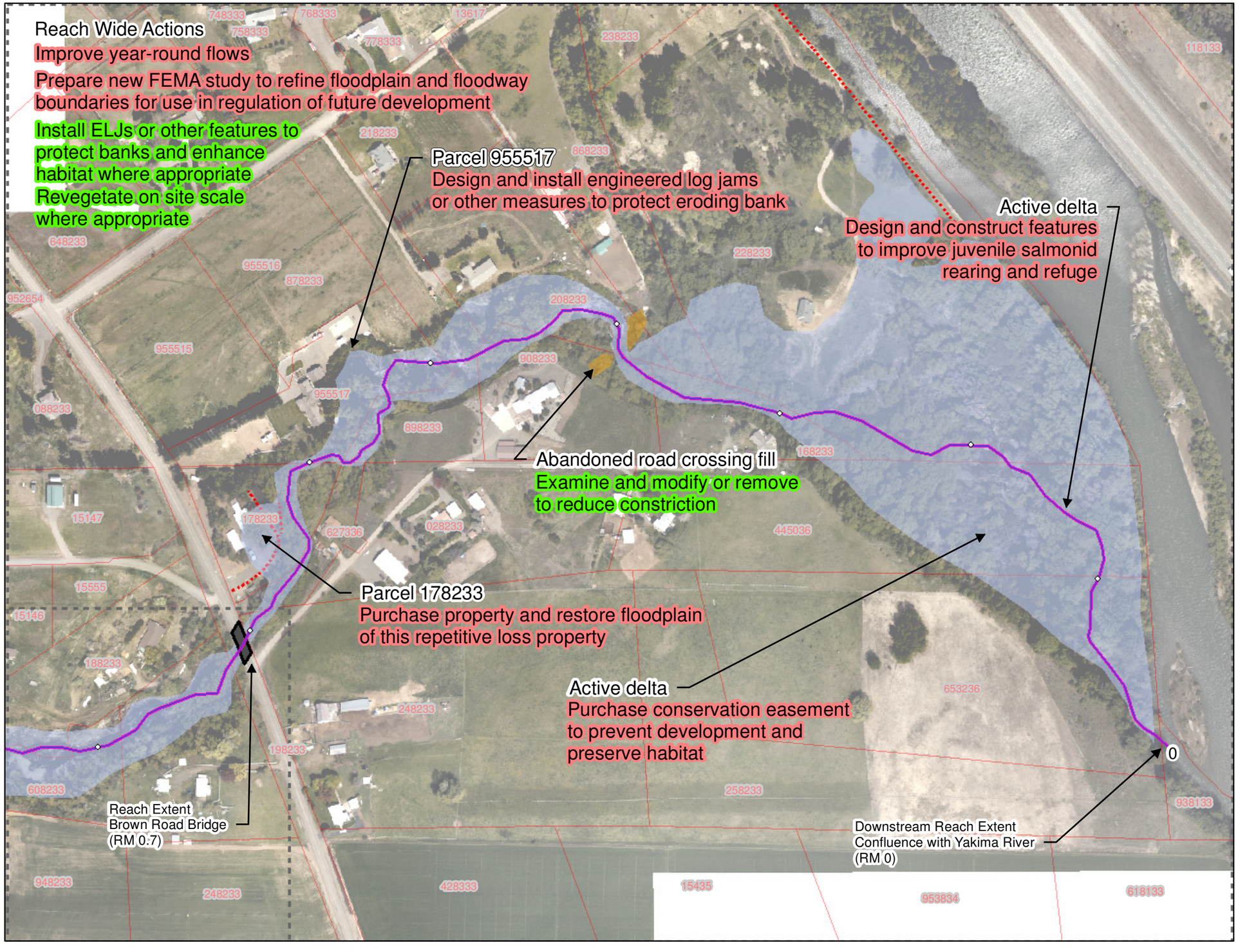


Reach 1
Confluence to Brown Road
(RM 0 to RM 0.7)

Legend

- Manastash Creek
- Bridges
- Abandoned Road Crossing Fill
- Approx. Limits of May 2011 Flood
- Berm
- Reach Print Boundary
- Tax Parcels (from County GIS)
- Tenth Mile Marker
- River Mile

Priority

- High
- Medium
- Low

DRAFT

Note: Tax parcel boundaries are from Kittitas County GIS layer. GeoReferencing appears to be poor in many areas, however, they are included for general reference.

N

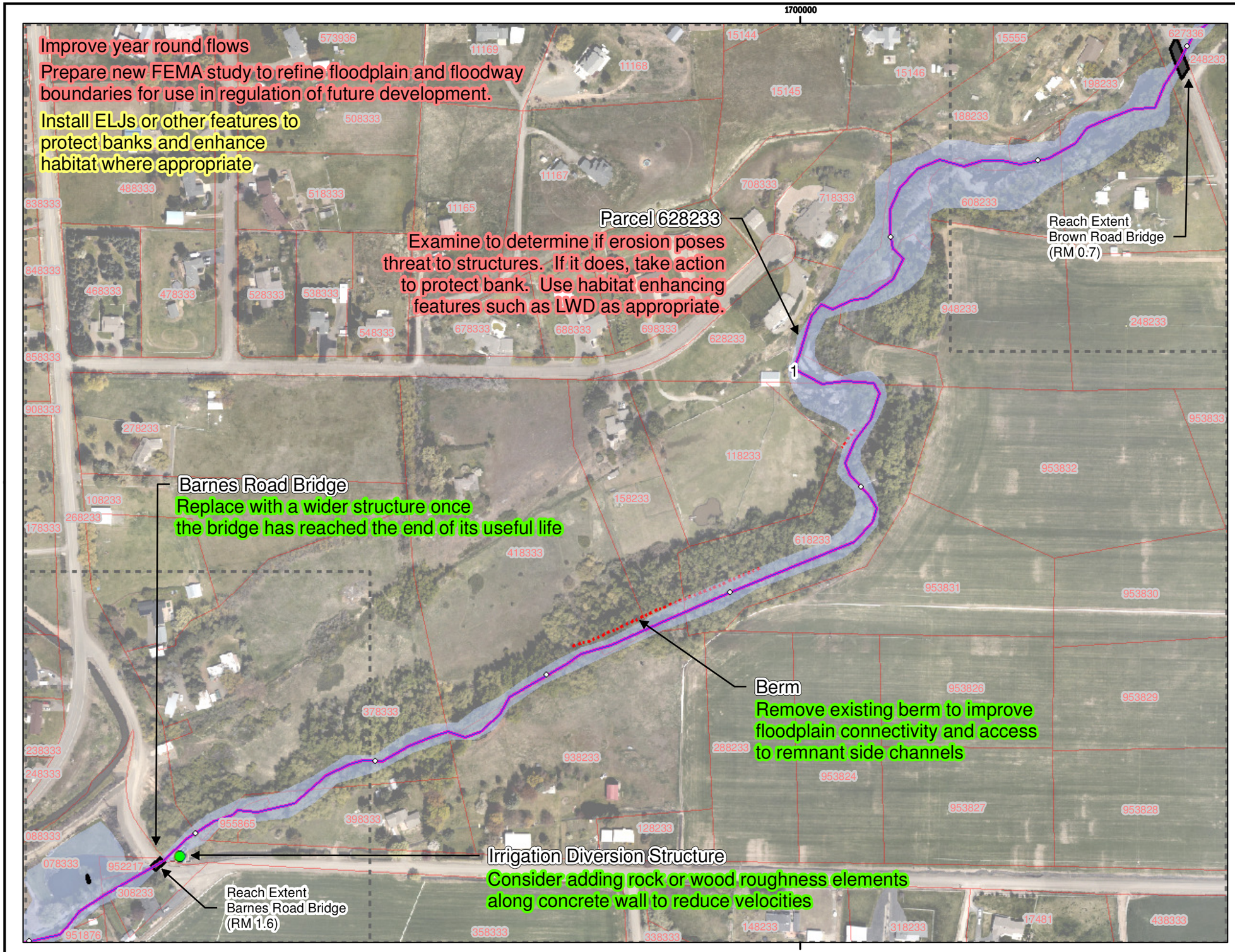
0 125 250 500

Feet

HERRERA WATERSHED SCIENCE & ENGINEERING

Aerial Photography: 2011 NAIP

Produced By: GIS
Project: F:\12-016 Monastash Corridor\GIS\Reaches 1 to 8.mxd (3/21/2013)



Reach 2
Brown Road to Barnes Road
(RM 0.7 to RM 1.6)

Legend

- Diversion
- Manastash Creek
- Bridges
- Approx. Limits of May 2011 Flood
- Berm
- Reach Print Boundary
- Tax Parcels (from County GIS)
- Tenth Mile Marker
- River Mile

Priority

- High
- Medium
- Low

DRAFT

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N

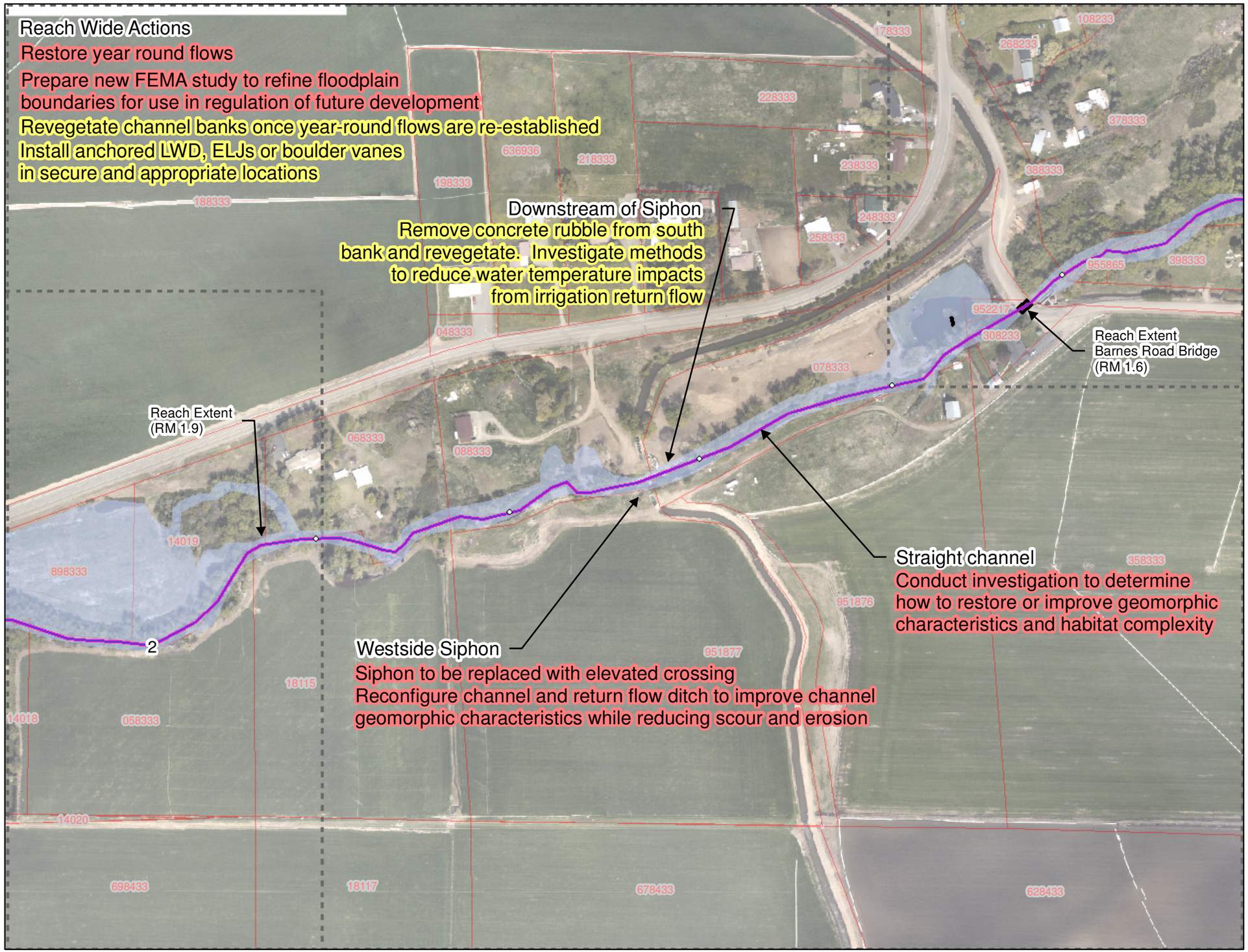
0 125 250 500

Feet

HERRERA WATERSHED SCIENCE & ENGINEERING

Aerial Photography: 2011 NAIP

Produced By: GIS
Project: F:\12-016 Monastash Corridor\GIS\Reaches 1 to 8.mxd (3/28/2013)



Reach 3
Westside Irrigation Crossing
(RM 1.6 to RM 1.9)

Legend

- Manastash Creek
- Bridges
- Approx. Limits of May 2011 Flood
- Berm
- Reach Print Boundary
- Tax Parcels (from County GIS)
- Tenth Mile Marker
- River Mile

Priority

- High
- Medium
- Low

DRAFT

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N

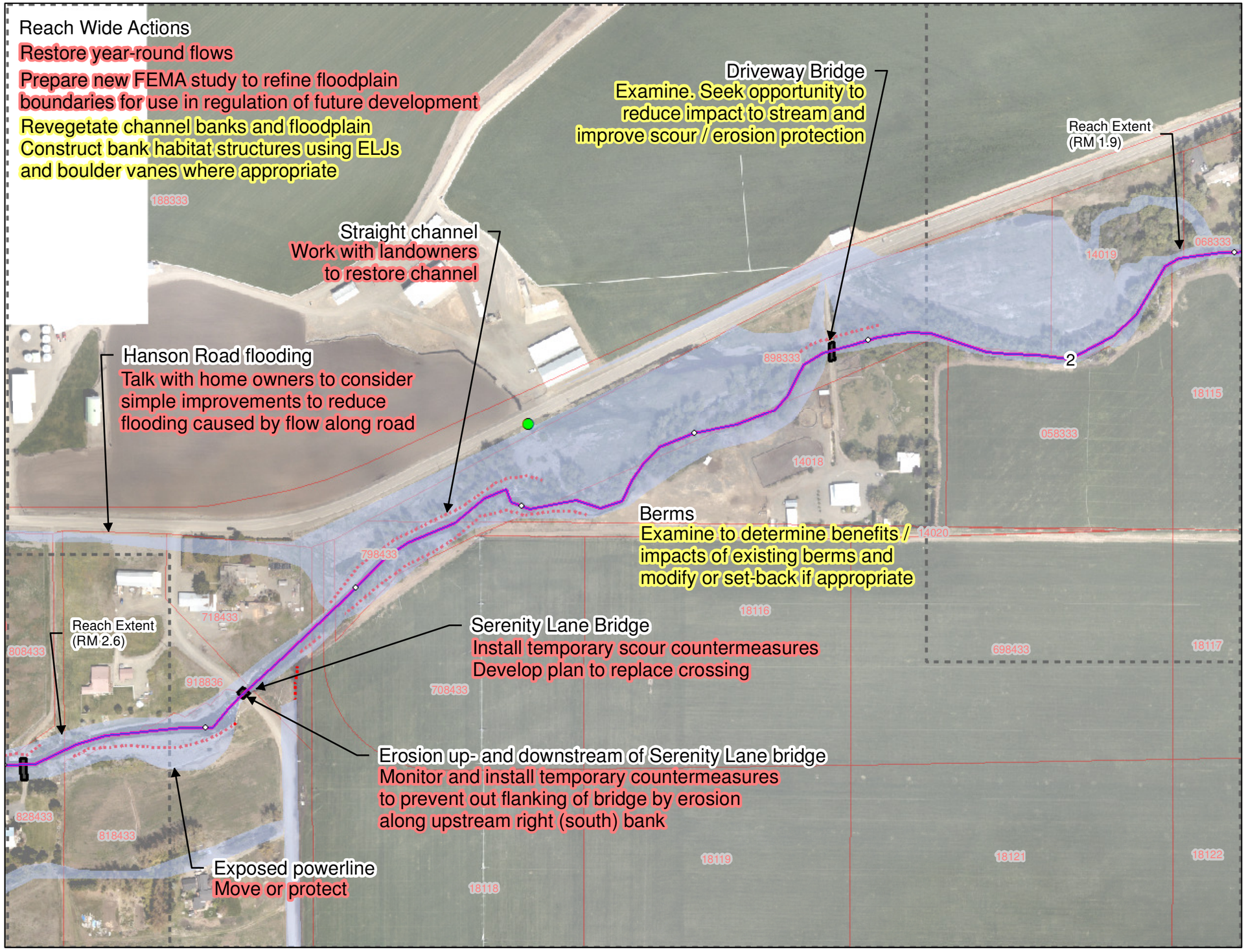
0 125 250 500

Feet

HERRERA WATERSHED SCIENCE & ENGINEERING

Aerial Photography: 2011 NAIP

Produced By: GIS
Project: F:\12-016 Monastash Corridor\GIS\Reaches 1 to 8.mxd (3/21/2013)



Reach 4
Serenity Lane
(RM 1.9 to RM 2.6)

Legend

- Diversion
- Manastash Creek
- Bridges
- Approx. Limits of May 2011 Flood
- Berm
- Reach Print Boundary
- Tax Parcels (from County GIS)
- Tenth Mile Marker
- River Mile

Priority

- High
- Medium
- Low

DRAFT

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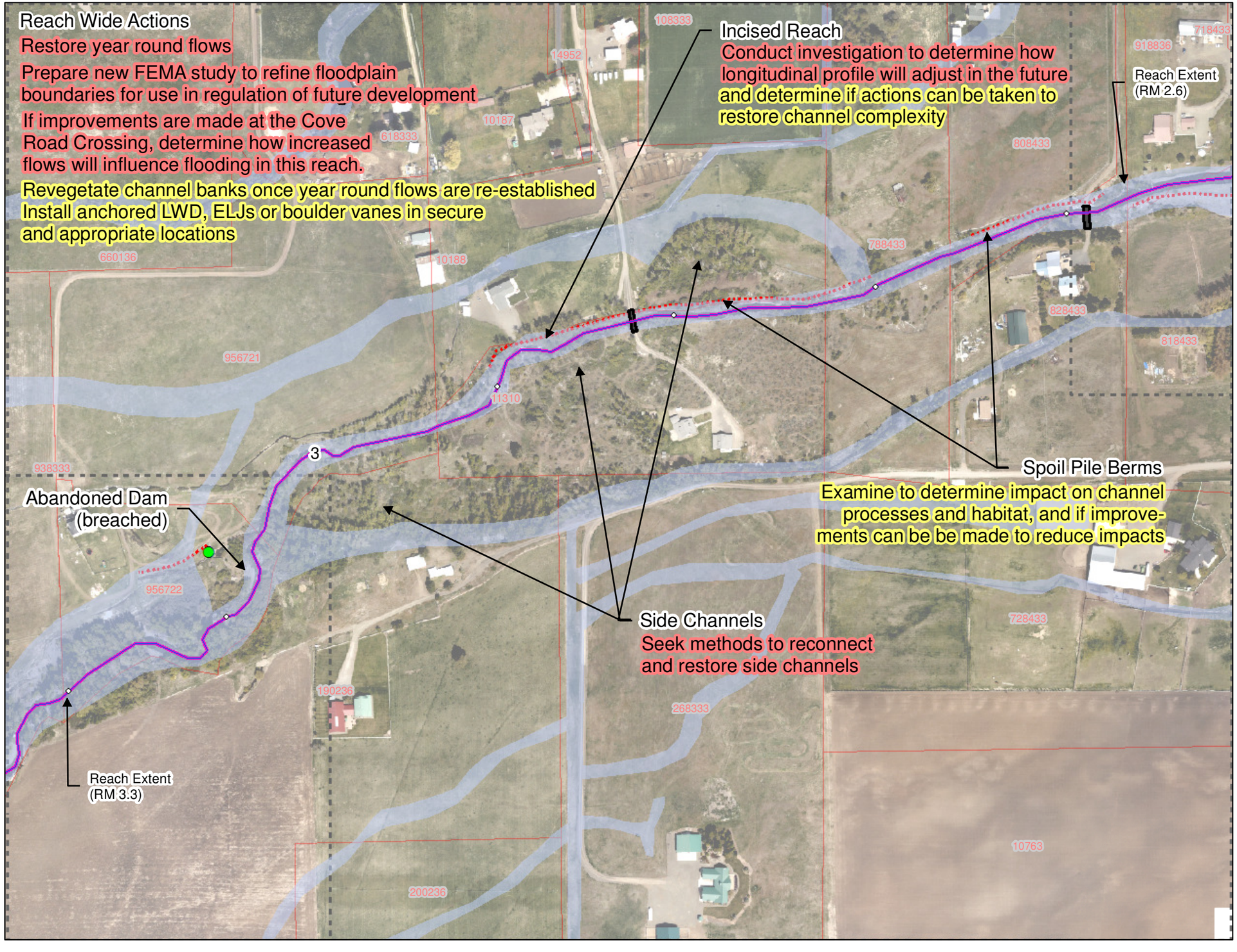
N

0 125 250 500
Feet

HERRERA WATERSHED SCIENCE & ENGINEERING

Aerial Photography: 2011 NAIP

Produced By: GIS
Project: F:\12-016 Monastash Corridor\GIS\Reaches 1 to 8.mxd (3/28/2013)



Reach 5
Abandoned Dam
(RM 2.6 to RM 3.3)

Legend

- Diversion
- Manastash Creek
- Bridges
- Approx. Limits of May 2011 Flood
- Berm
- Reach Print Boundary
- Tax Parcels (from County GIS)
- Tenth Mile Marker
- River Mile

Priority

High

Medium

Low

DRAFT

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N

0 125 250 500

Feet

HERRERA WATERSHED SCIENCE & ENGINEERING

Aerial Photography: 2011 NAIP

Produced By: GIS
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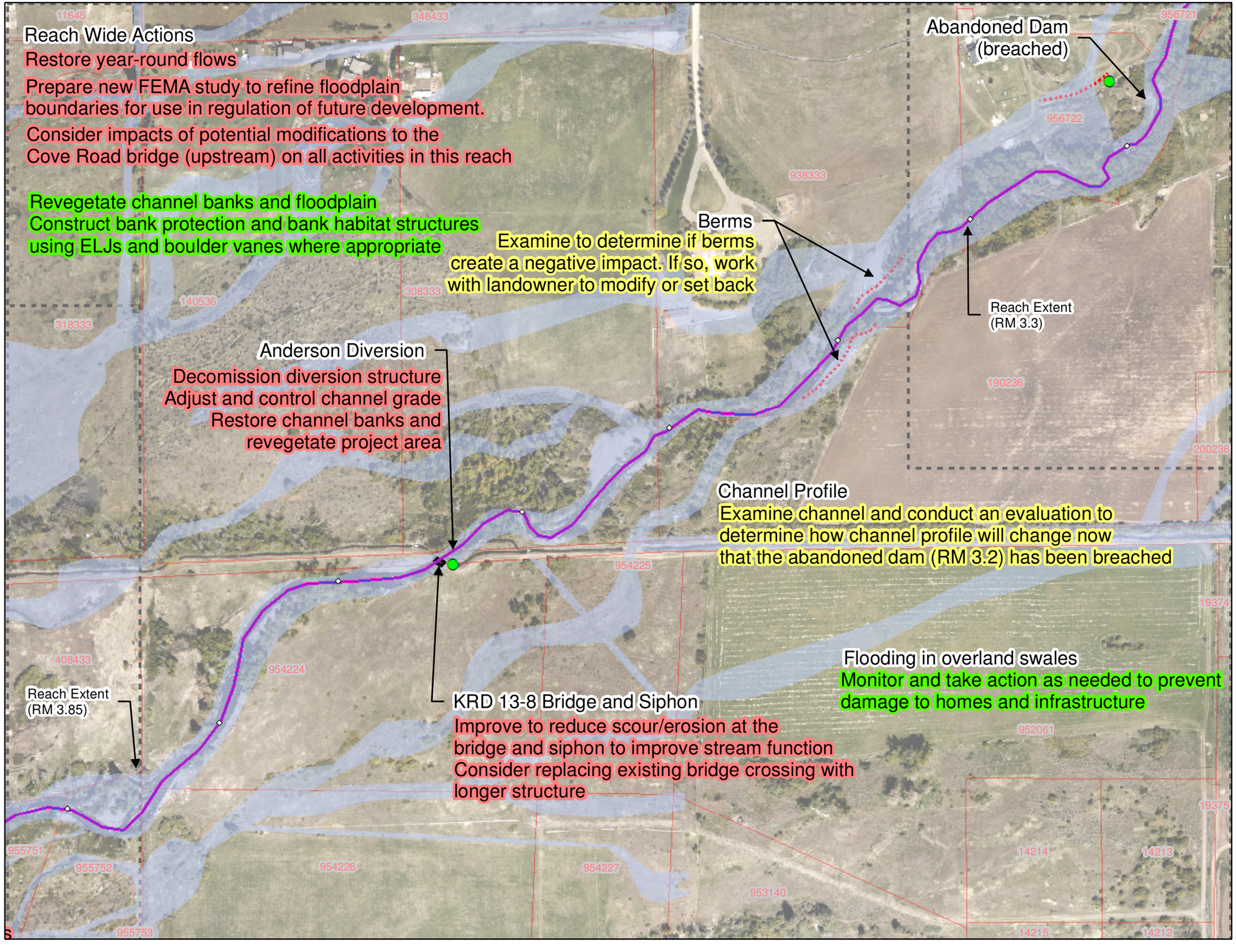

Reach 6
Anderson Diversion
(RM 3.3 to RM 3.85)

Legend

- Diversion
- Manastash Creek
- Bridges
- Approx. Limits of May 2011 Flood
- Berm
- Reach Print Boundary
- Tax Parcels (from County GIS)
- Tenth Mile Marker
- River Mile

Priority

High
Medium
Low

DRAFT

Note: Tax parcel boundaries are from Kittitas County GIS layer. GeoReferencing appears to be poor in many areas, however, they are included for general reference.

N

0 125 250 500
Feet

HERRERA WATERSHED SCIENCE & ENGINEERING

Aerial Photography: 2011 NAIP

Produced By: GIS
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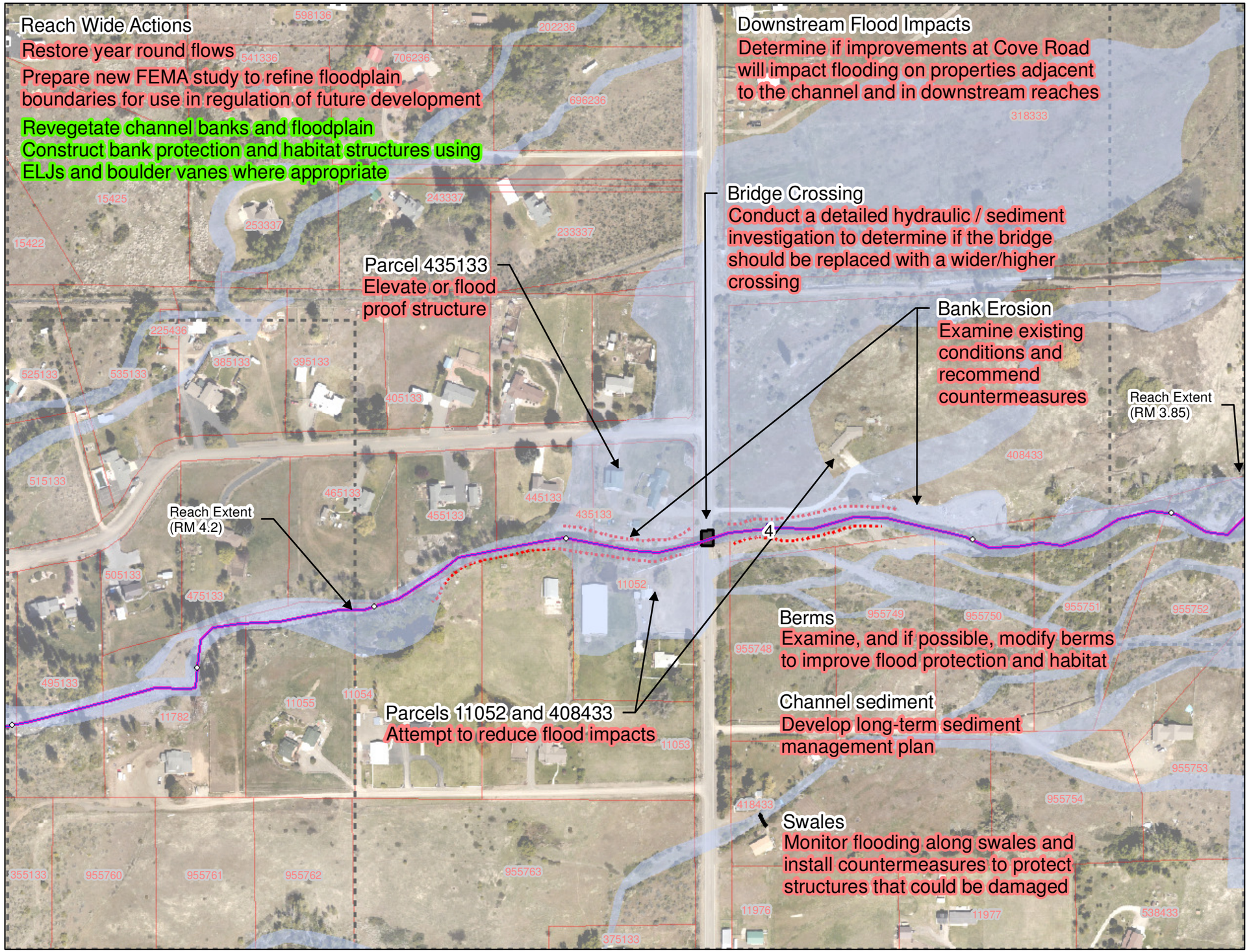

Reach 7
Cove Road Crossing
(RM 3.85 to RM 4.2)

Legend

- Manastash Creek
- Bridges
- Approx. Limits of May 2011 Flood
- Berm
- Reach Print Boundary
- Tax Parcels (from County GIS)
- Tenth Mile Marker
- River Mile

Priority

High

Medium

Low

DRAFT

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N

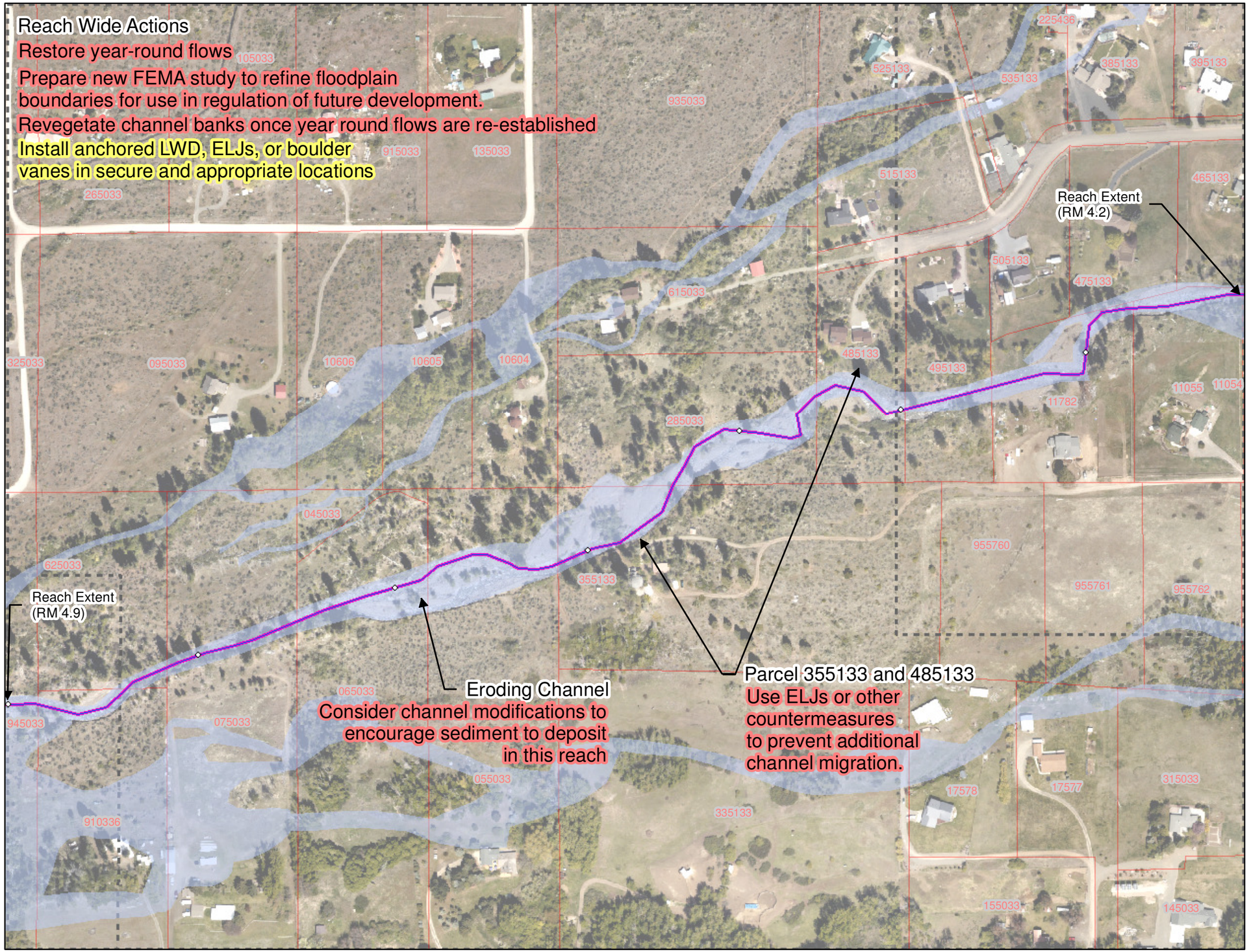
0 125 250 500

Feet

HERRERA WATERSHED SCIENCE & ENGINEERING

Aerial Photography: 2011 NAIP

Produced By: GIS
Project: F:\12-016 Monastash Corridor\GIS\Reaches 1 to 8.mxd (3/28/2013)



Reach 8
US Cove Road to DS Reed Diversion
(RM 4.2 to RM 4.9)

Legend

- Manastash Creek
- Bridges
- Approx. Limits of May 2011 Flood
- Berm
- Reach Print Boundary
- Tax Parcels (from County GIS)
- Tenth Mile Marker
- River Mile

Priority

High
Medium
Low

DRAFT

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N

0 125 250 500
Feet

HERRERA WATERSHED SCIENCE & ENGINEERING

Aerial Photography: 2011 NAIP

Produced By: GIS
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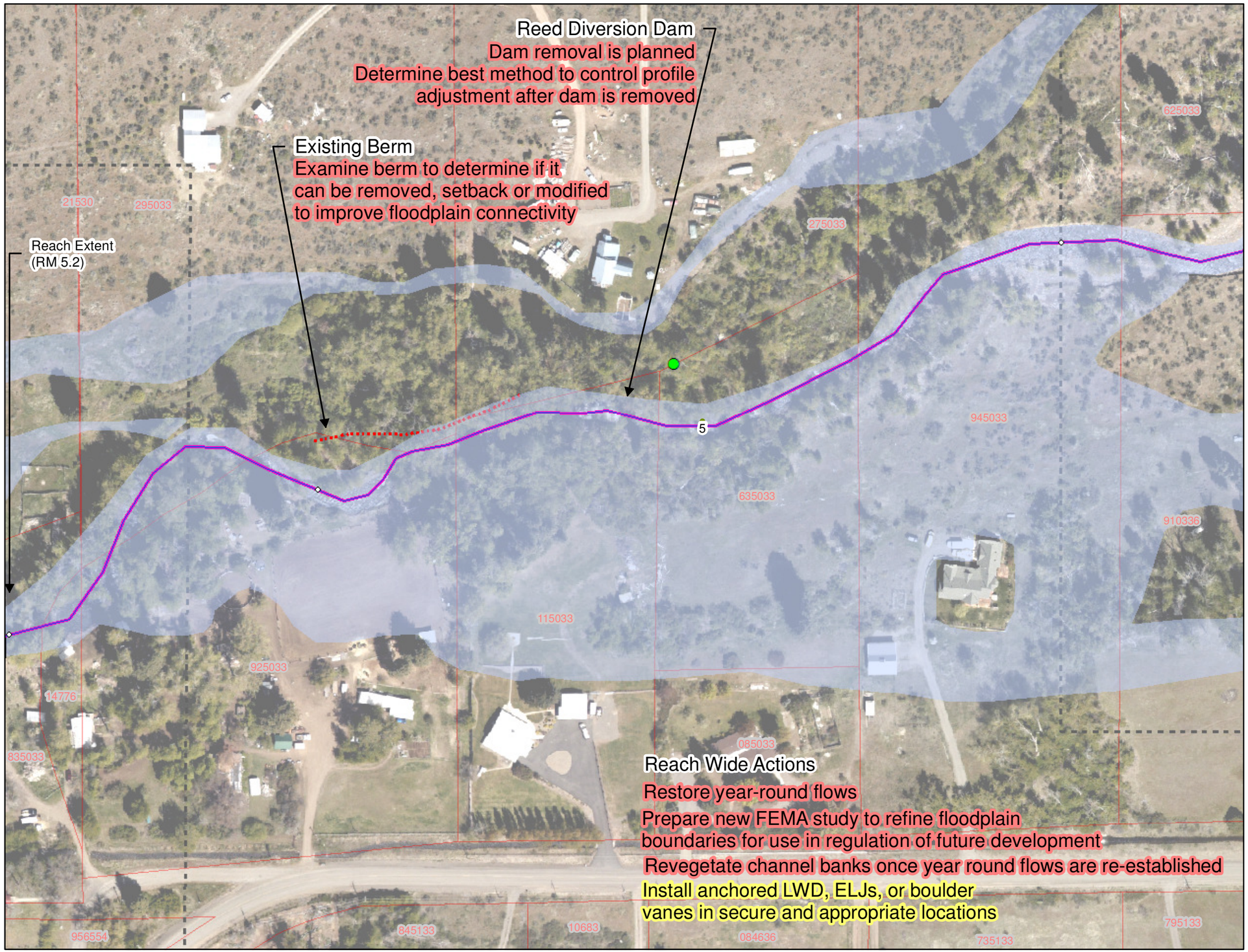

Reach 9
Reed Diversion Reach
(RM 4.9 to RM 5.2)

Legend

- Diversion
- Manastash Creek
- Bridges
- Approx. Limits of May 2011 Flood
- Berm
- Reach Print Boundary
- Tax Parcels (from County GIS)
- Tenth Mile Marker
- River Mile

Priority

- High
- Medium
- Low

DRAFT

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N

0 62.5 125 250

Feet

HERRERA WATERSHED SCIENCE & ENGINEERING

Aerial Photography: 2011 NAIP

Produced By: GIS
Project: F:\12-016 Monastash Corridor\GIS\Reaches 8 to 17.mxd (3/28/2013)

Reach 10
Natural Reach
(RM 5.2 to RM 5.5)

Legend

- Diversion
- Manastash Creek
- Bridges
- Approx. Limits of May 2011 Flood
- Berm
- Reach Print Boundary
- Tax Parcels (from County GIS)
- Tenth Mile Marker
- River Mile

Priority

High
Medium
Low

DRAFT

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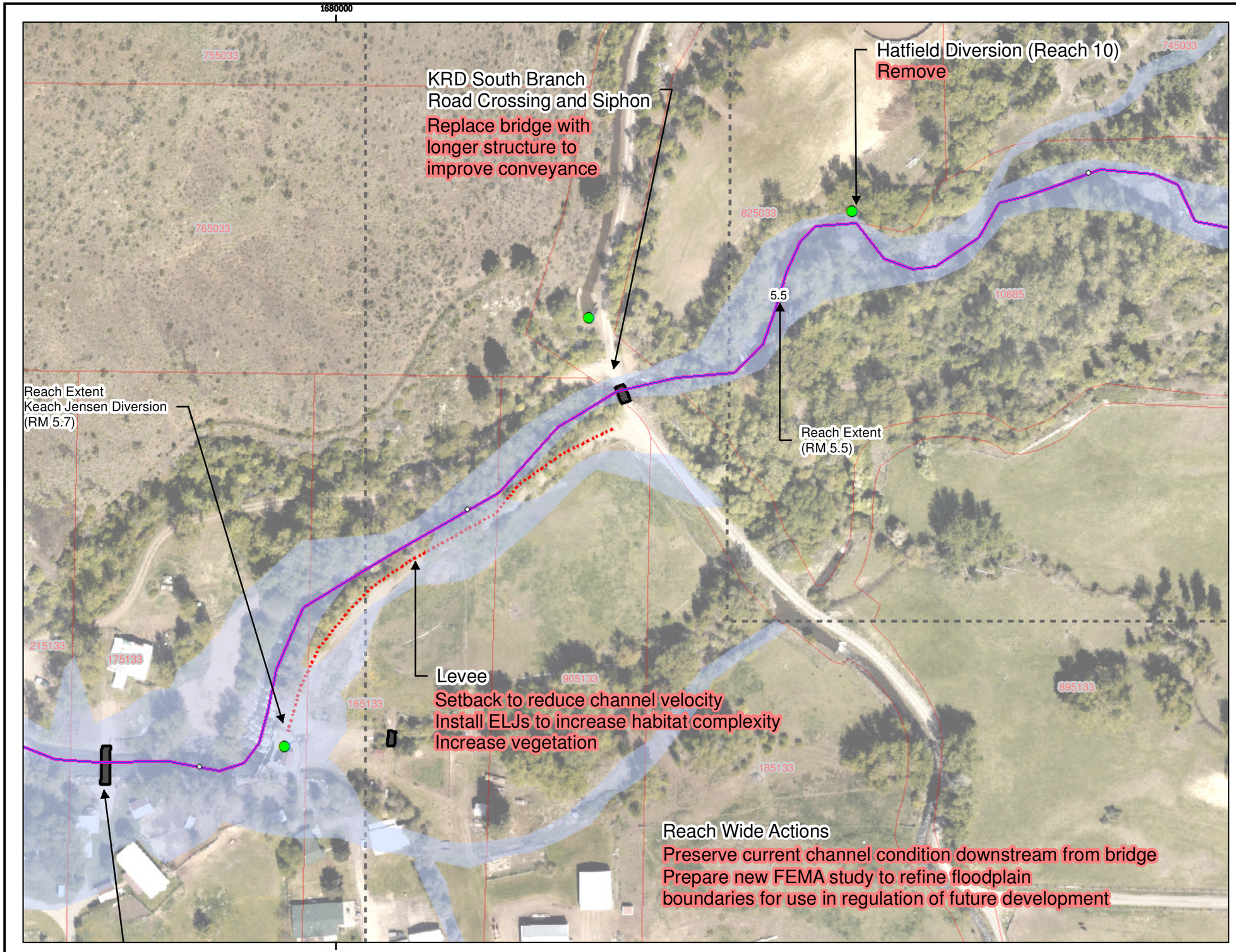
N

0 62.5 125 250
Feet

HERRERA WATERSHED SCIENCE & ENGINEERING

Aerial Photography: 2011 NAIP

Produced By: GIS
Project: F:\12-016 Monastash Corridor\GIS\Reaches 8 to 17.mxd (3/21/2013)



Reach 11
KRD South Branch Road Reach
(RM 5.5 to RM 5.7)

Legend

- Diversion
- Manastash Creek
- Bridges
- Approx. Limits of May 2011 Flood
- Berm
- Reach Print Boundary
- Tax Parcels (from County GIS)
- Tenth Mile Marker
- River Mile

Priority

High
Medium
Low

DRAFT

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N

0 62.5 125 250
Feet

HERRERA WATERSHED SCIENCE & ENGINEERING

Aerial Photography: 2011 NAIP

Produced By: GIS
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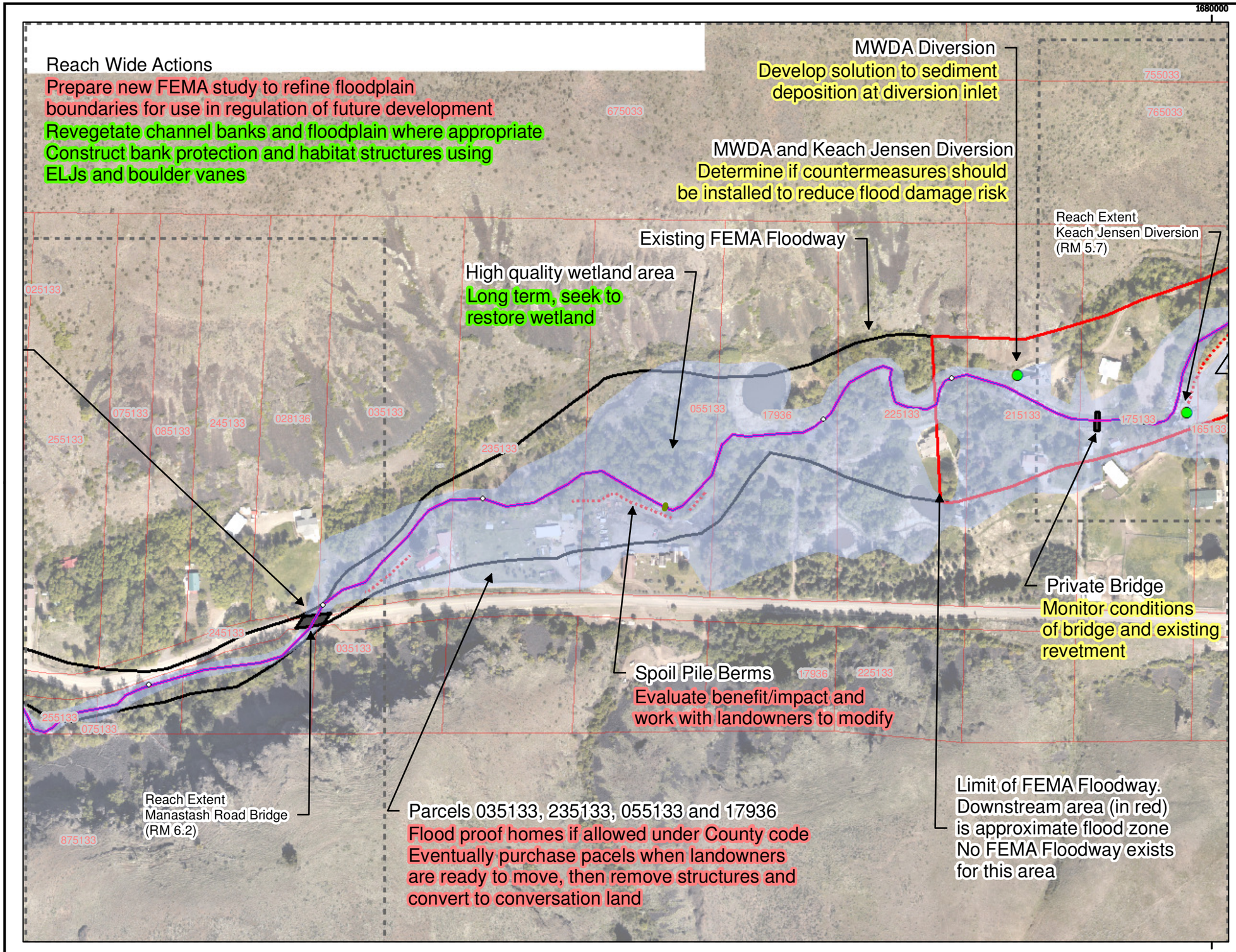

Reach 12
Keach Jensen to Manastash Rd Bridge
(RM 5.7 to RM 6.2)

Legend

- Diversion
- Manastash Creek
- Bridges
- Approx. Limits of May 2011 Flood
- Berm
- Reach Print Boundary
- Tax Parcels (from County GIS)

FEMA Flood Zone

- Floodplain A and AE
- Floodway
- Tenth Mile Marker
- River Mile

Priority

High
Medium
Low

DRAFT

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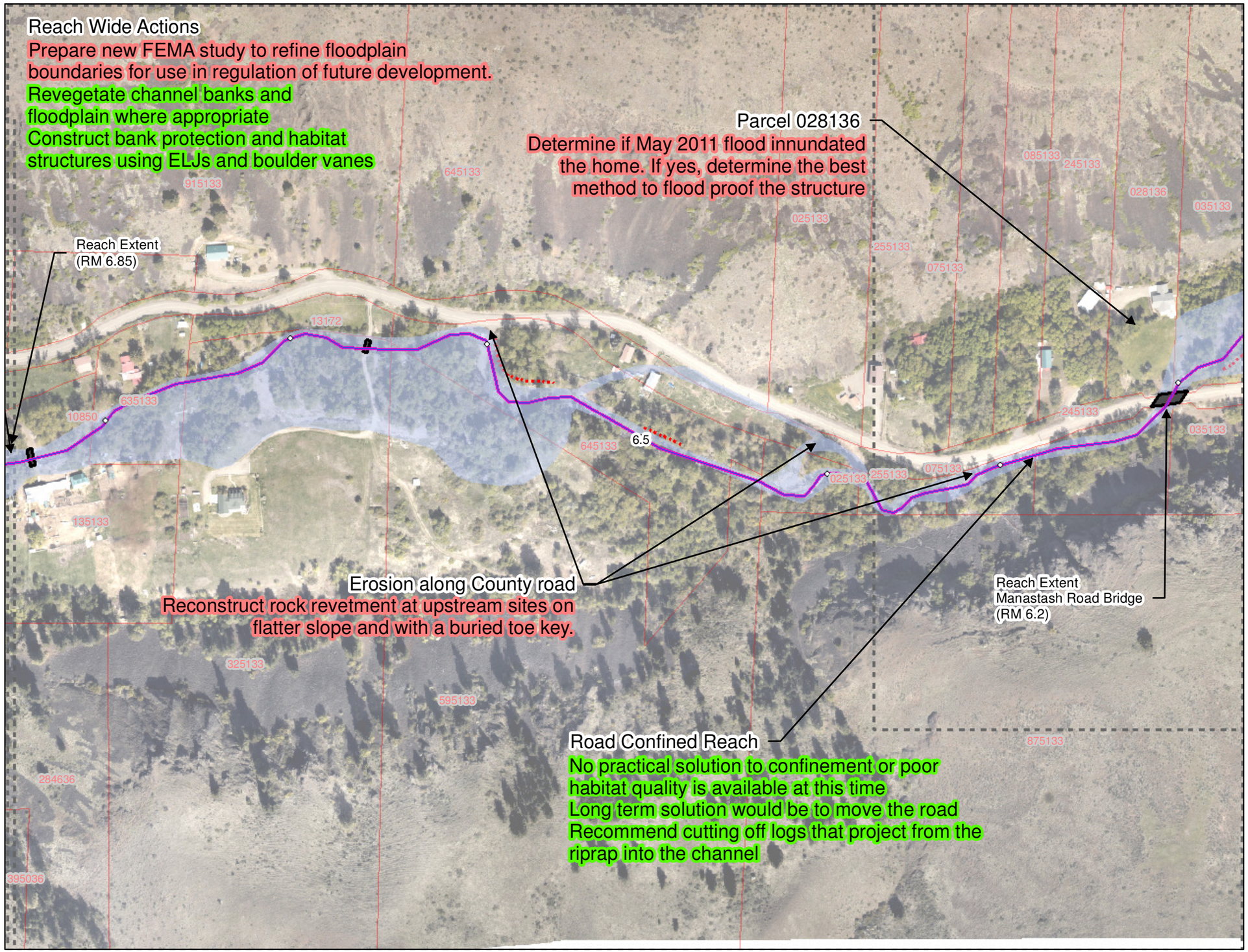
N

0 125 250 500
Feet

HERRERA WATERSHED SCIENCE & ENGINEERING

Aerial Photography: 2011 NAIP

Produced By: GIS
Project: F:\12-016 Monastash Corridor\GIS\Reaches 8 to 17.mxd (3/28/2013)



Reach 13
Manastash Bridge Confined Reach
(RM 6.2 to RM 6.85)

Legend

- Manastash Creek
- Bridges
- Approx. Limits of May 2011 Flood
- Berm
- Reach Print Boundary
- Tax Parcels (from County GIS)
- Tenth Mile Marker
- River Mile

Priority

High
Medium
Low

DRAFT

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N

0 125 250 500

Feet

HERRERA WATERSHED SCIENCE & ENGINEERING

Aerial Photography: 2011 NAIP

Produced By: GIS
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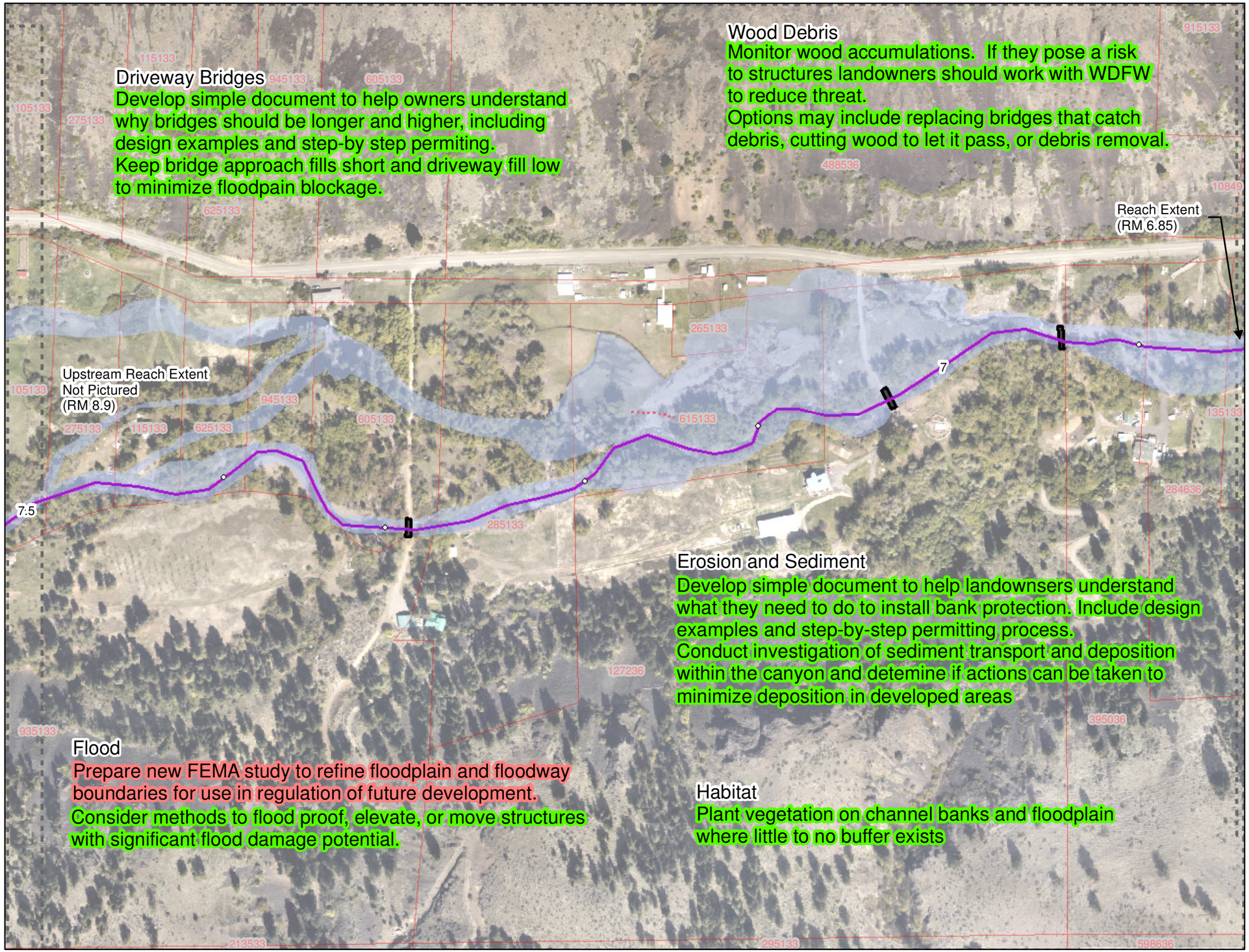


Reach 14
Canyon 14 (1 of 3 Figures)
(RM 6.85 to RM 8.9)

Legend

- Manastash Creek
- Bridges
- Approx. Limits of May 2011 Flood
- Berm
- Reach Print Boundary
- Tax Parcels (from County GIS)
- Tenth Mile Marker
- River Mile

Priority

- High
- Medium
- Low

DRAFT

Note: Tax parcel boundaries are from Kittitas County GIS layer. GeoReferencing appears to be poor in many areas, however, they are included for general reference.

N

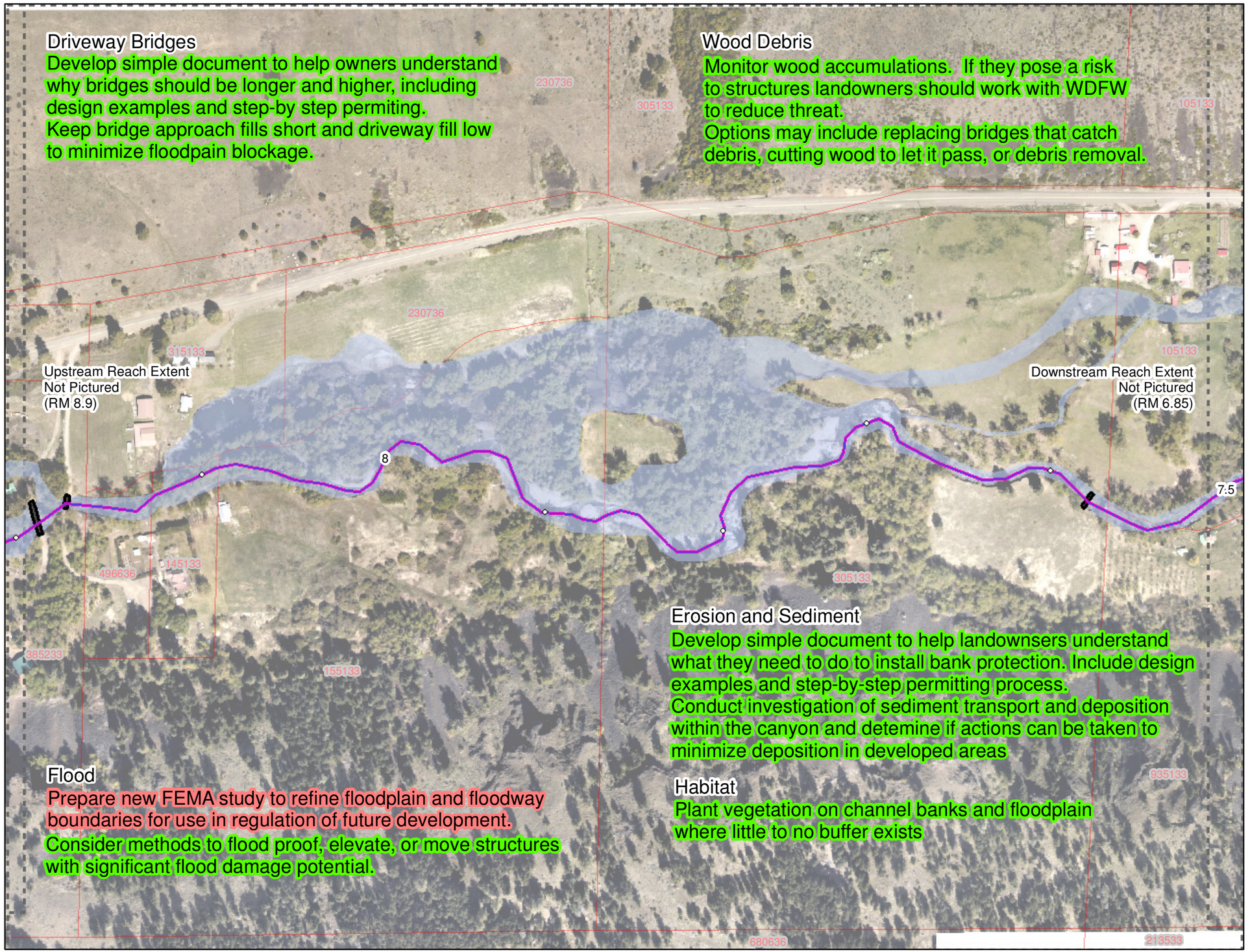
0 125 250 500

Feet

HERRERA WATERSHED SCIENCE & ENGINEERING

Aerial Photography: 2011 NAIP

Produced By: GIS
Project: F:\12-016 Monastash Corridor\GIS\Reaches Canyon.mxd (3/26/2013)



Reach 14
Canyon 14 (2 of 3 Figures)
(RM 6.85 to RM 8.9)

Legend

- Manastash Creek
- Bridges
- Approx. Limits of May 2011 Flood
- Berm
- Reach Print Boundary
- Tax Parcels (from County GIS)
- Tenth Mile Marker
- River Mile

Priority

- High
- Medium
- Low

DRAFT

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N

0 125 250 500

Feet

HERRERA WATERSHED SCIENCE & ENGINEERING

Aerial Photography: 2011 NAIP

Produced By: GIS
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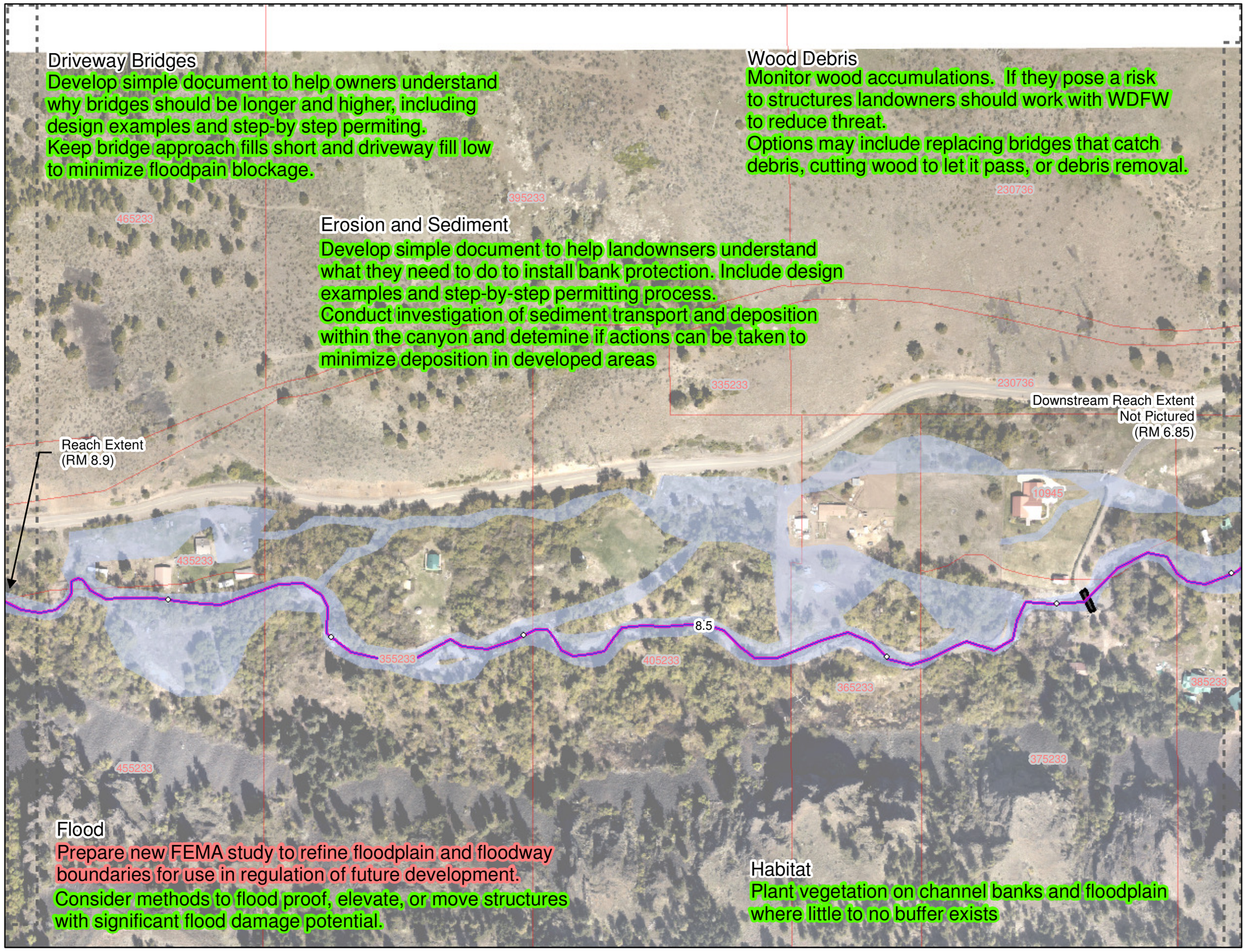

Reach 14
Canyon 14 (3 of 3 Figures)
(RM 6.85 to RM 8.9)

Legend

- Manastash Creek
- Bridges
- Approx. Limits of May 2011 Flood
- Berm
- Reach Print Boundary
- Tax Parcels (from County GIS)
- Tenth Mile Marker
- River Mile

Priority

- High
- Medium
- Low

DRAFT

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N

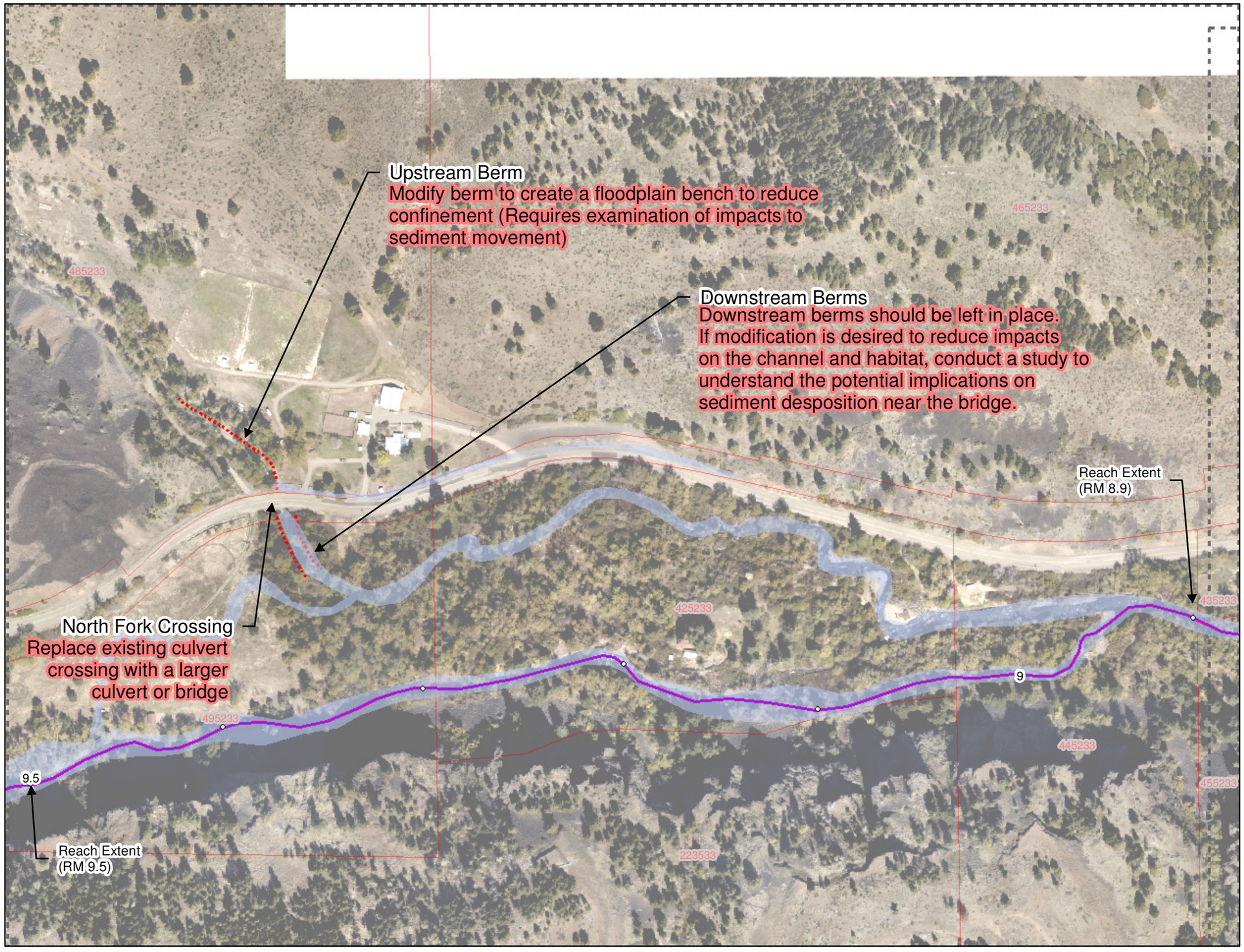
0 125 250 500

Feet

HERRERA WATERSHED SCIENCE & ENGINEERING

Aerial Photography: 2011 NAIP

Produced By: GIS
Project: F:\12-016 Monastash Corridor\GIS\Reaches Canyon.mxd (3/26/2013)



Reach 15
North Fork Manastash Creek
(RM 8.9 to RM 9.5)

Legend

- Manastash Creek
- Bridges
- Approx. Limits of May 2011 Flood
- Berm
- Reach Print Boundary
- Tax Parcels (from County GIS)
- Tenth Mile Marker
- River Mile

Priority

- High
- Medium
- Low

DRAFT

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N

0 125 250 500
Feet

HERRERA WATERSHED SCIENCE & ENGINEERING

Aerial Photography: 2011 NAIP

Produced By: GIS
Project: F:\12-016 Monastash Corridor\GIS\Reaches 8 to 17.mxd (3/26/2013)

1660000

Reach Wide Actions

Prepare new FEMA study to refine floodplain boundaries for use in regulation of future development.

Revegetate channel banks and floodplain

Construct bank protection and habitat structures using ELJs and boulder vanes where appropriate

950621

950622

950623

505233

485233

223533

Straightened reach along county road

Work with landowners and county to move creek away from road and restore channel somewhere within green shaded area. Rebuild revetment along road

ReachExtent (RM 9.85)

Reach Extent (RM 10.4)

10

Driveway bridges

Conduct field inspection to determine condition and impact on stream. Work with landowners to minimize impacts

Parcel 950623

Install local treatments for flood proofing and erosion control (LWD, rock barb,...etc)

Old driveway fill

Conduct field inspection to determine if fill impacts flooding. If it does, work with WDFW to determine how best to remove impacts.

1660000

Reach 16
County Road
(RM 9.85 to RM 10.4)

Legend

- Manastash Creek
- Bridges
- Abandoned Road Crossing Fill
- Widened Creek Corridor
- Approx. Limits of May 2011 Flood
- Berm
- Reach Print Boundary
- Tax Parcels (from County GIS)
- Tenth Mile Marker
- River Mile

Priority

- High
- Medium
- Low

DRAFT

Note: Tax parcel boundaries are from Kittitas County GIS layer. GeoReferencing appears to be poor in many areas, however, they are included for general reference.

N

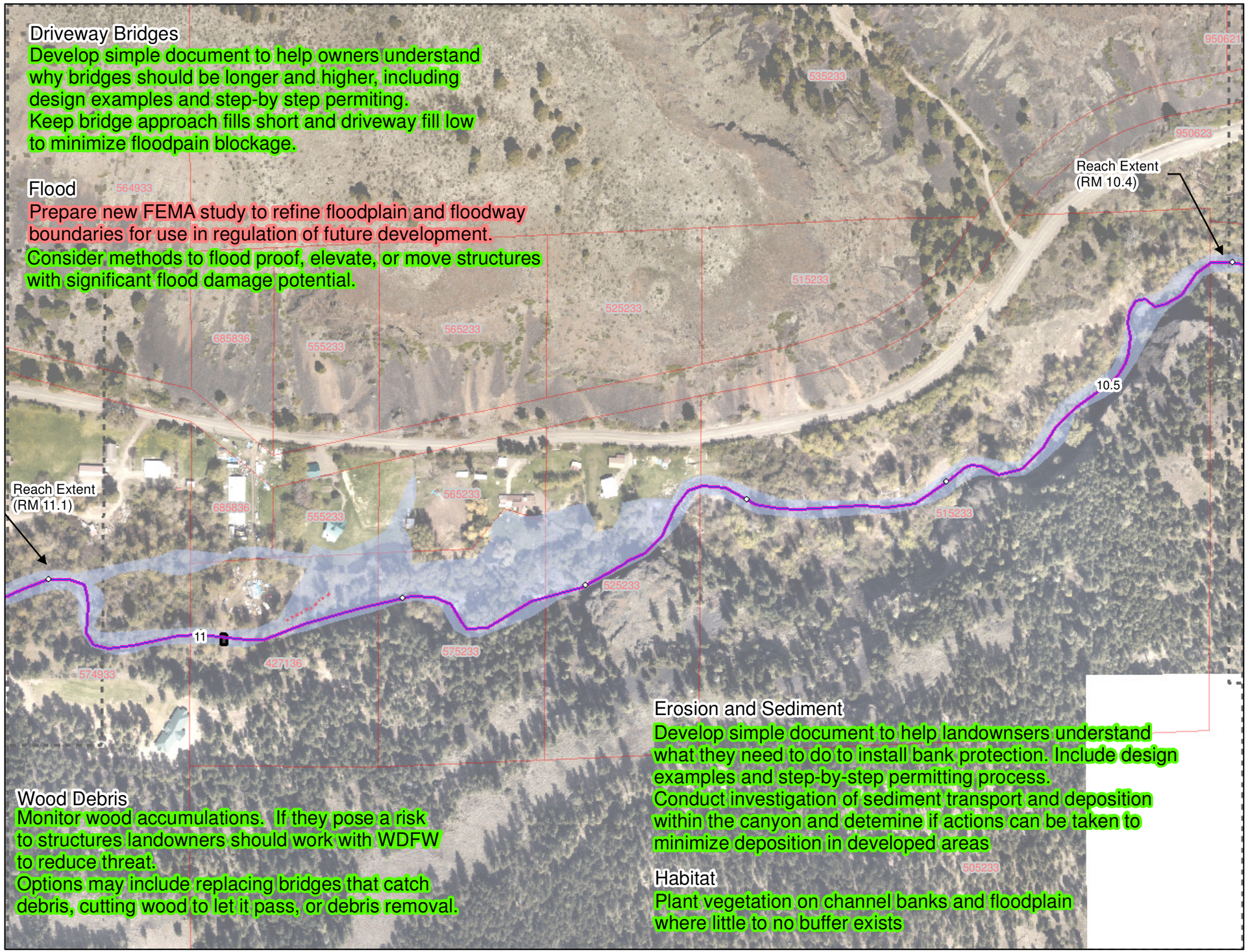
0 125 250 500

Feet

HERRERA WATERSHED SCIENCE & ENGINEERING

Aerial Photography: 2011 NAIP

Produced By: GIS
Project: F:\12-016 Monastash Corridor\GIS\Reaches 8 to 17.mxd (3/26/2013)



Reach 17
Canyon 17
(RM 10.4 to RM 11.1)

Legend

- Manastash Creek
- Bridges
- Approx. Limits of May 2011 Flood
- Berm
- Reach Print Boundary
- Tax Parcels (from County GIS)
- Tenth Mile Marker
- River Mile

Priority

High

Medium

Low

DRAFT

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N

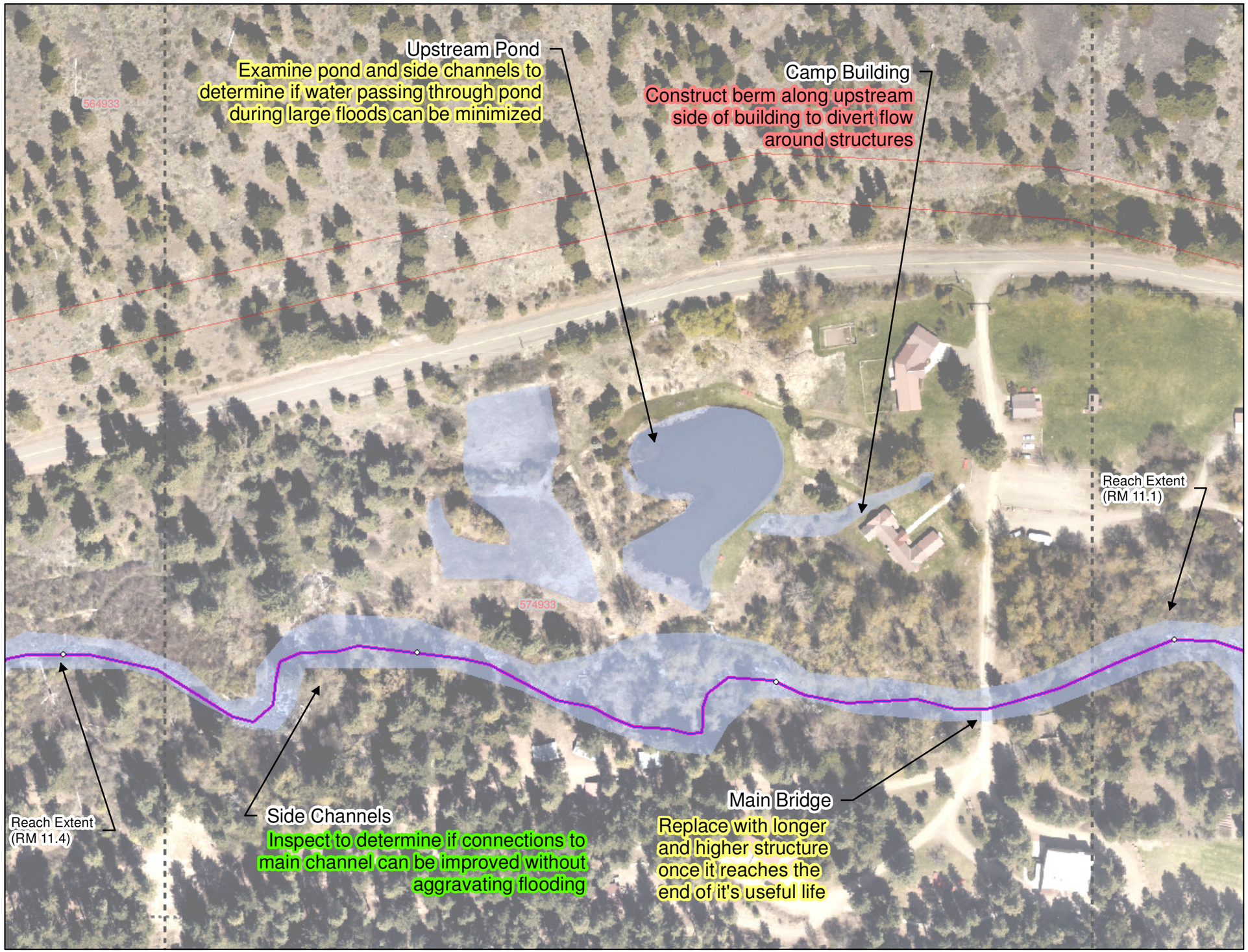
0 125 250 500

Feet

HERRERA WATERSHED SCIENCE & ENGINEERING

Aerial Photography: 2011 NAIP

Produced By: GIS
Project: F:\12-016 Monastash Corridor\GIS\Reaches Canyon.mxd (3/26/2013)



Reach 18
Lazy F
(RM 11.1 to RM 11.4)

Legend

- Manastash Creek
- Widened Creek Corridor
- Approx. Limits of May 2011 Flood
- Berm
- Reach Print Boundary
- Tax Parcels (from County GIS)
- Tenth Mile Marker
- River Mile

Priority

- High
- Medium
- Low

DRAFT

Note: Tax parcel boundaries are from Kittitas County GIS layer. GeoReferencing appears to be poor in many areas, however, they are included for general reference.

N

0 62.5 125 250

Feet

HERRERA WATERSHED SCIENCE & ENGINEERING

Aerial Photography: 2011 NAIP

Produced By: GIS
Project: F:\12-016 Monastash Corridor\GIS\Reaches 8 to 17.mxd (3/26/2013)

Reach 19
Canyon 19
(RM 11.4 to RM 12.1

Legend

- Manastash Creek
- Bridges
- Approx. Limits of May 2011 Flood
- Berm
- Reach Print Boundary
- Tax Parcels (from County GIS)
- Tenth Mile Marker
- River Mile

Priority

- High
- Medium
- Low

DRAFT

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N

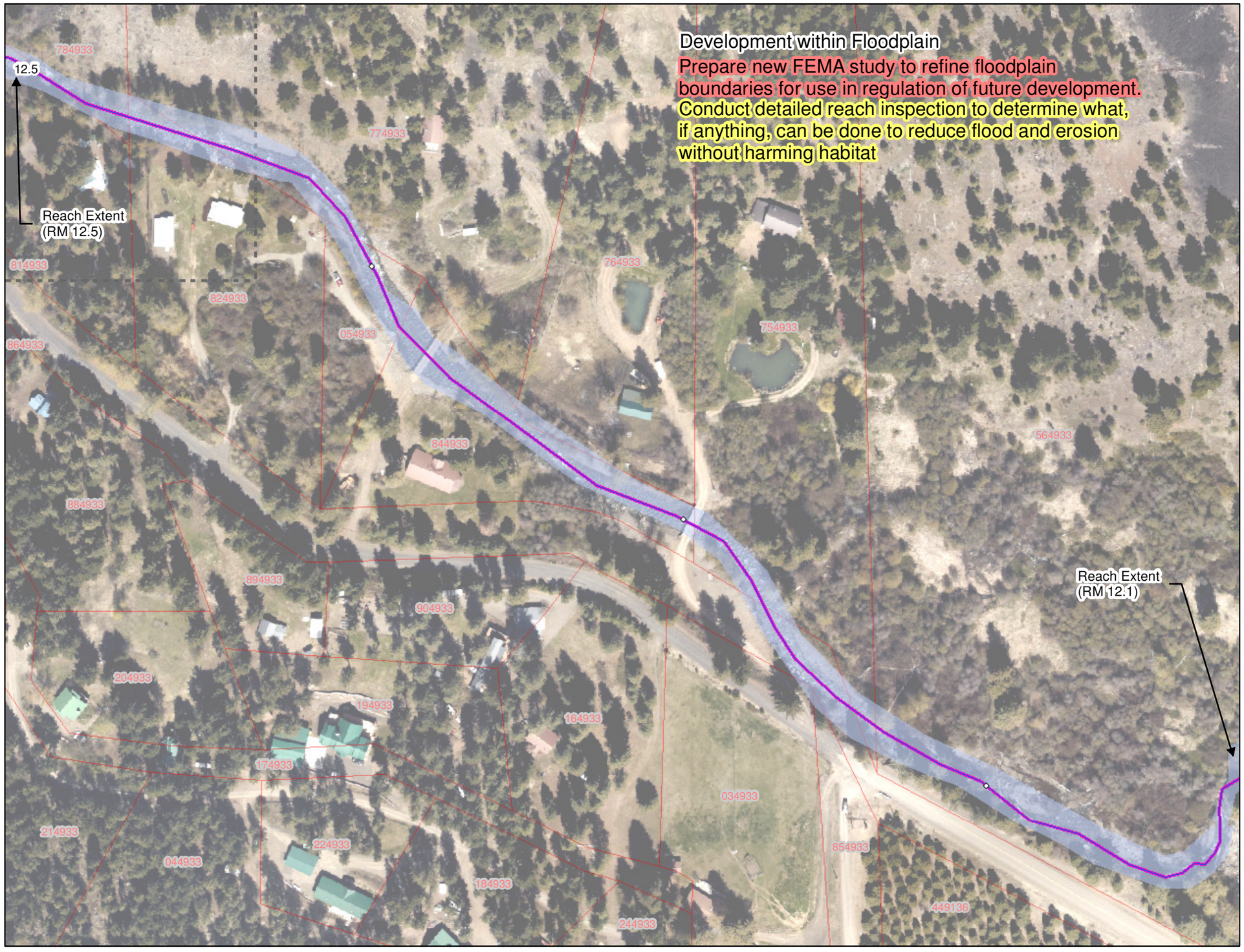
0 125 250 500

Feet

HERRERA WATERSHED SCIENCE & ENGINEERING

Aerial Photography: 2011 NAIP

Produced By: GIS
Project: F:\12-016 Monastash Corridor\GIS\Reaches Canyon.mxd (3/26/2013)



Reach 20
Mitchell Road Reach
(RM 12.1 to RM 12.5)

Legend

- Manastash Creek
- Widened Creek Corridor
- Approx. Limits of May 2011 Flood
- Berm
- Reach Print Boundary
- Tax Parcels (from County GIS)
- Tenth Mile Marker
- River Mile

Priority

- High
- Medium
- Low

DRAFT

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N

0 62.5 125 250

Feet

HERRERA WATERSHED SCIENCE & ENGINEERING

Aerial Photography: 2011 NAIP

Produced By: GIS
Project: F:\12-016 Monastash Corridor\GIS\Reaches 8 to 17.mxd (3/26/2013)

Reach 21
Canyon 21
(RM 12.5 to RM 13.2)

Wood Debris
Monitor wood accumulations. If they pose a risk to structures landowners should work with WDFW to reduce threat.
Options may include replacing bridges that catch debris, cutting wood to let it pass, or debris removal.

Erosion and Sediment
Develop simple document to help landownsers understand what they need to do to install bank protection. Include design examples and step-by-step permitting process.
Conduct investigation of sediment transport and deposition within the canyon and detemine if actions can be taken to minimize deposition in developed areas

Reach Extent (RM 13.2)

Driveway Bridges
Develop simple document to help owners understand why bridges should be longer and higher, including design examples and step-by step permiting.
Keep bridge approach fills short and driveway fill low to minimize floodpain blockage.

Flood
Prepare new FEMA study to refine floodplain and floodway boundaries for use in regulation of future development.
Consider methods to flood proof, elevate, or move structures with significant flood damage potential.

Habitat
Plant vegetation on channel banks and floodplain where little to no buffer exists

Reach Extent (RM 12.5)

Legend

- Manastash Creek
- Bridges
- Approx. Limits of May 2011 Flood
- Berm
- Reach Print Boundary
- Tax Parcels (from County GIS)
- Tenth Mile Marker
- River Mile

Priority

- High
- Medium
- Low

DRAFT

Note: Tax parcel boundaries are from Kittitas County GIS layer. GeoReferencing appears to be poor in many areas, however, they are included for general reference.

N

0 125 250 500
Feet

HERRERA WATERSHED SCIENCE & ENGINEERING

Aerial Photography: 2011 NAIP

Produced By: GIS
Project: F:\12-016 Monastash Corridor\GIS\Reaches Canyon.mxd (3/26/2013)