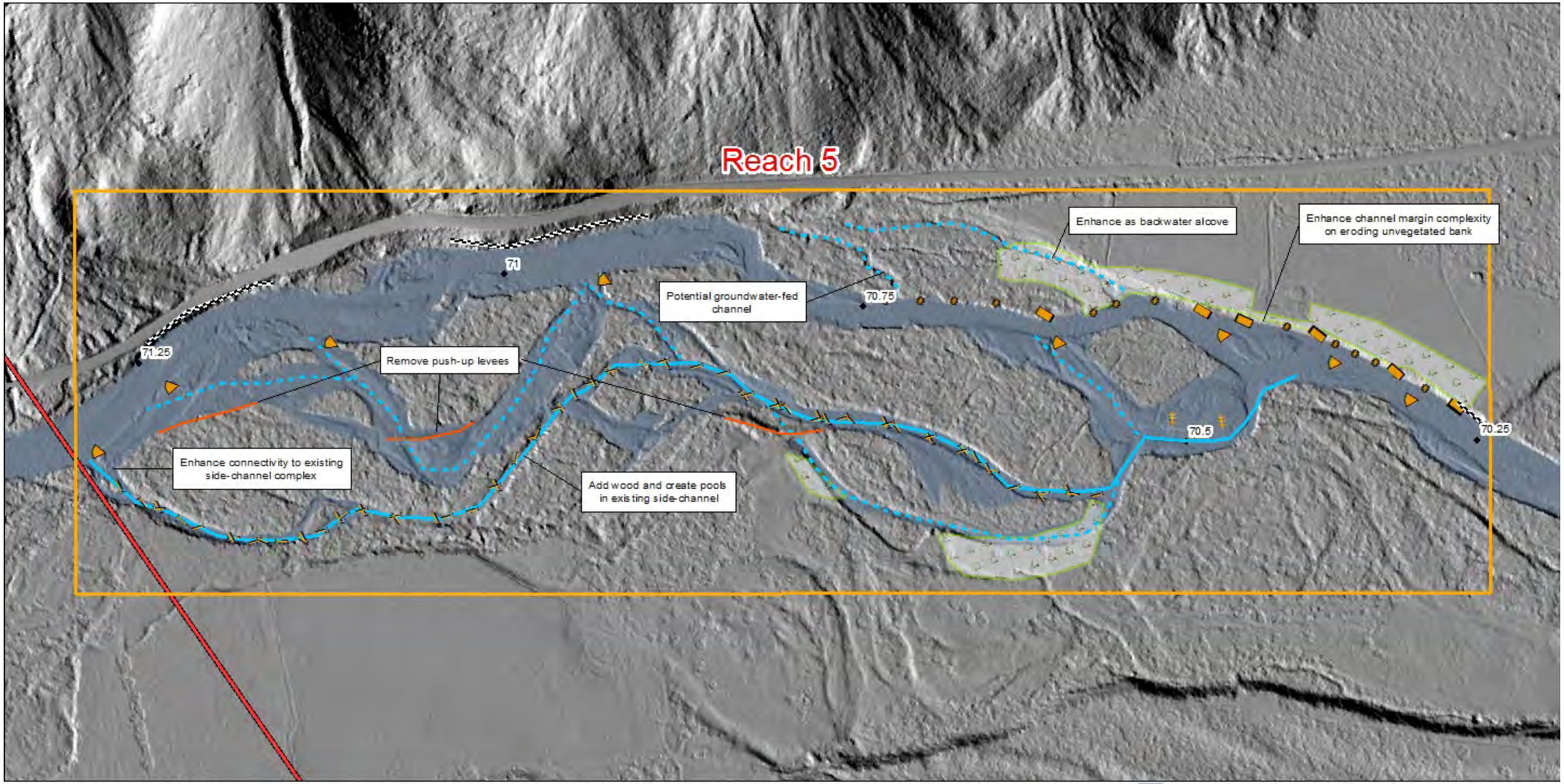
These drawings should be viewed only as very preliminary concepts intended to describe the type of potential restoration work that could be performed. Additional site investigations and analysis will be necessary to determine specific treatment types and locations

Project elements

- Bar apex log jam
- Large wood capture structure
- Individual log placement
- Large wood margin complexity
- Channel margin log jam
- Enhance side-channel connectivity
- Riparian revegetation
- Bridge
- Riprap
- Levee
- Dam
- Canal

Recent Bing Aerial Imagery

0 150 300 600 Feet



Upper Methow Reach Assessment

Project Opportunities

Goat Wall Project

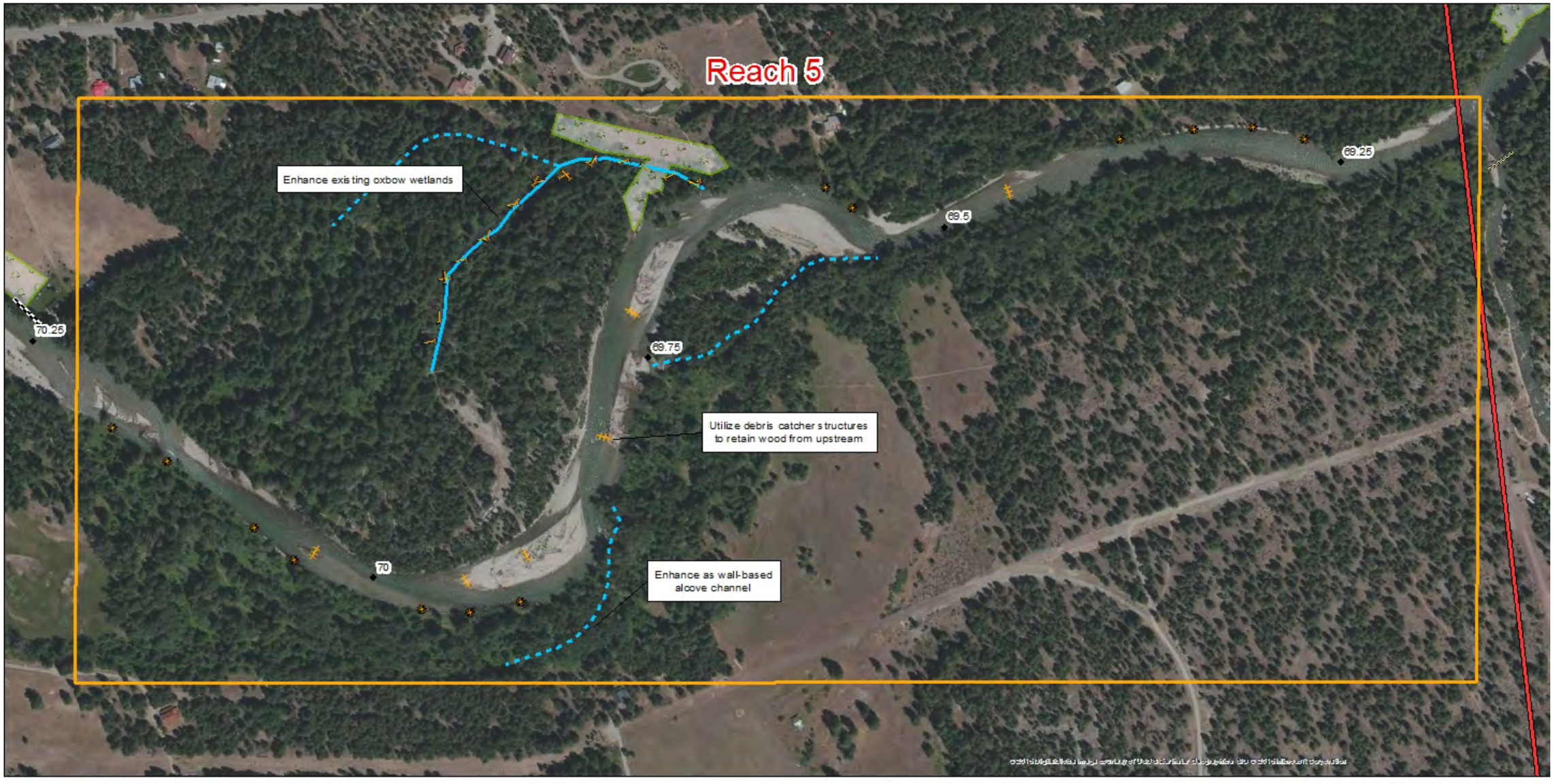
These drawings should be viewed only as very preliminary concepts intended to describe the type of potential restoration work that could be performed. Additional site investigations and analysis will be necessary to determine specific treatment types and locations

Project elements

- Bar apex log jam
- Large wood capture structure
- Individual log placement
- Large wood margin complexity
- Channel margin log jam
- Enhance side-channel connectivity
- Riparian revegetation
- Bridge
- Riprap
- Levee
- Dam
- Canal
- Active channel

2006 LiDAR

0 150 300 600 Feet



Upper Methow Reach Assessment

Project Opportunities

A-Wall Project

These drawings should be viewed only as very preliminary concepts intended to describe the type of potential restoration work that could be performed. Additional site investigations and analysis will be necessary to determine specific treatment types and locations

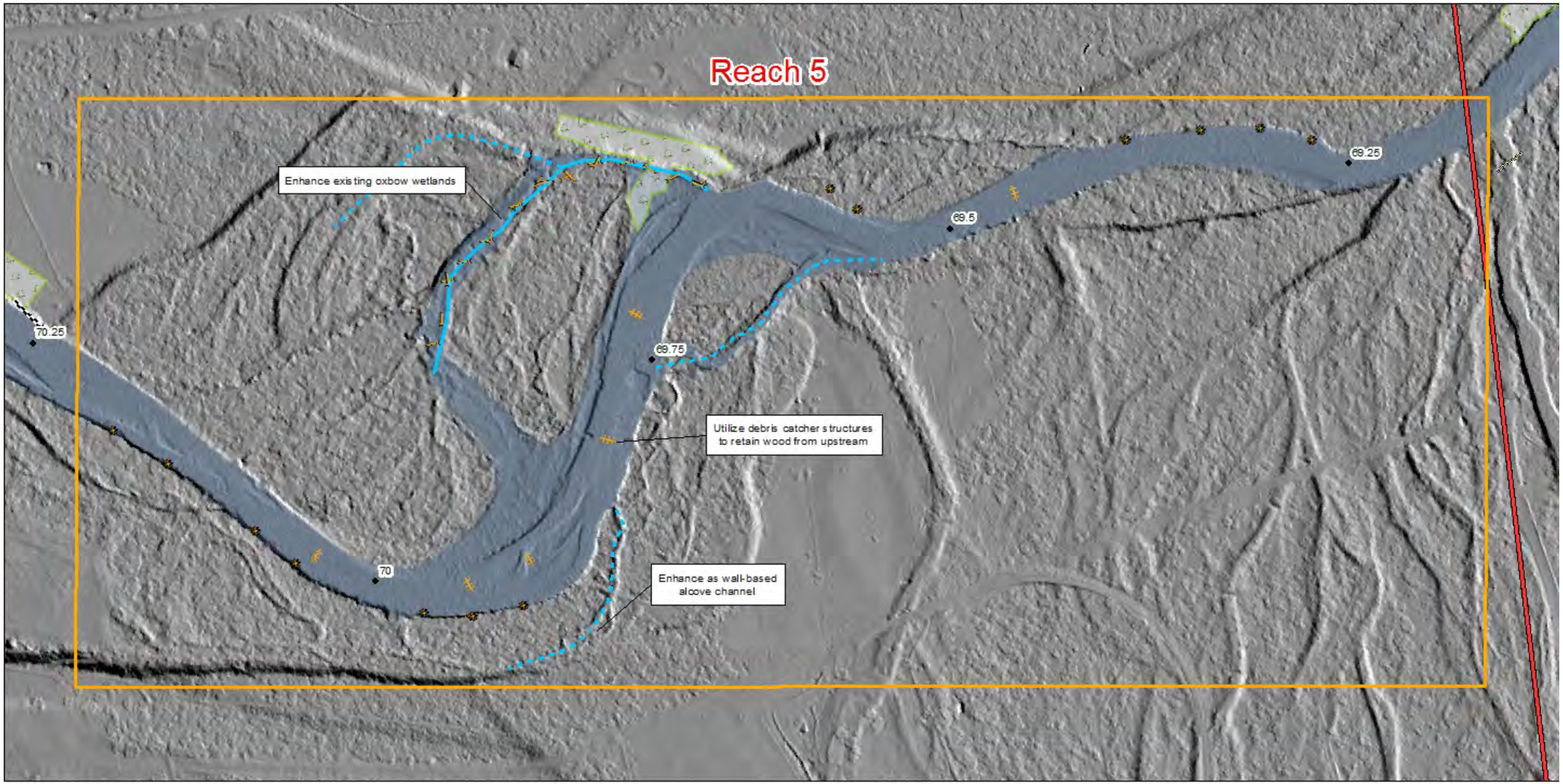
Project elements

- Large wood capture structure
- Individual log placement
- Large wood margin complexity
- Enhance side-channel connectivity
- Riparian revegetation
- Bridge
- Riprap
- Levee
- Dam
- Canal

Recent Bing Aerial Imagery

0 150 300 600 Feet

N



2006 LiDAR

Upper Methow Reach Assessment

Project Opportunities

A-Wall Project

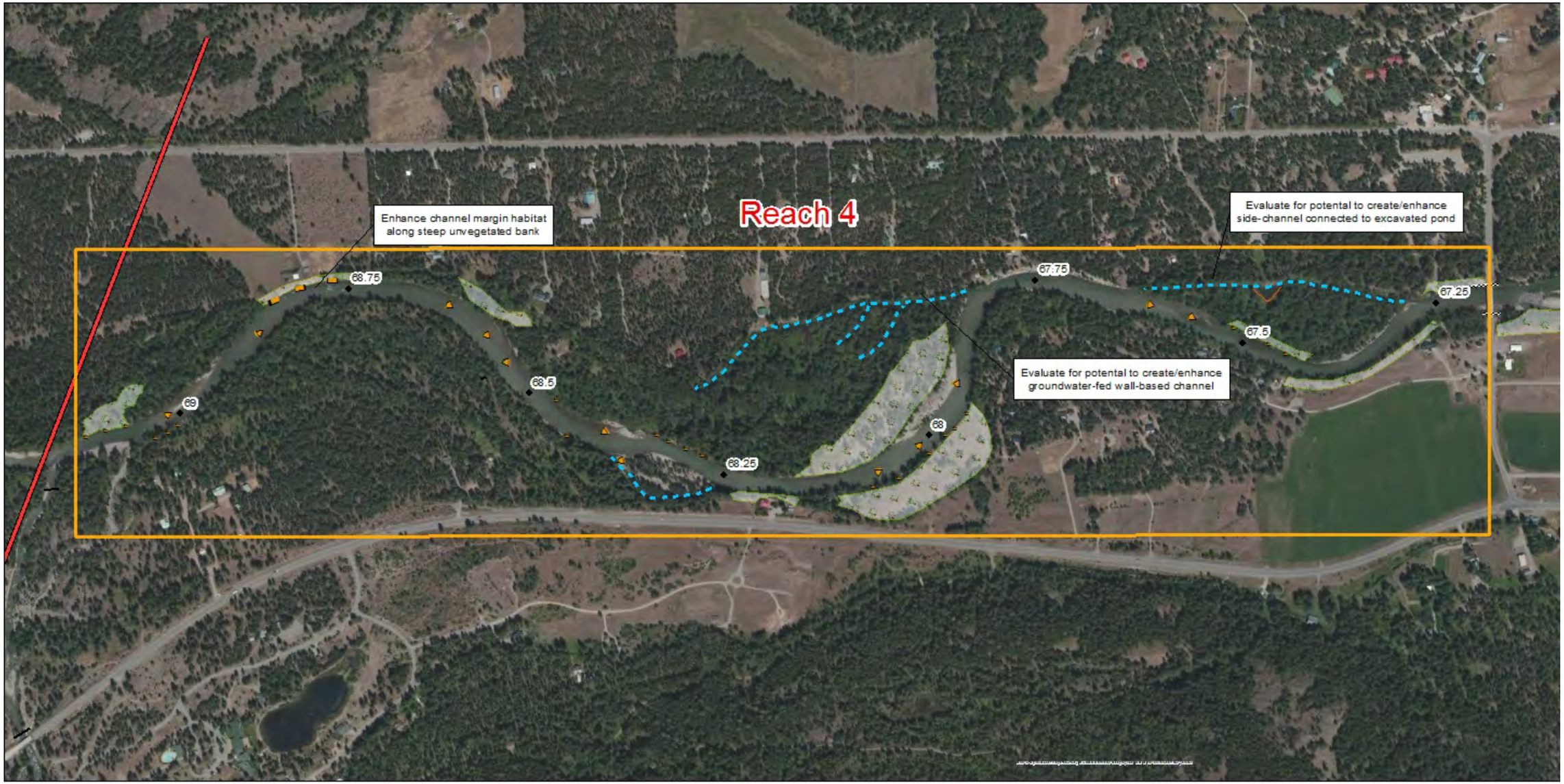
These drawings should be viewed only as very preliminary concepts intended to describe the type of potential restoration work that could be performed. Additional site investigations and analysis will be necessary to determine specific treatment types and locations

Project elements

- Large wood capture structure
- Individual log placement
- Large wood margin complexity
- Enhance side-channel connectivity
- Riparian revegetation

- Bridge
- Riprap
- Levee
- Dam
- Canal
- Active channel

0 150 300 600 Feet



Upper Methow Reach Assessment
Project Opportunities

Upper Mazama Project

These drawings should be viewed only as very preliminary concepts intended to describe the type of potential restoration work that could be performed. Additional site investigations and analysis will be necessary to determine specific treatment types and locations

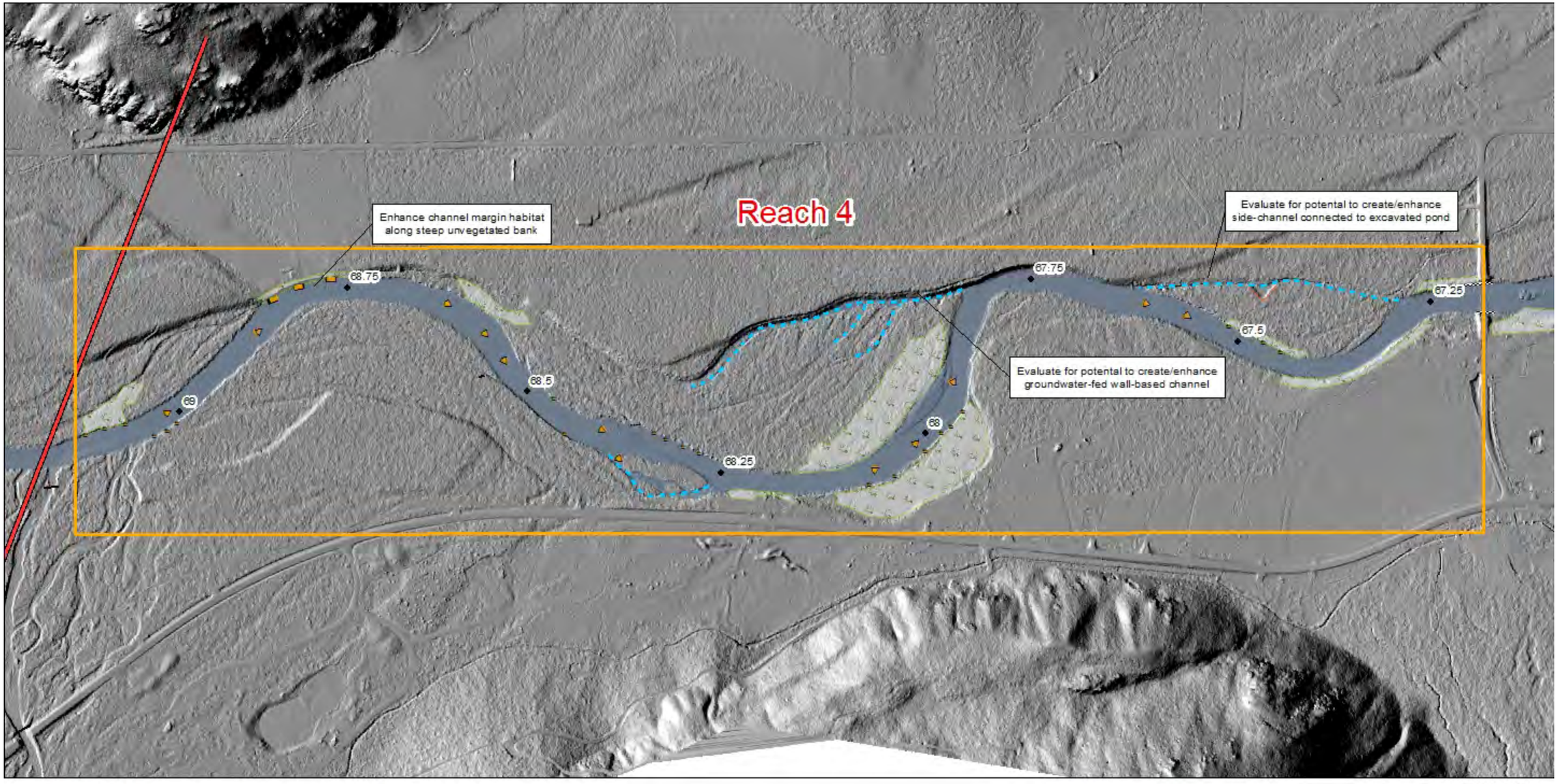
Project elements

- Bar apex log jam
- Large wood margin complexity
- Channel margin log jam
- Enhance side-channel connectivity
- Riparian revegetation
- Bridge
- Riprap
- Levee
- Dam
- Canal

Recent Bing Aerial Imagery

0 250 500 1,000 Feet

N



Upper Methow Reach Assessment
Project Opportunities

Upper Mazama Project

These drawings should be viewed only as very preliminary concepts intended to describe the type of potential restoration work that could be performed. Additional site investigations and analysis will be necessary to determine specific treatment types and locations

Project elements

- Bar apex log jam
- Large wood margin complexity
- Channel margin log jam
- Enhance side-channel connectivity
- Riparian revegetation
- Bridge
- Riprap
- Levee
- Dam
- Canal
- Active channel

0 250 500 1,000 Feet

N

Upper Methow Reach Assessment
Project Opportunities

Lower Mazama Project

These drawings should be viewed only as very preliminary concepts intended to describe the type of potential restoration work that could be performed. Additional site investigations and analysis will be necessary to determine specific treatment types and locations

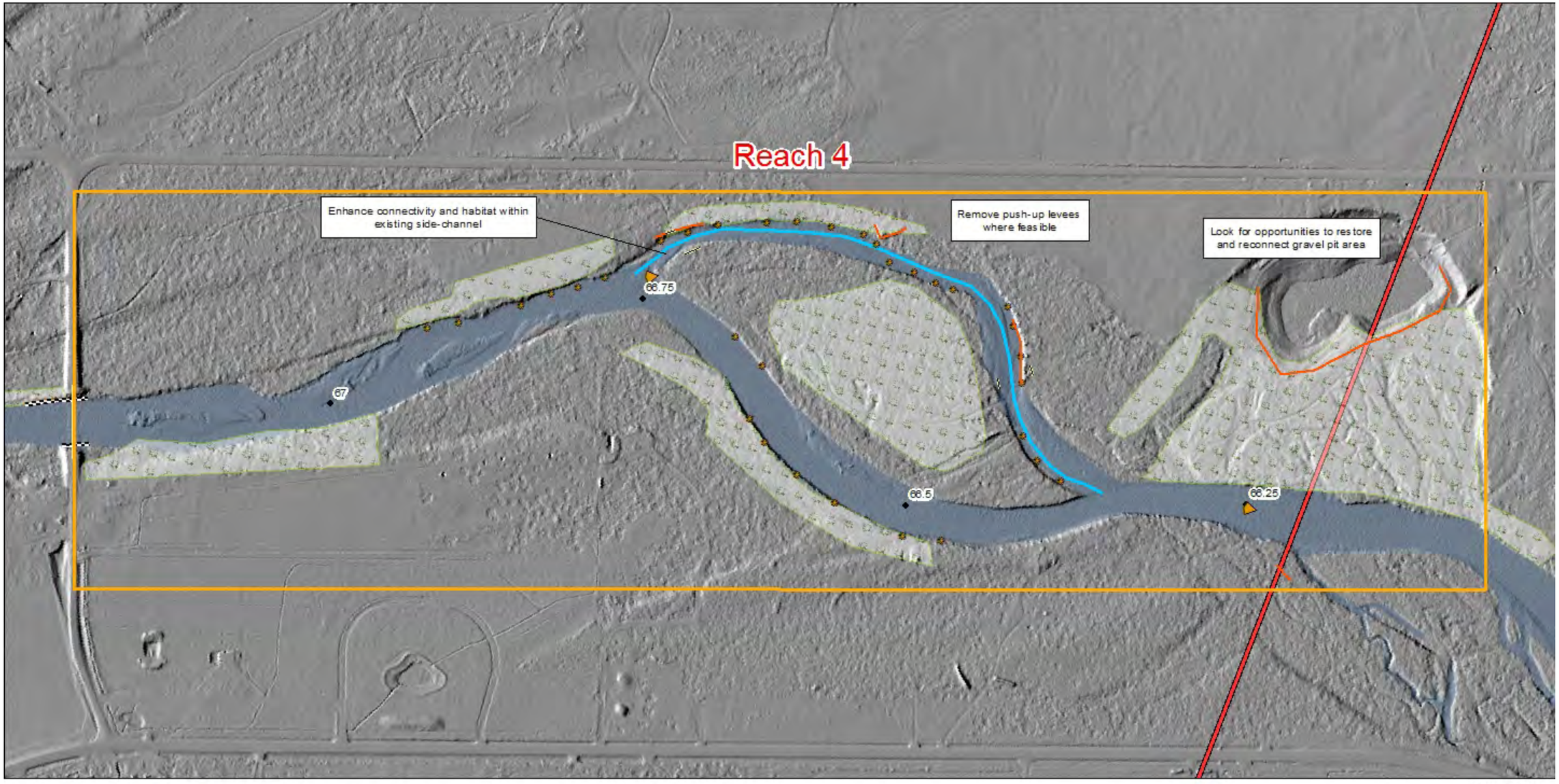
Project elements

- Bar apex log jam
- Large wood margin complexity
- Enhance side-channel connectivity
- Riparian revegetation
- Bridge
- Riprap
- Levee
- Dam
- Canal

Recent Bing Aerial Imagery

0 200 400 800 Feet

N



Upper Methow Reach Assessment
Project Opportunities

Lower Mazama Project

These drawings should be viewed only as very preliminary concepts intended to describe the type of potential restoration work that could be performed. Additional site investigations and analysis will be necessary to determine specific treatment types and locations

Project elements

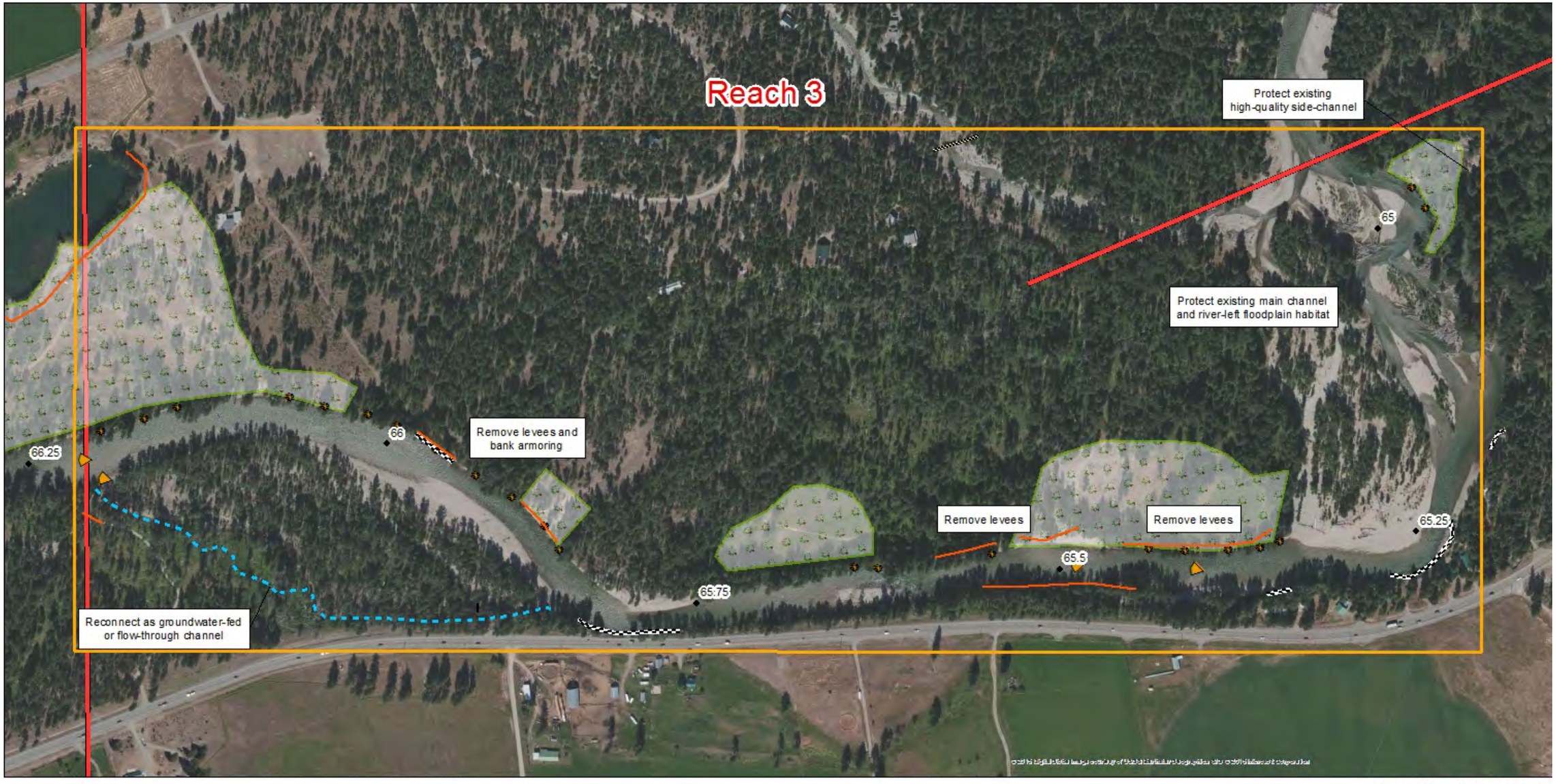
- Bar apex log jam
- Large wood margin complexity
- Enhance side-channel connectivity
- Riparian revegetation

- Bridge
- Riprap
- Levee
- Dam
- Canal
- Active channel

0 200 400 800 Feet

N

2006 LiDAR



Upper Methow Reach Assessment

Project Opportunities

Goat Creek Project

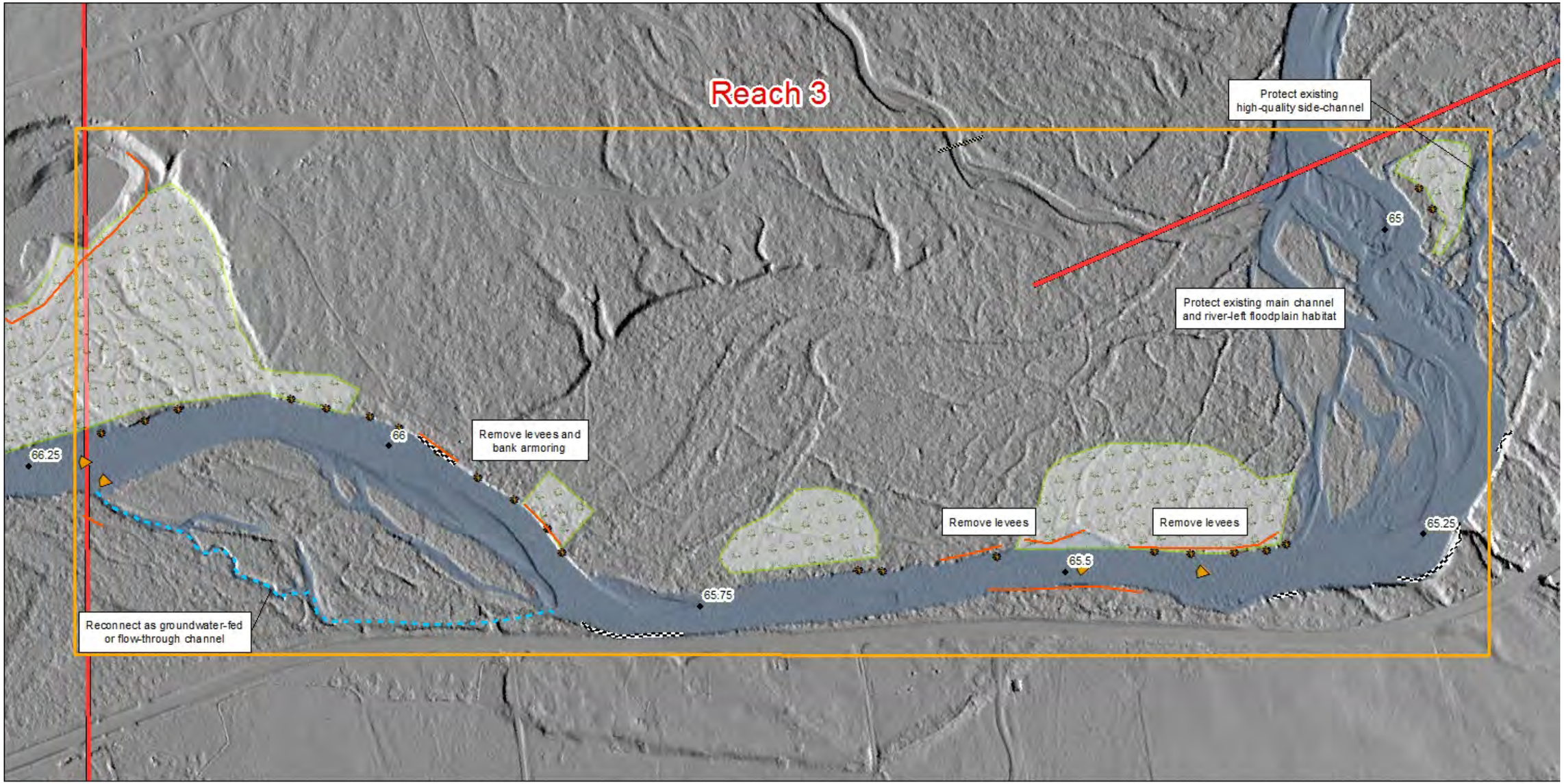
These drawings should be viewed only as very preliminary concepts intended to describe the type of potential restoration work that could be performed. Additional site investigations and analysis will be necessary to determine specific treatment types and locations

Project elements

- Bar apex log jam
- Large wood margin complexity
- Enhance side-channel connectivity
- Riparian revegetation
- Bridge
- Riprap
- Levee
- Dam
- Canal

Recent Bing Aerial Imagery

0 150 300 600 Feet



2006 LiDAR

Upper Methow Reach Assessment

Project Opportunities

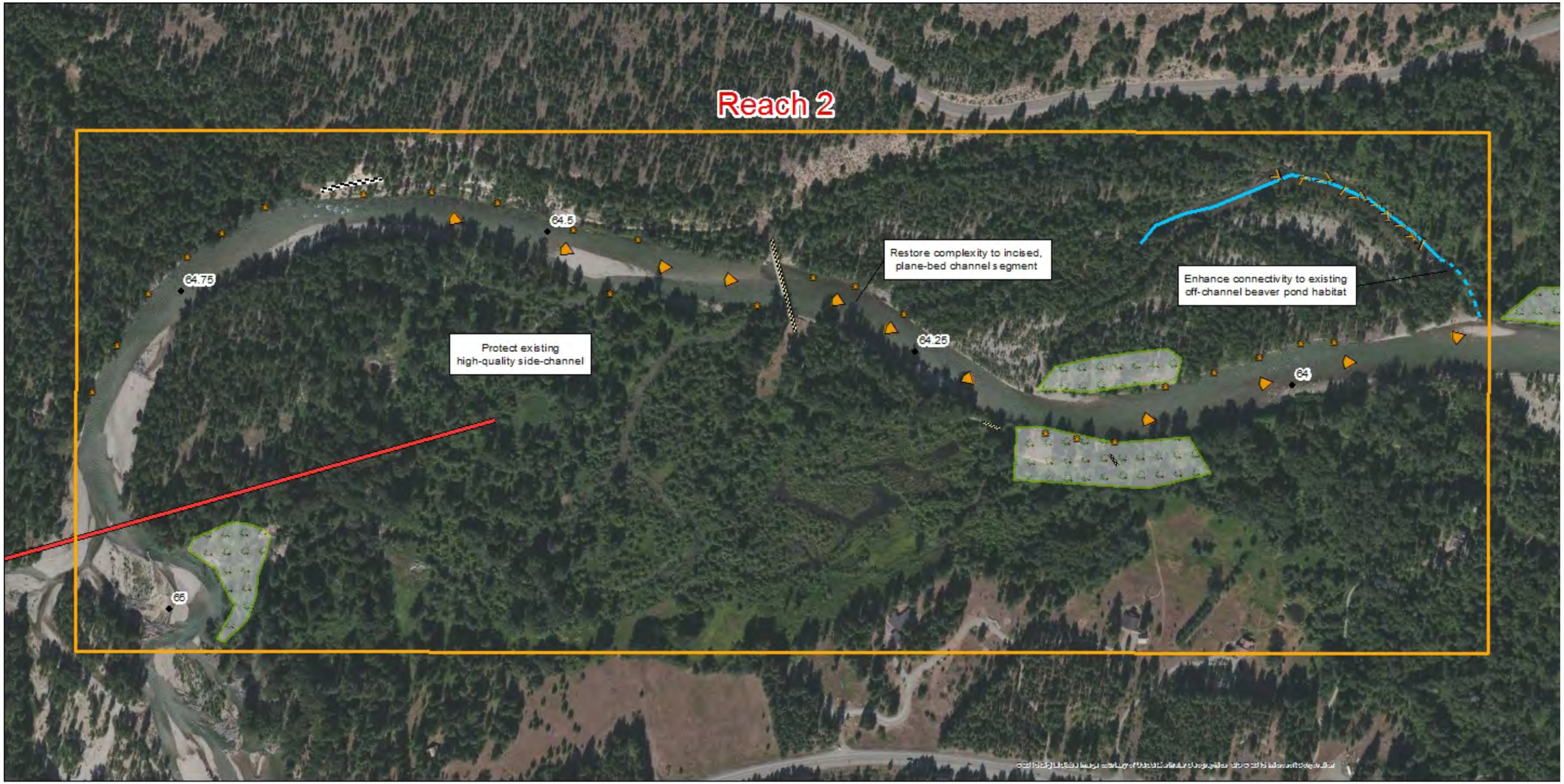
Goat Creek Project

These drawings should be viewed only as very preliminary concepts intended to describe the type of potential restoration work that could be performed. Additional site investigations and analysis will be necessary to determine specific treatment types and locations

Project elements

- Bar apex log jam
- Large wood margin complexity
- Enhance side-channel connectivity
- Riparian revegetation
- Bridge
- Riprap
- Levee
- Dam
- Canal
- Active channel

0 150 300 600 Feet



Upper Methow Reach Assessment

Project Opportunities

Trail Bridge Project

These drawings should be viewed only as very preliminary concepts intended to describe the type of potential restoration work that could be performed. Additional site investigations and analysis will be necessary to determine specific treatment types and locations

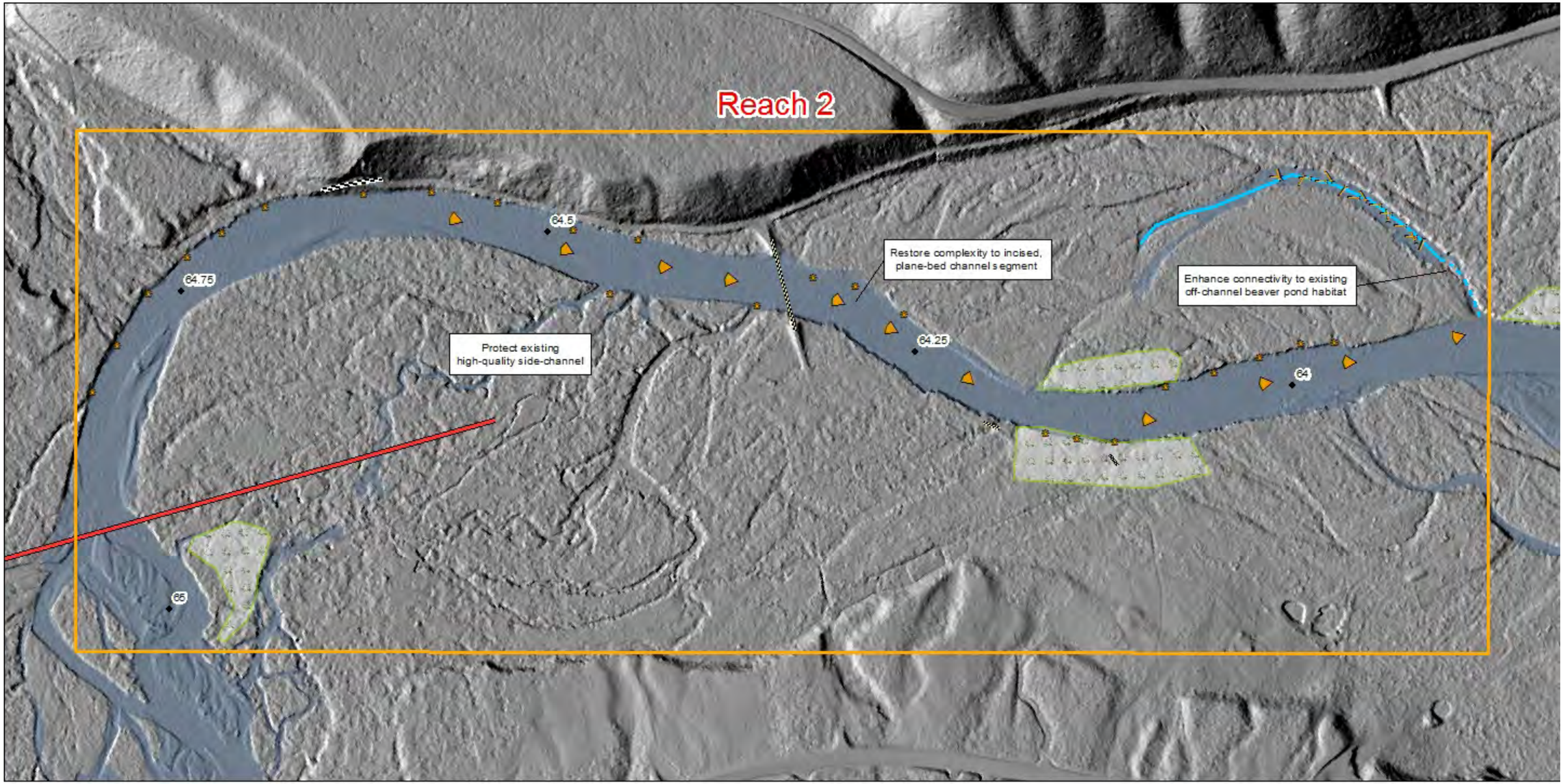
Project elements

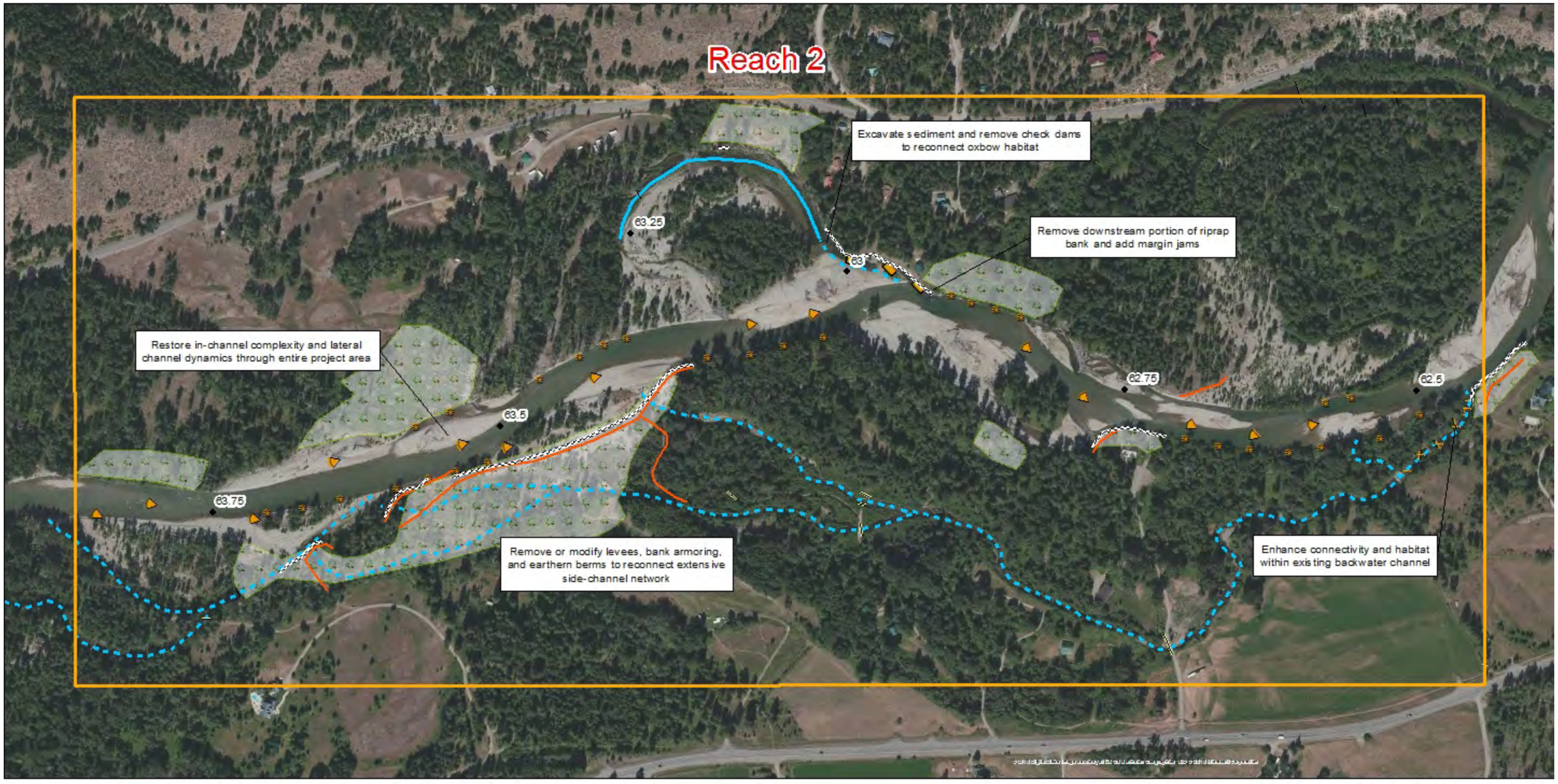
- Bar apex log jam
- Individual log placement
- Large wood margin complexity
- Enhance side-channel connectivity
- Riparian revegetation
- Bridge
- Riprap
- Levee
- Dam
- Canal

Recent Bing Aerial Imagery

0 200 400 800 Feet

N


Reach 2
64.5
64.75
64.25
64
65
Restore complexity to incised, plane-bed channel segment
Enhance connectivity to existing off-channel beaver pond habitat
Protect existing high-quality side-channel
2006 LiDAR
Upper Methow Reach Assessment
Project Opportunities
Trail Bridge Project
These drawings should be viewed only as very preliminary concepts intended to describe the type of potential restoration work that could be performed. Additional site investigations and analysis will be necessary to determine specific treatment types and locations
Project elements
Bar apex log jam
Individual log placement
Large wood margin complexity
Enhance side-channel connectivity
Riparian revegetation
Bridge
Riprap
Levee
Dam
Canal
Active channel
0
200
400
800 Feet
N



Upper Methow Reach Assessment

Project Opportunities

Fawn Creek Project

These drawings should be viewed only as very preliminary concepts intended to describe the type of potential restoration work that could be performed. Additional site investigations and analysis will be necessary to determine specific treatment types and locations

Project elements

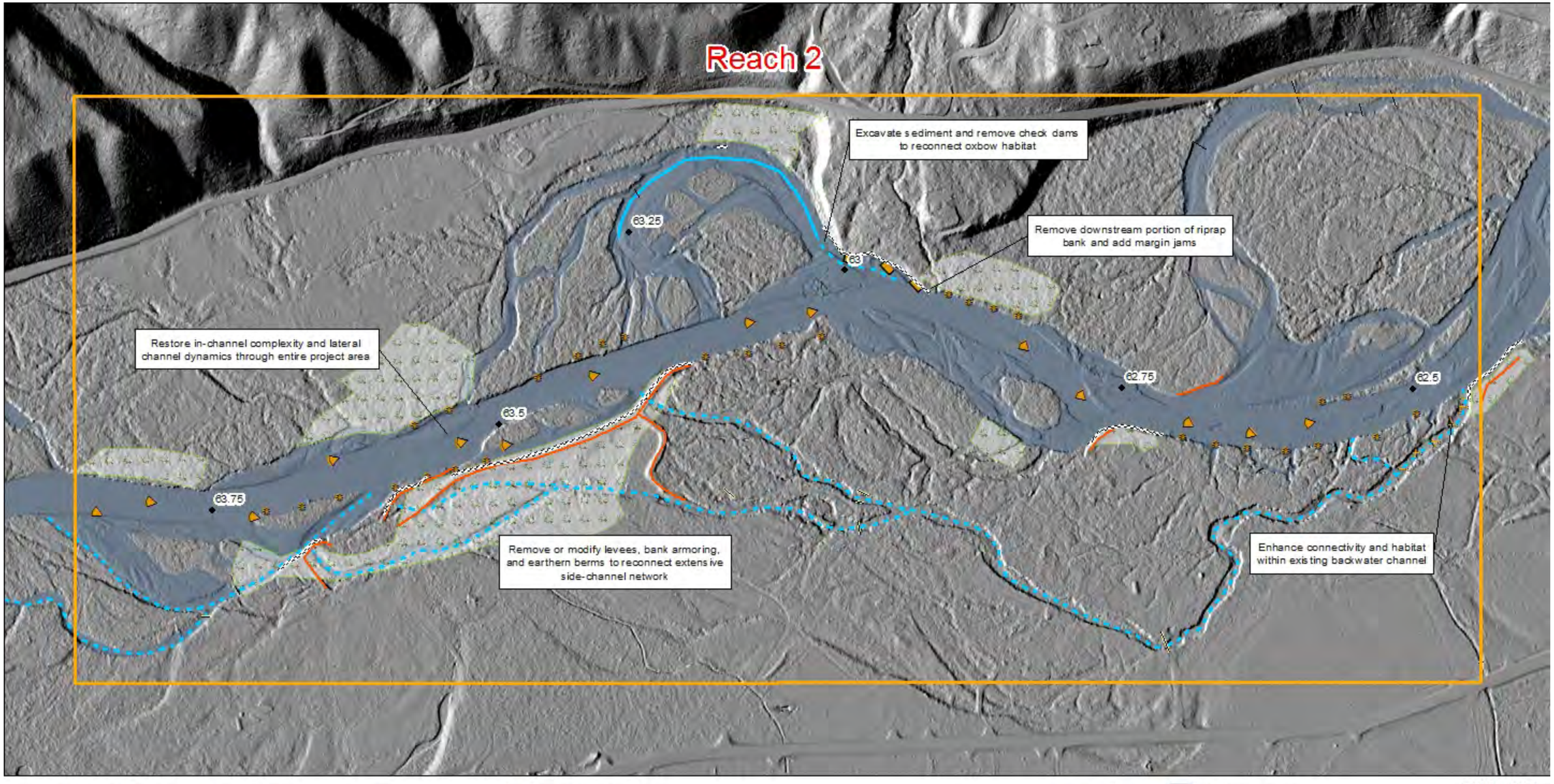
- Bar apex log jam
- Individual log placement
- Large wood margin complexity
- Channel margin log jam
- Enhance side-channel connectivity
- Riparian revegetation

- Bridge
- Riprap
- Levee
- Dam
- Canal

Recent Bing Aerial Imagery

0 250 500 1,000 Feet

N



Upper Methow Reach Assessment

Project Opportunities

Fawn Creek Project

These drawings should be viewed only as very preliminary concepts intended to describe the type of potential restoration work that could be performed. Additional site investigations and analysis will be necessary to determine specific treatment types and locations

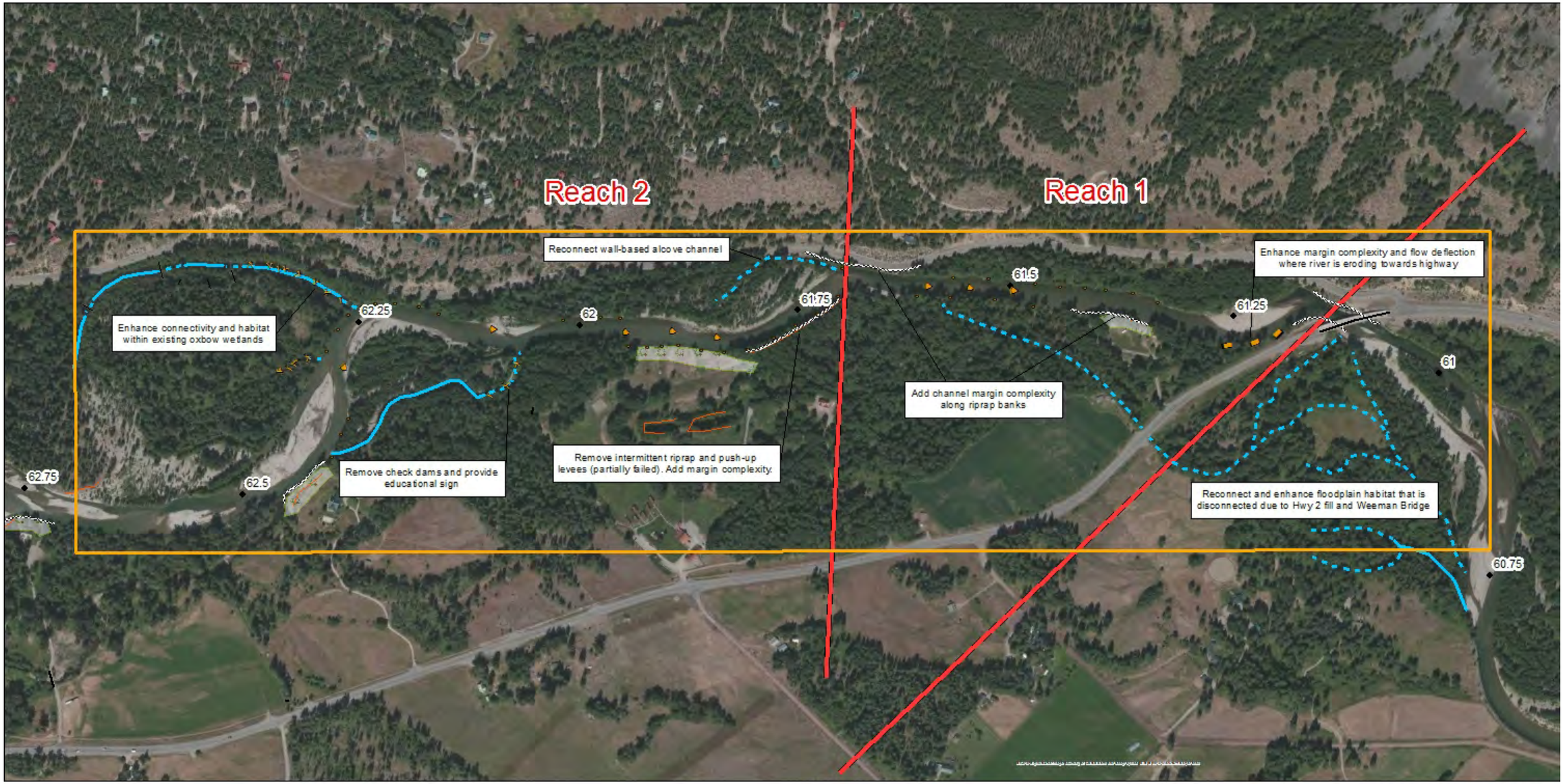
Project elements

- Bar apex log jam
- Individual log placement
- Large wood margin complexity
- Channel margin log jam
- Enhance side-channel connectivity
- Riparian revegetation
- Bridge
- Riprap
- Levee
- Dam
- Canal
- Active channel

2006 LiDAR

0 250 500 1,000 Feet

N



Upper Methow Reach Assessment

Project Opportunities

Weeman Project

These drawings should be viewed only as very preliminary concepts intended to describe the type of potential restoration work that could be performed. Additional site investigations and analysis will be necessary to determine specific treatment types and locations

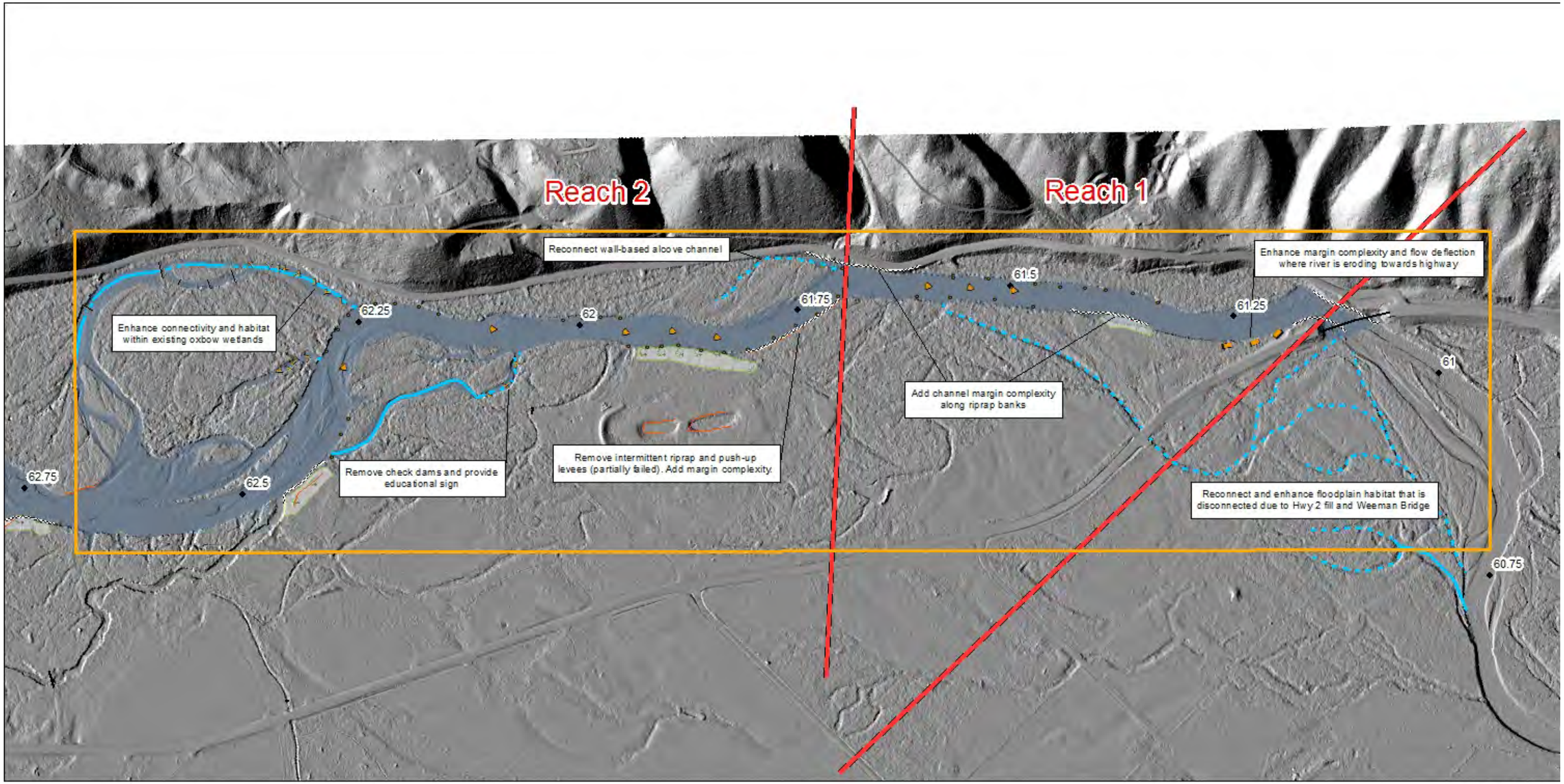
Project elements

- Bar apex log jam
- Individual log placement
- Large wood margin complexity
- Channel margin log jam
- Enhance side-channel connectivity
- Riparian revegetation
- Bridge
- Riprap
- Levee
- Dam
- Canal

Recent Bing Aerial Imagery

0 250 500 1,000 Feet

N



Upper Methow Reach Assessment

Project Opportunities

Weeman Project

These drawings should be viewed only as very preliminary concepts intended to describe the type of potential restoration work that could be performed. Additional site investigations and analysis will be necessary to determine specific treatment types and locations

Project elements

- Bar apex log jam
- Individual log placement
- Large wood margin complexity
- Channel margin log jam
- Enhance side-channel connectivity
- Riparian revegetation
- Bridge
- Riprap
- Levee
- Dam
- Canal
- Active channel

2006 LiDAR

0 250 500 1,000 Feet

N

Project Ranking Methods (Version: Sept 2015)

Step 1: **Benefit Score** Projects are scored according to 3 benefit categories, which include a "recovery gap" category and 2 additional categories. Scores for each category are summed to obtain the ***Benefit Score***.

Step 2: **Cost Score** Projects are given a ***Cost Score***, which reflects the overall *relative cost* for the project based on techniques, access, and construction feasibility issues.

Step 3: **Benefit-to-Cost Score** Total benefit score (sum of all 4 benefit scores) is divided by the cost score to obtain the ***Benefit-to-Cost Score***.

Step 4: **Feasibility Designation** Projects are given a ***Feasibility Designation*** based on the overall likely feasibility of being able to implement the project within a 10-year timeframe.

Benefit Score

The Benefit Score includes the summation of scores from 3 categories. These include the Recovery Gap score (0-6 points), the Fish Use score (1-3 points), and the Root Causes score (1-3 points). The guidelines for scoring are provided below.

Recovery Gap

Existing Condition Rating (1-7)

1 – Very low ecosystem function and habitat quality. Highly altered systems.
2 – Low ecosystem function and habitat quality.
3 – Low-to-moderate ecosystem function and habitat quality.
4 – Moderate ecosystem function and habitat quality.
5 – Moderate-to-high ecosystem function and habitat quality.
6 – High ecosystem function and habitat quality.
7 – Very high level of natural ecosystem function and habitat quality. Pristine, unaltered systems.

Achievable Condition Rating (1-7)

These ratings use the same categories as above but reflect the future potential recovery trajectory. This is a rating of what can realistically be achieved given past and on-going impacts and constraints of land use, infrastructure, social acceptance, and ownership. Ratings should reflect an "optimistic potential scenario" in order to not discount large potential changes.

Final Gap Score (0-6)

This is simply the achievable condition rating minus the existing condition rating. This represents the gap that can be filled between existing and target conditions through restoration measures.

Fish Use

3 – High existing or potential productivity area for spawning or rearing for multiple species
2 – Moderate existing or potential productivity area for one or more species
1 – Low existing or potential productivity area for one or two species

Root Causes

3 – Restoration of root causes and key physical processes that create and maintain habitat over time

2 – Partial restoration of root causes

1 – Primarily a structurally-focused restoration strategy that doesn't significantly address underlying causes

Cost Score

The cost score reflects the relative cost for the project based on techniques, access, and feasibility issues. This is a relative cost, not an absolute cost, so the scale of the project is NOT factored into this score. The cost score ranges from 1 to 3, with 1 reflecting relatively lower cost projects. The following guidelines/examples can help to determine the cost score.

3 – High relative cost

- Uses high cost techniques (e.g. constructed banks, highly engineered log jams, extensive channel shaping, extensive infiltration galleries)
- Deep excavation or long distance hauling of spoils
- Entails construction of additional new flood control or bank erosion features (e.g. set-back levees or buried rip-rap)
- Extensive planting or invasive weed control
- Limited, difficult, or remote access
- Intensive de-watering requirements

2 – Moderate relative cost

- Uses moderate cost techniques (e.g. typical log jam structures)
- Moderate excavation and hauling distance of spoils
- Typical planting or invasive weed control
- Moderate access conditions
- Standard or no de-watering requirements

1 – Low relative cost

- Uses low cost techniques (e.g. non-ballasted log placements)
- Minimal excavation and hauling distance of spoils
- Little to no planting or weed control
- Easy access conditions
- No de-watering required
- Availability of free materials or volunteer labor

Benefit-to-Cost Score

The benefit-to-cost score is simply the benefit score divided by the cost score. This is a relative value used to compare project benefits.

Feasibility Designation

The feasibility designation is the overall likely feasibility of being able to implement the project within a 10-year timeframe. This is based on landownership, as well as economic, regulatory, political, social, permitting, or other considerations that are known to impact the feasibility of

conducting projects within a reasonable timeframe. The feasibility designation is not used as part of the project scoring because feasibility issues may change over time and it is desirable to evaluate project benefits independent of feasibility. The designations include the following:

High feasibility

- No known feasibility issues.
- One or two landowners; or landowner(s) has already indicated willingness

Moderate feasibility

- There are potential feasibility constraints that could affect the likelihood of project implementation within a 10-year timeframe
- Three to five landowners; or there is reason to believe landowner(s) would grant permission

Unlikely feasibility

- There are known feasibility constraints that would be expected to limit the ability to implement the project within a 10-year timeframe
- More than five landowners: or there is reason to believe landowner(s) would not grant permission

Upper Methow Reach Assessment and Restoration Strategy - Project Prioritization

Reaches ranked using the Total Benefit Score
Version: Sept 9, 2015

Project Information						Benefit Score									Cost Score		Cost Benefit	Feasibility Designation	
						Restoration Gap Analysis				Existing and Potential Fish Use		Root Causes							
Tiers	Project Name	Reach	Down-stream RM	Up-stream RM	Total Length (mi)	Existing Condition (1-7)	Achievable Target (1-7)	Final Gap Score (Target - Existing) (0-6)	Rationale/ assumption	Score (1-3)	Rationale/ assumption	Score (1-3)	Rationale/ assumption	Total Benefit Score	Cost Score	Rationale/ assumption	Benefit-to-Cost Score	Feasibility Designation	Rationale/ assumption
1	Fawn Creek	2	62.40	63.85	1.45	2	6	4	Low existing function. High potential assuming levees addressed	3	High spawning use. Assumed rearing. Typically remains wetted.	3	Mostly recovery (levee/riprap removals, riparian) with some enhancement [assumes levees can be removed]	10	2.5	Removal/set-back of engineered levee/trail. Mod dense main channel jams	4.0	Moderate	Challenging but possible to address levee/trail issues
	Goat Creek	3	65.00	66.25	1.25	3	6	3	Low to moderate existing. High potential assuming levees addressed	2.5	High spawning use. Assumed rearing but seasonally dry conditions may affect usability	2.5	Combination of Recovery (levee removal/modification, riparian work) and Enhancement (log jams)	8	1.5	Mostly push-up levees that can be spoiled on site. Mostly margin log jams	5.3	Moderate	Private lands. Some houses and infrastructure.
	Trail Bridge	2	63.85	64.90	1.05	3	6	3	Low to moderate existing. High potential due to low risk to infrastructure	3	High spawning use. Assumed rearing. Typically remains wetted.	2	Mostly enhancement	8	2	Moderately dense mainstem log jams	4.0	Moderate - High	Mostly in-channel work with relatively little risk to infrastructure, accessible
	Weeman	1-2	60.75	62.75	2.00	2	5	3	Low existing function. Moderate potential given existing infrastructure	3	High spawning use. Assumed rearing. Typically remains wetted.	2	Mostly enhancement due to existing infrastructure in place	8	2.5	Sparse mainstem log jams. Instrastructure mods at DS end potentially expensive.	3.2	Low	Full recovery challenging due to infrastructure limitations (Weeman Bridge and Hwy 20)
	Cedarosa	6	72.25	73.85	1.60	3	6	3	Low to moderate existing. High potential assuming addressing floodplain drainage	2	Moderate spawning use. Assumed rearing but seasonally dry conditions may affect usability	2.5	Combination of Recovery (levee removal/modification, riparian work) and Enhancement (log jams)	7.5	2	Moderately dense mainstem log jams. Levees can be spoiled on-site	3.8	Moderate	Streamside and floodplain residences. Good accessibility.
2	Lower Mazama	4	66.15	67.20	1.05	3	5	2	Low to moderate existing. Moderate potential given existing infrastructure	2.5	High spawning use. Assumed rearing but seasonally dry conditions may affect usability	2	Mostly enhancement	6.5	2	Mostly push-up levees that can be spoiled on site. Mostly margin log jams. Off-chan work DS LB could be expensive	3.3	Low - Moderate	Challenging due to streamside residences and private property
	Lost River	6	73.70	75.00	1.30	3	5	2	Low to moderate existing. Moderate potential given Lost River Community impacts	2.5	High spawning use. But seasonally dry conditions may affect usability	2	Mostly enhancement given existing infrastructure affecting underlying processes	6.5	2.5	Mod dense main channel jams. High engineering requirements due to infrastructure. Relatively easy access	2.6	Low - Moderate	Challenging due to streamside residences and private property
	Goat Wall	5	70.25	71.30	1.05	4	6	2	Moderate existing. High potential given lack of significant infrastructure	2	Moderate spawning use. Assumed rearing but seasonally dry conditions may affect usability	2.5	Combination of Recovery (levee removal/modification, riparian work) and Enhancement (log jams)	6.5	2	Moderately dense mainstem log jams. Levees can be spoiled on-site	3.3	Moderate - High	Private lands on river-right but little infrastructure. USFS and road on river-left.
	A-Wall	5	69.15	70.25	1.10	4	6	2	Moderate existing. High potential given lack of significant infrastructure	2.5	High spawning use. Assumed rearing but seasonally dry conditions may affect usability	2	Mostly enhancement	6.5	2	Moderately dense mainstem log jams	3.3	Moderate	Decent access. Private lands
	Upper Mazama	4	67.20	69.15	1.95	3	5	2	Low to moderate existing. Moderate potential given existing infrastructure	2.5	High spawning use. Assumed rearing but seasonally dry conditions may affect usability	2	Mostly enhancement	6.5	2.5	Moderately dense mainstem log jams. Engineered jams on margins. Some access challenges	2.6	Low - Moderate	Challenging due to streamside residences and private property
3	Gate Creek	6	71.30	72.30	1.00	5	6	1	Moderate to high existing. Moderate to high potential given lack of significant infrastructure	2	Moderate spawning use. Assumed rearing but seasonally dry conditions may affect usability	2	Mostly enhancement	5	2	Moderately dense mainstem log jams. Engineered jams on margins. Some access challenges	2.5	Moderate - High	Private lands on river-right but little infrastructure. USFS and road on river-left.
	Ballard	8	76.50	76.90	0.40	6	6.5	0.5	Moderate to high existing. High potential given lack of significant infrastructure	1.5	Mainly riffle habitat. Only one redd on record	3	Levee removals	5	1	No main channel work.Levee spoils likely spoiled on site	5.0	Moderate	Campground protection needs to be considered
	Two Rivers	7	74.90	75.60	0.70	6	6.5	0.5	Moderate to high existing. High potential given lack of significant infrastructure	1.5	Limited spawning use. Unknown rearing use. Rarely dewaters	2.5	Combination of Recovery (levee removal) and Enhancement (log jams)	4.5	2	Mod dense main channel jams. Small levee can be spoiled on site. Mod access requirements	2.3	High	USFS land. No infrastructure at risk
	Robinson	7	75.60	76.50	0.90	6	6.5	0.5	Moderate to high existing. High potential given lack of significant infrastructure	2	Moderate spawning based on redd surveys. Habitat would support rearing	2	Mostly enhancement using log jams	4.5	2.5	Dense main channel jams. Mod-hard access. Dewatering likely required	1.8	High	USFS land. No infrastructure at risk