



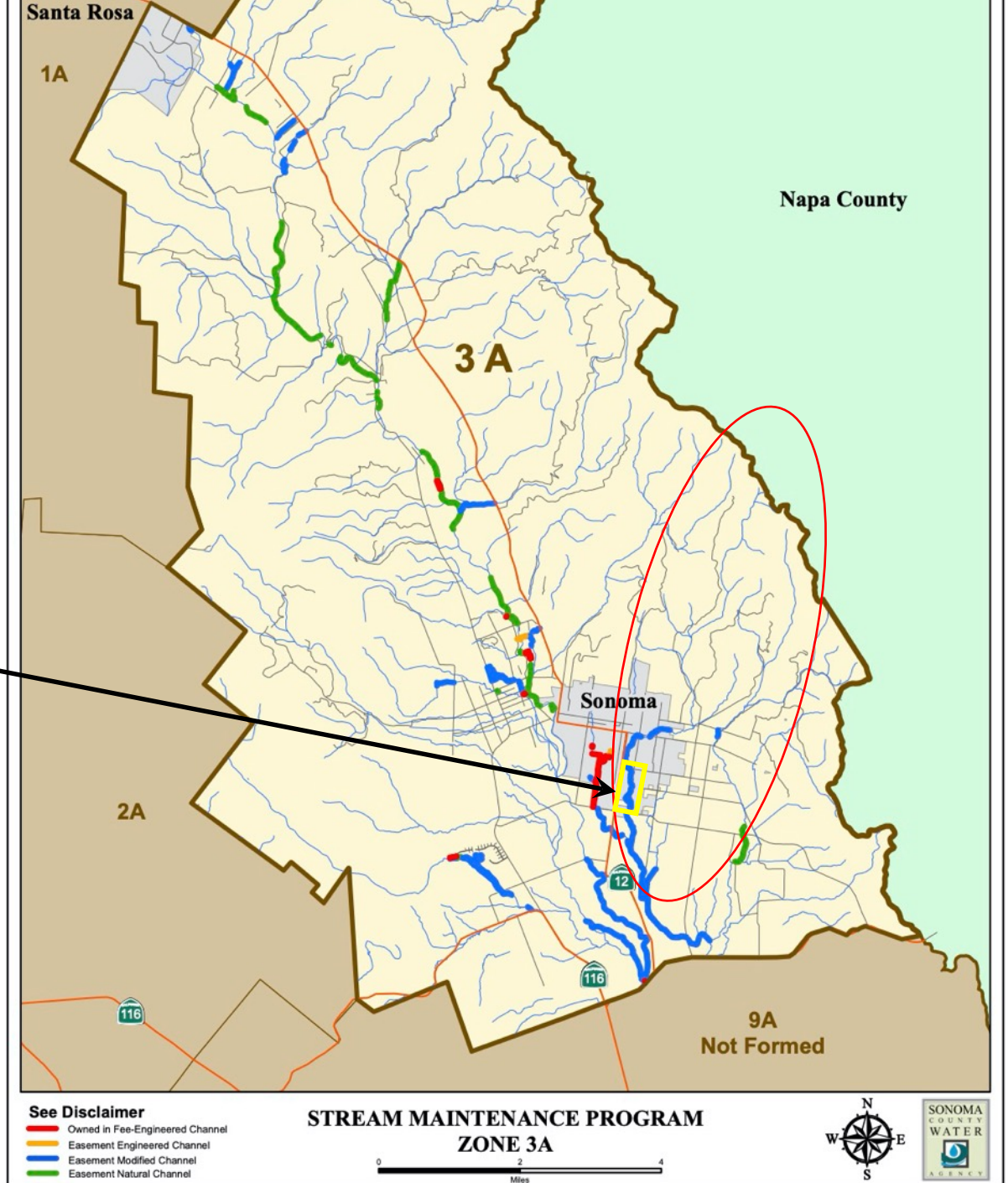
## Zone 3A Annual Meeting

*December 11, 2019*

- Nathanson Creek Preserve Restoration
- Debris Management in Sonoma Creek and Tributaries
- Upper Nathanson Creek Site Assessment and Outreach for Potential Stormwater Management Projects



# Nathanson Creek Preserve







# Riparian Invasive Species

- ‘Armenian Blackberry’ (*Rubus armeniacus*)
- ‘English Ivy’ (*Hedera sp.*)
- ‘Periwinkle’ (*Vinca major*)
- ‘Water Primrose’ (*Ludwigia hexapetala*)
- ‘Poison Hemlock’ (*Conium maculatum*)
- ‘Giant Reed’ (*Arundo donax*)
- ‘Silver Wattle’ (*Acacia dealbata*)
- ‘Northern Catalpa’ (*Catalpa speciosa*)
- ‘Privet’ (*Ligustrum sp.*)







# Streambank Stabilization



We have been emphasizing the use of resilient rhizominous species such as *Juncus patens* to help hold banks in place





# Streambank Stabilization



Here we are making use of another spreading rhizomious native sedge *Carex barbarae* to help hold the banks in place following invasive species removal





# Biotechnical Erosion Control







# Biotechnical Erosion Control







# Biotechnical Erosion Control







# Living “Willow Wall”















More to come...







# Debris Management Nathanson Creek







## Debris Management Cont... Adobe Canyon







# Picking apart the pieces







# Cleared out





# Site Assessment and Outreach for Potential Stormwater Management Projects on Upper Nathanson Creek

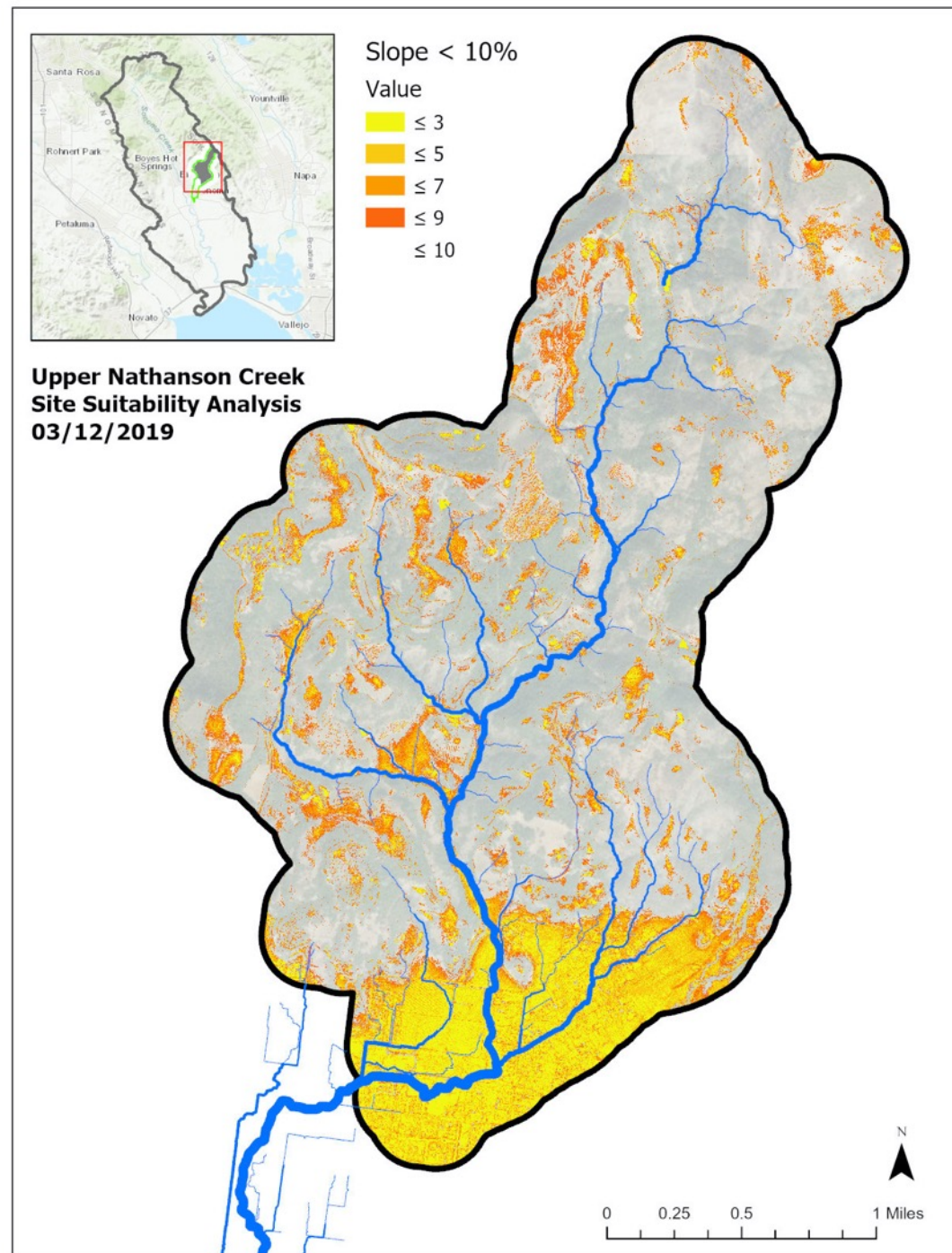




# Site Assessment and Outreach for Potential Stormwater Management Projects on Upper Nathanson Creek

GIS analysis considerations:

- **Slope**
- Proximity to creeks
- Exclude existing infrastructure, vineyards and buildings

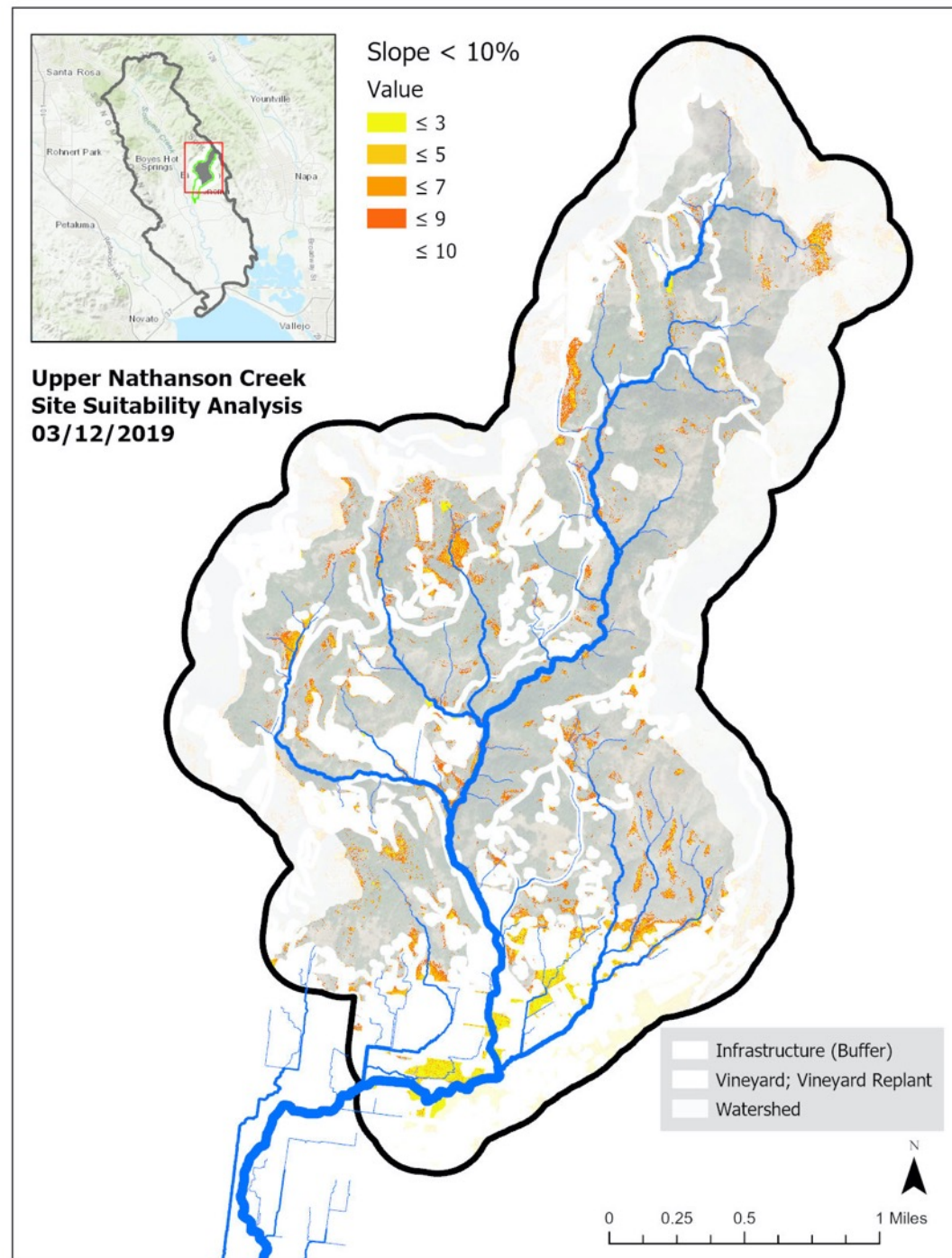




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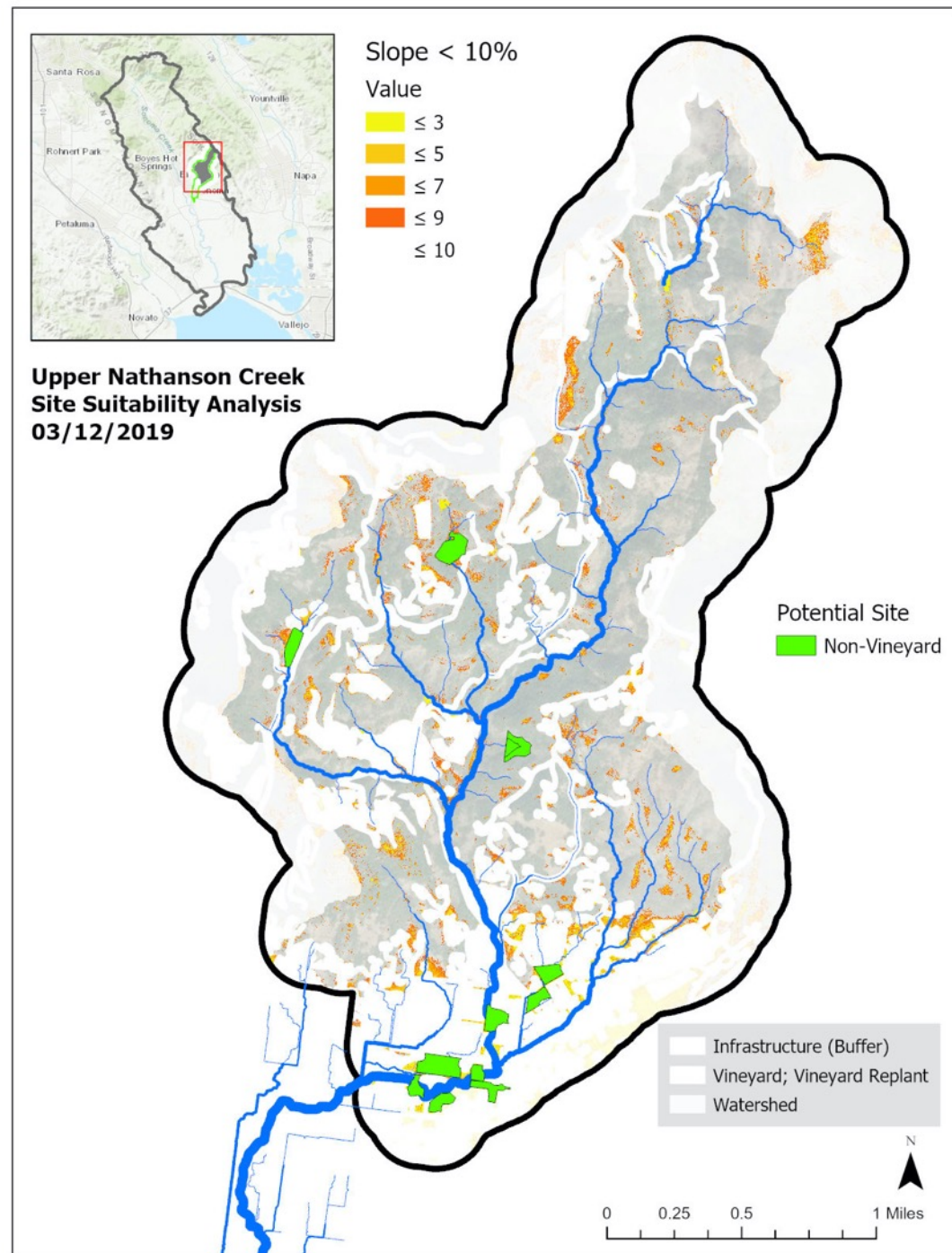




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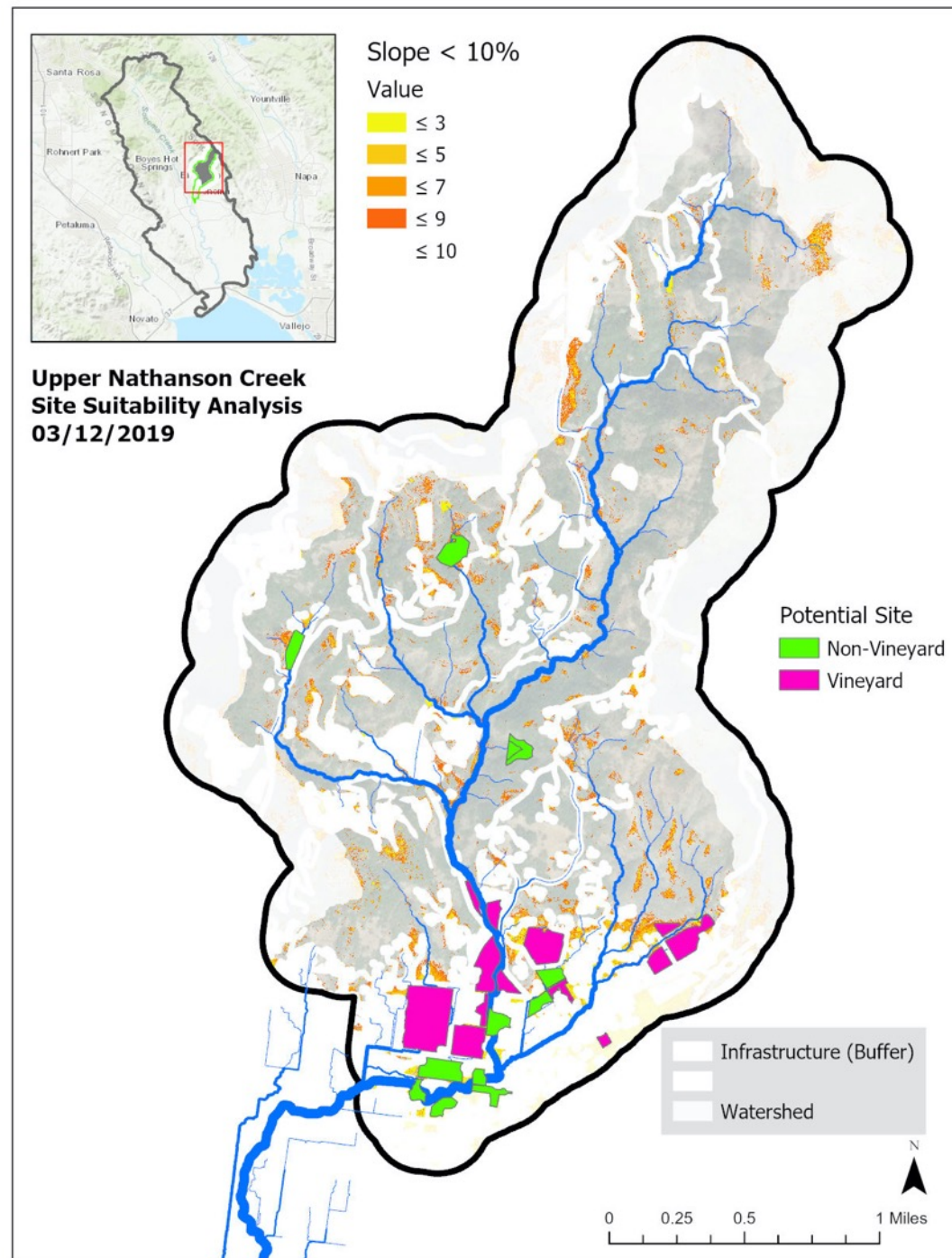




# Site Assessment and Outreach for Potential Stormwater Management Projects on Upper Nathanson Creek

GIS analysis considerations:

- **Slope**
- **Proximity to creeks**
- **Exclude existing infrastructure and buildings**
- **ADD BACK VINEYARD**

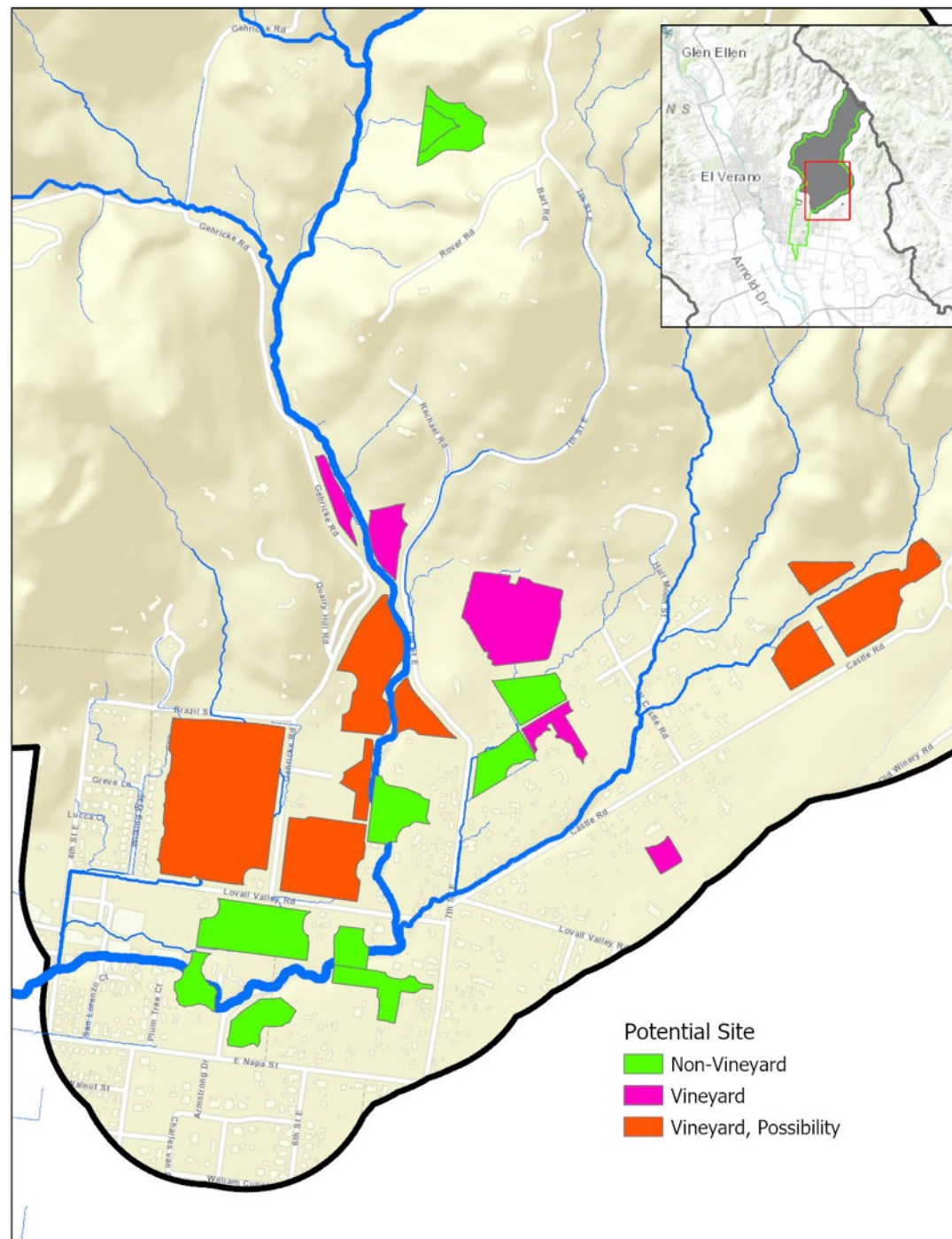




# Site Assessment and Outreach for Potential Stormwater Management Projects on Upper Nathanson Creek

GIS analysis considerations:

- **Slope**
- **Proximity to creeks**
- **Exclude existing infrastructure and buildings**
- **ADD BACK VINEYARD**
- **Consider larger vineyard parcels**





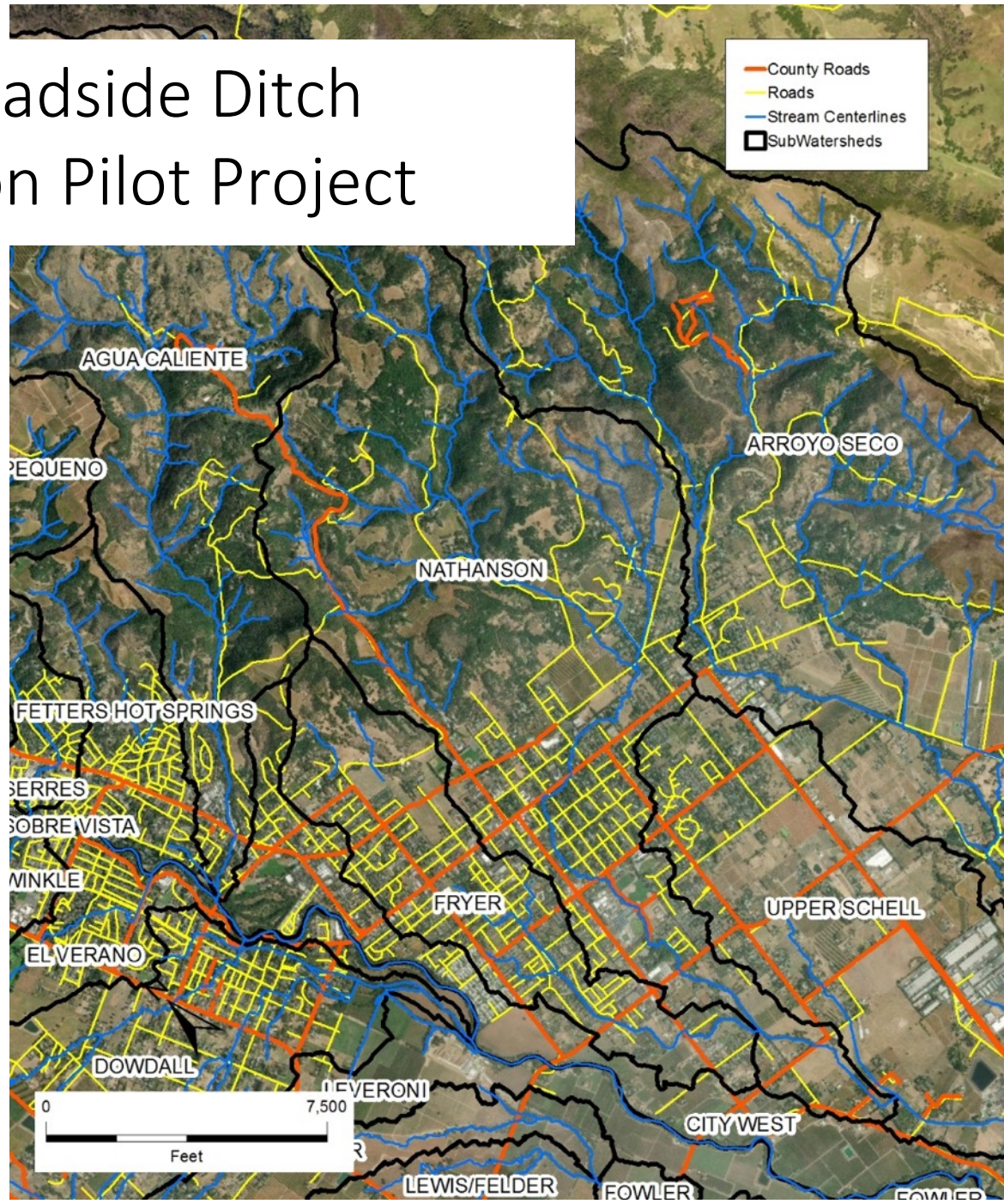
# Site Assessment and Outreach for Potential Stormwater Management Projects on Upper Nathanson Creek





# Nathanson Creek Roadside Ditch Stormwater Diversion Pilot Project

- Implement
  - Ditch diversions
  - Ditch infiltration
  - Ditch velocity reduction
- Monitor
  - Groundwater
    - Winter
    - Summer
  - Streamflow







# Upper Sonoma Creek Habitat Restoration Planning



**Project Scope:** 9.5 miles of mainstem Sonoma Creek from Adobe Canyon to Madrone Road

*Goal:* Create a Restoration Vision and design a demonstration project to

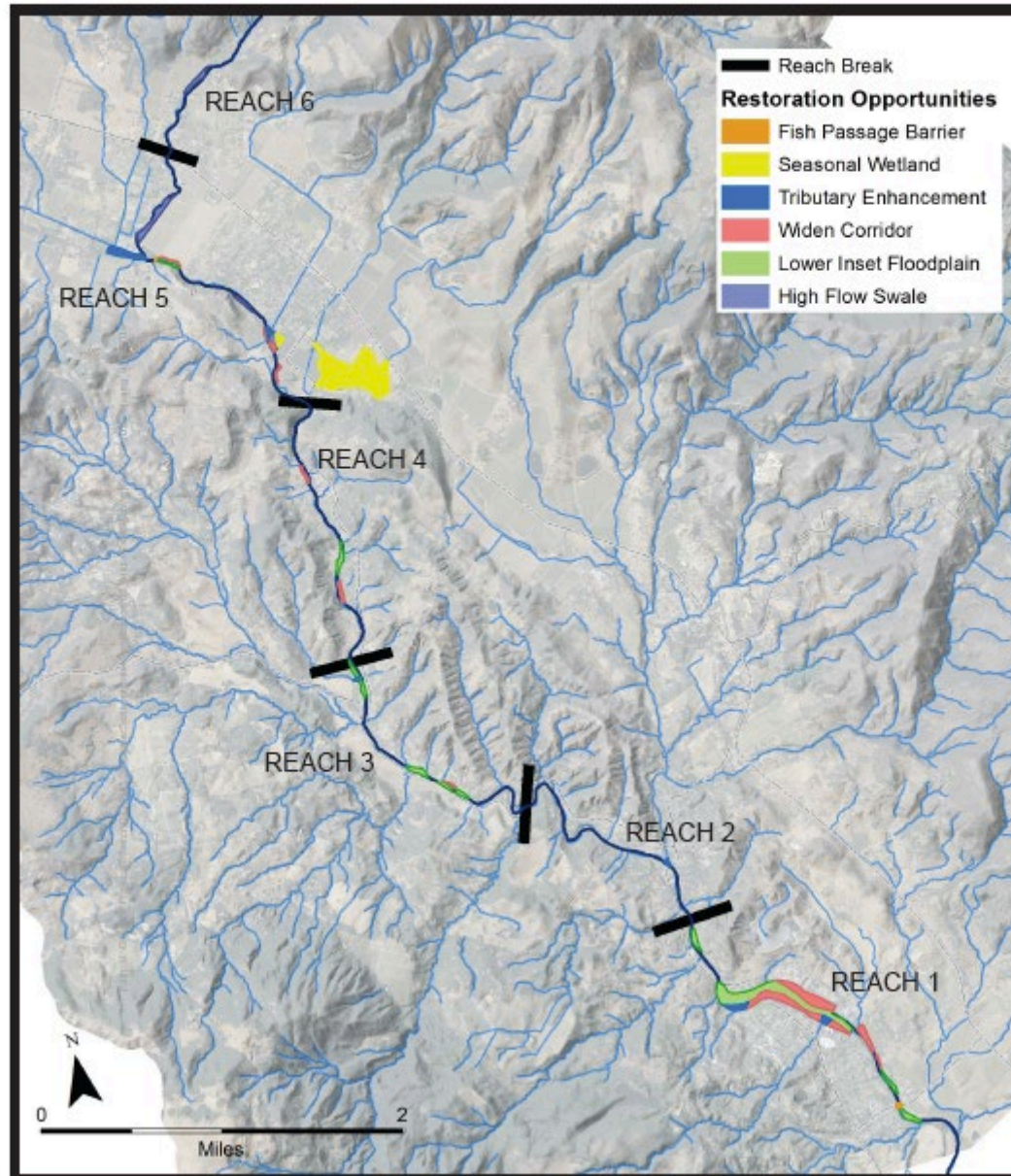
- **Improve Steelhead Habitat**
- **Slow Water**
- **Improve Water Quality**
- **Reduce Bank Erosion**
- **Improve Riparian Habitat**





# Upper Sonoma Creek

## RESTORATION OPPORTUNITIES OVERVIEW





# Alder Park (Sonoma County Regional Parks)

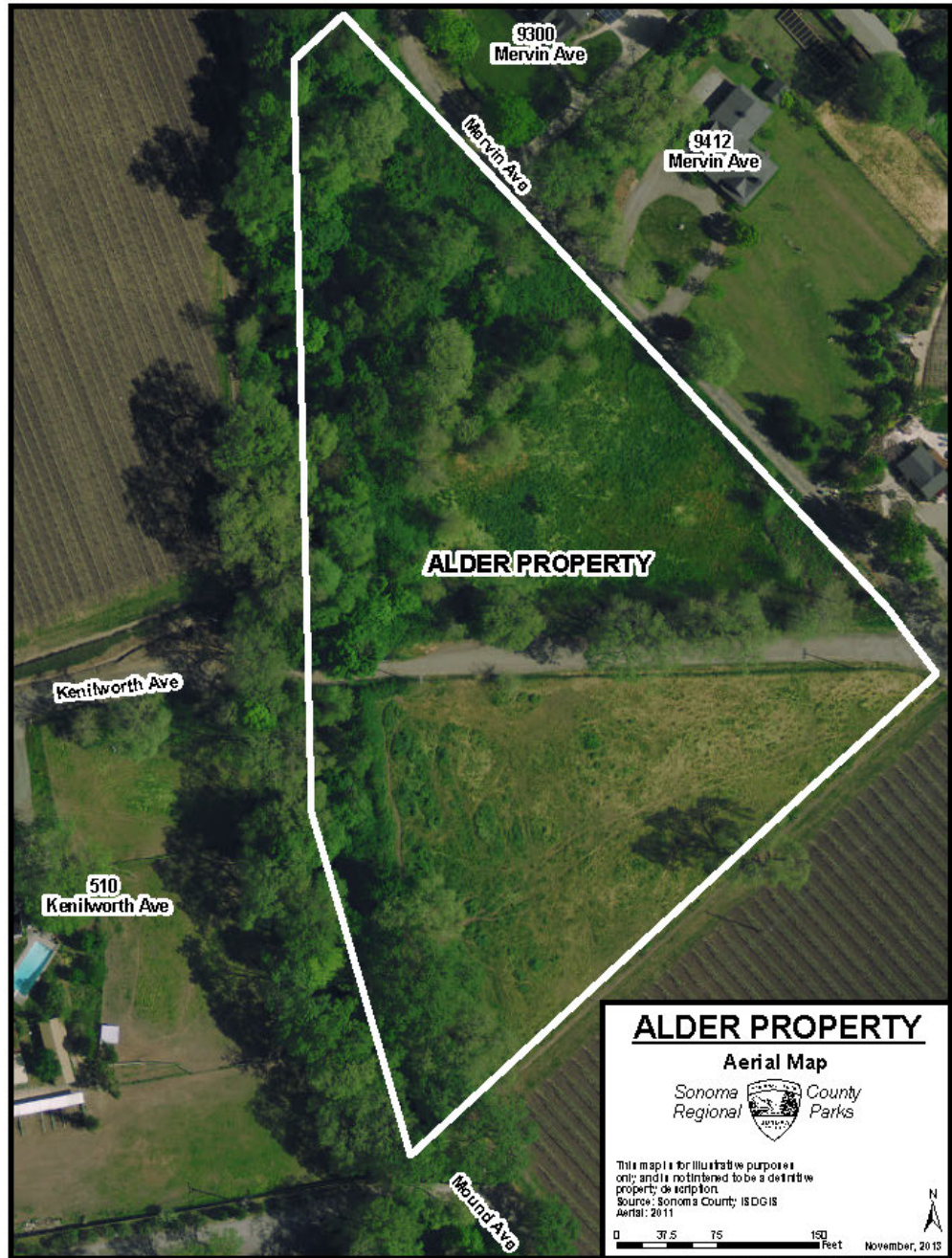
Kenwood, CA 95452







# Alder Park





Comments? Questions?

